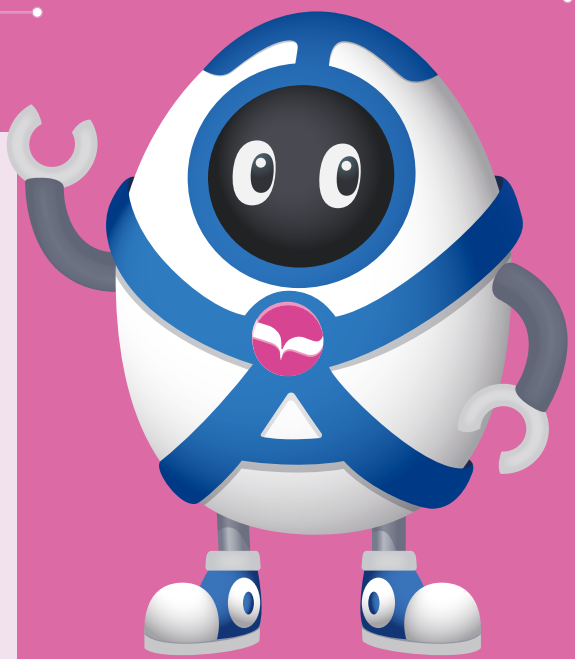
TOWA

TOWA株式会社

CUTTING TOOLS



切削工具総合カタログ

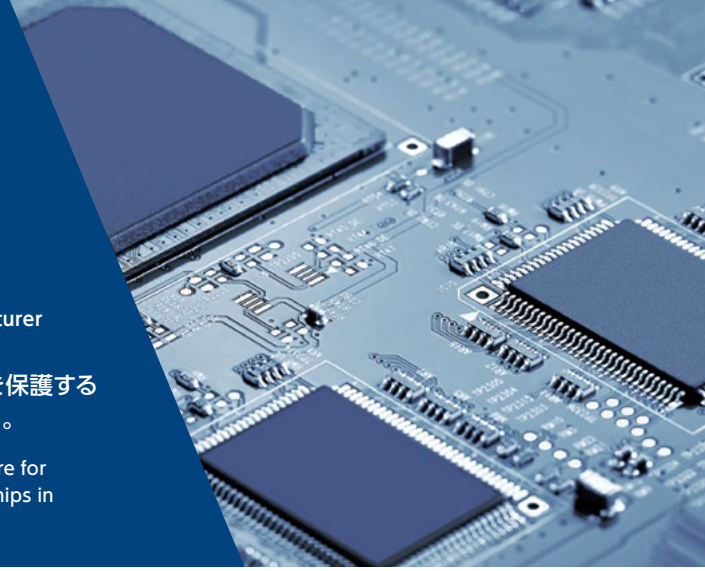
NEW LINEUP

2027 ▶ 2028

TOWAについて About TOWA

世界トップクラスの半導体製造装置メーカー

World-Class Semiconductor Molding Equipment Manufacturer



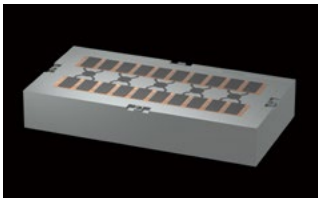
TOWAグループは、半導体製造において半導体チップを保護するモールディング装置・金型の世界シェアNo.1の企業です。

The TOWA Group is the world's No.1 company in market share for molding equipment and molds that protect semiconductor chips in semiconductor manufacturing.

トランスファ方式 Transfer Molding

ポット内でいったん溶融した樹脂をキャビティに充填し硬化させる樹脂封止方法です

This resin sealing method involves filling the cavity with molten resin inside the pot and curing it.



トランスファ装置 Transfer Molding equipment

トランスファ装置を代表するYPMシリーズは、当社が誇る世界最高峰のトランスファ方式によるモールディング装置で、様々な機種を展開しています

The YPM series, our representative transfer equipment, is the world' s most advanced transfer molding equipment and is available in a variety of models.



YPM1200

コンプレッション方式 Compression Molding

金型に直接、液状もしくは顆粒状の樹脂を入れ、溶融した後にワークを浸し入れて樹脂成形する樹脂封止方法です

A resin sealing method in which liquid or granular resin is directly placed into the mold, melted, and then the workpiece is immersed to form the resin.



コンプレッション装置 Compression Molding equipment

コンプレッション方式で高品質成形を実現するPMCシリーズと大判化するウェハサイズやパネルサイズの成形に対応するCPMシリーズを展開しております

We offer the PMC series, which achieves high-quality molding by the compression method, and the CPM series, which supports molding of larger wafer and panel sizes.

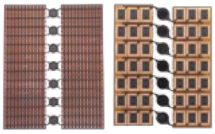


PMC2030



CPM1080

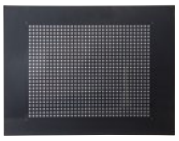
成形品 Molded Products



リードフレーム
Lead Frame



半導体用モールド
Molding for Semiconductors



PLP



BGA



WLP

最終製品 Final Products



EV



産業機械
Industrial machinery



PC



スマートフォン
Smartphone



データセンター
Data Center

TOWAは半導体製造装置という製品を通じて世界中の人々の暮らしの発展に貢献しています

Through its semiconductor manufacturing equipment, TOWA contributes to the advancement of people's lives around the world.

超精密金型加工のTOWA TOWA's Ultra Precision Molds

TOWAの超精密金型加工技術とその超精密金型加工に使用される工具が当社のものづくりを支えています。

TOWA's ultra-precision mold processing technology and the tools used in this process support our manufacturing.

トランスファ金型 Transfer Molds

マルチプランジャ方式のトランスファ金型は、複雑で高精度なパッケージに対しても、独自の超精密加工技術でお客様の要望にお応えします

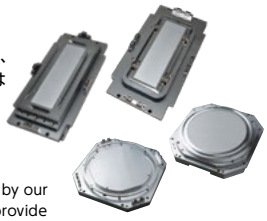
Our multi-plunger transfer molds meet customer requirements for complex, high-precision packages with our unique ultra-precision machining technology.



コンプレッション金型 Compression Molds

当社の超精密加工技術によって製作されたコンプレッション金型では、Low-k 材料やワイヤの細線化さらには大型基板やウェハの成形に対してもダメージを最小限にし高精度、高品質な製品を提供しています

The compression molds manufactured by our ultra-precision machining technology provide high-precision, high-quality products with minimal damage even when molding low-k materials, fine wires, large substrates, and wafers.



この品質要求が、TOWA工具を育てた

This quality requirement has nurtured TOWA tools.

ミクロン単位の要求精度、焼入れ鋼の直彫り加工、一品一様の金型加工。それらを実現するために高品質な工具が必要とされました。

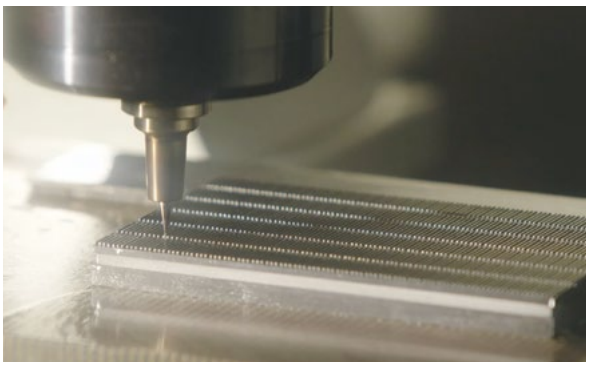
市販工具では満足できない。ならば自分たちで作る

そうして自社の超精密金型の製造現場で培われ、鍛えられてきたのが TOWA の切削工具です

Precision required to the micron level, direct engraving of hardened steel, and mold machining tailored to each item. To make this a reality, high-quality tools were required.

If commercial tools aren't enough, make them ourselves.

Cultivated in our own ultra-precision mold manufacturing site, TOWA cutting tools have been honed.



超精密金型加工で求められるTOWAの工具 TOWA tools required for ultra-precision mold processing

01 高精度 High-Precision

ミクロンを追求する半導体製造装置用の超精密金型加工で TOWA の工具は使用されています

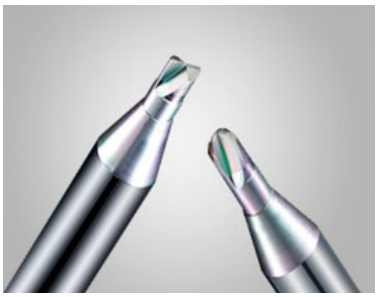
TOWA tools are used for ultra-precision mold processing for semiconductor manufacturing equipment pursuing micron levels.



02 高硬度 High-Hardness

高硬度の焼入れ鋼の直彫り加工において TOWA のエンドミルが使用されています

TOWA's End Mills are used for direct engraving of high-hardness hardened steel.



03 特殊形状 Custom Shapes

一品一様の複雑な金型の形状の要望に TOWA の特殊工具は応えてきました

TOWA's special tools have met the demand for uniquely complex mold shapes.

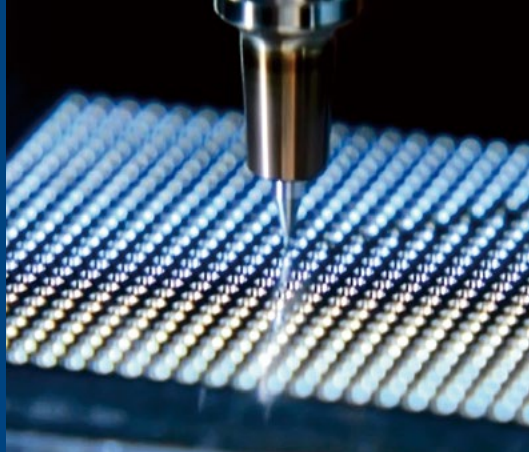


超精密金型加工で培った TOWAの切削工具

TOWA's cutting tools cultivated through ultra-precision mold processing

メーカーであると同時にユーザーでもあるTOWAは、
お客様のニーズに細かくお応えした製品をお届けすることができます。

TOWA, both a manufacturer and a user, can deliver products that meticulously meet customer needs.



01 工具ごとのバラツキを抑える厳しい製品公差

Strict product tolerances to suppress variation between tools

金型製作で磨かれた高い加工精度と、
部品・治具・測定まで一貫した高精度管理により、
ミクロン単位の工具精度を実現します

With high machining precision refined through mold manufacturing and consistently high-precision management from parts, jigs, to measurements, we achieve tool accuracy down to the micron level.

※高精度エンドミルのアイコンのある商品に限定
*Limited to the Items with Icons of High-Precision End Mills

- **工具径公差レンジ:3μm**
  Diameter tolerance : 3μm
- **R精度:±2μm**
  R tolerance: ±2μm
- **シャンク径公差:h4**
  Shank Diameter tolerance : h4

02 被削材や加工条件に適した最適工具提案

Optimal tool proposals suited to work materials and machining conditions

厳選した超硬・CBN 材料を適用し、
優れた切りくず排出性を持つオリジナル刃形状と
独自のコーティング技術を活かして
お客様の加工内容に最適な工具提案をします

By applying carefully selected carbide and CBN materials, we propose the most suitable tools for your processing by utilizing our original blade shapes with excellent chip removal and proprietary coating technology.

- **高硬度(HRC55以上):CBN、Type U**
  High-hardness(HRC55～): CBN, Type U
- **難削材:TW-SUS, TW-VS**
  Difficult-to-cut materials : TW-SUS, TW-VS
- **特殊コーティング工具**
  Special coated tools

03 複雑な形状や要求品質に応える特殊品対応

Handling of Specialized Products for Complex Shapes and Required Quality

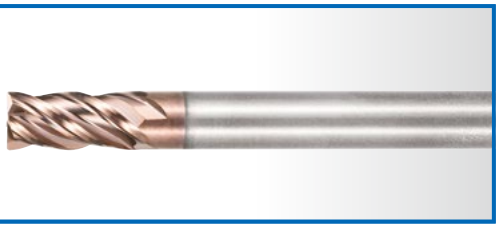
一品一様の金型加工の世界で培われた
技術力を活かし、お客様の現場課題に応じた
特殊品対応を行います

Leveraging the technical expertise cultivated in the world of made-to-order mold processing, we respond to special product needs tailored to our customers' on-site challenges.

- **段付き／総型／各種特殊形状**
  Stepped / Formed / Other special shapes
- **標準品の首下長やラジアスの追加工によるカスタマイズ**
  Customization by modifying standard items
- **試作・評価用の短納期対応**
  Short lead times for prototypes and evaluation

工具ラインナップ TOWA Cutting Tools Lineup

TW-VS エンドミルシリーズ
TW-VS End Mills Series
- 商品紹介 Introduction ····· P051
- 商品寸法表 Size list ····· P052



TW-SUS ドリルシリーズ
TW-SUS Drills Series
- 商品紹介 Introduction ····· P057
- 商品寸法表 Size list ····· P058



CBN エンドミルシリーズ
CBN End Mills Series
- 商品紹介 Introduction ····· P063
- 商品寸法表(高精度) Size list (High-Precision) ····· P064
- 商品寸法表(通常版) Size list (Standard) ····· P075



Type U 超硬エンドミルシリーズ
Type U Carbide End Mills Series
- 商品紹介 Introduction ····· P095
- 商品寸法表(高精度) Size list (High-Precision) ····· P096
- 商品寸法表(通常版) Size list (Standard) ····· P120



Type A 超硬エンドミルシリーズ
Type A Carbide End Mills Series
- 商品紹介 Introduction ····· P165
- 商品寸法表 Size list ····· P166



Type A ダブルアングルドリル
Type A Double Angle Drills
- 商品紹介 Introduction ····· P229
- 商品寸法表 Size list ····· P230



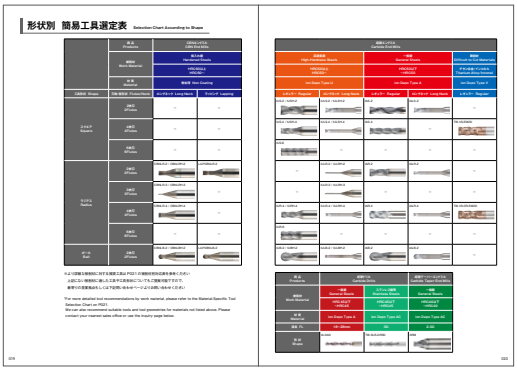
Type AC 台形ランナーミル
Type AC Taper (Daikei) Runner End Mills
- 商品紹介 Introduction ····· P231
- 商品寸法表 Size list ····· P232



カタログの使い方 How to Use the Catalog

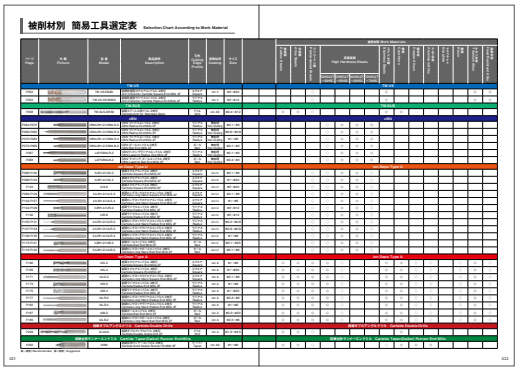
形状から探す Search by Shape

▶▶ P019



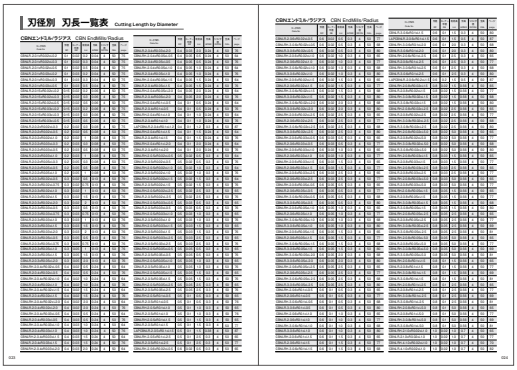
被削材から探す Search by Work Material

▶▶ P021



工具径から探す Search by Diameter

▶▶ P023



目次から探す Search by Index

▶▶ P240



型番 Products code	商品説明 Products Descriptions	
TW-VS-EM2D	超硬防振スクエアエンドミル4枚刃	Anti-Vibration Carbide Square End Mills 4F
TW-VS-CR-EM2D	超硬防振ラジアスエンドミル4枚刃	Anti-Vibration Carbide Radius End Mills 4F
TW-SUS-DR3D	超硬ステンレス用ドリル2枚刃	Carbide Drill for Stainless Steel 2F
CBNLRH-2	CBNラジアスエンドミル2枚刃 高精度	CBN Radius End Mills 2F High Precision
CBNLRH-3	CBNラジアスエンドミル3枚刃 高精度	CBN Radius End Mills 3F High Precision
CBNLRH-4	CBNラジアスエンドミル4枚刃 高精度	CBN Radius End Mills 4F High Precision
CBNLBH-2	CBNボールエンドミル2枚刃 高精度	CBN Ball End Mills 2F High Precision
CBNLR-2	CBNラジアスエンドミル2枚刃	CBN Radius End Mills 2F
CBNLR-3	CBNラジアスエンドミル3枚刃	CBN Radius End Mills 3F
CBNLR-4	CBNラジアスエンドミル4枚刃	CBN Radius End Mills 4F
CBNLB-2	CBNボールエンドミル2枚刃	CBN Ball End Mills 2F
LAPCBNLR-2	CBNラッピングラジアスエンドミル2枚刃	CBN Lapping Radius End Mills 2F
LAPCBNLB-2	CBNラッピングボールエンドミル2枚刃	CBN Lapping Ball End Mills 2F
XJSH-2	超硬スクエアエンドミル2枚刃 高精度	Carbide Square End Mills 2F High Precision
XJSH-4	超硬スクエアエンドミル4枚刃 高精度	Carbide Square End Mills 4F High Precision
XJRH-4	超硬ラジアスエンドミル4枚刃 高精度	Carbide Radius End Mills 4F High Precision
XJBH-2	超硬ボールエンドミル2枚刃 高精度	Carbide Ball End Mills 2F High Precision
XJLSH-2	超硬ロングネックスクエアエンドミル2枚刃 高精度	Carbide Long Neck Square End Mills 2F High Precision

刃径 Diameter	型番 Products code	商品説明 Products Descriptions	
P052	P055	TW-VS-EM2D	超硬防振スクエアエンドミル4枚刃	Anti-Vibration Carbide Square End Mills 4F
P053	P056	TW-VS-CR-EM2D	超硬防振ラジアスエンドミル4枚刃	Anti-Vibration Carbide Radius End Mills 4F
P058	P062	TW-SUS-DR3D	超硬ステンレス用ドリル2枚刃	Carbide Drill for Stainless Steel 2F
P064	P089	CBNLRH-2	CBNラジアスエンドミル2枚刃 高精度	CBN Radius End Mills 2F High Precision
P068	P090	CBNLRH-3	CBNラジアスエンドミル3枚刃 高精度	CBN Radius End Mills 3F High Precision
P070	P090	CBNLRH-4	CBNラジアスエンドミル4枚刃 高精度	CBN Radius End Mills 4F High Precision
P073	P091	CBNLBH-2	CBNボールエンドミル2枚刃 高精度	CBN Ball End Mills 2F High Precision
P075	P089	CBNLR-2	CBNラジアスエンドミル2枚刃	CBN Radius End Mills 2F
P080	P090	CBNLR-3	CBNラジアスエンドミル3枚刃	CBN Radius End Mills 3F
P082	P090	CBNLR-4	CBNラジアスエンドミル4枚刃	CBN Radius End Mills 4F
P085	P091	CBNLB-2	CBNボールエンドミル2枚刃	CBN Ball End Mills 2F
P087	P093	LAPCBNLR-2	CBNラッピングラジアスエンドミル2枚刃	CBN Lapping Radius End Mills 2F
P088	P093	LAPCBNLB-2	CBNラッピングボールエンドミル2枚刃	CBN Lapping Ball End Mills 2F
P096	P146	XJSH-2	超硬スクエアエンドミル2枚刃 高精度	Carbide Square End Mills 2F High Precision
P098	P148	XJSH-4	超硬スクエアエンドミル4枚刃 高精度	Carbide Square End Mills 4F High Precision
P104	P155	XJRH-4	超硬ラジアスエンドミル4枚刃 高精度	Carbide Radius End Mills 4F High Precision
P115	P160	XJBH-2	超硬ボールエンドミル2枚刃 高精度	Carbide Ball End Mills 2F High Precision
P099	P150	XJLSH-2	超硬ロングネックスクエアエンドミル2枚刃 高精度	Carbide Long Neck Square End Mills 2F High Precision

お探しの工具が見つからないときは If you can't find the tool you're looking for

■最寄りの営業拠点にお問い合わせください
■もしくは下記問い合わせページよりお問い合わせください

Please contact your nearest sales office.
Or please contact us via the inquiry page below.

https://www.towajapan.co.jp/jp/contact/tool/

TEL (075)692-0257 FAX (075)692-0276

本社ツール営業部
〒601-8105 京都府京都市南区上鳥羽上調子町 5 番地

Head Office Tool Sales Department
5 Kamichocho, Kamitoba, Minami-ku, Kyoto-shi, Kyoto 601-8105

寸法表の見方 How to Read the Size List

アイコン Icons

製品の特徴を示しています。アイコンの種類と意味は、P007を参照してください

Showing the product features
The types and meanings of icons are on P007.

商品名称 Product Name

切削条件表掲載ページ Recommended cutting parameters

径許容差/R許容差 Diameter tolerance /R tolerance

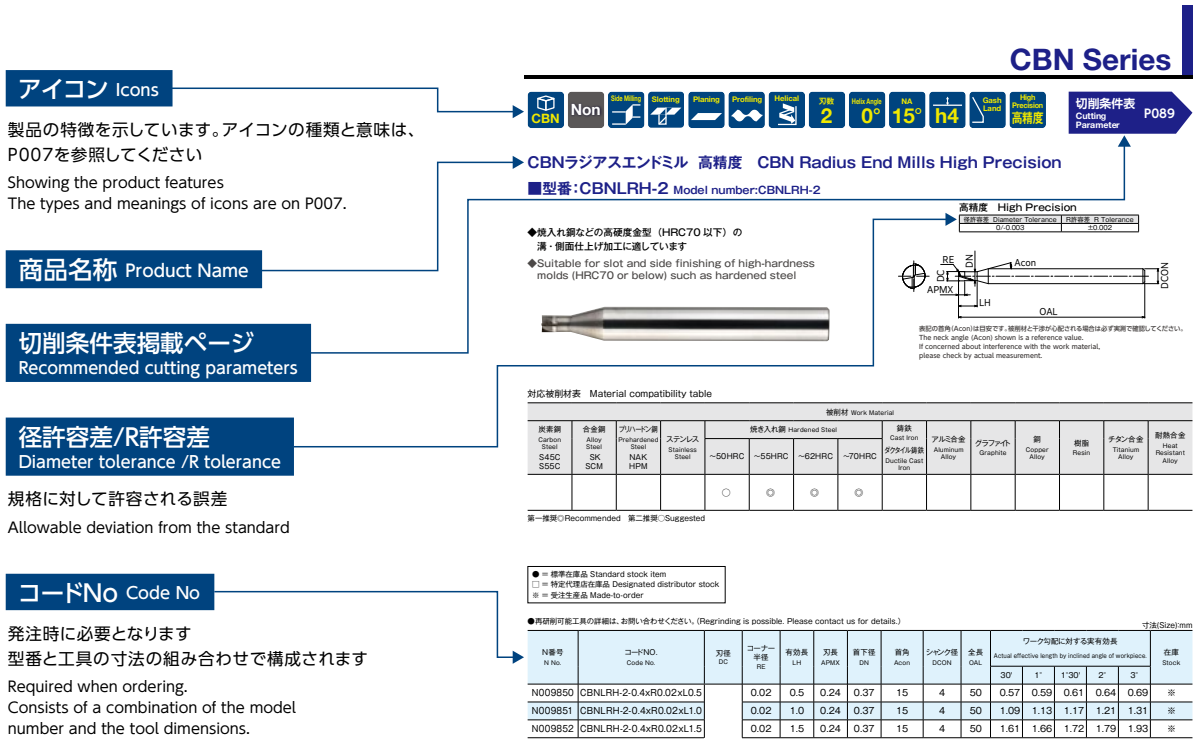
規格に対して許容される誤差

Allowable deviation from the standard

コードNo Code No

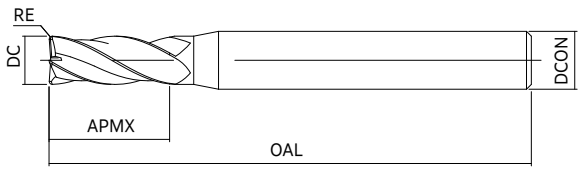
発注時に必要となります
型番と工具の寸法の組み合わせで構成されます

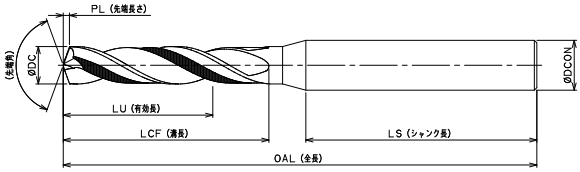
Required when ordering.
Consists of a combination of the model number and the tool dimensions.



ISO13399 に準拠した寸法記号について Designations that comply with ISO 13399

※一部、ISO13399に含まれない記号を使用しております。 *Some symbols not included in ISO 13399 are used.





記号 Designations	内容 Descriptions
DC	外径 Diameter
RE	コーナー半径、ボールエンドミル半径 Corner Radius, Radius
APMX	刃長 Flute Length
OAL	全長 Overall Length
DCON	シャンク径 Shank Diameter
DN	首下径 Neck Diameter
LH	有効長(=首下長さ) Effentive Length (=Head Length)
Acon	首角 Neck Taper Angle

記号 Designations	内容 Descriptions
DC	直径 Diameter
SIG	先端角 Point Angle
PL	先端と肩部寸法差 Point Length
LU	有効長(=実際の加工可能な長さ) Effentive Length (=Maximum Depth)
LCF	溝長 Flute Length
OAL	全長 Overall Length
LS	シャンク長 Shank Length
DCON	シャンク径 Shank Diameter
LH	首下長さ Head Length

アイコンの見方 How to Read the Icons

加工用途 Applications



側面切削
Side Milling



平面切削
Planing



溝切削
Slotting



曲面加工
Profiling



ヘリカル加工
Helical



プランジ加工(Z方向)
Plunge



穴あけ加工
Drilling

表面処理 Coating



ion Depo Type U
コーティング Coating



ion Depo Type A
コーティング Coating



ion Depo Type AC
コーティング Coating



ion Depo Type V
コーティング Coating



無処理
Non Coating

素材 Material



CBN(立方晶窒化ホウ素)
Cubic Boron Nitride



超々微粒子超硬合金
Super Micro Grain Carbide



超微粒子超硬合金
Micro Grain Carbide

工具形状 Tool Geometry



先端角
Point Angle



ねじれ角
Helix Angle



首角
Neck Taper Angle



刃数
Number of Flutes



シャンク径許容差
Shank Diameter Tolerance



ギャッシュランド付きのコーナー
Gashland type end mills



高精度エンドミル
High-Precision End Mills

その他 Others



切削条件表
Cutting Parameter

※上記以外の表面処理も可能ですので、お問い合わせください。
*Possibe than other coatings than above are possible. Please contact us.

シャンク径許容差(JIS B 0401-1:1998の抜粋) Diameter Tolerance (Excerpt from JIS B 0401-1:1998)

TOWA の高精度エンドミルのシャンク径は h4 公差で管理しています

TOWA's high-precision End Mills are managed with h4 tolerances.

※高精度エンドミルのアイコンのある商品に限定 *Limited to the Items with Icons of High-Precision End Mills

単位(Unit)=μm

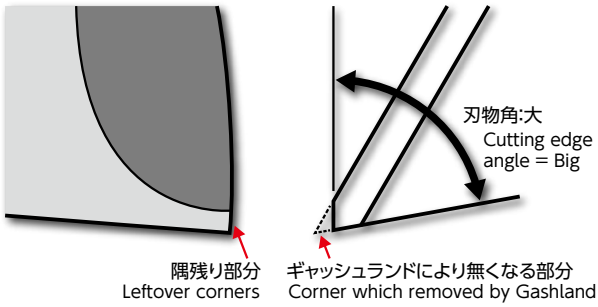
基準寸法 Dimeter		h4	h5	h6
を超え ＜DC	以下 DC≦			
—	3	0 -3	0 -4	0 -6
3	6	0 -4	0 -5	0 -8
6	10	0 -4	0 -6	0 -9
10	18	0 -5	0 -8	0 -11
18	30	0 -6	0 -9	0 -13

底刃コーナー Corner Form

刃先強度の高いギャッシュランド付きのコーナーを採用しています
下記のように加工後、隅残りが発生します

Uses corners with a Gashland for high edge strength.
After machining, an uncut corner remains as shown below.

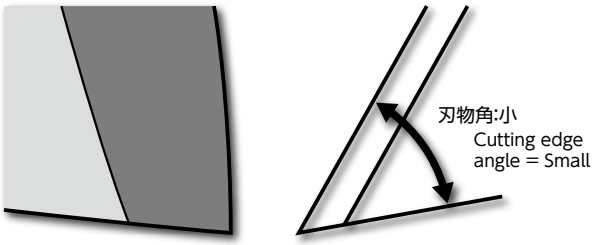
ギャッシュランド Gashland



刃物角が大きく耐チッピング性が良好
加工隅部に微小なテーパー部が残る

Large blade angle and excellent chipping resistance
A tiny tapered section remains at the machining corner.

シャープコーナー Sharp corner



刃物角が小さく隅残りの除去に適している
耐チッピング性には劣る

The blade angle is small, making it suitable for removing leftover corners. Less resistant to chipping.

難削材切削で革新性能を実現!!

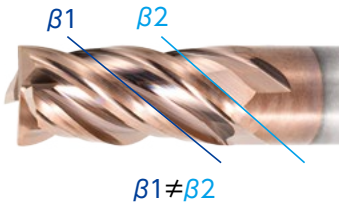
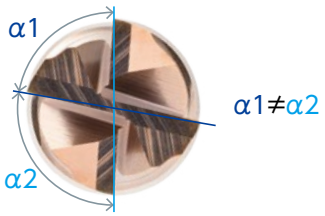
Achieves innovative performance in difficult-to-cut materials!!

びびり抑制

Vibration Suppression

難削材でも
安定した加工を実現

It allows stable machining of difficult-to-cut materials.

不等リード Variable Leads	不等分割 Unequal Flute Spacing
	

長寿命

Long Tool Life

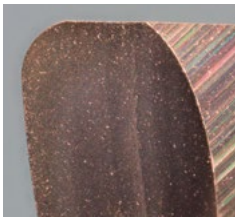
新材質で摩耗･欠損を抑制
Advanced material technology minimizes wear and chipping.



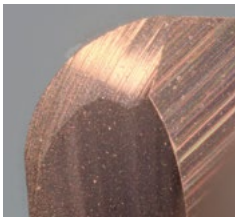
低抵抗

Reduced cutting force

コーナ半径で形状を最適化
Optimized corner radius design reduces cutting force.



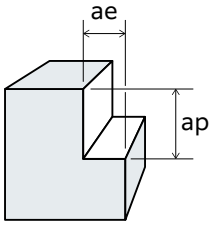
ギャッシュ当てなし
Without gash land

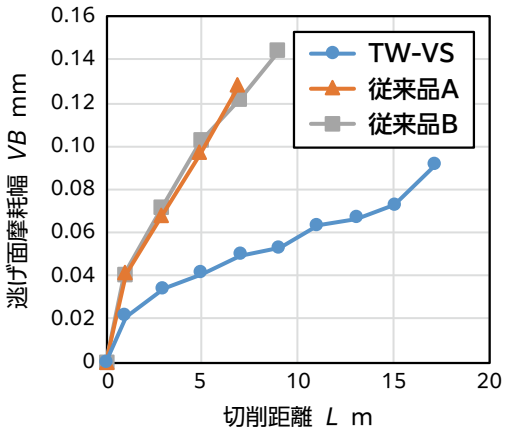


スパイラルギャッシュ
Spiral gash design

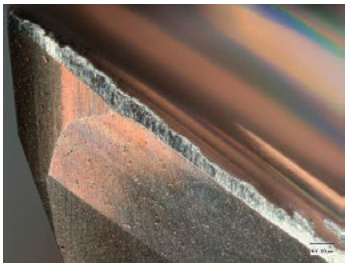
加工事例
Processing Example

使用工具 Cutting Tool	TW-VS-CR-EM2D-6xR0.3 従来品（超硬） Conventional（Carbide）
被削材 Work Material	Inconel718
切削速度 Cutting speed	30m/min
送り量 Feed rate	0.03mm/t
切込み量 Finishing Allowance	ap3mm, ae0.3mm
加工方法 Application	側面加工 Side milling
使用機械 Machine	立形 M/C（BT30） Vertical M/C
切削油 Cutting oil	水溶性切削油 Water soluble

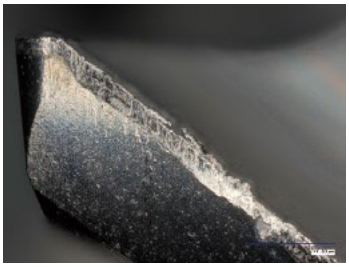




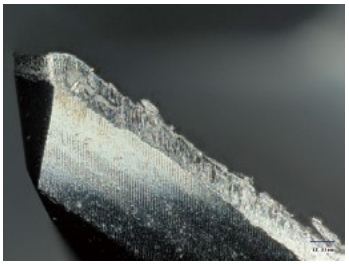
外周刃の損傷状態 Wear comparision of the Peripheral cutting edge



TW-VS 15m



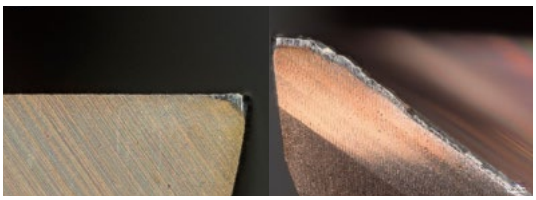
従来品A 7m



従来品B 9m

加工事例 Processing Example　**粗加工** Roughing process

使用工具 Cutting Tool	TW-VS-CR-EM2D-6xR0.3 従来品（超硬） Conventional（Carbide）
被削材 Work Material	Inconel718
切削速度 Cutting speed	35m/min
送り量 Feed rate	0.03mm/t
切込み量 Finishing Allowance	ap8mm, ae0.8mm
加工方法 Application	側面加工 Side milling
使用機械 Machine	立形 M/C（BT30） Vertical M/C
切削油 Cutting oil	水溶性切削油 Water soluble



底刃 Bottom Cutting edge　外周刃 Peripheral cutting edge

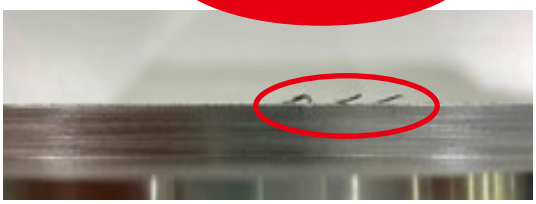
TW-VS 5m

加工面(側面加工)
Machined surface (side milling)



TW-VS 5m

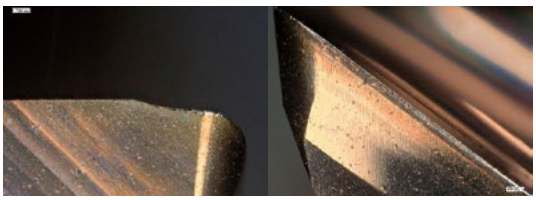
バリを抑えた安定加工
Stable milling with suppressing Burry



従来品 5m Conventional product

加工事例 Processing Example　**仕上げ加工** Finishing process

使用工具 Cutting Tool	TW-VS-CR-EM2D-6xR0.3
被削材 Work Material	SUS304
切削速度 Cutting speed	120m/min
送り量 Feed rate	0.03mm/t
切込み量 Finishing Allowance	ap6mm, ae1.2mm
加工方法 Application	側面加工 Side milling
使用機械 Machine	立形 M/C（BT30） Vertical M/C
切削油 Cutting oil	水溶性切削油 Water soluble

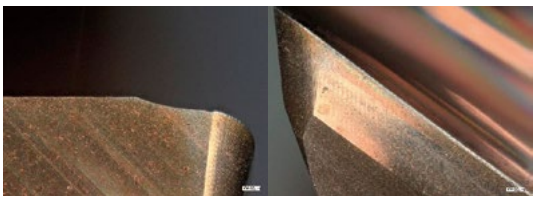


底刃 Bottom Cutting edge　外周刃 Peripheral cutting edge

TW-VS 100m

加工事例 Processing Example　**仕上げ加工** Finishing process

使用工具 Cutting Tool	TW-VS-CR-EM2D-6xR0.3
被削材 Work Material	Ti-6Al-4V
切削速度 Cutting speed	60m/min
送り量 Feed rate	0.03mm/t
切込み量 Finishing Allowance	ap3mm, ae0.6mm
加工方法 Application	側面加工 Side milling
使用機械 Machine	立形 M/C（BT30） Vertical M/C
切削油 Cutting oil	水溶性切削油 Water soluble



底刃 Bottom Cutting edge　外周刃 Peripheral cutting edge

TW-VS 70m

ステンレスやチタン合金などの難削材でも長寿命
Achieves long tool life even with difficult-to-cut materials such as stainless steel and titanium alloys

外部給油でステンレス鋼をノンステップ加工できる驚きの特長!!

Amazing performance that enables non-stop machining of stainless steel with external coolant supply!!

特許出願中!
Patent pending!

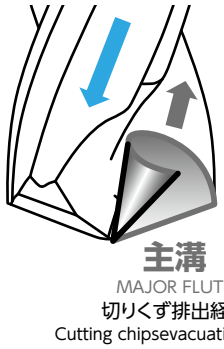
副溝仕様



副溝 Sub flute

主溝とは異なる溝を
採用することで、
切削液を先端まで
安定供給!

By adopting a groove shape different from the main flute, cutting fluid is stably supplied to the cutting edge!



三番取り仕様(直径1mm未満)



三番取り Secondary clearance face

三番取り面の採用により
小径であっても
切削液を先端まで
安定供給!

The third relieve face ensures stable coolant delivery to the tip, even in small-diameter drills.

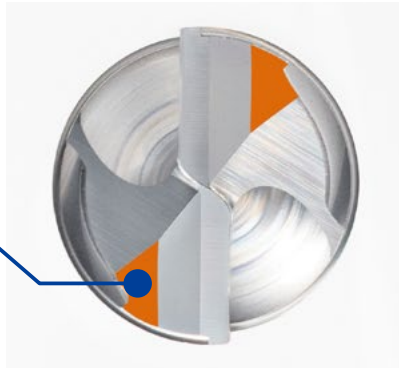


底刃4番面

4th Relief Face

ドリル先端の
切削液供給領域を拡大
外部給油における
長寿命化を実現!

It allows longer tool life when using external coolant supply thanks to expanding coolant supply area.

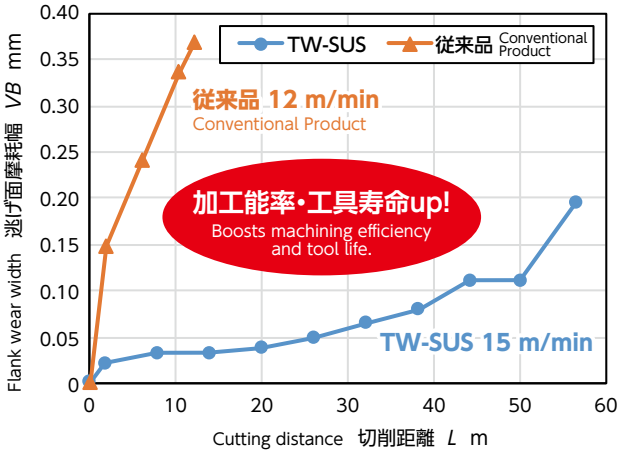




外周の切削液量up!
Increased coolant supply to the outer periphery.

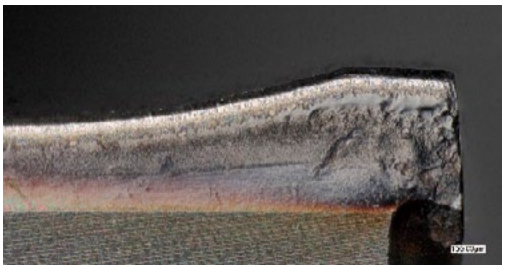
加工事例 Processing Example

使用工具 Cutting Tool	TW-SUS-DR3D-6 HSS（HSS） Conventional（Carbide）
被削材 Work Material	SUS304
切削速度 Cutting speed	TW-SUS 15m/min 従来品 12m/min Conventional
送り量 Feed rate	0.08mm/rev
穴深さ Hole depth	18mm（止まり） Blind hole
ステップ Step	ノンステップ Non-step feeding
使用機械 Machine	立形 M/C（BT30） Vertical M/C
切削油 Cutting oil	水溶性切削油 外部給油 Water soluble External coolant

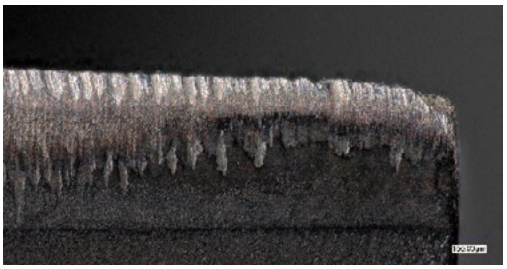


※TW-SUSの切削条件は穴深さが3DCの場合における推奨値で行っております。
The cutting parameter for TW-SUS are the recommended parameter when the hole depth is 3DC.

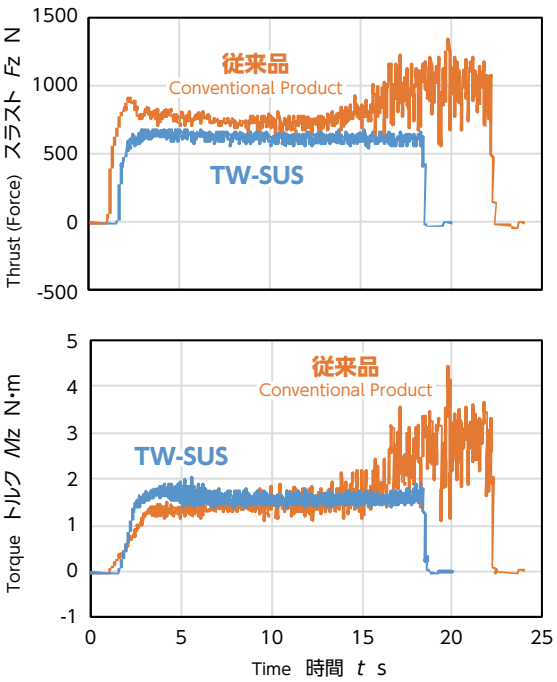
外周刃の損傷状態 Wear comparision of the Peripheral cutting edge



TW-SUS（超硬）56m
Carbide



従来品（HSS）12m
Conventional Product



加工事例 Processing Example

使用工具 Cutting Tool	TW-SUS-DR3D-6 従来品（超硬） Conventional（Carbide）
被削材 Work Material	SUS304
切削速度 Cutting speed	TW-SUS 15m/min 従来品 12m/min Conventional
送り量 Feed rate	0.08mm/rev
穴深さ Hole depth	18mm（止まり） Blind hole
ステップ Step	ノンステップ Non-step feeding
使用機械 Machine	立形 M/C（HSK-A63） Vertical M/C
切削油 Cutting oil	水溶性切削油 外部給油 Water soluble External coolant

従来品
Conventional Product

スラストとトルクが穴深さの増加とともに急増、不安定な加工状態
Thrust and torque increase rapidly with increasing hole depth, leading to unstable machining.

TW-SUS

副溝により切削液をドリル先端に供給可能、安定な加工を実現!
Coolant is delivered to the drill tip through sub-flute, achieving stable drilling.

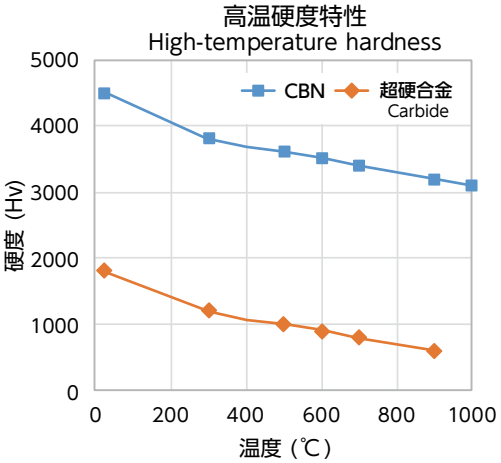
CBNエンドミル CBN End Mills



ラジアス
Radius
Φ0.1~Φ6.0



ボール
Ball
R0.05~R1.5



POINT!

★**CBN**(Cubic Boron Nitride/立方晶窒化ホウ素)焼結材は超硬合金よりも**高硬度**かつ**耐熱性**に優れており焼入れ鋼や高硬度鋼の仕上げ加工に適しています

CBN (Cubic Boron Nitride) sintered material is harder and more heat-resistant than cemented carbide, making it suitable for finishing hardened and high-hardness steels.

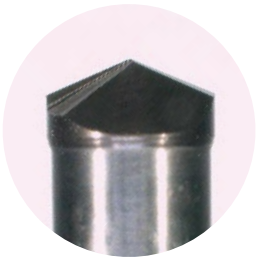
POINT!

特殊品対応 Custom Products

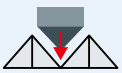
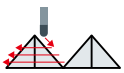
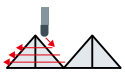
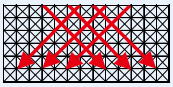
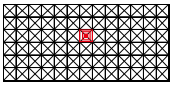
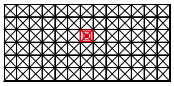
★カタログ標準品以外のCBNエンドミルについて、工具径、コーナーR、有効長等、お客様の要望に応じてオーダーメイドにて承ります

Custom CBN End Mills are available to meet customer requirements for tool diameter, corner radius, effective length, and other specifications beyond the standard catalog range.

CBN テーパーエンドミル
CBN Taper End Mills





工具 Tool	TOWA	一般製品 General Product	一般製品 General Product
	CBNテーパーエンドミル CBN Taper End Mill	**CBNボールエンドミル** CBN Ball End Mill	**超硬ボールエンドミル** Carbide Ball End Mill
加工方法 Machining method	テーパー工具溝加工 Taper grove machining	等高線加工 Contour machining	等高線加工 Contour machining
側面から見たパス Path (side view)			
上面から見たパス Path (top view)	1本のラインで溝加工 Grooving with a line 	1形状ずつ、回りながら Make each shape while rotating 	1形状ずつ、回りながら Make each shape while rotating 
加工時間 Machining time	25min (90%down)	3h58min	4h22min
面粗度 Surface roughness	Ra 0.117μm	Ra 0.173μm	Ra 0.382μm
工具摩耗量 Tool wear	0.5um	1.3um	5.2um
工具コスト削減効果 Cost reduction	67% down	22% up	基準 Standard

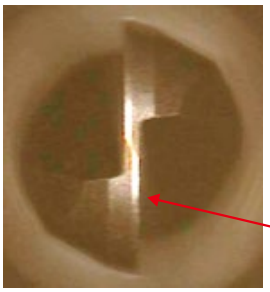
CBNラッピングエンドミル CBN Lapping End Mills



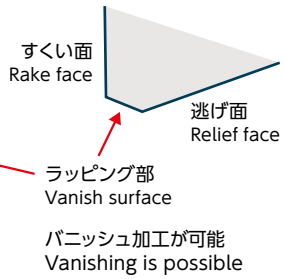
ラッピングラジアス
Lapping Radius
Φ0.4~Φ3.0



ラッピングボール
Lapping Ball
R0.2~R1.5



刃先イメージ図
Image of cutting edge

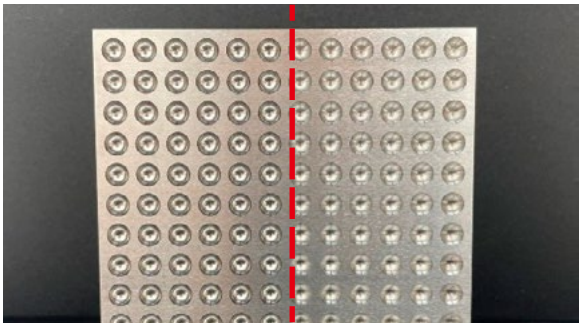


バニッシュ加工が可能
Vanishing is possible

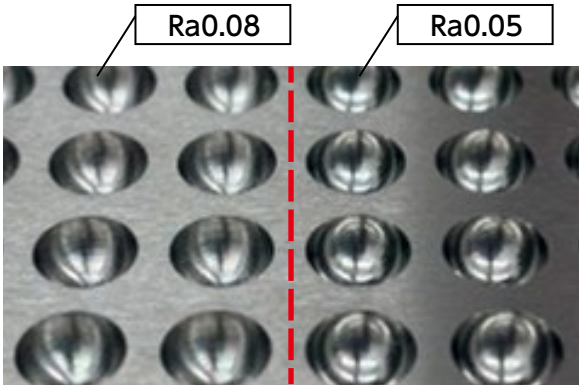
POINT!

★ **エンドミルによるラップ仕上げが可能**
Lap finishing with End Mills is possible.

★ **刃先にラッピング部を追加することにより良好な加工面を実現**
Achieving a good milling surface by adding a vanish surface to the cutting edge



LEDレンズ金型
Mold for LED Lenses



CBN ボールエンドミル
仕上げ
Finished by
CBN Ball End Mills

CBN ラッピング
ボールエンドミル仕上げ
Finished by CBN
Lapping Ball End Mills

加工事例 Processing Example

使用工具 Cutting Tool	LAPCBNLB2-1.0xR0.5xL3.0 従来品 (CBN) Conventional (CBN)
被削材 Work Material	STAVAX(55HRC)
切削速度 Cutting speed	94m/min
送り量 Feed rate	0.033mm/t
仕上げ削り代 Finishing Allowance	ap0.014mm, ae0.01mm
加工方法 Application	走査線加工 Raster milling ポケット径：Φ5、深さ 2.5mm Pocket diameter depth
使用機械 Machine	立形 M/C (HSK32) Vertical M/C
切削油 Cutting oil	不水溶性切削油 Oil-base Coolant

加工面粗さの微小化を実現
Minimize Surface roughness

CBNエンドミル BANCERA® CBN End Mills BANCERA®

※コーティングの対応についてはお問合せください
※Please contact us for inquiry of coating

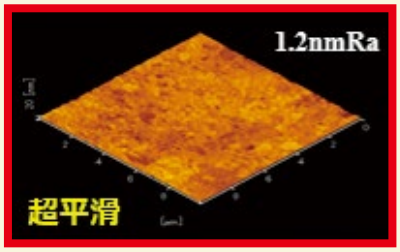
POINT!

★ 半導体金型製造で蓄積された技術を用いて開発された自社開発セラミック系コーティング
A proprietary ceramic coating developed using expertise accumulated in semiconductor mold manufacturing.

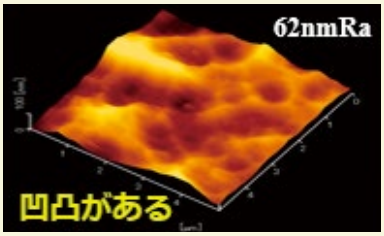
★ スパッタリング法により成膜が緻密で膜抜けやドロップレットが無く超平滑な表面で摩擦係数を抑え、CBNエンドミルの高速加工に適している
The film formation is dense, with no peeling or droplets, resulting in an ultra-smooth plane that suppresses the coefficient of friction, and making it suitable for high-speed processing of CBN end mills.

平滑性比較結果（AFM評価） Smoothness Comparision Results(AFM Evaluation)

▶スパッタリング法（BANCERA®）
Sputtering method



▶イオンプレーティング法
ion plating method



POINT!

★ ノンコート品より長寿命で、コスト削減に貢献
Longer tool life than Non coating products reduces costs.

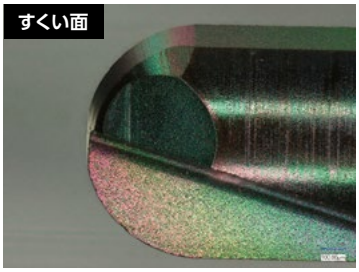
★ 平滑な表面とシャープな刃先エッジで高精度加工を実現
Smooth surfaces and sharp edges enable high precision.

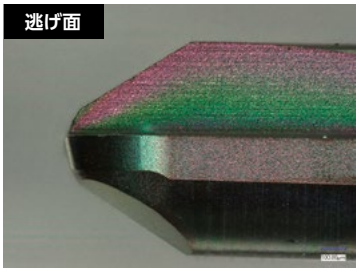


CBNノンコート品
CBN Non coating



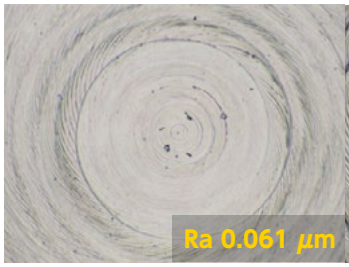
CBNエンドミルBANCERA®
CBN End Mills BANCERA®





加工事例 Processing Example

球ポケット1穴目
First pocket

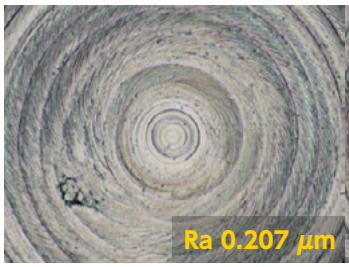


CBN+BANCERA®

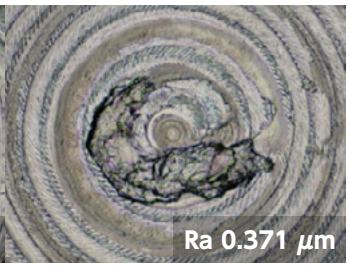


CBNノンコート品
Non coating

球ポケット144穴目
144th pocket



CBN+BANCERA®

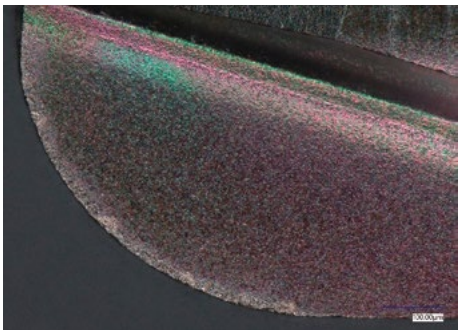


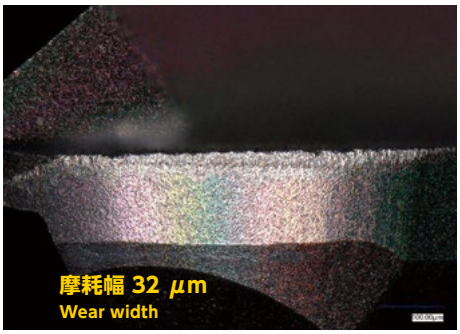
CBNノンコート品
Non coating

使用工具 Cutting Tool	CBN R0.5 + BANCERA® 従来品（CBN ノンコート） Conventional（CBN Non coating）
被削材 Work Material	マトリックスハイス（62HRC） Matrix HSS
切削速度 Cutting speed	94m/min
送り量 Feed rate	0.017mm/t
仕上げ削り代 Finishing Allowance	0.01mm
加工方法 Application	等高線スパイラル加工 Contour spiral milling 球ポケット形状 Ball pocket shape ポケット径φ5、深さ 2.5mm Pocket diameter　depth
使用機械 Machine	立形 M/C（HSK32） Vertical M/C
切削油 Cutting oil	不水溶性切削油 Oil-base Coolant

摩耗を抑え
良質な加工面を持続
Suppress wear and keep good
Surface roughness

CBN+BANCERA®
（144穴加工後）
After 144 pockets

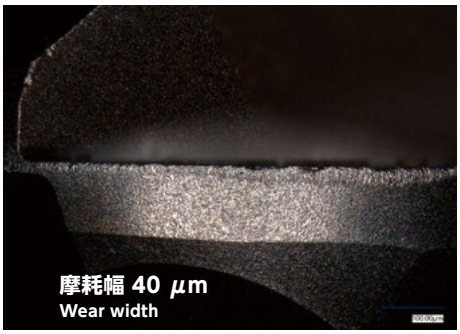




ノンコート品
Non coating
（144穴加工後）
After 144 pockets



すくい面
Rake face



逃げ面
Relief face

ion Depo™ Type U シリーズ　ion Depo™ Type U Series

POINT!

★TOWA独自のコーティング技術により高硬度鋼の加工に適した**硬質膜**

TOWA's proprietary coating technology creates a hard film suited to machining high-hardness materials.

★多層コーティングで**密着性**を高め剥離・脱落を防止

The multilayer coating improves adhesion and prevents peeling and delamination.

ion Depo™ Type U

高硬度材 第一推奨!!
Recommended for High Hardness materials!!

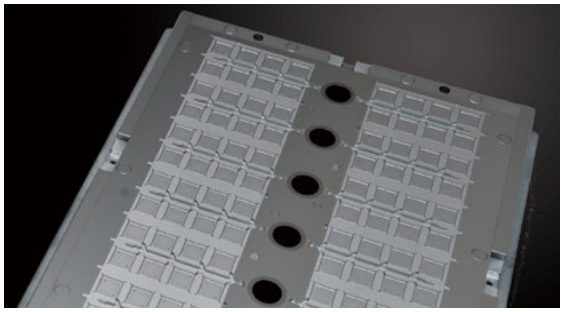
幅広い高硬度材に対応 (～ HRC65)

Applicable to various high hardness materials (~HRC65)

プリハードン鋼
Pre-hardened Steel

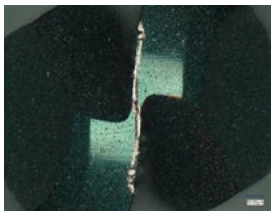
高硬度鋼
High Hardness Steel

加工事例 Processing Example



半導体キャビティ(VANADIS23)

使用工具 Cutting Tool	IULB-2-1.0xR0.5xL2.0 従来品（超硬） Conventional（Carbide）
被削材 Work Material	VANADIS23（62HRC）
切削速度 Cutting speed	72m/min
送り量 Feed rate	0.02mm/t
切込み量 Finishing Allowance	ap0.05mm、ae0.05mm
加工方法 Application	等高線加工 Contour milling
使用機械 Machine	立形 M/C（HSK32） Vertical M/C
切削油 Cutting oil	不水溶性切削油 Oil base coolant



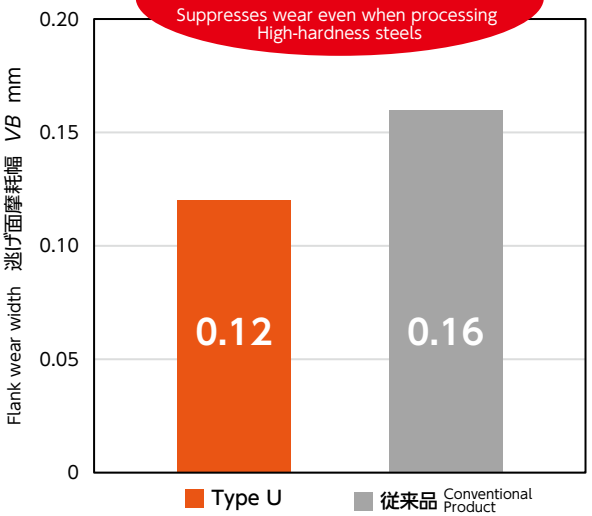
Type U 10m



従来品10m
Conventional products

すくい面 Rake face

高硬度鋼の加工で摩耗を抑制
Suppresses wear even when processing High-hardness steels



ion Depo™ Type A シリーズ　ion Depo™ Type A Series

POINT!

★TOWA独自のコーティング技術により幅広い被削材対応

TOWA's proprietary coating technology supports a wide range of work materials.

★AlCrN系コーティングで**溶着防止**に最適(～HRC55)

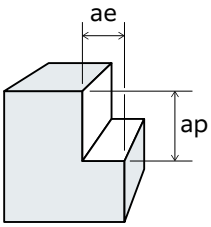
The AlCrN-based coating is ideal for preventing adhesion (up to HRC 55).

ion Depo™ Type A

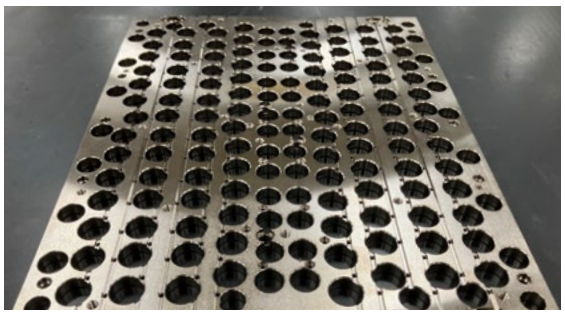
AlCrN系コーティング 溶着防止に最適(～HRC55)

AlCrN Coating Available to welding prevention (~HRC55)

炭素鋼 Carbon Steel	**プリハードン鋼** Pre-hardened Steel	**銅** Copper
難削材 Hard to cut materials	**鋳鉄** Cast Iron **ダクタイル鋳鉄** Ductile Cast Iron	**ステンレス** Stainless Steel

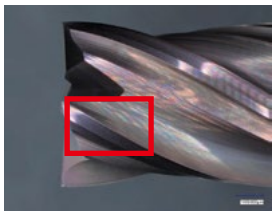


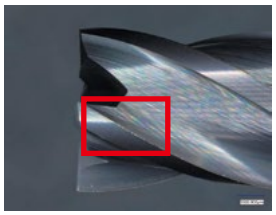
加工事例 Processing Example

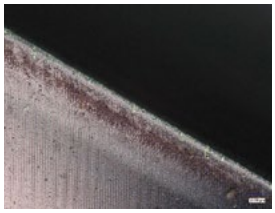


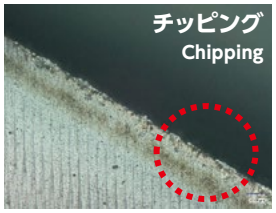
エジェクタプレート(NAK80)

使用工具 Cutting Tool	IAS-4-6.0x15.0 従来品（超硬） Conventional (Carbide)
被削材 Work Material	NAK80
切削速度 Cutting speed	51m/min
送り量 Feed rate	0.04mm/t
切込み量 Finishing Allowance	ap12mm、ae0.3mm
加工方法 Application	側面加工 Side milling
使用機械 Machine	立形 M/C（BT30） Vertical M/C
切削油 Cutting oil	水溶性切削油 Water soluble coolant





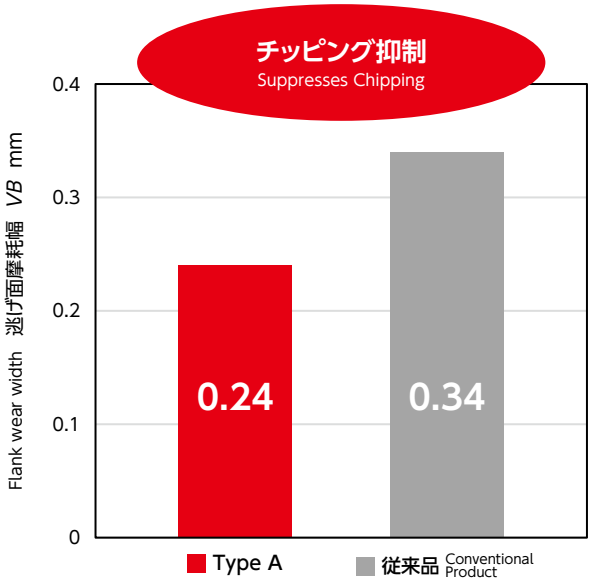




Type A 30m

従来品30m
Conventional products

外周刃 Peripheral cutting edge



形状別　簡易工具選定表　Selection Chart According to Shape

	商 品 Products	CBNエンドミル CBN End Mills	
	被削材 Work Material	焼入れ鋼 Hardened Steels	
		HRC60以上 HRC60~	
	材 質 Material	無処理　Non Coating	
工具形状　Shape	刃数/首形状　Flutes/Neck	ロングネック　Long Neck	ラッピング　Lapping
スクエア Square	2枚刃 2Flutes	–	–
	4枚刃 4Flutes	–	–
	6枚刃 6Flutes	–	–
ラジアス Radius	2枚刃 2Flutes	CBNLR-2 / CBNLRH-2 	LAPCBNLR-2 
	3枚刃 3Flutes	CBNLR-3 / CBNLRH-3 	–
	4枚刃 4Flutes	CBNLR-4 / CBNLRH-4 	–
	6枚刃 6Flutes	–	–
ボール Ball	2枚刃 2Flutes	CBNLB-2 / CBNLBH-2 	LAPCBNLB-2 

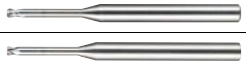
※より詳細な被削材に対する推奨工具は P021 の被削材別対応表を参考ください
上記にない被削材に適した工具や工具形状についてもご提案可能ですので、
最寄りの営業拠点もしくは下記問い合わせページよりお問い合わせください

*For more detailed tool recommendations by work material, please refer to the Material-Specific Tool Selection Chart on P021.
We can also recommend suitable tools and tool geometries for materials not listed above. Please contact your nearest sales office or use the inquiry page below.

超硬エンドミル Carbide End Mills				
高硬度鋼 High-Hardness Steels		一般鋼 General Steels		難削材 Difficult to Cut Materials
HRC50以上 HRC50~		HRC50以下 ~HRC50		チタン合金/インコネル Titanium Alloy/Inconel
ion Depo Type U		ion Depo Type A		ion Depo Type V
レギュラー Regular	ロングネック Long Neck	レギュラー Regular	ロングネック Long Neck	レギュラー Regular
IUS-2 / IUSH-2 	IULS-2 / IULSH-2 	IAS-2 	IALS-2 	–
IUS-4 / IUSH-4 	IULS-4 / IULSH-4 	IAS-4 	–	TW-VS-EM2D 
IUS-6 	–	–	–	–
–	IULR-2 / IULRH-2 	IAR-2 	IALR-2 	–
–	IULR-3 / IULRH-3 	–	–	–
IUR-4 / IURH-4 	IULR-4 / IULRH-4 	IAR-4 	IALR-4 	TW-VS-CR-EM2D 
IUR-6 	–	–	–	–
IUB-2 / IUBH-2 	IULB-2 / IULBH-2 	IAB-2 	IALB-2 	–

商 品 Products	超硬ドリル Carbide Drills		超硬テーパーエンドミル Carbide Taper End Mills
被削材 Work Material	一般鋼 General Steels	ステンレス鋼等 Stainless Steels	一般鋼 General Steels
	HRC45以下 ~HRC45	HRC45以下 ~HRC45	HRC40以下 ~HRC40
材 質 Material	ion Depo Type A	ion Depo Type AC	ion Depo Type AC
溝長 FL	18~29mm	3D	2-3D
形 状 Shape	IA-DAD 	TW-SUS-DR3D 	DRM 

被削材別　簡易工具選定表　Selection Chart According to Work Material

ページ Page	外観 Picture	型番 Model	商品説明 Description	刃先 Cutting Edge Profile	表面処理 Coating	サイズ Size
TW-VS						
P052		TW-VS-EM2D	超硬防振型スクエアエンドミル 4枚刃 Anti-Vibration Carbide Square End Mills 4F	スクエア Square	ion V	Φ2～Φ20
P053		TW-VS-CR-EM2D	超硬防振型ラジアスエンドミル 4枚刃 Anti-Vibration Carbide Radius End Mills 4F	ラジアス Radius	ion V	Φ2～Φ12
TW-SUS						
P058		TW-SUS-DR3D	超硬ステンレス用ドリル 2枚刃 Carbide Drill for Stainless Steel	ドリル Drill	ion AC	Φ0.4～Φ12
CBN						
P064/P075		CBNLRH-2/CBNLR-2	CBN ラジアスエンドミル 2枚刃 CBN Radius End Mills 2F	ラジアス Radius	無処理 Non Coating	Φ0.1～Φ3
P068/P080		CBNLRH-3/CBNLR-3	CBN ラジアスエンドミル 3枚刃 CBN Radius End Mills 3F	ラジアス Radius	無処理 Non Coating	Φ0.6～Φ0.8
P070/P082		CBNLRH-4/CBNLR-4	CBN ラジアスエンドミル 4枚刃 CBN Radius End Mills 4F	ラジアス Radius	無処理 Non Coating	Φ1～Φ6
P073/P085		CBNLBH-2/CBNLB-2	CBN ボールエンドミル 2枚刃 CBN Ball End Mills 2F	ボール Ball	無処理 Non Coating	Φ0.1～Φ3
P087		LAPCBNLR-2	CBNラッピングラジアスエンドミル 2枚刃 CBN Lapping Radius End Mills 2F	ラジアス Radius	無処理 Non Coating	Φ0.4～Φ3
P088		LAPCBNLB-2	CBN ラッピング ボールエンドミル 2枚刃 CBN Lapping Ball End Mills 2F	ボール Ball	無処理 Non Coating	Φ0.4～Φ3
ion Depo Type U						
P096/P120		IUSH-2/IUS-2	超硬スクエアエンドミル 2枚刃 Carbide Square End Mills 2F	スクエア Square	ion U	Φ0.1～Φ6
P098/P122		IUSH-4/IUS-4	超硬スクエアエンドミル 4枚刃 Carbide Square End Mills 4F	スクエア Square	ion U	Φ1～Φ20
P123		IUS-6	超硬スクエアエンドミル 6枚刃 Carbide Square End Mills 6F	スクエア Square	ion U	Φ5～Φ20
P099/P124		IULSH-2/IULS-2	超硬ロングネックスクエアエンドミル 2枚刃 Carbide Long Neck Square End Mills 2F	スクエア Square	ion U	Φ0.1～Φ6
P102/P127		IULSH-4/IULS-4	超硬ロングネックスクエアエンドミル 4枚刃 Carbide Long Neck Square End Mills 4F	スクエア Square	ion U	Φ1～Φ6
P104/P129		IURH-4/IUR-4	超硬ラジアスエンドミル 4枚刃 Carbide Radius End Mills 4F	ラジアス Radius	ion U	Φ3～Φ12
P130		IUR-6	超硬ラジアスエンドミル 6枚刃 Carbide Radius End Mills 6F	ラジアス Radius	ion U	Φ5～Φ12
P105/P131		IULRH-2/IULR-2	超硬ロングネックラジアスエンドミル 2枚刃 Carbide Long Neck Radius End Mills 2F	ラジアス Radius	ion U	Φ0.2～Φ0.8
P107/P133		IULRH-3/IULR-3	超硬ロングネックラジアスエンドミル 3枚刃 Carbide Long Neck Radius End Mills 3F	ラジアス Radius	ion U	Φ0.6～Φ0.8
P109/P135		IULRH-4/IULR-4	超硬ロングネックラジアスエンドミル 4枚刃 Carbide Long Neck Radius End Mills 4F	ラジアス Radius	ion U	Φ1～Φ6
P115/P141		IUBH-2/IUB-2	超硬ボールエンドミル 2枚刃 Carbide Ball End Mills 2F	ボール Ball	ion U	Φ0.1～Φ20
P116/P142		IULBH-2/IULB-2	超硬ロングネックボールエンドミル 2枚刃 Carbide Long Neck Ball End Mills 2F	ボール Ball	ion U	Φ0.1～Φ6
ion Depo Type A						
P166		IAS-2	超硬スクエアエンドミル 2枚刃 Carbide Square End Mills 2F	スクエア Square	ion A	Φ1～Φ6
P169		IAS-4	超硬スクエアエンドミル 4枚刃 Carbide Square End Mills 4F	スクエア Square	ion A	Φ1～Φ20
P171		IALS-2	超硬ロングネックスクエアエンドミル 2枚刃 Carbide Long Neck Square End Mills 2F	スクエア Square	ion A	Φ0.1～Φ6
P173		IAR-2	超硬ラジアスエンドミル 2枚刃 Carbide Radius End Mills 2F	ラジアス Radius	ion A	Φ1～Φ6
P175		IAR-4	超硬ラジアスエンドミル 4枚刃 Carbide Radius End Mills 4F	ラジアス Radius	ion A	Φ1～Φ20
P177		IALR-2	超硬ロングネックラジアスエンドミル 2枚刃 Carbide Long Neck Radius End Mills 2F	ラジアス Radius	ion A	Φ0.4～Φ6
P182		IALR-4	超硬ロングネックラジアスエンドミル 4枚刃 Carbide Long Neck Radius End Mills 4F	ラジアス Radius	ion A	Φ1～Φ6
P187		IAB-2	超硬ボールエンドミル 2枚刃 Carbide Ball End Mills 2F	ボール Ball	ion A	Φ0.3～Φ20
P189		IALB-2	超硬ロングネックボールエンドミル 2枚刃 Carbide Long Neck Ball End Mills 2F	ボール Ball	ion A	Φ0.3～Φ6
超硬ダブルアングルドリル　Carbide Double Angle Drills						
P229		IA-DAD	超硬ダブルアングルドリル 2枚刃 Carbide Double Angle Drills 2F	ドリル Drill	ion A	Φ1.3～Φ4.5
超硬台形ランナーエンドミル　Carbide Taper(Daikei) Runner End Mills						
P232		DRM	超硬台形ランナーエンドミル 2枚刃 Carbide Solid Daikei Runner EndMill 2F	テーパー Taper	ion AC	Φ1～Φ6

第一推奨◎Recommended　第二推奨○Suggested

	被削材質 Work Materials														
	炭素鋼 Carbon Steels	合金鋼 Alloy Steels	プリハード鋼 Prehardened Steels	高硬度鋼 High Hardness Steels				ステンレス鋼 Stainless Steels	鋳鉄 Cast Irons	銅合金 Copper Alloys	アルミ合金 Aluminium Alloy	グラファイト Graphite	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				50HRC以下 ～50HRC	55HRC以下 ～55HRC	62HRC以下 ～62HRC	70HRC以下 ～70HRC								
	TW-VS														
			○					◎						◎	◎
			○					◎						◎	◎
	TW-SUS														
	◎	◎	○					◎	◎						
	CBN														
				○	◎	◎	◎								
				○	◎	◎	◎								
				○	◎	◎	◎								
				○	◎	◎	◎								
				○	◎	◎	◎								
				○	◎	◎	◎								
	ion Depo Type U														
			○	○	◎	◎	○								
			○	○	◎	◎	○								
			○	○	◎	◎	○								
			○	○	◎	◎	○								
			○	○	◎	◎	○								
			○	○	◎	◎	○								
			○	○	◎	◎	○								
			○	○	◎	◎	○								
			○	○	◎	◎	○								
			○	○	◎	◎	○								
			○	○	◎	◎	○								
			○	○	◎	◎	○								
	ion Depo Type A														
	◎	◎	◎	◎	○			◎	◎	○	○		○	◎	○
	◎	◎	◎	◎	○			◎	◎	○	○		○	◎	○
	◎	◎	◎	◎	○			◎	◎	○	○		○	◎	○
	◎	◎	◎	◎	○			◎	◎	○	○		○	◎	○
	◎	◎	◎	◎	○			◎	◎	○	○		○	◎	○
	◎	◎	◎	◎	○			◎	◎	○	○		○	◎	○
	◎	◎	◎	◎	○			◎	◎	○	○		○	◎	○
	◎	◎	◎	◎	○			◎	◎	○	○		○	◎	○
	◎	◎	◎	◎	○			◎	◎	○	○		○	◎	○
	超硬ダブルアングルドリル Carbide Double Angle Drills														
	◎	◎	○												
	超硬台形ランナーエンドミル Carbide Taper(Daikei) Runner End Mills														
	◎	◎	○					○	◎	◎	◎				

刃径別　刃長一覧表　Cutting Length by Diameter

CBNエンドミル/ラジアス　CBN EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
CBNLR-2-0.1xR0.02xL0.2	0.1	0.02	0.2	0.04	4	50	75
CBNLR-2-0.1xR0.02xL0.3	0.1	0.02	0.3	0.04	4	50	75
CBNLR-2-0.1xR0.02xL0.5	0.1	0.02	0.5	0.04	4	50	75
CBNLR-2-0.1xR0.03xL0.2	0.1	0.03	0.2	0.04	4	50	75
CBNLR-2-0.1xR0.03xL0.3	0.1	0.03	0.3	0.04	4	50	75
CBNLR-2-0.1xR0.03xL0.5	0.1	0.03	0.5	0.04	4	50	75
CBNLR-2-0.15xR0.02xL0.2	0.15	0.02	0.2	0.06	4	50	75
CBNLR-2-0.15xR0.02xL0.3	0.15	0.02	0.3	0.06	4	50	75
CBNLR-2-0.15xR0.02xL0.5	0.15	0.02	0.5	0.06	4	50	75
CBNLR-2-0.15xR0.03xL0.2	0.15	0.03	0.2	0.06	4	50	75
CBNLR-2-0.15xR0.03xL0.3	0.15	0.03	0.3	0.06	4	50	75
CBNLR-2-0.15xR0.03xL0.5	0.15	0.03	0.5	0.06	4	50	75
CBNLR-2-0.2xR0.02xL0.3	0.2	0.02	0.3	0.08	4	50	75
CBNLR-2-0.2xR0.02xL0.5	0.2	0.02	0.5	0.08	4	50	75
CBNLR-2-0.2xR0.02xL1.0	0.2	0.02	1.0	0.08	4	50	75
CBNLR-2-0.2xR0.03xL0.3	0.2	0.03	0.3	0.08	4	50	75
CBNLR-2-0.2xR0.03xL0.5	0.2	0.03	0.5	0.08	4	50	75
CBNLR-2-0.2xR0.03xL1.0	0.2	0.03	1.0	0.08	4	50	75
CBNLR-2-0.2xR0.05xL0.3	0.2	0.05	0.3	0.08	4	50	75
CBNLR-2-0.2xR0.05xL0.5	0.2	0.05	0.5	0.08	4	50	76
CBNLR-2-0.2xR0.05xL1.0	0.2	0.05	1.0	0.08	4	50	76
CBNLR-2-0.3xR0.02xL0.5	0.3	0.02	0.5	0.13	4	50	76
CBNLR-2-0.3xR0.02xL0.75	0.3	0.02	0.75	0.13	4	50	76
CBNLR-2-0.3xR0.02xL1.0	0.3	0.02	1.0	0.13	4	50	76
CBNLR-2-0.3xR0.02xL1.5	0.3	0.02	1.5	0.13	4	50	76
CBNLR-2-0.3xR0.02xL2.0	0.3	0.02	2.0	0.13	4	50	76
CBNLR-2-0.3xR0.03xL0.5	0.3	0.03	0.5	0.13	4	50	76
CBNLR-2-0.3xR0.03xL0.75	0.3	0.03	0.75	0.13	4	50	76
CBNLR-2-0.3xR0.03xL1.0	0.3	0.03	1.0	0.13	4	50	76
CBNLR-2-0.3xR0.03xL1.5	0.3	0.03	1.5	0.13	4	50	76
CBNLR-2-0.3xR0.03xL2.0	0.3	0.03	2.0	0.13	4	50	76
CBNLR-2-0.3xR0.05xL0.5	0.3	0.05	0.5	0.13	4	50	76
CBNLR-2-0.3xR0.05xL0.75	0.3	0.05	0.75	0.13	4	50	76
CBNLR-2-0.3xR0.05xL1.0	0.3	0.05	1.0	0.13	4	50	76
CBNLR-2-0.3xR0.05xL1.5	0.3	0.05	1.5	0.13	4	50	76
CBNLR-2-0.3xR0.05xL2.0	0.3	0.05	2.0	0.13	4	50	76
CBNLRH-2-0.4xR0.02xL0.5	0.4	0.02	0.5	0.24	4	50	64
CBNLR-2-0.4xR0.02xL0.5	0.4	0.02	0.5	0.24	4	50	76
CBNLRH-2-0.4xR0.02xL1.0	0.4	0.02	1.0	0.24	4	50	64
CBNLR-2-0.4xR0.02xL1.0	0.4	0.02	1.0	0.24	4	50	76
CBNLRH-2-0.4xR0.02xL1.5	0.4	0.02	1.5	0.24	4	50	64
CBNLR-2-0.4xR0.02xL1.5	0.4	0.02	1.5	0.24	4	50	76
CBNLRH-2-0.4xR0.02xL2.0	0.4	0.02	2.0	0.24	4	50	64
CBNLR-2-0.4xR0.02xL2.0	0.4	0.02	2.0	0.24	4	50	76
CBNLRH-2-0.4xR0.03xL0.5	0.4	0.03	0.5	0.24	4	50	64
CBNLR-2-0.4xR0.03xL0.5	0.4	0.03	0.5	0.24	4	50	76
CBNLRH-2-0.4xR0.03xL1.0	0.4	0.03	1.0	0.24	4	50	64
CBNLR-2-0.4xR0.03xL1.0	0.4	0.03	1.0	0.24	4	50	76
CBNLRH-2-0.4xR0.03xL1.5	0.4	0.03	1.5	0.24	4	50	64
CBNLR-2-0.4xR0.03xL1.5	0.4	0.03	1.5	0.24	4	50	76
CBNLRH-2-0.4xR0.03xL2.0	0.4	0.03	2.0	0.24	4	50	64
CBNLR-2-0.4xR0.03xL2.0	0.4	0.03	2.0	0.24	4	50	76
CBNLRH-2-0.4xR0.05xL0.5	0.4	0.05	0.5	0.24	4	50	64
CBNLR-2-0.4xR0.05xL0.5	0.4	0.05	0.5	0.24	4	50	76
CBNLRH-2-0.4xR0.05xL1.0	0.4	0.05	1.0	0.24	4	50	64
CBNLR-2-0.4xR0.05xL1.0	0.4	0.05	1.0	0.24	4	50	76
CBNLRH-2-0.4xR0.05xL1.5	0.4	0.05	1.5	0.24	4	50	64
CBNLR-2-0.4xR0.05xL1.5	0.4	0.05	1.5	0.24	4	50	76
CBNLRH-2-0.4xR0.05xL2.0	0.4	0.05	2.0	0.24	4	50	64
CBNLR-2-0.4xR0.05xL2.0	0.4	0.05	2.0	0.24	4	50	76
CBNLRH-2-0.4xR0.1xL0.5	0.4	0.1	0.5	0.24	4	50	64
CBNLR-2-0.4xR0.1xL0.5	0.4	0.1	0.5	0.24	4	50	76
CBNLRH-2-0.4xR0.1xL1.0	0.4	0.1	1.0	0.24	4	50	64
CBNLR-2-0.4xR0.1xL1.0	0.4	0.1	1.0	0.24	4	50	76
LAPCBNLR-2-0.4xR0.1xL1.2	0.4	0.1	1.2	0.3	4	50	87
CBNLRH-2-0.4xR0.1xL1.5	0.4	0.1	1.5	0.24	4	50	64
CBNLR-2-0.4xR0.1xL1.5	0.4	0.1	1.5	0.24	4	50	76
CBNLRH-2-0.4xR0.1xL2.0	0.4	0.1	2.0	0.24	4	50	64
CBNLR-2-0.4xR0.1xL2.0	0.4	0.1	2.0	0.24	4	50	76
CBNLRH-2-0.5xR0.02xL0.5	0.5	0.02	0.5	0.3	4	50	64
CBNLR-2-0.5xR0.02xL0.5	0.5	0.02	0.5	0.3	4	50	76
CBNLRH-2-0.5xR0.02xL1.0	0.5	0.02	1.0	0.3	4	50	64
CBNLR-2-0.5xR0.02xL1.0	0.5	0.02	1.0	0.3	4	50	76
CBNLRH-2-0.5xR0.02xL1.5	0.5	0.02	1.5	0.3	4	50	64
CBNLR-2-0.5xR0.02xL1.5	0.5	0.02	1.5	0.3	4	50	76
CBNLRH-2-0.5xR0.02xL2.5	0.5	0.02	2.5	0.3	4	50	65
CBNLR-2-0.5xR0.02xL2.5	0.5	0.02	2.5	0.3	4	50	76
CBNLRH-2-0.5xR0.03xL0.5	0.5	0.03	0.5	0.3	4	50	65
CBNLR-2-0.5xR0.03xL0.5	0.5	0.03	0.5	0.3	4	50	76
CBNLRH-2-0.5xR0.03xL1.0	0.5	0.03	1.0	0.3	4	50	65
CBNLR-2-0.5xR0.03xL1.0	0.5	0.03	1.0	0.3	4	50	76
CBNLRH-2-0.5xR0.03xL1.5	0.5	0.03	1.5	0.3	4	50	65
CBNLR-2-0.5xR0.03xL1.5	0.5	0.03	1.5	0.3	4	50	76
CBNLRH-2-0.5xR0.03xL2.5	0.5	0.03	2.5	0.3	4	50	65
CBNLR-2-0.5xR0.03xL2.5	0.5	0.03	2.5	0.3	4	50	76
CBNLRH-2-0.5xR0.05xL0.5	0.5	0.05	0.5	0.3	4	50	65
CBNLR-2-0.5xR0.05xL0.5	0.5	0.05	0.5	0.3	4	50	76
CBNLRH-2-0.5xR0.05xL1.0	0.5	0.05	1.0	0.3	4	50	65
CBNLR-2-0.5xR0.05xL1.0	0.5	0.05	1.0	0.3	4	50	76
CBNLRH-2-0.5xR0.05xL1.5	0.5	0.05	1.5	0.3	4	50	65
CBNLR-2-0.5xR0.05xL1.5	0.5	0.05	1.5	0.3	4	50	76
CBNLRH-2-0.5xR0.05xL2.5	0.5	0.05	2.5	0.3	4	50	65
CBNLR-2-0.5xR0.05xL2.5	0.5	0.05	2.5	0.3	4	50	76
CBNLRH-2-0.5xR0.1xL0.5	0.5	0.1	0.5	0.3	4	50	65
CBNLR-2-0.5xR0.1xL0.5	0.5	0.1	0.5	0.3	4	50	76
CBNLRH-2-0.5xR0.1xL1.0	0.5	0.1	1.0	0.3	4	50	65
CBNLR-2-0.5xR0.1xL1.0	0.5	0.1	1.0	0.3	4	50	76
CBNLRH-2-0.5xR0.1xL1.5	0.5	0.1	1.5	0.3	4	50	65
CBNLR-2-0.5xR0.1xL1.5	0.5	0.1	1.5	0.3	4	50	77
LAPCBNLR-2-0.5xR0.1xL1.5	0.5	0.1	1.5	0.38	4	50	87
CBNLRH-2-0.5xR0.1xL2.5	0.5	0.1	2.5	0.3	4	50	65
CBNLR-2-0.5xR0.1xL2.5	0.5	0.1	2.5	0.3	4	50	77
CBNLRH-2-0.6xR0.02xL0.5	0.6	0.02	0.5	0.3	4	50	65

CBNエンドミル/ラジアス　CBN EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
CBNLR-2-0.6xR0.02xL0.5	0.6	0.02	0.5	0.3	4	50	77
CBNLRH-3-0.6xR0.02xL0.5	0.6	0.02	0.5	0.3	4	50	68
CBNLR-3-0.6xR0.02xL0.5	0.6	0.02	0.5	0.3	4	50	80
CBNLRH-2-0.6xR0.02xL1.0	0.6	0.02	1.0	0.3	4	50	65
CBNLR-2-0.6xR0.02xL1.0	0.6	0.02	1.0	0.3	4	50	77
CBNLRH-3-0.6xR0.02xL1.0	0.6	0.02	1.0	0.3	4	50	68
CBNLR-3-0.6xR0.02xL1.0	0.6	0.02	1.0	0.3	4	50	80
CBNLRH-2-0.6xR0.02xL1.5	0.6	0.02	1.5	0.3	4	50	65
CBNLR-2-0.6xR0.02xL1.5	0.6	0.02	1.5	0.3	4	50	77
CBNLRH-3-0.6xR0.02xL1.5	0.6	0.02	1.5	0.3	4	50	68
CBNLR-3-0.6xR0.02xL1.5	0.6	0.02	1.5	0.3	4	50	80
CBNLRH-3-0.6xR0.02xL2.0	0.6	0.02	2.0	0.3	4	50	68
CBNLR-3-0.6xR0.02xL2.0	0.6	0.02	2.0	0.3	4	50	80
CBNLRH-2-0.6xR0.02xL2.5	0.6	0.02	2.5	0.3	4	50	65
CBNLR-2-0.6xR0.02xL2.5	0.6	0.02	2.5	0.3	4	50	77
CBNLRH-3-0.6xR0.02xL2.5	0.6	0.02	2.5	0.3	4	50	68
CBNLR-3-0.6xR0.02xL2.5	0.6	0.02	2.5	0.3	4	50	80
CBNLRH-2-0.6xR0.03xL0.5	0.6	0.03	0.5	0.3	4	50	65
CBNLR-2-0.6xR0.03xL0.5	0.6	0.03	0.5	0.3	4	50	77
CBNLRH-2-0.6xR0.03xL1.0	0.6	0.03	1.0	0.3	4	50	65
CBNLR-2-0.6xR0.03xL1.0	0.6	0.03	1.0	0.3	4	50	77
CBNLRH-2-0.6xR0.03xL1.5	0.6	0.03	1.5	0.3	4	50	65
CBNLR-2-0.6xR0.03xL1.5	0.6	0.03	1.5	0.3	4	50	77
CBNLRH-2-0.6xR0.03xL2.5	0.6	0.03	2.5	0.3	4	50	65
CBNLR-2-0.6xR0.03xL2.5	0.6	0.03	2.5	0.3	4	50	77
CBNLRH-2-0.6xR0.05xL0.5	0.6	0.05	0.5	0.3	4	50	65
CBNLR-2-0.6xR0.05xL0.5	0.6	0.05	0.5	0.3	4	50	77
CBNLRH-3-0.6xR0.05xL0.5	0.6	0.05	0.5	0.3	4	50	68
CBNLR-3-0.6xR0.05xL0.5	0.6	0.05	0.5	0.3	4	50	80
CBNLRH-2-0.6xR0.05xL1.0	0.6	0.05	1.0	0.3	4	50	65
CBNLR-2-0.6xR0.05xL1.0	0.6	0.05	1.0	0.3	4	50	77
CBNLRH-3-0.6xR0.05xL1.0	0.6	0.05	1.0	0.3	4	50	68
CBNLR-3-0.6xR0.05xL1.0	0.6	0.05	1.0	0.3	4	50	80
CBNLRH-2-0.6xR0.05xL1.5	0.6	0.05	1.5	0.3	4	50	65
CBNLR-2-0.6xR0.05xL1.5	0.6	0.05	1.5	0.3	4	50	77
CBNLRH-3-0.6xR0.05xL1.5	0.6	0.05	1.5	0.3	4	50	68
CBNLR-3-0.6xR0.05xL1.5	0.6	0.05	1.5	0.3	4	50	80
CBNLRH-3-0.6xR0.05xL2.0	0.6	0.05	2.0	0.3	4	50	68
CBNLR-3-0.6xR0.05xL2.0	0.6	0.05	2.0	0.3	4	50	80
CBNLRH-2-0.6xR0.05xL2.5	0.6	0.05	2.5	0.3	4	50	65
CBNLR-2-0.6xR0.05xL2.5	0.6	0.05	2.5	0.3	4	50	77
CBNLRH-3-0.6xR0.05xL2.5	0.6	0.05	2.5	0.3	4	50	68
CBNLR-3-0.6xR0.05xL2.5	0.6	0.05	2.5	0.3	4	50	80
CBNLRH-2-0.6xR0.1xL0.5	0.6	0.1	0.5	0.3	4	50	65
CBNLR-2-0.6xR0.1xL0.5	0.6	0.1	0.5	0.3	4	50	77
CBNLRH-3-0.6xR0.1xL0.5	0.6	0.1	0.5	0.3	4	50	68
CBNLR-3-0.6xR0.1xL0.5	0.6	0.1	0.5	0.3	4	50	80
CBNLRH-2-0.6xR0.1xL1.0	0.6	0.1	1.0	0.3	4	50	65
CBNLR-2-0.6xR0.1xL1.0	0.6	0.1	1.0	0.3	4	50	77
CBNLRH-3-0.6xR0.1xL1.0	0.6	0.1	1.0	0.3	4	50	68
CBNLR-3-0.6xR0.1xL1.0	0.6	0.1	1.0	0.3	4	50	80
CBNLRH-2-0.6xR0.1xL1.5	0.6	0.1	1.5	0.3	4	50	65
CBNLR-2-0.6xR0.1xL1.5	0.6	0.1	1.5	0.3	4	50	77
CBNLRH-3-0.6xR0.1xL1.5	0.6	0.1	1.5	0.3	4	50	68

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
CBNLR-3-0.6xR0.1xL1.5	0.6	0.1	1.5	0.3	4	50	80
LAPCBNLR-2-0.6xR0.1xL1.5	0.6	0.1	1.5	0.5	4	50	87
CBNLRH-3-0.6xR0.1xL2.0	0.6	0.1	2.0	0.3	4	50	68
CBNLR-3-0.6xR0.1xL2.0	0.6	0.1	2.0	0.3	4	50	80
CBNLRH-2-0.6xR0.1xL2.5	0.6	0.1	2.5	0.3	4	50	65
CBNLR-2-0.6xR0.1xL2.5	0.6	0.1	2.5	0.3	4	50	77
CBNLRH-3-0.6xR0.1xL2.5	0.6	0.1	2.5	0.3	4	50	68
CBNLR-3-0.6xR0.1xL2.5	0.6	0.1	2.5	0.3	4	50	80
LAPCBNLR-2-0.6xR0.2xL1.5	0.6	0.2	1.5	0.5	4	50	87
CBNLRH-2-0.8xR0.02xL1.5	0.8	0.02	1.5	0.56	4	50	65
CBNLR-2-0.8xR0.02xL1.5	0.8	0.02	1.5	0.56	4	50	77
CBNLRH-3-0.8xR0.02xL1.5	0.8	0.02	1.5	0.56	4	50	68
CBNLR-3-0.8xR0.02xL1.5	0.8	0.02	1.5	0.56	4	50	80
CBNLRH-2-0.8xR0.02xL2.5	0.8	0.02	2.5	0.56	4	50	65
CBNLR-2-0.8xR0.02xL2.5	0.8	0.02	2.5	0.56	4	50	77
CBNLRH-3-0.8xR0.02xL2.5	0.8	0.02	2.5	0.56	4	50	68
CBNLR-3-0.8xR0.02xL2.5	0.8	0.02	2.5	0.56	4	50	80
CBNLRH-2-0.8xR0.02xL5.0	0.8	0.02	5.0	0.56	4	50	65
CBNLR-2-0.8xR0.02xL5.0	0.8	0.02	5.0	0.56	4	50	77
CBNLRH-3-0.8xR0.02xL5.0	0.8	0.02	5.0	0.56	4	50	68
CBNLR-3-0.8xR0.02xL5.0	0.8	0.02	5.0	0.56	4	50	80
CBNLRH-2-0.8xR0.03xL1.5	0.8	0.03	1.5	0.56	4	50	65
CBNLR-2-0.8xR0.03xL1.5	0.8	0.03	1.5	0.56	4	50	77
CBNLRH-2-0.8xR0.03xL2.5	0.8	0.03	2.5	0.56	4	50	65
CBNLR-2-0.8xR0.03xL2.5	0.8	0.03	2.5	0.56	4	50	77
CBNLRH-2-0.8xR0.03xL5.0	0.8	0.03	5.0	0.56	4	50	65
CBNLR-2-0.8xR0.03xL5.0	0.8	0.03	5.0	0.56	4	50	77
CBNLRH-2-0.8xR0.05xL1.5	0.8	0.05	1.5	0.56	4	50	65
CBNLR-2-0.8xR0.05xL1.5	0.8	0.05	1.5	0.56	4	50	77
CBNLRH-3-0.8xR0.05xL1.5	0.8	0.05	1.5	0.56	4	50	68
CBNLR-3-0.8xR0.05xL1.5	0.8	0.05	1.5	0.56	4	50	80
CBNLRH-2-0.8xR0.05xL2.5	0.8	0.05	2.5	0.56	4	50	65
CBNLR-2-0.8xR0.05xL2.5	0.8	0.05	2.5	0.56	4	50	77
CBNLRH-3-0.8xR0.05xL2.5	0.8	0.05	2.5	0.56	4	50	69
CBNLR-3-0.8xR0.05xL2.5	0.8	0.05	2.5	0.56	4	50	81
CBNLRH-2-0.8xR0.05xL5.0	0.8	0.05	5.0	0.56	4	50	65
CBNLR-2-0.8xR0.05xL5.0	0.8	0.05	5.0	0.56	4	50	77
CBNLRH-3-0.8xR0.05xL5.0	0.8	0.05	5.0	0.56	4	50	69
CBNLR-3-0.8xR0.05xL5.0	0.8	0.05	5.0	0.56	4	50	81
CBNLRH-2-0.8xR0.1xL1.5	0.8	0.1	1.5	0.56	4	50	65
CBNLR-2-0.8xR0.1xL1.5	0.8	0.1	1.5	0.56	4	50	77
CBNLRH-3-0.8xR0.1xL1.5	0.8	0.1	1.5	0.56	4	50	69
CBNLR-3-0.8xR0.1xL1.5	0.8	0.1	1.5	0.56	4	50	81
CBNLRH-2-0.8xR0.1xL2.5	0.8	0.1	2.5	0.56	4	50	65
CBNLR-2-0.8xR0.1xL2.5	0.8	0.1	2.5	0.56	4	50	77
CBNLRH-3-0.8xR0.1xL2.5	0.8	0.1	2.5	0.56	4	50	69
CBNLR-3-0.8xR0.1xL2.5	0.8	0.1	2.5	0.56	4	50	81
CBNLRH-2-0.8xR0.1xL5.0	0.8	0.1	5.0	0.56	4	50	65
CBNLR-2-0.8xR0.1xL5.0	0.8	0.1	5.0	0.56	4	50	77
CBNLRH-3-0.8xR0.1xL5.0	0.8	0.1	5.0	0.56	4	50	69
CBNLR-3-0.8xR0.1xL5.0	0.8	0.1	5.0	0.56	4	50	81
CBNLRH-2-1.0xR0.02xL1.0	1.0	0.02	1.0	0.7	4	50	65
CBNLR-2-1.0xR0.02xL1.0	1.0	0.02	1.0	0.7	4	50	77
CBNLRH-4-1.0xR0.02xL1.0	1.0	0.02	1.0	0.7	4	50	70
CBNLR-4-1.0xR0.02xL1.0	1.0	0.02	1.0	0.7	4	50	82

CBNエンドミル/ラジアス　CBN EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
CBNLRH-2-1.0xR0.02xL2.0	1.0	0.02	2.0	0.7	4	50	65
CBNLR-2-1.0xR0.02xL2.0	1.0	0.02	2.0	0.7	4	50	77
CBNLRH-4-1.0xR0.02xL2.0	1.0	0.02	2.0	0.7	4	50	70
CBNLR-4-1.0xR0.02xL2.0	1.0	0.02	2.0	0.7	4	50	82
CBNLRH-2-1.0xR0.02xL3.0	1.0	0.02	3.0	0.7	4	50	65
CBNLR-2-1.0xR0.02xL3.0	1.0	0.02	3.0	0.7	4	50	77
CBNLRH-4-1.0xR0.02xL3.0	1.0	0.02	3.0	0.7	4	50	70
CBNLR-4-1.0xR0.02xL3.0	1.0	0.02	3.0	0.7	4	50	82
CBNLRH-2-1.0xR0.02xL5.0	1.0	0.02	5.0	0.7	4	50	65
CBNLR-2-1.0xR0.02xL5.0	1.0	0.02	5.0	0.7	4	50	77
CBNLRH-4-1.0xR0.02xL5.0	1.0	0.02	5.0	0.7	4	50	70
CBNLR-4-1.0xR0.02xL5.0	1.0	0.02	5.0	0.7	4	50	82
CBNLRH-2-1.0xR0.03xL1.0	1.0	0.03	1.0	0.7	4	50	65
CBNLR-2-1.0xR0.03xL1.0	1.0	0.03	1.0	0.7	4	50	77
CBNLRH-2-1.0xR0.03xL2.0	1.0	0.03	2.0	0.7	4	50	65
CBNLR-2-1.0xR0.03xL2.0	1.0	0.03	2.0	0.7	4	50	77
CBNLRH-2-1.0xR0.03xL3.0	1.0	0.03	3.0	0.7	4	50	66
CBNLR-2-1.0xR0.03xL3.0	1.0	0.03	3.0	0.7	4	50	77
CBNLRH-2-1.0xR0.03xL5.0	1.0	0.03	5.0	0.7	4	50	66
CBNLR-2-1.0xR0.03xL5.0	1.0	0.03	5.0	0.7	4	50	77
CBNLRH-2-1.0xR0.05xL1.0	1.0	0.05	1.0	0.7	4	50	66
CBNLR-2-1.0xR0.05xL1.0	1.0	0.05	1.0	0.7	4	50	77
CBNLRH-4-1.0xR0.05xL1.0	1.0	0.05	1.0	0.7	4	50	70
CBNLR-4-1.0xR0.05xL1.0	1.0	0.05	1.0	0.7	4	50	82
CBNLRH-2-1.0xR0.05xL2.0	1.0	0.05	2.0	0.7	4	50	66
CBNLR-2-1.0xR0.05xL2.0	1.0	0.05	2.0	0.7	4	50	77
CBNLRH-4-1.0xR0.05xL2.0	1.0	0.05	2.0	0.7	4	50	70
CBNLR-4-1.0xR0.05xL2.0	1.0	0.05	2.0	0.7	4	50	82
CBNLRH-2-1.0xR0.05xL3.0	1.0	0.05	3.0	0.7	4	50	66
CBNLR-2-1.0xR0.05xL3.0	1.0	0.05	3.0	0.7	4	50	77
CBNLRH-4-1.0xR0.05xL3.0	1.0	0.05	3.0	0.7	4	50	70
CBNLR-4-1.0xR0.05xL3.0	1.0	0.05	3.0	0.7	4	50	82
CBNLRH-2-1.0xR0.05xL5.0	1.0	0.05	5.0	0.7	4	50	66
CBNLR-2-1.0xR0.05xL5.0	1.0	0.05	5.0	0.7	4	50	77
CBNLRH-4-1.0xR0.05xL5.0	1.0	0.05	5.0	0.7	4	50	70
CBNLR-4-1.0xR0.05xL5.0	1.0	0.05	5.0	0.7	4	50	82
CBNLRH-2-1.0xR0.05xL10.0	1.0	0.05	10.0	0.7	4	50	66
CBNLR-2-1.0xR0.05xL10.0	1.0	0.05	10.0	0.7	4	50	77
CBNLRH-4-1.0xR0.05xL10.0	1.0	0.05	10.0	0.7	4	50	70
CBNLR-4-1.0xR0.05xL10.0	1.0	0.05	10.0	0.7	4	50	82
CBNLRH-2-1.0xR0.1xL1.0	1.0	0.1	1.0	0.7	4	50	66
CBNLR-2-1.0xR0.1xL1.0	1.0	0.1	1.0	0.7	4	50	77
CBNLRH-4-1.0xR0.1xL1.0	1.0	0.1	1.0	0.7	4	50	70
CBNLR-4-1.0xR0.1xL1.0	1.0	0.1	1.0	0.7	4	50	82
CBNLRH-2-1.0xR0.1xL2.0	1.0	0.1	2.0	0.7	4	50	66
CBNLR-2-1.0xR0.1xL2.0	1.0	0.1	2.0	0.7	4	50	77
CBNLRH-4-1.0xR0.1xL2.0	1.0	0.1	2.0	0.7	4	50	70
CBNLR-4-1.0xR0.1xL2.0	1.0	0.1	2.0	0.7	4	50	82
LAPCBNLR-2-1.0xR0.1xL2.0	1.0	0.1	2.0	0.7	4	50	87
CBNLRH-2-1.0xR0.1xL3.0	1.0	0.1	3.0	0.7	4	50	66
CBNLR-2-1.0xR0.1xL3.0	1.0	0.1	3.0	0.7	4	50	77
CBNLRH-4-1.0xR0.1xL3.0	1.0	0.1	3.0	0.7	4	50	70
CBNLR-4-1.0xR0.1xL3.0	1.0	0.1	3.0	0.7	4	50	82
CBNLRH-4-1.0xR0.1xL4.0	1.0	0.1	4.0	0.7	4	50	70
CBNLR-4-1.0xR0.1xL4.0	1.0	0.1	4.0	0.7	4	50	82
CBNLRH-2-1.0xR0.1xL5.0	1.0	0.1	5.0	0.7	4	50	66
CBNLR-2-1.0xR0.1xL5.0	1.0	0.1	5.0	0.7	4	50	77
CBNLRH-4-1.0xR0.1xL5.0	1.0	0.1	5.0	0.7	4	50	70
CBNLR-4-1.0xR0.1xL5.0	1.0	0.1	5.0	0.7	4	50	82
CBNLRH-2-1.0xR0.1xL10.0	1.0	0.1	10.0	0.7	4	50	66
CBNLR-2-1.0xR0.1xL10.0	1.0	0.1	10.0	0.7	4	50	78
CBNLRH-4-1.0xR0.1xL10.0	1.0	0.1	10.0	0.7	4	50	70
CBNLR-4-1.0xR0.1xL10.0	1.0	0.1	10.0	0.7	4	50	82
CBNLRH-2-1.0xR0.2xL1.0	1.0	0.2	1.0	0.7	4	50	66
CBNLR-2-1.0xR0.2xL1.0	1.0	0.2	1.0	0.7	4	50	78
CBNLRH-4-1.0xR0.2xL1.0	1.0	0.2	1.0	0.7	4	50	70
CBNLR-4-1.0xR0.2xL1.0	1.0	0.2	1.0	0.7	4	50	82
CBNLRH-2-1.0xR0.2xL2.0	1.0	0.2	2.0	0.7	4	50	66
CBNLR-2-1.0xR0.2xL2.0	1.0	0.2	2.0	0.7	4	50	78
CBNLRH-4-1.0xR0.2xL2.0	1.0	0.2	2.0	0.7	4	50	70
CBNLR-4-1.0xR0.2xL2.0	1.0	0.2	2.0	0.7	4	50	82
LAPCBNLR-2-1.0xR0.2xL2.0	1.0	0.2	2.0	0.7	4	50	87
CBNLRH-2-1.0xR0.2xL3.0	1.0	0.2	3.0	0.7	4	50	66
CBNLR-2-1.0xR0.2xL3.0	1.0	0.2	3.0	0.7	4	50	78
CBNLRH-4-1.0xR0.2xL3.0	1.0	0.2	3.0	0.7	4	50	70
CBNLR-4-1.0xR0.2xL3.0	1.0	0.2	3.0	0.7	4	50	82
CBNLRH-2-1.0xR0.2xL5.0	1.0	0.2	5.0	0.7	4	50	66
CBNLR-2-1.0xR0.2xL5.0	1.0	0.2	5.0	0.7	4	50	78
CBNLRH-4-1.0xR0.2xL5.0	1.0	0.2	5.0	0.7	4	50	70
CBNLR-4-1.0xR0.2xL5.0	1.0	0.2	5.0	0.7	4	50	82
LAPCBNLR-2-1.0xR0.3xL2.0	1.0	0.3	2.0	0.7	4	50	87
CBNLRH-2-1.5xR0.02xL2.0	1.5	0.02	2.0	1.0	4	50	66
CBNLR-2-1.5xR0.02xL2.0	1.5	0.02	2.0	1.0	4	50	78
CBNLRH-4-1.5xR0.02xL2.0	1.5	0.02	2.0	1.0	4	50	71
CBNLR-4-1.5xR0.02xL2.0	1.5	0.02	2.0	1.0	4	50	83
CBNLRH-2-1.5xR0.02xL3.0	1.5	0.02	3.0	1.0	4	50	66
CBNLR-2-1.5xR0.02xL3.0	1.5	0.02	3.0	1.0	4	50	78
CBNLRH-4-1.5xR0.02xL3.0	1.5	0.02	3.0	1.0	4	50	71
CBNLR-4-1.5xR0.02xL3.0	1.5	0.02	3.0	1.0	4	50	83
CBNLRH-2-1.5xR0.02xL4.5	1.5	0.02	4.5	1.0	4	50	66
CBNLR-2-1.5xR0.02xL4.5	1.5	0.02	4.5	1.0	4	50	78
CBNLRH-4-1.5xR0.02xL4.5	1.5	0.02	4.5	1.0	4	50	71
CBNLR-4-1.5xR0.02xL4.5	1.5	0.02	4.5	1.0	4	50	83
CBNLRH-2-1.5xR0.02xL7.5	1.5	0.02	7.5	1.0	4	50	66
CBNLR-2-1.5xR0.02xL7.5	1.5	0.02	7.5	1.0	4	50	78
CBNLRH-4-1.5xR0.02xL7.5	1.5	0.02	7.5	1.0	4	50	71
CBNLR-4-1.5xR0.02xL7.5	1.5	0.02	7.5	1.0	4	50	83
CBNLRH-2-1.5xR0.03xL2.0	1.5	0.03	2.0	1.0	4	50	66
CBNLR-2-1.5xR0.03xL2.0	1.5	0.03	2.0	1.0	4	50	78
CBNLRH-2-1.5xR0.03xL3.0	1.5	0.03	3.0	1.0	4	50	66
CBNLR-2-1.5xR0.03xL3.0	1.5	0.03	3.0	1.0	4	50	78
CBNLRH-2-1.5xR0.03xL4.5	1.5	0.03	4.5	1.0	4	50	66
CBNLR-2-1.5xR0.03xL4.5	1.5	0.03	4.5	1.0	4	50	78
CBNLRH-2-1.5xR0.03xL7.5	1.5	0.03	7.5	1.0	4	50	66
CBNLR-2-1.5xR0.03xL7.5	1.5	0.03	7.5	1.0	4	50	78
CBNLRH-2-1.5xR0.05xL2.0	1.5	0.05	2.0	1.0	4	50	66
CBNLR-2-1.5xR0.05xL2.0	1.5	0.05	2.0	1.0	4	50	78
CBNLRH-4-1.5xR0.05xL2.0	1.5	0.05	2.0	1.0	4	50	71
CBNLR-4-1.5xR0.05xL2.0	1.5	0.05	2.0	1.0	4	50	83

CBNエンドミル/ラジアス　CBN EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
CBNLRH-2-1.5xR0.05xL3.0	1.5	0.05	3.0	1.0	4	50	66
CBNLR-2-1.5xR0.05xL3.0	1.5	0.05	3.0	1.0	4	50	78
CBNLRH-4-1.5xR0.05xL3.0	1.5	0.05	3.0	1.0	4	50	71
CBNLR-4-1.5xR0.05xL3.0	1.5	0.05	3.0	1.0	4	50	83
CBNLRH-2-1.5xR0.05xL4.5	1.5	0.05	4.5	1.0	4	50	66
CBNLR-2-1.5xR0.05xL4.5	1.5	0.05	4.5	1.0	4	50	78
CBNLRH-4-1.5xR0.05xL4.5	1.5	0.05	4.5	1.0	4	50	71
CBNLR-4-1.5xR0.05xL4.5	1.5	0.05	4.5	1.0	4	50	83
CBNLRH-2-1.5xR0.05xL5.0	1.5	0.05	5.0	1.0	4	50	66
CBNLR-2-1.5xR0.05xL5.0	1.5	0.05	5.0	1.0	4	50	78
CBNLRH-4-1.5xR0.05xL5.0	1.5	0.05	5.0	1.5	4	50	71
CBNLR-4-1.5xR0.05xL5.0	1.5	0.05	5.0	1.5	4	50	83
CBNLRH-2-1.5xR0.05xL7.5	1.5	0.05	7.5	1.0	4	50	66
CBNLR-2-1.5xR0.05xL7.5	1.5	0.05	7.5	1.0	4	50	78
CBNLRH-4-1.5xR0.05xL7.5	1.5	0.05	7.5	1.0	4	50	71
CBNLR-4-1.5xR0.05xL7.5	1.5	0.05	7.5	1.0	4	50	83
CBNLRH-2-1.5xR0.05xL10.0	1.5	0.05	10.0	1.0	4	50	66
CBNLR-2-1.5xR0.05xL10.0	1.5	0.05	10.0	1.0	4	50	78
CBNLRH-4-1.5xR0.05xL10.0	1.5	0.05	10.0	1.0	4	50	71
CBNLR-4-1.5xR0.05xL10.0	1.5	0.05	10.0	1.0	4	50	83
CBNLRH-2-1.5xR0.1xL2.0	1.5	0.1	2.0	1.0	4	50	66
CBNLR-2-1.5xR0.1xL2.0	1.5	0.1	2.0	1.0	4	50	78
CBNLRH-4-1.5xR0.1xL2.0	1.5	0.1	2.0	1.0	4	50	71
CBNLR-4-1.5xR0.1xL2.0	1.5	0.1	2.0	1.0	4	50	83
CBNLRH-2-1.5xR0.1xL3.0	1.5	0.1	3.0	1.0	4	50	66
CBNLR-2-1.5xR0.1xL3.0	1.5	0.1	3.0	1.0	4	50	78
CBNLRH-4-1.5xR0.1xL3.0	1.5	0.1	3.0	1.0	4	50	71
CBNLR-4-1.5xR0.1xL3.0	1.5	0.1	3.0	1.0	4	50	83
LAPCBNLR-2-1.5xR0.1xL3.0	1.5	0.1	3.0	1.0	4	50	87
CBNLRH-2-1.5xR0.1xL4.5	1.5	0.1	4.5	1.0	4	50	66
CBNLR-2-1.5xR0.1xL4.5	1.5	0.1	4.5	1.0	4	50	78
CBNLRH-4-1.5xR0.1xL4.5	1.5	0.1	4.5	1.0	4	50	71
CBNLR-4-1.5xR0.1xL4.5	1.5	0.1	4.5	1.0	4	50	83
CBNLRH-2-1.5xR0.1xL5.0	1.5	0.1	5.0	1.0	4	50	66
CBNLR-2-1.5xR0.1xL5.0	1.5	0.1	5.0	1.0	4	50	78
CBNLRH-4-1.5xR0.1xL5.0	1.5	0.1	5.0	1.0	4	50	71
CBNLR-4-1.5xR0.1xL5.0	1.5	0.1	5.0	1.0	4	50	83
CBNLRH-2-1.5xR0.1xL7.5	1.5	0.1	7.5	1.0	4	50	66
CBNLR-2-1.5xR0.1xL7.5	1.5	0.1	7.5	1.0	4	50	78
CBNLRH-4-1.5xR0.1xL7.5	1.5	0.1	7.5	1.0	4	50	71
CBNLR-4-1.5xR0.1xL7.5	1.5	0.1	7.5	1.0	4	50	83
CBNLRH-2-1.5xR0.1xL10.0	1.5	0.1	10.0	1.0	4	50	66
CBNLR-2-1.5xR0.1xL10.0	1.5	0.1	10.0	1.0	4	50	78
CBNLRH-4-1.5xR0.1xL10.0	1.5	0.1	10.0	1.0	4	50	71
CBNLR-4-1.5xR0.1xL10.0	1.5	0.1	10.0	1.0	4	50	83
CBNLRH-2-1.5xR0.2xL2.0	1.5	0.2	2.0	1.0	4	50	66
CBNLR-2-1.5xR0.2xL2.0	1.5	0.2	2.0	1.0	4	50	78
CBNLRH-4-1.5xR0.2xL2.0	1.5	0.2	2.0	1.0	4	50	71
CBNLR-4-1.5xR0.2xL2.0	1.5	0.2	2.0	1.0	4	50	83
CBNLRH-2-1.5xR0.2xL3.0	1.5	0.2	3.0	1.0	4	50	66
CBNLR-2-1.5xR0.2xL3.0	1.5	0.2	3.0	1.0	4	50	78
LAPCBNLR-2-1.5xR0.2xL3.0	1.5	0.2	3.0	1.0	4	50	87
CBNLRH-4-1.5xR0.2xL3.0	1.5	0.2	3.0	1.0	4	50	71
CBNLR-4-1.5xR0.2xL3.0	1.5	0.2	3.0	1.0	4	50	83

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
CBNLRH-2-1.5xR0.2xL4.5	1.5	0.2	4.5	1.0	4	50	66
CBNLR-2-1.5xR0.2xL4.5	1.5	0.2	4.5	1.0	4	50	78
CBNLRH-4-1.5xR0.2xL4.5	1.5	0.2	4.5	1.0	4	50	71
CBNLR-4-1.5xR0.2xL4.5	1.5	0.2	4.5	1.0	4	50	83
CBNLRH-2-1.5xR0.2xL7.5	1.5	0.2	7.5	1.0	4	50	66
CBNLR-2-1.5xR0.2xL7.5	1.5	0.2	7.5	1.0	4	50	78
CBNLRH-4-1.5xR0.2xL7.5	1.5	0.2	7.5	1.0	4	50	71
CBNLR-4-1.5xR0.2xL7.5	1.5	0.2	7.5	1.0	4	50	83
CBNLRH-2-1.5xR0.3xL2.0	1.5	0.3	2.0	1.0	4	50	66
CBNLR-2-1.5xR0.3xL2.0	1.5	0.3	2.0	1.0	4	50	78
LAPCBNLR-2-1.5xR0.3xL3.0	1.5	0.3	3.0	1.0	4	50	87
CBNLRH-2-1.5xR0.3xL3.0	1.5	0.3	3.0	1.0	4	50	66
CBNLR-2-1.5xR0.3xL3.0	1.5	0.3	3.0	1.0	4	50	78
CBNLRH-4-1.5xR0.3xL3.0	1.5	0.3	3.0	1.0	4	50	71
CBNLR-4-1.5xR0.3xL3.0	1.5	0.3	3.0	1.0	4	50	83
CBNLRH-2-1.5xR0.3xL4.5	1.5	0.3	4.5	1.0	4	50	66
CBNLR-2-1.5xR0.3xL4.5	1.5	0.3	4.5	1.0	4	50	78
CBNLRH-2-1.5xR0.3xL7.5	1.5	0.3	7.5	1.0	4	50	66
CBNLR-2-1.5xR0.3xL7.5	1.5	0.3	7.5	1.0	4	50	78
CBNLRH-2-2.0xR0.02xL3.0	2.0	0.02	3.0	1.2	4	50	66
CBNLR-2-2.0xR0.02xL3.0	2.0	0.02	3.0	1.2	4	50	78
CBNLRH-4-2.0xR0.02xL3.0	2.0	0.02	3.0	1.2	4	50	71
CBNLR-4-2.0xR0.02xL3.0	2.0	0.02	3.0	1.2	4	50	83
CBNLRH-2-2.0xR0.02xL4.0	2.0	0.02	4.0	1.2	4	50	66
CBNLR-2-2.0xR0.02xL4.0	2.0	0.02	4.0	1.2	4	50	78
CBNLRH-4-2.0xR0.02xL4.0	2.0	0.02	4.0	1.2	4	50	71
CBNLR-4-2.0xR0.02xL4.0	2.0	0.02	4.0	1.2	4	50	83
CBNLRH-2-2.0xR0.02xL6.0	2.0	0.02	6.0	1.2	4	50	66
CBNLR-2-2.0xR0.02xL6.0	2.0	0.02	6.0	1.2	4	50	78
CBNLRH-4-2.0xR0.02xL6.0	2.0	0.02	6.0	1.2	4	50	71
CBNLR-4-2.0xR0.02xL6.0	2.0	0.02	6.0	1.2	4	50	83
CBNLRH-2-2.0xR0.02xL10.0	2.0	0.02	10.0	1.2	4	50	67
CBNLR-2-2.0xR0.02xL10.0	2.0	0.02	10.0	1.2	4	50	78
CBNLRH-2-2.0xR0.03xL3.0	2.0	0.03	3.0	1.2	4	50	67
CBNLR-2-2.0xR0.03xL3.0	2.0	0.03	3.0	1.2	4	50	78
CBNLRH-2-2.0xR0.03xL4.0	2.0	0.03	4.0	1.2	4	50	67
CBNLR-2-2.0xR0.03xL4.0	2.0	0.03	4.0	1.2	4	50	78
CBNLRH-2-2.0xR0.03xL6.0	2.0	0.03	6.0	1.2	4	50	67
CBNLR-2-2.0xR0.03xL6.0	2.0	0.03	6.0	1.2	4	50	78
CBNLRH-2-2.0xR0.03xL10.0	2.0	0.03	10.0	1.2	4	50	67
CBNLR-2-2.0xR0.03xL10.0	2.0	0.03	10.0	1.2	4	50	78
CBNLRH-2-2.0xR0.05xL3.0	2.0	0.05	3.0	1.2	4	50	67
CBNLR-2-2.0xR0.05xL3.0	2.0	0.05	3.0	1.2	4	50	78
CBNLRH-4-2.0xR0.05xL3.0	2.0	0.05	3.0	1.2	4	50	71
CBNLR-4-2.0xR0.05xL3.0	2.0	0.05	3.0	1.2	4	50	83
CBNLRH-2-2.0xR0.05xL4.0	2.0	0.05	4.0	1.2	4	50	67
CBNLR-2-2.0xR0.05xL4.0	2.0	0.05	4.0	1.2	4	50	78
CBNLRH-4-2.0xR0.05xL4.0	2.0	0.05	4.0	1.2	4	50	71
CBNLR-4-2.0xR0.05xL4.0	2.0	0.05	4.0	1.2	4	50	83
CBNLRH-2-2.0xR0.05xL5.0	2.0	0.05	5.0	1.2	4	50	67
CBNLR-2-2.0xR0.05xL5.0	2.0	0.05	5.0	1.2	4	50	78
CBNLRH-4-2.0xR0.05xL5.0	2.0	0.05	5.0	1.2	4	50	71
CBNLR-4-2.0xR0.05xL5.0	2.0	0.05	5.0	1.2	4	50	83
CBNLRH-2-2.0xR0.05xL6.0	2.0	0.05	6.0	1.2	4	50	67
CBNLR-2-2.0xR0.05xL6.0	2.0	0.05	6.0	1.2	4	50	78

CBNエンドミル/ラジアス　CBN EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
CBNLRH-4-2.0xR0.05xL6.0	2.0	0.05	6.0	1.2	4	50	71
CBNLR-4-2.0xR0.05xL6.0	2.0	0.05	6.0	1.2	4	50	83
CBNLRH-2-2.0xR0.05xL10.0	2.0	0.05	10.0	1.2	4	50	67
CBNLR-2-2.0xR0.05xL10.0	2.0	0.05	10.0	1.2	4	50	78
CBNLRH-4-2.0xR0.05xL10.0	2.0	0.05	10.0	1.2	4	50	71
CBNLR-4-2.0xR0.05xL10.0	2.0	0.05	10.0	1.2	4	50	83
CBNLRH-2-2.0xR0.05xL15.0	2.0	0.05	15.0	1.2	4	50	67
CBNLR-2-2.0xR0.05xL15.0	2.0	0.05	15.0	1.2	4	50	78
CBNLRH-4-2.0xR0.05xL15.0	2.0	0.05	15.0	1.2	4	50	71
CBNLR-4-2.0xR0.05xL15.0	2.0	0.05	15.0	1.2	4	50	83
CBNLRH-2-2.0xR0.1xL3.0	2.0	0.1	3.0	1.2	4	50	67
CBNLR-2-2.0xR0.1xL3.0	2.0	0.1	3.0	1.2	4	50	79
CBNLRH-4-2.0xR0.1xL3.0	2.0	0.1	3.0	1.2	4	50	71
CBNLR-4-2.0xR0.1xL3.0	2.0	0.1	3.0	1.2	4	50	83
CBNLRH-2-2.0xR0.1xL4.0	2.0	0.1	4.0	1.2	4	50	67
CBNLR-2-2.0xR0.1xL4.0	2.0	0.1	4.0	1.2	4	50	79
CBNLRH-4-2.0xR0.1xL4.0	2.0	0.1	4.0	1.2	4	50	71
CBNLR-4-2.0xR0.1xL4.0	2.0	0.1	4.0	1.2	4	50	83
CBNLRH-2-2.0xR0.1xL5.0	2.0	0.1	5.0	1.2	4	50	67
CBNLR-2-2.0xR0.1xL5.0	2.0	0.1	5.0	1.2	4	50	79
LAPCBNLR-2-2.0xR0.1xL5.0	2.0	0.1	5.0	1.2	4	50	87
CBNLRH-4-2.0xR0.1xL5.0	2.0	0.1	5.0	1.2	4	50	71
CBNLR-4-2.0xR0.1xL5.0	2.0	0.1	5.0	1.2	4	50	83
CBNLRH-2-2.0xR0.1xL6.0	2.0	0.1	6.0	1.2	4	50	67
CBNLR-2-2.0xR0.1xL6.0	2.0	0.1	6.0	1.2	4	50	79
CBNLRH-4-2.0xR0.1xL6.0	2.0	0.1	6.0	1.2	4	50	71
CBNLR-4-2.0xR0.1xL6.0	2.0	0.1	6.0	1.2	4	50	83
CBNLRH-2-2.0xR0.1xL10.0	2.0	0.1	10.0	1.2	4	50	67
CBNLR-2-2.0xR0.1xL10.0	2.0	0.1	10.0	1.2	4	50	79
CBNLRH-4-2.0xR0.1xL10.0	2.0	0.1	10.0	1.2	4	50	71
CBNLR-4-2.0xR0.1xL10.0	2.0	0.1	10.0	1.2	4	50	83
CBNLRH-2-2.0xR0.1xL15.0	2.0	0.1	15.0	1.2	4	50	67
CBNLR-2-2.0xR0.1xL15.0	2.0	0.1	15.0	1.2	4	50	79
CBNLRH-4-2.0xR0.1xL15.0	2.0	0.1	15.0	1.2	4	50	71
CBNLR-4-2.0xR0.1xL15.0	2.0	0.1	15.0	1.2	4	50	83
CBNLRH-2-2.0xR0.2xL3.0	2.0	0.2	3.0	1.2	4	50	67
CBNLR-2-2.0xR0.2xL3.0	2.0	0.2	3.0	1.2	4	50	79
CBNLRH-4-2.0xR0.2xL3.0	2.0	0.2	3.0	1.2	4	50	71
CBNLR-4-2.0xR0.2xL3.0	2.0	0.2	3.0	1.2	4	50	83
CBNLRH-2-2.0xR0.2xL4.0	2.0	0.2	4.0	1.2	4	50	67
CBNLR-2-2.0xR0.2xL4.0	2.0	0.2	4.0	1.2	4	50	79
CBNLRH-4-2.0xR0.2xL4.0	2.0	0.2	4.0	1.2	4	50	71
CBNLR-4-2.0xR0.2xL4.0	2.0	0.2	4.0	1.2	4	50	83
CBNLRH-2-2.0xR0.2xL5.0	2.0	0.2	5.0	1.2	4	50	67
CBNLR-2-2.0xR0.2xL5.0	2.0	0.2	5.0	1.2	4	50	79
LAPCBNLR-2-2.0xR0.2xL5.0	2.0	0.2	5.0	1.2	4	50	87
CBNLRH-4-2.0xR0.2xL5.0	2.0	0.2	5.0	1.2	4	50	71
CBNLR-4-2.0xR0.2xL5.0	2.0	0.2	5.0	1.2	4	50	83
CBNLRH-2-2.0xR0.2xL6.0	2.0	0.2	6.0	1.2	4	50	67
CBNLR-2-2.0xR0.2xL6.0	2.0	0.2	6.0	1.2	4	50	79
CBNLRH-4-2.0xR0.2xL6.0	2.0	0.2	6.0	1.2	4	50	71
CBNLR-4-2.0xR0.2xL6.0	2.0	0.2	6.0	1.2	4	50	83
CBNLRH-4-2.0xR0.2xL10.0	2.0	0.2	10.0	1.2	4	50	71
CBNLR-4-2.0xR0.2xL10.0	2.0	0.2	10.0	1.2	4	50	83
CBNLRH-2-2.0xR0.3xL3.0	2.0	0.3	3.0	1.2	4	50	67
CBNLR-2-2.0xR0.3xL3.0	2.0	0.3	3.0	1.2	4	50	79
CBNLRH-2-2.0xR0.3xL4.0	2.0	0.3	4.0	1.2	4	50	67
CBNLR-2-2.0xR0.3xL4.0	2.0	0.3	4.0	1.2	4	50	79
CBNLRH-2-2.0xR0.3xL5.0	2.0	0.3	5.0	1.2	4	50	67
CBNLR-2-2.0xR0.3xL5.0	2.0	0.3	5.0	1.2	4	50	79
LAPCBNLR-2-2.0xR0.3xL5.0	2.0	0.3	5.0	1.2	4	50	87
CBNLRH-4-2.0xR0.3xL5.0	2.0	0.3	5.0	1.2	4	50	71
CBNLR-4-2.0xR0.3xL5.0	2.0	0.3	5.0	1.2	4	50	83
CBNLRH-2-2.0xR0.3xL6.0	2.0	0.3	6.0	1.2	4	50	67
CBNLR-2-2.0xR0.3xL6.0	2.0	0.3	6.0	1.2	4	50	79
CBNLRH-2-2.0xR0.3xL10.0	2.0	0.3	10.0	1.2	4	50	67
CBNLR-2-2.0xR0.3xL10.0	2.0	0.3	10.0	1.2	4	50	79
CBNLRH-4-2.0xR0.3xL10.0	2.0	0.3	10.0	1.2	4	50	71
CBNLR-4-2.0xR0.3xL10.0	2.0	0.3	10.0	1.2	4	50	83
CBNLRH-2-2.0xR0.5xL3.0	2.0	0.5	3.0	1.2	4	50	67
CBNLR-2-2.0xR0.5xL3.0	2.0	0.5	3.0	1.2	4	50	79
CBNLRH-2-2.0xR0.5xL4.0	2.0	0.5	4.0	1.2	4	50	67
CBNLR-2-2.0xR0.5xL4.0	2.0	0.5	4.0	1.2	4	50	79
CBNLRH-2-2.0xR0.5xL6.0	2.0	0.5	6.0	1.2	4	50	67
CBNLR-2-2.0xR0.5xL6.0	2.0	0.5	6.0	1.2	4	50	79
CBNLRH-2-2.0xR0.5xL10.0	2.0	0.5	10.0	1.2	4	50	67
CBNLR-2-2.0xR0.5xL10.0	2.0	0.5	10.0	1.2	4	50	79
CBNLRH-2-3.0xR0.05xL5.0	3.0	0.05	5.0	2.0	6	50	67
CBNLR-2-3.0xR0.05xL5.0	3.0	0.05	5.0	2.0	6	50	79
CBNLRH-4-3.0xR0.05xL5.0	3.0	0.05	5.0	2.0	6	50	71
CBNLR-4-3.0xR0.05xL5.0	3.0	0.05	5.0	2.0	6	50	83
CBNLRH-4-3.0xR0.05xL6.0	3.0	0.05	6.0	2.0	6	50	71
CBNLR-4-3.0xR0.05xL6.0	3.0	0.05	6.0	2.0	6	50	83
CBNLRH-4-3.0xR0.05xL9.0	3.0	0.05	9.0	2.0	6	50	71
CBNLR-4-3.0xR0.05xL9.0	3.0	0.05	9.0	2.0	6	50	83
CBNLRH-2-3.0xR0.05xL10.0	3.0	0.05	10.0	2.0	6	50	67
CBNLR-2-3.0xR0.05xL10.0	3.0	0.05	10.0	2.0	6	50	79
CBNLRH-4-3.0xR0.05xL10.0	3.0	0.05	10.0	2.0	6	50	71
CBNLR-4-3.0xR0.05xL10.0	3.0	0.05	10.0	2.0	6	50	83
CBNLRH-4-3.0xR0.05xL12.0	3.0	0.05	12.0	2.0	6	50	72
CBNLR-4-3.0xR0.05xL12.0	3.0	0.05	12.0	2.0	6	50	84
CBNLRH-2-3.0xR0.05xL15.0	3.0	0.05	15.0	2.0	6	50	67
CBNLR-2-3.0xR0.05xL15.0	3.0	0.05	15.0	2.0	6	50	79
CBNLRH-4-3.0xR0.05xL15.0	3.0	0.05	15.0	2.0	6	50	72
CBNLR-4-3.0xR0.05xL15.0	3.0	0.05	15.0	2.0	6	50	84
LAPCBNLR-2-3.0xR0.1xL5.0	3.0	0.1	5.0	2.0	6	50	87
CBNLRH-2-3.0xR0.1xL5.0	3.0	0.1	5.0	2.0	6	50	67
CBNLR-2-3.0xR0.1xL5.0	3.0	0.1	5.0	2.0	6	50	79
CBNLRH-4-3.0xR0.1xL5.0	3.0	0.1	5.0	2.0	6	50	72
CBNLR-4-3.0xR0.1xL5.0	3.0	0.1	5.0	2.0	6	50	84
CBNLRH-4-3.0xR0.1xL6.0	3.0	0.1	6.0	2.0	6	50	72
CBNLR-4-3.0xR0.1xL6.0	3.0	0.1	6.0	2.0	6	50	84
CBNLRH-4-3.0xR0.1xL9.0	3.0	0.1	9.0	2.0	6	50	72
CBNLR-4-3.0xR0.1xL9.0	3.0	0.1	9.0	2.0	6	50	84
CBNLRH-2-3.0xR0.1xL10.0	3.0	0.1	10.0	2.0	6	50	67
CBNLR-2-3.0xR0.1xL10.0	3.0	0.1	10.0	2.0	6	50	79
CBNLRH-4-3.0xR0.1xL10.0	3.0	0.1	10.0	2.0	6	50	72
CBNLR-4-3.0xR0.1xL10.0	3.0	0.1	10.0	2.0	6	50	84
CBNLRH-4-3.0xR0.1xL12.0	3.0	0.1	12.0	2.0	6	50	72

CBNエンドミル/ラジアス　CBN EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
CBNLR-4-3.0xR0.1xL12.0	3.0	0.1	12.0	2.0	6	50	84
CBNLRH-2-3.0xR0.1xL15.0	3.0	0.1	15.0	2.0	6	50	67
CBNLR-2-3.0xR0.1xL15.0	3.0	0.1	15.0	2.0	6	50	79
CBNLRH-4-3.0xR0.1xL15.0	3.0	0.1	15.0	2.0	6	50	72
CBNLR-4-3.0xR0.1xL15.0	3.0	0.1	15.0	2.0	6	50	84
CBNLRH-2-3.0xR0.2xL5.0	3.0	0.2	5.0	2.0	6	50	67
CBNLR-2-3.0xR0.2xL5.0	3.0	0.2	5.0	2.0	6	50	79
LAPCBNLR-2-3.0xR0.2xL5.0	3.0	0.2	5.0	2.0	6	50	87
CBNLRH-4-3.0xR0.2xL5.0	3.0	0.2	5.0	2.0	6	50	72
CBNLR-4-3.0xR0.2xL5.0	3.0	0.2	5.0	2.0	6	50	84
CBNLRH-4-3.0xR0.2xL6.0	3.0	0.2	6.0	2.0	6	50	72
CBNLR-4-3.0xR0.2xL6.0	3.0	0.2	6.0	2.0	6	50	84
CBNLRH-4-3.0xR0.2xL9.0	3.0	0.2	9.0	2.0	6	50	72
CBNLR-4-3.0xR0.2xL9.0	3.0	0.2	9.0	2.0	6	50	84
CBNLRH-4-3.0xR0.2xL12.0	3.0	0.2	12.0	2.0	6	50	72
CBNLR-4-3.0xR0.2xL12.0	3.0	0.2	12.0	2.0	6	50	84
CBNLRH-4-3.0xR0.2xL15.0	3.0	0.2	15.0	2.0	6	50	72
CBNLR-4-3.0xR0.2xL15.0	3.0	0.2	15.0	2.0	6	50	84
CBNLRH-2-3.0xR0.3xL5.0	3.0	0.3	5.0	2.0	6	50	67
CBNLR-2-3.0xR0.3xL5.0	3.0	0.3	5.0	2.0	6	50	79
LAPCBNLR-2-3.0xR0.3xL5.0	3.0	0.3	5.0	2.0	6	50	87
CBNLRH-4-3.0xR0.3xL5.0	3.0	0.3	5.0	2.0	6	50	72
CBNLR-4-3.0xR0.3xL5.0	3.0	0.3	5.0	2.0	6	50	84
CBNLRH-4-3.0xR0.3xL10.0	3.0	0.3	10.0	2.0	6	50	72
CBNLR-4-3.0xR0.3xL10.0	3.0	0.3	10.0	2.0	6	50	84
CBNLR-4-4.0xR0.05xL15.0	4.0	0.05	15.0	2.0	6	50	84
CBNLR-4-4.0xR0.1xL10.0	4.0	0.1	10.0	2.0	6	50	84
CBNLR-4-4.0xR0.1xL15.0	4.0	0.1	15.0	2.0	6	50	84
CBNLR-4-4.0xR0.3xL10.0	4.0	0.3	10.0	2.0	6	50	84
CBNLR-4-4.0xR0.3xL15.0	4.0	0.3	15.0	2.0	6	50	84
CBNLR-4-4.0xR0.5xL15.0	4.0	0.5	15.0	2.0	6	50	84
CBNLR-4-5.0xR0.05xL15.0	5.0	0.05	15.0	2.0	6	50	84
CBNLR-4-5.0xR0.1xL15.0	5.0	0.1	15.0	2.0	6	50	84
CBNLR-4-5.0xR0.3xL15.0	5.0	0.3	15.0	2.0	6	50	84
CBNLR-4-5.0xR0.5xL15.0	5.0	0.5	15.0	2.0	6	50	84
CBNLR-4-6.0xR0.05xL15.0	6.0	0.05	15.0	2.0	6	50	84
CBNLR-4-6.0xR0.1xL10.0	6.0	0.1	10.0	2.0	6	50	84
CBNLR-4-6.0xR0.1xL15.0	6.0	0.1	15.0	2.0	6	50	84
CBNLR-4-6.0xR0.3xL10.0	6.0	0.3	10.0	2.0	6	50	84
CBNLR-4-6.0xR0.3xL15.0	6.0	0.3	15.0	2.0	6	50	84
CBNLR-4-6.0xR0.5xL15.0	6.0	0.5	15.0	2.0	6	50	84

CBNエンドミル/ボール　CBN EndMills/Ball

コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
CBNLB-2-0.1xR0.05xL0.2	0.1	0.05	0.2	0.04	4	50	85
CBNLB-2-0.1xR0.05xL0.3	0.1	0.05	0.3	0.04	4	50	85
CBNLB-2-0.1xR0.05xL0.5	0.1	0.05	0.5	0.04	4	50	85
CBNLB-2-0.15xR0.075xL0.45	0.15	0.075	0.45	0.12	4	50	85
CBNLB-2-0.15xR0.075xL0.75	0.15	0.075	0.75	0.12	4	50	85
CBNLB-2-0.2xR0.1xL0.3	0.2	0.1	0.3	0.15	4	50	85
CBNLB-2-0.2xR0.1xL0.5	0.2	0.1	0.5	0.15	4	50	85
CBNLB-2-0.2xR0.1xL0.6	0.2	0.1	0.6	0.15	4	50	85
CBNLB-2-0.2xR0.1xL1.0	0.2	0.1	1.0	0.15	4	50	85
CBNLB-2-0.3xR0.15xL0.3	0.3	0.15	0.3	0.23	4	50	85
CBNLB-2-0.3xR0.15xL0.5	0.3	0.15	0.5	0.23	4	50	85
CBNLB-2-0.3xR0.15xL0.75	0.3	0.15	0.75	0.23	4	50	85
CBNLBH-2-0.4xR0.2xL0.5	0.4	0.2	0.5	0.3	4	50	73
CBNLB-2-0.4xR0.2xL0.5	0.4	0.2	0.5	0.3	4	50	85
CBNLBH-2-0.4xR0.2xL0.75	0.4	0.2	0.75	0.3	4	50	73
CBNLB-2-0.4xR0.2xL0.75	0.4	0.2	0.75	0.3	4	50	85
CBNLBH-2-0.4xR0.2xL1.0	0.4	0.2	1.0	0.3	4	50	73
CBNLB-2-0.4xR0.2xL1.0	0.4	0.2	1.0	0.3	4	50	85
LAPCBNLB-2-0.4xR0.2xL1.0	0.4	0.2	1.0	0.3	4	50	88
CBNLBH-2-0.4xR0.2xL1.2	0.4	0.2	1.2	0.3	4	50	73
CBNLB-2-0.4xR0.2xL1.2	0.4	0.2	1.2	0.3	4	50	85
CBNLBH-2-0.4xR0.2xL2.0	0.4	0.2	2.0	0.3	4	50	73
CBNLB-2-0.4xR0.2xL2.0	0.4	0.2	2.0	0.3	4	50	85
CBNLBH-2-0.4xR0.2xL3.0	0.4	0.2	3.0	0.3	4	50	73
CBNLB-2-0.4xR0.2xL3.0	0.4	0.2	3.0	0.3	4	50	85
CBNLBH-2-0.5xR0.25xL1.0	0.5	0.25	1.0	0.38	4	50	73
CBNLB-2-0.5xR0.25xL1.0	0.5	0.25	1.0	0.38	4	50	85
CBNLBH-2-0.5xR0.25xL1.5	0.5	0.25	1.5	0.38	4	50	73
CBNLB-2-0.5xR0.25xL1.5	0.5	0.25	1.5	0.38	4	50	86
CBNLBH-2-0.5xR0.25xL2.5	0.5	0.25	2.5	0.38	4	50	73
CBNLB-2-0.5xR0.25xL2.5	0.5	0.25	2.5	0.38	4	50	86
CBNLBH-2-0.5xR0.25xL3.5	0.5	0.25	3.5	0.38	4	50	73
CBNLB-2-0.5xR0.25xL3.5	0.5	0.25	3.5	0.38	4	50	86
CBNLBH-2-0.6xR0.3xL1.2	0.6	0.3	1.2	0.5	4	50	73
CBNLB-2-0.6xR0.3xL1.2	0.6	0.3	1.2	0.5	4	50	86
CBNLBH-2-0.6xR0.3xL1.5	0.6	0.3	1.5	0.5	4	50	73
CBNLB-2-0.6xR0.3xL1.5	0.6	0.3	1.5	0.5	4	50	86
LAPCBNLB-2-0.6xR0.3xL1.5	0.6	0.3	1.5	0.5	4	50	88
CBNLBH-2-0.6xR0.3xL3.0	0.6	0.3	3.0	0.5	4	50	73
CBNLB-2-0.6xR0.3xL3.0	0.6	0.3	3.0	0.5	4	50	86
CBNLBH-2-0.6xR0.3xL4.0	0.6	0.3	4.0	0.5	4	50	73
CBNLB-2-0.6xR0.3xL4.0	0.6	0.3	4.0	0.5	4	50	86
CBNLBH-2-0.6xR0.3xL5.0	0.6	0.3	5.0	0.5	4	50	73
CBNLB-2-0.6xR0.3xL5.0	0.6	0.3	5.0	0.5	4	50	86
CBNLBH-2-0.6xR0.3xL6.0	0.6	0.3	6.0	0.5	4	50	73
CBNLB-2-0.6xR0.3xL6.0	0.6	0.3	6.0	0.5	4	50	86
CBNLBH-2-0.8xR0.4xL1.6	0.8	0.4	1.6	0.6	4	50	73
CBNLB-2-0.8xR0.4xL1.6	0.8	0.4	1.6	0.6	4	50	86
CBNLBH-2-0.8xR0.4xL2.0	0.8	0.4	2.0	0.6	4	50	73
CBNLB-2-0.8xR0.4xL2.0	0.8	0.4	2.0	0.6	4	50	86
CBNLBH-2-0.8xR0.4xL4.0	0.8	0.4	4.0	0.6	4	50	73
CBNLB-2-0.8xR0.4xL4.0	0.8	0.4	4.0	0.6	4	50	86
CBNLBH-2-0.8xR0.4xL6.0	0.8	0.4	6.0	0.6	4	50	74
CBNLB-2-0.8xR0.4xL6.0	0.8	0.4	6.0	0.6	4	50	86
LAPCBNLB-2-1.0xR0.5xL2.0	1.0	0.5	2.0	0.7	4	50	88
CBNLBH-2-1.0xR0.5xL2.0	1.0	0.5	2.0	0.7	4	50	74
CBNLB-2-1.0xR0.5xL2.0	1.0	0.5	2.0	0.7	4	50	86
CBNLBH-2-1.0xR0.5xL2.5	1.0	0.5	2.5	0.7	4	50	74
CBNLB-2-1.0xR0.5xL2.5	1.0	0.5	2.5	0.7	4	50	86
CBNLBH-2-1.0xR0.5xL3.0	1.0	0.5	3.0	0.7	4	50	74
CBNLB-2-1.0xR0.5xL3.0	1.0	0.5	3.0	0.7	4	50	86
CBNLBH-2-1.0xR0.5xL4.0	1.0	0.5	4.0	0.7	4	50	74
CBNLB-2-1.0xR0.5xL4.0	1.0	0.5	4.0	0.7	4	50	86
CBNLBH-2-1.0xR0.5xL5.0	1.0	0.5	5.0	0.7	4	50	74

CBNエンドミル/ボール　CBN EndMills/Ball

コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
CBNLB-2-1.0xR0.5xL5.0	1.0	0.5	5.0	0.7	4	50	86
CBNLBH-2-1.0xR0.5xL6.0	1.0	0.5	6.0	0.7	4	50	74
CBNLB-2-1.0xR0.5xL6.0	1.0	0.5	6.0	0.7	4	50	86
CBNLBH-2-1.0xR0.5xL8.0	1.0	0.5	8.0	0.7	4	50	74
CBNLB-2-1.0xR0.5xL8.0	1.0	0.5	8.0	0.7	4	50	86
CBNLBH-2-1.0xR0.5xL10.0	1.0	0.5	10.0	0.7	4	50	74
CBNLB-2-1.0xR0.5xL10.0	1.0	0.5	10.0	0.7	4	50	86
CBNLBH-2-1.2xR0.6xL2.4	1.2	0.6	2.4	0.8	4	50	74
CBNLB-2-1.2xR0.6xL2.4	1.2	0.6	2.4	0.8	4	50	86
CBNLBH-2-1.2xR0.6xL3.0	1.2	0.6	3.0	0.8	4	50	74
CBNLB-2-1.2xR0.6xL3.0	1.2	0.6	3.0	0.8	4	50	86
CBNLBH-2-1.2xR0.6xL6.0	1.2	0.6	6.0	0.8	4	50	74
CBNLB-2-1.2xR0.6xL6.0	1.2	0.6	6.0	0.8	4	50	86
CBNLBH-2-1.5xR0.75xL3.0	1.5	0.75	3.0	1.0	4	50	74
CBNLB-2-1.5xR0.75xL3.0	1.5	0.75	3.0	1.0	4	50	86
LAPCBNLB-2-1.5xR0.75xL3.0	1.5	0.75	3.0	1.0	4	50	88
CBNLBH-2-1.5xR0.75xL3.8	1.5	0.75	3.8	1.0	4	50	74
CBNLB-2-1.5xR0.75xL3.8	1.5	0.75	3.8	1.0	4	50	86
CBNLBH-2-1.5xR0.75xL5.0	1.5	0.75	5.0	1.0	4	50	74
CBNLB-2-1.5xR0.75xL5.0	1.5	0.75	5.0	1.0	4	50	86
LAPCBNLB-2-1.5xR0.75xL5.0	1.5	0.75	5.0	1.0	4	50	88
CBNLBH-2-1.5xR0.75xL7.5	1.5	0.75	7.5	1.0	4	50	74
CBNLB-2-1.5xR0.75xL7.5	1.5	0.75	7.5	1.0	4	50	86
CBNLBH-2-1.5xR0.75xL10.0	1.5	0.75	10.0	1.0	4	50	74
CBNLB-2-1.5xR0.75xL10.0	1.5	0.75	10.0	1.0	4	50	86
LAPCBNLB-2-1.5xR0.75xL10.0	1.5	0.75	10.0	1.0	4	50	88
CBNLBH-2-1.5xR0.75xL15.0	1.5	0.75	15.0	1.0	4	50	74
CBNLB-2-1.5xR0.75xL15.0	1.5	0.75	15.0	1.0	4	50	86
CBNLBH-2-2.0xR1.0xL4.0	2.0	1.0	4.0	1.2	4	50	74
CBNLB-2-2.0xR1.0xL4.0	2.0	1.0	4.0	1.2	4	50	86
CBNLBH-2-2.0xR1.0xL5.0	2.0	1.0	5.0	1.2	4	50	74
CBNLB-2-2.0xR1.0xL5.0	2.0	1.0	5.0	1.2	4	50	86
LAPCBNLB-2-2.0xR1.0xL5.0	2.0	1.0	5.0	2.0	4	50	88
CBNLBH-2-2.0xR1.0xL6.0	2.0	1.0	6.0	1.2	4	50	74
CBNLB-2-2.0xR1.0xL6.0	2.0	1.0	6.0	1.2	4	50	86
CBNLBH-2-2.0xR1.0xL8.0	2.0	1.0	8.0	1.2	4	50	74
CBNLB-2-2.0xR1.0xL8.0	2.0	1.0	8.0	1.2	4	50	86
CBNLBH-2-2.0xR1.0xL10.0	2.0	1.0	10.0	1.2	4	50	74
CBNLB-2-2.0xR1.0xL10.0	2.0	1.0	10.0	1.2	4	50	86
LAPCBNLB-2-2.0xR1.0xL10.0	2.0	1.0	10.0	2.0	4	50	88
CBNLBH-2-2.0xR1.0xL14.0	2.0	1.0	14.0	1.2	4	50	74
CBNLB-2-2.0xR1.0xL14.0	2.0	1.0	14.0	1.2	4	50	86
LAPCBNLB-2-2.0xR1.0xL15.0	2.0	1.0	15.0	2.0	4	50	88
CBNLBH-2-2.0xR1.0xL15.0	2.0	1.0	15.0	1.2	4	50	74
CBNLB-2-2.0xR1.0xL15.0	2.0	1.0	15.0	1.2	4	50	86
CBNLBH-2-2.0xR1.0xL20.0	2.0	1.0	20.0	1.2	4	50	74
CBNLB-2-2.0xR1.0xL20.0	2.0	1.0	20.0	1.2	4	50	86
LAPCBNLB-2-3.0xR1.5xL5.0	3.0	1.5	5.0	2.0	6	50	88
CBNLBH-2-3.0xR1.5xL5.0	3.0	1.5	5.0	2.0	6	50	74
CBNLB-2-3.0xR1.5xL5.0	3.0	1.5	5.0	2.0	6	50	86
CBNLBH-2-3.0xR1.5xL6.0	3.0	1.5	6.0	2.0	6	50	74
CBNLB-2-3.0xR1.5xL6.0	3.0	1.5	6.0	2.0	6	50	86
CBNLBH-2-3.0xR1.5xL9.0	3.0	1.5	9.0	2.0	6	50	74
CBNLB-2-3.0xR1.5xL9.0	3.0	1.5	9.0	2.0	6	50	86
LAPCBNLB-2-3.0xR1.5xL10.0	3.0	1.5	10.0	2.0	6	50	88
CBNLBH-2-3.0xR1.5xL10.0	3.0	1.5	10.0	2.0	6	50	74
CBNLB-2-3.0xR1.5xL10.0	3.0	1.5	10.0	2.0	6	50	86
LAPCBNLB-2-3.0xR1.5xL15.0	3.0	1.5	15.0	2.0	6	50	88
CBNLBH-2-3.0xR1.5xL15.0	3.0	1.5	15.0	2.0	6	50	74
CBNLB-2-3.0xR1.5xL15.0	3.0	1.5	15.0	2.0	6	50	86

超硬エンドミル/スクエア　Carbide EndMills/Square

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IAS-2-0.1x0.15	0.1	—	—	0.15	4	50	166
IUSH-2-0.1x0.15	0.1	—	—	0.15	4	50	96
IUS-2-0.1x0.15	0.1	—	—	0.15	4	50	120
IULSH-2-0.1xL0.3	0.1	—	0.3	0.1	4	50	99
IULS-2-0.1xL0.3	0.1	—	0.3	0.1	4	50	124
IALS-2-0.1xL0.3	0.1	—	0.3	0.1	4	50	171
IULSH-2-0.1xL0.5	0.1	—	0.5	0.1	4	50	99
IULS-2-0.1xL0.5	0.1	—	0.5	0.1	4	50	124
IALS-2-0.1xL1.0	0.1	—	1.0	0.1	4	50	171
IULSH-2-0.15xL0.3	0.15	—	0.3	0.12	4	50	99
IULS-2-0.15xL0.3	0.15	—	0.3	0.12	4	50	124
IULSH-2-0.15xL0.5	0.15	—	0.5	0.12	4	50	99
IULS-2-0.15xL0.5	0.15	—	0.5	0.12	4	50	124
IUSH-2-0.2x0.4	0.2	—	—	0.4	4	50	96
IUS-2-0.2x0.4	0.2	—	—	0.4	4	50	120
IAS-2-0.2x0.4	0.2	—	—	0.4	4	50	166
IALS-2-0.2xL0.5	0.2	—	0.5	0.15	4	50	171
IULSH-2-0.2xL0.5	0.2	—	0.5	0.15	4	50	99
IULS-2-0.2xL0.5	0.2	—	0.5	0.15	4	50	124
IULSH-2-0.2xL0.75	0.2	—	0.75	0.15	4	50	99
IULS-2-0.2xL0.75	0.2	—	0.75	0.15	4	50	124
IALS-2-0.2xL1.0	0.2	—	1.0	0.15	4	50	171
IULSH-2-0.2xL1.0	0.2	—	1.0	0.15	4	50	99
IULS-2-0.2xL1.0	0.2	—	1.0	0.15	4	50	124
IAS-2-0.3x0.3	0.3	—	—	0.3	4	50	166
IUSH-2-0.3x0.6	0.3	—	—	0.6	4	50	96
IUS-2-0.3x0.6	0.3	—	—	0.6	4	50	120
IAS-2-0.3x0.6	0.3	—	—	0.6	4	50	166
IULSH-2-0.3xL1.0	0.3	—	1.0	0.25	4	50	99
IULS-2-0.3xL1.0	0.3	—	1.0	0.25	4	50	124
IALS-2-0.3xL1.5	0.3	—	1.5	0.25	4	50	171
IULSH-2-0.3xL1.5	0.3	—	1.5	0.25	4	50	99
IULS-2-0.3xL1.5	0.3	—	1.5	0.25	4	50	124
IULSH-2-0.3xL2.0	0.3	—	2.0	0.25	4	50	99
IULS-2-0.3xL2.0	0.3	—	2.0	0.25	4	50	124
IULSH-2-0.3xL2.5	0.3	—	2.5	0.25	4	50	99
IULS-2-0.3xL2.5	0.3	—	2.5	0.25	4	50	124
IALS-2-0.3xL3.0	0.3	—	3.0	0.25	4	50	171
IULSH-2-0.3xL3.0	0.3	—	3.0	0.25	4	50	99
IULS-2-0.3xL3.0	0.3	—	3.0	0.25	4	50	124
IAS-2-0.4x0.6	0.4	—	—	0.6	4	50	166
IUSH-2-0.4x0.8	0.4	—	—	0.8	4	50	96
IUS-2-0.4x0.8	0.4	—	—	0.8	4	50	120
IAS-2-0.4x0.8	0.4	—	—	0.8	4	50	166
IULSH-2-0.4xL1.0	0.4	—	1.0	0.3	4	50	99

超硬エンドミル/スクエア　Carbide EndMills/Square

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULS-2-0.4xL1.0	0.4	—	1.0	0.3	4	50	124
IALS-2-0.4xL1.5	0.4	—	1.5	0.3	4	50	171
IULSH-2-0.4xL1.5	0.4	—	1.5	0.3	4	50	99
IULS-2-0.4xL1.5	0.4	—	1.5	0.3	4	50	124
IULSH-2-0.4xL2.0	0.4	—	2.0	0.3	4	50	99
IULS-2-0.4xL2.0	0.4	—	2.0	0.3	4	50	124
IULSH-2-0.4xL2.5	0.4	—	2.5	0.3	4	50	99
IULS-2-0.4xL2.5	0.4	—	2.5	0.3	4	50	124
IALS-2-0.4xL3.0	0.4	—	3.0	0.3	4	50	171
IULSH-2-0.4xL3.0	0.4	—	3.0	0.3	4	50	99
IULS-2-0.4xL3.0	0.4	—	3.0	0.3	4	50	124
IAS-2-0.5x0.8	0.5	—	—	0.8	4	50	166
IUSH-2-0.5x1.0	0.5	—	—	1.0	4	50	96
IUS-2-0.5x1.0	0.5	—	—	1.0	4	50	120
IAS-2-0.5x1.25	0.5	—	—	1.25	4	50	166
IAS-2-0.5x2.0	0.5	—	—	2.0	4	50	166
IULSH-2-0.5xL1.0	0.5	—	1.0	0.4	4	50	99
IULS-2-0.5xL1.0	0.5	—	1.0	0.4	4	50	124
IULSH-2-0.5xL1.5	0.5	—	1.5	0.4	4	50	99
IULS-2-0.5xL1.5	0.5	—	1.5	0.4	4	50	124
IALS-2-0.5xL2.0	0.5	—	2.0	0.4	4	50	171
IULSH-2-0.5xL2.0	0.5	—	2.0	0.4	4	50	100
IULS-2-0.5xL2.0	0.5	—	2.0	0.4	4	50	125
IULSH-2-0.5xL2.5	0.5	—	2.5	0.4	4	50	100
IULS-2-0.5xL2.5	0.5	—	2.5	0.4	4	50	125
IULSH-2-0.5xL3.0	0.5	—	3.0	0.4	4	50	100
IULS-2-0.5xL3.0	0.5	—	3.0	0.4	4	50	125
IULSH-2-0.5xL3.5	0.5	—	3.5	0.4	4	50	100
IULS-2-0.5xL3.5	0.5	—	3.5	0.4	4	50	125
IALS-2-0.5xL4.0	0.5	—	4.0	0.4	4	50	171
IULSH-2-0.5xL4.0	0.5	—	4.0	0.4	4	50	100
IULS-2-0.5xL4.0	0.5	—	4.0	0.4	4	50	125
IAS-2-0.6x1.0	0.6	—	—	1.0	4	50	166
IUSH-2-0.6x1.2	0.6	—	—	1.2	4	50	96
IUS-2-0.6x1.2	0.6	—	—	1.2	4	50	120
IAS-2-0.6x1.5	0.6	—	—	1.5	4	50	166
IAS-2-0.6x2.4	0.6	—	—	2.4	4	50	166
IALS-2-0.6xL1.5	0.6	—	1.5	0.5	4	50	171
IULSH-2-0.6xL1.5	0.6	—	1.5	0.5	4	50	100
IULS-2-0.6xL1.5	0.6	—	1.5	0.5	4	50	125
IULSH-2-0.6xL2.0	0.6	—	2.0	0.5	4	50	100
IULS-2-0.6xL2.0	0.6	—	2.0	0.5	4	50	125
IULSH-2-0.6xL3.0	0.6	—	3.0	0.5	4	50	100
IULS-2-0.6xL3.0	0.6	—	3.0	0.5	4	50	125
IULSH-2-0.6xL4.0	0.6	—	4.0	0.5	4	50	100
IULS-2-0.6xL4.0	0.6	—	4.0	0.5	4	50	125
IULSH-2-0.6xL5.0	0.6	—	5.0	0.5	4	50	100
IULS-2-0.6xL5.0	0.6	—	5.0	0.5	4	50	125
IULSH-2-0.6xL6.0	0.6	—	6.0	0.5	4	50	100
IULS-2-0.6xL6.0	0.6	—	6.0	0.5	4	50	125
IUSH-2-0.7x1.4	0.7	—	—	1.4	4	50	96
IUS-2-0.7x1.4	0.7	—	—	1.4	4	50	120
IAS-2-0.7x1.8	0.7	—	—	1.8	4	50	166
IULSH-2-0.7xL2.0	0.7	—	2.0	0.55	4	50	100
IULS-2-0.7xL2.0	0.7	—	2.0	0.55	4	50	125
IULSH-2-0.7xL4.0	0.7	—	4.0	0.55	4	50	100
IULS-2-0.7xL4.0	0.7	—	4.0	0.55	4	50	125
IULSH-2-0.7xL6.0	0.7	—	6.0	0.55	4	50	100
IULS-2-0.7xL6.0	0.7	—	6.0	0.55	4	50	125
IAS-2-0.8x1.2	0.8	—	—	1.2	4	50	166
IUSH-2-0.8x1.6	0.8	—	—	1.6	4	50	96
IUS-2-0.8x1.6	0.8	—	—	1.6	4	50	120
IAS-2-0.8x2.0	0.8	—	—	2.0	4	50	166
IAS-2-0.8x3.2	0.8	—	—	3.2	4	50	166
IULSH-2-0.8xL3.0	0.8	—	3.0	0.65	4	50	100
IULS-2-0.8xL3.0	0.8	—	3.0	0.65	4	50	125
IALS-2-0.8xL4.0	0.8	—	4.0	0.65	4	50	171
IULSH-2-0.8xL4.0	0.8	—	4.0	0.65	4	50	100
IULS-2-0.8xL4.0	0.8	—	4.0	0.65	4	50	125
IULSH-2-0.8xL5.0	0.8	—	5.0	0.65	4	50	100
IULS-2-0.8xL5.0	0.8	—	5.0	0.65	4	50	125
IULSH-2-0.8xL6.0	0.8	—	6.0	0.65	4	50	100
IULS-2-0.8xL6.0	0.8	—	6.0	0.65	4	50	125
IALS-2-0.8xL8.0	0.8	—	8.0	0.65	4	50	171
IULSH-2-0.8xL8.0	0.8	—	8.0	0.65	4	50	100
IULS-2-0.8xL8.0	0.8	—	8.0	0.65	4	50	125
IUSH-2-0.9x1.8	0.9	—	—	1.8	4	50	96
IUS-2-0.9x1.8	0.9	—	—	1.8	4	50	120
IAS-2-0.9x2.0	0.9	—	—	2.0	4	50	166
IAS-2-1.0x1.5	1.0	—	—	1.5	4	50	166
IUSH-2-1.0x2.0	1.0	—	—	2.0	4	50	96
IUS-2-1.0x2.0	1.0	—	—	2.0	4	50	120
IUSH-4-1.0x2.0	1.0	—	—	2.0	4	50	98
IUS-4-1.0x2.0	1.0	—	—	2.0	4	50	122
IAS-2-1.0x2.5	1.0	—	—	2.5	4	50	166
IAS-4-1.0x2.5	1.0	—	—	2.5	4	50	169
IAS-2-1.0x4.0	1.0	—	—	4.0	4	50	166
IAS-4-1.0x4.0	1.0	—	—	4.0	4	50	169
IALS-2-1.0xL2.0	1.0	—	2.0	0.8	4	50	171
IULSH-2-1.0xL2.0	1.0	—	2.0	0.8	4	50	100
IULS-2-1.0xL2.0	1.0	—	2.0	0.8	4	50	125
IULSH-2-1.0xL3.0	1.0	—	3.0	0.8	4	50	100
IULS-2-1.0xL3.0	1.0	—	3.0	0.8	4	50	125
IALS-2-1.0xL4.0	1.0	—	4.0	0.8	4	50	171
IULSH-2-1.0xL4.0	1.0	—	4.0	0.8	4	50	100
IULS-2-1.0xL4.0	1.0	—	4.0	0.8	4	50	125
IULSH-4-1.0xL4.0	1.0	—	4.0	0.8	4	50	102
IULS-4-1.0xL4.0	1.0	—	4.0	0.8	4	50	127
IULSH-2-1.0xL5.0	1.0	—	5.0	0.8	4	50	100
IULS-2-1.0xL5.0	1.0	—	5.0	0.8	4	50	125
IALS-2-1.0xL6.0	1.0	—	6.0	0.8	4	50	171
IULSH-2-1.0xL6.0	1.0	—	6.0	0.8	4	50	100
IULS-2-1.0xL6.0	1.0	—	6.0	0.8	4	50	125
IULSH-4-1.0xL6.0	1.0	—	6.0	0.8	4	50	102
IULS-4-1.0xL6.0	1.0	—	6.0	0.8	4	50	127
IULSH-2-1.0xL7.0	1.0	—	7.0	0.8	4	50	100
IULS-2-1.0xL7.0	1.0	—	7.0	0.8	4	50	125
IALS-2-1.0xL8.0	1.0	—	8.0	0.8	4	50	171
IULSH-2-1.0xL8.0	1.0	—	8.0	0.8	4	50	100

超硬エンドミル/スクエア Carbide EndMills/Square

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULS-2-1.0xL8.0	1.0	—	8.0	0.8	4	50	125
IULSH-4-1.0xL8.0	1.0	—	8.0	0.8	4	50	102
IULS-4-1.0xL8.0	1.0	—	8.0	0.8	4	50	127
IULSH-2-1.0xL9.0	1.0	—	9.0	0.8	4	50	100
IULS-2-1.0xL9.0	1.0	—	9.0	0.8	4	50	125
IALS-2-1.0xL10.0	1.0	—	10.0	0.8	4	50	171
IULSH-2-1.0xL10.0	1.0	—	10.0	0.8	4	50	100
IULS-2-1.0xL10.0	1.0	—	10.0	0.8	4	50	125
IULSH-4-1.0xL10.0	1.0	—	10.0	0.8	4	50	102
IULS-4-1.0xL10.0	1.0	—	10.0	0.8	4	50	127
IALS-2-1.0xL12.0	1.0	—	12.0	0.8	4	50	171
IULSH-2-1.0xL12.0	1.0	—	12.0	0.8	4	50	100
IULS-2-1.0xL12.0	1.0	—	12.0	0.8	4	50	125
IUSH-2-1.1x2.2	1.1	—	—	2.2	4	50	96
IUS-2-1.1x2.2	1.1	—	—	2.2	4	50	120
IAS-2-1.1x2.5	1.1	—	—	2.5	4	50	167
IUSH-2-1.2x2.4	1.2	—	—	2.4	4	50	96
IUS-2-1.2x2.4	1.2	—	—	2.4	4	50	120
IAS-2-1.2x3.0	1.2	—	—	3.0	4	50	167
IALS-2-1.2xL4.0	1.2	—	4.0	1.0	4	50	171
IALS-2-1.2xL6.0	1.2	—	6.0	1.0	4	50	171
IULSH-2-1.2xL6.0	1.2	—	6.0	1.0	4	50	100
IULS-2-1.2xL6.0	1.2	—	6.0	1.0	4	50	125
IULSH-4-1.2xL6.0	1.2	—	6.0	1.0	4	50	102
IULS-4-1.2xL6.0	1.2	—	6.0	1.0	4	50	127
IALS-2-1.2xL8.0	1.2	—	8.0	1.0	4	50	172
IULSH-2-1.2xL8.0	1.2	—	8.0	1.0	4	50	100
IULS-2-1.2xL8.0	1.2	—	8.0	1.0	4	50	125
IULSH-4-1.2xL8.0	1.2	—	8.0	1.0	4	50	102
IULS-4-1.2xL8.0	1.2	—	8.0	1.0	4	50	127
IALS-2-1.2xL10.0	1.2	—	10.0	1.0	4	50	172
IULSH-2-1.2xL10.0	1.2	—	10.0	1.0	4	50	100
IULS-2-1.2xL10.0	1.2	—	10.0	1.0	4	50	125
IULSH-4-1.2xL10.0	1.2	—	10.0	1.0	4	50	102
IULS-4-1.2xL10.0	1.2	—	10.0	1.0	4	50	127
IALS-2-1.2xL12.0	1.2	—	12.0	1.0	4	50	172
IULSH-2-1.2xL12.0	1.2	—	12.0	1.0	4	50	100
IULS-2-1.2xL12.0	1.2	—	12.0	1.0	4	50	125
IULSH-4-1.2xL12.0	1.2	—	12.0	1.0	4	50	102
IULS-4-1.2xL12.0	1.2	—	12.0	1.0	4	50	127
IULSH-2-1.2xL16.0	1.2	—	16.0	1.0	4	50	100
IULS-2-1.2xL16.0	1.2	—	16.0	1.0	4	50	125
IUSH-2-1.3x2.6	1.3	—	—	2.6	4	50	96
IUS-2-1.3x2.6	1.3	—	—	2.6	4	50	120
IAS-2-1.3x3.0	1.3	—	—	3.0	4	50	167
IUSH-2-1.4x2.8	1.4	—	—	2.8	4	50	96
IUS-2-1.4x2.8	1.4	—	—	2.8	4	50	120
IAS-2-1.4x3.5	1.4	—	—	3.5	4	50	167
IULSH-2-1.4xL6.0	1.4	—	6.0	1.1	4	50	100
IULS-2-1.4xL6.0	1.4	—	6.0	1.1	4	50	125
IULSH-2-1.4xL12.0	1.4	—	12.0	1.1	4	50	100
IULS-2-1.4xL12.0	1.4	—	12.0	1.1	4	50	125
IAS-2-1.5x2.0	1.5	—	—	2.0	4	50	167
IUSH-2-1.5x3.0	1.5	—	—	3.0	4	50	96
IUS-2-1.5x3.0	1.5	—	—	3.0	4	50	120
IUSH-4-1.5x3.0	1.5	—	—	3.0	4	50	98
IUS-4-1.5x3.0	1.5	—	—	3.0	4	50	122
IAS-2-1.5x4.0	1.5	—	—	4.0	4	50	167
IAS-4-1.5x4.0	1.5	—	—	4.0	4	50	169
IAS-2-1.5x6.0	1.5	—	—	6.0	4	50	167
IAS-4-1.5x6.0	1.5	—	—	6.0	4	50	169
IALS-2-1.5xL4.0	1.5	—	4.0	1.2	4	50	172
IULSH-2-1.5xL4.0	1.5	—	4.0	1.2	4	50	100
IULS-2-1.5xL4.0	1.5	—	4.0	1.2	4	50	125
IALS-2-1.5xL6.0	1.5	—	6.0	1.2	4	50	172
IULSH-2-1.5xL6.0	1.5	—	6.0	1.2	4	50	100
IULS-2-1.5xL6.0	1.5	—	6.0	1.2	4	50	125
IULSH-4-1.5xL6.0	1.5	—	6.0	1.2	4	50	102
IULS-4-1.5xL6.0	1.5	—	6.0	1.2	4	50	127
IALS-2-1.5xL8.0	1.5	—	8.0	1.2	4	50	172
IULSH-2-1.5xL8.0	1.5	—	8.0	1.2	4	50	100
IULS-2-1.5xL8.0	1.5	—	8.0	1.2	4	50	125
IULSH-4-1.5xL8.0	1.5	—	8.0	1.2	4	50	102
IULS-4-1.5xL8.0	1.5	—	8.0	1.2	4	50	127
IALS-2-1.5xL10.0	1.5	—	10.0	1.2	4	50	172
IULSH-2-1.5xL10.0	1.5	—	10.0	1.2	4	50	100
IULS-2-1.5xL10.0	1.5	—	10.0	1.2	4	50	125
IULSH-4-1.5xL10.0	1.5	—	10.0	1.2	4	50	102
IULS-4-1.5xL10.0	1.5	—	10.0	1.2	4	50	127
IALS-2-1.5xL12.0	1.5	—	12.0	1.2	4	50	172
IULSH-2-1.5xL12.0	1.5	—	12.0	1.2	4	50	100
IULS-2-1.5xL12.0	1.5	—	12.0	1.2	4	50	125
IULSH-4-1.5xL12.0	1.5	—	12.0	1.2	4	50	102
IULS-4-1.5xL12.0	1.5	—	12.0	1.2	4	50	127
IALS-2-1.5xL14.0	1.5	—	14.0	1.2	4	50	172
IULSH-2-1.5xL14.0	1.5	—	14.0	1.2	4	50	100
IULS-2-1.5xL14.0	1.5	—	14.0	1.2	4	50	125
IULSH-4-1.5xL14.0	1.5	—	14.0	1.2	4	50	102
IULS-4-1.5xL14.0	1.5	—	14.0	1.2	4	50	127
IALS-2-1.5xL16.0	1.5	—	16.0	1.2	4	50	172
IULSH-2-1.5xL16.0	1.5	—	16.0	1.2	4	50	100
IULS-2-1.5xL16.0	1.5	—	16.0	1.2	4	50	125
IULSH-4-1.5xL16.0	1.5	—	16.0	1.2	4	50	102
IULS-4-1.5xL16.0	1.5	—	16.0	1.2	4	50	127
IUSH-2-1.6x3.2	1.6	—	—	3.2	4	50	96
IUS-2-1.6x3.2	1.6	—	—	3.2	4	50	120
IAS-2-1.6x4.0	1.6	—	—	4.0	4	50	167
IULSH-2-1.6xL6.0	1.6	—	6.0	1.3	4	50	100
IULS-2-1.6xL6.0	1.6	—	6.0	1.3	4	50	125
IULSH-2-1.6xL8.0	1.6	—	8.0	1.3	4	50	100
IULS-2-1.6xL8.0	1.6	—	8.0	1.3	4	50	125
IUSH-2-1.7x3.4	1.7	—	—	3.4	4	50	96
IUS-2-1.7x3.4	1.7	—	—	3.4	4	50	120
IAS-2-1.7x4.5	1.7	—	—	4.5	4	50	167
IUSH-2-1.8x3.6	1.8	—	—	3.6	4	50	96
IUS-2-1.8x3.6	1.8	—	—	3.6	4	50	120
IAS-2-1.8x4.5	1.8	—	—	4.5	4	50	167
IULSH-2-1.8xL6.0	1.8	—	6.0	1.4	4	50	100
IULS-2-1.8xL6.0	1.8	—	6.0	1.4	4	50	125

超硬エンドミル/スクエア Carbide EndMills/Square

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULSH-4-1.8xL6.0	1.8	—	6.0	1.4	4	50	102
IULS-4-1.8xL6.0	1.8	—	6.0	1.4	4	50	127
IULSH-2-1.8xL8.0	1.8	—	8.0	1.4	4	50	100
IULS-2-1.8xL8.0	1.8	—	8.0	1.4	4	50	125
IULSH-4-1.8xL8.0	1.8	—	8.0	1.4	4	50	102
IULS-4-1.8xL8.0	1.8	—	8.0	1.4	4	50	127
IULSH-2-1.8xL10.0	1.8	—	10.0	1.4	4	50	101
IULS-2-1.8xL10.0	1.8	—	10.0	1.4	4	50	126
IULSH-4-1.8xL10.0	1.8	—	10.0	1.4	4	50	102
IULS-4-1.8xL10.0	1.8	—	10.0	1.4	4	50	127
IULSH-2-1.8xL12.0	1.8	—	12.0	1.4	4	50	101
IULS-2-1.8xL12.0	1.8	—	12.0	1.4	4	50	126
IULSH-4-1.8xL12.0	1.8	—	12.0	1.4	4	50	102
IULS-4-1.8xL12.0	1.8	—	12.0	1.4	4	50	127
IULSH-2-1.8xL14.0	1.8	—	14.0	1.4	4	50	101
IULS-2-1.8xL14.0	1.8	—	14.0	1.4	4	50	126
IULSH-4-1.8xL14.0	1.8	—	14.0	1.4	4	50	102
IULS-4-1.8xL14.0	1.8	—	14.0	1.4	4	50	127
IULSH-2-1.8xL16.0	1.8	—	16.0	1.4	4	50	101
IULS-2-1.8xL16.0	1.8	—	16.0	1.4	4	50	126
IULSH-4-1.8xL16.0	1.8	—	16.0	1.4	4	50	103
IULS-4-1.8xL16.0	1.8	—	16.0	1.4	4	50	128
IUSH-2-1.9x3.8	1.9	—	—	3.8	4	50	96
IUS-2-1.9x3.8	1.9	—	—	3.8	4	50	120
IAS-2-1.9x5.0	1.9	—	—	5.0	4	50	167
IAS-2-2.0x3.0	2.0	—	—	3.0	4	50	167
IUSH-2-2.0x4.0	2.0	—	—	4.0	4	50	96
IUS-2-2.0x4.0	2.0	—	—	4.0	4	50	120
IUSH-4-2.0x4.0	2.0	—	—	4.0	4	50	98
IUS-4-2.0x4.0	2.0	—	—	4.0	4	50	122
IAS-2-2.0x5.0	2.0	—	—	5.0	4	50	167
TW-VS-EM2D-2	2.0	—	8.7	4.0	4	50	52
IAS-4-2.0x5.0	2.0	—	—	5.0	4	50	169
IAS-2-2.0x8.0	2.0	—	—	8.0	4	50	167
IAS-4-2.0x8.0	2.0	—	—	8.0	4	50	169
IALS-2-2.0xL4.0	2.0	—	4.0	1.6	4	50	172
IULSH-2-2.0xL4.0	2.0	—	4.0	1.6	4	50	101
IULS-2-2.0xL4.0	2.0	—	4.0	1.6	4	50	126
IALS-2-2.0xL6.0	2.0	—	6.0	1.6	4	50	172
IULSH-2-2.0xL6.0	2.0	—	6.0	1.6	4	50	101
IULS-2-2.0xL6.0	2.0	—	6.0	1.6	4	50	126
IULSH-4-2.0xL6.0	2.0	—	6.0	1.6	4	50	103
IULS-4-2.0xL6.0	2.0	—	6.0	1.6	4	50	128
IALS-2-2.0xL8.0	2.0	—	8.0	1.6	4	50	172
IULSH-2-2.0xL8.0	2.0	—	8.0	1.6	4	50	101
IULS-2-2.0xL8.0	2.0	—	8.0	1.6	4	50	126
IULSH-4-2.0xL8.0	2.0	—	8.0	1.6	4	50	103
IULS-4-2.0xL8.0	2.0	—	8.0	1.6	4	50	128
IALS-2-2.0xL10.0	2.0	—	10.0	1.6	4	50	172
IULSH-2-2.0xL10.0	2.0	—	10.0	1.6	4	50	101
IULS-2-2.0xL10.0	2.0	—	10.0	1.6	4	50	126
IULSH-4-2.0xL10.0	2.0	—	10.0	1.6	4	50	103
IULS-4-2.0xL10.0	2.0	—	10.0	1.6	4	50	128
IALS-2-2.0xL12.0	2.0	—	12.0	1.6	4	50	172
IULSH-2-2.0xL12.0	2.0	—	12.0	1.6	4	50	101
IULS-2-2.0xL12.0	2.0	—	12.0	1.6	4	50	126
IULSH-4-2.0xL12.0	2.0	—	12.0	1.6	4	50	103
IULS-4-2.0xL12.0	2.0	—	12.0	1.6	4	50	128
IALS-2-2.0xL14.0	2.0	—	14.0	1.6	4	50	172
IULSH-2-2.0xL14.0	2.0	—	14.0	1.6	4	50	101
IULS-2-2.0xL14.0	2.0	—	14.0	1.6	4	50	126
IULSH-4-2.0xL14.0	2.0	—	14.0	1.6	4	50	103
IULS-4-2.0xL14.0	2.0	—	14.0	1.6	4	50	128
IALS-2-2.0xL15.0	2.0	—	15.0	1.6	4	50	172
IALS-2-2.0xL16.0	2.0	—	16.0	1.6	4	50	172
IULSH-2-2.0xL16.0	2.0	—	16.0	1.6	4	50	101
IULS-2-2.0xL16.0	2.0	—	16.0	1.6	4	50	126
IULSH-4-2.0xL16.0	2.0	—	16.0	1.6	4	50	103
IULS-4-2.0xL16.0	2.0	—	16.0	1.6	4	50	128
IALS-2-2.0xL18.0	2.0	—	18.0	1.6	4	50	172
IULSH-2-2.0xL18.0	2.0	—	18.0	1.6	4	50	101
IULS-2-2.0xL18.0	2.0	—	18.0	1.6	4	50	126
IULSH-4-2.0xL18.0	2.0	—	18.0	1.6	4	50	103
IULS-4-2.0xL18.0	2.0	—	18.0	1.6	4	50	128
IALS-2-2.0xL20.0	2.0	—	20.0	1.6	4	60	172
IULSH-2-2.0xL20.0	2.0	—	20.0	1.6	4	60	101
IULS-2-2.0xL20.0	2.0	—	20.0	1.6	4	60	126
IULSH-4-2.0xL20.0	2.0	—	20.0	1.6	4	60	103
IULS-4-2.0xL20.0	2.0	—	20.0	1.6	4	60	128
IUSH-2-2.1x4.2	2.1	—	—	4.2	4	50	97
IUS-2-2.1x4.2	2.1	—	—	4.2	4	50	121
IAS-2-2.1x5.5	2.1	—	—	5.5	4	50	167
IUSH-2-2.2x4.4	2.2	—	—	4.4	4	50	97
IUS-2-2.2x4.4	2.2	—	—	4.4	4	50	121
IAS-2-2.2x5.5	2.2	—	—	5.5	4	50	167
IUSH-2-2.3x4.6	2.3	—	—	4.6	4	50	97
IUS-2-2.3x4.6	2.3	—	—	4.6	4	50	121
IAS-2-2.3x6.0	2.3	—	—	6.0	4	50	167
IUSH-2-2.4x4.8	2.4	—	—	4.8	4	50	97
IUS-2-2.4x4.8	2.4	—	—	4.8	4	50	121
IAS-2-2.4x6.0	2.4	—	—	6.0	4	50	167
IUSH-2-2.5x5.0	2.5	—	—	5.0	4	50	97
IUS-2-2.5x5.0	2.5	—	—	5.0	4	50	121
TW-VS-EM2D-2.5	2.5	—	8.8	5.0	4	50	52
IAS-2-2.5x7.0	2.5	—	—	7.0	4	50	167
IAS-4-2.5x7.0	2.5	—	—	7.0	4	50	169
IAS-2-2.5x10.0	2.5	—	—	10.0	4	50	167
IAS-4-2.5x10.0	2.5	—	—	10.0	4	50	169
IULSH-2-2.5xL8.0	2.5	—	8.0	2.0	4	50	101
IULS-2-2.5xL8.0	2.5	—	8.0	2.0	4	50	126
IULSH-4-2.5xL8.0	2.5	—	8.0	2.0	4	50	103
IULS-4-2.5xL8.0	2.5	—	8.0	2.0	4	50	128
IULSH-2-2.5xL12.0	2.5	—	12.0	2.0	4	50	101
IULS-2-2.5xL12.0	2.5	—	12.0	2.0	4	50	126
IULSH-4-2.5xL12.0	2.5	—	12.0	2.0	4	50	103
IULS-4-2.5xL12.0	2.5	—	12.0	2.0	4	50	128
IULSH-2-2.5xL16.0	2.5	—	16.0	2.0	4	50	101
IULS-2-2.5xL16.0	2.5	—	16.0	2.0	4	50	126
IULSH-4-2.5xL16.0	2.5	—	16.0	2.0	4	50	103

超硬エンドミル/スクエア Carbide EndMills/Square

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULS-4-2.5xL16.0	2.5	—	16.0	2.0	4	50	128
IULSH-2-2.5xL20.0	2.5	—	20.0	2.0	4	50	101
IULS-2-2.5xL20.0	2.5	—	20.0	2.0	4	50	126
IULSH-4-2.5xL20.0	2.5	—	20.0	2.0	4	50	103
IULS-4-2.5xL20.0	2.5	—	20.0	2.0	4	50	128
IUSH-2-2.6x5.2	2.6	—	—	5.2	4	50	97
IUS-2-2.6x5.2	2.6	—	—	5.2	4	50	121
IAS-2-2.6x7.0	2.6	—	—	7.0	4	50	167
IUSH-2-2.7x5.4	2.7	—	—	5.4	4	50	97
IUS-2-2.7x5.4	2.7	—	—	5.4	4	50	121
IAS-2-2.7x7.0	2.7	—	—	7.0	4	50	167
IUSH-2-2.8x5.6	2.8	—	—	5.6	4	50	97
IUS-2-2.8x5.6	2.8	—	—	5.6	4	50	121
IAS-2-2.8x7.0	2.8	—	—	7.0	4	50	167
IUSH-2-2.9x5.8	2.9	—	—	5.8	4	50	97
IUS-2-2.9x5.8	2.9	—	—	5.8	4	50	121
IAS-2-2.9x8.0	2.9	—	—	8.0	4	50	167
IAS-2-3.0x5.0	3.0	—	—	5.0	4	50	167
IUSH-2-3.0x6.0	3.0	—	—	6.0	4	50	97
IUS-2-3.0x6.0	3.0	—	—	6.0	4	50	121
IUSH-4-3.0x6.0	3.0	—	—	6.0	4	50	98
IUS-4-3.0x6.0	3.0	—	—	6.0	4	50	122
TW-VS-EM2D-3	3.0	—	13.6	6.0	6	50	52
IAS-2-3.0x8.0	3.0	—	—	8.0	4	50	167
IAS-4-3.0x8.0	3.0	—	—	8.0	4	50	169
IAS-2-3.0x12.0	3.0	—	—	12.0	4	50	167
IAS-4-3.0x12.0	3.0	—	—	12.0	4	50	169
IALS-2-3.0xL8.0	3.0	—	8.0	2.5	4	50	172
IULSH-2-3.0xL8.0	3.0	—	8.0	2.5	4	50	101
IULS-2-3.0xL8.0	3.0	—	8.0	2.5	4	50	126
IULSH-4-3.0xL8.0	3.0	—	8.0	2.5	4	50	103
IULS-4-3.0xL8.0	3.0	—	8.0	2.5	4	50	128
IALS-2-3.0xL10.0	3.0	—	10.0	2.5	4	50	172
IALS-2-3.0xL12.0	3.0	—	12.0	2.5	4	50	172
IULSH-2-3.0xL12.0	3.0	—	12.0	2.5	4	50	101
IULS-2-3.0xL12.0	3.0	—	12.0	2.5	4	50	126
IULSH-4-3.0xL12.0	3.0	—	12.0	2.5	4	50	103
IULS-4-3.0xL12.0	3.0	—	12.0	2.5	4	50	128
IALS-2-3.0xL14.0	3.0	—	14.0	2.5	4	50	172
IALS-2-3.0xL16.0	3.0	—	16.0	2.5	4	50	172
IULSH-2-3.0xL16.0	3.0	—	16.0	2.5	4	50	101
IULS-2-3.0xL16.0	3.0	—	16.0	2.5	4	50	126
IULSH-4-3.0xL16.0	3.0	—	16.0	2.5	4	50	103
IULS-4-3.0xL16.0	3.0	—	16.0	2.5	4	50	128
IALS-2-3.0xL18.0	3.0	—	18.0	2.5	4	50	172
IALS-2-3.0xL20.0	3.0	—	20.0	2.5	4	50	172
IULSH-2-3.0xL20.0	3.0	—	20.0	2.5	4	50	101
IULS-2-3.0xL20.0	3.0	—	20.0	2.5	4	50	126
IULSH-4-3.0xL20.0	3.0	—	20.0	2.5	4	50	103
IULS-4-3.0xL20.0	3.0	—	20.0	2.5	4	50	128
IALS-2-3.0xL25.0	3.0	—	25.0	2.5	4	60	172
IULSH-2-3.0xL25.0	3.0	—	25.0	2.5	4	60	101
IULS-2-3.0xL25.0	3.0	—	25.0	2.5	4	60	126
IULSH-4-3.0xL25.0	3.0	—	25.0	2.5	4	60	103
IULS-4-3.0xL25.0	3.0	—	25.0	2.5	4	60	128
IALS-2-3.0xL30.0	3.0	—	30.0	2.5	4	60	172
IULSH-2-3.0xL30.0	3.0	—	30.0	2.5	4	60	101
IULS-2-3.0xL30.0	3.0	—	30.0	2.5	4	60	126
IULSH-4-3.0xL30.0	3.0	—	30.0	2.5	4	60	103
IULS-4-3.0xL30.0	3.0	—	30.0	2.5	4	60	128
IAS-2-3.1x8.0	3.1	—	—	8.0	6	50	167
IAS-2-3.2x8.0	3.2	—	—	8.0	6	50	167
IAS-2-3.3x9.0	3.3	—	—	9.0	6	50	167
IAS-2-3.4x9.0	3.4	—	—	9.0	6	50	167
IUSH-2-3.5x7.0	3.5	—	—	7.0	6	50	97
IUS-2-3.5x7.0	3.5	—	—	7.0	6	50	121
IAS-2-3.5x9.0	3.5	—	—	9.0	6	50	167
IAS-4-3.5x9.0	3.5	—	—	9.0	6	50	169
IAS-2-3.6x9.0	3.6	—	—	9.0	6	50	167
IAS-2-3.7x10.0	3.7	—	—	10.0	6	50	167
IAS-2-3.8x10.0	3.8	—	—	10.0	6	50	167
IAS-2-3.9x10.0	3.9	—	—	10.0	6	50	167
IAS-2-4.0x6.0	4.0	—	—	6.0	6	50	167
IUSH-2-4.0x8.0	4.0	—	—	8.0	6	50	97
IUS-2-4.0x8.0	4.0	—	—	8.0	6	50	121
IUSH-4-4.0x8.0	4.0	—	—	8.0	6	50	98
IUS-4-4.0x8.0	4.0	—	—	8.0	6	50	122
TW-VS-EM2D-4	4.0	—	13.7	8.0	6	50	52
IAS-2-4.0x10.0	4.0	—	—	10.0	6	50	167
IAS-4-4.0x10.0	4.0	—	—	10.0	6	50	169
IAS-2-4.0x16.0	4.0	—	—	16.0	6	50	167
IAS-4-4.0x16.0	4.0	—	—	16.0	6	50	169
IULSH-2-4.0xL10.0	4.0	—	10.0	3.2	6	50	101
IULS-2-4.0xL10.0	4.0	—	10.0	3.2	6	50	126
IALS-2-4.0xL10.0	4.0	—	10.0	3.2	6	50	172
IALS-2-4.0xL12.0	4.0	—	12.0	3.2	6	50	172
IULSH-4-4.0xL12.0	4.0	—	12.0	3.2	6	50	103
IULS-4-4.0xL12.0	4.0	—	12.0	3.2	6	50	128
IULSH-2-4.0xL15.0	4.0	—	15.0	3.2	6	50	101
IULS-2-4.0xL15.0	4.0	—	15.0	3.2	6	50	126
IALS-2-4.0xL16.0	4.0	—	16.0	3.2	6	50	172
IULSH-4-4.0xL16.0	4.0	—	16.0	3.2	6	50	103
IULS-4-4.0xL16.0	4.0	—	16.0	3.2	6	50	128
IULSH-2-4.0xL20.0	4.0	—	20.0	3.2	6	60	101
IULS-2-4.0xL20.0	4.0	—	20.0	3.2	6	60	126
IALS-2-4.0xL20.0	4.0	—	20.0	3.2	6	50	172
IULSH-4-4.0xL20.0	4.0	—	20.0	3.2	6	60	103
IULS-4-4.0xL20.0	4.0	—	20.0	3.2	6	60	128
IALS-2-4.0xL25.0	4.0	—	25.0	3.2	6	60	172
IULSH-4-4.0xL25.0	4.0	—	25.0	3.2	6	60	103
IULS-4-4.0xL25.0	4.0	—	25.0	3.2	6	60	128
IALS-2-4.0xL30.0	4.0	—	30.0	3.2	6	60	172
IULSH-4-4.0xL30.0	4.0	—	30.0	3.2	6	70	103
IULS-4-4.0xL30.0	4.0	—	30.0	3.2	6	70	128
IALS-2-4.0xL35.0	4.0	—	35.0	3.2	6	70	172
IULSH-4-4.0xL35.0	4.0	—	35.0	3.2	6	70	103
IULS-4-4.0xL35.0	4.0	—	35.0	3.2	6	70	128
IAS-2-4.1x11.0	4.1	—	—	11.0	6	50	167
IAS-2-4.2x11.0	4.2	—	—	11.0	6	50	167

超硬エンドミル/スクエア　Carbide EndMills/Square

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IAS-2-4.3x11.0	4.3	—	—	11.0	6	50	167
IAS-2-4.4x11.0	4.4	—	—	11.0	6	50	167
IUSH-2-4.5x9.0	4.5	—	—	9.0	6	50	97
IUS-2-4.5x9.0	4.5	—	—	9.0	6	50	121
IAS-2-4.5x12.0	4.5	—	—	12.0	6	50	167
IAS-4-4.5x12.0	4.5	—	—	12.0	6	50	169
IAS-2-4.6x12.0	4.6	—	—	12.0	6	50	167
IAS-2-4.7x12.0	4.7	—	—	12.0	6	50	167
IAS-2-4.8x12.0	4.8	—	—	12.0	6	50	167
IAS-2-4.9x13.0	4.9	—	—	13.0	6	50	167
IAS-2-5.0x8.0	5.0	—	—	8.0	6	50	168
IUSH-2-5.0x10.0	5.0	—	—	10.0	6	50	97
IUS-2-5.0x10.0	5.0	—	—	10.0	6	50	121
IUS-6-5.0x10.0	5.0	—	—	10.0	6	50	123
TW-VS-EM2D-5	5.0	—	13.9	10.0	6	50	52
IAS-2-5.0x13.0	5.0	—	—	13.0	6	50	168
IAS-4-5.0x13.0	5.0	—	—	13.0	6	50	169
IUS-6-5.0x15.0	5.0	—	—	15.0	6	50	123
IAS-2-5.0x20.0	5.0	—	—	20.0	6	60	168
IAS-4-5.0x20.0	5.0	—	—	20.0	6	60	169
IULSH-2-5.0xL15.0	5.0	—	15.0	4.0	6	50	101
IULS-2-5.0xL15.0	5.0	—	15.0	4.0	6	50	126
IALS-2-5.0xL15.0	5.0	—	15.0	4.0	6	50	172
IULSH-4-5.0xL16.0	5.0	—	16.0	4.0	6	50	103
IULS-4-5.0xL16.0	5.0	—	16.0	4.0	6	50	128
IULSH-2-5.0xL20.0	5.0	—	20.0	4.0	6	50	101
IULS-2-5.0xL20.0	5.0	—	20.0	4.0	6	50	126
IALS-2-5.0xL20.0	5.0	—	20.0	4.0	6	50	172
IALS-2-5.0xL25.0	5.0	—	25.0	4.0	6	60	172
IULSH-4-5.0xL25.0	5.0	—	25.0	4.0	6	60	103
IULS-4-5.0xL25.0	5.0	—	25.0	4.0	6	60	128
IALS-2-5.0xL30.0	5.0	—	30.0	4.0	6	60	172
IALS-2-5.0xL35.0	5.0	—	35.0	4.0	6	70	172
IULSH-4-5.0xL35.0	5.0	—	35.0	4.0	6	70	103
IULS-4-5.0xL35.0	5.0	—	35.0	4.0	6	70	128
IALS-2-5.0xL40.0	5.0	—	40.0	4.0	6	70	172
IAS-2-5.1x13.0	5.1	—	—	13.0	6	50	168
IAS-2-5.2x13.0	5.2	—	—	13.0	6	50	168
IAS-2-5.3x14.0	5.3	—	—	14.0	6	50	168
IAS-2-5.4x14.0	5.4	—	—	14.0	6	50	168
IUSH-2-5.5x11.0	5.5	—	—	11.0	6	50	97
IUS-2-5.5x11.0	5.5	—	—	11.0	6	50	121
IAS-2-5.5x14.0	5.5	—	—	14.0	6	50	168
IAS-4-5.5x14.0	5.5	—	—	14.0	6	50	169
IAS-2-5.6x14.0	5.6	—	—	14.0	6	50	168
IAS-2-5.7x15.0	5.7	—	—	15.0	6	50	168
IAS-2-5.8x15.0	5.8	—	—	15.0	6	50	168
IAS-2-5.9x15.0	5.9	—	—	15.0	6	50	168
IAS-2-6.0x10.0	6.0	—	—	10.0	6	50	168
IUSH-2-6.0x12.0	6.0	—	—	12.0	6	50	97
IUS-2-6.0x12.0	6.0	—	—	12.0	6	50	121
IUSH-4-6.0x12.0	6.0	—	—	12.0	6	60	98
IUS-4-6.0x12.0	6.0	—	—	12.0	6	60	122
IUS-6-6.0x12.0	6.0	—	—	12.0	6	50	123

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
TW-VS-EM2D-6	6.0	—	14.0	12.0	6	50	52
IAS-2-6.0x15.0	6.0	—	—	15.0	6	50	168
IAS-4-6.0x15.0	6.0	—	—	15.0	6	50	169
IUSH-4-6.0x18.0	6.0	—	—	18.0	6	60	98
IUS-4-6.0x18.0	6.0	—	—	18.0	6	60	122
IUS-6-6.0x18.0	6.0	—	—	18.0	6	60	123
IAS-2-6.0x24.0	6.0	—	—	24.0	6	60	168
IAS-4-6.0x24.0	6.0	—	—	24.0	6	60	169
IULSH-2-6.0xL15.0	6.0	—	15.0	5.0	6	50	101
IULS-2-6.0xL15.0	6.0	—	15.0	5.0	6	50	126
IALS-2-6.0xL20.0	6.0	—	20.0	6.0	6	50	172
IULSH-2-6.0xL20.0	6.0	—	20.0	5.0	6	50	101
IULS-2-6.0xL20.0	6.0	—	20.0	5.0	6	50	126
IULSH-4-6.0xL20.0	6.0	—	20.0	5.0	6	50	103
IULS-4-6.0xL20.0	6.0	—	20.0	5.0	6	50	128
IALS-2-6.0xL30.0	6.0	—	30.0	6.0	6	60	172
IULSH-2-6.0xL30.0	6.0	—	30.0	5.0	6	60	101
IULS-2-6.0xL30.0	6.0	—	30.0	5.0	6	60	126
IULSH-4-6.0xL30.0	6.0	—	30.0	5.0	6	60	103
IULS-4-6.0xL30.0	6.0	—	30.0	5.0	6	60	128
IALS-2-6.0xL40.0	6.0	—	40.0	6.0	6	70	172
IULSH-4-6.0xL40.0	6.0	—	40.0	5.0	6	70	103
IULS-4-6.0xL40.0	6.0	—	40.0	5.0	6	70	128
IALS-2-6.0xL50.0	6.0	—	50.0	6.0	6	80	172
IULSH-4-6.0xL50.0	6.0	—	50.0	5.0	6	80	103
IULS-4-6.0xL50.0	6.0	—	50.0	5.0	6	80	128
IALS-2-6.0xL60.0	6.0	—	60.0	6.0	6	90	172
IAS-2-6.5x17.0	6.5	—	—	17.0	8	70	168
IAS-4-6.5x17.0	6.5	—	—	17.0	8	70	169
IAS-2-6.5x20.0	6.5	—	—	20.0	8	70	168
IAS-2-7.0x18.0	7.0	—	—	18.0	8	70	168
IAS-4-7.0x18.0	7.0	—	—	18.0	8	70	170
IAS-4-7.5x19.0	7.5	—	—	19.0	8	70	170
IAS-2-7.5x20.0	7.5	—	—	20.0	8	70	168
IUS-4-8.0x16.0	8.0	—	—	16.0	8	70	122
IUS-6-8.0x16.0	8.0	—	—	16.0	8	70	123
TW-VS-EM2D-8	8.0	—	18.0	16.0	8	60	52
IAS-2-8.0x20.0	8.0	—	—	20.0	8	70	168
IAS-4-8.0x20.0	8.0	—	—	20.0	8	70	170
IUS-4-8.0x24.0	8.0	—	—	24.0	8	70	122
IUS-6-8.0x24.0	8.0	—	—	24.0	8	70	123
IAS-2-8.0x32.0	8.0	—	—	32.0	8	80	168
IAS-4-8.0x32.0	8.0	—	—	32.0	8	80	170
IAS-4-8.5x22.0	8.5	—	—	22.0	10	80	170
IAS-2-8.5x23.0	8.5	—	—	23.0	10	80	168
IAS-2-9.0x23.0	9.0	—	—	23.0	10	80	168
IAS-4-9.0x23.0	9.0	—	—	23.0	10	80	170
IAS-4-9.5x24.0	9.5	—	—	24.0	10	80	170
IAS-2-9.5x25.0	9.5	—	—	25.0	10	80	168
IUS-4-10.0x20.0	10.0	—	—	20.0	10	80	122
IUS-6-10.0x20.0	10.0	—	—	20.0	10	80	123
TW-VS-EM2D-10	10.0	—	22.0	20.0	10	70	52
IAS-2-10.0x25.0	10.0	—	—	25.0	10	80	168
IAS-4-10.0x25.0	10.0	—	—	25.0	10	80	170
IUS-4-10.0x30.0	10.0	—	—	30.0	10	80	122

超硬エンドミル/スクエア　Carbide EndMills/Square

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IUS-6-10.0x30.0	10.0	—	—	30.0	10	80	123
IAS-2-10.0x40.0	10.0	—	—	40.0	10	90	168
IAS-4-10.0x40.0	10.0	—	—	40.0	10	90	170
IAS-2-10.5x28.0	10.5	—	—	28.0	12	110	168
IAS-2-11.0x28.0	11.0	—	—	28.0	12	110	168
IAS-2-11.5x30.0	11.5	—	—	30.0	12	110	168
IUS-4-12.0x24.0	12.0	—	—	24.0	12	110	122
IUS-6-12.0x24.0	12.0	—	—	24.0	12	110	123
TW-VS-EM2D-12	12.0	—	26.0	24.0	12	80	52
IAS-2-12.0x30.0	12.0	—	—	30.0	12	110	168
IAS-4-12.0x30.0	12.0	—	—	30.0	12	110	170
IUS-4-12.0x36.0	12.0	—	—	36.0	12	110	122
IUS-6-12.0x36.0	12.0	—	—	36.0	12	110	123
IAS-2-12.0x48.0	12.0	—	—	48.0	12	120	168
IAS-4-12.0x48.0	12.0	—	—	48.0	12	120	170
IAS-4-14.0x26.0	14.0	—	—	26.0	14	110	170
IAS-2-14.0x28.0	14.0	—	—	28.0	14	110	168
IUS-4-14.0x35.0	14.0	—	—	35.0	14	120	122
IUS-6-14.0x35.0	14.0	—	—	35.0	14	120	123
IAS-4-16.0x32.0	16.0	—	—	32.0	16	120	170
TW-VS-EM2D-16	16.0	—	34.0	32.0	16	100	52
IUS-4-16.0x40.0	16.0	—	—	40.0	16	130	122
IUS-6-16.0x40.0	16.0	—	—	40.0	16	130	123
IAS-2-16.0x48.0	16.0	—	—	48.0	16	140	168
IAS-4-18.0x32.0	18.0	—	—	32.0	18	120	170
IUS-4-18.0x45.0	18.0	—	—	45.0	18	140	122
IUS-6-18.0x45.0	18.0	—	—	45.0	18	140	123
IAS-2-18.0x54.0	18.0	—	—	54.0	18	140	168
IAS-4-20.0x38.0	20.0	—	—	38.0	20	130	170
TW-VS-EM2D-20	20.0	—	42.0	40.0	20	110	52
IUS-4-20.0x50.0	20.0	—	—	50.0	20	140	122
IUS-6-20.0x50.0	20.0	—	—	50.0	20	140	123
IAS-2-20.0x60.0	20.0	—	—	60.0	20	150	168

超硬エンドミル/ラジアス　Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULRH-2-0.2xR0.02xL0.5	0.2	0.02	0.5	0.15	4	50	105
IULR-2-0.2xR0.02xL0.5	0.2	0.02	0.5	0.15	4	50	131
IULRH-2-0.2xR0.02xL1.0	0.2	0.02	1.0	0.15	4	50	105
IULR-2-0.2xR0.02xL1.0	0.2	0.02	1.0	0.15	4	50	131
IULRH-2-0.2xR0.05xL0.5	0.2	0.05	0.5	0.15	4	50	105
IULR-2-0.2xR0.05xL0.5	0.2	0.05	0.5	0.15	4	50	131
IULRH-2-0.2xR0.05xL1.0	0.2	0.05	1.0	0.15	4	50	105
IULR-2-0.2xR0.05xL1.0	0.2	0.05	1.0	0.15	4	50	131
IULRH-2-0.3xR0.02xL1.0	0.3	0.02	1.0	0.25	4	50	105
IULR-2-0.3xR0.02xL1.0	0.3	0.02	1.0	0.25	4	50	131
IULRH-2-0.3xR0.02xL1.5	0.3	0.02	1.5	0.25	4	50	105
IULR-2-0.3xR0.02xL1.5	0.3	0.02	1.5	0.25	4	50	131
IULRH-2-0.3xR0.02xL2.0	0.3	0.02	2.0	0.25	4	50	105
IULR-2-0.3xR0.02xL2.0	0.3	0.02	2.0	0.25	4	50	131
IULRH-2-0.3xR0.02xL2.5	0.3	0.02	2.5	0.25	4	50	105
IULR-2-0.3xR0.02xL2.5	0.3	0.02	2.5	0.25	4	50	131
IULRH-2-0.3xR0.02xL3.0	0.3	0.02	3.0	0.25	4	50	105
IULR-2-0.3xR0.02xL3.0	0.3	0.02	3.0	0.25	4	50	131
IULRH-2-0.3xR0.05xL1.0	0.3	0.05	1.0	0.25	4	50	105
IULR-2-0.3xR0.05xL1.0	0.3	0.05	1.0	0.25	4	50	131
IULRH-2-0.3xR0.05xL1.5	0.3	0.05	1.5	0.25	4	50	105
IULR-2-0.3xR0.05xL1.5	0.3	0.05	1.5	0.25	4	50	131
IULRH-2-0.3xR0.05xL2.0	0.3	0.05	2.0	0.25	4	50	105
IULR-2-0.3xR0.05xL2.0	0.3	0.05	2.0	0.25	4	50	131
IULRH-2-0.3xR0.05xL2.5	0.3	0.05	2.5	0.25	4	50	105
IULR-2-0.3xR0.05xL2.5	0.3	0.05	2.5	0.25	4	50	131
IULRH-2-0.3xR0.05xL3.0	0.3	0.05	3.0	0.25	4	50	105
IULR-2-0.3xR0.05xL3.0	0.3	0.05	3.0	0.25	4	50	131
IULRH-2-0.4xR0.02xL1.0	0.4	0.02	1.0	0.3	4	50	105
IULR-2-0.4xR0.02xL1.0	0.4	0.02	1.0	0.3	4	50	131
IULRH-2-0.4xR0.02xL1.5	0.4	0.02	1.5	0.3	4	50	105
IULR-2-0.4xR0.02xL1.5	0.4	0.02	1.5	0.3	4	50	131
IULRH-2-0.4xR0.02xL2.0	0.4	0.02	2.0	0.3	4	50	105
IULR-2-0.4xR0.02xL2.0	0.4	0.02	2.0	0.3	4	50	131
IULRH-2-0.4xR0.02xL2.5	0.4	0.02	2.5	0.3	4	50	105
IULR-2-0.4xR0.02xL2.5	0.4	0.02	2.5	0.3	4	50	131
IULRH-2-0.4xR0.02xL3.0	0.4	0.02	3.0	0.3	4	50	105
IULR-2-0.4xR0.02xL3.0	0.4	0.02	3.0	0.3	4	50	131
IULRH-2-0.4xR0.05xL1.0	0.4	0.05	1.0	0.3	4	50	106
IULR-2-0.4xR0.05xL1.0	0.4	0.05	1.0	0.3	4	50	132
IALR-2-0.4xR0.05xL1.0	0.4	0.05	1.0	0.3	4	50	177
IULRH-2-0.4xR0.05xL1.5	0.4	0.05	1.5	0.3	4	50	106
IULR-2-0.4xR0.05xL1.5	0.4	0.05	1.5	0.3	4	50	132
IALR-2-0.4xR0.05xL1.5	0.4	0.05	1.5	0.3	4	50	177
IULRH-2-0.4xR0.05xL2.0	0.4	0.05	2.0	0.3	4	50	106
IULR-2-0.4xR0.05xL2.0	0.4	0.05	2.0	0.3	4	50	132
IALR-2-0.4xR0.05xL2.0	0.4	0.05	2.0	0.3	4	50	177
IULRH-2-0.4xR0.05xL2.5	0.4	0.05	2.5	0.3	4	50	106
IULR-2-0.4xR0.05xL2.5	0.4	0.05	2.5	0.3	4	50	132
IULRH-2-0.4xR0.05xL3.0	0.4	0.05	3.0	0.3	4	50	106
IULR-2-0.4xR0.05xL3.0	0.4	0.05	3.0	0.3	4	50	132
IALR-2-0.4xR0.05xL3.0	0.4	0.05	3.0	0.3	4	50	177
IULRH-2-0.4xR0.1xL1.0	0.4	0.1	1.0	0.3	4	50	106
IULR-2-0.4xR0.1xL1.0	0.4	0.1	1.0	0.3	4	50	132
IALR-2-0.4xR0.1xL1.0	0.4	0.1	1.0	0.3	4	50	177
IALR-2-0.4xR0.1xL1.5	0.4	0.1	1.5	0.3	4	50	177
IULRH-2-0.4xR0.1xL2.0	0.4	0.1	2.0	0.3	4	50	106
IULR-2-0.4xR0.1xL2.0	0.4	0.1	2.0	0.3	4	50	132
IALR-2-0.4xR0.1xL2.0	0.4	0.1	2.0	0.3	4	50	177
IULRH-2-0.4xR0.1xL3.0	0.4	0.1	3.0	0.3	4	50	106
IULR-2-0.4xR0.1xL3.0	0.4	0.1	3.0	0.3	4	50	132
IALR-2-0.4xR0.1xL3.0	0.4	0.1	3.0	0.3	4	50	177
IULRH-2-0.5xR0.02xL1.0	0.5	0.02	1.0	0.4	4	50	106
IULR-2-0.5xR0.02xL1.0	0.5	0.02	1.0	0.4	4	50	132
IULRH-2-0.5xR0.02xL2.0	0.5	0.02	2.0	0.4	4	50	106
IULR-2-0.5xR0.02xL2.0	0.5	0.02	2.0	0.4	4	50	132
IULRH-2-0.5xR0.02xL3.0	0.5	0.02	3.0	0.4	4	50	106
IULR-2-0.5xR0.02xL3.0	0.5	0.02	3.0	0.4	4	50	132
IULRH-2-0.5xR0.02xL4.0	0.5	0.02	4.0	0.4	4	50	106
IULR-2-0.5xR0.02xL4.0	0.5	0.02	4.0	0.4	4	50	132
IULRH-2-0.5xR0.05xL1.0	0.5	0.05	1.0	0.4	4	50	106
IULR-2-0.5xR0.05xL1.0	0.5	0.05	1.0	0.4	4	50	132

超硬エンドミル/ラジアス Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IALR-2-0.5xR0.05xL1.0	0.5	0.05	1.0	0.4	4	50	177
IULRH-2-0.5xR0.05xL2.0	0.5	0.05	2.0	0.4	4	50	106
IULR-2-0.5xR0.05xL2.0	0.5	0.05	2.0	0.4	4	50	132
IALR-2-0.5xR0.05xL2.0	0.5	0.05	2.0	0.4	4	50	177
IULRH-2-0.5xR0.05xL3.0	0.5	0.05	3.0	0.4	4	50	106
IULR-2-0.5xR0.05xL3.0	0.5	0.05	3.0	0.4	4	50	132
IALR-2-0.5xR0.05xL3.0	0.5	0.05	3.0	0.4	4	50	177
IULRH-2-0.5xR0.05xL4.0	0.5	0.05	4.0	0.4	4	50	106
IULR-2-0.5xR0.05xL4.0	0.5	0.05	4.0	0.4	4	50	132
IALR-2-0.5xR0.05xL4.0	0.5	0.05	4.0	0.4	4	50	177
IULRH-2-0.5xR0.1xL1.0	0.5	0.1	1.0	0.4	4	50	106
IULR-2-0.5xR0.1xL1.0	0.5	0.1	1.0	0.4	4	50	132
IALR-2-0.5xR0.1xL1.0	0.5	0.1	1.0	0.4	4	50	177
IULRH-2-0.5xR0.1xL2.0	0.5	0.1	2.0	0.4	4	50	106
IULR-2-0.5xR0.1xL2.0	0.5	0.1	2.0	0.4	4	50	132
IALR-2-0.5xR0.1xL2.0	0.5	0.1	2.0	0.4	4	50	177
IULRH-2-0.5xR0.1xL3.0	0.5	0.1	3.0	0.4	4	50	106
IULR-2-0.5xR0.1xL3.0	0.5	0.1	3.0	0.4	4	50	132
IALR-2-0.5xR0.1xL3.0	0.5	0.1	3.0	0.4	4	50	177
IULRH-2-0.5xR0.1xL4.0	0.5	0.1	4.0	0.4	4	50	106
IULR-2-0.5xR0.1xL4.0	0.5	0.1	4.0	0.4	4	50	132
IALR-2-0.5xR0.1xL4.0	0.5	0.1	4.0	0.4	4	50	177
IULRH-2-0.6xR0.02xL2.0	0.6	0.02	2.0	0.5	4	50	106
IULR-2-0.6xR0.02xL2.0	0.6	0.02	2.0	0.5	4	50	132
IULRH-3-0.6xR0.02xL2.0	0.6	0.02	2.0	0.5	4	50	107
IULR-3-0.6xR0.02xL2.0	0.6	0.02	2.0	0.5	4	50	133
IULRH-2-0.6xR0.02xL4.0	0.6	0.02	4.0	0.5	4	50	106
IULR-2-0.6xR0.02xL4.0	0.6	0.02	4.0	0.5	4	50	132
IULRH-3-0.6xR0.02xL4.0	0.6	0.02	4.0	0.5	4	50	107
IULR-3-0.6xR0.02xL4.0	0.6	0.02	4.0	0.5	4	50	133
IULRH-2-0.6xR0.02xL6.0	0.6	0.02	6.0	0.5	4	50	106
IULR-2-0.6xR0.02xL6.0	0.6	0.02	6.0	0.5	4	50	132
IULRH-3-0.6xR0.02xL6.0	0.6	0.02	6.0	0.5	4	50	107
IULR-3-0.6xR0.02xL6.0	0.6	0.02	6.0	0.5	4	50	133
IULRH-2-0.6xR0.05xL2.0	0.6	0.05	2.0	0.5	4	50	106
IULR-2-0.6xR0.05xL2.0	0.6	0.05	2.0	0.5	4	50	132
IULRH-3-0.6xR0.05xL2.0	0.6	0.05	2.0	0.5	4	50	107
IULR-3-0.6xR0.05xL2.0	0.6	0.05	2.0	0.5	4	50	133
IALR-2-0.6xR0.05xL2.0	0.6	0.05	2.0	0.5	4	50	177
IALR-2-0.6xR0.05xL3.0	0.6	0.05	3.0	0.5	4	50	177
IULRH-2-0.6xR0.05xL4.0	0.6	0.05	4.0	0.5	4	50	106
IULR-2-0.6xR0.05xL4.0	0.6	0.05	4.0	0.5	4	50	132
IULRH-3-0.6xR0.05xL4.0	0.6	0.05	4.0	0.5	4	50	107
IULR-3-0.6xR0.05xL4.0	0.6	0.05	4.0	0.5	4	50	133
IALR-2-0.6xR0.05xL4.0	0.6	0.05	4.0	0.5	4	50	177
IULRH-2-0.6xR0.05xL6.0	0.6	0.05	6.0	0.5	4	50	106
IULR-2-0.6xR0.05xL6.0	0.6	0.05	6.0	0.5	4	50	132
IULRH-3-0.6xR0.05xL6.0	0.6	0.05	6.0	0.5	4	50	107
IULR-3-0.6xR0.05xL6.0	0.6	0.05	6.0	0.5	4	50	133
IALR-2-0.6xR0.05xL6.0	0.6	0.05	6.0	0.5	4	50	178
IULRH-2-0.6xR0.1xL2.0	0.6	0.1	2.0	0.5	4	50	106
IULR-2-0.6xR0.1xL2.0	0.6	0.1	2.0	0.5	4	50	132
IULRH-3-0.6xR0.1xL2.0	0.6	0.1	2.0	0.5	4	50	107
IULR-3-0.6xR0.1xL2.0	0.6	0.1	2.0	0.5	4	50	133
IALR-2-0.6xR0.1xL2.0	0.6	0.1	2.0	0.5	4	50	178
IALR-2-0.6xR0.1xL3.0	0.6	0.1	3.0	0.5	4	50	178
IULRH-2-0.6xR0.1xL4.0	0.6	0.1	4.0	0.5	4	50	106
IULR-2-0.6xR0.1xL4.0	0.6	0.1	4.0	0.5	4	50	132
IULRH-3-0.6xR0.1xL4.0	0.6	0.1	4.0	0.5	4	50	107
IULR-3-0.6xR0.1xL4.0	0.6	0.1	4.0	0.5	4	50	133
IALR-2-0.6xR0.1xL4.0	0.6	0.1	4.0	0.5	4	50	178
IULRH-2-0.6xR0.1xL6.0	0.6	0.1	6.0	0.5	4	50	106
IULR-2-0.6xR0.1xL6.0	0.6	0.1	6.0	0.5	4	50	132
IULRH-3-0.6xR0.1xL6.0	0.6	0.1	6.0	0.5	4	50	107
IULR-3-0.6xR0.1xL6.0	0.6	0.1	6.0	0.5	4	50	133
IALR-2-0.6xR0.1xL6.0	0.6	0.1	6.0	0.5	4	50	178
IALR-2-0.6xR0.2xL2.0	0.6	0.2	2.0	0.5	4	50	178
IALR-2-0.6xR0.2xL3.0	0.6	0.2	3.0	0.5	4	50	178
IALR-2-0.6xR0.2xL4.0	0.6	0.2	4.0	0.5	4	50	178
IALR-2-0.6xR0.2xL6.0	0.6	0.2	6.0	0.5	4	50	178
IULRH-2-0.8xR0.02xL2.0	0.8	0.02	2.0	0.65	4	50	106
IULR-2-0.8xR0.02xL2.0	0.8	0.02	2.0	0.65	4	50	132
IULRH-3-0.8xR0.02xL2.0	0.8	0.02	2.0	0.65	4	50	107
IULR-3-0.8xR0.02xL2.0	0.8	0.02	2.0	0.65	4	50	133
IULRH-2-0.8xR0.02xL4.0	0.8	0.02	4.0	0.65	4	50	106
IULR-2-0.8xR0.02xL4.0	0.8	0.02	4.0	0.65	4	50	132
IULRH-3-0.8xR0.02xL4.0	0.8	0.02	4.0	0.65	4	50	107
IULR-3-0.8xR0.02xL4.0	0.8	0.02	4.0	0.65	4	50	133
IULRH-2-0.8xR0.02xL6.0	0.8	0.02	6.0	0.65	4	50	106
IULR-2-0.8xR0.02xL6.0	0.8	0.02	6.0	0.65	4	50	132
IULRH-3-0.8xR0.02xL6.0	0.8	0.02	6.0	0.65	4	50	107
IULR-3-0.8xR0.02xL6.0	0.8	0.02	6.0	0.65	4	50	133
IULRH-2-0.8xR0.02xL8.0	0.8	0.02	8.0	0.65	4	50	106
IULR-2-0.8xR0.02xL8.0	0.8	0.02	8.0	0.65	4	50	132
IULRH-3-0.8xR0.02xL8.0	0.8	0.02	8.0	0.65	4	50	107
IULR-3-0.8xR0.02xL8.0	0.8	0.02	8.0	0.65	4	50	133
IULRH-2-0.8xR0.05xL2.0	0.8	0.05	2.0	0.65	4	50	106
IULR-2-0.8xR0.05xL2.0	0.8	0.05	2.0	0.65	4	50	132
IULRH-3-0.8xR0.05xL2.0	0.8	0.05	2.0	0.65	4	50	107
IULR-3-0.8xR0.05xL2.0	0.8	0.05	2.0	0.65	4	50	133
IULRH-2-0.8xR0.05xL4.0	0.8	0.05	4.0	0.65	4	50	106
IULR-2-0.8xR0.05xL4.0	0.8	0.05	4.0	0.65	4	50	132
IULRH-3-0.8xR0.05xL4.0	0.8	0.05	4.0	0.65	4	50	107
IULR-3-0.8xR0.05xL4.0	0.8	0.05	4.0	0.65	4	50	133
IALR-2-0.8xR0.05xL4.0	0.8	0.05	4.0	0.65	4	50	178
IULRH-2-0.8xR0.05xL6.0	0.8	0.05	6.0	0.65	4	50	106
IULR-2-0.8xR0.05xL6.0	0.8	0.05	6.0	0.65	4	50	132
IULRH-3-0.8xR0.05xL6.0	0.8	0.05	6.0	0.65	4	50	107
IULR-3-0.8xR0.05xL6.0	0.8	0.05	6.0	0.65	4	50	133
IALR-2-0.8xR0.05xL6.0	0.8	0.05	6.0	0.7	4	50	178
IULRH-2-0.8xR0.05xL8.0	0.8	0.05	8.0	0.65	4	50	106
IULR-2-0.8xR0.05xL8.0	0.8	0.05	8.0	0.65	4	50	132
IULRH-3-0.8xR0.05xL8.0	0.8	0.05	8.0	0.65	4	50	107
IULR-3-0.8xR0.05xL8.0	0.8	0.05	8.0	0.65	4	50	133
IALR-2-0.8xR0.05xL8.0	0.8	0.05	8.0	0.7	4	50	178
IULRH-2-0.8xR0.1xL2.0	0.8	0.1	2.0	0.65	4	50	106
IULR-2-0.8xR0.1xL2.0	0.8	0.1	2.0	0.65	4	50	132
IULRH-3-0.8xR0.1xL2.0	0.8	0.1	2.0	0.65	4	50	107
IULR-3-0.8xR0.1xL2.0	0.8	0.1	2.0	0.65	4	50	133

超硬エンドミル/ラジアス Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULRH-2-0.8xR0.1xL4.0	0.8	0.1	4.0	0.65	4	50	106
IULR-2-0.8xR0.1xL4.0	0.8	0.1	4.0	0.65	4	50	132
IULRH-3-0.8xR0.1xL4.0	0.8	0.1	4.0	0.65	4	50	107
IULR-3-0.8xR0.1xL4.0	0.8	0.1	4.0	0.65	4	50	133
IALR-2-0.8xR0.1xL4.0	0.8	0.1	4.0	0.65	4	50	178
IULRH-2-0.8xR0.1xL6.0	0.8	0.1	6.0	0.65	4	50	106
IULR-2-0.8xR0.1xL6.0	0.8	0.1	6.0	0.65	4	50	132
IULRH-3-0.8xR0.1xL6.0	0.8	0.1	6.0	0.65	4	50	108
IULR-3-0.8xR0.1xL6.0	0.8	0.1	6.0	0.65	4	50	134
IALR-2-0.8xR0.1xL6.0	0.8	0.1	6.0	0.7	4	50	178
IULRH-2-0.8xR0.1xL8.0	0.8	0.1	8.0	0.65	4	50	106
IULR-2-0.8xR0.1xL8.0	0.8	0.1	8.0	0.65	4	50	132
IULRH-3-0.8xR0.1xL8.0	0.8	0.1	8.0	0.65	4	50	108
IULR-3-0.8xR0.1xL8.0	0.8	0.1	8.0	0.65	4	50	134
IALR-2-0.8xR0.1xL8.0	0.8	0.1	8.0	0.7	4	50	178
IULRH-2-0.8xR0.2xL2.0	0.8	0.2	2.0	0.65	4	50	106
IULR-2-0.8xR0.2xL2.0	0.8	0.2	2.0	0.65	4	50	132
IULRH-3-0.8xR0.2xL2.0	0.8	0.2	2.0	0.65	4	50	108
IULR-3-0.8xR0.2xL2.0	0.8	0.2	2.0	0.65	4	50	134
IULRH-2-0.8xR0.2xL4.0	0.8	0.2	4.0	0.65	4	50	106
IULR-2-0.8xR0.2xL4.0	0.8	0.2	4.0	0.65	4	50	132
IULRH-3-0.8xR0.2xL4.0	0.8	0.2	4.0	0.65	4	50	108
IULR-3-0.8xR0.2xL4.0	0.8	0.2	4.0	0.65	4	50	134
IALR-2-0.8xR0.2xL4.0	0.8	0.2	4.0	0.65	4	50	178
IULRH-2-0.8xR0.2xL6.0	0.8	0.2	6.0	0.65	4	50	106
IULR-2-0.8xR0.2xL6.0	0.8	0.2	6.0	0.65	4	50	132
IULRH-3-0.8xR0.2xL6.0	0.8	0.2	6.0	0.65	4	50	108
IULR-3-0.8xR0.2xL6.0	0.8	0.2	6.0	0.65	4	50	134
IALR-2-0.8xR0.2xL6.0	0.8	0.2	6.0	0.7	4	50	178
IULRH-2-0.8xR0.2xL8.0	0.8	0.2	8.0	0.65	4	50	106
IULR-2-0.8xR0.2xL8.0	0.8	0.2	8.0	0.65	4	50	132
IULRH-3-0.8xR0.2xL8.0	0.8	0.2	8.0	0.65	4	50	108
IULR-3-0.8xR0.2xL8.0	0.8	0.2	8.0	0.65	4	50	134
IALR-2-0.8xR0.2xL8.0	0.8	0.2	8.0	0.7	4	50	178
IULRH-4-1.0xR0.02xL2.0	1.0	0.02	2.0	0.8	4	50	109
IULR-4-1.0xR0.02xL2.0	1.0	0.02	2.0	0.8	4	50	135
IULRH-4-1.0xR0.02xL3.0	1.0	0.02	3.0	0.8	4	50	109
IULR-4-1.0xR0.02xL3.0	1.0	0.02	3.0	0.8	4	50	135
IULRH-4-1.0xR0.02xL4.0	1.0	0.02	4.0	0.8	4	50	109
IULR-4-1.0xR0.02xL4.0	1.0	0.02	4.0	0.8	4	50	135
IULRH-4-1.0xR0.02xL5.0	1.0	0.02	5.0	0.8	4	50	109
IULR-4-1.0xR0.02xL5.0	1.0	0.02	5.0	0.8	4	50	135
IULRH-4-1.0xR0.02xL6.0	1.0	0.02	6.0	0.8	4	50	109
IULR-4-1.0xR0.02xL6.0	1.0	0.02	6.0	0.8	4	50	135
IULRH-4-1.0xR0.02xL8.0	1.0	0.02	8.0	0.8	4	50	109
IULR-4-1.0xR0.02xL8.0	1.0	0.02	8.0	0.8	4	50	135
IULRH-4-1.0xR0.02xL10.0	1.0	0.02	10.0	0.8	4	50	109
IULR-4-1.0xR0.02xL10.0	1.0	0.02	10.0	0.8	4	50	135
IULRH-4-1.0xR0.05xL2.0	1.0	0.05	2.0	0.8	4	50	109
IULR-4-1.0xR0.05xL2.0	1.0	0.05	2.0	0.8	4	50	135
IALR-2-1.0xR0.05xL2.0	1.0	0.05	2.0	0.8	4	50	178
IULRH-4-1.0xR0.05xL3.0	1.0	0.05	3.0	0.8	4	50	109
IULR-4-1.0xR0.05xL3.0	1.0	0.05	3.0	0.8	4	50	135
IALR-2-1.0xR0.05xL3.0	1.0	0.05	3.0	0.8	4	50	178
IALR-4-1.0xR0.05xL3.0	1.0	0.05	3.0	0.8	4	50	182
IULRH-4-1.0xR0.05xL4.0	1.0	0.05	4.0	0.8	4	50	109
IULR-4-1.0xR0.05xL4.0	1.0	0.05	4.0	0.8	4	50	135
IALR-2-1.0xR0.05xL4.0	1.0	0.05	4.0	0.8	4	50	178
IALR-4-1.0xR0.05xL4.0	1.0	0.05	4.0	0.8	4	50	182
IULRH-4-1.0xR0.05xL5.0	1.0	0.05	5.0	0.8	4	50	109
IULR-4-1.0xR0.05xL5.0	1.0	0.05	5.0	0.8	4	50	135
IULRH-4-1.0xR0.05xL6.0	1.0	0.05	6.0	0.8	4	50	109
IULR-4-1.0xR0.05xL6.0	1.0	0.05	6.0	0.8	4	50	135
IALR-2-1.0xR0.05xL6.0	1.0	0.05	6.0	0.8	4	50	178
IALR-4-1.0xR0.05xL6.0	1.0	0.05	6.0	0.8	4	50	182
IULRH-4-1.0xR0.05xL8.0	1.0	0.05	8.0	0.8	4	50	109
IULR-4-1.0xR0.05xL8.0	1.0	0.05	8.0	0.8	4	50	135
IALR-2-1.0xR0.05xL8.0	1.0	0.05	8.0	0.8	4	50	178
IALR-4-1.0xR0.05xL8.0	1.0	0.05	8.0	0.8	4	50	182
IULRH-4-1.0xR0.05xL10.0	1.0	0.05	10.0	0.8	4	50	109
IULR-4-1.0xR0.05xL10.0	1.0	0.05	10.0	0.8	4	50	135
IALR-2-1.0xR0.05xL10.0	1.0	0.05	10.0	0.8	4	50	178
IALR-4-1.0xR0.05xL10.0	1.0	0.05	10.0	0.8	4	50	182
IALR-2-1.0xR0.05xL12.0	1.0	0.05	12.0	0.8	4	50	178
IALR-4-1.0xR0.05xL12.0	1.0	0.05	12.0	0.8	4	50	182
IULRH-4-1.0xR0.1xL2.0	1.0	0.1	2.0	0.8	4	50	109
IULR-4-1.0xR0.1xL2.0	1.0	0.1	2.0	0.8	4	50	135
IAR-2-1.0xR0.1x2.0	1.0	0.1	—	2.0	4	50	173
IAR-4-1.0xR0.1x2.0	1.0	0.1	—	2.0	4	50	175
IALR-2-1.0xR0.1xL2.0	1.0	0.1	2.0	0.8	4	50	178
IULRH-4-1.0xR0.1xL3.0	1.0	0.1	3.0	0.8	4	50	109
IULR-4-1.0xR0.1xL3.0	1.0	0.1	3.0	0.8	4	50	135
IALR-2-1.0xR0.1xL3.0	1.0	0.1	3.0	0.8	4	50	178
IALR-4-1.0xR0.1xL3.0	1.0	0.1	3.0	0.8	4	50	182
IULRH-4-1.0xR0.1xL4.0	1.0	0.1	4.0	0.8	4	50	109
IULR-4-1.0xR0.1xL4.0	1.0	0.1	4.0	0.8	4	50	135
IALR-2-1.0xR0.1xL4.0	1.0	0.1	4.0	0.8	4	50	178
IALR-4-1.0xR0.1xL4.0	1.0	0.1	4.0	0.8	4	50	182
IULRH-4-1.0xR0.1xL5.0	1.0	0.1	5.0	0.8	4	50	109
IULR-4-1.0xR0.1xL5.0	1.0	0.1	5.0	0.8	4	50	135
IULRH-4-1.0xR0.1xL6.0	1.0	0.1	6.0	0.8	4	50	109
IULR-4-1.0xR0.1xL6.0	1.0	0.1	6.0	0.8	4	50	135
IALR-2-1.0xR0.1xL6.0	1.0	0.1	6.0	0.8	4	50	178
IALR-4-1.0xR0.1xL6.0	1.0	0.1	6.0	0.8	4	50	182
IULRH-4-1.0xR0.1xL8.0	1.0	0.1	8.0	0.8	4	50	110
IULR-4-1.0xR0.1xL8.0	1.0	0.1	8.0	0.8	4	50	136
IALR-2-1.0xR0.1xL8.0	1.0	0.1	8.0	0.8	4	50	178
IALR-4-1.0xR0.1xL8.0	1.0	0.1	8.0	0.8	4	50	182
IULRH-4-1.0xR0.1xL10.0	1.0	0.1	10.0	0.8	4	50	110
IULR-4-1.0xR0.1xL10.0	1.0	0.1	10.0	0.8	4	50	136
IALR-2-1.0xR0.1xL10.0	1.0	0.1	10.0	0.8	4	50	178
IALR-4-1.0xR0.1xL10.0	1.0	0.1	10.0	0.8	4	50	182
IALR-2-1.0xR0.1xL12.0	1.0	0.1	12.0	0.8	4	50	178
IALR-4-1.0xR0.1xL12.0	1.0	0.1	12.0	0.8	4	50	182
IULRH-4-1.0xR0.2xL2.0	1.0	0.2	2.0	0.8	4	50	110
IULR-4-1.0xR0.2xL2.0	1.0	0.2	2.0	0.8	4	50	136
IAR-2-1.0xR0.2x2.0	1.0	0.2	—	2.0	4	50	173
IAR-4-1.0xR0.2x2.0	1.0	0.2	—	2.0	4	50	175
IALR-2-1.0xR0.2xL2.0	1.0	0.2	2.0	0.8	4	50	178

超硬エンドミル/ラジアス Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULRH-4-1.0xR0.2xL3.0	1.0	0.2	3.0	0.8	4	50	110
IULR-4-1.0xR0.2xL3.0	1.0	0.2	3.0	0.8	4	50	136
IALR-2-1.0xR0.2xL3.0	1.0	0.2	3.0	0.8	4	50	178
IALR-4-1.0xR0.2xL3.0	1.0	0.2	3.0	0.8	4	50	182
IULRH-4-1.0xR0.2xL4.0	1.0	0.2	4.0	0.8	4	50	110
IULR-4-1.0xR0.2xL4.0	1.0	0.2	4.0	0.8	4	50	136
IALR-2-1.0xR0.2xL4.0	1.0	0.2	4.0	0.8	4	50	178
IALR-4-1.0xR0.2xL4.0	1.0	0.2	4.0	0.8	4	50	182
IULRH-4-1.0xR0.2xL5.0	1.0	0.2	5.0	0.8	4	50	110
IULR-4-1.0xR0.2xL5.0	1.0	0.2	5.0	0.8	4	50	136
IULRH-4-1.0xR0.2xL6.0	1.0	0.2	6.0	0.8	4	50	110
IULR-4-1.0xR0.2xL6.0	1.0	0.2	6.0	0.8	4	50	136
IALR-2-1.0xR0.2xL6.0	1.0	0.2	6.0	0.8	4	50	178
IALR-4-1.0xR0.2xL6.0	1.0	0.2	6.0	0.8	4	50	182
IULRH-4-1.0xR0.2xL8.0	1.0	0.2	8.0	0.8	4	50	110
IULR-4-1.0xR0.2xL8.0	1.0	0.2	8.0	0.8	4	50	136
IALR-2-1.0xR0.2xL8.0	1.0	0.2	8.0	0.8	4	50	178
IALR-4-1.0xR0.2xL8.0	1.0	0.2	8.0	0.8	4	50	182
IULRH-4-1.0xR0.2xL10.0	1.0	0.2	10.0	0.8	4	50	110
IULR-4-1.0xR0.2xL10.0	1.0	0.2	10.0	0.8	4	50	136
IALR-2-1.0xR0.2xL10.0	1.0	0.2	10.0	0.8	4	50	178
IALR-4-1.0xR0.2xL10.0	1.0	0.2	10.0	0.8	4	50	182
IALR-2-1.0xR0.2xL12.0	1.0	0.2	12.0	0.8	4	50	178
IALR-4-1.0xR0.2xL12.0	1.0	0.2	12.0	0.8	4	50	182
IULRH-4-1.0xR0.3xL2.0	1.0	0.3	2.0	0.8	4	50	110
IULR-4-1.0xR0.3xL2.0	1.0	0.3	2.0	0.8	4	50	136
IAR-2-1.0xR0.3x2.0	1.0	0.3	—	2.0	4	50	173
IAR-4-1.0xR0.3x2.0	1.0	0.3	—	2.0	4	50	175
IALR-2-1.0xR0.3xL2.0	1.0	0.3	2.0	0.8	4	50	178
IULRH-4-1.0xR0.3xL3.0	1.0	0.3	3.0	0.8	4	50	110
IULR-4-1.0xR0.3xL3.0	1.0	0.3	3.0	0.8	4	50	136
IALR-2-1.0xR0.3xL3.0	1.0	0.3	3.0	0.8	4	50	178
IALR-4-1.0xR0.3xL3.0	1.0	0.3	3.0	0.8	4	50	182
IULRH-4-1.0xR0.3xL4.0	1.0	0.3	4.0	0.8	4	50	110
IULR-4-1.0xR0.3xL4.0	1.0	0.3	4.0	0.8	4	50	136
IALR-2-1.0xR0.3xL4.0	1.0	0.3	4.0	0.8	4	50	178
IALR-4-1.0xR0.3xL4.0	1.0	0.3	4.0	0.8	4	50	183
IULRH-4-1.0xR0.3xL5.0	1.0	0.3	5.0	0.8	4	50	110
IULR-4-1.0xR0.3xL5.0	1.0	0.3	5.0	0.8	4	50	136
IULRH-4-1.0xR0.3xL6.0	1.0	0.3	6.0	0.8	4	50	110
IULR-4-1.0xR0.3xL6.0	1.0	0.3	6.0	0.8	4	50	136
IALR-2-1.0xR0.3xL6.0	1.0	0.3	6.0	0.8	4	50	178
IALR-4-1.0xR0.3xL6.0	1.0	0.3	6.0	0.8	4	50	183
IULRH-4-1.0xR0.3xL8.0	1.0	0.3	8.0	0.8	4	50	110
IULR-4-1.0xR0.3xL8.0	1.0	0.3	8.0	0.8	4	50	136
IALR-2-1.0xR0.3xL8.0	1.0	0.3	8.0	0.8	4	50	178
IALR-4-1.0xR0.3xL8.0	1.0	0.3	8.0	0.8	4	50	183
IULRH-4-1.0xR0.3xL10.0	1.0	0.3	10.0	0.8	4	50	110
IULR-4-1.0xR0.3xL10.0	1.0	0.3	10.0	0.8	4	50	136
IALR-2-1.0xR0.3xL10.0	1.0	0.3	10.0	0.8	4	50	178
IALR-4-1.0xR0.3xL10.0	1.0	0.3	10.0	0.8	4	50	183
IALR-2-1.0xR0.3xL12.0	1.0	0.3	12.0	0.8	4	50	178
IALR-4-1.0xR0.3xL12.0	1.0	0.3	12.0	0.8	4	50	183
IULRH-4-1.2xR0.1xL5.0	1.2	0.1	5.0	1.0	4	50	110
IULR-4-1.2xR0.1xL5.0	1.2	0.1	5.0	1.0	4	50	136
IALR-2-1.2xR0.1xL6.0	1.2	0.1	6.0	1.0	4	50	179
IALR-2-1.2xR0.1xL8.0	1.2	0.1	8.0	1.0	4	50	179
IULRH-4-1.2xR0.1xL10.0	1.2	0.1	10.0	1.0	4	50	110
IULR-4-1.2xR0.1xL10.0	1.2	0.1	10.0	1.0	4	50	136
IALR-2-1.2xR0.1xL10.0	1.2	0.1	10.0	1.0	4	50	179
IALR-4-1.2xR0.1xL10.0	1.2	0.1	10.0	1.0	4	50	183
IALR-2-1.2xR0.1xL12.0	1.2	0.1	12.0	1.0	4	50	179
IALR-4-1.2xR0.1xL15.0	1.2	0.1	15.0	1.0	4	50	183
IULRH-4-1.2xR0.2xL5.0	1.2	0.2	5.0	1.0	4	50	110
IULR-4-1.2xR0.2xL5.0	1.2	0.2	5.0	1.0	4	50	136
IALR-2-1.2xR0.2xL6.0	1.2	0.2	6.0	1.0	4	50	179
IALR-2-1.2xR0.2xL8.0	1.2	0.2	8.0	1.0	4	50	179
IULRH-4-1.2xR0.2xL10.0	1.2	0.2	10.0	1.0	4	50	110
IULR-4-1.2xR0.2xL10.0	1.2	0.2	10.0	1.0	4	50	136
IALR-2-1.2xR0.2xL10.0	1.2	0.2	10.0	1.0	4	50	179
IALR-4-1.2xR0.2xL10.0	1.2	0.2	10.0	1.0	4	50	183
IALR-2-1.2xR0.2xL12.0	1.2	0.2	12.0	1.0	4	50	179
IALR-4-1.2xR0.2xL15.0	1.2	0.2	15.0	1.0	4	50	183
IULRH-4-1.2xR0.3xL5.0	1.2	0.3	5.0	1.0	4	50	110
IULR-4-1.2xR0.3xL5.0	1.2	0.3	5.0	1.0	4	50	136
IALR-2-1.2xR0.3xL6.0	1.2	0.3	6.0	1.0	4	50	179
IALR-2-1.2xR0.3xL8.0	1.2	0.3	8.0	1.0	4	50	179
IULRH-4-1.2xR0.3xL10.0	1.2	0.3	10.0	1.0	4	50	110
IULR-4-1.2xR0.3xL10.0	1.2	0.3	10.0	1.0	4	50	136
IALR-2-1.2xR0.3xL10.0	1.2	0.3	10.0	1.0	4	50	179
IALR-4-1.2xR0.3xL10.0	1.2	0.3	10.0	1.0	4	50	183
IALR-2-1.2xR0.3xL12.0	1.2	0.3	12.0	1.0	4	50	179
IALR-4-1.2xR0.3xL15.0	1.2	0.3	15.0	1.0	4	50	183
IULRH-4-1.5xR0.02xL3.0	1.5	0.02	3.0	1.2	4	50	110
IULR-4-1.5xR0.02xL3.0	1.5	0.02	3.0	1.2	4	50	136
IULRH-4-1.5xR0.02xL4.0	1.5	0.02	4.0	1.2	4	50	110
IULR-4-1.5xR0.02xL4.0	1.5	0.02	4.0	1.2	4	50	136
IULRH-4-1.5xR0.02xL6.0	1.5	0.02	6.0	1.2	4	50	110
IULR-4-1.5xR0.02xL6.0	1.5	0.02	6.0	1.2	4	50	136
IULRH-4-1.5xR0.02xL8.0	1.5	0.02	8.0	1.2	4	50	110
IULR-4-1.5xR0.02xL8.0	1.5	0.02	8.0	1.2	4	50	136
IULRH-4-1.5xR0.02xL12.0	1.5	0.02	12.0	1.2	4	50	110
IULR-4-1.5xR0.02xL12.0	1.5	0.02	12.0	1.2	4	50	136
IULRH-4-1.5xR0.02xL15.0	1.5	0.02	15.0	1.2	4	50	110
IULR-4-1.5xR0.02xL15.0	1.5	0.02	15.0	1.2	4	50	136
IULRH-4-1.5xR0.05xL3.0	1.5	0.05	3.0	1.2	4	50	110
IULR-4-1.5xR0.05xL3.0	1.5	0.05	3.0	1.2	4	50	136
IULRH-4-1.5xR0.05xL4.0	1.5	0.05	4.0	1.2	4	50	110
IULR-4-1.5xR0.05xL4.0	1.5	0.05	4.0	1.2	4	50	136
IULRH-4-1.5xR0.05xL6.0	1.5	0.05	6.0	1.2	4	50	110
IULR-4-1.5xR0.05xL6.0	1.5	0.05	6.0	1.2	4	50	136
IULRH-4-1.5xR0.05xL8.0	1.5	0.05	8.0	1.2	4	50	110
IULR-4-1.5xR0.05xL8.0	1.5	0.05	8.0	1.2	4	50	136
IULRH-4-1.5xR0.05xL12.0	1.5	0.05	12.0	1.2	4	50	110
IULR-4-1.5xR0.05xL12.0	1.5	0.05	12.0	1.2	4	50	136
IULRH-4-1.5xR0.05xL15.0	1.5	0.05	15.0	1.2	4	50	110
IULR-4-1.5xR0.05xL15.0	1.5	0.05	15.0	1.2	4	50	136
IULRH-4-1.5xR0.1xL3.0	1.5	0.1	3.0	1.2	4	50	110
IULR-4-1.5xR0.1xL3.0	1.5	0.1	3.0	1.2	4	50	136

超硬エンドミル/ラジアス Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IAR-2-1.5xR0.1x3.0	1.5	0.1	—	3.0	4	50	173
IAR-4-1.5xR0.1x3.0	1.5	0.1	—	3.0	4	50	175
IALR-4-1.5xR0.1xL3.0	1.5	0.1	3.0	1.2	4	50	183
IULRH-4-1.5xR0.1xL4.0	1.5	0.1	4.0	1.2	4	50	110
IULR-4-1.5xR0.1xL4.0	1.5	0.1	4.0	1.2	4	50	136
IALR-2-1.5xR0.1xL4.0	1.5	0.1	4.0	1.2	4	50	179
IULRH-4-1.5xR0.1xL6.0	1.5	0.1	6.0	1.2	4	50	110
IULR-4-1.5xR0.1xL6.0	1.5	0.1	6.0	1.2	4	50	136
IALR-2-1.5xR0.1xL6.0	1.5	0.1	6.0	1.2	4	50	179
IALR-4-1.5xR0.1xL6.0	1.5	0.1	6.0	1.2	4	50	183
IULRH-4-1.5xR0.1xL8.0	1.5	0.1	8.0	1.2	4	50	110
IULR-4-1.5xR0.1xL8.0	1.5	0.1	8.0	1.2	4	50	136
IALR-2-1.5xR0.1xL8.0	1.5	0.1	8.0	1.2	4	50	179
IALR-2-1.5xR0.1xL10.0	1.5	0.1	10.0	1.2	4	50	179
IALR-4-1.5xR0.1xL10.0	1.5	0.1	10.0	1.2	4	50	183
IULRH-4-1.5xR0.1xL12.0	1.5	0.1	12.0	1.2	4	50	110
IULR-4-1.5xR0.1xL12.0	1.5	0.1	12.0	1.2	4	50	136
IALR-2-1.5xR0.1xL12.0	1.5	0.1	12.0	1.2	4	50	179
IALR-4-1.5xR0.1xL12.0	1.5	0.1	12.0	1.2	4	50	183
IULRH-4-1.5xR0.1xL15.0	1.5	0.1	15.0	1.2	4	50	110
IULR-4-1.5xR0.1xL15.0	1.5	0.1	15.0	1.2	4	50	136
IALR-2-1.5xR0.1xL16.0	1.5	0.1	16.0	1.2	4	50	179
IALR-4-1.5xR0.1xL18.0	1.5	0.1	18.0	1.2	4	50	183
IULRH-4-1.5xR0.2xL3.0	1.5	0.2	3.0	1.2	4	50	110
IULR-4-1.5xR0.2xL3.0	1.5	0.2	3.0	1.2	4	50	136
IAR-2-1.5xR0.2x3.0	1.5	0.2	—	3.0	4	50	173
IAR-4-1.5xR0.2x3.0	1.5	0.2	—	3.0	4	50	175
IALR-4-1.5xR0.2xL3.0	1.5	0.2	3.0	1.2	4	50	183
IULRH-4-1.5xR0.2xL4.0	1.5	0.2	4.0	1.2	4	50	110
IULR-4-1.5xR0.2xL4.0	1.5	0.2	4.0	1.2	4	50	136
IALR-2-1.5xR0.2xL4.0	1.5	0.2	4.0	1.2	4	50	179
IULRH-4-1.5xR0.2xL6.0	1.5	0.2	6.0	1.2	4	50	110
IULR-4-1.5xR0.2xL6.0	1.5	0.2	6.0	1.2	4	50	136
IALR-2-1.5xR0.2xL6.0	1.5	0.2	6.0	1.2	4	50	179
IALR-4-1.5xR0.2xL6.0	1.5	0.2	6.0	1.2	4	50	183
IULRH-4-1.5xR0.2xL8.0	1.5	0.2	8.0	1.2	4	50	110
IULR-4-1.5xR0.2xL8.0	1.5	0.2	8.0	1.2	4	50	136
IALR-2-1.5xR0.2xL8.0	1.5	0.2	8.0	1.2	4	50	179
IALR-2-1.5xR0.2xL10.0	1.5	0.2	10.0	1.2	4	50	179
IALR-4-1.5xR0.2xL10.0	1.5	0.2	10.0	1.2	4	50	183
IULRH-4-1.5xR0.2xL12.0	1.5	0.2	12.0	1.2	4	50	110
IULR-4-1.5xR0.2xL12.0	1.5	0.2	12.0	1.2	4	50	136
IALR-2-1.5xR0.2xL12.0	1.5	0.2	12.0	1.2	4	50	179
IALR-4-1.5xR0.2xL12.0	1.5	0.2	12.0	1.2	4	50	183
IULRH-4-1.5xR0.2xL15.0	1.5	0.2	15.0	1.2	4	50	110
IULR-4-1.5xR0.2xL15.0	1.5	0.2	15.0	1.2	4	50	136
IALR-2-1.5xR0.2xL16.0	1.5	0.2	16.0	1.2	4	50	179
IALR-4-1.5xR0.2xL18.0	1.5	0.2	18.0	1.2	4	50	183
IULRH-4-1.5xR0.3xL3.0	1.5	0.3	3.0	1.2	4	50	110
IULR-4-1.5xR0.3xL3.0	1.5	0.3	3.0	1.2	4	50	136
IAR-2-1.5xR0.3x3.0	1.5	0.3	—	3.0	4	50	173
IAR-4-1.5xR0.3x3.0	1.5	0.3	—	3.0	4	50	175
IALR-4-1.5xR0.3xL3.0	1.5	0.3	3.0	1.2	4	50	183
IULRH-4-1.5xR0.3xL4.0	1.5	0.3	4.0	1.2	4	50	111
IULR-4-1.5xR0.3xL4.0	1.5	0.3	4.0	1.2	4	50	137
IALR-2-1.5xR0.3xL4.0	1.5	0.3	4.0	1.2	4	50	179
IULRH-4-1.5xR0.3xL6.0	1.5	0.3	6.0	1.2	4	50	111
IULR-4-1.5xR0.3xL6.0	1.5	0.3	6.0	1.2	4	50	137
IALR-2-1.5xR0.3xL6.0	1.5	0.3	6.0	1.2	4	50	179
IALR-4-1.5xR0.3xL6.0	1.5	0.3	6.0	1.2	4	50	183
IULRH-4-1.5xR0.3xL8.0	1.5	0.3	8.0	1.2	4	50	111
IULR-4-1.5xR0.3xL8.0	1.5	0.3	8.0	1.2	4	50	137
IALR-2-1.5xR0.3xL8.0	1.5	0.3	8.0	1.2	4	50	179
IALR-2-1.5xR0.3xL10.0	1.5	0.3	10.0	1.2	4	50	179
IALR-4-1.5xR0.3xL10.0	1.5	0.3	10.0	1.2	4	50	183
IULRH-4-1.5xR0.3xL12.0	1.5	0.3	12.0	1.2	4	50	111
IULR-4-1.5xR0.3xL12.0	1.5	0.3	12.0	1.2	4	50	137
IALR-2-1.5xR0.3xL12.0	1.5	0.3	12.0	1.2	4	50	179
IALR-4-1.5xR0.3xL12.0	1.5	0.3	12.0	1.2	4	50	183
IULRH-4-1.5xR0.3xL15.0	1.5	0.3	15.0	1.2	4	50	111
IULR-4-1.5xR0.3xL15.0	1.5	0.3	15.0	1.2	4	50	137
IALR-2-1.5xR0.3xL16.0	1.5	0.3	16.0	1.2	4	50	179
IALR-4-1.5xR0.3xL18.0	1.5	0.3	18.0	1.2	4	50	183
IULRH-4-1.5xR0.5xL3.0	1.5	0.5	3.0	1.2	4	50	111
IULR-4-1.5xR0.5xL3.0	1.5	0.5	3.0	1.2	4	50	137
IAR-4-1.5xR0.5x3.0	1.5	0.5	—	3.0	4	50	175
IULRH-4-1.5xR0.5xL4.0	1.5	0.5	4.0	1.2	4	50	111
IULR-4-1.5xR0.5xL4.0	1.5	0.5	4.0	1.2	4	50	137
IALR-2-1.5xR0.5xL4.0	1.5	0.5	4.0	1.2	4	50	179
IULRH-4-1.5xR0.5xL6.0	1.5	0.5	6.0	1.2	4	50	111
IULR-4-1.5xR0.5xL6.0	1.5	0.5	6.0	1.2	4	50	137
IALR-2-1.5xR0.5xL6.0	1.5	0.5	6.0	1.2	4	50	179
IALR-4-1.5xR0.5xL6.0	1.5	0.5	6.0	1.2	4	50	183
IULRH-4-1.5xR0.5xL8.0	1.5	0.5	8.0	1.2	4	50	111
IULR-4-1.5xR0.5xL8.0	1.5	0.5	8.0	1.2	4	50	137
IALR-2-1.5xR0.5xL8.0	1.5	0.5	8.0	1.2	4	50	179
IALR-2-1.5xR0.5xL10.0	1.5	0.5	10.0	1.2	4	50	179
IULRH-4-1.5xR0.5xL12.0	1.5	0.5	12.0	1.2	4	50	111
IULR-4-1.5xR0.5xL12.0	1.5	0.5	12.0	1.2	4	50	137
IALR-2-1.5xR0.5xL12.0	1.5	0.5	12.0	1.2	4	50	179
IALR-4-1.5xR0.5xL12.0	1.5	0.5	12.0	1.2	4	50	183
IULRH-4-1.5xR0.5xL15.0	1.5	0.5	15.0	1.2	4	50	111
IULR-4-1.5xR0.5xL15.0	1.5	0.5	15.0	1.2	4	50	137
IALR-2-1.5xR0.5xL16.0	1.5	0.5	16.0	1.2	4	50	179
IALR-4-1.5xR0.5xL18.0	1.5	0.5	18.0	1.2	4	50	183
IULRH-4-2.0xR0.02xL4.0	2.0	0.02	4.0	1.6	4	50	111
IULR-4-2.0xR0.02xL4.0	2.0	0.02	4.0	1.6	4	50	137
IULRH-4-2.0xR0.02xL6.0	2.0	0.02	6.0	1.6	4	50	111
IULR-4-2.0xR0.02xL6.0	2.0	0.02	6.0	1.6	4	50	137
IULRH-4-2.0xR0.02xL8.0	2.0	0.02	8.0	1.6	4	50	111
IULR-4-2.0xR0.02xL8.0	2.0	0.02	8.0	1.6	4	50	137
IULRH-4-2.0xR0.02xL12.0	2.0	0.02	12.0	1.6	4	50	111
IULR-4-2.0xR0.02xL12.0	2.0	0.02	12.0	1.6	4	50	137
IULRH-4-2.0xR0.02xL16.0	2.0	0.02	16.0	1.6	4	50	111
IULR-4-2.0xR0.02xL16.0	2.0	0.02	16.0	1.6	4	50	137
IULRH-4-2.0xR0.02xL20.0	2.0	0.02	20.0	1.6	4	60	111
IULR-4-2.0xR0.02xL20.0	2.0	0.02	20.0	1.6	4	60	137
IULRH-4-2.0xR0.05xL4.0	2.0	0.05	4.0	1.6	4	50	111
IULR-4-2.0xR0.05xL4.0	2.0	0.05	4.0	1.6	4	50	137

超硬エンドミル/ラジアス Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULRH-4-2.0xR0.05xL6.0	2.0	0.05	6.0	1.6	4	50	111
IULR-4-2.0xR0.05xL6.0	2.0	0.05	6.0	1.6	4	50	137
IULRH-4-2.0xR0.05xL8.0	2.0	0.05	8.0	1.6	4	50	111
IULR-4-2.0xR0.05xL8.0	2.0	0.05	8.0	1.6	4	50	137
IULRH-4-2.0xR0.05xL12.0	2.0	0.05	12.0	1.6	4	50	111
IULR-4-2.0xR0.05xL12.0	2.0	0.05	12.0	1.6	4	50	137
IULRH-4-2.0xR0.05xL16.0	2.0	0.05	16.0	1.6	4	50	111
IULR-4-2.0xR0.05xL16.0	2.0	0.05	16.0	1.6	4	50	137
IULRH-4-2.0xR0.05xL20.0	2.0	0.05	20.0	1.6	4	60	111
IULR-4-2.0xR0.05xL20.0	2.0	0.05	20.0	1.6	4	60	137
IULRH-4-2.0xR0.1xL4.0	2.0	0.1	4.0	1.6	4	50	111
IULR-4-2.0xR0.1xL4.0	2.0	0.1	4.0	1.6	4	50	137
IAR-2-2.0xR0.1x4.0	2.0	0.1	—	4.0	4	50	173
IAR-4-2.0xR0.1x4.0	2.0	0.1	—	4.0	4	50	175
IALR-2-2.0xR0.1xL4.0	2.0	0.1	4.0	1.6	4	50	179
IULRH-4-2.0xR0.1xL6.0	2.0	0.1	6.0	1.6	4	50	111
IULR-4-2.0xR0.1xL6.0	2.0	0.1	6.0	1.6	4	50	137
IALR-2-2.0xR0.1xL6.0	2.0	0.1	6.0	1.6	4	50	179
IALR-4-2.0xR0.1xL6.0	2.0	0.1	6.0	1.6	4	50	183
IULRH-4-2.0xR0.1xL8.0	2.0	0.1	8.0	1.6	4	50	111
IULR-4-2.0xR0.1xL8.0	2.0	0.1	8.0	1.6	4	50	137
IALR-2-2.0xR0.1xL8.0	2.0	0.1	8.0	1.6	4	50	179
IALR-4-2.0xR0.1xL8.0	2.0	0.1	8.0	1.6	4	50	183
IALR-2-2.0xR0.1xL10.0	2.0	0.1	10.0	1.6	4	50	179
IALR-4-2.0xR0.1xL10.0	2.0	0.1	10.0	1.6	4	50	183
IULRH-4-2.0xR0.1xL12.0	2.0	0.1	12.0	1.6	4	50	111
IULR-4-2.0xR0.1xL12.0	2.0	0.1	12.0	1.6	4	50	137
IALR-2-2.0xR0.1xL12.0	2.0	0.1	12.0	1.6	4	50	179
IALR-4-2.0xR0.1xL12.0	2.0	0.1	12.0	1.6	4	50	183
IALR-4-2.0xR0.1xL15.0	2.0	0.1	15.0	1.6	4	50	183
IULRH-4-2.0xR0.1xL16.0	2.0	0.1	16.0	1.6	4	50	111
IULR-4-2.0xR0.1xL16.0	2.0	0.1	16.0	1.6	4	50	137
IALR-2-2.0xR0.1xL16.0	2.0	0.1	16.0	1.6	4	50	179
IALR-4-2.0xR0.1xL16.0	2.0	0.1	16.0	1.6	4	50	183
IULRH-4-2.0xR0.1xL20.0	2.0	0.1	20.0	1.6	4	60	111
IULR-4-2.0xR0.1xL20.0	2.0	0.1	20.0	1.6	4	60	137
IALR-2-2.0xR0.1xL20.0	2.0	0.1	20.0	1.6	4	60	179
IALR-4-2.0xR0.1xL20.0	2.0	0.1	20.0	1.6	4	60	183
IALR-4-2.0xR0.1xL24.0	2.0	0.1	24.0	1.6	4	60	183
IAR-2-2.0xR0.2x4.0	2.0	0.2	—	4.0	4	50	173
IAR-4-2.0xR0.2x4.0	2.0	0.2	—	4.0	4	50	175
TW-VS-CR-EM2D-2xR0.2	2.0	0.2	8.7	4.0	4	50	53
IULRH-4-2.0xR0.2xL4.0	2.0	0.2	4.0	1.6	4	50	111
IULR-4-2.0xR0.2xL4.0	2.0	0.2	4.0	1.6	4	50	137
IALR-2-2.0xR0.2xL4.0	2.0	0.2	4.0	1.6	4	50	179
IULRH-4-2.0xR0.2xL6.0	2.0	0.2	6.0	1.6	4	50	111
IULR-4-2.0xR0.2xL6.0	2.0	0.2	6.0	1.6	4	50	137
IALR-2-2.0xR0.2xL6.0	2.0	0.2	6.0	1.6	4	50	179
IALR-4-2.0xR0.2xL6.0	2.0	0.2	6.0	1.6	4	50	183
IULRH-4-2.0xR0.2xL8.0	2.0	0.2	8.0	1.6	4	50	111
IULR-4-2.0xR0.2xL8.0	2.0	0.2	8.0	1.6	4	50	137
IALR-2-2.0xR0.2xL8.0	2.0	0.2	8.0	1.6	4	50	179
IALR-4-2.0xR0.2xL8.0	2.0	0.2	8.0	1.6	4	50	183
IALR-2-2.0xR0.2xL10.0	2.0	0.2	10.0	1.6	4	50	179
IALR-4-2.0xR0.2xL10.0	2.0	0.2	10.0	1.6	4	50	183
IULRH-4-2.0xR0.2xL12.0	2.0	0.2	12.0	1.6	4	50	111
IULR-4-2.0xR0.2xL12.0	2.0	0.2	12.0	1.6	4	50	137
IALR-2-2.0xR0.2xL12.0	2.0	0.2	12.0	1.6	4	50	180
IALR-4-2.0xR0.2xL12.0	2.0	0.2	12.0	1.6	4	50	183
IALR-4-2.0xR0.2xL15.0	2.0	0.2	15.0	1.6	4	50	183
IULRH-4-2.0xR0.2xL16.0	2.0	0.2	16.0	1.6	4	50	111
IULR-4-2.0xR0.2xL16.0	2.0	0.2	16.0	1.6	4	50	137
IALR-2-2.0xR0.2xL16.0	2.0	0.2	16.0	1.6	4	50	180
IALR-4-2.0xR0.2xL16.0	2.0	0.2	16.0	1.6	4	50	183
IULRH-4-2.0xR0.2xL20.0	2.0	0.2	20.0	1.6	4	60	111
IULR-4-2.0xR0.2xL20.0	2.0	0.2	20.0	1.6	4	60	137
IALR-2-2.0xR0.2xL20.0	2.0	0.2	20.0	1.6	4	60	180
IALR-4-2.0xR0.2xL20.0	2.0	0.2	20.0	1.6	4	60	183
IALR-4-2.0xR0.2xL24.0	2.0	0.2	24.0	1.6	4	60	183
IAR-2-2.0xR0.3x4.0	2.0	0.3	—	4.0	4	50	173
IAR-4-2.0xR0.3x4.0	2.0	0.3	—	4.0	4	50	175
TW-VS-CR-EM2D-2xR0.3	2.0	0.3	8.7	4.0	4	50	53
IULRH-4-2.0xR0.3xL4.0	2.0	0.3	4.0	1.6	4	50	111
IULR-4-2.0xR0.3xL4.0	2.0	0.3	4.0	1.6	4	50	137
IALR-2-2.0xR0.3xL4.0	2.0	0.3	4.0	1.6	4	50	180
IULRH-4-2.0xR0.3xL6.0	2.0	0.3	6.0	1.6	4	50	111
IULR-4-2.0xR0.3xL6.0	2.0	0.3	6.0	1.6	4	50	137
IALR-2-2.0xR0.3xL6.0	2.0	0.3	6.0	1.6	4	50	180
IALR-4-2.0xR0.3xL6.0	2.0	0.3	6.0	1.6	4	50	183
IULRH-4-2.0xR0.3xL8.0	2.0	0.3	8.0	1.6	4	50	111
IULR-4-2.0xR0.3xL8.0	2.0	0.3	8.0	1.6	4	50	137
IALR-2-2.0xR0.3xL8.0	2.0	0.3	8.0	1.6	4	50	180
IALR-4-2.0xR0.3xL8.0	2.0	0.3	8.0	1.6	4	50	183
IALR-2-2.0xR0.3xL10.0	2.0	0.3	10.0	1.6	4	50	180
IALR-4-2.0xR0.3xL10.0	2.0	0.3	10.0	1.6	4	50	184
IULRH-4-2.0xR0.3xL12.0	2.0	0.3	12.0	1.6	4	50	111
IULR-4-2.0xR0.3xL12.0	2.0	0.3	12.0	1.6	4	50	137
IALR-2-2.0xR0.3xL12.0	2.0	0.3	12.0	1.6	4	50	180
IALR-4-2.0xR0.3xL12.0	2.0	0.3	12.0	1.6	4	50	184
IALR-4-2.0xR0.3xL15.0	2.0	0.3	15.0	1.6	4	50	184
IULRH-4-2.0xR0.3xL16.0	2.0	0.3	16.0	1.6	4	50	111
IULR-4-2.0xR0.3xL16.0	2.0	0.3	16.0	1.6	4	50	137
IALR-2-2.0xR0.3xL16.0	2.0	0.3	16.0	1.6	4	50	180
IALR-4-2.0xR0.3xL16.0	2.0	0.3	16.0	1.6	4	50	184
IULRH-4-2.0xR0.3xL20.0	2.0	0.3	20.0	1.6	4	60	111
IULR-4-2.0xR0.3xL20.0	2.0	0.3	20.0	1.6	4	60	137
IALR-2-2.0xR0.3xL20.0	2.0	0.3	20.0	1.6	4	60	180
IALR-4-2.0xR0.3xL20.0	2.0	0.3	20.0	1.6	4	60	184
IALR-4-2.0xR0.3xL24.0	2.0	0.3	24.0	1.6	4	60	184
IAR-2-2.0xR0.5x4.0	2.0	0.5	—	4.0	4	50	173
IAR-4-2.0xR0.5x4.0	2.0	0.5	—	4.0	4	50	175
TW-VS-CR-EM2D-2xR0.5	2.0	0.5	8.7	4.0	4	50	53
IULRH-4-2.0xR0.5xL4.0	2.0	0.5	4.0	1.6	4	50	111
IULR-4-2.0xR0.5xL4.0	2.0	0.5	4.0	1.6	4	50	137
IALR-2-2.0xR0.5xL4.0	2.0	0.5	4.0	1.6	4	50	180
IULRH-4-2.0xR0.5xL6.0	2.0	0.5	6.0	1.6	4	50	111
IULR-4-2.0xR0.5xL6.0	2.0	0.5	6.0	1.6	4	50	137
IALR-2-2.0xR0.5xL6.0	2.0	0.5	6.0	1.6	4	50	180
IULRH-4-2.0xR0.5xL8.0	2.0	0.5	8.0	1.6	4	50	111

超硬エンドミル/ラジアス Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULR-4-2.0xR0.5xL8.0	2.0	0.5	8.0	1.6	4	50	137
IALR-2-2.0xR0.5xL8.0	2.0	0.5	8.0	1.6	4	50	180
IALR-4-2.0xR0.5xL8.0	2.0	0.5	8.0	1.6	4	50	184
IALR-2-2.0xR0.5xL10.0	2.0	0.5	10.0	1.6	4	50	180
IULRH-4-2.0xR0.5xL12.0	2.0	0.5	12.0	1.6	4	50	111
IULR-4-2.0xR0.5xL12.0	2.0	0.5	12.0	1.6	4	50	137
IALR-2-2.0xR0.5xL12.0	2.0	0.5	12.0	1.6	4	50	180
IALR-4-2.0xR0.5xL12.0	2.0	0.5	12.0	1.6	4	50	184
IULRH-4-2.0xR0.5xL16.0	2.0	0.5	16.0	1.6	4	50	111
IULR-4-2.0xR0.5xL16.0	2.0	0.5	16.0	1.6	4	50	137
IALR-2-2.0xR0.5xL16.0	2.0	0.5	16.0	1.6	4	50	180
IALR-4-2.0xR0.5xL16.0	2.0	0.5	16.0	1.6	4	50	184
IULRH-4-2.0xR0.5xL20.0	2.0	0.5	20.0	1.6	4	60	111
IULR-4-2.0xR0.5xL20.0	2.0	0.5	20.0	1.6	4	60	137
IALR-2-2.0xR0.5xL20.0	2.0	0.5	20.0	1.6	4	60	180
IALR-4-2.0xR0.5xL24.0	2.0	0.5	24.0	1.6	4	60	184
IAR-2-2.5xR0.1x5.0	2.5	0.1	—	5.0	4	50	173
IULRH-4-2.5xR0.1xL10.0	2.5	0.1	10.0	2.0	4	50	112
IULR-4-2.5xR0.1xL10.0	2.5	0.1	10.0	2.0	4	50	138
IALR-4-2.5xR0.1xL10.0	2.5	0.1	10.0	2.0	4	50	184
IULRH-4-2.5xR0.1xL20.0	2.5	0.1	20.0	2.0	4	50	112
IULR-4-2.5xR0.1xL20.0	2.5	0.1	20.0	2.0	4	50	138
IALR-4-2.5xR0.1xL20.0	2.5	0.1	20.0	2.0	4	50	184
IAR-2-2.5xR0.2x5.0	2.5	0.2	—	5.0	4	50	173
IULRH-4-2.5xR0.2xL10.0	2.5	0.2	10.0	2.0	4	50	112
IULR-4-2.5xR0.2xL10.0	2.5	0.2	10.0	2.0	4	50	138
IALR-4-2.5xR0.2xL10.0	2.5	0.2	10.0	2.0	4	50	184
IULRH-4-2.5xR0.2xL20.0	2.5	0.2	20.0	2.0	4	50	112
IULR-4-2.5xR0.2xL20.0	2.5	0.2	20.0	2.0	4	50	138
IALR-4-2.5xR0.2xL20.0	2.5	0.2	20.0	2.0	4	50	184
IAR-2-2.5xR0.3x5.0	2.5	0.3	—	5.0	4	50	173
IULRH-4-2.5xR0.3xL10.0	2.5	0.3	10.0	2.0	4	50	112
IULR-4-2.5xR0.3xL10.0	2.5	0.3	10.0	2.0	4	50	138
IALR-4-2.5xR0.3xL10.0	2.5	0.3	10.0	2.0	4	50	184
IULRH-4-2.5xR0.3xL20.0	2.5	0.3	20.0	2.0	4	50	112
IULR-4-2.5xR0.3xL20.0	2.5	0.3	20.0	2.0	4	50	138
IALR-4-2.5xR0.3xL20.0	2.5	0.3	20.0	2.0	4	50	184
IAR-2-2.5xR0.5x5.0	2.5	0.5	—	5.0	4	50	173
IULRH-4-2.5xR0.5xL10.0	2.5	0.5	10.0	2.0	4	50	112
IULR-4-2.5xR0.5xL10.0	2.5	0.5	10.0	2.0	4	50	138
IALR-4-2.5xR0.5xL10.0	2.5	0.5	10.0	2.0	4	50	184
IULRH-4-2.5xR0.5xL20.0	2.5	0.5	20.0	2.0	4	50	112
IULR-4-2.5xR0.5xL20.0	2.5	0.5	20.0	2.0	4	50	138
IALR-4-2.5xR0.5xL20.0	2.5	0.5	20.0	2.0	4	50	184
IULRH-4-3.0xR0.05xL4.0	3.0	0.05	4.0	2.5	4	50	112
IULR-4-3.0xR0.05xL4.0	3.0	0.05	4.0	2.5	4	50	138
IULRH-4-3.0xR0.05xL6.0	3.0	0.05	6.0	2.5	4	50	112
IULR-4-3.0xR0.05xL6.0	3.0	0.05	6.0	2.5	4	50	138
IULRH-4-3.0xR0.05xL8.0	3.0	0.05	8.0	2.5	4	50	112
IULR-4-3.0xR0.05xL8.0	3.0	0.05	8.0	2.5	4	50	138
IULRH-4-3.0xR0.05xL12.0	3.0	0.05	12.0	2.5	4	50	112
IULR-4-3.0xR0.05xL12.0	3.0	0.05	12.0	2.5	4	50	138
IULRH-4-3.0xR0.05xL16.0	3.0	0.05	16.0	2.5	4	50	112
IULR-4-3.0xR0.05xL16.0	3.0	0.05	16.0	2.5	4	50	138
IULRH-4-3.0xR0.05xL20.0	3.0	0.05	20.0	2.5	4	50	112
IULR-4-3.0xR0.05xL20.0	3.0	0.05	20.0	2.5	4	50	138
IAR-2-3.0xR0.1x6.0	3.0	0.1	—	6.0	4	50	173
IAR-4-3.0xR0.1x6.0	3.0	0.1	—	6.0	4	50	175
IULRH-4-3.0xR0.1xL4.0	3.0	0.1	4.0	2.5	4	50	112
IULR-4-3.0xR0.1xL4.0	3.0	0.1	4.0	2.5	4	50	138
IULRH-4-3.0xR0.1xL6.0	3.0	0.1	6.0	2.5	4	50	112
IULR-4-3.0xR0.1xL6.0	3.0	0.1	6.0	2.5	4	50	138
IULRH-4-3.0xR0.1xL8.0	3.0	0.1	8.0	2.5	4	50	112
IULR-4-3.0xR0.1xL8.0	3.0	0.1	8.0	2.5	4	50	138
IALR-4-3.0xR0.1xL10.0	3.0	0.1	10.0	2.5	4	50	184
IULRH-4-3.0xR0.1xL12.0	3.0	0.1	12.0	2.5	4	50	112
IULR-4-3.0xR0.1xL12.0	3.0	0.1	12.0	2.5	4	50	138
IALR-4-3.0xR0.1xL12.0	3.0	0.1	12.0	2.5	4	50	184
IALR-2-3.0xR0.1xL12.0	3.0	0.1	12.0	4.5	4	50	180
IALR-4-3.0xR0.1xL15.0	3.0	0.1	15.0	2.5	4	50	184
IULRH-4-3.0xR0.1xL16.0	3.0	0.1	16.0	2.5	4	50	112
IULR-4-3.0xR0.1xL16.0	3.0	0.1	16.0	2.5	4	50	138
IALR-2-3.0xR0.1xL18.0	3.0	0.1	18.0	4.5	4	50	180
IALR-4-3.0xR0.1xL18.0	3.0	0.1	18.0	2.5	4	50	184
IULRH-4-3.0xR0.1xL20.0	3.0	0.1	20.0	2.5	4	50	112
IULR-4-3.0xR0.1xL20.0	3.0	0.1	20.0	2.5	4	50	138
IALR-4-3.0xR0.1xL20.0	3.0	0.1	20.0	2.5	4	50	184
IALR-2-3.0xR0.1xL24.0	3.0	0.1	24.0	4.5	4	60	180
IALR-4-3.0xR0.1xL24.0	3.0	0.1	24.0	2.5	4	60	184
IULRH-4-3.0xR0.1xL25.0	3.0	0.1	25.0	2.5	4	60	112
IULR-4-3.0xR0.1xL25.0	3.0	0.1	25.0	2.5	4	60	138
IULRH-4-3.0xR0.1xL30.0	3.0	0.1	30.0	2.5	4	60	112
IULR-4-3.0xR0.1xL30.0	3.0	0.1	30.0	2.5	4	60	138
IALR-2-3.0xR0.1xL30.0	3.0	0.1	30.0	4.5	4	60	180
IALR-4-3.0xR0.1xL30.0	3.0	0.1	30.0	2.5	4	60	184
IURH-4-3.0xR0.2x6.0	3.0	0.2	—	6.0	4	50	104
IUR-4-3.0xR0.2x6.0	3.0	0.2	—	6.0	4	50	129
IAR-2-3.0xR0.2x6.0	3.0	0.2	—	6.0	4	50	173
IAR-4-3.0xR0.2x6.0	3.0	0.2	—	6.0	4	50	175
TW-VS-CR-EM2D-3xR0.2	3.0	0.2	13.6	6.0	6	50	53
IULRH-4-3.0xR0.2xL4.0	3.0	0.2	4.0	2.5	4	50	112
IULR-4-3.0xR0.2xL4.0	3.0	0.2	4.0	2.5	4	50	138
IULRH-4-3.0xR0.2xL6.0	3.0	0.2	6.0	2.5	4	50	112
IULR-4-3.0xR0.2xL6.0	3.0	0.2	6.0	2.5	4	50	138
IULRH-4-3.0xR0.2xL8.0	3.0	0.2	8.0	2.5	4	50	112
IULR-4-3.0xR0.2xL8.0	3.0	0.2	8.0	2.5	4	50	138
IALR-4-3.0xR0.2xL10.0	3.0	0.2	10.0	2.5	4	50	184
IULRH-4-3.0xR0.2xL12.0	3.0	0.2	12.0	2.5	4	50	112
IULR-4-3.0xR0.2xL12.0	3.0	0.2	12.0	2.5	4	50	138
IALR-2-3.0xR0.2xL12.0	3.0	0.2	12.0	4.5	4	50	180
IALR-4-3.0xR0.2xL12.0	3.0	0.2	12.0	2.5	4	50	184
IALR-4-3.0xR0.2xL15.0	3.0	0.2	15.0	2.5	4	50	184
IULRH-4-3.0xR0.2xL16.0	3.0	0.2	16.0	2.5	4	50	112
IULR-4-3.0xR0.2xL16.0	3.0	0.2	16.0	2.5	4	50	138
IALR-2-3.0xR0.2xL18.0	3.0	0.2	18.0	4.5	4	50	180
IALR-4-3.0xR0.2xL18.0	3.0	0.2	18.0	2.5	4	50	184
IULRH-4-3.0xR0.2xL20.0	3.0	0.2	20.0	2.5	4	50	112
IULR-4-3.0xR0.2xL20.0	3.0	0.2	20.0	2.5	4	50	138
IALR-4-3.0xR0.2xL20.0	3.0	0.2	20.0	2.5	4	50	184
IULRH-4-3.0xR0.05xL20.0	3.0	0.05	20.0	2.5	4	50	112
IULR-4-3.0xR0.05xL20.0	3.0	0.05	20.0	2.5	4	50	138
IAR-2-3.0xR0.1x6.0	3.0	0.1	—	6.0	4	50	173
IAR-4-3.0xR0.1x6.0	3.0	0.1	—	6.0	4	50	175
IULRH-4-3.0xR0.1xL4.0	3.0	0.1	4.0	2.5	4	50	112
IULR-4-3.0xR0.1xL4.0	3.0	0.1	4.0	2.5	4	50	138
IULRH-4-3.0xR0.1xL6.0	3.0	0.1	6.0	2.5	4	50	112
IULR-4-3.0xR0.1xL6.0	3.0	0.1	6.0	2.5	4	50	138
IULRH-4-3.0xR0.1xL8.0	3.0	0.1	8.0	2.5	4	50	112
IULR-4-3.0xR0.1xL8.0	3.0	0.1	8.0	2.5	4	50	138
IALR-4-3.0xR0.1xL10.0	3.0	0.1	10.0	2.5	4	50	184
IULRH-4-3.0xR0.1xL12.0	3.0	0.1	12.0	2.5	4	50	112
IULR-4-3.0xR0.1xL12.0	3.0	0.1	12.0	2.5	4	50	138
IALR-4-3.0xR0.1xL12.0	3.0	0.1	12.0	2.5	4	50	184
IALR-2-3.0xR0.1xL12.0	3.0	0.1	12.0	4.5	4	50	180
IALR-4-3.0xR0.1xL15.0	3.0	0.1	15.0	2.5	4	50	184
IULRH-4-3.0xR0.1xL16.0	3.0	0.1	16.0	2.5	4	50	112
IULR-4-3.0xR0.1xL16.0	3.0	0.1	16.0	2.5	4	50	138
IALR-2-3.0xR0.1xL18.0	3.0	0.1	18.0	4.5	4	50	180
IALR-4-3.0xR0.1xL18.0	3.0	0.1	18.0	2.5	4	50	184
IULRH-4-3.0xR0.1xL20.0	3.0	0.1	20.0	2.5	4	50	112
IULR-4-3.0xR0.1xL20.0	3.0	0.1	20.0	2.5	4	50	138
IALR-4-3.0xR0.1xL20.0	3.0	0.1	20.0	2.5	4	50	184
IALR-2-3.0xR0.1xL24.0	3.0	0.1	24.0	4.5	4	60	180
IALR-4-3.0xR0.1xL24.0	3.0	0.1	24.0	2.5	4	60	184
IULRH-4-3.0xR0.1xL25.0	3.0	0.1	25.0	2.5	4	60	112
IULR-4-3.0xR0.1xL25.0	3.0	0.1	25.0	2.5	4	60	138
IULRH-4-3.0xR0.1xL30.0	3.0	0.1	30.0	2.5	4	60	112
IULR-4-3.0xR0.1xL30.0	3.0	0.1	30.0	2.5	4	60	138
IALR-2-3.0xR0.1xL30.0	3.0	0.1	30.0	4.5	4	60	180
IALR-4-3.0xR0.1xL30.0	3.0	0.1	30.0	2.5	4	60	184
IURH-4-3.0xR0.2x6.0	3.0	0.2	—	6.0	4	50	104
IUR-4-3.0xR0.2x6.0	3.0	0.2	—	6.0	4	50	129
IAR-2-3.0xR0.2x6.0	3.0	0.2	—	6.0	4	50	173
IAR-4-3.0xR0.2x6.0	3.0	0.2	—	6.0	4	50	175
TW-VS-CR-EM2D-3xR0.2	3.0	0.2	13.6	6.0	6	50	53
IULRH-4-3.0xR0.2xL4.0	3.0	0.2	4.0	2.5	4	50	112
IULR-4-3.0xR0.2xL4.0	3.0	0.2	4.0	2.5	4	50	138
IULRH-4-3.0xR0.2xL6.0	3.0	0.2	6.0	2.5	4	50	112
IULR-4-3.0xR0.2xL6.0	3.0	0.2	6.0	2.5	4	50	138
IULRH-4-3.0xR0.2xL8.0	3.0	0.2	8.0	2.5	4	50	112
IULR-4-3.0xR0.2xL8.0	3.0	0.2	8.0	2.5	4	50	138
IALR-4-3.0xR0.2xL10.0	3.0	0.2	10.0	2.5	4	50	184
IULRH-4-3.0xR0.2xL12.0	3.0	0.2	12.0	2.5	4	50	112
IULR-4-3.0xR0.2xL12.0	3.0	0.2	12.0	2.5	4	50	138
IALR-2-3.0xR0.2xL12.0	3.0	0.2	12.0	4.5	4	50	180
IALR-4-3.0xR0.2xL12.0	3.0	0.2	12.0	2.5	4	50	184
IALR-4-3.0xR0.2xL15.0	3.0	0.2	15.0	2.5	4	50	184
IULRH-4-3.0xR0.2xL16.0	3.0	0.2	16.0	2.5	4	50	112
IULR-4-3.0xR0.2xL16.0	3.0	0.2	16.0	2.5	4	50	138
IALR-2-3.0xR0.2xL18.0	3.0	0.2	18.0	4.5	4	50	180
IALR-4-3.0xR0.2xL18.0	3.0	0.2	18.0	2.5	4	50	184
IULRH-4-3.0xR0.2xL20.0	3.0	0.2	20.0	2.5	4	50	112
IULR-4-3.0xR0.2xL20.0	3.0	0.2	20.0	2.5	4	50	138
IALR-4-3.0xR0.2xL20.0	3.0	0.2	20.0	2.5	4	50	184

超硬エンドミル/ラジアス　Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IALR-2-3.0xR0.2xL24.0	3.0	0.2	24.0	4.5	4	60	180
IALR-4-3.0xR0.2xL24.0	3.0	0.2	24.0	2.5	4	60	184
IULRH-4-3.0xR0.2xL25.0	3.0	0.2	25.0	2.5	4	60	112
IULR-4-3.0xR0.2xL25.0	3.0	0.2	25.0	2.5	4	60	138
IULRH-4-3.0xR0.2xL30.0	3.0	0.2	30.0	2.5	4	60	112
IULR-4-3.0xR0.2xL30.0	3.0	0.2	30.0	2.5	4	60	138
IALR-2-3.0xR0.2xL30.0	3.0	0.2	30.0	4.5	4	60	180
IALR-4-3.0xR0.2xL30.0	3.0	0.2	30.0	2.5	4	60	184
IURH-4-3.0xR0.3x6.0	3.0	0.3	—	6.0	4	50	104
IUR-4-3.0xR0.3x6.0	3.0	0.3	—	6.0	4	50	129
IAR-2-3.0xR0.3x6.0	3.0	0.3	—	6.0	4	50	173
IAR-4-3.0xR0.3x6.0	3.0	0.3	—	6.0	4	50	175
TW-VS-CR-EM2D-3xR0.3	3.0	0.3	13.6	6.0	6	50	53
IULRH-4-3.0xR0.3xL4.0	3.0	0.3	4.0	2.5	4	50	112
IULR-4-3.0xR0.3xL4.0	3.0	0.3	4.0	2.5	4	50	138
IULRH-4-3.0xR0.3xL6.0	3.0	0.3	6.0	2.5	4	50	112
IULR-4-3.0xR0.3xL6.0	3.0	0.3	6.0	2.5	4	50	138
IULRH-4-3.0xR0.3xL8.0	3.0	0.3	8.0	2.5	4	50	112
IULR-4-3.0xR0.3xL8.0	3.0	0.3	8.0	2.5	4	50	138
IALR-4-3.0xR0.3xL10.0	3.0	0.3	10.0	2.5	4	50	184
IULRH-4-3.0xR0.3xL12.0	3.0	0.3	12.0	2.5	4	50	112
IULR-4-3.0xR0.3xL12.0	3.0	0.3	12.0	2.5	4	50	138
IALR-2-3.0xR0.3xL12.0	3.0	0.3	12.0	4.5	4	50	180
IALR-4-3.0xR0.3xL12.0	3.0	0.3	12.0	2.5	4	50	184
IALR-4-3.0xR0.3xL15.0	3.0	0.3	15.0	2.5	4	50	184
IULRH-4-3.0xR0.3xL16.0	3.0	0.3	16.0	2.5	4	50	112
IULR-4-3.0xR0.3xL16.0	3.0	0.3	16.0	2.5	4	50	138
IALR-2-3.0xR0.3xL18.0	3.0	0.3	18.0	4.5	4	50	180
IALR-4-3.0xR0.3xL18.0	3.0	0.3	18.0	2.5	4	50	184
IULRH-4-3.0xR0.3xL20.0	3.0	0.3	20.0	2.5	4	50	112
IULR-4-3.0xR0.3xL20.0	3.0	0.3	20.0	2.5	4	50	138
IALR-4-3.0xR0.3xL20.0	3.0	0.3	20.0	2.5	4	50	184
IALR-2-3.0xR0.3xL24.0	3.0	0.3	24.0	4.5	4	60	180
IALR-4-3.0xR0.3xL24.0	3.0	0.3	24.0	2.5	4	60	184
IULRH-4-3.0xR0.3xL25.0	3.0	0.3	25.0	2.5	4	60	112
IULR-4-3.0xR0.3xL25.0	3.0	0.3	25.0	2.5	4	60	138
IULRH-4-3.0xR0.3xL30.0	3.0	0.3	30.0	2.5	4	60	112
IULR-4-3.0xR0.3xL30.0	3.0	0.3	30.0	2.5	4	60	138
IALR-2-3.0xR0.3xL30.0	3.0	0.3	30.0	4.5	4	60	180
IALR-4-3.0xR0.3xL30.0	3.0	0.3	30.0	2.5	4	60	184
IURH-4-3.0xR0.5x6.0	3.0	0.5	—	6.0	4	50	104
IUR-4-3.0xR0.5x6.0	3.0	0.5	—	6.0	4	50	129
IAR-2-3.0xR0.5x6.0	3.0	0.5	—	6.0	4	50	173
IAR-4-3.0xR0.5x6.0	3.0	0.5	—	6.0	4	50	175
TW-VS-CR-EM2D-3xR0.5	3.0	0.5	13.6	6.0	6	50	53
IULRH-4-3.0xR0.5xL4.0	3.0	0.5	4.0	2.5	4	50	112
IULR-4-3.0xR0.5xL4.0	3.0	0.5	4.0	2.5	4	50	138
IULRH-4-3.0xR0.5xL6.0	3.0	0.5	6.0	2.5	4	50	112
IULR-4-3.0xR0.5xL6.0	3.0	0.5	6.0	2.5	4	50	138
IULRH-4-3.0xR0.5xL8.0	3.0	0.5	8.0	2.5	4	50	112
IULR-4-3.0xR0.5xL8.0	3.0	0.5	8.0	2.5	4	50	138
IULRH-4-3.0xR0.5xL12.0	3.0	0.5	12.0	2.5	4	50	112
IULR-4-3.0xR0.5xL12.0	3.0	0.5	12.0	2.5	4	50	138
IALR-2-3.0xR0.5xL12.0	3.0	0.5	12.0	4.5	4	50	180
IALR-4-3.0xR0.5xL12.0	3.0	0.5	12.0	2.5	4	50	184
IULRH-4-3.0xR0.5xL16.0	3.0	0.5	16.0	2.5	4	50	112
IULR-4-3.0xR0.5xL16.0	3.0	0.5	16.0	2.5	4	50	138
IALR-2-3.0xR0.5xL18.0	3.0	0.5	18.0	4.5	4	50	180
IALR-4-3.0xR0.5xL18.0	3.0	0.5	18.0	2.5	4	50	184
IULRH-4-3.0xR0.5xL20.0	3.0	0.5	20.0	2.5	4	50	112
IULR-4-3.0xR0.5xL20.0	3.0	0.5	20.0	2.5	4	50	138
IALR-2-3.0xR0.5xL24.0	3.0	0.5	24.0	4.5	4	60	180
IALR-4-3.0xR0.5xL24.0	3.0	0.5	24.0	2.5	4	60	184
IULRH-4-3.0xR0.5xL25.0	3.0	0.5	25.0	2.5	4	60	112
IULR-4-3.0xR0.5xL25.0	3.0	0.5	25.0	2.5	4	60	138
IULRH-4-3.0xR0.5xL30.0	3.0	0.5	30.0	2.5	4	60	112
IULR-4-3.0xR0.5xL30.0	3.0	0.5	30.0	2.5	4	60	138
IALR-2-3.0xR0.5xL30.0	3.0	0.5	30.0	4.5	4	60	180
IALR-4-3.0xR0.5xL30.0	3.0	0.5	30.0	2.5	4	60	184
IAR-2-3.0xR1.0x6.0	3.0	1.0	—	6.0	4	50	173
IAR-4-3.0xR1.0x6.0	3.0	1.0	—	6.0	4	50	175
IULRH-4-3.0xR1.0xL8.0	3.0	1.0	8.0	2.5	4	50	112
IULR-4-3.0xR1.0xL8.0	3.0	1.0	8.0	2.5	4	50	138
IULRH-4-3.0xR1.0xL12.0	3.0	1.0	12.0	2.5	4	50	113
IULR-4-3.0xR1.0xL12.0	3.0	1.0	12.0	2.5	4	50	139
IALR-2-3.0xR1.0xL12.0	3.0	1.0	12.0	4.5	4	50	180
IALR-4-3.0xR1.0xL12.0	3.0	1.0	12.0	2.5	4	50	184
IULRH-4-3.0xR1.0xL16.0	3.0	1.0	16.0	2.5	4	50	113
IULR-4-3.0xR1.0xL16.0	3.0	1.0	16.0	2.5	4	50	139
IALR-2-3.0xR1.0xL18.0	3.0	1.0	18.0	4.5	4	50	180
IALR-4-3.0xR1.0xL18.0	3.0	1.0	18.0	2.5	4	50	184
IULRH-4-3.0xR1.0xL20.0	3.0	1.0	20.0	2.5	4	50	113
IULR-4-3.0xR1.0xL20.0	3.0	1.0	20.0	2.5	4	50	139
IALR-2-3.0xR1.0xL24.0	3.0	1.0	24.0	4.5	4	60	180
IALR-4-3.0xR1.0xL24.0	3.0	1.0	24.0	2.5	4	60	184
IULRH-4-3.0xR1.0xL25.0	3.0	1.0	25.0	2.5	4	60	113
IULR-4-3.0xR1.0xL25.0	3.0	1.0	25.0	2.5	4	60	139
IULRH-4-3.0xR1.0xL30.0	3.0	1.0	30.0	2.5	4	60	113
IULR-4-3.0xR1.0xL30.0	3.0	1.0	30.0	2.5	4	60	139
IALR-2-3.0xR1.0xL30.0	3.0	1.0	30.0	4.5	4	60	180
IALR-4-3.0xR1.0xL30.0	3.0	1.0	30.0	2.5	4	60	184
IULRH-4-4.0xR0.1xL8.0	4.0	0.1	8.0	3.2	6	50	113
IULR-4-4.0xR0.1xL8.0	4.0	0.1	8.0	3.2	6	50	139
IAR-2-4.0xR0.1x8.0	4.0	0.1	—	8.0	6	50	173
IAR-4-4.0xR0.1x8.0	4.0	0.1	—	8.0	6	50	175
IALR-4-4.0xR0.1xL10.0	4.0	0.1	10.0	3.2	6	50	185
IULRH-4-4.0xR0.1xL12.0	4.0	0.1	12.0	3.2	6	50	113
IULR-4-4.0xR0.1xL12.0	4.0	0.1	12.0	3.2	6	50	139
IALR-4-4.0xR0.1xL15.0	4.0	0.1	15.0	3.2	6	50	185
IULRH-4-4.0xR0.1xL16.0	4.0	0.1	16.0	3.2	6	50	113
IULR-4-4.0xR0.1xL16.0	4.0	0.1	16.0	3.2	6	50	139
IALR-2-4.0xR0.1xL16.0	4.0	0.1	16.0	6.0	6	50	180
IALR-4-4.0xR0.1xL16.0	4.0	0.1	16.0	3.2	6	50	185
IALR-4-4.0xR0.1xL20.0	4.0	0.1	20.0	3.2	6	60	185
IULRH-4-4.0xR0.1xL24.0	4.0	0.1	24.0	3.2	6	60	113
IULR-4-4.0xR0.1xL24.0	4.0	0.1	24.0	3.2	6	60	139
IALR-2-4.0xR0.1xL24.0	4.0	0.1	24.0	6.0	6	60	180
IALR-4-4.0xR0.1xL24.0	4.0	0.1	24.0	3.2	6	60	185
IULRH-4-4.0xR0.1xL32.0	4.0	0.1	32.0	3.2	6	70	113

超硬エンドミル/ラジアス Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULR-4-4.0xR0.1xL32.0	4.0	0.1	32.0	3.2	6	70	139
IALR-2-4.0xR0.1xL32.0	4.0	0.1	32.0	6.0	6	70	180
IALR-4-4.0xR0.1xL32.0	4.0	0.1	32.0	3.2	6	70	185
IURH-4-4.0xR0.2x8.0	4.0	0.2	—	8.0	6	50	104
IUR-4-4.0xR0.2x8.0	4.0	0.2	—	8.0	6	50	129
IAR-2-4.0xR0.2x8.0	4.0	0.2	—	8.0	6	50	173
IAR-4-4.0xR0.2x8.0	4.0	0.2	—	8.0	6	50	175
TW-VS-CR-EM2D-4xR0.2	4.0	0.2	13.7	8.0	6	50	53
IULRH-4-4.0xR0.2xL8.0	4.0	0.2	8.0	3.2	6	50	113
IULR-4-4.0xR0.2xL8.0	4.0	0.2	8.0	3.2	6	50	139
IALR-4-4.0xR0.2xL10.0	4.0	0.2	10.0	3.2	6	50	185
IULRH-4-4.0xR0.2xL12.0	4.0	0.2	12.0	3.2	6	50	113
IULR-4-4.0xR0.2xL12.0	4.0	0.2	12.0	3.2	6	50	139
IALR-4-4.0xR0.2xL15.0	4.0	0.2	15.0	3.2	6	50	185
IULRH-4-4.0xR0.2xL16.0	4.0	0.2	16.0	3.2	6	50	113
IULR-4-4.0xR0.2xL16.0	4.0	0.2	16.0	3.2	6	50	139
IALR-2-4.0xR0.2xL16.0	4.0	0.2	16.0	6.0	6	50	180
IALR-4-4.0xR0.2xL16.0	4.0	0.2	16.0	3.2	6	50	185
IALR-4-4.0xR0.2xL20.0	4.0	0.2	20.0	3.2	6	60	185
IULRH-4-4.0xR0.2xL24.0	4.0	0.2	24.0	3.2	6	60	113
IULR-4-4.0xR0.2xL24.0	4.0	0.2	24.0	3.2	6	60	139
IALR-2-4.0xR0.2xL24.0	4.0	0.2	24.0	6.0	6	60	180
IALR-4-4.0xR0.2xL24.0	4.0	0.2	24.0	3.2	6	60	185
IULRH-4-4.0xR0.2xL32.0	4.0	0.2	32.0	3.2	6	70	113
IULR-4-4.0xR0.2xL32.0	4.0	0.2	32.0	3.2	6	70	139
IALR-2-4.0xR0.2xL32.0	4.0	0.2	32.0	6.0	6	70	180
IALR-4-4.0xR0.2xL32.0	4.0	0.2	32.0	3.2	6	70	185
IURH-4-4.0xR0.3x8.0	4.0	0.3	—	8.0	6	50	104
IUR-4-4.0xR0.3x8.0	4.0	0.3	—	8.0	6	50	129
IAR-2-4.0xR0.3x8.0	4.0	0.3	—	8.0	6	50	174
IAR-4-4.0xR0.3x8.0	4.0	0.3	—	8.0	6	50	175
TW-VS-CR-EM2D-4xR0.3	4.0	0.3	13.7	8.0	6	50	53
IULRH-4-4.0xR0.3xL8.0	4.0	0.3	8.0	3.2	6	50	113
IULR-4-4.0xR0.3xL8.0	4.0	0.3	8.0	3.2	6	50	139
IALR-4-4.0xR0.3xL10.0	4.0	0.3	10.0	3.2	6	50	185
IULRH-4-4.0xR0.3xL12.0	4.0	0.3	12.0	3.2	6	50	113
IULR-4-4.0xR0.3xL12.0	4.0	0.3	12.0	3.2	6	50	139
IALR-4-4.0xR0.3xL15.0	4.0	0.3	15.0	3.2	6	50	185
IULRH-4-4.0xR0.3xL16.0	4.0	0.3	16.0	3.2	6	50	113
IULR-4-4.0xR0.3xL16.0	4.0	0.3	16.0	3.2	6	50	139
IALR-4-4.0xR0.3xL16.0	4.0	0.3	16.0	3.2	6	50	185
IALR-2-4.0xR0.3xL16.0	4.0	0.3	16.0	6.0	6	50	180
IALR-4-4.0xR0.3xL20.0	4.0	0.3	20.0	3.2	6	60	185
IULRH-4-4.0xR0.3xL24.0	4.0	0.3	24.0	3.2	6	60	113
IULR-4-4.0xR0.3xL24.0	4.0	0.3	24.0	3.2	6	60	139
IALR-2-4.0xR0.3xL24.0	4.0	0.3	24.0	6.0	6	60	180
IALR-4-4.0xR0.3xL24.0	4.0	0.3	24.0	3.2	6	60	185
IULRH-4-4.0xR0.3xL32.0	4.0	0.3	32.0	3.2	6	70	113
IULR-4-4.0xR0.3xL32.0	4.0	0.3	32.0	3.2	6	70	139
IALR-2-4.0xR0.3xL32.0	4.0	0.3	32.0	6.0	6	70	180
IALR-4-4.0xR0.3xL32.0	4.0	0.3	32.0	3.2	6	70	185
IURH-4-4.0xR0.5x8.0	4.0	0.5	—	8.0	6	50	104
IUR-4-4.0xR0.5x8.0	4.0	0.5	—	8.0	6	50	129
IAR-2-4.0xR0.5x8.0	4.0	0.5	—	8.0	6	50	174
IAR-4-4.0xR0.5x8.0	4.0	0.5	—	8.0	6	50	175
TW-VS-CR-EM2D-4xR0.5	4.0	0.5	13.7	8.0	6	50	53
IULRH-4-4.0xR0.5xL8.0	4.0	0.5	8.0	3.2	6	50	113
IULR-4-4.0xR0.5xL8.0	4.0	0.5	8.0	3.2	6	50	139
IULRH-4-4.0xR0.5xL12.0	4.0	0.5	12.0	3.2	6	50	113
IULR-4-4.0xR0.5xL12.0	4.0	0.5	12.0	3.2	6	50	139
IULRH-4-4.0xR0.5xL16.0	4.0	0.5	16.0	3.2	6	50	113
IULR-4-4.0xR0.5xL16.0	4.0	0.5	16.0	3.2	6	50	139
IALR-2-4.0xR0.5xL16.0	4.0	0.5	16.0	6.0	6	50	180
IALR-4-4.0xR0.5xL16.0	4.0	0.5	16.0	3.2	6	50	185
IULRH-4-4.0xR0.5xL24.0	4.0	0.5	24.0	3.2	6	60	113
IULR-4-4.0xR0.5xL24.0	4.0	0.5	24.0	3.2	6	60	139
IALR-2-4.0xR0.5xL24.0	4.0	0.5	24.0	6.0	6	60	181
IALR-4-4.0xR0.5xL24.0	4.0	0.5	24.0	3.2	6	60	185
IULRH-4-4.0xR0.5xL32.0	4.0	0.5	32.0	3.2	6	70	113
IULR-4-4.0xR0.5xL32.0	4.0	0.5	32.0	3.2	6	70	139
IALR-2-4.0xR0.5xL32.0	4.0	0.5	32.0	6.0	6	70	181
IALR-4-4.0xR0.5xL32.0	4.0	0.5	32.0	3.2	6	70	185
IULRH-4-4.0xR1.0xL8.0	4.0	1.0	8.0	3.2	6	50	113
IULR-4-4.0xR1.0xL8.0	4.0	1.0	8.0	3.2	6	50	139
IAR-2-4.0xR1.0x8.0	4.0	1.0	—	8.0	6	50	174
IAR-4-4.0xR1.0x8.0	4.0	1.0	—	8.0	6	50	175
IULRH-4-4.0xR1.0xL12.0	4.0	1.0	12.0	3.2	6	50	113
IULR-4-4.0xR1.0xL12.0	4.0	1.0	12.0	3.2	6	50	139
IULRH-4-4.0xR1.0xL16.0	4.0	1.0	16.0	3.2	6	50	113
IULR-4-4.0xR1.0xL16.0	4.0	1.0	16.0	3.2	6	50	139
IALR-2-4.0xR1.0xL16.0	4.0	1.0	16.0	6.0	6	50	181
IALR-4-4.0xR1.0xL16.0	4.0	1.0	16.0	3.2	6	50	185
IULRH-4-4.0xR1.0xL24.0	4.0	1.0	24.0	3.2	6	60	113
IULR-4-4.0xR1.0xL24.0	4.0	1.0	24.0	3.2	6	60	139
IALR-2-4.0xR1.0xL24.0	4.0	1.0	24.0	6.0	6	60	181
IALR-4-4.0xR1.0xL24.0	4.0	1.0	24.0	3.2	6	60	185
IULRH-4-4.0xR1.0xL32.0	4.0	1.0	32.0	3.2	6	70	113
IULR-4-4.0xR1.0xL32.0	4.0	1.0	32.0	3.2	6	70	139
IALR-2-4.0xR1.0xL32.0	4.0	1.0	32.0	6.0	6	70	181
IALR-4-4.0xR1.0xL32.0	4.0	1.0	32.0	3.2	6	70	185
IAR-2-5.0xR0.1x10.0	5.0	0.1	—	10.0	6	50	174
IAR-4-5.0xR0.1x10.0	5.0	0.1	—	10.0	6	50	176
IULRH-4-5.0xR0.1xL15.0	5.0	0.1	15.0	4.0	6	50	113
IULR-4-5.0xR0.1xL15.0	5.0	0.1	15.0	4.0	6	50	139
IALR-4-5.0xR0.1xL15.0	5.0	0.1	15.0	4.0	6	50	185
IULRH-4-5.0xR0.1xL20.0	5.0	0.1	20.0	4.0	6	50	113
IULR-4-5.0xR0.1xL20.0	5.0	0.1	20.0	4.0	6	50	139
IALR-2-5.0xR0.1xL20.0	5.0	0.1	20.0	7.5	6	50	181
IALR-4-5.0xR0.1xL20.0	5.0	0.1	20.0	4.0	6	50	185
IULRH-4-5.0xR0.1xL40.0	5.0	0.1	40.0	4.0	6	70	113
IULR-4-5.0xR0.1xL40.0	5.0	0.1	40.0	4.0	6	70	139
IALR-2-5.0xR0.1xL40.0	5.0	0.1	40.0	7.5	6	70	181
IALR-4-5.0xR0.1xL40.0	5.0	0.1	40.0	4.0	6	70	185
IUR-6-5.0xR0.2x10.0	5.0	0.2	—	10.0	6	50	130
IAR-2-5.0xR0.2x10.0	5.0	0.2	—	10.0	6	50	174
IAR-4-5.0xR0.2x10.0	5.0	0.2	—	10.0	6	50	176
TW-VS-CR-EM2D-5xR0.2	5.0	0.2	13.9	10.0	6	50	53
IULRH-4-5.0xR0.2xL15.0	5.0	0.2	15.0	4.0	6	50	113
IULR-4-5.0xR0.2xL15.0	5.0	0.2	15.0	4.0	6	50	139

超硬エンドミル/ラジアス Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IALR-2-5.0xR0.2xL15.0	5.0	0.2	15.0	7.5	6	50	181
IULRH-4-5.0xR0.2xL20.0	5.0	0.2	20.0	4.0	6	50	113
IULR-4-5.0xR0.2xL20.0	5.0	0.2	20.0	4.0	6	50	139
IALR-2-5.0xR0.2xL20.0	5.0	0.2	20.0	7.5	6	50	181
IALR-4-5.0xR0.2xL20.0	5.0	0.2	20.0	4.0	6	50	185
IULRH-4-5.0xR0.2xL40.0	5.0	0.2	40.0	4.0	6	70	113
IULR-4-5.0xR0.2xL40.0	5.0	0.2	40.0	4.0	6	70	139
IALR-2-5.0xR0.2xL40.0	5.0	0.2	40.0	7.5	6	70	181
IALR-4-5.0xR0.2xL40.0	5.0	0.2	40.0	4.0	6	70	185
IUR-6-5.0xR0.3x10.0	5.0	0.3	—	10.0	6	50	130
IAR-2-5.0xR0.3x10.0	5.0	0.3	—	10.0	6	50	174
IAR-4-5.0xR0.3x10.0	5.0	0.3	—	10.0	6	50	176
TW-VS-CR-EM2D-5xR0.3	5.0	0.3	13.9	10.0	6	50	53
IULRH-4-5.0xR0.3xL15.0	5.0	0.3	15.0	4.0	6	50	113
IULR-4-5.0xR0.3xL15.0	5.0	0.3	15.0	4.0	6	50	139
IALR-2-5.0xR0.3xL15.0	5.0	0.3	15.0	7.5	6	50	181
IULRH-4-5.0xR0.3xL20.0	5.0	0.3	20.0	4.0	6	50	113
IULR-4-5.0xR0.3xL20.0	5.0	0.3	20.0	4.0	6	50	139
IALR-2-5.0xR0.3xL20.0	5.0	0.3	20.0	7.5	6	50	181
IALR-4-5.0xR0.3xL20.0	5.0	0.3	20.0	4.0	6	50	185
IULRH-4-5.0xR0.3xL40.0	5.0	0.3	40.0	4.0	6	70	113
IULR-4-5.0xR0.3xL40.0	5.0	0.3	40.0	4.0	6	70	139
IALR-2-5.0xR0.3xL40.0	5.0	0.3	40.0	7.5	6	70	181
IALR-4-5.0xR0.3xL40.0	5.0	0.3	40.0	4.0	6	70	185
IUR-6-5.0xR0.5x10.0	5.0	0.5	—	10.0	6	50	130
IAR-2-5.0xR0.5x10.0	5.0	0.5	—	10.0	6	50	174
IAR-4-5.0xR0.5x10.0	5.0	0.5	—	10.0	6	50	176
TW-VS-CR-EM2D-5xR0.5	5.0	0.5	13.9	10.0	6	50	53
IULRH-4-5.0xR0.5xL15.0	5.0	0.5	15.0	4.0	6	50	113
IULR-4-5.0xR0.5xL15.0	5.0	0.5	15.0	4.0	6	50	139
IULRH-4-5.0xR0.5xL20.0	5.0	0.5	20.0	4.0	6	50	113
IULR-4-5.0xR0.5xL20.0	5.0	0.5	20.0	4.0	6	50	139
IALR-2-5.0xR0.5xL20.0	5.0	0.5	20.0	7.5	6	50	181
IALR-4-5.0xR0.5xL20.0	5.0	0.5	20.0	4.0	6	50	185
IULRH-4-5.0xR0.5xL40.0	5.0	0.5	40.0	4.0	6	70	113
IULR-4-5.0xR0.5xL40.0	5.0	0.5	40.0	4.0	6	70	139
IALR-2-5.0xR0.5xL40.0	5.0	0.5	40.0	7.5	6	70	181
IALR-4-5.0xR0.5xL40.0	5.0	0.5	40.0	4.0	6	70	185
IUR-6-5.0xR1.0x10.0	5.0	1.0	—	10.0	6	50	130
IAR-2-5.0xR1.0x10.0	5.0	1.0	—	10.0	6	50	174
IAR-4-5.0xR1.0x10.0	5.0	1.0	—	10.0	6	50	176
TW-VS-CR-EM2D-5xR1	5.0	1.0	13.9	10.0	6	50	53
IULRH-4-5.0xR1.0xL15.0	5.0	1.0	15.0	4.0	6	50	113
IULR-4-5.0xR1.0xL15.0	5.0	1.0	15.0	4.0	6	50	139
IULRH-4-5.0xR1.0xL20.0	5.0	1.0	20.0	4.0	6	50	113
IULR-4-5.0xR1.0xL20.0	5.0	1.0	20.0	4.0	6	50	139
IALR-2-5.0xR1.0xL20.0	5.0	1.0	20.0	7.5	6	50	181
IALR-4-5.0xR1.0xL20.0	5.0	1.0	20.0	4.0	6	50	185
IULRH-4-5.0xR1.0xL40.0	5.0	1.0	40.0	4.0	6	70	113
IULR-4-5.0xR1.0xL40.0	5.0	1.0	40.0	4.0	6	70	139
IALR-2-5.0xR1.0xL40.0	5.0	1.0	40.0	7.5	6	70	181
IALR-4-5.0xR1.0xL40.0	5.0	1.0	40.0	4.0	6	70	185
IAR-2-5.0xR1.5x10.0	5.0	1.5	—	10.0	6	50	174
IAR-4-5.0xR1.5x10.0	5.0	1.5	—	10.0	6	50	176

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULRH-4-6.0xR0.1xL12.0	6.0	0.1	12.0	5.0	6	50	113
IULR-4-6.0xR0.1xL12.0	6.0	0.1	12.0	5.0	6	50	139
IAR-2-6.0xR0.1x12.0	6.0	0.1	—	12.0	6	50	174
IAR-4-6.0xR0.1x12.0	6.0	0.1	—	12.0	6	50	176
IALR-4-6.0xR0.1xL15.0	6.0	0.1	15.0	5.0	6	50	185
IULRH-4-6.0xR0.1xL18.0	6.0	0.1	18.0	5.0	6	50	113
IULR-4-6.0xR0.1xL18.0	6.0	0.1	18.0	5.0	6	50	139
IALR-4-6.0xR0.1xL20.0	6.0	0.1	20.0	5.0	6	50	185
IULRH-4-6.0xR0.1xL24.0	6.0	0.1	24.0	5.0	6	60	114
IULR-4-6.0xR0.1xL24.0	6.0	0.1	24.0	5.0	6	60	140
IALR-2-6.0xR0.1xL24.0	6.0	0.1	24.0	9.0	6	60	181
IALR-4-6.0xR0.1xL24.0	6.0	0.1	24.0	5.0	6	60	185
IALR-4-6.0xR0.1xL30.0	6.0	0.1	30.0	5.0	6	60	185
IULRH-4-6.0xR0.1xL48.0	6.0	0.1	48.0	5.0	6	80	114
IULR-4-6.0xR0.1xL48.0	6.0	0.1	48.0	5.0	6	80	140
IALR-2-6.0xR0.1xL48.0	6.0	0.1	48.0	9.0	6	80	181
IALR-4-6.0xR0.1xL48.0	6.0	0.1	48.0	5.0	6	80	185
IURH-4-6.0xR0.2x12.0	6.0	0.2	—	12.0	6	60	104
IUR-4-6.0xR0.2x12.0	6.0	0.2	—	12.0	6	60	129
IUR-6-6.0xR0.2x12.0	6.0	0.2	—	12.0	6	60	130
IULRH-4-6.0xR0.2xL12.0	6.0	0.2	12.0	5.0	6	50	114
IULR-4-6.0xR0.2xL12.0	6.0	0.2	12.0	5.0	6	50	140
IAR-2-6.0xR0.2x12.0	6.0	0.2	—	12.0	6	50	174
IAR-4-6.0xR0.2x12.0	6.0	0.2	—	12.0	6	50	176
IALR-4-6.0xR0.2xL15.0	6.0	0.2	15.0	5.0	6	50	185
IULRH-4-6.0xR0.2xL18.0	6.0	0.2	18.0	5.0	6	50	114
IULR-4-6.0xR0.2xL18.0	6.0	0.2	18.0	5.0	6	50	140
IALR-4-6.0xR0.2xL20.0	6.0	0.2	20.0	5.0	6	50	185
IULRH-4-6.0xR0.2xL24.0	6.0	0.2	24.0	5.0	6	60	114
IULR-4-6.0xR0.2xL24.0	6.0	0.2	24.0	5.0	6	60	140
IALR-2-6.0xR0.2xL24.0	6.0	0.2	24.0	9.0	6	60	181
IALR-4-6.0xR0.2xL24.0	6.0	0.2	24.0	5.0	6	60	185
IALR-4-6.0xR0.2xL30.0	6.0	0.2	30.0	5.0	6	60	185
IULRH-4-6.0xR0.2xL48.0	6.0	0.2	48.0	5.0	6	80	114
IULR-4-6.0xR0.2xL48.0	6.0	0.2	48.0	5.0	6	80	140
IALR-2-6.0xR0.2xL48.0	6.0	0.2	48.0	9.0	6	80	181
IALR-4-6.0xR0.2xL48.0	6.0	0.2	48.0	5.0	6	80	185
IURH-4-6.0xR0.3x12.0	6.0	0.3	—	12.0	6	60	104
IUR-4-6.0xR0.3x12.0	6.0	0.3	—	12.0	6	60	129
IUR-6-6.0xR0.3x12.0	6.0	0.3	—	12.0	6	60	130
IAR-2-6.0xR0.3x12.0	6.0	0.3	—	12.0	6	50	174
IAR-4-6.0xR0.3x12.0	6.0	0.3	—	12.0	6	50	176
TW-VS-CR-EM2D-6xR0.3	6.0	0.3	14	12.0	6	50	53
IULRH-4-6.0xR0.3xL12.0	6.0	0.3	12.0	5.0	6	50	114
IULR-4-6.0xR0.3xL12.0	6.0	0.3	12.0	5.0	6	50	140
IALR-4-6.0xR0.3xL15.0	6.0	0.3	15.0	5.0	6	50	185
IULRH-4-6.0xR0.3xL18.0	6.0	0.3	18.0	5.0	6	50	114
IULR-4-6.0xR0.3xL18.0	6.0	0.3	18.0	5.0	6	50	140
IALR-4-6.0xR0.3xL20.0	6.0	0.3	20.0	5.0	6	50	185
IULRH-4-6.0xR0.3xL24.0	6.0	0.3	24.0	5.0	6	60	114
IULR-4-6.0xR0.3xL24.0	6.0	0.3	24.0	5.0	6	60	140
IALR-2-6.0xR0.3xL24.0	6.0	0.3	24.0	9.0	6	60	181
IALR-4-6.0xR0.3xL24.0	6.0	0.3	24.0	5.0	6	60	186
IALR-4-6.0xR0.3xL30.0	6.0	0.3	30.0	5.0	6	60	186
IULRH-4-6.0xR0.3xL48.0	6.0	0.3	48.0	5.0	6	80	114

超硬エンドミル/ラジアス Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULR-4-6.0xR0.3xL48.0	6.0	0.3	48.0	5.0	6	80	140
IALR-2-6.0xR0.3xL48.0	6.0	0.3	48.0	9.0	6	80	181
IALR-4-6.0xR0.3xL48.0	6.0	0.3	48.0	5.0	6	80	186
IURH-4-6.0xR0.5x12.0	6.0	0.5	—	12.0	6	60	104
IUR-4-6.0xR0.5x12.0	6.0	0.5	—	12.0	6	60	129
IUR-6-6.0xR0.5x12.0	6.0	0.5	—	12.0	6	60	130
IAR-2-6.0xR0.5x12.0	6.0	0.5	—	12.0	6	50	174
IAR-4-6.0xR0.5x12.0	6.0	0.5	—	12.0	6	50	176
TW-VS-CR-EM2D-6xR0.5	6.0	0.5	14	12.0	6	50	53
IULRH-4-6.0xR0.5xL12.0	6.0	0.5	12.0	5.0	6	50	114
IULR-4-6.0xR0.5xL12.0	6.0	0.5	12.0	5.0	6	50	140
IALR-4-6.0xR0.5xL15.0	6.0	0.5	15.0	5.0	6	50	186
IULRH-4-6.0xR0.5xL18.0	6.0	0.5	18.0	5.0	6	50	114
IULR-4-6.0xR0.5xL18.0	6.0	0.5	18.0	5.0	6	50	140
IALR-4-6.0xR0.5xL20.0	6.0	0.5	20.0	5.0	6	50	186
IULRH-4-6.0xR0.5xL24.0	6.0	0.5	24.0	5.0	6	60	114
IULR-4-6.0xR0.5xL24.0	6.0	0.5	24.0	5.0	6	60	140
IALR-2-6.0xR0.5xL24.0	6.0	0.5	24.0	9.0	6	60	181
IALR-4-6.0xR0.5xL24.0	6.0	0.5	24.0	5.0	6	60	186
IALR-4-6.0xR0.5xL30.0	6.0	0.5	30.0	5.0	6	60	186
IULRH-4-6.0xR0.5xL48.0	6.0	0.5	48.0	5.0	6	80	114
IULR-4-6.0xR0.5xL48.0	6.0	0.5	48.0	5.0	6	80	140
IALR-2-6.0xR0.5xL48.0	6.0	0.5	48.0	9.0	6	80	181
IALR-4-6.0xR0.5xL48.0	6.0	0.5	48.0	5.0	6	80	186
IURH-4-6.0xR1.0x12.0	6.0	1.0	—	12.0	6	60	104
IUR-4-6.0xR1.0x12.0	6.0	1.0	—	12.0	6	60	129
IUR-6-6.0xR1.0x12.0	6.0	1.0	—	12.0	6	60	130
IAR-2-6.0xR1.0x12.0	6.0	1.0	—	12.0	6	50	174
IAR-4-6.0xR1.0x12.0	6.0	1.0	—	12.0	6	50	176
TW-VS-CR-EM2D-6xR1	6.0	1.0	14	12.0	6	50	53
IULRH-4-6.0xR1.0xL12.0	6.0	1.0	12.0	5.0	6	50	114
IULR-4-6.0xR1.0xL12.0	6.0	1.0	12.0	5.0	6	50	140
IULRH-4-6.0xR1.0xL18.0	6.0	1.0	18.0	5.0	6	50	114
IULR-4-6.0xR1.0xL18.0	6.0	1.0	18.0	5.0	6	50	140
IULRH-4-6.0xR1.0xL24.0	6.0	1.0	24.0	5.0	6	60	114
IULR-4-6.0xR1.0xL24.0	6.0	1.0	24.0	5.0	6	60	140
IALR-2-6.0xR1.0xL24.0	6.0	1.0	24.0	9.0	6	60	181
IALR-4-6.0xR1.0xL24.0	6.0	1.0	24.0	5.0	6	60	186
IULRH-4-6.0xR1.0xL48.0	6.0	1.0	48.0	5.0	6	80	114
IULR-4-6.0xR1.0xL48.0	6.0	1.0	48.0	5.0	6	80	140
IALR-2-6.0xR1.0xL48.0	6.0	1.0	48.0	9.0	6	80	181
IALR-4-6.0xR1.0xL48.0	6.0	1.0	48.0	5.0	6	80	186
IAR-2-6.0xR1.5x12.0	6.0	1.5	—	12.0	6	50	174
IAR-4-6.0xR1.5x12.0	6.0	1.5	—	12.0	6	50	176
TW-VS-CR-EM2D-6xR1.5	6.0	1.5	14	12.0	6	50	54
IAR-2-6.0xR2.0x12.0	6.0	2.0	—	12.0	6	50	174
IAR-4-8.0xR0.1x16.0	8.0	0.1	—	16.0	8	70	176
IAR-4-8.0xR0.2x16.0	8.0	0.2	—	16.0	8	70	176
IUR-4-8.0xR0.3x16.0	8.0	0.3	—	16.0	8	70	129
IUR-6-8.0xR0.3x16.0	8.0	0.3	—	16.0	8	70	130
TW-VS-CR-EM2D-8xR0.3	8.0	0.3	18	16.0	8	60	54
IUR-4-8.0xR0.5x16.0	8.0	0.5	—	16.0	8	70	129
IUR-6-8.0xR0.5x16.0	8.0	0.5	—	16.0	8	70	130
IAR-4-8.0xR0.5x16.0	8.0	0.5	—	16.0	8	70	176
TW-VS-CR-EM2D-8xR0.5	8.0	0.5	18	16.0	8	60	54
IUR-4-8.0xR1.0x16.0	8.0	1.0	—	16.0	8	70	129
IUR-6-8.0xR1.0x16.0	8.0	1.0	—	16.0	8	70	130
IAR-4-8.0xR1.0x16.0	8.0	1.0	—	16.0	8	70	176
TW-VS-CR-EM2D-8xR1	8.0	1.0	18	16.0	8	60	54
IUR-6-8.0xR1.5x16.0	8.0	1.5	—	16.0	8	70	130
IAR-4-8.0xR1.5x16.0	8.0	1.5	—	16.0	8	70	176
TW-VS-CR-EM2D-8xR1.5	8.0	1.5	18	16.0	8	60	54
IAR-4-8.0xR2.0x16.0	8.0	2.0	—	16.0	8	70	176
TW-VS-CR-EM2D-8xR2	8.0	2.0	18	16.0	8	60	54
IAR-4-8.0xR2.5x16.0	8.0	2.5	—	16.0	8	70	176
IAR-4-8.0xR3.0x16.0	8.0	3.0	—	16.0	8	70	176
IAR-4-10.0xR0.1x20.0	10.0	0.1	—	20.0	10	80	176
IAR-4-10.0xR0.2x20.0	10.0	0.2	—	20.0	10	80	176
IUR-4-10.0xR0.3x20.0	10.0	0.3	—	20.0	10	80	129
IUR-6-10.0xR0.3x20.0	10.0	0.3	—	20.0	10	80	130
IAR-4-10.0xR0.3x20.0	10.0	0.3	—	20.0	10	80	176
TW-VS-CR-EM2D-10xR0.3	10.0	0.3	22	20.0	10	70	54
IUR-4-10.0xR0.5x20.0	10.0	0.5	—	20.0	10	80	129
IUR-6-10.0xR0.5x20.0	10.0	0.5	—	20.0	10	80	130
IAR-4-10.0xR0.5x20.0	10.0	0.5	—	20.0	10	80	176
TW-VS-CR-EM2D-10xR0.5	10.0	0.5	22	20.0	10	70	54
IUR-4-10.0xR1.0x20.0	10.0	1.0	—	20.0	10	80	129
IUR-6-10.0xR1.0x20.0	10.0	1.0	—	20.0	10	80	130
IAR-4-10.0xR1.0x20.0	10.0	1.0	—	20.0	10	80	176
TW-VS-CR-EM2D-10xR1	10.0	1.0	22	20.0	10	70	54
IUR-6-10.0xR1.5x20.0	10.0	1.5	—	20.0	10	80	130
IAR-4-10.0xR1.5x20.0	10.0	1.5	—	20.0	10	80	176
TW-VS-CR-EM2D-10xR1.5	10.0	1.5	22	20.0	10	70	54
IUR-6-10.0xR2.0x20.0	10.0	2.0	—	20.0	10	80	130
IAR-4-10.0xR2.0x20.0	10.0	2.0	—	20.0	10	80	176
TW-VS-CR-EM2D-10xR2	10.0	2.0	22	20.0	10	70	54
IAR-4-10.0xR2.5x20.0	10.0	2.5	—	20.0	10	80	176
IAR-4-10.0xR3.0x20.0	10.0	3.0	—	20.0	10	80	176
IAR-4-12.0xR0.1x24.0	12.0	0.1	—	24.0	12	110	176
IAR-4-12.0xR0.2x24.0	12.0	0.2	—	24.0	12	110	176
IAR-4-12.0xR0.3x24.0	12.0	0.3	—	24.0	12	110	176
TW-VS-CR-EM2D-12xR0.3	12.0	0.3	26	24.0	12	80	54
IUR-4-12.0xR0.5x24.0	12.0	0.5	—	24.0	12	110	129
IUR-6-12.0xR0.5x24.0	12.0	0.5	—	24.0	12	110	130
IAR-4-12.0xR0.5x24.0	12.0	0.5	—	24.0	12	110	176
TW-VS-CR-EM2D-12xR0.5	12.0	0.5	26	24.0	12	80	54
IUR-4-12.0xR1.0x24.0	12.0	1.0	—	24.0	12	110	129
IUR-6-12.0xR1.0x24.0	12.0	1.0	—	24.0	12	110	130
IAR-4-12.0xR1.0x24.0	12.0	1.0	—	24.0	12	110	176
TW-VS-CR-EM2D-12xR1	12.0	1.0	26	24.0	12	80	54
IUR-6-12.0xR1.5x24.0	12.0	1.5	—	24.0	12	110	130
IAR-4-12.0xR1.5x24.0	12.0	1.5	—	24.0	12	110	176
TW-VS-CR-EM2D-12xR1.5	12.0	1.5	26	24.0	12	80	54
IUR-4-12.0xR2.0x24.0	12.0	2.0	—	24.0	12	110	129
IUR-6-12.0xR2.0x24.0	12.0	2.0	—	24.0	12	110	130
IAR-4-12.0xR2.0x24.0	12.0	2.0	—	24.0	12	110	176
TW-VS-CR-EM2D-12xR2	12.0	2.0	26	24.0	12	80	54
IAR-4-12.0xR2.5x24.0	12.0	2.5	—	24.0	12	110	176
IAR-4-12.0xR3.0x24.0	12.0	3.0	—	24.0	12	110	176

超硬エンドミル/ラジアス　Carbide EndMills/Radius

コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
TW-VS-CR-EM2D-12xR3	12.0	3.0	26	24.0	12	80	54
IAR-4-16.0xR1.0x40.0	16.0	1.0	—	40.0	16	130	176
IAR-4-16.0xR2.0x40.0	16.0	2.0	—	40.0	16	130	176
IAR-4-16.0xR3.0x40.0	16.0	3.0	—	40.0	16	130	176
IAR-4-20.0xR1.0x50.0	20.0	1.0	—	50.0	20	140	176
IAR-4-20.0xR2.0x50.0	20.0	2.0	—	50.0	20	140	176
IAR-4-20.0xR3.0x50.0	20.0	3.0	—	50.0	20	140	176

超硬エンドミル/ボール　Carbide EndMills/Ball

コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IUBH-2-0.1xR0.05x0.1	0.1	0.05	—	0.1	4	50	115
IUB-2-0.1xR0.05x0.1	0.1	0.05	—	0.1	4	50	141
IULBH-2-0.1xR0.05xL0.2	0.1	0.05	0.2	0.07	4	50	116
IULB-2-0.1xR0.05xL0.2	0.1	0.05	0.2	0.07	4	50	142
IULBH-2-0.1xR0.05xL0.3	0.1	0.05	0.3	0.07	4	50	116
IULB-2-0.1xR0.05xL0.3	0.1	0.05	0.3	0.07	4	50	142
IULBH-2-0.1xR0.05xL0.5	0.1	0.05	0.5	0.07	4	50	116
IULB-2-0.1xR0.05xL0.5	0.1	0.05	0.5	0.07	4	50	142
IUBH-2-0.2xR0.1x0.2	0.2	0.1	—	0.2	4	50	115
IUB-2-0.2xR0.1x0.2	0.2	0.1	—	0.2	4	50	141
IULBH-2-0.2xR0.1xL0.3	0.2	0.1	0.3	0.15	4	50	116
IULB-2-0.2xR0.1xL0.3	0.2	0.1	0.3	0.15	4	50	142
IULBH-2-0.2xR0.1xL0.5	0.2	0.1	0.5	0.15	4	50	116
IULB-2-0.2xR0.1xL0.5	0.2	0.1	0.5	0.15	4	50	142
IULBH-2-0.2xR0.1xL0.75	0.2	0.1	0.75	0.15	4	50	116
IULB-2-0.2xR0.1xL0.75	0.2	0.1	0.75	0.15	4	50	142
IULBH-2-0.2xR0.1xL1.0	0.2	0.1	1.0	0.15	4	50	116
IULB-2-0.2xR0.1xL1.0	0.2	0.1	1.0	0.15	4	50	142
IUBH-2-0.3xR0.15x0.3	0.3	0.15	—	0.3	4	50	115
IUB-2-0.3xR0.15x0.3	0.3	0.15	—	0.3	4	50	141
IAB-2-0.3xR0.15x0.3	0.3	0.15	—	0.3	4	50	187
IALB-2-0.3xR0.15xL0.5	0.3	0.15	0.5	0.2	4	50	189
IALB-2-0.3xR0.15xL0.6	0.3	0.15	0.6	0.2	4	50	189
IALB-2-0.3xR0.15xL0.75	0.3	0.15	0.75	0.2	4	50	189
IALB-2-0.3xR0.15xL1.0	0.3	0.15	1.0	0.2	4	50	189
IALB-2-0.3xR0.15xL1.25	0.3	0.15	1.25	0.2	4	50	189
IALB-2-0.3xR0.15xL1.5	0.3	0.15	1.5	0.2	4	50	189
IALB-2-0.3xR0.15xL1.75	0.3	0.15	1.75	0.2	4	50	189
IALB-2-0.3xR0.15xL2.0	0.3	0.15	2.0	0.2	4	50	189
IALB-2-0.3xR0.15xL2.25	0.3	0.15	2.25	0.2	4	50	189
IALB-2-0.3xR0.15xL2.5	0.3	0.15	2.5	0.2	4	50	189
IALB-2-0.3xR0.15xL2.75	0.3	0.15	2.75	0.2	4	50	189
IALB-2-0.3xR0.15xL3.0	0.3	0.15	3.0	0.2	4	50	189
IUBH-2-0.4xR0.2x0.6	0.4	0.2	—	0.6	4	50	115
IUB-2-0.4xR0.2x0.6	0.4	0.2	—	0.6	4	50	141
IAB-2-0.4xR0.2x0.6	0.4	0.2	—	0.6	4	50	187
IULBH-2-0.4xR0.2xL0.5	0.4	0.2	0.5	0.3	4	50	116
IULB-2-0.4xR0.2xL0.5	0.4	0.2	0.5	0.3	4	50	142
IALB-2-0.4xR0.2xL0.5	0.4	0.2	0.5	0.3	4	50	189
IULBH-2-0.4xR0.2xL0.8	0.4	0.2	0.8	0.3	4	50	116
IULB-2-0.4xR0.2xL0.8	0.4	0.2	0.8	0.3	4	50	142
IALB-2-0.4xR0.2xL0.8	0.4	0.2	0.8	0.3	4	50	189
IULBH-2-0.4xR0.2xL1.0	0.4	0.2	1.0	0.3	4	50	116
IULB-2-0.4xR0.2xL1.0	0.4	0.2	1.0	0.3	4	50	142
IALB-2-0.4xR0.2xL1.0	0.4	0.2	1.0	0.3	4	50	189
IULBH-2-0.4xR0.2xL1.5	0.4	0.2	1.5	0.3	4	50	116
IULB-2-0.4xR0.2xL1.5	0.4	0.2	1.5	0.3	4	50	142
IALB-2-0.4xR0.2xL1.5	0.4	0.2	1.5	0.3	4	50	189
IULBH-2-0.4xR0.2xL2.0	0.4	0.2	2.0	0.3	4	50	116
IULB-2-0.4xR0.2xL2.0	0.4	0.2	2.0	0.3	4	50	142
IALB-2-0.4xR0.2xL2.0	0.4	0.2	2.0	0.3	4	50	189
IULBH-2-0.4xR0.2xL2.5	0.4	0.2	2.5	0.3	4	50	116
IULB-2-0.4xR0.2xL2.5	0.4	0.2	2.5	0.3	4	50	142
IALB-2-0.4xR0.2xL2.5	0.4	0.2	2.5	0.3	4	50	189
IULBH-2-0.4xR0.2xL3.0	0.4	0.2	3.0	0.3	4	50	116
IULB-2-0.4xR0.2xL3.0	0.4	0.2	3.0	0.3	4	50	142
IALB-2-0.4xR0.2xL3.0	0.4	0.2	3.0	0.3	4	50	189
IUBH-2-0.5xR0.25x0.8	0.5	0.25	—	0.8	4	50	115
IUB-2-0.5xR0.25x0.8	0.5	0.25	—	0.8	4	50	141
IAB-2-0.5xR0.25x0.8	0.5	0.25	—	0.8	4	50	187
IULBH-2-0.5xR0.25xL1.0	0.5	0.25	1.0	0.35	4	50	116
IULB-2-0.5xR0.25xL1.0	0.5	0.25	1.0	0.35	4	50	142
IALB-2-0.5xR0.25xL1.0	0.5	0.25	1.0	0.35	4	50	189
IULBH-2-0.5xR0.25xL1.5	0.5	0.25	1.5	0.35	4	50	116
IULB-2-0.5xR0.25xL1.5	0.5	0.25	1.5	0.35	4	50	142
IALB-2-0.5xR0.25xL1.5	0.5	0.25	1.5	0.35	4	50	190
IULBH-2-0.5xR0.25xL2.0	0.5	0.25	2.0	0.35	4	50	116
IULB-2-0.5xR0.25xL2.0	0.5	0.25	2.0	0.35	4	50	142
IALB-2-0.5xR0.25xL2.0	0.5	0.25	2.0	0.35	4	50	190
IULBH-2-0.5xR0.25xL2.5	0.5	0.25	2.5	0.35	4	50	116
IULB-2-0.5xR0.25xL2.5	0.5	0.25	2.5	0.35	4	50	142
IALB-2-0.5xR0.25xL2.5	0.5	0.25	2.5	0.35	4	50	190
IULBH-2-0.5xR0.25xL3.0	0.5	0.25	3.0	0.35	4	50	116
IULB-2-0.5xR0.25xL3.0	0.5	0.25	3.0	0.35	4	50	142
IALB-2-0.5xR0.25xL3.0	0.5	0.25	3.0	0.35	4	50	190
IULBH-2-0.5xR0.25xL3.5	0.5	0.25	3.5	0.35	4	50	117
IULB-2-0.5xR0.25xL3.5	0.5	0.25	3.5	0.35	4	50	142
IALB-2-0.5xR0.25xL3.5	0.5	0.25	3.5	0.35	4	50	190
IULBH-2-0.5xR0.25xL4.0	0.5	0.25	4.0	0.35	4	50	117
IULB-2-0.5xR0.25xL4.0	0.5	0.25	4.0	0.35	4	50	143
IALB-2-0.5xR0.25xL4.0	0.5	0.25	4.0	0.35	4	50	190
IUBH-2-0.6xR0.3x0.9	0.6	0.3	—	0.9	4	50	115
IUB-2-0.6xR0.3x0.9	0.6	0.3	—	0.9	4	50	141
IAB-2-0.6xR0.3x1.0	0.6	0.3	—	1.0	4	50	187
IULBH-2-0.6xR0.3xL1.0	0.6	0.3	1.0	0.45	4	50	117
IULB-2-0.6xR0.3xL1.0	0.6	0.3	1.0	0.45	4	50	143
IALB-2-0.6xR0.3xL1.0	0.6	0.3	1.0	0.6	4	50	190
IULBH-2-0.6xR0.3xL1.5	0.6	0.3	1.5	0.45	4	50	117
IULB-2-0.6xR0.3xL1.5	0.6	0.3	1.5	0.45	4	50	143
IALB-2-0.6xR0.3xL1.5	0.6	0.3	1.5	0.6	4	50	190
IULBH-2-0.6xR0.3xL2.0	0.6	0.3	2.0	0.45	4	50	117
IULB-2-0.6xR0.3xL2.0	0.6	0.3	2.0	0.45	4	50	143
IALB-2-0.6xR0.3xL2.0	0.6	0.3	2.0	0.6	4	50	190
IULBH-2-0.6xR0.3xL2.5	0.6	0.3	2.5	0.45	4	50	117
IULB-2-0.6xR0.3xL2.5	0.6	0.3	2.5	0.45	4	50	143
IALB-2-0.6xR0.3xL2.5	0.6	0.3	2.5	0.6	4	50	190
IULBH-2-0.6xR0.3xL3.0	0.6	0.3	3.0	0.45	4	50	117
IULB-2-0.6xR0.3xL3.0	0.6	0.3	3.0	0.45	4	50	143

超硬エンドミル/ボール　Carbide EndMills/Ball

コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IALB-2-0.6xR0.3xL3.0	0.6	0.3	3.0	0.6	4	50	190
IULBH-2-0.6xR0.3xL3.5	0.6	0.3	3.5	0.45	4	50	117
IULB-2-0.6xR0.3xL3.5	0.6	0.3	3.5	0.45	4	50	143
IALB-2-0.6xR0.3xL3.5	0.6	0.3	3.5	0.6	4	50	190
IULBH-2-0.6xR0.3xL4.0	0.6	0.3	4.0	0.45	4	50	117
IULB-2-0.6xR0.3xL4.0	0.6	0.3	4.0	0.45	4	50	143
IALB-2-0.6xR0.3xL4.0	0.6	0.3	4.0	0.6	4	50	190
IULBH-2-0.6xR0.3xL4.5	0.6	0.3	4.5	0.45	4	50	117
IULB-2-0.6xR0.3xL4.5	0.6	0.3	4.5	0.45	4	50	143
IALB-2-0.6xR0.3xL4.5	0.6	0.3	4.5	0.6	4	50	190
IULBH-2-0.6xR0.3xL5.0	0.6	0.3	5.0	0.45	4	50	117
IULB-2-0.6xR0.3xL5.0	0.6	0.3	5.0	0.45	4	50	143
IALB-2-0.6xR0.3xL5.0	0.6	0.3	5.0	0.6	4	50	190
IULBH-2-0.6xR0.3xL5.5	0.6	0.3	5.5	0.45	4	50	117
IULB-2-0.6xR0.3xL5.5	0.6	0.3	5.5	0.45	4	50	143
IALB-2-0.6xR0.3xL5.5	0.6	0.3	5.5	0.6	4	50	190
IULBH-2-0.6xR0.3xL6.0	0.6	0.3	6.0	0.45	4	50	117
IULB-2-0.6xR0.3xL6.0	0.6	0.3	6.0	0.45	4	50	143
IALB-2-0.6xR0.3xL6.0	0.6	0.3	6.0	0.6	4	50	190
IUBH-2-0.8xR0.4x1.2	0.8	0.4	—	1.2	4	50	115
IUB-2-0.8xR0.4x1.2	0.8	0.4	—	1.2	4	50	141
IAB-2-0.8xR0.4x1.2	0.8	0.4	—	1.2	4	50	187
IULBH-2-0.8xR0.4xL2.0	0.8	0.4	2.0	0.6	4	50	117
IULB-2-0.8xR0.4xL2.0	0.8	0.4	2.0	0.6	4	50	143
IALB-2-0.8xR0.4xL2.0	0.8	0.4	2.0	0.6	4	50	190
IULBH-2-0.8xR0.4xL3.0	0.8	0.4	3.0	0.6	4	50	117
IULB-2-0.8xR0.4xL3.0	0.8	0.4	3.0	0.6	4	50	143
IALB-2-0.8xR0.4xL3.0	0.8	0.4	3.0	0.6	4	50	190
IULBH-2-0.8xR0.4xL4.0	0.8	0.4	4.0	0.6	4	50	117
IULB-2-0.8xR0.4xL4.0	0.8	0.4	4.0	0.6	4	50	143
IALB-2-0.8xR0.4xL4.0	0.8	0.4	4.0	0.6	4	50	190
IULBH-2-0.8xR0.4xL5.0	0.8	0.4	5.0	0.6	4	50	117
IULB-2-0.8xR0.4xL5.0	0.8	0.4	5.0	0.6	4	50	143
IALB-2-0.8xR0.4xL5.0	0.8	0.4	5.0	0.6	4	50	190
IULBH-2-0.8xR0.4xL6.0	0.8	0.4	6.0	0.6	4	50	117
IULB-2-0.8xR0.4xL6.0	0.8	0.4	6.0	0.6	4	50	143
IALB-2-0.8xR0.4xL6.0	0.8	0.4	6.0	0.6	4	50	190
IULBH-2-0.8xR0.4xL7.0	0.8	0.4	7.0	0.6	4	50	117
IULB-2-0.8xR0.4xL7.0	0.8	0.4	7.0	0.6	4	50	143
IALB-2-0.8xR0.4xL7.0	0.8	0.4	7.0	0.6	4	50	190
IULBH-2-0.8xR0.4xL8.0	0.8	0.4	8.0	0.6	4	50	117
IULB-2-0.8xR0.4xL8.0	0.8	0.4	8.0	0.6	4	50	143
IALB-2-0.8xR0.4xL8.0	0.8	0.4	8.0	0.6	4	50	190
IUBH-2-1.0xR0.5x1.5	1.0	0.5	—	1.5	4	50	115
IUB-2-1.0xR0.5x1.5	1.0	0.5	—	1.5	4	50	141
IAB-2-1.0xR0.5x1.5	1.0	0.5	—	1.5	4	50	187
IULBH-2-1.0xR0.5xL2.0	1.0	0.5	2.0	0.8	4	50	117
IULB-2-1.0xR0.5xL2.0	1.0	0.5	2.0	0.8	4	50	143
IALB-2-1.0xR0.5xL2.0	1.0	0.5	2.0	0.8	4	50	190
IULBH-2-1.0xR0.5xL2.5	1.0	0.5	2.5	0.8	4	50	117
IULB-2-1.0xR0.5xL2.5	1.0	0.5	2.5	0.8	4	50	143
IALB-2-1.0xR0.5xL2.5	1.0	0.5	2.5	0.8	4	50	190
IULBH-2-1.0xR0.5xL3.0	1.0	0.5	3.0	0.8	4	50	117
IULB-2-1.0xR0.5xL3.0	1.0	0.5	3.0	0.8	4	50	143
IALB-2-1.0xR0.5xL3.0	1.0	0.5	3.0	0.8	4	50	190
IULBH-2-1.0xR0.5xL4.0	1.0	0.5	4.0	0.8	4	50	117
IULB-2-1.0xR0.5xL4.0	1.0	0.5	4.0	0.8	4	50	143
IALB-2-1.0xR0.5xL4.0	1.0	0.5	4.0	0.8	4	50	190
IULBH-2-1.0xR0.5xL5.0	1.0	0.5	5.0	0.8	4	50	117
IULB-2-1.0xR0.5xL5.0	1.0	0.5	5.0	0.8	4	50	143
IULBH-2-1.0xR0.5xL6.0	1.0	0.5	6.0	0.8	4	50	117
IULB-2-1.0xR0.5xL6.0	1.0	0.5	6.0	0.8	4	50	143
IALB-2-1.0xR0.5xL6.0	1.0	0.5	6.0	0.8	4	50	190
IULBH-2-1.0xR0.5xL7.0	1.0	0.5	7.0	0.8	4	50	117
IULB-2-1.0xR0.5xL7.0	1.0	0.5	7.0	0.8	4	50	143
IALB-2-1.0xR0.5xL7.0	1.0	0.5	7.0	0.8	4	50	190
IULBH-2-1.0xR0.5xL8.0	1.0	0.5	8.0	0.8	4	50	117
IULB-2-1.0xR0.5xL8.0	1.0	0.5	8.0	0.8	4	50	143
IALB-2-1.0xR0.5xL8.0	1.0	0.5	8.0	0.8	4	50	190
IULBH-2-1.0xR0.5xL9.0	1.0	0.5	9.0	0.8	4	50	117
IULB-2-1.0xR0.5xL9.0	1.0	0.5	9.0	0.8	4	50	143
IALB-2-1.0xR0.5xL9.0	1.0	0.5	9.0	0.8	4	50	190
IULBH-2-1.0xR0.5xL10.0	1.0	0.5	10.0	0.8	4	50	117
IULB-2-1.0xR0.5xL10.0	1.0	0.5	10.0	0.8	4	50	143
IALB-2-1.0xR0.5xL10.0	1.0	0.5	10.0	0.8	4	50	190
IULBH-2-1.0xR0.5xL12.0	1.0	0.5	12.0	0.8	4	50	117
IULB-2-1.0xR0.5xL12.0	1.0	0.5	12.0	0.8	4	50	143
IALB-2-1.0xR0.5xL12.0	1.0	0.5	12.0	0.8	4	50	190
IAB-2-1.2xR0.6x1.8	1.2	0.6	—	1.8	4	50	187
IULBH-2-1.2xR0.6xL2.4	1.2	0.6	2.4	0.9	4	50	117
IULB-2-1.2xR0.6xL2.4	1.2	0.6	2.4	0.9	4	50	143
IALB-2-1.2xR0.6xL2.4	1.2	0.6	2.4	0.9	4	50	190
IULBH-2-1.2xR0.6xL4.0	1.2	0.6	4.0	0.9	4	50	117
IULB-2-1.2xR0.6xL4.0	1.2	0.6	4.0	0.9	4	50	143
IALB-2-1.2xR0.6xL4.0	1.2	0.6	4.0	0.9	4	50	190
IULBH-2-1.2xR0.6xL6.0	1.2	0.6	6.0	0.9	4	50	117
IULB-2-1.2xR0.6xL6.0	1.2	0.6	6.0	0.9	4	50	143
IALB-2-1.2xR0.6xL6.0	1.2	0.6	6.0	0.9	4	50	190
IULBH-2-1.2xR0.6xL8.0	1.2	0.6	8.0	0.9	4	50	117
IULB-2-1.2xR0.6xL8.0	1.2	0.6	8.0	0.9	4	50	143
IALB-2-1.2xR0.6xL8.0	1.2	0.6	8.0	0.9	4	50	190
IULBH-2-1.2xR0.6xL10.0	1.2	0.6	10.0	0.9	4	50	117
IULB-2-1.2xR0.6xL10.0	1.2	0.6	10.0	0.9	4	50	143
IALB-2-1.2xR0.6xL10.0	1.2	0.6	10.0	0.9	4	50	190
IULBH-2-1.2xR0.6xL12.0	1.2	0.6	12.0	0.9	4	50	117
IULB-2-1.2xR0.6xL12.0	1.2	0.6	12.0	0.9	4	50	143
IALB-2-1.2xR0.6xL12.0	1.2	0.6	12.0	0.9	4	50	190
IUBH-2-1.5xR0.75x2.3	1.5	0.75	—	2.3	4	50	115
IUB-2-1.5xR0.75x2.3	1.5	0.75	—	2.3	4	50	141
IAB-2-1.5xR0.75x2.3	1.5	0.75	—	2.3	4	50	187
IULBH-2-1.5xR0.75xL3.0	1.5	0.75	3.0	1.1	4	50	117
IULB-2-1.5xR0.75xL3.0	1.5	0.75	3.0	1.1	4	50	143
IALB-2-1.5xR0.75xL3.0	1.5	0.75	3.0	1.1	4	50	190
IULBH-2-1.5xR0.75xL4.0	1.5	0.75	4.0	1.1	4	50	117
IULB-2-1.5xR0.75xL4.0	1.5	0.75	4.0	1.1	4	50	143
IALB-2-1.5xR0.75xL4.0	1.5	0.75	4.0	1.1	4	50	190
IULBH-2-1.5xR0.75xL6.0	1.5	0.75	6.0	1.1	4	50	117
IULB-2-1.5xR0.75xL6.0	1.5	0.75	6.0	1.1	4	50	143
IALB-2-1.5xR0.75xL6.0	1.5	0.75	6.0	1.1	4	50	190

超硬エンドミル/ボール　Carbide EndMills/Ball

コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULBH-2-1.5xR0.75xL8.0	1.5	0.75	8.0	1.1	4	50	117
IULB-2-1.5xR0.75xL8.0	1.5	0.75	8.0	1.1	4	50	143
IALB-2-1.5xR0.75xL8.0	1.5	0.75	8.0	1.1	4	50	190
IULBH-2-1.5xR0.75xL10.0	1.5	0.75	10.0	1.1	4	50	117
IULB-2-1.5xR0.75xL10.0	1.5	0.75	10.0	1.1	4	50	143
IALB-2-1.5xR0.75xL10.0	1.5	0.75	10.0	1.1	4	50	190
IULBH-2-1.5xR0.75xL12.0	1.5	0.75	12.0	1.1	4	50	117
IULB-2-1.5xR0.75xL12.0	1.5	0.75	12.0	1.1	4	50	143
IALB-2-1.5xR0.75xL12.0	1.5	0.75	12.0	1.1	4	50	190
IULBH-2-1.5xR0.75xL14.0	1.5	0.75	14.0	1.1	4	50	117
IULB-2-1.5xR0.75xL14.0	1.5	0.75	14.0	1.1	4	50	143
IALB-2-1.5xR0.75xL14.0	1.5	0.75	14.0	1.1	4	50	190
IULBH-2-1.5xR0.75xL16.0	1.5	0.75	16.0	1.1	4	50	117
IULB-2-1.5xR0.75xL16.0	1.5	0.75	16.0	1.1	4	50	143
IALB-2-1.5xR0.75xL16.0	1.5	0.75	16.0	1.1	4	50	191
IAB-2-1.6xR0.8x2.4	1.6	0.8	—	2.4	4	50	187
IALB-2-1.6xR0.8xL4.0	1.6	0.8	4.0	1.2	4	50	191
IULBH-2-1.6xR0.8xL8.0	1.6	0.8	8.0	1.2	4	50	117
IULB-2-1.6xR0.8xL8.0	1.6	0.8	8.0	1.2	4	50	143
IALB-2-1.6xR0.8xL8.0	1.6	0.8	8.0	1.2	4	50	191
IULBH-2-1.6xR0.8xL12.0	1.6	0.8	12.0	1.2	4	50	117
IULB-2-1.6xR0.8xL12.0	1.6	0.8	12.0	1.2	4	50	143
IALB-2-1.6xR0.8xL12.0	1.6	0.8	12.0	1.2	4	50	191
IULBH-2-1.6xR0.8xL16.0	1.6	0.8	16.0	1.2	4	50	118
IULB-2-1.6xR0.8xL16.0	1.6	0.8	16.0	1.2	4	50	143
IALB-2-1.6xR0.8xL16.0	1.6	0.8	16.0	1.2	4	50	191
IUBH-2-2.0xR1.0x3.0	2.0	1.0	—	3.0	4	50	115
IUB-2-2.0xR1.0x3.0	2.0	1.0	—	3.0	4	50	141
IAB-2-2.0xR1.0x3.0	2.0	1.0	—	3.0	4	50	187
IULBH-2-2.0xR1.0xL3.0	2.0	1.0	3.0	1.5	4	50	118
IULB-2-2.0xR1.0xL3.0	2.0	1.0	3.0	1.5	4	50	144
IALB-2-2.0xR1.0xL3.0	2.0	1.0	3.0	1.5	4	50	191
IULBH-2-2.0xR1.0xL4.0	2.0	1.0	4.0	1.5	4	50	118
IULB-2-2.0xR1.0xL4.0	2.0	1.0	4.0	1.5	4	50	144
IALB-2-2.0xR1.0xL4.0	2.0	1.0	4.0	1.5	4	50	191
IULBH-2-2.0xR1.0xL6.0	2.0	1.0	6.0	1.5	4	50	118
IULB-2-2.0xR1.0xL6.0	2.0	1.0	6.0	1.5	4	50	144
IALB-2-2.0xR1.0xL6.0	2.0	1.0	6.0	1.5	4	50	191
IULBH-2-2.0xR1.0xL8.0	2.0	1.0	8.0	1.5	4	50	118
IULB-2-2.0xR1.0xL8.0	2.0	1.0	8.0	1.5	4	50	144
IALB-2-2.0xR1.0xL8.0	2.0	1.0	8.0	1.5	4	50	191
IULBH-2-2.0xR1.0xL10.0	2.0	1.0	10.0	1.5	4	50	118
IULB-2-2.0xR1.0xL10.0	2.0	1.0	10.0	1.5	4	50	144
IALB-2-2.0xR1.0xL10.0	2.0	1.0	10.0	1.5	4	50	191
IULBH-2-2.0xR1.0xL12.0	2.0	1.0	12.0	1.5	4	50	118
IULB-2-2.0xR1.0xL12.0	2.0	1.0	12.0	1.5	4	50	144
IALB-2-2.0xR1.0xL12.0	2.0	1.0	12.0	1.5	4	50	191
IULBH-2-2.0xR1.0xL13.0	2.0	1.0	13.0	1.5	4	50	118
IULB-2-2.0xR1.0xL13.0	2.0	1.0	13.0	1.5	4	50	144
IALB-2-2.0xR1.0xL13.0	2.0	1.0	13.0	1.5	4	50	191
IULBH-2-2.0xR1.0xL14.0	2.0	1.0	14.0	1.5	4	50	118
IULB-2-2.0xR1.0xL14.0	2.0	1.0	14.0	1.5	4	50	144
IALB-2-2.0xR1.0xL14.0	2.0	1.0	14.0	1.5	4	50	191
IALB-2-2.0xR1.0xL15.0	2.0	1.0	15.0	1.5	4	50	191
IULBH-2-2.0xR1.0xL16.0	2.0	1.0	16.0	1.5	4	50	118
IULB-2-2.0xR1.0xL16.0	2.0	1.0	16.0	1.5	4	50	144
IALB-2-2.0xR1.0xL16.0	2.0	1.0	16.0	1.5	4	50	191
IULBH-2-2.0xR1.0xL18.0	2.0	1.0	18.0	1.5	4	50	118
IULB-2-2.0xR1.0xL18.0	2.0	1.0	18.0	1.5	4	50	144
IALB-2-2.0xR1.0xL18.0	2.0	1.0	18.0	1.5	4	50	191
IULBH-2-2.0xR1.0xL20.0	2.0	1.0	20.0	1.5	4	60	118
IULB-2-2.0xR1.0xL20.0	2.0	1.0	20.0	1.5	4	60	144
IALB-2-2.0xR1.0xL20.0	2.0	1.0	20.0	1.5	4	60	191
IUBH-2-2.5xR1.25x3.8	2.5	1.25	—	3.8	4	50	115
IUB-2-2.5xR1.25x3.8	2.5	1.25	—	3.8	4	50	141
IAB-2-2.5xR1.25x3.8	2.5	1.25	—	3.8	4	50	187
IULBH-2-2.5xR1.25xL6.0	2.5	1.25	6.0	2.3	4	50	118
IULB-2-2.5xR1.25xL6.0	2.5	1.25	6.0	2.3	4	50	144
IALB-2-2.5xR1.25xL6.0	2.5	1.25	6.0	2.3	4	50	191
IULBH-2-2.5xR1.25xL8.0	2.5	1.25	8.0	2.3	4	50	118
IULB-2-2.5xR1.25xL8.0	2.5	1.25	8.0	2.3	4	50	144
IALB-2-2.5xR1.25xL8.0	2.5	1.25	8.0	2.3	4	50	191
IULBH-2-2.5xR1.25xL10.0	2.5	1.25	10.0	2.3	4	50	118
IULB-2-2.5xR1.25xL10.0	2.5	1.25	10.0	2.3	4	50	144
IALB-2-2.5xR1.25xL10.0	2.5	1.25	10.0	2.3	4	50	191
IULBH-2-2.5xR1.25xL15.0	2.5	1.25	15.0	2.3	4	50	118
IULB-2-2.5xR1.25xL15.0	2.5	1.25	15.0	2.3	4	50	144
IALB-2-2.5xR1.25xL15.0	2.5	1.25	15.0	2.3	4	50	191
IULBH-2-2.5xR1.25xL20.0	2.5	1.25	20.0	2.3	4	50	118
IULB-2-2.5xR1.25xL20.0	2.5	1.25	20.0	2.3	4	50	144
IALB-2-2.5xR1.25xL20.0	2.5	1.25	20.0	2.3	4	50	191
IUBH-2-3.0xR1.5x5.0	3.0	1.5	—	5.0	4	50	115
IUB-2-3.0xR1.5x5.0	3.0	1.5	—	5.0	4	50	141
IAB-2-3.0xR1.5x5.0	3.0	1.5	—	5.0	4	50	187
IULBH-2-3.0xR1.5xL6.0	3.0	1.5	6.0	2.5	4	50	118
IULB-2-3.0xR1.5xL6.0	3.0	1.5	6.0	2.5	4	50	144
IALB-2-3.0xR1.5xL6.0	3.0	1.5	6.0	2.5	4	50	191
IULBH-2-3.0xR1.5xL8.0	3.0	1.5	8.0	2.5	4	50	118
IULB-2-3.0xR1.5xL8.0	3.0	1.5	8.0	2.5	4	50	144
IALB-2-3.0xR1.5xL8.0	3.0	1.5	8.0	2.5	4	50	191
IULBH-2-3.0xR1.5xL10.0	3.0	1.5	10.0	2.5	4	50	118
IULB-2-3.0xR1.5xL10.0	3.0	1.5	10.0	2.5	4	50	144
IALB-2-3.0xR1.5xL10.0	3.0	1.5	10.0	2.5	4	50	191
IULBH-2-3.0xR1.5xL12.0	3.0	1.5	12.0	2.5	4	50	118
IULB-2-3.0xR1.5xL12.0	3.0	1.5	12.0	2.5	4	50	144
IALB-2-3.0xR1.5xL12.0	3.0	1.5	12.0	2.5	4	50	191
IULBH-2-3.0xR1.5xL14.0	3.0	1.5	14.0	2.5	4	50	118
IULB-2-3.0xR1.5xL14.0	3.0	1.5	14.0	2.5	4	50	144
IALB-2-3.0xR1.5xL14.0	3.0	1.5	14.0	2.5	4	50	191
IALB-2-3.0xR1.5xL15.0	3.0	1.5	15.0	2.5	4	50	191
IULBH-2-3.0xR1.5xL16.0	3.0	1.5	16.0	2.5	4	50	118
IULB-2-3.0xR1.5xL16.0	3.0	1.5	16.0	2.5	4	50	144
IALB-2-3.0xR1.5xL16.0	3.0	1.5	16.0	2.5	4	50	191
IULBH-2-3.0xR1.5xL20.0	3.0	1.5	20.0	2.5	4	50	118
IULB-2-3.0xR1.5xL20.0	3.0	1.5	20.0	2.5	4	50	144
IALB-2-3.0xR1.5xL20.0	3.0	1.5	20.0	2.5	4	50	191
IULBH-2-3.0xR1.5xL25.0	3.0	1.5	25.0	2.5	4	60	118
IULB-2-3.0xR1.5xL25.0	3.0	1.5	25.0	2.5	4	60	144
IALB-2-3.0xR1.5xL25.0	3.0	1.5	25.0	2.5	4	60	191

超硬エンドミル/ボール　Carbide EndMills/Ball

コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IULBH-2-3.0xR1.5xL30.0	3.0	1.5	30.0	2.5	4	60	118
IULB-2-3.0xR1.5xL30.0	3.0	1.5	30.0	2.5	4	60	144
IALB-2-3.0xR1.5xL30.0	3.0	1.5	30.0	2.5	4	60	191
IALB-2-3.5xR1.75xL10.0	3.5	1.75	10.0	2.8	6	50	191
IULBH-2-3.5xR1.75xL15.0	3.5	1.75	15.0	2.8	6	50	118
IULB-2-3.5xR1.75xL15.0	3.5	1.75	15.0	2.8	6	50	144
IALB-2-3.5xR1.75xL15.0	3.5	1.75	15.0	2.8	6	50	191
IULBH-2-3.5xR1.75xL20.0	3.5	1.75	20.0	2.8	6	60	118
IULB-2-3.5xR1.75xL20.0	3.5	1.75	20.0	2.8	6	60	144
IALB-2-3.5xR1.75xL20.0	3.5	1.75	20.0	2.8	6	60	191
IULBH-2-3.5xR1.75xL25.0	3.5	1.75	25.0	2.8	6	60	118
IULB-2-3.5xR1.75xL25.0	3.5	1.75	25.0	2.8	6	60	144
IALB-2-3.5xR1.75xL25.0	3.5	1.75	25.0	2.8	6	60	191
IULBH-2-3.5xR1.75xL30.0	3.5	1.75	30.0	2.8	6	70	118
IULB-2-3.5xR1.75xL30.0	3.5	1.75	30.0	2.8	6	70	144
IALB-2-3.5xR1.75xL30.0	3.5	1.75	30.0	2.8	6	70	191
IULBH-2-3.5xR1.75xL35.0	3.5	1.75	35.0	2.8	6	70	118
IULB-2-3.5xR1.75xL35.0	3.5	1.75	35.0	2.8	6	70	144
IALB-2-3.5xR1.75xL35.0	3.5	1.75	35.0	2.8	6	70	191
IAB-2-4.0xR2.0x4.0	4.0	2.0	—	4.0	6	50	187
IUBH-2-4.0xR2.0x6.0	4.0	2.0	—	6.0	6	50	115
IUB-2-4.0xR2.0x6.0	4.0	2.0	—	6.0	6	50	141
IAB-2-4.0xR2.0x6.0	4.0	2.0	—	6.0	6	50	187
IULBH-2-4.0xR2.0xL8.0	4.0	2.0	8.0	3.0	6	50	118
IULB-2-4.0xR2.0xL8.0	4.0	2.0	8.0	3.0	6	50	144
IULBH-2-4.0xR2.0xL10.0	4.0	2.0	10.0	3.0	6	50	118
IULB-2-4.0xR2.0xL10.0	4.0	2.0	10.0	3.0	6	50	144
IALB-2-4.0xR2.0xL10.0	4.0	2.0	10.0	3.0	6	50	191
IULBH-2-4.0xR2.0xL12.0	4.0	2.0	12.0	3.0	6	50	118
IULB-2-4.0xR2.0xL12.0	4.0	2.0	12.0	3.0	6	50	144
IALB-2-4.0xR2.0xL12.0	4.0	2.0	12.0	3.0	6	50	191
IULBH-2-4.0xR2.0xL14.0	4.0	2.0	14.0	3.0	6	50	118
IULB-2-4.0xR2.0xL14.0	4.0	2.0	14.0	3.0	6	50	144
IALB-2-4.0xR2.0xL14.0	4.0	2.0	14.0	3.0	6	50	191
IULBH-2-4.0xR2.0xL15.0	4.0	2.0	15.0	3.0	6	50	118
IULB-2-4.0xR2.0xL15.0	4.0	2.0	15.0	3.0	6	50	144
IALB-2-4.0xR2.0xL15.0	4.0	2.0	15.0	3.0	6	50	191
IALB-2-4.0xR2.0xL16.0	4.0	2.0	16.0	3.0	6	50	191
IULBH-2-4.0xR2.0xL20.0	4.0	2.0	20.0	3.0	6	60	118
IULB-2-4.0xR2.0xL20.0	4.0	2.0	20.0	3.0	6	60	144
IALB-2-4.0xR2.0xL20.0	4.0	2.0	20.0	3.0	6	60	191
IULBH-2-4.0xR2.0xL25.0	4.0	2.0	25.0	3.0	6	60	118
IULB-2-4.0xR2.0xL25.0	4.0	2.0	25.0	3.0	6	60	144
IALB-2-4.0xR2.0xL25.0	4.0	2.0	25.0	3.0	6	60	191
IULBH-2-4.0xR2.0xL30.0	4.0	2.0	30.0	3.0	6	70	118
IULB-2-4.0xR2.0xL30.0	4.0	2.0	30.0	3.0	6	70	144
IALB-2-4.0xR2.0xL30.0	4.0	2.0	30.0	3.0	6	70	191
IULBH-2-4.0xR2.0xL35.0	4.0	2.0	35.0	3.0	6	70	118
IULB-2-4.0xR2.0xL35.0	4.0	2.0	35.0	3.0	6	70	144
IALB-2-4.0xR2.0xL35.0	4.0	2.0	35.0	3.0	6	70	191
IAB-2-5.0xR2.5x5.0	5.0	2.5	—	5.0	6	50	187
IUBH-2-5.0xR2.5x8.0	5.0	2.5	—	8.0	6	50	115
IUB-2-5.0xR2.5x8.0	5.0	2.5	—	8.0	6	50	141
IAB-2-5.0xR2.5x8.0	5.0	2.5	—	8.0	6	50	187
IALB-2-5.0xR2.5xL10.0	5.0	2.5	10.0	3.5	6	50	192
IULBH-2-5.0xR2.5xL15.0	5.0	2.5	15.0	3.5	6	50	118
IULB-2-5.0xR2.5xL15.0	5.0	2.5	15.0	3.5	6	50	144
IALB-2-5.0xR2.5xL15.0	5.0	2.5	15.0	3.5	6	50	192
IULBH-2-5.0xR2.5xL20.0	5.0	2.5	20.0	3.5	6	50	118
IULB-2-5.0xR2.5xL20.0	5.0	2.5	20.0	3.5	6	50	144
IALB-2-5.0xR2.5xL20.0	5.0	2.5	20.0	3.5	6	50	192
IULBH-2-5.0xR2.5xL25.0	5.0	2.5	25.0	3.5	6	60	118
IULB-2-5.0xR2.5xL25.0	5.0	2.5	25.0	3.5	6	60	144
IALB-2-5.0xR2.5xL25.0	5.0	2.5	25.0	3.5	6	60	192
IULBH-2-5.0xR2.5xL30.0	5.0	2.5	30.0	3.5	6	60	118
IULB-2-5.0xR2.5xL30.0	5.0	2.5	30.0	3.5	6	60	144
IALB-2-5.0xR2.5xL30.0	5.0	2.5	30.0	3.5	6	60	192
IALB-2-5.0xR2.5xL35.0	5.0	2.5	35.0	3.5	6	70	192
IULBH-2-5.0xR2.5xL40.0	5.0	2.5	40.0	3.5	6	70	118
IULB-2-5.0xR2.5xL40.0	5.0	2.5	40.0	3.5	6	70	144
IALB-2-5.0xR2.5xL40.0	5.0	2.5	40.0	3.5	6	70	192
IAB-2-6.0xR3.0x6.0	6.0	3.0	—	6.0	6	50	187
IUBH-2-6.0xR3.0x10.0	6.0	3.0	—	10.0	6	50	115
IUB-2-6.0xR3.0x10.0	6.0	3.0	—	10.0	6	50	141
IAB-2-6.0xR3.0x10.0	6.0	3.0	—	10.0	6	50	187
IULBH-2-6.0xR3.0xL10.0	6.0	3.0	10.0	6.0	6	50	118
IULB-2-6.0xR3.0xL10.0	6.0	3.0	10.0	6.0	6	50	144
IALB-2-6.0xR3.0xL10.0	6.0	3.0	10.0	6.0	6	50	192
IULBH-2-6.0xR3.0xL15.0	6.0	3.0	15.0	6.0	6	50	118
IULB-2-6.0xR3.0xL15.0	6.0	3.0	15.0	6.0	6	50	144
IALB-2-6.0xR3.0xL15.0	6.0	3.0	15.0	6.0	6	50	192
IULBH-2-6.0xR3.0xL20.0	6.0	3.0	20.0	6.0	6	50	119
IULB-2-6.0xR3.0xL20.0	6.0	3.0	20.0	6.0	6	50	144
IALB-2-6.0xR3.0xL20.0	6.0	3.0	20.0	6.0	6	50	192
IULBH-2-6.0xR3.0xL25.0	6.0	3.0	25.0	6.0	6	60	119
IULB-2-6.0xR3.0xL25.0	6.0	3.0	25.0	6.0	6	60	145
IALB-2-6.0xR3.0xL25.0	6.0	3.0	25.0	6.0	6	60	192
IULBH-2-6.0xR3.0xL30.0	6.0	3.0	30.0	6.0	6	60	119
IULB-2-6.0xR3.0xL30.0	6.0	3.0	30.0	6.0	6	60	145
IALB-2-6.0xR3.0xL30.0	6.0	3.0	30.0	6.0	6	60	192
IULBH-2-6.0xR3.0xL35.0	6.0	3.0	35.0	6.0	6	70	119
IULB-2-6.0xR3.0xL35.0	6.0	3.0	35.0	6.0	6	70	145
IALB-2-6.0xR3.0xL35.0	6.0	3.0	35.0	6.0	6	70	192
IULBH-2-6.0xR3.0xL40.0	6.0	3.0	40.0	6.0	6	70	119
IULB-2-6.0xR3.0xL40.0	6.0	3.0	40.0	6.0	6	70	145
IALB-2-6.0xR3.0xL40.0	6.0	3.0	40.0	6.0	6	70	192
IALB-2-6.0xR3.0xL45.0	6.0	3.0	45.0	6.0	6	80	192
IULBH-2-6.0xR3.0xL50.0	6.0	3.0	50.0	6.0	6	80	119
IULB-2-6.0xR3.0xL50.0	6.0	3.0	50.0	6.0	6	80	145
IALB-2-6.0xR3.0xL50.0	6.0	3.0	50.0	6.0	6	80	192
IULBH-2-6.0xR3.0xL60.0	6.0	3.0	60.0	6.0	6	90	119
IULB-2-6.0xR3.0xL60.0	6.0	3.0	60.0	6.0	6	90	145
IUB-2-8.0xR4.0x12.0	8.0	4.0	—	12.0	8	70	141
IAB-2-8.0xR4.0x12.0	8.0	4.0	—	12.0	8	70	187
IAB-2-8.0xR4.0x16.0	8.0	4.0	—	16.0	8	70	187
IUB-2-10.0xR5.0x15.0	10.0	5.0	—	15.0	10	80	141
IAB-2-10.0xR5.0x15.0	10.0	5.0	—	15.0	10	80	187
IAB-2-10.0xR5.0x20.0	10.0	5.0	—	20.0	10	80	188
IUB-2-12.0xR6.0x20.0	12.0	6.0	—	20.0	12	110	141

超硬エンドミル/ボール　Carbide EndMills/Ball

コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	シャンク径 DCON	全長 OAL	ページ page
IAB-2-12.0xR6.0x20.0	12.0	6.0	—	20.0	12	110	188
IAB-2-12.0xR6.0x24.0	12.0	6.0	—	24.0	12	110	188
IUB-2-16.0xR8.0x24.0	16.0	8.0	—	24.0	16	160	141
IAB-2-16.0xR8.0x30.0	16.0	8.0	—	30.0	16	140	188
IUB-2-18.0xR9.0x27.0	18.0	9.0	—	27.0	18	180	141
IUB-2-20.0xR10.0x30.0	20.0	10.0	—	30.0	20	180	141
IAB-2-20.0xR10.0x38.0	20.0	10.0	—	38.0	20	160	188

超硬防振型エンドミル 難削材用
Anti-Vibration Carbide End Mills for Difficult-to-Cut Materials





特　長

- インコネル等の難削材の加工に特化した超硬エンドミル
- 不等分割不等リードによりビビりを抑えた安定加工
- ion Depo Type V+新超硬母材による高い切削性能を実現

Features

- Carbide End Mills specialized for machining difficult-to-cut materials such as Inconel
- Stable machining with suppressed chatter through unequal flute spacing and variable lead
- ion Depo Type V coating plus a new carbide substrate deliver high cutting performance.

MG | ion V | Side Milling | Planing | Helical | Plunge | 刃数 4 | Helix Angle 37°40° | NA 15° | h6 | Gash Land

切削条件表 Cutting Parameter P055

超硬防振型エンドミル Anti-Vibration Carbide End Mills

■型番:TW-VS-EM2D(スクエア2Dタイプ)

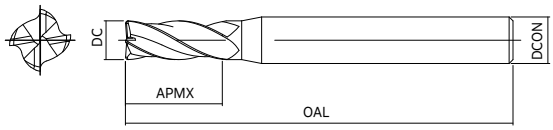
Model number:TW-VS-EM2D (Square 2D type)

◆インコネル等の難削材の側面加工に適しています

◆Suitable for side milling of difficult to cut materials such as Inconel



径 Diameter	径許容差 Diameter Tolerance
φ6以下 φ≦6	0/-0.010
φ6を超え 6<φ	0/-0.016



※図はスクエアタイプを示す。The drawing shows a square type.

表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material														
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○	◎										◎	◎

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	外径 DC	首下長さ LH	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N009093	TW-VS-EM2D-2	2	8.7	4	15	4	50	●
N009094	TW-VS-EM2D-2.5	2.5	8.8	5	15	4	50	●
N009095	TW-VS-EM2D-3	3	13.6	6	15	6	50	●
N009096	TW-VS-EM2D-4	4	13.7	8	15	6	50	●
N009097	TW-VS-EM2D-5	5	13.9	10	15	6	50	●
N009098	TW-VS-EM2D-6	6	14	12	0	6	50	●
N009099	TW-VS-EM2D-8	8	18	16	0	8	60	●
N009100	TW-VS-EM2D-10	10	22	20	0	10	70	●
N009101	TW-VS-EM2D-12	12	26	24	0	12	80	●
N009102	TW-VS-EM2D-16	16	34	32	0	16	100	●
N009103	TW-VS-EM2D-20	20	42	40	0	20	110	●

TW-VS Series

MG | ion V | Side Milling | Planing | Profiling | Helical | Plunge | 刃数 4 | Helix Angle 37°40° | NA 15° | h6 | Gash Land

切削条件表 Cutting Parameter P056

超硬防振型エンドミル Anti-Vibration Carbide End Mills

■型番:TW-VS-CR-EM2D(ラジアス2Dタイプ)

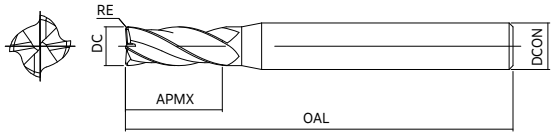
Model number:TW-VS-CR-EM2D (Radius 2D type)

◆インコネル等の難削材の側面加工に適しています

◆Suitable for side milling of difficult to cut materials such as Inconel



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.010	±0.010
φ6を超え 6<φ	0/-0.016	±0.010



※図はラジアスタイプを示す。The drawing shows a radius type.

表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
コーナー半径が0.5以上のエンドミルはスパイラルギャッシュを採用しています。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material,
please check by actual measurement.
Spiral gash is applied to End Mills with a corner radius of R0.5 or larger.

対応被削材表 Material compatibility table

被削材 Work Material														
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○	◎										◎	◎

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	外径 DC	コーナ半径 RE	首下長さ LH	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N009104	TW-VS-CR-EM2D-2×R0.2	2	0.2	8.7	4	15	4	50	●
N009105	TW-VS-CR-EM2D-2×R0.3	2	0.3	8.7	4	15	4	50	●
N009106	TW-VS-CR-EM2D-2×R0.5	2	0.5	8.7	4	15	4	50	●
N009107	TW-VS-CR-EM2D-3×R0.2	3	0.2	13.6	6	15	6	50	●
N009108	TW-VS-CR-EM2D-3×R0.3	3	0.3	13.6	6	15	6	50	●
N009109	TW-VS-CR-EM2D-3×R0.5	3	0.5	13.6	6	15	6	50	●
N009110	TW-VS-CR-EM2D-4×R0.2	4	0.2	13.7	8	15	6	50	●
N009111	TW-VS-CR-EM2D-4×R0.3	4	0.3	13.7	8	15	6	50	●
N009112	TW-VS-CR-EM2D-4×R0.5	4	0.5	13.7	8	15	6	50	●
N009113	TW-VS-CR-EM2D-5×R0.2	5	0.2	13.9	10	15	6	50	●
N009114	TW-VS-CR-EM2D-5×R0.3	5	0.3	13.9	10	15	6	50	●
N009115	TW-VS-CR-EM2D-5×R0.5	5	0.5	13.9	10	15	6	50	●
N009116	TW-VS-CR-EM2D-5×R1	5	1	13.9	10	15	6	50	●
N009117	TW-VS-CR-EM2D-6×R0.3	6	0.3	14	12	0	6	50	●
N009118	TW-VS-CR-EM2D-6×R0.5	6	0.5	14	12	0	6	50	●
N009119	TW-VS-CR-EM2D-6×R1	6	1	14	12	0	6	50	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	外径 DC	コーナ半径 RE	首下長さ LH	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N009120	TW-VS-CR-EM2D-6×R1.5	6	1.5	14	12	0	6	50	●
N009121	TW-VS-CR-EM2D-8×R0.3	8	0.3	18	16	0	8	60	●
N009122	TW-VS-CR-EM2D-8×R0.5	8	0.5	18	16	0	8	60	●
N009123	TW-VS-CR-EM2D-8×R1	8	1	18	16	0	8	60	●
N009124	TW-VS-CR-EM2D-8×R1.5	8	1.5	18	16	0	8	60	●
N009125	TW-VS-CR-EM2D-8×R2	8	2	18	16	0	8	60	●
N009126	TW-VS-CR-EM2D-10×R0.3	10	0.3	22	20	0	10	70	●
N009127	TW-VS-CR-EM2D-10×R0.5	10	0.5	22	20	0	10	70	●
N009128	TW-VS-CR-EM2D-10×R1	10	1	22	20	0	10	70	●
N009129	TW-VS-CR-EM2D-10×R1.5	10	1.5	22	20	0	10	70	●
N009130	TW-VS-CR-EM2D-10×R2	10	2	22	20	0	10	70	●
N009131	TW-VS-CR-EM2D-12×R0.3	12	0.3	26	24	0	12	80	●
N009132	TW-VS-CR-EM2D-12×R0.5	12	0.5	26	24	0	12	80	●
N009133	TW-VS-CR-EM2D-12×R1	12	1	26	24	0	12	80	●
N009134	TW-VS-CR-EM2D-12×R1.5	12	1.5	26	24	0	12	80	●
N009135	TW-VS-CR-EM2D-12×R2	12	2	26	24	0	12	80	●
N009136	TW-VS-CR-EM2D-12×R3	12	3	26	24	0	12	80	●

TW-VS Series

TW-VS 切削条件参考表
Recommended Milling Conditions

■型番:TW-VS-EM2D
Model number:TW-VS-EM2D

超硬防振スクエアエンドミル Anti-Vibration Carbide Square End Mills
側面切削 Side Milling

被削材 Work Material	プリハードン鋼 / 焼入れ鋼 Prehardened steel / Hardened steel PX5, NAK80 (30~45HRC)		ステンレス鋼 Stainless Steel SUS304		チタン合金 Titanium alloy STi-6Al-4V		Ni基合金 Ni-based alloy Inconel 718	
切削速度 Cutting speed (m/min)	100		100		60		30	
切込み Depth of cut (mm)	ap = 1DC ae = 0.2DC		ap = 1DC ae = 0.2DC		ap = 1DC ae = 0.1DC		ap = 1DC ae = 0.05DC	
外径 DC Tool dia. (mm)	回転数 Speed (min-1)	送り速度 Feed (mm/min)	回転数 Speed (min-1)	送り速度 Feed (mm/min)	回転数 Speed (min-1)	送り速度 Feed (mm/min)	回転数 Speed (min-1)	送り速度 Feed (mm/min)
2	15,920	830	15,920	640	9,550	380	4,770	190
3	10,610	830	10,610	640	6,370	380	3,180	190
4	7,960	830	7,960	640	4,770	380	2,390	190
5	6,370	830	6,370	640	3,820	380	1,910	190
6	5,310	830	5,310	640	3,180	380	1,590	190
8	3,980	830	3,980	640	2,390	380	1,190	190
10	3,180	830	3,180	640	1,910	380	950	190
12	2,650	830	2,650	640	1,590	380	800	190
16	1,990	830	1,990	640	1,190	380	600	190
20	1,590	830	1,590	640	950	380	480	190

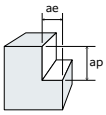
TW-VS 切削条件参考表
Recommended Milling Conditions

■型番:TW-VS-CR-EM2D
Model number:TW-VS-CR-EM2D

超硬防振ラジアスエンドミル Anti-Vibration Carbide Radius End Mills
側面切削 Side Milling

被削材 Work Material	プリハードン鋼 / 焼入れ鋼 Prehardened steel / Hardened steel PX5, NAK80 (30~45HRC)		ステンレス鋼 Stainless Steel SUS304		チタン合金 Titanium alloy STi-6Al-4V		Ni基合金 Ni-based alloy Inconel 718	
切削速度 Cutting speed (m/min)	100		100		60		30	
切込み Depth of cut (mm)	ap = 1DC ae = 0.2DC		ap = 1DC ae = 0.2DC		ap = 1DC ae = 0.1DC		ap = 1DC ae = 0.05DC	
外径 DC Tool dia. (mm)	回転数 Speed (min^{-1})	送り速度 Feed (mm/min)	回転数 Speed (min^{-1})	送り速度 Feed (mm/min)	回転数 Speed (min^{-1})	送り速度 Feed (mm/min)	回転数 Speed (min^{-1})	送り速度 Feed (mm/min)
2	15,920	830	15,920	640	9,550	380	4,770	190
3	10,610	830	10,610	640	6,370	380	3,180	190
4	7,960	830	7,960	640	4,770	380	2,390	190
5	6,370	830	6,370	640	3,820	380	1,910	190
6	5,310	830	5,310	640	3,180	380	1,590	190
8	3,980	830	3,980	640	2,390	380	1,190	190
10	3,180	830	3,180	640	1,910	380	950	190
12	2,650	830	2,650	640	1,590	380	800	190
16	1,990	830	1,990	640	1,190	380	600	190
20	1,590	830	1,590	640	950	380	480	190

備考
Notes



- ●機械、ホルダは剛性のある精度の高いものを使用してください。
- ●被削材に応じて、適切なクーラントを使用してください。
- ●この切削条件表は目安を示すものです。実際の加工では、目的や使用機械等により切削条件を調整してください。
- ●加工精度が必要となる場合は、回転数、送り速度および切込みを下げて使用してください。

- ●Use the high-rigidity and high accuracy machine and holder as possible.
- ●Use the appropriate coolant for the work material.
- ●This table provides a guideline for cutting conditions. Actual machining conditions should be adjusted according to the required results and machine specifications, etc.
- ●When high accuracy is required, reduce spindle speed, feed rate and depth of cut.

ステンレス用超硬ドリル
Carbide Drills for Stainless Steel





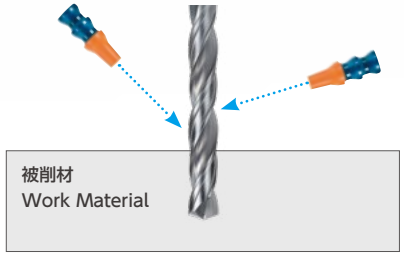
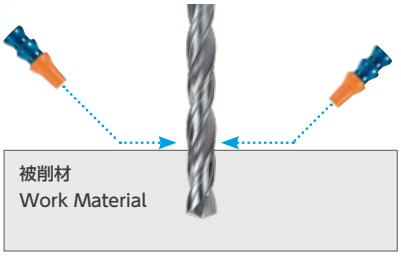
特　長

- 外部給油でのステンレス鋼のノンステップ加工を実現
- 副溝と三番取り仕様により切削油を先端まで安定供給
- 標準品はφ0.4～φ12までをラインナップ

Features

- Achieves non-step machining of stainless steel with external oil supply.
- Stable supply of cutting oil to the tip with auxiliary flutes and secondary relief design
- Standard products are available from φ0.4~φ12.

TW-SUSシリーズにおける切削油の供給点
Cutting Oil Supply Point for the TW-SUS Series

○ノズル箇所の良い例（推奨）	×ノズル箇所の悪い例
	

切削油がのかかる位置が加工深さより低いとTW-SUSの副溝仕様の効果が得られないため
直接ドリルへ供給されるように調整ください

If the cutting-oil contact point is below the machining depth, the TW-SUS auxiliary-flute design cannot deliver its intended effect. Adjust the nozzle so cutting oil is supplied directly to the drill.

MG | ion AC | Drilling | 刃数 2 | Point Angle 140° | Helix Angle 30° | h6

切削条件表 Cutting Parameter P062

ステンレス用超硬ドリル Carbide Drills for Stainless Steel

■型番:TW-SUS-DR3D

Model number:TW-SUS-DR3D

直径の許容差 Tolerance for Drill Diameter

φ0.4以上 φ3未満 0.4≦φ<3	φ3以上 φ6未満 3≦φ<6	φ6以上φ10未満 6≦φ<10	φ10以上φ12以下 10≦φ≦12
0 -0.010	0 -0.018	0 -0.022	0 -0.027

◆ステンレス鋼の外部給油の3D までの深さの穴加工に適しています

◆Suitable for drilling holes up to 3D depth for stainless steels by external coolant



Fig. 1（三番取り仕様）

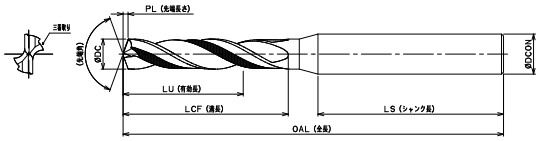
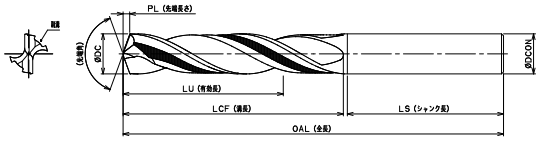


Fig. 2（副溝仕様）



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	○	◎					◎						

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	直径 DC	有効長 LU	溝長 LCF	先端角 PA	全長 OAL	先端 PL	シャンク長 LS	シャンク径 DCON	仕様 Fig.	在庫 Stock
N009203	TW-SUS-DR3D-0.4	0.4	1.2	2.2	140	50	0.1	42.4	3	Fig. 1	●
N009204	TW-SUS-DR3D-0.45	0.45	1.3	2.5	140	50	0.1	42.2	3	Fig. 1	□
N009205	TW-SUS-DR3D-0.5	0.5	1.5	2.8	140	50	0.1	42	3	Fig. 1	●
N009206	TW-SUS-DR3D-0.55	0.55	1.6	3.1	140	50	0.1	41.8	3	Fig. 1	□
N009207	TW-SUS-DR3D-0.6	0.6	1.8	3.3	140	50	0.1	41.7	3	Fig. 1	●
N009208	TW-SUS-DR3D-0.65	0.65	1.9	3.6	140	50	0.1	41.5	3	Fig. 1	□
N009209	TW-SUS-DR3D-0.7	0.7	2.1	3.9	140	50	0.1	41.3	3	Fig. 1	●
N009210	TW-SUS-DR3D-0.75	0.75	2.2	4.2	140	50	0.1	41.1	3	Fig. 1	□
N009211	TW-SUS-DR3D-0.8	0.8	2.4	4.4	140	50	0.1	41	3	Fig. 1	●
N009212	TW-SUS-DR3D-0.85	0.85	2.5	4.7	140	50	0.2	40.8	3	Fig. 1	□
N009213	TW-SUS-DR3D-0.9	0.9	2.7	5	140	50	0.2	40.1	3	Fig. 1	●
N009214	TW-SUS-DR3D-0.95	0.95	2.8	5.3	140	50	0.2	39.9	3	Fig. 1	□

TW-SUS Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	直径 DC	有効長 LU	溝長 LCF	先端角 PA	全長 OAL	先端 PL	シャンク長 LS	シャンク径 DCON	仕様 Fig.	在庫 Stock
N009215	TW-SUS-DR3D-1	1	3	5.5	140	50	0.2	39.8	3	Fig. 2	●
N009216	TW-SUS-DR3D-1.05	1.05	3.1	5.8	140	50	0.2	39.6	3	Fig. 2	□
N009217	TW-SUS-DR3D-1.1	1.1	3.3	6.1	140	50	0.2	39.4	3	Fig. 2	●
N009218	TW-SUS-DR3D-1.15	1.15	3.4	6.4	140	50	0.2	39.1	3	Fig. 2	□
N009219	TW-SUS-DR3D-1.2	1.2	3.6	6.6	140	50	0.2	39	3	Fig. 2	●
N009220	TW-SUS-DR3D-1.25	1.25	3.7	6.9	140	50	0.2	38.8	3	Fig. 2	□
N009221	TW-SUS-DR3D-1.3	1.3	3.9	7.2	140	50	0.2	38.6	3	Fig. 2	●
N009222	TW-SUS-DR3D-1.35	1.35	4	7.5	140	50	0.2	38.4	3	Fig. 2	□
N009223	TW-SUS-DR3D-1.4	1.4	4.2	7.7	140	50	0.3	38.3	3	Fig. 2	●
N009224	TW-SUS-DR3D-1.45	1.45	4.3	8	140	50	0.3	38.1	3	Fig. 2	□
N009225	TW-SUS-DR3D-1.5	1.5	4.5	8.3	140	50	0.3	37.9	3	Fig. 2	●
N009226	TW-SUS-DR3D-1.55	1.55	4.6	8.6	140	50	0.3	37.7	3	Fig. 2	□
N009227	TW-SUS-DR3D-1.6	1.6	4.8	8.8	140	50	0.3	37.6	3	Fig. 2	●
N009228	TW-SUS-DR3D-1.65	1.65	4.9	9.1	140	50	0.3	37.4	3	Fig. 2	□
N009229	TW-SUS-DR3D-1.7	1.7	5.1	9.4	140	50	0.3	37.2	3	Fig. 2	●
N009230	TW-SUS-DR3D-1.75	1.75	5.2	9.7	140	50	0.3	37	3	Fig. 2	□
N009231	TW-SUS-DR3D-1.8	1.8	5.4	9.9	140	50	0.3	36.9	3	Fig. 2	●
N009232	TW-SUS-DR3D-1.85	1.85	5.5	10.2	140	50	0.3	36.7	3	Fig. 2	□
N009233	TW-SUS-DR3D-1.9	1.9	5.7	10.5	140	50	0.3	36.4	3	Fig. 2	●
N009234	TW-SUS-DR3D-1.95	1.95	5.8	10.8	140	50	0.4	36.2	3	Fig. 2	□
N009235	TW-SUS-DR3D-2	2	6	11	140	50	0.4	36.1	3	Fig. 2	●
N009236	TW-SUS-DR3D-2.05	2.05	6.1	11.3	140	50	0.4	35.9	3	Fig. 2	□
N009237	TW-SUS-DR3D-2.1	2.1	6.3	11.6	140	50	0.4	35.7	3	Fig. 2	●
N009238	TW-SUS-DR3D-2.15	2.15	6.4	11.9	140	50	0.4	35.5	3	Fig. 2	□
N009239	TW-SUS-DR3D-2.2	2.2	6.6	12.1	140	50	0.4	35.4	3	Fig. 2	●
N009240	TW-SUS-DR3D-2.25	2.25	6.7	12.4	140	50	0.4	35.2	3	Fig. 2	□
N009241	TW-SUS-DR3D-2.28	2.28	6.8	12.6	140	50	0.4	35.1	3	Fig. 2	●
N009242	TW-SUS-DR3D-2.3	2.3	6.9	12.7	140	50	0.4	35	3	Fig. 2	●
N009243	TW-SUS-DR3D-2.35	2.35	7	13	140	50	0.4	34.8	3	Fig. 2	□
N009244	TW-SUS-DR3D-2.4	2.4	7.2	13.2	140	50	0.4	34.7	3	Fig. 2	●
N009245	TW-SUS-DR3D-2.45	2.45	7.3	13.5	140	50	0.4	34.5	3	Fig. 2	□
N009246	TW-SUS-DR3D-2.5	2.5	7.5	13.8	140	50	0.5	34.3	3	Fig. 2	●
N009247	TW-SUS-DR3D-2.55	2.55	7.6	14.1	140	50	0.5	34.1	3	Fig. 2	□
N009248	TW-SUS-DR3D-2.6	2.6	7.8	14.3	140	50	0.5	34	3	Fig. 2	●
N009249	TW-SUS-DR3D-2.65	2.65	7.9	14.6	140	50	0.5	33.7	3	Fig. 2	□
N009250	TW-SUS-DR3D-2.7	2.7	8.1	14.9	140	50	0.5	33.5	3	Fig. 2	●
N009251	TW-SUS-DR3D-2.75	2.75	8.2	15.2	140	50	0.5	33.3	3	Fig. 2	□
N009252	TW-SUS-DR3D-2.76	2.76	8.2	15.2	140	50	0.5	33.4	3	Fig. 2	●
N009253	TW-SUS-DR3D-2.78	2.78	8.3	15.3	140	50	0.5	33.3	3	Fig. 2	●
N009254	TW-SUS-DR3D-2.8	2.8	8.4	15.4	140	50	0.5	33.2	3	Fig. 2	●
N009255	TW-SUS-DR3D-2.85	2.85	8.5	15.7	140	50	0.5	33	3	Fig. 2	□
N009256	TW-SUS-DR3D-2.9	2.9	8.7	16	140	50	0.5	32.8	3	Fig. 2	●
N009257	TW-SUS-DR3D-2.95	2.95	8.8	16.3	140	50	0.5	32.6	3	Fig. 2	□
N009258	TW-SUS-DR3D-3	3	9	16.5	140	50	0.5	32.5	3	Fig. 2	●
N009259	TW-SUS-DR3D-3.05	3.05	9.1	16.8	140	50	0.6	32.3	3	Fig. 2	□
N009260	TW-SUS-DR3D-3.1	3.1	9.3	17.1	140	50	0.6	30.2	4	Fig. 2	●
N009261	TW-SUS-DR3D-3.15	3.15	9.4	17.4	140	50	0.6	30	4	Fig. 2	□
N009262	TW-SUS-DR3D-3.2	3.2	9.6	17.6	140	50	0.6	29.9	4	Fig. 2	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	直径 DC	有効長 LU	溝長 LCF	先端角 PA	全長 OAL	先端 PL	シャンク長 LS	シャンク径 DCON	仕様 Fig.	在庫 Stock
N009263	TW-SUS-DR3D-3.25	3.25	9.7	17.9	140	50	0.6	29.7	4	Fig. 2	□
N009264	TW-SUS-DR3D-3.3	3.3	9.9	18.2	140	50	0.6	29.5	4	Fig. 2	●
N009265	TW-SUS-DR3D-3.35	3.35	10	18.5	140	50	0.6	29.3	4	Fig. 2	□
N009266	TW-SUS-DR3D-3.4	3.4	10.2	18.7	140	50	0.6	29.2	4	Fig. 2	●
N009267	TW-SUS-DR3D-3.45	3.45	10.3	19	140	50	0.6	29	4	Fig. 2	□
N009268	TW-SUS-DR3D-3.5	3.5	10.5	19.3	140	50	0.6	28.8	4	Fig. 2	●
N009269	TW-SUS-DR3D-3.55	3.55	10.6	19.6	140	50	0.6	28.6	4	Fig. 2	□
N009270	TW-SUS-DR3D-3.6	3.6	10.8	19.8	140	50	0.7	28.5	4	Fig. 2	●
N009271	TW-SUS-DR3D-3.65	3.65	10.9	20.1	140	50	0.7	28.2	4	Fig. 2	□
N009272	TW-SUS-DR3D-3.66	3.66	10.9	20.2	140	50	0.7	28.2	4	Fig. 2	●
N009273	TW-SUS-DR3D-3.68	3.68	11	20.3	140	50	0.7	28.1	4	Fig. 2	●
N009274	TW-SUS-DR3D-3.7	3.7	11.1	20.4	140	50	0.7	28	4	Fig. 2	●
N009275	TW-SUS-DR3D-3.75	3.75	11.2	20.7	140	50	0.7	27.8	4	Fig. 2	□
N009276	TW-SUS-DR3D-3.8	3.8	11.4	20.9	140	50	0.7	27.7	4	Fig. 2	●
N009277	TW-SUS-DR3D-3.85	3.85	11.5	21.2	140	50	0.7	27.5	4	Fig. 2	□
N009278	TW-SUS-DR3D-3.9	3.9	11.7	21.5	140	50	0.7	27.3	4	Fig. 2	●
N009279	TW-SUS-DR3D-3.95	3.95	11.8	21.8	140	50	0.7	27.1	4	Fig. 2	□
N009280	TW-SUS-DR3D-4	4	12	22	140	50	0.7	37	4	Fig. 2	●
N009281	TW-SUS-DR3D-4.05	4.05	12.1	22.3	140	60	0.7	34.9	5	Fig. 2	□
N009282	TW-SUS-DR3D-4.1	4.1	12.3	22.6	140	60	0.7	34.7	5	Fig. 2	●
N009283	TW-SUS-DR3D-4.15	4.15	12.4	22.9	140	60	0.8	34.5	5	Fig. 2	□
N009284	TW-SUS-DR3D-4.2	4.2	12.6	23.1	140	60	0.8	34.4	5	Fig. 2	●
N009285	TW-SUS-DR3D-4.25	4.25	12.7	23.4	140	60	0.8	34.2	5	Fig. 2	□
N009286	TW-SUS-DR3D-4.3	4.3	12.9	23.7	140	60	0.8	34	5	Fig. 2	●
N009287	TW-SUS-DR3D-4.35	4.35	13	24	140	60	0.8	33.8	5	Fig. 2	□
N009288	TW-SUS-DR3D-4.4	4.4	13.2	24.2	140	60	0.8	33.7	5	Fig. 2	●
N009289	TW-SUS-DR3D-4.45	4.45	13.3	24.5	140	60	0.8	33.5	5	Fig. 2	□
N009290	TW-SUS-DR3D-4.5	4.5	13.5	24.8	140	60	0.8	33.3	5	Fig. 2	●
N009291	TW-SUS-DR3D-4.55	4.55	13.6	25.1	140	60	0.8	33.1	5	Fig. 2	□
N009292	TW-SUS-DR3D-4.6	4.6	13.8	25.3	140	60	0.8	33	5	Fig. 2	●
N009293	TW-SUS-DR3D-4.62	4.62	13.8	25.5	140	60	0.8	32.8	5	Fig. 2	●
N009294	TW-SUS-DR3D-4.64	4.64	13.9	25.6	140	60	0.8	32.7	5	Fig. 2	●
N009295	TW-SUS-DR3D-4.65	4.65	13.9	25.6	140	60	0.8	32.7	5	Fig. 2	□
N009296	TW-SUS-DR3D-4.7	4.7	14.1	25.9	140	60	0.9	32.5	5	Fig. 2	●
N009297	TW-SUS-DR3D-4.75	4.75	14.2	26.2	140	60	0.9	32.3	5	Fig. 2	□
N009298	TW-SUS-DR3D-4.8	4.8	14.4	26.4	140	60	0.9	32.2	5	Fig. 2	●
N009299	TW-SUS-DR3D-4.85	4.85	14.5	26.7	140	60	0.9	32	5	Fig. 2	□
N009300	TW-SUS-DR3D-4.9	4.9	14.7	27	140	60	0.9	31.8	5	Fig. 2	●
N009301	TW-SUS-DR3D-4.95	4.95	14.8	27.3	140	60	0.9	31.6	5	Fig. 2	□
N009302	TW-SUS-DR3D-5	5	15	27.5	140	60	0.9	31.5	5	Fig. 2	●
N009303	TW-SUS-DR3D-5.05	5.05	15.1	27.8	140	70	0.9	39.4	6	Fig. 2	□
N009304	TW-SUS-DR3D-5.1	5.1	15.3	28.1	140	70	0.9	39.2	6	Fig. 2	●
N009305	TW-SUS-DR3D-5.15	5.15	15.4	28.4	140	70	0.9	39	6	Fig. 2	□
N009306	TW-SUS-DR3D-5.2	5.2	15.6	28.6	140	70	0.9	38.9	6	Fig. 2	●
N009307	TW-SUS-DR3D-5.25	5.25	15.7	28.9	140	70	1	38.7	6	Fig. 2	□
N009308	TW-SUS-DR3D-5.3	5.3	15.9	29.2	140	70	1	38.5	6	Fig. 2	●
N009309	TW-SUS-DR3D-5.35	5.35	16	29.5	140	70	1	38.3	6	Fig. 2	□
N009310	TW-SUS-DR3D-5.4	5.4	16.2	29.7	140	70	1	38.2	6	Fig. 2	●

TW-SUS Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	直径 DC	有効長 LU	溝長 LCF	先端角 PA	全長 OAL	先端 PL	シャンク長 LS	シャンク径 DCON	仕様 Fig.	在庫 Stock
N009311	TW-SUS-DR3D-5.45	5.45	16.3	30	140	70	1	38	6	Fig. 2	□
N009312	TW-SUS-DR3D-5.5	5.5	16.5	30.3	140	70	1	37.8	6	Fig. 2	●
N009313	TW-SUS-DR3D-5.52	5.52	16.5	30.4	140	70	1	37.7	6	Fig. 2	●
N009314	TW-SUS-DR3D-5.54	5.54	16.6	30.5	140	70	1	37.6	6	Fig. 2	●
N009315	TW-SUS-DR3D-5.55	5.55	16.6	30.6	140	70	1	37.6	6	Fig. 2	□
N009316	TW-SUS-DR3D-5.6	5.6	16.8	30.8	140	70	1	37.5	6	Fig. 2	●
N009317	TW-SUS-DR3D-5.65	5.65	16.9	31.1	140	70	1	37.2	6	Fig. 2	□
N009318	TW-SUS-DR3D-5.7	5.7	17.1	31.4	140	70	1	37	6	Fig. 2	●
N009319	TW-SUS-DR3D-5.75	5.75	17.2	31.7	140	70	1	36.8	6	Fig. 2	□
N009320	TW-SUS-DR3D-5.8	5.8	17.4	31.9	140	70	1.1	36.7	6	Fig. 2	●
N009321	TW-SUS-DR3D-5.85	5.85	17.5	32.2	140	70	1.1	36.5	6	Fig. 2	□
N009322	TW-SUS-DR3D-5.9	5.9	17.7	32.5	140	70	1.1	36.3	6	Fig. 2	●
N009323	TW-SUS-DR3D-5.95	5.95	17.8	32.8	140	70	1.1	36.1	6	Fig. 2	□
N009324	TW-SUS-DR3D-6	6	18	33	140	70	1.1	36	6	Fig. 2	●
N009325	TW-SUS-DR3D-6.5	6.5	19.5	35.8	140	80	1.2	42.3	7	Fig. 2	●
N009326	TW-SUS-DR3D-7	7	21	38.5	140	80	1.3	40.5	7	Fig. 2	●
N009327	TW-SUS-DR3D-7.5	7.5	22.5	41.3	140	90	1.4	46.8	8	Fig. 2	●
N009328	TW-SUS-DR3D-8	8	24	44	140	90	1.5	45	8	Fig. 2	●
N009329	TW-SUS-DR3D-8.5	8.5	25.5	46.8	140	90	1.5	41.3	9	Fig. 2	●
N009330	TW-SUS-DR3D-9	9	27	49.5	140	90	1.6	39.5	9	Fig. 2	●
N009331	TW-SUS-DR3D-9.5	9.5	28.5	52.3	140	100	1.7	45.8	10	Fig. 2	●
N009332	TW-SUS-DR3D-10	10	30	55	140	100	1.8	44	10	Fig. 2	●
N009333	TW-SUS-DR3D-10.5	10.5	31.5	57.8	140	108	1.9	48.3	11	Fig. 2	●
N009334	TW-SUS-DR3D-11	11	33	60.5	140	108	2	46.5	11	Fig. 2	●
N009335	TW-SUS-DR3D-11.5	11.5	34.5	63.3	140	120	2.1	54.8	12	Fig. 2	●
N009336	TW-SUS-DR3D-12	12	36	66	140	120	2.2	53	12	Fig. 2	●

TW-SUS 切削条件参考表
Recommended Drilling Conditions

■型番:TW-SUS-DR3D
Model number:TW-SUS-DR3D

ステンレス用超硬ドリル Carbide Drills for Stainless Steel

被削材 Work Material	ステンレス鋼 Stainless Steel SUS304		ステンレス鋼 Stainless Steel SUS630		軟鋼・低炭素鋼 Mild steel, Low Carbon steel SS400, S15C		炭素鋼・鋳鉄 Carbon steel, Cast Iron S50C, FC250		合金鋼・合金工具鋼 Alloy steel, Tool steel SCM, SKD (~30HRC)		ダクタイル鋳鉄 Ductile Cast Iron FCD600	
切削速度 Cutting speed (m/min)	10~25		8~20		25~120		25~120		25~120		20~100	
直径 DC Drill Dia. (mm)	回転速度 Speed (min^{-1})	送り量 Feed Rate (mm/rev)	回転速度 Speed (min^{-1})	送り量 Feed Rate (mm/rev)	回転速度 Speed (min^{-1})	送り量 Feed Rate (mm/rev)	回転速度 Speed (min^{-1})	送り量 Feed Rate (mm/rev)	回転速度 Speed (min^{-1})	送り量 Feed Rate (mm/rev)	回転速度 Speed (min^{-1})	送り量 Feed Rate (mm/rev)
0.4	10,000	0.006	8,000	0.006	20,000	0.012	20,000	0.012	20,000	0.012	16,000	0.012
0.95	4,500	0.015	3,600	0.015	15,000	0.03	15,000	0.03	15,000	0.03	12,000	0.03
1	4,750	0.015	3,800	0.015	15,000	0.03	15,000	0.03	15,000	0.03	12,000	0.03
1.5	4,250	0.023	3,400	0.023	12,750	0.045	12,750	0.045	12,750	0.045	12,750	0.045
2	4,000	0.03	3,200	0.03	12,000	0.06	12,000	0.06	12,000	0.06	10,000	0.06
4	1,400	0.05	1,100	0.05	7,200	0.12	7,200	0.12	7,200	0.12	6,000	0.12
6	800	0.08	640	0.08	4,800	0.18	4,800	0.18	4,800	0.18	4,000	0.18
8	500	0.1	400	0.1	3,600	0.22	3,600	0.22	3,600	0.22	3,000	0.22
10	320	0.12	255	0.12	2,900	0.25	2,900	0.25	2,900	0.25	2,400	0.25
12	265	0.14	210	0.14	2,400	0.26	2,400	0.26	2,400	0.26	2,000	0.26

●この切削条件表の回転数は、穴深さが3DCの場合における推奨値です。穴深さが小さくなるほど、回転数を増加することが可能です。
●この切削条件表は、水溶性切削油剤を使用する場合のものです。
●被削材に応じて、適切なクーラントを使用してください。
●加工中は切削液がノズルから直接ドリルへ供給されるように、ノズル位置を調整してください。
●この切削条件表は目安を示すものです.実際の加工では、目的や使用機械等により切削条件を調整してください。
●ドリル装着の際は傷や汚れの無いコレットを用い、工具の振れは可能な限り小さく抑えてください。
●使用機械の最高回転数が切削条件表に達しない場合、回転が安定する最大値で送り量を調整して使用してください。
●使用機械の最高回転数が切削条件表に達しない場合、回転が安定する最大値で送り量を調整して使用してください。
●この切削条件表の回転数は、穴深さが3DCの場合における推奨値です。穴深さが小さくなるほど、回転数を増加することが可能です。
切削条件表から中間寸法の切削条件を算出する方法はP235をご参照ください。

●The recommended spindle speed values are based on a drilling depth of 3×DC. Higher spindle speeds may be used for shallower hole depths.
●This table is based on the use of the water-soluble coolant.
●Use the appropriate coolant for the work material.
●Adjust the nozel position so that the drill is supplied with the coolant directly by the nozel duaring dilling.
●This table indicates only a rule of thumb for the cutting condiitions. In the actual machining, cutting conditions should be adjusted acoording to the purpose and the machine type, etc.
●Equip the drill with a collet free from scratches and stains, and minimize drill deflection as much as possible.
●When the machine cannot achieve a recommended rotation speed, set the maximum speed in stable rotationrange and also adjust the feed rate.
●The recommended spindle speed values are based on a drilling depth of 3 X DC. Higher spindle speeds may be used for shallower hole depths
How to calculate cutting conditions for an intermediate diameter from a cutting condition table is on page 235.

CBNエンドミル　CBN End Mills





特　長

- 当社のCBNエンドミルは高硬度で長寿命により超精密加工を実現
- 標準品ラインナップは刃径φ0.1～6.0を完備

Features

- TOWA CBN End Mills deliver ultra-precision machining through high hardness and long tool life.
- The standard lineup covers diameters from φ0.1 to φ6.0.

CBN | Non | Side Milling | Slotting | Planing | Profiling | Helical | 刃数 2 | Helix Angle 0° | NA 15° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P089

CBNラジアスエンドミル 高精度 CBN Radius End Mills High Precision

■型番:CBNLRH-2 Model number:CBNLRH-2

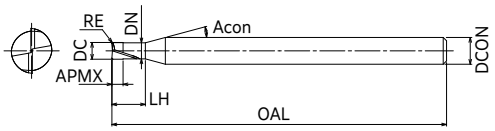
◆焼入れ鋼などの高硬度金型（HRC70 以下）の溝・側面仕上げ加工に適しています

◆Suitable for slot and side finishing of high-hardness molds (HRC70 or below) such as hardened steel



高精度 High Precision

径許容差 Diameter Tolerance	R許容差 R Tolerance
0/-0.003	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				○	◎	◎	◎							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N009850	CBNLRH-2-0.4xR0.02xL0.5	0.4	0.02	0.5	0.24	0.37	15	4	50	0.57	0.59	0.61	0.64	0.69	※
N009851	CBNLRH-2-0.4xR0.02xL1.0		0.02	1.0	0.24	0.37	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N009852	CBNLRH-2-0.4xR0.02xL1.5		0.02	1.5	0.24	0.37	15	4	50	1.61	1.66	1.72	1.79	1.93	※
N009853	CBNLRH-2-0.4xR0.02xL2.0		0.02	2.0	0.24	0.37	15	4	50	2.12	2.20	2.28	2.36	2.55	※
N009854	CBNLRH-2-0.4xR0.03xL0.5		0.03	0.5	0.24	0.37	15	4	50	0.57	0.59	0.61	0.63	0.68	※
N009855	CBNLRH-2-0.4xR0.03xL1.0		0.03	1.0	0.24	0.37	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N009856	CBNLRH-2-0.4xR0.03xL1.5		0.03	1.5	0.24	0.37	15	4	50	1.61	1.66	1.72	1.78	1.93	※
N009857	CBNLRH-2-0.4xR0.03xL2.0		0.03	2.0	0.24	0.37	15	4	50	2.12	2.20	2.28	2.36	2.55	※
N009858	CBNLRH-2-0.4xR0.05xL0.5		0.05	0.5	0.24	0.37	15	4	50	0.57	0.59	0.61	0.63	0.68	※
N009859	CBNLRH-2-0.4xR0.05xL1.0		0.05	1.0	0.24	0.37	15	4	50	1.09	1.13	1.17	1.21	1.30	※
N009860	CBNLRH-2-0.4xR0.05xL1.5		0.05	1.5	0.24	0.37	15	4	50	1.61	1.66	1.72	1.78	1.92	※
N009861	CBNLRH-2-0.4xR0.05xL2.0		0.05	2.0	0.24	0.37	15	4	50	2.12	2.20	2.27	2.36	2.54	※
N009862	CBNLRH-2-0.4xR0.1xL0.5		0.1	0.5	0.24	0.37	15	4	50	0.57	0.59	0.61	0.62	0.67	※
N009863	CBNLRH-2-0.4xR0.1xL1.0		0.1	1.0	0.24	0.37	15	4	50	1.09	1.12	1.16	1.20	1.29	※
N009864	CBNLRH-2-0.4xR0.1xL1.5		0.1	1.5	0.24	0.37	15	4	50	1.61	1.66	1.71	1.77	1.91	※
N009865	CBNLRH-2-0.4xR0.1xL2.0		0.1	2.0	0.24	0.37	15	4	50	2.12	2.19	2.27	2.35	2.53	※
N009866	CBNLRH-2-0.5xR0.02xL0.5	0.5	0.02	0.5	0.3	0.47	15	4	50	0.57	0.59	0.61	0.64	0.69	●
N009867	CBNLRH-2-0.5xR0.02xL1.0		0.02	1.0	0.3	0.47	15	4	50	1.09	1.13	1.17	1.21	1.31	●
N009868	CBNLRH-2-0.5xR0.02xL1.5		0.02	1.5	0.3	0.47	15	4	50	1.61	1.66	1.72	1.79	1.93	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N009869	CBNLRH-2-0.5xR0.02xL2.5	0.5	0.02	2.5	0.3	0.47	15	4	50	2.64	2.73	2.83	2.94	3.17	●
N009870	CBNLRH-2-0.5xR0.03xL0.5		0.03	0.5	0.3	0.47	15	4	50	0.57	0.59	0.61	0.63	0.68	●
N009871	CBNLRH-2-0.5xR0.03xL1.0		0.03	1.0	0.3	0.47	15	4	50	1.09	1.13	1.17	1.21	1.31	●
N009872	CBNLRH-2-0.5xR0.03xL1.5		0.03	1.5	0.3	0.47	15	4	50	1.61	1.66	1.72	1.78	1.93	●
N009873	CBNLRH-2-0.5xR0.03xL2.5		0.03	2.5	0.3	0.47	15	4	50	2.64	2.73	2.83	2.93	3.17	●
N009874	CBNLRH-2-0.5xR0.05xL0.5		0.05	0.5	0.3	0.47	15	4	50	0.57	0.59	0.61	0.63	0.68	●
N009875	CBNLRH-2-0.5xR0.05xL1.0		0.05	1.0	0.3	0.47	15	4	50	1.09	1.13	1.17	1.21	1.30	●
N009876	CBNLRH-2-0.5xR0.05xL1.5		0.05	1.5	0.3	0.47	15	4	50	1.61	1.66	1.72	1.78	1.92	●
N009877	CBNLRH-2-0.5xR0.05xL2.5		0.05	2.5	0.3	0.47	15	4	50	2.64	2.73	2.83	2.93	3.17	●
N009878	CBNLRH-2-0.5xR0.1xL0.5		0.1	0.5	0.3	0.47	15	4	50	0.57	0.59	0.61	0.62	0.67	●
N009879	CBNLRH-2-0.5xR0.1xL1.0		0.1	1.0	0.3	0.47	15	4	50	1.09	1.12	1.16	1.20	1.29	●
N009880	CBNLRH-2-0.5xR0.1xL1.5		0.1	1.5	0.3	0.47	15	4	50	1.61	1.66	1.71	1.77	1.91	●
N009881	CBNLRH-2-0.5xR0.1xL2.5		0.1	2.5	0.3	0.47	15	4	50	2.64	2.73	2.82	2.92	3.15	●
N009882	CBNLRH-2-0.6xR0.02xL0.5	0.6	0.02	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.64	0.69	●
N009883	CBNLRH-2-0.6xR0.02xL1.0		0.02	1.0	0.3	0.57	15	4	50	1.09	1.13	1.17	1.21	1.31	●
N009884	CBNLRH-2-0.6xR0.02xL1.5		0.02	1.5	0.3	0.57	15	4	50	1.61	1.66	1.72	1.79	1.93	●
N009885	CBNLRH-2-0.6xR0.02xL2.5		0.02	2.5	0.3	0.57	15	4	50	2.64	2.73	2.83	2.94	3.17	●
N009886	CBNLRH-2-0.6xR0.03xL0.5		0.03	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.63	0.68	●
N009887	CBNLRH-2-0.6xR0.03xL1.0		0.03	1.0	0.3	0.57	15	4	50	1.09	1.13	1.17	1.21	1.31	●
N009888	CBNLRH-2-0.6xR0.03xL1.5		0.03	1.5	0.3	0.57	15	4	50	1.61	1.66	1.72	1.78	1.93	●
N009889	CBNLRH-2-0.6xR0.03xL2.5		0.03	2.5	0.3	0.57	15	4	50	2.64	2.73	2.83	2.93	3.17	●
N009890	CBNLRH-2-0.6xR0.05xL0.5		0.05	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.63	0.68	●
N009891	CBNLRH-2-0.6xR0.05xL1.0		0.05	1.0	0.3	0.57	15	4	50	1.09	1.13	1.17	1.21	1.30	●
N009892	CBNLRH-2-0.6xR0.05xL1.5		0.05	1.5	0.3	0.57	15	4	50	1.61	1.66	1.72	1.78	1.92	●
N009893	CBNLRH-2-0.6xR0.05xL2.5		0.05	2.5	0.3	0.57	15	4	50	2.64	2.73	2.83	2.93	3.17	●
N009894	CBNLRH-2-0.6xR0.1xL0.5		0.1	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.62	0.67	●
N009895	CBNLRH-2-0.6xR0.1xL1.0		0.1	1.0	0.3	0.57	15	4	50	1.09	1.12	1.16	1.20	1.29	●
N009896	CBNLRH-2-0.6xR0.1xL1.5		0.1	1.5	0.3	0.57	15	4	50	1.61	1.66	1.71	1.77	1.91	●
N009897	CBNLRH-2-0.6xR0.1xL2.5		0.1	2.5	0.3	0.57	15	4	50	2.64	2.73	2.82	2.92	3.15	●
N009898	CBNLRH-2-0.8xR0.02xL1.5	0.8	0.02	1.5	0.56	0.77	15	4	50	1.61	1.66	1.72	1.79	1.93	※
N009899	CBNLRH-2-0.8xR0.02xL2.5		0.02	2.5	0.56	0.77	15	4	50	2.64	2.73	2.83	2.94	3.17	※
N009900	CBNLRH-2-0.8xR0.02xL5.0		0.02	5.0	0.56	0.77	15	4	50	5.23	5.41	5.60	5.81	6.28	※
N009901	CBNLRH-2-0.8xR0.03xL1.5		0.03	1.5	0.56	0.77	15	4	50	1.61	1.66	1.72	1.78	1.93	※
N009902	CBNLRH-2-0.8xR0.03xL2.5		0.03	2.5	0.56	0.77	15	4	50	2.64	2.73	2.83	2.93	3.17	※
N009903	CBNLRH-2-0.8xR0.03xL5.0		0.03	5.0	0.56	0.77	15	4	50	5.23	5.41	5.60	5.81	6.28	※
N009904	CBNLRH-2-0.8xR0.05xL1.5		0.05	1.5	0.56	0.77	15	4	50	1.61	1.66	1.72	1.78	1.92	※
N009905	CBNLRH-2-0.8xR0.05xL2.5		0.05	2.5	0.56	0.77	15	4	50	2.64	2.73	2.83	2.93	3.17	※
N009906	CBNLRH-2-0.8xR0.05xL5.0		0.05	5.0	0.56	0.77	15	4	50	5.22	5.40	5.60	5.81	6.27	※
N009907	CBNLRH-2-0.8xR0.1xL1.5		0.1	1.5	0.56	0.77	15	4	50	1.61	1.66	1.71	1.77	1.91	※
N009908	CBNLRH-2-0.8xR0.1xL2.5		0.1	2.5	0.56	0.77	15	4	50	2.64	2.73	2.82	2.92	3.15	※
N009909	CBNLRH-2-0.8xR0.1xL5.0		0.1	5.0	0.56	0.77	15	4	50	5.22	5.40	5.59	5.80	6.26	※
N009910	CBNLRH-2-1.0xR0.02xL1.0	1.0	0.02	1.0	0.7	0.96	15	4	50	1.11	1.15	1.19	1.23	1.33	※
N009911	CBNLRH-2-1.0xR0.02xL2.0		0.02	2.0	0.7	0.96	15	4	50	2.14	2.22	2.30	2.38	2.57	※
N009912	CBNLRH-2-1.0xR0.02xL3.0		0.02	3.0	0.7	0.96	15	4	50	3.18	3.29	3.41	3.53	3.82	※
N009913	CBNLRH-2-1.0xR0.02xL5.0		0.02	5.0	0.7	0.96	15	4	50	5.24	5.43	5.62	5.83	6.30	※
N009914	CBNLRH-2-1.0xR0.03xL1.0		0.03	1.0	0.7	0.96	15	4	50	1.11	1.15	1.19	1.23	1.33	●
N009915	CBNLRH-2-1.0xR0.03xL2.0		0.03	2.0	0.7	0.96	15	4	50	2.14	2.22	2.30	2.38	2.57	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N009916	CBNLRH-2-1.0xR0.03xL3.0	1.0	0.03	3.0	0.7	0.96	15	4	50	3.18	3.29	3.40	3.53	3.82	●
N009917	CBNLRH-2-1.0xR0.03xL5.0		0.03	5.0	0.7	0.96	15	4	50	5.24	5.43	5.62	5.83	6.30	●
N009918	CBNLRH-2-1.0xR0.05xL1.0		0.05	1.0	0.7	0.96	15	4	50	1.11	1.15	1.19	1.23	1.32	●
N009919	CBNLRH-2-1.0xR0.05xL2.0		0.05	2.0	0.7	0.96	15	4	50	2.14	2.22	2.29	2.38	2.57	●
N009920	CBNLRH-2-1.0xR0.05xL3.0		0.05	3.0	0.7	0.96	15	4	50	3.18	3.29	3.40	3.53	3.81	●
N009921	CBNLRH-2-1.0xR0.05xL5.0		0.05	5.0	0.7	0.96	15	4	50	5.24	5.42	5.62	5.83	6.30	●
N009922	CBNLRH-2-1.0xR0.05xL10.0		0.05	10.0	0.7	0.96	15	4	50	10.41	10.77	11.16	11.58	12.51	●
N009923	CBNLRH-2-1.0xR0.1xL1.0		0.1	1.0	0.7	0.96	15	4	50	1.11	1.14	1.18	1.22	1.31	●
N009924	CBNLRH-2-1.0xR0.1xL2.0		0.1	2.0	0.7	0.96	15	4	50	2.14	2.21	2.29	2.37	2.56	●
N009925	CBNLRH-2-1.0xR0.1xL3.0		0.1	3.0	0.7	0.96	15	4	50	3.17	3.28	3.40	3.52	3.80	●
N009926	CBNLRH-2-1.0xR0.1xL5.0		0.1	5.0	0.7	0.96	15	4	50	5.24	5.42	5.61	5.82	6.29	●
N009927	CBNLRH-2-1.0xR0.1xL10.0		0.1	10.0	0.7	0.96	15	4	50	10.41	10.77	11.16	11.57	12.50	●
N009928	CBNLRH-2-1.0xR0.2xL1.0		0.2	1.0	0.7	0.96	15	4	50	1.10	1.14	1.17	1.21	1.29	●
N009929	CBNLRH-2-1.0xR0.2xL2.0		0.2	2.0	0.7	0.96	15	4	50	2.14	2.21	2.28	2.36	2.53	●
N009930	CBNLRH-2-1.0xR0.2xL3.0		0.2	3.0	0.7	0.96	15	4	50	3.17	3.28	3.39	3.51	3.78	●
N009931	CBNLRH-2-1.0xR0.2xL5.0		0.2	5.0	0.7	0.96	15	4	50	5.24	5.41	5.60	5.81	6.26	●
N009932	CBNLRH-2-1.5xR0.02xL2.0	1.5	0.02	2.0	1.0	1.44	15	4	50	2.18	2.26	2.34	2.43	2.62	●
N009933	CBNLRH-2-1.5xR0.02xL3.0		0.02	3.0	1.0	1.44	15	4	50	3.22	3.33	3.45	3.58	3.86	●
N009934	CBNLRH-2-1.5xR0.02xL4.5		0.02	4.5	1.0	1.44	15	4	50	4.77	4.93	5.11	5.30	5.73	●
N009935	CBNLRH-2-1.5xR0.02xL7.5		0.02	7.5	1.0	1.44	15	4	50	7.87	8.14	8.43	8.75	9.46	●
N009936	CBNLRH-2-1.5xR0.03xL2.0		0.03	2.0	1.0	1.44	15	4	50	2.18	2.26	2.34	2.42	2.62	●
N009937	CBNLRH-2-1.5xR0.03xL3.0		0.03	3.0	1.0	1.44	15	4	50	3.22	3.33	3.45	3.57	3.86	●
N009938	CBNLRH-2-1.5xR0.03xL4.5		0.03	4.5	1.0	1.44	15	4	50	4.77	4.93	5.11	5.30	5.73	●
N009939	CBNLRH-2-1.5xR0.03xL7.5		0.03	7.5	1.0	1.44	15	4	50	7.87	8.14	8.43	8.75	9.46	●
N009940	CBNLRH-2-1.5xR0.05xL2.0		0.05	2.0	1.0	1.44	15	4	50	2.18	2.26	2.34	2.42	2.61	●
N009941	CBNLRH-2-1.5xR0.05xL3.0		0.05	3.0	1.0	1.44	15	4	50	3.22	3.33	3.44	3.57	3.86	●
N009942	CBNLRH-2-1.5xR0.05xL4.5		0.05	4.5	1.0	1.44	15	4	50	4.77	4.93	5.11	5.30	5.72	●
N009943	CBNLRH-2-1.5xR0.05xL5.0		0.05	5.0	1.0	1.44	15	4	50	5.28	5.46	5.66	5.87	6.34	●
N009944	CBNLRH-2-1.5xR0.05xL7.5		0.05	7.5	1.0	1.44	15	4	50	7.87	8.14	8.43	8.75	9.45	●
N009945	CBNLRH-2-1.5xR0.05xL10.0		0.05	10.0	1.0	1.44	15	4	50	10.45	10.81	11.20	11.62	12.56	●
N009946	CBNLRH-2-1.5xR0.1xL2.0		0.1	2.0	1.0	1.44	15	4	50	2.18	2.25	2.33	2.41	2.60	●
N009947	CBNLRH-2-1.5xR0.1xL3.0		0.1	3.0	1.0	1.44	15	4	50	3.21	3.32	3.44	3.56	3.85	●
N009948	CBNLRH-2-1.5xR0.1xL4.5		0.1	4.5	1.0	1.44	15	4	50	4.76	4.93	5.10	5.29	5.71	●
N009949	CBNLRH-2-1.5xR0.1xL5.0		0.1	5.0	1.0	1.44	15	4	50	5.28	5.46	5.65	5.86	6.33	●
N009950	CBNLRH-2-1.5xR0.1xL7.5		0.1	7.5	1.0	1.44	15	4	50	7.86	8.14	8.43	8.74	9.44	●
N009951	CBNLRH-2-1.5xR0.1xL10.0		0.1	10.0	1.0	1.44	15	4	50	10.45	10.81	11.20	11.61	12.55	●
N009952	CBNLRH-2-1.5xR0.2xL2.0		0.2	2.0	1.0	1.44	15	4	50	2.18	2.25	2.32	2.40	2.58	●
N009953	CBNLRH-2-1.5xR0.2xL3.0		0.2	3.0	1.0	1.44	15	4	50	3.21	3.31	3.43	3.55	3.82	●
N009954	CBNLRH-2-1.5xR0.2xL4.5		0.2	4.5	1.0	1.44	15	4	50	4.76	4.92	5.09	5.27	5.69	●
N009955	CBNLRH-2-1.5xR0.2xL7.5		0.2	7.5	1.0	1.44	15	4	50	7.86	8.13	8.42	8.72	9.42	●
N009956	CBNLRH-2-1.5xR0.3xL2.0		0.3	2.0	1.0	1.44	15	4	50	2.17	2.24	2.31	2.38	2.56	●
N009957	CBNLRH-2-1.5xR0.3xL3.0		0.3	3.0	1.0	1.44	15	4	50	3.21	3.31	3.42	3.53	3.80	●
N009958	CBNLRH-2-1.5xR0.3xL4.5		0.3	4.5	1.0	1.44	15	4	50	4.76	4.91	5.08	5.26	5.66	●
N009959	CBNLRH-2-1.5xR0.3xL7.5		0.3	7.5	1.0	1.44	15	4	50	7.86	8.12	8.40	8.71	9.39	●
N009960	CBNLRH-2-2.0xR0.02xL3.0	2.0	0.02	3.0	1.2	1.96	15	4	50	3.18	3.29	3.41	3.53	3.82	●
N009961	CBNLRH-2-2.0xR0.02xL4.0		0.02	4.0	1.2	1.96	15	4	50	4.21	4.36	4.51	4.68	5.06	●
N009962	CBNLRH-2-2.0xR0.02xL6.0		0.02	6.0	1.2	1.96	15	4	50	6.28	6.50	6.73	6.98	7.55	●

CBN Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N009963	CBNLRH-2-2.0xR0.02xL10.0	2.0	0.02	10.0	1.2	1.96	15	4	50	10.41	10.78	11.16	11.58	12.52	●
N009964	CBNLRH-2-2.0xR0.03xL3.0		0.03	3.0	1.2	1.96	15	4	50	3.18	3.29	3.40	3.53	3.82	●
N009965	CBNLRH-2-2.0xR0.03xL4.0		0.03	4.0	1.2	1.96	15	4	50	4.21	4.36	4.51	4.68	5.06	●
N009966	CBNLRH-2-2.0xR0.03xL6.0		0.03	6.0	1.2	1.96	15	4	50	6.28	6.50	6.73	6.98	7.54	●
N009967	CBNLRH-2-2.0xR0.03xL10.0		0.03	10.0	1.2	1.96	15	4	50	10.41	10.77	11.16	11.58	12.52	●
N009968	CBNLRH-2-2.0xR0.05xL3.0		0.05	3.0	1.2	1.96	15	4	50	3.18	3.29	3.40	3.53	3.81	●
N009969	CBNLRH-2-2.0xR0.05xL4.0		0.05	4.0	1.2	1.96	15	4	50	4.21	4.36	4.51	4.68	5.05	●
N009970	CBNLRH-2-2.0xR0.05xL5.0		0.05	5.0	1.2	1.96	15	4	50	5.24	5.42	5.62	5.83	6.30	●
N009971	CBNLRH-2-2.0xR0.05xL6.0		0.05	6.0	1.2	1.96	15	4	50	6.28	6.49	6.73	6.98	7.54	●
N009972	CBNLRH-2-2.0xR0.05xL10.0		0.05	10.0	1.2	1.96	15	4	50	10.41	10.77	11.16	11.58	12.51	●
N009973	CBNLRH-2-2.0xR0.05xL15.0		0.05	15.0	1.2	1.96	15	4	50	15.58	16.12	16.70	17.33	18.73	●
N009974	CBNLRH-2-2.0xR0.1xL3.0		0.1	3.0	1.2	1.96	15	4	50	3.17	3.28	3.40	3.52	3.80	●
N009975	CBNLRH-2-2.0xR0.1xL4.0		0.1	4.0	1.2	1.96	15	4	50	4.21	4.35	4.51	4.67	5.04	●
N009976	CBNLRH-2-2.0xR0.1xL5.0		0.1	5.0	1.2	1.96	15	4	50	5.24	5.42	5.61	5.82	6.29	●
N009977	CBNLRH-2-2.0xR0.1xL6.0		0.1	6.0	1.2	1.96	15	4	50	6.28	6.49	6.72	6.97	7.53	●
N009978	CBNLRH-2-2.0xR0.1xL10.0		0.1	10.0	1.2	1.96	15	4	50	10.41	10.77	11.16	11.57	12.50	●
N009979	CBNLRH-2-2.0xR0.1xL15.0		0.1	15.0	1.2	1.96	15	4	50	15.58	16.12	16.70	17.32	18.72	●
N009980	CBNLRH-2-2.0xR0.2xL3.0		0.2	3.0	1.2	1.96	15	4	50	3.17	3.28	3.39	3.51	3.78	●
N009981	CBNLRH-2-2.0xR0.2xL4.0		0.2	4.0	1.2	1.96	15	4	50	4.21	4.34	4.49	4.66	5.02	●
N009982	CBNLRH-2-2.0xR0.2xL5.0		0.2	5.0	1.2	1.96	15	4	50	5.24	5.41	5.60	5.81	6.26	●
N009983	CBNLRH-2-2.0xR0.2xL6.0		0.2	6.0	1.2	1.96	15	4	50	6.27	6.48	6.71	6.96	7.51	●
N009984	CBNLRH-2-2.0xR0.3xL3.0		0.3	3.0	1.2	1.96	15	4	50	3.17	3.27	3.38	3.49	3.75	●
N009985	CBNLRH-2-2.0xR0.3xL4.0		0.3	4.0	1.2	1.96	15	4	50	4.20	4.34	4.48	4.64	5.00	●
N009986	CBNLRH-2-2.0xR0.3xL5.0		0.3	5.0	1.2	1.96	15	4	50	5.24	5.41	5.59	5.79	6.24	●
N009987	CBNLRH-2-2.0xR0.3xL6.0		0.3	6.0	1.2	1.96	15	4	50	6.27	6.48	6.70	6.94	7.48	●
N009988	CBNLRH-2-2.0xR0.3xL10.0		0.3	10.0	1.2	1.96	15	4	50	10.40	10.76	11.13	11.54	12.45	●
N009989	CBNLRH-2-2.0xR0.5xL3.0		0.5	3.0	1.2	1.96	15	4	50	3.16	3.25	3.35	3.46	3.71	●
N009990	CBNLRH-2-2.0xR0.5xL4.0		0.5	4.0	1.2	1.96	15	4	50	4.20	4.32	4.46	4.61	4.95	●
N009991	CBNLRH-2-2.0xR0.5xL6.0		0.5	6.0	1.2	1.96	15	4	50	6.26	6.46	6.68	6.91	7.44	●
N009992	CBNLRH-2-2.0xR0.5xL10.0		0.5	10.0	1.2	1.96	15	4	50	10.40	10.74	11.11	11.51	12.41	●
N009993	CBNLRH-2-3.0xR0.05xL5.0	3.0	0.05	5.0	2.0	2.92	15	6	50	5.32	5.50	5.70	5.91	6.39	●
N009994	CBNLRH-2-3.0xR0.05xL10.0		0.05	10.0	2.0	2.92	15	6	50	10.49	10.85	11.24	11.66	12.61	●
N009995	CBNLRH-2-3.0xR0.05xL15.0		0.05	15.0	2.0	2.92	15	6	50	15.66	16.20	16.78	17.41	18.82	●
N009996	CBNLRH-2-3.0xR0.1xL5.0		0.1	5.0	2.0	2.92	15	6	50	5.32	5.50	5.70	5.91	6.38	●
N009997	CBNLRH-2-3.0xR0.1xL10.0		0.1	10.0	2.0	2.92	15	6	50	10.49	10.85	11.24	11.66	12.59	●
N009998	CBNLRH-2-3.0xR0.1xL15.0		0.1	15.0	2.0	2.92	15	6	50	15.66	16.20	16.78	17.40	18.81	●
N009999	CBNLRH-2-3.0xR0.2xL5.0		0.2	5.0	2.0	2.92	15	6	50	5.32	5.49	5.69	5.89	6.35	●
N010000	CBNLRH-2-3.0xR0.3xL5.0		0.3	5.0	2.0	2.92	15	6	50	5.31	5.49	5.67	5.88	6.33	●

CBN | Non | Side Milling | Planing | Profiling | Helical | 刃数 3 | Helix Angle 0° | NA 15° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P090

CBNラジアスエンドミル 高精度 CBN Radius End Mills High Precision

■型番:CBNLRH-3 Model number:CBNLRH-3

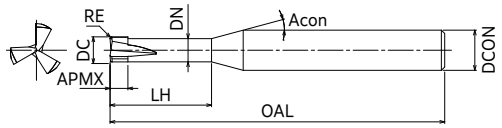
◆焼入れ鋼などの高硬度金型（HRC70 以下）の側面仕上げ加工に適しています

◆Suitable for side finishing of high-hardness dies (HRC70 or below) such as hardened steel



高精度 High Precision

径許容差 Diameter Tolerance	R許容差 R Tolerance
0/-0.003	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				○	◎	◎	◎							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N010001	CBNLRH-3-0.6xR0.02xL0.5	0.6	0.02	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.64	0.69	※
N010002	CBNLRH-3-0.6xR0.02xL1.0		0.02	1.0	0.3	0.57	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N010003	CBNLRH-3-0.6xR0.02xL1.5		0.02	1.5	0.3	0.57	15	4	50	1.61	1.66	1.72	1.79	1.93	※
N010004	CBNLRH-3-0.6xR0.02xL2.0		0.02	2.0	0.3	0.57	15	4	50	2.12	2.20	2.28	2.36	2.55	※
N010005	CBNLRH-3-0.6xR0.02xL2.5		0.02	2.5	0.3	0.57	15	4	50	2.64	2.73	2.83	2.94	3.17	※
N010006	CBNLRH-3-0.6xR0.05xL0.5		0.05	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.63	0.68	※
N010007	CBNLRH-3-0.6xR0.05xL1.0		0.05	1.0	0.3	0.57	15	4	50	1.09	1.13	1.17	1.21	1.30	※
N010008	CBNLRH-3-0.6xR0.05xL1.5		0.05	1.5	0.3	0.57	15	4	50	1.61	1.66	1.72	1.78	1.92	※
N010009	CBNLRH-3-0.6xR0.05xL2.0		0.05	2.0	0.3	0.57	15	4	50	2.12	2.20	2.27	2.36	2.54	※
N010010	CBNLRH-3-0.6xR0.05xL2.5		0.05	2.5	0.3	0.57	15	4	50	2.64	2.73	2.83	2.93	3.17	※
N010011	CBNLRH-3-0.6xR0.1xL0.5		0.1	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.62	0.67	※
N010012	CBNLRH-3-0.6xR0.1xL1.0		0.1	1.0	0.3	0.57	15	4	50	1.09	1.12	1.16	1.20	1.29	※
N010013	CBNLRH-3-0.6xR0.1xL1.5		0.1	1.5	0.3	0.57	15	4	50	1.61	1.66	1.71	1.77	1.91	※
N010014	CBNLRH-3-0.6xR0.1xL2.0		0.1	2.0	0.3	0.57	15	4	50	2.12	2.19	2.27	2.35	2.53	※
N010015	CBNLRH-3-0.6xR0.1xL2.5		0.1	2.5	0.3	0.57	15	4	50	2.64	2.73	2.82	2.92	3.15	※
N010016	CBNLRH-3-0.8xR0.02xL1.5	0.8	0.02	1.5	0.56	0.77	15	4	50	1.61	1.66	1.72	1.79	1.93	※
N010017	CBNLRH-3-0.8xR0.02xL2.5		0.02	2.5	0.56	0.77	15	4	50	2.64	2.73	2.83	2.94	3.17	※
N010018	CBNLRH-3-0.8xR0.02xL5.0		0.02	5.0	0.56	0.77	15	4	50	5.23	5.41	5.60	5.81	6.28	※
N010019	CBNLRH-3-0.8xR0.05xL1.5		0.05	1.5	0.56	0.77	15	4	50	1.61	1.66	1.72	1.78	1.92	※

CBN Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010020	CBNLRH-3-0.8xR0.05xL2.5	0.8	0.05	2.5	0.56	0.77	15	4	50	2.64	2.73	2.83	2.93	3.17	※
N010021	CBNLRH-3-0.8xR0.05xL5.0		0.05	5.0	0.56	0.77	15	4	50	5.22	5.40	5.60	5.81	6.27	※
N010022	CBNLRH-3-0.8xR0.1xL1.5		0.1	1.5	0.56	0.77	15	4	50	1.61	1.66	1.71	1.77	1.91	※
N010023	CBNLRH-3-0.8xR0.1xL2.5		0.1	2.5	0.56	0.77	15	4	50	2.64	2.73	2.82	2.92	3.15	※
N010024	CBNLRH-3-0.8xR0.1xL5.0		0.1	5.0	0.56	0.77	15	4	50	5.22	5.40	5.59	5.80	6.26	※

CBN | Non | Side Milling | Planing | Profiling | Helical | 刃数 4 | Helix Angle 0° | NA 15° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P090

CBNラジアスエンドミル 高精度 CBN Radius End Mills High Precision

■型番:CBNLRH-4 Model number:CBNLRH-4

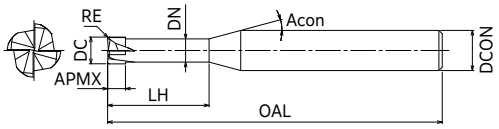
◆焼入れ鋼などの高硬度金型（HRC70 以下）の側面仕上げ加工に適しています

◆Suitable for side finishing of high-hardness dies (HRC70 or below) such as hardened steel



高精度 High Precision

径許容差 Diameter Tolerance	R許容差 R Tolerance
0/-0.003	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				○	◎	◎	◎							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N010025	CBNLRH-4-1.0xR0.02xL1.0	1.0	0.02	1.0	0.7	0.96	15	4	50	1.11	1.15	1.19	1.23	1.33	※
N010026	CBNLRH-4-1.0xR0.02xL2.0		0.02	2.0	0.7	0.96	15	4	50	2.14	2.22	2.30	2.38	2.57	※
N010027	CBNLRH-4-1.0xR0.02xL3.0		0.02	3.0	0.7	0.96	15	4	50	3.18	3.29	3.41	3.53	3.82	※
N010028	CBNLRH-4-1.0xR0.02xL5.0		0.02	5.0	0.7	0.96	15	4	50	5.24	5.43	5.62	5.83	6.30	※
N010029	CBNLRH-4-1.0xR0.05xL1.0		0.05	1.0	0.7	0.96	15	4	50	1.11	1.15	1.19	1.23	1.32	※
N010030	CBNLRH-4-1.0xR0.05xL2.0		0.05	2.0	0.7	0.96	15	4	50	2.14	2.22	2.29	2.38	2.57	※
N010031	CBNLRH-4-1.0xR0.05xL3.0		0.05	3.0	0.7	0.96	15	4	50	3.18	3.29	3.40	3.53	3.81	※
N010032	CBNLRH-4-1.0xR0.05xL5.0		0.05	5.0	0.7	0.96	15	4	50	5.24	5.42	5.62	5.83	6.30	※
N010033	CBNLRH-4-1.0xR0.05xL10.0		0.05	10.0	0.7	0.96	15	4	50	10.41	10.77	11.16	11.58	12.51	※
N010034	CBNLRH-4-1.0xR0.1xL1.0		0.1	1.0	0.7	0.96	15	4	50	1.11	1.14	1.18	1.22	1.31	※
N010035	CBNLRH-4-1.0xR0.1xL2.0		0.1	2.0	0.7	0.96	15	4	50	2.14	2.21	2.29	2.37	2.56	※
N010036	CBNLRH-4-1.0xR0.1xL3.0		0.1	3.0	0.7	0.96	15	4	50	3.17	3.28	3.40	3.52	3.80	※
N010037	CBNLRH-4-1.0xR0.1xL4.0		0.1	4.0	0.7	0.96	15	4	50	4.21	4.35	4.51	4.67	5.04	※
N010038	CBNLRH-4-1.0xR0.1xL5.0		0.1	5.0	0.7	0.96	15	4	50	5.24	5.42	5.61	5.82	6.29	※
N010039	CBNLRH-4-1.0xR0.1xL10.0		0.1	10.0	0.7	0.96	15	4	50	10.41	10.77	11.16	11.57	12.50	※
N010040	CBNLRH-4-1.0xR0.2xL1.0		0.2	1.0	0.7	0.96	15	4	50	1.10	1.14	1.17	1.21	1.29	※
N010041	CBNLRH-4-1.0xR0.2xL2.0		0.2	2.0	0.7	0.96	15	4	50	2.14	2.21	2.28	2.36	2.53	※
N010042	CBNLRH-4-1.0xR0.2xL3.0		0.2	3.0	0.7	0.96	15	4	50	3.17	3.28	3.39	3.51	3.78	※
N010043	CBNLRH-4-1.0xR0.2xL5.0		0.2	5.0	0.7	0.96	15	4	50	5.24	5.41	5.60	5.81	6.26	※

CBN Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010044	CBNLRH-4-1.5xR0.02xL2.0	1.5	0.02	2.0	1.0	1.44	15	4	50	2.18	2.26	2.34	2.43	2.62	※
N010045	CBNLRH-4-1.5xR0.02xL3.0		0.02	3.0	1.0	1.44	15	4	50	3.22	3.33	3.45	3.58	3.86	※
N010046	CBNLRH-4-1.5xR0.02xL4.5		0.02	4.5	1.0	1.44	15	4	50	4.77	4.93	5.11	5.30	5.73	※
N010047	CBNLRH-4-1.5xR0.02xL7.5		0.02	7.5	1.0	1.44	15	4	50	7.87	8.14	8.43	8.75	9.46	※
N010048	CBNLRH-4-1.5xR0.05xL2.0		0.05	2.0	1.0	1.44	15	4	50	2.18	2.26	2.34	2.42	2.61	※
N010049	CBNLRH-4-1.5xR0.05xL3.0		0.05	3.0	1.0	1.44	15	4	50	3.22	3.33	3.44	3.57	3.86	※
N010050	CBNLRH-4-1.5xR0.05xL4.5		0.05	4.5	1.0	1.44	15	4	50	4.77	4.93	5.11	5.30	5.72	※
N010051	CBNLRH-4-1.5xR0.05xL5.0		0.05	5.0	1.0	1.44	15	4	50	5.28	5.46	5.66	5.87	6.34	※
N010052	CBNLRH-4-1.5xR0.05xL7.5		0.05	7.5	1.0	1.44	15	4	50	7.87	8.14	8.43	8.75	9.45	※
N010053	CBNLRH-4-1.5xR0.05xL10.0		0.05	10.0	1.0	1.44	15	4	50	10.45	10.81	11.20	11.62	12.56	※
N010054	CBNLRH-4-1.5xR0.1xL2.0		0.1	2.0	1.0	1.44	15	4	50	2.18	2.25	2.33	2.41	2.60	※
N010055	CBNLRH-4-1.5xR0.1xL3.0		0.1	3.0	1.0	1.44	15	4	50	3.21	3.32	3.44	3.56	3.85	※
N010056	CBNLRH-4-1.5xR0.1xL4.5		0.1	4.5	1.0	1.44	15	4	50	4.76	4.93	5.10	5.29	5.71	※
N010057	CBNLRH-4-1.5xR0.1xL5.0		0.1	5.0	1.0	1.44	15	4	50	5.28	5.46	5.65	5.86	6.33	※
N010058	CBNLRH-4-1.5xR0.1xL7.5		0.1	7.5	1.0	1.44	15	4	50	7.86	8.14	8.43	8.74	9.44	※
N010059	CBNLRH-4-1.5xR0.1xL10.0		0.1	10.0	1.0	1.44	15	4	50	10.45	10.81	11.20	11.61	12.55	※
N010060	CBNLRH-4-1.5xR0.2xL2.0		0.2	2.0	1.0	1.44	15	4	50	2.18	2.25	2.32	2.40	2.58	※
N010061	CBNLRH-4-1.5xR0.2xL3.0		0.2	3.0	1.0	1.44	15	4	50	3.21	3.31	3.43	3.55	3.82	※
N010062	CBNLRH-4-1.5xR0.2xL4.5		0.2	4.5	1.0	1.44	15	4	50	4.76	4.92	5.09	5.27	5.69	※
N010063	CBNLRH-4-1.5xR0.2xL7.5		0.2	7.5	1.0	1.44	15	4	50	7.86	8.13	8.42	8.72	9.42	※
N010064	CBNLRH-4-1.5xR0.3xL3.0		0.3	3.0	1.0	1.44	15	4	50	3.21	3.31	3.42	3.53	3.80	※
N010065	CBNLRH-4-2.0xR0.02xL3.0	2.0	0.02	3.0	1.2	1.96	15	4	50	3.18	3.29	3.41	3.53	3.82	※
N010066	CBNLRH-4-2.0xR0.02xL4.0		0.02	4.0	1.2	1.96	15	4	50	4.21	4.36	4.51	4.68	5.06	※
N010067	CBNLRH-4-2.0xR0.02xL6.0		0.02	6.0	1.2	1.96	15	4	50	6.28	6.50	6.73	6.98	7.55	※
N010068	CBNLRH-4-2.0xR0.05xL3.0		0.05	3.0	1.2	1.96	15	4	50	3.18	3.29	3.40	3.53	3.81	※
N010069	CBNLRH-4-2.0xR0.05xL4.0		0.05	4.0	1.2	1.96	15	4	50	4.21	4.36	4.51	4.68	5.05	※
N010070	CBNLRH-4-2.0xR0.05xL5.0		0.05	5.0	1.2	1.96	15	4	50	5.24	5.42	5.62	5.83	6.30	※
N010071	CBNLRH-4-2.0xR0.05xL6.0		0.05	6.0	1.2	1.96	15	4	50	6.28	6.49	6.73	6.98	7.54	※
N010072	CBNLRH-4-2.0xR0.05xL10.0		0.05	10.0	1.2	1.96	15	4	50	10.41	10.77	11.16	11.58	12.51	※
N010073	CBNLRH-4-2.0xR0.05xL15.0		0.05	15.0	1.2	1.96	15	4	50	15.58	16.12	16.70	17.33	18.73	※
N010074	CBNLRH-4-2.0xR0.1xL3.0		0.1	3.0	1.2	1.96	15	4	50	3.17	3.28	3.40	3.52	3.80	※
N010075	CBNLRH-4-2.0xR0.1xL4.0		0.1	4.0	1.2	1.96	15	4	50	4.21	4.35	4.51	4.67	5.04	※
N010076	CBNLRH-4-2.0xR0.1xL5.0		0.1	5.0	1.2	1.96	15	4	50	5.24	5.42	5.61	5.82	6.29	※
N010077	CBNLRH-4-2.0xR0.1xL6.0		0.1	6.0	1.2	1.96	15	4	50	6.28	6.49	6.72	6.97	7.53	※
N010078	CBNLRH-4-2.0xR0.1xL10.0		0.1	10.0	1.2	1.96	15	4	50	10.41	10.77	11.16	11.57	12.50	※
N010079	CBNLRH-4-2.0xR0.1xL15.0		0.1	15.0	1.2	1.96	15	4	50	15.58	16.12	16.70	17.32	18.72	※
N010080	CBNLRH-4-2.0xR0.2xL3.0		0.2	3.0	1.2	1.96	15	4	50	3.17	3.28	3.39	3.51	3.78	※
N010081	CBNLRH-4-2.0xR0.2xL4.0		0.2	4.0	1.2	1.96	15	4	50	4.21	4.34	4.49	4.66	5.02	※
N010082	CBNLRH-4-2.0xR0.2xL5.0		0.2	5.0	1.2	1.96	15	4	50	5.24	5.41	5.60	5.81	6.26	※
N010083	CBNLRH-4-2.0xR0.2xL6.0		0.2	6.0	1.2	1.96	15	4	50	6.27	6.48	6.71	6.96	7.51	※
N010084	CBNLRH-4-2.0xR0.2xL10.0		0.2	10.0	1.2	1.96	15	4	50	10.41	10.76	11.14	11.55	12.48	※
N010085	CBNLRH-4-2.0xR0.3xL5.0		0.3	5.0	1.2	1.96	15	4	50	5.24	5.41	5.59	5.79	6.24	※
N010086	CBNLRH-4-2.0xR0.3xL10.0		0.3	10.0	1.2	1.96	15	4	50	10.40	10.76	11.13	11.54	12.45	※
N010087	CBNLRH-4-3.0xR0.05xL5.0	3.0	0.05	5.0	2.0	2.92	15	6	50	5.32	5.50	5.70	5.91	6.39	※
N010088	CBNLRH-4-3.0xR0.05xL6.0		0.05	6.0	2.0	2.92	15	6	50	6.35	6.57	6.81	7.06	7.63	※
N010089	CBNLRH-4-3.0xR0.05xL9.0		0.05	9.0	2.0	2.92	15	6	50	9.46	9.78	10.13	10.51	11.36	※
N010090	CBNLRH-4-3.0xR0.05xL10.0		0.05	10.0	2.0	2.92	15	6	50	10.49	10.85	11.24	11.66	12.61	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010091	CBNLRH-4-3.0xR0.05xL12.0	3.0	0.05	12.0	2.0	2.92	15	6	50	12.56	12.99	13.46	13.96	15.09	※
N010092	CBNLRH-4-3.0xR0.05xL15.0		0.05	15.0	2.0	2.92	15	6	50	15.66	16.20	16.78	17.41	18.82	※
N010093	CBNLRH-4-3.0xR0.1xL5.0		0.1	5.0	2.0	2.92	15	6	50	5.32	5.50	5.70	5.91	6.38	※
N010094	CBNLRH-4-3.0xR0.1xL6.0		0.1	6.0	2.0	2.92	15	6	50	6.35	6.57	6.80	7.06	7.62	※
N010095	CBNLRH-4-3.0xR0.1xL9.0		0.1	9.0	2.0	2.92	15	6	50	9.45	9.78	10.13	10.51	11.35	※
N010096	CBNLRH-4-3.0xR0.1xL10.0		0.1	10.0	2.0	2.92	15	6	50	10.49	10.85	11.24	11.66	12.59	※
N010097	CBNLRH-4-3.0xR0.1xL12.0		0.1	12.0	2.0	2.92	15	6	50	12.55	12.99	13.45	13.96	15.08	※
N010098	CBNLRH-4-3.0xR0.1xL15.0		0.1	15.0	2.0	2.92	15	6	50	15.66	16.20	16.78	17.40	18.81	※
N010099	CBNLRH-4-3.0xR0.2xL5.0		0.2	5.0	2.0	2.92	15	6	50	5.32	5.49	5.69	5.89	6.35	※
N010100	CBNLRH-4-3.0xR0.2xL6.0		0.2	6.0	2.0	2.92	15	6	50	6.35	6.56	6.79	7.04	7.60	※
N010101	CBNLRH-4-3.0xR0.2xL9.0		0.2	9.0	2.0	2.92	15	6	50	9.45	9.77	10.12	10.49	11.33	※
N010102	CBNLRH-4-3.0xR0.2xL12.0		0.2	12.0	2.0	2.92	15	6	50	12.55	12.98	13.44	13.94	15.06	※
N010103	CBNLRH-4-3.0xR0.2xL15.0		0.2	15.0	2.0	2.92	15	6	50	15.65	16.19	16.77	17.39	18.79	※
N010104	CBNLRH-4-3.0xR0.3xL5.0		0.3	5.0	2.0	2.92	15	6	50	5.31	5.49	5.67	5.88	6.33	※
N010105	CBNLRH-4-3.0xR0.3xL10.0		0.3	10.0	2.0	2.92	15	6	50	10.48	10.84	11.22	11.63	12.55	※

切削条件表 Cutting Parameter P091

CBN | Non | Profiling | 刃数 2 | Helix Angle 0° | NA 15° | h4 | Gash Land | High Precision 高精度

CBNボールエンドミル 高精度 CBN Ball End Mills High Precision

■型番:CBNLBH-2 Model number:CBNLBH-2

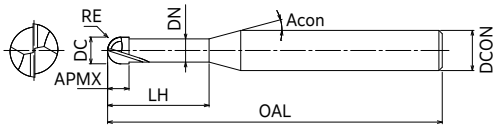
◆焼入れ鋼などの高硬度金型（HRC70 以下）の曲面の仕上げ加工に適しています

◆Suitable for finishing curved surfaces of high-hardness dies (HRC70 or below) such as hardened steel



高精度 High Precision

径許容差 Diameter Tolerance	R許容差 R Tolerance
0/-0.003	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				○	◎	◎	◎							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N009764	CBNLBH-2-0.4xR0.2xL0.5	0.4	0.2	0.5	0.3	0.37	15	4	50	0.57	0.58	0.59	0.61	0.64	●
N009765	CBNLBH-2-0.4xR0.2xL0.75	0.4		0.75	0.3	0.37	15	4	50	0.83	0.85	0.87	0.90	0.96	●
N009766	CBNLBH-2-0.4xR0.2xL1.0	0.4		1.0	0.3	0.37	15	4	50	1.08	1.12	1.15	1.18	1.27	●
N009767	CBNLBH-2-0.4xR0.2xL1.2	0.4		1.2	0.3	0.37	15	4	50	1.29	1.33	1.37	1.41	1.52	●
N009768	CBNLBH-2-0.4xR0.2xL2.0	0.4		2.0	0.3	0.37	15	4	50	2.12	2.19	2.26	2.33	2.51	●
N009769	CBNLBH-2-0.4xR0.2xL3.0	0.4		3.0	0.3	0.37	15	4	50	3.15	3.26	3.37	3.48	3.75	●
N009770	CBNLBH-2-0.5xR0.25xL1.0	0.5	0.25	1.0	0.38	0.47	15	4	50	1.08	1.11	1.14	1.18	1.26	※
N009771	CBNLBH-2-0.5xR0.25xL1.5	0.5		1.5	0.38	0.47	15	4	50	1.60	1.65	1.70	1.75	1.88	※
N009772	CBNLBH-2-0.5xR0.25xL2.5	0.5		2.5	0.38	0.47	15	4	50	2.63	2.72	2.81	2.90	3.12	※
N009773	CBNLBH-2-0.5xR0.25xL3.5	0.5		3.5	0.38	0.47	15	4	50	3.67	3.79	3.91	4.05	4.36	※
N009774	CBNLBH-2-0.6xR0.3xL1.2	0.6	0.3	1.2	0.5	0.57	15	4	50	1.29	1.32	1.36	1.40	1.49	●
N009775	CBNLBH-2-0.6xR0.3xL1.5	0.6		1.5	0.5	0.57	15	4	50	1.60	1.64	1.69	1.74	1.87	●
N009776	CBNLBH-2-0.6xR0.3xL3.0	0.6		3.0	0.5	0.57	15	4	50	3.15	3.25	3.35	3.47	3.73	●
N009777	CBNLBH-2-0.6xR0.3xL4.0	0.6		4.0	0.5	0.57	15	4	50	4.18	4.32	4.46	4.62	4.97	●
N009778	CBNLBH-2-0.6xR0.3xL5.0	0.6		5.0	0.5	0.57	15	4	50	5.22	5.39	5.57	5.77	6.22	●
N009779	CBNLBH-2-0.6xR0.3xL6.0	0.6		6.0	0.5	0.57	15	4	50	6.25	6.46	6.68	6.92	7.46	●
N009780	CBNLBH-2-0.8xR0.4xL1.6	0.8	0.4	1.6	0.6	0.77	15	4	50	1.70	1.74	1.79	1.85	1.97	※
N009781	CBNLBH-2-0.8xR0.4xL2.0	0.8		2.0	0.6	0.77	15	4	50	2.11	2.17	2.24	2.31	2.46	※
N009782	CBNLBH-2-0.8xR0.4xL4.0	0.8		4.0	0.6	0.77	15	4	50	4.18	4.31	4.45	4.60	4.95	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N009783	CBNLBH-2-0.8xR0.4xL6.0	0.8	0.4	6.0	0.6	0.77	15	4	50	6.25	6.45	6.67	6.90	7.44	※
N009784	CBNLBH-2-1.0xR0.5xL2.0	1.0	0.5	2.0	0.7	0.96	15	4	50	2.13	2.18	2.25	2.31	2.46	●
N009785	CBNLBH-2-1.0xR0.5xL2.5	1.0		2.5	0.7	0.96	15	4	50	2.64	2.72	2.80	2.89	3.09	●
N009786	CBNLBH-2-1.0xR0.5xL3.0	1.0		3.0	0.7	0.96	15	4	50	3.16	3.25	3.35	3.46	3.71	●
N009787	CBNLBH-2-1.0xR0.5xL4.0	1.0		4.0	0.7	0.96	15	4	50	4.20	4.32	4.46	4.61	4.95	●
N009788	CBNLBH-2-1.0xR0.5xL5.0	1.0		5.0	0.7	0.96	15	4	50	5.23	5.39	5.57	5.76	6.19	●
N009789	CBNLBH-2-1.0xR0.5xL6.0	1.0		6.0	0.7	0.96	15	4	50	6.26	6.46	6.68	6.91	7.44	●
N009790	CBNLBH-2-1.0xR0.5xL8.0	1.0		8.0	0.7	0.96	15	4	50	8.33	8.60	8.90	9.21	9.92	●
N009791	CBNLBH-2-1.0xR0.5xL10.0	1.0		10.0	0.7	0.96	15	4	50	10.40	10.74	11.11	11.51	12.41	●
N009792	CBNLBH-2-1.2xR0.6xL2.4	1.2	0.6	2.4	0.8	1.16	15	4	50	2.54	2.61	2.68	2.76	2.94	※
N009793	CBNLBH-2-1.2xR0.6xL3.0	1.2		3.0	0.8	1.16	15	4	50	3.16	3.25	3.34	3.45	3.68	※
N009794	CBNLBH-2-1.2xR0.6xL6.0	1.2		6.0	0.8	1.16	15	4	50	6.26	6.46	6.67	6.90	7.41	※
N009795	CBNLBH-2-1.5xR0.75xL3.0	1.5	0.75	3.0	1.0	1.44	15	4	50	3.19	3.28	3.37	3.47	3.70	●
N009796	CBNLBH-2-1.5xR0.75xL3.8	1.5		3.8	1.0	1.44	15	4	50	4.02	4.13	4.26	4.39	4.69	●
N009797	CBNLBH-2-1.5xR0.75xL5.0	1.5		5.0	1.0	1.44	15	4	50	5.26	5.42	5.59	5.77	6.18	●
N009798	CBNLBH-2-1.5xR0.75xL7.5	1.5		7.5	1.0	1.44	15	4	50	7.84	8.09	8.36	8.64	9.29	●
N009799	CBNLBH-2-1.5xR0.75xL10.0	1.5		10.0	1.0	1.44	15	4	50	10.43	10.76	11.13	11.52	12.40	●
N009800	CBNLBH-2-1.5xR0.75xL15.0	1.5		15.0	1.0	1.44	15	4	50	15.60	16.11	16.67	17.27	18.61	●
N009801	CBNLBH-2-2.0xR1.0xL4.0	2.0	1.0	4.0	1.2	1.96	15	4	50	4.18	4.29	4.41	4.54	4.83	●
N009802	CBNLBH-2-2.0xR1.0xL5.0	2.0		5.0	1.2	1.96	15	4	50	5.21	5.36	5.52	5.69	6.08	●
N009803	CBNLBH-2-2.0xR1.0xL6.0	2.0		6.0	1.2	1.96	15	4	50	6.25	6.43	6.63	6.84	7.32	●
N009804	CBNLBH-2-2.0xR1.0xL8.0	2.0		8.0	1.2	1.96	15	4	50	8.31	8.57	8.84	9.14	9.81	●
N009805	CBNLBH-2-2.0xR1.0xL10.0	2.0		10.0	1.2	1.96	15	4	50	10.38	10.71	11.06	11.44	12.29	●
N009806	CBNLBH-2-2.0xR1.0xL14.0	2.0		14.0	1.2	1.96	15	4	50	14.51	14.99	15.49	16.04	17.27	●
N009807	CBNLBH-2-2.0xR1.0xL15.0	2.0		15.0	1.2	1.96	15	4	50	15.55	16.06	16.60	17.19	18.51	●
N009808	CBNLBH-2-2.0xR1.0xL20.0	2.0		20.0	1.2	1.96	15	4	50	20.72	21.40	22.14	22.94	FREE	●
N009809	CBNLBH-2-3.0xR1.5xL5.0	3.0	1.5	5.0	2.0	2.92	15	6	50	5.27	5.40	5.55	5.70	6.06	※
N009810	CBNLBH-2-3.0xR1.5xL6.0	3.0		6.0	2.0	2.92	15	6	50	6.31	6.47	6.65	6.85	7.30	※
N009811	CBNLBH-2-3.0xR1.5xL9.0	3.0		9.0	2.0	2.92	15	6	50	9.41	9.68	9.98	10.30	11.03	※
N009812	CBNLBH-2-3.0xR1.5xL10.0	3.0		10.0	2.0	2.92	15	6	50	10.44	10.75	11.09	11.45	12.27	※
N009813	CBNLBH-2-3.0xR1.5xL15.0	3.0		15.0	2.0	2.92	15	6	50	15.61	16.10	16.63	17.20	18.49	※

切削条件表 Cutting Parameter P089

CBN | Non | Side Milling | Slotting | Planing | Profiling | Helical | 刃数 2 | Helix Angle 0° | NA 15° | h4 | Gash Land

CBNラジアスエンドミル CBN Radius End Mills

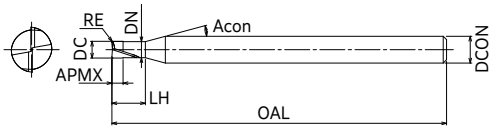
■型番:CBNLR-2 Model number:CBNLR-2

◆焼入れ鋼などの高硬度金型（HRC70 以下）の溝・側面仕上げ加工に適しています

◆Suitable for slot and side finishing of high-hardness molds (HRC70 or below) such as hardened steel



径許容差 Diameter Tolerance	R許容差 R Tolerance
0/-0.007	±0.003



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				○	◎	◎	◎							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N007853	CBNLR-2-0.1xR0.02xL0.2	0.1	0.02	0.2	0.04	0.08	15	4	50	0.24	0.25	0.26	0.27	0.29	※
N007854	CBNLR-2-0.1xR0.02xL0.3		0.02	0.3	0.04	0.08	15	4	50	0.35	0.36	0.37	0.38	0.41	※
N007855	CBNLR-2-0.1xR0.02xL0.5		0.02	0.5	0.04	0.08	15	4	50	0.55	0.57	0.59	0.61	0.66	※
N007856	CBNLR-2-0.1xR0.03xL0.2		0.03	0.2	0.04	0.08	15	4	50	0.24	0.25	0.26	0.27	0.29	※
N007857	CBNLR-2-0.1xR0.03xL0.3		0.03	0.3	0.04	0.08	15	4	50	0.35	0.36	0.37	0.38	0.41	※
N007858	CBNLR-2-0.1xR0.03xL0.5		0.03	0.5	0.04	0.08	15	4	50	0.55	0.57	0.59	0.61	0.66	※
N007847	CBNLR-2-0.15xR0.02xL0.2	0.15	0.02	0.2	0.06	0.13	15	4	50	0.24	0.25	0.26	0.27	0.29	※
N007848	CBNLR-2-0.15xR0.02xL0.3		0.02	0.3	0.06	0.13	15	4	50	0.35	0.36	0.37	0.38	0.41	※
N007849	CBNLR-2-0.15xR0.02xL0.5		0.02	0.5	0.06	0.13	15	4	50	0.55	0.57	0.59	0.61	0.66	※
N007850	CBNLR-2-0.15xR0.03xL0.2		0.03	0.2	0.06	0.13	15	4	50	0.24	0.25	0.26	0.27	0.29	※
N007851	CBNLR-2-0.15xR0.03xL0.3		0.03	0.3	0.06	0.13	15	4	50	0.35	0.36	0.37	0.38	0.41	※
N007852	CBNLR-2-0.15xR0.03xL0.5		0.03	0.5	0.06	0.13	15	4	50	0.55	0.57	0.59	0.61	0.66	※
N006307	CBNLR-2-0.2xR0.02xL0.3	0.2	0.02	0.3	0.08	0.17	15	4	50	0.37	0.38	0.39	0.41	0.44	※
N006308	CBNLR-2-0.2xR0.02xL0.5		0.02	0.5	0.08	0.17	15	4	50	0.57	0.59	0.61	0.64	0.69	※
N007859	CBNLR-2-0.2xR0.02xL1.0		0.02	1.0	0.08	0.17	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N006309	CBNLR-2-0.2xR0.03xL0.3		0.03	0.3	0.08	0.17	15	4	50	0.37	0.38	0.39	0.40	0.44	※
N006310	CBNLR-2-0.2xR0.03xL0.5		0.03	0.5	0.08	0.17	15	4	50	0.57	0.59	0.61	0.63	0.68	※
N007860	CBNLR-2-0.2xR0.03xL1.0		0.03	1.0	0.08	0.17	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N006311	CBNLR-2-0.2xR0.05xL0.3		0.05	0.3	0.08	0.17	15	4	50	0.37	0.38	0.39	0.40	0.43	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006312	CBNLR-2-0.2xR0.05xL0.5	0.2	0.05	0.5	0.08	0.17	15	4	50	0.57	0.59	0.61	0.63	0.68	※
N007861	CBNLR-2-0.2xR0.05xL1.0		0.05	1.0	0.08	0.17	15	4	50	1.09	1.13	1.17	1.21	1.30	※
N006313	CBNLR-2-0.3xR0.02xL0.5	0.3	0.02	0.5	0.13	0.27	15	4	50	0.57	0.59	0.61	0.64	0.69	※
N006314	CBNLR-2-0.3xR0.02xL0.75		0.02	0.75	0.13	0.27	15	4	50	0.83	0.86	0.89	0.92	1.00	※
N006260	CBNLR-2-0.3xR0.02xL1.0		0.02	1.0	0.13	0.27	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N006261	CBNLR-2-0.3xR0.02xL1.5		0.02	1.5	0.13	0.27	15	4	50	1.61	1.66	1.72	1.79	1.93	※
N006262	CBNLR-2-0.3xR0.02xL2.0		0.02	2.0	0.13	0.27	15	4	50	2.12	2.20	2.28	2.36	2.55	※
N006315	CBNLR-2-0.3xR0.03xL0.5		0.03	0.5	0.13	0.27	15	4	50	0.57	0.59	0.61	0.63	0.68	※
N006316	CBNLR-2-0.3xR0.03xL0.75		0.03	0.75	0.13	0.27	15	4	50	0.83	0.86	0.89	0.92	0.99	※
N006263	CBNLR-2-0.3xR0.03xL1.0		0.03	1.0	0.13	0.27	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N006264	CBNLR-2-0.3xR0.03xL1.5		0.03	1.5	0.13	0.27	15	4	50	1.61	1.66	1.72	1.78	1.93	※
N006265	CBNLR-2-0.3xR0.03xL2.0		0.03	2.0	0.13	0.27	15	4	50	2.12	2.20	2.28	2.36	2.55	※
N006317	CBNLR-2-0.3xR0.05xL0.5		0.05	0.5	0.13	0.27	15	4	50	0.57	0.59	0.61	0.63	0.68	※
N006318	CBNLR-2-0.3xR0.05xL0.75		0.05	0.75	0.13	0.27	15	4	50	0.83	0.86	0.89	0.92	0.99	※
N006266	CBNLR-2-0.3xR0.05xL1.0		0.05	1.0	0.13	0.27	15	4	50	1.09	1.13	1.17	1.21	1.30	※
N006267	CBNLR-2-0.3xR0.05xL1.5		0.05	1.5	0.13	0.27	15	4	50	1.61	1.66	1.72	1.78	1.92	※
N006268	CBNLR-2-0.3xR0.05xL2.0		0.05	2.0	0.13	0.27	15	4	50	2.12	2.20	2.27	2.36	2.54	※
N006319	CBNLR-2-0.4xR0.02xL0.5	0.4	0.02	0.5	0.24	0.37	15	4	50	0.57	0.59	0.61	0.64	0.69	※
N006320	CBNLR-2-0.4xR0.02xL1.0		0.02	1.0	0.24	0.37	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N006269	CBNLR-2-0.4xR0.02xL1.5		0.02	1.5	0.24	0.37	15	4	50	1.61	1.66	1.72	1.79	1.93	※
N006270	CBNLR-2-0.4xR0.02xL2.0		0.02	2.0	0.24	0.37	15	4	50	2.12	2.20	2.28	2.36	2.55	※
N006321	CBNLR-2-0.4xR0.03xL0.5		0.03	0.5	0.24	0.37	15	4	50	0.57	0.59	0.61	0.63	0.68	※
N006322	CBNLR-2-0.4xR0.03xL1.0		0.03	1.0	0.24	0.37	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N006271	CBNLR-2-0.4xR0.03xL1.5		0.03	1.5	0.24	0.37	15	4	50	1.61	1.66	1.72	1.78	1.93	※
N006272	CBNLR-2-0.4xR0.03xL2.0		0.03	2.0	0.24	0.37	15	4	50	2.12	2.20	2.28	2.36	2.55	※
N006323	CBNLR-2-0.4xR0.05xL0.5		0.05	0.5	0.24	0.37	15	4	50	0.57	0.59	0.61	0.63	0.68	※
N006324	CBNLR-2-0.4xR0.05xL1.0		0.05	1.0	0.24	0.37	15	4	50	1.09	1.13	1.17	1.21	1.30	※
N006273	CBNLR-2-0.4xR0.05xL1.5		0.05	1.5	0.24	0.37	15	4	50	1.61	1.66	1.72	1.78	1.92	※
N006274	CBNLR-2-0.4xR0.05xL2.0		0.05	2.0	0.24	0.37	15	4	50	2.12	2.20	2.27	2.36	2.54	※
N006325	CBNLR-2-0.4xR0.1xL0.5		0.1	0.5	0.24	0.37	15	4	50	0.57	0.59	0.61	0.62	0.67	※
N006326	CBNLR-2-0.4xR0.1xL1.0		0.1	1.0	0.24	0.37	15	4	50	1.09	1.12	1.16	1.20	1.29	※
N006275	CBNLR-2-0.4xR0.1xL1.5		0.1	1.5	0.24	0.37	15	4	50	1.61	1.66	1.71	1.77	1.91	※
N006276	CBNLR-2-0.4xR0.1xL2.0		0.1	2.0	0.24	0.37	15	4	50	2.12	2.19	2.27	2.35	2.53	※
N006327	CBNLR-2-0.5xR0.02xL0.5	0.5	0.02	0.5	0.3	0.47	15	4	50	0.57	0.59	0.61	0.64	0.69	※
N006328	CBNLR-2-0.5xR0.02xL1.0		0.02	1.0	0.3	0.47	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N006277	CBNLR-2-0.5xR0.02xL1.5		0.02	1.5	0.3	0.47	15	4	50	1.61	1.66	1.72	1.79	1.93	※
N006278	CBNLR-2-0.5xR0.02xL2.5		0.02	2.5	0.3	0.47	15	4	50	2.64	2.73	2.83	2.94	3.17	※
N006329	CBNLR-2-0.5xR0.03xL0.5		0.03	0.5	0.3	0.47	15	4	50	0.57	0.59	0.61	0.63	0.68	●
N006330	CBNLR-2-0.5xR0.03xL1.0		0.03	1.0	0.3	0.47	15	4	50	1.09	1.13	1.17	1.21	1.31	●
N006279	CBNLR-2-0.5xR0.03xL1.5		0.03	1.5	0.3	0.47	15	4	50	1.61	1.66	1.72	1.78	1.93	●
N006280	CBNLR-2-0.5xR0.03xL2.5		0.03	2.5	0.3	0.47	15	4	50	2.64	2.73	2.83	2.93	3.17	●
N006331	CBNLR-2-0.5xR0.05xL0.5		0.05	0.5	0.3	0.47	15	4	50	0.57	0.59	0.61	0.63	0.68	●
N006332	CBNLR-2-0.5xR0.05xL1.0		0.05	1.0	0.3	0.47	15	4	50	1.09	1.13	1.17	1.21	1.30	●
N006281	CBNLR-2-0.5xR0.05xL1.5		0.05	1.5	0.3	0.47	15	4	50	1.61	1.66	1.72	1.78	1.92	●
N006282	CBNLR-2-0.5xR0.05xL2.5		0.05	2.5	0.3	0.47	15	4	50	2.64	2.73	2.83	2.93	3.17	●
N006333	CBNLR-2-0.5xR0.1xL0.5		0.1	0.5	0.3	0.47	15	4	50	0.57	0.59	0.61	0.62	0.67	●
N006334	CBNLR-2-0.5xR0.1xL1.0		0.1	1.0	0.3	0.47	15	4	50	1.09	1.12	1.16	1.20	1.29	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006283	CBNLR-2-0.5xR0.1xL1.5	0.5	0.1	1.5	0.3	0.47	15	4	50	1.61	1.66	1.71	1.77	1.91	●
N006284	CBNLR-2-0.5xR0.1xL2.5		0.1	2.5	0.3	0.47	15	4	50	2.64	2.73	2.82	2.92	3.15	●
N006335	CBNLR-2-0.6xR0.02xL0.5	0.6	0.02	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.64	0.69	※
N006336	CBNLR-2-0.6xR0.02xL1.0		0.02	1.0	0.3	0.57	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N006337	CBNLR-2-0.6xR0.02xL1.5		0.02	1.5	0.3	0.57	15	4	50	1.61	1.66	1.72	1.79	1.93	※
N006285	CBNLR-2-0.6xR0.02xL2.5		0.02	2.5	0.3	0.57	15	4	50	2.64	2.73	2.83	2.94	3.17	※
N006338	CBNLR-2-0.6xR0.03xL0.5		0.03	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.63	0.68	●
N006339	CBNLR-2-0.6xR0.03xL1.0		0.03	1.0	0.3	0.57	15	4	50	1.09	1.13	1.17	1.21	1.31	●
N006340	CBNLR-2-0.6xR0.03xL1.5		0.03	1.5	0.3	0.57	15	4	50	1.61	1.66	1.72	1.78	1.93	●
N006286	CBNLR-2-0.6xR0.03xL2.5		0.03	2.5	0.3	0.57	15	4	50	2.64	2.73	2.83	2.93	3.17	●
N006341	CBNLR-2-0.6xR0.05xL0.5		0.05	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.63	0.68	●
N006342	CBNLR-2-0.6xR0.05xL1.0		0.05	1.0	0.3	0.57	15	4	50	1.09	1.13	1.17	1.21	1.30	●
N006343	CBNLR-2-0.6xR0.05xL1.5		0.05	1.5	0.3	0.57	15	4	50	1.61	1.66	1.72	1.78	1.92	●
N006287	CBNLR-2-0.6xR0.05xL2.5		0.05	2.5	0.3	0.57	15	4	50	2.64	2.73	2.83	2.93	3.17	●
N006344	CBNLR-2-0.6xR0.1xL0.5		0.1	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.62	0.67	●
N006345	CBNLR-2-0.6xR0.1xL1.0		0.1	1.0	0.3	0.57	15	4	50	1.09	1.12	1.16	1.20	1.29	●
N006346	CBNLR-2-0.6xR0.1xL1.5		0.1	1.5	0.3	0.57	15	4	50	1.61	1.66	1.71	1.77	1.91	●
N006288	CBNLR-2-0.6xR0.1xL2.5		0.1	2.5	0.3	0.57	15	4	50	2.64	2.73	2.82	2.92	3.15	●
N006347	CBNLR-2-0.8xR0.02xL1.5	0.8	0.02	1.5	0.56	0.77	15	4	50	1.61	1.66	1.72	1.79	1.93	※
N007862	CBNLR-2-0.8xR0.02xL2.5		0.02	2.5	0.56	0.77	15	4	50	2.64	2.73	2.83	2.94	3.17	※
N007863	CBNLR-2-0.8xR0.02xL5.0		0.02	5.0	0.56	0.77	15	4	50	5.23	5.41	5.60	5.81	6.28	※
N006348	CBNLR-2-0.8xR0.03xL1.5		0.03	1.5	0.56	0.77	15	4	50	1.61	1.66	1.72	1.78	1.93	※
N007864	CBNLR-2-0.8xR0.03xL2.5		0.03	2.5	0.56	0.77	15	4	50	2.64	2.73	2.83	2.93	3.17	※
N007865	CBNLR-2-0.8xR0.03xL5.0		0.03	5.0	0.56	0.77	15	4	50	5.23	5.41	5.60	5.81	6.28	※
N006349	CBNLR-2-0.8xR0.05xL1.5		0.05	1.5	0.56	0.77	15	4	50	1.61	1.66	1.72	1.78	1.92	※
N007866	CBNLR-2-0.8xR0.05xL2.5		0.05	2.5	0.56	0.77	15	4	50	2.64	2.73	2.83	2.93	3.17	※
N007867	CBNLR-2-0.8xR0.05xL5.0		0.05	5.0	0.56	0.77	15	4	50	5.22	5.40	5.60	5.81	6.27	※
N006350	CBNLR-2-0.8xR0.1xL1.5		0.1	1.5	0.56	0.77	15	4	50	1.61	1.66	1.71	1.77	1.91	※
N007868	CBNLR-2-0.8xR0.1xL2.5		0.1	2.5	0.56	0.77	15	4	50	2.64	2.73	2.82	2.92	3.15	※
N007869	CBNLR-2-0.8xR0.1xL5.0		0.1	5.0	0.56	0.77	15	4	50	5.22	5.40	5.59	5.80	6.26	※
N006351	CBNLR-2-1.0xR0.02xL1.0	1.0	0.02	1.0	0.7	0.96	15	4	50	1.11	1.15	1.19	1.23	1.33	※
N006352	CBNLR-2-1.0xR0.02xL2.0		0.02	2.0	0.7	0.96	15	4	50	2.14	2.22	2.30	2.38	2.57	※
N006289	CBNLR-2-1.0xR0.02xL3.0		0.02	3.0	0.7	0.96	15	4	50	3.18	3.29	3.41	3.53	3.82	※
N006290	CBNLR-2-1.0xR0.02xL5.0		0.02	5.0	0.7	0.96	15	4	50	5.24	5.43	5.62	5.83	6.30	※
N006353	CBNLR-2-1.0xR0.03xL1.0		0.03	1.0	0.7	0.96	15	4	50	1.11	1.15	1.19	1.23	1.33	●
N006354	CBNLR-2-1.0xR0.03xL2.0		0.03	2.0	0.7	0.96	15	4	50	2.14	2.22	2.30	2.38	2.57	●
N006291	CBNLR-2-1.0xR0.03xL3.0		0.03	3.0	0.7	0.96	15	4	50	3.18	3.29	3.40	3.53	3.82	●
N006292	CBNLR-2-1.0xR0.03xL5.0		0.03	5.0	0.7	0.96	15	4	50	5.24	5.43	5.62	5.83	6.30	●
N006355	CBNLR-2-1.0xR0.05xL1.0		0.05	1.0	0.7	0.96	15	4	50	1.11	1.15	1.19	1.23	1.32	●
N006356	CBNLR-2-1.0xR0.05xL2.0		0.05	2.0	0.7	0.96	15	4	50	2.14	2.22	2.29	2.38	2.57	●
N006293	CBNLR-2-1.0xR0.05xL3.0		0.05	3.0	0.7	0.96	15	4	50	3.18	3.29	3.40	3.53	3.81	●
N006294	CBNLR-2-1.0xR0.05xL5.0		0.05	5.0	0.7	0.96	15	4	50	5.24	5.42	5.62	5.83	6.30	●
N007870	CBNLR-2-1.0xR0.05xL10.0		0.05	10.0	0.7	0.96	15	4	50	10.41	10.77	11.16	11.58	12.51	●
N006357	CBNLR-2-1.0xR0.1xL1.0		0.1	1.0	0.7	0.96	15	4	50	1.11	1.14	1.18	1.22	1.31	●
N006358	CBNLR-2-1.0xR0.1xL2.0		0.1	2.0	0.7	0.96	15	4	50	2.14	2.21	2.29	2.37	2.56	●
N006295	CBNLR-2-1.0xR0.1xL3.0		0.1	3.0	0.7	0.96	15	4	50	3.17	3.28	3.40	3.52	3.80	●
N006296	CBNLR-2-1.0xR0.1xL5.0		0.1	5.0	0.7	0.96	15	4	50	5.24	5.42	5.61	5.82	6.29	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007871	CBNLR-2-1.0xR0.1xL10.0	1.0	0.1	10.0	0.7	0.96	15	4	50	10.41	10.77	11.16	11.57	12.50	●
N006359	CBNLR-2-1.0xR0.2xL1.0		0.2	1.0	0.7	0.96	15	4	50	1.10	1.14	1.17	1.21	1.29	●
N006360	CBNLR-2-1.0xR0.2xL2.0		0.2	2.0	0.7	0.96	15	4	50	2.14	2.21	2.28	2.36	2.53	●
N006297	CBNLR-2-1.0xR0.2xL3.0		0.2	3.0	0.7	0.96	15	4	50	3.17	3.28	3.39	3.51	3.78	●
N006298	CBNLR-2-1.0xR0.2xL5.0		0.2	5.0	0.7	0.96	15	4	50	5.24	5.41	5.60	5.81	6.26	●
N007872	CBNLR-2-1.5xR0.02xL2.0	1.5	0.02	2.0	1.0	1.44	15	4	50	2.18	2.26	2.34	2.43	2.62	※
N007873	CBNLR-2-1.5xR0.02xL3.0		0.02	3.0	1.0	1.44	15	4	50	3.22	3.33	3.45	3.58	3.86	※
N007874	CBNLR-2-1.5xR0.02xL4.5		0.02	4.5	1.0	1.44	15	4	50	4.77	4.93	5.11	5.30	5.73	※
N007875	CBNLR-2-1.5xR0.02xL7.5		0.02	7.5	1.0	1.44	15	4	50	7.87	8.14	8.43	8.75	9.46	※
N007876	CBNLR-2-1.5xR0.03xL2.0		0.03	2.0	1.0	1.44	15	4	50	2.18	2.26	2.34	2.42	2.62	●
N007877	CBNLR-2-1.5xR0.03xL3.0		0.03	3.0	1.0	1.44	15	4	50	3.22	3.33	3.45	3.57	3.86	●
N007878	CBNLR-2-1.5xR0.03xL4.5		0.03	4.5	1.0	1.44	15	4	50	4.77	4.93	5.11	5.30	5.73	●
N007879	CBNLR-2-1.5xR0.03xL7.5		0.03	7.5	1.0	1.44	15	4	50	7.87	8.14	8.43	8.75	9.46	●
N007881	CBNLR-2-1.5xR0.05xL2.0		0.05	2.0	1.0	1.44	15	4	50	2.18	2.26	2.34	2.42	2.61	●
N007882	CBNLR-2-1.5xR0.05xL3.0		0.05	3.0	1.0	1.44	15	4	50	3.22	3.33	3.44	3.57	3.86	●
N007883	CBNLR-2-1.5xR0.05xL4.5		0.05	4.5	1.0	1.44	15	4	50	4.77	4.93	5.11	5.30	5.72	●
N007884	CBNLR-2-1.5xR0.05xL5.0		0.05	5.0	1.0	1.44	15	4	50	5.28	5.46	5.66	5.87	6.34	●
N007885	CBNLR-2-1.5xR0.05xL7.5		0.05	7.5	1.0	1.44	15	4	50	7.87	8.14	8.43	8.75	9.45	●
N007880	CBNLR-2-1.5xR0.05xL10.0		0.05	10.0	1.0	1.44	15	4	50	10.45	10.81	11.20	11.62	12.56	●
N007887	CBNLR-2-1.5xR0.1xL2.0		0.1	2.0	1.0	1.44	15	4	50	2.18	2.25	2.33	2.41	2.60	●
N007888	CBNLR-2-1.5xR0.1xL3.0		0.1	3.0	1.0	1.44	15	4	50	3.21	3.32	3.44	3.56	3.85	●
N007889	CBNLR-2-1.5xR0.1xL4.5		0.1	4.5	1.0	1.44	15	4	50	4.76	4.93	5.10	5.29	5.71	●
N007890	CBNLR-2-1.5xR0.1xL5.0		0.1	5.0	1.0	1.44	15	4	50	5.28	5.46	5.65	5.86	6.33	●
N007891	CBNLR-2-1.5xR0.1xL7.5		0.1	7.5	1.0	1.44	15	4	50	7.86	8.14	8.43	8.74	9.44	●
N007886	CBNLR-2-1.5xR0.1xL10.0		0.1	10.0	1.0	1.44	15	4	50	10.45	10.81	11.20	11.61	12.55	●
N007892	CBNLR-2-1.5xR0.2xL2.0		0.2	2.0	1.0	1.44	15	4	50	2.18	2.25	2.32	2.40	2.58	●
N007893	CBNLR-2-1.5xR0.2xL3.0		0.2	3.0	1.0	1.44	15	4	50	3.21	3.31	3.43	3.55	3.82	●
N007894	CBNLR-2-1.5xR0.2xL4.5		0.2	4.5	1.0	1.44	15	4	50	4.76	4.92	5.09	5.27	5.69	●
N007895	CBNLR-2-1.5xR0.2xL7.5		0.2	7.5	1.0	1.44	15	4	50	7.86	8.13	8.42	8.72	9.42	●
N007896	CBNLR-2-1.5xR0.3xL2.0		0.3	2.0	1.0	1.44	15	4	50	2.17	2.24	2.31	2.38	2.56	●
N007897	CBNLR-2-1.5xR0.3xL3.0		0.3	3.0	1.0	1.44	15	4	50	3.21	3.31	3.42	3.53	3.80	●
N007898	CBNLR-2-1.5xR0.3xL4.5		0.3	4.5	1.0	1.44	15	4	50	4.76	4.91	5.08	5.26	5.66	●
N007899	CBNLR-2-1.5xR0.3xL7.5		0.3	7.5	1.0	1.44	15	4	50	7.86	8.12	8.40	8.71	9.39	●
N006361	CBNLR-2-2.0xR0.02xL3.0	2.0	0.02	3.0	1.2	1.96	15	4	50	3.18	3.29	3.41	3.53	3.82	※
N006362	CBNLR-2-2.0xR0.02xL4.0		0.02	4.0	1.2	1.96	15	4	50	4.21	4.36	4.51	4.68	5.06	※
N007901	CBNLR-2-2.0xR0.02xL6.0		0.02	6.0	1.2	1.96	15	4	50	6.28	6.50	6.73	6.98	7.55	※
N007900	CBNLR-2-2.0xR0.02xL10.0		0.02	10.0	1.2	1.96	15	4	50	10.41	10.78	11.16	11.58	12.52	※
N006363	CBNLR-2-2.0xR0.03xL3.0		0.03	3.0	1.2	1.96	15	4	50	3.18	3.29	3.40	3.53	3.82	●
N006364	CBNLR-2-2.0xR0.03xL4.0		0.03	4.0	1.2	1.96	15	4	50	4.21	4.36	4.51	4.68	5.06	●
N007903	CBNLR-2-2.0xR0.03xL6.0		0.03	6.0	1.2	1.96	15	4	50	6.28	6.50	6.73	6.98	7.54	●
N007902	CBNLR-2-2.0xR0.03xL10.0		0.03	10.0	1.2	1.96	15	4	50	10.41	10.77	11.16	11.58	12.52	●
N006365	CBNLR-2-2.0xR0.05xL3.0		0.05	3.0	1.2	1.96	15	4	50	3.18	3.29	3.40	3.53	3.81	●
N006366	CBNLR-2-2.0xR0.05xL4.0		0.05	4.0	1.2	1.96	15	4	50	4.21	4.36	4.51	4.68	5.05	●
N006367	CBNLR-2-2.0xR0.05xL5.0		0.05	5.0	1.2	1.96	15	4	50	5.24	5.42	5.62	5.83	6.30	●
N007906	CBNLR-2-2.0xR0.05xL6.0		0.05	6.0	1.2	1.96	15	4	50	6.28	6.49	6.73	6.98	7.54	●
N007904	CBNLR-2-2.0xR0.05xL10.0		0.05	10.0	1.2	1.96	15	4	50	10.41	10.77	11.16	11.58	12.51	●
N007905	CBNLR-2-2.0xR0.05xL15.0		0.05	15.0	1.2	1.96	15	4	50	15.58	16.12	16.70	17.33	18.73	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006368	CBNLR-2-2.0xR0.1xL3.0	2.0	0.1	3.0	1.2	1.96	15	4	50	3.17	3.28	3.40	3.52	3.80	●
N006369	CBNLR-2-2.0xR0.1xL4.0		0.1	4.0	1.2	1.96	15	4	50	4.21	4.35	4.51	4.67	5.04	●
N006370	CBNLR-2-2.0xR0.1xL5.0		0.1	5.0	1.2	1.96	15	4	50	5.24	5.42	5.61	5.82	6.29	●
N007909	CBNLR-2-2.0xR0.1xL6.0		0.1	6.0	1.2	1.96	15	4	50	6.28	6.49	6.72	6.97	7.53	●
N007907	CBNLR-2-2.0xR0.1xL10.0		0.1	10.0	1.2	1.96	15	4	50	10.41	10.77	11.16	11.57	12.50	●
N007908	CBNLR-2-2.0xR0.1xL15.0		0.1	15.0	1.2	1.96	15	4	50	15.58	16.12	16.70	17.32	18.72	●
N006371	CBNLR-2-2.0xR0.2xL3.0		0.2	3.0	1.2	1.96	15	4	50	3.17	3.28	3.39	3.51	3.78	●
N006372	CBNLR-2-2.0xR0.2xL4.0		0.2	4.0	1.2	1.96	15	4	50	4.21	4.34	4.49	4.66	5.02	●
N006373	CBNLR-2-2.0xR0.2xL5.0		0.2	5.0	1.2	1.96	15	4	50	5.24	5.41	5.60	5.81	6.26	●
N007910	CBNLR-2-2.0xR0.2xL6.0		0.2	6.0	1.2	1.96	15	4	50	6.27	6.48	6.71	6.96	7.51	●
N006374	CBNLR-2-2.0xR0.3xL3.0		0.3	3.0	1.2	1.96	15	4	50	3.17	3.27	3.38	3.49	3.75	●
N006375	CBNLR-2-2.0xR0.3xL4.0		0.3	4.0	1.2	1.96	15	4	50	4.20	4.34	4.48	4.64	5.00	●
N006376	CBNLR-2-2.0xR0.3xL5.0		0.3	5.0	1.2	1.96	15	4	50	5.24	5.41	5.59	5.79	6.24	●
N007912	CBNLR-2-2.0xR0.3xL6.0		0.3	6.0	1.2	1.96	15	4	50	6.27	6.48	6.70	6.94	7.48	●
N007911	CBNLR-2-2.0xR0.3xL10.0		0.3	10.0	1.2	1.96	15	4	50	10.40	10.76	11.13	11.54	12.45	●
N006377	CBNLR-2-2.0xR0.5xL3.0		0.5	3.0	1.2	1.96	15	4	50	3.16	3.25	3.35	3.46	3.71	●
N006378	CBNLR-2-2.0xR0.5xL4.0		0.5	4.0	1.2	1.96	15	4	50	4.20	4.32	4.46	4.61	4.95	●
N007914	CBNLR-2-2.0xR0.5xL6.0		0.5	6.0	1.2	1.96	15	4	50	6.26	6.46	6.68	6.91	7.44	●
N007913	CBNLR-2-2.0xR0.5xL10.0		0.5	10.0	1.2	1.96	15	4	50	10.40	10.74	11.11	11.51	12.41	●
N007917	CBNLR-2-3.0xR0.05xL5.0	3.0	0.05	5.0	2.0	2.92	15	6	50	5.32	5.50	5.70	5.91	6.39	●
N007915	CBNLR-2-3.0xR0.05xL10.0		0.05	10.0	2.0	2.92	15	6	50	10.49	10.85	11.24	11.66	12.61	●
N007916	CBNLR-2-3.0xR0.05xL15.0		0.05	15.0	2.0	2.92	15	6	50	15.66	16.20	16.78	17.41	18.82	●
N007920	CBNLR-2-3.0xR0.1xL5.0		0.1	5.0	2.0	2.92	15	6	50	5.32	5.50	5.70	5.91	6.38	●
N007918	CBNLR-2-3.0xR0.1xL10.0		0.1	10.0	2.0	2.92	15	6	50	10.49	10.85	11.24	11.66	12.59	●
N007919	CBNLR-2-3.0xR0.1xL15.0		0.1	15.0	2.0	2.92	15	6	50	15.66	16.20	16.78	17.40	18.81	●
N007921	CBNLR-2-3.0xR0.2xL5.0		0.2	5.0	2.0	2.92	15	6	50	5.32	5.49	5.69	5.89	6.35	●
N007922	CBNLR-2-3.0xR0.3xL5.0		0.3	5.0	2.0	2.92	15	6	50	5.31	5.49	5.67	5.88	6.33	●

CBN | Non | Side Milling | Planing | Profiling | Helical | 刃数 3 | Helix Angle 0° | NA 15° | h4 | Gash Land

切削条件表 Cutting Parameter P090

CBNラジアスエンドミル CBN Radius End Mills

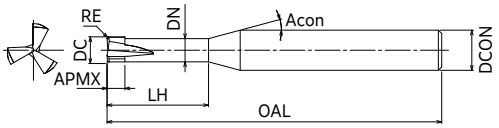
■型番:CBNLR-3 Model number:CBNLR-3

◆焼入れ鋼などの高硬度金型（HRC70 以下）の
側面仕上げ加工に適しています

◆Suitable for side finishing of high-hardness
dies (HRC70 or below) such as hardened steel



径許容差 Diameter Tolerance	R許容差 R Tolerance
0/-0.007	±0.003



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material,
please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				○	◎	◎	◎							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N007923	CBNLR-3-0.6xR0.02xL0.5	0.6	0.02	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.64	0.69	※
N007924	CBNLR-3-0.6xR0.02xL1.0		0.02	1.0	0.3	0.57	15	4	50	1.09	1.13	1.17	1.21	1.31	※
N007925	CBNLR-3-0.6xR0.02xL1.5		0.02	1.5	0.3	0.57	15	4	50	1.61	1.66	1.72	1.79	1.93	※
N007926	CBNLR-3-0.6xR0.02xL2.0		0.02	2.0	0.3	0.57	15	4	50	2.12	2.20	2.28	2.36	2.55	※
N007927	CBNLR-3-0.6xR0.02xL2.5		0.02	2.5	0.3	0.57	15	4	50	2.64	2.73	2.83	2.94	3.17	※
N007928	CBNLR-3-0.6xR0.05xL0.5		0.05	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.63	0.68	※
N007929	CBNLR-3-0.6xR0.05xL1.0		0.05	1.0	0.3	0.57	15	4	50	1.09	1.13	1.17	1.21	1.30	※
N007930	CBNLR-3-0.6xR0.05xL1.5		0.05	1.5	0.3	0.57	15	4	50	1.61	1.66	1.72	1.78	1.92	※
N007931	CBNLR-3-0.6xR0.05xL2.0		0.05	2.0	0.3	0.57	15	4	50	2.12	2.20	2.27	2.36	2.54	※
N007932	CBNLR-3-0.6xR0.05xL2.5		0.05	2.5	0.3	0.57	15	4	50	2.64	2.73	2.83	2.93	3.17	※
N007933	CBNLR-3-0.6xR0.1xL0.5		0.1	0.5	0.3	0.57	15	4	50	0.57	0.59	0.61	0.62	0.67	※
N007934	CBNLR-3-0.6xR0.1xL1.0		0.1	1.0	0.3	0.57	15	4	50	1.09	1.12	1.16	1.20	1.29	※
N007935	CBNLR-3-0.6xR0.1xL1.5		0.1	1.5	0.3	0.57	15	4	50	1.61	1.66	1.71	1.77	1.91	※
N007936	CBNLR-3-0.6xR0.1xL2.0		0.1	2.0	0.3	0.57	15	4	50	2.12	2.19	2.27	2.35	2.53	※
N007937	CBNLR-3-0.6xR0.1xL2.5		0.1	2.5	0.3	0.57	15	4	50	2.64	2.73	2.82	2.92	3.15	※
N007938	CBNLR-3-0.8xR0.02xL1.5	0.8	0.02	1.5	0.56	0.77	15	4	50	1.61	1.66	1.72	1.79	1.93	※
N007939	CBNLR-3-0.8xR0.02xL2.5		0.02	2.5	0.56	0.77	15	4	50	2.64	2.73	2.83	2.94	3.17	※
N007940	CBNLR-3-0.8xR0.02xL5.0		0.02	5.0	0.56	0.77	15	4	50	5.23	5.41	5.60	5.81	6.28	※
N007941	CBNLR-3-0.8xR0.05xL1.5		0.05	1.5	0.56	0.77	15	4	50	1.61	1.66	1.72	1.78	1.92	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007942	CBNLR-3-0.8xR0.05xL2.5	0.8	0.05	2.5	0.56	0.77	15	4	50	2.64	2.73	2.83	2.93	3.17	※
N007943	CBNLR-3-0.8xR0.05xL5.0		0.05	5.0	0.56	0.77	15	4	50	5.22	5.40	5.60	5.81	6.27	※
N007944	CBNLR-3-0.8xR0.1xL1.5		0.1	1.5	0.56	0.77	15	4	50	1.61	1.66	1.71	1.77	1.91	※
N007945	CBNLR-3-0.8xR0.1xL2.5		0.1	2.5	0.56	0.77	15	4	50	2.64	2.73	2.82	2.92	3.15	※
N007946	CBNLR-3-0.8xR0.1xL5.0		0.1	5.0	0.56	0.77	15	4	50	5.22	5.40	5.59	5.80	6.26	※

CBN | Non | Side Milling | Planing | Profiling | Helical | 刃数 4 | Helix Angle 0° | NA 15° | h4 | Gash Land

切削条件表 Cutting Parameter P090

CBNラジアスエンドミル CBN Radius End Mills

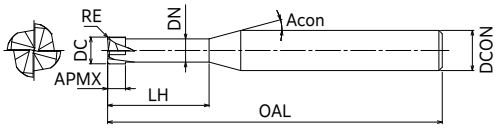
■型番:CBNLR-4 Model number:CBNLR-4

◆焼入れ鋼などの高硬度金型（HRC70 以下）の
側面仕上げ加工に適しています

◆Suitable for side finishing of high-hardness
dies (HRC70 or below) such as hardened steel



径許容差 Diameter Tolerance	R許容差 R Tolerance
0/-0.007	±0.003



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material,
please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				○	◎	◎	◎							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N006379	CBNLR-4-1.0xR0.02xL1.0	1.0	0.02	1.0	0.7	0.96	15	4	50	1.11	1.15	1.19	1.23	1.33	※
N006380	CBNLR-4-1.0xR0.02xL2.0		0.02	2.0	0.7	0.96	15	4	50	2.14	2.22	2.30	2.38	2.57	※
N006299	CBNLR-4-1.0xR0.02xL3.0		0.02	3.0	0.7	0.96	15	4	50	3.18	3.29	3.41	3.53	3.82	※
N006300	CBNLR-4-1.0xR0.02xL5.0		0.02	5.0	0.7	0.96	15	4	50	5.24	5.43	5.62	5.83	6.30	※
N006381	CBNLR-4-1.0xR0.05xL1.0		0.05	1.0	0.7	0.96	15	4	50	1.11	1.15	1.19	1.23	1.32	※
N006382	CBNLR-4-1.0xR0.05xL2.0		0.05	2.0	0.7	0.96	15	4	50	2.14	2.22	2.29	2.38	2.57	※
N006301	CBNLR-4-1.0xR0.05xL3.0		0.05	3.0	0.7	0.96	15	4	50	3.18	3.29	3.40	3.53	3.81	※
N006302	CBNLR-4-1.0xR0.05xL5.0		0.05	5.0	0.7	0.96	15	4	50	5.24	5.42	5.62	5.83	6.30	※
N007947	CBNLR-4-1.0xR0.05xL10.0		0.05	10.0	0.7	0.96	15	4	50	10.41	10.77	11.16	11.58	12.51	※
N006383	CBNLR-4-1.0xR0.1xL1.0		0.1	1.0	0.7	0.96	15	4	50	1.11	1.14	1.18	1.22	1.31	※
N006384	CBNLR-4-1.0xR0.1xL2.0		0.1	2.0	0.7	0.96	15	4	50	2.14	2.21	2.29	2.37	2.56	※
N006303	CBNLR-4-1.0xR0.1xL3.0		0.1	3.0	0.7	0.96	15	4	50	3.17	3.28	3.40	3.52	3.80	※
N007949	CBNLR-4-1.0xR0.1xL4.0		0.1	4.0	0.7	0.96	15	4	50	4.21	4.35	4.51	4.67	5.04	※
N006304	CBNLR-4-1.0xR0.1xL5.0		0.1	5.0	0.7	0.96	15	4	50	5.24	5.42	5.61	5.82	6.29	※
N007948	CBNLR-4-1.0xR0.1xL10.0		0.1	10.0	0.7	0.96	15	4	50	10.41	10.77	11.16	11.57	12.50	※
N006385	CBNLR-4-1.0xR0.2xL1.0		0.2	1.0	0.7	0.96	15	4	50	1.10	1.14	1.17	1.21	1.29	※
N006386	CBNLR-4-1.0xR0.2xL2.0		0.2	2.0	0.7	0.96	15	4	50	2.14	2.21	2.28	2.36	2.53	※
N006305	CBNLR-4-1.0xR0.2xL3.0		0.2	3.0	0.7	0.96	15	4	50	3.17	3.28	3.39	3.51	3.78	※
N006306	CBNLR-4-1.0xR0.2xL5.0		0.2	5.0	0.7	0.96	15	4	50	5.24	5.41	5.60	5.81	6.26	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006387	CBNLR-4-1.5xR0.02xL2.0	1.5	0.02	2.0	1.0	1.44	15	4	50	2.18	2.26	2.34	2.43	2.62	※
N006388	CBNLR-4-1.5xR0.02xL3.0		0.02	3.0	1.0	1.44	15	4	50	3.22	3.33	3.45	3.58	3.86	※
N007950	CBNLR-4-1.5xR0.02xL4.5		0.02	4.5	1.0	1.44	15	4	50	4.77	4.93	5.11	5.30	5.73	※
N007951	CBNLR-4-1.5xR0.02xL7.5		0.02	7.5	1.0	1.44	15	4	50	7.87	8.14	8.43	8.75	9.46	※
N006389	CBNLR-4-1.5xR0.05xL2.0		0.05	2.0	1.0	1.44	15	4	50	2.18	2.26	2.34	2.42	2.61	※
N006390	CBNLR-4-1.5xR0.05xL3.0		0.05	3.0	1.0	1.44	15	4	50	3.22	3.33	3.44	3.57	3.86	※
N007953	CBNLR-4-1.5xR0.05xL4.5		0.05	4.5	1.0	1.44	15	4	50	4.77	4.93	5.11	5.30	5.72	※
N007954	CBNLR-4-1.5xR0.05xL5.0		0.05	5.0	1.0	1.44	15	4	50	5.28	5.46	5.66	5.87	6.34	※
N007955	CBNLR-4-1.5xR0.05xL7.5		0.05	7.5	1.0	1.44	15	4	50	7.87	8.14	8.43	8.75	9.45	※
N007952	CBNLR-4-1.5xR0.05xL10.0		0.05	10.0	1.0	1.44	15	4	50	10.45	10.81	11.20	11.62	12.56	※
N006391	CBNLR-4-1.5xR0.1xL2.0		0.1	2.0	1.0	1.44	15	4	50	2.18	2.25	2.33	2.41	2.60	※
N006392	CBNLR-4-1.5xR0.1xL3.0		0.1	3.0	1.0	1.44	15	4	50	3.21	3.32	3.44	3.56	3.85	※
N007957	CBNLR-4-1.5xR0.1xL4.5		0.1	4.5	1.0	1.44	15	4	50	4.76	4.93	5.10	5.29	5.71	※
N007958	CBNLR-4-1.5xR0.1xL5.0		0.1	5.0	1.0	1.44	15	4	50	5.28	5.46	5.65	5.86	6.33	※
N007959	CBNLR-4-1.5xR0.1xL7.5		0.1	7.5	1.0	1.44	15	4	50	7.86	8.14	8.43	8.74	9.44	※
N007956	CBNLR-4-1.5xR0.1xL10.0		0.1	10.0	1.0	1.44	15	4	50	10.45	10.81	11.20	11.61	12.55	※
N006393	CBNLR-4-1.5xR0.2xL2.0		0.2	2.0	1.0	1.44	15	4	50	2.18	2.25	2.32	2.40	2.58	※
N006394	CBNLR-4-1.5xR0.2xL3.0		0.2	3.0	1.0	1.44	15	4	50	3.21	3.31	3.43	3.55	3.82	※
N007960	CBNLR-4-1.5xR0.2xL4.5		0.2	4.5	1.0	1.44	15	4	50	4.76	4.92	5.09	5.27	5.69	※
N007961	CBNLR-4-1.5xR0.2xL7.5		0.2	7.5	1.0	1.44	15	4	50	7.86	8.13	8.42	8.72	9.42	※
N007962	CBNLR-4-1.5xR0.3xL3.0		0.3	3.0	1.0	1.44	15	4	50	3.21	3.31	3.42	3.53	3.80	※
N007963	CBNLR-4-2.0xR0.02xL3.0	2.0	0.02	3.0	1.2	1.96	15	4	50	3.18	3.29	3.41	3.53	3.82	※
N007964	CBNLR-4-2.0xR0.02xL4.0		0.02	4.0	1.2	1.96	15	4	50	4.21	4.36	4.51	4.68	5.06	※
N007965	CBNLR-4-2.0xR0.02xL6.0		0.02	6.0	1.2	1.96	15	4	50	6.28	6.50	6.73	6.98	7.55	※
N007968	CBNLR-4-2.0xR0.05xL3.0		0.05	3.0	1.2	1.96	15	4	50	3.18	3.29	3.40	3.53	3.81	※
N007969	CBNLR-4-2.0xR0.05xL4.0		0.05	4.0	1.2	1.96	15	4	50	4.21	4.36	4.51	4.68	5.05	※
N007970	CBNLR-4-2.0xR0.05xL5.0		0.05	5.0	1.2	1.96	15	4	50	5.24	5.42	5.62	5.83	6.30	※
N007971	CBNLR-4-2.0xR0.05xL6.0		0.05	6.0	1.2	1.96	15	4	50	6.28	6.49	6.73	6.98	7.54	※
N007966	CBNLR-4-2.0xR0.05xL10.0		0.05	10.0	1.2	1.96	15	4	50	10.41	10.77	11.16	11.58	12.51	※
N007967	CBNLR-4-2.0xR0.05xL15.0		0.05	15.0	1.2	1.96	15	4	50	15.58	16.12	16.70	17.33	18.73	※
N007974	CBNLR-4-2.0xR0.1xL3.0		0.1	3.0	1.2	1.96	15	4	50	3.17	3.28	3.40	3.52	3.80	※
N007975	CBNLR-4-2.0xR0.1xL4.0		0.1	4.0	1.2	1.96	15	4	50	4.21	4.35	4.51	4.67	5.04	※
N007976	CBNLR-4-2.0xR0.1xL5.0		0.1	5.0	1.2	1.96	15	4	50	5.24	5.42	5.61	5.82	6.29	※
N007977	CBNLR-4-2.0xR0.1xL6.0		0.1	6.0	1.2	1.96	15	4	50	6.28	6.49	6.72	6.97	7.53	※
N007972	CBNLR-4-2.0xR0.1xL10.0		0.1	10.0	1.2	1.96	15	4	50	10.41	10.77	11.16	11.57	12.50	※
N007973	CBNLR-4-2.0xR0.1xL15.0		0.1	15.0	1.2	1.96	15	4	50	15.58	16.12	16.70	17.32	18.72	※
N007979	CBNLR-4-2.0xR0.2xL3.0		0.2	3.0	1.2	1.96	15	4	50	3.17	3.28	3.39	3.51	3.78	※
N007980	CBNLR-4-2.0xR0.2xL4.0		0.2	4.0	1.2	1.96	15	4	50	4.21	4.34	4.49	4.66	5.02	※
N007981	CBNLR-4-2.0xR0.2xL5.0		0.2	5.0	1.2	1.96	15	4	50	5.24	5.41	5.60	5.81	6.26	※
N007982	CBNLR-4-2.0xR0.2xL6.0		0.2	6.0	1.2	1.96	15	4	50	6.27	6.48	6.71	6.96	7.51	※
N007978	CBNLR-4-2.0xR0.2xL10.0		0.2	10.0	1.2	1.96	15	4	50	10.41	10.76	11.14	11.55	12.48	※
N007984	CBNLR-4-2.0xR0.3xL5.0		0.3	5.0	1.2	1.96	15	4	50	5.24	5.41	5.59	5.79	6.24	※
N007983	CBNLR-4-2.0xR0.3xL10.0		0.3	10.0	1.2	1.96	15	4	50	10.40	10.76	11.13	11.54	12.45	※
N007988	CBNLR-4-3.0xR0.05xL5.0	3.0	0.05	5.0	2.0	2.92	15	6	50	5.32	5.50	5.70	5.91	6.39	※
N007989	CBNLR-4-3.0xR0.05xL6.0		0.05	6.0	2.0	2.92	15	6	50	6.35	6.57	6.81	7.06	7.63	※
N007990	CBNLR-4-3.0xR0.05xL9.0		0.05	9.0	2.0	2.92	15	6	50	9.46	9.78	10.13	10.51	11.36	※
N007985	CBNLR-4-3.0xR0.05xL10.0		0.05	10.0	2.0	2.92	15	6	50	10.49	10.85	11.24	11.66	12.61	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007986	CBNLR-4-3.0xR0.05xL12.0	3.0	0.05	12.0	2.0	2.92	15	6	50	12.56	12.99	13.46	13.96	15.09	※
N007987	CBNLR-4-3.0xR0.05xL15.0		0.05	15.0	2.0	2.92	15	6	50	15.66	16.20	16.78	17.41	18.82	※
N007994	CBNLR-4-3.0xR0.1xL5.0		0.1	5.0	2.0	2.92	15	6	50	5.32	5.50	5.70	5.91	6.38	※
N007995	CBNLR-4-3.0xR0.1xL6.0		0.1	6.0	2.0	2.92	15	6	50	6.35	6.57	6.80	7.06	7.62	※
N007996	CBNLR-4-3.0xR0.1xL9.0		0.1	9.0	2.0	2.92	15	6	50	9.45	9.78	10.13	10.51	11.35	※
N007991	CBNLR-4-3.0xR0.1xL10.0		0.1	10.0	2.0	2.92	15	6	50	10.49	10.85	11.24	11.66	12.59	※
N007992	CBNLR-4-3.0xR0.1xL12.0		0.1	12.0	2.0	2.92	15	6	50	12.55	12.99	13.45	13.96	15.08	※
N007993	CBNLR-4-3.0xR0.1xL15.0		0.1	15.0	2.0	2.92	15	6	50	15.66	16.20	16.78	17.40	18.81	※
N007999	CBNLR-4-3.0xR0.2xL5.0		0.2	5.0	2.0	2.92	15	6	50	5.32	5.49	5.69	5.89	6.35	※
N008000	CBNLR-4-3.0xR0.2xL6.0		0.2	6.0	2.0	2.92	15	6	50	6.35	6.56	6.79	7.04	7.60	※
N008001	CBNLR-4-3.0xR0.2xL9.0		0.2	9.0	2.0	2.92	15	6	50	9.45	9.77	10.12	10.49	11.33	※
N007997	CBNLR-4-3.0xR0.2xL12.0		0.2	12.0	2.0	2.92	15	6	50	12.55	12.98	13.44	13.94	15.06	※
N007998	CBNLR-4-3.0xR0.2xL15.0		0.2	15.0	2.0	2.92	15	6	50	15.65	16.19	16.77	17.39	18.79	※
N008003	CBNLR-4-3.0xR0.3xL5.0		0.3	5.0	2.0	2.92	15	6	50	5.31	5.49	5.67	5.88	6.33	※
N008002	CBNLR-4-3.0xR0.3xL10.0		0.3	10.0	2.0	2.92	15	6	50	10.48	10.84	11.22	11.63	12.55	※
N008004	CBNLR-4-4.0xR0.05xL15.0	4.0	0.05	15.0	2.0	3.92	15	6	50	15.66	16.20	16.78	17.41	18.82	※
N008005	CBNLR-4-4.0xR0.1xL10.0		0.1	10.0	2.0	3.92	15	6	50	10.49	10.85	11.24	11.66	12.59	※
N008006	CBNLR-4-4.0xR0.1xL15.0		0.1	15.0	2.0	3.92	15	6	50	15.66	16.20	16.78	17.40	18.81	※
N008007	CBNLR-4-4.0xR0.3xL10.0		0.3	10.0	2.0	3.92	15	6	50	10.48	10.84	11.22	11.63	12.55	※
N008008	CBNLR-4-4.0xR0.3xL15.0		0.3	15.0	2.0	3.92	15	6	50	15.65	16.18	16.76	17.38	18.76	※
N008009	CBNLR-4-4.0xR0.5xL15.0		0.5	15.0	2.0	3.92	15	6	50	15.64	16.17	16.74	17.35	18.72	※
N008010	CBNLR-4-5.0xR0.05xL15.0	5.0	0.05	15.0	2.0	4.92	15	6	50	15.66	16.20	16.78	FREE	FREE	※
N008011	CBNLR-4-5.0xR0.1xL15.0		0.1	15.0	2.0	4.92	15	6	50	15.66	16.20	16.78	FREE	FREE	※
N008012	CBNLR-4-5.0xR0.3xL15.0		0.3	15.0	2.0	4.92	15	6	50	15.65	16.18	16.76	FREE	FREE	※
N008013	CBNLR-4-5.0xR0.5xL15.0		0.5	15.0	2.0	4.92	15	6	50	15.64	16.17	16.74	FREE	FREE	※
N008014	CBNLR-4-6.0xR0.05xL15.0	6.0	0.05	15.0	2.0	5.92	15	6	50	FREE	FREE	FREE	FREE	FREE	※
N008015	CBNLR-4-6.0xR0.1xL10.0		0.1	10.0	2.0	5.92	15	6	50	FREE	FREE	FREE	FREE	FREE	※
N008016	CBNLR-4-6.0xR0.1xL15.0		0.1	15.0	2.0	5.92	15	6	50	FREE	FREE	FREE	FREE	FREE	※
N008017	CBNLR-4-6.0xR0.3xL10.0		0.3	10.0	2.0	5.92	15	6	50	FREE	FREE	FREE	FREE	FREE	※
N008018	CBNLR-4-6.0xR0.3xL15.0		0.3	15.0	2.0	5.92	15	6	50	FREE	FREE	FREE	FREE	FREE	※
N008019	CBNLR-4-6.0xR0.5xL15.0		0.5	15.0	2.0	5.92	15	6	50	FREE	FREE	FREE	FREE	FREE	※

CBN Series

切削条件表 Cutting Parameter P091

CBN | Non | Profiling | 刃数 2 | Helix Angle 0° | NA 15° | h4 | Gash Land

CBNボールエンドミル CBN Ball End Mills

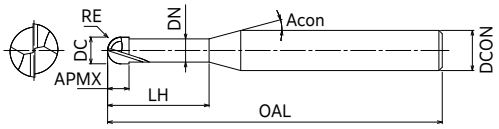
■型番:CBNLB-2 Model number:CBNLB-2

◆焼入れ鋼などの高硬度金型（HRC70 以下）の
曲面の仕上げ加工に適しています

◆Suitable for finishing curved surfaces of high-hardness dies (HRC70 or below) such as hardened steel



径許容差 Diameter Tolerance	R許容差 R Tolerance
0/-0.007	±0.003



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				○	◎	◎	◎							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N007820	CBNLB-2-0.1xR0.05xL0.2	0.1	0.05	0.2	0.08	0.08	15	4	50	0.24	0.25	0.26	0.27	0.28	※
N007821	CBNLB-2-0.1xR0.05xL0.3	0.1		0.3	0.08	0.08	15	4	50	0.35	0.36	0.37	0.38	0.41	※
N007822	CBNLB-2-0.1xR0.05xL0.5	0.1		0.5	0.08	0.08	15	4	50	0.55	0.57	0.59	0.61	0.66	※
N007818	CBNLB-2-0.15xR0.075xL0.45	0.15	0.075	0.45	0.12	0.13	15	4	50	0.50	0.52	0.53	0.55	0.59	※
N007819	CBNLB-2-0.15xR0.075xL0.75	0.15		0.75	0.12	0.13	15	4	50	0.81	0.84	0.86	0.89	0.96	※
N006224	CBNLB-2-0.2xR0.1xL0.3	0.2	0.1	0.3	0.15	0.17	15	4	50	0.36	0.37	0.38	0.39	0.42	※
N007823	CBNLB-2-0.2xR0.1xL0.5	0.2		0.5	0.15	0.17	15	4	50	0.57	0.59	0.61	0.62	0.67	※
N006225	CBNLB-2-0.2xR0.1xL0.6	0.2		0.6	0.15	0.17	15	4	50	0.67	0.69	0.72	0.74	0.79	※
N006226	CBNLB-2-0.2xR0.1xL1.0	0.2		1.0	0.15	0.17	15	4	50	1.09	1.12	1.16	1.20	1.29	※
N006227	CBNLB-2-0.3xR0.15xL0.3	0.3	0.15	0.3	0.23	0.27	15	4	50	0.36	0.37	0.38	0.39	0.41	※
N006228	CBNLB-2-0.3xR0.15xL0.5	0.3		0.5	0.23	0.27	15	4	50	0.57	0.58	0.60	0.62	0.66	※
N006229	CBNLB-2-0.3xR0.15xL0.75	0.3		0.75	0.23	0.27	15	4	50	0.83	0.85	0.88	0.90	0.97	※
N006230	CBNLB-2-0.4xR0.2xL0.5	0.4	0.2	0.5	0.3	0.37	15	4	50	0.57	0.58	0.59	0.61	0.64	●
N006231	CBNLB-2-0.4xR0.2xL0.75	0.4		0.75	0.3	0.37	15	4	50	0.83	0.85	0.87	0.90	0.96	●
N006232	CBNLB-2-0.4xR0.2xL1.0	0.4		1.0	0.3	0.37	15	4	50	1.08	1.12	1.15	1.18	1.27	●
N006233	CBNLB-2-0.4xR0.2xL1.2	0.4		1.2	0.3	0.37	15	4	50	1.29	1.33	1.37	1.41	1.52	●
N006234	CBNLB-2-0.4xR0.2xL2.0	0.4		2.0	0.3	0.37	15	4	50	2.12	2.19	2.26	2.33	2.51	●
N007824	CBNLB-2-0.4xR0.2xL3.0	0.4		3.0	0.3	0.37	15	4	50	3.15	3.26	3.37	3.48	3.75	●
N006235	CBNLB-2-0.5xR0.25xL1.0	0.5	0.25	1.0	0.38	0.47	15	4	50	1.08	1.11	1.14	1.18	1.26	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006236	CBNLB-2-0.5xR0.25xL1.5	0.5	0.25	1.5	0.38	0.47	15	4	50	1.60	1.65	1.70	1.75	1.88	※
N006237	CBNLB-2-0.5xR0.25xL2.5	0.5		2.5	0.38	0.47	15	4	50	2.63	2.72	2.81	2.90	3.12	※
N007825	CBNLB-2-0.5xR0.25xL3.5	0.5		3.5	0.38	0.47	15	4	50	3.67	3.79	3.91	4.05	4.36	※
N006238	CBNLB-2-0.6xR0.3xL1.2	0.6	0.3	1.2	0.5	0.57	15	4	50	1.29	1.32	1.36	1.40	1.49	●
N006239	CBNLB-2-0.6xR0.3xL1.5	0.6		1.5	0.5	0.57	15	4	50	1.60	1.64	1.69	1.74	1.87	●
N006240	CBNLB-2-0.6xR0.3xL3.0	0.6		3.0	0.5	0.57	15	4	50	3.15	3.25	3.35	3.47	3.73	●
N006241	CBNLB-2-0.6xR0.3xL4.0	0.6		4.0	0.5	0.57	15	4	50	4.18	4.32	4.46	4.62	4.97	●
N006242	CBNLB-2-0.6xR0.3xL5.0	0.6		5.0	0.5	0.57	15	4	50	5.22	5.39	5.57	5.77	6.22	●
N006243	CBNLB-2-0.6xR0.3xL6.0	0.6		6.0	0.5	0.57	15	4	50	6.25	6.46	6.68	6.92	7.46	●
N007826	CBNLB-2-0.8xR0.4xL1.6	0.8	0.4	1.6	0.6	0.77	15	4	50	1.70	1.74	1.79	1.85	1.97	※
N006244	CBNLB-2-0.8xR0.4xL2.0	0.8		2.0	0.6	0.77	15	4	50	2.11	2.17	2.24	2.31	2.46	※
N007827	CBNLB-2-0.8xR0.4xL4.0	0.8		4.0	0.6	0.77	15	4	50	4.18	4.31	4.45	4.60	4.95	※
N007828	CBNLB-2-0.8xR0.4xL6.0	0.8		6.0	0.6	0.77	15	4	50	6.25	6.45	6.67	6.90	7.44	※
N007829	CBNLB-2-1.0xR0.5xL2.0	1.0	0.5	2.0	0.7	0.96	15	4	50	2.13	2.18	2.25	2.31	2.46	●
N006245	CBNLB-2-1.0xR0.5xL2.5	1.0		2.5	0.7	0.96	15	4	50	2.64	2.72	2.80	2.89	3.09	●
N006250	CBNLB-2-1.0xR0.5xL3.0	1.0		3.0	0.7	0.96	15	4	50	3.16	3.25	3.35	3.46	3.71	●
N006251	CBNLB-2-1.0xR0.5xL4.0	1.0		4.0	0.7	0.96	15	4	50	4.20	4.32	4.46	4.61	4.95	●
N006252	CBNLB-2-1.0xR0.5xL5.0	1.0		5.0	0.7	0.96	15	4	50	5.23	5.39	5.57	5.76	6.19	●
N006253	CBNLB-2-1.0xR0.5xL6.0	1.0		6.0	0.7	0.96	15	4	50	6.26	6.46	6.68	6.91	7.44	●
N006254	CBNLB-2-1.0xR0.5xL8.0	1.0		8.0	0.7	0.96	15	4	50	8.33	8.60	8.90	9.21	9.92	●
N006249	CBNLB-2-1.0xR0.5xL10.0	1.0		10.0	0.7	0.96	15	4	50	10.40	10.74	11.11	11.51	12.41	●
N007830	CBNLB-2-1.2xR0.6xL2.4	1.2	0.6	2.4	0.8	1.16	15	4	50	2.54	2.61	2.68	2.76	2.94	※
N007831	CBNLB-2-1.2xR0.6xL3.0	1.2		3.0	0.8	1.16	15	4	50	3.16	3.25	3.34	3.45	3.68	※
N007832	CBNLB-2-1.2xR0.6xL6.0	1.2		6.0	0.8	1.16	15	4	50	6.26	6.46	6.67	6.90	7.41	※
N007835	CBNLB-2-1.5xR0.75xL3.0	1.5	0.75	3.0	1.0	1.44	15	4	50	3.19	3.28	3.37	3.47	3.70	●
N007836	CBNLB-2-1.5xR0.75xL3.8	1.5		3.8	1.0	1.44	15	4	50	4.02	4.13	4.26	4.39	4.69	●
N007837	CBNLB-2-1.5xR0.75xL5.0	1.5		5.0	1.0	1.44	15	4	50	5.26	5.42	5.59	5.77	6.18	●
N007838	CBNLB-2-1.5xR0.75xL7.5	1.5		7.5	1.0	1.44	15	4	50	7.84	8.09	8.36	8.64	9.29	●
N007833	CBNLB-2-1.5xR0.75xL10.0	1.5		10.0	1.0	1.44	15	4	50	10.43	10.76	11.13	11.52	12.40	●
N007834	CBNLB-2-1.5xR0.75xL15.0	1.5		15.0	1.0	1.44	15	4	50	15.60	16.11	16.67	17.27	18.61	●
N006256	CBNLB-2-2.0xR1.0xL4.0	2.0	1.0	4.0	1.2	1.96	15	4	50	4.18	4.29	4.41	4.54	4.83	●
N006257	CBNLB-2-2.0xR1.0xL5.0	2.0		5.0	1.2	1.96	15	4	50	5.21	5.36	5.52	5.69	6.08	●
N006258	CBNLB-2-2.0xR1.0xL6.0	2.0		6.0	1.2	1.96	15	4	50	6.25	6.43	6.63	6.84	7.32	●
N006259	CBNLB-2-2.0xR1.0xL8.0	2.0		8.0	1.2	1.96	15	4	50	8.31	8.57	8.84	9.14	9.81	●
N006255	CBNLB-2-2.0xR1.0xL10.0	2.0		10.0	1.2	1.96	15	4	50	10.38	10.71	11.06	11.44	12.29	●
N007839	CBNLB-2-2.0xR1.0xL14.0	2.0		14.0	1.2	1.96	15	4	50	14.51	14.99	15.49	16.04	17.27	●
N007840	CBNLB-2-2.0xR1.0xL15.0	2.0		15.0	1.2	1.96	15	4	50	15.55	16.06	16.60	17.19	18.51	●
N007841	CBNLB-2-2.0xR1.0xL20.0	2.0		20.0	1.2	1.96	15	4	50	20.72	21.40	22.14	22.94	FREE	●
N007844	CBNLB-2-3.0xR1.5xL5.0	3.0	1.5	5.0	2.0	2.92	15	6	50	5.27	5.40	5.55	5.70	6.06	※
N007845	CBNLB-2-3.0xR1.5xL6.0	3.0		6.0	2.0	2.92	15	6	50	6.31	6.47	6.65	6.85	7.30	※
N007846	CBNLB-2-3.0xR1.5xL9.0	3.0		9.0	2.0	2.92	15	6	50	9.41	9.68	9.98	10.30	11.03	※
N007842	CBNLB-2-3.0xR1.5xL10.0	3.0		10.0	2.0	2.92	15	6	50	10.44	10.75	11.09	11.45	12.27	※
N007843	CBNLB-2-3.0xR1.5xL15.0	3.0		15.0	2.0	2.92	15	6	50	15.61	16.10	16.63	17.20	18.49	※

CBN Series

切削条件表 Cutting Parameter P093

CBN | Non | Slotting | Planing | Profiling | 刃数 2 | Helix Angle 0° | NA 15° | h4 | Gash Land

CBNラッピングラジアスエンドミル CBN Lapping Radius End Mills

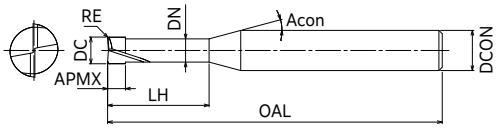
■型番:LAPCBNLR-2 Model number:LAPCBNLR-2

◆焼入れ鋼などの高硬度金型（HRC70 以下）の
平面のラップ仕上げ加工に適しています

◆Suitable for Lap finishing flat surfaces of
high-hardness molds (HRC70 or below) such as hardened steel



径許容差 Diameter Tolerance	R許容差 R Tolerance
0/-0.003	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material,
please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				○	◎	◎	◎							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N006395	LAPCBNLR-2-0.4xR0.1xL1.2	0.4	0.1	1.2	0.3	0.37	15	4	50	1.29	1.34	1.38	1.43	1.54	●
N006396	LAPCBNLR-2-0.5xR0.1xL1.5	0.5	0.1	1.5	0.38	0.47	15	4	50	1.61	1.66	1.71	1.77	1.91	●
N006397	LAPCBNLR-2-0.6xR0.1xL1.5	0.6	0.1	1.5	0.5	0.57	15	4	50	1.61	1.66	1.71	1.77	1.91	●
N006398	LAPCBNLR-2-0.6xR0.2xL1.5		0.2	1.5	0.5	0.57	15	4	50	1.60	1.65	1.70	1.76	1.89	●
N006399	LAPCBNLR-2-1.0xR0.1xL2.0	1.0	0.1	2.0	0.7	0.96	15	4	50	2.14	2.21	2.29	2.37	2.56	●
N006400	LAPCBNLR-2-1.0xR0.2xL2.0		0.2	2.0	0.7	0.96	15	4	50	2.14	2.21	2.28	2.36	2.53	●
N006401	LAPCBNLR-2-1.0xR0.3xL2.0		0.3	2.0	0.7	0.96	15	4	50	2.13	2.20	2.27	2.34	2.51	●
N006402	LAPCBNLR-2-1.5xR0.1xL3.0	1.5	0.1	3.0	1.0	1.44	15	4	50	3.21	3.32	3.44	3.56	3.85	●
N006403	LAPCBNLR-2-1.5xR0.2xL3.0		0.2	3.0	1.0	1.44	15	4	50	3.21	3.31	3.43	3.55	3.82	●
N006404	LAPCBNLR-2-1.5xR0.3xL3.0		0.3	3.0	1.0	1.44	15	4	50	3.21	3.31	3.42	3.53	3.80	●
N006405	LAPCBNLR-2-2.0xR0.1xL5.0	2.0	0.1	5.0	1.2	1.96	15	4	50	5.24	5.42	5.61	5.82	6.29	●
N006406	LAPCBNLR-2-2.0xR0.2xL5.0		0.2	5.0	1.2	1.96	15	4	50	5.24	5.41	5.60	5.81	6.26	●
N006407	LAPCBNLR-2-2.0xR0.3xL5.0		0.3	5.0	1.2	1.96	15	4	50	5.24	5.41	5.59	5.79	6.24	●
N006408	LAPCBNLR-2-3.0xR0.1xL5.0	3.0	0.1	5.0	2.0	2.92	15	6	50	5.32	5.50	5.70	5.91	6.38	●
N006409	LAPCBNLR-2-3.0xR0.2xL5.0		0.2	5.0	2.0	2.92	15	6	50	5.32	5.49	5.69	5.89	6.35	●
N006410	LAPCBNLR-2-3.0xR0.3xL5.0		0.3	5.0	2.0	2.92	15	6	50	5.31	5.49	5.67	5.88	6.33	●

CBN | Non | Profiling | 刃数 2 | Helix Angle 0° | NA 15° | h4 | Gash Land

切削条件表 Cutting Parameter P093

CBNラッピングボールエンドミル CBN Lapping Ball End Mills

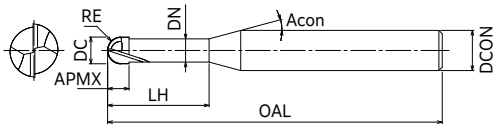
■型番:LAPCBNLB-2 Model number:LAPCBNLB-2

◆焼入れ鋼などの高硬度金型（HRC70 以下）の曲面のラップ仕上げ加工に適しています

◆Suitable for Lap finishing curved surfaces of hardened steel molds (HRC70 or below)



径許容差 Diameter Tolerance	R許容差 R Tolerance
0/-0.003	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				○	◎	◎	◎							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N006246	LAPCBNLB-2-0.4xR0.2xL1.0	0.4	0.2	1.0	0.3	0.37	15	4	50	1.08	1.12	1.15	1.18	1.27	●
N006247	LAPCBNLB-2-0.6xR0.3xL1.5	0.6	0.3	1.5	0.5	0.57	15	4	50	1.60	1.64	1.69	1.74	1.87	●
N006248	LAPCBNLB-2-1.0xR0.5xL2.0	1.0	0.5	2.0	0.7	0.96	15	4	50	2.13	2.18	2.25	2.31	2.46	●
N008338	LAPCBNLB-2-1.5xR0.75xL3.0	1.5	0.75	3.0	1.0	1.44	15	4	50	3.19	3.28	3.37	3.47	3.70	●
N008339	LAPCBNLB-2-1.5xR0.75xL5.0	1.5		5.0	1.0	1.44	15	4	50	5.26	5.42	5.59	5.77	6.18	●
N008337	LAPCBNLB-2-1.5xR0.75xL10.0	1.5		10.0	1.0	1.44	15	4	50	10.43	10.76	11.13	11.52	12.40	●
N008342	LAPCBNLB-2-2.0xR1.0xL5.0	2.0	1.0	5.0	2.0	1.96	15	4	50	5.21	5.36	5.52	5.69	6.08	●
N008340	LAPCBNLB-2-2.0xR1.0xL10.0	2.0		10.0	2.0	1.96	15	4	50	10.38	10.71	11.06	11.44	12.29	●
N008341	LAPCBNLB-2-2.0xR1.0xL15.0	2.0		15.0	2.0	1.96	15	4	50	15.55	16.06	16.60	17.19	18.51	●
N008345	LAPCBNLB-2-3.0xR1.5xL5.0	3.0	1.5	5.0	2.0	2.92	15	6	50	5.27	5.40	5.55	5.70	6.06	●
N008343	LAPCBNLB-2-3.0xR1.5xL10.0	3.0		10.0	2.0	2.92	15	6	50	10.44	10.75	11.09	11.45	12.27	●
N008344	LAPCBNLB-2-3.0xR1.5xL15.0	3.0		15.0	2.0	2.92	15	6	50	15.61	16.10	16.63	17.20	18.49	●

CBN Series

CBN 切削条件参考表
Recommended Milling Conditions

■型番:CBNLRH-2, CBNLR-2
Model number:CBNLRH-2, CBNLR-2

ラジアスエンドミル Radius End Mills

被削材 Work Material		高硬度鋼 Hardened Steels SKD61 (~50HRC)				焼き入れ鋼 Hardened Steels STAVAX/HPM (~55HRC)				焼き入れ鋼 Hardened Steels SKD11/SKH51 (~62HRC)				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72 (62HRC以上)			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.1	0.2	50,000	200	0.002	0.01	50,000	150	0.002	0.005	50,000	150	0.002	0.005	50,000	100	0.001	0.001
	0.5	50,000	200	0.002	0.01	50,000	150	0.002	0.005	50,000	150	0.002	0.005	50,000	100	0.001	0.001
0.15	0.2	50,000	220	0.003	0.015	50,000	180	0.002	0.01	50,000	180	0.002	0.01	50,000	130	0.002	0.002
	0.5	50,000	200	0.002	0.015	50,000	150	0.002	0.01	50,000	150	0.002	0.01	50,000	100	0.001	0.001
0.2	0.3	50,000	300	0.003	0.03	50,000	300	0.003	0.03	50,000	300	0.003	0.03	50,000	200	0.002	0.02
	0.5	50,000	300	0.003	0.03	50,000	300	0.003	0.03	50,000	200	0.003	0.03	50,000	200	0.002	0.02
	1.0	50,000	200	0.003	0.02	50,000	200	0.003	0.02	50,000	200	0.003	0.02	50,000	100	0.002	0.01
0.3	0.5	50,000	500	0.003	0.05	50,000	500	0.003	0.05	50,000	400	0.003	0.05	50,000	300	0.002	0.03
	0.75	50,000	500	0.003	0.05	50,000	500	0.003	0.05	50,000	400	0.003	0.05	50,000	300	0.002	0.03
	1.0	50,000	500	0.003	0.05	50,000	500	0.003	0.05	50,000	400	0.003	0.05	50,000	300	0.002	0.03
	1.5	50,000	400	0.003	0.03	50,000	400	0.003	0.03	50,000	300	0.003	0.03	50,000	200	0.002	0.02
	2.0	50,000	400	0.003	0.03	50,000	400	0.003	0.03	50,000	300	0.003	0.03	50,000	200	0.002	0.02
0.4	0.5	50,000	700	0.005	0.1	50,000	700	0.005	0.1	50,000	600	0.005	0.1	50,000	400	0.003	0.03
	1.0	50,000	700	0.005	0.1	50,000	700	0.005	0.1	50,000	600	0.005	0.1	50,000	400	0.003	0.03
	1.5	50,000	500	0.005	0.05	50,000	500	0.005	0.05	50,000	400	0.005	0.05	50,000	300	0.003	0.02
	2.0	50,000	500	0.005	0.05	50,000	500	0.005	0.05	50,000	400	0.005	0.05	50,000	300	0.003	0.02
0.5	0.5	50,000	600	0.01	0.2	50,000	600	0.01	0.2	50,000	600	0.01	0.2	50,000	500	0.005	0.2
	1.0	50,000	600	0.01	0.2	50,000	600	0.01	0.2	50,000	600	0.01	0.2	50,000	500	0.005	0.2
	1.5	50,000	600	0.01	0.1	50,000	600	0.01	0.1	50,000	600	0.01	0.1	50,000	500	0.005	0.1
	2.5	50,000	600	0.01	0.1	50,000	600	0.01	0.1	50,000	600	0.01	0.1	50,000	500	0.005	0.1
0.6	0.5	50,000	600	0.01	0.2	50,000	600	0.01	0.2	50,000	600	0.01	0.2	50,000	500	0.005	0.2
	1.0	50,000	600	0.01	0.2	50,000	600	0.01	0.2	50,000	600	0.01	0.2	50,000	500	0.005	0.2
	1.5	50,000	600	0.01	0.2	50,000	600	0.01	0.2	50,000	600	0.01	0.2	50,000	500	0.005	0.2
	2.5	50,000	600	0.01	0.1	50,000	600	0.01	0.1	50,000	600	0.01	0.1	50,000	500	0.005	0.1
0.8	1.5	50,000	800	0.01	0.3	50,000	800	0.01	0.3	50,000	800	0.01	0.2	42,000	700	0.01	0.1
	5.0	50,000	600	0.005	0.1	50,000	600	0.005	0.1	50,000	600	0.005	0.1	42,000	600	0.005	0.05
1.0	1.0	48,000	1,000	0.01	0.4	48,000	1,000	0.01	0.4	48,000	1,000	0.01	0.3	34,000	800	0.01	0.2
	2.0	48,000	1,000	0.01	0.4	48,000	1,000	0.01	0.4	48,000	1,000	0.01	0.3	34,000	800	0.01	0.2
	3.0	48,000	1,000	0.01	0.3	48,000	1,000	0.01	0.3	48,000	1,000	0.01	0.2	34,000	800	0.01	0.1
	5.0	48,000	1,000	0.01	0.3	48,000	1,000	0.01	0.3	48,000	1,000	0.01	0.2	34,000	800	0.01	0.1
	10.0	48,000	800	0.005	0.2	48,000	1,000	0.005	0.2	48,000	1,000	0.005	0.2	30,000	600	0.005	0.1
1.5	2.0	33,000	1,200	0.02	0.8	33,000	1,000	0.01	0.6	33,000	1,000	0.01	0.6	24,000	800	0.01	0.3
	5.0	33,000	1,000	0.02	0.7	33,000	1,000	0.01	0.5	33,000	1,000	0.01	0.5	20,000	700	0.01	0.3
	10.0	30,000	1,000	0.02	0.5	30,000	900	0.01	0.4	30,000	900	0.01	0.4	20,000	700	0.01	0.2
2.0	3.0	24,000	1,100	0.02	0.8	24,000	1,100	0.02	0.8	24,000	1,000	0.01	0.7	18,000	800	0.01	0.5
	4.0	24,000	1,000	0.02	0.8	24,000	1,000	0.02	0.8	24,000	1,000	0.01	0.7	18,000	800	0.01	0.5
	5.0	24,000	1,000	0.02	0.8	24,000	1,000	0.02	0.8	24,000	1,000	0.01	0.7	18,000	800	0.01	0.5
	10.0	24,000	1,000	0.02	0.6	24,000	1,000	0.01	0.5	24,000	1,000	0.01	0.5	16,000	800	0.01	0.3
	15.0	24,000	900	0.01	0.6	24,000	800	0.01	0.4	24,000	800	0.01	0.4	16,000	600	0.01	0.2
3.0	5.0	24,000	1,200	0.03	0.8	24,000	1,100	0.03	0.8	24,000	1,100	0.03	0.8	18,000	800	0.02	0.6
	10.0	24,000	1,000	0.02	0.7	24,000	900	0.02	0.6	24,000	900	0.02	0.6	18,000	700	0.01	0.2
	15.0	24,000	800	0.02	0.7	24,000	600	0.02	0.5	24,000	600	0.01	0.3	18,000	600	0.01	0.1

CBN 切削条件参考表
Recommended Milling Conditions

■型番:CBNLRH-3, CBNLR-3
Model number:CBNLRH-3, CBNLR-3

ラジアスエンドミル Radius End Mills

被削材 Work Material		高硬度鋼 Hardened Steels SKD61 (~50HRC)				焼き入れ鋼 Hardened Steels STAVAX/HPM (~55HRC)				焼き入れ鋼 Hardened Steels SKD11/SKH51 (~62HRC)				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72 (62HRC以上)			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.6	0.5	50,000	1,600	0.015	0.2	50,000	1,000	0.01	0.15	50,000	1,000	0.01	0.15	50,000	700	0.005	0.1
	1.0	50,000	1,500	0.01	0.2	50,000	900	0.005	0.15	50,000	900	0.005	0.15	50,000	600	0.003	0.1
	1.5	50,000	1,400	0.01	0.2	50,000	800	0.005	0.15	50,000	800	0.005	0.15	50,000	500	0.003	0.08
	2.5	40,000	1,100	0.005	0.1	40,000	500	0.005	0.1	40,000	500	0.005	0.1	40,000	300	0.003	0.05
0.8	1.5	40,000	2,200	0.015	0.4	40,000	1,000	0.01	0.2	40,000	1,000	0.01	0.2	40,000	800	0.005	0.1
	2.5	40,000	2,000	0.01	0.4	40,000	1,000	0.01	0.2	40,000	1,000	0.01	0.2	40,000	800	0.005	0.1
	5.0	40,000	1,500	0.007	0.3	40,000	800	0.005	0.15	40,000	800	0.005	0.15	40,000	400	0.003	0.07

CBN 切削条件参考表
Recommended Milling Conditions

■型番:CBNLRH-4, CBNLR-4
Model number:CBNLRH-4, CBNLR-4

ラジアスエンドミル Radius End Mills

被削材 Work Material		高硬度鋼 Hardened Steels SKD61 (~50HRC)				焼き入れ鋼 Hardened Steels STAVAX/HPM (~55HRC)				焼き入れ鋼 Hardened Steels SKD11/SKH51 (~62HRC)				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72 (62HRC以上)			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	1.0	40,000	2,200	0.02	0.4	40,000	2,200	0.02	0.4	40,000	2,000	0.02	0.3	36,000	1,500	0.01	0.2
	3.0	40,000	2,200	0.02	0.4	40,000	2,200	0.02	0.4	40,000	2,000	0.02	0.3	36,000	1,500	0.01	0.2
	5.0	40,000	2,000	0.01	0.3	40,000	2,000	0.01	0.3	40,000	1,800	0.01	0.2	36,000	1,300	0.005	0.1
	10.0	40,000	1,600	0.01	0.2	40,000	1,600	0.01	0.2	40,000	1,400	0.005	0.1	36,000	1,000	0.005	0.005
1.5	2.0	38,000	4,000	0.04	0.6	36,000	4,000	0.04	0.6	30,000	3,200	0.03	0.5	24,000	2,000	0.015	0.3
	3.0	38,000	3,500	0.04	0.6	36,000	3,500	0.04	0.6	30,000	2,800	0.03	0.5	24,000	1,800	0.015	0.3
	5.0	38,000	3,500	0.04	0.6	36,000	3,500	0.04	0.6	30,000	2,800	0.03	0.5	24,000	1,800	0.01	0.2
	10.0	38,000	3,500	0.04	0.6	36,000	3,500	0.04	0.6	30,000	2,800	0.03	0.5	24,000	1,800	0.01	0.2
2.0	3.0	30,000	4,000	0.05	0.8	25,000	4,000	0.05	0.8	25,000	3,200	0.04	0.7	20,000	1,500	0.02	0.3
	5.0	30,000	3,500	0.04	0.8	25,000	3,500	0.04	0.8	24,000	2,800	0.03	0.7	18,000	1,500	0.01	0.3
	10.0	30,000	3,000	0.03	0.6	25,000	3,000	0.03	0.6	24,000	2,400	0.02	0.5	16,000	1,300	0.01	0.3
	15.0	30,000	2,500	0.02	0.4	25,000	2,500	0.02	0.4	24,000	2,000	0.01	0.4	16,000	1,000	0.01	0.2
3.0	5.0	26,000	4,000	0.05	0.9	26,000	4,000	0.04	0.9	22,000	3,200	0.04	0.8	12,000	1,500	0.02	0.6
	10.0	24,000	3,500	0.04	0.8	20,000	2,800	0.04	0.7	20,000	2,800	0.04	0.7	12,000	1,500	0.02	0.5
	15.0	24,000	3,000	0.03	0.8	20,000	2,400	0.03	0.7	20,000	2,400	0.03	0.7	12,000	1,300	0.01	0.5
4.0	10.0	22,000	3,300	0.04	1.0	20,000	2,600	0.04	0.8	20,000	2,600	0.04	0.8	12,000	1,500	0.03	0.6
	15.0	22,000	3,000	0.03	1.0	20,000	2,400	0.03	0.8	20,000	2,400	0.03	0.8	12,000	1,300	0.02	0.6
5.0	15.0	22,000	3,000	0.03	1.0	20,000	2,400	0.03	0.8	20,000	2,400	0.03	0.8	12,000	1,300	0.02	0.6
6.0	10.0	20,000	3,300	0.05	1.0	18,000	2,600	0.04	0.8	18,000	2,400	0.03	0.8	12,000	1,300	0.02	0.6
	15.0	18,000	3,100	0.05	1.0	16,000	2,400	0.04	0.8	16,000	2,200	0.03	0.8	11,000	1,100	0.02	0.6

CBN Series

CBN 切削条件参考表
Recommended Milling Conditions

■型番:CBNLBH-2, CBNLB-2
Model number:CBNLBH-2, CBNLB-2

ボールエンドミル Ball End Mills

被削材 Work Material		高硬度鋼 Hardened Steels SKD61 (~50HRC)				焼き入れ鋼 Hardened Steels STAVAX/HPM (~55HRC)				焼き入れ鋼 Hardened Steels SKD11/SKH51 (~62HRC)				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72 (62HRC以上)			
ボール半径(R) Ball R.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.05	0.2	50,000	200	0.005	0.005	50,000	150	0.003	0.005	50,000	150	0.003	0.005	50,000	110	0.002	0.003
	0.5	50,000	100	0.003	0.003	50,000	90	0.003	0.003	50,000	90	0.003	0.003	50,000	80	0.002	0.002
0.075	0.45	50,000	280	0.005	0.005	50,000	180	0.003	0.005	50,000	180	0.003	0.005	50,000	120	0.002	0.003
	0.75	50,000	150	0.003	0.003	50,000	100	0.003	0.003	50,000	100	0.003	0.003	50,000	90	0.002	0.002
0.1	0.3	50,000	600	0.005	0.005	50,000	600	0.005	0.005	50,000	430	0.005	0.005	50,000	350	0.003	0.003
	0.6	50,000	500	0.005	0.005	50,000	500	0.005	0.005	50,000	360	0.005	0.005	50,000	260	0.003	0.003
	1.0	50,000	300	0.005	0.005	50,000	300	0.005	0.005	50,000	240	0.005	0.005	50,000	120	0.003	0.003
0.15	0.3	50,000	1,400	0.005	0.005	50,000	1,400	0.005	0.005	50,000	800	0.005	0.005	50,000	500	0.005	0.005
	0.5	50,000	1,200	0.005	0.005	50,000	1,200	0.005	0.005	50,000	600	0.005	0.005	50,000	450	0.003	0.005
	0.75	50,000	1,000	0.005	0.005	50,000	1,000	0.005	0.005	50,000	520	0.005	0.005	50,000	400	0.003	0.005
0.2	0.5	50,000	1,800	0.005	0.01	50,000	1,800	0.005	0.01	50,000	1,200	0.005	0.01	50,000	650	0.005	0.01
	0.75	50,000	1,600	0.005	0.01	50,000	1,600	0.005	0.01	50,000	1,000	0.005	0.01	50,000	550	0.005	0.01
	1.0	50,000	1,400	0.005	0.01	50,000	1,400	0.005	0.01	50,000	900	0.005	0.01	50,000	450	0.005	0.005
	1.2	50,000	1,200	0.005	0.01	50,000	1,200	0.005	0.01	50,000	800	0.005	0.01	50,000	550	0.005	0.005
	2.0	50,000	600	0.005	0.01	50,000	600	0.005	0.01	50,000	500	0.005	0.01	50,000	350	0.005	0.005
	3.0	50,000	400	0.005	0.01	50,000	400	0.005	0.01	50,000	360	0.005	0.01	50,000	280	0.003	0.003
0.25	1.0	50,000	1,800	0.01	0.015	50,000	1,800	0.01	0.015	50,000	1,500	0.01	0.01	50,000	1,100	0.01	0.01
	1.5	50,000	1,300	0.01	0.01	50,000	1,300	0.01	0.01	50,000	1,200	0.01	0.01	50,000	850	0.005	0.01
	2.5	50,000	800	0.01	0.01	50,000	800	0.01	0.01	50,000	620	0.01	0.01	50,000	550	0.005	0.01
	3.5	50,000	500	0.01	0.01	50,000	500	0.01	0.01	50,000	400	0.01	0.01	50,000	350	0.005	0.01
0.3	1.2	40,000	2,000	0.01	0.03	40,000	2,000	0.01	0.03	40,000	1,800	0.01	0.02	40,000	1,500	0.01	0.02
	1.5	40,000	2,000	0.02	0.03	40,000	2,000	0.02	0.03	40,000	1,800	0.01	0.02	40,000	1,500	0.01	0.02
	3.0	40,000	1,800	0.01	0.02	40,000	1,800	0.01	0.02	40,000	1,600	0.01	0.02	40,000	900	0.01	0.01
	4.0	30,000	1,300	0.01	0.01	30,000	1,300	0.01	0.01	30,000	1,200	0.01	0.01	30,000	600	0.005	0.01
	5.0	30,000	800	0.01	0.01	30,000	800	0.01	0.01	30,000	720	0.01	0.01	30,000	500	0.005	0.005
	6.0	30,000	500	0.01	0.01	30,000	500	0.01	0.01	30,000	450	0.01	0.01	30,000	360	0.005	0.005
0.4	2.0	30,000	2,000	0.03	0.05	30,000	2,000	0.03	0.05	30,000	2,000	0.02	0.03	30,000	1,500	0.01	0.03
	4.0	30,000	1,800	0.02	0.03	30,000	1,800	0.02	0.03	30,000	1,800	0.01	0.02	30,000	1,200	0.01	0.01
	6.0	30,000	1,200	0.01	0.03	30,000	1,200	0.01	0.03	30,000	1,200	0.01	0.01	30,000	860	0.01	0.01
0.5	2.0	40,000	3,000	0.05	0.05	40,000	3,000	0.05	0.05	40,000	3,000	0.03	0.05	40,000	2,000	0.02	0.03
	2.5	40,000	3,000	0.05	0.05	40,000	3,000	0.05	0.05	40,000	3,000	0.03	0.05	40,000	2,000	0.02	0.03
	3.0	40,000	3,000	0.05	0.05	40,000	3,000	0.05	0.05	40,000	2,600	0.02	0.03	40,000	1,800	0.02	0.02
	4.0	40,000	2,400	0.03	0.05	40,000	2,400	0.03	0.05	40,000	2,400	0.02	0.03	40,000	1,500	0.02	0.02
	5.0	40,000	2,000	0.02	0.05	40,000	2,000	0.02	0.05	40,000	2,000	0.02	0.03	40,000	1,200	0.01	0.02
	6.0	30,000	1,500	0.02	0.03	30,000	1,500	0.02	0.03	25,000	1,500	0.01	0.02	25,000	1,000	0.01	0.01
	8.0	30,000	1,200	0.01	0.03	30,000	1,200	0.01	0.03	24,000	1,000	0.01	0.01	18,000	850	0.01	0.01
	10.0	26,000	800	0.01	0.02	26,000	800	0.01	0.02	22,000	700	0.005	0.01	13,000	600	0.005	0.005
0.6	3.0	40,000	3,000	0.05	0.05	40,000	3,000	0.05	0.05	40,000	2,600	0.02	0.03	40,000	1,800	0.02	0.02
	6.0	30,000	1,500	0.02	0.03	30,000	1,500	0.02	0.03	25,000	1,500	0.01	0.02	25,000	1,000	0.01	0.01
0.75	3.0	40,000	3,000	0.05	0.05	40,000	3,000	0.05	0.05	40,000	2,600	0.02	0.03	40,000	1,800	0.02	0.02
	5.0	30,000	2,000	0.02	0.03	30,000	2,000	0.02	0.03	25,000	1,800	0.01	0.02	25,000	1,600	0.01	0.01
	10.0	30,000	1,800	0.02	0.02	30,000	2,000	0.01	0.03	25,000	1,800	0.01	0.02	25,000	1,400	0.01	0.01
	15.0	30,000	1,600	0.02	0.02	30,000	1,800	0.01	0.02	25,000	1,600	0.01	0.02	25,000	1,200	0.01	0.01

ボールエンドミル Ball End Mills

被削材 Work Material		高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM（~55HRC）				焼き入れ鋼 Hardened Steels SKD11/SKH51（~62HRC）				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72（62HRC以上）			
ボール半径(R) Ball R.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	4.0	40,000	4,500	0.1	0.1	40,000	4,500	0.1	0.1	40,000	4,500	0.05	0.05	40,000	3,000	0.03	0.05
	5.0	40,000	4,500	0.08	0.08	40,000	4,500	0.08	0.08	40,000	4,500	0.05	0.05	40,000	2,800	0.03	0.05
	6.0	40,000	4,000	0.05	0.05	40,000	4,000	0.05	0.05	40,000	4,000	0.03	0.03	40,000	2,500	0.02	0.03
	8.0	33,000	3,000	0.03	0.05	33,000	3,000	0.03	0.05	33,000	2,500	0.02	0.03	33,000	1,800	0.01	0.02
	10.0	24,000	2,000	0.02	0.03	24,000	2,000	0.02	0.03	24,000	1,600	0.01	0.03	24,000	1,200	0.01	0.02
	15.0	24,000	1,800	0.02	0.02	24,000	1,800	0.02	0.02	24,000	1,600	0.01	0.02	24,000	1,000	0.01	0.01
	20.0	24,000	1,600	0.02	0.02	24,000	1,600	0.02	0.02	24,000	1,400	0.01	0.02	24,000	800	0.005	0.01
1.5	5.0	40,000	4,500	0.08	0.08	40,000	4,500	0.08	0.08	40,000	4,500	0.05	0.05	40,000	2,800	0.03	0.05
	10.0	24,000	2,000	0.02	0.03	24,000	2,000	0.02	0.03	24,000	1,600	0.01	0.03	24,000	1,200	0.01	0.02
	15.0	24,000	1,800	0.02	0.02	24,000	1,800	0.02	0.02	24,000	1,600	0.01	0.02	24,000	1,000	0.01	0.01

CBN 切削条件参考表
Recommended Milling Conditions

■型番:LAPCBNLR-2
Model number:LAPCBNLR-2

ラッピングラジアスエンドミル Lapping Radius End Mills

被削材 Work Material		高硬度鋼 Hardened Steels SKD61 (~50HRC)				焼き入れ鋼 Hardened Steels STAVAX/HPM (~55HRC)				焼き入れ鋼 Hardened Steels SKD11/SKH51 (~62HRC)				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72 (62HRC以上)			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.4	1.2	40,000	800	0.003	0.05	40,000	800	0.003	0.05	40,000	700	0.003	0.05	40,000	600	0.003	0.05
0.5	1.5	40,000	800	0.003	0.05	40,000	800	0.003	0.05	40,000	700	0.003	0.05	40,000	600	0.003	0.05
0.6	1.5	40,000	800	0.003	0.1	40,000	800	0.003	0.1	40,000	700	0.003	0.1	40,000	600	0.003	0.1
1.0	2.0	35,000	1,000	0.005	0.2	35,000	1,000	0.005	0.2	35,000	900	0.005	0.2	35,000	800	0.005	0.2
1.5	3.0	30,000	1,000	0.005	0.5	30,000	1,000	0.005	0.5	30,000	900	0.005	0.5	30,000	800	0.005	0.5
2.0	5.0	30,000	1,000	0.005	0.7	30,000	1,000	0.005	0.7	30,000	900	0.005	0.7	30,000	800	0.005	0.7
3.0	5.0	30,000	1,000	0.005	1.0	30,000	1,000	0.005	1.0	30,000	900	0.005	1.0	30,000	800	0.005	1.0

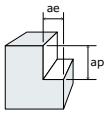
CBN 切削条件参考表
Recommended Milling Conditions

■型番:LAPCBNLB-2
Model number:LAPCBNLB-2

ラッピングボールエンドミル Lapping Ball End Mills

被削材 Work Material		高硬度鋼 Hardened Steels SKD61 (~50HRC)				焼き入れ鋼 Hardened Steels STAVAX/HPM (~55HRC)				焼き入れ鋼 Hardened Steels SKD11/SKH51 (~62HRC)				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72 (62HRC以上)			
ボール半径(R) Ball R	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.2	1.0	40,000	800	0.003	0.01	40,000	800	0.003	0.01	40,000	700	0.003	0.01	40,000	600	0.003	0.01
0.3	1.5	40,000	800	0.003	0.01	40,000	800	0.003	0.01	40,000	700	0.003	0.01	40,000	600	0.003	0.01
0.5	2.0	35,000	1,000	0.005	0.01	35,000	1,000	0.005	0.01	35,000	900	0.005	0.01	35,000	800	0.005	0.01
0.75	3.0	35,000	1,000	0.005	0.02	35,000	1,000	0.005	0.02	35,000	900	0.005	0.02	35,000	800	0.005	0.02
	5.0	35,000	800	0.005	0.015	35,000	800	0.005	0.015	35,000	700	0.005	0.015	35,000	600	0.005	0.015
	10.0	35,000	700	0.005	0.015	35,000	700	0.005	0.015	35,000	600	0.005	0.015	35,000	500	0.005	0.015
1.0	5.0	30,000	1,000	0.005	0.03	30,000	1,000	0.005	0.03	30,000	900	0.005	0.03	30,000	800	0.005	0.03
	10.0	30,000	800	0.005	0.02	30,000	800	0.005	0.02	30,000	700	0.005	0.02	30,000	600	0.005	0.02
	15.0	30,000	700	0.005	0.02	30,000	700	0.005	0.02	30,000	600	0.005	0.02	30,000	500	0.005	0.02
1.5	5.0	30,000	1,000	0.005	0.04	30,000	1,000	0.005	0.04	30,000	900	0.005	0.04	30,000	800	0.005	0.04
	10.0	30,000	800	0.005	0.03	30,000	800	0.005	0.03	30,000	700	0.005	0.03	30,000	600	0.005	0.03
	15.0	30,000	700	0.005	0.03	30,000	700	0.005	0.03	30,000	600	0.005	0.03	30,000	500	0.005	0.03

備考 Notes



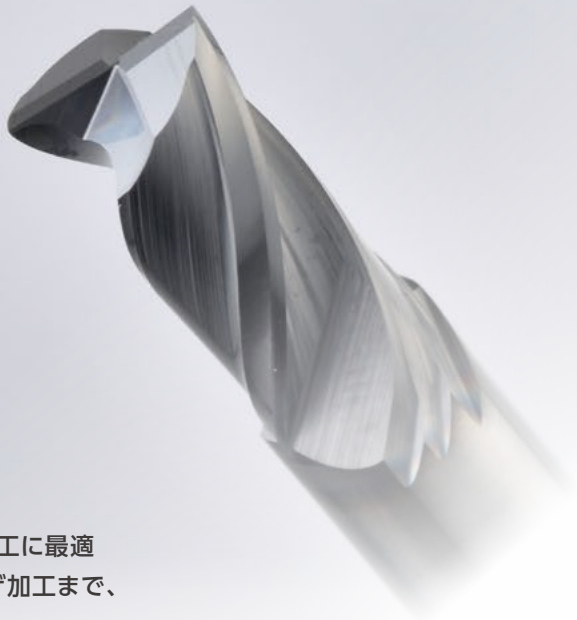
- ●工具はホルダに確実に固定し、振れを抑えて下さい。
- ●切り込み量は、仕上げ加工を行う場合の最大値です。
- ●∂pは深さ方向の切り込み量、∂eはピックフィードを示します。
- ●オイルミストクーラント、または、不水溶性切削液をご使用下さい。
- ●工具突出しは必要以上に出さないで下さい。
- ●回転数と送り速度は同じ割合で調整して下さい。

- ●Reduce tool deflection by mounting the tool securely into the holder.
- ●Depth of Cut shows the maximum value for finishing.
- ●∂p=Axial Depth of Cut ∂e=Radial Depth of Cut.
- ●We recommend using oil mist coolant or non-water soluble cutting fluid.
- ●Length of tool overhang must be as short as possible.
- ●Adjust milling conditions according to the depth of cut and the rigidity of the machine and work holding.

ion Depo Type U Series

超硬エンドミル Carbide End Mills





特　長

- ion Depo Type U コーティングは高硬度材の加工に最適
- 耐摩耗性に優れたコーティングは粗加工から仕上げ加工まで、すべての加工に対応

Features

- The ion Depo Type U coating is ideal for machining high-hardness materials.
- The wear-resistant coating supports every process from roughing to finishing.

super MG | ion U | Side Milling | Slotting | Planing | Helical | 刃数 2 | Helix Angle 30° | NA 11° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P146

超硬スクエアエンドミル 高精度 Carbide Square End Mills High Precision

■型番:IUSH-2 Model number:IUSH-2

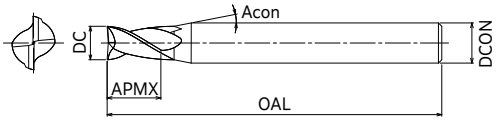
◆HRC50 以上の高硬度金型の溝・側面加工に適しています

◆Suitable for slotting and side milling of high-hardness molds with HRC50 or higher



高精度 High Precision

径許容差 Diameter Tolerance
-0.004/-0.007



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				~50HRC	~55HRC	~62HRC	~70HRC							
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N010139	IUSH-2-0.1x0.15	0.1	0.15	11	4	50	※
N010140	IUSH-2-0.2x0.4	0.2	0.4	11	4	50	※
N010141	IUSH-2-0.3x0.6	0.3	0.6	11	4	50	※
N010142	IUSH-2-0.4x0.8	0.4	0.8	11	4	50	●
N010143	IUSH-2-0.5x1.0	0.5	1.0	11	4	50	●
N010144	IUSH-2-0.6x1.2	0.6	1.2	11	4	50	※
N010145	IUSH-2-0.7x1.4	0.7	1.4	11	4	50	※
N010146	IUSH-2-0.8x1.6	0.8	1.6	11	4	50	●
N010147	IUSH-2-0.9x1.8	0.9	1.8	11	4	50	※
N010148	IUSH-2-1.0x2.0	1.0	2.0	11	4	50	●
N010149	IUSH-2-1.1x2.2	1.1	2.2	11	4	50	※
N010150	IUSH-2-1.2x2.4	1.2	2.4	11	4	50	※
N010151	IUSH-2-1.3x2.6	1.3	2.6	11	4	50	※
N010152	IUSH-2-1.4x2.8	1.4	2.8	11	4	50	※
N010153	IUSH-2-1.5x3.0	1.5	3.0	11	4	50	●
N010154	IUSH-2-1.6x3.2	1.6	3.2	11	4	50	※
N010155	IUSH-2-1.7x3.4	1.7	3.4	11	4	50	※
N010156	IUSH-2-1.8x3.6	1.8	3.6	11	4	50	※
N010157	IUSH-2-1.9x3.8	1.9	3.8	11	4	50	※
N010158	IUSH-2-2.0x4.0	2.0	4.0	11	4	50	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N010159	IUSH-2-2.1x4.2	2.1	4.2	11	4	50	※
N010160	IUSH-2-2.2x4.4	2.2	4.4	11	4	50	※
N010161	IUSH-2-2.3x4.6	2.3	4.6	11	4	50	※
N010162	IUSH-2-2.4x4.8	2.4	4.8	11	4	50	※
N010163	IUSH-2-2.5x5.0	2.5	5.0	11	4	50	※
N010164	IUSH-2-2.6x5.2	2.6	5.2	11	4	50	※
N010165	IUSH-2-2.7x5.4	2.7	5.4	11	4	50	※
N010166	IUSH-2-2.8x5.6	2.8	5.6	11	4	50	※
N010167	IUSH-2-2.9x5.8	2.9	5.8	11	4	50	※
N010168	IUSH-2-3.0x6.0	3.0	6.0	11	4	50	●
N010169	IUSH-2-3.5x7.0	3.5	7.0	11	6	50	※
N010170	IUSH-2-4.0x8.0	4.0	8.0	11	6	50	●
N010171	IUSH-2-4.5x9.0	4.5	9.0	11	6	50	※
N010172	IUSH-2-5.0x10.0	5.0	10.0	11	6	50	●
N010173	IUSH-2-5.5x11.0	5.5	11.0	11	6	50	※
N010174	IUSH-2-6.0x12.0	6.0	12.0	—	6	50	●

super MG | ion U | Side Milling | Planing | Helical | 刃数 4 | Helix Angle 30° | NA 11° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P148

超硬スクエアエンドミル 高精度 Carbide Square End Mills High Precision

■型番:IUSH-4 Model number:IUSH-4

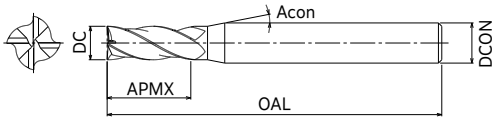
◆HRC50 以上の高硬度金型の側面加工に適しています

◆Suitable for side milling of high-hardness molds with HRC50 or higher



高精度 High Precision

径許容差 Diameter Tolerance
-0.004/-0.007



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N010175	IUSH-4-1.0x2.0	1.0	2.0	11	4	50	●
N010176	IUSH-4-1.5x3.0	1.5	3.0	11	4	50	●
N010177	IUSH-4-2.0x4.0	2.0	4.0	11	4	50	●
N010178	IUSH-4-3.0x6.0	3.0	6.0	11	4	50	●
N010179	IUSH-4-4.0x8.0	4.0	8.0	11	6	50	●
N010180	IUSH-4-6.0x12.0	6.0	12.0	—	6	60	●
N010181	IUSH-4-6.0x18.0		18.0	—	6	60	●

ion Depo Type U Series

super MG | ion U | Side Milling | Slotting | Planing | Helical | 刃数 2 | Helix Angle 30° | NA 11° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P150

超硬ロングネックスクエアエンドミル 高精度
Carbide Long Neck Square End Mills High Precision

■型番:IULSH-2 Model number:IULSH-2

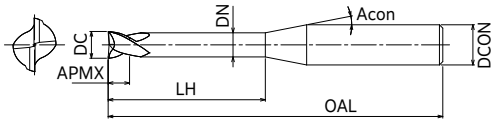
高精度 High Precision

径許容差 Diameter Tolerance
-0.004/-0.007

◆HRC50 以上の高硬度金型の微細加工に適しています

◆Suitable for fine milling of high-hardness molds with HRC50 or higher





表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N010620	IULSH-2-0.1xL0.3	0.1	0.3	0.1	0.08	11	4	50	0.37	0.39	0.41	0.43	0.48	※
N010621	IULSH-2-0.1xL0.5		0.5	0.1	0.08	11	4	50	0.58	0.61	0.64	0.67	0.75	※
N010622	IULSH-2-0.15xL0.3	0.15	0.3	0.12	0.13	11	4	50	0.37	0.39	0.41	0.43	0.48	※
N010623	IULSH-2-0.15xL0.5		0.5	0.12	0.13	11	4	50	0.58	0.61	0.64	0.67	0.75	※
N010624	IULSH-2-0.2xL0.5	0.2	0.5	0.15	0.18	11	4	50	0.58	0.61	0.64	0.67	0.75	※
N010625	IULSH-2-0.2xL0.75		0.75	0.15	0.18	11	4	50	0.84	0.88	0.93	0.98	1.10	※
N010626	IULSH-2-0.2xL1.0		1.0	0.15	0.18	11	4	50	1.10	1.16	1.22	1.28	1.44	※
N010627	IULSH-2-0.3xL1.0	0.3	1.0	0.25	0.27	11	4	50	1.13	1.18	1.24	1.31	1.47	●
N010628	IULSH-2-0.3xL1.5		1.5	0.25	0.27	11	4	50	1.65	1.73	1.82	1.92	2.16	●
N010629	IULSH-2-0.3xL2.0		2.0	0.25	0.27	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N010630	IULSH-2-0.3xL2.5		2.5	0.25	0.27	11	4	50	2.70	2.83	2.98	3.14	3.53	●
N010631	IULSH-2-0.3xL3.0		3.0	0.25	0.27	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N010632	IULSH-2-0.4xL1.0	0.4	1.0	0.3	0.37	11	4	50	1.13	1.18	1.24	1.31	1.47	●
N010633	IULSH-2-0.4xL1.5		1.5	0.3	0.37	11	4	50	1.65	1.73	1.82	1.92	2.16	●
N010634	IULSH-2-0.4xL2.0		2.0	0.3	0.37	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N010635	IULSH-2-0.4xL2.5		2.5	0.3	0.37	11	4	50	2.70	2.83	2.98	3.14	3.53	●
N010636	IULSH-2-0.4xL3.0		3.0	0.3	0.37	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N010637	IULSH-2-0.5xL1.0	0.5	1.0	0.4	0.47	11	4	50	1.13	1.18	1.24	1.31	1.47	●
N010638	IULSH-2-0.5xL1.5		1.5	0.4	0.47	11	4	50	1.65	1.73	1.82	1.92	2.16	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
									30'	1°	1°30'	2°	3°	
N010639	IULSH-2-0.5xL2.0	0.5	2.0	0.4	0.47	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N010640	IULSH-2-0.5xL2.5		2.5	0.4	0.47	11	4	50	2.70	2.83	2.98	3.14	3.53	●
N010641	IULSH-2-0.5xL3.0		3.0	0.4	0.47	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N010642	IULSH-2-0.5xL3.5		3.5	0.4	0.47	11	4	50	3.75	3.93	4.13	4.36	4.90	●
N010643	IULSH-2-0.5xL4.0		4.0	0.4	0.47	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N010644	IULSH-2-0.6xL1.5	0.6	1.5	0.5	0.57	11	4	50	1.65	1.73	1.82	1.92	2.16	●
N010645	IULSH-2-0.6xL2.0		2.0	0.5	0.57	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N010646	IULSH-2-0.6xL3.0		3.0	0.5	0.57	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N010647	IULSH-2-0.6xL4.0		4.0	0.5	0.57	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N010648	IULSH-2-0.6xL5.0		5.0	0.5	0.57	11	4	50	5.32	5.58	5.87	6.19	6.95	●
N010649	IULSH-2-0.6xL6.0		6.0	0.5	0.57	11	4	50	6.36	6.68	7.02	7.41	8.32	●
N010650	IULSH-2-0.7xL2.0	0.7	2.0	0.55	0.67	11	4	50	2.17	2.28	2.40	2.53	2.84	※
N010651	IULSH-2-0.7xL4.0		4.0	0.55	0.67	11	4	50	4.27	4.48	4.71	4.97	5.58	※
N010652	IULSH-2-0.7xL6.0		6.0	0.55	0.67	11	4	50	6.36	6.68	7.02	7.41	8.32	※
N010653	IULSH-2-0.8xL3.0	0.8	3.0	0.65	0.77	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N010654	IULSH-2-0.8xL4.0		4.0	0.65	0.77	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N010655	IULSH-2-0.8xL5.0		5.0	0.65	0.77	11	4	50	5.32	5.58	5.87	6.19	6.95	●
N010656	IULSH-2-0.8xL6.0		6.0	0.65	0.77	11	4	50	6.36	6.68	7.02	7.41	8.32	●
N010657	IULSH-2-0.8xL8.0		8.0	0.65	0.77	11	4	50	8.46	8.87	9.33	9.85	11.06	●
N010658	IULSH-2-1.0xL2.0	1.0	2.0	0.8	0.95	11	4	50	2.23	2.34	2.46	2.59	2.91	●
N010659	IULSH-2-1.0xL3.0		3.0	0.8	0.95	11	4	50	3.28	3.44	3.62	3.81	4.28	●
N010660	IULSH-2-1.0xL4.0		4.0	0.8	0.95	11	4	50	4.32	4.54	4.77	5.03	5.65	●
N010661	IULSH-2-1.0xL5.0		5.0	0.8	0.95	11	4	50	5.37	5.63	5.93	6.25	7.02	●
N010662	IULSH-2-1.0xL6.0		6.0	0.8	0.95	11	4	50	6.42	6.73	7.08	7.47	8.39	●
N010663	IULSH-2-1.0xL7.0		7.0	0.8	0.95	11	4	50	7.46	7.83	8.24	8.69	9.76	●
N010664	IULSH-2-1.0xL8.0		8.0	0.8	0.95	11	4	50	8.51	8.93	9.39	9.91	11.13	●
N010665	IULSH-2-1.0xL9.0		9.0	0.8	0.95	11	4	50	9.56	10.03	10.55	11.13	12.50	●
N010666	IULSH-2-1.0xL10.0		10.0	0.8	0.95	11	4	50	10.60	11.13	11.71	12.35	13.87	●
N010667	IULSH-2-1.0xL12.0		12.0	0.8	0.95	11	4	50	12.70	13.33	14.02	14.78	16.61	●
N010668	IULSH-2-1.2xL6.0	1.2	6.0	1.0	1.15	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N010669	IULSH-2-1.2xL8.0		8.0	1.0	1.15	11	4	50	8.51	8.93	9.39	9.91	11.13	※
N010670	IULSH-2-1.2xL10.0		10.0	1.0	1.15	11	4	50	10.60	11.13	11.71	12.35	13.87	※
N010671	IULSH-2-1.2xL12.0		12.0	1.0	1.15	11	4	50	12.70	13.33	14.02	14.78	16.61	※
N010672	IULSH-2-1.2xL16.0		16.0	1.0	1.15	11	4	50	16.89	17.72	18.64	19.66	22.08	※
N010673	IULSH-2-1.4xL6.0	1.4	6.0	1.1	1.35	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N010674	IULSH-2-1.4xL12.0		12.0	1.1	1.35	11	4	50	12.70	13.33	14.02	14.78	16.61	※
N010675	IULSH-2-1.5xL4.0	1.5	4.0	1.2	1.45	11	4	50	4.32	4.54	4.77	5.03	5.65	●
N010676	IULSH-2-1.5xL6.0		6.0	1.2	1.45	11	4	50	6.42	6.73	7.08	7.47	8.39	●
N010677	IULSH-2-1.5xL8.0		8.0	1.2	1.45	11	4	50	8.51	8.93	9.39	9.91	11.13	●
N010678	IULSH-2-1.5xL10.0		10.0	1.2	1.45	11	4	50	10.60	11.13	11.71	12.35	13.87	●
N010679	IULSH-2-1.5xL12.0		12.0	1.2	1.45	11	4	50	12.70	13.33	14.02	14.78	16.61	●
N010680	IULSH-2-1.5xL14.0		14.0	1.2	1.45	11	4	50	14.79	15.52	16.33	17.22	19.34	●
N010681	IULSH-2-1.5xL16.0		16.0	1.2	1.45	11	4	50	16.89	17.72	18.64	19.66	22.08	●
N010682	IULSH-2-1.6xL6.0	1.6	6.0	1.3	1.55	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N010683	IULSH-2-1.6xL8.0		8.0	1.3	1.55	11	4	50	8.51	8.93	9.39	9.91	11.13	※
N010684	IULSH-2-1.8xL6.0	1.8	6.0	1.4	1.75	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N010685	IULSH-2-1.8xL8.0		8.0	1.4	1.75	11	4	50	8.51	8.93	9.39	9.91	11.13	※

ion Depo Type U Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
									30'	1°	1°30'	2°	3°	
N010686	IULSH-2-1.8xL10.0	1.8	10.0	1.4	1.75	11	4	50	10.60	11.13	11.71	12.35	13.87	※
N010687	IULSH-2-1.8xL12.0		12.0	1.4	1.75	11	4	50	12.70	13.33	14.02	14.78	16.61	※
N010688	IULSH-2-1.8xL14.0		14.0	1.4	1.75	11	4	50	14.79	15.52	16.33	17.22	19.34	※
N010689	IULSH-2-1.8xL16.0		16.0	1.4	1.75	11	4	50	16.89	17.72	18.64	19.66	FREE	※
N010690	IULSH-2-2.0xL4.0	2.0	4.0	1.6	1.94	11	4	50	4.35	4.56	4.80	5.06	5.69	●
N010691	IULSH-2-2.0xL6.0		6.0	1.6	1.94	11	4	50	6.44	6.76	7.11	7.50	8.43	●
N010692	IULSH-2-2.0xL8.0		8.0	1.6	1.94	11	4	50	8.54	8.96	9.42	9.94	11.16	●
N010693	IULSH-2-2.0xL10.0		10.0	1.6	1.94	11	4	50	10.63	11.16	11.74	12.38	13.90	●
N010694	IULSH-2-2.0xL12.0		12.0	1.6	1.94	11	4	50	12.73	13.35	14.05	14.82	16.64	●
N010695	IULSH-2-2.0xL14.0		14.0	1.6	1.94	11	4	50	14.82	15.55	16.36	17.25	FREE	●
N010696	IULSH-2-2.0xL16.0		16.0	1.6	1.94	11	4	50	16.91	17.75	18.67	19.69	FREE	●
N010697	IULSH-2-2.0xL18.0		18.0	1.6	1.94	11	4	50	19.01	19.95	20.98	22.13	FREE	●
N010698	IULSH-2-2.0xL20.0		20.0	1.6	1.94	11	4	60	21.10	22.14	23.29	24.57	FREE	●
N010699	IULSH-2-2.5xL8.0	2.5	8.0	2.0	2.44	11	4	50	8.54	8.96	9.42	9.94	11.16	●
N010700	IULSH-2-2.5xL12.0		12.0	2.0	2.44	11	4	50	12.73	13.35	14.05	14.82	FREE	●
N010701	IULSH-2-2.5xL16.0		16.0	2.0	2.44	11	4	50	16.91	17.75	18.67	19.69	FREE	●
N010702	IULSH-2-2.5xL20.0		20.0	2.0	2.44	11	4	50	21.10	22.14	23.29	FREE	FREE	●
N010703	IULSH-2-3.0xL8.0	3.0	8.0	2.5	2.85	11	4	50	8.78	9.21	9.69	10.22	FREE	●
N010704	IULSH-2-3.0xL12.0		12.0	2.5	2.85	11	4	50	12.97	13.61	14.31	FREE	FREE	●
N010705	IULSH-2-3.0xL16.0		16.0	2.5	2.85	11	4	50	17.16	18.00	18.94	FREE	FREE	●
N010706	IULSH-2-3.0xL20.0		20.0	2.5	2.85	11	4	50	21.34	22.40	FREE	FREE	FREE	●
N010707	IULSH-2-3.0xL25.0		25.0	2.5	2.85	11	4	60	26.58	27.89	FREE	FREE	FREE	●
N010708	IULSH-2-3.0xL30.0		30.0	2.5	2.85	11	4	60	31.81	FREE	FREE	FREE	FREE	●
N010709	IULSH-2-4.0xL10.0	4.0	10.0	3.2	3.8	11	6	50	11.01	11.55	12.15	12.82	14.39	●
N010710	IULSH-2-4.0xL15.0		15.0	3.2	3.8	11	6	50	16.24	17.05	17.93	18.91	FREE	●
N010711	IULSH-2-4.0xL20.0		20.0	3.2	3.8	11	6	60	21.48	22.54	23.71	25.01	FREE	●
N010712	IULSH-2-5.0xL15.0	5.0	15.0	4.0	4.8	11	6	50	16.24	17.05	17.93	FREE	FREE	●
N010713	IULSH-2-5.0xL20.0		20.0	4.0	4.8	11	6	50	21.48	22.54	FREE	FREE	FREE	●
N010714	IULSH-2-6.0xL15.0	6.0	15.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010715	IULSH-2-6.0xL20.0		20.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010716	IULSH-2-6.0xL30.0		30.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●

super MG | ion U | Side Milling | Planing | Helical | 刃数 4 | Helix Angle 30° | NA 11° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P153

超硬ロングネックスクエアエンドミル 高精度
Carbide Long Neck Square End Mills High Precision

■型番:IULSH-4 Model number:IULSH-4

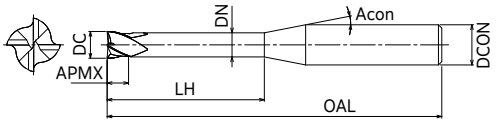
◆ HRC50 以上の高硬度金型の微細加工に適しています

◆Suitable for fine milling of high-hardness molds with HRC50 or higher



高精度 High Precision

径許容差 Diameter Tolerance
-0.004/-0.007



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N010717	IULSH-4-1.0xL4.0	1.0	4.0	0.8	0.95	11	4	50	4.32	4.54	4.77	5.03	5.65	●
N010718	IULSH-4-1.0xL6.0		6.0	0.8	0.95	11	4	50	6.42	6.73	7.08	7.47	8.39	●
N010719	IULSH-4-1.0xL8.0		8.0	0.8	0.95	11	4	50	8.51	8.93	9.39	9.91	11.13	●
N010720	IULSH-4-1.0xL10.0		10.0	0.8	0.95	11	4	50	10.60	11.13	11.71	12.35	13.87	●
N010721	IULSH-4-1.2xL6.0	1.2	6.0	1.0	1.15	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N010722	IULSH-4-1.2xL8.0		8.0	1.0	1.15	11	4	50	8.51	8.93	9.39	9.91	11.13	※
N010723	IULSH-4-1.2xL10.0		10.0	1.0	1.15	11	4	50	10.60	11.13	11.71	12.35	13.87	※
N010724	IULSH-4-1.2xL12.0		12.0	1.0	1.15	11	4	50	12.70	13.33	14.02	14.78	16.61	※
N010725	IULSH-4-1.5xL6.0	1.5	6.0	1.2	1.45	11	4	50	6.42	6.73	7.08	7.47	8.39	●
N010726	IULSH-4-1.5xL8.0		8.0	1.2	1.45	11	4	50	8.51	8.93	9.39	9.91	11.13	●
N010727	IULSH-4-1.5xL10.0		10.0	1.2	1.45	11	4	50	10.60	11.13	11.71	12.35	13.87	●
N010728	IULSH-4-1.5xL12.0		12.0	1.2	1.45	11	4	50	12.70	13.33	14.02	14.78	16.61	●
N010729	IULSH-4-1.5xL14.0		14.0	1.2	1.45	11	4	50	14.79	15.52	16.33	17.22	19.34	●
N010730	IULSH-4-1.5xL16.0		16.0	1.2	1.45	11	4	50	16.89	17.72	18.64	19.66	22.08	●
N010731	IULSH-4-1.8xL6.0	1.8	6.0	1.4	1.75	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N010732	IULSH-4-1.8xL8.0		8.0	1.4	1.75	11	4	50	8.51	8.93	9.39	9.91	11.13	※
N010733	IULSH-4-1.8xL10.0		10.0	1.4	1.75	11	4	50	10.60	11.13	11.71	12.35	13.87	※
N010734	IULSH-4-1.8xL12.0		12.0	1.4	1.75	11	4	50	12.70	13.33	14.02	14.78	16.61	※
N010735	IULSH-4-1.8xL14.0		14.0	1.4	1.75	11	4	50	14.79	15.52	16.33	17.22	19.34	※

ion Depo Type U Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
									30'	1°	1°30'	2°	3°	
N010736	IULSH-4-1.8xL16.0	1.8	16.0	1.4	1.75	11	4	50	16.89	17.72	18.64	19.66	FREE	※
N010737	IULSH-4-2.0xL6.0	2.0	6.0	1.6	1.94	11	4	50	6.44	6.76	7.11	7.50	8.43	●
N010738	IULSH-4-2.0xL8.0		8.0	1.6	1.94	11	4	50	8.54	8.96	9.42	9.94	11.16	●
N010739	IULSH-4-2.0xL10.0		10.0	1.6	1.94	11	4	50	10.63	11.16	11.74	12.38	13.90	●
N010740	IULSH-4-2.0xL12.0		12.0	1.6	1.94	11	4	50	12.73	13.35	14.05	14.82	16.64	●
N010741	IULSH-4-2.0xL14.0		14.0	1.6	1.94	11	4	50	14.82	15.55	16.36	17.25	FREE	●
N010742	IULSH-4-2.0xL16.0		16.0	1.6	1.94	11	4	50	16.91	17.75	18.67	19.69	FREE	●
N010743	IULSH-4-2.0xL18.0		18.0	1.6	1.94	11	4	50	19.01	19.95	20.98	22.13	FREE	●
N010744	IULSH-4-2.0xL20.0		20.0	1.6	1.94	11	4	60	21.10	22.14	23.29	24.57	FREE	●
N010745	IULSH-4-2.5xL8.0	2.5	8.0	2.0	2.44	11	4	50	8.54	8.96	9.42	9.94	11.16	●
N010746	IULSH-4-2.5xL12.0		12.0	2.0	2.44	11	4	50	12.73	13.35	14.05	14.82	FREE	●
N010747	IULSH-4-2.5xL16.0		16.0	2.0	2.44	11	4	50	16.91	17.75	18.67	19.69	FREE	●
N010748	IULSH-4-2.5xL20.0		20.0	2.0	2.44	11	4	50	21.10	22.14	23.29	FREE	FREE	●
N010749	IULSH-4-3.0xL8.0	3.0	8.0	2.5	2.85	11	4	50	8.78	9.21	9.69	10.22	FREE	●
N010750	IULSH-4-3.0xL12.0		12.0	2.5	2.85	11	4	50	12.97	13.61	14.31	FREE	FREE	●
N010751	IULSH-4-3.0xL16.0		16.0	2.5	2.85	11	4	50	17.16	18.00	18.94	FREE	FREE	●
N010752	IULSH-4-3.0xL20.0		20.0	2.5	2.85	11	4	50	21.34	22.40	FREE	FREE	FREE	●
N010753	IULSH-4-3.0xL25.0		25.0	2.5	2.85	11	4	60	26.58	27.89	FREE	FREE	FREE	●
N010754	IULSH-4-3.0xL30.0		30.0	2.5	2.85	11	4	60	31.81	FREE	FREE	FREE	FREE	●
N010755	IULSH-4-4.0xL12.0	4.0	12.0	3.2	3.8	11	6	50	13.10	13.75	14.46	15.26	17.13	●
N010756	IULSH-4-4.0xL16.0		16.0	3.2	3.8	11	6	50	17.29	18.14	19.09	20.13	FREE	●
N010757	IULSH-4-4.0xL20.0		20.0	3.2	3.8	11	6	60	21.48	22.54	23.71	25.01	FREE	●
N010758	IULSH-4-4.0xL25.0		25.0	3.2	3.8	11	6	60	26.71	28.03	29.49	FREE	FREE	●
N010759	IULSH-4-4.0xL30.0		30.0	3.2	3.8	11	6	70	31.95	33.52	35.27	FREE	FREE	●
N010760	IULSH-4-4.0xL35.0		35.0	3.2	3.8	11	6	70	37.18	39.02	FREE	FREE	FREE	●
N010761	IULSH-4-5.0xL16.0	5.0	16.0	4.0	4.8	11	6	50	17.29	18.14	19.09	FREE	FREE	●
N010762	IULSH-4-5.0xL25.0		25.0	4.0	4.8	11	6	60	26.71	28.03	FREE	FREE	FREE	●
N010763	IULSH-4-5.0xL35.0		35.0	4.0	4.8	11	6	70	37.18	FREE	FREE	FREE	FREE	●
N010764	IULSH-4-6.0xL20.0	6.0	20.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010765	IULSH-4-6.0xL30.0		30.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N010766	IULSH-4-6.0xL40.0		40.0	5.0	5.8	11	6	70	FREE	FREE	FREE	FREE	FREE	●
N010767	IULSH-4-6.0xL50.0		50.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●

super MG | ion U | Side Milling | Planing | Profiling | Helical | 刃数 4 | Helix Angle 30° | NA 11° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P155

超硬ラジアスエンドミル 高精度 Carbide Radius End Mills High Precision

■型番:IURH-4 Model number:IURH-4

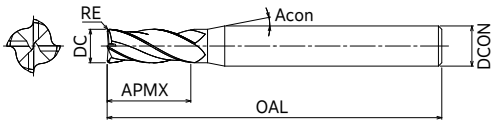
◆ HRC50 以上の高硬度金型の側面加工に適しています

◆ Suitable for side milling of high-hardness molds with HRC50 or higher



高精度 High Precision

径許容差 Diameter Tolerance	R許容差 R Tolerance
-0.004/-0.007	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N010121	IURH-4-3.0xR0.2x6.0	3.0	0.2	6.0	11	4	50	●
N010122	IURH-4-3.0xR0.3x6.0		0.3	6.0	11	4	50	●
N010123	IURH-4-3.0xR0.5x6.0		0.5	6.0	11	4	50	●
N010124	IURH-4-4.0xR0.2x8.0	4.0	0.2	8.0	11	6	50	●
N010125	IURH-4-4.0xR0.3x8.0		0.3	8.0	11	6	50	●
N010126	IURH-4-4.0xR0.5x8.0		0.5	8.0	11	6	50	●
N010127	IURH-4-6.0xR0.2x12.0	6.0	0.2	12.0	—	6	60	●
N010128	IURH-4-6.0xR0.3x12.0		0.3	12.0	—	6	60	●
N010129	IURH-4-6.0xR0.5x12.0		0.5	12.0	—	6	60	●
N010130	IURH-4-6.0xR1.0x12.0		1.0	12.0	—	6	60	●

ion Depo Type U Series

super MG | ion U | Side Milling | Slotting | Planing | Profiling | Helical | 刃数 2 | Helix Angle 30° | NA 11° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P157

超硬ロングネックラジアスエンドミル 高精度
Carbide Long Neck Radius End Mills High Precision

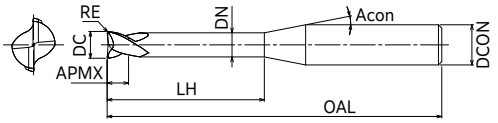
■型番:IULRH-2 Model number:IULRH-2

◆ HRC50 以上の高硬度金型の微細加工に適しています
◆ Suitable for fine milling of high-hardness molds with HRC50 or higher



高精度 High Precision

径許容差 Diameter Tolerance	R許容差 R Tolerance
-0.004/-0.007	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N010306	IULRH-2-0.2xR0.02xL0.5	0.2	0.02	0.5	0.15	0.18	11	4	50	0.58	0.60	0.63	0.67	0.75	※
N010307	IULRH-2-0.2xR0.02xL1.0		0.02	1.0	0.15	0.18	11	4	50	1.10	1.15	1.21	1.28	1.43	※
N010308	IULRH-2-0.2xR0.05xL0.5		0.05	0.5	0.15	0.18	11	4	50	0.58	0.60	0.63	0.66	0.74	※
N010309	IULRH-2-0.2xR0.05xL1.0		0.05	1.0	0.15	0.18	11	4	50	1.10	1.15	1.21	1.27	1.42	※
N010310	IULRH-2-0.3xR0.02xL1.0	0.3	0.02	1.0	0.25	0.27	11	4	50	1.13	1.18	1.24	1.31	1.47	※
N010311	IULRH-2-0.3xR0.02xL1.5		0.02	1.5	0.25	0.27	11	4	50	1.65	1.73	1.82	1.92	2.15	※
N010312	IULRH-2-0.3xR0.02xL2.0		0.02	2.0	0.25	0.27	11	4	50	2.17	2.28	2.40	2.53	2.84	※
N010313	IULRH-2-0.3xR0.02xL2.5		0.02	2.5	0.25	0.27	11	4	50	2.70	2.83	2.98	3.14	3.52	※
N010314	IULRH-2-0.3xR0.02xL3.0		0.02	3.0	0.25	0.27	11	4	50	3.22	3.38	3.55	3.75	4.21	※
N010315	IULRH-2-0.3xR0.05xL1.0		0.05	1.0	0.25	0.27	11	4	50	1.13	1.18	1.24	1.30	1.46	※
N010316	IULRH-2-0.3xR0.05xL1.5		0.05	1.5	0.25	0.27	11	4	50	1.65	1.73	1.82	1.91	2.14	※
N010317	IULRH-2-0.3xR0.05xL2.0		0.05	2.0	0.25	0.27	11	4	50	2.17	2.28	2.39	2.52	2.83	※
N010318	IULRH-2-0.3xR0.05xL2.5		0.05	2.5	0.25	0.27	11	4	50	2.70	2.83	2.97	3.13	3.51	※
N010319	IULRH-2-0.3xR0.05xL3.0		0.05	3.0	0.25	0.27	11	4	50	3.22	3.38	3.55	3.74	4.20	※
N010320	IULRH-2-0.4xR0.02xL1.0	0.4	0.02	1.0	0.3	0.37	11	4	50	1.13	1.18	1.24	1.31	1.47	●
N010321	IULRH-2-0.4xR0.02xL1.5		0.02	1.5	0.3	0.37	11	4	50	1.65	1.73	1.82	1.92	2.15	●
N010322	IULRH-2-0.4xR0.02xL2.0		0.02	2.0	0.3	0.37	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N010323	IULRH-2-0.4xR0.02xL2.5		0.02	2.5	0.3	0.37	11	4	50	2.70	2.83	2.98	3.14	3.52	●
N010324	IULRH-2-0.4xR0.02xL3.0		0.02	3.0	0.3	0.37	11	4	50	3.22	3.38	3.55	3.75	4.21	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010325	IULRH-2-0.4xR0.05xL1.0	0.4	0.05	1.0	0.3	0.37	11	4	50	1.13	1.18	1.24	1.30	1.46	●
N010326	IULRH-2-0.4xR0.05xL1.5		0.05	1.5	0.3	0.37	11	4	50	1.65	1.73	1.82	1.91	2.14	●
N010327	IULRH-2-0.4xR0.05xL2.0		0.05	2.0	0.3	0.37	11	4	50	2.17	2.28	2.39	2.52	2.83	●
N010328	IULRH-2-0.4xR0.05xL2.5		0.05	2.5	0.3	0.37	11	4	50	2.70	2.83	2.97	3.13	3.51	●
N010329	IULRH-2-0.4xR0.05xL3.0		0.05	3.0	0.3	0.37	11	4	50	3.22	3.38	3.55	3.74	4.20	●
N010330	IULRH-2-0.4xR0.1xL1.0		0.1	1.0	0.3	0.37	11	4	50	1.12	1.17	1.23	1.29	1.44	●
N010331	IULRH-2-0.4xR0.1xL2.0		0.1	2.0	0.3	0.37	11	4	50	2.17	2.27	2.39	2.51	2.81	●
N010332	IULRH-2-0.4xR0.1xL3.0		0.1	3.0	0.3	0.37	11	4	50	3.22	3.37	3.54	3.73	4.18	●
N010333	IULRH-2-0.5xR0.02xL1.0	0.5	0.02	1.0	0.4	0.47	11	4	50	1.13	1.18	1.24	1.31	1.47	●
N010334	IULRH-2-0.5xR0.02xL2.0		0.02	2.0	0.4	0.47	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N010335	IULRH-2-0.5xR0.02xL3.0		0.02	3.0	0.4	0.47	11	4	50	3.22	3.38	3.55	3.75	4.21	●
N010336	IULRH-2-0.5xR0.02xL4.0		0.02	4.0	0.4	0.47	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N010337	IULRH-2-0.5xR0.05xL1.0		0.05	1.0	0.4	0.47	11	4	50	1.13	1.18	1.24	1.30	1.46	●
N010338	IULRH-2-0.5xR0.05xL2.0		0.05	2.0	0.4	0.47	11	4	50	2.17	2.28	2.39	2.52	2.83	●
N010339	IULRH-2-0.5xR0.05xL3.0		0.05	3.0	0.4	0.47	11	4	50	3.22	3.38	3.55	3.74	4.20	●
N010340	IULRH-2-0.5xR0.05xL4.0		0.05	4.0	0.4	0.47	11	4	50	4.27	4.47	4.70	4.96	5.56	●
N010341	IULRH-2-0.5xR0.1xL1.0		0.1	1.0	0.4	0.47	11	4	50	1.12	1.17	1.23	1.29	1.44	●
N010342	IULRH-2-0.5xR0.1xL2.0		0.1	2.0	0.4	0.47	11	4	50	2.17	2.27	2.39	2.51	2.81	●
N010343	IULRH-2-0.5xR0.1xL3.0		0.1	3.0	0.4	0.47	11	4	50	3.22	3.37	3.54	3.73	4.18	●
N010344	IULRH-2-0.5xR0.1xL4.0		0.1	4.0	0.4	0.47	11	4	50	4.26	4.47	4.70	4.95	5.55	●
N010345	IULRH-2-0.6xR0.02xL2.0	0.6	0.02	2.0	0.5	0.57	11	4	50	2.17	2.28	2.40	2.53	2.84	※
N010346	IULRH-2-0.6xR0.02xL4.0		0.02	4.0	0.5	0.57	11	4	50	4.27	4.48	4.71	4.97	5.58	※
N010347	IULRH-2-0.6xR0.02xL6.0		0.02	6.0	0.5	0.57	11	4	50	6.36	6.67	7.02	7.40	8.31	※
N010348	IULRH-2-0.6xR0.05xL2.0		0.05	2.0	0.5	0.57	11	4	50	2.17	2.28	2.39	2.52	2.83	※
N010349	IULRH-2-0.6xR0.05xL4.0		0.05	4.0	0.5	0.57	11	4	50	4.27	4.47	4.70	4.96	5.56	※
N010350	IULRH-2-0.6xR0.05xL6.0		0.05	6.0	0.5	0.57	11	4	50	6.36	6.67	7.02	7.40	8.30	※
N010351	IULRH-2-0.6xR0.1xL2.0		0.1	2.0	0.5	0.57	11	4	50	2.17	2.27	2.39	2.51	2.81	※
N010352	IULRH-2-0.6xR0.1xL4.0		0.1	4.0	0.5	0.57	11	4	50	4.26	4.47	4.70	4.95	5.55	※
N010353	IULRH-2-0.6xR0.1xL6.0		0.1	6.0	0.5	0.57	11	4	50	6.36	6.67	7.01	7.39	8.29	※
N010354	IULRH-2-0.8xR0.02xL2.0	0.8	0.02	2.0	0.65	0.77	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N010355	IULRH-2-0.8xR0.02xL4.0		0.02	4.0	0.65	0.77	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N010356	IULRH-2-0.8xR0.02xL6.0		0.02	6.0	0.65	0.77	11	4	50	6.36	6.67	7.02	7.40	8.31	●
N010357	IULRH-2-0.8xR0.02xL8.0		0.02	8.0	0.65	0.77	11	4	50	8.46	8.87	9.33	9.84	11.05	●
N010358	IULRH-2-0.8xR0.05xL2.0		0.05	2.0	0.65	0.77	11	4	50	2.17	2.28	2.39	2.52	2.83	●
N010359	IULRH-2-0.8xR0.05xL4.0		0.05	4.0	0.65	0.77	11	4	50	4.27	4.47	4.70	4.96	5.56	●
N010360	IULRH-2-0.8xR0.05xL6.0		0.05	6.0	0.65	0.77	11	4	50	6.36	6.67	7.02	7.40	8.30	●
N010361	IULRH-2-0.8xR0.05xL8.0		0.05	8.0	0.65	0.77	11	4	50	8.45	8.87	9.33	9.84	11.04	●
N010362	IULRH-2-0.8xR0.1xL2.0		0.1	2.0	0.65	0.77	11	4	50	2.17	2.27	2.39	2.51	2.81	●
N010363	IULRH-2-0.8xR0.1xL4.0		0.1	4.0	0.65	0.77	11	4	50	4.26	4.47	4.70	4.95	5.55	●
N010364	IULRH-2-0.8xR0.1xL6.0		0.1	6.0	0.65	0.77	11	4	50	6.36	6.67	7.01	7.39	8.29	●
N010365	IULRH-2-0.8xR0.1xL8.0		0.1	8.0	0.65	0.77	11	4	50	8.45	8.86	9.32	9.82	11.02	●
N010366	IULRH-2-0.8xR0.2xL2.0		0.2	2.0	0.65	0.77	11	4	50	2.17	2.26	2.37	2.49	2.77	●
N010367	IULRH-2-0.8xR0.2xL4.0		0.2	4.0	0.65	0.77	11	4	50	4.26	4.46	4.68	4.93	5.51	●
N010368	IULRH-2-0.8xR0.2xL6.0		0.2	6.0	0.65	0.77	11	4	50	6.35	6.66	6.99	7.37	8.25	●
N010369	IULRH-2-0.8xR0.2xL8.0		0.2	8.0	0.65	0.77	11	4	50	8.45	8.85	9.30	9.80	10.99	●

super MG | ion U | Side Milling | Planing | Profiling | Helical | 刃数 3 | Helix Angle 30° | NA 11° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P158

超硬ロングネックラジアスエンドミル 高精度
Carbide Long Neck Radius End Mills High Precision

■型番:IULRH-3 Model number:IULRH-3

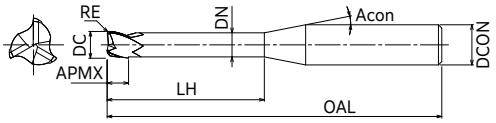
◆ HRC50 以上の高硬度金型の微細加工に適しています

◆ Suitable for fine milling of high-hardness molds with HRC50 or higher



高精度 High Precision

径許容差 Diameter Tolerance	R許容差 R Tolerance
-0.004/-0.007	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N010370	IULRH-3-0.6xR0.02xL2.0	0.6	0.02	2.0	0.5	0.57	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N010371	IULRH-3-0.6xR0.02xL4.0		0.02	4.0	0.5	0.57	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N010372	IULRH-3-0.6xR0.02xL6.0		0.02	6.0	0.5	0.57	11	4	50	6.36	6.67	7.02	7.40	8.31	●
N010373	IULRH-3-0.6xR0.05xL2.0		0.05	2.0	0.5	0.57	11	4	50	2.17	2.28	2.39	2.52	2.83	●
N010374	IULRH-3-0.6xR0.05xL4.0		0.05	4.0	0.5	0.57	11	4	50	4.27	4.47	4.70	4.96	5.56	●
N010375	IULRH-3-0.6xR0.05xL6.0		0.05	6.0	0.5	0.57	11	4	50	6.36	6.67	7.02	7.40	8.30	●
N010376	IULRH-3-0.6xR0.1xL2.0		0.1	2.0	0.5	0.57	11	4	50	2.17	2.27	2.39	2.51	2.81	●
N010377	IULRH-3-0.6xR0.1xL4.0		0.1	4.0	0.5	0.57	11	4	50	4.26	4.47	4.70	4.95	5.55	●
N010378	IULRH-3-0.6xR0.1xL6.0		0.1	6.0	0.5	0.57	11	4	50	6.36	6.67	7.01	7.39	8.29	●
N010379	IULRH-3-0.8xR0.02xL2.0	0.8	0.02	2.0	0.65	0.77	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N010380	IULRH-3-0.8xR0.02xL4.0		0.02	4.0	0.65	0.77	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N010381	IULRH-3-0.8xR0.02xL6.0		0.02	6.0	0.65	0.77	11	4	50	6.36	6.67	7.02	7.40	8.31	●
N010382	IULRH-3-0.8xR0.02xL8.0		0.02	8.0	0.65	0.77	11	4	50	8.46	8.87	9.33	9.84	11.05	●
N010383	IULRH-3-0.8xR0.05xL2.0		0.05	2.0	0.65	0.77	11	4	50	2.17	2.28	2.39	2.52	2.83	●
N010384	IULRH-3-0.8xR0.05xL4.0		0.05	4.0	0.65	0.77	11	4	50	4.27	4.47	4.70	4.96	5.56	●
N010385	IULRH-3-0.8xR0.05xL6.0		0.05	6.0	0.65	0.77	11	4	50	6.36	6.67	7.02	7.40	8.30	●
N010386	IULRH-3-0.8xR0.05xL8.0		0.05	8.0	0.65	0.77	11	4	50	8.45	8.87	9.33	9.84	11.04	●
N010387	IULRH-3-0.8xR0.1xL2.0		0.1	2.0	0.65	0.77	11	4	50	2.17	2.27	2.39	2.51	2.81	●
N010388	IULRH-3-0.8xR0.1xL4.0		0.1	4.0	0.65	0.77	11	4	50	4.26	4.47	4.70	4.95	5.55	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010389	IULRH-3-0.8xR0.1xL6.0	0.8	0.1	6.0	0.65	0.77	11	4	50	6.36	6.67	7.01	7.39	8.29	●
N010390	IULRH-3-0.8xR0.1xL8.0		0.1	8.0	0.65	0.77	11	4	50	8.45	8.86	9.32	9.82	11.02	●
N010391	IULRH-3-0.8xR0.2xL2.0		0.2	2.0	0.65	0.77	11	4	50	2.17	2.26	2.37	2.49	2.77	●
N010392	IULRH-3-0.8xR0.2xL4.0		0.2	4.0	0.65	0.77	11	4	50	4.26	4.46	4.68	4.93	5.51	●
N010393	IULRH-3-0.8xR0.2xL6.0		0.2	6.0	0.65	0.77	11	4	50	6.35	6.66	6.99	7.37	8.25	●
N010394	IULRH-3-0.8xR0.2xL8.0		0.2	8.0	0.65	0.77	11	4	50	8.45	8.85	9.30	9.80	10.99	●

ion Depo Type U Series

super MG | ion U | Side Milling | Planing | Profiling | Helical | 刃数 4 | Helix Angle 30° | NA 11° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P159

超硬ロングネックラジアスエンドミル 高精度
Carbide Long Neck Radius End Mills High Precision

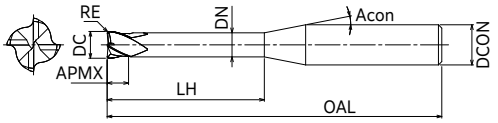
■型番:IULRH-4 Model number:IULRH-4

◆ HRC50 以上の高硬度金型の微細加工に適しています
◆ Suitable for fine milling of high-hardness molds with HRC50 or higher



高精度 High Precision

径許容差 Diameter Tolerance	R許容差 R Tolerance
-0.004/-0.007	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 ~55HRC	焼き入れ鋼 ~62HRC	焼き入れ鋼 ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N010395	IULRH-4-1.0xR0.02xL2.0	1.0	0.02	2.0	0.8	0.95	11	4	50	2.23	2.34	2.46	2.59	2.91	●
N010396	IULRH-4-1.0xR0.02xL3.0		0.02	3.0	0.8	0.95	11	4	50	3.27	3.44	3.61	3.81	4.28	●
N010397	IULRH-4-1.0xR0.02xL4.0		0.02	4.0	0.8	0.95	11	4	50	4.32	4.53	4.77	5.03	5.65	●
N010398	IULRH-4-1.0xR0.02xL5.0		0.02	5.0	0.8	0.95	11	4	50	5.37	5.63	5.92	6.25	7.01	●
N010399	IULRH-4-1.0xR0.02xL6.0		0.02	6.0	0.8	0.95	11	4	50	6.42	6.73	7.08	7.47	8.38	●
N010400	IULRH-4-1.0xR0.02xL8.0		0.02	8.0	0.8	0.95	11	4	50	8.51	8.93	9.39	9.90	11.12	●
N010401	IULRH-4-1.0xR0.02xL10.0		0.02	10.0	0.8	0.95	11	4	50	10.60	11.13	11.70	12.34	13.86	●
N010402	IULRH-4-1.0xR0.05xL2.0		0.05	2.0	0.8	0.95	11	4	50	2.23	2.33	2.45	2.58	2.90	●
N010403	IULRH-4-1.0xR0.05xL3.0		0.05	3.0	0.8	0.95	11	4	50	3.27	3.43	3.61	3.80	4.27	●
N010404	IULRH-4-1.0xR0.05xL4.0		0.05	4.0	0.8	0.95	11	4	50	4.32	4.53	4.76	5.02	5.63	●
N010405	IULRH-4-1.0xR0.05xL5.0		0.05	5.0	0.8	0.95	11	4	50	5.37	5.63	5.92	6.24	7.00	●
N010406	IULRH-4-1.0xR0.05xL6.0		0.05	6.0	0.8	0.95	11	4	50	6.41	6.73	7.08	7.46	8.37	●
N010407	IULRH-4-1.0xR0.05xL8.0		0.05	8.0	0.8	0.95	11	4	50	8.51	8.93	9.39	9.90	11.11	●
N010408	IULRH-4-1.0xR0.05xL10.0		0.05	10.0	0.8	0.95	11	4	50	10.60	11.12	11.70	12.34	13.85	●
N010409	IULRH-4-1.0xR0.1xL2.0		0.1	2.0	0.8	0.95	11	4	50	2.22	2.33	2.44	2.57	2.88	●
N010410	IULRH-4-1.0xR0.1xL3.0		0.1	3.0	0.8	0.95	11	4	50	3.27	3.43	3.60	3.79	4.25	●
N010411	IULRH-4-1.0xR0.1xL4.0		0.1	4.0	0.8	0.95	11	4	50	4.32	4.53	4.76	5.01	5.62	●
N010412	IULRH-4-1.0xR0.1xL5.0		0.1	5.0	0.8	0.95	11	4	50	5.37	5.62	5.91	6.23	6.99	●
N010413	IULRH-4-1.0xR0.1xL6.0		0.1	6.0	0.8	0.95	11	4	50	6.41	6.72	7.07	7.45	8.36	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010414	IULRH-4-1.0xR0.1xL8.0	1.0	0.1	8.0	0.8	0.95	11	4	50	8.51	8.92	9.38	9.89	11.09	●
N010415	IULRH-4-1.0xR0.1xL10.0		0.1	10.0	0.8	0.95	11	4	50	10.60	11.12	11.69	12.33	13.83	●
N010416	IULRH-4-1.0xR0.2xL2.0		0.2	2.0	0.8	0.95	11	4	50	2.22	2.32	2.43	2.55	2.84	●
N010417	IULRH-4-1.0xR0.2xL3.0		0.2	3.0	0.8	0.95	11	4	50	3.27	3.42	3.58	3.77	4.21	●
N010418	IULRH-4-1.0xR0.2xL4.0		0.2	4.0	0.8	0.95	11	4	50	4.31	4.52	4.74	4.99	5.58	●
N010419	IULRH-4-1.0xR0.2xL5.0		0.2	5.0	0.8	0.95	11	4	50	5.36	5.62	5.90	6.21	6.95	●
N010420	IULRH-4-1.0xR0.2xL6.0		0.2	6.0	0.8	0.95	11	4	50	6.41	6.71	7.05	7.43	8.32	●
N010421	IULRH-4-1.0xR0.2xL8.0		0.2	8.0	0.8	0.95	11	4	50	8.50	8.91	9.36	9.87	11.06	●
N010422	IULRH-4-1.0xR0.2xL10.0		0.2	10.0	0.8	0.95	11	4	50	10.60	11.11	11.67	12.30	13.80	●
N010423	IULRH-4-1.0xR0.3xL2.0		0.3	2.0	0.8	0.95	11	4	50	2.21	2.31	2.41	2.53	2.81	●
N010424	IULRH-4-1.0xR0.3xL3.0		0.3	3.0	0.8	0.95	11	4	50	3.26	3.41	3.57	3.75	4.18	●
N010425	IULRH-4-1.0xR0.3xL4.0		0.3	4.0	0.8	0.95	11	4	50	4.31	4.51	4.73	4.97	5.55	●
N010426	IULRH-4-1.0xR0.3xL5.0		0.3	5.0	0.8	0.95	11	4	50	5.36	5.61	5.88	6.19	6.92	●
N010427	IULRH-4-1.0xR0.3xL6.0		0.3	6.0	0.8	0.95	11	4	50	6.40	6.70	7.04	7.41	8.29	●
N010428	IULRH-4-1.0xR0.3xL8.0		0.3	8.0	0.8	0.95	11	4	50	8.50	8.90	9.35	9.84	11.02	●
N010429	IULRH-4-1.0xR0.3xL10.0		0.3	10.0	0.8	0.95	11	4	50	10.59	11.10	11.66	12.28	13.76	●
N010430	IULRH-4-1.2xR0.1xL5.0	1.2	0.1	5.0	1.0	1.15	11	4	50	5.37	5.62	5.91	6.23	6.99	※
N010431	IULRH-4-1.2xR0.1xL10.0		0.1	10.0	1.0	1.15	11	4	50	10.60	11.12	11.69	12.33	13.83	※
N010432	IULRH-4-1.2xR0.2xL5.0		0.2	5.0	1.0	1.15	11	4	50	5.36	5.62	5.90	6.21	6.95	※
N010433	IULRH-4-1.2xR0.2xL10.0		0.2	10.0	1.0	1.15	11	4	50	10.60	11.11	11.67	12.30	13.80	※
N010434	IULRH-4-1.2xR0.3xL5.0		0.3	5.0	1.0	1.15	11	4	50	5.36	5.61	5.88	6.19	6.92	※
N010435	IULRH-4-1.2xR0.3xL10.0		0.3	10.0	1.0	1.15	11	4	50	10.59	11.10	11.66	12.28	13.76	※
N010436	IULRH-4-1.5xR0.02xL3.0	1.5	0.02	3.0	1.2	1.45	11	4	50	3.27	3.44	3.61	3.81	4.28	●
N010437	IULRH-4-1.5xR0.02xL4.0		0.02	4.0	1.2	1.45	11	4	50	4.32	4.53	4.77	5.03	5.65	●
N010438	IULRH-4-1.5xR0.02xL6.0		0.02	6.0	1.2	1.45	11	4	50	6.42	6.73	7.08	7.47	8.38	●
N010439	IULRH-4-1.5xR0.02xL8.0		0.02	8.0	1.2	1.45	11	4	50	8.51	8.93	9.39	9.90	11.12	●
N010440	IULRH-4-1.5xR0.02xL12.0		0.02	12.0	1.2	1.45	11	4	50	12.70	13.32	14.01	14.78	16.60	●
N010441	IULRH-4-1.5xR0.02xL15.0		0.02	15.0	1.2	1.45	11	4	50	15.84	16.62	17.48	18.44	20.71	●
N010442	IULRH-4-1.5xR0.05xL3.0		0.05	3.0	1.2	1.45	11	4	50	3.27	3.43	3.61	3.80	4.27	●
N010443	IULRH-4-1.5xR0.05xL4.0		0.05	4.0	1.2	1.45	11	4	50	4.32	4.53	4.76	5.02	5.63	●
N010444	IULRH-4-1.5xR0.05xL6.0		0.05	6.0	1.2	1.45	11	4	50	6.41	6.73	7.08	7.46	8.37	●
N010445	IULRH-4-1.5xR0.05xL8.0		0.05	8.0	1.2	1.45	11	4	50	8.51	8.93	9.39	9.90	11.11	●
N010446	IULRH-4-1.5xR0.05xL12.0		0.05	12.0	1.2	1.45	11	4	50	12.70	13.32	14.01	14.77	16.59	●
N010447	IULRH-4-1.5xR0.05xL15.0		0.05	15.0	1.2	1.45	11	4	50	15.84	16.62	17.48	18.43	20.70	●
N010448	IULRH-4-1.5xR0.1xL3.0		0.1	3.0	1.2	1.45	11	4	50	3.27	3.43	3.60	3.79	4.25	●
N010449	IULRH-4-1.5xR0.1xL4.0		0.1	4.0	1.2	1.45	11	4	50	4.32	4.53	4.76	5.01	5.62	●
N010450	IULRH-4-1.5xR0.1xL6.0		0.1	6.0	1.2	1.45	11	4	50	6.41	6.72	7.07	7.45	8.36	●
N010451	IULRH-4-1.5xR0.1xL8.0		0.1	8.0	1.2	1.45	11	4	50	8.51	8.92	9.38	9.89	11.09	●
N010452	IULRH-4-1.5xR0.1xL12.0		0.1	12.0	1.2	1.45	11	4	50	12.69	13.32	14.00	14.76	16.57	●
N010453	IULRH-4-1.5xR0.1xL15.0		0.1	15.0	1.2	1.45	11	4	50	15.84	16.61	17.47	18.42	20.68	●
N010454	IULRH-4-1.5xR0.2xL3.0		0.2	3.0	1.2	1.45	11	4	50	3.27	3.42	3.58	3.77	4.21	●
N010455	IULRH-4-1.5xR0.2xL4.0		0.2	4.0	1.2	1.45	11	4	50	4.31	4.52	4.74	4.99	5.58	●
N010456	IULRH-4-1.5xR0.2xL6.0		0.2	6.0	1.2	1.45	11	4	50	6.41	6.71	7.05	7.43	8.32	●
N010457	IULRH-4-1.5xR0.2xL8.0		0.2	8.0	1.2	1.45	11	4	50	8.50	8.91	9.36	9.87	11.06	●
N010458	IULRH-4-1.5xR0.2xL12.0		0.2	12.0	1.2	1.45	11	4	50	12.69	13.31	13.99	14.74	16.54	●
N010459	IULRH-4-1.5xR0.2xL15.0		0.2	15.0	1.2	1.45	11	4	50	15.83	16.60	17.45	18.40	20.64	●
N010460	IULRH-4-1.5xR0.3xL3.0		0.3	3.0	1.2	1.45	11	4	50	3.26	3.41	3.57	3.75	4.18	●

ion Depo Type U Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010461	IULRH-4-1.5xR0.3xL4.0	1.5	0.3	4.0	1.2	1.45	11	4	50	4.31	4.51	4.73	4.97	5.55	●
N010462	IULRH-4-1.5xR0.3xL6.0		0.3	6.0	1.2	1.45	11	4	50	6.40	6.70	7.04	7.41	8.29	●
N010463	IULRH-4-1.5xR0.3xL8.0		0.3	8.0	1.2	1.45	11	4	50	8.50	8.90	9.35	9.84	11.02	●
N010464	IULRH-4-1.5xR0.3xL12.0		0.3	12.0	1.2	1.45	11	4	50	12.68	13.30	13.97	14.72	16.50	●
N010465	IULRH-4-1.5xR0.3xL15.0		0.3	15.0	1.2	1.45	11	4	50	15.83	16.59	17.44	18.38	20.61	●
N010466	IULRH-4-1.5xR0.5xL3.0		0.5	3.0	1.2	1.45	11	4	50	3.25	3.39	3.54	3.71	4.11	●
N010467	IULRH-4-1.5xR0.5xL4.0		0.5	4.0	1.2	1.45	11	4	50	4.30	4.49	4.69	4.93	5.48	●
N010468	IULRH-4-1.5xR0.5xL6.0		0.5	6.0	1.2	1.45	11	4	50	6.39	6.68	7.01	7.36	8.22	●
N010469	IULRH-4-1.5xR0.5xL8.0		0.5	8.0	1.2	1.45	11	4	50	8.49	8.88	9.32	9.80	10.95	●
N010470	IULRH-4-1.5xR0.5xL12.0		0.5	12.0	1.2	1.45	11	4	50	12.68	13.28	13.94	14.68	16.43	●
N010471	IULRH-4-1.5xR0.5xL15.0		0.5	15.0	1.2	1.45	11	4	50	15.82	16.57	17.41	18.33	20.54	●
N010472	IULRH-4-2.0xR0.02xL4.0	2.0	0.02	4.0	1.6	1.94	11	4	50	4.35	4.56	4.80	5.06	5.68	●
N010473	IULRH-4-2.0xR0.02xL6.0		0.02	6.0	1.6	1.94	11	4	50	6.44	6.76	7.11	7.50	8.42	●
N010474	IULRH-4-2.0xR0.02xL8.0		0.02	8.0	1.6	1.94	11	4	50	8.54	8.96	9.42	9.94	11.16	●
N010475	IULRH-4-2.0xR0.02xL12.0		0.02	12.0	1.6	1.94	11	4	50	12.72	13.35	14.04	14.81	16.63	●
N010476	IULRH-4-2.0xR0.02xL16.0		0.02	16.0	1.6	1.94	11	4	50	16.91	17.75	18.67	19.69	FREE	●
N010477	IULRH-4-2.0xR0.02xL20.0		0.02	20.0	1.6	1.94	11	4	60	21.10	22.14	23.29	24.56	FREE	●
N010478	IULRH-4-2.0xR0.05xL4.0		0.05	4.0	1.6	1.94	11	4	50	4.35	4.56	4.79	5.05	5.67	●
N010479	IULRH-4-2.0xR0.05xL6.0		0.05	6.0	1.6	1.94	11	4	50	6.44	6.76	7.10	7.49	8.41	●
N010480	IULRH-4-2.0xR0.05xL8.0		0.05	8.0	1.6	1.94	11	4	50	8.54	8.95	9.42	9.93	11.15	●
N010481	IULRH-4-2.0xR0.05xL12.0		0.05	12.0	1.6	1.94	11	4	50	12.72	13.35	14.04	14.81	16.62	●
N010482	IULRH-4-2.0xR0.05xL16.0		0.05	16.0	1.6	1.94	11	4	50	16.91	17.74	18.66	19.68	FREE	●
N010483	IULRH-4-2.0xR0.05xL20.0		0.05	20.0	1.6	1.94	11	4	60	21.10	22.14	23.28	24.56	FREE	●
N010484	IULRH-4-2.0xR0.1xL4.0		0.1	4.0	1.6	1.94	11	4	50	4.34	4.55	4.79	5.04	5.65	●
N010485	IULRH-4-2.0xR0.1xL6.0		0.1	6.0	1.6	1.94	11	4	50	6.44	6.75	7.10	7.48	8.39	●
N010486	IULRH-4-2.0xR0.1xL8.0		0.1	8.0	1.6	1.94	11	4	50	8.53	8.95	9.41	9.92	11.13	●
N010487	IULRH-4-2.0xR0.1xL12.0		0.1	12.0	1.6	1.94	11	4	50	12.72	13.34	14.03	14.79	16.61	●
N010488	IULRH-4-2.0xR0.1xL16.0		0.1	16.0	1.6	1.94	11	4	50	16.91	17.74	18.65	19.67	FREE	●
N010489	IULRH-4-2.0xR0.1xL20.0		0.1	20.0	1.6	1.94	11	4	60	21.10	22.13	23.28	24.55	FREE	●
N010490	IULRH-4-2.0xR0.2xL4.0		0.2	4.0	1.6	1.94	11	4	50	4.34	4.54	4.77	5.02	5.62	●
N010491	IULRH-4-2.0xR0.2xL6.0		0.2	6.0	1.6	1.94	11	4	50	6.43	6.74	7.08	7.46	8.36	●
N010492	IULRH-4-2.0xR0.2xL8.0		0.2	8.0	1.6	1.94	11	4	50	8.53	8.94	9.39	9.90	11.09	●
N010493	IULRH-4-2.0xR0.2xL12.0		0.2	12.0	1.6	1.94	11	4	50	12.72	13.33	14.02	14.77	16.57	●
N010494	IULRH-4-2.0xR0.2xL16.0		0.2	16.0	1.6	1.94	11	4	50	16.90	17.73	18.64	19.65	FREE	●
N010495	IULRH-4-2.0xR0.2xL20.0		0.2	20.0	1.6	1.94	11	4	60	21.09	22.12	23.26	24.52	FREE	●
N010496	IULRH-4-2.0xR0.3xL4.0		0.3	4.0	1.6	1.94	11	4	50	4.34	4.53	4.76	5.00	5.58	●
N010497	IULRH-4-2.0xR0.3xL6.0		0.3	6.0	1.6	1.94	11	4	50	6.43	6.73	7.07	7.44	8.32	●
N010498	IULRH-4-2.0xR0.3xL8.0		0.3	8.0	1.6	1.94	11	4	50	8.52	8.93	9.38	9.88	11.06	●
N010499	IULRH-4-2.0xR0.3xL12.0		0.3	12.0	1.6	1.94	11	4	50	12.71	13.32	14.00	14.75	16.54	●
N010500	IULRH-4-2.0xR0.3xL16.0		0.3	16.0	1.6	1.94	11	4	50	16.90	17.72	18.62	19.63	FREE	●
N010501	IULRH-4-2.0xR0.3xL20.0		0.3	20.0	1.6	1.94	11	4	60	21.09	22.11	23.25	24.50	FREE	●
N010502	IULRH-4-2.0xR0.5xL4.0		0.5	4.0	1.6	1.94	11	4	50	4.33	4.52	4.72	4.96	5.51	●
N010503	IULRH-4-2.0xR0.5xL6.0		0.5	6.0	1.6	1.94	11	4	50	6.42	6.71	7.04	7.39	8.25	●
N010504	IULRH-4-2.0xR0.5xL8.0		0.5	8.0	1.6	1.94	11	4	50	8.51	8.91	9.35	9.83	10.99	●
N010505	IULRH-4-2.0xR0.5xL12.0		0.5	12.0	1.6	1.94	11	4	50	12.70	13.30	13.97	14.71	16.47	●
N010506	IULRH-4-2.0xR0.5xL16.0		0.5	16.0	1.6	1.94	11	4	50	16.89	17.70	18.59	19.58	FREE	●
N010507	IULRH-4-2.0xR0.5xL20.0		0.5	20.0	1.6	1.94	11	4	60	21.08	22.09	23.22	24.46	FREE	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010508	IULRH-4-2.5xR0.1xL10.0	2.5	0.1	10.0	2.0	2.44	11	4	50	10.63	11.15	11.72	12.36	13.87	●
N010509	IULRH-4-2.5xR0.1xL20.0		0.1	20.0	2.0	2.44	11	4	50	21.10	22.13	23.28	FREE	FREE	●
N010510	IULRH-4-2.5xR0.2xL10.0		0.2	10.0	2.0	2.44	11	4	50	10.62	11.14	11.70	12.34	13.83	●
N010511	IULRH-4-2.5xR0.2xL20.0		0.2	20.0	2.0	2.44	11	4	50	21.09	22.12	23.26	FREE	FREE	●
N010512	IULRH-4-2.5xR0.3xL10.0		0.3	10.0	2.0	2.44	11	4	50	10.62	11.13	11.69	12.31	13.80	●
N010513	IULRH-4-2.5xR0.3xL20.0		0.3	20.0	2.0	2.44	11	4	50	21.09	22.11	23.25	FREE	FREE	●
N010514	IULRH-4-2.5xR0.5xL10.0		0.5	10.0	2.0	2.44	11	4	50	10.61	11.11	11.66	12.27	13.73	●
N010515	IULRH-4-2.5xR0.5xL20.0		0.5	20.0	2.0	2.44	11	4	50	21.08	22.09	23.22	FREE	FREE	●
N010516	IULRH-4-3.0xR0.05xL4.0	3.0	0.05	4.0	2.5	2.85	11	4	50	4.59	4.81	5.06	5.34	5.99	●
N010517	IULRH-4-3.0xR0.05xL6.0		0.05	6.0	2.5	2.85	11	4	50	6.68	7.01	7.37	7.77	8.72	●
N010518	IULRH-4-3.0xR0.05xL8.0		0.05	8.0	2.5	2.85	11	4	50	8.78	9.21	9.68	10.21	FREE	●
N010519	IULRH-4-3.0xR0.05xL12.0		0.05	12.0	2.5	2.85	11	4	50	12.97	13.60	14.31	FREE	FREE	●
N010520	IULRH-4-3.0xR0.05xL16.0		0.05	16.0	2.5	2.85	11	4	50	17.15	18.00	18.93	FREE	FREE	●
N010521	IULRH-4-3.0xR0.05xL20.0		0.05	20.0	2.5	2.85	11	4	50	21.34	22.39	FREE	FREE	FREE	●
N010522	IULRH-4-3.0xR0.1xL4.0		0.1	4.0	2.5	2.85	11	4	50	4.59	4.81	5.05	5.32	5.97	●
N010523	IULRH-4-3.0xR0.1xL6.0		0.1	6.0	2.5	2.85	11	4	50	6.68	7.01	7.36	7.76	8.71	●
N010524	IULRH-4-3.0xR0.1xL8.0		0.1	8.0	2.5	2.85	11	4	50	8.78	9.20	9.68	10.20	FREE	●
N010525	IULRH-4-3.0xR0.1xL12.0		0.1	12.0	2.5	2.85	11	4	50	12.96	13.60	14.30	FREE	FREE	●
N010526	IULRH-4-3.0xR0.1xL16.0		0.1	16.0	2.5	2.85	11	4	50	17.15	17.99	18.92	FREE	FREE	●
N010527	IULRH-4-3.0xR0.1xL20.0		0.1	20.0	2.5	2.85	11	4	50	21.34	22.39	FREE	FREE	FREE	●
N010528	IULRH-4-3.0xR0.1xL25.0		0.1	25.0	2.5	2.85	11	4	60	26.57	27.88	FREE	FREE	FREE	●
N010529	IULRH-4-3.0xR0.1xL30.0		0.1	30.0	2.5	2.85	11	4	60	31.81	FREE	FREE	FREE	FREE	●
N010530	IULRH-4-3.0xR0.2xL4.0		0.2	4.0	2.5	2.85	11	4	50	4.58	4.80	5.04	5.30	5.93	●
N010531	IULRH-4-3.0xR0.2xL6.0		0.2	6.0	2.5	2.85	11	4	50	6.68	7.00	7.35	7.74	8.67	●
N010532	IULRH-4-3.0xR0.2xL8.0		0.2	8.0	2.5	2.85	11	4	50	8.77	9.19	9.66	10.18	FREE	●
N010533	IULRH-4-3.0xR0.2xL12.0		0.2	12.0	2.5	2.85	11	4	50	12.96	13.59	14.28	FREE	FREE	●
N010534	IULRH-4-3.0xR0.2xL16.0		0.2	16.0	2.5	2.85	11	4	50	17.15	17.98	18.91	FREE	FREE	●
N010535	IULRH-4-3.0xR0.2xL20.0		0.2	20.0	2.5	2.85	11	4	50	21.33	22.38	FREE	FREE	FREE	●
N010536	IULRH-4-3.0xR0.2xL25.0		0.2	25.0	2.5	2.85	11	4	60	26.57	27.87	FREE	FREE	FREE	●
N010537	IULRH-4-3.0xR0.2xL30.0		0.2	30.0	2.5	2.85	11	4	60	31.80	FREE	FREE	FREE	FREE	●
N010538	IULRH-4-3.0xR0.3xL4.0		0.3	4.0	2.5	2.85	11	4	50	4.58	4.79	5.02	5.28	5.90	●
N010539	IULRH-4-3.0xR0.3xL6.0		0.3	6.0	2.5	2.85	11	4	50	6.67	6.99	7.33	7.72	8.64	●
N010540	IULRH-4-3.0xR0.3xL8.0		0.3	8.0	2.5	2.85	11	4	50	8.77	9.18	9.65	10.16	FREE	●
N010541	IULRH-4-3.0xR0.3xL12.0		0.3	12.0	2.5	2.85	11	4	50	12.95	13.58	14.27	FREE	FREE	●
N010542	IULRH-4-3.0xR0.3xL16.0		0.3	16.0	2.5	2.85	11	4	50	17.14	17.97	18.89	FREE	FREE	●
N010543	IULRH-4-3.0xR0.3xL20.0		0.3	20.0	2.5	2.85	11	4	50	21.33	22.37	FREE	FREE	FREE	●
N010544	IULRH-4-3.0xR0.3xL25.0		0.3	25.0	2.5	2.85	11	4	60	26.57	27.86	FREE	FREE	FREE	●
N010545	IULRH-4-3.0xR0.3xL30.0		0.3	30.0	2.5	2.85	11	4	60	31.80	FREE	FREE	FREE	FREE	●
N010546	IULRH-4-3.0xR0.5xL4.0		0.5	4.0	2.5	2.85	11	4	50	4.57	4.77	4.99	5.24	5.83	●
N010547	IULRH-4-3.0xR0.5xL6.0		0.5	6.0	2.5	2.85	11	4	50	6.66	6.97	7.30	7.68	8.57	●
N010548	IULRH-4-3.0xR0.5xL8.0		0.5	8.0	2.5	2.85	11	4	50	8.76	9.16	9.61	10.11	FREE	●
N010549	IULRH-4-3.0xR0.5xL12.0		0.5	12.0	2.5	2.85	11	4	50	12.94	13.56	14.24	FREE	FREE	●
N010550	IULRH-4-3.0xR0.5xL16.0		0.5	16.0	2.5	2.85	11	4	50	17.13	17.95	18.86	FREE	FREE	●
N010551	IULRH-4-3.0xR0.5xL20.0		0.5	20.0	2.5	2.85	11	4	50	21.32	22.35	FREE	FREE	FREE	●
N010552	IULRH-4-3.0xR0.5xL25.0		0.5	25.0	2.5	2.85	11	4	60	26.56	27.84	FREE	FREE	FREE	●
N010553	IULRH-4-3.0xR0.5xL30.0		0.5	30.0	2.5	2.85	11	4	60	31.79	FREE	FREE	FREE	FREE	●
N010554	IULRH-4-3.0xR1.0xL8.0		1.0	8.0	2.5	2.85	11	4	50	8.73	9.12	9.54	10.01	FREE	●

ion Depo Type U Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010555	IULRH-4-3.0xR1.0xL12.0	3.0	1.0	12.0	2.5	2.85	11	4	50	12.92	13.51	14.16	14.88	FREE	●
N010556	IULRH-4-3.0xR1.0xL16.0		1.0	16.0	2.5	2.85	11	4	50	17.11	17.90	18.78	FREE	FREE	●
N010557	IULRH-4-3.0xR1.0xL20.0		1.0	20.0	2.5	2.85	11	4	50	21.30	22.30	FREE	FREE	FREE	●
N010558	IULRH-4-3.0xR1.0xL25.0		1.0	25.0	2.5	2.85	11	4	60	26.53	27.79	FREE	FREE	FREE	●
N010559	IULRH-4-3.0xR1.0xL30.0		1.0	30.0	2.5	2.85	11	4	60	31.77	FREE	FREE	FREE	FREE	●
N010560	IULRH-4-4.0xR0.1xL8.0	4.0	0.1	8.0	3.2	3.8	11	6	50	8.91	9.34	9.82	10.36	11.62	●
N010561	IULRH-4-4.0xR0.1xL12.0		0.1	12.0	3.2	3.8	11	6	50	13.10	13.74	14.45	15.23	17.10	●
N010562	IULRH-4-4.0xR0.1xL16.0		0.1	16.0	3.2	3.8	11	6	50	17.29	18.13	19.07	20.11	FREE	●
N010563	IULRH-4-4.0xR0.1xL24.0		0.1	24.0	3.2	3.8	11	6	60	25.66	26.92	28.32	FREE	FREE	●
N010564	IULRH-4-4.0xR0.1xL32.0		0.1	32.0	3.2	3.8	11	6	70	34.04	35.71	37.56	FREE	FREE	●
N010565	IULRH-4-4.0xR0.2xL8.0		0.2	8.0	3.2	3.8	11	6	50	8.91	9.33	9.81	10.34	11.59	●
N010566	IULRH-4-4.0xR0.2xL12.0		0.2	12.0	3.2	3.8	11	6	50	13.09	13.73	14.43	15.21	17.06	●
N010567	IULRH-4-4.0xR0.2xL16.0		0.2	16.0	3.2	3.8	11	6	50	17.28	18.12	19.05	20.09	FREE	●
N010568	IULRH-4-4.0xR0.2xL24.0		0.2	24.0	3.2	3.8	11	6	60	25.66	26.91	28.30	FREE	FREE	●
N010569	IULRH-4-4.0xR0.2xL32.0		0.2	32.0	3.2	3.8	11	6	70	34.03	35.70	37.55	FREE	FREE	●
N010570	IULRH-4-4.0xR0.3xL8.0		0.3	8.0	3.2	3.8	11	6	50	8.90	9.33	9.79	10.31	11.55	●
N010571	IULRH-4-4.0xR0.3xL12.0		0.3	12.0	3.2	3.8	11	6	50	13.09	13.72	14.42	15.19	17.03	●
N010572	IULRH-4-4.0xR0.3xL16.0		0.3	16.0	3.2	3.8	11	6	50	17.28	18.11	19.04	20.07	FREE	●
N010573	IULRH-4-4.0xR0.3xL24.0		0.3	24.0	3.2	3.8	11	6	60	25.65	26.90	28.28	FREE	FREE	●
N010574	IULRH-4-4.0xR0.3xL32.0		0.3	32.0	3.2	3.8	11	6	70	34.03	35.69	37.53	FREE	FREE	●
N010575	IULRH-4-4.0xR0.5xL8.0		0.5	8.0	3.2	3.8	11	6	50	8.89	9.31	9.76	10.27	11.48	●
N010576	IULRH-4-4.0xR0.5xL12.0		0.5	12.0	3.2	3.8	11	6	50	13.08	13.70	14.39	15.15	16.96	●
N010577	IULRH-4-4.0xR0.5xL16.0		0.5	16.0	3.2	3.8	11	6	50	17.27	18.09	19.01	20.02	FREE	●
N010578	IULRH-4-4.0xR0.5xL24.0		0.5	24.0	3.2	3.8	11	6	60	25.64	26.88	28.25	FREE	FREE	●
N010579	IULRH-4-4.0xR0.5xL32.0		0.5	32.0	3.2	3.8	11	6	70	34.02	35.67	37.50	FREE	FREE	●
N010580	IULRH-4-4.0xR1.0xL8.0		1.0	8.0	3.2	3.8	11	6	50	8.87	9.26	9.69	10.16	11.31	●
N010581	IULRH-4-4.0xR1.0xL12.0		1.0	12.0	3.2	3.8	11	6	50	13.06	13.65	14.31	15.04	16.78	●
N010582	IULRH-4-4.0xR1.0xL16.0		1.0	16.0	3.2	3.8	11	6	50	17.24	18.05	18.93	19.92	FREE	●
N010583	IULRH-4-4.0xR1.0xL24.0		1.0	24.0	3.2	3.8	11	6	60	25.62	26.84	28.18	FREE	FREE	●
N010584	IULRH-4-4.0xR1.0xL32.0		1.0	32.0	3.2	3.8	11	6	70	34.00	35.62	37.42	FREE	FREE	●
N010585	IULRH-4-5.0xR0.1xL15.0	5.0	0.1	15.0	4.0	4.8	11	6	50	16.24	17.04	17.91	FREE	FREE	●
N010586	IULRH-4-5.0xR0.1xL20.0		0.1	20.0	4.0	4.8	11	6	50	21.47	22.53	FREE	FREE	FREE	●
N010587	IULRH-4-5.0xR0.1xL40.0		0.1	40.0	4.0	4.8	11	6	70	42.41	FREE	FREE	FREE	FREE	●
N010588	IULRH-4-5.0xR0.2xL15.0		0.2	15.0	4.0	4.8	11	6	50	16.23	17.03	17.90	FREE	FREE	●
N010589	IULRH-4-5.0xR0.2xL20.0		0.2	20.0	4.0	4.8	11	6	50	21.47	22.52	FREE	FREE	FREE	●
N010590	IULRH-4-5.0xR0.2xL40.0		0.2	40.0	4.0	4.8	11	6	70	42.41	FREE	FREE	FREE	FREE	●
N010591	IULRH-4-5.0xR0.3xL15.0		0.3	15.0	4.0	4.8	11	6	50	16.23	17.02	17.88	FREE	FREE	●
N010592	IULRH-4-5.0xR0.3xL20.0		0.3	20.0	4.0	4.8	11	6	50	21.46	22.51	FREE	FREE	FREE	●
N010593	IULRH-4-5.0xR0.3xL40.0		0.3	40.0	4.0	4.8	11	6	70	42.40	FREE	FREE	FREE	FREE	●
N010594	IULRH-4-5.0xR0.5xL15.0		0.5	15.0	4.0	4.8	11	6	50	16.22	17.00	17.85	FREE	FREE	●
N010595	IULRH-4-5.0xR0.5xL20.0		0.5	20.0	4.0	4.8	11	6	50	21.46	22.49	FREE	FREE	FREE	●
N010596	IULRH-4-5.0xR0.5xL40.0		0.5	40.0	4.0	4.8	11	6	70	42.40	FREE	FREE	FREE	FREE	●
N010597	IULRH-4-5.0xR1.0xL15.0		1.0	15.0	4.0	4.8	11	6	50	16.20	16.95	17.78	FREE	FREE	●
N010598	IULRH-4-5.0xR1.0xL20.0		1.0	20.0	4.0	4.8	11	6	50	21.43	22.44	FREE	FREE	FREE	●
N010599	IULRH-4-5.0xR1.0xL40.0		1.0	40.0	4.0	4.8	11	6	70	42.37	FREE	FREE	FREE	FREE	●
N010600	IULRH-4-6.0xR0.1xL12.0	6.0	0.1	12.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010601	IULRH-4-6.0xR0.1xL18.0		0.1	18.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010602	IULRH-4-6.0xR0.1xL24.0	6.0	0.1	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N010603	IULRH-4-6.0xR0.1xL48.0		0.1	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N010604	IULRH-4-6.0xR0.2xL12.0		0.2	12.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010605	IULRH-4-6.0xR0.2xL18.0		0.2	18.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010606	IULRH-4-6.0xR0.2xL24.0		0.2	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N010607	IULRH-4-6.0xR0.2xL48.0		0.2	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N010608	IULRH-4-6.0xR0.3xL12.0		0.3	12.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010609	IULRH-4-6.0xR0.3xL18.0		0.3	18.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010610	IULRH-4-6.0xR0.3xL24.0		0.3	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N010611	IULRH-4-6.0xR0.3xL48.0		0.3	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N010612	IULRH-4-6.0xR0.5xL12.0		0.5	12.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010613	IULRH-4-6.0xR0.5xL18.0		0.5	18.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010614	IULRH-4-6.0xR0.5xL24.0		0.5	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N010615	IULRH-4-6.0xR0.5xL48.0		0.5	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N010616	IULRH-4-6.0xR1.0xL12.0		1.0	12.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010617	IULRH-4-6.0xR1.0xL18.0		1.0	18.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010618	IULRH-4-6.0xR1.0xL24.0		1.0	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N010619	IULRH-4-6.0xR1.0xL48.0		1.0	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●

ion Depo Type U Series

super MG | ion U | Profiling | 刃数 2 | Helix Angle 30° | NA 11° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P160

超硬ボールエンドミル 高精度 Carbide Ball End Mills High Precision

■型番:IUBH-2 Model number:IUBH-2

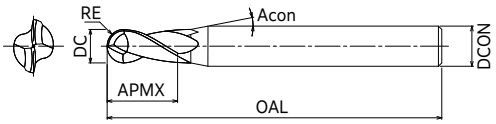
◆ HRC50 以上の高硬度金型の曲面加工に適しています

◆ Suitable for profiling of high-hardness molds with HRC50 or higher



高精度 High Precision

径許容差 Diameter Tolerance	R許容差 R Tolerance
-0.004/-0.007	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel				鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
				~50HRC	~55HRC	~62HRC	~70HRC							
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N010106	IUBH-2-0.1xR0.05x0.1	0.1	0.05	0.1	11	4	50	●
N010107	IUBH-2-0.2xR0.1x0.2	0.2	0.1	0.2	11	4	50	●
N010108	IUBH-2-0.3xR0.15x0.3	0.3	0.15	0.3	11	4	50	●
N010109	IUBH-2-0.4xR0.2x0.6	0.4	0.2	0.6	11	4	50	●
N010110	IUBH-2-0.5xR0.25x0.8	0.5	0.25	0.8	11	4	50	●
N010111	IUBH-2-0.6xR0.3x0.9	0.6	0.3	0.9	11	4	50	●
N010112	IUBH-2-0.8xR0.4x1.2	0.8	0.4	1.2	11	4	50	●
N010113	IUBH-2-1.0xR0.5x1.5	1.0	0.5	1.5	11	4	50	●
N010114	IUBH-2-1.5xR0.75x2.3	1.5	0.75	2.3	11	4	50	●
N010115	IUBH-2-2.0xR1.0x3.0	2.0	1.0	3.0	11	4	50	●
N010116	IUBH-2-2.5xR1.25x3.8	2.5	1.25	3.8	11	4	50	●
N010117	IUBH-2-3.0xR1.5x5.0	3.0	1.5	5.0	11	4	50	●
N010118	IUBH-2-4.0xR2.0x6.0	4.0	2.0	6.0	11	6	50	●
N010119	IUBH-2-5.0xR2.5x8.0	5.0	2.5	8.0	11	6	50	●
N010120	IUBH-2-6.0xR3.0x10.0	6.0	3.0	10.0	—	6	50	●

super MG | ion U | Profiling | 刃数 2 | Helix Angle 30° | NA 11° | h4 | Gash Land | High Precision 高精度

切削条件表 Cutting Parameter P161

超硬ロングネックボールエンドミル 高精度
Carbide Long Neck Ball End Mills High Precision

■型番:IULBH-2 Model number:IULBH-2

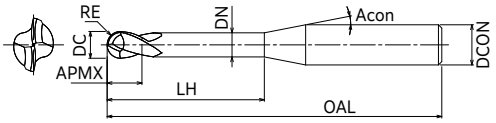
◆ HRC50 以上の高硬度金型の微細加工に適しています

◆ Suitable for fine milling of high-hardness molds with HRC50 or higher



高精度 High Precision

径許容差 Diameter Tolerance	R許容差 R Tolerance
-0.004/-0.007	±0.002



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N010186	IULBH-2-0.1xR0.05xL0.2	0.1	0.05	0.2	0.07	0.08	11	4	50	0.26	0.27	0.28	0.30	0.33	●
N010187	IULBH-2-0.1xR0.05xL0.3	0.1		0.3	0.07	0.08	11	4	50	0.37	0.38	0.40	0.42	0.46	●
N010188	IULBH-2-0.1xR0.05xL0.5	0.1		0.5	0.07	0.08	11	4	50	0.58	0.60	0.63	0.66	0.74	●
N010189	IULBH-2-0.2xR0.1xL0.3	0.2	0.1	0.3	0.15	0.18	11	4	50	0.36	0.38	0.39	0.41	0.45	●
N010190	IULBH-2-0.2xR0.1xL0.5	0.2		0.5	0.15	0.18	11	4	50	0.57	0.60	0.62	0.65	0.72	●
N010191	IULBH-2-0.2xR0.1xL0.75	0.2		0.75	0.15	0.18	11	4	50	0.83	0.87	0.91	0.96	1.06	●
N010192	IULBH-2-0.2xR0.1xL1.0	0.2		1.0	0.15	0.18	11	4	50	1.10	1.15	1.20	1.26	1.40	●
N010193	IULBH-2-0.4xR0.2xL0.5	0.4	0.2	0.5	0.3	0.37	11	4	50	0.59	0.61	0.64	0.66	0.72	●
N010194	IULBH-2-0.4xR0.2xL0.8	0.4		0.8	0.3	0.37	11	4	50	0.91	0.94	0.98	1.03	1.13	●
N010195	IULBH-2-0.4xR0.2xL1.0	0.4		1.0	0.3	0.37	11	4	50	1.12	1.16	1.21	1.27	1.40	●
N010196	IULBH-2-0.4xR0.2xL1.5	0.4		1.5	0.3	0.37	11	4	50	1.64	1.71	1.79	1.88	2.09	●
N010197	IULBH-2-0.4xR0.2xL2.0	0.4		2.0	0.3	0.37	11	4	50	2.17	2.26	2.37	2.49	2.77	●
N010198	IULBH-2-0.4xR0.2xL2.5	0.4		2.5	0.3	0.37	11	4	50	2.69	2.81	2.95	3.10	3.46	●
N010199	IULBH-2-0.4xR0.2xL3.0	0.4		3.0	0.3	0.37	11	4	50	3.21	3.36	3.53	3.71	4.14	●
N010200	IULBH-2-0.5xR0.25xL1.0	0.5	0.25	1.0	0.35	0.47	11	4	50	1.12	1.16	1.21	1.26	1.39	●
N010201	IULBH-2-0.5xR0.25xL1.5	0.5		1.5	0.35	0.47	11	4	50	1.64	1.71	1.78	1.87	2.07	●
N010202	IULBH-2-0.5xR0.25xL2.0	0.5		2.0	0.35	0.47	11	4	50	2.16	2.26	2.36	2.48	2.76	●
N010203	IULBH-2-0.5xR0.25xL2.5	0.5		2.5	0.35	0.47	11	4	50	2.69	2.81	2.94	3.09	3.44	●
N010204	IULBH-2-0.5xR0.25xL3.0	0.5		3.0	0.35	0.47	11	4	50	3.21	3.36	3.52	3.70	4.13	●

ion Depo Type U Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010205	IULBH-2-0.5xR0.25xL3.5	0.5	0.25	3.5	0.35	0.47	11	4	50	3.73	3.91	4.10	4.31	4.81	●
N010206	IULBH-2-0.5xR0.25xL4.0	0.5		4.0	0.35	0.47	11	4	50	4.26	4.45	4.67	4.92	5.49	●
N010207	IULBH-2-0.6xR0.3xL1.0	0.6	0.3	1.0	0.45	0.57	11	4	50	1.11	1.15	1.20	1.25	1.37	●
N010208	IULBH-2-0.6xR0.3xL1.5	0.6		1.5	0.45	0.57	11	4	50	1.64	1.70	1.78	1.86	2.05	●
N010209	IULBH-2-0.6xR0.3xL2.0	0.6		2.0	0.45	0.57	11	4	50	2.16	2.25	2.35	2.47	2.74	●
N010210	IULBH-2-0.6xR0.3xL2.5	0.6		2.5	0.45	0.57	11	4	50	2.68	2.80	2.93	3.08	3.42	●
N010211	IULBH-2-0.6xR0.3xL3.0	0.6		3.0	0.45	0.57	11	4	50	3.21	3.35	3.51	3.69	4.11	●
N010212	IULBH-2-0.6xR0.3xL3.5	0.6		3.5	0.45	0.57	11	4	50	3.73	3.90	4.09	4.30	4.79	●
N010213	IULBH-2-0.6xR0.3xL4.0	0.6		4.0	0.45	0.57	11	4	50	4.25	4.45	4.67	4.91	5.48	●
N010214	IULBH-2-0.6xR0.3xL4.5	0.6		4.5	0.45	0.57	11	4	50	4.78	5.00	5.24	5.51	6.16	●
N010215	IULBH-2-0.6xR0.3xL5.0	0.6		5.0	0.45	0.57	11	4	50	5.30	5.55	5.82	6.12	6.85	●
N010216	IULBH-2-0.6xR0.3xL5.5	0.6		5.5	0.45	0.57	11	4	50	5.83	6.10	6.40	6.73	7.53	●
N010217	IULBH-2-0.6xR0.3xL6.0	0.6		6.0	0.45	0.57	11	4	50	6.35	6.65	6.98	7.34	8.22	●
N010218	IULBH-2-0.8xR0.4xL2.0	0.8	0.4	2.0	0.6	0.77	11	4	50	2.16	2.24	2.34	2.45	2.70	●
N010219	IULBH-2-0.8xR0.4xL3.0	0.8		3.0	0.6	0.77	11	4	50	3.20	3.34	3.49	3.66	4.07	●
N010220	IULBH-2-0.8xR0.4xL4.0	0.8		4.0	0.6	0.77	11	4	50	4.25	4.44	4.65	4.88	5.44	●
N010221	IULBH-2-0.8xR0.4xL5.0	0.8		5.0	0.6	0.77	11	4	50	5.30	5.54	5.81	6.10	6.81	●
N010222	IULBH-2-0.8xR0.4xL6.0	0.8		6.0	0.6	0.77	11	4	50	6.34	6.64	6.96	7.32	8.18	●
N010223	IULBH-2-0.8xR0.4xL7.0	0.8		7.0	0.6	0.77	11	4	50	7.39	7.74	8.12	8.54	9.55	●
N010224	IULBH-2-0.8xR0.4xL8.0	0.8		8.0	0.6	0.77	11	4	50	8.44	8.83	9.27	9.76	10.92	●
N010225	IULBH-2-1.0xR0.5xL2.0	1.0	0.5	2.0	0.8	0.95	11	4	50	2.21	2.29	2.38	2.49	2.74	●
N010226	IULBH-2-1.0xR0.5xL2.5	1.0		2.5	0.8	0.95	11	4	50	2.73	2.84	2.96	3.10	3.42	●
N010227	IULBH-2-1.0xR0.5xL3.0	1.0		3.0	0.8	0.95	11	4	50	3.25	3.39	3.54	3.71	4.11	●
N010228	IULBH-2-1.0xR0.5xL4.0	1.0		4.0	0.8	0.95	11	4	50	4.30	4.49	4.69	4.93	5.48	●
N010229	IULBH-2-1.0xR0.5xL5.0	1.0		5.0	0.8	0.95	11	4	50	5.35	5.59	5.85	6.14	6.85	●
N010230	IULBH-2-1.0xR0.5xL6.0	1.0		6.0	0.8	0.95	11	4	50	6.39	6.68	7.01	7.36	8.22	●
N010231	IULBH-2-1.0xR0.5xL7.0	1.0		7.0	0.8	0.95	11	4	50	7.44	7.78	8.16	8.58	9.58	●
N010232	IULBH-2-1.0xR0.5xL8.0	1.0		8.0	0.8	0.95	11	4	50	8.49	8.88	9.32	9.80	10.95	●
N010233	IULBH-2-1.0xR0.5xL9.0	1.0		9.0	0.8	0.95	11	4	50	9.53	9.98	10.47	11.02	12.32	●
N010234	IULBH-2-1.0xR0.5xL10.0	1.0		10.0	0.8	0.95	11	4	50	10.58	11.08	11.63	12.24	13.69	●
N010235	IULBH-2-1.0xR0.5xL12.0	1.0		12.0	0.8	0.95	11	4	50	12.68	13.28	13.94	14.68	16.43	●
N010236	IULBH-2-1.2xR0.6xL2.4	1.2	0.6	2.4	0.9	1.15	11	4	50	2.62	2.72	2.83	2.95	3.25	●
N010237	IULBH-2-1.2xR0.6xL4.0	1.2		4.0	0.9	1.15	11	4	50	4.29	4.48	4.68	4.90	5.44	※
N010238	IULBH-2-1.2xR0.6xL6.0	1.2		6.0	0.9	1.15	11	4	50	6.39	6.67	6.99	7.34	8.18	※
N010239	IULBH-2-1.2xR0.6xL8.0	1.2		8.0	0.9	1.15	11	4	50	8.48	8.87	9.30	9.78	10.92	※
N010240	IULBH-2-1.2xR0.6xL10.0	1.2		10.0	0.9	1.15	11	4	50	10.58	11.07	11.61	12.22	13.66	※
N010241	IULBH-2-1.2xR0.6xL12.0	1.2		12.0	0.9	1.15	11	4	50	12.67	13.27	13.92	14.66	16.40	※
N010242	IULBH-2-1.5xR0.75xL3.0	1.5	0.75	3.0	1.1	1.45	11	4	50	3.24	3.36	3.50	3.65	4.02	●
N010243	IULBH-2-1.5xR0.75xL4.0	1.5		4.0	1.1	1.45	11	4	50	4.29	4.46	4.66	4.87	5.39	●
N010244	IULBH-2-1.5xR0.75xL6.0	1.5		6.0	1.1	1.45	11	4	50	6.38	6.66	6.97	7.31	8.13	●
N010245	IULBH-2-1.5xR0.75xL8.0	1.5		8.0	1.1	1.45	11	4	50	8.48	8.86	9.28	9.75	10.87	●
N010246	IULBH-2-1.5xR0.75xL10.0	1.5		10.0	1.1	1.45	11	4	50	10.57	11.05	11.59	12.19	13.60	●
N010247	IULBH-2-1.5xR0.75xL12.0	1.5		12.0	1.1	1.45	11	4	50	12.66	13.25	13.90	14.62	16.34	●
N010248	IULBH-2-1.5xR0.75xL14.0	1.5		14.0	1.1	1.45	11	4	50	14.76	15.45	16.21	17.06	19.08	●
N010249	IULBH-2-1.5xR0.75xL16.0	1.5		16.0	1.1	1.45	11	4	50	16.85	17.65	18.52	19.50	21.82	●
N010250	IULBH-2-1.6xR0.8xL8.0	1.6	0.8	8.0	1.2	1.55	11	4	50	8.47	8.85	9.27	9.74	10.85	※
N010251	IULBH-2-1.6xR0.8xL12.0	1.6		12.0	1.2	1.55	11	4	50	12.66	13.25	13.89	14.61	16.33	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010252	IULBH-2-1.6xR0.8xL16.0	1.6	0.8	16.0	1.2	1.55	11	4	50	16.85	17.64	18.52	19.49	21.80	※
N010253	IULBH-2-2.0xR1.0xL3.0	2.0		3.0	1.5	1.94	11	4	50	3.26	3.37	3.49	3.63	3.97	●
N010254	IULBH-2-2.0xR1.0xL4.0	2.0		4.0	1.5	1.94	11	4	50	4.30	4.47	4.65	4.85	5.34	●
N010255	IULBH-2-2.0xR1.0xL6.0	2.0		6.0	1.5	1.94	11	4	50	6.40	6.66	6.96	7.29	8.08	●
N010256	IULBH-2-2.0xR1.0xL8.0	2.0		8.0	1.5	1.94	11	4	50	8.49	8.86	9.27	9.72	10.81	●
N010257	IULBH-2-2.0xR1.0xL10.0	2.0		10.0	1.5	1.94	11	4	50	10.58	11.06	11.58	12.16	13.55	●
N010258	IULBH-2-2.0xR1.0xL12.0	2.0	1.0	12.0	1.5	1.94	11	4	50	12.68	13.26	13.89	14.60	16.29	●
N010259	IULBH-2-2.0xR1.0xL13.0	2.0		13.0	1.5	1.94	11	4	50	13.73	14.35	15.05	15.82	17.66	●
N010260	IULBH-2-2.0xR1.0xL14.0	2.0		14.0	1.5	1.94	11	4	50	14.77	15.45	16.20	17.04	19.03	●
N010261	IULBH-2-2.0xR1.0xL16.0	2.0		16.0	1.5	1.94	11	4	50	16.87	17.65	18.52	19.48	FREE	●
N010262	IULBH-2-2.0xR1.0xL18.0	2.0		18.0	1.5	1.94	11	4	50	18.96	19.85	20.83	21.91	FREE	●
N010263	IULBH-2-2.0xR1.0xL20.0	2.0		20.0	1.5	1.94	11	4	60	21.05	22.04	23.14	24.35	FREE	●
N010264	IULBH-2-2.5xR1.25xL6.0	2.5		6.0	2.3	2.44	11	4	50	6.39	6.64	6.92	7.23	7.99	●
N010265	IULBH-2-2.5xR1.25xL8.0	2.5		8.0	2.3	2.44	11	4	50	8.48	8.84	9.23	9.67	10.73	●
N010266	IULBH-2-2.5xR1.25xL10.0	2.5	1.25	10.0	2.3	2.44	11	4	50	10.57	11.03	11.54	12.11	13.47	●
N010267	IULBH-2-2.5xR1.25xL15.0	2.5		15.0	2.3	2.44	11	4	50	15.81	16.53	17.32	18.20	FREE	●
N010268	IULBH-2-2.5xR1.25xL20.0	2.5		20.0	2.3	2.44	11	4	50	21.04	22.02	23.10	FREE	FREE	●
N010269	IULBH-2-3.0xR1.5xL6.0	3.0		6.0	2.5	2.85	11	4	50	6.62	6.87	7.15	7.46	8.22	●
N010270	IULBH-2-3.0xR1.5xL8.0	3.0		8.0	2.5	2.85	11	4	50	8.71	9.07	9.46	9.90	10.96	●
N010271	IULBH-2-3.0xR1.5xL10.0	3.0		10.0	2.5	2.85	11	4	50	10.80	11.26	11.77	12.34	FREE	●
N010272	IULBH-2-3.0xR1.5xL12.0	3.0		12.0	2.5	2.85	11	4	50	12.90	13.46	14.08	14.78	FREE	●
N010273	IULBH-2-3.0xR1.5xL14.0	3.0	1.5	14.0	2.5	2.85	11	4	50	14.99	15.66	16.40	FREE	FREE	●
N010274	IULBH-2-3.0xR1.5xL16.0	3.0		16.0	2.5	2.85	11	4	50	17.09	17.86	18.71	FREE	FREE	●
N010275	IULBH-2-3.0xR1.5xL20.0	3.0		20.0	2.5	2.85	11	4	50	21.27	22.25	FREE	FREE	FREE	●
N010276	IULBH-2-3.0xR1.5xL25.0	3.0		25.0	2.5	2.85	11	4	60	26.51	27.74	FREE	FREE	FREE	●
N010277	IULBH-2-3.0xR1.5xL30.0	3.0		30.0	2.5	2.85	11	4	60	31.74	FREE	FREE	FREE	FREE	●
N010278	IULBH-2-3.5xR1.75xL15.0	3.5		15.0	2.8	3.35	11	6	50	16.03	16.73	17.51	18.38	20.45	※
N010279	IULBH-2-3.5xR1.75xL20.0	3.5		20.0	2.8	3.35	11	6	60	21.26	22.23	23.29	24.47	FREE	※
N010280	IULBH-2-3.5xR1.75xL25.0	3.5	1.75	25.0	2.8	3.35	11	6	60	26.50	27.72	29.07	30.57	FREE	※
N010281	IULBH-2-3.5xR1.75xL30.0	3.5		30.0	2.8	3.35	11	6	70	31.73	33.21	34.85	36.66	FREE	※
N010282	IULBH-2-3.5xR1.75xL35.0	3.5		35.0	2.8	3.35	11	6	70	36.97	38.71	40.63	FREE	FREE	※
N010283	IULBH-2-4.0xR2.0xL8.0	4.0		8.0	3.0	3.8	11	6	50	8.82	9.16	9.53	9.95	10.96	●
N010284	IULBH-2-4.0xR2.0xL10.0	4.0		10.0	3.0	3.8	11	6	50	10.92	11.36	11.84	12.39	13.70	●
N010285	IULBH-2-4.0xR2.0xL12.0	4.0		12.0	3.0	3.8	11	6	50	13.01	13.55	14.16	14.82	16.43	●
N010286	IULBH-2-4.0xR2.0xL14.0	4.0		14.0	3.0	3.8	11	6	50	15.10	15.75	16.47	17.26	19.17	●
N010287	IULBH-2-4.0xR2.0xL15.0	4.0	2.0	15.0	3.0	3.8	11	6	50	16.15	16.85	17.62	18.48	20.54	●
N010288	IULBH-2-4.0xR2.0xL20.0	4.0		20.0	3.0	3.8	11	6	60	21.39	22.34	23.40	24.58	FREE	●
N010289	IULBH-2-4.0xR2.0xL25.0	4.0		25.0	3.0	3.8	11	6	60	26.62	27.84	29.18	FREE	FREE	●
N010290	IULBH-2-4.0xR2.0xL30.0	4.0		30.0	3.0	3.8	11	6	70	31.86	33.33	34.96	FREE	FREE	●
N010291	IULBH-2-4.0xR2.0xL35.0	4.0		35.0	3.0	3.8	11	6	70	37.09	38.82	FREE	FREE	FREE	●
N010292	IULBH-2-5.0xR2.5xL15.0	5.0		15.0	3.5	4.8	11	6	50	16.13	16.80	17.55	FREE	FREE	●
N010293	IULBH-2-5.0xR2.5xL20.0	5.0		20.0	3.5	4.8	11	6	50	21.36	22.29	FREE	FREE	FREE	●
N010294	IULBH-2-5.0xR2.5xL25.0	5.0	2.5	25.0	3.5	4.8	11	6	60	26.60	27.79	FREE	FREE	FREE	●
N010295	IULBH-2-5.0xR2.5xL30.0	5.0		30.0	3.5	4.8	11	6	60	31.83	FREE	FREE	FREE	FREE	●
N010296	IULBH-2-5.0xR2.5xL40.0	5.0		40.0	3.5	4.8	11	6	70	42.30	FREE	FREE	FREE	FREE	●
N010297	IULBH-2-6.0xR3.0xL10.0	6.0	3.0	10.0	6.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010298	IULBH-2-6.0xR3.0xL15.0	6.0		15.0	6.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●

ion Depo Type U Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N010299	IULBH-2-6.0xR3.0xL20.0	6.0	3.0	20.0	6.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N010300	IULBH-2-6.0xR3.0xL25.0	6.0		25.0	6.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N010301	IULBH-2-6.0xR3.0xL30.0	6.0		30.0	6.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N010302	IULBH-2-6.0xR3.0xL35.0	6.0		35.0	6.0	5.8	11	6	70	FREE	FREE	FREE	FREE	FREE	●
N010303	IULBH-2-6.0xR3.0xL40.0	6.0		40.0	6.0	5.8	11	6	70	FREE	FREE	FREE	FREE	FREE	●
N010304	IULBH-2-6.0xR3.0xL50.0	6.0		50.0	6.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N010305	IULBH-2-6.0xR3.0xL60.0	6.0		60.0	6.0	5.8	11	6	90	FREE	FREE	FREE	FREE	FREE	●

super MG | ion U | Side Milling | Slotting | Planing | Helical | 刃数 2 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P146

超硬スクエアエンドミル Carbide Square End Mills

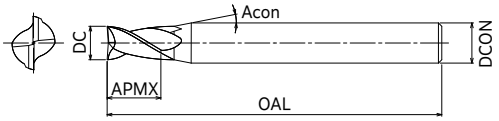
■型番:IUS-2 Model number:IUS-2

◆HRC50 以上の高硬度金型の溝・側面加工に適しています

◆Suitable for slot and side milling of high-hardness molds with HRC50 or higher



径 Diameter	径許容差 Diameter Tolerance
φ6以下 φ≦6	0/-0.007
φ6を超えφ12以下 6<φ≦12	0/-0.014
φ12を超えφ20以下 12<φ≦20	0/-0.020



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N008281	IUS-2-0.1x0.15	0.1	0.15	11	4	50	※
N008282	IUS-2-0.2x0.4	0.2	0.4	11	4	50	※
N008283	IUS-2-0.3x0.6	0.3	0.6	11	4	50	※
N008284	IUS-2-0.4x0.8	0.4	0.8	11	4	50	●
N008285	IUS-2-0.5x1.0	0.5	1.0	11	4	50	●
N008286	IUS-2-0.6x1.2	0.6	1.2	11	4	50	※
N008287	IUS-2-0.7x1.4	0.7	1.4	11	4	50	※
N008288	IUS-2-0.8x1.6	0.8	1.6	11	4	50	●
N008289	IUS-2-0.9x1.8	0.9	1.8	11	4	50	※
N008290	IUS-2-1.0x2.0	1.0	2.0	11	4	50	●
N008291	IUS-2-1.1x2.2	1.1	2.2	11	4	50	※
N008292	IUS-2-1.2x2.4	1.2	2.4	11	4	50	※
N008293	IUS-2-1.3x2.6	1.3	2.6	11	4	50	※
N008294	IUS-2-1.4x2.8	1.4	2.8	11	4	50	※
N008295	IUS-2-1.5x3.0	1.5	3.0	11	4	50	●
N008296	IUS-2-1.6x3.2	1.6	3.2	11	4	50	※
N008297	IUS-2-1.7x3.4	1.7	3.4	11	4	50	※
N008298	IUS-2-1.8x3.6	1.8	3.6	11	4	50	※
N008299	IUS-2-1.9x3.8	1.9	3.8	11	4	50	※
N008300	IUS-2-2.0x4.0	2.0	4.0	11	4	50	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N008301	IUS-2-2.1x4.2	2.1	4.2	11	4	50	※
N008302	IUS-2-2.2x4.4	2.2	4.4	11	4	50	※
N008303	IUS-2-2.3x4.6	2.3	4.6	11	4	50	※
N008304	IUS-2-2.4x4.8	2.4	4.8	11	4	50	※
N008305	IUS-2-2.5x5.0	2.5	5.0	11	4	50	※
N008306	IUS-2-2.6x5.2	2.6	5.2	11	4	50	※
N008307	IUS-2-2.7x5.4	2.7	5.4	11	4	50	※
N008308	IUS-2-2.8x5.6	2.8	5.6	11	4	50	※
N008309	IUS-2-2.9x5.8	2.9	5.8	11	4	50	※
N008310	IUS-2-3.0x6.0	3.0	6.0	11	4	50	●
N008311	IUS-2-3.5x7.0	3.5	7.0	11	6	50	※
N008312	IUS-2-4.0x8.0	4.0	8.0	11	6	50	●
N008313	IUS-2-4.5x9.0	4.5	9.0	11	6	50	※
N008314	IUS-2-5.0x10.0	5.0	10.0	11	6	50	●
N008315	IUS-2-5.5x11.0	5.5	11.0	11	6	50	※
N008316	IUS-2-6.0x12.0	6.0	12.0	—	6	50	●

super MG | ion U | Side Milling | Planing | Helical | 刃数 4 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P148

超硬スクエアエンドミル Carbide Square End Mills

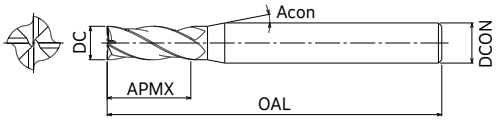
■型番:IUS-4 Model number:IUS-4

◆ HRC50 以上の高硬度金型の側面加工に適しています

◆Suitable for side milling of high-hardness molds with HRC50 or higher



径 Diameter	径許容差 Diameter Tolerance
φ6以下 φ≦6	0/-0.007
φ6を超えφ12以下 6<φ≦12	0/-0.014
φ12を超えφ20以下 12<φ≦20	0/-0.020



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N006425	IUS-4-1.0x2.0	1.0	2.0	11	4	50	●
N006426	IUS-4-1.5x3.0	1.5	3.0	11	4	50	●
N006427	IUS-4-2.0x4.0	2.0	4.0	11	4	50	●
N006428	IUS-4-3.0x6.0	3.0	6.0	11	4	50	●
N006429	IUS-4-4.0x8.0	4.0	8.0	11	6	50	●
N006430	IUS-4-6.0x12.0	6.0	12.0	—	6	60	●
N006431	IUS-4-6.0x18.0		18.0	—	6	60	●
N006432	IUS-4-8.0x16.0	8.0	16.0	—	8	70	●
N006433	IUS-4-8.0x24.0		24.0	—	8	70	●
N006434	IUS-4-10.0x20.0	10.0	20.0	—	10	80	●
N008317	IUS-4-10.0x30.0		30.0	—	10	80	●
N006435	IUS-4-12.0x24.0	12.0	24.0	—	12	110	●
N008318	IUS-4-12.0x36.0		36.0	—	12	110	●
N008319	IUS-4-14.0x35.0	14.0	35.0	—	14	120	●
N008320	IUS-4-16.0x40.0	16.0	40.0	—	16	130	●
N008321	IUS-4-18.0x45.0	18.0	45.0	—	18	140	※
N008322	IUS-4-20.0x50.0	20.0	50.0	—	20	140	●

ion Depo Type U Series

super MG | ion U | Side Milling | Planing | Helical | 刃数 6 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P149

超硬スクエアエンドミル Carbide Square End Mills

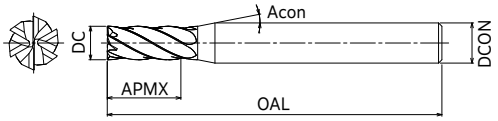
■型番:IUS-6 Model number:IUS-6

◆ HRC50 以上の高硬度金型の側面加工に適しています

◆Suitable for side milling of high-hardness molds with HRC50 or higher



径 Diameter	径許容差 Diameter Tolerance
φ6以下 φ≦6	0/-0.007
φ6を超えφ12以下 6<φ≦12	0/-0.014
φ12を超えφ20以下 12<φ≦20	0/-0.020



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N008331	IUS-6-5.0x10.0	5.0	10.0	11	6	50	●
N008332	IUS-6-5.0x15.0		15.0	11	6	50	●
N008333	IUS-6-6.0x12.0	6.0	12.0	—	6	50	●
N008334	IUS-6-6.0x18.0		18.0	—	6	60	●
N008335	IUS-6-8.0x16.0	8.0	16.0	—	8	70	●
N008336	IUS-6-8.0x24.0		24.0	—	8	70	●
N008323	IUS-6-10.0x20.0	10.0	20.0	—	10	80	●
N008324	IUS-6-10.0x30.0		30.0	—	10	80	●
N008325	IUS-6-12.0x24.0	12.0	24.0	—	12	110	●
N008326	IUS-6-12.0x36.0		36.0	—	12	110	●
N008327	IUS-6-14.0x35.0	14.0	35.0	—	14	120	●
N008328	IUS-6-16.0x40.0	16.0	40.0	—	16	130	●
N008329	IUS-6-18.0x45.0	18.0	45.0	—	18	140	※
N008330	IUS-6-20.0x50.0	20.0	50.0	—	20	140	●

super MG | ion U | Side Milling | Slotting | Planing | Helical | 刃数 2 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P150

超硬ロングネックスクエアエンドミル
Carbide Long Neck Square End Mills

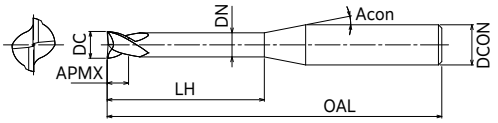
■型番:IULS-2 Model number:IULS-2

◆ HRC50 以上の高硬度金型の微細加工に適しています

◆Suitable for fine milling of high-hardness molds with HRC50 or higher



径 Diameter	径許容差 Diameter Tolerance
φ6以下 φ≦6	0/-0.007
φ6を超えφ12以下 6<φ≦12	0/-0.014
φ12を超えφ20以下 12<φ≦20	0/-0.020



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表　Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N008113	IULS-2-0.1xL0.3	0.1	0.3	0.1	0.08	11	4	50	0.37	0.39	0.41	0.43	0.48	※
N008114	IULS-2-0.1xL0.5		0.5	0.1	0.08	11	4	50	0.58	0.61	0.64	0.67	0.75	※
N008111	IULS-2-0.15xL0.3	0.15	0.3	0.12	0.13	11	4	50	0.37	0.39	0.41	0.43	0.48	※
N008112	IULS-2-0.15xL0.5		0.5	0.12	0.13	11	4	50	0.58	0.61	0.64	0.67	0.75	※
N008115	IULS-2-0.2xL0.5	0.2	0.5	0.15	0.18	11	4	50	0.58	0.61	0.64	0.67	0.75	※
N008116	IULS-2-0.2xL0.75		0.75	0.15	0.18	11	4	50	0.84	0.88	0.93	0.98	1.10	※
N008117	IULS-2-0.2xL1.0		1.0	0.15	0.18	11	4	50	1.10	1.16	1.22	1.28	1.44	※
N008118	IULS-2-0.3xL1.0	0.3	1.0	0.25	0.27	11	4	50	1.13	1.18	1.24	1.31	1.47	●
N008119	IULS-2-0.3xL1.5		1.5	0.25	0.27	11	4	50	1.65	1.73	1.82	1.92	2.16	●
N008120	IULS-2-0.3xL2.0		2.0	0.25	0.27	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N008121	IULS-2-0.3xL2.5		2.5	0.25	0.27	11	4	50	2.70	2.83	2.98	3.14	3.53	●
N008122	IULS-2-0.3xL3.0		3.0	0.25	0.27	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N008123	IULS-2-0.4xL1.0	0.4	1.0	0.3	0.37	11	4	50	1.13	1.18	1.24	1.31	1.47	●
N008124	IULS-2-0.4xL1.5		1.5	0.3	0.37	11	4	50	1.65	1.73	1.82	1.92	2.16	●
N008125	IULS-2-0.4xL2.0		2.0	0.3	0.37	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N008126	IULS-2-0.4xL2.5		2.5	0.3	0.37	11	4	50	2.70	2.83	2.98	3.14	3.53	●
N008127	IULS-2-0.4xL3.0		3.0	0.3	0.37	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N008128	IULS-2-0.5xL1.0	0.5	1.0	0.4	0.47	11	4	50	1.13	1.18	1.24	1.31	1.47	●
N008129	IULS-2-0.5xL1.5		1.5	0.4	0.47	11	4	50	1.65	1.73	1.82	1.92	2.16	●

ion Depo Type U Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
									30'	1°	1°30'	2°	3°	
N008130	IULS-2-0.5xL2.0	0.5	2.0	0.4	0.47	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N008131	IULS-2-0.5xL2.5		2.5	0.4	0.47	11	4	50	2.70	2.83	2.98	3.14	3.53	●
N008132	IULS-2-0.5xL3.0		3.0	0.4	0.47	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N008133	IULS-2-0.5xL3.5		3.5	0.4	0.47	11	4	50	3.75	3.93	4.13	4.36	4.90	●
N008134	IULS-2-0.5xL4.0		4.0	0.4	0.47	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N008135	IULS-2-0.6xL1.5	0.6	1.5	0.5	0.57	11	4	50	1.65	1.73	1.82	1.92	2.16	●
N008136	IULS-2-0.6xL2.0		2.0	0.5	0.57	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N008137	IULS-2-0.6xL3.0		3.0	0.5	0.57	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N008138	IULS-2-0.6xL4.0		4.0	0.5	0.57	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N008139	IULS-2-0.6xL5.0		5.0	0.5	0.57	11	4	50	5.32	5.58	5.87	6.19	6.95	●
N008140	IULS-2-0.6xL6.0		6.0	0.5	0.57	11	4	50	6.36	6.68	7.02	7.41	8.32	●
N008141	IULS-2-0.7xL2.0	0.7	2.0	0.55	0.67	11	4	50	2.17	2.28	2.40	2.53	2.84	※
N008142	IULS-2-0.7xL4.0		4.0	0.55	0.67	11	4	50	4.27	4.48	4.71	4.97	5.58	※
N008143	IULS-2-0.7xL6.0		6.0	0.55	0.67	11	4	50	6.36	6.68	7.02	7.41	8.32	※
N008144	IULS-2-0.8xL3.0	0.8	3.0	0.65	0.77	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N008145	IULS-2-0.8xL4.0		4.0	0.65	0.77	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N008146	IULS-2-0.8xL5.0		5.0	0.65	0.77	11	4	50	5.32	5.58	5.87	6.19	6.95	●
N008147	IULS-2-0.8xL6.0		6.0	0.65	0.77	11	4	50	6.36	6.68	7.02	7.41	8.32	●
N008148	IULS-2-0.8xL8.0		8.0	0.65	0.77	11	4	50	8.46	8.87	9.33	9.85	11.06	●
N008151	IULS-2-1.0xL2.0	1.0	2.0	0.8	0.95	11	4	50	2.23	2.34	2.46	2.59	2.91	●
N008152	IULS-2-1.0xL3.0		3.0	0.8	0.95	11	4	50	3.28	3.44	3.62	3.81	4.28	●
N008153	IULS-2-1.0xL4.0		4.0	0.8	0.95	11	4	50	4.32	4.54	4.77	5.03	5.65	●
N008154	IULS-2-1.0xL5.0		5.0	0.8	0.95	11	4	50	5.37	5.63	5.93	6.25	7.02	●
N008155	IULS-2-1.0xL6.0		6.0	0.8	0.95	11	4	50	6.42	6.73	7.08	7.47	8.39	●
N008156	IULS-2-1.0xL7.0		7.0	0.8	0.95	11	4	50	7.46	7.83	8.24	8.69	9.76	●
N008157	IULS-2-1.0xL8.0		8.0	0.8	0.95	11	4	50	8.51	8.93	9.39	9.91	11.13	●
N008158	IULS-2-1.0xL9.0		9.0	0.8	0.95	11	4	50	9.56	10.03	10.55	11.13	12.50	●
N008149	IULS-2-1.0xL10.0		10.0	0.8	0.95	11	4	50	10.60	11.13	11.71	12.35	13.87	●
N008150	IULS-2-1.0xL12.0		12.0	0.8	0.95	11	4	50	12.70	13.33	14.02	14.78	16.61	●
N008162	IULS-2-1.2xL6.0	1.2	6.0	1.0	1.15	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N008163	IULS-2-1.2xL8.0		8.0	1.0	1.15	11	4	50	8.51	8.93	9.39	9.91	11.13	※
N008159	IULS-2-1.2xL10.0		10.0	1.0	1.15	11	4	50	10.60	11.13	11.71	12.35	13.87	※
N008160	IULS-2-1.2xL12.0		12.0	1.0	1.15	11	4	50	12.70	13.33	14.02	14.78	16.61	※
N008161	IULS-2-1.2xL16.0		16.0	1.0	1.15	11	4	50	16.89	17.72	18.64	19.66	22.08	※
N008165	IULS-2-1.4xL6.0	1.4	6.0	1.1	1.35	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N008164	IULS-2-1.4xL12.0		12.0	1.1	1.35	11	4	50	12.70	13.33	14.02	14.78	16.61	※
N008170	IULS-2-1.5xL4.0	1.5	4.0	1.2	1.45	11	4	50	4.32	4.54	4.77	5.03	5.65	●
N008171	IULS-2-1.5xL6.0		6.0	1.2	1.45	11	4	50	6.42	6.73	7.08	7.47	8.39	●
N008172	IULS-2-1.5xL8.0		8.0	1.2	1.45	11	4	50	8.51	8.93	9.39	9.91	11.13	●
N008166	IULS-2-1.5xL10.0		10.0	1.2	1.45	11	4	50	10.60	11.13	11.71	12.35	13.87	●
N008167	IULS-2-1.5xL12.0		12.0	1.2	1.45	11	4	50	12.70	13.33	14.02	14.78	16.61	●
N008168	IULS-2-1.5xL14.0		14.0	1.2	1.45	11	4	50	14.79	15.52	16.33	17.22	19.34	●
N008169	IULS-2-1.5xL16.0		16.0	1.2	1.45	11	4	50	16.89	17.72	18.64	19.66	22.08	●
N008173	IULS-2-1.6xL6.0	1.6	6.0	1.3	1.55	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N008174	IULS-2-1.6xL8.0		8.0	1.3	1.55	11	4	50	8.51	8.93	9.39	9.91	11.13	※
N008179	IULS-2-1.8xL6.0	1.8	6.0	1.4	1.75	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N008180	IULS-2-1.8xL8.0		8.0	1.4	1.75	11	4	50	8.51	8.93	9.39	9.91	11.13	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
									30'	1°	1°30'	2°	3°	
N008175	IULS-2-1.8xL10.0	1.8	10.0	1.4	1.75	11	4	50	10.60	11.13	11.71	12.35	13.87	※
N008176	IULS-2-1.8xL12.0		12.0	1.4	1.75	11	4	50	12.70	13.33	14.02	14.78	16.61	※
N008177	IULS-2-1.8xL14.0		14.0	1.4	1.75	11	4	50	14.79	15.52	16.33	17.22	19.34	※
N008178	IULS-2-1.8xL16.0		16.0	1.4	1.75	11	4	50	16.89	17.72	18.64	19.66	FREE	※
N008187	IULS-2-2.0xL4.0	2.0	4.0	1.6	1.94	11	4	50	4.35	4.56	4.80	5.06	5.69	●
N008188	IULS-2-2.0xL6.0		6.0	1.6	1.94	11	4	50	6.44	6.76	7.11	7.50	8.43	●
N008189	IULS-2-2.0xL8.0		8.0	1.6	1.94	11	4	50	8.54	8.96	9.42	9.94	11.16	●
N008181	IULS-2-2.0xL10.0		10.0	1.6	1.94	11	4	50	10.63	11.16	11.74	12.38	13.90	●
N008182	IULS-2-2.0xL12.0		12.0	1.6	1.94	11	4	50	12.73	13.35	14.05	14.82	16.64	●
N008183	IULS-2-2.0xL14.0		14.0	1.6	1.94	11	4	50	14.82	15.55	16.36	17.25	FREE	●
N008184	IULS-2-2.0xL16.0		16.0	1.6	1.94	11	4	50	16.91	17.75	18.67	19.69	FREE	●
N008185	IULS-2-2.0xL18.0		18.0	1.6	1.94	11	4	50	19.01	19.95	20.98	22.13	FREE	●
N008186	IULS-2-2.0xL20.0		20.0	1.6	1.94	11	4	60	21.10	22.14	23.29	24.57	FREE	●
N008193	IULS-2-2.5xL8.0	2.5	8.0	2.0	2.44	11	4	50	8.54	8.96	9.42	9.94	11.16	●
N008190	IULS-2-2.5xL12.0		12.0	2.0	2.44	11	4	50	12.73	13.35	14.05	14.82	FREE	●
N008191	IULS-2-2.5xL16.0		16.0	2.0	2.44	11	4	50	16.91	17.75	18.67	19.69	FREE	●
N008192	IULS-2-2.5xL20.0		20.0	2.0	2.44	11	4	50	21.10	22.14	23.29	FREE	FREE	●
N008199	IULS-2-3.0xL8.0	3.0	8.0	2.5	2.85	11	4	50	8.78	9.21	9.69	10.22	FREE	●
N008194	IULS-2-3.0xL12.0		12.0	2.5	2.85	11	4	50	12.97	13.61	14.31	FREE	FREE	●
N008195	IULS-2-3.0xL16.0		16.0	2.5	2.85	11	4	50	17.16	18.00	18.94	FREE	FREE	●
N008196	IULS-2-3.0xL20.0		20.0	2.5	2.85	11	4	50	21.34	22.40	FREE	FREE	FREE	●
N008197	IULS-2-3.0xL25.0		25.0	2.5	2.85	11	4	60	26.58	27.89	FREE	FREE	FREE	●
N008198	IULS-2-3.0xL30.0		30.0	2.5	2.85	11	4	60	31.81	FREE	FREE	FREE	FREE	●
N008200	IULS-2-4.0xL10.0	4.0	10.0	3.2	3.8	11	6	50	11.01	11.55	12.15	12.82	14.39	●
N008201	IULS-2-4.0xL15.0		15.0	3.2	3.8	11	6	50	16.24	17.05	17.93	18.91	FREE	●
N008202	IULS-2-4.0xL20.0		20.0	3.2	3.8	11	6	60	21.48	22.54	23.71	25.01	FREE	●
N008203	IULS-2-5.0xL15.0	5.0	15.0	4.0	4.8	11	6	50	16.24	17.05	17.93	FREE	FREE	●
N008204	IULS-2-5.0xL20.0		20.0	4.0	4.8	11	6	50	21.48	22.54	FREE	FREE	FREE	●
N008205	IULS-2-6.0xL15.0	6.0	15.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N008206	IULS-2-6.0xL20.0		20.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N008207	IULS-2-6.0xL30.0		30.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●

ion Depo Type U Series

super MG | ion U | Side Milling | Planing | Helical | 刃数 4 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P153

超硬ロングネックスクエアエンドミル
Carbide Long Neck Square End Mills

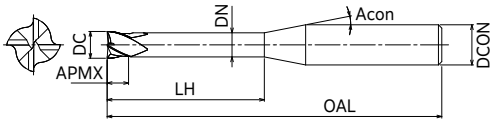
■型番：IULS-4 Model number:IULS-4

径 Diameter	径許容差 Diameter Tolerance
φ6以下 φ≦6	0/-0.007
φ6を超えφ12以下 6<φ≦12	0/-0.014
φ12を超えφ20以下 12<φ≦20	0/-0.020

◆ HRC50 以上の高硬度金型の側面加工に適しています

◆ Suitable for side milling of high-hardness molds with HRC50 or higher





表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表　Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N008209	IULS-4-1.0xL4.0	1.0	4.0	0.8	0.95	11	4	50	4.32	4.54	4.77	5.03	5.65	●
N008210	IULS-4-1.0xL6.0		6.0	0.8	0.95	11	4	50	6.42	6.73	7.08	7.47	8.39	●
N008211	IULS-4-1.0xL8.0		8.0	0.8	0.95	11	4	50	8.51	8.93	9.39	9.91	11.13	●
N008208	IULS-4-1.0xL10.0		10.0	0.8	0.95	11	4	50	10.60	11.13	11.71	12.35	13.87	●
N008214	IULS-4-1.2xL6.0	1.2	6.0	1.0	1.15	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N008215	IULS-4-1.2xL8.0		8.0	1.0	1.15	11	4	50	8.51	8.93	9.39	9.91	11.13	※
N008212	IULS-4-1.2xL10.0		10.0	1.0	1.15	11	4	50	10.60	11.13	11.71	12.35	13.87	※
N008213	IULS-4-1.2xL12.0		12.0	1.0	1.15	11	4	50	12.70	13.33	14.02	14.78	16.61	※
N008220	IULS-4-1.5xL6.0	1.5	6.0	1.2	1.45	11	4	50	6.42	6.73	7.08	7.47	8.39	●
N008221	IULS-4-1.5xL8.0		8.0	1.2	1.45	11	4	50	8.51	8.93	9.39	9.91	11.13	●
N008216	IULS-4-1.5xL10.0		10.0	1.2	1.45	11	4	50	10.60	11.13	11.71	12.35	13.87	●
N008217	IULS-4-1.5xL12.0		12.0	1.2	1.45	11	4	50	12.70	13.33	14.02	14.78	16.61	●
N008218	IULS-4-1.5xL14.0		14.0	1.2	1.45	11	4	50	14.79	15.52	16.33	17.22	19.34	●
N008219	IULS-4-1.5xL16.0		16.0	1.2	1.45	11	4	50	16.89	17.72	18.64	19.66	22.08	●
N008226	IULS-4-1.8xL6.0	1.8	6.0	1.4	1.75	11	4	50	6.42	6.73	7.08	7.47	8.39	※
N008227	IULS-4-1.8xL8.0		8.0	1.4	1.75	11	4	50	8.51	8.93	9.39	9.91	11.13	※
N008222	IULS-4-1.8xL10.0		10.0	1.4	1.75	11	4	50	10.60	11.13	11.71	12.35	13.87	※
N008223	IULS-4-1.8xL12.0		12.0	1.4	1.75	11	4	50	12.70	13.33	14.02	14.78	16.61	※
N008224	IULS-4-1.8xL14.0		14.0	1.4	1.75	11	4	50	14.79	15.52	16.33	17.22	19.34	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
									30'	1°	1°30'	2°	3°	
N008225	IULS-4-1.8xL16.0	1.8	16.0	1.4	1.75	11	4	50	16.89	17.72	18.64	19.66	FREE	※
N008234	IULS-4-2.0xL6.0	2.0	6.0	1.6	1.94	11	4	50	6.44	6.76	7.11	7.50	8.43	●
N008235	IULS-4-2.0xL8.0		8.0	1.6	1.94	11	4	50	8.54	8.96	9.42	9.94	11.16	●
N008228	IULS-4-2.0xL10.0		10.0	1.6	1.94	11	4	50	10.63	11.16	11.74	12.38	13.90	●
N008229	IULS-4-2.0xL12.0		12.0	1.6	1.94	11	4	50	12.73	13.35	14.05	14.82	16.64	●
N008230	IULS-4-2.0xL14.0		14.0	1.6	1.94	11	4	50	14.82	15.55	16.36	17.25	FREE	●
N008231	IULS-4-2.0xL16.0		16.0	1.6	1.94	11	4	50	16.91	17.75	18.67	19.69	FREE	●
N008232	IULS-4-2.0xL18.0		18.0	1.6	1.94	11	4	50	19.01	19.95	20.98	22.13	FREE	●
N008233	IULS-4-2.0xL20.0		20.0	1.6	1.94	11	4	60	21.10	22.14	23.29	24.57	FREE	●
N008239	IULS-4-2.5xL8.0	2.5	8.0	2.0	2.44	11	4	50	8.54	8.96	9.42	9.94	11.16	●
N008236	IULS-4-2.5xL12.0		12.0	2.0	2.44	11	4	50	12.73	13.35	14.05	14.82	FREE	●
N008237	IULS-4-2.5xL16.0		16.0	2.0	2.44	11	4	50	16.91	17.75	18.67	19.69	FREE	●
N008238	IULS-4-2.5xL20.0		20.0	2.0	2.44	11	4	50	21.10	22.14	23.29	FREE	FREE	●
N008245	IULS-4-3.0xL8.0	3.0	8.0	2.5	2.85	11	4	50	8.78	9.21	9.69	10.22	FREE	●
N008240	IULS-4-3.0xL12.0		12.0	2.5	2.85	11	4	50	12.97	13.61	14.31	FREE	FREE	●
N008241	IULS-4-3.0xL16.0		16.0	2.5	2.85	11	4	50	17.16	18.00	18.94	FREE	FREE	●
N008242	IULS-4-3.0xL20.0		20.0	2.5	2.85	11	4	50	21.34	22.40	FREE	FREE	FREE	●
N008243	IULS-4-3.0xL25.0		25.0	2.5	2.85	11	4	60	26.58	27.89	FREE	FREE	FREE	●
N008244	IULS-4-3.0xL30.0		30.0	2.5	2.85	11	4	60	31.81	FREE	FREE	FREE	FREE	●
N008246	IULS-4-4.0xL12.0	4.0	12.0	3.2	3.8	11	6	50	13.10	13.75	14.46	15.26	17.13	●
N008247	IULS-4-4.0xL16.0		16.0	3.2	3.8	11	6	50	17.29	18.14	19.09	20.13	FREE	●
N008248	IULS-4-4.0xL20.0		20.0	3.2	3.8	11	6	60	21.48	22.54	23.71	25.01	FREE	●
N008249	IULS-4-4.0xL25.0		25.0	3.2	3.8	11	6	60	26.71	28.03	29.49	FREE	FREE	●
N008250	IULS-4-4.0xL30.0		30.0	3.2	3.8	11	6	70	31.95	33.52	35.27	FREE	FREE	●
N008251	IULS-4-4.0xL35.0		35.0	3.2	3.8	11	6	70	37.18	39.02	FREE	FREE	FREE	●
N008252	IULS-4-5.0xL16.0	5.0	16.0	4.0	4.8	11	6	50	17.29	18.14	19.09	FREE	FREE	●
N008253	IULS-4-5.0xL25.0		25.0	4.0	4.8	11	6	60	26.71	28.03	FREE	FREE	FREE	●
N008254	IULS-4-5.0xL35.0		35.0	4.0	4.8	11	6	70	37.18	FREE	FREE	FREE	FREE	●
N008255	IULS-4-6.0xL20.0	6.0	20.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N008256	IULS-4-6.0xL30.0		30.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N008257	IULS-4-6.0xL40.0		40.0	5.0	5.8	11	6	70	FREE	FREE	FREE	FREE	FREE	●
N008258	IULS-4-6.0xL50.0		50.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●

ion Depo Type U Series

super MG | ion U | Side Milling | Planing | Profiling | Helical | 刃数 4 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P155

超硬ラジアスエンドミル Carbide Radius End Mills

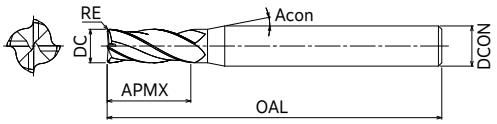
■型番:IUR-4 Model number:IUR-4

◆ HRC50 以上の高硬度金型の側面加工に適しています

◆ Suitable for side milling of high-hardness molds with HRC50 or higher



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≦12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≦20	0/-0.020	±0.010



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N006436	IUR-4-3.0xR0.2x6.0	3.0	0.2	6.0	11	4	50	●
N006437	IUR-4-3.0xR0.3x6.0		0.3	6.0	11	4	50	●
N006438	IUR-4-3.0xR0.5x6.0		0.5	6.0	11	4	50	●
N006439	IUR-4-4.0xR0.2x8.0	4.0	0.2	8.0	11	6	50	●
N006440	IUR-4-4.0xR0.3x8.0		0.3	8.0	11	6	50	●
N006441	IUR-4-4.0xR0.5x8.0		0.5	8.0	11	6	50	●
N006442	IUR-4-6.0xR0.2x12.0	6.0	0.2	12.0	—	6	60	●
N006443	IUR-4-6.0xR0.3x12.0		0.3	12.0	—	6	60	●
N006444	IUR-4-6.0xR0.5x12.0		0.5	12.0	—	6	60	●
N006445	IUR-4-6.0xR1.0x12.0		1.0	12.0	—	6	60	●
N008265	IUR-4-8.0xR0.3x16.0	8.0	0.3	16.0	—	8	70	●
N008266	IUR-4-8.0xR0.5x16.0		0.5	16.0	—	8	70	●
N008267	IUR-4-8.0xR1.0x16.0		1.0	16.0	—	8	70	●
N008259	IUR-4-10.0xR0.3x20.0	10.0	0.3	20.0	—	10	80	●
N008260	IUR-4-10.0xR0.5x20.0		0.5	20.0	—	10	80	●
N008261	IUR-4-10.0xR1.0x20.0		1.0	20.0	—	10	80	●
N008262	IUR-4-12.0xR0.5x24.0	12.0	0.5	24.0	—	12	110	●
N008263	IUR-4-12.0xR1.0x24.0		1.0	24.0	—	12	110	●
N008264	IUR-4-12.0xR2.0x24.0		2.0	24.0	—	12	110	●

super MG | ion U | Side Milling | Planing | Profiling | Helical | 刃数 6 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P156

超硬ラジアスエンドミル Carbide Radius End Mills

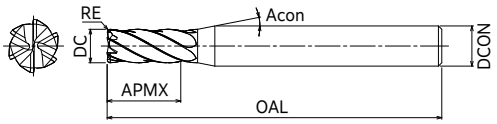
■型番:IUR-6 Model number:IUR-6

◆ HRC50 以上の高硬度金型の側面加工に適しています

◆ Suitable for side milling of high-hardness molds with HRC50 or higher



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≤6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≤12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≤20	0/-0.020	±0.010



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N006446	IUR-6-5.0xR0.2x10.0	5.0	0.2	10.0	11	6	50	●
N006447	IUR-6-5.0xR0.3x10.0		0.3	10.0	11	6	50	●
N006448	IUR-6-5.0xR0.5x10.0		0.5	10.0	11	6	50	●
N006449	IUR-6-5.0xR1.0x10.0		1.0	10.0	11	6	50	●
N006450	IUR-6-6.0xR0.2x12.0	6.0	0.2	12.0	—	6	60	●
N006451	IUR-6-6.0xR0.3x12.0		0.3	12.0	—	6	60	●
N006452	IUR-6-6.0xR0.5x12.0		0.5	12.0	—	6	60	●
N006453	IUR-6-6.0xR1.0x12.0		1.0	12.0	—	6	60	●
N008277	IUR-6-8.0xR0.3x16.0	8.0	0.3	16.0	—	8	70	●
N008278	IUR-6-8.0xR0.5x16.0		0.5	16.0	—	8	70	●
N008279	IUR-6-8.0xR1.0x16.0		1.0	16.0	—	8	70	●
N008280	IUR-6-8.0xR1.5x16.0		1.5	16.0	—	8	70	●
N008268	IUR-6-10.0xR0.3x20.0	10.0	0.3	20.0	—	10	80	●
N008269	IUR-6-10.0xR0.5x20.0		0.5	20.0	—	10	80	●
N008270	IUR-6-10.0xR1.0x20.0		1.0	20.0	—	10	80	●
N008271	IUR-6-10.0xR1.5x20.0		1.5	20.0	—	10	80	●
N008272	IUR-6-10.0xR2.0x20.0		2.0	20.0	—	10	80	●
N008273	IUR-6-12.0xR0.5x24.0	12.0	0.5	24.0	—	12	110	●
N008274	IUR-6-12.0xR1.0x24.0		1.0	24.0	—	12	110	●
N008275	IUR-6-12.0xR1.5x24.0		1.5	24.0	—	12	110	●
N008276	IUR-6-12.0xR2.0x24.0		2.0	24.0	—	12	110	●

ion Depo Type U Series

super MG | ion U | Side Milling | Slotting | Planing | Profiling | Helical | 刃数 2 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P157

超硬ロングネックラジアスエンドミル
Carbide Long Neck Radius End Mills

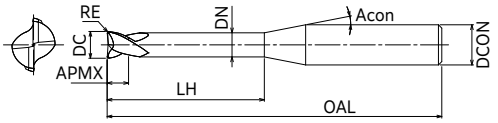
■型番:IULR-2 Model number:IULR-2

◆ HRC50 以上の高硬度金型の微細加工に適しています

◆ Suitable for fine milling of high-hardness molds with HRC50 or higher



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≦12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≦20	0/-0.020	±0.010



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表　Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N006454	IULR-2-0.2xR0.02xL0.5	0.2	0.02	0.5	0.15	0.18	11	4	50	0.58	0.60	0.63	0.67	0.75	※
N006455	IULR-2-0.2xR0.02xL1.0		0.02	1.0	0.15	0.18	11	4	50	1.10	1.15	1.21	1.28	1.43	※
N006456	IULR-2-0.2xR0.05xL0.5		0.05	0.5	0.15	0.18	11	4	50	0.58	0.60	0.63	0.66	0.74	※
N006457	IULR-2-0.2xR0.05xL1.0		0.05	1.0	0.15	0.18	11	4	50	1.10	1.15	1.21	1.27	1.42	※
N006458	IULR-2-0.3xR0.02xL1.0	0.3	0.02	1.0	0.25	0.27	11	4	50	1.13	1.18	1.24	1.31	1.47	※
N006459	IULR-2-0.3xR0.02xL1.5		0.02	1.5	0.25	0.27	11	4	50	1.65	1.73	1.82	1.92	2.15	※
N006460	IULR-2-0.3xR0.02xL2.0		0.02	2.0	0.25	0.27	11	4	50	2.17	2.28	2.40	2.53	2.84	※
N006461	IULR-2-0.3xR0.02xL2.5		0.02	2.5	0.25	0.27	11	4	50	2.70	2.83	2.98	3.14	3.52	※
N006462	IULR-2-0.3xR0.02xL3.0		0.02	3.0	0.25	0.27	11	4	50	3.22	3.38	3.55	3.75	4.21	※
N006463	IULR-2-0.3xR0.05xL1.0		0.05	1.0	0.25	0.27	11	4	50	1.13	1.18	1.24	1.30	1.46	※
N006464	IULR-2-0.3xR0.05xL1.5		0.05	1.5	0.25	0.27	11	4	50	1.65	1.73	1.82	1.91	2.14	※
N006465	IULR-2-0.3xR0.05xL2.0		0.05	2.0	0.25	0.27	11	4	50	2.17	2.28	2.39	2.52	2.83	※
N006466	IULR-2-0.3xR0.05xL2.5		0.05	2.5	0.25	0.27	11	4	50	2.70	2.83	2.97	3.13	3.51	※
N006467	IULR-2-0.3xR0.05xL3.0		0.05	3.0	0.25	0.27	11	4	50	3.22	3.38	3.55	3.74	4.20	※
N006468	IULR-2-0.4xR0.02xL1.0	0.4	0.02	1.0	0.3	0.37	11	4	50	1.13	1.18	1.24	1.31	1.47	●
N006469	IULR-2-0.4xR0.02xL1.5		0.02	1.5	0.3	0.37	11	4	50	1.65	1.73	1.82	1.92	2.15	●
N006470	IULR-2-0.4xR0.02xL2.0		0.02	2.0	0.3	0.37	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N006471	IULR-2-0.4xR0.02xL2.5		0.02	2.5	0.3	0.37	11	4	50	2.70	2.83	2.98	3.14	3.52	●
N006472	IULR-2-0.4xR0.02xL3.0		0.02	3.0	0.3	0.37	11	4	50	3.22	3.38	3.55	3.75	4.21	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006473	IULR-2-0.4xR0.05xL1.0	0.4	0.05	1.0	0.3	0.37	11	4	50	1.13	1.18	1.24	1.30	1.46	●
N006474	IULR-2-0.4xR0.05xL1.5		0.05	1.5	0.3	0.37	11	4	50	1.65	1.73	1.82	1.91	2.14	●
N006475	IULR-2-0.4xR0.05xL2.0		0.05	2.0	0.3	0.37	11	4	50	2.17	2.28	2.39	2.52	2.83	●
N006476	IULR-2-0.4xR0.05xL2.5		0.05	2.5	0.3	0.37	11	4	50	2.70	2.83	2.97	3.13	3.51	●
N006477	IULR-2-0.4xR0.05xL3.0		0.05	3.0	0.3	0.37	11	4	50	3.22	3.38	3.55	3.74	4.20	●
N006478	IULR-2-0.4xR0.1xL1.0		0.1	1.0	0.3	0.37	11	4	50	1.12	1.17	1.23	1.29	1.44	●
N006479	IULR-2-0.4xR0.1xL2.0		0.1	2.0	0.3	0.37	11	4	50	2.17	2.27	2.39	2.51	2.81	●
N006480	IULR-2-0.4xR0.1xL3.0		0.1	3.0	0.3	0.37	11	4	50	3.22	3.37	3.54	3.73	4.18	●
N006485	IULR-2-0.5xR0.02xL1.0	0.5	0.02	1.0	0.4	0.47	11	4	50	1.13	1.18	1.24	1.31	1.47	●
N006486	IULR-2-0.5xR0.02xL2.0		0.02	2.0	0.4	0.47	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N006487	IULR-2-0.5xR0.02xL3.0		0.02	3.0	0.4	0.47	11	4	50	3.22	3.38	3.55	3.75	4.21	●
N006488	IULR-2-0.5xR0.02xL4.0		0.02	4.0	0.4	0.47	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N006489	IULR-2-0.5xR0.05xL1.0		0.05	1.0	0.4	0.47	11	4	50	1.13	1.18	1.24	1.30	1.46	●
N006490	IULR-2-0.5xR0.05xL2.0		0.05	2.0	0.4	0.47	11	4	50	2.17	2.28	2.39	2.52	2.83	●
N006491	IULR-2-0.5xR0.05xL3.0		0.05	3.0	0.4	0.47	11	4	50	3.22	3.38	3.55	3.74	4.20	●
N006492	IULR-2-0.5xR0.05xL4.0		0.05	4.0	0.4	0.47	11	4	50	4.27	4.47	4.70	4.96	5.56	●
N006481	IULR-2-0.5xR0.1xL1.0		0.1	1.0	0.4	0.47	11	4	50	1.12	1.17	1.23	1.29	1.44	●
N006482	IULR-2-0.5xR0.1xL2.0		0.1	2.0	0.4	0.47	11	4	50	2.17	2.27	2.39	2.51	2.81	●
N006483	IULR-2-0.5xR0.1xL3.0		0.1	3.0	0.4	0.47	11	4	50	3.22	3.37	3.54	3.73	4.18	●
N006484	IULR-2-0.5xR0.1xL4.0		0.1	4.0	0.4	0.47	11	4	50	4.26	4.47	4.70	4.95	5.55	●
N006493	IULR-2-0.6xR0.02xL2.0	0.6	0.02	2.0	0.5	0.57	11	4	50	2.17	2.28	2.40	2.53	2.84	※
N006494	IULR-2-0.6xR0.02xL4.0		0.02	4.0	0.5	0.57	11	4	50	4.27	4.48	4.71	4.97	5.58	※
N006495	IULR-2-0.6xR0.02xL6.0		0.02	6.0	0.5	0.57	11	4	50	6.36	6.67	7.02	7.40	8.31	※
N006496	IULR-2-0.6xR0.05xL2.0		0.05	2.0	0.5	0.57	11	4	50	2.17	2.28	2.39	2.52	2.83	※
N006497	IULR-2-0.6xR0.05xL4.0		0.05	4.0	0.5	0.57	11	4	50	4.27	4.47	4.70	4.96	5.56	※
N006498	IULR-2-0.6xR0.05xL6.0		0.05	6.0	0.5	0.57	11	4	50	6.36	6.67	7.02	7.40	8.30	※
N006499	IULR-2-0.6xR0.1xL2.0		0.1	2.0	0.5	0.57	11	4	50	2.17	2.27	2.39	2.51	2.81	※
N006500	IULR-2-0.6xR0.1xL4.0		0.1	4.0	0.5	0.57	11	4	50	4.26	4.47	4.70	4.95	5.55	※
N006501	IULR-2-0.6xR0.1xL6.0		0.1	6.0	0.5	0.57	11	4	50	6.36	6.67	7.01	7.39	8.29	※
N006502	IULR-2-0.8xR0.02xL2.0	0.8	0.02	2.0	0.65	0.77	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N006503	IULR-2-0.8xR0.02xL4.0		0.02	4.0	0.65	0.77	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N006504	IULR-2-0.8xR0.02xL6.0		0.02	6.0	0.65	0.77	11	4	50	6.36	6.67	7.02	7.40	8.31	●
N006505	IULR-2-0.8xR0.02xL8.0		0.02	8.0	0.65	0.77	11	4	50	8.46	8.87	9.33	9.84	11.05	●
N006506	IULR-2-0.8xR0.05xL2.0		0.05	2.0	0.65	0.77	11	4	50	2.17	2.28	2.39	2.52	2.83	●
N006507	IULR-2-0.8xR0.05xL4.0		0.05	4.0	0.65	0.77	11	4	50	4.27	4.47	4.70	4.96	5.56	●
N006508	IULR-2-0.8xR0.05xL6.0		0.05	6.0	0.65	0.77	11	4	50	6.36	6.67	7.02	7.40	8.30	●
N006509	IULR-2-0.8xR0.05xL8.0		0.05	8.0	0.65	0.77	11	4	50	8.45	8.87	9.33	9.84	11.04	●
N006510	IULR-2-0.8xR0.1xL2.0		0.1	2.0	0.65	0.77	11	4	50	2.17	2.27	2.39	2.51	2.81	●
N006511	IULR-2-0.8xR0.1xL4.0		0.1	4.0	0.65	0.77	11	4	50	4.26	4.47	4.70	4.95	5.55	●
N006512	IULR-2-0.8xR0.1xL6.0		0.1	6.0	0.65	0.77	11	4	50	6.36	6.67	7.01	7.39	8.29	●
N006513	IULR-2-0.8xR0.1xL8.0		0.1	8.0	0.65	0.77	11	4	50	8.45	8.86	9.32	9.82	11.02	●
N006514	IULR-2-0.8xR0.2xL2.0		0.2	2.0	0.65	0.77	11	4	50	2.17	2.26	2.37	2.49	2.77	●
N006515	IULR-2-0.8xR0.2xL4.0		0.2	4.0	0.65	0.77	11	4	50	4.26	4.46	4.68	4.93	5.51	●
N006516	IULR-2-0.8xR0.2xL6.0		0.2	6.0	0.65	0.77	11	4	50	6.35	6.66	6.99	7.37	8.25	●
N006517	IULR-2-0.8xR0.2xL8.0		0.2	8.0	0.65	0.77	11	4	50	8.45	8.85	9.30	9.80	10.99	●

ion Depo Type U Series

super MG | ion U | Side Milling | Planing | Profiling | Helical | 刃数 3 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P158

超硬ロングネックラジアスエンドミル
Carbide Long Neck Radius End Mills

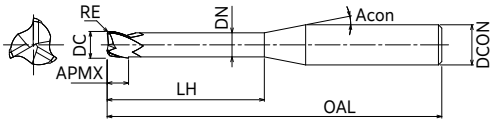
■型番:IULR-3 Model number:IULR-3

◆ HRC50 以上の高硬度金型の微細加工に適しています

◆ Suitable for fine milling of high-hardness molds with HRC50 or higher



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≦12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≦20	0/-0.020	±0.010



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表　Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N006518	IULR-3-0.6xR0.02xL2.0	0.6	0.02	2.0	0.5	0.57	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N006519	IULR-3-0.6xR0.02xL4.0		0.02	4.0	0.5	0.57	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N006520	IULR-3-0.6xR0.02xL6.0		0.02	6.0	0.5	0.57	11	4	50	6.36	6.67	7.02	7.40	8.31	●
N006521	IULR-3-0.6xR0.05xL2.0		0.05	2.0	0.5	0.57	11	4	50	2.17	2.28	2.39	2.52	2.83	●
N006522	IULR-3-0.6xR0.05xL4.0		0.05	4.0	0.5	0.57	11	4	50	4.27	4.47	4.70	4.96	5.56	●
N006523	IULR-3-0.6xR0.05xL6.0		0.05	6.0	0.5	0.57	11	4	50	6.36	6.67	7.02	7.40	8.30	●
N006524	IULR-3-0.6xR0.1xL2.0		0.1	2.0	0.5	0.57	11	4	50	2.17	2.27	2.39	2.51	2.81	●
N006525	IULR-3-0.6xR0.1xL4.0		0.1	4.0	0.5	0.57	11	4	50	4.26	4.47	4.70	4.95	5.55	●
N006526	IULR-3-0.6xR0.1xL6.0		0.1	6.0	0.5	0.57	11	4	50	6.36	6.67	7.01	7.39	8.29	●
N006527	IULR-3-0.8xR0.02xL2.0	0.8	0.02	2.0	0.65	0.77	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N006528	IULR-3-0.8xR0.02xL4.0		0.02	4.0	0.65	0.77	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N006529	IULR-3-0.8xR0.02xL6.0		0.02	6.0	0.65	0.77	11	4	50	6.36	6.67	7.02	7.40	8.31	●
N006530	IULR-3-0.8xR0.02xL8.0		0.02	8.0	0.65	0.77	11	4	50	8.46	8.87	9.33	9.84	11.05	●
N006531	IULR-3-0.8xR0.05xL2.0		0.05	2.0	0.65	0.77	11	4	50	2.17	2.28	2.39	2.52	2.83	●
N006532	IULR-3-0.8xR0.05xL4.0		0.05	4.0	0.65	0.77	11	4	50	4.27	4.47	4.70	4.96	5.56	●
N006533	IULR-3-0.8xR0.05xL6.0		0.05	6.0	0.65	0.77	11	4	50	6.36	6.67	7.02	7.40	8.30	●
N006534	IULR-3-0.8xR0.05xL8.0		0.05	8.0	0.65	0.77	11	4	50	8.45	8.87	9.33	9.84	11.04	●
N006535	IULR-3-0.8xR0.1xL2.0		0.1	2.0	0.65	0.77	11	4	50	2.17	2.27	2.39	2.51	2.81	●
N006536	IULR-3-0.8xR0.1xL4.0		0.1	4.0	0.65	0.77	11	4	50	4.26	4.47	4.70	4.95	5.55	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006537	IULR-3-0.8xR0.1xL6.0	0.8	0.1	6.0	0.65	0.77	11	4	50	6.36	6.67	7.01	7.39	8.29	●
N006538	IULR-3-0.8xR0.1xL8.0		0.1	8.0	0.65	0.77	11	4	50	8.45	8.86	9.32	9.82	11.02	●
N006539	IULR-3-0.8xR0.2xL2.0		0.2	2.0	0.65	0.77	11	4	50	2.17	2.26	2.37	2.49	2.77	●
N006540	IULR-3-0.8xR0.2xL4.0		0.2	4.0	0.65	0.77	11	4	50	4.26	4.46	4.68	4.93	5.51	●
N006541	IULR-3-0.8xR0.2xL6.0		0.2	6.0	0.65	0.77	11	4	50	6.35	6.66	6.99	7.37	8.25	●
N006542	IULR-3-0.8xR0.2xL8.0		0.2	8.0	0.65	0.77	11	4	50	8.45	8.85	9.30	9.80	10.99	●

ion Depo Type U Series

super MG | ion U | Side Milling | Planing | Profiling | Helical | 刃数 4 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P159

超硬ロングネックラジアスエンドミル
Carbide Long Neck Radius End Mills

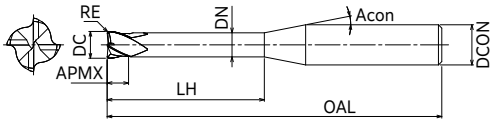
■型番:IULR-4 Model number:IULR-4

径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≦12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≦20	0/-0.020	±0.010

◆ HRC50 以上の高硬度金型の微細加工に適しています

◆ Suitable for fine milling of high-hardness molds with HRC50 or higher





表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表　Material compatibility table

被削材 Work Material														
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N006543	IULR-4-1.0xR0.02xL2.0	1.0	0.02	2.0	0.8	0.95	11	4	50	2.23	2.34	2.46	2.59	2.91	●
N006544	IULR-4-1.0xR0.02xL3.0		0.02	3.0	0.8	0.95	11	4	50	3.27	3.44	3.61	3.81	4.28	●
N006545	IULR-4-1.0xR0.02xL4.0		0.02	4.0	0.8	0.95	11	4	50	4.32	4.53	4.77	5.03	5.65	●
N006546	IULR-4-1.0xR0.02xL5.0		0.02	5.0	0.8	0.95	11	4	50	5.37	5.63	5.92	6.25	7.01	●
N006547	IULR-4-1.0xR0.02xL6.0		0.02	6.0	0.8	0.95	11	4	50	6.42	6.73	7.08	7.47	8.38	●
N006548	IULR-4-1.0xR0.02xL8.0		0.02	8.0	0.8	0.95	11	4	50	8.51	8.93	9.39	9.90	11.12	●
N006549	IULR-4-1.0xR0.02xL10.0		0.02	10.0	0.8	0.95	11	4	50	10.60	11.13	11.70	12.34	13.86	●
N006550	IULR-4-1.0xR0.05xL2.0		0.05	2.0	0.8	0.95	11	4	50	2.23	2.33	2.45	2.58	2.90	●
N006551	IULR-4-1.0xR0.05xL3.0		0.05	3.0	0.8	0.95	11	4	50	3.27	3.43	3.61	3.80	4.27	●
N006552	IULR-4-1.0xR0.05xL4.0		0.05	4.0	0.8	0.95	11	4	50	4.32	4.53	4.76	5.02	5.63	●
N006553	IULR-4-1.0xR0.05xL5.0		0.05	5.0	0.8	0.95	11	4	50	5.37	5.63	5.92	6.24	7.00	●
N006554	IULR-4-1.0xR0.05xL6.0		0.05	6.0	0.8	0.95	11	4	50	6.41	6.73	7.08	7.46	8.37	●
N006555	IULR-4-1.0xR0.05xL8.0		0.05	8.0	0.8	0.95	11	4	50	8.51	8.93	9.39	9.90	11.11	●
N006556	IULR-4-1.0xR0.05xL10.0		0.05	10.0	0.8	0.95	11	4	50	10.60	11.12	11.70	12.34	13.85	●
N006557	IULR-4-1.0xR0.1xL2.0		0.1	2.0	0.8	0.95	11	4	50	2.22	2.33	2.44	2.57	2.88	●
N006558	IULR-4-1.0xR0.1xL3.0		0.1	3.0	0.8	0.95	11	4	50	3.27	3.43	3.60	3.79	4.25	●
N006559	IULR-4-1.0xR0.1xL4.0		0.1	4.0	0.8	0.95	11	4	50	4.32	4.53	4.76	5.01	5.62	●
N006560	IULR-4-1.0xR0.1xL5.0		0.1	5.0	0.8	0.95	11	4	50	5.37	5.62	5.91	6.23	6.99	●
N006561	IULR-4-1.0xR0.1xL6.0		0.1	6.0	0.8	0.95	11	4	50	6.41	6.72	7.07	7.45	8.36	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006562	IULR-4-1.0xR0.1xL8.0	1.0	0.1	8.0	0.8	0.95	11	4	50	8.51	8.92	9.38	9.89	11.09	●
N006563	IULR-4-1.0xR0.1xL10.0		0.1	10.0	0.8	0.95	11	4	50	10.60	11.12	11.69	12.33	13.83	●
N006564	IULR-4-1.0xR0.2xL2.0		0.2	2.0	0.8	0.95	11	4	50	2.22	2.32	2.43	2.55	2.84	●
N006565	IULR-4-1.0xR0.2xL3.0		0.2	3.0	0.8	0.95	11	4	50	3.27	3.42	3.58	3.77	4.21	●
N006566	IULR-4-1.0xR0.2xL4.0		0.2	4.0	0.8	0.95	11	4	50	4.31	4.52	4.74	4.99	5.58	●
N006567	IULR-4-1.0xR0.2xL5.0		0.2	5.0	0.8	0.95	11	4	50	5.36	5.62	5.90	6.21	6.95	●
N006568	IULR-4-1.0xR0.2xL6.0		0.2	6.0	0.8	0.95	11	4	50	6.41	6.71	7.05	7.43	8.32	●
N006569	IULR-4-1.0xR0.2xL8.0		0.2	8.0	0.8	0.95	11	4	50	8.50	8.91	9.36	9.87	11.06	●
N006570	IULR-4-1.0xR0.2xL10.0		0.2	10.0	0.8	0.95	11	4	50	10.60	11.11	11.67	12.30	13.80	●
N006571	IULR-4-1.0xR0.3xL2.0		0.3	2.0	0.8	0.95	11	4	50	2.21	2.31	2.41	2.53	2.81	●
N006572	IULR-4-1.0xR0.3xL3.0		0.3	3.0	0.8	0.95	11	4	50	3.26	3.41	3.57	3.75	4.18	●
N006573	IULR-4-1.0xR0.3xL4.0		0.3	4.0	0.8	0.95	11	4	50	4.31	4.51	4.73	4.97	5.55	●
N006574	IULR-4-1.0xR0.3xL5.0		0.3	5.0	0.8	0.95	11	4	50	5.36	5.61	5.88	6.19	6.92	●
N006575	IULR-4-1.0xR0.3xL6.0		0.3	6.0	0.8	0.95	11	4	50	6.40	6.70	7.04	7.41	8.29	●
N006576	IULR-4-1.0xR0.3xL8.0		0.3	8.0	0.8	0.95	11	4	50	8.50	8.90	9.35	9.84	11.02	●
N006577	IULR-4-1.0xR0.3xL10.0		0.3	10.0	0.8	0.95	11	4	50	10.59	11.10	11.66	12.28	13.76	●
N006578	IULR-4-1.2xR0.1xL5.0	1.2	0.1	5.0	1.0	1.15	11	4	50	5.37	5.62	5.91	6.23	6.99	※
N006579	IULR-4-1.2xR0.1xL10.0		0.1	10.0	1.0	1.15	11	4	50	10.60	11.12	11.69	12.33	13.83	※
N006580	IULR-4-1.2xR0.2xL5.0		0.2	5.0	1.0	1.15	11	4	50	5.36	5.62	5.90	6.21	6.95	※
N006581	IULR-4-1.2xR0.2xL10.0		0.2	10.0	1.0	1.15	11	4	50	10.60	11.11	11.67	12.30	13.80	※
N006582	IULR-4-1.2xR0.3xL5.0		0.3	5.0	1.0	1.15	11	4	50	5.36	5.61	5.88	6.19	6.92	※
N006583	IULR-4-1.2xR0.3xL10.0		0.3	10.0	1.0	1.15	11	4	50	10.59	11.10	11.66	12.28	13.76	※
N006584	IULR-4-1.5xR0.02xL3.0	1.5	0.02	3.0	1.2	1.45	11	4	50	3.27	3.44	3.61	3.81	4.28	●
N006585	IULR-4-1.5xR0.02xL4.0		0.02	4.0	1.2	1.45	11	4	50	4.32	4.53	4.77	5.03	5.65	●
N006586	IULR-4-1.5xR0.02xL6.0		0.02	6.0	1.2	1.45	11	4	50	6.42	6.73	7.08	7.47	8.38	●
N006587	IULR-4-1.5xR0.02xL8.0		0.02	8.0	1.2	1.45	11	4	50	8.51	8.93	9.39	9.90	11.12	●
N006588	IULR-4-1.5xR0.02xL12.0		0.02	12.0	1.2	1.45	11	4	50	12.70	13.32	14.01	14.78	16.60	●
N006589	IULR-4-1.5xR0.02xL15.0		0.02	15.0	1.2	1.45	11	4	50	15.84	16.62	17.48	18.44	20.71	●
N006590	IULR-4-1.5xR0.05xL3.0		0.05	3.0	1.2	1.45	11	4	50	3.27	3.43	3.61	3.80	4.27	●
N006591	IULR-4-1.5xR0.05xL4.0		0.05	4.0	1.2	1.45	11	4	50	4.32	4.53	4.76	5.02	5.63	●
N006592	IULR-4-1.5xR0.05xL6.0		0.05	6.0	1.2	1.45	11	4	50	6.41	6.73	7.08	7.46	8.37	●
N006593	IULR-4-1.5xR0.05xL8.0		0.05	8.0	1.2	1.45	11	4	50	8.51	8.93	9.39	9.90	11.11	●
N006594	IULR-4-1.5xR0.05xL12.0		0.05	12.0	1.2	1.45	11	4	50	12.70	13.32	14.01	14.77	16.59	●
N006595	IULR-4-1.5xR0.05xL15.0		0.05	15.0	1.2	1.45	11	4	50	15.84	16.62	17.48	18.43	20.70	●
N006596	IULR-4-1.5xR0.1xL3.0		0.1	3.0	1.2	1.45	11	4	50	3.27	3.43	3.60	3.79	4.25	●
N006597	IULR-4-1.5xR0.1xL4.0		0.1	4.0	1.2	1.45	11	4	50	4.32	4.53	4.76	5.01	5.62	●
N006598	IULR-4-1.5xR0.1xL6.0		0.1	6.0	1.2	1.45	11	4	50	6.41	6.72	7.07	7.45	8.36	●
N006599	IULR-4-1.5xR0.1xL8.0		0.1	8.0	1.2	1.45	11	4	50	8.51	8.92	9.38	9.89	11.09	●
N006600	IULR-4-1.5xR0.1xL12.0		0.1	12.0	1.2	1.45	11	4	50	12.69	13.32	14.00	14.76	16.57	●
N006601	IULR-4-1.5xR0.1xL15.0		0.1	15.0	1.2	1.45	11	4	50	15.84	16.61	17.47	18.42	20.68	●
N006602	IULR-4-1.5xR0.2xL3.0		0.2	3.0	1.2	1.45	11	4	50	3.27	3.42	3.58	3.77	4.21	●
N006603	IULR-4-1.5xR0.2xL4.0		0.2	4.0	1.2	1.45	11	4	50	4.31	4.52	4.74	4.99	5.58	●
N006604	IULR-4-1.5xR0.2xL6.0		0.2	6.0	1.2	1.45	11	4	50	6.41	6.71	7.05	7.43	8.32	●
N006605	IULR-4-1.5xR0.2xL8.0		0.2	8.0	1.2	1.45	11	4	50	8.50	8.91	9.36	9.87	11.06	●
N006606	IULR-4-1.5xR0.2xL12.0		0.2	12.0	1.2	1.45	11	4	50	12.69	13.31	13.99	14.74	16.54	●
N006607	IULR-4-1.5xR0.2xL15.0		0.2	15.0	1.2	1.45	11	4	50	15.83	16.60	17.45	18.40	20.64	●
N006608	IULR-4-1.5xR0.3xL3.0		0.3	3.0	1.2	1.45	11	4	50	3.26	3.41	3.57	3.75	4.18	●

ion Depo Type U Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006609	IULR-4-1.5xR0.3xL4.0	1.5	0.3	4.0	1.2	1.45	11	4	50	4.31	4.51	4.73	4.97	5.55	●
N006610	IULR-4-1.5xR0.3xL6.0		0.3	6.0	1.2	1.45	11	4	50	6.40	6.70	7.04	7.41	8.29	●
N006611	IULR-4-1.5xR0.3xL8.0		0.3	8.0	1.2	1.45	11	4	50	8.50	8.90	9.35	9.84	11.02	●
N006612	IULR-4-1.5xR0.3xL12.0		0.3	12.0	1.2	1.45	11	4	50	12.68	13.30	13.97	14.72	16.50	●
N006613	IULR-4-1.5xR0.3xL15.0		0.3	15.0	1.2	1.45	11	4	50	15.83	16.59	17.44	18.38	20.61	●
N006614	IULR-4-1.5xR0.5xL3.0		0.5	3.0	1.2	1.45	11	4	50	3.25	3.39	3.54	3.71	4.11	●
N006615	IULR-4-1.5xR0.5xL4.0		0.5	4.0	1.2	1.45	11	4	50	4.30	4.49	4.69	4.93	5.48	●
N006616	IULR-4-1.5xR0.5xL6.0		0.5	6.0	1.2	1.45	11	4	50	6.39	6.68	7.01	7.36	8.22	●
N006617	IULR-4-1.5xR0.5xL8.0		0.5	8.0	1.2	1.45	11	4	50	8.49	8.88	9.32	9.80	10.95	●
N006618	IULR-4-1.5xR0.5xL12.0		0.5	12.0	1.2	1.45	11	4	50	12.68	13.28	13.94	14.68	16.43	●
N006619	IULR-4-1.5xR0.5xL15.0		0.5	15.0	1.2	1.45	11	4	50	15.82	16.57	17.41	18.33	20.54	●
N006620	IULR-4-2.0xR0.02xL4.0	2.0	0.02	4.0	1.6	1.94	11	4	50	4.35	4.56	4.80	5.06	5.68	●
N006621	IULR-4-2.0xR0.02xL6.0		0.02	6.0	1.6	1.94	11	4	50	6.44	6.76	7.11	7.50	8.42	●
N006622	IULR-4-2.0xR0.02xL8.0		0.02	8.0	1.6	1.94	11	4	50	8.54	8.96	9.42	9.94	11.16	●
N006623	IULR-4-2.0xR0.02xL12.0		0.02	12.0	1.6	1.94	11	4	50	12.72	13.35	14.04	14.81	16.63	●
N006624	IULR-4-2.0xR0.02xL16.0		0.02	16.0	1.6	1.94	11	4	50	16.91	17.75	18.67	19.69	FREE	●
N006625	IULR-4-2.0xR0.02xL20.0		0.02	20.0	1.6	1.94	11	4	60	21.10	22.14	23.29	24.56	FREE	●
N006626	IULR-4-2.0xR0.05xL4.0		0.05	4.0	1.6	1.94	11	4	50	4.35	4.56	4.79	5.05	5.67	●
N006627	IULR-4-2.0xR0.05xL6.0		0.05	6.0	1.6	1.94	11	4	50	6.44	6.76	7.10	7.49	8.41	●
N006628	IULR-4-2.0xR0.05xL8.0		0.05	8.0	1.6	1.94	11	4	50	8.54	8.95	9.42	9.93	11.15	●
N006629	IULR-4-2.0xR0.05xL12.0		0.05	12.0	1.6	1.94	11	4	50	12.72	13.35	14.04	14.81	16.62	●
N006630	IULR-4-2.0xR0.05xL16.0		0.05	16.0	1.6	1.94	11	4	50	16.91	17.74	18.66	19.68	FREE	●
N006631	IULR-4-2.0xR0.05xL20.0		0.05	20.0	1.6	1.94	11	4	60	21.10	22.14	23.28	24.56	FREE	●
N006632	IULR-4-2.0xR0.1xL4.0		0.1	4.0	1.6	1.94	11	4	50	4.34	4.55	4.79	5.04	5.65	●
N006633	IULR-4-2.0xR0.1xL6.0		0.1	6.0	1.6	1.94	11	4	50	6.44	6.75	7.10	7.48	8.39	●
N006634	IULR-4-2.0xR0.1xL8.0		0.1	8.0	1.6	1.94	11	4	50	8.53	8.95	9.41	9.92	11.13	●
N006635	IULR-4-2.0xR0.1xL12.0		0.1	12.0	1.6	1.94	11	4	50	12.72	13.34	14.03	14.79	16.61	●
N006636	IULR-4-2.0xR0.1xL16.0		0.1	16.0	1.6	1.94	11	4	50	16.91	17.74	18.65	19.67	FREE	●
N006637	IULR-4-2.0xR0.1xL20.0		0.1	20.0	1.6	1.94	11	4	60	21.10	22.13	23.28	24.55	FREE	●
N006638	IULR-4-2.0xR0.2xL4.0		0.2	4.0	1.6	1.94	11	4	50	4.34	4.54	4.77	5.02	5.62	●
N006639	IULR-4-2.0xR0.2xL6.0		0.2	6.0	1.6	1.94	11	4	50	6.43	6.74	7.08	7.46	8.36	●
N006640	IULR-4-2.0xR0.2xL8.0		0.2	8.0	1.6	1.94	11	4	50	8.53	8.94	9.39	9.90	11.09	●
N006641	IULR-4-2.0xR0.2xL12.0		0.2	12.0	1.6	1.94	11	4	50	12.72	13.33	14.02	14.77	16.57	●
N006642	IULR-4-2.0xR0.2xL16.0		0.2	16.0	1.6	1.94	11	4	50	16.90	17.73	18.64	19.65	FREE	●
N006643	IULR-4-2.0xR0.2xL20.0		0.2	20.0	1.6	1.94	11	4	60	21.09	22.12	23.26	24.52	FREE	●
N006644	IULR-4-2.0xR0.3xL4.0		0.3	4.0	1.6	1.94	11	4	50	4.34	4.53	4.76	5.00	5.58	●
N006645	IULR-4-2.0xR0.3xL6.0		0.3	6.0	1.6	1.94	11	4	50	6.43	6.73	7.07	7.44	8.32	●
N006646	IULR-4-2.0xR0.3xL8.0		0.3	8.0	1.6	1.94	11	4	50	8.52	8.93	9.38	9.88	11.06	●
N006647	IULR-4-2.0xR0.3xL12.0		0.3	12.0	1.6	1.94	11	4	50	12.71	13.32	14.00	14.75	16.54	●
N006648	IULR-4-2.0xR0.3xL16.0		0.3	16.0	1.6	1.94	11	4	50	16.90	17.72	18.62	19.63	FREE	●
N006649	IULR-4-2.0xR0.3xL20.0		0.3	20.0	1.6	1.94	11	4	60	21.09	22.11	23.25	24.50	FREE	●
N006650	IULR-4-2.0xR0.5xL4.0		0.5	4.0	1.6	1.94	11	4	50	4.33	4.52	4.72	4.96	5.51	●
N006651	IULR-4-2.0xR0.5xL6.0		0.5	6.0	1.6	1.94	11	4	50	6.42	6.71	7.04	7.39	8.25	●
N006652	IULR-4-2.0xR0.5xL8.0		0.5	8.0	1.6	1.94	11	4	50	8.51	8.91	9.35	9.83	10.99	●
N006653	IULR-4-2.0xR0.5xL12.0		0.5	12.0	1.6	1.94	11	4	50	12.70	13.30	13.97	14.71	16.47	●
N006654	IULR-4-2.0xR0.5xL16.0		0.5	16.0	1.6	1.94	11	4	50	16.89	17.70	18.59	19.58	FREE	●
N006655	IULR-4-2.0xR0.5xL20.0		0.5	20.0	1.6	1.94	11	4	60	21.08	22.09	23.22	24.46	FREE	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006656	IULR-4-2.5xR0.1xL10.0	2.5	0.1	10.0	2.0	2.44	11	4	50	10.63	11.15	11.72	12.36	13.87	●
N006657	IULR-4-2.5xR0.1xL20.0		0.1	20.0	2.0	2.44	11	4	50	21.10	22.13	23.28	FREE	FREE	●
N006658	IULR-4-2.5xR0.2xL10.0		0.2	10.0	2.0	2.44	11	4	50	10.62	11.14	11.70	12.34	13.83	●
N006659	IULR-4-2.5xR0.2xL20.0		0.2	20.0	2.0	2.44	11	4	50	21.09	22.12	23.26	FREE	FREE	●
N006660	IULR-4-2.5xR0.3xL10.0		0.3	10.0	2.0	2.44	11	4	50	10.62	11.13	11.69	12.31	13.80	●
N006661	IULR-4-2.5xR0.3xL20.0		0.3	20.0	2.0	2.44	11	4	50	21.09	22.11	23.25	FREE	FREE	●
N006662	IULR-4-2.5xR0.5xL10.0		0.5	10.0	2.0	2.44	11	4	50	10.61	11.11	11.66	12.27	13.73	●
N006663	IULR-4-2.5xR0.5xL20.0		0.5	20.0	2.0	2.44	11	4	50	21.08	22.09	23.22	FREE	FREE	●
N006664	IULR-4-3.0xR0.05xL4.0	3.0	0.05	4.0	2.5	2.85	11	4	50	4.59	4.81	5.06	5.34	5.99	●
N006665	IULR-4-3.0xR0.05xL6.0		0.05	6.0	2.5	2.85	11	4	50	6.68	7.01	7.37	7.77	8.72	●
N006666	IULR-4-3.0xR0.05xL8.0		0.05	8.0	2.5	2.85	11	4	50	8.78	9.21	9.68	10.21	FREE	●
N006667	IULR-4-3.0xR0.05xL12.0		0.05	12.0	2.5	2.85	11	4	50	12.97	13.60	14.31	FREE	FREE	●
N006668	IULR-4-3.0xR0.05xL16.0		0.05	16.0	2.5	2.85	11	4	50	17.15	18.00	18.93	FREE	FREE	●
N006669	IULR-4-3.0xR0.05xL20.0		0.05	20.0	2.5	2.85	11	4	50	21.34	22.39	FREE	FREE	FREE	●
N006670	IULR-4-3.0xR0.1xL4.0		0.1	4.0	2.5	2.85	11	4	50	4.59	4.81	5.05	5.32	5.97	●
N006671	IULR-4-3.0xR0.1xL6.0		0.1	6.0	2.5	2.85	11	4	50	6.68	7.01	7.36	7.76	8.71	●
N006672	IULR-4-3.0xR0.1xL8.0		0.1	8.0	2.5	2.85	11	4	50	8.78	9.20	9.68	10.20	FREE	●
N006673	IULR-4-3.0xR0.1xL12.0		0.1	12.0	2.5	2.85	11	4	50	12.96	13.60	14.30	FREE	FREE	●
N006674	IULR-4-3.0xR0.1xL16.0		0.1	16.0	2.5	2.85	11	4	50	17.15	17.99	18.92	FREE	FREE	●
N006675	IULR-4-3.0xR0.1xL20.0		0.1	20.0	2.5	2.85	11	4	50	21.34	22.39	FREE	FREE	FREE	●
N006676	IULR-4-3.0xR0.1xL25.0		0.1	25.0	2.5	2.85	11	4	60	26.57	27.88	FREE	FREE	FREE	●
N006677	IULR-4-3.0xR0.1xL30.0		0.1	30.0	2.5	2.85	11	4	60	31.81	FREE	FREE	FREE	FREE	●
N006678	IULR-4-3.0xR0.2xL4.0		0.2	4.0	2.5	2.85	11	4	50	4.58	4.80	5.04	5.30	5.93	●
N006679	IULR-4-3.0xR0.2xL6.0		0.2	6.0	2.5	2.85	11	4	50	6.68	7.00	7.35	7.74	8.67	●
N006680	IULR-4-3.0xR0.2xL8.0		0.2	8.0	2.5	2.85	11	4	50	8.77	9.19	9.66	10.18	FREE	●
N006681	IULR-4-3.0xR0.2xL12.0		0.2	12.0	2.5	2.85	11	4	50	12.96	13.59	14.28	FREE	FREE	●
N006682	IULR-4-3.0xR0.2xL16.0		0.2	16.0	2.5	2.85	11	4	50	17.15	17.98	18.91	FREE	FREE	●
N006683	IULR-4-3.0xR0.2xL20.0		0.2	20.0	2.5	2.85	11	4	50	21.33	22.38	FREE	FREE	FREE	●
N006684	IULR-4-3.0xR0.2xL25.0		0.2	25.0	2.5	2.85	11	4	60	26.57	27.87	FREE	FREE	FREE	●
N006685	IULR-4-3.0xR0.2xL30.0		0.2	30.0	2.5	2.85	11	4	60	31.80	FREE	FREE	FREE	FREE	●
N006686	IULR-4-3.0xR0.3xL4.0		0.3	4.0	2.5	2.85	11	4	50	4.58	4.79	5.02	5.28	5.90	●
N006687	IULR-4-3.0xR0.3xL6.0		0.3	6.0	2.5	2.85	11	4	50	6.67	6.99	7.33	7.72	8.64	●
N006688	IULR-4-3.0xR0.3xL8.0		0.3	8.0	2.5	2.85	11	4	50	8.77	9.18	9.65	10.16	FREE	●
N006689	IULR-4-3.0xR0.3xL12.0		0.3	12.0	2.5	2.85	11	4	50	12.95	13.58	14.27	FREE	FREE	●
N006690	IULR-4-3.0xR0.3xL16.0		0.3	16.0	2.5	2.85	11	4	50	17.14	17.97	18.89	FREE	FREE	●
N006691	IULR-4-3.0xR0.3xL20.0		0.3	20.0	2.5	2.85	11	4	50	21.33	22.37	FREE	FREE	FREE	●
N006692	IULR-4-3.0xR0.3xL25.0		0.3	25.0	2.5	2.85	11	4	60	26.57	27.86	FREE	FREE	FREE	●
N006693	IULR-4-3.0xR0.3xL30.0		0.3	30.0	2.5	2.85	11	4	60	31.80	FREE	FREE	FREE	FREE	●
N006694	IULR-4-3.0xR0.5xL4.0		0.5	4.0	2.5	2.85	11	4	50	4.57	4.77	4.99	5.24	5.83	●
N006695	IULR-4-3.0xR0.5xL6.0		0.5	6.0	2.5	2.85	11	4	50	6.66	6.97	7.30	7.68	8.57	●
N006696	IULR-4-3.0xR0.5xL8.0		0.5	8.0	2.5	2.85	11	4	50	8.76	9.16	9.61	10.11	FREE	●
N006697	IULR-4-3.0xR0.5xL12.0		0.5	12.0	2.5	2.85	11	4	50	12.94	13.56	14.24	FREE	FREE	●
N006698	IULR-4-3.0xR0.5xL16.0		0.5	16.0	2.5	2.85	11	4	50	17.13	17.95	18.86	FREE	FREE	●
N006699	IULR-4-3.0xR0.5xL20.0		0.5	20.0	2.5	2.85	11	4	50	21.32	22.35	FREE	FREE	FREE	●
N006700	IULR-4-3.0xR0.5xL25.0		0.5	25.0	2.5	2.85	11	4	60	26.56	27.84	FREE	FREE	FREE	●
N006701	IULR-4-3.0xR0.5xL30.0		0.5	30.0	2.5	2.85	11	4	60	31.79	FREE	FREE	FREE	FREE	●
N006702	IULR-4-3.0xR1.0xL8.0		1.0	8.0	2.5	2.85	11	4	50	8.73	9.12	9.54	10.01	FREE	●

ion Depo Type U Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006703	IULR-4-3.0xR1.0xL12.0	3.0	1.0	12.0	2.5	2.85	11	4	50	12.92	13.51	14.16	14.88	FREE	●
N006704	IULR-4-3.0xR1.0xL16.0		1.0	16.0	2.5	2.85	11	4	50	17.11	17.90	18.78	FREE	FREE	●
N006705	IULR-4-3.0xR1.0xL20.0		1.0	20.0	2.5	2.85	11	4	50	21.30	22.30	FREE	FREE	FREE	●
N006706	IULR-4-3.0xR1.0xL25.0		1.0	25.0	2.5	2.85	11	4	60	26.53	27.79	FREE	FREE	FREE	●
N006707	IULR-4-3.0xR1.0xL30.0		1.0	30.0	2.5	2.85	11	4	60	31.77	FREE	FREE	FREE	FREE	●
N006708	IULR-4-4.0xR0.1xL8.0	4.0	0.1	8.0	3.2	3.8	11	6	50	8.91	9.34	9.82	10.36	11.62	●
N006709	IULR-4-4.0xR0.1xL12.0		0.1	12.0	3.2	3.8	11	6	50	13.10	13.74	14.45	15.23	17.10	●
N006710	IULR-4-4.0xR0.1xL16.0		0.1	16.0	3.2	3.8	11	6	50	17.29	18.13	19.07	20.11	FREE	●
N006711	IULR-4-4.0xR0.1xL24.0		0.1	24.0	3.2	3.8	11	6	60	25.66	26.92	28.32	FREE	FREE	●
N006712	IULR-4-4.0xR0.1xL32.0		0.1	32.0	3.2	3.8	11	6	70	34.04	35.71	37.56	FREE	FREE	●
N006713	IULR-4-4.0xR0.2xL8.0		0.2	8.0	3.2	3.8	11	6	50	8.91	9.33	9.81	10.34	11.59	●
N006714	IULR-4-4.0xR0.2xL12.0		0.2	12.0	3.2	3.8	11	6	50	13.09	13.73	14.43	15.21	17.06	●
N006715	IULR-4-4.0xR0.2xL16.0		0.2	16.0	3.2	3.8	11	6	50	17.28	18.12	19.05	20.09	FREE	●
N006716	IULR-4-4.0xR0.2xL24.0		0.2	24.0	3.2	3.8	11	6	60	25.66	26.91	28.30	FREE	FREE	●
N006717	IULR-4-4.0xR0.2xL32.0		0.2	32.0	3.2	3.8	11	6	70	34.03	35.70	37.55	FREE	FREE	●
N006718	IULR-4-4.0xR0.3xL8.0		0.3	8.0	3.2	3.8	11	6	50	8.90	9.33	9.79	10.31	11.55	●
N006719	IULR-4-4.0xR0.3xL12.0		0.3	12.0	3.2	3.8	11	6	50	13.09	13.72	14.42	15.19	17.03	●
N006720	IULR-4-4.0xR0.3xL16.0		0.3	16.0	3.2	3.8	11	6	50	17.28	18.11	19.04	20.07	FREE	●
N006721	IULR-4-4.0xR0.3xL24.0		0.3	24.0	3.2	3.8	11	6	60	25.65	26.90	28.28	FREE	FREE	●
N006722	IULR-4-4.0xR0.3xL32.0		0.3	32.0	3.2	3.8	11	6	70	34.03	35.69	37.53	FREE	FREE	●
N006723	IULR-4-4.0xR0.5xL8.0		0.5	8.0	3.2	3.8	11	6	50	8.89	9.31	9.76	10.27	11.48	●
N006724	IULR-4-4.0xR0.5xL12.0		0.5	12.0	3.2	3.8	11	6	50	13.08	13.70	14.39	15.15	16.96	●
N006725	IULR-4-4.0xR0.5xL16.0		0.5	16.0	3.2	3.8	11	6	50	17.27	18.09	19.01	20.02	FREE	●
N006726	IULR-4-4.0xR0.5xL24.0		0.5	24.0	3.2	3.8	11	6	60	25.64	26.88	28.25	FREE	FREE	●
N006727	IULR-4-4.0xR0.5xL32.0		0.5	32.0	3.2	3.8	11	6	70	34.02	35.67	37.50	FREE	FREE	●
N006728	IULR-4-4.0xR1.0xL8.0		1.0	8.0	3.2	3.8	11	6	50	8.87	9.26	9.69	10.16	11.31	●
N006729	IULR-4-4.0xR1.0xL12.0		1.0	12.0	3.2	3.8	11	6	50	13.06	13.65	14.31	15.04	16.78	●
N006730	IULR-4-4.0xR1.0xL16.0		1.0	16.0	3.2	3.8	11	6	50	17.24	18.05	18.93	19.92	FREE	●
N006731	IULR-4-4.0xR1.0xL24.0		1.0	24.0	3.2	3.8	11	6	60	25.62	26.84	28.18	FREE	FREE	●
N006732	IULR-4-4.0xR1.0xL32.0		1.0	32.0	3.2	3.8	11	6	70	34.00	35.62	37.42	FREE	FREE	●
N006733	IULR-4-5.0xR0.1xL15.0	5.0	0.1	15.0	4.0	4.8	11	6	50	16.24	17.04	17.91	FREE	FREE	●
N006734	IULR-4-5.0xR0.1xL20.0		0.1	20.0	4.0	4.8	11	6	50	21.47	22.53	FREE	FREE	FREE	●
N006735	IULR-4-5.0xR0.1xL40.0		0.1	40.0	4.0	4.8	11	6	70	42.41	FREE	FREE	FREE	FREE	●
N006736	IULR-4-5.0xR0.2xL15.0		0.2	15.0	4.0	4.8	11	6	50	16.23	17.03	17.90	FREE	FREE	●
N006737	IULR-4-5.0xR0.2xL20.0		0.2	20.0	4.0	4.8	11	6	50	21.47	22.52	FREE	FREE	FREE	●
N006738	IULR-4-5.0xR0.2xL40.0		0.2	40.0	4.0	4.8	11	6	70	42.41	FREE	FREE	FREE	FREE	●
N006739	IULR-4-5.0xR0.3xL15.0		0.3	15.0	4.0	4.8	11	6	50	16.23	17.02	17.88	FREE	FREE	●
N006740	IULR-4-5.0xR0.3xL20.0		0.3	20.0	4.0	4.8	11	6	50	21.46	22.51	FREE	FREE	FREE	●
N006741	IULR-4-5.0xR0.3xL40.0		0.3	40.0	4.0	4.8	11	6	70	42.40	FREE	FREE	FREE	FREE	●
N006742	IULR-4-5.0xR0.5xL15.0		0.5	15.0	4.0	4.8	11	6	50	16.22	17.00	17.85	FREE	FREE	●
N006743	IULR-4-5.0xR0.5xL20.0		0.5	20.0	4.0	4.8	11	6	50	21.46	22.49	FREE	FREE	FREE	●
N006744	IULR-4-5.0xR0.5xL40.0		0.5	40.0	4.0	4.8	11	6	70	42.40	FREE	FREE	FREE	FREE	●
N006745	IULR-4-5.0xR1.0xL15.0		1.0	15.0	4.0	4.8	11	6	50	16.20	16.95	17.78	FREE	FREE	●
N006746	IULR-4-5.0xR1.0xL20.0		1.0	20.0	4.0	4.8	11	6	50	21.43	22.44	FREE	FREE	FREE	●
N006747	IULR-4-5.0xR1.0xL40.0		1.0	40.0	4.0	4.8	11	6	70	42.37	FREE	FREE	FREE	FREE	●
N006748	IULR-4-6.0xR0.1xL12.0	6.0	0.1	12.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N006749	IULR-4-6.0xR0.1xL18.0		0.1	18.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006750	IULR-4-6.0xR0.1xL24.0	6.0	0.1	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N006751	IULR-4-6.0xR0.1xL48.0		0.1	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N006752	IULR-4-6.0xR0.2xL12.0		0.2	12.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N006753	IULR-4-6.0xR0.2xL18.0		0.2	18.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N006754	IULR-4-6.0xR0.2xL24.0		0.2	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N006755	IULR-4-6.0xR0.2xL48.0		0.2	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N006756	IULR-4-6.0xR0.3xL12.0		0.3	12.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N006757	IULR-4-6.0xR0.3xL18.0		0.3	18.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N006758	IULR-4-6.0xR0.3xL24.0		0.3	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N006759	IULR-4-6.0xR0.3xL48.0		0.3	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N006760	IULR-4-6.0xR0.5xL12.0		0.5	12.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N006761	IULR-4-6.0xR0.5xL18.0		0.5	18.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N006762	IULR-4-6.0xR0.5xL24.0		0.5	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N006763	IULR-4-6.0xR0.5xL48.0		0.5	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N006764	IULR-4-6.0xR1.0xL12.0		1.0	12.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N006765	IULR-4-6.0xR1.0xL18.0		1.0	18.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N006766	IULR-4-6.0xR1.0xL24.0		1.0	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N006767	IULR-4-6.0xR1.0xL48.0		1.0	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●

ion Depo Type U Series

super MG | ion U | Profiling | 刃数 2 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P160

超硬ボールエンドミル Carbide Ball End Mills

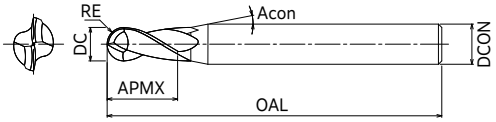
■型番:IUB-2 Model number:IUB-2

◆ HRC50 以上の高硬度金型の曲面加工に適しています

◆ Suitable for profiling of high-hardness molds with HRC50 or higher



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≦12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≦20	0/-0.020	±0.010



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N006768	IUB-2-0.1xR0.05x0.1	0.1	0.05	0.1	11	4	50	●
N006769	IUB-2-0.2xR0.1x0.2	0.2	0.1	0.2	11	4	50	●
N006770	IUB-2-0.3xR0.15x0.3	0.3	0.15	0.3	11	4	50	●
N006771	IUB-2-0.4xR0.2x0.6	0.4	0.2	0.6	11	4	50	●
N006772	IUB-2-0.5xR0.25x0.8	0.5	0.25	0.8	11	4	50	●
N006773	IUB-2-0.6xR0.3x0.9	0.6	0.3	0.9	11	4	50	●
N006774	IUB-2-0.8xR0.4x1.2	0.8	0.4	1.2	11	4	50	●
N006775	IUB-2-1.0xR0.5x1.5	1.0	0.5	1.5	11	4	50	●
N006776	IUB-2-1.5xR0.75x2.3	1.5	0.75	2.3	11	4	50	●
N006777	IUB-2-2.0xR1.0x3.0	2.0	1.0	3.0	11	4	50	●
N006778	IUB-2-2.5xR1.25x3.8	2.5	1.25	3.8	11	4	50	●
N006779	IUB-2-3.0xR1.5x5.0	3.0	1.5	5.0	11	4	50	●
N006780	IUB-2-4.0xR2.0x6.0	4.0	2.0	6.0	11	6	50	●
N006781	IUB-2-5.0xR2.5x8.0	5.0	2.5	8.0	11	6	50	●
N006782	IUB-2-6.0xR3.0x10.0	6.0	3.0	10.0	—	6	50	●
N008110	IUB-2-8.0xR4.0x12.0	8.0	4.0	12.0	—	8	70	●
N008105	IUB-2-10.0xR5.0x15.0	10.0	5.0	15.0	—	10	80	●
N008106	IUB-2-12.0xR6.0x20.0	12.0	6.0	20.0	—	12	110	●
N008107	IUB-2-16.0xR8.0x24.0	16.0	8.0	24.0	—	16	160	●
N008108	IUB-2-18.0xR9.0x27.0	18.0	9.0	27.0	—	18	180	※
N008109	IUB-2-20.0xR10.0x30.0	20.0	10.0	30.0	—	20	180	●

super MG | ion U | Profiling | 刃数 2 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P161

超硬ロングネックボールエンドミル
Carbide Long Neck Ball End Mills

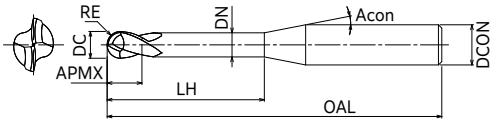
■型番:IULB-2 Model number:IULB-2

◆ HRC50 以上の高硬度金型の微細加工に適しています

◆ Suitable for fine milling of high-hardness molds with HRC50 or higher



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≦12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≦20	0/-0.020	±0.010



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表　Material compatibility table

被削材 Work Material														
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
		○		○	◎	◎	○							

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N006783	IULB-2-0.1xR0.05xL0.2	0.1	0.05	0.2	0.07	0.08	11	4	50	0.26	0.27	0.28	0.30	0.33	●
N006784	IULB-2-0.1xR0.05xL0.3	0.1		0.3	0.07	0.08	11	4	50	0.37	0.38	0.40	0.42	0.46	●
N006785	IULB-2-0.1xR0.05xL0.5	0.1		0.5	0.07	0.08	11	4	50	0.58	0.60	0.63	0.66	0.74	●
N006786	IULB-2-0.2xR0.1xL0.3	0.2	0.1	0.3	0.15	0.18	11	4	50	0.36	0.38	0.39	0.41	0.45	●
N006787	IULB-2-0.2xR0.1xL0.5	0.2		0.5	0.15	0.18	11	4	50	0.57	0.60	0.62	0.65	0.72	●
N006788	IULB-2-0.2xR0.1xL0.75	0.2		0.75	0.15	0.18	11	4	50	0.83	0.87	0.91	0.96	1.06	●
N006789	IULB-2-0.2xR0.1xL1.0	0.2		1.0	0.15	0.18	11	4	50	1.10	1.15	1.20	1.26	1.40	●
N006790	IULB-2-0.4xR0.2xL0.5	0.4	0.2	0.5	0.3	0.37	11	4	50	0.59	0.61	0.64	0.66	0.72	●
N006791	IULB-2-0.4xR0.2xL0.8	0.4		0.8	0.3	0.37	11	4	50	0.91	0.94	0.98	1.03	1.13	●
N006792	IULB-2-0.4xR0.2xL1.0	0.4		1.0	0.3	0.37	11	4	50	1.12	1.16	1.21	1.27	1.40	●
N006793	IULB-2-0.4xR0.2xL1.5	0.4		1.5	0.3	0.37	11	4	50	1.64	1.71	1.79	1.88	2.09	●
N006794	IULB-2-0.4xR0.2xL2.0	0.4		2.0	0.3	0.37	11	4	50	2.17	2.26	2.37	2.49	2.77	●
N006795	IULB-2-0.4xR0.2xL2.5	0.4		2.5	0.3	0.37	11	4	50	2.69	2.81	2.95	3.10	3.46	●
N006796	IULB-2-0.4xR0.2xL3.0	0.4		3.0	0.3	0.37	11	4	50	3.21	3.36	3.53	3.71	4.14	●
N006797	IULB-2-0.5xR0.25xL1.0	0.5	0.25	1.0	0.35	0.47	11	4	50	1.12	1.16	1.21	1.26	1.39	●
N006798	IULB-2-0.5xR0.25xL1.5	0.5		1.5	0.35	0.47	11	4	50	1.64	1.71	1.78	1.87	2.07	●
N006799	IULB-2-0.5xR0.25xL2.0	0.5		2.0	0.35	0.47	11	4	50	2.16	2.26	2.36	2.48	2.76	●
N006800	IULB-2-0.5xR0.25xL2.5	0.5		2.5	0.35	0.47	11	4	50	2.69	2.81	2.94	3.09	3.44	●
N006801	IULB-2-0.5xR0.25xL3.0	0.5		3.0	0.35	0.47	11	4	50	3.21	3.36	3.52	3.70	4.13	●
N006802	IULB-2-0.5xR0.25xL3.5	0.5		3.5	0.35	0.47	11	4	50	3.73	3.91	4.10	4.31	4.81	●

ion Depo Type U Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006803	IULB-2-0.5xR0.25xL4.0	0.5	0.25	4.0	0.35	0.47	11	4	50	4.26	4.45	4.67	4.92	5.49	●
N006804	IULB-2-0.6xR0.3xL1.0	0.6		1.0	0.45	0.57	11	4	50	1.11	1.15	1.20	1.25	1.37	●
N006805	IULB-2-0.6xR0.3xL1.5	0.6		1.5	0.45	0.57	11	4	50	1.64	1.70	1.78	1.86	2.05	●
N006806	IULB-2-0.6xR0.3xL2.0	0.6		2.0	0.45	0.57	11	4	50	2.16	2.25	2.35	2.47	2.74	●
N006807	IULB-2-0.6xR0.3xL2.5	0.6		2.5	0.45	0.57	11	4	50	2.68	2.80	2.93	3.08	3.42	●
N006808	IULB-2-0.6xR0.3xL3.0	0.6		3.0	0.45	0.57	11	4	50	3.21	3.35	3.51	3.69	4.11	●
N006809	IULB-2-0.6xR0.3xL3.5	0.6	0.3	3.5	0.45	0.57	11	4	50	3.73	3.90	4.09	4.30	4.79	●
N006810	IULB-2-0.6xR0.3xL4.0	0.6		4.0	0.45	0.57	11	4	50	4.25	4.45	4.67	4.91	5.48	●
N006811	IULB-2-0.6xR0.3xL4.5	0.6		4.5	0.45	0.57	11	4	50	4.78	5.00	5.24	5.51	6.16	●
N006812	IULB-2-0.6xR0.3xL5.0	0.6		5.0	0.45	0.57	11	4	50	5.30	5.55	5.82	6.12	6.85	●
N006813	IULB-2-0.6xR0.3xL5.5	0.6		5.5	0.45	0.57	11	4	50	5.83	6.10	6.40	6.73	7.53	●
N006814	IULB-2-0.6xR0.3xL6.0	0.6		6.0	0.45	0.57	11	4	50	6.35	6.65	6.98	7.34	8.22	●
N006815	IULB-2-0.8xR0.4xL2.0	0.8		2.0	0.6	0.77	11	4	50	2.16	2.24	2.34	2.45	2.70	●
N006816	IULB-2-0.8xR0.4xL3.0	0.8		3.0	0.6	0.77	11	4	50	3.20	3.34	3.49	3.66	4.07	●
N006817	IULB-2-0.8xR0.4xL4.0	0.8		4.0	0.6	0.77	11	4	50	4.25	4.44	4.65	4.88	5.44	●
N006818	IULB-2-0.8xR0.4xL5.0	0.8	0.4	5.0	0.6	0.77	11	4	50	5.30	5.54	5.81	6.10	6.81	●
N006819	IULB-2-0.8xR0.4xL6.0	0.8		6.0	0.6	0.77	11	4	50	6.34	6.64	6.96	7.32	8.18	●
N006820	IULB-2-0.8xR0.4xL7.0	0.8		7.0	0.6	0.77	11	4	50	7.39	7.74	8.12	8.54	9.55	●
N006821	IULB-2-0.8xR0.4xL8.0	0.8		8.0	0.6	0.77	11	4	50	8.44	8.83	9.27	9.76	10.92	●
N006822	IULB-2-1.0xR0.5xL2.0	1.0		2.0	0.8	0.95	11	4	50	2.21	2.29	2.38	2.49	2.74	●
N006823	IULB-2-1.0xR0.5xL2.5	1.0		2.5	0.8	0.95	11	4	50	2.73	2.84	2.96	3.10	3.42	●
N006824	IULB-2-1.0xR0.5xL3.0	1.0		3.0	0.8	0.95	11	4	50	3.25	3.39	3.54	3.71	4.11	●
N006825	IULB-2-1.0xR0.5xL4.0	1.0		4.0	0.8	0.95	11	4	50	4.30	4.49	4.69	4.93	5.48	●
N006826	IULB-2-1.0xR0.5xL5.0	1.0		5.0	0.8	0.95	11	4	50	5.35	5.59	5.85	6.14	6.85	●
N006827	IULB-2-1.0xR0.5xL6.0	1.0	0.5	6.0	0.8	0.95	11	4	50	6.39	6.68	7.01	7.36	8.22	●
N006828	IULB-2-1.0xR0.5xL7.0	1.0		7.0	0.8	0.95	11	4	50	7.44	7.78	8.16	8.58	9.58	●
N006829	IULB-2-1.0xR0.5xL8.0	1.0		8.0	0.8	0.95	11	4	50	8.49	8.88	9.32	9.80	10.95	●
N006830	IULB-2-1.0xR0.5xL9.0	1.0		9.0	0.8	0.95	11	4	50	9.53	9.98	10.47	11.02	12.32	●
N006831	IULB-2-1.0xR0.5xL10.0	1.0		10.0	0.8	0.95	11	4	50	10.58	11.08	11.63	12.24	13.69	●
N006832	IULB-2-1.0xR0.5xL12.0	1.0		12.0	0.8	0.95	11	4	50	12.68	13.28	13.94	14.68	16.43	●
N006833	IULB-2-1.2xR0.6xL2.4	1.2		2.4	0.9	1.15	11	4	50	2.62	2.72	2.83	2.95	3.25	●
N006834	IULB-2-1.2xR0.6xL4.0	1.2		4.0	0.9	1.15	11	4	50	4.29	4.48	4.68	4.90	5.44	※
N006835	IULB-2-1.2xR0.6xL6.0	1.2	0.6	6.0	0.9	1.15	11	4	50	6.39	6.67	6.99	7.34	8.18	※
N006836	IULB-2-1.2xR0.6xL8.0	1.2		8.0	0.9	1.15	11	4	50	8.48	8.87	9.30	9.78	10.92	※
N006837	IULB-2-1.2xR0.6xL10.0	1.2		10.0	0.9	1.15	11	4	50	10.58	11.07	11.61	12.22	13.66	※
N006838	IULB-2-1.2xR0.6xL12.0	1.2		12.0	0.9	1.15	11	4	50	12.67	13.27	13.92	14.66	16.40	※
N006839	IULB-2-1.5xR0.75xL3.0	1.5		3.0	1.1	1.45	11	4	50	3.24	3.36	3.50	3.65	4.02	●
N006840	IULB-2-1.5xR0.75xL4.0	1.5		4.0	1.1	1.45	11	4	50	4.29	4.46	4.66	4.87	5.39	●
N006841	IULB-2-1.5xR0.75xL6.0	1.5		6.0	1.1	1.45	11	4	50	6.38	6.66	6.97	7.31	8.13	●
N006842	IULB-2-1.5xR0.75xL8.0	1.5		8.0	1.1	1.45	11	4	50	8.48	8.86	9.28	9.75	10.87	●
N006843	IULB-2-1.5xR0.75xL10.0	1.5	0.75	10.0	1.1	1.45	11	4	50	10.57	11.05	11.59	12.19	13.60	●
N006844	IULB-2-1.5xR0.75xL12.0	1.5		12.0	1.1	1.45	11	4	50	12.66	13.25	13.90	14.62	16.34	●
N006845	IULB-2-1.5xR0.75xL14.0	1.5		14.0	1.1	1.45	11	4	50	14.76	15.45	16.21	17.06	19.08	●
N006846	IULB-2-1.5xR0.75xL16.0	1.5		16.0	1.1	1.45	11	4	50	16.85	17.65	18.52	19.50	21.82	●
N006847	IULB-2-1.6xR0.8xL8.0	1.6		8.0	1.2	1.55	11	4	50	8.47	8.85	9.27	9.74	10.85	※
N006848	IULB-2-1.6xR0.8xL12.0	1.6	0.8	12.0	1.2	1.55	11	4	50	12.66	13.25	13.89	14.61	16.33	※
N006849	IULB-2-1.6xR0.8xL16.0	1.6		16.0	1.2	1.55	11	4	50	16.85	17.64	18.52	19.49	21.80	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006850	IULB-2-2.0xR1.0xL3.0	2.0	1.0	3.0	1.5	1.94	11	4	50	3.26	3.37	3.49	3.63	3.97	●
N006851	IULB-2-2.0xR1.0xL4.0	2.0		4.0	1.5	1.94	11	4	50	4.30	4.47	4.65	4.85	5.34	●
N006852	IULB-2-2.0xR1.0xL6.0	2.0		6.0	1.5	1.94	11	4	50	6.40	6.66	6.96	7.29	8.08	●
N006853	IULB-2-2.0xR1.0xL8.0	2.0		8.0	1.5	1.94	11	4	50	8.49	8.86	9.27	9.72	10.81	●
N006854	IULB-2-2.0xR1.0xL10.0	2.0		10.0	1.5	1.94	11	4	50	10.58	11.06	11.58	12.16	13.55	●
N006855	IULB-2-2.0xR1.0xL12.0	2.0		12.0	1.5	1.94	11	4	50	12.68	13.26	13.89	14.60	16.29	●
N006856	IULB-2-2.0xR1.0xL13.0	2.0		13.0	1.5	1.94	11	4	50	13.73	14.35	15.05	15.82	17.66	●
N006857	IULB-2-2.0xR1.0xL14.0	2.0		14.0	1.5	1.94	11	4	50	14.77	15.45	16.20	17.04	19.03	●
N006858	IULB-2-2.0xR1.0xL16.0	2.0		16.0	1.5	1.94	11	4	50	16.87	17.65	18.52	19.48	FREE	●
N006859	IULB-2-2.0xR1.0xL18.0	2.0		18.0	1.5	1.94	11	4	50	18.96	19.85	20.83	21.91	FREE	●
N006860	IULB-2-2.0xR1.0xL20.0	2.0		20.0	1.5	1.94	11	4	60	21.05	22.04	23.14	24.35	FREE	●
N006861	IULB-2-2.5xR1.25xL6.0	2.5	1.25	6.0	2.3	2.44	11	4	50	6.39	6.64	6.92	7.23	7.99	●
N006862	IULB-2-2.5xR1.25xL8.0	2.5		8.0	2.3	2.44	11	4	50	8.48	8.84	9.23	9.67	10.73	●
N006863	IULB-2-2.5xR1.25xL10.0	2.5		10.0	2.3	2.44	11	4	50	10.57	11.03	11.54	12.11	13.47	●
N006864	IULB-2-2.5xR1.25xL15.0	2.5		15.0	2.3	2.44	11	4	50	15.81	16.53	17.32	18.20	FREE	●
N006865	IULB-2-2.5xR1.25xL20.0	2.5		20.0	2.3	2.44	11	4	50	21.04	22.02	23.10	FREE	FREE	●
N006866	IULB-2-3.0xR1.5xL6.0	3.0	1.5	6.0	2.5	2.85	11	4	50	6.62	6.87	7.15	7.46	8.22	●
N006867	IULB-2-3.0xR1.5xL8.0	3.0		8.0	2.5	2.85	11	4	50	8.71	9.07	9.46	9.90	10.96	●
N006868	IULB-2-3.0xR1.5xL10.0	3.0		10.0	2.5	2.85	11	4	50	10.80	11.26	11.77	12.34	FREE	●
N006869	IULB-2-3.0xR1.5xL12.0	3.0		12.0	2.5	2.85	11	4	50	12.90	13.46	14.08	14.78	FREE	●
N006870	IULB-2-3.0xR1.5xL14.0	3.0		14.0	2.5	2.85	11	4	50	14.99	15.66	16.40	FREE	FREE	●
N006871	IULB-2-3.0xR1.5xL16.0	3.0		16.0	2.5	2.85	11	4	50	17.09	17.86	18.71	FREE	FREE	●
N006872	IULB-2-3.0xR1.5xL20.0	3.0		20.0	2.5	2.85	11	4	50	21.27	22.25	FREE	FREE	FREE	●
N006873	IULB-2-3.0xR1.5xL25.0	3.0		25.0	2.5	2.85	11	4	60	26.51	27.74	FREE	FREE	FREE	●
N006874	IULB-2-3.0xR1.5xL30.0	3.0		30.0	2.5	2.85	11	4	60	31.74	FREE	FREE	FREE	FREE	●
N006875	IULB-2-3.5xR1.75xL15.0	3.5	1.75	15.0	2.8	3.35	11	6	50	16.03	16.73	17.51	18.38	20.45	※
N006876	IULB-2-3.5xR1.75xL20.0	3.5		20.0	2.8	3.35	11	6	60	21.26	22.23	23.29	24.47	FREE	※
N006877	IULB-2-3.5xR1.75xL25.0	3.5		25.0	2.8	3.35	11	6	60	26.50	27.72	29.07	30.57	FREE	※
N006878	IULB-2-3.5xR1.75xL30.0	3.5		30.0	2.8	3.35	11	6	70	31.73	33.21	34.85	36.66	FREE	※
N006879	IULB-2-3.5xR1.75xL35.0	3.5		35.0	2.8	3.35	11	6	70	36.97	38.71	40.63	FREE	FREE	※
N006880	IULB-2-4.0xR2.0xL8.0	4.0	2.0	8.0	3.0	3.8	11	6	50	8.82	9.16	9.53	9.95	10.96	●
N006881	IULB-2-4.0xR2.0xL10.0	4.0		10.0	3.0	3.8	11	6	50	10.92	11.36	11.84	12.39	13.70	●
N006882	IULB-2-4.0xR2.0xL12.0	4.0		12.0	3.0	3.8	11	6	50	13.01	13.55	14.16	14.82	16.43	●
N006883	IULB-2-4.0xR2.0xL14.0	4.0		14.0	3.0	3.8	11	6	50	15.10	15.75	16.47	17.26	19.17	●
N006884	IULB-2-4.0xR2.0xL15.0	4.0		15.0	3.0	3.8	11	6	50	16.15	16.85	17.62	18.48	20.54	●
N006885	IULB-2-4.0xR2.0xL20.0	4.0		20.0	3.0	3.8	11	6	60	21.39	22.34	23.40	24.58	FREE	●
N006886	IULB-2-4.0xR2.0xL25.0	4.0		25.0	3.0	3.8	11	6	60	26.62	27.84	29.18	FREE	FREE	●
N006887	IULB-2-4.0xR2.0xL30.0	4.0		30.0	3.0	3.8	11	6	70	31.86	33.33	34.96	FREE	FREE	●
N006888	IULB-2-4.0xR2.0xL35.0	4.0		35.0	3.0	3.8	11	6	70	37.09	38.82	FREE	FREE	FREE	●
N006889	IULB-2-5.0xR2.5xL15.0	5.0	2.5	15.0	3.5	4.8	11	6	50	16.13	16.80	17.55	FREE	FREE	●
N006890	IULB-2-5.0xR2.5xL20.0	5.0		20.0	3.5	4.8	11	6	50	21.36	22.29	FREE	FREE	FREE	●
N006891	IULB-2-5.0xR2.5xL25.0	5.0		25.0	3.5	4.8	11	6	60	26.60	27.79	FREE	FREE	FREE	●
N006892	IULB-2-5.0xR2.5xL30.0	5.0		30.0	3.5	4.8	11	6	60	31.83	FREE	FREE	FREE	FREE	●
N006893	IULB-2-5.0xR2.5xL40.0	5.0		40.0	3.5	4.8	11	6	70	42.30	FREE	FREE	FREE	FREE	●
N006894	IULB-2-6.0xR3.0xL10.0	6.0	3.0	10.0	6.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N006895	IULB-2-6.0xR3.0xL15.0	6.0		15.0	6.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N006896	IULB-2-6.0xR3.0xL20.0	6.0		20.0	6.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●

ion Depo Type U Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N006897	IULB-2-6.0xR3.0xL25.0	6.0	3.0	25.0	6.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N006898	IULB-2-6.0xR3.0xL30.0	6.0		30.0	6.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N006899	IULB-2-6.0xR3.0xL35.0	6.0		35.0	6.0	5.8	11	6	70	FREE	FREE	FREE	FREE	FREE	●
N006900	IULB-2-6.0xR3.0xL40.0	6.0		40.0	6.0	5.8	11	6	70	FREE	FREE	FREE	FREE	FREE	●
N006901	IULB-2-6.0xR3.0xL50.0	6.0		50.0	6.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N006902	IULB-2-6.0xR3.0xL60.0	6.0		60.0	6.0	5.8	11	6	90	FREE	FREE	FREE	FREE	FREE	●

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IUSH-2, IUS-2
Model number:IUSH-2, IUS-2

スクエアエンドミル Square End Mills

側面 Side Milling

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.1	0.2	50,000	40	0.1	0.006	50,000	20	0.1	0.001	50,000	20	0.08	0.001
0.2	0.4	50,000	55	0.2	0.012	39,800	35	0.2	0.002	25,500	20	0.16	0.002
0.3	0.6	40,900	65	0.3	0.018	26,500	35	0.3	0.003	17,000	20	0.24	0.002
0.4	0.8	30,600	65	0.4	0.024	19,900	35	0.4	0.004	12,700	20	0.32	0.003
0.5	1.0	24,500	65	0.5	0.03	15,900	35	0.5	0.005	10,200	20	0.4	0.004
0.6	1.2	20,400	65	0.6	0.036	13,300	35	0.6	0.006	8,490	20	0.48	0.005
0.7	1.4	17,500	65	0.7	0.042	11,400	35	0.7	0.007	7,280	20	0.56	0.006
0.8	1.6	15,300	65	0.8	0.048	9,950	35	0.8	0.008	6,370	20	0.64	0.006
0.9	1.8	13,600	65	0.9	0.054	8,840	35	0.9	0.009	5,660	20	0.72	0.007
1.0	2.0	12,300	65	1	0.1	7,960	35	1	0.020	5,410	20	0.8	0.012
1.1	2.2	11,600	70	1.1	0.11	7,810	40	1.1	0.022	5,210	20	0.88	0.013
1.2	2.4	10,600	70	1.2	0.12	7,160	40	1.2	0.024	4,770	20	0.96	0.014
1.3	2.6	9,790	70	1.3	0.13	6,610	40	1.3	0.026	4,410	20	1.04	0.016
1.4	2.8	9,090	70	1.4	0.14	6,140	40	1.4	0.028	4,090	20	1.12	0.017
1.5	3.0	8,490	70	1.5	0.15	5,730	40	1.5	0.030	3,820	20	1.2	0.018
1.6	3.2	8,550	75	1.6	0.16	5,570	40	1.6	0.032	3,780	20	1.28	0.019
1.7	3.4	8,050	75	1.7	0.17	5,240	40	1.7	0.034	3,560	20	1.36	0.020
1.8	3.6	7,600	75	1.8	0.18	4,950	40	1.8	0.036	3,360	20	1.44	0.022
1.9	3.8	7,200	75	1.9	0.19	4,690	40	1.9	0.038	3,180	20	1.52	0.023
2.0	4.0	6,840	75	2	0.2	4,610	40	2	0.040	3,100	20	1.6	0.024
2.1	4.2	6,820	80	2.1	0.21	4,550	40	2.1	0.042	3,030	25	1.68	0.025
2.2	4.4	6,510	80	2.2	0.22	4,340	40	2.2	0.044	2,890	25	1.76	0.026
2.3	4.6	6,230	80	2.3	0.23	4,150	40	2.3	0.046	2,770	25	1.84	0.028
2.4	4.8	5,970	80	2.4	0.24	3,980	40	2.4	0.048	2,650	25	1.92	0.029
2.5	5.0	5,730	80	2.5	0.25	3,820	40	2.5	0.050	2,550	25	2	0.030
2.6	5.2	5,510	80	2.6	0.26	3,670	40	2.6	0.052	2,450	25	2.08	0.031
2.7	5.4	5,310	80	2.7	0.27	3,540	40	2.7	0.054	2,360	25	2.16	0.032
2.8	5.6	5,120	80	2.8	0.28	3,410	40	2.8	0.056	2,270	25	2.24	0.034
2.9	5.8	4,940	80	2.9	0.29	3,290	40	2.9	0.058	2,200	25	2.32	0.035
3.0	6.0	4,770	80	3	0.3	3,180	40	3	0.060	2,120	25	2.4	0.036
3.5	7.0	4,090	80	3.5	0.35	2,730	40	3.5	0.070	1,820	25	2.8	0.070
4.0	8.0	3,580	80	4	0.4	2,390	40	4	0.160	1,590	25	3.2	0.160
4.5	9.0	3,180	80	4.5	0.45	2,120	40	4.5	0.180	1,410	25	3.6	0.180
5.0	10.0	2,860	80	5	0.5	1,910	40	5	0.200	1,270	25	4	0.200
5.5	11.0	2,600	80	5.5	0.55	1,740	40	5.5	0.220	1,160	25	4.4	0.220
6.0	12.0	2,390	80	6	0.6	1,590	40	6	0.240	1,060	25	4.8	0.240

ion Depo Type U Series

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IUSH-2, IUS-2
Model number:IUSH-2, IUS-2

スクエアエンドミル Square End Mills
溝 Slotting

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.1	0.2	50,000	30	0.006	0.1	50,000	15	0.002	0.1	45,800	10	0.001	0.1
0.2	0.4	50,000	35	0.012	0.2	35,700	20	0.004	0.2	22,900	10	0.002	0.2
0.3	0.6	36,300	40	0.018	0.3	23,800	20	0.006	0.3	15,300	10	0.003	0.3
0.4	0.8	27,200	40	0.024	0.4	17,800	20	0.008	0.4	11,500	10	0.004	0.4
0.5	1.0	21,800	40	0.04	0.5	14,300	20	0.015	0.5	9,170	10	0.01	0.5
0.6	1.2	18,100	40	0.048	0.6	11,900	20	0.018	0.6	7,640	10	0.012	0.6
0.7	1.4	15,600	40	0.056	0.7	10,200	20	0.021	0.7	6,550	10	0.014	0.7
0.8	1.6	13,600	40	0.064	0.8	8,910	20	0.024	0.8	5,730	10	0.016	0.8
0.9	1.8	12,100	40	0.072	0.9	7,920	20	0.027	0.9	5,090	10	0.018	0.9
1.0	2.0	11,600	40	0.1	1	7,130	20	0.05	1	4,580	10	0.035	1
1.1	2.2	11,200	45	0.11	1.1	6,480	20	0.055	1.1	4,170	10	0.04	1.1
1.2	2.4	10,300	45	0.12	1.2	5,940	20	0.06	1.2	3,820	10	0.04	1.2
1.3	2.6	9,480	45	0.13	1.3	5,480	20	0.065	1.3	3,530	10	0.05	1.3
1.4	2.8	8,800	45	0.14	1.4	5,390	20	0.07	1.4	3,480	10	0.05	1.4
1.5	3.0	8,210	45	0.15	1.5	5,310	25	0.075	1.5	3,440	10	0.05	1.5
1.6	3.2	8,120	45	0.16	1.6	4,970	25	0.08	1.6	3,220	10	0.06	1.6
1.7	3.4	7,640	45	0.17	1.7	4,680	25	0.085	1.7	3,030	10	0.06	1.7
1.8	3.6	7,220	45	0.18	1.8	4,420	25	0.09	1.8	2,860	10	0.06	1.8
1.9	3.8	6,840	45	0.19	1.9	4,190	25	0.095	1.9	2,720	10	0.07	1.9
2.0	4.0	6,490	45	0.2	2	4,120	25	0.1	2	2,640	15	0.07	2
2.1	4.2	6,350	50	0.21	2.1	4,050	25	0.105	2.1	2,590	15	0.07	2.1
2.2	4.4	6,220	50	0.22	2.2	3,860	25	0.11	2.2	2,470	15	0.08	2.2
2.3	4.6	5,950	50	0.23	2.3	3,700	25	0.115	2.3	2,370	15	0.08	2.3
2.4	4.8	5,700	50	0.24	2.4	3,540	25	0.12	2.4	2,270	15	0.08	2.4
2.5	5.0	5,470	50	0.25	2.5	3,400	25	0.125	2.5	2,180	15	0.09	2.5
2.6	5.2	5,260	50	0.26	2.6	3,270	25	0.13	2.6	2,090	15	0.09	2.6
2.7	5.4	5,070	50	0.27	2.7	3,150	25	0.135	2.7	2,020	15	0.09	2.7
2.8	5.6	4,890	50	0.28	2.8	3,040	25	0.14	2.8	1,940	15	0.10	2.8
2.9	5.8	4,720	50	0.29	2.9	2,930	25	0.145	2.9	1,880	15	0.10	2.9
3.0	6.0	4,560	50	0.3	3	2,910	25	0.15	3	1,860	15	0.11	3
3.5	7.0	3,910	50	0.35	3.5	2,550	25	0.175	3.5	1,640	15	0.12	3.5
4.0	8.0	3,420	50	0.8	4	2,230	25	0.28	4	1,430	15	0.16	4
4.5	9.0	3,040	50	0.9	4.5	1,980	25	0.315	4.5	1,270	15	0.18	4.5
5.0	10.0	2,740	50	1	5	1,780	25	0.35	5	1,150	15	0.2	5
5.5	11.0	2,490	50	1.1	5.5	1,620	25	0.385	5.5	1,040	15	0.22	5.5
6.0	12.0	2,280	50	1.2	6	1,490	25	0.42	6	950	15	0.24	6

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IUSH-4, IUS-4
Model number:IUSH-4, IUS-4

スクエアエンドミル Square End Mills
側面 Side Milling

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
1.0	2.0	11,500	110	1	0.06	7,640	75	1	0.01	5,100	40	0.8	0.007
1.5	3.0	8,600	130	1.5	0.11	5,730	90	1.5	0.02	3,820	50	1.2	0.013
2.0	4.0	6,810	145	2	0.16	4,540	100	2	0.03	3,030	55	1.6	0.019
3.0	6.0	4,780	170	3	0.3	3,190	115	3	0.06	2,120	65	2.4	0.036
4.0	8.0	3,580	180	4	0.4	2,390	120	4	0.08	1,590	65	3.2	0.048
6.0	12.0	2,390	190	6	0.6	1,590	125	6	0.12	1,060	70	4.8	0.072
	18.0	2,390	180	6	0.54	1,590	120	6	0.11	1,060	65	4.8	0.065
8.0	16.0	1,790	180	8	0.8	1,200	120	8	0.16	800	65	6.4	0.096
	24.0	1,790	170	8	0.72	1,200	115	8	0.14	800	65	6.4	0.086
10.0	20.0	1,430	170	10	1	960	115	10	0.20	640	65	10	0.2
	30.0	1,360	155	10	0.9	910	105	10	0.18	610	55	10	0.18
12.0	24.0	1,140	155	12	1.2	760	105	12	0.24	510	55	12	0.24
	36.0	1,080	145	12	1.08	720	95	12	0.216	480	50	12	0.216
14.0	35.0	980	150	14	1.26	650	100	14	0.252	440	45	14	0.252
16.0	40.0	860	150	16	1.44	570	100	16	0.288	380	45	16	0.288
18.0	45.0	760	150	18	1.62	510	100	18	0.324	340	45	18	0.324
20.0	50.0	680	150	20	1.8	460	100	20	0.36	310	50	20	0.36

スクエアエンドミル Square End Mills
溝 Slotting

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
1.0	2.0	10,900	65	0.06	1	7,130	40	0.05	1	4,590	20	0.025	1
1.5	3.0	8,210	80	0.09	1.5	5,350	55	0.07	1.5	3,440	30	0.038	1.5
2.0	4.0	6,500	90	0.16	2	4,240	55	0.09	2	2,720	30	0.05	2
3.0	6.0	4,560	105	0.36	3	2,970	65	0.14	3	1,910	35	0.075	3
4.0	8.0	3,420	110	0.64	4	2,230	70	0.18	4	1,430	40	0.1	4
6.0	12.0	2,280	115	1.2	6	1,490	75	0.33	6	960	40	0.192	6
	18.0	2,170	75	0.96	6	1,410	55	0.27	6	910	30	0.15	6
8.0	16.0	1,710	110	1.6	8	1,120	70	0.44	8	720	40	0.256	8
	24.0	1,630	75	1.28	8	1,060	55	0.36	8	680	30	0.2	8
10.0	20.0	1,370	105	2	10	890	65	0.55	10	580	35	0.32	10
	30.0	1,300	95	1.6	10	850	60	0.45	10	550	30	0.25	10
12.0	24.0	1,090	95	2.4	12	710	60	0.66	12	460	30	0.384	12
	36.0	1,040	90	1.92	12	680	55	0.54	12	440	30	0.3	12
14.0	35.0	930	90	2.24	14	610	55	0.63	14	390	30	0.35	14
16.0	40.0	820	90	2.56	16	530	55	0.72	16	340	30	0.4	16
18.0	45.0	730	90	2.88	18	470	55	0.81	18	310	30	0.45	18
20.0	50.0	650	90	3.2	20	430	55	0.9	20	280	30	0.5	20

ion Depo Type U Series

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IUS-6
Model number:IUS-6

スクエアエンドミル Square End Mills
側面 Side Milling

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
5.0	10.0	2,860	250	5	0.5	1,910	155	5	0.30	1,270	90	4	0.150
	15.0	2,830	245	5	0.45	1,850	150	5	0.27	1,210	85	5	0.135
6.0	12.0	2,390	250	6	0.6	1,590	155	6	0.36	1,070	90	5	0.180
	18.0	2,350	245	6	0.54	1,540	150	6	0.32	1,010	85	5	0.162
8.0	16.0	1,790	250	8	0.8	1,200	160	8	0.48	800	90	6	0.240
	24.0	1,750	245	8	0.72	1,140	150	8	0.43	760	85	6	0.216
10.0	20.0	1,430	250	10	1	960	160	10	0.60	640	90	10	0.300
	30.0	1,390	245	10	0.9	910	150	10	0.54	610	85	10	0.270
12.0	24.0	1,140	240	12	1.2	760	150	12	0.72	510	85	12	0.360
	36.0	1,090	230	12	1.08	720	140	12	0.72	480	80	12	0.324
14.0	35.0	980	240	14	1.26	650	150	14	0.84	440	85	14	0.420
16.0	40.0	860	240	16	1.44	570	150	16	0.96	380	85	16	0.480
18.0	45.0	760	240	18	1.62	510	150	18	1.08	340	85	18	0.540
20.0	50.0	680	240	20	1.8	460	150	20	1.20	310	85	20	0.600

スクエアエンドミル Square End Mills
溝 Slotting

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
5.0	10.0	2,740	150	0.5	5	1,790	90	0.3	5	1,150	45	0.1	5
	15.0	2,610	145	0.45	5	1,690	90	0.27	5	1,090	40	0.09	5
6.0	12.0	2,280	150	0.6	6	1,490	90	0.36	6	960	45	0.12	6
	18.0	2,180	145	0.54	6	1,410	90	0.324	6	910	40	0.108	6
8.0	16.0	1,710	150	0.8	8	1,120	90	0.48	8	720	45	0.16	8
	24.0	1,630	145	0.72	8	1,060	90	0.432	8	680	40	0.144	8
10.0	20.0	1,370	150	1	10	890	90	0.6	10	580	45	0.2	10
	30.0	1,310	145	0.90	10	850	90	0.54	10	550	45	0.18	10
12.0	24.0	1,090	145	1.8	12	710	90	0.96	12	460	45	0.36	12
	36.0	1,030	135	1.08	12	680	85	0.864	12	440	40	0.324	12
14.0	35.0	930	145	2.1	14	610	90	1.12	14	390	40	0.42	14
16.0	40.0	820	145	2.4	16	530	90	1.28	16	340	40	0.48	16
18.0	45.0	730	145	2.7	18	470	90	1.44	18	310	45	0.54	18
20.0	50.0	650	145	3	20	430	90	1.6	20	280	45	0.6	20

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IULSH-2, IULS-2
Model number:IULSH-2, IULS-2

ロングネックスクエアエンドミル Long Neck Square End Mills

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61 (~50HRC)				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61 (~55HRC)				焼き入れ鋼 Hardened Steels SKD11/SKH51 (~62HRC)			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.1	0.3	50,000	26	0.005	0.1	50,000	23	0.004	0.1	50,000	20	0.004	0.1	50,000	20	0.003	0.1
	0.5	50,000	14	0.004	0.1	50,000	12	0.003	0.1	50,000	10	0.003	0.1	50,000	10	0.002	0.1
0.15	0.3	50,000	59	0.007	0.15	50,000	51	0.006	0.15	50,000	45	0.005	0.15	42,400	38	0.005	0.15
	0.5	50,000	40	0.005	0.15	50,000	34	0.005	0.15	50,000	30	0.004	0.15	38,200	23	0.004	0.15
0.2	0.5	50,000	79	0.009	0.2	50,000	68	0.008	0.2	50,000	60	0.007	0.2	31,800	38	0.006	0.2
	0.75	50,000	53	0.007	0.2	50,000	46	0.006	0.2	50,000	40	0.006	0.2	28,700	23	0.005	0.2
	1.0	50,000	28	0.007	0.2	50,000	24	0.006	0.2	50,000	21	0.006	0.2	28,700	12	0.005	0.2
0.3	1.0	50,000	79	0.011	0.3	47,800	72	0.010	0.3	33,400	40	0.008	0.3	19,100	23	0.007	0.3
	1.5	50,000	42	0.011	0.3	47,800	34	0.010	0.3	33,400	21	0.008	0.3	19,100	12	0.007	0.3
	2.0	50,000	32	0.008	0.3	42,400	24	0.007	0.3	29,700	15	0.006	0.3	17,000	8	0.005	0.3
	2.5	50,000	25	0.005	0.3	38,200	17	0.005	0.3	26,700	10	0.004	0.3	15,300	6	0.004	0.3
	3.0	47,500	19	0.005	0.3	34,000	11	0.005	0.3	23,800	7	0.004	0.3	13,600	4	0.004	0.3
0.4	1.0	50,000	158	0.018	0.4	39,800	108	0.016	0.4	27,900	66	0.014	0.4	15,900	38	0.012	0.4
	1.5	50,000	106	0.014	0.4	35,800	65	0.013	0.4	25,100	40	0.011	0.4	14,300	23	0.010	0.4
	2.0	50,000	56	0.014	0.4	35,800	34	0.013	0.4	25,100	21	0.011	0.4	14,300	12	0.010	0.4
	2.5	44,600	41	0.011	0.4	31,800	25	0.010	0.4	22,300	15	0.008	0.4	12,700	9	0.007	0.4
	3.0	40,100	31	0.011	0.4	28,700	19	0.010	0.4	20,100	11	0.008	0.4	11,500	7	0.007	0.4
0.5	1.0	44,600	176	0.023	0.5	31,800	108	0.02	0.5	22,300	66	0.018	0.5	12,700	38	0.015	0.5
	1.5	44,600	118	0.023	0.5	31,800	73	0.02	0.5	22,300	44	0.018	0.5	12,700	25	0.015	0.5
	2.0	40,100	67	0.018	0.5	28,700	41	0.016	0.5	20,100	25	0.014	0.5	11,500	14	0.012	0.5
	2.5	40,100	56	0.018	0.5	28,700	34	0.016	0.5	20,100	21	0.014	0.5	11,500	12	0.012	0.5
	3.0	35,700	43	0.014	0.5	25,500	26	0.012	0.5	17,800	16	0.011	0.5	10,200	9	0.009	0.5
	3.5	35,700	37	0.014	0.5	25,500	23	0.012	0.5	17,800	14	0.011	0.5	10,200	8	0.009	0.5
	4.0	32,100	28	0.014	0.5	22,900	17	0.012	0.5	16,000	11	0.011	0.5	9,170	6	0.009	0.5
0.6	1.5	37,100	176	0.027	0.6	26,500	108	0.024	0.6	18,600	66	0.021	0.6	10,600	38	0.018	0.6
	2.0	33,400	106	0.022	0.6	23,900	65	0.019	0.6	16,700	40	0.017	0.6	9,550	23	0.014	0.6
	3.0	33,400	56	0.022	0.6	23,900	34	0.019	0.6	16,700	21	0.017	0.6	9,550	12	0.014	0.6
	4.0	29,700	39	0.016	0.6	21,200	24	0.014	0.6	14,900	14	0.013	0.6	8,490	8	0.011	0.6
	6.0	23,800	19	0.011	0.6	17,000	11	0.010	0.6	11,900	7	0.008	0.6	6,790	4	0.007	0.6
0.7	2.0	31,800	176	0.032	0.7	22,700	108	0.028	0.7	15,900	66	0.025	0.7	9,090	38	0.021	0.7
	4.0	25,500	45	0.019	0.7	18,200	27	0.017	0.7	12,700	17	0.015	0.7	7,280	10	0.013	0.7
	6.0	22,900	26	0.013	0.7	16,400	16	0.011	0.7	11,500	10	0.010	0.7	6,550	6	0.008	0.7
0.8	3.0	25,100	176	0.029	0.8	17,900	108	0.026	0.8	12,500	66	0.022	0.8	7,160	38	0.019	0.8
	4.0	25,100	56	0.029	0.8	17,900	34	0.026	0.8	12,500	21	0.022	0.8	7,160	12	0.019	0.8
	5.0	22,300	41	0.022	0.8	15,900	25	0.019	0.8	11,100	15	0.017	0.8	6,370	9	0.014	0.8
	6.0	20,100	31	0.022	0.8	14,300	19	0.019	0.8	10,000	12	0.017	0.8	5,730	7	0.014	0.8
	8.0	17,800	19	0.014	0.8	12,700	11	0.019	0.8	8,900	7	0.011	0.8	5,090	4	0.010	0.8
1.0	2.0	22,300	176	0.045	1	15,900	108	0.04	1	11,100	66	0.035	1	6,370	38	0.03	1
	3.0	22,300	118	0.045	1	15,900	73	0.04	1	11,100	44	0.035	1	6,370	25	0.03	1
	4.0	20,100	67	0.036	1	14,300	41	0.032	1	10,000	25	0.028	1	5,730	14	0.024	1
	5.0	20,100	56	0.036	1	14,300	34	0.032	1	10,000	21	0.028	1	5,730	12	0.024	1
	6.0	17,800	43	0.027	1	12,700	26	0.024	1	8,910	16	0.021	1	5,090	9	0.018	1
	7.0	17,800	37	0.027	1	12,700	23	0.024	1	8,910	14	0.021	1	5,090	8	0.018	1

ion Depo Type U Series

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IULSH-2, IULS-2
Model number:IULSH-2, IULS-2

ロングネックスクエアエンドミル Long Neck Square End Mills

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61 (~50HRC)				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61 (~55HRC)				焼き入れ鋼 Hardened Steels SKD11/SKH51 (~62HRC)			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	8.0	16,000	28	0.027	1	11,500	17	0.024	1	8,020	11	0.021	1	4,580	6	0.018	1
	9.0	16,000	24	0.018	1	11,500	15	0.016	1	8,020	9	0.014	1	4,580	5	0.012	1
	10.0	14,300	19	0.018	1	10,200	11	0.016	1	7,130	7	0.014	1	4,070	4	0.012	1
	12.0	14,300	14	0.014	1	10,200	8	0.012	1	7,130	5	0.011	1	4,070	3	0.009	1
1.2	6.0	16,700	56	0.043	1.2	11,900	34	0.019	1.2	8,360	21	0.034	1.2	4,770	12	0.029	1.2
	8.0	14,900	39	0.032	1.2	10,600	24	0.019	1.2	7,430	15	0.025	1.2	4,240	8	0.022	1.2
	10.0	13,400	27	0.022	1.2	9,550	17	0.019	1.2	6,680	10	0.017	1.2	3,820	6	0.014	1.2
	12.0	11,900	19	0.022	1.2	8,490	11	0.019	1.2	5,940	7	0.017	1.2	3,400	4	0.014	1.2
	16.0	11,900	11	0.011	1.2	8,490	7	0.019	1.2	5,940	4	0.008	1.2	3,400	2	0.007	1.2
1.4	6.0	14,300	67	0.050	1.4	10,200	41	0.019	1.4	7,160	25	0.039	1.4	4,090	14	0.034	1.4
	12.0	11,500	26	0.025	1.4	8,190	16	0.019	1.4	5,730	10	0.020	1.4	3,270	6	0.017	1.4
1.5	4	14,900	176	0.068	1.5	10,600	108	0.06	1.5	7,430	66	0.053	1.5	4,240	38	0.045	1.5
	6	13,400	67	0.054	1.5	9,550	41	0.048	1.5	6,680	25	0.042	1.5	3,820	14	0.036	1.5
	8	11,900	47	0.041	1.5	8,490	29	0.036	1.5	5,940	18	0.032	1.5	3,400	10	0.027	1.5
	10	11,900	39	0.041	1.5	8,490	24	0.036	1.5	5,940	14	0.032	1.5	3,400	8	0.027	1.5
	12	10,700	28	0.041	1.5	7,640	17	0.036	1.5	5,350	11	0.032	1.5	3,060	6	0.027	1.5
	14	9,500	21	0.027	1.5	6,790	13	0.024	1.5	4,750	8	0.021	1.5	2,720	4	0.018	1.5
	16	9,500	17	0.020	1.5	6,790	10	0.018	1.5	4,750	6	0.016	1.5	2,720	4	0.014	1.5
1.6	6	12,500	106	0.058	1.6	8,950	65	0.051	1.6	6,270	40	0.045	1.6	3,580	23	0.038	1.6
	8	12,500	56	0.058	1.6	8,950	34	0.051	1.6	6,270	21	0.045	1.6	3,580	12	0.038	1.6
1.8	6	11,100	106	0.065	1.8	7,960	65	0.058	1.8	5,570	40	0.050	1.8	3,180	23	0.043	1.8
	8	11,100	67	0.065	1.8	7,960	41	0.058	1.8	5,570	25	0.050	1.8	3,180	14	0.043	1.8
	10	9,900	46	0.049	1.8	7,070	28	0.043	1.8	4,950	17	0.038	1.8	2,830	10	0.032	1.8
	12	9,900	39	0.049	1.8	7,070	24	0.043	1.8	4,950	14	0.038	1.8	2,830	8	0.032	1.8
	14	8,910	29	0.049	1.8	6,370	18	0.043	1.8	4,460	11	0.038	1.8	2,550	6	0.032	1.8
	16	8,910	25	0.032	1.8	6,370	15	0.029	1.8	4,460	9	0.025	1.8	2,550	5	0.022	1.8
2	4	11,100	176	0.09	2	7,960	108	0.08	2	5,570	66	0.07	2	3,180	38	0.06	2
	6	11,100	118	0.09	2	7,960	73	0.08	2	5,570	44	0.07	2	3,180	25	0.06	2
	8	10,030	67	0.072	2	7,160	41	0.064	2	5,010	25	0.056	2	2,860	14	0.048	2
	10	10,030	56	0.072	2	7,160	34	0.064	2	5,010	21	0.056	2	2,860	12	0.048	2
	12	8,910	43	0.054	2	6,370	26	0.048	2	4,460	16	0.042	2	2,550	9	0.036	2
	14	8,910	37	0.054	2	6,370	23	0.048	2	4,460	14	0.042	2	2,550	8	0.036	2
	16	8,020	28	0.054	2	5,730	17	0.048	2	4,010	11	0.042	2	2,290	6	0.036	2
	18	8,020	24	0.036	2	5,730	15	0.032	2	4,010	9	0.028	2	2,290	5	0.024	2
	20	7,130	19	0.036	2	5,090	11	0.032	2	3,570	7	0.028	2	2,040	4	0.024	2
2.5	8	8,020	106	0.09	2.5	5,730	65	0.08	2.5	4,010	40	0.07	2.5	2,290	23	0.06	2.5
	12	8,020	67	0.09	2.5	5,730	41	0.08	2.5	4,010	25	0.07	2.5	2,290	14	0.06	2.5
	16	7,130	40	0.068	2.5	5,090	25	0.06	2.5	3,570	15	0.053	2.5	2,040	9	0.045	2.5
	20	6,420	28	0.068	2.5	4,580	17	0.06	2.5	3,210	11	0.053	2.5	1,830	6	0.045	2.5
3	8	7,430	176	0.135	3	5,310	108	0.12	3	3,710	66	0.105	3	2,120	38	0.09	3
	12	6,680	67	0.108	3	4,770	41	0.096	3	3,340	25	0.084	3	1,910	14	0.072	3
	16	5,940	47	0.081	3	4,240	29	0.072	3	2,970	18	0.063	3	1,700	10	0.054	3
	20	5,940	39	0.081	3	4,240	24	0.072	3	2,970	14	0.063	3	1,700	8	0.054	3

ロングネックスクエアエンドミル Long Neck Square End Mills

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61 (~50HRC)				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61 (~55HRC)				焼き入れ鋼 Hardened Steels SKD11/SKH51 (~62HRC)			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
3	25	5,350	27	0.054	3	3,820	17	0.048	3	2,670	10	0.042	3	1,530	6	0.036	3
	30	4,750	19	0.054	3	3,400	11	0.048	3	2,380	7	0.042	3	1,360	4	0.036	3
4	10	5,570	176	0.18	4	3,980	108	0.16	4	2,790	66	0.14	4	1,590	38	0.12	4
	15	5,010	106	0.144	4	3,580	65	0.128	4	2,510	40	0.112	4	1,430	23	0.096	4
	20	5,010	56	0.144	4	3,580	34	0.128	4	2,510	21	0.112	4	1,430	12	0.096	4
5	15	4,460	118	0.225	5	3,180	72	0.2	5	2,230	44	0.175	5	1,270	25	0.15	5
	20	4,010	67	0.18	5	2,860	41	0.16	5	2,010	25	0.14	5	1,150	14	0.12	5
6	15	3,710	176	0.27	6	2,650	108	0.24	6	1,860	66	0.21	6	1,060	38	0.18	6
	20	3,340	106	0.216	6	2,390	65	0.192	6	1,670	40	0.168	6	950	23	0.144	6
	30	3,340	56	0.216	6	2,390	34	0.192	6	1,670	21	0.168	6	950	12	0.144	6

ion Depo Type U Series

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IULSH-4, IULS-4
Model number:IULSH-4, IULS-4

ロングネックスクエアエンドミル Long Neck Square End Mills

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61 (~50HRC)				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61 (~55HRC)				焼き入れ鋼 Hardened Steels SKD11/SKH51 (~62HRC)			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	4.0	20,100	67	0.032	1	14,300	41	0.028	1	10,000	25	0.024	1	5,730	14	0.02	1
	6.0	17,800	43	0.024	1	12,700	26	0.021	1	8,910	16	0.018	1	5,090	9	0.015	1
	8.0	16,000	28	0.024	1	11,500	17	0.021	1	8,020	11	0.018	1	4,580	6	0.015	1
	10.0	14,300	19	0.016	1	10,200	11	0.014	1	7,130	7	0.012	1	4,070	4	0.01	1
1.2	6.0	16,700	67	0.038	1.2	11,900	41	0.034	1.2	8,360	25	0.029	1.2	4,770	14	0.024	1.2
	8.0	14,900	39	0.029	1.2	10,600	24	0.025	1.2	7,430	15	0.022	1.2	4,240	8	0.018	1.2
	10.0	13,400	27	0.019	1.2	9,550	17	0.017	1.2	6,680	10	0.014	1.2	3,820	6	0.012	1.2
	12.0	11,900	19	0.019	1.2	8,490	11	0.017	1.2	5,940	7	0.014	1.2	3,400	4	0.012	1.2
1.5	6.0	13,400	67	0.048	1.5	9,550	41	0.042	1.5	6,680	25	0.036	1.5	3,820	14	0.03	1.5
	8.0	11,900	47	0.036	1.5	8,490	29	0.032	1.5	5,940	18	0.027	1.5	3,400	10	0.023	1.5
	10.0	11,900	39	0.036	1.5	8,490	24	0.032	1.5	5,940	14	0.027	1.5	3,400	8	0.023	1.5
	12.0	10,700	28	0.036	1.5	7,640	17	0.032	1.5	5,350	11	0.027	1.5	3,060	6	0.023	1.5
	14.0	9,510	21	0.024	1.5	6,790	13	0.021	1.5	4,750	8	0.018	1.5	2,720	4	0.015	1.5
	16.0	9,510	17	0.018	1.5	6,790	10	0.016	1.5	4,750	6	0.014	1.5	2,720	4	0.011	1.5
1.8	6.0	11,100	106	0.058	1.8	7,960	65	0.050	1.8	5,570	40	0.043	1.8	3,180	23	0.036	1.8
	8.0	11,100	67	0.058	1.8	7,960	41	0.050	1.8	5,570	25	0.043	1.8	3,180	14	0.036	1.8
	10.0	9,900	46	0.043	1.8	7,070	28	0.038	1.8	4,950	17	0.032	1.8	2,830	10	0.027	1.8
	12.0	9,900	39	0.043	1.8	7,070	24	0.038	1.8	4,950	14	0.032	1.8	2,830	8	0.027	1.8
	14.0	8,910	29	0.043	1.8	6,370	18	0.038	1.8	4,460	11	0.032	1.8	2,550	6	0.027	1.8
	16.0	8,910	25	0.029	1.8	6,370	15	0.025	1.8	4,460	9	0.022	1.8	2,550	5	0.018	1.8
2.0	6.0	11,100	118	0.08	2	7,960	73	0.07	2	5,570	44	0.06	2	3,180	25	0.05	2
	8.0	10,000	67	0.064	2	7,160	41	0.056	2	5,010	25	0.048	2	2,860	14	0.04	2
	10.0	10,000	56	0.064	2	7,160	34	0.056	2	5,010	21	0.048	2	2,860	12	0.04	2
	12.0	8,910	43	0.048	2	6,370	26	0.042	2	4,460	16	0.036	2	2,550	9	0.03	2
	14.0	8,910	37	0.048	2	6,370	23	0.042	2	4,460	14	0.036	2	2,550	8	0.03	2
	16.0	8,020	28	0.048	2	5,730	17	0.042	2	4,010	11	0.036	2	2,290	6	0.03	2
	18.0	8,020	24	0.032	2	5,730	15	0.028	2	4,010	9	0.024	2	2,290	5	0.02	2
	20.0	7,130	19	0.032	2	5,090	11	0.028	2	3,570	7	0.024	2	2,040	4	0.02	2
2.5	8.0	8,020	118	0.08	2.5	5,730	73	0.07	2.5	4,010	44	0.06	2.5	2,290	25	0.05	2.5
	12.0	8,020	67	0.08	2.5	5,730	41	0.07	2.5	4,010	25	0.06	2.5	2,290	14	0.05	2.5
	16.0	7,130	40	0.06	2.5	5,090	25	0.053	2.5	3,570	15	0.045	2.5	2,040	9	0.038	2.5
	20.0	6,420	28	0.06	2.5	4,580	17	0.053	2.5	3,210	11	0.045	2.5	1,830	6	0.038	2.5
3	8.0	7,430	176	0.12	3	5,310	108	0.105	3	3,710	66	0.09	3	2,120	38	0.075	3
	12.0	6,680	67	0.096	3	4,770	41	0.084	3	3,340	25	0.072	3	1,910	14	0.06	3
	16.0	5,940	47	0.072	3	4,240	29	0.063	3	2,970	18	0.054	3	1,700	10	0.045	3
	20.0	5,940	39	0.072	3	4,240	24	0.063	3	2,970	14	0.054	3	1,700	8	0.045	3
	25.0	5,350	27	0.048	3	3,820	17	0.042	3	2,670	10	0.036	3	1,530	6	0.03	3
	30.0	4,750	19	0.048	3	3,400	11	0.042	3	2,380	7	0.036	3	1,360	4	0.03	3
4	12.0	5,570	118	0.16	4	3,980	73	0.14	4	2,790	44	0.12	4	1,590	25	0.1	4
	16.0	5,010	67	0.128	4	3,580	41	0.112	4	2,510	25	0.096	4	1,430	14	0.08	4
	20.0	5,010	56	0.128	4	3,580	34	0.112	4	2,510	21	0.096	4	1,430	12	0.08	4
	25.0	4,460	41	0.096	4	3,180	25	0.084	4	2,230	15	0.072	4	1,270	9	0.06	4
	30.0	4,010	31	0.096	4	2,860	19	0.084	4	2,010	12	0.072	4	1,150	7	0.06	4

ロングネックスクエアエンドミル Long Neck Square End Mills

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）				焼き入れ鋼 Hardened Steels SKD11/SKH51（~62HRC）			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
4	35.0	4,010	25	0.064	4	2,860	15	0.056	4	2,010	10	0.048	4	1,150	5	0.04	4
5	16.0	4,010	106	0.16	5	2,860	65	0.14	5	2,010	40	0.12	5	1,150	23	0.1	5
	25.0	4,010	56	0.16	5	2,860	34	0.14	5	2,010	21	0.12	5	1,150	12	0.1	5
	35.0	3,570	37	0.12	5	2,550	23	0.105	5	1,780	14	0.09	5	1,020	8	0.075	5
6	20.0	3,340	106	0.192	6	2,390	65	0.168	6	1,670	40	0.144	6	950	23	0.12	6
	30.0	3,340	56	0.192	6	2,390	34	0.168	6	1,670	21	0.144	6	950	12	0.12	6
	40.0	2,970	39	0.144	6	2,120	24	0.126	6	1,490	15	0.108	6	850	8	0.09	6
	50.0	2,670	27	0.096	6	1,910	17	0.084	6	1,340	10	0.072	6	760	6	0.06	6

ion Depo Type U Series

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IURH-4, IUR-4
Model number:IURH-4, IUR-4

ラジアスエンドミル Radius End Mills
側面 Side Milling

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
3.0	6.0	4,780	190	3	0.3	3,190	125	3	0.06	2,760	100	2.4	0.04
4.0	8.0	3,580	200	4	0.4	2,390	130	4	0.08	2,070	105	3.2	0.05
6.0	12.0	2,390	210	6	0.6	1,590	140	6	0.12	1,380	110	4.8	0.07
8.0	16.0	1,790	200	8	0.8	1,200	130	8	0.16	1,040	105	6.4	0.10
10.0	20.0	1,430	190	10	1.0	960	125	10	0.20	830	100	8.0	0.12
12.0	24.0	1,140	170	12	1.2	760	115	12	0.24	660	90	9.6	0.14

ラジアスエンドミル Radius End Mills
溝 Slotting

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）				焼き入れ鋼 Hardened Steels SKD11/SKH51（~62HRC）			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
3.0	6.0	4,780	190	0.4	3	3,190	140	0.2	3	2,760	110	0.09	3	2,660	95	0.08	3
4.0	8.0	3,580	200	0.6	4	2,390	150	0.3	4	2,070	115	0.12	4	1,990	100	0.10	4
6.0	12.0	2,390	210	1.2	6	1,590	155	0.6	6	1,380	120	0.18	6	1,330	105	0.15	6
8.0	16.0	1,790	200	1.6	8	1,200	150	0.8	8	1,040	115	0.24	8	1,000	100	0.20	8
10.0	20.0	1,430	190	2.0	10	960	140	1.0	10	830	110	0.30	10	800	95	0.25	10
12.0	24.0	1,140	170	2.4	12	760	130	1.2	12	660	100	0.36	12	630	85	0.30	12

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IUR-6
Model number:IUR-6

ラジアスエンドミル Radius End Mills
側面 Side Milling

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
5.0	10.0	3,500	595	5	0.15	1,910	235	5	0.15	1,590	150	5	0.10
6.0	12.0	2,920	605	6	0.18	1,590	240	6	0.18	1,330	150	6	0.12
8.0	16.0	2,190	605	8	0.24	1,200	240	8	0.24	1,000	150	8	0.16
10.0	20.0	1,750	595	10	0.30	960	235	10	0.30	800	150	10	0.20
12.0	24.0	1,460	580	12	0.36	800	230	12	0.36	670	145	12	0.24

ラジアスエンドミル Radius End Mills
溝 Slotting

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）				焼き入れ鋼 Hardened Steels SKD11/SKH51（~62HRC）			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
5.0	10.0	3,820	650	0.5	5.0	2,550	315	0.3	5.0	1,910	255	0.1	5.0	1,280	140	0.1	5.0
6.0	12.0	3,190	660	0.6	6.0	2,120	320	0.3	6.0	1,590	260	0.1	6.0	1,060	140	0.1	6.0
8.0	16.0	2,390	660	0.8	8.0	1,590	320	0.4	8.0	1,200	260	0.2	8.0	800	140	0.1	8.0
10.0	20.0	1,910	650	1.0	10.0	1,280	315	0.5	10.0	960	255	0.2	10.0	640	140	0.1	10.0
12.0	24.0	1,590	630	1.2	12.0	1,060	305	0.6	12.0	800	245	0.2	12.0	530	135	0.1	12.0

ion Depo Type U Series

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IULRH-2, IULR-2
Model number:IULRH-2, IULR-2

ロングネックラジアスエンドミル Long Neck Radius End Mills

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）				焼き入れ鋼 Hardened Steels SKD11/SKH51（~62HRC）				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72（62HRC以上）			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.2	0.5	31,800	165	0.003	0.16	31,100	160	0.003	0.08	30,500	160	0.003	0.04	30,200	155	0.003	0.02	27,200	115	0.002	0.014
	1.0	27,000	125	0.002	0.13	26,500	125	0.002	0.06	26,000	120	0.002	0.03	25,700	115	0.002	0.02	23,100	85	0.001	0.01
0.3	1.0	33,400	280	0.003	0.32	32,800	275	0.003	0.16	32,100	270	0.003	0.08	31,800	265	0.003	0.04	28,600	195	0.002	0.028
	1.5	28,400	215	0.003	0.32	27,900	210	0.003	0.16	27,300	205	0.003	0.08	27,000	155	0.003	0.04	24,300	145	0.001	0.022
	2.0	28,400	195	0.003	0.24	27,900	190	0.003	0.12	27,300	185	0.003	0.06	27,000	105	0.003	0.03	24,300	135	0.001	0.018
	2.5	28,400	175	0.002	0.24	27,900	170	0.002	0.12	27,300	165	0.002	0.06	27,000	70	0.002	0.03	24,300	120	0.001	0.014
	3.0	28,400	155	0.002	0.2	27,900	155	0.002	0.1	27,300	150	0.002	0.05	27,000	45	0.002	0.03	24,300	105	0.001	0.012
0.4	1.0	32,500	445	0.005	0.4	33,700	405	0.005	0.2	30,600	370	0.005	0.1	27,800	335	0.005	0.05	25,100	240	0.004	0.032
	1.5	31,500	340	0.005	0.32	28,600	310	0.005	0.16	26,000	280	0.005	0.08	23,900	260	0.005	0.05	21,300	185	0.003	0.026
	2.0	31,500	305	0.004	0.29	28,600	280	0.004	0.14	26,000	255	0.004	0.07	23,400	225	0.004	0.05	18,800	145	0.002	0.02
	2.5	31,500	275	0.004	0.23	28,600	250	0.004	0.12	26,000	230	0.004	0.06	22,800	200	0.003	0.05	21,300	150	0.001	0.016
	3.0	31,500	250	0.003	0.18	28,600	225	0.003	0.09	26,000	205	0.003	0.05	22,300	175	0.002	0.05	18,800	120	0.001	0.014
0.5	1.0	30,900	465	0.024	0.34	28,100	420	0.016	0.23	25,600	385	0.011	0.15	23,200	350	0.007	0.1	20,900	250	0.005	0.076
	2.0	26,300	355	0.019	0.27	23,900	325	0.013	0.18	21,700	295	0.008	0.12	19,700	265	0.006	0.08	17,800	190	0.003	0.06
	3.0	23,200	190	0.015	0.23	21,100	170	0.01	0.15	19,200	155	0.007	0.1	18,600	225	0.004	0.07	15,700	100	0.002	0.048
	4.0	23,200	115	0.011	0.2	21,100	100	0.007	0.13	19,200	95	0.005	0.09	17,400	190	0.003	0.06	15,700	60	0.002	0.038
0.6	2.0	30,300	510	0.041	0.33	27,500	465	0.026	0.25	25,000	420	0.016	0.2	22,700	380	0.01	0.15	20,500	275	0.007	0.098
	4.0	21,900	355	0.029	0.26	19,900	325	0.018	0.2	18,100	295	0.011	0.16	19,100	285	0.007	0.12	14,800	190	0.005	0.078
	6.0	21,900	320	0.02	0.21	19,900	290	0.013	0.16	18,100	265	0.008	0.12	18,000	220	0.005	0.1	13,100	100	0.003	0.062
0.8	2.0	29,100	885	0.068	0.54	26,500	805	0.045	0.36	24,100	730	0.03	0.24	21,900	665	0.02	0.16	19,700	480	0.014	0.136
	4.0	27,700	755	0.054	0.49	25,100	690	0.036	0.32	22,900	625	0.024	0.22	20,800	570	0.015	0.14	18,700	410	0.011	0.122
	6.0	23,300	575	0.038	0.41	21,200	520	0.025	0.28	19,300	475	0.017	0.18	17,500	430	0.011	0.12	15,700	310	0.007	0.104
	8.0	17,500	385	0.023	0.35	15,900	350	0.015	0.23	14,400	320	0.01	0.16	13,100	290	0.007	0.1	11,800	210	0.005	0.088

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IULRH-3, IULR-3
Model number:IULRH-3, IULR-3

ロングネックラジアスエンドミル Long Neck Radius End Mills

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）				焼き入れ鋼 Hardened Steels SKD11/SKH51（~62HRC）				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72（62HRC以上）			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.6	2.0	30,300	765	0.025	0.21	27,600	695	0.02	0.2	26,300	660	0.016	0.2	23,900	600	0.01	0.15	19,100	385	0.007	0.1
	4.0	25,800	585	0.018	0.17	23,400	530	0.014	0.16	22,300	505	0.011	0.16	20,300	460	0.007	0.12	16,200	295	0.005	0.08
	6.0	22,700	310	0.012	0.14	20,700	280	0.01	0.12	19,700	270	0.008	0.12	17,900	245	0.005	0.1	14,300	155	0.003	0.06
0.8	2.0	30,300	1,385	0.047	0.25	27,600	1,255	0.038	0.22	26,300	1,195	0.03	0.22	23,900	1,090	0.02	0.16	19,100	695	0.014	0.14
	4.0	28,800	1,185	0.035	0.22	26,200	1,075	0.028	0.2	24,900	1,025	0.023	0.2	22,700	930	0.015	0.14	18,100	595	0.011	0.12
	6.0	24,300	895	0.025	0.19	22,100	815	0.02	0.17	21,000	775	0.016	0.17	19,100	705	0.011	0.12	15,300	450	0.007	0.1
	8.0	18,200	605	0.017	0.16	16,500	550	0.014	0.15	15,700	525	0.011	0.15	14,300	475	0.007	0.1	11,500	305	0.005	0.09

ion Depo Type U Series

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IULRH-4, IULR-4
Model number:IULRH-4, IULR-4

ロングネックラジアスエンドミル Long Neck Radius End Mills

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61 (~50HRC)				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61 (~55HRC)				焼き入れ鋼 Hardened Steels SKD11/SKH51 (~62HRC)				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72 (62HRC以上)			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2	30,200	1,650	0.080	0.35	27,600	1,505	0.065	0.32	25,200	1,375	0.050	0.30	21,000	1,145	0.040	0.25	16,800	825	0.026	0.20
	3	28,700	1,565	0.080	0.35	26,200	1,430	0.065	0.32	23,900	1,305	0.050	0.30	19,900	1,090	0.040	0.25	16,000	785	0.026	0.20
	4	26,000	1,415	0.040	0.32	23,700	1,295	0.040	0.29	21,700	1,180	0.040	0.28	18,100	985	0.030	0.22	14,400	710	0.020	0.18
	5	23,000	1,250	0.030	0.32	21,000	1,145	0.030	0.29	19,100	1,045	0.030	0.28	16,000	870	0.020	0.22	12,800	625	0.014	0.18
	6	20,200	1,105	0.020	0.30	18,500	1,010	0.020	0.27	16,900	920	0.020	0.26	14,100	765	0.010	0.20	11,200	550	0.006	0.16
	8	18,700	970	0.015	0.28	17,100	885	0.015	0.25	15,600	810	0.015	0.24	13,000	675	0.008	0.16	10,400	485	0.006	0.13
	10	15,700	775	0.010	0.25	14,300	705	0.010	0.23	13,100	645	0.010	0.22	10,900	535	0.006	0.12	8,740	385	0.004	0.10
1.2	5	26,700	1,750	0.040	0.40	24,400	1,595	0.040	0.37	22,300	1,460	0.040	0.35	18,600	1,215	0.030	0.25	14,800	875	0.020	0.20
	10	17,400	1,135	0.020	0.35	15,900	1,040	0.020	0.32	14,500	950	0.020	0.30	12,100	710	0.016	0.22	9,660	510	0.010	0.18
1.5	3	26,300	2,200	0.050	0.58	25,000	2,095	0.050	0.53	23,900	1,995	0.050	0.50	20,700	1,735	0.040	0.40	16,600	1,250	0.026	0.32
	4	24,200	1,980	0.045	0.52	23,100	1,885	0.045	0.47	22,000	1,795	0.045	0.45	19,100	1,560	0.036	0.35	15,300	1,125	0.022	0.28
	6	21,500	1,760	0.035	0.35	20,500	1,675	0.035	0.32	19,500	1,595	0.035	0.30	17,000	1,390	0.030	0.25	13,600	1,000	0.020	0.20
	8	18,800	1,540	0.045	0.35	17,900	1,465	0.035	0.32	17,100	1,395	0.030	0.30	14,800	1,215	0.026	0.22	11,900	875	0.016	0.18
	12	14,800	1,210	0.025	0.29	14,100	1,155	0.025	0.26	13,400	1,100	0.025	0.25	11,700	955	0.020	0.18	9,340	685	0.014	0.14
	15	12,100	890	0.020	0.21	11,500	850	0.020	0.19	11,000	810	0.020	0.18	9,550	705	0.010	0.15	7,640	505	0.006	0.12
2.0	4	25,200	2,745	0.085	0.69	23,000	2,510	0.070	0.63	21,000	2,290	0.060	0.60	17,500	1,910	0.050	0.50	14,000	1,375	0.032	0.40
	6	22,400	2,445	0.085	0.69	20,500	2,235	0.070	0.63	18,700	2,040	0.060	0.60	15,600	1,700	0.050	0.50	12,500	1,225	0.032	0.40
	8	20,900	2,280	0.070	0.69	19,100	2,080	0.060	0.63	17,400	1,900	0.050	0.60	14,500	1,585	0.040	0.50	11,600	1,140	0.026	0.40
	12	16,400	1,785	0.050	0.55	14,900	1,630	0.045	0.50	13,600	1,490	0.035	0.48	11,400	1,240	0.030	0.40	9,110	895	0.020	0.32
	16	14,100	1,385	0.035	0.42	12,900	1,265	0.030	0.38	11,800	1,155	0.025	0.36	9,810	960	0.020	0.30	7,850	695	0.014	0.24
	20	10,600	885	0.015	0.42	9,660	805	0.015	0.38	8,830	735	0.010	0.36	7,360	615	0.010	0.30	5,880	440	0.006	0.24
2.5	10	21,100	2,870	0.085	0.69	19,200	2,625	0.070	0.63	17,600	2,395	0.060	0.60	14,600	1,995	0.050	0.50	11,700	1,435	0.032	0.40
	20	14,300	1,760	0.050	0.55	13,100	1,605	0.045	0.50	11,900	1,465	0.035	0.48	9,960	1,220	0.030	0.40	7,970	880	0.020	0.32
3.0	4	18,300	2,995	0.120	0.97	16,700	2,735	0.100	0.88	15,300	2,500	0.085	0.84	12,700	2,085	0.070	0.70	10,200	1,500	0.046	0.56
	6	15,600	2,550	0.120	0.97	14,200	2,325	0.100	0.88	13,000	2,125	0.085	0.84	10,800	1,770	0.070	0.70	8,660	1,275	0.046	0.56
	8	13,400	2,190	0.105	0.83	12,200	2,000	0.085	0.76	11,100	1,825	0.070	0.72	9,300	1,520	0.060	0.60	7,440	1,095	0.040	0.48
	12	13,400	2,190	0.085	0.69	12,200	2,000	0.070	0.63	11,100	1,825	0.060	0.60	9,300	1,520	0.050	0.50	7,440	1,095	0.032	0.40
	16	11,900	1,950	0.085	0.55	10,900	1,780	0.070	0.50	9,930	1,625	0.060	0.48	8,280	1,355	0.050	0.40	6,620	975	0.032	0.32
	20	9,900	1,455	0.070	0.55	9,040	1,330	0.060	0.50	8,250	1,215	0.050	0.48	6,880	1,010	0.040	0.40	5,500	730	0.026	0.32
	25	9,160	1,215	0.050	0.42	8,370	1,110	0.045	0.38	7,640	1,010	0.035	0.36	6,370	845	0.030	0.30	5,100	605	0.020	0.24
	30	7,700	865	0.035	0.42	7,030	790	0.030	0.38	6,420	725	0.025	0.36	5,350	600	0.020	0.30	4,280	435	0.014	0.24
4.0	8	12,600	2,745	0.140	1.39	11,500	2,510	0.115	1.26	10,500	2,290	0.095	1.20	8,760	1,910	0.080	1.00	7,010	1,375	0.052	0.80
	12	12,600	2,745	0.120	1.11	11,500	2,510	0.100	1.01	10,500	2,290	0.085	0.96	8,760	1,910	0.070	0.80	7,010	1,375	0.046	0.64
	16	10,300	2,255	0.105	0.97	9,430	2,055	0.085	0.88	8,620	1,880	0.070	0.84	7,180	1,565	0.060	0.70	5,740	1,125	0.040	0.56
	24	8,190	1,785	0.070	0.83	7,480	1,630	0.060	0.76	6,830	1,490	0.050	0.72	5,690	1,240	0.040	0.60	4,550	895	0.026	0.48
	32	6,680	1,455	0.050	0.69	6,100	1,330	0.045	0.63	5,570	1,215	0.035	0.60	4,640	1,010	0.030	0.50	3,710	730	0.020	0.40
5.0	15	10,100	2,745	0.140	2.08	9,200	2,510	0.115	1.89	8,410	2,290	0.095	1.80	7,010	1,910	0.080	1.50	5,600	1,375	0.052	1.20
	20	7,860	2,145	0.120	1.66	7,180	1,955	0.100	1.51	6,560	1,785	0.085	1.44	5,460	1,490	0.070	1.20	4,370	1,070	0.046	0.96
	40	5,040	1,305	0.035	1.11	4,600	1,190	0.030	1.01	4,200	1,090	0.025	0.96	3,500	905	0.020	0.80	2,800	655	0.014	0.64
6.0	12	8,400	2,745	0.140	2.77	7,670	2,510	0.115	2.52	7,010	2,290	0.095	2.40	5,840	1,910	0.080	2.00	4,670	1,375	0.052	1.60
	18	6,890	2,255	0.140	2.77	6,290	2,055	0.115	2.52	5,740	1,880	0.095	2.40	4,790	1,565	0.080	2.00	3,830	1,125	0.052	1.60
	24	6,300	2,060	0.120	2.08	5,750	1,880	0.100	1.89	5,250	1,720	0.085	1.80	4,380	1,430	0.070	1.50	3,500	1,030	0.046	1.20
	48	3,190	990	0.050	1.39	2,920	905	0.045	1.26	2,660	825	0.035	1.20	2,220	690	0.030	1.00	1,780	495	0.020	0.80

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IUBH-2, IUB-2
Model number:IUBH-2, IUB-2

ボールエンドミル Ball End Mills

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）				焼き入れ鋼 Hardened Steels SKD11/SKH51（~62HRC）				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72（62HRC以上）			
ボール半径 (R) Ball R	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.05	0.1	50,000	125	0.007	0.02	50,000	110	0.006	0.02	50,000	95	0.005	0.01	50,000	85	0.004	0.008	50,000	74	0.003	0.006
0.1	0.2	50,000	400	0.014	0.04	50,000	350	0.012	0.04	50,000	315	0.010	0.02	50,000	280	0.008	0.016	50,000	240	0.006	0.012
0.15	0.3	50,000	450	0.021	0.06	50,000	400	0.018	0.05	50,000	360	0.015	0.03	50,000	325	0.012	0.024	50,000	290	0.009	0.018
0.2	0.6	50,000	1,025	0.028	0.08	50,000	925	0.024	0.07	50,000	840	0.020	0.04	50,000	765	0.016	0.032	50,000	690	0.012	0.024
0.25	0.8	50,000	1,250	0.035	0.10	50,000	1,140	0.030	0.09	50,000	1,045	0.025	0.05	44,560	860	0.020	0.040	42,650	750	0.015	0.030
0.3	0.9	50,000	1,500	0.042	0.12	50,000	1,380	0.036	0.11	50,000	1,285	0.030	0.06	37,130	885	0.024	0.048	35,540	780	0.018	0.036
0.4	1.2	50,000	2,250	0.056	0.16	50,000	2,095	0.048	0.14	38,190	1,500	0.040	0.08	27,850	1,030	0.032	0.064	26,650	920	0.024	0.048
0.5	1.5	50,000	2,500	0.07	0.20	40,100	1,885	0.060	0.18	30,550	1,365	0.050	0.10	22,280	945	0.040	0.080	21,320	850	0.030	0.060
0.75	2.3	38,190	2,480	0.105	0.30	26,730	1,650	0.090	0.27	20,370	1,210	0.075	0.15	14,850	845	0.060	0.120	14,210	770	0.045	0.090
1	3.0	28,640	2,290	0.14	0.40	20,050	1,540	0.120	0.36	15,270	1,135	0.100	0.20	11,140	805	0.080	0.160	10,660	740	0.060	0.120
1.25	3.8	22,910	2,175	0.175	0.50	16,040	1,475	0.150	0.45	12,220	1,100	0.125	0.25	8,910	790	0.100	0.200	8,530	730	0.075	0.150
1.5	5.0	19,090	2,100	0.21	0.60	13,360	1,440	0.180	0.54	10,180	1,075	0.150	0.30	7,420	770	0.120	0.240	7,100	720	0.090	0.180
2	6.0	14,320	2,010	0.28	0.80	10,020	1,375	0.240	0.72	7,630	1,030	0.200	0.40	5,570	735	0.160	0.320	5,330	680	0.120	0.240
2.5	8.0	11,450	1,830	0.35	1.00	8,020	1,255	0.300	0.90	6,110	935	0.250	0.50	4,450	670	0.200	0.400	4,260	620	0.150	0.300
3	10.0	9,540	1,720	0.42	1.20	6,680	1,180	0.360	1.08	5,090	880	0.300	0.60	3,710	630	0.240	0.480	3,550	590	0.180	0.360
4	12.0	7,160	1,580	0.56	1.60	5,010	1,080	0.480	1.44	3,810	805	0.400	0.80	2,780	575	0.320	0.640	2,660	540	0.240	0.480
5	15.0	5,720	1,490	0.7	2.00	4,010	1,025	0.600	1.80	3,050	765	0.500	1.00	2,220	545	0.400	0.800	2,130	510	0.300	0.600
6	20.0	4,770	1,430	0.84	2.40	3,340	980	0.720	2.16	2,540	730	0.600	1.20	1,850	525	0.480	0.960	1,770	490	0.360	0.720
8	24	3,580	1,215	1.12	3.2	2,500	835	0.96	2.88	1,900	620	0.8	1.6	1,390	445	0.64	1.28	1,330	410	0.48	0.96
9	27	3,180	1,080	1.26	3.6	2,220	740	1.08	3.24	1,690	550	0.9	1.8	1,230	395	0.72	1.44	1,180	360	0.54	1.08
10	30	2,860	975	1.4	4	2,000	665	1.2	3.6	1,520	495	1	2	1,110	355	0.8	1.6	1,060	330	0.6	1.2

ion Depo Type U Series

ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IULBH-2, IULB-2
Model number:IULBH-2, IULB-2

ロングネックボールエンドミル Long Neck Ball End Mill

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）				焼き入れ鋼 Hardened Steels SKD11/SKH51（~62HRC）				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72（62HRC以上）			
ボール半径 (R) Ball R	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.05	0.2	50,000	85	0.003	0.005	50,000	80	0.003	0.004	50,000	80	0.003	0.004	50,000	75	0.003	0.004	28,440	30	0.003	0.004
	0.3	50,000	65	0.003	0.005	50,000	60	0.003	0.004	50,000	60	0.003	0.004	50,000	55	0.003	0.004	28,440	25	0.003	0.004
	0.5	50,000	40	0.003	0.005	50,000	40	0.003	0.004	50,000	35	0.003	0.004	50,000	35	0.003	0.004	28,440	15	0.003	0.004
0.1	0.3	50,000	315	0.005	0.009	50,000	300	0.004	0.009	50,000	285	0.004	0.008	50,000	270	0.004	0.008	28,440	115	0.004	0.008
	0.5	50,000	290	0.005	0.009	50,000	275	0.004	0.009	50,000	260	0.004	0.008	50,000	245	0.004	0.008	28,440	105	0.004	0.008
	0.75	50,000	260	0.005	0.009	50,000	245	0.004	0.009	50,000	235	0.004	0.008	50,000	220	0.004	0.008	28,440	95	0.004	0.008
	1.0	50,000	245	0.005	0.009	50,000	235	0.004	0.009	50,000	220	0.004	0.008	50,000	210	0.004	0.008	28,440	90	0.004	0.008
0.2	0.5	50,000	885	0.009	0.019	50,000	840	0.009	0.018	50,000	800	0.008	0.017	50,000	755	0.008	0.016	28,440	325	0.008	0.016
	0.8	50,000	805	0.009	0.019	50,000	765	0.009	0.018	50,000	730	0.008	0.017	50,000	690	0.008	0.016	28,440	295	0.008	0.016
	1.0	50,000	725	0.009	0.019	50,000	690	0.009	0.018	50,000	655	0.008	0.017	50,000	620	0.008	0.016	28,440	265	0.008	0.016
	1.5	50,000	645	0.008	0.019	50,000	610	0.007	0.018	50,000	585	0.007	0.017	50,000	550	0.007	0.016	28,440	235	0.007	0.016
	2.0	50,000	465	0.008	0.019	50,000	445	0.007	0.018	50,000	425	0.007	0.017	47,750	380	0.007	0.016	28,440	170	0.007	0.016
	2.5	50,000	370	0.006	0.019	50,000	350	0.006	0.018	50,000	335	0.005	0.017	43,770	275	0.005	0.016	28,440	135	0.005	0.016
	3.0	50,000	290	0.006	0.019	50,000	275	0.006	0.018	50,000	260	0.005	0.017	39,790	195	0.005	0.016	28,440	105	0.005	0.016
0.25	1.0	50,000	1,120	0.012	0.023	50,000	1,065	0.011	0.022	50,000	1,015	0.011	0.021	44,560	855	0.01	0.02	28,440	410	0.01	0.02
	1.5	50,000	1,060	0.012	0.023	50,000	1,010	0.011	0.022	50,000	965	0.011	0.021	44,560	810	0.01	0.02	28,440	390	0.01	0.02
	2.0	50,000	965	0.009	0.023	50,000	920	0.009	0.022	50,000	875	0.008	0.021	41,380	685	0.008	0.02	28,440	355	0.008	0.02
	2.5	50,000	810	0.009	0.023	50,000	775	0.009	0.022	50,000	735	0.008	0.021	38,200	530	0.008	0.02	28,440	295	0.008	0.02
	3.0	50,000	635	0.007	0.023	50,000	605	0.007	0.022	48,020	555	0.006	0.021	35,010	380	0.006	0.02	28,440	235	0.006	0.02
	3.5	50,000	500	0.007	0.023	50,000	480	0.007	0.022	43,650	400	0.006	0.021	31,830	275	0.006	0.02	28,440	185	0.006	0.02
	4.0	50,000	425	0.007	0.023	50,000	405	0.007	0.022	39,290	305	0.006	0.021	28,650	210	0.006	0.02	28,440	155	0.006	0.02
0.3	1.0	50,000	1,380	0.014	0.028	50,000	1,315	0.013	0.026	50,000	1,255	0.013	0.025	37,140	880	0.012	0.024	28,440	505	0.012	0.024
	1.5	50,000	1,315	0.014	0.028	50,000	1,255	0.013	0.026	50,000	1,195	0.013	0.025	37,140	835	0.012	0.024	28,440	480	0.012	0.024
	2.0	50,000	1,290	0.011	0.028	50,000	1,230	0.010	0.026	50,000	1,170	0.010	0.025	37,140	820	0.010	0.024	28,440	470	0.010	0.024
	2.5	50,000	1,200	0.011	0.028	50,000	1,140	0.010	0.026	49,470	1,075	0.010	0.025	36,080	740	0.010	0.024	28,440	435	0.010	0.024
	3.0	50,000	1,105	0.011	0.028	50,000	1,055	0.010	0.026	48,020	965	0.010	0.025	35,010	660	0.010	0.024	28,440	405	0.010	0.024
	3.5	50,000	920	0.008	0.028	50,000	880	0.008	0.026	46,560	780	0.007	0.025	33,950	535	0.007	0.024	28,440	335	0.007	0.024
	4.0	50,000	850	0.008	0.028	50,000	805	0.008	0.026	45,110	695	0.007	0.025	32,890	475	0.007	0.024	28,440	310	0.007	0.024
	4.5	50,000	810	0.008	0.028	50,000	770	0.008	0.026	43,650	640	0.007	0.025	31,830	440	0.007	0.024	24,880	260	0.007	0.024
	5.0	50,000	775	0.006	0.028	50,000	735	0.006	0.026	40,020	560	0.005	0.025	29,180	385	0.005	0.024	21,330	210	0.005	0.024
	5.5	50,000	735	0.006	0.028	47,750	670	0.006	0.026	36,380	485	0.005	0.025	26,530	335	0.005	0.024	21,330	200	0.005	0.024
	6.0	50,000	700	0.006	0.028	42,970	575	0.006	0.026	32,740	415	0.005	0.025	23,870	285	0.005	0.024	21,330	190	0.005	0.024
0.4	2.0	50,000	1,890	0.019	0.037	50,000	1,800	0.018	0.035	38,200	1,310	0.017	0.034	27,850	900	0.016	0.032	26,660	645	0.016	0.032
	3.0	50,000	1,575	0.015	0.037	46,550	1,400	0.014	0.035	35,470	1,015	0.014	0.034	25,860	700	0.013	0.032	26,660	540	0.013	0.032
	4.0	50,000	1,315	0.015	0.037	44,400	1,110	0.014	0.035	33,830	805	0.014	0.034	24,670	555	0.013	0.032	26,660	450	0.013	0.032
	5.0	50,000	1,230	0.011	0.037	42,260	990	0.010	0.035	32,190	720	0.010	0.034	23,480	495	0.010	0.032	26,660	420	0.010	0.032
	6.0	50,000	1,120	0.011	0.037	39,390	840	0.010	0.035	30,010	610	0.010	0.034	21,880	420	0.010	0.032	21,330	305	0.010	0.032
	7.0	50,000	945	0.008	0.037	35,810	645	0.007	0.035	27,280	470	0.007	0.034	19,890	320	0.007	0.032	21,330	260	0.007	0.032
	8.0	46,040	695	0.008	0.037	32,230	465	0.007	0.035	24,560	335	0.007	0.034	17,900	230	0.007	0.032	21,330	205	0.007	0.032
0.5	2.0	50,000	2,455	0.023	0.046	40,110	1,875	0.022	0.044	30,560	1,360	0.021	0.042	22,280	935	0.02	0.04	21,330	670	0.02	0.04
	2.5	50,000	2,045	0.023	0.046	40,110	1,560	0.022	0.044	30,560	1,135	0.021	0.042	22,280	780	0.02	0.04	21,330	560	0.02	0.04
	3.0	50,000	1,555	0.023	0.046	40,110	1,185	0.022	0.044	30,560	860	0.021	0.042	22,280	595	0.02	0.04	21,330	425	0.02	0.04
	4.0	50,000	1,450	0.019	0.046	37,240	1,030	0.018	0.044	28,380	745	0.017	0.042	20,690	515	0.016	0.04	21,330	395	0.016	0.04

ロングネックボールエンドミル Long Neck Ball End Mill

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）				焼き入れ鋼 Hardened Steels SKD11/SKH51（~62HRC）				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72（62HRC以上）			
ボール半径 (R) Ball R	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.5	5.0	49,110	1,365	0.019	0.046	34,380	910	0.018	0.044	26,190	660	0.017	0.042	19,100	455	0.016	0.04	17,770	315	0.016	0.04
	6.0	46,660	1,270	0.014	0.046	32,660	850	0.013	0.044	24,880	615	0.013	0.042	18,140	425	0.012	0.04	17,770	310	0.012	0.04
	7.0	44,200	1,115	0.014	0.046	30,940	745	0.013	0.044	23,570	540	0.013	0.042	17,190	370	0.012	0.04	17,770	290	0.012	0.04
	8.0	42,560	1,070	0.014	0.046	29,790	715	0.013	0.044	22,700	520	0.013	0.042	16,550	355	0.012	0.04	17,770	285	0.012	0.04
	9.0	39,290	780	0.009	0.046	27,500	520	0.009	0.044	20,950	380	0.008	0.042	15,280	260	0.008	0.04	14,220	180	0.008	0.04
	10.0	36,830	725	0.009	0.046	25,780	485	0.009	0.044	19,640	350	0.008	0.042	14,320	240	0.008	0.04	14,220	180	0.008	0.04
	12.0	34,380	550	0.007	0.046	24,060	370	0.007	0.044	18,330	265	0.006	0.042	13,370	185	0.006	0.04	12,800	130	0.006	0.04
0.6	2.4	47,750	3,140	0.028	0.056	33,420	2,095	0.026	0.053	25,460	1,520	0.025	0.050	18,570	1,045	0.024	0.048	17,770	750	0.024	0.048
	4.0	47,750	2,345	0.022	0.056	33,420	1,560	0.021	0.053	25,460	1,135	0.020	0.050	18,570	780	0.019	0.048	17,770	560	0.019	0.048
	6.0	44,340	1,815	0.022	0.056	31,040	1,210	0.021	0.053	23,650	875	0.020	0.050	17,240	605	0.019	0.048	17,770	465	0.019	0.048
	8.0	40,930	1,540	0.017	0.056	28,650	1,025	0.016	0.053	21,830	745	0.015	0.050	15,920	515	0.015	0.048	17,770	430	0.015	0.048
	10.0	36,670	1,200	0.011	0.056	25,670	800	0.010	0.053	19,560	580	0.010	0.050	14,260	400	0.010	0.048	13,650	285	0.010	0.048
	12.0	32,090	945	0.011	0.056	22,460	630	0.010	0.053	17,110	455	0.010	0.050	12,480	315	0.010	0.048	11,940	225	0.010	0.048
0.75	3.0	38,200	3,630	0.035	0.069	26,740	2,420	0.033	0.066	20,370	1,535	0.032	0.063	14,850	1,055	0.03	0.06	14,220	760	0.03	0.06
	4.0	38,200	2,245	0.035	0.069	26,740	1,495	0.033	0.066	20,370	950	0.032	0.063	14,850	655	0.03	0.06	14,220	470	0.03	0.06
	6.0	36,010	2,030	0.028	0.069	25,210	1,355	0.026	0.066	19,210	860	0.025	0.063	14,010	590	0.024	0.06	14,220	450	0.024	0.06
	8.0	33,830	1,800	0.021	0.069	23,680	1,200	0.020	0.066	18,040	760	0.019	0.063	13,160	525	0.018	0.06	14,220	425	0.018	0.06
	10.0	31,100	1,505	0.021	0.069	21,770	1,000	0.020	0.066	16,590	635	0.019	0.063	12,100	440	0.018	0.06	14,220	385	0.018	0.06
	12.0	28,920	1,110	0.021	0.069	20,240	740	0.020	0.066	15,420	470	0.019	0.063	11,250	325	0.018	0.06	14,220	305	0.018	0.06
	14.0	26,740	975	0.014	0.069	18,720	650	0.013	0.066	14,260	415	0.013	0.063	10,400	285	0.012	0.06	12,800	265	0.012	0.06
	16.0	24,560	850	0.010	0.069	17,190	565	0.010	0.066	13,100	360	0.009	0.063	9,550	245	0.009	0.06	8,530	165	0.009	0.06
0.8	8.0	35,810	3,495	0.030	0.074	25,070	2,330	0.028	0.071	19,100	1,480	0.027	0.067	13,930	1,020	0.026	0.064	13,330	730	0.026	0.064
	12.0	33,250	2,550	0.022	0.074	23,280	1,700	0.021	0.071	17,730	1,080	0.020	0.067	12,930	745	0.019	0.064	13,330	575	0.019	0.064
	16.0	25,210	1,280	0.015	0.074	17,650	855	0.014	0.071	13,450	540	0.014	0.067	9,800	370	0.013	0.064	9,380	265	0.013	0.064
1	3.0	28,650	3,490	0.046	0.093	20,050	2,325	0.044	0.088	15,280	1,475	0.042	0.084	11,140	1,015	0.04	0.08	10,660	730	0.04	0.08
	4.0	28,650	2,615	0.046	0.093	20,050	1,745	0.044	0.088	15,280	1,110	0.042	0.084	11,140	760	0.04	0.08	10,660	545	0.04	0.08
	6.0	28,650	2,385	0.046	0.093	20,050	1,590	0.044	0.088	15,280	1,010	0.042	0.084	11,140	695	0.04	0.08	10,660	500	0.04	0.08
	8.0	28,240	2,150	0.037	0.093	19,770	1,435	0.035	0.088	15,060	910	0.034	0.084	10,980	625	0.032	0.08	10,660	455	0.032	0.08
	10.0	27,010	1,920	0.037	0.093	18,910	1,280	0.035	0.088	14,410	815	0.034	0.084	10,500	560	0.032	0.08	10,660	425	0.032	0.08
	12.0	26,190	1,810	0.028	0.093	18,330	1,205	0.026	0.088	13,970	765	0.025	0.084	10,190	525	0.024	0.08	10,660	415	0.024	0.08
	13.0	25,370	1,725	0.028	0.093	17,760	1,150	0.026	0.088	13,530	730	0.025	0.084	9,870	505	0.024	0.08	10,660	405	0.024	0.08
	14.0	24,560	1,645	0.028	0.093	17,190	1,095	0.026	0.088	13,100	695	0.025	0.084	9,550	480	0.024	0.08	10,240	385	0.024	0.08
	16.0	23,740	1,495	0.028	0.093	16,620	995	0.026	0.088	12,660	630	0.025	0.084	9,230	435	0.024	0.08	9,380	330	0.024	0.08
	18.0	22,920	1,395	0.019	0.093	16,040	930	0.018	0.088	12,220	590	0.017	0.084	8,910	405	0.016	0.08	8,530	290	0.016	0.08
	20.0	20,630	1,215	0.019	0.093	14,440	810	0.018	0.088	11,000	515	0.017	0.084	8,020	355	0.016	0.08	7,680	255	0.016	0.08
1.25	6.0	22,920	3,490	0.058	0.116	16,040	2,325	0.055	0.110	12,220	1,475	0.053	0.105	8,910	1,015	0.05	0.1	8,530	730	0.05	0.1
	8.0	21,280	3,225	0.046	0.116	14,900	2,150	0.044	0.110	11,350	1,365	0.042	0.105	8,280	940	0.04	0.1	8,530	725	0.04	0.1
	10.0	19,640	2,960	0.046	0.116	13,750	1,975	0.044	0.110	10,480	1,255	0.042	0.105	7,640	860	0.04	0.1	8,530	720	0.04	0.1
	15.0	18,010	2,610	0.035	0.116	12,610	1,740	0.033	0.110	9,600	1,105	0.032	0.105	7,000	760	0.03	0.1	8,530	695	0.03	0.1
	20.0	16,370	1,730	0.035	0.116	11,460	1,155	0.033	0.110	8,730	735	0.032	0.105	6,370	505	0.03	0.1	8,530	505	0.03	0.1
1.5	6.0	19,100	3,620	0.069	0.139	13,370	2,415	0.066	0.132	10,190	1,535	0.063	0.126	7,430	1,055	0.06	0.12	7,110	755	0.06	0.12
	8.0	19,100	3,315	0.069	0.139	13,370	2,210	0.066	0.132	10,190	1,405	0.063	0.126	7,430	965	0.06	0.12	7,110	695	0.06	0.12
	10.0	18,550	3,140	0.056	0.139	12,990	2,095	0.053	0.132	9,890	1,330	0.050	0.126	7,220	915	0.048	0.12	7,110	675	0.048	0.12

ion Depo Type U Series

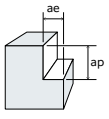
ion Depo Type U 切削条件参考表
Recommended Milling Conditions

■型番:IULBH-2, IULB-2
Model number:IULBH-2, IULB-2

ロングネックボールエンドミル Long Neck Ball End Mill

被削材 Work Material		プリハードン鋼 Prehardened Steels				高硬度鋼 Hardened Steels SKD61（~50HRC）				焼き入れ鋼 Hardened Steels STAVAX/HPM/SKD61（~55HRC）				焼き入れ鋼 Hardened Steels SKD11/SKH51（~62HRC）				焼き入れ鋼 Hardened Steels ASP23/HAP5R/HAP72（62HRC以上）			
ボール半径 (R) Ball R	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.5	12.0	18,010	2,915	0.056	0.139	12,610	1,945	0.053	0.132	9,600	1,235	0.050	0.126	7,000	850	0.048	0.12	7,110	645	0.048	0.12
	14.0	17,460	2,660	0.056	0.139	12,220	1,770	0.053	0.132	9,310	1,125	0.050	0.126	6,790	775	0.048	0.12	7,110	610	0.048	0.12
	16.0	16,920	2,575	0.042	0.139	11,840	1,715	0.040	0.132	9,020	1,090	0.038	0.126	6,580	750	0.036	0.12	7,110	610	0.036	0.12
	20.0	16,370	2,490	0.042	0.139	11,460	1,660	0.040	0.132	8,730	1,055	0.038	0.126	6,370	725	0.036	0.12	7,110	610	0.036	0.12
	25.0	15,010	1,655	0.028	0.139	10,500	1,105	0.026	0.132	8,000	700	0.025	0.126	5,840	485	0.024	0.12	6,820	425	0.024	0.12
	30.0	13,750	1,395	0.028	0.139	9,630	930	0.026	0.132	7,330	590	0.025	0.126	5,350	405	0.024	0.12	5,120	290	0.024	0.12
1.75	15.0	16,370	3,435	0.065	0.162	11,460	2,290	0.062	0.154	8,730	1,455	0.059	0.147	6,370	1,000	0.056	0.14	6,090	715	0.056	0.14
	20.0	15,900	3,205	0.049	0.162	11,130	2,135	0.046	0.154	8,480	1,355	0.044	0.147	6,180	935	0.042	0.14	6,090	690	0.042	0.14
	25.0	14,970	2,890	0.049	0.162	10,480	1,930	0.046	0.154	7,980	1,225	0.044	0.147	5,820	840	0.042	0.14	6,090	660	0.042	0.14
	30.0	14,030	2,590	0.032	0.162	9,820	1,730	0.031	0.154	7,480	1,095	0.029	0.147	5,460	755	0.028	0.14	5,970	620	0.028	0.14
	35.0	11,460	1,540	0.032	0.162	8,020	1,025	0.031	0.154	6,110	650	0.029	0.147	4,460	450	0.028	0.14	4,270	320	0.028	0.14
2	8.0	14,320	3,295	0.093	0.185	10,030	2,200	0.088	0.176	7,640	1,395	0.084	0.168	5,570	960	0.08	0.16	5,330	690	0.08	0.16
	10.0	14,320	3,050	0.093	0.185	10,030	2,035	0.088	0.176	7,640	1,295	0.084	0.168	5,570	890	0.08	0.16	5,330	640	0.08	0.16
	12.0	14,320	2,795	0.093	0.185	10,030	1,865	0.088	0.176	7,640	1,185	0.084	0.168	5,570	815	0.08	0.16	5,330	585	0.08	0.16
	14.0	13,710	2,655	0.074	0.185	9,600	1,770	0.071	0.176	7,310	1,125	0.067	0.168	5,330	775	0.064	0.16	5,330	580	0.064	0.16
	15.0	13,100	2,515	0.074	0.185	9,170	1,675	0.071	0.176	6,980	1,065	0.067	0.168	5,090	730	0.064	0.16	5,330	575	0.064	0.16
	20.0	12,480	2,245	0.074	0.185	8,740	1,495	0.071	0.176	6,660	950	0.067	0.168	4,850	655	0.064	0.16	5,330	540	0.064	0.16
	25.0	11,870	2,305	0.056	0.185	8,310	1,535	0.053	0.176	6,330	975	0.050	0.168	4,620	670	0.048	0.16	5,120	560	0.048	0.16
	30.0	11,250	2,040	0.056	0.185	7,880	1,360	0.053	0.176	6,000	865	0.050	0.168	4,380	595	0.048	0.16	4,270	435	0.048	0.16
	35.0	9,170	1,385	0.037	0.185	6,420	925	0.035	0.176	4,890	585	0.034	0.168	3,570	405	0.032	0.16	3,410	290	0.032	0.16
2.5	15.0	11,460	2,985	0.116	0.232	8,020	1,990	0.110	0.221	6,110	1,260	0.105	0.210	4,460	870	0.1	0.2	4,270	625	0.1	0.2
	20.0	10,800	2,970	0.093	0.232	7,560	1,980	0.088	0.221	5,760	1,255	0.084	0.210	4,200	865	0.08	0.2	4,270	660	0.08	0.2
	25.0	8,350	2,260	0.093	0.232	5,840	1,505	0.088	0.221	4,450	955	0.084	0.210	3,250	660	0.08	0.2	4,270	650	0.08	0.2
	30.0	9,170	2,015	0.069	0.232	6,420	1,345	0.066	0.221	4,890	855	0.063	0.210	3,570	590	0.06	0.2	3,410	420	0.06	0.2
	40.0	6,880	1,010	0.069	0.232	4,810	670	0.066	0.221	3,670	425	0.063	0.210	2,670	295	0.06	0.2	2,560	210	0.06	0.2
3	10.0	9,550	2,920	0.139	0.278	6,680	1,945	0.132	0.265	5,090	1,235	0.126	0.252	3,710	850	0.12	0.24	3,550	610	0.12	0.24
	15.0	9,550	2,860	0.139	0.278	6,680	1,905	0.132	0.265	5,090	1,210	0.126	0.252	3,710	830	0.12	0.24	3,550	595	0.12	0.24
	20.0	9,550	2,585	0.111	0.278	6,680	1,720	0.106	0.265	5,090	1,095	0.101	0.252	3,710	750	0.096	0.24	3,550	540	0.096	0.24
	25.0	9,550	2,585	0.111	0.278	6,680	1,720	0.106	0.265	5,090	1,095	0.101	0.252	3,710	750	0.096	0.24	3,550	540	0.096	0.24
	30.0	9,170	2,325	0.111	0.278	6,420	1,550	0.106	0.265	4,890	985	0.101	0.252	3,570	680	0.096	0.24	3,410	485	0.096	0.24
	35.0	8,020	1,955	0.083	0.278	5,610	1,300	0.079	0.265	4,280	830	0.076	0.252	3,120	570	0.072	0.24	2,990	410	0.072	0.24
	40.0	6,880	1,605	0.083	0.278	4,810	1,070	0.079	0.265	3,670	680	0.076	0.252	2,670	465	0.072	0.24	2,560	335	0.072	0.24
	50.0	5,730	1,280	0.056	0.278	4,010	855	0.053	0.265	3,060	540	0.050	0.252	2,230	375	0.048	0.24	2,130	265	0.048	0.24
	60.0	5,350	1,140	0.056	0.278	3,740	760	0.053	0.265	2,850	480	0.050	0.252	2,080	330	0.048	0.24	1,990	240	0.048	0.24

備考
Notes



- ●工具はホルダに確実に固定し、振れを抑えて下さい。
- ●切り込み量は、仕上げ加工を行う場合の最大値です。
- ●∂pは深さ方向の切り込み量、∂eはピックフィードを示します。
- ●オイルミストクーラント、または、不水溶性切削液をご使用下さい。
- ●工具突出しは必要以上に出さないで下さい。
- ●回転数と送り速度は同じ割合で調整して下さい。

- ●Reduce tool deflection by mounting the tool securely into the holder.
- ●Depth of Cut shows the maximum value for finishing.
- ●∂p=Axial Depth of Cut ∂e=Radial Depth of Cut.
- ●We recommend using oil mist coolant or non-water soluble cutting fluid.
- ●Length of tool overhang must be as short as possible.
- ●Adjust milling conditions according to the depth of cut and the rigidity of the machine and work holding.

ion Depo Type A Series

超硬エンドミル Carbide End Mills





特　長

- ion Depo Type A コーティングは調質鋼や炭素鋼、鋼材等多様な被削材に対応可能
- 耐摩耗性に優れたオリジナルコーティングで長寿命化を実現

Features

- The ion Depo Type A coating supports a wide range of work materials, including pre-hardened steel, carbon steel, and other steels.
- The proprietary wear-resistant coating extends tool life.

super MG | ion A | Side Milling | Slotting | Planing | Helical | Plunge | 刃数 2 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P193

超硬スクエアエンドミル Carbide Square End Mills

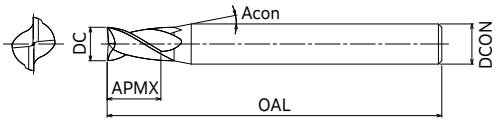
■型番:IAS-2 Model number:IAS-2

◆非鉄金属からプリハードン鋼までの多様な被削材の溝・側面加工に適しています

◆Suitable for slot and side milling of a wide variety of work materials from non-ferrous metals to pre-hardened steel



径 Diameter	径許容差 Diameter Tolerance
φ6以下 φ≦6	0/-0.007
φ6を超えφ12以下 6<φ≦12	0/-0.014
φ12を超えφ20以下 12<φ≦20	0/-0.020



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material														
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	◎	◎	◎	○			◎	○		○	○	◎	○

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N008020	IAS-2-0.1x0.15	0.1	0.15	11	4	50	●
N008021	IAS-2-0.2x0.4	0.2	0.4	11	4	50	●
N008022	IAS-2-0.3x0.3	0.3	0.3	11	4	50	●
N008023	IAS-2-0.3x0.6		0.6	11	4	50	●
N008024	IAS-2-0.4x0.6	0.4	0.6	11	4	50	●
N008025	IAS-2-0.4x0.8		0.8	11	4	50	●
N006903	IAS-2-0.5x0.8	0.5	0.8	11	4	50	●
N006904	IAS-2-0.5x1.25		1.25	11	4	50	●
N006905	IAS-2-0.5x2.0		2.0	11	4	50	●
N008026	IAS-2-0.6x1.0	0.6	1.0	11	4	50	●
N008027	IAS-2-0.6x1.5		1.5	11	4	50	●
N008028	IAS-2-0.6x2.4		2.4	11	4	50	●
N008029	IAS-2-0.7x1.8	0.7	1.8	11	4	50	※
N006906	IAS-2-0.8x1.2	0.8	1.2	11	4	50	●
N006907	IAS-2-0.8x2.0		2.0	11	4	50	●
N006908	IAS-2-0.8x3.2		3.2	11	4	50	●
N008030	IAS-2-0.9x2.0	0.9	2.0	11	4	50	●
N006909	IAS-2-1.0x1.5	1.0	1.5	11	4	50	●
N006910	IAS-2-1.0x2.5		2.5	11	4	50	●
N006911	IAS-2-1.0x4.0		4.0	11	4	50	●

ion Depo Type A Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N008031	IAS-2-1.1x2.5	1.1	2.5	11	4	50	※
N008032	IAS-2-1.2x3.0	1.2	3.0	11	4	50	※
N008033	IAS-2-1.3x3.0	1.3	3.0	11	4	50	※
N008034	IAS-2-1.4x3.5	1.4	3.5	11	4	50	※
N006912	IAS-2-1.5x2.0	1.5	2.0	11	4	50	●
N006913	IAS-2-1.5x4.0		4.0	11	4	50	●
N006914	IAS-2-1.5x6.0		6.0	11	4	50	●
N008035	IAS-2-1.6x4.0	1.6	4.0	11	4	50	※
N008036	IAS-2-1.7x4.5	1.7	4.5	11	4	50	※
N008037	IAS-2-1.8x4.5	1.8	4.5	11	4	50	※
N008038	IAS-2-1.9x5.0	1.9	5.0	11	4	50	※
N006915	IAS-2-2.0x3.0	2.0	3.0	11	4	50	●
N006916	IAS-2-2.0x5.0		5.0	11	4	50	●
N006917	IAS-2-2.0x8.0		8.0	11	4	50	●
N008045	IAS-2-2.1x5.5	2.1	5.5	11	4	50	※
N008046	IAS-2-2.2x5.5	2.2	5.5	11	4	50	※
N008047	IAS-2-2.3x6.0	2.3	6.0	11	4	50	※
N008048	IAS-2-2.4x6.0	2.4	6.0	11	4	50	※
N006918	IAS-2-2.5x7.0	2.5	7.0	11	4	50	●
N006919	IAS-2-2.5x10.0		10.0	11	4	50	●
N008049	IAS-2-2.6x7.0	2.6	7.0	11	4	50	※
N008050	IAS-2-2.7x7.0	2.7	7.0	11	4	50	※
N008051	IAS-2-2.8x7.0	2.8	7.0	11	4	50	※
N008052	IAS-2-2.9x8.0	2.9	8.0	11	4	50	※
N006920	IAS-2-3.0x5.0	3.0	5.0	11	4	50	●
N008054	IAS-2-3.0x8.0		8.0	11	4	50	●
N006921	IAS-2-3.0x12.0		12.0	11	4	50	●
N008055	IAS-2-3.1x8.0	3.1	8.0	11	6	50	●
N008056	IAS-2-3.2x8.0	3.2	8.0	11	6	50	※
N008057	IAS-2-3.3x9.0	3.3	9.0	11	6	50	※
N008058	IAS-2-3.4x9.0	3.4	9.0	11	6	50	※
N008059	IAS-2-3.5x9.0	3.5	9.0	11	6	50	※
N008060	IAS-2-3.6x9.0	3.6	9.0	11	6	50	※
N008061	IAS-2-3.7x10.0	3.7	10.0	11	6	50	※
N008062	IAS-2-3.8x10.0	3.8	10.0	11	6	50	※
N008063	IAS-2-3.9x10.0	3.9	10.0	11	6	50	※
N006922	IAS-2-4.0x6.0	4.0	6.0	11	6	50	●
N008064	IAS-2-4.0x10.0		10.0	11	6	50	●
N006923	IAS-2-4.0x16.0		16.0	11	6	50	●
N008065	IAS-2-4.1x11.0	4.1	11.0	11	6	50	※
N008066	IAS-2-4.2x11.0	4.2	11.0	11	6	50	※
N008067	IAS-2-4.3x11.0	4.3	11.0	11	6	50	※
N008068	IAS-2-4.4x11.0	4.4	11.0	11	6	50	※
N008069	IAS-2-4.5x12.0	4.5	12.0	11	6	50	●
N008070	IAS-2-4.6x12.0	4.6	12.0	11	6	50	※
N008071	IAS-2-4.7x12.0	4.7	12.0	11	6	50	※
N008072	IAS-2-4.8x12.0	4.8	12.0	11	6	50	※
N008073	IAS-2-4.9x13.0	4.9	13.0	11	6	50	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N006924	IAS-2-5.0x8.0	5.0	8.0	11	6	50	●
N008074	IAS-2-5.0x13.0		13.0	11	6	50	●
N006925	IAS-2-5.0x20.0		20.0	11	6	60	●
N008075	IAS-2-5.1x13.0	5.1	13.0	11	6	50	※
N008076	IAS-2-5.2x13.0	5.2	13.0	11	6	50	※
N008077	IAS-2-5.3x14.0	5.3	14.0	11	6	50	※
N008078	IAS-2-5.4x14.0	5.4	14.0	11	6	50	※
N008079	IAS-2-5.5x14.0	5.5	14.0	11	6	50	●
N008080	IAS-2-5.6x14.0	5.6	14.0	11	6	50	※
N008081	IAS-2-5.7x15.0	5.7	15.0	11	6	50	※
N008082	IAS-2-5.8x15.0	5.8	15.0	11	6	50	※
N008083	IAS-2-5.9x15.0	5.9	15.0	11	6	50	※
N006926	IAS-2-6.0x10.0	6.0	10.0	—	6	50	●
N008084	IAS-2-6.0x15.0		15.0	—	6	50	●
N006927	IAS-2-6.0x24.0		24.0	—	6	60	●
N008085	IAS-2-6.5x17.0	6.5	17.0	11	8	70	●
N008086	IAS-2-6.5x20.0		20.0	11	8	70	●
N008087	IAS-2-7.0x18.0	7.0	18.0	11	8	70	●
N008088	IAS-2-7.5x20.0	7.5	20.0	11	8	70	●
N006928	IAS-2-8.0x20.0	8.0	20.0	—	8	70	●
N006929	IAS-2-8.0x32.0		32.0	—	8	80	●
N008089	IAS-2-8.5x23.0	8.5	23.0	11	10	80	●
N008090	IAS-2-9.0x23.0	9.0	23.0	11	10	80	●
N008091	IAS-2-9.5x25.0	9.5	25.0	11	10	80	●
N006930	IAS-2-10.0x25.0	10.0	25.0	—	10	80	●
N006931	IAS-2-10.0x40.0		40.0	—	10	90	●
N008039	IAS-2-10.5x28.0	10.5	28.0	11	12	110	※
N008040	IAS-2-11.0x28.0	11.0	28.0	11	12	110	●
N008041	IAS-2-11.5x30.0	11.5	30.0	11	12	110	※
N006932	IAS-2-12.0x30.0	12.0	30.0	—	12	110	●
N006933	IAS-2-12.0x48.0		48.0	—	12	120	●
N008042	IAS-2-14.0x28.0	14.0	28.0	—	14	110	※
N008043	IAS-2-16.0x48.0	16.0	48.0	—	16	140	●
N008044	IAS-2-18.0x54.0	18.0	54.0	—	18	140	※
N008053	IAS-2-20.0x60.0	20.0	60.0	—	20	150	●

ion Depo Type A Series

super MG | ion A | Side Milling | Slotting | Planing | Helical | 刃数 4 | Helix Angle 30° | NA 11° | h5 | Gash Land

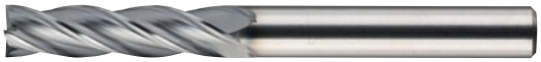
切削条件表 Cutting Parameter P203

超硬スクエアエンドミル Carbide Square End Mills

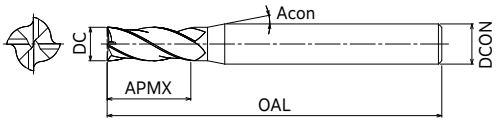
■型番:IAS-4 Model number:IAS-4

◆非鉄金属からプリハードン鋼までの多様な被削材の側面加工に適しています

◆Suitable for side milling of a wide variety of work materials from non-ferrous metals to pre-hardened steel



径 Diameter	径許容差 Diameter Tolerance
φ6以下 φ≦6	0/-0.007
φ6を超えφ12以下 6<φ≦12	0/-0.014
φ12を超えφ20以下 12<φ≦20	0/-0.020



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	◎	◎	◎	○			◎	○		○	○	◎	○

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N006934	IAS-4-1.0x2.5	1.0	2.5	11	4	50	●
N006935	IAS-4-1.0x4.0		4.0	11	4	50	●
N006936	IAS-4-1.5x4.0	1.5	4.0	11	4	50	●
N006937	IAS-4-1.5x6.0		6.0	11	4	50	●
N006938	IAS-4-2.0x5.0	2.0	5.0	11	4	50	●
N006939	IAS-4-2.0x8.0		8.0	11	4	50	●
N006940	IAS-4-2.5x7.0	2.5	7.0	11	4	50	●
N006941	IAS-4-2.5x10.0		10.0	11	4	50	●
N006942	IAS-4-3.0x8.0	3.0	8.0	11	4	50	●
N006943	IAS-4-3.0x12.0		12.0	11	4	50	●
N008096	IAS-4-3.5x9.0	3.5	9.0	11	6	50	※
N006944	IAS-4-4.0x10.0	4.0	10.0	11	6	50	●
N006945	IAS-4-4.0x16.0		16.0	11	6	50	●
N008097	IAS-4-4.5x12.0	4.5	12.0	11	6	50	※
N006946	IAS-4-5.0x13.0	5.0	13.0	11	6	50	●
N006947	IAS-4-5.0x20.0		20.0	11	6	60	●
N008098	IAS-4-5.5x14.0	5.5	14.0	11	6	50	※
N006948	IAS-4-6.0x15.0	6.0	15.0	—	6	50	●
N006949	IAS-4-6.0x24.0		24.0	—	6	60	●
N008099	IAS-4-6.5x17.0	6.5	17.0	11	8	70	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N008100	IAS-4-7.0x18.0	7.0	18.0	11	8	70	●
N008101	IAS-4-7.5x19.0	7.5	19.0	11	8	70	※
N006950	IAS-4-8.0x20.0	8.0	20.0	—	8	70	●
N006951	IAS-4-8.0x32.0		32.0	—	8	80	●
N008102	IAS-4-8.5x22.0	8.5	22.0	11	10	80	※
N008103	IAS-4-9.0x23.0	9.0	23.0	11	10	80	●
N008104	IAS-4-9.5x24.0	9.5	24.0	11	10	80	※
N006952	IAS-4-10.0x25.0	10.0	25.0	—	10	80	●
N008092	IAS-4-10.0x40.0		40.0	—	10	90	●
N006953	IAS-4-12.0x30.0	12.0	30.0	—	12	110	●
N008093	IAS-4-12.0x48.0		48.0	—	12	120	●
N008094	IAS-4-14.0x26.0	14.0	26.0	—	14	110	●
N006954	IAS-4-16.0x32.0	16.0	32.0	—	16	120	●
N008095	IAS-4-18.0x32.0	18.0	32.0	—	18	120	●
N006955	IAS-4-20.0x38.0	20.0	38.0	—	20	130	●

ion Depo Type A Series

super MG | ion A | Side Milling | Slotting | Planing | Helical | 刃数 2 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P207

超硬ロングネックスクエアエンドミル
Carbide Long Neck Square End Mills

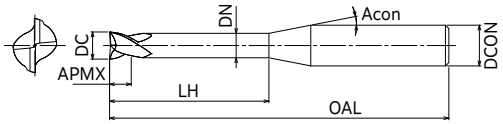
■型番:IALS-2 Model number:IALS-2

径 Diameter	径許容差 Diameter Tolerance
φ6以下 φ≦6	0/-0.007
φ6を超えφ12以下 6<φ≦12	0/-0.014
φ12を超えφ20以下 12<φ≦20	0/-0.020

◆非鉄金属からプリハードン鋼までの多様な被削材の微細加工に適しています

◆Suitable for fine milling of a wide range of work materials from non-ferrous metals to pre-hardened steel





表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表　Material compatibility table

被削材 Work Material														
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	◎	◎	◎	○			◎	○		○	○	◎	○

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N006956	IALS-2-0.1xL0.3	0.1	0.3	0.1	0.08	11	4	50	0.37	0.39	0.41	0.43	0.48	※
N006957	IALS-2-0.1xL1.0		1.0	0.1	0.08	11	4	50	1.10	1.16	1.22	1.28	1.44	※
N006958	IALS-2-0.2xL0.5	0.2	0.5	0.15	0.18	11	4	50	0.58	0.61	0.64	0.67	0.75	※
N006959	IALS-2-0.2xL1.0		1.0	0.15	0.18	11	4	50	1.10	1.16	1.22	1.28	1.44	※
N006960	IALS-2-0.3xL1.5	0.3	1.5	0.25	0.27	11	4	50	1.65	1.73	1.82	1.92	2.16	●
N006961	IALS-2-0.3xL3.0		3.0	0.25	0.27	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N006962	IALS-2-0.4xL1.5	0.4	1.5	0.3	0.37	11	4	50	1.65	1.73	1.82	1.92	2.16	●
N006963	IALS-2-0.4xL3.0		3.0	0.3	0.37	11	4	50	3.22	3.38	3.56	3.75	4.21	●
N006964	IALS-2-0.5xL2.0	0.5	2.0	0.4	0.47	11	4	50	2.17	2.28	2.40	2.53	2.84	●
N006965	IALS-2-0.5xL4.0		4.0	0.4	0.47	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N006966	IALS-2-0.6xL1.5	0.6	1.5	0.5	0.57	11	4	50	1.65	1.73	1.82	1.92	2.16	●
N006967	IALS-2-0.8xL4.0	0.8	4.0	0.65	0.77	11	4	50	4.27	4.48	4.71	4.97	5.58	●
N006968	IALS-2-0.8xL8.0		8.0	0.65	0.77	11	4	50	8.46	8.87	9.33	9.85	11.06	●
N006969	IALS-2-1.0xL2.0	1.0	2.0	0.8	0.95	11	4	50	2.23	2.34	2.46	2.59	2.91	●
N006970	IALS-2-1.0xL4.0		4.0	0.8	0.95	11	4	50	4.32	4.54	4.77	5.03	5.65	●
N006971	IALS-2-1.0xL6.0		6.0	0.8	0.95	11	4	50	6.42	6.73	7.08	7.47	8.39	●
N006972	IALS-2-1.0xL8.0		8.0	0.8	0.95	11	4	50	8.51	8.93	9.39	9.91	11.13	●
N006973	IALS-2-1.0xL10.0		10.0	0.8	0.95	11	4	50	10.60	11.13	11.71	12.35	13.87	●
N006974	IALS-2-1.0xL12.0		12.0	0.8	0.95	11	4	50	12.70	13.33	14.02	14.78	16.61	●
N006975	IALS-2-1.2xL4.0	1.2	4.0	1.0	1.15	11	4	50	4.32	4.54	4.77	5.03	5.65	●
N006976	IALS-2-1.2xL6.0		6.0	1.0	1.15	11	4	50	6.42	6.73	7.08	7.47	8.39	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
									30'	1°	1°30'	2°	3°	
N006977	IALS-2-1.2xL8.0	1.2	8.0	1.0	1.15	11	4	50	8.51	8.93	9.39	9.91	11.13	●
N006978	IALS-2-1.2xL10.0		10.0	1.0	1.15	11	4	50	10.60	11.13	11.71	12.35	13.87	●
N006979	IALS-2-1.2xL12.0		12.0	1.0	1.15	11	4	50	12.70	13.33	14.02	14.78	16.61	●
N006980	IALS-2-1.5xL4.0	1.5	4.0	1.2	1.45	11	4	50	4.32	4.54	4.77	5.03	5.65	●
N006981	IALS-2-1.5xL6.0		6.0	1.2	1.45	11	4	50	6.42	6.73	7.08	7.47	8.39	●
N006982	IALS-2-1.5xL8.0		8.0	1.2	1.45	11	4	50	8.51	8.93	9.39	9.91	11.13	●
N006983	IALS-2-1.5xL10.0		10.0	1.2	1.45	11	4	50	10.60	11.13	11.71	12.35	13.87	●
N006984	IALS-2-1.5xL12.0		12.0	1.2	1.45	11	4	50	12.70	13.33	14.02	14.78	16.61	●
N006985	IALS-2-1.5xL14.0		14.0	1.2	1.45	11	4	50	14.79	15.52	16.33	17.22	19.34	●
N006986	IALS-2-1.5xL16.0		16.0	1.2	1.45	11	4	50	16.89	17.72	18.64	19.66	22.08	●
N006987	IALS-2-2.0xL4.0	2.0	4.0	1.6	1.94	11	4	50	4.35	4.56	4.80	5.06	5.69	●
N006988	IALS-2-2.0xL6.0		6.0	1.6	1.94	11	4	50	6.44	6.76	7.11	7.50	8.43	●
N006989	IALS-2-2.0xL8.0		8.0	1.6	1.94	11	4	50	8.54	8.96	9.42	9.94	11.16	●
N006990	IALS-2-2.0xL10.0		10.0	1.6	1.94	11	4	50	10.63	11.16	11.74	12.38	13.90	●
N006991	IALS-2-2.0xL12.0		12.0	1.6	1.94	11	4	50	12.73	13.35	14.05	14.82	16.64	●
N006992	IALS-2-2.0xL14.0		14.0	1.6	1.94	11	4	50	14.82	15.55	16.36	17.25	FREE	●
N006993	IALS-2-2.0xL15.0		15.0	1.6	1.94	11	4	50	15.87	16.65	17.51	18.47	FREE	●
N006994	IALS-2-2.0xL16.0		16.0	1.6	1.94	11	4	50	16.91	17.75	18.67	19.69	FREE	●
N006995	IALS-2-2.0xL18.0		18.0	1.6	1.94	11	4	50	19.01	19.95	20.98	22.13	FREE	●
N006996	IALS-2-2.0xL20.0		20.0	1.6	1.94	11	4	60	21.10	22.14	23.29	24.57	FREE	●
N006997	IALS-2-3.0xL8.0	3.0	8.0	2.5	2.85	11	4	50	8.78	9.21	9.69	10.22	FREE	●
N006998	IALS-2-3.0xL10.0		10.0	2.5	2.85	11	4	50	10.87	11.41	12.00	12.66	FREE	●
N006999	IALS-2-3.0xL12.0		12.0	2.5	2.85	11	4	50	12.97	13.61	14.31	FREE	FREE	●
N007000	IALS-2-3.0xL14.0		14.0	2.5	2.85	11	4	50	15.06	15.81	16.63	FREE	FREE	●
N007001	IALS-2-3.0xL16.0		16.0	2.5	2.85	11	4	50	17.16	18.00	18.94	FREE	FREE	●
N007002	IALS-2-3.0xL18.0		18.0	2.5	2.85	11	4	50	19.25	20.20	FREE	FREE	FREE	●
N007003	IALS-2-3.0xL20.0		20.0	2.5	2.85	11	4	50	21.34	22.40	FREE	FREE	FREE	●
N007004	IALS-2-3.0xL25.0		25.0	2.5	2.85	11	4	60	26.58	27.89	FREE	FREE	FREE	●
N007005	IALS-2-3.0xL30.0		30.0	2.5	2.85	11	4	60	31.81	FREE	FREE	FREE	FREE	●
N007006	IALS-2-4.0xL10.0	4.0	10.0	3.2	3.8	11	6	50	11.01	11.55	12.15	12.82	14.39	●
N007007	IALS-2-4.0xL12.0		12.0	3.2	3.8	11	6	50	13.10	13.75	14.46	15.26	17.13	●
N007008	IALS-2-4.0xL16.0		16.0	3.2	3.8	11	6	50	17.29	18.14	19.09	20.13	FREE	●
N007009	IALS-2-4.0xL20.0		20.0	3.2	3.8	11	6	50	21.48	22.54	23.71	25.01	FREE	●
N007010	IALS-2-4.0xL25.0		25.0	3.2	3.8	11	6	60	26.71	28.03	29.49	FREE	FREE	●
N007011	IALS-2-4.0xL30.0		30.0	3.2	3.8	11	6	60	31.95	33.52	35.27	FREE	FREE	●
N007012	IALS-2-4.0xL35.0		35.0	3.2	3.8	11	6	70	37.18	39.02	FREE	FREE	FREE	●
N007013	IALS-2-5.0xL15.0	5.0	15.0	4.0	4.8	11	6	50	16.24	17.05	17.93	FREE	FREE	●
N007014	IALS-2-5.0xL20.0		20.0	4.0	4.8	11	6	50	21.48	22.54	FREE	FREE	FREE	●
N007015	IALS-2-5.0xL25.0		25.0	4.0	4.8	11	6	60	26.71	28.03	FREE	FREE	FREE	●
N007016	IALS-2-5.0xL30.0		30.0	4.0	4.8	11	6	60	31.95	FREE	FREE	FREE	FREE	●
N007017	IALS-2-5.0xL35.0		35.0	4.0	4.8	11	6	70	37.18	FREE	FREE	FREE	FREE	●
N007018	IALS-2-5.0xL40.0		40.0	4.0	4.8	11	6	70	42.42	FREE	FREE	FREE	FREE	●
N007019	IALS-2-6.0xL20.0	6.0	20.0	6.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N007020	IALS-2-6.0xL30.0		30.0	6.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007021	IALS-2-6.0xL40.0		40.0	6.0	5.8	11	6	70	FREE	FREE	FREE	FREE	FREE	●
N007022	IALS-2-6.0xL50.0		50.0	6.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N007023	IALS-2-6.0xL60.0		60.0	6.0	5.8	11	6	90	FREE	FREE	FREE	FREE	FREE	●

ion Depo Type A Series

super MG | ion A | Side Milling | Slotting | Planing | Profiling | Helical | Plunge | 刃数 2 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P211

超硬ラジアスエンドミル Carbide Radius End Mills

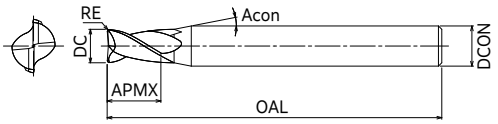
■型番:IAR-2 Model number:IAR-2

◆非鉄金属からプリハードン鋼までの多様な被削材の溝・側面加工に適しています

◆ Suitable for slot and side milling of a wide variety of workpieces from non-ferrous metals to pre-hardened steel



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≦12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≦20	0/-0.020	±0.010



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	◎	◎	◎	○			◎	○		○	○	◎	○

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N007024	IAR-2-1.0xR0.1x2.0	1.0	0.1	2.0	11	4	50	※
N007025	IAR-2-1.0xR0.2x2.0		0.2	2.0	11	4	50	※
N007026	IAR-2-1.0xR0.3x2.0		0.3	2.0	11	4	50	※
N007027	IAR-2-1.5xR0.1x3.0	1.5	0.1	3.0	11	4	50	●
N007028	IAR-2-1.5xR0.2x3.0		0.2	3.0	11	4	50	●
N007029	IAR-2-1.5xR0.3x3.0		0.3	3.0	11	4	50	●
N007030	IAR-2-2.0xR0.1x4.0	2.0	0.1	4.0	11	4	50	●
N007031	IAR-2-2.0xR0.2x4.0		0.2	4.0	11	4	50	●
N007032	IAR-2-2.0xR0.3x4.0		0.3	4.0	11	4	50	●
N007033	IAR-2-2.0xR0.5x4.0		0.5	4.0	11	4	50	●
N007034	IAR-2-2.5xR0.1x5.0	2.5	0.1	5.0	11	4	50	●
N007035	IAR-2-2.5xR0.2x5.0		0.2	5.0	11	4	50	●
N007036	IAR-2-2.5xR0.3x5.0		0.3	5.0	11	4	50	●
N007037	IAR-2-2.5xR0.5x5.0		0.5	5.0	11	4	50	●
N007038	IAR-2-3.0xR0.1x6.0	3.0	0.1	6.0	11	4	50	●
N007039	IAR-2-3.0xR0.2x6.0		0.2	6.0	11	4	50	●
N007040	IAR-2-3.0xR0.3x6.0		0.3	6.0	11	4	50	●
N007041	IAR-2-3.0xR0.5x6.0		0.5	6.0	11	4	50	●
N007042	IAR-2-3.0xR1.0x6.0		1.0	6.0	11	4	50	●
N007043	IAR-2-4.0xR0.1x8.0	4.0	0.1	8.0	11	6	50	●
N007044	IAR-2-4.0xR0.2x8.0		0.2	8.0	11	6	50	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N007045	IAR-2-4.0xR0.3x8.0	4.0	0.3	8.0	11	6	50	●
N007046	IAR-2-4.0xR0.5x8.0		0.5	8.0	11	6	50	●
N007047	IAR-2-4.0xR1.0x8.0		1.0	8.0	11	6	50	●
N007048	IAR-2-5.0xR0.1x10.0	5.0	0.1	10.0	11	6	50	●
N007049	IAR-2-5.0xR0.2x10.0		0.2	10.0	11	6	50	●
N007050	IAR-2-5.0xR0.3x10.0		0.3	10.0	11	6	50	●
N007051	IAR-2-5.0xR0.5x10.0		0.5	10.0	11	6	50	●
N007052	IAR-2-5.0xR1.0x10.0		1.0	10.0	11	6	50	●
N007053	IAR-2-5.0xR1.5x10.0		1.5	10.0	11	6	50	●
N007054	IAR-2-6.0xR0.1x12.0	6.0	0.1	12.0	—	6	50	●
N007055	IAR-2-6.0xR0.2x12.0		0.2	12.0	—	6	50	●
N007056	IAR-2-6.0xR0.3x12.0		0.3	12.0	—	6	50	●
N007057	IAR-2-6.0xR0.5x12.0		0.5	12.0	—	6	50	●
N007058	IAR-2-6.0xR1.0x12.0		1.0	12.0	—	6	50	●
N007059	IAR-2-6.0xR1.5x12.0		1.5	12.0	—	6	50	●
N007060	IAR-2-6.0xR2.0x12.0		2.0	12.0	—	6	50	●

ion Depo Type A Series

super MG | ion A | Side Milling | Slotting | Planing | Profiling | Helical | 刃数 4 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P213

超硬ラジアスエンドミル Carbide Radius End Mills

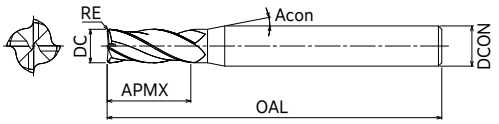
■型番:IAR-4 Model number:IAR-4

◆非鉄金属からプリハードン鋼までの多様な被削材の側面加工に適しています

◆ Suitable for side millingof a wide variety of work materials from non-ferrous metals to pre-hardened steel



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≤6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≤12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≤20	0/-0.020	±0.010



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	◎	◎	◎	○			◎	○		○	○	◎	○

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N007061	IAR-4-1.0xR0.1x2.0	1.0	0.1	2.0	11	4	50	※
N007062	IAR-4-1.0xR0.2x2.0		0.2	2.0	11	4	50	※
N007063	IAR-4-1.0xR0.3x2.0		0.3	2.0	11	4	50	※
N007064	IAR-4-1.5xR0.1x3.0	1.5	0.1	3.0	11	4	50	※
N007065	IAR-4-1.5xR0.2x3.0		0.2	3.0	11	4	50	※
N007066	IAR-4-1.5xR0.3x3.0		0.3	3.0	11	4	50	※
N007067	IAR-4-1.5xR0.5x3.0		0.5	3.0	11	4	50	※
N007068	IAR-4-2.0xR0.1x4.0	2.0	0.1	4.0	11	4	50	※
N007069	IAR-4-2.0xR0.2x4.0		0.2	4.0	11	4	50	※
N007070	IAR-4-2.0xR0.3x4.0		0.3	4.0	11	4	50	※
N007071	IAR-4-2.0xR0.5x4.0		0.5	4.0	11	4	50	※
N007072	IAR-4-3.0xR0.1x6.0	3.0	0.1	6.0	11	4	50	※
N007073	IAR-4-3.0xR0.2x6.0		0.2	6.0	11	4	50	●
N007074	IAR-4-3.0xR0.3x6.0		0.3	6.0	11	4	50	●
N007075	IAR-4-3.0xR0.5x6.0		0.5	6.0	11	4	50	●
N007076	IAR-4-3.0xR1.0x6.0		1.0	6.0	11	4	50	●
N007077	IAR-4-4.0xR0.1x8.0	4.0	0.1	8.0	11	6	50	●
N007078	IAR-4-4.0xR0.2x8.0		0.2	8.0	11	6	50	●
N007079	IAR-4-4.0xR0.3x8.0		0.3	8.0	11	6	50	●
N007080	IAR-4-4.0xR0.5x8.0		0.5	8.0	11	6	50	●
N007081	IAR-4-4.0xR1.0x8.0		1.0	8.0	11	6	50	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N007082	IAR-4-5.0xR0.1x10.0	5.0	0.1	10.0	11	6	50	●
N007083	IAR-4-5.0xR0.2x10.0		0.2	10.0	11	6	50	●
N007084	IAR-4-5.0xR0.3x10.0		0.3	10.0	11	6	50	●
N007085	IAR-4-5.0xR0.5x10.0		0.5	10.0	11	6	50	●
N007086	IAR-4-5.0xR1.0x10.0		1.0	10.0	11	6	50	●
N007087	IAR-4-5.0xR1.5x10.0		1.5	10.0	11	6	50	●
N007088	IAR-4-6.0xR0.1x12.0	6.0	0.1	12.0	—	6	50	●
N007089	IAR-4-6.0xR0.2x12.0		0.2	12.0	—	6	50	●
N007090	IAR-4-6.0xR0.3x12.0		0.3	12.0	—	6	50	●
N007091	IAR-4-6.0xR0.5x12.0		0.5	12.0	—	6	50	●
N007092	IAR-4-6.0xR1.0x12.0		1.0	12.0	—	6	50	●
N007093	IAR-4-6.0xR1.5x12.0		1.5	12.0	—	6	50	●
N007094	IAR-4-8.0xR0.1x16.0	8.0	0.1	16.0	—	8	70	●
N007095	IAR-4-8.0xR0.2x16.0		0.2	16.0	—	8	70	●
N007096	IAR-4-8.0xR0.5x16.0		0.5	16.0	—	8	70	●
N007097	IAR-4-8.0xR1.0x16.0		1.0	16.0	—	8	70	●
N007098	IAR-4-8.0xR1.5x16.0		1.5	16.0	—	8	70	●
N007099	IAR-4-8.0xR2.0x16.0		2.0	16.0	—	8	70	●
N007100	IAR-4-8.0xR2.5x16.0		2.5	16.0	—	8	70	●
N007101	IAR-4-8.0xR3.0x16.0		3.0	16.0	—	8	70	●
N007102	IAR-4-10.0xR0.1x20.0	10.0	0.1	20.0	—	10	80	●
N007103	IAR-4-10.0xR0.2x20.0		0.2	20.0	—	10	80	●
N007104	IAR-4-10.0xR0.3x20.0		0.3	20.0	—	10	80	●
N007105	IAR-4-10.0xR0.5x20.0		0.5	20.0	—	10	80	●
N007106	IAR-4-10.0xR1.0x20.0		1.0	20.0	—	10	80	●
N007107	IAR-4-10.0xR1.5x20.0		1.5	20.0	—	10	80	●
N007108	IAR-4-10.0xR2.0x20.0		2.0	20.0	—	10	80	●
N007109	IAR-4-10.0xR2.5x20.0		2.5	20.0	—	10	80	●
N007110	IAR-4-10.0xR3.0x20.0		3.0	20.0	—	10	80	●
N007111	IAR-4-12.0xR0.1x24.0	12.0	0.1	24.0	—	12	110	●
N007112	IAR-4-12.0xR0.2x24.0		0.2	24.0	—	12	110	●
N007113	IAR-4-12.0xR0.3x24.0		0.3	24.0	—	12	110	●
N007114	IAR-4-12.0xR0.5x24.0		0.5	24.0	—	12	110	●
N007115	IAR-4-12.0xR1.0x24.0		1.0	24.0	—	12	110	●
N007116	IAR-4-12.0xR1.5x24.0		1.5	24.0	—	12	110	●
N007117	IAR-4-12.0xR2.0x24.0		2.0	24.0	—	12	110	●
N007118	IAR-4-12.0xR2.5x24.0		2.5	24.0	—	12	110	●
N007119	IAR-4-12.0xR3.0x24.0		3.0	24.0	—	12	110	●
N007120	IAR-4-16.0xR1.0x40.0	16.0	1.0	40.0	—	16	130	●
N007121	IAR-4-16.0xR2.0x40.0		2.0	40.0	—	16	130	●
N007122	IAR-4-16.0xR3.0x40.0		3.0	40.0	—	16	130	●
N007123	IAR-4-20.0xR1.0x50.0	20.0	1.0	50.0	—	20	140	●
N007124	IAR-4-20.0xR2.0x50.0		2.0	50.0	—	20	140	●
N007125	IAR-4-20.0xR3.0x50.0		3.0	50.0	—	20	140	●

ion Depo Type A Series

super MG | ion A | Side Milling | Slotting | Planing | Profiling | Helical | 刃数 2 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P215

超硬ロングネックラジアスエンドミル
Carbide Long Neck Radius End Mills

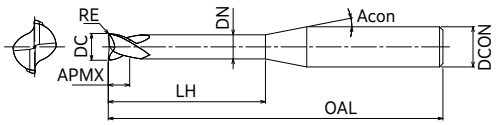
■型番:IALR-2 Model number:IALR-2

径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≦12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≦20	0/-0.020	±0.010

◆非鉄金属からプリハードン鋼までの多様な被削材の微細加工に適しています

◆ Suitable for fine milling of a wide range of work materials from non-ferrous metals to pre-hardened steel





表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	◎	◎	◎	○			◎	○		○	○	◎	○

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N007126	IALR-2-0.4xR0.05xL1.0	0.4	0.05	1.0	0.3	0.37	11	4	50	1.13	1.18	1.24	1.30	1.46	※
N007127	IALR-2-0.4xR0.05xL1.5		0.05	1.5	0.3	0.37	11	4	50	1.65	1.73	1.82	1.91	2.14	※
N007128	IALR-2-0.4xR0.05xL2.0		0.05	2.0	0.3	0.37	11	4	50	2.17	2.28	2.39	2.52	2.83	※
N007129	IALR-2-0.4xR0.05xL3.0		0.05	3.0	0.3	0.37	11	4	50	3.22	3.38	3.55	3.74	4.20	※
N007130	IALR-2-0.4xR0.1xL1.0		0.1	1.0	0.3	0.37	11	4	50	1.12	1.17	1.23	1.29	1.44	※
N007131	IALR-2-0.4xR0.1xL1.5		0.1	1.5	0.3	0.37	11	4	50	1.65	1.72	1.81	1.90	2.12	※
N007132	IALR-2-0.4xR0.1xL2.0		0.1	2.0	0.3	0.37	11	4	50	2.17	2.27	2.39	2.51	2.81	※
N007133	IALR-2-0.4xR0.1xL3.0		0.1	3.0	0.3	0.37	11	4	50	3.22	3.37	3.54	3.73	4.18	※
N007134	IALR-2-0.5xR0.05xL1.0	0.5	0.05	1.0	0.4	0.47	11	4	50	1.13	1.18	1.24	1.30	1.46	※
N007135	IALR-2-0.5xR0.05xL2.0		0.05	2.0	0.4	0.47	11	4	50	2.17	2.28	2.39	2.52	2.83	※
N007136	IALR-2-0.5xR0.05xL3.0		0.05	3.0	0.4	0.47	11	4	50	3.22	3.38	3.55	3.74	4.20	※
N007137	IALR-2-0.5xR0.05xL4.0		0.05	4.0	0.4	0.47	11	4	50	4.27	4.47	4.70	4.96	5.56	※
N007138	IALR-2-0.5xR0.1xL1.0		0.1	1.0	0.4	0.47	11	4	50	1.12	1.17	1.23	1.29	1.44	※
N007139	IALR-2-0.5xR0.1xL2.0		0.1	2.0	0.4	0.47	11	4	50	2.17	2.27	2.39	2.51	2.81	※
N007140	IALR-2-0.5xR0.1xL3.0		0.1	3.0	0.4	0.47	11	4	50	3.22	3.37	3.54	3.73	4.18	※
N007141	IALR-2-0.5xR0.1xL4.0		0.1	4.0	0.4	0.47	11	4	50	4.26	4.47	4.70	4.95	5.55	※
N007142	IALR-2-0.6xR0.05xL2.0	0.6	0.05	2.0	0.5	0.57	11	4	50	2.17	2.28	2.39	2.52	2.83	●
N007143	IALR-2-0.6xR0.05xL3.0		0.05	3.0	0.5	0.57	11	4	50	3.22	3.38	3.55	3.74	4.20	●
N007144	IALR-2-0.6xR0.05xL4.0		0.05	4.0	0.5	0.57	11	4	50	4.27	4.47	4.70	4.96	5.56	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007145	IALR-2-0.6xR0.05xL6.0	0.6	0.05	6.0	0.5	0.57	11	4	50	6.36	6.67	7.02	7.40	8.30	●
N007146	IALR-2-0.6xR0.1xL2.0		0.1	2.0	0.5	0.57	11	4	50	2.17	2.27	2.39	2.51	2.81	●
N007147	IALR-2-0.6xR0.1xL3.0		0.1	3.0	0.5	0.57	11	4	50	3.22	3.37	3.54	3.73	4.18	●
N007148	IALR-2-0.6xR0.1xL4.0		0.1	4.0	0.5	0.57	11	4	50	4.26	4.47	4.70	4.95	5.55	●
N007149	IALR-2-0.6xR0.1xL6.0		0.1	6.0	0.5	0.57	11	4	50	6.36	6.67	7.01	7.39	8.29	●
N007150	IALR-2-0.6xR0.2xL2.0		0.2	2.0	0.5	0.57	11	4	50	2.17	2.26	2.37	2.49	2.77	●
N007151	IALR-2-0.6xR0.2xL3.0		0.2	3.0	0.5	0.57	11	4	50	3.21	3.36	3.53	3.71	4.14	●
N007152	IALR-2-0.6xR0.2xL4.0		0.2	4.0	0.5	0.57	11	4	50	4.26	4.46	4.68	4.93	5.51	●
N007153	IALR-2-0.6xR0.2xL6.0		0.2	6.0	0.5	0.57	11	4	50	6.35	6.66	6.99	7.37	8.25	●
N007154	IALR-2-0.8xR0.05xL4.0	0.8	0.05	4.0	0.65	0.77	11	4	50	4.27	4.47	4.70	4.96	5.56	●
N007155	IALR-2-0.8xR0.05xL6.0		0.05	6.0	0.65	0.77	11	4	50	6.36	6.67	7.02	7.40	8.30	●
N007156	IALR-2-0.8xR0.05xL8.0		0.05	8.0	0.65	0.77	11	4	50	8.45	8.87	9.33	9.84	11.04	●
N007157	IALR-2-0.8xR0.1xL4.0		0.1	4.0	0.65	0.77	11	4	50	4.26	4.47	4.70	4.95	5.55	●
N007158	IALR-2-0.8xR0.1xL6.0		0.1	6.0	0.65	0.77	11	4	50	6.36	6.67	7.01	7.39	8.29	●
N007159	IALR-2-0.8xR0.1xL8.0		0.1	8.0	0.65	0.77	11	4	50	8.45	8.86	9.32	9.82	11.02	●
N007160	IALR-2-0.8xR0.2xL4.0		0.2	4.0	0.65	0.77	11	4	50	4.26	4.46	4.68	4.93	5.51	●
N007161	IALR-2-0.8xR0.2xL6.0		0.2	6.0	0.65	0.77	11	4	50	6.35	6.66	6.99	7.37	8.25	●
N007162	IALR-2-0.8xR0.2xL8.0		0.2	8.0	0.65	0.77	11	4	50	8.45	8.85	9.30	9.80	10.99	●
N007163	IALR-2-1.0xR0.05xL2.0	1.0	0.05	2.0	0.8	0.95	11	4	50	2.23	2.33	2.45	2.58	2.90	●
N007164	IALR-2-1.0xR0.05xL3.0		0.05	3.0	0.8	0.95	11	4	50	3.27	3.43	3.61	3.80	4.27	●
N007165	IALR-2-1.0xR0.05xL4.0		0.05	4.0	0.8	0.95	11	4	50	4.32	4.53	4.76	5.02	5.63	●
N007166	IALR-2-1.0xR0.05xL6.0		0.05	6.0	0.8	0.95	11	4	50	6.41	6.73	7.08	7.46	8.37	●
N007167	IALR-2-1.0xR0.05xL8.0		0.05	8.0	0.8	0.95	11	4	50	8.51	8.93	9.39	9.90	11.11	●
N007168	IALR-2-1.0xR0.05xL10.0		0.05	10.0	0.8	0.95	11	4	50	10.60	11.12	11.70	12.34	13.85	●
N007169	IALR-2-1.0xR0.05xL12.0		0.05	12.0	0.8	0.95	11	4	50	12.70	13.32	14.01	14.77	16.59	●
N007170	IALR-2-1.0xR0.1xL2.0		0.1	2.0	0.8	0.95	11	4	50	2.22	2.33	2.44	2.57	2.88	●
N007171	IALR-2-1.0xR0.1xL3.0		0.1	3.0	0.8	0.95	11	4	50	3.27	3.43	3.60	3.79	4.25	●
N007172	IALR-2-1.0xR0.1xL4.0		0.1	4.0	0.8	0.95	11	4	50	4.32	4.53	4.76	5.01	5.62	●
N007173	IALR-2-1.0xR0.1xL6.0		0.1	6.0	0.8	0.95	11	4	50	6.41	6.72	7.07	7.45	8.36	●
N007174	IALR-2-1.0xR0.1xL8.0		0.1	8.0	0.8	0.95	11	4	50	8.51	8.92	9.38	9.89	11.09	●
N007175	IALR-2-1.0xR0.1xL10.0		0.1	10.0	0.8	0.95	11	4	50	10.60	11.12	11.69	12.33	13.83	●
N007176	IALR-2-1.0xR0.1xL12.0		0.1	12.0	0.8	0.95	11	4	50	12.69	13.32	14.00	14.76	16.57	●
N007177	IALR-2-1.0xR0.2xL2.0		0.2	2.0	0.8	0.95	11	4	50	2.22	2.32	2.43	2.55	2.84	●
N007178	IALR-2-1.0xR0.2xL3.0		0.2	3.0	0.8	0.95	11	4	50	3.27	3.42	3.58	3.77	4.21	●
N007179	IALR-2-1.0xR0.2xL4.0		0.2	4.0	0.8	0.95	11	4	50	4.31	4.52	4.74	4.99	5.58	●
N007180	IALR-2-1.0xR0.2xL6.0		0.2	6.0	0.8	0.95	11	4	50	6.41	6.71	7.05	7.43	8.32	●
N007181	IALR-2-1.0xR0.2xL8.0		0.2	8.0	0.8	0.95	11	4	50	8.50	8.91	9.36	9.87	11.06	●
N007182	IALR-2-1.0xR0.2xL10.0		0.2	10.0	0.8	0.95	11	4	50	10.60	11.11	11.67	12.30	13.80	●
N007183	IALR-2-1.0xR0.2xL12.0		0.2	12.0	0.8	0.95	11	4	50	12.69	13.31	13.99	14.74	16.54	●
N007184	IALR-2-1.0xR0.3xL2.0		0.3	2.0	0.8	0.95	11	4	50	2.21	2.31	2.41	2.53	2.81	●
N007185	IALR-2-1.0xR0.3xL3.0		0.3	3.0	0.8	0.95	11	4	50	3.26	3.41	3.57	3.75	4.18	●
N007186	IALR-2-1.0xR0.3xL4.0		0.3	4.0	0.8	0.95	11	4	50	4.31	4.51	4.73	4.97	5.55	●
N007187	IALR-2-1.0xR0.3xL6.0		0.3	6.0	0.8	0.95	11	4	50	6.40	6.70	7.04	7.41	8.29	●
N007188	IALR-2-1.0xR0.3xL8.0		0.3	8.0	0.8	0.95	11	4	50	8.50	8.90	9.35	9.84	11.02	●
N007189	IALR-2-1.0xR0.3xL10.0		0.3	10.0	0.8	0.95	11	4	50	10.59	11.10	11.66	12.28	13.76	●
N007190	IALR-2-1.0xR0.3xL12.0		0.3	12.0	0.8	0.95	11	4	50	12.68	13.30	13.97	14.72	16.50	●

ion Depo Type A Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007191	IALR-2-1.2xR0.1xL6.0	1.2	0.1	6.0	1.0	1.15	11	4	50	6.41	6.72	7.07	7.45	8.36	●
N007192	IALR-2-1.2xR0.1xL8.0		0.1	8.0	1.0	1.15	11	4	50	8.51	8.92	9.38	9.89	11.09	●
N007193	IALR-2-1.2xR0.1xL10.0		0.1	10.0	1.0	1.15	11	4	50	10.60	11.12	11.69	12.33	13.83	●
N007194	IALR-2-1.2xR0.1xL12.0		0.1	12.0	1.0	1.15	11	4	50	12.69	13.32	14.00	14.76	16.57	●
N007195	IALR-2-1.2xR0.2xL6.0		0.2	6.0	1.0	1.15	11	4	50	6.41	6.71	7.05	7.43	8.32	●
N007196	IALR-2-1.2xR0.2xL8.0		0.2	8.0	1.0	1.15	11	4	50	8.50	8.91	9.36	9.87	11.06	●
N007197	IALR-2-1.2xR0.2xL10.0		0.2	10.0	1.0	1.15	11	4	50	10.60	11.11	11.67	12.30	13.80	●
N007198	IALR-2-1.2xR0.2xL12.0		0.2	12.0	1.0	1.15	11	4	50	12.69	13.31	13.99	14.74	16.54	●
N007199	IALR-2-1.2xR0.3xL6.0		0.3	6.0	1.0	1.15	11	4	50	6.40	6.70	7.04	7.41	8.29	●
N007200	IALR-2-1.2xR0.3xL8.0		0.3	8.0	1.0	1.15	11	4	50	8.50	8.90	9.35	9.84	11.02	●
N007201	IALR-2-1.2xR0.3xL10.0		0.3	10.0	1.0	1.15	11	4	50	10.59	11.10	11.66	12.28	13.76	●
N007202	IALR-2-1.2xR0.3xL12.0		0.3	12.0	1.0	1.15	11	4	50	12.68	13.30	13.97	14.72	16.50	●
N007203	IALR-2-1.5xR0.1xL4.0	1.5	0.1	4.0	1.2	1.45	11	4	50	4.32	4.53	4.76	5.01	5.62	●
N007204	IALR-2-1.5xR0.1xL6.0		0.1	6.0	1.2	1.45	11	4	50	6.41	6.72	7.07	7.45	8.36	●
N007205	IALR-2-1.5xR0.1xL8.0		0.1	8.0	1.2	1.45	11	4	50	8.51	8.92	9.38	9.89	11.09	●
N007206	IALR-2-1.5xR0.1xL10.0		0.1	10.0	1.2	1.45	11	4	50	10.60	11.12	11.69	12.33	13.83	●
N007207	IALR-2-1.5xR0.1xL12.0		0.1	12.0	1.2	1.45	11	4	50	12.69	13.32	14.00	14.76	16.57	●
N007208	IALR-2-1.5xR0.1xL16.0		0.1	16.0	1.2	1.45	11	4	50	16.88	17.71	18.62	19.64	22.05	●
N007209	IALR-2-1.5xR0.2xL4.0		0.2	4.0	1.2	1.45	11	4	50	4.31	4.52	4.74	4.99	5.58	●
N007210	IALR-2-1.5xR0.2xL6.0		0.2	6.0	1.2	1.45	11	4	50	6.41	6.71	7.05	7.43	8.32	●
N007211	IALR-2-1.5xR0.2xL8.0		0.2	8.0	1.2	1.45	11	4	50	8.50	8.91	9.36	9.87	11.06	●
N007212	IALR-2-1.5xR0.2xL10.0		0.2	10.0	1.2	1.45	11	4	50	10.60	11.11	11.67	12.30	13.80	●
N007213	IALR-2-1.5xR0.2xL12.0		0.2	12.0	1.2	1.45	11	4	50	12.69	13.31	13.99	14.74	16.54	●
N007214	IALR-2-1.5xR0.2xL16.0		0.2	16.0	1.2	1.45	11	4	50	16.88	17.70	18.61	19.62	22.01	●
N007215	IALR-2-1.5xR0.3xL4.0		0.3	4.0	1.2	1.45	11	4	50	4.31	4.51	4.73	4.97	5.55	●
N007216	IALR-2-1.5xR0.3xL6.0		0.3	6.0	1.2	1.45	11	4	50	6.40	6.70	7.04	7.41	8.29	●
N007217	IALR-2-1.5xR0.3xL8.0		0.3	8.0	1.2	1.45	11	4	50	8.50	8.90	9.35	9.84	11.02	●
N007218	IALR-2-1.5xR0.3xL10.0		0.3	10.0	1.2	1.45	11	4	50	10.59	11.10	11.66	12.28	13.76	●
N007219	IALR-2-1.5xR0.3xL12.0		0.3	12.0	1.2	1.45	11	4	50	12.68	13.30	13.97	14.72	16.50	●
N007220	IALR-2-1.5xR0.3xL16.0		0.3	16.0	1.2	1.45	11	4	50	16.87	17.69	18.59	19.60	21.98	●
N007221	IALR-2-1.5xR0.5xL4.0		0.5	4.0	1.2	1.45	11	4	50	4.30	4.49	4.69	4.93	5.48	●
N007222	IALR-2-1.5xR0.5xL6.0		0.5	6.0	1.2	1.45	11	4	50	6.39	6.68	7.01	7.36	8.22	●
N007223	IALR-2-1.5xR0.5xL8.0		0.5	8.0	1.2	1.45	11	4	50	8.49	8.88	9.32	9.80	10.95	●
N007224	IALR-2-1.5xR0.5xL10.0		0.5	10.0	1.2	1.45	11	4	50	10.58	11.08	11.63	12.24	13.69	●
N007225	IALR-2-1.5xR0.5xL12.0		0.5	12.0	1.2	1.45	11	4	50	12.68	13.28	13.94	14.68	16.43	●
N007226	IALR-2-1.5xR0.5xL16.0		0.5	16.0	1.2	1.45	11	4	50	16.86	17.67	18.56	19.55	21.91	●
N007227	IALR-2-2.0xR0.1xL4.0	2.0	0.1	4.0	1.6	1.94	11	4	50	4.34	4.55	4.79	5.04	5.65	●
N007228	IALR-2-2.0xR0.1xL6.0		0.1	6.0	1.6	1.94	11	4	50	6.44	6.75	7.10	7.48	8.39	●
N007229	IALR-2-2.0xR0.1xL8.0		0.1	8.0	1.6	1.94	11	4	50	8.53	8.95	9.41	9.92	11.13	●
N007230	IALR-2-2.0xR0.1xL10.0		0.1	10.0	1.6	1.94	11	4	50	10.63	11.15	11.72	12.36	13.87	●
N007231	IALR-2-2.0xR0.1xL12.0		0.1	12.0	1.6	1.94	11	4	50	12.72	13.34	14.03	14.79	16.61	●
N007232	IALR-2-2.0xR0.1xL16.0		0.1	16.0	1.6	1.94	11	4	50	16.91	17.74	18.65	19.67	FREE	●
N007233	IALR-2-2.0xR0.1xL20.0		0.1	20.0	1.6	1.94	11	4	60	21.10	22.13	23.28	24.55	FREE	●
N007234	IALR-2-2.0xR0.2xL4.0		0.2	4.0	1.6	1.94	11	4	50	4.34	4.54	4.77	5.02	5.62	●
N007235	IALR-2-2.0xR0.2xL6.0		0.2	6.0	1.6	1.94	11	4	50	6.43	6.74	7.08	7.46	8.36	●
N007236	IALR-2-2.0xR0.2xL8.0		0.2	8.0	1.6	1.94	11	4	50	8.53	8.94	9.39	9.90	11.09	●
N007237	IALR-2-2.0xR0.2xL10.0		0.2	10.0	1.6	1.94	11	4	50	10.62	11.14	11.70	12.34	13.83	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007238	IALR-2-2.0xR0.2xL12.0	2.0	0.2	12.0	1.6	1.94	11	4	50	12.72	13.33	14.02	14.77	16.57	●
N007239	IALR-2-2.0xR0.2xL16.0		0.2	16.0	1.6	1.94	11	4	50	16.90	17.73	18.64	19.65	FREE	●
N007240	IALR-2-2.0xR0.2xL20.0		0.2	20.0	1.6	1.94	11	4	60	21.09	22.12	23.26	24.52	FREE	●
N007241	IALR-2-2.0xR0.3xL4.0		0.3	4.0	1.6	1.94	11	4	50	4.34	4.53	4.76	5.00	5.58	●
N007242	IALR-2-2.0xR0.3xL6.0		0.3	6.0	1.6	1.94	11	4	50	6.43	6.73	7.07	7.44	8.32	●
N007243	IALR-2-2.0xR0.3xL8.0		0.3	8.0	1.6	1.94	11	4	50	8.52	8.93	9.38	9.88	11.06	●
N007244	IALR-2-2.0xR0.3xL10.0		0.3	10.0	1.6	1.94	11	4	50	10.62	11.13	11.69	12.31	13.80	●
N007245	IALR-2-2.0xR0.3xL12.0		0.3	12.0	1.6	1.94	11	4	50	12.71	13.32	14.00	14.75	16.54	●
N007246	IALR-2-2.0xR0.3xL16.0		0.3	16.0	1.6	1.94	11	4	50	16.90	17.72	18.62	19.63	FREE	●
N007247	IALR-2-2.0xR0.3xL20.0		0.3	20.0	1.6	1.94	11	4	60	21.09	22.11	23.25	24.50	FREE	●
N007248	IALR-2-2.0xR0.5xL4.0		0.5	4.0	1.6	1.94	11	4	50	4.33	4.52	4.72	4.96	5.51	●
N007249	IALR-2-2.0xR0.5xL6.0		0.5	6.0	1.6	1.94	11	4	50	6.42	6.71	7.04	7.39	8.25	●
N007250	IALR-2-2.0xR0.5xL8.0		0.5	8.0	1.6	1.94	11	4	50	8.51	8.91	9.35	9.83	10.99	●
N007251	IALR-2-2.0xR0.5xL10.0		0.5	10.0	1.6	1.94	11	4	50	10.61	11.11	11.66	12.27	13.73	●
N007252	IALR-2-2.0xR0.5xL12.0		0.5	12.0	1.6	1.94	11	4	50	12.70	13.30	13.97	14.71	16.47	●
N007253	IALR-2-2.0xR0.5xL16.0		0.5	16.0	1.6	1.94	11	4	50	16.89	17.70	18.59	19.58	FREE	●
N007254	IALR-2-2.0xR0.5xL20.0		0.5	20.0	1.6	1.94	11	4	60	21.08	22.09	23.22	24.46	FREE	●
N007255	IALR-2-3.0xR0.1xL12.0	3.0	0.1	12.0	4.5	2.85	11	4	50	12.96	13.60	14.30	FREE	FREE	●
N007256	IALR-2-3.0xR0.1xL18.0		0.1	18.0	4.5	2.85	11	4	50	19.25	20.19	FREE	FREE	FREE	●
N007257	IALR-2-3.0xR0.1xL24.0		0.1	24.0	4.5	2.85	11	4	60	25.53	26.78	FREE	FREE	FREE	●
N007258	IALR-2-3.0xR0.1xL30.0		0.1	30.0	4.5	2.85	11	4	60	31.81	FREE	FREE	FREE	FREE	●
N007259	IALR-2-3.0xR0.2xL12.0		0.2	12.0	4.5	2.85	11	4	50	12.96	13.59	14.28	FREE	FREE	●
N007260	IALR-2-3.0xR0.2xL18.0		0.2	18.0	4.5	2.85	11	4	50	19.24	20.18	FREE	FREE	FREE	●
N007261	IALR-2-3.0xR0.2xL24.0		0.2	24.0	4.5	2.85	11	4	60	25.52	26.77	FREE	FREE	FREE	●
N007262	IALR-2-3.0xR0.2xL30.0		0.2	30.0	4.5	2.85	11	4	60	31.80	FREE	FREE	FREE	FREE	●
N007263	IALR-2-3.0xR0.3xL12.0		0.3	12.0	4.5	2.85	11	4	50	12.95	13.58	14.27	FREE	FREE	●
N007264	IALR-2-3.0xR0.3xL18.0		0.3	18.0	4.5	2.85	11	4	50	19.24	20.17	FREE	FREE	FREE	●
N007265	IALR-2-3.0xR0.3xL24.0		0.3	24.0	4.5	2.85	11	4	60	25.52	26.76	FREE	FREE	FREE	●
N007266	IALR-2-3.0xR0.3xL30.0		0.3	30.0	4.5	2.85	11	4	60	31.80	FREE	FREE	FREE	FREE	●
N007267	IALR-2-3.0xR0.5xL12.0		0.5	12.0	4.5	2.85	11	4	50	12.94	13.56	14.24	FREE	FREE	●
N007268	IALR-2-3.0xR0.5xL18.0		0.5	18.0	4.5	2.85	11	4	50	19.23	20.15	FREE	FREE	FREE	●
N007269	IALR-2-3.0xR0.5xL24.0		0.5	24.0	4.5	2.85	11	4	60	25.51	26.74	FREE	FREE	FREE	●
N007270	IALR-2-3.0xR0.5xL30.0		0.5	30.0	4.5	2.85	11	4	60	31.79	FREE	FREE	FREE	FREE	●
N007271	IALR-2-3.0xR1.0xL12.0		1.0	12.0	4.5	2.85	11	4	50	12.92	13.51	14.16	14.88	FREE	●
N007272	IALR-2-3.0xR1.0xL18.0		1.0	18.0	4.5	2.85	11	4	50	19.20	20.10	FREE	FREE	FREE	●
N007273	IALR-2-3.0xR1.0xL24.0		1.0	24.0	4.5	2.85	11	4	60	25.49	26.69	FREE	FREE	FREE	●
N007274	IALR-2-3.0xR1.0xL30.0		1.0	30.0	4.5	2.85	11	4	60	31.77	FREE	FREE	FREE	FREE	●
N007275	IALR-2-4.0xR0.1xL16.0	4.0	0.1	16.0	6.0	3.8	11	6	50	17.29	18.13	19.07	20.11	FREE	●
N007276	IALR-2-4.0xR0.1xL24.0		0.1	24.0	6.0	3.8	11	6	60	25.66	26.92	28.32	FREE	FREE	●
N007277	IALR-2-4.0xR0.1xL32.0		0.1	32.0	6.0	3.8	11	6	70	34.04	35.71	37.56	FREE	FREE	●
N007278	IALR-2-4.0xR0.2xL16.0		0.2	16.0	6.0	3.8	11	6	50	17.28	18.12	19.05	20.09	FREE	●
N007279	IALR-2-4.0xR0.2xL24.0		0.2	24.0	6.0	3.8	11	6	60	25.66	26.91	28.30	FREE	FREE	●
N007280	IALR-2-4.0xR0.2xL32.0		0.2	32.0	6.0	3.8	11	6	70	34.03	35.70	37.55	FREE	FREE	●
N007281	IALR-2-4.0xR0.3xL16.0		0.3	16.0	6.0	3.8	11	6	50	17.28	18.11	19.04	20.07	FREE	●
N007282	IALR-2-4.0xR0.3xL24.0		0.3	24.0	6.0	3.8	11	6	60	25.65	26.90	28.28	FREE	FREE	●
N007283	IALR-2-4.0xR0.3xL32.0		0.3	32.0	6.0	3.8	11	6	70	34.03	35.69	37.53	FREE	FREE	●
N007284	IALR-2-4.0xR0.5xL16.0		0.5	16.0	6.0	3.8	11	6	50	17.27	18.09	19.01	20.02	FREE	●

ion Depo Type A Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007285	IALR-2-4.0xR0.5xL24.0	4.0	0.5	24.0	6.0	3.8	11	6	60	25.64	26.88	28.25	FREE	FREE	●
N007286	IALR-2-4.0xR0.5xL32.0		0.5	32.0	6.0	3.8	11	6	70	34.02	35.67	37.50	FREE	FREE	●
N007287	IALR-2-4.0xR1.0xL16.0		1.0	16.0	6.0	3.8	11	6	50	17.24	18.05	18.93	19.92	FREE	●
N007288	IALR-2-4.0xR1.0xL24.0		1.0	24.0	6.0	3.8	11	6	60	25.62	26.84	28.18	FREE	FREE	●
N007289	IALR-2-4.0xR1.0xL32.0		1.0	32.0	6.0	3.8	11	6	70	34.00	35.62	37.42	FREE	FREE	●
N007290	IALR-2-5.0xR0.1xL20.0	5.0	0.1	20.0	7.5	4.8	11	6	50	21.47	22.53	FREE	FREE	FREE	※
N007291	IALR-2-5.0xR0.1xL40.0		0.1	40.0	7.5	4.8	11	6	70	42.41	FREE	FREE	FREE	FREE	※
N007292	IALR-2-5.0xR0.2xL15.0		0.2	15.0	7.5	4.8	11	6	50	16.23	17.03	17.90	FREE	FREE	※
N007293	IALR-2-5.0xR0.2xL20.0		0.2	20.0	7.5	4.8	11	6	50	21.47	22.52	FREE	FREE	FREE	※
N007294	IALR-2-5.0xR0.2xL40.0		0.2	40.0	7.5	4.8	11	6	70	42.41	FREE	FREE	FREE	FREE	※
N007295	IALR-2-5.0xR0.3xL15.0		0.3	15.0	7.5	4.8	11	6	50	16.23	17.02	17.88	FREE	FREE	※
N007296	IALR-2-5.0xR0.3xL20.0		0.3	20.0	7.5	4.8	11	6	50	21.46	22.51	FREE	FREE	FREE	※
N007297	IALR-2-5.0xR0.3xL40.0		0.3	40.0	7.5	4.8	11	6	70	42.40	FREE	FREE	FREE	FREE	※
N007298	IALR-2-5.0xR0.5xL20.0		0.5	20.0	7.5	4.8	11	6	50	21.46	22.49	FREE	FREE	FREE	※
N007299	IALR-2-5.0xR0.5xL40.0		0.5	40.0	7.5	4.8	11	6	70	42.40	FREE	FREE	FREE	FREE	※
N007300	IALR-2-5.0xR1.0xL20.0		1.0	20.0	7.5	4.8	11	6	50	21.43	22.44	FREE	FREE	FREE	※
N007301	IALR-2-5.0xR1.0xL40.0		1.0	40.0	7.5	4.8	11	6	70	42.37	FREE	FREE	FREE	FREE	※
N007302	IALR-2-6.0xR0.1xL24.0	6.0	0.1	24.0	9.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007303	IALR-2-6.0xR0.1xL48.0		0.1	48.0	9.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N007304	IALR-2-6.0xR0.2xL24.0		0.2	24.0	9.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007305	IALR-2-6.0xR0.2xL48.0		0.2	48.0	9.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N007306	IALR-2-6.0xR0.3xL24.0		0.3	24.0	9.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007307	IALR-2-6.0xR0.3xL48.0		0.3	48.0	9.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N007308	IALR-2-6.0xR0.5xL24.0		0.5	24.0	9.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007309	IALR-2-6.0xR0.5xL48.0		0.5	48.0	9.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N007310	IALR-2-6.0xR1.0xL24.0		1.0	24.0	9.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007311	IALR-2-6.0xR1.0xL48.0		1.0	48.0	9.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●

super MG | ion A | Side Milling | Slotting | Planing | Profiling | Helical | 刃数 4 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P218

超硬ロングネックラジアスエンドミル
Carbide Long Neck Radius End Mills

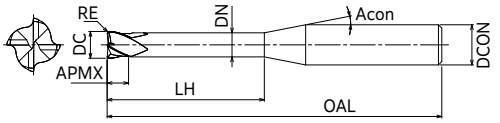
■型番:IALR-4 Model number:IALR-4

◆非鉄金属からプリハードン鋼までの多様な被削材の微細加工に適しています

◆ Suitable for fine milling of a wide range of work materials from non-ferrous metals to pre-hardened steel



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≦12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≦20	0/-0.020	±0.010



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表　Material compatibility table

被削材 Work Material														
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	◎	◎	◎	○			◎	○		○	○	◎	○

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N007312	IALR-4-1.0xR0.05xL3.0	1.0	0.05	3.0	0.8	0.95	11	4	50	3.27	3.43	3.61	3.80	4.27	※
N007313	IALR-4-1.0xR0.05xL4.0		0.05	4.0	0.8	0.95	11	4	50	4.32	4.53	4.76	5.02	5.63	※
N007314	IALR-4-1.0xR0.05xL6.0		0.05	6.0	0.8	0.95	11	4	50	6.41	6.73	7.08	7.46	8.37	※
N007315	IALR-4-1.0xR0.05xL8.0		0.05	8.0	0.8	0.95	11	4	50	8.51	8.93	9.39	9.90	11.11	※
N007316	IALR-4-1.0xR0.05xL10.0		0.05	10.0	0.8	0.95	11	4	50	10.60	11.12	11.70	12.34	13.85	※
N007317	IALR-4-1.0xR0.05xL12.0		0.05	12.0	0.8	0.95	11	4	50	12.70	13.32	14.01	14.77	16.59	※
N007318	IALR-4-1.0xR0.1xL3.0		0.1	3.0	0.8	0.95	11	4	50	3.27	3.43	3.60	3.79	4.25	※
N007319	IALR-4-1.0xR0.1xL4.0		0.1	4.0	0.8	0.95	11	4	50	4.32	4.53	4.76	5.01	5.62	※
N007320	IALR-4-1.0xR0.1xL6.0		0.1	6.0	0.8	0.95	11	4	50	6.41	6.72	7.07	7.45	8.36	※
N007321	IALR-4-1.0xR0.1xL8.0		0.1	8.0	0.8	0.95	11	4	50	8.51	8.92	9.38	9.89	11.09	※
N007322	IALR-4-1.0xR0.1xL10.0		0.1	10.0	0.8	0.95	11	4	50	10.60	11.12	11.69	12.33	13.83	※
N007323	IALR-4-1.0xR0.1xL12.0		0.1	12.0	0.8	0.95	11	4	50	12.69	13.32	14.00	14.76	16.57	※
N007324	IALR-4-1.0xR0.2xL3.0		0.2	3.0	0.8	0.95	11	4	50	3.27	3.42	3.58	3.77	4.21	※
N007325	IALR-4-1.0xR0.2xL4.0		0.2	4.0	0.8	0.95	11	4	50	4.31	4.52	4.74	4.99	5.58	※
N007326	IALR-4-1.0xR0.2xL6.0		0.2	6.0	0.8	0.95	11	4	50	6.41	6.71	7.05	7.43	8.32	※
N007327	IALR-4-1.0xR0.2xL8.0		0.2	8.0	0.8	0.95	11	4	50	8.50	8.91	9.36	9.87	11.06	※
N007328	IALR-4-1.0xR0.2xL10.0		0.2	10.0	0.8	0.95	11	4	50	10.60	11.11	11.67	12.30	13.80	※
N007329	IALR-4-1.0xR0.2xL12.0		0.2	12.0	0.8	0.95	11	4	50	12.69	13.31	13.99	14.74	16.54	※
N007330	IALR-4-1.0xR0.3xL3.0		0.3	3.0	0.8	0.95	11	4	50	3.26	3.41	3.57	3.75	4.18	※

ion Depo Type A Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007331	IALR-4-1.0xR0.3xL4.0	1.0	0.3	4.0	0.8	0.95	11	4	50	4.31	4.51	4.73	4.97	5.55	※
N007332	IALR-4-1.0xR0.3xL6.0		0.3	6.0	0.8	0.95	11	4	50	6.40	6.70	7.04	7.41	8.29	※
N007333	IALR-4-1.0xR0.3xL8.0		0.3	8.0	0.8	0.95	11	4	50	8.50	8.90	9.35	9.84	11.02	※
N007334	IALR-4-1.0xR0.3xL10.0		0.3	10.0	0.8	0.95	11	4	50	10.59	11.10	11.66	12.28	13.76	※
N007335	IALR-4-1.0xR0.3xL12.0		0.3	12.0	0.8	0.95	11	4	50	12.68	13.30	13.97	14.72	16.50	※
N007336	IALR-4-1.2xR0.1xL10.0	1.2	0.1	10.0	1.0	1.15	11	4	50	10.60	11.12	11.69	12.33	13.83	※
N007337	IALR-4-1.2xR0.1xL15.0		0.1	15.0	1.0	1.15	11	4	50	15.84	16.61	17.47	18.42	20.68	※
N007338	IALR-4-1.2xR0.2xL10.0		0.2	10.0	1.0	1.15	11	4	50	10.60	11.11	11.67	12.30	13.80	※
N007339	IALR-4-1.2xR0.2xL15.0		0.2	15.0	1.0	1.15	11	4	50	15.83	16.60	17.45	18.40	20.64	※
N007340	IALR-4-1.2xR0.3xL10.0		0.3	10.0	1.0	1.15	11	4	50	10.59	11.10	11.66	12.28	13.76	※
N007341	IALR-4-1.2xR0.3xL15.0		0.3	15.0	1.0	1.15	11	4	50	15.83	16.59	17.44	18.38	20.61	※
N007342	IALR-4-1.5xR0.1xL3.0	1.5	0.1	3.0	1.2	1.45	11	4	50	3.27	3.43	3.60	3.79	4.25	●
N007343	IALR-4-1.5xR0.1xL6.0		0.1	6.0	1.2	1.45	11	4	50	6.41	6.72	7.07	7.45	8.36	●
N007344	IALR-4-1.5xR0.1xL10.0		0.1	10.0	1.2	1.45	11	4	50	10.60	11.12	11.69	12.33	13.83	●
N007345	IALR-4-1.5xR0.1xL12.0		0.1	12.0	1.2	1.45	11	4	50	12.69	13.32	14.00	14.76	16.57	●
N007346	IALR-4-1.5xR0.1xL18.0		0.1	18.0	1.2	1.45	11	4	50	18.98	19.91	20.94	22.08	FREE	●
N007347	IALR-4-1.5xR0.2xL3.0		0.2	3.0	1.2	1.45	11	4	50	3.27	3.42	3.58	3.77	4.21	●
N007348	IALR-4-1.5xR0.2xL6.0		0.2	6.0	1.2	1.45	11	4	50	6.41	6.71	7.05	7.43	8.32	●
N007349	IALR-4-1.5xR0.2xL10.0		0.2	10.0	1.2	1.45	11	4	50	10.60	11.11	11.67	12.30	13.80	●
N007350	IALR-4-1.5xR0.2xL12.0		0.2	12.0	1.2	1.45	11	4	50	12.69	13.31	13.99	14.74	16.54	●
N007351	IALR-4-1.5xR0.2xL18.0		0.2	18.0	1.2	1.45	11	4	50	18.97	19.90	20.92	22.06	FREE	●
N007352	IALR-4-1.5xR0.3xL3.0		0.3	3.0	1.2	1.45	11	4	50	3.26	3.41	3.57	3.75	4.18	●
N007353	IALR-4-1.5xR0.3xL6.0		0.3	6.0	1.2	1.45	11	4	50	6.40	6.70	7.04	7.41	8.29	●
N007354	IALR-4-1.5xR0.3xL10.0		0.3	10.0	1.2	1.45	11	4	50	10.59	11.10	11.66	12.28	13.76	●
N007355	IALR-4-1.5xR0.3xL12.0		0.3	12.0	1.2	1.45	11	4	50	12.68	13.30	13.97	14.72	16.50	●
N007356	IALR-4-1.5xR0.3xL18.0		0.3	18.0	1.2	1.45	11	4	50	18.97	19.89	20.90	22.03	FREE	●
N007357	IALR-4-1.5xR0.5xL6.0		0.5	6.0	1.2	1.45	11	4	50	6.39	6.68	7.01	7.36	8.22	●
N007358	IALR-4-1.5xR0.5xL12.0		0.5	12.0	1.2	1.45	11	4	50	12.68	13.28	13.94	14.68	16.43	●
N007359	IALR-4-1.5xR0.5xL18.0		0.5	18.0	1.2	1.45	11	4	50	18.96	19.87	20.87	21.99	FREE	●
N007360	IALR-4-2.0xR0.1xL6.0	2.0	0.1	6.0	1.6	1.94	11	4	50	6.44	6.75	7.10	7.48	8.39	※
N007361	IALR-4-2.0xR0.1xL8.0		0.1	8.0	1.6	1.94	11	4	50	8.53	8.95	9.41	9.92	11.13	※
N007362	IALR-4-2.0xR0.1xL10.0		0.1	10.0	1.6	1.94	11	4	50	10.63	11.15	11.72	12.36	13.87	※
N007363	IALR-4-2.0xR0.1xL12.0		0.1	12.0	1.6	1.94	11	4	50	12.72	13.34	14.03	14.79	16.61	※
N007364	IALR-4-2.0xR0.1xL15.0		0.1	15.0	1.6	1.94	11	4	50	15.86	16.64	17.50	18.45	FREE	※
N007365	IALR-4-2.0xR0.1xL16.0		0.1	16.0	1.6	1.94	11	4	50	16.91	17.74	18.65	19.67	FREE	※
N007366	IALR-4-2.0xR0.1xL20.0		0.1	20.0	1.6	1.94	11	4	60	21.10	22.13	23.28	24.55	FREE	※
N007367	IALR-4-2.0xR0.1xL24.0		0.1	24.0	1.6	1.94	11	4	60	25.29	26.53	27.90	FREE	FREE	※
N007368	IALR-4-2.0xR0.2xL6.0		0.2	6.0	1.6	1.94	11	4	50	6.43	6.74	7.08	7.46	8.36	※
N007369	IALR-4-2.0xR0.2xL8.0		0.2	8.0	1.6	1.94	11	4	50	8.53	8.94	9.39	9.90	11.09	※
N007370	IALR-4-2.0xR0.2xL10.0		0.2	10.0	1.6	1.94	11	4	50	10.62	11.14	11.70	12.34	13.83	※
N007371	IALR-4-2.0xR0.2xL12.0		0.2	12.0	1.6	1.94	11	4	50	12.72	13.33	14.02	14.77	16.57	※
N007372	IALR-4-2.0xR0.2xL15.0		0.2	15.0	1.6	1.94	11	4	50	15.86	16.63	17.48	18.43	FREE	※
N007373	IALR-4-2.0xR0.2xL16.0		0.2	16.0	1.6	1.94	11	4	50	16.90	17.73	18.64	19.65	FREE	※
N007374	IALR-4-2.0xR0.2xL20.0		0.2	20.0	1.6	1.94	11	4	60	21.09	22.12	23.26	24.52	FREE	※
N007375	IALR-4-2.0xR0.2xL24.0		0.2	24.0	1.6	1.94	11	4	60	25.28	26.52	27.88	FREE	FREE	※
N007376	IALR-4-2.0xR0.3xL6.0		0.3	6.0	1.6	1.94	11	4	50	6.43	6.73	7.07	7.44	8.32	※
N007377	IALR-4-2.0xR0.3xL8.0		0.3	8.0	1.6	1.94	11	4	50	8.52	8.93	9.38	9.88	11.06	※

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007378	IALR-4-2.0xR0.3xL10.0	2.0	0.3	10.0	1.6	1.94	11	4	50	10.62	11.13	11.69	12.31	13.80	※
N007379	IALR-4-2.0xR0.3xL12.0		0.3	12.0	1.6	1.94	11	4	50	12.71	13.32	14.00	14.75	16.54	※
N007380	IALR-4-2.0xR0.3xL15.0		0.3	15.0	1.6	1.94	11	4	50	15.85	16.62	17.47	18.41	FREE	※
N007381	IALR-4-2.0xR0.3xL16.0		0.3	16.0	1.6	1.94	11	4	50	16.90	17.72	18.62	19.63	FREE	※
N007382	IALR-4-2.0xR0.3xL20.0		0.3	20.0	1.6	1.94	11	4	60	21.09	22.11	23.25	24.50	FREE	※
N007383	IALR-4-2.0xR0.3xL24.0		0.3	24.0	1.6	1.94	11	4	60	25.28	26.51	27.87	FREE	FREE	※
N007384	IALR-4-2.0xR0.5xL8.0		0.5	8.0	1.6	1.94	11	4	50	8.51	8.91	9.35	9.83	10.99	※
N007385	IALR-4-2.0xR0.5xL12.0		0.5	12.0	1.6	1.94	11	4	50	12.70	13.30	13.97	14.71	16.47	※
N007386	IALR-4-2.0xR0.5xL16.0		0.5	16.0	1.6	1.94	11	4	50	16.89	17.70	18.59	19.58	FREE	※
N007387	IALR-4-2.0xR0.5xL24.0		0.5	24.0	1.6	1.94	11	4	60	25.27	26.49	27.84	FREE	FREE	※
N007388	IALR-4-2.5xR0.1xL10.0	2.5	0.1	10.0	2.0	2.44	11	4	50	10.63	11.15	11.72	12.36	13.87	※
N007389	IALR-4-2.5xR0.1xL20.0		0.1	20.0	2.0	2.44	11	4	50	21.10	22.13	23.28	FREE	FREE	※
N007390	IALR-4-2.5xR0.2xL10.0		0.2	10.0	2.0	2.44	11	4	50	10.62	11.14	11.70	12.34	13.83	※
N007391	IALR-4-2.5xR0.2xL20.0		0.2	20.0	2.0	2.44	11	4	50	21.09	22.12	23.26	FREE	FREE	※
N007392	IALR-4-2.5xR0.3xL10.0		0.3	10.0	2.0	2.44	11	4	50	10.62	11.13	11.69	12.31	13.80	※
N007393	IALR-4-2.5xR0.3xL20.0		0.3	20.0	2.0	2.44	11	4	50	21.09	22.11	23.25	FREE	FREE	※
N007394	IALR-4-2.5xR0.5xL10.0		0.5	10.0	2.0	2.44	11	4	50	10.61	11.11	11.66	12.27	13.73	※
N007395	IALR-4-2.5xR0.5xL20.0		0.5	20.0	2.0	2.44	11	4	50	21.08	22.09	23.22	FREE	FREE	※
N007396	IALR-4-3.0xR0.1xL10.0	3.0	0.1	10.0	2.5	2.85	11	4	50	10.87	11.40	11.99	12.64	FREE	※
N007397	IALR-4-3.0xR0.1xL12.0		0.1	12.0	2.5	2.85	11	4	50	12.96	13.60	14.30	FREE	FREE	※
N007398	IALR-4-3.0xR0.1xL15.0		0.1	15.0	2.5	2.85	11	4	50	16.10	16.89	17.77	FREE	FREE	※
N007399	IALR-4-3.0xR0.1xL18.0		0.1	18.0	2.5	2.85	11	4	50	19.25	20.19	FREE	FREE	FREE	※
N007400	IALR-4-3.0xR0.1xL20.0		0.1	20.0	2.5	2.85	11	4	50	21.34	22.39	FREE	FREE	FREE	※
N007401	IALR-4-3.0xR0.1xL24.0		0.1	24.0	2.5	2.85	11	4	60	25.53	26.78	FREE	FREE	FREE	※
N007402	IALR-4-3.0xR0.1xL30.0		0.1	30.0	2.5	2.85	11	4	60	31.81	FREE	FREE	FREE	FREE	※
N007403	IALR-4-3.0xR0.2xL10.0		0.2	10.0	2.5	2.85	11	4	50	10.86	11.39	11.97	12.62	FREE	※
N007404	IALR-4-3.0xR0.2xL12.0		0.2	12.0	2.5	2.85	11	4	50	12.96	13.59	14.28	FREE	FREE	※
N007405	IALR-4-3.0xR0.2xL15.0		0.2	15.0	2.5	2.85	11	4	50	16.10	16.88	17.75	FREE	FREE	※
N007406	IALR-4-3.0xR0.2xL18.0		0.2	18.0	2.5	2.85	11	4	50	19.24	20.18	FREE	FREE	FREE	※
N007407	IALR-4-3.0xR0.2xL20.0		0.2	20.0	2.5	2.85	11	4	50	21.33	22.38	FREE	FREE	FREE	※
N007408	IALR-4-3.0xR0.2xL24.0		0.2	24.0	2.5	2.85	11	4	60	25.52	26.77	FREE	FREE	FREE	※
N007409	IALR-4-3.0xR0.2xL30.0		0.2	30.0	2.5	2.85	11	4	60	31.80	FREE	FREE	FREE	FREE	※
N007410	IALR-4-3.0xR0.3xL10.0		0.3	10.0	2.5	2.85	11	4	50	10.86	11.38	11.96	12.60	FREE	※
N007411	IALR-4-3.0xR0.3xL12.0		0.3	12.0	2.5	2.85	11	4	50	12.95	13.58	14.27	FREE	FREE	※
N007412	IALR-4-3.0xR0.3xL15.0		0.3	15.0	2.5	2.85	11	4	50	16.10	16.87	17.74	FREE	FREE	※
N007413	IALR-4-3.0xR0.3xL18.0		0.3	18.0	2.5	2.85	11	4	50	19.24	20.17	FREE	FREE	FREE	※
N007414	IALR-4-3.0xR0.3xL20.0		0.3	20.0	2.5	2.85	11	4	50	21.33	22.37	FREE	FREE	FREE	※
N007415	IALR-4-3.0xR0.3xL24.0		0.3	24.0	2.5	2.85	11	4	60	25.52	26.76	FREE	FREE	FREE	※
N007416	IALR-4-3.0xR0.3xL30.0		0.3	30.0	2.5	2.85	11	4	60	31.80	FREE	FREE	FREE	FREE	※
N007417	IALR-4-3.0xR0.5xL12.0		0.5	12.0	2.5	2.85	11	4	50	12.94	13.56	14.24	FREE	FREE	※
N007418	IALR-4-3.0xR0.5xL18.0		0.5	18.0	2.5	2.85	11	4	50	19.23	20.15	FREE	FREE	FREE	※
N007419	IALR-4-3.0xR0.5xL24.0		0.5	24.0	2.5	2.85	11	4	60	25.51	26.74	FREE	FREE	FREE	※
N007420	IALR-4-3.0xR0.5xL30.0		0.5	30.0	2.5	2.85	11	4	60	31.79	FREE	FREE	FREE	FREE	※
N007421	IALR-4-3.0xR1.0xL12.0		1.0	12.0	2.5	2.85	11	4	50	12.92	13.51	14.16	14.88	FREE	※
N007422	IALR-4-3.0xR1.0xL18.0		1.0	18.0	2.5	2.85	11	4	50	19.20	20.10	FREE	FREE	FREE	※
N007423	IALR-4-3.0xR1.0xL24.0		1.0	24.0	2.5	2.85	11	4	60	25.49	26.69	FREE	FREE	FREE	※
N007424	IALR-4-3.0xR1.0xL30.0		1.0	30.0	2.5	2.85	11	4	60	31.77	FREE	FREE	FREE	FREE	※

ion Depo Type A Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007425	IALR-4-4.0xR0.1xL10.0	4.0	0.1	10.0	3.2	3.8	11	6	50	11.00	11.54	12.14	12.80	14.36	●
N007426	IALR-4-4.0xR0.1xL15.0		0.1	15.0	3.2	3.8	11	6	50	16.24	17.04	17.91	18.89	FREE	●
N007427	IALR-4-4.0xR0.1xL16.0		0.1	16.0	3.2	3.8	11	6	50	17.29	18.13	19.07	20.11	FREE	●
N007428	IALR-4-4.0xR0.1xL20.0		0.1	20.0	3.2	3.8	11	6	60	21.47	22.53	23.69	24.99	FREE	●
N007429	IALR-4-4.0xR0.1xL24.0		0.1	24.0	3.2	3.8	11	6	60	25.66	26.92	28.32	FREE	FREE	●
N007430	IALR-4-4.0xR0.1xL32.0		0.1	32.0	3.2	3.8	11	6	70	34.04	35.71	37.56	FREE	FREE	●
N007431	IALR-4-4.0xR0.2xL10.0		0.2	10.0	3.2	3.8	11	6	50	11.00	11.53	12.12	12.77	14.32	●
N007432	IALR-4-4.0xR0.2xL15.0		0.2	15.0	3.2	3.8	11	6	50	16.23	17.03	17.90	18.87	FREE	●
N007433	IALR-4-4.0xR0.2xL16.0		0.2	16.0	3.2	3.8	11	6	50	17.28	18.12	19.05	20.09	FREE	●
N007434	IALR-4-4.0xR0.2xL20.0		0.2	20.0	3.2	3.8	11	6	60	21.47	22.52	23.68	24.96	FREE	●
N007435	IALR-4-4.0xR0.2xL24.0		0.2	24.0	3.2	3.8	11	6	60	25.66	26.91	28.30	FREE	FREE	●
N007436	IALR-4-4.0xR0.2xL32.0		0.2	32.0	3.2	3.8	11	6	70	34.03	35.70	37.55	FREE	FREE	●
N007437	IALR-4-4.0xR0.3xL10.0		0.3	10.0	3.2	3.8	11	6	50	10.99	11.52	12.11	12.75	14.29	●
N007438	IALR-4-4.0xR0.3xL15.0		0.3	15.0	3.2	3.8	11	6	50	16.23	17.02	17.88	18.85	FREE	●
N007439	IALR-4-4.0xR0.3xL16.0		0.3	16.0	3.2	3.8	11	6	50	17.28	18.11	19.04	20.07	FREE	●
N007440	IALR-4-4.0xR0.3xL20.0		0.3	20.0	3.2	3.8	11	6	60	21.46	22.51	23.66	24.94	FREE	●
N007441	IALR-4-4.0xR0.3xL24.0		0.3	24.0	3.2	3.8	11	6	60	25.65	26.90	28.28	FREE	FREE	●
N007442	IALR-4-4.0xR0.3xL32.0		0.3	32.0	3.2	3.8	11	6	70	34.03	35.69	37.53	FREE	FREE	●
N007443	IALR-4-4.0xR0.5xL16.0		0.5	16.0	3.2	3.8	11	6	50	17.27	18.09	19.01	20.02	FREE	●
N007444	IALR-4-4.0xR0.5xL24.0		0.5	24.0	3.2	3.8	11	6	60	25.64	26.88	28.25	FREE	FREE	●
N007445	IALR-4-4.0xR0.5xL32.0		0.5	32.0	3.2	3.8	11	6	70	34.02	35.67	37.50	FREE	FREE	●
N007446	IALR-4-4.0xR1.0xL16.0		1.0	16.0	3.2	3.8	11	6	50	17.24	18.05	18.93	19.92	FREE	●
N007447	IALR-4-4.0xR1.0xL24.0		1.0	24.0	3.2	3.8	11	6	60	25.62	26.84	28.18	FREE	FREE	●
N007448	IALR-4-4.0xR1.0xL32.0		1.0	32.0	3.2	3.8	11	6	70	34.00	35.62	37.42	FREE	FREE	●
N007449	IALR-4-5.0xR0.1xL15.0	5.0	0.1	15.0	4.0	4.8	11	6	50	16.24	17.04	17.91	FREE	FREE	※
N007450	IALR-4-5.0xR0.1xL20.0		0.1	20.0	4.0	4.8	11	6	50	21.47	22.53	FREE	FREE	FREE	※
N007451	IALR-4-5.0xR0.1xL40.0		0.1	40.0	4.0	4.8	11	6	70	42.41	FREE	FREE	FREE	FREE	※
N007452	IALR-4-5.0xR0.2xL20.0		0.2	20.0	4.0	4.8	11	6	50	21.47	22.52	FREE	FREE	FREE	※
N007453	IALR-4-5.0xR0.2xL40.0		0.2	40.0	4.0	4.8	11	6	70	42.41	FREE	FREE	FREE	FREE	※
N007454	IALR-4-5.0xR0.3xL20.0		0.3	20.0	4.0	4.8	11	6	50	21.46	22.51	FREE	FREE	FREE	※
N007455	IALR-4-5.0xR0.3xL40.0		0.3	40.0	4.0	4.8	11	6	70	42.40	FREE	FREE	FREE	FREE	※
N007456	IALR-4-5.0xR0.5xL20.0		0.5	20.0	4.0	4.8	11	6	50	21.46	22.49	FREE	FREE	FREE	※
N007457	IALR-4-5.0xR0.5xL40.0		0.5	40.0	4.0	4.8	11	6	70	42.40	FREE	FREE	FREE	FREE	※
N007458	IALR-4-5.0xR1.0xL20.0		1.0	20.0	4.0	4.8	11	6	50	21.43	22.44	FREE	FREE	FREE	※
N007459	IALR-4-5.0xR1.0xL40.0		1.0	40.0	4.0	4.8	11	6	70	42.37	FREE	FREE	FREE	FREE	※
N007460	IALR-4-6.0xR0.1xL15.0	6.0	0.1	15.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N007461	IALR-4-6.0xR0.1xL20.0		0.1	20.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N007462	IALR-4-6.0xR0.1xL24.0		0.1	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007463	IALR-4-6.0xR0.1xL30.0		0.1	30.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007464	IALR-4-6.0xR0.1xL48.0		0.1	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N007465	IALR-4-6.0xR0.2xL15.0		0.2	15.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N007466	IALR-4-6.0xR0.2xL20.0		0.2	20.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N007467	IALR-4-6.0xR0.2xL24.0		0.2	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007468	IALR-4-6.0xR0.2xL30.0		0.2	30.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007469	IALR-4-6.0xR0.2xL48.0		0.2	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N007470	IALR-4-6.0xR0.3xL15.0		0.3	15.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N007471	IALR-4-6.0xR0.3xL20.0		0.3	20.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	コーナー半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007472	IALR-4-6.0xR0.3xL24.0	6.0	0.3	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007473	IALR-4-6.0xR0.3xL30.0		0.3	30.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007474	IALR-4-6.0xR0.3xL48.0		0.3	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N007475	IALR-4-6.0xR0.5xL15.0		0.5	15.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N007476	IALR-4-6.0xR0.5xL20.0		0.5	20.0	5.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N007477	IALR-4-6.0xR0.5xL24.0		0.5	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007478	IALR-4-6.0xR0.5xL30.0		0.5	30.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007479	IALR-4-6.0xR0.5xL48.0		0.5	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N007480	IALR-4-6.0xR1.0xL24.0		1.0	24.0	5.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007481	IALR-4-6.0xR1.0xL48.0		1.0	48.0	5.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●

ion Depo Type A Series

super MG | ion A | Profiling | 刃数 2 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P220

超硬ボールエンドミル Carbide Ball End Mills

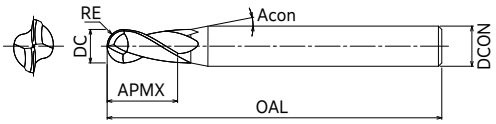
■型番:IAB-2 Model number:IAB-2

◆非鉄金属からプリハードン鋼までの多様な被削材の曲面加工に適しています

◆ Suitable for profilling of a wide range of work materials from non-ferrous metals to pre-hardened steels



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≦12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≦20	0/-0.020	±0.010



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表 Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	◎	◎	◎	○			◎	○		○	○	◎	○

第一推奨◎Recommended 第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N007482	IAB-2-0.3xR0.15x0.3	0.3	0.15	0.3	11	4	50	※
N007483	IAB-2-0.4xR0.2x0.6	0.4	0.2	0.6	11	4	50	●
N007484	IAB-2-0.5xR0.25x0.8	0.5	0.25	0.8	11	4	50	●
N007485	IAB-2-0.6xR0.3x1.0	0.6	0.3	1.0	11	4	50	●
N007486	IAB-2-0.8xR0.4x1.2	0.8	0.4	1.2	11	4	50	●
N007487	IAB-2-1.0xR0.5x1.5	1.0	0.5	1.5	11	4	50	●
N007488	IAB-2-1.2xR0.6x1.8	1.2	0.6	1.8	11	4	50	●
N007489	IAB-2-1.5xR0.75x2.3	1.5	0.75	2.3	11	4	50	●
N007490	IAB-2-1.6xR0.8x2.4	1.6	0.8	2.4	11	4	50	●
N007491	IAB-2-2.0xR1.0x3.0	2.0	1.0	3.0	11	4	50	●
N007492	IAB-2-2.5xR1.25x3.8	2.5	1.25	3.8	11	4	50	●
N007493	IAB-2-3.0xR1.5x5.0	3.0	1.5	5.0	11	4	50	●
N007494	IAB-2-4.0xR2.0x4.0	4.0	2.0	4.0	11	6	50	●
N007495	IAB-2-4.0xR2.0x6.0	4.0		6.0	11	6	50	●
N007496	IAB-2-5.0xR2.5x5.0	5.0	2.5	5.0	11	6	50	※
N007497	IAB-2-5.0xR2.5x8.0	5.0		8.0	11	6	50	※
N007498	IAB-2-6.0xR3.0x6.0	6.0	3.0	6.0	—	6	50	●
N007499	IAB-2-6.0xR3.0x10.0	6.0		10.0	—	6	50	●
N007500	IAB-2-8.0xR4.0x12.0	8.0	4.0	12.0	—	8	70	●
N007501	IAB-2-8.0xR4.0x16.0	8.0		16.0	—	8	70	●
N007502	IAB-2-10.0xR5.0x15.0	10.0	5.0	15.0	—	10	80	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	刃長 APMX	首角 Acon	シャンク径 DCON	全長 OAL	在庫 Stock
N007503	IAB-2-10.0xR5.0x20.0	10.0	5.0	20.0	—	10	80	●
N007504	IAB-2-12.0xR6.0x20.0	12.0	6.0	20.0	—	12	110	●
N007505	IAB-2-12.0xR6.0x24.0	12.0		24.0	—	12	110	※
N007506	IAB-2-16.0xR8.0x30.0	16.0	8.0	30.0	—	16	140	※
N007507	IAB-2-20.0xR10.0x38.0	20.0	10.0	38.0	—	20	160	※

ion Depo Type A Series

super MG | ion A | Profiling | 刃数 2 | Helix Angle 30° | NA 11° | h5 | Gash Land

切削条件表 Cutting Parameter P222

超硬ロングネックボールエンドミル
Carbide Long Neck Ball End Mills

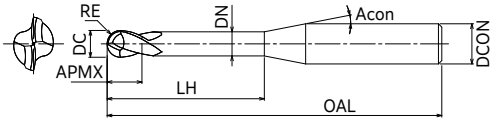
■型番:IALB-2 Model number:IALB-2

◆非鉄金属からプリハードン鋼までの多様な被削材の微細加工に適しています

◆ Suitable for fine milling of a wide range of work materials from non-ferrous metals to pre-hardened steel



径 Diameter	径許容差 Diameter Tolerance	R許容差 R Tolerance
φ6以下 φ≦6	0/-0.007	±0.003
φ6を超えφ12以下 6<φ≦12	0/-0.014	±0.005
φ12を超えφ20以下 12<φ≦20	0/-0.020	±0.010



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表　Material compatibility table

被削材 Work Material														
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	◎	◎	◎	○			◎	○		○	○	◎	○

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
□ = 特定代理店在庫品 Designated distributor stock
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece. 30'	1°	1°30'	2°	3°	在庫 Stock
N007508	IALB-2-0.3xR0.15xL0.5	0.3	0.15	0.5	0.2	0.27	11	4	50	0.60	0.62	0.64	0.67	0.74	●
N007509	IALB-2-0.3xR0.15xL0.6	0.3		0.6	0.2	0.27	11	4	50	0.70	0.73	0.76	0.79	0.87	●
N007510	IALB-2-0.3xR0.15xL0.75	0.3		0.75	0.2	0.27	11	4	50	0.86	0.89	0.93	0.98	1.08	●
N007511	IALB-2-0.3xR0.15xL1.0	0.3		1.0	0.2	0.27	11	4	50	1.12	1.17	1.22	1.28	1.42	●
N007512	IALB-2-0.3xR0.15xL1.25	0.3		1.25	0.2	0.27	11	4	50	1.38	1.44	1.51	1.59	1.76	●
N007513	IALB-2-0.3xR0.15xL1.5	0.3		1.5	0.2	0.27	11	4	50	1.64	1.72	1.80	1.89	2.11	●
N007514	IALB-2-0.3xR0.15xL1.75	0.3		1.75	0.2	0.27	11	4	50	1.91	1.99	2.09	2.20	2.45	●
N007515	IALB-2-0.3xR0.15xL2.0	0.3		2.0	0.2	0.27	11	4	50	2.17	2.27	2.38	2.50	2.79	●
N007516	IALB-2-0.3xR0.15xL2.25	0.3		2.25	0.2	0.27	11	4	50	2.43	2.54	2.67	2.80	3.13	●
N007517	IALB-2-0.3xR0.15xL2.5	0.3		2.5	0.2	0.27	11	4	50	2.69	2.82	2.96	3.11	3.48	●
N007518	IALB-2-0.3xR0.15xL2.75	0.3		2.75	0.2	0.27	11	4	50	2.95	3.09	3.24	3.41	3.82	●
N007519	IALB-2-0.3xR0.15xL3.0	0.3		3.0	0.2	0.27	11	4	50	3.21	3.37	3.53	3.72	4.16	●
N007520	IALB-2-0.4xR0.2xL0.5	0.4	0.2	0.5	0.3	0.37	11	4	50	0.59	0.61	0.64	0.66	0.72	●
N007521	IALB-2-0.4xR0.2xL0.8	0.4		0.8	0.3	0.37	11	4	50	0.86	0.89	0.93	0.97	1.06	●
N007522	IALB-2-0.4xR0.2xL1.0	0.4		1.0	0.3	0.37	11	4	50	1.12	1.16	1.21	1.27	1.40	●
N007523	IALB-2-0.4xR0.2xL1.5	0.4		1.5	0.3	0.37	11	4	50	1.64	1.71	1.79	1.88	2.09	●
N007524	IALB-2-0.4xR0.2xL2.0	0.4		2.0	0.3	0.37	11	4	50	2.17	2.26	2.37	2.49	2.77	●
N007525	IALB-2-0.4xR0.2xL2.5	0.4		2.5	0.3	0.37	11	4	50	2.69	2.81	2.95	3.10	3.46	●
N007526	IALB-2-0.4xR0.2xL3.0	0.4		3.0	0.3	0.37	11	4	50	3.21	3.36	3.53	3.71	4.14	●
N007527	IALB-2-0.5xR0.25xL1.0	0.5	0.25	1.0	0.35	0.47	11	4	50	1.12	1.16	1.21	1.26	1.39	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007528	IALB-2-0.5xR0.25xL1.5	0.5	0.25	1.5	0.35	0.47	11	4	50	1.64	1.71	1.78	1.87	2.07	●
N007529	IALB-2-0.5xR0.25xL2.0	0.5		2.0	0.35	0.47	11	4	50	2.16	2.26	2.36	2.48	2.76	●
N007530	IALB-2-0.5xR0.25xL2.5	0.5		2.5	0.35	0.47	11	4	50	2.69	2.81	2.94	3.09	3.44	●
N007531	IALB-2-0.5xR0.25xL3.0	0.5		3.0	0.35	0.47	11	4	50	3.21	3.36	3.52	3.70	4.13	●
N007532	IALB-2-0.5xR0.25xL3.5	0.5		3.5	0.35	0.47	11	4	50	3.73	3.91	4.10	4.31	4.81	●
N007533	IALB-2-0.5xR0.25xL4.0	0.5		4.0	0.35	0.47	11	4	50	4.26	4.45	4.67	4.92	5.49	●
N007534	IALB-2-0.6xR0.3xL1.0	0.6	0.3	1.0	0.6	0.57	11	4	50	1.11	1.15	1.20	1.25	1.37	●
N007535	IALB-2-0.6xR0.3xL1.5	0.6		1.5	0.6	0.57	11	4	50	1.64	1.70	1.78	1.86	2.05	●
N007536	IALB-2-0.6xR0.3xL2.0	0.6		2.0	0.6	0.57	11	4	50	2.16	2.25	2.35	2.47	2.74	●
N007537	IALB-2-0.6xR0.3xL2.5	0.6		2.5	0.6	0.57	11	4	50	2.68	2.80	2.93	3.08	3.42	●
N007538	IALB-2-0.6xR0.3xL3.0	0.6		3.0	0.6	0.57	11	4	50	3.21	3.35	3.51	3.69	4.11	●
N007539	IALB-2-0.6xR0.3xL3.5	0.6		3.5	0.6	0.57	11	4	50	3.73	3.90	4.09	4.30	4.79	●
N007540	IALB-2-0.6xR0.3xL4.0	0.6		4.0	0.6	0.57	11	4	50	4.25	4.45	4.67	4.91	5.48	●
N007541	IALB-2-0.6xR0.3xL4.5	0.6		4.5	0.6	0.57	11	4	50	4.78	5.00	5.24	5.51	6.16	●
N007542	IALB-2-0.6xR0.3xL5.0	0.6		5.0	0.6	0.57	11	4	50	5.30	5.55	5.82	6.12	6.85	●
N007543	IALB-2-0.6xR0.3xL5.5	0.6		5.5	0.6	0.57	11	4	50	5.83	6.10	6.40	6.73	7.53	●
N007544	IALB-2-0.6xR0.3xL6.0	0.6		6.0	0.6	0.57	11	4	50	6.35	6.65	6.98	7.34	8.22	●
N007545	IALB-2-0.8xR0.4xL2.0	0.8	0.4	2.0	0.6	0.77	11	4	50	2.16	2.24	2.34	2.45	2.70	●
N007546	IALB-2-0.8xR0.4xL3.0	0.8		3.0	0.6	0.77	11	4	50	3.20	3.34	3.49	3.66	4.07	●
N007547	IALB-2-0.8xR0.4xL4.0	0.8		4.0	0.6	0.77	11	4	50	4.25	4.44	4.65	4.88	5.44	●
N007548	IALB-2-0.8xR0.4xL5.0	0.8		5.0	0.6	0.77	11	4	50	5.30	5.54	5.81	6.10	6.81	●
N007549	IALB-2-0.8xR0.4xL6.0	0.8		6.0	0.6	0.77	11	4	50	6.34	6.64	6.96	7.32	8.18	●
N007550	IALB-2-0.8xR0.4xL7.0	0.8		7.0	0.6	0.77	11	4	50	7.39	7.74	8.12	8.54	9.55	●
N007551	IALB-2-0.8xR0.4xL8.0	0.8		8.0	0.6	0.77	11	4	50	8.44	8.83	9.27	9.76	10.92	●
N007552	IALB-2-1.0xR0.5xL2.0	1.0	0.5	2.0	0.8	0.95	11	4	50	2.21	2.29	2.38	2.49	2.74	●
N007553	IALB-2-1.0xR0.5xL2.5	1.0		2.5	0.8	0.95	11	4	50	2.73	2.84	2.96	3.10	3.42	●
N007554	IALB-2-1.0xR0.5xL3.0	1.0		3.0	0.8	0.95	11	4	50	3.25	3.39	3.54	3.71	4.11	●
N007555	IALB-2-1.0xR0.5xL4.0	1.0		4.0	0.8	0.95	11	4	50	4.30	4.49	4.69	4.93	5.48	●
N007556	IALB-2-1.0xR0.5xL6.0	1.0		6.0	0.8	0.95	11	4	50	6.39	6.68	7.01	7.36	8.22	●
N007557	IALB-2-1.0xR0.5xL7.0	1.0		7.0	0.8	0.95	11	4	50	7.44	7.78	8.16	8.58	9.58	●
N007558	IALB-2-1.0xR0.5xL8.0	1.0		8.0	0.8	0.95	11	4	50	8.49	8.88	9.32	9.80	10.95	●
N007559	IALB-2-1.0xR0.5xL9.0	1.0		9.0	0.8	0.95	11	4	50	9.53	9.98	10.47	11.02	12.32	●
N007560	IALB-2-1.0xR0.5xL10.0	1.0		10.0	0.8	0.95	11	4	50	10.58	11.08	11.63	12.24	13.69	●
N007561	IALB-2-1.0xR0.5xL12.0	1.0		12.0	0.8	0.95	11	4	50	12.68	13.28	13.94	14.68	16.43	●
N007562	IALB-2-1.2xR0.6xL2.4	1.2	0.6	2.4	0.9	1.15	11	4	50	2.62	2.72	2.83	2.95	3.25	●
N007563	IALB-2-1.2xR0.6xL4.0	1.2		4.0	0.9	1.15	11	4	50	4.29	4.48	4.68	4.90	5.44	●
N007564	IALB-2-1.2xR0.6xL6.0	1.2		6.0	0.9	1.15	11	4	50	6.39	6.67	6.99	7.34	8.18	●
N007565	IALB-2-1.2xR0.6xL8.0	1.2		8.0	0.9	1.15	11	4	50	8.48	8.87	9.30	9.78	10.92	●
N007566	IALB-2-1.2xR0.6xL10.0	1.2		10.0	0.9	1.15	11	4	50	10.58	11.07	11.61	12.22	13.66	●
N007567	IALB-2-1.2xR0.6xL12.0	1.2		12.0	0.9	1.15	11	4	50	12.67	13.27	13.92	14.66	16.40	●
N007568	IALB-2-1.5xR0.75xL3.0	1.5	0.75	3.0	1.1	1.45	11	4	50	3.24	3.36	3.50	3.65	4.02	●
N007569	IALB-2-1.5xR0.75xL4.0	1.5		4.0	1.1	1.45	11	4	50	4.29	4.46	4.66	4.87	5.39	●
N007570	IALB-2-1.5xR0.75xL6.0	1.5		6.0	1.1	1.45	11	4	50	6.38	6.66	6.97	7.31	8.13	●
N007571	IALB-2-1.5xR0.75xL8.0	1.5		8.0	1.1	1.45	11	4	50	8.48	8.86	9.28	9.75	10.87	●
N007572	IALB-2-1.5xR0.75xL10.0	1.5		10.0	1.1	1.45	11	4	50	10.57	11.05	11.59	12.19	13.60	●
N007573	IALB-2-1.5xR0.75xL12.0	1.5		12.0	1.1	1.45	11	4	50	12.66	13.25	13.90	14.62	16.34	●
N007574	IALB-2-1.5xR0.75xL14.0	1.5		14.0	1.1	1.45	11	4	50	14.76	15.45	16.21	17.06	19.08	●

ion Depo Type A Series

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007575	IALB-2-1.5xR0.75xL16.0	1.5	0.75	16.0	1.1	1.45	11	4	50	16.85	17.65	18.52	19.50	21.82	●
N007576	IALB-2-1.6xR0.8xL4.0	1.6	0.8	4.0	1.2	1.55	11	4	50	4.29	4.46	4.65	4.86	5.37	●
N007577	IALB-2-1.6xR0.8xL8.0	1.6		8.0	1.2	1.55	11	4	50	8.47	8.85	9.27	9.74	10.85	●
N007578	IALB-2-1.6xR0.8xL12.0	1.6		12.0	1.2	1.55	11	4	50	12.66	13.25	13.89	14.61	16.33	●
N007579	IALB-2-1.6xR0.8xL16.0	1.6		16.0	1.2	1.55	11	4	50	16.85	17.64	18.52	19.49	21.80	●
N007580	IALB-2-2.0xR1.0xL3.0	2.0	1.0	3.0	1.5	1.94	11	4	50	3.26	3.37	3.49	3.63	3.97	●
N007581	IALB-2-2.0xR1.0xL4.0	2.0		4.0	1.5	1.94	11	4	50	4.30	4.47	4.65	4.85	5.34	●
N007582	IALB-2-2.0xR1.0xL6.0	2.0		6.0	1.5	1.94	11	4	50	6.40	6.66	6.96	7.29	8.08	●
N007583	IALB-2-2.0xR1.0xL8.0	2.0		8.0	1.5	1.94	11	4	50	8.49	8.86	9.27	9.72	10.81	●
N007584	IALB-2-2.0xR1.0xL10.0	2.0		10.0	1.5	1.94	11	4	50	10.58	11.06	11.58	12.16	13.55	●
N007585	IALB-2-2.0xR1.0xL12.0	2.0		12.0	1.5	1.94	11	4	50	12.68	13.26	13.89	14.60	16.29	●
N007586	IALB-2-2.0xR1.0xL13.0	2.0		13.0	1.5	1.94	11	4	50	13.73	14.35	15.05	15.82	17.66	●
N007587	IALB-2-2.0xR1.0xL14.0	2.0		14.0	1.5	1.94	11	4	50	14.77	15.45	16.20	17.04	19.03	●
N007588	IALB-2-2.0xR1.0xL15.0	2.0		15.0	1.5	1.94	11	4	50	15.82	16.55	17.36	18.26	FREE	●
N007589	IALB-2-2.0xR1.0xL16.0	2.0		16.0	1.5	1.94	11	4	50	16.87	17.65	18.52	19.48	FREE	●
N007590	IALB-2-2.0xR1.0xL18.0	2.0		18.0	1.5	1.94	11	4	50	18.96	19.85	20.83	21.91	FREE	●
N007591	IALB-2-2.0xR1.0xL20.0	2.0		20.0	1.5	1.94	11	4	60	21.05	22.04	23.14	24.35	FREE	●
N007592	IALB-2-2.5xR1.25xL6.0	2.5	1.25	6.0	2.3	2.44	11	4	50	6.39	6.64	6.92	7.23	7.99	※
N007593	IALB-2-2.5xR1.25xL8.0	2.5		8.0	2.3	2.44	11	4	50	8.48	8.84	9.23	9.67	10.73	※
N007594	IALB-2-2.5xR1.25xL10.0	2.5		10.0	2.3	2.44	11	4	50	10.57	11.03	11.54	12.11	13.47	※
N007595	IALB-2-2.5xR1.25xL15.0	2.5		15.0	2.3	2.44	11	4	50	15.81	16.53	17.32	18.20	FREE	※
N007596	IALB-2-2.5xR1.25xL20.0	2.5		20.0	2.3	2.44	11	4	50	21.04	22.02	23.10	FREE	FREE	※
N007597	IALB-2-3.0xR1.5xL6.0	3.0	1.5	6.0	2.5	2.85	11	4	50	6.62	6.87	7.15	7.46	8.22	●
N007598	IALB-2-3.0xR1.5xL8.0	3.0		8.0	2.5	2.85	11	4	50	8.71	9.07	9.46	9.90	10.96	●
N007599	IALB-2-3.0xR1.5xL10.0	3.0		10.0	2.5	2.85	11	4	50	10.80	11.26	11.77	12.34	FREE	●
N007600	IALB-2-3.0xR1.5xL12.0	3.0		12.0	2.5	2.85	11	4	50	12.90	13.46	14.08	14.78	FREE	●
N007601	IALB-2-3.0xR1.5xL14.0	3.0		14.0	2.5	2.85	11	4	50	14.99	15.66	16.40	FREE	FREE	●
N007602	IALB-2-3.0xR1.5xL15.0	3.0		15.0	2.5	2.85	11	4	50	16.04	16.76	17.55	FREE	FREE	●
N007603	IALB-2-3.0xR1.5xL16.0	3.0		16.0	2.5	2.85	11	4	50	17.09	17.86	18.71	FREE	FREE	●
N007604	IALB-2-3.0xR1.5xL20.0	3.0		20.0	2.5	2.85	11	4	50	21.27	22.25	FREE	FREE	FREE	●
N007605	IALB-2-3.0xR1.5xL25.0	3.0		25.0	2.5	2.85	11	4	60	26.51	27.74	FREE	FREE	FREE	●
N007606	IALB-2-3.0xR1.5xL30.0	3.0		30.0	2.5	2.85	11	4	60	31.74	FREE	FREE	FREE	FREE	●
N007607	IALB-2-3.5xR1.75xL10.0	3.5	1.75	10.0	2.8	3.35	11	6	50	10.79	11.24	11.73	12.28	13.61	※
N007608	IALB-2-3.5xR1.75xL15.0	3.5		15.0	2.8	3.35	11	6	50	16.03	16.73	17.51	18.38	20.45	※
N007609	IALB-2-3.5xR1.75xL20.0	3.5		20.0	2.8	3.35	11	6	60	21.26	22.23	23.29	24.47	FREE	※
N007610	IALB-2-3.5xR1.75xL25.0	3.5		25.0	2.8	3.35	11	6	60	26.50	27.72	29.07	30.57	FREE	※
N007611	IALB-2-3.5xR1.75xL30.0	3.5		30.0	2.8	3.35	11	6	70	31.73	33.21	34.85	36.66	FREE	※
N007612	IALB-2-3.5xR1.75xL35.0	3.5		35.0	2.8	3.35	11	6	70	36.97	38.71	40.63	FREE	FREE	※
N007613	IALB-2-4.0xR2.0xL10.0	4.0	2.0	10.0	3.0	3.8	11	6	50	10.92	11.36	11.84	12.39	13.70	●
N007614	IALB-2-4.0xR2.0xL12.0	4.0		12.0	3.0	3.8	11	6	50	13.01	13.55	14.16	14.82	16.43	●
N007615	IALB-2-4.0xR2.0xL14.0	4.0		14.0	3.0	3.8	11	6	50	15.10	15.75	16.47	17.26	19.17	●
N007616	IALB-2-4.0xR2.0xL15.0	4.0		15.0	3.0	3.8	11	6	50	16.15	16.85	17.62	18.48	20.54	●
N007617	IALB-2-4.0xR2.0xL16.0	4.0		16.0	3.0	3.8	11	6	50	17.20	17.95	18.78	19.70	FREE	●
N007618	IALB-2-4.0xR2.0xL20.0	4.0		20.0	3.0	3.8	11	6	60	21.39	22.34	23.40	24.58	FREE	●
N007619	IALB-2-4.0xR2.0xL25.0	4.0		25.0	3.0	3.8	11	6	60	26.62	27.84	29.18	FREE	FREE	●
N007620	IALB-2-4.0xR2.0xL30.0	4.0		30.0	3.0	3.8	11	6	70	31.86	33.33	34.96	FREE	FREE	●
N007621	IALB-2-4.0xR2.0xL35.0	4.0		35.0	3.0	3.8	11	6	70	37.09	38.82	FREE	FREE	FREE	●

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	刃径 DC	ボール半径 RE	有効長 LH	刃長 APMX	首下径 DN	首角 Acon	シャンク径 DCON	全長 OAL	ワーク勾配に対する実有効長 Actual effective length by inclined angle of workpiece.					在庫 Stock
										30'	1°	1°30'	2°	3°	
N007622	IALB-2-5.0xR2.5xL10.0	5.0	2.5	10.0	3.5	4.8	11	6	50	10.89	11.31	11.77	12.28	FREE	●
N007623	IALB-2-5.0xR2.5xL15.0	5.0		15.0	3.5	4.8	11	6	50	16.13	16.80	17.55	FREE	FREE	●
N007624	IALB-2-5.0xR2.5xL20.0	5.0		20.0	3.5	4.8	11	6	50	21.36	22.29	FREE	FREE	FREE	●
N007625	IALB-2-5.0xR2.5xL25.0	5.0		25.0	3.5	4.8	11	6	60	26.60	27.79	FREE	FREE	FREE	●
N007626	IALB-2-5.0xR2.5xL30.0	5.0		30.0	3.5	4.8	11	6	60	31.83	FREE	FREE	FREE	FREE	●
N007627	IALB-2-5.0xR2.5xL35.0	5.0		35.0	3.5	4.8	11	6	70	37.07	FREE	FREE	FREE	FREE	●
N007628	IALB-2-5.0xR2.5xL40.0	5.0		40.0	3.5	4.8	11	6	70	42.30	FREE	FREE	FREE	FREE	●
N007629	IALB-2-6.0xR3.0xL10.0	6.0	3.0	10.0	6.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N007630	IALB-2-6.0xR3.0xL15.0	6.0		15.0	6.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N007631	IALB-2-6.0xR3.0xL20.0	6.0		20.0	6.0	5.8	11	6	50	FREE	FREE	FREE	FREE	FREE	●
N007632	IALB-2-6.0xR3.0xL25.0	6.0		25.0	6.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007633	IALB-2-6.0xR3.0xL30.0	6.0		30.0	6.0	5.8	11	6	60	FREE	FREE	FREE	FREE	FREE	●
N007634	IALB-2-6.0xR3.0xL35.0	6.0		35.0	6.0	5.8	11	6	70	FREE	FREE	FREE	FREE	FREE	●
N007635	IALB-2-6.0xR3.0xL40.0	6.0		40.0	6.0	5.8	11	6	70	FREE	FREE	FREE	FREE	FREE	●
N007636	IALB-2-6.0xR3.0xL45.0	6.0		45.0	6.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●
N007637	IALB-2-6.0xR3.0xL50.0	6.0		50.0	6.0	5.8	11	6	80	FREE	FREE	FREE	FREE	FREE	●

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IAS-2
Model number:IAS-2

スクエアエンドミル Square End Mills
側面 Side Milling

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.1	0.15	50,000	67	0.135	0.003	50,000	61	0.135	0.003	50,000	56	0.12	0.002	50,000	72	0.135	0.003	50,000	56	0.105	0.003
0.2	0.4	50,000	134	0.27	0.006	50,000	123	0.27	0.006	50,000	112	0.24	0.005	50,000	144	0.27	0.006	50,000	112	0.21	0.005
0.3	0.3	50,000	201	0.36	0.009	50,000	184	0.36	0.009	43,000	145	0.32	0.007	50,000	216	0.36	0.009	47,800	160	0.28	0.008
	0.6	50,000	186	0.63	0.005	50,000	171	0.63	0.005	40,900	130	0.56	0.004	50,000	198	0.63	0.006	45,400	140	0.49	0.005
0.4	0.6	50,000	268	0.54	0.012	43,800	215	0.54	0.012	32,200	145	0.48	0.010	50,000	287	0.54	0.012	35,800	160	0.42	0.010
	0.8	50,000	248	0.9	0.006	41,600	190	0.9	0.006	30,600	130	0.8	0.005	50,000	264	0.9	0.008	34,100	140	0.7	0.007
0.5	0.8	50,000	335	0.7	0.015	35,000	215	0.7	0.015	25,800	145	0.64	0.012	50,000	360	0.72	0.015	28,600	160	0.56	0.013
	1.25	48,400	300	1.125	0.008	33,300	190	1.125	0.008	24,500	130	1	0.006	48,380	320	1.125	0.01	27,300	140	0.875	0.009
	2.0	45,800	240	1.8	0.004	31,500	150	1.8	0.004	23,200	100	1.6	0.003	45,800	255	1.8	0.004	25,800	115	1.4	0.003
0.6	1.0	42,400	341	0.9	0.018	27,700	204	0.9	0.018	20,400	138	0.8	0.014	42,440	366	0.9	0.018	23,900	160	0.7	0.016
	1.5	40,300	300	1.35	0.009	27,700	190	1.35	0.009	20,400	130	1.2	0.007	40,320	320	1.35	0.012	22,700	140	1.05	0.011
	2.4	38,200	239	2.16	0.023	26,300	150	2.16	0.023	19,400	100	1.92	0.004	38,200	254	2.16	0.005	21,500	115	1.68	0.004
0.7	1.8	34,600	300	1.62	0.011	23,800	190	1.62	0.011	17,500	130	1.44	0.008	34,560	320	1.62	0.014	19,500	140	1.26	0.013
0.8	1.2	31,800	340	1.1	0.024	21,900	215	1.08	0.024	16,100	145	0.96	0.019	31,800	365	1.08	0.024	17,900	160	0.84	0.021
	2.0	30,200	300	1.8	0.012	20,800	190	1.8	0.012	15,300	130	1.6	0.010	30,200	320	1.8	0.016	17,000	140	1.4	0.014
	3.2	28,600	240	2.9	0.006	19,700	150	2.88	0.006	14,500	100	2.56	0.005	28,600	255	2.88	0.006	16,100	115	2.24	0.005
0.9	2	26,900	300	1.8	0.014	18,500	190	1.8	0.014	13,600	130	1.6	0.016	26,880	320	1.8	0.023	15,100	140	1.4	0.023
1.0	1.5	25,500	340	1.4	0.045	17,500	215	1.35	0.045	12,900	145	1.2	0.036	25,500	365	1.35	0.045	14,300	160	1.05	0.04
	2.5	24,200	300	2.3	0.03	16,600	190	2.25	0.03	12,200	130	2	0.018	24,200	320	2.25	0.025	13,600	140	1.75	0.025
	4.0	22,900	240	3.6	0.011	15,700	150	3.6	0.011	11,600	100	3.2	0.012	22,900	255	3.6	0.011	12,900	115	2.8	0.01
1.1	2.5	22,000	300	2.25	0.033	15,100	190	2.25	0.033	11,100	130	2	0.020	21,990	320	2.25	0.028	12,400	140	1.75	0.028
1.2	3.0	20,200	300	2.7	0.036	13,900	190	2.7	0.036	10,200	130	2.4	0.022	20,160	320	2.7	0.03	11,400	140	2.1	0.03
1.3	3.0	18,600	300	2.7	0.039	12,800	190	2.7	0.039	9,430	130	2.4	0.023	18,610	320	2.7	0.033	10,500	140	2.1	0.033
1.4	3.5	17,300	300	3.15	0.042	11,900	190	3.15	0.042	8,750	130	2.8	0.025	17,280	320	3.15	0.035	9,730	140	2.45	0.035
1.5	2.0	17,000	340	1.8	0.067	11,700	215	1.8	0.068	8,600	145	1.6	0.054	17,000	365	1.8	0.068	9,550	160	1.4	0.06
	4.0	16,100	300	3.6	0.045	11,100	190	3.6	0.045	8,170	130	3.2	0.027	16,100	320	3.6	0.038	9,070	140	2.8	0.038
	6.0	15,300	240	5.4	0.023	10,500	150	5.4	0.023	7,740	100	4.8	0.018	15,300	255	5.4	0.023	8,600	115	4.2	0.020
1.6	4.0	15,100	300	3.6	0.072	10,400	190	3.6	0.072	7,660	130	3.2	0.058	15,120	320	3.6	0.072	8,510	140	2.8	0.064
1.7	4.5	14,200	300	4.05	0.077	9,790	190	4.05	0.077	7,210	130	3.6	0.061	14,230	320	4.05	0.077	8,010	140	3.15	0.068
1.8	4.5	13,400	300	4.05	0.081	9,250	190	4.05	0.081	6,810	130	3.6	0.065	13,440	320	4.05	0.081	7,570	140	3.15	0.072
1.9	5.0	12,700	300	4.5	0.086	8,760	190	4.5	0.086	6,450	130	4	0.068	12,730	320	4.5	0.086	7,170	140	3.5	0.076
2.0	3.0	12,700	340	2.7	0.12	8,760	215	2.7	0.12	6,450	145	2.4	0.096	12,700	365	2.7	0.12	7,160	160	2.1	0.1
	5.0	12,100	300	4.5	0.09	8,320	190	4.5	0.09	6,130	130	4	0.072	12,100	320	4.5	0.09	6,810	140	3.5	0.08
	8.0	11,500	240	7.2	0.045	7,880	150	7.2	0.045	5,800	100	6.4	0.036	11,500	255	7.2	0.045	6,450	115	5.6	0.04
2.1	5.5	11,500	300	4.95	0.126	7,930	190	4.95	0.126	5,840	130	4.4	0.095	11,520	320	4.95	0.126	6,490	140	3.85	0.105
2.2	5.5	11,000	300	4.95	0.132	7,570	190	4.95	0.132	5,570	130	4.4	0.099	11,000	320	4.95	0.132	6,190	140	3.85	0.11
2.3	6.0	10,500	300	5.4	0.138	7,240	190	5.4	0.138	5,330	130	4.8	0.104	10,520	320	5.4	0.138	5,920	140	4.2	0.115
2.4	6.0	10,100	300	5.4	0.144	6,940	190	5.4	0.144	5,110	130	4.8	0.108	10,080	320	5.4	0.144	5,680	140	4.2	0.12
2.5	7.0	9,680	340	6.3	0.188	6,660	190	6.3	0.15	4,900	130	5.6	0.113	9,680	320	6.3	0.15	5,450	140	4.9	0.125
	10.0	9,170	240	9	0.075	6,310	150	9	0.094	4,640	100	8	0.06	9,170	255	9	0.75	5,160	115	7	0.065
2.6	7.0	9,300	300	6.3	0.156	6,400	190	6.3	0.156	4,710	130	5.6	0.117	9,300	320	6.3	0.156	5,240	140	4.9	0.13
2.7	7.0	8,960	300	6.3	0.162	6,170	190	6.3	0.162	4,540	130	5.6	0.122	8,960	320	6.3	0.162	5,050	140	4.9	0.135
2.8	7.0	8,640	300	6.3	0.168	5,950	190	6.3	0.168	4,380	130	5.6	0.126	8,640	320	6.3	0.168	4,870	140	4.9	0.14

スクエアエンドミル Square End Mills
側面 Side Milling

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
2.9	8.0	8,340	300	7.2	0.174	5,740	190	7.2	0.174	4,230	130	6.4	0.131	8,340	320	7.2	0.174	4,700	140	5.6	0.145
3.0	5.0	8,490	340	4.5	0.225	5,840	215	4.5	0.225	4,300	145	4	0.18	8,490	365	4.5	0.225	4,780	160	3.5	0.195
	8.0	8,060	300	7.2	0.18	5,550	190	7.2	0.18	4,080	130	6.4	0.135	8,060	320	7.2	0.18	4,540	140	5.6	0.15
	12.0	7,640	240	10.8	0.09	5,250	150	10.8	0.09	3,870	100	9.6	0.072	7,640	255	10.8	0.9	4,300	115	8.4	0.078
3.1	8.0	7,800	300	7.2	0.186	5,370	190	7.2	0.186	3,950	130	6.4	0.140	7,800	320	7.2	0.186	4,390	140	5.6	0.155
3.2	8.0	7,560	300	7.2	0.192	5,200	190	7.2	0.192	3,830	130	6.4	0.144	7,560	320	7.2	0.192	4,260	140	5.6	0.16
3.3	9.0	7,330	300	8.1	0.198	5,040	190	8.1	0.198	3,710	130	7.2	0.149	7,330	320	8.1	0.198	4,130	140	6.3	0.165
3.4	9.0	7,120	300	8.1	0.204	4,900	190	8.1	0.204	3,600	130	7.2	0.153	7,120	320	8.1	0.204	4,010	140	6.3	0.17
3.5	9.0	6,910	300	8.1	0.21	4,760	190	8.1	0.21	3,500	130	7.2	0.158	6,910	320	8.1	0.21	3,890	140	6.3	0.175
3.6	9.0	6,720	300	8.1	0.216	4,620	190	8.1	0.216	3,400	130	7.2	0.162	6,720	320	8.1	0.216	3,780	140	6.3	0.18
3.7	10.0	6,540	300	9	0.222	4,500	190	9	0.222	3,310	130	8	0.167	6,540	320	9	0.222	3,680	140	7	0.185
3.8	10.0	6,370	300	9	0.228	4,380	190	9	0.228	3,220	130	8	0.171	6,370	320	9	0.228	3,590	140	7	0.19
3.9	10.0	6,200	300	9	0.234	4,270	190	9	0.234	3,140	130	8	0.176	6,200	320	9	0.234	3,490	140	7	0.195
4.0	6.0	6,370	340	5.4	0.3	4,380	215	5.4	0.3	3,230	145	4.8	0.24	6,370	365	5.4	0.3	3,580	160	4.2	0.26
	10.0	6,050	300	9	0.24	4,160	190	9	0.24	3,060	130	8	0.18	6,050	320	9	0.24	3,410	140	7	0.2
	16.0	5,730	240	14.4	0.105	3,940	150	14.4	0.105	2,900	100	12.8	0.096	5,730	255	14.4	1.2	3,230	115	11.2	0.104
4.1	11.0	5,900	300	9.9	0.246	4,060	190	9.9	0.246	2,990	130	8.8	0.185	5,900	320	9.9	0.246	3,320	140	7.7	0.205
4.2	11.0	5,760	300	9.9	0.252	3,960	190	9.9	0.252	2,920	130	8.8	0.189	5,760	320	9.9	0.252	3,240	140	7.7	0.21
4.3	11.0	5,630	300	9.9	0.258	3,870	190	9.9	0.258	2,850	130	8.8	0.194	5,630	320	9.9	0.258	3,170	140	7.7	0.215
4.4	11.0	5,500	300	9.9	0.264	3,780	190	9.9	0.264	2,790	130	8.8	0.198	5,500	320	9.9	0.264	3,100	140	7.7	0.22
4.5	12.0	5,380	300	10.8	0.27	3,700	190	10.8	0.27	2,720	130	9.6	0.203	5,380	320	10.8	0.27	3,030	140	8.4	0.225
4.6	12.0	5,260	300	10.8	0.276	3,620	190	10.8	0.276	2,660	130	9.6	0.207	5,260	320	10.8	0.276	2,960	140	8.4	0.23
4.7	12.0	5,150	300	10.8	0.282	3,540	190	10.8	0.282	2,610	130	9.6	0.212	5,150	320	10.8	0.282	2,900	140	8.4	0.235
4.8	12.0	5,040	300	10.8	0.288	3,470	190	10.8	0.288	2,550	130	9.6	0.216	5,040	320	10.8	0.288	2,840	140	8.4	0.24
4.9	13.0	4,940	300	11.7	0.294	3,400	190	11.7	0.294	2,500	130	10.4	0.221	4,940	320	11.7	0.294	2,780	140	9.1	0.245
5.0	8.0	5,100	340	7.2	0.375	3,500	215	7.2	0.375	2,580	145	6.4	0.3	5,100	365	7.2	0.375	2,870	160	5.6	0.325
	13.0	4,840	300	11.7	0.3	3,330	190	11.7	0.3	2,450	130	10.4	0.225	4,840	320	11.7	0.3	2,720	140	9.1	0.25
	20.0	4,590	240	18	0.15	3,150	150	18	0.15	2,320	100	16	0.12	4,590	255	18	1.5	2,580	115	14	0.13
5.1	13.0	4,740	300	11.7	0.306	3,260	190	11.7	0.306	2,400	130	10.4	0.230	4,740	320	11.7	0.306	2,670	140	9.1	0.255
5.2	13.0	4,650	300	11.7	0.312	3,200	190	11.7	0.312	2,360	130	10.4	0.234	4,650	320	11.7	0.312	2,620	140	9.1	0.26
5.3	14.0	4,560	300	12.6	0.318	3,140	190	12.6	0.318	2,310	130	11.2	0.239	4,560	320	12.6	0.318	2,570	140	9.8	0.265
5.4	14.0	4,480	300	12.6	0.324	3,080	190	12.6	0.324	2,270	130	11.2	0.243	4,480	320	12.6	0.324	2,520	140	9.8	0.27
5.5	14.0	4,400	300	12.6	0.33	3,030	190	12.6	0.33	2,230	130	11.2	0.248	4,400	320	12.6	0.33	2,480	140	9.8	0.275
5.6	14.0	4,320	300	12.6	0.336	2,970	190	12.6	0.336	2,190	130	11.2	0.252	4,320	320	12.6	0.336	2,430	140	9.8	0.28
5.7	15.0	4,240	300	13.5	0.342	2,920	190	13.5	0.342	2,150	130	12	0.257	4,240	320	13.5	0.342	2,390	140	10.5	0.285
5.8	15.0	4,170	300	13.5	0.348	2,870	190	13.5	0.348	2,110	130	12	0.261	4,170	320	13.5	0.348	2,350	140	10.5	0.29
5.9	15.0	4,100	300	13.5	0.354	2,820	190	13.5	0.354	2,080	130	12	0.266	4,100	320	13.5	0.354	2,310	140	10.5	0.295
6.0	10.0	4,250	340	9	0.45	2,920	215	9	0.45	2,150	145	8	0.36	4,250	365	9	0.45	2,390	160	7	0.39
	15.0	4,030	300	13.5	0.36	2,770	190	13.5	0.36	2,040	130	12	0.27	4,030	320	13.5	0.36	2,270	140	10.5	0.3
	24.0	3,820	240	21.6	0.18	2,630	150	21.6	0.18	1,940	100	19.2	0.144	3,820	255	21.6	1.8	2,150	115	16.8	0.156
6.5	17.0	3,720	300	15.3	0.39	2,560	190	15.3	0.39	1,890	130	13.6	0.39	3,720	320	15.3	0.488	2,100	140	11.9	0.423
	20.0	3,530	239	23.4	0.244	2,420	150	23.4	0.244	1,790	100	20.8	0.195	3,530	254	23.4	0.244	2,100	122	18.2	0.211
7.0	18.0	3,460	300	16.2	0.42	2,380	190	16.2	0.42	1,750	130	14.4	0.42	3,460	320	16.2	0.525	1,950	140	12.6	0.455

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IAS-2
Model number:IAS-2

スクエアエンドミル Square End Mills
側面 Side Milling

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
7.5	20.0	3,230	300	18	0.45	2,220	190	18	0.45	1,630	130	16	0.45	3,230	320	18	0.563	1,820	140	14	0.488
8.0	20.0	3,020	300	18	0.6	2,080	190	18	0.6	1,610	137	16	0.48	3,020	319	18	0.6	1,700	140	14	0.52
	32.0	2,870	240	28.8	0.3	1,970	150	28.8	0.3	1,450	100	25.6	0.24	2,870	255	28.8	0.3	1,610	115	22.4	0.26
8.5	23.0	2,850	300	20.7	0.51	1,960	190	20.7	0.51	1,440	130	18.4	0.51	2,850	320	20.7	0.638	1,600	140	16.1	0.553
9.0	23.0	2,690	300	20.7	0.54	1,850	190	20.7	0.54	1,360	130	18.4	0.54	2,690	320	20.7	0.675	1,510	140	16.1	0.585
9.5	25.0	2,550	300	22.5	0.57	1,750	190	22.5	0.57	1,290	130	20	0.57	2,550	320	22.5	0.713	1,430	140	17.5	0.618
10.0	25.0	2,420	300	22.5	0.75	1,660	190	22.5	0.75	1220	137	20	0.6	2,420	320	22.5	0.75	1,360	140	17.5	0.65
	40.0	2,290	240	36	0.375	1,580	150	36	0.375	1,160	100	32	0.3	2,290	255	36	0.375	1,290	115	28	0.325
10.5	28.0	2,300	299	25.2	0.63	1,590	191	25.2	0.63	1,170	130	22.4	0.63	2,300	319	25.2	0.788	1,300	140	19.6	0.683
11.0	28.0	2,200	300	25.2	0.66	1,510	190	25.2	0.66	1,110	129	22.4	0.66	2,200	320	25.2	0.825	1,240	140	19.6	0.715
11.5	30.0	2,100	299	27	0.69	1,450	190	27	0.69	1,070	130	24	0.69	2,100	319	27	0.863	1,180	139	21	0.748
12.0	30.0	2,020	300	27	0.9	1,390	190	27	0.72	1,020	130	24	0.72	2,020	321	27	0.9	1,140	141	21	0.78
	48.0	1,910	240	43.2	0.45	1,320	150	43.2	0.45	970	100	38.4	0.36	1,910	255	43.2	0.45	1,080	115	33.6	0.39
14.0	28.0	1,700	279	37.8	0.525	1,210	183	37.8	0.525	890	124	33.6	0.42	1,700	298	37.8	0.525	950	131	29.4	0.455
16.0	48.0	1,490	280	43.2	0.6	1,060	183	43.2	0.6	780	124	38.4	0.48	1,490	298	43.2	0.6	840	132	33.6	0.52
18.0	54.0	1,320	279	48.6	0.675	940	182	48.6	0.675	690	123	43.2	0.54	1,320	297	48.6	0.675	740	131	37.8	0.585
20.0	60.0	1,190	279	54	0.75	850	183	54	0.75	620	123	48	0.6	1,190	298	54	0.75	670	132	42	0.65

スクエアエンドミル Square End Mills
溝 Slotting

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.1	0.15	50,000	37	0.038	0.1	50,000	33	0.038	0.1	50,000	32	0.03	0.1	50,000	39	0.045	0.1	50,000	28	0.023	0.1
0.2	0.4	50,000	74	0.075	0.2	50,000	67	0.075	0.2	50,000	64	0.06	0.2	50,000	78	0.09	0.2	50,000	57	0.045	0.2
0.3	0.3	50,000	111	0.1	0.3	50,000	100	0.1	0.3	36,600	70	0.08	0.3	50,000	117	0.12	0.3	38,200	65	0.06	0.3
	0.6	50,000	103	0.112	0.3	49,900	95	0.112	0.3	34,700	60	0.07	0.3	50,000	110	0.14	0.3	34,400	52	0.060	0.3
0.4	0.6	50,000	148	0.15	0.4	39,400	105	0.15	0.4	27,500	70	0.12	0.4	50,000	157	0.18	0.4	28,700	65	0.09	0.4
	0.8	50,000	138	0.16	0.4	37,400	95	0.16	0.4	26,000	60	0.1	0.4	50,000	147	0.2	0.4	25,800	52	0.085	0.4
0.5	0.8	45,800	170	0.2	0.5	31,500	105	0.2	0.5	21,900	70	0.16	0.5	45,800	180	0.24	0.5	22,900	65	0.12	0.5
	1.25	43,600	150	0.2	0.5	29,900	95	0.2	0.5	20,800	60	0.125	0.5	43,600	160	0.25	0.5	21,800	55	0.106	0.5
	2.0	41,200	120	0.06	0.5	28,400	75	0.06	0.5	19,700	50	0.045	0.5	41,200	125	0.075	0.5	20,600	45	0.038	0.5
0.6	1.0	38,200	170	0.25	0.6	26,300	105	0.25	0.6	18,300	70	0.2	0.6	38,200	179	0.3	0.6	19,100	65	0.15	0.6
	1.5	36,300	150	0.24	0.6	24,900	95	0.24	0.6	17,400	60	0.15	0.6	36,300	160	0.3	0.6	18,100	55	0.128	0.6
	2.4	34,300	120	0.072	0.6	23,600	75	0.072	0.6	16,500	50	0.054	0.6	34,400	125	0.09	0.6	17,200	45	0.045	0.6
0.7	1.8	31,200	150	0.288	0.7	21,400	95	0.288	0.7	14,900	60	0.18	0.7	31,200	160	0.36	0.7	15,600	55	0.153	0.7
0.8	1.2	28,600	170	0.3	0.8	19,700	105	0.3	0.8	13,700	70	0.24	0.8	28,600	180	0.36	0.8	14,300	65	0.18	0.8
	2.0	27,200	150	0.26	0.8	18,700	95	0.26	0.8	13,000	60	0.2	0.8	27,200	160	0.4	0.8	13,600	55	0.17	0.8
	3.2	25,800	120	0.1	0.8	17,700	75	0.1	0.8	12,300	50	0.072	0.8	25,800	125	0.12	0.8	12,900	45	0.06	0.8
0.9	2	24,200	150	0.32	0.9	16,600	95	0.32	0.9	11,600	60	0.2	0.9	24,200	160	0.4	0.9	12,100	55	0.17	0.9

スクエアエンドミル Square End Mills
溝 Slotting

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	1.5	22,900	170	0.375	1	15,700	105	0.375	1	11,000	70	0.3	1	22,900	180	0.45	1	11,500	65	0.225	1
	2.5	21,800	150	0.32	1	15,000	95	0.32	1	10,400	60	0.25	1	21,800	160	0.5	1	10,900	55	0.213	1
	4.0	20,600	120	0.12	1	14,200	75	0.12	1	9,860	50	0.09	1	20,600	125	0.15	1	10,300	45	0.075	1
1.1	2.5	19,800	150	0.4	1.1	13,600	95	0.4	1.1	9,460	60	0.25	1.1	19,800	160	0.5	1.1	9,900	55	0.213	1.1
1.2	3.0	18,200	150	0.48	1.2	12,500	95	0.48	1.2	8,670	60	0.3	1.2	18,200	160	0.6	1.2	9,070	55	0.255	1.2
1.3	3.0	16,800	150	0.48	1.3	11,500	95	0.48	1.3	8,010	60	0.3	1.3	16,800	160	0.6	1.3	8,370	55	0.255	1.3
1.4	3.5	15,600	150	0.56	1.4	10,700	95	0.56	1.4	7,430	60	0.35	1.4	15,600	160	0.7	1.4	7,780	55	0.298	1.4
1.5	2.0	15,300	170	0.6	1.5	10,500	105	0.6	1.5	7,310	70	0.4	1.5	15,300	180	0.6	1.5	7,640	65	0.3	1.5
	4.0	14,500	150	0.48	1.5	9,980	95	0.48	1.5	6,940	60	0.4	1.5	14,500	160	0.8	1.5	7,260	55	0.34	1.5
	6.0	13,700	120	0.18	1.5	9,460	75	0.18	1.5	6,580	50	0.135	1.5	13,700	125	0.225	1.5	6,880	45	0.113	1.5
1.6	4.0	13,600	150	0.64	1.6	9,350	95	0.64	1.6	6,510	60	0.4	1.6	13,600	160	0.8	1.6	6,800	55	0.34	1.6
1.7	4.5	12,800	150	0.72	1.7	8,800	95	0.72	1.7	6,120	60	0.45	1.7	12,800	160	0.9	1.7	6,400	55	0.383	1.7
1.8	4.5	12,100	150	0.72	1.8	8,310	95	0.72	1.8	5,780	60	0.45	1.8	12,100	160	0.9	1.8	6,050	55	0.383	1.8
1.9	5.0	11,500	150	0.8	1.9	7,870	95	0.8	1.9	5,480	60	0.5	1.9	11,500	160	1	1.9	5,730	55	0.425	1.9
2.0	3.0	11,500	170	0.75	2	7,880	105	0.8	2	5,480	70	0.6	2	11,500	180	0.9	2	5,730	65	0.45	2
	5.0	10,900	150	0.64	2	7,490	95	0.64	2	5,210	60	0.5	2	10,900	160	1	2	5,450	55	0.425	2
	8.0	10,300	120	0.24	2	7,090	75	0.24	2	4,930	50	0.18	2	10,300	125	0.3	2	5,160	45	0.15	2
2.1	5.5	10,400	150	0.88	2.1	7,120	95	0.88	2.1	4,960	60	0.55	2.1	10,400	160	1.1	2.1	5,180	55	0.468	2.1
2.2	5.5	9,910	150	0.88	2.2	6,800	95	0.88	2.2	4,730	60	0.55	2.2	9,910	160	1.1	2.2	4,950	55	0.468	2.2
2.3	6.0	9,480	150	0.96	2.3	6,500	95	0.96	2.3	4,530	60	0.6	2.3	9,480	160	1.2	2.3	4,730	55	0.51	2.3
2.4	6.0	9,090	150	0.96	2.4	6,230	95	0.96	2.4	4,340	60	0.6	2.4	9,090	160	1.2	2.4	4,540	55	0.51	2.4
2.5	7.0	8,720	150	1.12	2.5	5,980	105	1.12	2.5	4,160	60	0.7	2.5	8,720	160	1.4	2.5	4,350	55	0.595	2.5
	10.0	8,250	120	0.3	2.5	5,670	75	0.3	2.5	3,950	50	0.225	2.5	8,250	125	0.375	2.5	4,130	45	0.188	2.5
2.6	7.0	8,390	150	1.12	2.6	5,750	95	1.12	2.6	4,000	60	0.7	2.6	8,390	160	1.4	2.6	4,190	55	0.595	2.6
2.7	7.0	8,080	150	1.12	2.7	5,540	95	1.12	2.7	3,860	60	0.7	2.7	8,080	160	1.4	2.7	4,030	55	0.595	2.7
2.8	7.0	7,790	150	1.12	2.8	5,340	95	1.12	2.8	3,720	60	0.7	2.8	7,790	160	1.4	2.8	3,890	55	0.595	2.8
2.9	8.0	7,520	150	1.28	2.9	5,160	95	1.28	2.9	3,590	60	0.8	2.9	7,520	160	1.6	2.9	3,750	55	0.68	2.9
3.0	5.0	7,640	170	1.25	3	5,250	105	1.25	3	3,660	70	1	3	7,640	180	1.5	3	3,820	65	0.75	3
	8.0	7,270	150	1.28	3	4,990	95	1.28	3	3,470	60	0.8	3	7,270	160	1.6	3	3,630	55	0.68	3
	12.0	6,880	120	0.36	3	4,730	75	0.36	3	3,290	50	0.27	3	6,880	125	0.45	3	3,440	45	0.225	3
3.1	8.0	7,030	150	1.28	3.1	4,830	95	1.28	3.1	3,360	60	0.8	3.1	7,030	160	1.6	3.1	3,510	55	0.68	3.1
3.2	8.0	6,810	150	1.28	3.2	4,680	95	1.28	3.2	3,250	60	0.8	3.2	6,810	160	1.6	3.2	3,400	55	0.68	3.2
3.3	9.0	6,610	150	1.44	3.3	4,530	95	1.44	3.3	3,150	60	0.9	3.3	6,610	160	1.8	3.3	3,300	55	0.765	3.3
3.4	9.0	6,410	150	1.44	3.4	4,400	95	1.44	3.4	3,060	60	0.9	3.4	6,410	160	1.8	3.4	3,200	55	0.765	3.4
3.5	9.0	6,230	150	1.44	3.5	4,270	95	1.44	3.5	2,970	60	0.9	3.5	6,230	160	1.8	3.5	3,110	55	0.765	3.5
3.6	9.0	6,060	150	1.44	3.6	4,160	95	1.44	3.6	2,890	60	0.9	3.6	6,060	160	1.8	3.6	3,020	55	0.765	3.6
3.7	10.0	5,890	150	1.6	3.7	4,040	95	1.6	3.7	2,810	60	1	3.7	5,890	160	2	3.7	2,940	55	0.85	3.7
3.8	10.0	5,740	150	1.6	3.8	3,940	95	1.6	3.8	2,740	60	1	3.8	5,740	160	2	3.8	2,860	55	0.85	3.8
3.9	10.0	5,590	150	1.6	3.9	3,840	95	1.6	3.9	2,670	60	1	3.9	5,590	160	2	3.9	2,790	55	0.85	3.9
4.0	6.0	5,730	170	1.5	4	3,940	105	1.5	4	2,740	70	1.2	4	5,730	180	1.8	4	2,870	65	0.9	4
	10.0	5,450	150	1.6	4	3,740	95	1.6	4	2,600	60	1	4	5,450	160	2	4	2,720	55	0.85	4
	16.0	5,160	120	0.48	4	3,550	75	0.48	4	2,470	50	0.36	4	5,160	125	0.6	4	2,580	45	0.3	4
4.1	11.0	5,320	150	1.76	4.1	3,650	95	1.76	4.1	2,540	60	1.1	4.1	5,320	160	2.2	4.1	2,660	55	0.935	4.1

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IAS-2
Model number:IAS-2

スクエアエンドミル Square End Mills
溝 Slotting

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
4.2	11.0	5,190	150	1.76	4.2	3,560	95	1.76	4.2	2,480	60	1.1	4.2	5,190	160	2.2	4.2	2,590	55	0.935	4.2
4.3	11.0	5,070	150	1.76	4.3	3,480	95	1.76	4.3	2,420	60	1.1	4.3	5,070	160	2.2	4.3	2,530	55	0.935	4.3
4.4	11.0	4,960	151	1.76	4.4	3,400	95	1.76	4.4	2,370	60	1.1	4.4	4,960	160	2.2	4.4	2,470	55	0.935	4.4
4.5	12.0	4,850	151	1.92	4.5	3,320	95	1.92	4.5	2,310	60	1.2	4.5	4,850	160	2.4	4.5	2,420	55	1.02	4.5
4.6	12.0	4,740	150	1.92	4.6	3,250	95	1.92	4.6	2,260	60	1.2	4.6	4,740	160	2.4	4.6	2,370	55	1.02	4.6
4.7	12.0	4,640	150	1.92	4.7	3,180	95	1.92	4.7	2,210	60	1.2	4.7	4,640	160	2.4	4.7	2,320	55	1.02	4.7
4.8	12.0	4,540	150	1.92	4.8	3,120	95	1.92	4.8	2,170	60	1.2	4.8	4,540	160	2.4	4.8	2,270	55	1.02	4.8
4.9	13.0	4,450	150	2.08	4.9	3,050	95	2.08	4.9	2,120	60	1.3	4.9	4,450	160	2.6	4.9	2,220	55	1.105	4.9
5.0	8.0	4,590	170	2	5	3,150	105	2	5	2,190	70	1.6	5	4,590	180	2.4	5	2,290	65	1.2	5
	13.0	4,360	150	2.08	5	2,990	95	2.08	5	2,080	60	1.3	5	4,360	160	2.6	5	2,180	55	1.105	5
	20.0	4,130	120	0.6	5	2,840	75	0.6	5	1,970	50	0.45	5	4,130	125	0.75	5	2,070	45	0.375	5
5.1	13.0	4,280	151	2.08	5.1	2,930	95	2.08	5.1	2,040	60	1.3	5.1	4,280	160	2.6	5.1	2,130	55	1.105	5.1
5.2	13.0	4,190	150	2.08	5.2	2,880	95	2.08	5.2	2,000	60	1.3	5.2	4,190	160	2.6	5.2	2,090	55	1.105	5.2
5.3	14.0	4,110	150	2.24	5.3	2,820	95	2.24	5.3	1,960	60	1.4	5.3	4,110	160	2.8	5.3	2,050	55	1.19	5.3
5.4	14.0	4,040	150	2.24	5.4	2,770	95	2.24	5.4	1,930	60	1.4	5.4	4,040	160	2.8	5.4	2,020	55	1.19	5.4
5.5	14.0	3,960	150	2.24	5.5	2,720	95	2.24	5.5	1,890	60	1.4	5.5	3,960	160	2.8	5.5	1,980	55	1.19	5.5
5.6	14.0	3,890	150	2.24	5.6	2,670	95	2.24	5.6	1,860	60	1.4	5.6	3,890	160	2.8	5.6	1,940	55	1.19	5.6
5.7	15.0	3,830	151	2.4	5.7	2,620	95	2.4	5.7	1,830	60	1.5	5.7	3,830	160	3	5.7	1,910	55	1.275	5.7
5.8	15.0	3,760	150	2.4	5.8	2,580	95	2.4	5.8	1,790	60	1.5	5.8	3,760	160	3	5.8	1,880	55	1.275	5.8
5.9	15.0	3,700	151	2.4	5.9	2,540	95	2.4	5.9	1,760	60	1.5	5.9	3,700	160	3	5.9	1,850	55	1.275	5.9
6.0	10.0	3,820	170	2.4	6	2,630	105	2.4	6	1,830	70	2	6	3,820	180	3	6	1,910	65	1.5	6
	15.0	3,630	150	2.4	6	2,490	95	2.4	6	1,730	60	1.5	6	3,630	160	3	6	1,810	55	1.275	6
	24.0	3,440	120	0.72	6	2,370	75	0.72	6	1,650	50	0.54	6	3,440	125	0.9	6	1,720	45	0.45	6
6.5	17.0	3,350	150	2.72	6.5	2,300	95	2.72	6.5	1,600	60	1.7	6.5	3,350	160	3.4	6.5	1,670	55	1.445	6.5
	20.0	3,350	127	0.78	6.5	2,300	79	0.78	6.5	1,600	53	0.585	6.5	3,180	125	0.975	6.5	1,670	47	0.488	6.5
7.0	18.0	3,110	150	2.88	7	2,140	95	2.88	7	1,490	60	1.8	7	3,110	160	3.6	7	1,560	55	1.53	7
7.5	20.0	2,910	151	3.2	7.5	1,990	95	3.2	7.5	1,390	60	2	7.5	2,910	160	4	7.5	1,450	55	1.7	7.5
8.0	20.0	2,730	151	3.2	8	1,870	95	3.2	8	1,300	60	2	8	2,730	160	4	8	1,360	55	1.7	8
	32.0	2,580	120	0.96	8	1,780	75	0.96	8	1,240	50	0.72	8	2,580	125	1.2	8	1,290	45	0.6	8
8.5	23.0	2,570	151	3.68	8.5	1,760	95	3.68	8.5	1,220	60	2.3	8.5	2,570	160	4.6	8.5	1,280	55	1.955	8.5
9.0	23.0	2,420	150	3.68	9	1,660	95	3.68	9	1,160	60	2.3	9	2,420	160	4.6	9	1,210	55	1.955	9
9.5	25.0	2,300	151	4	9.5	1,570	95	4	9.5	1,100	60	2.5	9.5	2,300	160	5	9.5	1,150	55	2.125	9.5
10.0	25.0	2,180	150	4	10	1,500	95	4	10	1,040	60	2.5	10	2,180	160	5	10	1,090	55	2.125	10
	40.0	2,070	120	1.2	10	1,420	75	1.2	10	990	50	0.9	10	2,070	125	1.5	10	1,030	45	0.75	10
10.5	28.0	2,080	151	4.48	10.5	1,420	95	4.48	10.5	990	60	2.8	10.5	2,080	160	5.6	10.5	1,040	55	2.38	10.5
11.0	28.0	1,980	150	4.48	11	1,360	95	4.48	11	950	60	2.8	11	1,980	160	5.6	11	990	55	2.38	11
11.5	30.0	1,900	151	4.8	11.5	1,300	95	4.8	11.5	910	60	3	11.5	1,900	160	6	11.5	950	55	2.55	11.5
12.0	30.0	1,820	151	4.8	12	1,250	95	4.8	12	870	60	3	12	1,820	160	6	12	910	55	2.55	12
	48.0	1,720	120	1.44	12	1,180	75	1.44	12	820	50	1.08	12	1,720	125	1.8	12	860	45	0.9	12
14.0	28.0	1,530	140	1.26	14	1,050	88	1.26	14	730	57	0.945	14	1,530	148	1.575	14	760	51	0.788	14
16.0	48.0	1,340	140	1.44	16	920	88	1.44	16	640	57	1.08	16	1,340	148	1.8	16	670	52	0.9	16
18.0	54.0	1,190	140	1.62	18	820	88	1.62	18	570	57	1.215	18	1,190	148	2.025	18	590	51	1.013	18
20.0	60.0	1,070	140	1.8	20	740	89	1.8	20	510	56	1.35	20	1,070	148	2.25	20	530	51	1.125	20

スクエアエンドミル Square End Mills
側面 Side Milling

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.1	0.15	50,000	67	0.15	0.008	50,000	62	0.15	0.008	50,000	57	0.135	0.006	50,000	57	0.15	0.008
0.2	0.4	50,000	133	0.3	0.016	50,000	123	0.3	0.016	50,000	114	0.27	0.012	50,000	113	0.3	0.016
0.3	0.3	50,000	200	0.4	0.024	50,000	185	0.4	0.024	50,000	171	0.36	0.018	50,000	170	0.4	0.024
	0.6	50,000	186	0.7	0.015	50,000	172	0.7	0.015	50,000	158	0.63	0.012	50,000	156	0.7	0.012
0.4	0.6	50,000	267	0.6	0.032	50,000	246	0.6	0.032	50,000	228	0.54	0.024	50,000	226	0.6	0.032
	0.8	50,000	248	1	0.02	50,000	229	1	0.02	50,000	211	0.9	0.016	50,000	209	1	0.016
0.5	0.8	50,000	335	0.8	0.04	50,000	310	0.8	0.04	50,000	285	0.72	0.03	50,000	285	0.8	0.04
	1.25	50,000	310	1.25	0.025	50,000	287	1.25	0.025	48,400	255	1.125	0.02	50,000	261	1.25	0.02
	2.0	50,000	260	2	0.01	50,000	240	2	0.01	45,800	200	1.8	0.008	50,000	220	2	0.01
0.6	1.0	50,000	400	1	0.048	50,000	369	1	0.048	42,300	290	0.9	0.036	50,000	340	1	0.048
	1.5	50,000	371	1.5	0.03	50,000	344	1.5	0.03	40,300	255	1.35	0.024	50,000	313	1.5	0.024
	2.4	50,000	311	2.4	0.012	50,000	288	2.4	0.012	38,300	200	2.16	0.009	47,700	250	2.4	0.012
0.7	1.8	50,000	433	1.8	0.035	50,000	401	1.8	0.035	34,600	255	1.62	0.028	43,100	315	1.8	0.028
0.8	1.2	50,000	535	1.2	0.064	47,700	470	1.2	0.064	31,800	290	1.08	0.048	39,800	360	1.2	0.064
	2.0	50,000	495	2	0.04	45,400	415	2	0.04	30,200	255	1.8	0.032	37,800	315	2	0.032
	3.2	50,000	415	3.2	0.016	43,000	330	3.2	0.016	28,600	200	2.88	0.012	35,800	250	3.2	0.016
0.9	2	47,000	524	2	0.072	40,300	416	2	0.072	26,900	255	1.8	0.054	33,600	315	2	0.072
1.0	1.5	44,600	595	1.5	0.12	38,200	470	1.5	0.12	25,500	290	1.35	0.09	31,800	360	1.5	0.12
	2.5	42,300	525	2.5	0.08	36,300	415	2.5	0.08	24,200	255	2.25	0.06	30,200	315	2.5	0.08
	4.0	40,100	415	4	0.04	34,400	330	4	0.04	22,900	200	3.6	0.03	28,600	250	4	0.04
1.1	2.5	38,500	524	2.5	0.088	33,000	416	2.5	0.088	22,000	255	2.25	0.066	27,500	315	2.5	0.088
1.2	3.0	35,300	524	3	0.096	30,200	416	3	0.096	20,200	255	2.7	0.072	25,200	315	3	0.096
1.3	3.0	32,600	524	3	0.104	27,900	416	3	0.104	18,600	255	2.7	0.078	23,200	315	3	0.104
1.4	3.5	30,200	524	3.5	0.112	25,900	416	3.5	0.112	17,300	255	3.15	0.084	21,600	315	3.5	0.112
1.5	2.0	29,700	595	2	0.18	25,500	470	2	0.18	17,000	290	1.8	0.135	21,200	360	2	0.18
	4.0	28,200	525	4	0.12	24,200	415	4	0.12	16,100	255	3.6	0.09	20,200	315	4	0.12
	6.0	26,700	415	6	0.06	22,900	330	6	0.06	15,300	200	5.4	0.045	19,100	250	6	0.06
1.6	4.0	26,500	524	4	0.192	22,700	416	4	0.192	15,100	255	3.6	0.128	18,900	315	4	0.192
1.7	4.5	24,900	524	4.5	0.204	21,400	416	4.5	0.204	14,200	255	4.05	0.136	17,800	315	4.5	0.204
1.8	4.5	23,500	524	4.5	0.216	20,200	416	4.5	0.216	13,400	255	4.05	0.144	16,800	315	4.5	0.216
1.9	5.0	22,300	524	5	0.228	19,100	416	5	0.228	12,700	255	4.5	0.152	15,900	315	5	0.228
2.0	3.0	22,300	595	3	0.32	19,100	470	3	0.32	12,700	290	2.7	0.24	15,900	360	3	0.32
	5.0	21,200	525	5	0.24	18,100	415	5	0.24	12,100	255	4.5	0.16	15,100	315	5	0.24
	8.0	20,000	415	8	0.12	17,200	330	8	0.12	11,500	200	7.2	0.09	14,300	250	8	0.12
2.1	5.5	20,200	524	5.5	0.336	17,300	416	5.5	0.336	11,500	255	4.95	0.21	14,400	315	5.5	0.336
2.2	5.5	19,200	524	5.5	0.352	16,500	416	5.5	0.352	11,000	255	4.95	0.22	13,700	315	5.5	0.352
2.3	6.0	18,400	524	6	0.368	15,800	416	6	0.368	10,500	255	5.4	0.23	13,100	315	6	0.368
2.4	6.0	17,600	524	6	0.384	15,100	416	6	0.384	10,100	255	5.4	0.24	12,600	315	6	0.384
2.5	7.0	17,800	551	7	0.4	14,500	416	7	0.4	9,680	255	6.3	0.25	12,100	315	7	0.4
	10.0	16,000	415	10	0.2	13,700	330	10	0.2	9,170	200	9	0.15	11,500	250	10	0.2
2.6	7.0	16,300	524	7	0.416	14,000	416	7	0.416	9,310	255	6.3	0.26	11,600	315	7	0.416
2.7	7.0	15,700	524	7	0.432	13,400	416	7	0.432	8,960	255	6.3	0.27	11,200	315	7	0.432
2.8	7.0	15,100	524	7	0.448	13,000	416	7	0.448	8,640	255	6.3	0.28	10,800	315	7	0.448

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IAS-2
Model number:IAS-2

スクエアエンドミル Square End Mills
側面 Side Milling

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
2.9	8.0	14,600	524	8	0.464	12,500	416	8	0.464	8,340	255	7.2	0.29	10,400	315	8	0.464
3.0	5.0	14,800	595	5	0.6	12,700	470	5	0.6	8,490	290	4.5	0.45	10,600	360	5	0.6
	8.0	14,100	524	8	0.48	12,100	416	8	0.48	8,070	255	7.2	0.3	10,100	315	8	0.48
	12.0	13,400	415	12	0.24	11,500	330	12	0.24	7,640	200	10.8	0.18	9,550	250	12	0.24
3.1	8.0	13,700	524	8	0.496	11,700	416	8	0.496	7,810	255	7.2	0.31	9,740	315	8	0.496
3.2	8.0	13,200	524	8	0.512	11,300	416	8	0.512	7,560	255	7.2	0.32	9,440	315	8	0.512
3.3	9.0	12,800	524	9	0.528	11,000	416	9	0.528	7,330	255	8.1	0.33	9,150	315	9	0.528
3.4	9.0	12,500	524	9	0.544	10,700	416	9	0.544	7,120	255	8.1	0.34	8,880	315	9	0.544
3.5	9.0	12,100	524	9	0.56	10,400	416	9	0.56	6,910	255	8.1	0.35	8,630	315	9	0.56
3.6	9.0	11,800	524	9	0.576	10,100	416	9	0.576	6,720	255	8.1	0.36	8,390	315	9	0.576
3.7	10.0	11,400	524	10	0.592	9,810	416	10	0.592	6,540	255	9	0.37	8,160	315	10	0.592
3.8	10.0	11,100	524	10	0.608	9,550	416	10	0.608	6,370	255	9	0.38	7,950	315	10	0.608
3.9	10.0	10,900	524	10	0.624	9,300	416	10	0.624	6,210	255	9	0.39	7,740	315	10	0.624
4.0	6.0	11,100	595	6	0.8	9,550	470	6	0.8	6,370	290	5.4	0.6	7,960	360	6	0.8
	10.0	10,600	524	10	0.64	9,070	416	10	0.64	6,050	255	9	0.4	7,550	315	10	0.64
	16.0	10,000	415	16	0.32	8,600	330	16	0.32	5,730	200	14.4	0.24	7,160	250	16	0.32
4.1	11.0	10,300	524	11	0.656	8,850	416	11	0.656	5,900	255	9.9	0.41	7,370	315	11	0.656
4.2	11.0	10,100	524	11	0.672	8,640	416	11	0.672	5,760	255	9.9	0.42	7,190	315	11	0.672
4.3	11.0	9,850	524	11	0.688	8,440	416	11	0.688	5,630	255	9.9	0.43	7,020	315	11	0.688
4.4	11.0	9,620	524	11	0.704	8,250	416	11	0.704	5,500	255	9.9	0.44	6,860	315	11	0.704
4.5	12.0	9,410	524	12	0.72	8,060	416	12	0.72	5,380	255	10.8	0.45	6,710	315	12	0.72
4.6	12.0	9,200	524	12	0.736	7,890	416	12	0.736	5,260	255	10.8	0.46	6,570	315	12	0.736
4.7	12.0	9,010	524	12	0.752	7,720	416	12	0.752	5,150	255	10.8	0.47	6,430	315	12	0.752
4.8	12.0	8,820	524	12	0.768	7,560	416	12	0.768	5,040	255	10.8	0.48	6,290	315	12	0.768
4.9	13.0	8,640	524	13	0.784	7,410	416	13	0.784	4,940	255	11.7	0.49	6,160	315	13	0.784
5.0	8.0	8,920	595	8	1	7,640	470	8	1	5,100	290	7.2	0.75	6,370	360	8	1
	13.0	8,470	524	13	0.8	7,260	416	13	0.8	4,840	255	11.7	0.5	6,040	315	13	0.8
	20.0	8,020	415	20	0.4	6,880	330	20	0.4	4,590	200	18	0.3	5,730	250	20	0.4
5.1	13.0	8,300	524	13	0.816	7,120	416	13	0.816	4,750	255	11.7	0.51	5,920	315	13	0.816
5.2	13.0	8,140	524	13	0.832	6,980	416	13	0.832	4,650	255	11.7	0.52	5,810	315	13	0.832
5.3	14.0	7,990	524	14	0.848	6,850	416	14	0.848	4,570	255	12.6	0.53	5,700	315	14	0.848
5.4	14.0	7,840	524	14	0.864	6,720	416	14	0.864	4,480	255	12.6	0.54	5,590	315	14	0.864
5.5	14.0	7,700	524	14	0.88	6,600	416	14	0.88	4,400	255	12.6	0.55	5,490	315	14	0.88
5.6	14.0	7,560	524	14	0.896	6,480	416	14	0.896	4,320	255	12.6	0.56	5,390	315	14	0.896
5.7	15.0	7,430	524	15	0.912	6,370	416	15	0.912	4,250	255	13.5	0.57	5,300	315	15	0.912
5.8	15.0	7,300	524	15	0.928	6,260	416	15	0.928	4,170	255	13.5	0.58	5,210	315	15	0.928
5.9	15.0	7,180	525	15	0.944	6,150	416	15	0.944	4,100	255	13.5	0.59	5,120	315	15	0.944
6.0	10.0	7,430	595	10	1.2	6,370	470	10	1.2	4,250	290	9	0.9	5,310	360	10	1.2
	15.0	7,060	525	15	0.96	6,050	416	15	0.96	4,030	255	13.5	0.6	5,030	315	15	0.96
	24.0	6,690	415	24	0.6	5,730	330	24	0.6	3,820	200	21.6	0.45	4,780	250	24	0.6
6.5	17.0	6,510	524	17	1.3	5,580	416	17	1.3	3,720	255	15.3	0.975	4,650	315	17	1.3
	20.0	6,510	439	26	0.65	5,290	330	26	0.65	3,540	200	23.4	0.488	4,400	250	26	0.65
7.0	18.0	6,050	524	18	1.4	5,180	416	18	1.4	3,460	255	16.2	1.05	4,310	315	18	1.4

スクエアエンドミル Square End Mills
側面 Side Milling

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
7.5	20.0	5,640	524	20	1.5	4,840	416	20	1.5	3,230	255	18	1.125	4,030	315	20	1.5
8.0	20.0	5,290	524	20	1.6	4,540	416	20	1.6	3,030	255	18	1.2	3,780	315	20	1.6
	32.0	5,020	415	32	0.8	4,300	330	32	0.8	2,870	200	28.8	0.6	3,580	250	32	0.8
8.5	23.0	4,980	524	23	1.7	4,270	416	23	1.7	2,850	255	20.7	1.275	3,550	315	23	1.7
9.0	23.0	4,700	524	23	1.8	4,030	416	23	1.8	2,690	255	20.7	1.35	3,360	315	23	1.8
9.5	25.0	4,460	525	25	1.9	3,820	416	25	1.9	2,550	255	22.5	1.425	3,180	315	25	1.9
10.0	25.0	4,230	524	25	2	3,630	416	25	2	2,420	255	22.5	1.5	3,020	315	25	2
	40.0	4,010	415	40	1	3,440	330	40	1	2,290	200	36	0.75	2,870	250	40	1
10.5	28.0	4,030	524	28	2.1	3,460	416	28	2.1	2,300	254	25.2	1.575	2,880	315	28	2.1
11.0	28.0	3,850	524	28	2.2	3,300	416	28	2.2	2,200	255	25.2	1.65	2,750	316	28	2.2
11.5	30.0	3,680	524	30	2.3	3,160	417	30	2.3	2,100	254	27	1.725	2,630	315	30	2.3
12.0	30.0	3,530	525	30	2.4	3,020	415	30	2.4	2,020	255	27	1.8	2,520	315	30	2.4
	48.0	3,340	415	48	1.2	2,870	330	48	1.2	1,910	200	43.2	0.9	2,390	250	48	1.2
14.0	28.0	2,970	487	42	1.4	2,550	387	42	1.4	1,700	236	37.8	1.05	2,120	293	42	1.4
16.0	48.0	2,600	487	48	1.6	2,230	387	48	1.6	1,490	237	43.2	1.2	1,850	292	48	1.6
18.0	54.0	2,310	487	54	1.8	1,980	386	54	1.8	1,320	236	48.6	1.35	1,650	293	54	1.8
20.0	60.0	2,080	487	60	2	1,780	386	60	2	1,190	236	54	1.5	1,480	292	60	2

スクエアエンドミル Square End Mills
溝 Slotting

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
0.1	0.15	50,000	62	0.045	0.1	50,000	57	0.045	0.1	50,000	31	0.038	0.1	50,000	31	0.050	0.1
0.2	0.4	50,000	124	0.09	0.2	50,000	114	0.09	0.2	50,000	63	0.075	0.2	50,000	63	0.099	0.2
0.3	0.3	50,000	187	0.12	0.3	50,000	171	0.12	0.3	50,000	94	0.1	0.3	50,000	94	0.132	0.3
	0.6	50,000	171	0.116	0.3	50,000	156	0.116	0.3	50,000	87	0.105	0.3	50,000	88	0.14	0.3
0.4	0.6	50,000	249	0.18	0.4	50,000	228	0.18	0.4	50,000	125	0.15	0.4	50,000	126	0.198	0.4
	0.8	50,000	228	0.165	0.4	50,000	208	0.165	0.4	50,000	117	0.15	0.4	50,000	117	0.2	0.4
0.5	0.8	50,000	310	0.24	0.5	50,000	285	0.24	0.5	43,300	135	0.2	0.5	50,000	155	0.264	0.5
	1.25	50,000	285	0.206	0.5	50,000	260	0.206	0.5	41,200	120	0.188	0.5	50,000	146	0.25	0.5
	2.0	50,000	240	0.06	0.5	50,000	220	0.06	0.5	39,000	95	0.06	0.5	48,700	120	0.075	0.5
0.6	1.0	50,000	373	0.3	0.6	50,000	343	0.3	0.6	36,000	135	0.25	0.6	45,000	170	0.33	0.6
	1.5	50,000	342	0.248	0.6	50,000	312	0.248	0.6	34,300	120	0.225	0.6	42,800	151	0.3	0.6
	2.4	50,000	287	0.072	0.6	48,800	255	0.072	0.6	32,500	95	0.072	0.6	40,600	120	0.09	0.6
0.7	1.8	50,000	399	0.297	0.7	44,100	321	0.297	0.7	29,400	120	0.27	0.7	36,700	151	0.36	0.7
0.8	1.2	47,300	470	0.36	0.8	40,600	370	0.36	0.8	27,000	135	0.3	0.8	33,800	170	0.396	0.8
	2.0	45,000	410	0.33	0.8	38,500	320	0.33	0.8	25,700	120	0.3	0.8	32,100	150	0.4	0.8
	3.2	42,600	325	0.096	0.8	36,500	255	0.096	0.8	24,300	95	0.096	0.8	30,400	120	0.12	0.8
0.9	2	40,000	410	0.33	0.9	34,300	321	0.33	0.9	22,900	120	0.3	0.9	28,600	151	0.4	0.9

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IAS-2
Model number:IAS-2

スクエアエンドミル Square End Mills
溝 Slotting

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	1.5	37,900	470	0.45	1	32,500	370	0.45	1	21,600	135	0.375	1	27,000	170	0.495	1
	2.5	36,000	410	0.413	1	30,800	320	0.413	1	20,600	120	0.375	1	25,700	150	0.5	1
	4.0	34,100	325	0.12	1	29,200	255	0.12	1	19,500	95	0.12	1	24,300	120	0.15	1
1.1	2.5	32,700	410	0.413	1.1	28,100	321	0.413	1.1	18,700	120	0.375	1.1	23,400	151	0.5	1.1
1.2	3.0	30,000	410	0.495	1.2	25,800	321	0.495	1.2	17,200	120	0.45	1.2	21,400	151	0.6	1.2
1.3	3.0	27,700	410	0.495	1.3	23,800	321	0.495	1.3	15,900	120	0.45	1.3	19,800	151	0.6	1.3
1.4	3.5	25,700	410	0.578	1.4	22,100	321	0.578	1.4	14,700	120	0.525	1.4	18,400	151	0.7	1.4
1.5	4.5	25,200	470	0.6	1.5	21,600	370	0.6	1.5	14,400	135	0.5	1.5	18,000	170	0.66	1.5
	4.5	24,000	410	0.66	1.5	20,600	320	0.66	1.5	13,700	120	0.6	1.5	17,100	150	0.8	1.5
	5.0	22,700	325	0.18	1.5	19,500	255	0.18	1.5	13,000	95	0.18	1.5	16,200	120	0.225	1.5
1.6	2.0	22,500	410	0.66	1.6	19,300	321	0.66	1.6	12,900	120	0.6	1.6	16,100	151	0.8	1.6
1.7	4.0	21,200	410	0.743	1.7	18,200	321	0.743	1.7	12,100	120	0.675	1.7	15,100	151	0.9	1.7
1.8	6.0	20,000	410	0.743	1.8	17,200	321	0.743	1.8	11,400	120	0.675	1.8	14,300	151	0.9	1.8
1.9	4.0	19,000	410	0.825	1.9	16,300	321	0.825	1.9	10,800	120	0.75	1.9	13,500	151	1	1.9
2.0	3.0	18,900	470	0.9	2	16,200	370	0.9	2	10,800	135	0.75	2	13,500	170	0.99	2
	5.0	18,000	410	0.825	2	15,400	320	0.825	2	10,300	120	0.75	2	12,800	150	1	2
	8.0	17,000	325	0.24	2	14,600	255	0.24	2	9,740	95	0.24	2	12,200	120	0.3	2
2.1	5.5	17,100	410	0.908	2.1	14,700	321	0.908	2.1	9,810	120	0.825	2.1	12,200	151	1.1	2.1
2.2	5.5	16,400	410	0.908	2.2	14,100	321	0.908	2.2	9,360	120	0.825	2.2	11,700	151	1.1	2.2
2.3	6.0	15,700	410	0.99	2.3	13,400	321	0.99	2.3	8,960	120	0.9	2.3	11,200	151	1.2	2.3
2.4	6.0	15,000	410	0.99	2.4	12,900	321	0.99	2.4	8,580	120	0.9	2.4	10,700	151	1.2	2.4
2.5	7.0	14,400	410	1.155	2.5	13,000	338	1.155	2.5	8,240	135	1.05	2.5	10,300	151	1.4	2.5
	10.0	13,600	325	0.3	2.5	11,700	255	0.3	2.5	7,790	95	0.3	2.5	9,740	120	0.375	2.5
2.6	7.0	13,900	410	1.155	2.6	11,900	321	1.155	2.6	7,920	120	1.05	2.6	9,880	151	1.4	2.6
2.7	7.0	13,300	410	1.155	2.7	11,400	321	1.155	2.7	7,630	120	1.05	2.7	9,520	151	1.4	2.7
2.8	7.0	12,900	410	1.155	2.8	11,000	321	1.155	2.8	7,360	120	1.05	2.8	9,180	151	1.4	2.8
2.9	8.0	12,400	410	1.32	2.9	10,700	321	1.32	2.9	7,100	120	1.2	2.9	8,860	151	1.6	2.9
3.0	5.0	12,600	470	1.5	3	10,800	370	1.5	3	7,220	135	1.25	3	9,020	170	1.65	3
	8.0	12,000	410	1.32	3	10,300	321	1.32	3	6,870	120	1.2	3	8,570	151	1.6	3
	12.0	11,400	325	0.36	3	9,740	255	0.36	3	6,500	95	0.36	3	8,120	120	0.45	3
3.1	8.0	11,600	410	1.32	3.1	9,970	321	1.32	3.1	6,650	120	1.2	3.1	8,290	151	1.6	3.1
3.2	8.0	11,300	410	1.32	3.2	9,660	321	1.32	3.2	6,440	120	1.2	3.2	8,030	151	1.6	3.2
3.3	9.0	10,900	410	1.485	3.3	9,360	321	1.485	3.3	6,240	120	1.35	3.3	7,790	151	1.8	3.3
3.4	9.0	10,600	410	1.485	3.4	9,090	321	1.485	3.4	6,060	120	1.35	3.4	7,560	151	1.8	3.4
3.5	9.0	10,300	410	1.485	3.5	8,830	321	1.485	3.5	5,890	120	1.35	3.5	7,340	151	1.8	3.5
3.6	9.0	10,000	410	1.485	3.6	8,580	321	1.485	3.6	5,720	120	1.35	3.6	7,140	151	1.8	3.6
3.7	10.0	9,730	410	1.65	3.7	8,350	321	1.65	3.7	5,570	120	1.5	3.7	6,950	151	2	3.7
3.8	10.0	9,470	410	1.65	3.8	8,130	321	1.65	3.8	5,420	120	1.5	3.8	6,760	151	2	3.8
3.9	10.0	9,230	410	1.65	3.9	7,920	321	1.65	3.9	5,280	120	1.5	3.9	6,590	151	2	3.9
4.0	6.0	9,470	470	1.8	4	8,120	370	1.8	4	5,410	135	1.5	4	6,770	170	1.98	4
	10.0	9,000	410	1.65	4	7,730	321	1.65	4	5,150	120	1.5	4	6,430	151	2	4
	16.0	8,530	325	0.48	4	7,310	255	0.48	4	4,870	95	0.48	4	6,090	120	0.6	4
4.1	11.0	8,780	410	1.815	4.1	7,540	321	1.815	4.1	5,020	120	1.65	4.1	6,270	151	2.2	4.1

スクエアエンドミル Square End Mills
溝 Slotting

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
4.2	11.0	8,570	410	1.815	4.2	7,360	321	1.815	4.2	4,900	120	1.65	4.2	6,120	151	2.2	4.2
4.3	11.0	8,370	410	1.815	4.3	7,190	321	1.815	4.3	4,790	120	1.65	4.3	5,980	151	2.2	4.3
4.4	11.0	8,180	410	1.815	4.4	7,020	321	1.815	4.4	4,680	120	1.65	4.4	5,840	151	2.2	4.4
4.5	12.0	8,000	410	1.98	4.5	6,870	321	1.98	4.5	4,580	120	1.8	4.5	5,710	151	2.4	4.5
4.6	12.0	7,830	410	1.98	4.6	6,720	321	1.98	4.6	4,480	120	1.8	4.6	5,590	151	2.4	4.6
4.7	12.0	7,660	410	1.98	4.7	6,570	321	1.98	4.7	4,380	120	1.8	4.7	5,470	151	2.4	4.7
4.8	12.0	7,500	410	1.98	4.8	6,440	321	1.98	4.8	4,290	120	1.8	4.8	5,350	150	2.4	4.8
4.9	13.0	7,350	410	2.145	4.9	6,310	321	2.145	4.9	4,200	120	1.95	4.9	5,240	150	2.6	4.9
5.0	8.0	7,580	470	2.4	5	6,500	370	2.4	5	4,330	135	2	5	5,410	170	2.64	5
	13.0	7,200	410	2.145	5	6,180	321	2.145	5	4,120	120	1.95	5	5,140	151	2.6	5
	20.0	6,820	325	0.6	5	5,850	255	0.6	5	3,900	95	0.6	5	4,870	120	0.75	5
5.1	13.0	7,060	410	2.145	5.1	6,060	321	2.145	5.1	4,040	120	1.95	5.1	5,040	151	2.6	5.1
5.2	13.0	6,920	410	2.145	5.2	5,940	321	2.145	5.2	3,960	120	1.95	5.2	4,940	151	2.6	5.2
5.3	14.0	6,790	410	2.31	5.3	5,830	321	2.31	5.3	3,890	120	2.1	5.3	4,850	151	2.8	5.3
5.4	14.0	6,670	410	2.31	5.4	5,720	321	2.31	5.4	3,810	120	2.1	5.4	4,760	151	2.8	5.4
5.5	14.0	6,550	410	2.31	5.5	5,620	321	2.31	5.5	3,750	120	2.1	5.5	4,670	150	2.8	5.5
5.6	14.0	6,430	410	2.31	5.6	5,520	321	2.31	5.6	3,680	120	2.1	5.6	4,590	151	2.8	5.6
5.7	15.0	6,320	410	2.475	5.7	5,420	321	2.475	5.7	3,610	120	2.25	5.7	4,510	151	3	5.7
5.8	15.0	6,210	410	2.475	5.8	5,330	321	2.475	5.8	3,550	120	2.25	5.8	4,430	151	3	5.8
5.9	15.0	6,100	410	2.475	5.9	5,240	321	2.475	5.9	3,490	120	2.25	5.9	4,360	151	3	5.9
6.0	10.0	6,320	470	3	6	5,410	370	3	6	3,610	135	2.5	6	4,510	170	3.3	6
	15.0	6,000	410	2.475	6	5,150	321	2.475	6	3,430	120	2.25	6	4,280	150	3	6
	24.0	5,680	325	0.72	6	4,870	255	0.72	6	3,250	95	0.72	6	4,060	120	0.9	6
6.5	17.0	5,540	410	2.805	6.5	4,750	321	2.805	6.5	3,170	120	2.55	6.5	3,950	150	3.4	6.5
	20.0	5,240	326	0.78	6.5	4,500	255	0.78	6.5	3,000	95	0.78	6.5	3,750	120	0.975	6.5
7.0	18.0	5,140	410	2.97	7	4,410	321	2.97	7	2,940	120	2.7	7	3,670	151	3.6	7
7.5	20.0	4,800	410	3.3	7.5	4,120	321	3.3	7.5	2,750	120	3	7.5	3,430	151	4	7.5
8.0	23.0	4,500	410	3.3	8	3,860	321	3.3	8	2,580	135	3	8	3,210	150	4	8
	23.0	4,260	325	0.96	8	3,660	255	0.96	8	2,440	95	0.96	8	3,050	120	1.2	8
8.5	25.0	4,240	410	3.795	8.5	3,640	321	3.795	8.5	2,420	120	3.45	8.5	3,020	150	4.6	8.5
9.0	20.0	4,000	410	3.795	9	3,430	321	3.795	9	2,290	120	3.45	9	2,860	151	4.6	9
9.5	32.0	3,790	410	4.125	9.5	3,250	321	4.125	9.5	2,170	120	3.75	9.5	2,710	151	5	9.5
10.0	25.0	3,600	410	4.125	10	3,090	321	4.125	10	2,060	135	3.75	10	2,570	151	5	10
	40.0	3,410	325	1.2	10	2,920	255	1.2	10	1,950	95	1.2	10	2,440	120	1.5	10
10.5	28.0	3,430	410	4.62	10.5	2,940	321	4.62	10.5	1,960	120	4.2	10.5	2,450	151	5.6	10.5
11.0	28.0	3,270	410	4.62	11	2,810	321	4.62	11	1,870	120	4.2	11	2,340	151	5.6	11
11.5	30.0	3,130	410	4.95	11.5	2,690	321	4.95	11.5	1,790	120	4.5	11.5	2,230	150	6	11.5
12.0	30.0	3,000	410	4.95	12	2,580	322	4.95	12	1,720	135	4.5	12	2,140	150	6	12
	48.0	2,840	325	1.44	12	2,440	255	1.44	12	1,630	95	1.44	12	2,030	120	1.8	12
14.0	28.0	2,530	382	1.26	14	2,170	299	1.26	14	1,440	111	1.26	14	1,800	140	1.575	14
16.0	48.0	2,210	381	1.44	16	1,900	299	1.44	16	1,260	111	1.44	16	1,580	140	1.8	16
18.0	54.0	1,960	380	1.62	18	1,690	299	1.62	18	1,120	111	1.62	18	1,400	140	2.025	18
20.0	60.0	1,770	382	1.8	20	1,520	299	1.8	20	1,010	111	1.8	20	1,260	140	2.25	20

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IAS-4
Model number:IAS-4

スクエアエンドミル Square End Mills
側面 Side Milling

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.5	25,500	680	1.5	0.03	17,500	395	1.5	0.03	13,100	245	1.25	0.02	25,500	740	1.5	0.03	14,300	355	1.125	0.03
	4.0	22,900	480	2.4	0.015	15,900	275	2.4	0.015	11,600	175	2	0.01	22,900	510	2.4	0.02	12,900	250	1.8	0.02
1.5	4.0	17,000	680	2.4	0.045	11,700	395	2.4	0.045	8,700	245	2	0.03	17,000	740	2.4	0.045	9,550	355	1.8	0.045
	6.0	15,300	480	3.6	0.023	10,600	275	3.6	0.023	7,750	175	3	0.015	15,300	520	3.6	0.03	8,590	250	2.7	0.03
2.0	5.0	12,700	680	3	0.12	8,750	395	3	0.12	6,530	245	2.5	0.096	12,700	740	3	0.09	7,160	355	2.25	0.08
	8.0	11,500	480	4.8	0.06	7,960	275	4.8	0.06	5,810	175	4	0.048	11,500	510	4.8	0.05	6,450	250	3.6	0.04
2.5	7.0	10,200	680	4.2	0.15	7,000	395	4.2	0.15	5,220	245	3.5	0.12	10,200	740	4.2	0.113	5,730	355	3.15	0.1
	10.0	9,170	480	6	0.075	6,370	275	6	0.075	4,650	175	5	0.06	9,170	520	6	0.063	5,160	250	4.5	0.05
3.0	8.0	8,490	680	4.8	0.225	5,840	395	4.8	0.225	4,350	245	4	0.18	8,490	740	4.8	0.225	4,770	355	3.6	0.195
	12.0	7,640	480	7.2	0.113	5,310	275	7.2	0.113	3,870	175	6	0.09	7,640	520	7.2	0.011	4,300	250	5.4	0.098
3.5	9.0	7,280	680	5.4	0.263	5,000	395	5.4	0.263	3,730	245	4.5	0.21	7,280	740	5.4	0.263	4,090	355	4.05	0.228
4.0	10.0	6,370	680	6	0.3	4,380	395	6	0.3	3,260	245	5	0.24	6,370	740	6	0.3	3,580	355	4.5	0.26
	16.0	5,730	480	9.6	0.15	3,980	275	9.6	0.15	2,900	175	8	0.12	5,730	510	9.6	0.015	3,220	250	7.2	0.13
4.5	12.0	5,660	680	7.2	0.338	3,890	395	7.2	0.338	2,900	245	6	0.27	5,660	740	7.2	0.338	3,180	355	5.4	0.293
5.0	13.0	5,090	680	7.8	0.375	3,500	395	7.8	0.375	2,610	245	6.5	0.3	5,090	740	7.8	0.375	2,860	355	5.85	0.325
	20.0	4,580	470	12	0.188	3,180	275	12	0.188	2,320	175	10	0.15	4,580	510	12	0.019	2,580	250	9	0.163
5.5	14.0	4,630	680	8.4	0.413	3,180	395	8.4	0.413	2,370	245	7	0.33	4,630	740	8.4	0.413	2,600	355	6.3	0.358
6.0	15.0	4,240	680	9	0.45	2,920	395	9	0.45	2,180	245	7.5	0.36	4,240	740	9	0.45	2,390	355	6.75	0.39
	24.0	3,820	480	14.4	0.225	2,650	275	14.4	0.225	1,940	175	12	0.18	3,820	520	14.4	0.023	2,150	250	10.8	0.195
6.5	17.0	3,920	680	10.2	0.488	2,690	395	10.2	0.488	2,010	245	8.5	0.39	3,920	740	10.2	0.488	2,200	355	7.65	0.423
7.0	18.0	3,640	680	10.8	0.525	2,500	395	10.8	0.525	1,860	245	9	0.42	3,640	740	10.8	0.525	2,050	355	8.1	0.455
7.5	19.0	3,400	680	11.4	0.563	2,330	395	11.4	0.563	1,740	245	9.5	0.45	3,400	740	11.4	0.563	1,910	355	8.55	0.488
8.0	20.0	3,180	680	12	0.6	2,190	395	12	0.6	1,630	245	10	0.48	3,180	740	12	0.6	1,790	355	9	0.52
	32.0	2,860	470	19.2	0.3	1,990	275	19.2	0.3	1,450	175	16	0.24	2,860	510	19.2	0.03	1,610	250	14.4	0.26
8.5	22.0	3,000	680	13.2	0.638	2,060	395	13.2	0.638	1,540	245	11	0.51	3,000	740	13.2	0.638	1,690	355	9.9	0.553
9.0	23.0	2,830	680	13.8	0.675	1,950	395	13.8	0.675	1,450	245	11.5	0.54	2,830	740	13.8	0.675	1,590	355	10.35	0.585
9.5	24.0	2,680	680	14.4	0.713	1,840	395	14.4	0.713	1,370	245	12	0.57	2,680	740	14.4	0.713	1,510	355	10.8	0.618
10.0	25.0	2,550	680	15	0.75	1,750	395	15	0.75	1,310	245	12.5	0.6	2,550	740	15	0.75	1,430	355	11.25	0.65
	40.0	2,290	470	24	0.375	1,590	275	24	0.375	1,160	175	20	0.3	2,290	510	24	0.038	1,290	250	18	0.325
12.0	30.0	2,120	680	18	0.9	1,460	395	18	0.9	1,090	245	15	0.72	2,120	740	18	0.9	1,190	355	13.5	0.78
	48.0	1,910	480	28.8	0.45	1,330	275	28.8	0.45	970	175	24	0.36	1,910	520	28.8	0.045	1,070	250	21.6	0.39
14.0	26.0	1,820	680	16.8	1.05	1,250	395	16.8	1.05	930	245	14	0.84	1,820	740	16.8	1.05	1,020	355	12.6	0.91
16.0	32.0	1,590	680	19.2	1.2	1,090	395	19.2	1.2	820	245	16	0.96	1,590	740	19.2	1.2	900	355	14.4	1.04
18.0	32.0	1,410	680	21.6	1.35	970	395	21.6	1.35	730	245	18	1.08	1,410	730	21.6	1.35	800	355	16.2	1.17
20.0	38.0	1,270	680	24	1.5	880	395	24	1.5	650	245	20	1.2	1,270	730	24	1.5	720	355	18	1.3

スクエアエンドミル Square End Mills
溝 Slotting

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.5	22,900	340	0.25	1	15,900	195	0.25	1	11,000	115	0.2	1	22,900	365	0.25	1	11,500	140	0.15	1
	4.0	20,700	230	0.125	1	14,200	135	0.125	1	9,870	80	0.1	1	20,700	255	0.125	1	10,300	100	0.075	1
1.5	4.0	15,300	340	0.4	1.5	10,600	195	0.4	1.5	7,320	115	0.32	1.5	15,300	365	0.4	1.5	7,640	140	0.24	1.5
	6.0	13,800	230	0.188	1.5	9,440	135	0.188	1.5	6,580	80	0.15	1.5	13,800	255	0.188	1.5	6,880	100	0.113	1.5
2.0	5.0	11,500	340	0.5	2	7,960	195	0.5	2	5,490	115	0.4	2	11,500	365	0.5	2	5,730	140	0.3	2
	8.0	10,400	240	0.25	2	7,080	135	0.25	2	4,930	80	0.2	2	10,400	255	0.25	2	5,160	100	0.15	2
2.5	7.0	9,170	340	0.7	2.5	6,370	195	0.7	2.5	4,390	115	0.56	2.5	9,170	365	0.7	2.5	4,580	140	0.42	2.5
	10.0	8,280	240	0.313	2.5	5,670	135	0.313	2.5	3,950	80	0.25	2.5	8,280	255	0.313	2.5	4,130	100	0.188	2.5
3.0	8.0	7,640	340	0.8	3	5,310	195	0.8	3	3,660	115	0.64	3	7,640	365	0.8	3	3,820	140	0.48	3
	12.0	6,900	240	0.375	3	4,720	135	0.375	3	3,290	80	0.3	3	6,900	255	0.375	3	3,440	100	0.225	3
3.5	9.0	6,550	340	0.9	3.5	4,550	195	0.9	3.5	3,140	115	0.72	3.5	6,550	365	0.9	3.5	3,270	140	0.54	3.5
4.0	10.0	5,730	340	1	4	3,980	195	1	4	2,750	115	0.8	4	5,730	365	1	4	2,860	140	0.6	4
	16.0	5,170	230	0.5	4	3,540	135	0.5	4	2,470	80	0.4	4	5,170	255	0.5	4	2,580	100	0.3	4
4.5	12.0	5,090	340	1.2	4.5	3,540	195	1.2	4.5	2,440	115	0.96	4.5	5,090	365	1.2	4.5	2,550	140	0.72	4.5
5.0	13.0	4,580	340	1.3	5	3,180	195	1.3	5	2,200	115	1.04	5	4,580	365	1.3	5	2,290	140	0.78	5
	20.0	4,140	240	0.625	5	2,830	135	0.625	5	1,970	80	0.5	5	4,140	255	0.625	5	2,060	100	0.375	5
5.5	14.0	4,170	340	1.4	5.5	2,890	195	1.4	5.5	2,000	115	1.12	5.5	4,170	365	1.4	5.5	2,080	140	0.84	5.5
6.0	15.0	3,820	340	1.5	6	2,650	195	1.5	6	1,830	115	1.2	6	3,820	365	1.5	6	1,910	140	0.9	6
	24.0	3,450	240	0.75	6	2,360	135	0.75	6	1,640	80	0.6	6	3,450	255	0.75	6	1,720	100	0.45	6
6.5	17.0	3,530	340	1.7	6.5	2,450	195	1.7	6.5	1,690	115	1.36	6.5	3,530	365	1.7	6.5	1,760	140	1.02	6.5
7.0	18.0	3,270	340	1.8	7	2,270	195	1.8	7	1,570	115	1.44	7	3,270	365	1.8	7	1,640	140	1.08	7
7.5	19.0	3,060	340	1.9	7.5	2,120	195	1.9	7.5	1,460	115	1.52	7.5	3,060	365	1.9	7.5	1,530	140	1.14	7.5
8.0	20.0	2,860	340	2	8	1,990	195	2	8	1,370	115	1.6	8	2,860	365	2	8	1,430	140	1.2	8
	32.0	2,590	240	1	8	1,770	135	1	8	1,230	80	0.8	8	2,590	255	1	8	1,290	100	0.6	8
8.5	22.0	2,700	340	2.2	8.5	1,870	195	2.2	8.5	1,290	115	1.76	8.5	2,700	365	2.2	8.5	1,350	140	1.32	8.5
9.0	23.0	2,550	340	2.3	9	1,770	195	2.3	9	1,220	115	1.84	9	2,550	365	2.3	9	1,270	140	1.38	9
9.5	24.0	2,410	340	2.4	9.5	1,680	195	2.4	9.5	1,160	115	1.92	9.5	2,410	365	2.4	9.5	1,210	140	1.44	9.5
10.0	25.0	2,290	340	2.5	10	1,590	195	2.5	10	1,100	115	2	10	2,290	365	2.5	10	1,150	140	1.5	10
	40.0	2,070	240	1.25	10	1,420	135	1.25	10	990	80	1	10	2,070	255	1.25	10	1,030	100	0.75	10
12.0	30.0	1,910	340	3	12	1,330	195	3	12	920	115	2.4	12	1,910	365	3	12	950	140	1.8	12
	48.0	1,720	230	1.5	12	1,180	135	1.5	12	820	80	1.2	12	1,720	255	1.5	12	860	100	0.9	12
14.0	26.0	1,640	340	2.8	14	1,140	195	2.8	14	780	115	2.24	14	1,640	365	2.8	14	820	140	1.68	14
16.0	32.0	1,430	340	3.2	16	990	195	3.2	16	690	115	2.56	16	1,430	365	3.2	16	720	140	1.92	16
18.0	32.0	1,270	340	3.6	18	880	195	3.6	18	610	115	2.88	18	1,270	365	3.6	18	640	140	2.16	18
20.0	38.0	1,150	340	4	20	800	195	4	20	550	115	3.2	20	1,150	365	4	20	570	140	2.4	20

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IAS-4
Model number:IAS-4

スクエアエンドミル Square End Mills
側面 Side Milling

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.5	44,600	1190	1.875	0.08	38,200	940	1.875	0.08	25,500	580	1.5	0.06	31,800	720	1.875	0.08
	4.0	40,100	840	3	0.04	34,400	660	3	0.04	22,900	410	2.4	0.03	28,700	510	3	0.04
1.5	4.0	29,700	1190	3	0.12	25,500	940	3	0.12	17,000	580	2.4	0.09	21,200	720	3	0.12
	6.0	26,700	840	4.5	0.06	22,900	660	4.5	0.06	15,300	410	3.6	0.045	19,100	510	4.5	0.06
2.0	5.0	22,300	1190	3.75	0.24	19,100	940	3.75	0.24	12,700	580	3	0.18	15,900	720	3.75	0.24
	8.0	20,100	840	6	0.12	17,200	660	6	0.12	11,500	410	4.8	0.09	14,300	510	6	0.12
2.5	7.0	17,800	1190	5.25	0.3	15,300	940	5.25	0.3	10,200	580	4.2	0.225	12,700	720	5.25	0.3
	10.0	16,000	840	7.5	0.15	13,800	660	7.5	0.15	9,170	410	6	0.113	11,500	510	7.5	0.15
3.0	8.0	14,900	1190	6	0.6	12,700	940	6	0.6	8,490	580	4.8	0.45	10,600	720	6	0.6
	12.0	13,400	840	9	0.3	11,500	660	9	0.3	7,640	410	7.2	0.225	9,550	510	9	0.3
3.5	9.0	12,700	1190	6.75	0.7	10,900	940	6.75	0.7	7,280	580	5.4	0.525	9,090	720	6.75	0.7
4.0	10.0	11,100	1190	7.5	0.8	9,550	940	7.5	0.8	6,370	580	6	0.6	7,960	720	7.5	0.8
	16.0	10,000	840	12	0.4	8,590	660	12	0.4	5,730	410	9.6	0.3	7,160	510	12	0.4
4.5	12.0	9,900	1190	9	0.9	8,490	940	9	0.9	5,660	580	7.2	0.675	7,070	720	9	0.9
5.0	13.0	8,910	1190	9.75	1	7,640	940	9.75	1	5,090	580	7.8	0.75	6,370	720	9.75	1
	20.0	8,020	840	15	0.5	6,880	660	15	0.5	4,580	400	12	0.375	5,730	510	15	0.5
5.5	14.0	8,100	1190	10.5	1.1	6,940	940	10.5	1.1	4,630	580	8.4	0.825	5,790	720	10.5	1.1
6.0	15.0	7,430	1200	11.25	1.2	6,370	950	11.25	1.2	4,240	580	9	0.9	5,310	720	11.25	1.2
	24.0	6,680	840	18	0.6	5,730	660	18	0.6	3,820	410	14.4	0.45	4,770	510	18	0.6
6.5	17.0	6,860	1200	12.75	1.3	5,880	940	12.75	1.3	3,920	580	10.2	0.975	4,900	720	12.75	1.3
7.0	18.0	6,370	1200	13.5	1.4	5,460	950	13.5	1.4	3,640	580	10.8	1.05	4,550	720	13.5	1.4
7.5	19.0	5,940	1190	14.25	1.5	5,090	940	14.25	1.5	3,400	580	11.4	1.125	4,240	720	14.25	1.5
8.0	20.0	5,570	1190	15	1.6	4,770	940	15	1.6	3,180	580	12	1.2	3,980	720	15	1.6
	32.0	5,010	840	24	0.8	4,300	660	24	0.8	2,860	400	19.2	0.6	3,580	510	24	0.8
8.5	22.0	5,240	1190	16.5	1.7	4,490	940	16.5	1.7	3,000	580	13.2	1.275	3,740	720	16.5	1.7
9.0	23.0	4,950	1190	17.25	1.8	4,240	940	17.25	1.8	2,830	580	13.8	1.35	3,540	720	17.25	1.8
9.5	24.0	4,690	1190	18	1.9	4,020	940	18	1.9	2,680	580	14.4	1.425	3,350	720	18	1.9
10.0	25.0	4,460	1200	18.75	2	3,820	940	18.75	2	2,550	580	15	1.5	3,180	720	18.75	2
	40.0	4,010	840	30	1	3,440	660	30	1	2,290	400	24	0.75	2,860	500	30	1
12.0	30.0	3,710	1190	22.5	2.4	3,180	940	22.5	2.4	2,120	580	18	1.8	2,650	720	22.5	2.4
	48.0	3,340	840	36	1.2	2,860	660	36	1.2	1,910	410	28.8	0.9	2,390	510	36	1.2
14.0	26.0	3,180	1190	21	2.8	2,730	950	21	2.8	1,820	580	16.8	2.1	2,270	720	21	2.8
16.0	32.0	2,790	1200	24	3.2	2,390	950	24	3.2	1,590	580	19.2	2.4	1,990	720	24	3.2
18.0	32.0	2,480	1200	27	3.6	2,120	940	27	3.6	1,410	570	21.6	2.7	1,770	720	27	3.6
20.0	38.0	2,230	1200	30	4	1,910	940	30	4	1,270	570	24	3	1,590	720	30	4

スクエアエンドミル Square End Mills
溝 Slotting

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy AI·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.5	38,200	930	0.2	1	32,500	740	0.2	1	21,700	270	0.2	1	27,100	340	0.25	1
	4.0	34,100	650	0.1	1	29,300	520	0.1	1	19,500	190	0.1	1	24,400	230	0.125	1
1.5	4.0	25,500	930	0.32	1.5	21,700	740	0.32	1.5	14,400	270	0.32	1.5	18,000	340	0.4	1.5
	6.0	22,700	650	0.15	1.5	19,500	520	0.15	1.5	13,000	190	0.15	1.5	16,200	230	0.188	1.5
2.0	5.0	19,100	930	0.4	2	16,200	740	0.4	2	10,800	270	0.4	2	13,500	340	0.5	2
	8.0	17,000	650	0.2	2	14,600	520	0.2	2	9,760	190	0.2	2	12,200	240	0.25	2
2.5	7.0	15,300	930	0.56	2.5	13,000	740	0.56	2.5	8,660	270	0.56	2.5	10,800	330	0.7	2.5
	10.0	13,600	650	0.25	2.5	11,700	510	0.25	2.5	7,800	190	0.25	2.5	9,740	230	0.313	2.5
3.0	8.0	12,700	930	0.64	3	10,800	740	0.64	3	7,220	270	0.64	3	9,020	340	0.8	3
	12.0	11,400	650	0.3	3	9,760	520	0.3	3	6,500	190	0.3	3	8,120	240	0.375	3
3.5	9.0	10,900	930	0.72	3.5	9,280	740	0.72	3.5	6,180	270	0.72	3.5	7,730	330	0.9	3.5
4.0	10.0	9,550	930	0.8	4	8,120	740	0.8	4	5,410	270	0.8	4	6,760	330	1	4
	16.0	8,510	650	0.4	4	7,320	520	0.4	4	4,880	190	0.4	4	6,090	240	0.5	4
4.5	12.0	8,490	930	0.96	4.5	7,220	740	0.96	4.5	4,810	270	0.96	4.5	6,010	330	1.2	4.5
5.0	13.0	7,640	930	1.04	5	6,490	730	1.04	5	4,330	270	1.04	5	5,410	330	1.3	5
	20.0	6,810	650	0.5	5	5,860	520	0.5	5	3,900	190	0.5	5	4,870	230	0.625	5
5.5	14.0	6,940	930	1.12	5.5	5,900	730	1.12	5.5	3,940	270	1.12	5.5	4,920	340	1.4	5.5
6.0	15.0	6,370	930	1.2	6	5,410	740	1.2	6	3,610	270	1.2	6	4,510	340	1.5	6
	24.0	5,680	660	0.6	6	4,880	520	0.6	6	3,250	190	0.6	6	4,060	240	0.75	6
6.5	17.0	5,880	930	1.36	6.5	5,000	740	1.36	6.5	3,330	270	1.36	6.5	4,160	330	1.7	6.5
7.0	18.0	5,460	940	1.44	7	4,640	740	1.44	7	3,090	270	1.44	7	3,870	340	1.8	7
7.5	19.0	5,090	930	1.52	7.5	4,330	740	1.52	7.5	2,890	270	1.52	7.5	3,610	340	1.9	7.5
8.0	20.0	4,770	930	1.6	8	4,060	740	1.6	8	2,710	270	1.6	8	3,380	330	2	8
	32.0	4,260	660	0.8	8	3,660	520	0.8	8	2,440	190	0.8	8	3,040	230	1	8
8.5	22.0	4,490	930	1.76	8.5	3,820	740	1.76	8.5	2,550	270	1.76	8.5	3,180	330	2.2	8.5
9.0	23.0	4,240	930	1.84	9	3,610	740	1.84	9	2,410	270	1.84	9	3,010	340	2.3	9
9.5	24.0	4,020	930	1.92	9.5	3,420	740	1.92	9.5	2,280	270	1.92	9.5	2,850	340	2.4	9.5
10.0	25.0	3,820	930	2	10	3,250	740	2	10	2,160	270	2	10	2,710	340	2.5	10
	40.0	3,410	660	1	10	2,930	520	1	10	1,950	190	1	10	2,440	240	1.25	10
12.0	30.0	3,180	930	2.4	12	2,710	740	2.4	12	1,800	270	2.4	12	2,250	330	3	12
	48.0	2,840	660	1.2	12	2,440	520	1.2	12	1,630	190	1.2	12	2,030	240	1.5	12
14.0	26.0	2,730	940	2.24	14	2,320	740	2.24	14	1,550	270	2.24	14	1,930	330	2.8	14
16.0	32.0	2,390	940	2.56	16	2,030	740	2.56	16	1,350	270	2.56	16	1,690	330	3.2	16
18.0	32.0	2,120	930	2.88	18	1,800	730	2.88	18	1,200	270	2.88	18	1,500	330	3.6	18
20.0	38.0	1,910	930	3.2	20	1,620	730	3.2	20	1,080	270	3.2	20	1,350	330	4	20

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IALS-2
Model number:IALS-2

ロングネックスクエアエンドミル Long Neck Square End Mills

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.1	0.3	50,000	40	0.006	0.1	50,000	30	0.005	0.1	50,000	25	0.005	0.1	50,000	50	0.007	0.1	50,000	35	0.005	0.1
	1.0	50,000	10	0.002	0.1	50,000	10	0.002	0.1	50,000	5	0.002	0.1	50,000	10	0.003	0.1	50,000	10	0.002	0.1
0.2	0.5	50,000	110	0.012	0.2	50,000	95	0.01	0.2	50,000	80	0.009	0.2	50,000	150	0.014	0.2	50,000	100	0.009	0.2
	1.0	50,000	40	0.01	0.2	50,000	30	0.008	0.2	49,300	25	0.007	0.2	50,000	55	0.011	0.2	50,000	35	0.007	0.2
0.3	1.5	50,000	60	0.014	0.3	44,600	45	0.012	0.3	32,900	25	0.011	0.3	50,000	80	0.017	0.3	34,400	35	0.011	0.3
	3.0	43,500	25	0.007	0.3	31,700	15	0.006	0.3	23,400	10	0.005	0.3	43,500	30	0.008	0.3	24,400	10	0.005	0.3
0.4	1.5	45,800	135	0.019	0.4	33,500	85	0.016	0.4	24,600	50	0.014	0.4	45,800	185	0.022	0.4	25,800	70	0.014	0.4
	3.0	36,700	40	0.014	0.4	26,800	25	0.012	0.4	19,700	15	0.011	0.4	36,700	55	0.017	0.4	20,600	20	0.011	0.4
0.5	2.0	36,700	85	0.024	0.5	26,800	50	0.02	0.5	19,700	35	0.018	0.5	36,700	115	0.028	0.5	20,600	45	0.018	0.5
	4.0	29,300	35	0.018	0.5	21,400	20	0.015	0.5	15,800	15	0.014	0.5	29,300	50	0.021	0.5	16,500	20	0.014	0.5
0.6	1.5	33,900	225	0.036	0.6	24,800	140	0.03	0.6	18,300	85	0.027	0.6	33,900	305	0.042	0.6	19,100	100	0.027	0.6
0.8	4.0	22,900	70	0.038	0.8	16,700	45	0.032	0.8	12,300	25	0.029	0.8	22,900	95	0.045	0.8	12,900	35	0.029	0.8
	8.0	16,300	25	0.019	0.8	11,900	15	0.016	0.8	8,770	10	0.014	0.8	16,300	30	0.022	0.8	9,170	10	0.014	0.8
1.0	2.0	20,400	225	0.06	1	14,900	140	0.05	1	11,000	85	0.045	1	20,400	305	0.07	1	11,500	100	0.045	1
	4.0	18,300	85	0.048	1	13,400	50	0.04	1	9,860	35	0.036	1	18,300	115	0.056	1	10,300	45	0.036	1
	6.0	16,300	55	0.036	1	11,900	35	0.03	1	8,770	20	0.027	1	16,300	75	0.042	1	9,170	30	0.027	1
	8.0	14,700	35	0.036	1	10,700	30	0.03	1	7,890	15	0.027	1	14,700	50	0.042	1	8,250	20	0.027	1
	10.0	13,000	25	0.024	1	9,530	15	0.02	1	7,020	10	0.018	1	13,000	30	0.028	1	7,340	10	0.018	1
	12.0	13,000	20	0.018	1	9,530	10	0.015	1	7,020	5	0.014	1	13,000	25	0.021	1	7,340	10	0.014	1
1.2	4.0	15,300	135	0.058	1.2	11,200	85	0.048	1.2	8,220	50	0.043	1.2	15,300	185	0.067	1.2	8,600	70	0.043	1.2
	6.0	15,300	70	0.058	1.2	11,200	45	0.048	1.2	8,220	25	0.043	1.2	15,300	95	0.067	1.2	8,600	35	0.043	1.2
	8.0	13,600	50	0.043	1.2	9,920	30	0.036	1.2	7,310	20	0.032	1.2	13,600	65	0.05	1.2	7,640	25	0.032	1.2
	10.0	12,200	35	0.029	1.2	8,930	20	0.024	1.2	6,580	15	0.022	1.2	12,200	45	0.034	1.2	6,880	20	0.022	1.2
	12.0	10,900	25	0.029	1.2	7,940	15	0.024	1.2	5,850	10	0.022	1.2	10,900	30	0.034	1.2	6,110	10	0.022	1.2
1.5	4.0	13,600	225	0.09	1.5	9,920	140	0.075	1.5	7,310	85	0.068	1.5	13,600	305	0.105	1.5	7,640	100	0.068	1.5
	6.0	12,200	85	0.072	1.5	8,930	50	0.06	1.5	6,580	35	0.054	1.5	12,200	115	0.084	1.5	6,880	45	0.054	1.5
	8.0	10,900	60	0.054	1.5	7,940	40	0.045	1.5	5,850	25	0.041	1.5	10,900	80	0.063	1.5	6,110	30	0.041	1.5
	10.0	10,900	50	0.054	1.5	7,940	30	0.045	1.5	5,850	20	0.041	1.5	10,900	65	0.063	1.5	6,110	25	0.041	1.5
	12.0	9,780	35	0.054	1.5	7,150	20	0.045	1.5	5,260	15	0.041	1.5	9,780	50	0.063	1.5	5,500	20	0.041	1.5
	14.0	8,690	25	0.036	1.5	6,350	15	0.03	1.5	4,680	10	0.027	1.5	8,690	35	0.042	1.5	4,890	15	0.027	1.5
	16.0	8,690	20	0.027	1.5	6,350	15	0.023	1.5	4,680	10	0.02	1.5	8,690	30	0.032	1.5	4,890	10	0.02	1.5
2.0	4.0	10,200	225	0.12	2	7,440	140	0.1	2	5,480	85	0.09	2	10,200	305	0.14	2	5,730	100	0.09	2
	6.0	10,200	150	0.12	2	7,440	95	0.1	2	5,480	60	0.09	2	10,200	205	0.14	2	5,730	80	0.09	2
	8.0	9,170	85	0.096	2	6,700	50	0.08	2	4,930	35	0.072	2	9,170	115	0.112	2	5,160	45	0.072	2
	10.0	9,170	70	0.096	2	6,700	45	0.08	2	4,930	25	0.072	2	9,170	95	0.112	2	5,160	35	0.072	2
	12.0	8,150	55	0.072	2	5,950	35	0.06	2	4,390	20	0.054	2	8,150	75	0.084	2	4,590	30	0.054	2
	14.0	8,150	45	0.072	2	5,950	30	0.06	2	4,390	20	0.054	2	8,150	65	0.084	2	4,590	25	0.054	2
	15.0	7,340	40	0.072	2	5,360	25	0.06	2	3,950	15	0.054	2	7,340	55	0.084	2	4,130	20	0.054	2
	16.0	7,340	35	0.072	2	5,360	20	0.06	2	3,950	25	0.054	2	7,340	50	0.084	2	4,130	20	0.054	2
	18.0	7,340	30	0.048	2	5,360	20	0.04	2	3,950	10	0.036	2	7,340	40	0.056	2	4,130	15	0.036	2
	20.0	6,520	25	0.048	2	4,760	15	0.04	2	3,510	10	0.036	2	6,520	30	0.056	2	3,670	10	0.036	2
3.0	8.0	6,790	225	0.18	3	4,960	140	0.15	3	3,660	85	0.135	3	6,790	305	0.21	3	3,820	100	0.135	3
	10.0	6,110	135	0.144	3	4,470	85	0.12	3	3,290	50	0.108	3	6,110	185	0.168	3	3,440	70	0.108	3
	12.0	6,110	85	0.144	3	4,470	50	0.12	3	3,290	35	0.108	3	6,110	115	0.168	3	3,440	45	0.108	3

ロングネックスクエアエンドミル Long Neck Square End Mills

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
3.0	14.0	6,110	85	0.144	3	4,470	50	0.12	3	3,290	35	0.108	3	6,110	115	0.168	3	3,440	45	0.108	3
	16.0	5,430	60	0.108	3	3,970	40	0.09	3	2,920	25	0.081	3	5,430	80	0.126	3	3,060	30	0.081	3
	18.0	5,430	55	0.108	3	3,970	35	0.09	3	2,920	20	0.081	3	5,430	75	0.126	3	3,060	30	0.081	3
	20.0	5,430	50	0.108	3	3,970	30	0.09	3	2,920	20	0.081	3	5,430	65	0.126	3	3,060	25	0.081	3
	25.0	4,890	35	0.072	3	3,570	20	0.06	3	2,630	15	0.054	3	4,890	45	0.084	3	2,750	20	0.054	3
	30.0	4,350	25	0.072	3	3,180	15	0.06	3	2,340	10	0.054	3	4,350	30	0.084	3	2,450	10	0.054	3
4.0	10.0	5,100	225	0.24	4	3,720	140	0.2	4	2,740	85	0.18	4	5,100	305	0.28	4	2,870	100	0.18	4
	12.0	5,100	150	0.24	4	3,720	95	0.2	4	2,740	60	0.18	4	5,100	205	0.28	4	2,870	80	0.18	4
	16.0	4,590	85	0.192	4	3,350	50	0.16	4	2,470	35	0.144	4	4,590	115	0.224	4	2,580	45	0.144	4
	20.0	4,590	70	0.192	4	3,350	45	0.16	4	2,470	25	0.144	4	4,590	95	0.224	4	2,580	35	0.144	4
	25.0	4,080	50	0.144	4	2,980	30	0.12	4	2,190	20	0.108	4	4,080	70	0.168	4	2,290	25	0.108	4
	30.0	3,670	40	0.144	4	2,680	25	0.12	4	1,970	15	0.108	4	3,670	55	0.168	4	2,070	20	0.108	4
	35.0	3,670	30	0.096	4	2,680	20	0.08	4	1,970	10	0.072	4	3,670	45	0.112	4	2,070	15	0.072	4
5.0	15.0	4,080	150	0.3	5	2,980	95	0.25	5	2,190	60	0.225	5	4,080	205	0.35	5	2,290	80	0.225	5
	20.0	3,670	85	0.24	5	2,680	50	0.2	5	1,970	35	0.18	5	3,670	115	0.28	5	2,070	45	0.18	5
	25.0	3,670	70	0.24	5	2,680	45	0.2	5	1,970	25	0.18	5	3,670	95	0.28	5	2,070	35	0.18	5
	30.0	3,260	55	0.18	5	2,380	35	0.15	5	1,760	20	0.135	5	3,260	75	0.21	5	1,840	30	0.135	5
	35.0	3,260	45	0.18	5	2,380	30	0.15	5	1,760	20	0.135	5	3,260	65	0.21	5	1,840	25	0.135	5
	40.0	2,940	35	0.18	5	2,150	20	0.15	5	1,580	15	0.135	5	2,940	50	0.21	5	1,650	20	0.135	5
6.0	20.0	3,060	135	0.288	6	2,230	85	0.24	6	1,650	50	0.216	6	3,060	185	0.336	6	1,720	70	0.216	6
	30.0	3,060	70	0.288	6	2,230	45	0.24	6	1,650	25	0.216	6	3,060	95	0.336	6	1,720	35	0.216	6
	40.0	2,720	50	0.216	6	1,990	30	0.18	6	1,460	20	0.162	6	2,720	65	0.252	6	1,530	25	0.162	6
	50.0	2,450	35	0.144	6	1,790	20	0.12	6	1,320	15	0.108	6	2,450	45	0.168	6	1,380	20	0.108	6
	60.0	2,180	25	0.144	6	1,590	15	0.12	6	1,170	10	0.108	6	2,180	30	0.168	6	1,220	10	0.108	6

ロングネックスクエアエンドミル Long Neck Square End Mills

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.1	0.3	50,000	40	0.008	0.1	50,000	35	0.008	0.1	50,000	30	0.005	0.1	50,000	30	0.008	0.1
	1.0	50,000	10	0.003	0.1	50,000	10	0.003	0.1	50,000	10	0.002	0.1	50,000	10	0.003	0.1
0.2	0.5	50,000	120	0.015	0.2	50,000	110	0.015	0.2	50,000	95	0.01	0.2	50,000	95	0.015	0.2
	1.0	50,000	40	0.012	0.2	50,000	40	0.012	0.2	50,000	35	0.008	0.2	50,000	35	0.012	0.2
0.3	1.5	50,000	65	0.018	0.3	50,000	60	0.018	0.3	50,000	50	0.012	0.3	50,000	50	0.018	0.3
	3.0	50,000	30	0.009	0.3	50,000	25	0.009	0.3	43,500	20	0.006	0.3	50,000	25	0.009	0.3
0.4	1.5	50,000	160	0.024	0.4	50,000	100	0.024	0.4	45,800	115	0.016	0.4	50,000	125	0.024	0.4
	3.0	50,000	60	0.018	0.4	50,000	55	0.018	0.4	36,700	35	0.012	0.4	45,800	40	0.018	0.4
0.5	2.0	50,000	125	0.03	0.5	50,000	115	0.03	0.5	36,700	70	0.02	0.5	45,800	90	0.03	0.5
	4.0	50,000	65	0.023	0.5	44,000	55	0.023	0.5	29,300	30	0.015	0.5	36,700	40	0.023	0.5
0.6	1.5	50,000	360	0.045	0.6	50,000	330	0.045	0.6	33,900	190	0.03	0.6	42,400	240	0.045	0.6
0.8	4.0	40,100	135	0.048	0.8	34,400	105	0.048	0.8	22,900	60	0.032	0.8	28,600	75	0.048	0.8

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IALS-2
Model number:IALS-2

ロングネックスクエアエンドミル Long Neck Square End Mills

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy AI·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.8	8.0	28,500	45	0.024	0.8	24,400	35	0.024	0.8	16,300	20	0.016	0.8	20,400	25	0.024	0.8
1.0	2.0	35,600	430	0.075	1	30,600	335	0.075	1	20,400	190	0.05	1	25,500	240	0.075	1
	4.0	32,100	160	0.06	1	27,500	125	0.06	1	18,300	70	0.04	1	22,900	90	0.06	1
	6.0	28,500	105	0.045	1	24,400	80	0.045	1	16,300	45	0.03	1	20,400	60	0.045	1
	8.0	25,700	70	0.045	1	22,000	55	0.045	1	14,700	30	0.03	1	18,300	40	0.045	1
	10.0	22,800	45	0.03	1	19,500	35	0.03	1	13,000	20	0.02	1	16,300	25	0.03	1
	12.0	22,800	35	0.023	1	19,500	25	0.023	1	13,000	15	0.015	1	16,300	20	0.023	1
1.2	4.0	26,700	260	0.072	1.2	22,900	205	0.072	1.2	15,300	115	0.048	1.2	19,100	145	0.072	1.2
	6.0	26,700	135	0.072	1.2	22,900	105	0.072	1.2	15,300	60	0.048	1.2	19,100	75	0.072	1.2
	8.0	23,800	95	0.054	1.2	20,400	75	0.054	1.2	13,600	40	0.036	1.2	17,000	50	0.054	1.2
	10.0	21,400	65	0.036	1.2	18,300	50	0.036	1.2	12,200	30	0.024	1.2	15,300	35	0.036	1.2
	12.0	19,000	45	0.036	1.2	16,300	35	0.036	1.2	10,900	20	0.024	1.2	13,600	25	0.036	1.2
1.5	4.0	23,800	430	0.112	1.5	20,400	335	0.112	1.5	13,600	190	0.075	1.5	17,000	240	0.112	1.5
	6.0	21,400	100	0.09	1.5	18,300	125	0.09	1.5	12,200	70	0.06	1.5	15,300	90	0.09	1.5
	8.0	19,000	115	0.067	1.5	16,300	90	0.067	1.5	10,900	50	0.045	1.5	13,600	65	0.067	1.5
	10.0	19,000	95	0.067	1.5	16,300	75	0.067	1.5	10,900	40	0.045	1.5	13,600	50	0.067	1.5
	12.0	17,100	70	0.067	1.5	14,700	55	0.067	1.5	9,780	30	0.045	1.5	12,200	40	0.067	1.5
	14.0	15,200	50	0.045	1.5	13,000	40	0.045	1.5	8,690	20	0.03	1.5	10,900	30	0.045	1.5
	16.0	15,200	40	0.034	1.5	13,000	30	0.034	1.5	8,690	20	0.023	1.5	10,900	25	0.034	1.5
2.0	4.0	17,800	430	0.15	2	15,300	335	0.15	2	10,200	190	0.1	2	12,700	240	0.15	2
	6.0	17,800	285	0.15	2	15,300	225	0.15	2	10,200	130	0.1	2	12,700	160	0.15	2
	8.0	16,000	160	0.12	2	13,700	125	0.12	2	9,170	70	0.08	2	11,500	90	0.12	2
	10.0	16,000	135	0.12	2	13,700	105	0.12	2	9,170	60	0.08	2	11,500	75	0.12	2
	12.0	14,300	105	0.09	2	12,200	80	0.09	2	8,150	45	0.06	2	10,200	60	0.09	2
	14.0	14,300	90	0.09	2	12,200	70	0.09	2	8,150	40	0.06	2	10,200	50	0.09	2
	15.0	12,800	75	0.09	2	11,000	60	0.09	2	7,340	35	0.06	2	9,170	40	0.09	2
	16.0	12,800	70	0.09	2	11,000	55	0.09	2	7,340	30	0.06	2	9,170	40	0.09	2
	18.0	12,800	60	0.06	2	11,000	45	0.06	2	7,340	25	0.04	2	9,170	35	0.06	2
	20.0	11,400	45	0.06	2	9,780	35	0.06	2	6,520	20	0.04	2	8,150	25	0.06	2
3.0	8.0	11,900	430	0.225	3	10,200	335	0.225	3	6,790	190	0.15	3	8,490	240	0.225	3
	10.0	10,700	260	0.18	3	9,170	205	0.18	3	6,110	115	0.12	3	7,640	145	0.18	3
	12.0	10,700	160	0.18	3	9,170	125	0.18	3	6,110	70	0.12	3	7,640	90	0.18	3
	14.0	10,700	160	0.18	3	9,170	125	0.18	3	6,110	70	0.12	3	7,640	90	0.18	3
	16.0	9,510	115	0.135	3	8,150	90	0.135	3	5,430	50	0.09	3	6,790	65	0.135	3
	18.0	9,510	105	0.135	3	8,150	80	0.135	3	5,430	45	0.09	3	6,790	60	0.135	3
	20.0	9,510	95	0.135	3	8,150	75	0.135	3	5,430	40	0.09	3	6,790	50	0.135	3
	25.0	8,560	65	0.09	3	7,340	50	0.09	3	4,890	30	0.06	3	6,110	35	0.09	3
	30.0	7,610	45	0.09	3	6,520	35	0.09	3	4,350	20	0.06	3	5,430	25	0.09	3
4.0	10.0	8,920	430	0.3	4	7,640	335	0.3	4	5,100	190	0.2	4	6,370	240	0.3	4
	12.0	8,920	230	0.3	4	7,640	225	0.3	4	5,100	130	0.2	4	6,370	160	0.3	4
	16.0	8,020	160	0.24	4	6,880	125	0.24	4	4,590	70	0.16	4	5,730	90	0.24	4
	20.0	8,020	135	0.24	4	6,880	105	0.24	4	4,590	60	0.16	4	5,730	75	0.24	4
	25.0	7,130	100	0.18	4	6,110	80	0.18	4	4,080	45	0.12	4	5,100	55	0.18	4
	30.0	6,420	75	0.18	4	5,500	60	0.18	4	3,670	35	0.12	4	4,590	40	0.18	4

ロングネックスクエアエンドミル Long Neck Square End Mills

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy AI·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
4.0	35.0	6,420	60	0.12	4	5,500	50	0.12	4	3,670	25	0.08	4	4,590	35	0.12	4
5.0	15.0	7,130	130	0.375	5	6,110	225	0.375	5	4,080	130	0.25	5	5,100	160	0.375	5
	20.0	6,420	160	0.3	5	5,500	125	0.3	5	3,670	70	0.2	5	4,590	90	0.3	5
	25.0	6,420	135	0.3	5	5,500	105	0.3	5	3,670	60	0.2	5	4,590	75	0.3	5
	30.0	5,710	105	0.225	5	4,890	80	0.225	5	3,260	45	0.15	5	4,080	60	0.225	5
	35.0	5,710	90	0.225	5	4,890	70	0.225	5	3,260	40	0.15	5	4,080	50	0.225	5
	40.0	5,140	70	0.225	5	4,400	55	0.225	5	2,940	30	0.15	5	3,670	40	0.225	5
6.0	20.0	5,350	260	0.36	6	4,590	100	0.36	6	3,060	115	0.24	6	3,820	140	0.36	6
	30.0	5,350	135	0.36	6	4,590	105	0.36	6	3,060	60	0.24	6	3,820	75	0.36	6
	40.0	4,760	95	0.27	6	4,080	75	0.27	6	2,720	40	0.18	6	3,400	50	0.27	6
	50.0	4,280	65	0.18	6	3,670	50	0.18	6	2,450	30	0.12	6	3,060	35	0.18	6
	60.0	3,810	45	0.18	6	3,260	35	0.18	6	2,180	20	0.12	6	2,720	25	0.18	6

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IAR-2
Model number:IAR-2

ラジアスエンドミル　Radius End Mills

側面　Side Milling

被削材 Work Material		炭素鋼 Carbon Steel S45C　S55C				合金鋼 Alloy Steel SK　SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.0	27,100	385	1.5	0.1	19,100	220	1.5	0.05	13,700	125	1	0.04	28,700	490	1.5	0.08	15,900	180	1.2	0.064
1.5	3.0	18,100	385	2.25	0.15	12,800	220	2.25	0.075	9,100	125	1.5	0.06	19,100	490	2.25	0.12	10,600	180	1.8	0.096
2.0	4.0	13,600	385	3	0.2	9,550	220	3	0.1	6,850	125	2	0.08	14,300	490	3	0.16	7,950	180	2.4	0.128
2.5	5.0	10,800	415	3.75	0.25	7,650	235	3.75	0.125	5,450	135	2.5	0.1	11,450	525	3.75	0.2	6,350	195	3	0.16
3.0	6.0	9,000	415	4.5	0.3	6,350	235	4.5	0.15	4,550	135	3	0.12	9,550	530	4.5	0.24	5,300	195	3.6	0.192
4.0	8.0	6,750	415	6	0.4	4,750	235	6	0.2	3,400	135	4	0.16	7,150	530	6	0.32	4,000	200	4.8	0.256
5.0	10.0	5,500	430	7.5	0.5	3,900	245	7.5	0.25	2,800	140	5	0.2	5,850	550	7.5	0.4	3,250	205	6	0.32
6.0	12.0	4,600	430	9	0.6	3,250	245	9	0.3	2,350	140	6	0.24	4,850	545	9	0.48	2,700	200	7.2	0.384

ラジアスエンドミル　Radius End Mills

溝　Slotting

被削材 Work Material		炭素鋼 Carbon Steel S45C　S55C				合金鋼 Alloy Steel SK　SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.0	24,400	190	0.4	1	17,200	110	0.24	1	11,700	60	0.12	1	25,800	245	0.3	1	12,800	75	0.15	1
1.5	3.0	16,300	190	0.6	1.5	11,500	110	0.36	1.5	7,750	60	0.18	1.5	17,200	245	0.45	1.5	8,500	75	0.225	1.5
2.0	4.0	12,200	190	0.8	2	8,600	110	0.48	2	5,800	60	0.24	2	12,900	245	0.6	2	6,350	70	0.3	2
2.5	5.0	9,750	205	1	2.5	6,900	115	0.6	2.5	4,650	65	0.3	2.5	10,300	260	0.75	2.5	5,100	80	0.375	2.5
3.0	6.0	8,100	205	1.2	3	5,750	115	0.72	3	3,900	65	0.36	3	8,600	265	0.9	3	4,250	80	0.45	3
4.0	8.0	6,100	205	1.6	4	4,300	115	0.96	4	2,900	65	0.48	4	6,450	265	1.2	4	3,200	80	0.6	4
5.0	10.0	4,950	210	2	5	3,500	120	1.2	5	2,350	65	0.6	5	5,250	270	1.5	5	2,600	80	0.75	5
6.0	12.0	4,150	215	2.4	6	2,900	120	1.44	6	2,000	65	0.72	6	4,400	270	1.8	6	2,150	80	0.9	6

ラジアスエンドミル　Radius End Mills

側面　Side Milling

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.0	47,800	590	1.5	0.16	41,400	470	1.5	0.16	28,700	300	1.5	0.12	38,200	400	1.5	0.16
1.5	3.0	31,900	590	2.25	0.24	27,600	470	2.25	0.24	19,100	300	2.25	0.18	25,500	400	2.25	0.24
2.0	4.0	23,900	590	3	0.32	20,700	470	3	0.32	14,300	300	3	0.24	19,100	400	3	0.32
2.5	5.0	19,100	635	3.75	0.4	16,600	505	3.75	0.4	11,500	320	3.75	0.3	15,300	430	3.75	0.4
3.0	6.0	15,900	640	4.5	0.48	13,800	510	4.5	0.48	9,550	325	4.5	0.36	12,800	435	4.5	0.48
4.0	8.0	12,000	640	6	0.64	10,400	510	6	0.64	7,150	325	6	0.48	9,550	435	6	0.64
5.0	10.0	9,750	660	7.5	0.8	8,450	525	7.5	0.8	5,850	335	7.5	0.6	7,800	445	7.5	0.8
6.0	12.0	8,100	655	9	0.96	7,050	530	9	0.96	4,850	335	9	0.72	6,500	445	9	0.96

ラジアスエンドミル　Radius End Mills

溝　Slotting

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.0	40,600	465	0.32	1	35,200	365	0.32	1	24,400	140	0.28	1	32,500	185	0.4	1
1.5	3.0	27,100	465	0.48	1.5	23,500	370	0.48	1.5	16,300	140	0.42	1.5	21,700	185	0.6	1.5
2.0	4.0	20,300	465	0.64	2	17,600	370	0.64	2	12,200	140	0.56	2	16,300	185	0.8	2
2.5	5.0	16,300	495	0.8	2.5	14,100	395	0.8	2.5	9,800	150	0.7	2.5	13,000	200	1	2.5
3.0	6.0	13,600	500	0.96	3	11,700	400	0.96	3	8,100	150	0.84	3	10,800	200	1.2	3
4.0	8.0	10,200	500	1.28	4	8,800	400	1.28	4	6,100	150	1.12	4	8,100	200	1.6	4
5.0	10.0	8,300	520	1.6	5	7,200	410	1.6	5	4,950	155	1.4	5	6,600	210	2	5
6.0	12.0	6,900	515	1.92	6	6,000	410	1.92	6	4,150	155	1.68	6	5,500	210	2.4	6

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IAR-4
Model number:IAR-4

ラジアスエンドミル　Radius End Mills

側面　Side Milling

被削材 Work Material		炭素鋼 Carbon Steel S45C　S55C				合金鋼 Alloy Steel SK　SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.0	27,000	810	1.2	0.09	19,100	460	1.2	0.09	13,700	220	1	0.07	28,600	1,030	1.5	0.1	15,900	380	1	0.06
1.5	3.0	18,000	810	1.8	0.14	12,700	460	1.8	0.14	9,130	220	1.5	0.11	19,100	1,030	2.3	0.15	10,600	380	1.5	0.09
2.0	4.0	13,500	810	2.4	0.2	9,550	460	2.4	0.2	6,850	220	2	0.16	14,300	1,030	3	0.2	7,960	380	2	0.12
3.0	6.0	9,020	810	3.6	0.3	6,370	460	3.6	0.3	4,560	220	3	0.24	9,550	1,030	4.5	0.3	5,310	380	3	0.18
4.0	8.0	6,770	810	4.8	0.4	4,780	460	4.8	0.4	3,420	220	4	0.32	7,160	1,030	6	0.4	3,980	380	4	0.24
5.0	10.0	5,410	810	6	0.5	3,820	460	6	0.5	2,740	220	5	0.4	5,730	1,030	7.5	0.5	3,190	380	5	0.3
6.0	12.0	4,510	810	7.2	0.6	3,190	460	7.2	0.6	2,280	220	6	0.48	4,780	1,030	9	0.6	2,660	380	6	0.36
8.0	16.0	3,380	810	9.6	0.8	2,390	460	9.6	0.8	1,710	220	8	0.64	3,580	1,030	12	0.8	1,990	380	8	0.48
10.0	20.0	2,710	810	12	1	1,910	460	12	1	1,370	220	10	0.8	2,870	1,030	15	1	1,590	380	10	0.6
12.0	24.0	2,260	810	14.4	1.2	1,590	460	14.4	1.2	1,140	220	12	0.96	2,390	1,030	18	1.2	1,330	380	12	0.72
16.0	40.0	1,690	810	19.2	1.6	1,200	460	19.2	1.6	860	220	16	1.28	1,790	1,030	24	1.6	1,000	380	16	0.96
20.0	50.0	1,360	815	24	2	960	460	24	2	690	220	20	1.6	1,430	1,030	30	2	800	380	20	1.2

ラジアスエンドミル　Radius End Mills

溝　Slotting

被削材 Work Material		炭素鋼 Carbon Steel S45C　S55C				合金鋼 Alloy Steel SK　SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.0	24,300	400	0.25	1	17,200	225	0.25	1	11,600	100	0.2	1	25,800	510	0.25	1	12,700	155	0.15	1
1.5	3.0	16,200	400	0.38	1.5	11,500	225	0.38	1.5	7,760	100	0.3	1.5	17,200	510	0.38	1.5	8,490	155	0.23	1.5
2.0	4.0	12,200	400	0.5	2	8,600	225	0.5	2	5,820	100	0.4	2	12,900	510	0.5	2	6,370	155	0.3	2
3.0	6.0	8,120	400	0.75	3	5,730	225	0.75	3	3,880	100	0.6	3	8,600	510	0.75	3	4,250	155	0.45	3
4.0	8.0	6,090	400	1	4	4,300	225	1	4	2,910	100	0.8	4	6,450	510	1	4	3,190	155	0.6	4
5.0	10.0	4,870	400	1.25	5	3,440	225	1.25	5	2,330	100	1	5	5,160	510	1.25	5	2,550	155	0.75	5
6.0	12.0	4,060	400	1.5	6	2,870	225	1.5	6	1,940	100	1.2	6	4,300	510	1.5	6	2,120	155	0.9	6
8.0	16.0	3,050	400	2	8	2,150	225	2	8	1,460	100	1.6	8	3,230	510	2	8	1,590	155	1.2	8
10.0	20.0	2,440	400	2.5	10	1,720	225	2.5	10	1,170	100	2	10	2,580	510	2.5	10	1,280	155	1.5	10
12.0	24.0	2,030	400	3	12	1,430	225	3	12	970	100	2.4	12	2,150	510	3	12	1,060	155	1.8	12
16.0	40.0	1,520	400	4	16	1,080	225	4	16	730	100	3.2	16	1,610	510	4	16	800	155	2.4	16
20.0	50.0	1,220	405	5	20	860	225	5	20	580	100	4	20	1,290	510	5	20	640	150	3	20

ラジアスエンドミル　Radius End Mills

側面　Side Milling

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.0	47,700	1,240	1.5	0.15	41,400	995	1.5	0.15	28,600	630	1.2	0.1	38,200	840	1.5	0.15
1.5	3.0	31,800	1,240	2.3	0.23	27,600	995	2.3	0.23	19,100	630	1.8	0.15	25,500	840	2.3	0.23
2.0	4.0	23,900	1,240	3	0.3	20,700	995	3	0.3	14,300	630	2.4	0.2	19,100	840	3	0.3
3.0	6.0	15,900	1,240	4.5	0.45	13,800	995	4.5	0.45	9,550	630	3.6	0.3	12,700	840	4.5	0.45
4.0	8.0	11,900	1,240	6	0.6	10,300	995	6	0.6	7,160	630	4.8	0.4	9,550	840	6	0.6
5.0	10.0	9,550	1,240	7.5	0.75	8,280	995	7.5	0.75	5,730	630	6	0.5	7,640	840	7.5	0.75
6.0	12.0	7,960	1,240	9	0.9	6,900	995	9	0.9	4,780	630	7.2	0.6	6,370	840	9	0.9
8.0	16.0	5,970	1,240	12	1.2	5,180	995	12	1.2	3,580	630	9.6	0.8	4,780	840	12	1.2
10.0	20.0	4,780	1,240	15	1.5	4,140	995	15	1.5	2,870	630	12	1	3,820	840	15	1.5
12.0	24.0	3,980	1,240	18	1.8	3,450	995	18	1.8	2,390	630	14.4	1.2	3,190	840	18	1.8
16.0	40.0	2,990	1,240	24	2.4	2,590	995	24	2.4	1,790	630	19.2	1.6	2,390	840	24	2.4
20.0	50.0	2,390	1,240	30	3	2,070	995	30	3	1,430	630	24	2	1,910	840	30	3

ラジアスエンドミル　Radius End Mills

溝　Slotting

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm	min^{-1}	mm/min	∂p mm	∂e mm
1.0	2.0	40,600	975	0.2	1	35,200	775	0.2	1	24,300	295	0.2	1	32,500	395	0.2	1
1.5	3.0	27,000	975	0.3	1.5	23,400	775	0.3	1.5	16,200	295	0.3	1.5	21,600	395	0.3	1.5
2.0	4.0	20,300	975	0.4	2	17,600	775	0.4	2	12,200	295	0.4	2	16,200	395	0.4	2
3.0	6.0	13,500	975	0.6	3	11,700	775	0.6	3	8,120	295	0.6	3	10,800	395	0.6	3
4.0	8.0	10,100	975	0.8	4	8,800	775	0.8	4	6,090	295	0.8	4	8,120	395	0.8	4
5.0	10.0	8,120	975	1	5	7,040	775	1	5	4,870	295	1	5	6,500	395	1	5
6.0	12.0	6,770	975	1.2	6	5,860	775	1.2	6	4,060	295	1.2	6	5,410	395	1.2	6
8.0	16.0	5,080	975	1.6	8	4,400	775	1.6	8	3,050	295	1.6	8	4,060	395	1.6	8
10.0	20.0	4,060	975	2	10	3,520	775	2	10	2,440	295	2	10	3,250	395	2	10
12.0	24.0	3,380	975	2.4	12	2,930	775	2.4	12	2,030	295	2.4	12	2,710	395	2.4	12
16.0	40.0	2,540	975	3.2	16	2,200	775	3.2	16	1,520	295	3.2	16	2,030	395	3.2	16
20.0	50.0	2,030	975	4	20	1,760	775	4	20	1,220	295	4	20	1,630	395	4	20

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IALR-2
Model number:IALR-2

ロングネックラジアスエンドミル Long Neck Radius End Mills

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.4	1.0	50,000	255	0.025	0.4	40,600	165	0.02	0.4	29,100	95	0.02	0.4	50,000	305	0.03	0.4	31,800	130	0.02	0.4
	1.5	50,000	170	0.02	0.4	36,500	100	0.015	0.4	26,200	55	0.015	0.4	50,000	205	0.02	0.4	28,600	80	0.015	0.4
	2.0	50,000	90	0.02	0.4	26,500	50	0.015	0.4	26,200	30	0.015	0.4	50,000	110	0.02	0.4	28,600	40	0.015	0.4
	3.0	41,400	50	0.015	0.4	29,200	30	0.01	0.4	20,900	15	0.01	0.4	41,200	60	0.015	0.4	22,900	25	0.01	0.4
0.5	1.0	46,000	295	0.03	0.5	32,500	165	0.025	0.5	23,300	95	0.025	0.5	45,800	350	0.035	0.5	25,500	130	0.025	0.5
	2.0	41,400	110	0.025	0.5	29,200	65	0.02	0.5	20,900	35	0.02	0.5	41,200	135	0.03	0.5	22,900	50	0.02	0.5
	3.0	36,800	70	0.02	0.5	26,000	40	0.015	0.5	18,600	25	0.015	0.5	36,700	85	0.02	0.5	20,400	30	0.015	0.5
	4.0	33,100	45	0.02	0.5	23,400	25	0.015	0.5	16,700	15	0.015	0.5	33,000	55	0.02	0.5	18,300	20	0.015	0.5
0.6	2.0	34,500	175	0.03	0.6	24,300	100	0.025	0.6	17,400	55	0.02	0.6	34,400	210	0.035	0.6	19,100	80	0.02	0.6
	3.0	34,500	95	0.03	0.6	24,300	50	0.025	0.6	17,400	30	0.02	0.6	34,400	110	0.035	0.6	19,100	40	0.02	0.6
	4.0	30,700	65	0.02	0.6	21,600	35	0.02	0.6	15,500	20	0.015	0.6	30,600	75	0.025	0.6	17,000	30	0.015	0.6
	6.0	24,500	30	0.015	0.6	17,300	15	0.01	0.6	12,400	10	0.01	0.6	24,400	35	0.015	0.6	13,600	15	0.01	0.6
0.8	4.0	25,900	95	0.04	0.8	18,300	55	0.03	0.8	13,100	30	0.03	0.8	25,800	110	0.045	0.8	14,300	40	0.03	0.8
	6.0	20,700	50	0.03	0.8	14,600	30	0.025	0.8	10,500	15	0.02	0.8	20,600	60	0.035	0.8	11,500	25	0.02	0.8
	8.0	18,400	30	0.02	0.8	13,000	15	0.015	0.8	9,310	10	0.015	0.8	18,300	35	0.02	0.8	10,200	15	0.015	0.8
1.0	2.0	23,000	295	0.06	1	16,200	165	0.05	1	11,600	95	0.045	1	22,900	350	0.07	1	12,700	130	0.045	1
	3.0	23,000	195	0.06	1	16,200	110	0.05	1	11,600	65	0.045	1	22,900	235	0.07	1	12,700	85	0.045	1
	4.0	20,700	110	0.05	1	14,600	65	0.04	1	10,500	35	0.035	1	20,600	135	0.055	1	11,500	50	0.035	1
	6.0	18,400	70	0.035	1	13,000	40	0.03	1	9,310	25	0.025	1	18,300	85	0.04	1	10,200	30	0.025	1
	8.0	16,600	45	0.035	1	11,700	25	0.03	1	8,380	15	0.025	1	16,500	55	0.04	1	9,170	20	0.025	1
	10.0	14,700	30	0.025	1	10,400	15	0.02	1	7,450	10	0.02	1	14,700	35	0.03	1	8,150	15	0.02	1
	12.0	14,700	25	0.02	1	10,400	15	0.015	1	7,450	5	0.015	1	14,700	25	0.02	1	8,150	10	0.015	1
1.2	6.0	17,200	95	0.06	1.2	12,200	50	0.05	1.2	8,730	30	0.045	1.2	17,200	110	0.065	1.2	9,550	40	0.045	1.2
	8.0	15,330	65	0.045	1.2	10,800	35	0.035	1.2	7,760	20	0.03	1.2	15,300	75	0.05	1.2	8,490	30	0.03	1.2
	10.0	13,800	45	0.03	1.2	9,740	25	0.025	1.2	6,980	15	0.02	1.2	13,700	55	0.035	1.2	7,640	20	0.02	1.2
	12.0	12,300	30	0.03	1.2	8,660	15	0.025	1.2	6,210	10	0.02	1.2	12,200	35	0.035	1.2	6,790	15	0.02	1.2
1.5	4.0	15,300	295	0.09	1.5	10,800	165	0.075	1.5	7,760	95	0.07	1.5	15,300	350	0.105	1.5	8,490	130	0.07	1.5
	6.0	13,800	110	0.07	1.5	9,740	65	0.06	1.5	6,980	35	0.055	1.5	13,700	135	0.085	1.5	7,640	50	0.055	1.5
	8.0	12,300	80	0.055	1.5	8,660	45	0.045	1.5	6,210	25	0.04	1.5	12,200	95	0.065	1.5	6,790	35	0.04	1.5
	10.0	12,300	65	0.055	1.5	8,660	35	0.045	1.5	6,210	20	0.04	1.5	12,200	75	0.065	1.5	6,790	30	0.04	1.5
	12.0	11,000	45	0.055	1.5	7,790	25	0.045	1.5	5,590	15	0.04	1.5	11,000	55	0.065	1.5	6,110	20	0.04	1.5
	16.0	9,810	30	0.025	1.5	6,930	15	0.025	1.5	4,970	10	0.02	1.5	9,780	35	0.03	1.5	5,430	10	0.02	1.5
2.0	4.0	11,500	295	0.12	2	8,120	165	0.1	2	5,820	95	0.09	2	11,500	350	0.14	2	6,370	130	0.09	2
	6.0	11,500	195	0.12	2	8,120	110	0.1	2	5,820	65	0.09	2	11,500	235	0.14	2	6,370	85	0.09	2
	8.0	10,300	110	0.095	2	7,310	65	0.08	2	5,240	35	0.07	2	10,300	135	0.11	2	5,730	50	0.07	2
	10.0	10,300	95	0.095	2	7,310	50	0.08	2	5,240	30	0.07	2	10,300	110	0.11	2	5,730	40	0.07	2
	12.0	9,200	70	0.07	2	6,500	40	0.06	2	4,660	25	0.055	2	9,170	85	0.085	2	5,100	30	0.055	2
	16.0	8,280	45	0.07	2	5,850	25	0.06	2	4,190	15	0.055	2	8,250	55	0.085	2	4,590	20	0.055	2
	20.0	7,360	30	0.05	2	5,200	15	0.04	2	3,730	10	0.035	2	7,340	35	0.055	2	4,080	15	0.035	2
3.0	12.0	6,900	110	0.145	3	4,870	65	0.12	3	3,490	35	0.11	3	6,880	135	0.17	3	3,820	50	0.11	3
	18.0	6,140	70	0.11	3	4,330	40	0.09	3	3,100	25	0.08	3	6,110	85	0.125	3	3,400	30	0.08	3
	24.0	5,520	45	0.11	3	3,900	25	0.09	3	2,790	15	0.08	3	5,500	55	0.125	3	3,060	20	0.08	3
	30.0	4,910	30	0.07	3	3,470	15	0.06	3	2,480	10	0.055	3	4,890	35	0.085	3	2,720	15	0.055	3
4.0	16.0	5,180	110	0.19	4	3,660	65	0.16	4	2,620	35	0.145	4	5,160	135	0.225	4	2,870	50	0.145	4

ロングネックラジアスエンドミル Long Neck Radius End Mills

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
4.0	24.0	4,600	70	0.145	4	3,250	40	0.12	4	2,330	25	0.11	4	4,590	85	0.17	4	2,550	30	0.11	4
	32.0	4,140	45	0.145	4	2,920	25	0.12	4	2,100	15	0.11	4	4,130	55	0.17	4	2,290	20	0.11	4
5.0	15.0	4,600	195	0.3	5	3,250	110	0.25	5	2,330	65	0.225	5	4,590	235	0.35	5	2,550	85	0.225	5
	40.0	3,310	45	0.18	5	2,340	25	0.15	5	1,680	15	0.135	5	3,300	55	0.21	5	2,840	20	0.135	5
6.0	24.0	3,450	110	0.29	6	2,440	65	0.24	6	1,750	35	0.215	6	3,440	135	0.335	6	1,910	50	0.215	6
	48.0	2,760	45	0.215	6	1,950	25	0.18	6	1,400	15	0.16	6	2,750	55	0.25	6	1,530	20	0.16	6

ロングネックラジアスエンドミル Long Neck Radius End Mills

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy AI·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.4	1.0	50,000	240	0.03	0.4	50,000	220	0.03	0.4	50,000	185	0.02	0.4	50,000	185	0.03	0.4
	1.5	50,000	160	0.025	0.4	50,000	145	0.025	0.4	50,000	125	0.015	0.4	50,000	125	0.025	0.4
	2.0	50,000	85	0.025	0.4	50,000	80	0.025	0.4	50,000	65	0.015	0.4	50,000	65	0.025	0.4
	3.0	50,000	60	0.02	0.4	50,000	55	0.02	0.4	41,200	35	0.01	0.4	50,000	45	0.02	0.4
0.5	1.0	50,000	300	0.04	0.5	50,000	275	0.04	0.5	45,800	215	0.025	0.5	50,000	235	0.04	0.5
	2.0	50,000	125	0.03	0.5	50,000	115	0.03	0.5	41,200	80	0.02	0.5	50,000	100	0.03	0.5
	3.0	50,000	90	0.025	0.5	50,000	85	0.025	0.5	36,700	50	0.015	0.5	48,900	70	0.025	0.5
	4.0	50,000	65	0.025	0.5	47,700	60	0.025	0.5	33,000	35	0.015	0.5	44,000	45	0.025	0.5
0.6	2.0	50,000	240	0.035	0.6	49,600	220	0.035	0.6	34,400	130	0.025	0.6	45,800	170	0.035	0.6
	3.0	50,000	125	0.035	0.6	49,600	115	0.035	0.6	34,400	70	0.025	0.6	45,800	90	0.035	0.6
	4.0	50,000	100	0.025	0.6	44,100	80	0.025	0.6	30,600	45	0.02	0.6	40,700	65	0.025	0.6
	6.0	40,700	50	0.02	0.6	35,300	40	0.02	0.6	24,400	25	0.01	0.6	32,600	30	0.02	0.6
0.8	4.0	43,000	145	0.05	0.8	37,200	115	0.05	0.8	25,800	70	0.03	0.8	34,400	90	0.05	0.8
	6.0	34,400	80	0.035	0.8	29,800	65	0.035	0.8	20,600	35	0.025	0.8	27,500	50	0.035	0.8
	8.0	30,600	50	0.025	0.8	26,500	40	0.025	0.8	18,300	25	0.015	0.8	24,400	30	0.025	0.8
1.0	2.0	38,200	460	0.075	1	33,100	365	0.075	1	22,900	215	0.05	1	30,600	285	0.075	1
	3.0	38,200	305	0.075	1	33,100	245	0.075	1	22,900	145	0.05	1	30,600	190	0.075	1
	4.0	34,400	175	0.06	1	29,800	140	0.06	1	20,600	80	0.04	1	27,500	110	0.06	1
	6.0	30,600	110	0.045	1	26,500	90	0.045	1	18,300	50	0.03	1	24,400	70	0.045	1
	8.0	27,500	75	0.045	1	23,800	60	0.045	1	16,500	35	0.03	1	22,000	45	0.045	1
	10.0	24,400	50	0.03	1	21,200	40	0.03	1	14,700	25	0.02	1	19,500	30	0.03	1
	12.0	24,400	35	0.025	1	21,200	30	0.025	1	14,700	15	0.015	1	19,500	20	0.025	1
1.2	6.0	28,600	145	0.07	1.2	24,800	115	0.07	1.2	17,200	70	0.05	1.2	22,900	90	0.07	1.2
	8.0	25,500	100	0.055	1.2	22,100	80	0.055	1.2	15,300	45	0.035	1.2	20,400	60	0.055	1.2
	10.0	22,900	70	0.035	1.2	19,900	55	0.035	1.2	13,700	35	0.025	1.2	18,300	45	0.035	1.2
	12.0	20,400	50	0.035	1.2	17,600	40	0.035	1.2	12,200	25	0.025	1.2	16,300	30	0.035	1.2
1.5	4.0	25,500	460	0.115	1.5	22,100	365	0.115	1.5	15,300	215	0.075	1.5	20,400	285	0.115	1.5
	6.0	22,900	175	0.09	1.5	19,900	140	0.09	1.5	13,700	80	0.06	1.5	18,300	110	0.09	1.5
	8.0	20,400	125	0.07	1.5	17,600	100	0.07	1.5	12,200	55	0.045	1.5	16,300	75	0.07	1.5
	10.0	20,400	100	0.07	1.5	17,600	80	0.07	1.5	12,200	45	0.045	1.5	16,300	60	0.07	1.5

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IALR-2
Model number:IALR-2

ロングネックラジアスエンドミル Long Neck Radius End Mills

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy AI·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
1.5	12.0	18,300	75	0.07	1.5	15,900	60	0.07	1.5	11,000	35	0.045	1.5	14,700	45	0.07	1.5
	16.0	16,300	45	0.035	1.5	14,100	35	0.035	1.5	9,780	20	0.025	1.5	13,000	25	0.035	1.5
2.0	4.0	19,100	460	0.15	2	16,500	365	0.15	2	11,500	215	0.1	2	15,300	285	0.15	2
	6.0	19,100	305	0.15	2	16,500	245	0.15	2	11,500	145	0.1	2	15,300	190	0.15	2
	8.0	17,200	175	0.12	2	14,900	140	0.12	2	10,300	80	0.08	2	13,700	110	0.12	2
	10.0	17,200	145	0.12	2	14,900	115	0.12	2	10,300	70	0.08	2	13,700	90	0.12	2
	12.0	15,300	110	0.09	2	13,200	90	0.09	2	9,170	50	0.06	2	12,200	70	0.09	2
	16.0	13,700	75	0.09	2	11,900	60	0.09	2	8,250	35	0.06	2	11,000	45	0.09	2
	20.0	12,200	50	0.06	2	10,600	40	0.06	2	7,340	25	0.04	2	9,780	30	0.06	2
3.0	12.0	11,500	175	0.18	3	9,930	140	0.18	3	6,880	80	0.12	3	9,170	110	0.18	3
	18.0	10,200	110	0.135	3	8,830	90	0.135	3	6,110	50	0.09	3	8,150	70	0.135	3
	24.0	9,170	75	0.135	3	7,950	60	0.135	3	5,500	35	0.09	3	7,340	45	0.135	3
	30.0	8,150	50	0.09	3	7,060	40	0.09	3	4,890	25	0.06	3	6,520	30	0.09	3
4.0	16.0	8,600	175	0.24	4	7,450	140	0.24	4	5,160	80	0.16	4	6,880	110	0.24	4
	24.0	7,640	110	0.18	4	6,620	90	0.18	4	4,590	50	0.12	4	6,110	70	0.18	4
	32.0	6,880	75	0.18	4	5,960	60	0.18	4	4,130	35	0.12	4	5,500	45	0.18	4
5.0	15.0	7,640	305	0.375	5	6,620	245	0.375	5	4,590	145	0.25	5	6,110	190	0.375	5
	40.0	5,500	75	0.225	5	4,770	60	0.225	5	3,300	35	0.15	5	4,400	45	0.225	5
6.0	24.0	5,730	175	0.36	6	4,970	140	0.36	6	3,440	80	0.24	6	4,590	110	0.36	6
	48.0	4,590	75	0.27	6	3,980	60	0.27	6	2,750	35	0.18	6	3,670	45	0.27	6

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IALR-4
Model number:IALR-4

ロングネックラジアスエンドミル Long Neck Radius End Mills

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
1.0	3.0	23,000	395	0.06	1	16,200	220	0.05	1	11,600	125	0.045	1	22,900	470	0.07	1	12,700	175	0.045	1
	4.0	20,700	220	0.05	1	14,600	125	0.04	1	10,500	70	0.035	1	20,600	265	0.055	1	11,500	100	0.035	1
	6.0	18,400	140	0.035	1	13,000	80	0.03	1	9,310	45	0.025	1	18,300	170	0.04	1	10,200	65	0.025	1
	8.0	16,600	95	0.035	1	11,700	55	0.03	1	8,380	30	0.025	1	16,500	115	0.04	1	9,170	40	0.025	1
	10.0	14,700	60	0.025	1	10,400	35	0.02	1	7,450	20	0.02	1	14,700	75	0.03	1	8,150	25	0.02	1
	12.0	14,700	45	0.02	1	10,400	25	0.015	1	7,450	15	0.015	1	14,700	55	0.02	1	8,150	20	0.015	1
1.2	10.0	13,800	90	0.03	1.2	9,740	50	0.025	1.2	6,980	30	0.02	1.2	13,700	105	0.035	1.2	7,640	40	0.02	1.2
	15.0	12,300	40	0.02	1.2	8,660	25	0.02	1.2	6,210	15	0.015	1.2	12,200	50	0.025	1.2	6,790	20	0.015	1.2
1.5	3.0	15,300	585	0.09	1.5	10,800	330	0.075	1.5	7,760	190	0.07	1.5	15,300	700	0.105	1.5	8,490	260	0.07	1.5
	6.0	13,800	220	0.07	1.5	9,740	125	0.06	1.5	6,980	70	0.055	1.5	13,700	265	0.085	1.5	7,640	100	0.055	1.5
	10.0	12,300	130	0.055	1.5	8,660	70	0.045	1.5	6,210	40	0.04	1.5	12,200	155	0.065	1.5	6,790	55	0.04	1.5
	12.0	11,000	95	0.055	1.5	7,790	55	0.045	1.5	5,590	30	0.04	1.5	11,000	115	0.065	1.5	6,110	40	0.04	1.5
	18.0	9,810	45	0.025	1.5	6,930	25	0.025	1.5	4,970	15	0.02	1.5	9,780	55	0.03	1.5	5,430	20	0.02	1.5
2.0	6.0	11,500	395	0.12	2	8,120	220	0.1	2	5,820	125	0.09	2	11,500	470	0.14	2	6,370	175	0.09	2
	8.0	10,300	220	0.095	2	7,310	125	0.08	2	5,240	70	0.07	2	10,300	265	0.11	2	5,730	100	0.07	2
	10.0	10,300	185	0.095	2	7,310	105	0.08	2	5,240	60	0.07	2	10,300	220	0.11	2	5,730	80	0.07	2
	12.0	9,200	140	0.07	2	6,500	80	0.06	2	4,660	45	0.055	2	9,170	170	0.085	2	5,100	65	0.055	2
	15.0	8,280	100	0.07	2	5,850	55	0.06	2	4,190	35	0.055	2	8,250	120	0.085	2	4,590	45	0.055	2
	16.0	8,280	95	0.07	2	5,850	55	0.06	2	4,190	30	0.055	2	8,250	115	0.085	2	4,590	40	0.055	2
	20.0	7,360	60	0.05	2	5,200	35	0.04	2	3,730	20	0.035	2	7,340	75	0.055	2	4,080	25	0.035	2
	24.0	7,360	45	0.035	2	5,200	25	0.03	2	3,730	15	0.025	2	7,340	55	0.04	2	4,080	20	0.025	2
2.5	10.0	8,280	220	0.12	2.5	5,850	125	0.1	2.5	4,190	70	0.09	2.5	8,250	265	0.14	2.5	4,590	100	0.09	2.5
	20.0	6,630	95	0.09	2.5	4,680	55	0.075	2.5	3,350	30	0.07	2.5	6,600	115	0.105	2.5	3,670	40	0.07	2.5
3.0	10.0	6,900	355	0.145	3	4,870	200	0.12	3	3,490	115	0.11	3	6,880	425	0.17	3	3,820	155	0.11	3
	12.0	6,900	220	0.145	3	4,870	125	0.12	3	3,490	70	0.11	3	6,880	265	0.17	3	3,820	100	0.11	3
	15.0	6,900	185	0.145	3	4,870	105	0.12	3	3,490	60	0.11	3	6,880	220	0.17	3	3,820	80	0.11	3
	18.0	6,140	140	0.11	3	4,330	80	0.09	3	3,100	45	0.08	3	6,110	170	0.125	3	3,400	65	0.08	3
	20.0	6,140	130	0.11	3	4,330	70	0.09	3	3,100	40	0.08	3	6,110	155	0.125	3	3,400	55	0.08	3
	24.0	5,520	95	0.11	3	3,900	55	0.09	3	2,790	30	0.08	3	5,500	115	0.125	3	3,060	40	0.08	3
	30.0	4,910	60	0.07	3	3,470	35	0.06	3	2,480	20	0.055	3	4,890	75	0.085	3	2,720	25	0.055	3
4.0	10.0	5,750	585	0.24	4	4,060	330	0.2	4	2,910	190	0.18	4	5,730	700	0.28	4	3,190	260	0.18	4
	15.0	5,180	355	0.19	4	3,660	200	0.16	4	2,620	115	0.145	4	5,160	425	0.225	4	2,870	155	0.145	4
	16.0	5,180	220	0.19	4	3,660	125	0.16	4	2,620	70	0.145	4	5,160	265	0.225	4	2,870	100	0.145	4
	20.0	5,180	185	0.19	4	3,660	105	0.16	4	2,620	60	0.145	4	5,160	220	0.225	4	2,870	80	0.145	4
	24.0	4,600	140	0.145	4	3,250	80	0.12	4	2,330	45	0.11	4	4,590	170	0.17	4	2,550	65	0.11	4
	32.0	4,140	95	0.145	4	2,920	55	0.12	4	2,100	30	0.11	4	4,130	115	0.17	4	2,290	40	0.11	4
5.0	15.0	4,600	395	0.3	5	3,250	220	0.25	5	2,330	125	0.225	5	4,590	470	0.35	5	2,550	175	0.225	5
	20.0	4,140	220	0.24	5	2,920	125	0.2	5	2,100	70	0.18	5	4,130	265	0.28	5	2,290	100	0.18	5
	40.0	3,310	95	0.18	5	2,340	55	0.15	5	1,680	30	0.135	5	3,300	115	0.21	5	1,840	40	0.135	5
6.0	15.0	3,840	585	0.36	6	2,710	330	0.3	6	1,940	190	0.27	6	3,820	700	0.42	6	2,120	260	0.27	6
	20.0	3,450	355	0.29	6	2,440	200	0.24	6	1,750	115	0.215	6	3,440	425	0.335	6	1,910	155	0.215	6
	24.0	3,450	220	0.29	6	2,440	125	0.24	6	1,750	70	0.215	6	3,440	265	0.335	6	1,910	100	0.215	6
	30.0	3,450	185	0.29	6	2,440	105	0.24	6	1,750	60	0.215	6	3,440	225	0.335	6	1,910	80	0.215	6
	48.0	2,760	95	0.215	6	1,950	55	0.18	6	1,400	30	0.16	6	2,750	115	0.25	6	1,530	40	0.16	6

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IALR-4
Model number:IALR-4

ロングネックラジアスエンドミル Long Neck Radius End Mills

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
刃径 Dia.	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
1.0	3.0	38,200	615	0.075	1	33,100	490	0.075	1	22,900	285	0.05	1	30,600	385	0.075	1
	4.0	34,400	345	0.06	1	29,800	275	0.06	1	20,600	160	0.04	1	27,500	215	0.06	1
	6.0	30,600	220	0.045	1	26,500	175	0.045	1	18,300	105	0.03	1	24,400	140	0.045	1
	8.0	27,500	145	0.045	1	23,800	115	0.045	1	16,500	70	0.03	1	22,000	90	0.045	1
	10.0	24,400	95	0.03	1	21,200	75	0.03	1	14,700	45	0.02	1	19,500	60	0.03	1
	12.0	24,400	70	0.025	1	21,200	55	0.025	1	14,700	35	0.015	1	19,500	45	0.025	1
1.2	10.0	22,900	140	0.035	1.2	19,900	110	0.035	1.2	13,700	65	0.025	1.2	18,300	85	0.035	1.2
	15.0	20,400	65	0.025	1.2	17,600	55	0.025	1.2	12,200	30	0.02	1.2	16,300	40	0.025	1.2
1.5	3.0	25,500	915	0.115	1.5	22,100	730	0.115	1.5	15,300	430	0.075	1.5	20,400	570	0.115	1.5
	6.0	22,900	345	0.09	1.5	19,900	275	0.09	1.5	13,700	160	0.06	1.5	18,300	215	0.09	1.5
	10.0	20,400	200	0.07	1.5	17,600	160	0.07	1.5	12,200	95	0.045	1.5	16,300	125	0.07	1.5
	12.0	18,300	145	0.07	1.5	15,900	115	0.07	1.5	11,000	70	0.045	1.5	14,700	90	0.07	1.5
	18.0	16,300	70	0.035	1.5	14,100	55	0.035	1.5	9,780	35	0.025	1.5	13,000	45	0.035	1.5
2.0	6.0	19,100	615	0.15	2	16,500	490	0.15	2	11,460	285	0.1	2	15,300	385	0.15	2
	8.0	17,200	345	0.12	2	14,900	275	0.12	2	10,300	160	0.08	2	13,700	215	0.12	2
	10.0	17,200	290	0.12	2	14,900	230	0.12	2	10,300	135	0.08	2	13,700	180	0.12	2
	12.0	15,300	220	0.09	2	13,200	175	0.09	2	9,170	105	0.06	2	12,200	140	0.09	2
	15.0	13,700	160	0.09	2	11,900	125	0.09	2	8,250	75	0.06	2	11,000	100	0.09	2
	16.0	13,700	145	0.09	2	11,900	115	0.09	2	8,250	70	0.06	2	11,000	90	0.09	2
	20.0	12,200	95	0.06	2	10,600	75	0.06	2	7,340	45	0.04	2	9,780	60	0.06	2
	24.0	12,200	70	0.045	2	10,600	55	0.045	2	7,340	35	0.03	2	9,780	45	0.045	2
2.5	10.0	13,700	345	0.15	2.5	11,900	275	0.15	2.5	8,250	160	0.1	2.5	11,000	215	0.15	2.5
	20.0	11,000	145	0.115	2.5	9,540	115	0.115	2.5	6,600	70	0.075	2.5	8,800	90	0.115	2.5
3.0	10.0	11,500	555	0.18	3	9,930	440	0.18	3	6,880	260	0.12	3	9,170	345	0.18	3
	12.0	11,500	345	0.18	3	9,930	275	0.18	3	6,880	160	0.12	3	9,170	215	0.18	3
	15.0	11,500	290	0.18	3	9,930	230	0.18	3	6,880	135	0.12	3	9,170	180	0.18	3
	18.0	10,200	220	0.135	3	8,830	175	0.135	3	6,110	105	0.09	3	8,150	140	0.135	3
	20.0	10,200	200	0.135	3	8,830	160	0.135	3	6,110	95	0.09	3	8,150	125	0.135	3
	24.0	9,170	145	0.135	3	7,950	115	0.135	3	5,500	70	0.09	3	7,340	90	0.135	3
	30.0	8,150	95	0.09	3	7,060	75	0.09	3	4,890	45	0.06	3	6,520	60	0.09	3
4.0	10.0	9,550	915	0.3	4	8,280	730	0.3	4	5,730	430	0.2	4	7,640	570	0.3	4
	15.0	8,600	555	0.24	4	7,450	440	0.24	4	5,160	260	0.16	4	6,880	345	0.24	4
	16.0	8,600	345	0.24	4	7,450	275	0.24	4	5,160	160	0.16	4	6,880	215	0.24	4
	20.0	8,600	290	0.24	4	7,450	230	0.24	4	5,160	135	0.16	4	6,880	180	0.24	4
	24.0	7,640	220	0.18	4	6,620	175	0.18	4	4,590	105	0.12	4	6,110	140	0.18	4
	32.0	6,880	145	0.18	4	5,960	115	0.18	4	4,130	70	0.12	4	5,500	90	0.18	4
5.0	15.0	7,640	615	0.375	5	6,620	490	0.375	5	4,590	285	0.25	5	6,110	385	0.375	5
	20.0	6,880	345	0.3	5	5,960	275	0.3	5	4,130	160	0.2	5	5,500	215	0.3	5
	40.0	5,500	145	0.225	5	4,770	115	0.225	5	3,300	70	0.15	5	4,400	90	0.225	5
6.0	15.0	6,370	915	0.45	6	5,520	730	0.45	6	3,820	430	0.3	6	5,100	570	0.45	6
	20.0	5,730	555	0.36	6	4,970	440	0.36	6	3,440	260	0.24	6	4,590	345	0.36	6
	24.0	5,730	345	0.36	6	4,970	275	0.36	6	3,440	160	0.24	6	4,590	215	0.36	6
	30.0	5,730	290	0.36	6	4,970	230	0.36	6	3,440	135	0.24	6	4,590	180	0.36	6
	48.0	4,590	145	0.27	6	3,980	115	0.27	6	2,750	70	0.18	6	3,670	90	0.27	6

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IAB-2
Model number:IAB-2

ボールエンドミル Ball End Mills

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
ボール半径(R) Ball R	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.15	0.3	50,000	700	0.03	0.06	50,000	595	0.03	0.06	50,000	505	0.025	0.05	50,000	700	0.03	0.06	50,000	595	0.025	0.055
0.2	0.6	50,000	1,000	0.04	0.08	50,000	850	0.04	0.08	50,000	725	0.03	0.06	50,000	1,000	0.04	0.08	50,000	850	0.035	0.07
0.25	0.8	50,000	1,200	0.05	0.1	50,000	1,020	0.05	0.1	50,000	865	0.04	0.08	50,000	1,200	0.05	0.1	50,000	1,020	0.045	0.09
0.3	1.0	50,000	1,500	0.06	0.12	50,000	1,275	0.06	0.12	50,000	1,085	0.05	0.1	50,000	1,500	0.06	0.12	50,000	1,275	0.055	0.11
0.4	1.2	50,000	2,000	0.08	0.16	47,740	1,625	0.08	0.16	44,560	1,290	0.065	0.13	50,000	2,000	0.08	0.16	47,740	1,625	0.07	0.145
0.5	1.5	47,740	2,385	0.1	0.2	38,190	1,625	0.1	0.2	35,650	1,290	0.08	0.16	47,740	2,385	0.1	0.2	38,190	1,625	0.09	0.18
0.6	1.8	39,780	2,385	0.12	0.24	31,830	1,625	0.12	0.24	29,700	1,285	0.095	0.19	39,780	2,385	0.12	0.24	31,830	1,625	0.11	0.215
0.75	2.3	31,830	2,545	0.15	0.3	25,460	1,730	0.15	0.3	23,760	1,375	0.12	0.24	31,830	2,545	0.15	0.3	25,460	1,730	0.135	0.27
0.8	2.4	29,840	2,985	0.16	0.32	23,870	2,030	0.16	0.32	22,280	1,610	0.13	0.26	29,840	2,985	0.16	0.32	23,870	2,030	0.145	0.29
1.0	3.0	23,870	2,865	0.2	0.4	19,090	1,945	0.2	0.4	17,820	1,545	0.16	0.32	23,870	2,865	0.2	0.4	19,090	1,945	0.18	0.36
1.3	3.8	18,360	2,570	0.25	0.5	14,690	1,750	0.25	0.5	13,710	1,385	0.2	0.4	18,360	2,570	0.25	0.5	14,690	1,750	0.225	0.45
1.5	5.0	15,910	2,545	0.3	0.6	12,730	1,730	0.3	0.6	11,880	1,375	0.24	0.48	15,910	2,545	0.3	0.6	12,730	1,730	0.27	0.54
2.0	4.0	11,930	2,530	0.4	0.8	9,540	1,720	0.4	0.8	8,910	1,365	0.32	0.64	11,930	2,530	0.4	0.8	9,540	1,720	0.36	0.72
	6.0	11,930	1,910	0.4	0.8	9,540	1,295	0.4	0.8	8,910	1,030	0.32	0.64	11,930	1,910	0.4	0.8	9,540	1,295	0.36	0.72
2.5	5.0	9,540	2,385	0.5	1	7,630	1,620	0.5	1	7,130	1,290	0.4	0.8	9,540	2,385	0.5	1	7,630	1,620	0.45	0.9
	8.0	9,540	2,020	0.5	1	7,630	1,375	0.5	1	7,130	1,090	0.4	0.8	9,540	2,020	0.5	1	7,630	1,375	0.45	0.9
3.0	6.0	7,950	2,225	0.6	1.2	6,360	1,515	0.6	1.2	5,940	1,200	0.48	0.96	7,950	2,225	0.6	1.2	6,360	1,515	0.54	1.08
	10.0	7,950	1,990	0.6	1.2	6,360	1,350	0.6	1.2	5,940	1,075	0.48	0.96	7,950	1,990	0.6	1.2	6,360	1,350	0.54	1.08
4.0	12.0	5,960	1,905	0.8	1.6	4,770	1,295	0.8	1.6	4,450	1,030	0.64	1.28	5,960	1,905	0.8	1.6	4,770	1,295	0.72	1.44
	16.0	5,960	1,670	0.8	1.6	4,770	1,135	0.8	1.6	4,450	900	0.64	1.28	5,960	1,670	0.8	1.6	4,770	1,135	0.72	1.44
5.0	15.0	4,770	1,715	1	2	3,810	1,165	1	2	3,560	925	0.8	1.6	4,770	1,715	1	2	3,810	1,165	0.9	1.8
	20.0	4,770	1,525	1	2	3,810	1,035	1	2	3,560	825	0.8	1.6	4,770	1,525	1	2	3,810	1,035	0.9	1.8
6.0	20.0	3,970	1,590	1.2	2.4	3,180	1,080	1.2	2.4	2,970	860	0.96	1.92	3,970	1,590	1.2	2.4	3,180	1,080	1.08	2.16
	24.0	3,970	1,430	1.2	2.4	3,180	975	1.2	2.4	2,970	770	0.96	1.92	3,970	1,430	1.2	2.4	3,180	975	1.08	2.16
8.0	30.0	2,980	1,340	1.6	3.2	2,380	910	1.6	3.2	2,220	720	1.28	2.56	2,980	1,340	1.6	3.2	2,380	910	1.44	2.88
10.0	38.0	2,380	1,070	2	4	1,900	725	2	4	1,780	580	1.6	3.2	2,380	1,070	2	4	1,900	725	1.8	3.6

ボールエンドミル Ball End Mills

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy AI·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
ボール半径(R) Ball R	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.15	0.3	50,000	700	0.03	0.06	50,000	700	0.03	0.06	50,000	600	0.03	0.06	50,000	700	0.03	0.06
0.2	0.6	50,000	1,000	0.04	0.08	50,000	1,000	0.04	0.08	50,000	800	0.04	0.08	50,000	1,000	0.04	0.08
0.25	0.8	50,000	1,200	0.05	0.1	50,000	1,200	0.05	0.1	50,000	960	0.05	0.1	50,000	1,200	0.05	0.1
0.3	1.0	50,000	1,500	0.06	0.12	50,000	1,500	0.06	0.12	50,000	1,200	0.06	0.12	50,000	1,500	0.06	0.12
0.4	1.2	50,000	2,000	0.08	0.16	50,000	2,000	0.08	0.16	50,000	1,600	0.08	0.16	50,000	2,000	0.08	0.16
0.5	1.5	50,000	2,500	0.1	0.2	50,000	2,500	0.1	0.2	47,740	1,800	0.1	0.2	50,000	2,385	0.1	0.2
0.6	1.8	50,000	3,000	0.12	0.24	49,600	3,000	0.12	0.24	39,780	1,530	0.12	0.24	49,600	2,385	0.12	0.24
0.75	2.3	47,740	3,810	0.15	0.3	39,680	3,820	0.15	0.3	31,830	1,640	0.15	0.3	39,680	2,545	0.15	0.3
0.8	2.4	44,760	4,470	0.16	0.32	37,200	4,475	0.16	0.32	29,840	1,920	0.16	0.32	37,200	2,985	0.16	0.32
1.0	3.0	35,800	4,290	0.2	0.4	29,760	4,295	0.2	0.4	23,870	1,800	0.2	0.4	29,760	2,865	0.2	0.4

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IAB-2
Model number:IAB-2

ボールエンドミル Ball End Mills

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy AI·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
ボール半径(R) Ball R	刃長 Length of cut	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
1.3	3.8	27,540	3,850	0.25	0.5	22,890	3,855	0.25	0.5	18,360	1,650	0.25	0.5	22,890	2,570	0.25	0.5
1.5	5.0	23,870	3,810	0.3	0.6	19,840	3,820	0.3	0.6	15,910	1,630	0.3	0.6	19,840	2,545	0.3	0.6
2.0	4.0	17,900	3,790	0.4	0.8	14,880	3,795	0.4	0.8	11,930	1,620	0.4	0.8	14,880	2,530	0.4	0.8
	6.0	17,900	2,860	0.4	0.8	14,880	2,865	0.4	0.8	11,930	1,220	0.4	0.8	14,880	1,910	0.4	0.8
2.5	5.0	14,320	3,580	0.5	1	11,900	3,580	0.5	1	9,540	1,530	0.5	1	11,900	2,385	0.5	1
	8.0	14,320	3,030	0.5	1	11,900	3,035	0.5	1	9,540	1,300	0.5	1	11,900	2,020	0.5	1
3.0	6.0	11,930	3,340	0.6	1.2	9,920	3,340	0.6	1.2	7,950	1,430	0.6	1.2	9,920	2,225	0.6	1.2
	10.0	11,930	2,980	0.6	1.2	9,920	2,985	0.6	1.2	7,950	1,280	0.6	1.2	9,920	1,990	0.6	1.2
4.0	12.0	8,950	2,860	0.8	1.6	7,440	2,865	0.8	1.6	5,960	1,220	0.8	1.6	7,440	1,905	0.8	1.6
	16.0	8,950	2,500	0.8	1.6	7,440	2,505	0.8	1.6	5,960	1,070	0.8	1.6	7,440	1,670	0.8	1.6
5.0	15.0	7,160	2,570	1	2	5,950	2,580	1	2	4,770	1,100	1	2	5,950	1,715	1	2
	20.0	7,160	2,290	1	2	5,950	2,290	1	2	4,770	980	1	2	5,950	1,525	1	2
6.0	20.0	5,960	2,380	1.2	2.4	4,960	2,385	1.2	2.4	3,970	1,020	1.2	2.4	4,960	1,590	1.2	2.4
	24.0	5,960	2,140	1.2	2.4	4,960	2,145	1.2	2.4	3,970	915	1.2	2.4	4,960	1,430	1.2	2.4
8.0	30.0	4,470	2,010	1.6	3.2	3,720	2,010	1.6	3.2	2,980	860	1.6	3.2	3,720	1,340	1.6	3.2
10.0	38.0	3,580	1,610	2	4	2,970	1,610	2	4	2,380	685	2	4	2,970	1,070	2	4

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IALB-2
Model number:IALB-2

ロングネックボールエンドミル Long Neck Ball End Mills

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
ボール半径(R) Ball R	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.15	0.5	50,000	285	0.03	0.06	50,000	225	0.03	0.06	50,000	210	0.025	0.05	50,000	285	0.03	0.06	50,000	180	0.025	0.055
	0.6	50,000	285	0.03	0.06	50,000	225	0.03	0.06	50,000	210	0.025	0.05	50,000	285	0.03	0.06	50,000	180	0.025	0.055
	0.75	50,000	285	0.03	0.06	50,000	225	0.03	0.06	50,000	210	0.025	0.05	50,000	285	0.03	0.06	50,000	180	0.025	0.055
	1.0	50,000	190	0.025	0.06	50,000	150	0.025	0.06	50,000	140	0.02	0.05	50,000	190	0.025	0.06	50,000	120	0.02	0.055
	1.25	50,000	120	0.025	0.06	50,000	95	0.025	0.06	50,000	90	0.02	0.05	50,000	120	0.025	0.06	50,000	75	0.02	0.055
	1.5	50,000	100	0.025	0.06	50,000	80	0.025	0.06	50,000	75	0.02	0.05	50,000	100	0.025	0.06	50,000	65	0.02	0.055
	1.75	50,000	90	0.02	0.06	50,000	70	0.02	0.06	50,000	65	0.015	0.05	50,000	90	0.02	0.06	50,000	55	0.015	0.055
	2.0	50,000	80	0.02	0.06	50,000	60	0.02	0.06	50,000	55	0.015	0.05	50,000	80	0.02	0.06	50,000	50	0.015	0.055
	2.3	50,000	70	0.02	0.06	50,000	55	0.02	0.06	50,000	50	0.015	0.05	50,000	70	0.02	0.06	50,000	45	0.015	0.055
	2.5	50,000	60	0.01	0.06	50,000	50	0.01	0.06	50,000	45	0.01	0.05	50,000	60	0.01	0.06	50,000	40	0.01	0.055
	2.75	50,000	55	0.01	0.06	50,000	40	0.01	0.06	50,000	40	0.01	0.05	50,000	55	0.01	0.06	47,500	30	0.01	0.055
	3.0	50,000	45	0.01	0.06	50,000	35	0.01	0.06	50,000	35	0.01	0.05	50,000	45	0.01	0.06	47,500	30	0.01	0.055
0.2	0.5	50,000	380	0.04	0.08	50,000	300	0.04	0.08	50,000	280	0.03	0.065	50,000	380	0.04	0.08	50,000	240	0.035	0.07
	0.8	50,000	380	0.04	0.08	50,000	300	0.04	0.08	50,000	280	0.03	0.065	50,000	380	0.04	0.08	50,000	240	0.035	0.07
	1.0	50,000	380	0.04	0.08	50,000	300	0.04	0.08	50,000	280	0.03	0.065	50,000	380	0.04	0.08	50,000	240	0.035	0.07
	1.5	50,000	255	0.03	0.08	50,000	200	0.03	0.08	50,000	190	0.025	0.065	50,000	255	0.03	0.08	50,000	160	0.03	0.07
	2.0	50,000	135	0.03	0.08	50,000	105	0.03	0.08	50,000	100	0.025	0.065	50,000	135	0.03	0.08	50,000	85	0.03	0.07
	2.5	50,000	110	0.025	0.08	50,000	85	0.025	0.08	50,000	80	0.02	0.065	50,000	110	0.025	0.08	44,600	60	0.02	0.07
	3.0	50,000	90	0.025	0.08	50,000	70	0.025	0.08	50,000	65	0.02	0.065	50,000	90	0.025	0.08	40,100	45	0.02	0.07
0.25	1.0	50,000	475	0.05	0.1	50,000	375	0.05	0.1	50,000	350	0.04	0.08	50,000	475	0.05	0.1	44,600	265	0.045	0.09
	1.5	50,000	320	0.05	0.1	50,000	250	0.05	0.1	50,000	235	0.04	0.08	50,000	320	0.05	0.1	44,600	180	0.045	0.09
	2.0	50,000	200	0.04	0.1	50,000	155	0.04	0.1	50,000	145	0.03	0.08	50,000	200	0.04	0.1	40,100	100	0.035	0.09
	2.5	50,000	165	0.04	0.1	50,000	130	0.04	0.1	50,000	125	0.03	0.08	50,000	165	0.04	0.1	40,100	85	0.035	0.09
	3.0	50,000	145	0.03	0.1	48,400	110	0.03	0.1	45,800	95	0.025	0.08	50,000	145	0.03	0.1	35,600	65	0.025	0.09
	3.5	50,000	125	0.03	0.1	48,400	95	0.03	0.1	45,800	85	0.025	0.08	50,000	125	0.03	0.1	35,600	55	0.025	0.09
	4.0	50,000	105	0.03	0.1	43,500	75	0.03	0.1	41,200	65	0.025	0.08	50,000	105	0.03	0.1	32,100	45	0.025	0.09
0.3	1.0	50,000	570	0.06	0.12	50,000	450	0.06	0.12	47,700	400	0.05	0.095	50,000	570	0.06	0.12	37,100	265	0.055	0.11
	1.5	50,000	570	0.06	0.12	50,000	450	0.06	0.12	47,700	400	0.05	0.095	50,000	570	0.06	0.12	37,100	265	0.055	0.11
	2.0	50,000	380	0.05	0.12	45,400	275	0.05	0.12	43,000	240	0.04	0.095	50,000	380	0.05	0.12	33,400	160	0.045	0.11
	2.5	50,000	240	0.05	0.12	45,400	170	0.05	0.12	43,000	150	0.04	0.095	50,000	240	0.05	0.12	33,400	100	0.045	0.11
	3.0	50,000	200	0.05	0.12	45,400	145	0.05	0.12	43,000	125	0.04	0.095	50,000	200	0.05	0.12	33,400	85	0.045	0.11
	3.5	50,000	175	0.035	0.12	40,300	115	0.035	0.12	38,200	100	0.03	0.095	50,000	175	0.035	0.12	29,700	65	0.03	0.11
	4.0	50,000	155	0.035	0.12	40,300	100	0.035	0.12	38,200	90	0.03	0.095	50,000	155	0.035	0.12	29,700	60	0.03	0.11
	4.5	45,800	125	0.035	0.12	36,300	80	0.035	0.12	34,400	70	0.03	0.095	45,800	125	0.035	0.12	26,700	45	0.03	0.11
	5.0	45,800	110	0.025	0.12	36,300	70	0.025	0.12	34,400	60	0.02	0.095	45,800	110	0.025	0.12	26,700	40	0.02	0.11
	5.5	40,700	85	0.025	0.12	32,200	55	0.025	0.12	30,600	50	0.02	0.095	40,700	85	0.025	0.12	23,800	30	0.02	0.11
	6.0	40,700	75	0.025	0.12	32,200	50	0.025	0.12	30,600	40	0.02	0.095	40,700	75	0.025	0.12	23,800	30	0.02	0.11
0.4	2.0	47,700	725	0.08	0.16	37,800	455	0.08	0.16	35,800	400	0.065	0.13	47,700	725	0.08	0.16	27,800	265	0.07	0.145
	3.0	43,000	440	0.065	0.16	34,000	275	0.065	0.16	32,200	240	0.05	0.13	43,000	440	0.065	0.16	25,100	160	0.06	0.145
	4.0	43,000	230	0.065	0.16	34,000	145	0.065	0.16	32,200	125	0.05	0.13	43,000	230	0.065	0.16	25,100	85	0.06	0.145
	5.0	38,200	170	0.05	0.16	30,200	105	0.05	0.16	28,600	95	0.04	0.13	38,200	170	0.05	0.16	22,300	60	0.045	0.145
	6.0	34,400	125	0.05	0.16	27,200	80	0.05	0.16	25,800	70	0.04	0.13	34,400	125	0.05	0.16	20,000	45	0.045	0.145
	7.0	34,400	105	0.03	0.16	27,200	65	0.03	0.16	25,800	60	0.025	0.13	34,400	105	0.03	0.16	20,000	40	0.03	0.145
	8.0	30,600	75	0.03	0.16	24,200	50	0.03	0.16	22,900	40	0.025	0.13	30,600	75	0.03	0.16	17,800	30	0.03	0.145

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IALB-2
Model number:IALB-2

ロングネックボールエンドミル Long Neck Ball End Mills

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
ボール半径(R) Ball R	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.5	2.0	38,200	725	0.1	0.2	30,200	455	0.1	0.2	28,600	400	0.08	0.16	38,200	725	0.1	0.2	22,300	265	0.09	0.18
	2.5	38,200	725	0.1	0.2	30,200	455	0.1	0.2	28,600	400	0.08	0.16	38,200	725	0.1	0.2	22,300	265	0.09	0.18
	3.0	38,200	485	0.1	0.2	30,200	305	0.1	0.2	28,600	270	0.08	0.16	38,200	485	0.1	0.2	22,300	180	0.09	0.18
	4.0	34,400	275	0.08	0.2	27,200	170	0.08	0.2	25,800	150	0.065	0.16	34,400	275	0.08	0.2	20,000	100	0.07	0.18
	6.0	30,600	175	0.06	0.2	24,200	110	0.06	0.2	22,900	95	0.05	0.16	30,600	175	0.06	0.2	17,800	65	0.055	0.18
	7.0	30,600	150	0.06	0.2	24,200	95	0.06	0.2	22,900	85	0.05	0.16	30,600	150	0.06	0.2	17,800	55	0.055	0.18
	8.0	27,500	115	0.06	0.2	21,800	75	0.06	0.2	20,600	65	0.05	0.16	27,500	115	0.06	0.2	16,000	45	0.055	0.18
	9.0	27,500	100	0.04	0.2	21,800	65	0.04	0.2	20,600	55	0.03	0.16	27,500	100	0.04	0.2	16,000	35	0.035	0.18
	10.0	24,400	75	0.04	0.2	19,300	50	0.04	0.2	18,300	40	0.03	0.16	24,400	75	0.04	0.2	14,300	30	0.035	0.18
	12.0	24,400	55	0.03	0.2	19,300	35	0.03	0.2	18,300	30	0.025	0.16	24,400	55	0.03	0.2	14,300	20	0.025	0.18
0.6	2.4	31,800	725	0.12	0.24	25,200	455	0.12	0.24	23,900	400	0.095	0.19	31,800	725	0.12	0.24	18,600	265	0.11	0.215
	4.0	28,600	440	0.095	0.24	22,700	275	0.095	0.24	21,500	240	0.075	0.19	28,600	440	0.095	0.24	16,700	160	0.085	0.215
	6.0	28,600	230	0.095	0.24	22,700	145	0.095	0.24	21,500	125	0.075	0.19	28,600	230	0.095	0.24	16,700	85	0.085	0.215
	8.0	25,500	160	0.07	0.24	20,200	100	0.07	0.24	19,100	90	0.06	0.19	25,500	160	0.07	0.24	14,800	60	0.065	0.215
	10.0	22,900	110	0.05	0.24	18,100	70	0.05	0.24	17,200	60	0.04	0.19	22,900	110	0.05	0.24	13,400	40	0.045	0.215
	12.0	20,400	75	0.05	0.24	16,100	50	0.05	0.24	15,300	40	0.04	0.19	20,400	75	0.05	0.24	11,900	30	0.045	0.215
0.75	3.0	25,500	725	0.15	0.3	20,200	455	0.15	0.3	19,100	400	0.12	0.24	25,500	725	0.15	0.3	14,800	265	0.135	0.27
	4.0	25,500	725	0.15	0.3	20,200	455	0.15	0.3	19,100	400	0.12	0.24	25,500	725	0.15	0.3	14,800	265	0.135	0.27
	6.0	22,900	275	0.12	0.3	18,100	170	0.12	0.3	17,200	150	0.095	0.24	22,900	275	0.12	0.3	13,400	100	0.11	0.27
	8.0	20,400	195	0.09	0.3	16,100	120	0.09	0.3	15,300	105	0.07	0.24	20,400	195	0.09	0.3	11,900	70	0.08	0.27
	10.0	20,400	160	0.09	0.3	16,100	100	0.09	0.3	15,300	90	0.07	0.24	20,400	160	0.09	0.3	11,900	60	0.08	0.27
	12.0	18,300	115	0.09	0.3	14,500	75	0.09	0.3	13,700	65	0.07	0.24	18,300	115	0.09	0.3	10,700	45	0.08	0.27
	14.0	16,300	85	0.06	0.3	12,900	55	0.06	0.3	12,200	45	0.05	0.24	16,300	85	0.06	0.3	9,510	30	0.055	0.27
	16.0	16,300	70	0.045	0.3	12,900	45	0.045	0.3	12,200	40	0.035	0.24	16,300	70	0.045	0.3	9,510	25	0.04	0.27
0.8	4.0	23,900	725	0.16	0.32	18,900	455	0.16	0.32	17,900	400	0.13	0.255	23,900	725	0.16	0.32	13,900	265	0.145	0.29
	8.0	21,500	230	0.13	0.32	17,000	145	0.13	0.32	16,100	125	0.1	0.255	21,500	230	0.13	0.32	12,500	85	0.115	0.29
	12.0	17,200	125	0.095	0.32	13,600	80	0.095	0.32	12,900	70	0.075	0.255	17,200	125	0.095	0.32	10,000	45	0.085	0.29
	16.0	15,300	75	0.065	0.32	12,100	50	0.065	0.32	11,500	40	0.05	0.255	15,300	75	0.065	0.32	8,920	30	0.06	0.29
1	3.0	19,100	725	0.2	0.4	15,100	455	0.2	0.4	14,300	400	0.16	0.32	19,100	725	0.2	0.4	11,100	265	0.18	0.36
	4.0	19,100	725	0.2	0.4	15,100	455	0.2	0.4	14,300	400	0.16	0.32	19,100	725	0.2	0.4	11,100	265	0.18	0.36
	6.0	19,100	485	0.2	0.4	15,100	305	0.2	0.4	14,300	270	0.16	0.32	19,100	485	0.2	0.4	11,100	180	0.18	0.36
	8.0	17,200	275	0.16	0.4	13,600	170	0.16	0.4	12,900	150	0.13	0.32	17,200	275	0.16	0.4	10,000	100	0.145	0.36
	10.0	17,200	230	0.16	0.4	13,600	145	0.16	0.4	12,900	125	0.13	0.32	17,200	230	0.16	0.4	10,000	85	0.145	0.36
	12.0	15,300	175	0.12	0.4	12,100	110	0.12	0.4	11,500	95	0.095	0.32	15,300	175	0.12	0.4	8,920	65	0.11	0.36
	13.0	15,300	165	0.12	0.4	12,100	100	0.12	0.4	11,500	90	0.095	0.32	15,300	165	0.12	0.4	8,920	60	0.11	0.36
	14.0	15,300	150	0.12	0.4	12,100	95	0.12	0.4	11,500	85	0.095	0.32	15,300	150	0.12	0.4	8,920	55	0.11	0.36
	15.0	13,700	125	0.12	0.4	10,900	80	0.12	0.4	10,300	70	0.095	0.32	13,700	125	0.12	0.4	8,020	45	0.11	0.36
	16.0	13,700	115	0.12	0.4	10,900	75	0.12	0.4	10,300	65	0.095	0.32	13,700	115	0.12	0.4	8,020	45	0.11	0.36
	18.0	13,700	100	0.08	0.4	10,900	65	0.08	0.4	10,300	55	0.065	0.32	13,700	100	0.08	0.4	8,020	35	0.07	0.36
	20.0	12,200	75	0.08	0.4	9,680	50	0.08	0.4	9,170	40	0.065	0.32	12,200	75	0.08	0.4	7,130	30	0.07	0.36
1.25	6.0	15,300	725	0.25	0.5	12,100	455	0.25	0.5	11,500	400	0.2	0.4	15,300	725	0.25	0.5	8,920	265	0.225	0.45
	8.0	13,700	440	0.2	0.5	10,900	275	0.2	0.5	10,300	240	0.16	0.4	13,700	440	0.2	0.5	8,020	160	0.18	0.45
	10.0	13,700	275	0.2	0.5	10,900	170	0.2	0.5	10,300	150	0.16	0.4	13,700	275	0.2	0.5	8,020	100	0.18	0.45
	15.0	12,200	175	0.15	0.5	9,680	110	0.15	0.5	9,170	95	0.12	0.4	12,200	175	0.15	0.5	7,130	65	0.135	0.45

ロングネックボールエンドミル Long Neck Ball End Mills

被削材 Work Material		炭素鋼 Carbon Steel S45C S55C				合金鋼 Alloy Steel SK SCM				プリハードン鋼 Prehardened Steels PX5／NAK80				鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron				ステンレス Stainless Steel			
ボール半径 (R) Ball R	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
1.25	20.0	11,000	115	0.15	0.5	8,710	75	0.15	0.5	8,250	65	0.12	0.4	11,000	115	0.15	0.5	6,420	45	0.135	0.45
1.5	6.0	12,700	725	0.3	0.6	10,100	455	0.3	0.6	9,550	400	0.24	0.48	12,700	725	0.3	0.6	7,430	265	0.27	0.54
	8.0	12,700	725	0.3	0.6	10,100	455	0.3	0.6	9,550	400	0.24	0.48	12,700	725	0.3	0.6	7,430	265	0.27	0.54
	10.0	11,500	440	0.24	0.6	9,070	275	0.24	0.6	8,600	240	0.19	0.48	11,500	440	0.24	0.6	6,690	160	0.215	0.54
	12.0	11,500	275	0.24	0.6	9,070	170	0.24	0.6	8,600	150	0.19	0.48	11,500	275	0.24	0.6	6,690	100	0.215	0.54
	14.0	11,500	275	0.24	0.6	9,070	170	0.24	0.6	8,600	150	0.19	0.48	11,500	275	0.24	0.6	6,690	100	0.215	0.54
	15.0	11,500	230	0.24	0.6	9,070	145	0.24	0.6	8,600	125	0.19	0.48	11,500	230	0.24	0.6	6,690	85	0.215	0.54
	16.0	10,200	195	0.18	0.6	8,070	120	0.18	0.6	7,640	105	0.145	0.48	10,200	195	0.18	0.6	5,940	70	0.16	0.54
	20.0	10,200	160	0.18	0.6	8,070	100	0.18	0.6	7,640	90	0.145	0.48	10,200	160	0.18	0.6	5,940	60	0.16	0.54
	25.0	9,170	110	0.12	0.6	7,260	70	0.12	0.6	6,880	60	0.095	0.48	9,170	110	0.12	0.6	5,350	40	0.11	0.54
	30.0	8,150	75	0.12	0.6	6,450	50	0.12	0.6	6,110	40	0.095	0.48	8,150	75	0.12	0.6	4,760	30	0.11	0.54
1.75	10.0	10,900	725	0.35	0.7	8,640	455	0.35	0.7	8,190	400	0.28	0.56	10,900	725	0.35	0.7	6,370	265	0.315	0.63
	15.0	9,820	275	0.28	0.7	7,780	170	0.28	0.7	7,370	150	0.225	0.56	9,820	275	0.28	0.7	5,730	100	0.25	0.63
	20.0	8,730	185	0.21	0.7	6,910	115	0.21	0.7	6,550	100	0.17	0.56	8,730	185	0.21	0.7	5,100	70	0.19	0.63
	25.0	7,860	135	0.21	0.7	6,220	85	0.21	0.7	5,900	75	0.17	0.56	7,860	135	0.21	0.7	4,590	50	0.19	0.63
	30.0	7,860	105	0.14	0.7	6,220	65	0.14	0.7	5,900	60	0.11	0.56	7,860	105	0.14	0.7	4,590	40	0.125	0.63
	35.0	6,990	75	0.14	0.7	5,530	50	0.14	0.7	5,240	40	0.11	0.56	6,990	75	0.14	0.7	4,080	30	0.125	0.63
2	10.0	9,550	725	0.4	0.8	7,560	455	0.4	0.8	7,160	400	0.32	0.64	9,550	725	0.4	0.8	5,570	265	0.36	0.72
	12.0	9,550	485	0.4	0.8	7,560	305	0.4	0.8	7,160	270	0.32	0.64	9,550	485	0.4	0.8	5,570	180	0.36	0.72
	14.0	8,600	440	0.32	0.8	6,810	275	0.32	0.8	6,450	240	0.255	0.64	8,600	440	0.32	0.8	5,020	160	0.29	0.72
	15.0	8,600	440	0.32	0.8	6,810	275	0.32	0.8	6,450	240	0.255	0.64	8,600	440	0.32	0.8	5,020	160	0.29	0.72
	16.0	8,600	275	0.32	0.8	6,810	170	0.32	0.8	6,450	150	0.255	0.64	8,600	275	0.32	0.8	5,020	100	0.29	0.72
	20.0	8,600	230	0.32	0.8	6,810	145	0.32	0.8	6,450	125	0.255	0.64	8,600	230	0.32	0.8	5,020	85	0.29	0.72
	25.0	7,640	170	0.24	0.8	6,050	105	0.24	0.8	5,730	95	0.19	0.64	7,640	170	0.24	0.8	4,460	60	0.215	0.72
	30.0	6,880	125	0.24	0.8	5,450	80	0.24	0.8	5,160	70	0.19	0.64	6,880	125	0.24	0.8	4,010	45	0.215	0.72
	35.0	6,880	105	0.16	0.8	5,450	65	0.16	0.8	5,160	60	0.13	0.64	6,880	105	0.16	0.8	4,010	40	0.145	0.72
2.5	10.0	7,640	725	0.5	1	6,050	455	0.5	1	5,730	400	0.4	0.8	7,640	725	0.5	1	4,460	265	0.45	0.9
	15.0	7,640	485	0.5	1	6,050	305	0.5	1	5,730	270	0.4	0.8	7,640	485	0.5	1	4,460	180	0.45	0.9
	20.0	6,880	275	0.4	1	5,450	170	0.4	1	5,160	150	0.32	0.8	6,880	275	0.4	1	4,010	100	0.36	0.9
	25.0	6,880	230	0.4	1	5,450	145	0.4	1	5,160	125	0.32	0.8	6,880	230	0.4	1	4,010	85	0.36	0.9
	30.0	6,110	175	0.3	1	4,840	110	0.3	1	4,590	95	0.24	0.8	6,110	175	0.3	1	3,570	65	0.27	0.9
	35.0	6,110	150	0.3	1	4,840	95	0.3	1	4,590	85	0.24	0.8	6,110	150	0.3	1	3,570	55	0.27	0.9
	40.0	5,500	115	0.3	1	4,360	75	0.3	1	4,130	65	0.24	0.8	5,500	115	0.3	1	3,210	45	0.27	0.9
3	10.0	6,370	725	0.6	1.2	5,040	455	0.6	1.2	4,780	400	0.48	0.96	6,370	725	0.6	1.2	3,720	265	0.54	1.08
	15.0	6,370	725	0.6	1.2	5,040	455	0.6	1.2	4,780	400	0.48	0.96	6,370	725	0.6	1.2	3,720	265	0.54	1.08
	20.0	5,730	440	0.48	1.2	4,540	275	0.48	1.2	4,300	240	0.385	0.96	5,730	440	0.48	1.2	3,340	160	0.43	1.08
	25.0	5,730	275	0.48	1.2	4,540	170	0.48	1.2	4,300	150	0.385	0.96	5,730	275	0.48	1.2	3,340	100	0.43	1.08
	30.0	5,730	230	0.48	1.2	4,540	145	0.48	1.2	4,300	125	0.385	0.96	5,730	230	0.48	1.2	3,340	85	0.43	1.08
	35.0	5,100	180	0.36	1.2	4,030	115	0.36	1.2	3,820	100	0.29	0.96	5,100	180	0.36	1.2	2,970	65	0.325	1.08
	40.0	5,100	160	0.36	1.2	4,030	100	0.36	1.2	3,820	90	0.29	0.96	5,100	160	0.36	1.2	2,970	60	0.325	1.08
	45.0	4,590	125	0.36	1.2	3,630	80	0.36	1.2	3,440	70	0.29	0.96	4,590	125	0.36	1.2	2,680	45	0.325	1.08
	50.0	4,590	110	0.24	1.2	3,630	70	0.24	1.2	3,440	60	0.19	0.96	4,590	110	0.24	1.2	2,680	40	0.215	1.08

ion Depo Type A Series

ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IALB-2
Model number:IALB-2

ロングネックボールエンドミル Long Neck Ball End Mills

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy AI·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
ボール半径(R) Ball R	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.15	0.5	50,000	180	0.03	0.06	50,000	165	0.03	0.06	50,000	270	0.03	0.06	50,000	285	0.03	0.06
	0.6	50,000	180	0.03	0.06	50,000	165	0.03	0.06	50,000	270	0.03	0.06	50,000	285	0.03	0.06
	0.75	50,000	180	0.03	0.06	50,000	165	0.03	0.06	50,000	270	0.03	0.06	50,000	285	0.03	0.06
	1.0	50,000	120	0.025	0.06	50,000	110	0.025	0.06	50,000	180	0.025	0.06	50,000	190	0.025	0.06
	1.25	50,000	75	0.025	0.06	50,000	70	0.025	0.06	50,000	115	0.025	0.06	50,000	120	0.025	0.06
	1.5	50,000	65	0.025	0.06	50,000	60	0.025	0.06	50,000	95	0.025	0.06	50,000	100	0.025	0.06
	1.75	50,000	55	0.02	0.06	50,000	50	0.02	0.06	50,000	85	0.02	0.06	50,000	90	0.02	0.06
	2.0	50,000	50	0.02	0.06	50,000	45	0.02	0.06	50,000	75	0.02	0.06	50,000	80	0.02	0.06
	2.3	50,000	45	0.02	0.06	50,000	40	0.02	0.06	50,000	65	0.02	0.06	50,000	70	0.02	0.06
	2.5	50,000	40	0.01	0.06	50,000	35	0.01	0.06	50,000	55	0.01	0.06	50,000	60	0.01	0.06
	2.75	50,000	35	0.01	0.06	50,000	30	0.01	0.06	50,000	50	0.01	0.06	50,000	55	0.01	0.06
	3.0	50,000	30	0.01	0.06	50,000	25	0.01	0.06	50,000	45	0.01	0.06	50,000	45	0.01	0.06
0.2	0.5	50,000	240	0.04	0.08	50,000	220	0.04	0.08	50,000	360	0.04	0.08	50,000	380	0.04	0.08
	0.8	50,000	240	0.04	0.08	50,000	220	0.04	0.08	50,000	360	0.04	0.08	50,000	380	0.04	0.08
	1.0	50,000	240	0.04	0.08	50,000	220	0.04	0.08	50,000	360	0.04	0.08	50,000	380	0.04	0.08
	1.5	50,000	160	0.03	0.08	50,000	145	0.03	0.08	50,000	240	0.03	0.08	50,000	255	0.03	0.08
	2.0	50,000	85	0.03	0.08	50,000	80	0.03	0.08	50,000	125	0.03	0.08	50,000	135	0.03	0.08
	2.5	50,000	70	0.025	0.08	50,000	65	0.025	0.08	50,000	105	0.025	0.08	50,000	110	0.025	0.08
	3.0	50,000	60	0.025	0.08	50,000	55	0.025	0.08	50,000	85	0.025	0.08	50,000	90	0.025	0.08
0.25	1.0	50,000	300	0.05	0.1	50,000	275	0.05	0.1	50,000	450	0.05	0.1	50,000	475	0.05	0.1
	1.5	50,000	200	0.05	0.1	50,000	185	0.05	0.1	50,000	300	0.05	0.1	50,000	320	0.05	0.1
	2.0	50,000	125	0.04	0.1	50,000	115	0.04	0.1	50,000	190	0.04	0.1	50,000	200	0.04	0.1
	2.5	50,000	105	0.04	0.1	50,000	95	0.04	0.1	50,000	160	0.04	0.1	50,000	165	0.04	0.1
	3.0	50,000	90	0.03	0.1	50,000	85	0.03	0.1	50,000	135	0.03	0.1	50,000	145	0.03	0.1
	3.5	50,000	80	0.03	0.1	50,000	70	0.03	0.1	50,000	115	0.03	0.1	50,000	125	0.03	0.1
	4.0	50,000	65	0.03	0.1	50,000	60	0.03	0.1	50,000	100	0.03	0.1	50,000	105	0.03	0.1
0.3	1.0	50,000	360	0.06	0.12	50,000	330	0.06	0.12	50,000	540	0.06	0.12	50,000	570	0.06	0.12
	1.5	50,000	360	0.06	0.12	50,000	330	0.06	0.12	50,000	540	0.06	0.12	50,000	570	0.06	0.12
	2.0	50,000	240	0.05	0.12	50,000	220	0.05	0.12	50,000	360	0.05	0.12	50,000	380	0.05	0.12
	2.5	50,000	150	0.05	0.12	50,000	140	0.05	0.12	50,000	225	0.05	0.12	50,000	240	0.05	0.12
	3.0	50,000	125	0.05	0.12	50,000	115	0.05	0.12	50,000	190	0.05	0.12	50,000	200	0.05	0.12
	3.5	50,000	110	0.035	0.12	50,000	100	0.035	0.12	50,000	170	0.035	0.12	50,000	175	0.035	0.12
	4.0	50,000	100	0.035	0.12	50,000	90	0.035	0.12	50,000	150	0.035	0.12	50,000	155	0.035	0.12
	4.5	50,000	85	0.035	0.12	50,000	80	0.035	0.12	45,800	120	0.035	0.12	50,000	135	0.035	0.12
	5.0	50,000	75	0.025	0.12	50,000	70	0.025	0.12	45,800	105	0.025	0.12	50,000	120	0.025	0.12
	5.5	50,000	65	0.025	0.12	50,000	60	0.025	0.12	40,700	80	0.025	0.12	50,000	105	0.025	0.12
	6.0	50,000	60	0.025	0.12	50,000	55	0.025	0.12	40,700	75	0.025	0.12	50,000	95	0.025	0.12
0.4	2.0	50,000	480	0.08	0.16	50,000	440	0.08	0.16	47,700	690	0.08	0.16	50,000	760	0.08	0.16
	3.0	50,000	320	0.065	0.16	50,000	295	0.065	0.16	43,000	415	0.065	0.16	50,000	510	0.065	0.16
	4.0	50,000	170	0.065	0.16	50,000	155	0.065	0.16	43,000	220	0.065	0.16	50,000	270	0.065	0.16
	5.0	50,000	140	0.05	0.16	47,700	120	0.05	0.16	38,200	160	0.05	0.16	47,700	210	0.05	0.16
	6.0	50,000	115	0.05	0.16	43,000	90	0.05	0.16	34,400	120	0.05	0.16	43,000	155	0.05	0.16
	7.0	50,000	95	0.03	0.16	43,000	75	0.03	0.16	34,400	100	0.03	0.16	43,000	130	0.03	0.16
	8.0	45,800	70	0.03	0.16	38,200	55	0.03	0.16	30,600	75	0.03	0.16	38,200	95	0.03	0.16
0.5	2.0	50,000	600	0.1	0.2	47,700	525	0.1	0.2	38,200	690	0.1	0.2	47,700	905	0.1	0.2
	2.5	50,000	600	0.1	0.2	47,700	525	0.1	0.2	38,200	690	0.1	0.2	47,700	905	0.1	0.2

ロングネックボールエンドミル Long Neck Ball End Mills

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy AI·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
ボール半径 (R) Ball R	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
0.5	3.0	50,000	400	0.1	0.2	47,700	350	0.1	0.2	38,200	460	0.1	0.2	47,700	610	0.1	0.2
	4.0	50,000	250	0.08	0.2	43,000	200	0.08	0.2	34,400	260	0.08	0.2	43,000	345	0.08	0.2
	6.0	45,800	165	0.06	0.2	38,200	125	0.06	0.2	30,600	165	0.06	0.2	38,200	220	0.06	0.2
	7.0	45,800	145	0.06	0.2	38,200	110	0.06	0.2	30,600	145	0.06	0.2	38,200	190	0.06	0.2
	8.0	41,200	110	0.06	0.2	34,400	85	0.06	0.2	27,500	110	0.06	0.2	34,400	145	0.06	0.2
	9.0	41,200	95	0.04	0.2	34,400	75	0.04	0.2	27,500	95	0.04	0.2	34,400	125	0.04	0.2
	10.0	36,700	70	0.04	0.2	30,600	55	0.04	0.2	24,400	70	0.04	0.2	30,600	95	0.04	0.2
	12.0	36,700	55	0.03	0.2	30,600	40	0.03	0.2	24,400	55	0.03	0.2	30,600	70	0.03	0.2
0.6	2.4	47,700	690	0.12	0.24	39,800	525	0.12	0.24	31,800	690	0.12	0.24	39,800	905	0.12	0.24
	4.0	43,000	415	0.095	0.24	35,800	315	0.095	0.24	28,600	415	0.095	0.24	35,800	545	0.095	0.24
	6.0	43,000	220	0.095	0.24	35,800	165	0.095	0.24	28,600	220	0.095	0.24	35,800	290	0.095	0.24
	8.0	38,200	150	0.07	0.24	31,800	115	0.07	0.24	25,500	150	0.07	0.24	31,800	200	0.07	0.24
	10.0	34,400	105	0.05	0.24	28,600	80	0.05	0.24	22,900	105	0.05	0.24	28,600	140	0.05	0.24
	12.0	30,600	75	0.05	0.24	25,500	55	0.05	0.24	20,400	70	0.05	0.24	25,500	95	0.05	0.24
0.75	3.0	38,200	690	0.15	0.3	31,800	525	0.15	0.3	25,500	690	0.15	0.3	31,800	905	0.15	0.3
	4.0	38,200	690	0.15	0.3	31,800	525	0.15	0.3	25,500	690	0.15	0.3	31,800	905	0.15	0.3
	6.0	34,400	260	0.12	0.3	28,600	200	0.12	0.3	22,900	260	0.12	0.3	28,600	345	0.12	0.3
	8.0	30,600	185	0.09	0.3	25,500	140	0.09	0.3	20,400	185	0.09	0.3	25,500	245	0.09	0.3
	10.0	30,600	150	0.09	0.3	25,500	115	0.09	0.3	20,400	150	0.09	0.3	25,500	200	0.09	0.3
	12.0	27,500	110	0.09	0.3	22,900	85	0.09	0.3	18,300	110	0.09	0.3	22,900	145	0.09	0.3
	14.0	24,400	80	0.06	0.3	20,400	60	0.06	0.3	16,300	80	0.06	0.3	20,400	105	0.06	0.3
	16.0	24,400	65	0.045	0.3	20,400	50	0.045	0.3	16,300	65	0.045	0.3	20,400	85	0.045	0.3
0.8	4.0	35,800	690	0.16	0.32	29,800	525	0.16	0.32	23,900	690	0.16	0.32	29,800	905	0.16	0.32
	8.0	32,200	220	0.13	0.32	26,800	165	0.13	0.32	21,500	220	0.13	0.32	26,800	290	0.13	0.32
	12.0	25,800	120	0.095	0.32	21,500	90	0.095	0.32	17,200	120	0.095	0.32	21,500	155	0.095	0.32
	16.0	22,900	75	0.065	0.32	19,100	55	0.065	0.32	15,300	75	0.065	0.32	19,100	95	0.065	0.32
1	3.0	28,600	690	0.2	0.4	23,900	525	0.2	0.4	19,100	690	0.2	0.4	23,900	905	0.2	0.4
	4.0	28,600	690	0.2	0.4	23,900	525	0.2	0.4	19,100	690	0.2	0.4	23,900	905	0.2	0.4
	6.0	28,600	460	0.2	0.4	23,900	350	0.2	0.4	19,100	460	0.2	0.4	23,900	610	0.2	0.4
	8.0	25,800	260	0.16	0.4	21,500	200	0.16	0.4	17,200	260	0.16	0.4	21,500	345	0.16	0.4
	10.0	25,800	220	0.16	0.4	21,500	165	0.16	0.4	17,200	220	0.16	0.4	21,500	290	0.16	0.4
	12.0	22,900	165	0.12	0.4	19,100	125	0.12	0.4	15,300	165	0.12	0.4	19,100	220	0.12	0.4
	13.0	22,900	155	0.12	0.4	19,100	120	0.12	0.4	15,300	155	0.12	0.4	19,100	205	0.12	0.4
	14.0	22,900	145	0.12	0.4	19,100	110	0.12	0.4	15,300	145	0.12	0.4	19,100	190	0.12	0.4
	15.0	20,600	120	0.12	0.4	17,200	90	0.12	0.4	13,700	120	0.12	0.4	17,200	155	0.12	0.4
	16.0	20,600	110	0.12	0.4	17,200	85	0.12	0.4	13,700	110	0.12	0.4	17,200	145	0.12	0.4
	18.0	20,600	95	0.08	0.4	17,200	75	0.08	0.4	13,700	95	0.08	0.4	17,200	125	0.08	0.4
	20.0	18,300	70	0.08	0.4	15,300	55	0.08	0.4	12,200	75	0.08	0.4	15,300	95	0.08	0.4
1.25	6.0	22,900	690	0.25	0.5	19,100	525	0.25	0.5	15,300	690	0.25	0.5	19,100	905	0.25	0.5
	8.0	20,600	415	0.2	0.5	17,200	315	0.2	0.5	13,700	415	0.2	0.5	17,200	545	0.2	0.5
	10.0	20,600	260	0.2	0.5	17,200	200	0.2	0.5	13,700	260	0.2	0.5	17,200	345	0.2	0.5
	15.0	18,300	165	0.15	0.5	15,300	125	0.15	0.5	12,200	165	0.15	0.5	15,300	220	0.15	0.5
	20.0	16,500	110	0.15	0.5	13,700	85	0.15	0.5	11,000	110	0.15	0.5	13,700	145	0.15	0.5
1.5	6.0	19,100	690	0.3	0.6	15,900	525	0.3	0.6	12,700	685	0.3	0.6	15,900	905	0.3	0.6
	8.0	19,100	690	0.3	0.6	15,900	525	0.3	0.6	12,700	685	0.3	0.6	15,900	905	0.3	0.6
	10.0	17,200	415	0.24	0.6	14,300	315	0.24	0.6	11,500	415	0.24	0.6	14,300	545	0.24	0.6

ion Depo Type A Series

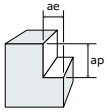
ion Depo Type A 切削条件参考表
Recommended Milling Conditions

■型番:IALB-2
Model number:IALB-2

ロングネックボールエンドミル Long Neck Ball End Mills

被削材 Work Material		アルミ合金 Aluminum Alloy A5000番·A7000番台				アルミ·アルミ鋳物 Aluminum Alloy Al·AC·ADC				銅合金 Copper Alloy 銅タングステン Copper Tungsten				樹脂 Resin			
ボール半径(R) Ball R	有効長 Effective Length	回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	切り込み量 Depth of Cut	
		min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm	min-1	mm/min	∂p mm	∂e mm
1.5	12.0	17,200	260	0.24	0.6	14,300	200	0.24	0.6	11,500	260	0.24	0.6	14,300	345	0.24	0.6
	14.0	17,200	260	0.24	0.6	14,300	200	0.24	0.6	11,500	260	0.24	0.6	14,300	345	0.24	0.6
	15.0	17,200	220	0.24	0.6	14,300	165	0.24	0.6	11,500	220	0.24	0.6	14,300	290	0.24	0.6
	16.0	15,300	185	0.18	0.6	12,700	140	0.18	0.6	10,200	185	0.18	0.6	12,700	245	0.18	0.6
	20.0	15,300	150	0.18	0.6	12,700	115	0.18	0.6	10,200	150	0.18	0.6	12,700	200	0.18	0.6
	25.0	13,700	105	0.12	0.6	11,500	80	0.12	0.6	9,170	105	0.12	0.6	11,500	140	0.12	0.6
	30.0	12,200	75	0.12	0.6	10,200	55	0.12	0.6	8,150	75	0.12	0.6	10,200	95	0.12	0.6
1.75	10.0	16,400	690	0.35	0.7	13,600	525	0.35	0.7	10,900	690	0.35	0.7	13,600	905	0.35	0.7
	15.0	14,700	260	0.28	0.7	12,300	200	0.28	0.7	9,820	260	0.28	0.7	12,300	345	0.28	0.7
	20.0	13,100	175	0.21	0.7	10,900	135	0.21	0.7	8,730	175	0.21	0.7	10,900	230	0.21	0.7
	25.0	11,800	125	0.21	0.7	9,820	95	0.21	0.7	7,860	125	0.21	0.7	9,820	165	0.21	0.7
	30.0	11,800	100	0.14	0.7	9,820	75	0.14	0.7	7,860	100	0.14	0.7	9,820	135	0.14	0.7
	35.0	10,500	70	0.14	0.7	8,730	55	0.14	0.7	6,990	75	0.14	0.7	8,730	95	0.14	0.7
2	10.0	14,300	690	0.4	0.8	11,900	525	0.4	0.8	9,550	690	0.4	0.8	11,900	905	0.4	0.8
	12.0	14,300	460	0.4	0.8	11,900	350	0.4	0.8	9,550	460	0.4	0.8	11,900	610	0.4	0.8
	14.0	12,900	415	0.32	0.8	10,700	315	0.32	0.8	8,600	415	0.32	0.8	10,700	545	0.32	0.8
	15.0	12,900	415	0.32	0.8	10,700	315	0.32	0.8	8,600	415	0.32	0.8	10,700	545	0.32	0.8
	16.0	12,900	260	0.32	0.8	10,700	200	0.32	0.8	8,600	260	0.32	0.8	10,700	345	0.32	0.8
	20.0	12,900	220	0.32	0.8	10,700	165	0.32	0.8	8,600	220	0.32	0.8	10,700	290	0.32	0.8
	25.0	11,500	160	0.24	0.8	9,550	120	0.24	0.8	7,640	160	0.24	0.8	9,550	210	0.24	0.8
	30.0	10,300	120	0.24	0.8	8,600	90	0.24	0.8	6,880	120	0.24	0.8	8,600	155	0.24	0.8
	35.0	10,300	100	0.16	0.8	8,600	75	0.16	0.8	6,880	100	0.16	0.8	8,600	130	0.16	0.8
2.5	10.0	11,500	690	0.5	1	9,550	525	0.5	1	7,640	690	0.5	1	9,550	905	0.5	1
	15.0	11,500	460	0.5	1	9,550	350	0.5	1	7,640	460	0.5	1	9,550	610	0.5	1
	20.0	10,300	260	0.4	1	8,600	200	0.4	1	6,880	260	0.4	1	8,600	345	0.4	1
	25.0	10,300	220	0.4	1	8,600	165	0.4	1	6,880	220	0.4	1	8,600	290	0.4	1
	30.0	9,170	165	0.3	1	7,640	125	0.3	1	6,110	165	0.3	1	7,640	220	0.3	1
	35.0	9,170	145	0.3	1	7,640	110	0.3	1	6,110	145	0.3	1	7,640	190	0.3	1
	40.0	8,250	110	0.3	1	6,880	85	0.3	1	5,500	110	0.3	1	6,880	145	0.3	1
3	10.0	9,550	690	0.6	1.2	7,960	525	0.6	1.2	6,370	685	0.6	1.2	7,960	905	0.6	1.2
	15.0	9,550	690	0.6	1.2	7,960	525	0.6	1.2	6,370	685	0.6	1.2	7,960	905	0.6	1.2
	20.0	8,600	415	0.48	1.2	7,160	315	0.48	1.2	5,730	415	0.48	1.2	7,160	545	0.48	1.2
	25.0	8,600	260	0.48	1.2	7,160	200	0.48	1.2	5,730	260	0.48	1.2	7,160	345	0.48	1.2
	30.0	8,600	220	0.48	1.2	7,160	165	0.48	1.2	5,730	220	0.48	1.2	7,160	290	0.48	1.2
	35.0	7,640	170	0.36	1.2	6,370	130	0.36	1.2	5,100	170	0.36	1.2	6,370	225	0.36	1.2
	40.0	7,640	150	0.36	1.2	6,370	115	0.36	1.2	5,100	150	0.36	1.2	6,370	200	0.36	1.2
	45.0	6,880	120	0.36	1.2	5,730	90	0.36	1.2	4,590	120	0.36	1.2	5,730	155	0.36	1.2
	50.0	6,880	105	0.24	1.2	5,730	80	0.24	1.2	4,590	105	0.24	1.2	5,730	140	0.24	1.2

備考
Notes



- ●工具はホルダに確実に固定し、振れを抑えて下さい。
- ●切り込み量は、仕上げ加工を行う場合の最大値です。
- ●∂pは深さ方向の切り込み量、∂eはピックフィードを示します。
- ●オイルミストクーラント、または、不水溶性切削液をご使用下さい。
- ●工具突出しは必要以上に出さないで下さい。
- ●回転数と送り速度は同じ割合で調整して下さい。

- ●Reduce tool deflection by mounting the tool securely into the holder.
- ●Depth of Cut shows the maximum value for finishing.
- ●∂p=Axial Depth of Cut ∂e=Radial Depth of Cut.
- ●We recommend using oil mist coolant or non-water soluble cutting fluid.
- ●Length of tool overhang must be as short as possible.
- ●Adjust milling conditions according to the depth of cut and the rigidity of the machine and work holding.

ion Depo Type A - Double Angle Drills

超硬ダブルアングルドリル
Carbide Double Angle Drills





特　長

- 金型のエジェクターピン穴のテーパ角度を鋭角で加工することでピン挿入時の引っ掛かりを抑制
- 標準品は誘い角60°と90°をラインナップ

Features

- Drilling the ejector pin hole in the mold with a sharp taper angle prevents snagging when the pin is inserted.
- Standard products are available with lead angles of 60° and 90°.

超硬ダブルアングルドリル
Carbide Double Angle Drills

■型番：IA-DAD Model number:IA-DAD

MG | ion A | Drilling | 刃数 2 | Point Angle 160° | Helix Angle 30° | NA 15° | h6

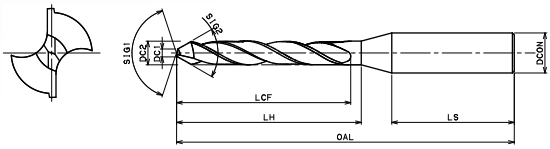
切削条件表 Cutting Parameter P230

◆金型のエジェクターピン穴加工の工程集約に適しています

◆Suitable for drilling process consolidation of ejector pin holes in molds



先端径許容差 First Diameter Tolerance	直径許容差 Second Diameter Tolerance
0/-0.050	0/-0.020



表記の首角(Acon)は目安です。被削材と干渉が心配される場合は必ず実測で確認してください。
The neck angle (Acon) shown is a reference value.
If concerned about interference with the work material, please check by actual measurement.

対応被削材表　Material compatibility table

被削材 Work Material														
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	焼き入れ鋼 Hardened Steel ~55HRC	焼き入れ鋼 Hardened Steel ~62HRC	焼き入れ鋼 Hardened Steel ~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	◎												

第一推奨◎Recommended　第二推奨○Suggested

● = 標準在庫品 Standard stock item
※ = 受注生産品 Made-to-order

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	先端径 DC1	直径 DC2	先端角 SIG1	誘い角 SIG2	溝長 LCF	全長 OAL	シャンク長 LS	シャンク径 DCON	首下長さ LH	在庫 Stock
N010768	IA-DAD-0.5x1.8xA60	0.5	1.8	160	60	17	60	37.9	4	20	●
N010769	IA-DAD-0.5x2.0xA60	0.5	2.0	160	60	17	60	38.3	4	20	●
N010770	IA-DAD-0.65x2.0xA60	0.65	2.0	160	60	17	60	38.3	4	20	●
N010771	IA-DAD-1.1x2.0xA60	1.1	2.0	160	60	17	60	38.3	4	20	●
N010772	IA-DAD-1.6x2.2xA60	1.6	2.2	160	60	18	60	37.6	4	21	●
N010773	IA-DAD-0.6x2.5xA60	0.6	2.5	160	60	18	60	38.2	4	21	●
N010774	IA-DAD-0.9x2.5xA60	0.9	2.5	160	60	18	60	38.2	4	21	●
N010775	IA-DAD-1.0x3.0xA60	1.0	3.0	160	60	19	60	38.1	4	22	●
N010776	IA-DAD-1.0x3.4xA60	1.0	3.4	160	60	25	60	32.9	4	29	●
N010777	IA-DAD-1.5x3.4xA60	1.5	3.4	160	60	25	60	32.9	4	29	●
N010778	IA-DAD-2.06x3.4xA60	2.06	3.4	160	60	25	60	32.9	4	29	●
N010779	IA-DAD-1.5x4.5xA60	1.5	4.5	160	60	26	60	30.2	6	30	●
N010780	IA-DAD-0.5x1.3xA90	0.5	1.3	160	90	16	60	38.0	4	19	※
N010781	IA-DAD-0.5x1.5xA90	0.5	1.5	160	90	17	60	37.3	4	20	※
N010782	IA-DAD-0.5x1.8xA90	0.5	1.8	160	90	17	60	37.9	4	20	※
N010783	IA-DAD-0.5x2.0xA90	0.5	2.0	160	90	17	60	38.3	4	20	●
N010784	IA-DAD-1.0x2.0xA90	1.0	2.0	160	90	17	60	38.3	4	20	※
N010785	IA-DAD-0.5x2.5xA90	0.5	2.5	160	90	18	60	38.2	4	21	※
N010786	IA-DAD-1.0x2.5xA90	1.0	2.5	160	90	18	60	38.2	4	21	※
N010787	IA-DAD-1.0x3.0xA90	1.0	3.0	160	90	19	60	38.1	4	22	※
N010788	IA-DAD-1.0x3.4xA90	1.0	3.4	160	90	25	60	32.9	4	29	※
N010789	IA-DAD-0.65x2.0xA90	0.65	2.0	160	90	17	60	38.3	4	20	※
N010790	IA-DAD-0.9x2.5xA90	0.9	2.5	160	90	18	60	38.2	4	21	●

IA-DAD Series 切削条件参考表
Recommended Drilling Conditions

■型番:IA-DAD
Model number:IA-DAD

超硬ダブルアングルドリル Carbide Double Angle Drills

被削材 Work Material	炭素鋼 Carbon steel SS400, S50C		プリハードン鋼 Prehardened steel PX5,NAK80		高速度工具鋼 High speed steel HAP5R,HAP72,ASP23	
直径 DC Drill Dia. (mm)	回転速度 Speed (min^{-1})	送り量 Feed Rate (mm/rev)	回転速度 Speed (min^{-1})	送り量 Feed Rate (mm/rev)	回転速度 Speed (min^{-1})	送り量 Feed Rate (mm/rev)
1.8	10,610	0.04~0.06	8,840	0.04~0.06	7,070	0.03~0.05
2	9,540	0.04~0.06	7,950	0.04~0.06	6,360	0.03~0.05
2.2	8,680	0.04~0.06	7,230	0.04~0.06	5,780	0.03~0.05
2.5	7,630	0.04~0.06	6,360	0.04~0.06	5,090	0.03~0.05
3	6,360	0.04~0.07	5,300	0.04~0.07	4,240	0.03~0.05
3.4	5,610	0.04~0.07	4,680	0.04~0.07	3,740	0.03~0.05
4.5	4,240	0.05~0.08	3,530	0.05~0.08	2,820	0.04~0.06

●ステップ加工を推奨します、ステップ量は0.3DC以下を目安にしてください。
カタログの切削条件表は該当工具の最適な加工条件を想定したものであり、使用推奨条件ではありません。
ご使用の機械、チャックおよび被削材クランプ状況、クーラントの使用方法に応じて切削条件を調整してください。

●Step feed is recommended. Step feed interval is below 0.3 x DC
The cutting conditions shown in the catalog are based on assumed optimal machining conditions for the tool and are not recommended operating conditions. Please adjust the cutting conditions according to the machine, chucking and workpiece clamping conditions, and coolant application method.

超硬台形ランナーエンドミル
Carbide Taper(Daikei) Runner End Mills





特　長

- 樹脂金型の流路（台形ランナー）加工に最適化された専用設計
- 通常のテーパーエンドミルとしても幅広く使用可能な高い汎用性
- 独自の「ギャッシュ当て」形状で刃先のかけを防ぎ、圧倒的な耐摩耗性と長寿命を実現

Features

- A dedicated design optimized for machining flow paths (trapezoid runners) in resin molds.
- Highly versatile for broad use as conventional tapered End Mills.
- The proprietary “gash relief” geometry prevents cutting-edge chipping and delivers outstanding wear resistance and long tool life.

ion Depo Type AC-Taper（Daikei）Runner End Mills

MG | ion AC | Slotting | Helix Angle 30° | NA 15° | h6 | Gash Land

切削条件表 Cutting Parameter P234

超硬台形ランナーエンドミル　Carbide Taper(Daikei) Runner End Mills

■型番：DRM Model number:DRM

◆樹脂金型の流路（台形ランナー）の溝加工に適しています

◆Suitable for slotting of resin mold flow paths (trapezoidal runners)



先端径許容差 DC Tolerance
-0.016/-0.064

対応被削材表　Material compatibility table

被削材 Work Material													
炭素鋼 Carbon Steel S45C S55C	合金鋼 Alloy Steel SK SCM	プリハードン鋼 Prehardened Steel NAK HPM	ステンレス Stainless Steel	焼き入れ鋼 Hardened Steel ~50HRC	~55HRC	~62HRC	~70HRC	鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron	アルミ合金 Aluminum Alloy	グラファイト Graphite	銅 Copper Alloy	樹脂 Resin	チタン合金 Titanium Alloy	耐熱合金 Heat Resistant Alloy
◎	◎	○	○					◎	○	○	○			○

第一推奨◎Recommended　第二推奨○Suggested

□ = 特定代理店在庫品 Designated distributor stock

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	先端径 DC	大径 DCX	刃長 APMX	テーパー半角 BHTA	シャンク径 DCON	全長 OAL	在庫 Stock
N009337	DRM D1x5°	1	1.52	3	5	4	50	□
N009145	DRM D1x7°	1	1.74	3	7	4	50	□
N009154	DRM D1x10°	1	2.06	3	10	4	50	□
N009163	DRM D1x15°	1	2.61	3	15	4	50	□
N009137	DRM D1.5x5°	1.5	2.2	4	5	4	50	□
N009146	DRM D1.5x7°	1.5	2.48	4	7	4	50	□
N009155	DRM D1.5x10°	1.5	2.91	4	10	4	50	□
N009164	DRM D1.5x15°	1.5	3.64	4	15	4	50	□
N009138	DRM D2x5°	2	2.87	5	5	4	50	□
N009147	DRM D2x7°	2	3.23	5	7	4	50	□
N009156	DRM D2x10°	2	3.76	5	10	4	50	□
N009165	DRM D2x15°	2	4.68	5	15	6	50	□
N009139	DRM D2.5x5°	2.5	3.55	6	5	4	50	□
N009148	DRM D2.5x7°	2.5	3.97	6	7	4	50	□
N009157	DRM D2.5x10°	2.5	4.62	6	10	6	50	□
N009166	DRM D2.5x15°	2.5	5.72	6	15	6	50	□
N009140	DRM D3x5°	3	4.22	7	5	6	50	□
N009149	DRM D3x7°	3	4.72	7	7	6	50	□
N009158	DRM D3x10°	3	5.47	7	10	6	50	□
N009167	DRM D3x15°	3	6.75	7	15	8	60	□
N009172	DRM D3x20°	3	8.1	7	20	10	60	□
N009177	DRM D3x25°	3	9.53	7	25	10	60	□
N009182	DRM D3x30°	3	11.08	7	30	12	70	□

ion Depo Type AC-Taper（Daikei） Runner End Mills

●再研削可能工具の詳細は、お問い合わせください。(Regrinding is possible. Please contact us for details.)

寸法(Size):mm

N番号 N No.	コードNO. Code No.	先端径 DC	大径 DCX	刃長 APMX	テーパー半角 BHTA	シャンク径 DCON	全長 OAL	在庫 Stock
N009141	DRM D3.5x5°	3.5	4.72	7	5	6	50	□
N009150	DRM D3.5x7°	3.5	5.22	7	7	6	50	□
N009159	DRM D3.5x10°	3.5	5.97	7	10	6	50	□
N009168	DRM D3.5x15°	3.5	7.25	7	15	8	60	□
N009173	DRM D3.5x20°	3.5	8.6	7	20	10	60	□
N009178	DRM D3.5x25°	3.5	10.03	7	25	12	70	□
N009183	DRM D3.5x30°	3.5	11.58	7	30	12	70	□
N009142	DRM D4x5°	4	5.4	8	5	6	50	□
N009151	DRM D4x7°	4	5.96	8	7	6	50	□
N009160	DRM D4x10°	4	6.82	8	10	8	60	□
N009169	DRM D4x15°	4	8.29	8	15	10	60	□
N009174	DRM D4x20°	4	9.82	8	20	10	60	□
N009179	DRM D4x25°	4	11.46	8	25	12	70	□
N009184	DRM D4x30°	4	13.24	8	30	16	80	□
N009143	DRM D5x5°	5	6.75	10	5	8	60	□
N009152	DRM D5x7°	5	7.46	10	7	8	60	□
N009161	DRM D5x10°	5	8.53	10	10	10	60	□
N009170	DRM D5x15°	5	10.36	10	15	12	70	□
N009175	DRM D5x20°	5	12.28	10	20	16	80	□
N009180	DRM D5x25°	5	14.33	10	25	16	80	□
N009185	DRM D5x30°	5	16.55	10	30	20	80	□
N009144	DRM D6x5°	6	8.1	12	5	10	60	□
N009153	DRM D6x7°	6	8.95	12	7	10	60	□
N009162	DRM D6x10°	6	10.23	12	10	12	70	□
N009171	DRM D6x15°	6	12.43	12	15	16	80	□
N009176	DRM D6x20°	6	14.74	12	20	16	80	□
N009181	DRM D6x25°	6	17.19	12	25	20	80	□
N009186	DRM D6x30°	6	19.86	12	30	20	80	□

DRM Series 切削条件参考表
Recommended Milling Conditions

■型番：DRM
Model number:DRM

テーパーエンドミル Taper End Mills

被削材 Work Material				炭素鋼 Carbon Steel S45C S55C		合金鋼 Alloy Steel SK SCM		プリハードン鋼 Prehardened Steels PX5／NAK80		アルミアルミ鋳物 Aluminum Alloy Al·AC·ADC	
先端径 DC	テーパー角度 BHTA	切り込み量 Depth of Cut		回転数 Spindle Speed	送り速度 Feed	回転数 Spindle Speed	送り速度 Feed	回転数 Spindle Speed	送り速度 Feed	回転数 Spindle Speed	送り速度 Feed
mm	deg	∂p mm	∂e mm	min-1	mm/min	min-1	mm/min	min-1	mm/min	min-1	mm/min
1	5°~7°	0.33	0.05	6,366~12,733	74~296	4,775~9,550	42~167	3,183~6,366	19~74	12,733~19,099	278~834
1.5	5°~7°	0.5	0.08	4,244~8,489	68~272	3,183~6,366	38~153	2,122~4,244	17~68	8,489~12,733	255~764
2	5°~7°	0.67	0.1	3,183~6,366	65~259	2,387~4,775	36~146	1,592~3,183	16~65	6,366~9,550	243~730
2.5	5°~7°	0.83	0.13	2,547~5,093	63~252	1,910~3,820	35~142	1,273~2,547	16~63	5,093~7,640	236~709
3	5°~7°	1	0.15	2,122~4,244	62~247	1,592~3,183	35~139	1,061~2,122	15~62	4,244~6,366	232~695
3.5	5°~7°	1.17	0.18	1,819~3,638	61~244	1,364~2,728	34~137	909~1,819	15~61	3,638~5,457	228~685
4	5°~7°	1.33	0.2	1,592~3,183	60~241	1,194~2,387	34~135	796~1,592	15~60	3,183~4,775	226~677
5	5°~7°	1.67	0.25	1,273~2,547	59~237	955~1,910	33~133	637~1,273	15~59	2,547~3,820	222~667
6	5°~7°	2	0.3	1,061~2,122	59~235	796~1,592	33~132	531~1,061	15~59	2,122~3,183	220~660
1	10°	0.29	0.05	6,366~12,733	74~296	4,775~9,550	42~167	3,183~6,366	19~74	12,733~19,099	278~834
1.5	10°	0.43	0.08	4,244~8,489	68~272	3,183~6,366	38~153	2,122~4,244	17~68	8,489~12,733	255~764
2	10°	0.57	0.1	3,183~6,366	65~259	2,387~4,775	36~146	1,592~3,183	16~65	6,366~9,550	243~730
2.5	10°	0.71	0.13	2,547~5,093	63~252	1,910~3,820	35~142	1,273~2,547	16~63	5,093~7,640	236~709
3	10°	0.86	0.15	2,122~4,244	62~247	1,592~3,183	35~139	1,061~2,122	15~62	4,244~6,366	232~695
3.5	10°	1	0.18	1,819~3,638	61~244	1,364~2,728	34~137	909~1,819	15~61	3,638~5,457	228~685
4	10°	1.14	0.2	1,592~3,183	60~241	1,194~2,387	34~135	796~1,592	15~60	3,183~4,775	226~677
5	10°	1.43	0.25	1,273~2,547	59~237	955~1,910	33~133	637~1,273	15~59	2,547~3,820	222~667
6	10°	1.71	0.33	1,061~2,122	59~235	796~1,592	33~132	531~1,061	15~59	2,122~3,183	220~660
1	15°	0.25	0.05	6,366~12,733	73~294	4,775~9,550	41~165	3,183~6,366	18~73	12,733~19,099	275~826
1.5	15°	0.38	0.08	4,244~8,489	67~269	3,183~6,366	38~151	2,122~4,244	17~67	8,489~12,733	252~757
2	15°	0.5	0.1	3,183~6,366	64~257	2,387~4,775	36~145	1,592~3,183	16~64	6,366~9,550	241~723
2.5	15°	0.63	0.13	2,547~5,093	62~250	1,910~3,820	35~140	1,273~2,547	16~62	5,093~7,640	234~702
3	15°	0.75	0.15	2,122~4,244	61~245	1,592~3,183	34~138	1,061~2,122	15~61	4,244~6,366	229~688
3.5	15°	0.88	0.18	1,819~3,638	60~241	1,364~2,728	34~136	909~1,819	15~60	3,638~5,457	226~679
4	15°	1	0.2	1,592~3,183	60~239	1,194~2,387	34~134	796~1,592	15~60	3,183~4,775	224~671
5	15°	1.25	0.25	1,273~2,547	59~235	955~1,910	33~132	637~1,273	15~59	2,547~3,820	220~661
6	15°	1.5	0.3	1,061~2,122	58~233	796~1,592	33~131	531~1,061	15~58	2,122~3,183	218~654
3	20°~30°	0.71	0.15	2,122~4,244	36~145	1,592~3,183	20~82	1,061~2,122	9~36	4,244~6,366	136~409
3.5	20°~30°	0.83	0.18	1,819~3,638	36~143	1,364~2,728	20~81	909~1,819	9~36	3,638~5,457	134~403
4	20°~30°	0.95	0.2	1,592~3,183	35~142	1,194~2,387	20~80	796~1,592	9~35	3,183~4,775	133~399
5	20°~30°	1.19	0.25	1,273~2,547	35~140	955~1,910	20~79	637~1,273	9~35	2,547~3,820	131~393
6	20°~30°	1.43	0.3	1,061~2,122	35~138	796~1,592	19~78	531~1,061	9~35	2,122~3,183	130~389

●工具はホルダに確実に固定し、振れを抑えて下さい。
●切り込み量は、仕上げ加工を行う場合の最大値です。
●∂pは深さ方向の切り込み量、∂eはピックフィードを示します。
●オイルミストクーラント、または、不水溶性切削液をご使用下さい。
●工具突出しは必要以上に出さないで下さい。
●回転数と送り速度は同じ割合で調整して下さい。

●Reduce tool deflection by mounting the tool securely into the holder.
●Depth of Cut shows the maximum value for finishing.
●∂p=Axial Depth of Cut ∂e=Radial Depth of Cut.
●We recommend using oil mist coolant or non-water soluble cutting fluid.
●Length of tool overhang must be as short as possible.
●Adjust milling conditions according to the depth of cut and the rigidity of the machine and work holding.

切削条件表から中間寸法の切削条件を算出する方法
How to calculate cutting conditions for an intermediate diameter from a cutting condition table

切削条件表の回転数を切削速度へ変換した表を以下に示します。
The table below shows cutting conditions converted from spindle speed to cutting speed.

被削材 Work material	ステンレス鋼 Stainless steel SUS304		ステンレス鋼 Stainless steel SUS630		軟鋼・低炭素鋼 Mild steel, Low Carbon steel SS400, S15C		炭素鋼・鋳鉄 Carbon steel, Cast Iron S50C, FC250		合金鋼・合金工具鋼 (~30HRC) Alloy steel, Tool steel SCM, SKD		ダクタイル鋳鉄 Ductile Cast Iron FCD600	
直径 DC Drill Dia. (mm)	切削速度 Cutting Speed (m/min)	送り量 Feed Rate (mm/rev)	切削速度 Cutting Speed (m/min)	送り量 Feed Rate (mm/rev)	切削速度 Cutting Speed (m/min)	送り量 Feed Rate (mm/rev)	切削速度 Cutting Speed (m/min)	送り量 Feed Rate (mm/rev)	切削速度 Cutting Speed (m/min)	送り量 Feed Rate (mm/rev)	切削速度 Cutting Speed (m/min)	送り量 Feed Rate (mm/rev)
0.4	12.5	0.006	10	0.006	25	0.012	25	0.012	25	0.012	20	0.012
0.95	13.5	0.015	10.8	0.015	45	0.03	45	0.03	45	0.03	35	0.03
1	15	0.015	12	0.015	45	0.03	45	0.03	45	0.03	35	0.03
1.5	20	0.023	16	0.023	60	0.045	60	0.045	60	0.045	60	0.045
2	25	0.03	20	0.03	75	0.06	75	0.06	75	0.06	60	0.06
4	17.5	0.05	14	0.05	90	0.12	90	0.12	90	0.12	75	0.12
6	15	0.08	12	0.08	90	0.18	90	0.18	90	0.18	75	0.18
8	12.5	0.1	10	0.1	90	0.22	90	0.22	90	0.22	75	0.22
10	10	0.12	8	0.12	90	0.25	90	0.25	90	0.25	75	0.25
12	10	0.14	8	0.14	90	0.26	90	0.26	90	0.26	75	0.26

ステンレス鋼SUS630における直径3.3mmの切削条件を算出します。
求めたい直径の上下切削条件を参照します。
それらの値から求めたい直径の切削速度と送り量を以下の式で算出します。

The cutting conditions for a diameter of 3.3 mm in stainless steel SUS630 are calculated below.
Refer to the cutting conditions for the diameters immediately above and below the target diameter.
Using these values, calculate the cutting speed and feed per revolution for the target diameter using the following formulas.

直径3.3の切削速度
Cutting speed for diameter 3.3 mm

$$= \frac{14-20}{4-2} \times (3.3-4)+14 = \mathbf{16.1}$$

直径3.3の送り量
Feed per revolution for diameter 3.3 mm

$$= \frac{0.05-0.03}{4-2} \times (3.3-4)+0.05 = \mathbf{0.043}$$

求めた切削速度と送り量から、回転数と送り速度を以下の式で算出してご使用ください。
Using the calculated cutting speed and feed per revolution, calculate the spindle speed and feed rate using the formulas below.

直径3.3の回転数
Spindle speed for diameter 3.3 mm

$$= \frac{\mathbf{16.1} \times 1000}{3.3 \times \pi} = \mathbf{1553}$$

直径3.3の送り速度
Feed rate for diameter 3.3 mm

$$= \mathbf{0.043} \times \mathbf{1553} = \mathbf{67}$$

※カタログの切削条件表は該当工具の最適な加工条件を想定したものであり、使用推奨条件ではありません。
ご使用の機械、チャックおよび被削材クランプ状況、クーラントの使用方法に応じて切削条件を調整してください。
The cutting conditions shown in the catalog are based on assumed optimal machining conditions for the tool and are not recommended operating conditions.
Please adjust the cutting conditions according to the machine, chucking and workpiece clamping conditions, and coolant application method.

Memo

Memo

Memo

Memo

コードNo別索引 Index by Code No.

商品寸法表 Size list	切削条件表 Cutting parameter	材質/表面処理 Coating	型番 Model number	商品説明 Products Descriptions	
P052	P055	ion V	TW-VS-EM2D	超硬防振スクエアエンドミル4枚刃	Anti-Vibration Carbide Squeare End Mills 4F
P053	P056		TW-VS-CR-EM2D	超硬防振ラジアスエンドミル4枚刃	Anti-Vibration Carbide Radius End Mills 4F
P058	P062	ion AC	TW-SUS-DR3D	超硬ステンレス用ドリル2枚刃	Carbide Drill for Stainless Steel 2F
P064	P089	CBN	CBNLRH-2	CBNラジアスエンドミル2枚刃　高精度	CBN Radius End Mills 2F High Precision
P068	P090		CBNLRH-3	CBNラジアスエンドミル3枚刃　高精度	CBN Radius End Mills 3F High Precision
P070	P090		CBNLRH-4	CBNラジアスエンドミル4枚刃　高精度	CBN Radius End Mills 4F High Precision
P073	P091		CBNLBH-2	CBNボールエンドミル2枚刃　高精度	CBN Ball End Mills 2F High Precision
P075	P089		CBNLR-2	CBNラジアスエンドミル2枚刃	CBN Radius End Mills 2F
P080	P090		CBNLR-3	CBNラジアスエンドミル3枚刃	CBN Radius End Mills 3F
P082	P090		CBNLR-4	CBNラジアスエンドミル4枚刃	CBN Radius End Mills 4F
P085	P091		CBNLB-2	CBNボールエンドミル2枚刃	CBN Ball End Mills 2F
P087	P093		LAPCBNLR-2	CBNラッピングラジアスエンドミル2枚刃	CBN Lapping Radius End Mills 2F
P088	P093		LAPCBNLB-2	CBNラッピングボールエンドミル2枚刃	CBN Lapping Ball End Mills 2F
P096	P146	ion U	IUSH-2	超硬スクエアエンドミル2枚刃　高精度	Carbide Square End Mills 2F High Precision
P098	P148		IUSH-4	超硬スクエアエンドミル4枚刃　高精度	Carbide Square End Mills 4F High Precision
P104	P155		IURH-4	超硬ラジアスエンドミル4枚刃　高精度	Carbide Radius End Mills 4F High Precision
P115	P160		IUBH-2	超硬ボールエンドミル2枚刃　高精度	Carbide Ball End Mills 2F High Precision
P099	P150		IULSH-2	超硬ロングネックスクエアエンドミル2枚刃　高精度	Carbide Long Neck Square End Mills 2F High Precision
P102	P153		IULSH-4	超硬ロングネックスクエアエンドミル4枚刃　高精度	Carbide Long Neck Square End Mills 4F High Precision
P105	P157		IULRH-2	超硬ロングネックラジアスエンドミル2枚刃　高精度	CarbideLong Neck Radius End Mills 2F High Precision
P107	P158		IULRH-3	超硬ロングネックラジアスエンドミル3枚刃　高精度	Carbide Long Neck Radius End Mills 3F High Precision
P109	P159		IULRH-4	超硬ロングネックラジアスエンドミル4枚刃　高精度	Carbide Long Neck Radius End Mills 4F High Precision
P116	P161		IULBH-2	超硬ロングネックボールエンドミル2枚刃　高精度	Carbide Long Neck Ball End Mills 2F High Precision
P120	P146		IUS-2	超硬スクエアエンドミル2枚刃	Carbide Square End Mills 2F
P122	P148		IUS-4	超硬スクエアエンドミル4枚刃	Carbide Square End Mills 4F
P123	P149		IUS-6	超硬スクエアエンドミル6枚刃	Carbide Square End Mills 6F
P129	P155		IUR-4	超硬ラジアスエンドミル4枚刃	Carbide Radius End Mills 4F
P130	P156		IUR-6	超硬ラジアスエンドミル6枚刃	Carbide Radius End Mills 6F
P141	P160		IUB-2	超硬ボールエンドミル2枚刃	Carbide Ball End Mills 2F
P124	P150		IULS-2	超硬ロングネックスクエアエンドミル2枚刃	Carbide Long Neck Square End Mills 2F
P127	P153		IULS-4	超硬ロングネックスクエアエンドミル4枚刃	Carbide Long Neck Square End Mills 4F
P131	P157		IULR-2	超硬ロングネックラジアスエンドミル2枚刃	Carbide Long Neck Radius End Mills 2F
P133	P158		IULR-3	超硬ロングネックラジアスエンドミル3枚刃	Carbide Long Neck Radius End Mills 3F
P135	P159		IULR-4	超硬ロングネックラジアスエンドミル4枚刃	Carbide Long Neck Radius End Mills 4F
P142	P161		IULB-2	超硬ロングネックボールエンドミル2枚刃	Carbide Long Neck Ball End Mills 2F
P166	P193	ion A	IAS-2	超硬スクエアエンドミル2枚刃	Carbide Square End Mills 2F
P169	P203		IAS-4	超硬スクエアエンドミル4枚刃	Carbide Square End Mills 4F
P173	P211		IAR-2	超硬ラジアスエンドミル2枚刃	Carbide Radius End Mills 2F
P175	P213		IAR-4	超硬ラジアスエンドミル4枚刃	Carbide Radius End Mills 4F
P187	P220		IAB-2	超硬ボールエンドミル2枚刃	Carbide Ball End Mills 2F
P171	P207		IALS-2	超硬ロングネックスクエアエンドミル2枚刃	Carbide Long Neck Square End Mills 2F
P177	P215		IALR-2	超硬ロングネックラジアスエンドミル2枚刃	Carbide Long Neck Radius End Mills 2F
P182	P218		IALR-4	超硬ロングネックラジアスエンドミル4枚刃	Carbide Long Neck Radius End Mills 4F
P189	P222		IALB-2	超硬ロングネックボールエンドミル2枚刃	Carbide Long Neck Ball End Mills 2F
P230	P230	ion A	IA-DAD	超硬ダブルアングルドリル2枚刃	Carbide Double Angle Drill 2F
P232	P234	ion AC	DRM	超硬台形ランナーエンドミル2枚刃	Carbide Taper(Daikei) Runner End Mills 2F

ご使用にあたっての注意事項

●切削刃を素手で直接触らないでください。怪我をする危険があります。

●ケースからの取り出しや機械への装着時は、保護手袋等を使用ください。

●使用前に工具の傷、割れ等が無いことを確認してください。

●工具に傷や割れ等があると使用中に破損し飛び散る危険があります。

●使用前に工具の寸法、加工物の寸法を確認してください。

●切削条件表の数値は目安です。加工物や機械性能に合わせ切削条件の調整が必要です。

●加工中に工具への衝撃的な負荷や工具の損傷により、工具が飛散する危険があります。
安全カバーや保護メガネ等の保護具を使用ください。

●摩耗の進んだ状態や傷んだ状態の工具を続けて使用すると破損の原因となります。工具を交換してください。

●加工中に異常な振動や異音等が発生した場合は、直ちに加工を中止してください。

●切削油は用途に応じて選択してください。防火対策を必ずおこなってください。

Attention on Safety

●Do not directly touch the cutting edge. It could cause injury.
●When removing tools from their packaging, ALWAYS use safety covers.
●Make sure there are no scratches or cracks on the tool before use.
●If the tool has scratches or cracks, there is a risk of damage and scattering during use.
●Verify dimensions of tools and workpiece before starting operation.
●It is necessary to adjust cutting conditions according to part shape, and machine/ work holding rigidity.
●As tools may be scattered due to an impact or damage to the tool during machining.
ALWAYS use safety covers and eye protection.
●Continued use of worn or damaged tools may cause damage, please replace the tool.
●If abnormal vibration, sound, etc. occurs during machining, stop machine immediately.
●Select a cutting fluid appropriate to the particular usage. Ensure that you take proper fire-prevention measures.

Global Tool Sales base detail



TOWA株式会社 ツール営業部
TOWA CORPORATION Head Office

〒601-8105 京都府京都市南区上鳥羽上調子町5番地
5 Kamitoba Kamicho-cho, Minami-ku, Kyoto 601-8105, Japan
TEL (075)692-0250 / FAX (075)692-0270

東京営業所 〒100-0005 東京都千代田区丸の内1丁目4番1号 丸の内永楽ビルディング26階

東北営業所 〒981-3304 宮城県富谷市ひより台一丁目43-11

長野営業所 〒380-0823 長野県長野市南千歳2-12-1 長野セントラルビル8階

中部営業所 〒460-0008 愛知県名古屋市中区栄二丁目2番17号 名古屋情報センタービル3F

九州営業所 〒841-0005 佐賀県鳥栖市弥生が丘七丁目27番地

東和半導体設備(上海)有限公司
TOWA(Shanghai)Co.,Ltd.

中華人民共和国上海市普陀区凱旋北路1188号環球港B座20A
Unit A, 20F, Global Harbor Tower B,
No.1188 North Kaixuan Road, Putuo District,
Shanghai, 200063 P.R.China
TEL (+86)21-6888-6860 / FAX (+86)21-5835-5305

和創半導体設備(深圳)有限公司
He Chuang Semiconductor Equipment(Shenzhen)Co., Ltd.

中華人民共和国広東省深圳市坂田街道雪岗北路2018号
天安云谷11栋1010室
Room 1010, Building 11, Phase II (Plot 02-08) of Tian'an Cloud Park, Gangtou Community, Bantian Subdistrict, Longgang District, Shenzhen, Guangdong, China
TEL (+86)755-2826-5015 / FAX (+86)21-5835-5305

台湾東和半導体設備股份有限公司
TOWA Taiwan Semiconductor Equipment Co.,Ltd.

台湾新竹市東区公園路216巷3号2F
2F, No.3, Lane 216, Gongyuan Road, East District,
Hsinchu 300 Taiwan, R.O.C.
TEL (+886)3-573-7646 / FAX (+886)3-573-7685

TOWA韓国株式会社
TOWA Korea Co., Ltd.

大韓民国忠清南道天安市西北区3工団6路86-25
86-25, 3Gongdan 6-ro, Seobuk-gu, Cheon An,
Chung Cheong Nam Do, 31085, Korea
TEL (+82)41-521-0955 / FAX (+82)41-622-8629

TOWA THAI COMPANY LIMITED

No.88, Nimitikul Tower, 4th Floor,
Soi Rama IX 57/1 (Wiset Suk 2), Rama IX Road,
Suan Luang Sub-district, Suan Luang District,
Bangkok 10250 Thailand
TEL (+66)2-187-2204 / FAX (+66)2-187-2207

TOWA Asia-Pacific Pte.Ltd.

2 International Business Park, #07-01/02,
The Strategy Tower One, Singapore 609930
TEL (+65)6562-0777 / FAX (+65)6022-0460

TOWA MALAYSIA SALES & SERVICES SDN. BHD.

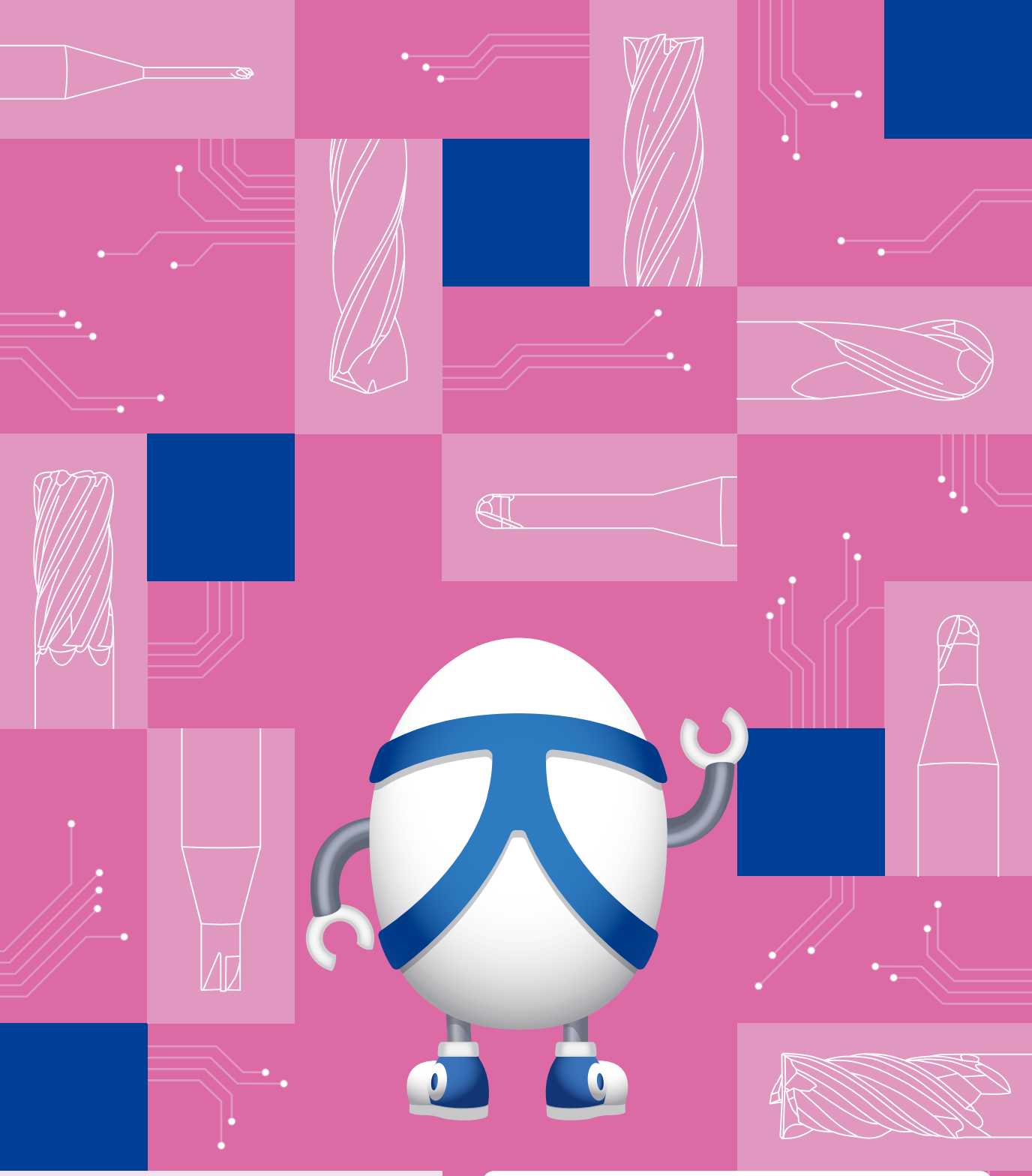
Level 27 Penthouse Centrepoint North,
Mid Valley City Malaysia Lingkaran Syed Putra,
59200 Kuala Lumpur, Malaysia
TEL (+60)3-2280-6987 / FAX (+60)3-2280-6998

TOWA USA Corporation

1430 Tully Road, Suite 416, San Jose, CA95122, U.S.A.

TOWA Europe GmbH

Am Wammesknopf 39, 70439 Stuttgart, Germany



TOWA株式会社

https://www.towajapan.co.jp

TEL (075)692-0250

カタログの内容は予告無く変更することがございますのでご了承願います。

Price & Specification are subject to change without notice