PREMIUM ROTARY CUTTING TOOLS

RobbJack

Applications Guide – 2014

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- TITANIUM, STEEL & HIGH-TEMP ALLOYS
- COMPOSITES & PLASTICS
- DIE/MOLD & HARDENED MATERIALS
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RobbJack Corporation Lincoln, California USA

RobbJack's got the Solution for Your Next Machining Project

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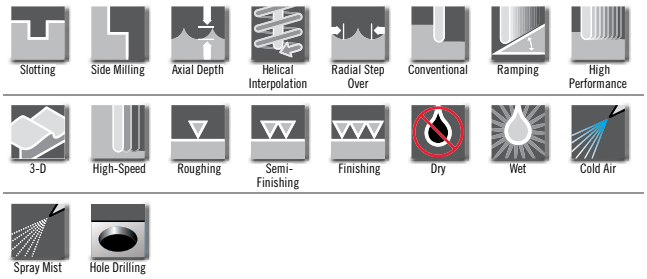
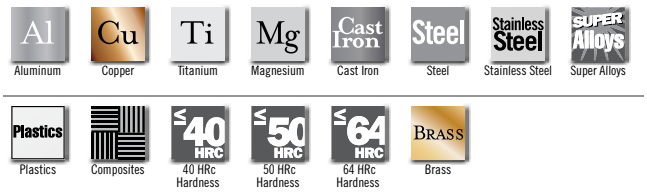
Tool Symbol Guide

Characteristics

Applications



Materials



Coatings

Speed & Feeds/Formulas

Material	SMM *Surface Meters/Minute*	CLPT Factor
Aluminum / Non-Ferrous		
Ferrous		
2024	Max RPM	tool diameter x 0,0256
6061 (T1–T3)	Max RPM	tool diameter x 0,0128
6061 (T4–T6)	Max RPM	tool diameter x 0,0256
7075	Max RPM	tool diameter x 0,0256
Non-Ferrous		
Brass	230	tool diameter x 0,0128
Copper	190	tool diameter x 0,0128
Magnesium	Max RPM	tool diameter x 0,0256
Titanium, Steel and High-Temp Alloys		
Titanium		
Commercially Pure	100	tool diameter x 0,0048
6AL-4V	55	tool diameter x 0,0048
6AL-6V	35	tool diameter x 0,004
Steel		
1018–1020	110	tool diameter x 0,0064
4130	80	tool diameter x 0,0032
4140	70	tool diameter x 0,0032
4340	90	tool diameter x 0,0032
Tool Steel Annealed		
A2	110	tool diameter x 0,0032
D2	80	tool diameter x 0,0032
H13	70	tool diameter x 0,0032
P20	110	tool diameter x 0,00496
Stainless Steel		
303	150	tool diameter x 0,0048
304	70	tool diameter x 0,0032
316	75	tool diameter x 0,0032
15-5/17-4 PH	60	tool diameter x 0,0032
440C	60	tool diameter x 0,0032
Inconel		
625 / 718	30	tool diameter x 0,0036
Composites & Plastics		
G10 Fiberglass/Polyester	300	tool diameter x 0,0136
Graphite	300	tool diameter x 0,0256
Graphite Fiber/Epoxy	250	tool diameter x 0,008
Plastics	400	tool diameter x 0,0256
Die/Mold		
See Die/Mold section		
Other Material Applications		
Cast Iron		
Ductile Iron	110	tool diameter x 0,0096
Gray Cast Iron	150	tool diameter x 0,0128

METRIC SIZES		
Surface Meters per Minute	=	RPM x 0,00314 × Tool Diameter
RPM	=	Surface Meters per Minute x 318,057 / Tool Diameter
Feed Rate (mm/min.)	=	RPM × Chip Load per Tooth × Number of Flutes
cm^3/min	=	Width (mm) Depth (mm) Feedrate (mm/min) / 1000
Horsepower	=	1,341 × kW
kW	=	0,7457 × Horsepower

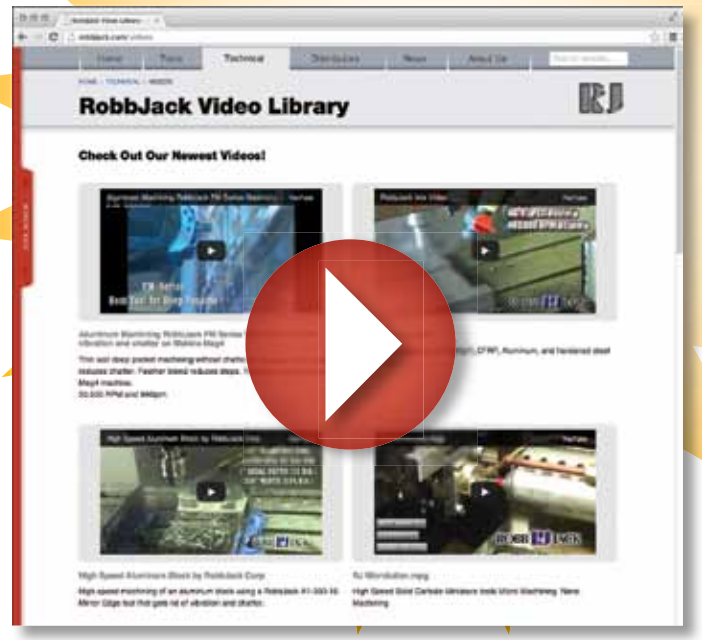
Examples on how to calculate the Chip Load per Tool (CLPT) from the CLPT Factor

Multiply Tool Diameter by CLPT Factor – Use a Minimum Chip Load per Tooth of ,0025 mm

Example 1:
3 mm diameter tool cutting 6061
T6 Aluminum: 3 mm × 0,0256 = 0,0768 mm CLPT

Example 2:
12 mm diameter tool cutting
304 stainless: 12 mm × 0,0032 = 0,0384 mm CLPT

See RobbJack Videos at
www.robbjack.com/videos



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www.robbjack.com

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Click on the Red Search Tab and Find the Exact Tool You're Looking For!

Click on an Icon or Enter Your Specifications.

Make Your Selections Here!

2

3 See Search Results Here!

Make changes in your search criteria, see new results here immediately!

Find a Tool by:
Tool Type
Your Specifications
Tool Characteristics
Materials
Application

4 Click on a Tool Number

5 Complete Tool Description

Prices, available coatings, specifications, tolerances, features, speed and feeds, videos and much more!

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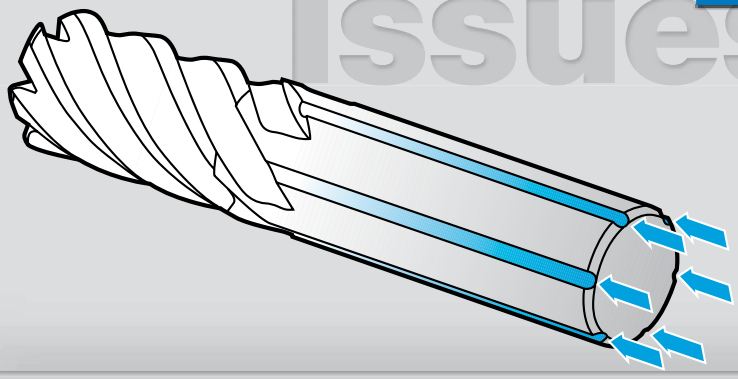
- Slitting saw speeds and feeds
- Troubleshooting
- Printable results
- Simultaneous tool recommendations

ROBBJACK'S Speed & Feed

End Mill Modifications

Coolant Issues?

Coolant Grooves



Coolant Grooves allow coolant to flow around the outside of the tool for through-spindle coolant applications. It is a lower-cost option to through-the-tool coolant holes.

To order a RobbJack tool with a **Coolant Grooves**, use the existing *Part Number*, and add *-CG.*

Example:
An MA1-201-12 with coolant grooves is Part Number:

MA1-201-12-CG
See price sheet for pricing

Chatter Problems?

Mirror Edge™

Our edge preparation dampens vibration to help eliminate chatter.

Mirror Edge

Non-Mirror Edge

Applications

- Deep pocket and thin wall aluminum
- Long reaches more than 3:1 length-to-diameter ratio
- Plunging corners in titanium, steels, stainless, aluminum, etc.
- High end valves used with Feather Blend and T-Process

Must Use Coolant

Our patented Mirror Edge geometry helps to eliminate chatter. This geometry can be used in any application where chatter is a problem, usually for thin walls, valves, deep pockets or where the tool sticks out more than 3:1 length to diameter ratio.

To order RobbJack tools with **Mirror Edge**, use the existing *Part Number*, and add *-ME.*

Example:
An MA1-201-12 with Mirror Edge is Part Number:

MA1-201-12-ME
See price sheet for pricing

Chipping?

T-Process

T-Process is a honed edge we put on an end mill to help eliminate chipping.

Pros: T-Process strengthens the edge, helps eliminate chipping and gives a smooth edge.**Cons:** T-Process will bring up a burr in certain materials, and it is not for materials that like a sharp edge, such as aluminum and plastics.

To order a RobbJack tool with a **T-Process**, use the existing *Part Number*, and add *-TP.*

Example:
An MXG-402-16 with a T-Process is Part Number:

MXG-402-16-TP
See price sheet for pricing

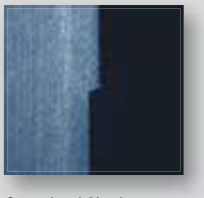
End Mill Modifications

Reach Problems?

Feather Blend™

A smooth transition from the cutting diameter to the neck diameter.

Feather Blend



Standard Neck

Applications

- Any necked tool
- Eliminates swirl lines during plunging
- Eliminates stress risers in parts

Reach

Modify any standard tool with a neck to get the job done quickly.

A neck will increase rigidity, reduce tool deflection and last longer than a long length of cut tool. Necking can be added to most standard tools in 1–2 days.

To order a RobbJack tool with a **Reach**, use the existing *Part Number*, and add *-N* and the desired length from the end of the tool.

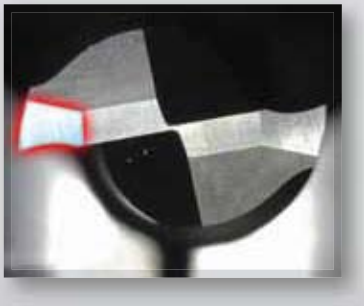
Example:
An MA1-201-12 necked with 25mm Reach is Part Number:

▶ **MA1-201-12-N 25mm**
See price sheet for pricing

A tool necked with Feather Blend is a reduction in the tool diameter after the cutting length so the tool can cut deeper than its cutting length. It features a smooth transition from the cutting diameter to the neck diameter. Feather Blend reduces staircase marks and stress risers in parts and helps to maintain the strongest tool possible.

Swirl Marks?

Wiper Flats



A Wiper Flat is a small flat on the end of the tool where there is no concavity. It is used to minimize swirl marks on the floor of parts.

Pros: A Wiper Flat gives better floor finishes.
Cons: Wiper Flats will increase surface contact, not for use on thin floors.

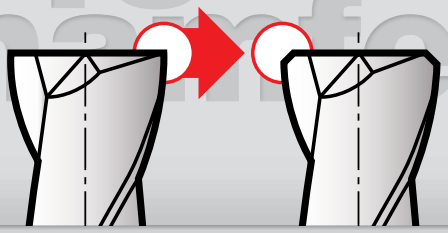
To order a RobbJack tool with a **Wiper Flats**, use the existing *Part Number*, and add *-WF.*

Example:
An MA1-201-12 with wiper flats is Part Number:

▶ **MA1-201-12-WF**
See price sheet for pricing

45° Chamfer?

45° Chamfer



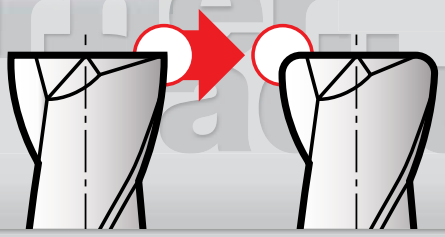
To order a RobbJack tool with a **45° Chamfer**, use the existing *Part Number*, add *-CH* and amount of *Chamfer.*

Example:
MA1-201-12 with a 1mm 45° chamfer is Part Number:

▶ **MA1-201-12-CH 1mm**
See price sheet for pricing

End Mill Modifications

Corner Radius

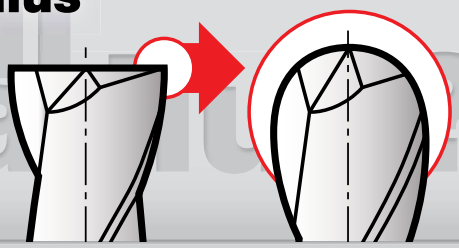


To order a RobbJack tool with a **Corner Radius**, use the existing *Part Number*, add *-CR* and desired *Radius Size.*

Example:
An MA1-201-12 with a 1mm corner radius is Part Number:

▶ **MA1-201-12-CR 1mm**
See price sheet for pricing

Full Radius



To order a RobbJack tool with a **Full Radius** (or Ball End), use the existing *Part Number*, and add *-BN.*

Example:
An MA1-201-12 with a Full Radius (Ball End) is Part Number:

▶ **MA1-201-12-BN**
See price sheet for pricing

Weldon Flats

To order RobbJack tools with **Weldon Flats**, use the existing *Part Number*, and add *-FL.*

Example:
An MA1-201-12 with a Weldon Flat is Part Number:

▶ **MA1-201-12-FL**
No Charge

Regrinding

Let RobbJack recondition your used cutting tools and get RobbJack quality grinds and specifications on tools with any brand name!

Wouldn't it be nice if resharpened tools performed as well as new? Let us regrind yours the way we do ours and it can happen. We will add our grinds and finishes to any tools, regardless of manufacturer. Our prices are competitive, our delivery is usually the best in the industry, and we do our own, in-house PVD coatings and re-coatings.

GO GREEN

Try RobbJack's in-house carbide recycling program.

Many times the tools we receive for regrinding are too badly damaged to justify reconditioning. For all tools that we determine fall into this category, **we will either:**

▶ ***Return the tools to you marked "No Work Done" (NWD)***

OR…

▶ ***Put the tools, as scrap, into our recycling program and send you a certificate for a 10% discount on your next regrinding order.***

We will offer you this choice every time we receive tools that we determine are NWD. We recycle scrap tools to carbide re-manufacturers, who crush the tools and use the recycled shards and powder to make shredders or non-critical carbide grades.

YOUR OWN COATING

Get state-of-the art coating technology without delivery hassles.

RobbJack owns and operates their PVD coating facility in Lincoln, CA under the tenets of ISO9000 certification. Our factory-trained technicians take the same special care with your tools as with ours, assuring you of the best PVD coatings available. We do this as part of our process, reducing or eliminating delays in delivery.

Download our Regrinding Order Form at www.robbjack.com to get started. Email or Call us!

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TOOLS FOR Aluminum Applications

Aluminum Applications Tools

MA1 201	2 Flute		11
MA1 303	3 Flute		12
MFM 201/202/ 203/204/205	2 Flute (Short to Long Reach)	NEW Square End & Ball End	13
MFM 301/302/303/ 304/305	3 Flute (Short to Long Reach)	NEW Square End & Ball End	16
MS1 201/301/401	2, 3 and 4 Flute		19
MC1 201/301	2 and 3 Flute		20
MPM	1 Flute Upshear	NEW	21
MSB 201 **MB** 203	2 Flute Ball End (See Multiple Applications)		61
MNR 204/303	2 and 3 Flute (See Multiple Applications)		63
MINIATURES	(See Miniatures Applications)		53

Metric 2 Flute High Performance Tools for Aluminum MA1

Characteristics: Square End, Corner Break, 2 Flute, 30° Helix

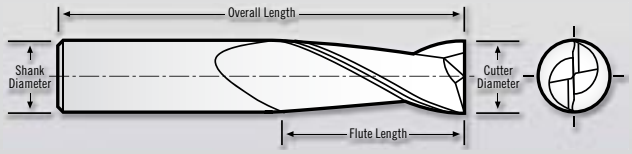
Applications: Slotting, Side Milling, Helical Interpolation, Ramping, High Performance, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials: Aluminum, Copper, Magnesium, Plastics, Brass

Coatings: Diamond-Like Carbon (DLC)

Available with **Coolant Grooves**

See Page 6



MA1 Series Tolerances:
Cutting Dia. = –0,025/–0,038mm
Shank Dia. = –0,002/–0,005mm
Flute Length (<10D) = +0,75/–0,000mm
(>10D) = +1,5/–0,000mm
OAL = +/–1,000mm

Available with **Wiper Flats**

See Page 7

SHARP
NO CHATTER REDUCTION
Reduces Required KW/Horsepower
Will Remove More Material Than Other Tools

MA1-201 Metric 2 Flute Stub Length

Cutting Diameter	Shank Diameter	Flute Length	Corner Chamfer	Overall Length	Tool Number Uncoated	Tool Number DLC Coated
3mm	3mm	4,5mm	0,12mm	38mm	MA1-201-03	MA1-201-03 **DLC**
4mm	4mm	6mm	0,12mm	50mm	MA1-201-04	MA1-201-04 **DLC**
5mm	5mm	7,5mm	0,12mm	50mm	MA1-201-05	MA1-201-05 **DLC**
6mm	6mm	9mm	0,12mm	50mm	MA1-201-06	MA1-201-06 **DLC**
8mm	8mm	12mm	0,25mm	63mm	MA1-201-08	MA1-201-08 **DLC**
10mm	10mm	15mm	0,25mm	72mm	MA1-201-10	MA1-201-10 **DLC**
12mm	12mm	18mm	0,25mm	83mm	MA1-201-12	MA1-201-12 **DLC**
16mm	16mm	24mm	0,25mm	92mm	MA1-201-16	MA1-201-16 **DLC**
20mm	20mm	30mm	0,3mm	104mm	MA1-201-20	MA1-201-20 **DLC**

MA1-201 SPEED & FEED

Tool Diameter	Aluminum 6061-T6, 7075, 2024		Brass		Copper		Plastic		Magnesium	
	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth
3mm	Max	0,077mm	24300	0,038mm	19400	0,038mm	42000	0,077mm	Max	0,077mm
4mm	Max	0,102mm	18200	0,051mm	14600	0,051mm	31500	0,102mm	Max	0,102mm
5mm	Max	0,128mm	14600	0,064mm	11600	0,064mm	25200	0,128mm	Max	0,128mm
6mm	Max	0,154mm	12100	0,077mm	9700	0,077mm	21000	0,154mm	Max	0,154mm
8mm	Max	0,205mm	9100	0,102mm	7300	0,102mm	15800	0,205mm	Max	0,205mm
10mm	Max	0,256mm	7300	0,128mm	5800	0,128mm	12600	0,256mm	Max	0,256mm
12mm	Max	0,307mm	6100	0,154mm	4900	0,154mm	10500	0,307mm	Max	0,307mm
16mm	Max	0,410mm	4500	0,205mm	3600	0,205mm	7900	0,410mm	Max	0,410mm
20mm	Max	0,512mm	3600	0,256mm	2900	0,256mm	6300	0,512mm	Max	0,512mm

Axial depth of cut up to 1 × diameter of the tool

MA1 Metric 3 Flute High Performance Tools for Aluminum

Characteristics: Square End, Corner Break, 3 Flute, 35° Helix, Mirror Edge, Polished

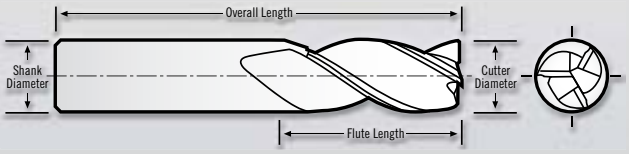
Applications: Slotting, Side Milling, Helical Interpolation, Ramping (Chatter Reduction), High Performance, Roughing, Semi-Finishing, Finishing, Wet

Materials: Aluminum, Copper, Magnesium, Brass

Coatings: Diamond-Like Carbon (DLC)

MA1-303 Series: **Polished & Mirror Edge for Chatter Reduction**

See RobbJack Videos at *www.robbjack.com/videos*



MA1 Series Tolerances:
Cutting Dia. = –0,025/–0,038mm
Shank Dia. = –0,002/–0,005mm
Flute Length (<10D) = +0,750/–0,000mm
(>10D) = +1,500/–0,000mm
OAL = +/–1,000mm

MA1-303 Metric 3 Flute Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Corner Chamfer	Overall Length	Tool Number Uncoated	Tool Number DLC Coated
3mm	3mm	8mm	0,1mm	38mm	MA1-303-03	MA1-303-03 **DLC**
4mm	4mm	12mm	0,1mm	50mm	MA1-303-04	MA1-303-04 **DLC**
5mm	5mm	14mm	0,1mm	50mm	MA1-303-05	MA1-303-05 **DLC**
6mm	6mm	15mm	0,1mm	63mm	MA1-303-06	MA1-303-06 **DLC**
8mm	8mm	20mm	0,1mm	63mm	MA1-303-08	MA1-303-08 **DLC**
10mm	10mm	22mm	0,1mm	72mm	MA1-303-10	MA1-303-10 **DLC**
12mm	12mm	26mm	0,2mm	83mm	MA1-303-12	MA1-303-12 **DLC**
16mm	16mm	33mm	0,2mm	92mm	MA1-303-16	MA1-303-16 **DLC**
20mm	20mm	42mm	0,2mm	104mm	MA1-303-20	MA1-303-20 **DLC**

MA1-303 SPEED & FEED

Tool Diameter	Aluminum 6061-T6		Aluminum 6061-T3		Aluminum 7075		Aluminum 2024	
	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth
3mm	Max	0,048mm	Max	0,042mm	Max	0,048mm	Max	0,048mm
4mm	Max	0,064mm	Max	0,056mm	Max	0,064mm	Max	0,064mm
5mm	Max	0,080mm	Max	0,070mm	Max	0,080mm	Max	0,080mm
6mm	Max	0,096mm	Max	0,084mm	Max	0,096mm	Max	0,096mm
8mm	Max	0,128mm	Max	0,112mm	Max	0,128mm	Max	0,128mm
10mm	Max	0,160mm	Max	0,140mm	Max	0,160mm	Max	0,160mm
12mm	Max	0,192mm	Max	0,168mm	Max	0,192mm	Max	0,192mm
16mm	Max	0,256mm	Max	0,224mm	Max	0,256mm	Max	0,256mm
20mm	Max	0,320mm	Max	0,280mm	Max	0,320mm	Max	0,320mm

Axial depth of cut up to 1.5 × diameter of the tool with 50% radial step over.

Metric 2 Flute High Performance Tools for Aluminum MFM

Characteristics: Corner Radius, 2 Flute, 40° Helix, Feather Blend, Necked, Mirror Edge

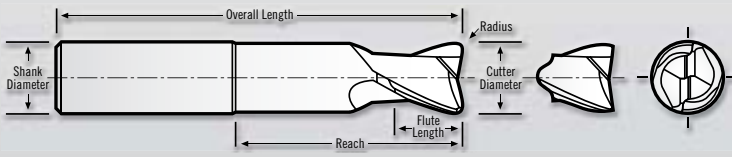
Applications: Slotting, Side Milling, Helical Interpolation, Ramping, High Performance, (Chatter Reduction) 3-D, Roughing, Semi-Finishing, Finishing, Wet

Materials: Aluminum, Copper, Magnesium, Brass

Coatings: Diamond-Like Carbon (DLC)

MFM Series comes with **Mirror Edge for Chatter Reduction**

Eliminate Tool Pull Out!
6–8mm h5 Shank Tolerance
10–25mm h4 Shank Tolerance
Tightest in the Industry!



MFM Series Tolerances:
Cutting Dia. = –0,025/–0,038 mm
Shank Dia. = –0,002/–0,005 mm
Flute Length (<10D) = +0,750/–0,000 mm
(>10D) = +1,500/–0,000 mm
OAL = +/– 1,000 mm

NEW Square End & Ball End Available

MFM 2 Flute Metric (Short to Long Reach) METRIC

	Cutting Diameter	Shank Diameter	Flute Length	Corner Radius	Reach Length*	Overall Length	Tool Number Uncoated	Tool Number DLC Coated	
S	6mm	6mm	7mm	Sq. End	12mm	75mm	MFM-201-06	MFM-201-06 **DLC**	6 mm DIAMETER
	6mm	6mm	7mm	0,5mm	12mm	75mm	MFM-201-06-050	MFM-201-06-050 **DLC**	
	6mm	6mm	7mm	1,0mm	12mm	75mm	MFM-201-06-100	MFM-201-06-100 **DLC**	
	6mm	6mm	7mm	Ball End	12mm	75mm	MFM-201-06-BN	MFM-201-06-BN **DLC**	
M	6mm	6mm	7mm	Sq. End	18mm	75mm	MFM-202-06	MFM-202-06 **DLC**	
	6mm	6mm	7mm	0,5mm	18mm	75mm	MFM-202-06-050	MFM-202-06-050 **DLC**	
	6mm	6mm	7mm	1,0mm	18mm	75mm	MFM-202-06-100	MFM-202-06-100 **DLC**	
	6mm	6mm	7mm	Ball End	18mm	75mm	MFM-202-06-BN	MFM-202-06-BN **DLC**	
L	6mm	6mm	7mm	Sq. End	24mm	75mm	MFM-203-06	MFM-203-06 **DLC**	
	6mm	6mm	7mm	0,5mm	24mm	75mm	MFM-203-06-050	MFM-203-06-050 **DLC**	
	6mm	6mm	7mm	1,0mm	24mm	75mm	MFM-203-06-100	MFM-203-06-100 **DLC**	
	6mm	6mm	7mm	Ball End	24mm	75mm	MFM-203-06-BN	MFM-203-06-BN **DLC**	
XL	6mm	6mm	7mm	Sq. End	30mm	75mm	MFM-204-06	MFM-204-06 **DLC**	
	6mm	6mm	7mm	0,5mm	30mm	75mm	MFM-204-06-050	MFM-204-06-050 **DLC**	
	6mm	6mm	7mm	1,0mm	30mm	75mm	MFM-204-06-100	MFM-204-06-100 **DLC**	
	6mm	6mm	7mm	Ball End	30mm	75mm	MFM-204-06-BN	MFM-204-06-BN **DLC**	
SHORT	8mm	8mm	9mm	Sq. End	16mm	80mm	MFM-201-08	MFM-201-08 **DLC**	8 mm DIAMETER
	8mm	8mm	9mm	1,0mm	16mm	80mm	MFM-201-08-100	MFM-201-08-100 **DLC**	
	8mm	8mm	9mm	2,0mm	16mm	80mm	MFM-201-08-200	MFM-201-08-200 **DLC**	
	8mm	8mm	9mm	2,5mm	16mm	80mm	MFM-201-08-250	MFM-201-08-250 **DLC**	
	8mm	8mm	9mm	Ball End	16mm	80mm	MFM-201-08-BN	MFM-201-08-BN **DLC**	
MED	8mm	8mm	9mm	Sq. End	24mm	80mm	MFM-202-08	MFM-202-08 **DLC**	
	8mm	8mm	9mm	1,0mm	24mm	80mm	MFM-202-08-100	MFM-202-08-100 **DLC**	
	8mm	8mm	9mm	2,0mm	24mm	80mm	MFM-202-08-200	MFM-202-08-200 **DLC**	
	8mm	8mm	9mm	2,5mm	24mm	80mm	MFM-202-08-250	MFM-202-08-250 **DLC**	
	8mm	8mm	9mm	Ball End	24mm	80mm	MFM-202-08-BN	MFM-202-08-BN **DLC**	
LONG	8mm	8mm	9mm	Sq. End	32mm	80mm	MFM-203-08	MFM-203-08 **DLC**	
	8mm	8mm	9mm	1,0mm	32mm	80mm	MFM-203-08-100	MFM-203-08-100 **DLC**	
	8mm	8mm	9mm	2,0mm	32mm	80mm	MFM-203-08-200	MFM-203-08-200 **DLC**	
	8mm	8mm	9mm	2,5mm	32mm	80mm	MFM-203-08-250	MFM-203-08-250 **DLC**	
	8mm	8mm	9mm	Ball End	32mm	80mm	MFM-203-08-BN	MFM-203-08-BN **DLC**	
X LONG	8mm	8mm	9mm	Sq. End	40mm	80mm	MFM-204-08	MFM-204-08 **DLC**	
	8mm	8mm	9mm	1,0mm	40mm	80mm	MFM-204-08-100	MFM-204-08-100 **DLC**	
	8mm	8mm	9mm	2,0mm	40mm	80mm	MFM-204-08-200	MFM-204-08-200 **DLC**	
	8mm	8mm	9mm	2,5mm	40mm	80mm	MFM-204-08-250	MFM-204-08-250 **DLC**	
	8mm	8mm	9mm	Ball End	40mm	80mm	MFM-204-08-BN	MFM-204-08-BN **DLC**	

*Other Reach Lengths available upon request.

CONTINUED ON NEXT PAGE—

MFM Metric 2 Flute High Performance Tools for Aluminum

NEW Square End & Ball End Available

MFM 2 Flute Metric (Short to Long Reach) METRIC

—CONTINUED FROM PREVIOUS

	Cutting Diameter	Shank Diameter	Flute Length	Corner Radius	Reach Length*	Overall Length	Tool Number Uncoated	Tool Number DLC Coated	
S	10mm	10mm	11mm	Sq. End	20mm	100mm	MFM-201-10	MFM-201-10 **DLC**	10 mm DIAMETER
	10mm	10mm	11mm	1,5mm	20mm	100mm	MFM-201-10-150	MFM-201-10-150 **DLC**	
	10mm	10mm	11mm	2,5mm	20mm	100mm	MFM-201-10-250	MFM-201-10-250 **DLC**	
	10mm	10mm	11mm	Ball End	20mm	100mm	MFM-201-10-BN	MFM-201-10-BN **DLC**	
M	10mm	10mm	11mm	Sq. End	30mm	100mm	MFM-202-10	MFM-202-10 **DLC**	
	10mm	10mm	11mm	1,5mm	30mm	100mm	MFM-202-10-150	MFM-202-10-150 **DLC**	
	10mm	10mm	11mm	2,5mm	30mm	100mm	MFM-202-10-250	MFM-202-10-250 **DLC**	
	10mm	10mm	11mm	Ball End	30mm	100mm	MFM-202-10-BN	MFM-202-10-BN **DLC**	
L	10mm	10mm	11mm	Sq. End	40mm	100mm	MFM-203-10	MFM-203-10 **DLC**	
	10mm	10mm	11mm	1,5mm	40mm	100mm	MFM-203-10-150	MFM-203-10-150 **DLC**	
	10mm	10mm	11mm	2,5mm	40mm	100mm	MFM-203-10-250	MFM-203-10-250 **DLC**	
	10mm	10mm	11mm	Ball End	40mm	100mm	MFM-203-10-BN	MFM-203-10-BN **DLC**	
XL	10mm	10mm	11mm	Sq. End	50mm	100mm	MFM-204-10	MFM-204-10 **DLC**	
	10mm	10mm	11mm	1,5mm	50mm	100mm	MFM-204-10-150	MFM-204-10-150 **DLC**	
	10mm	10mm	11mm	2,5mm	50mm	100mm	MFM-204-10-250	MFM-204-10-250 **DLC**	
	10mm	10mm	11mm	Ball End	50mm	100mm	MFM-204-10-BN	MFM-204-10-BN **DLC**	
S	12mm	12mm	13mm	Sq. End	24mm	110mm	MFM-201-12	MFM-201-12 **DLC**	12 mm DIAMETER
	12mm	12mm	13mm	1,5mm	24mm	110mm	MFM-201-12-150	MFM-201-12-150 **DLC**	
	12mm	12mm	13mm	2,5mm	24mm	110mm	MFM-201-12-250	MFM-201-12-250 **DLC**	
	12mm	12mm	13mm	4,0mm	24mm	110mm	MFM-201-12-400	MFM-201-12-400 **DLC**	
	12mm	12mm	13mm	Ball End	24mm	110mm	MFM-201-12-BN	MFM-201-12-BN **DLC**	
M	12mm	12mm	13mm	Sq. End	36mm	110mm	MFM-202-12	MFM-202-12 **DLC**	
	12mm	12mm	13mm	1,5mm	36mm	110mm	MFM-202-12-150	MFM-202-12-150 **DLC**	
	12mm	12mm	13mm	2,5mm	36mm	110mm	MFM-202-12-250	MFM-202-12-250 **DLC**	
	12mm	12mm	13mm	4,0mm	36mm	110mm	MFM-202-12-400	MFM-202-12-400 **DLC**	
	12mm	12mm	13mm	Ball End	36mm	110mm	MFM-202-12-BN	MFM-202-12-BN **DLC**	
L	12mm	12mm	13mm	Sq. End	48mm	110mm	MFM-203-12	MFM-203-12 **DLC**	
	12mm	12mm	13mm	1,5mm	48mm	110mm	MFM-203-12-150	MFM-203-12-150 **DLC**	
	12mm	12mm	13mm	2,5mm	48mm	110mm	MFM-203-12-250	MFM-203-12-250 **DLC**	
	12mm	12mm	13mm	4,0mm	48mm	110mm	MFM-203-12-400	MFM-203-12-400 **DLC**	
	12mm	12mm	13mm	Ball End	48mm	110mm	MFM-203-12-BN	MFM-203-12-BN **DLC**	
XL	12mm	12mm	13mm	Sq. End	60mm	110mm	MFM-204-12	MFM-204-12 **DLC**	
	12mm	12mm	13mm	1,5mm	60mm	110mm	MFM-204-12-150	MFM-204-12-150 **DLC**	
	12mm	12mm	13mm	2,5mm	60mm	110mm	MFM-204-12-250	MFM-204-12-250 **DLC**	
	12mm	12mm	13mm	4,0mm	60mm	110mm	MFM-204-12-400	MFM-204-12-400 **DLC**	
	12mm	12mm	13mm	Ball End	60mm	110mm	MFM-204-12-BN	MFM-204-12-BN **DLC**	
SHORT	16mm	16mm	17mm	Sq. End	32mm	130mm	MFM-201-16	MFM-201-16 **DLC**	16 mm DIAMETER
	16mm	16mm	17mm	2,5mm	32mm	130mm	MFM-201-16-200	MFM-201-16-200 **DLC**	
	16mm	16mm	17mm	2,5mm	32mm	130mm	MFM-201-16-250	MFM-201-16-250 **DLC**	
	16mm	16mm	17mm	3,0mm	32mm	130mm	MFM-201-16-300	MFM-201-16-300 **DLC**	
	16mm	16mm	17mm	4,0mm	32mm	130mm	MFM-201-16-400	MFM-201-16-400 **DLC**	
	16mm	16mm	17mm	Ball End	32mm	130mm	MFM-201-16-BN	MFM-201-16-BN **DLC**	
MEDIUM	16mm	16mm	17mm	Sq. End	48mm	130mm	MFM-202-16	MFM-202-16 **DLC**	
	16mm	16mm	17mm	2,5mm	48mm	130mm	MFM-202-16-200	MFM-202-16-200 **DLC**	
	16mm	16mm	17mm	2,5mm	48mm	130mm	MFM-202-16-250	MFM-202-16-250 **DLC**	
	16mm	16mm	17mm	3,0mm	48mm	130mm	MFM-202-16-300	MFM-202-16-300 **DLC**	
	16mm	16mm	17mm	4,0mm	48mm	130mm	MFM-202-16-400	MFM-202-16-400 **DLC**	
	16mm	16mm	17mm	Ball End	48mm	130mm	MFM-202-16-BN	MFM-202-16-BN **DLC**	
LONG	16mm	16mm	17mm	Sq. End	64mm	130mm	MFM-203-16	MFM-203-16 **DLC**	
	16mm	16mm	17mm	2,5mm	64mm	130mm	MFM-203-16-200	MFM-203-16-200 **DLC**	
	16mm	16mm	17mm	2,5mm	64mm	130mm	MFM-203-16-250	MFM-203-16-250 **DLC**	
	16mm	16mm	17mm	3,0mm	64mm	130mm	MFM-203-16-300	MFM-203-16-300 **DLC**	
	16mm	16mm	17mm	4,0mm	64mm	130mm	MFM-203-16-400	MFM-203-16-400 **DLC**	
	16mm	16mm	17mm	Ball End	64mm	130mm	MFM-203-16-BN	MFM-203-16-BN **DLC**	

**Other Reach Lengths available upon request.*

CONTINUED ON NEXT PAGE—

Metric 2 Flute High Performance Tools for Aluminum MFM

MFM 2 Flute Metric (Short to Long Reach) METRIC

—CONTINUED FROM PREVIOUS

	Cutting Diameter	Shank Diameter	Flute Length	Corner Radius	Reach Length*	Overall Length	Tool Number Uncoated	Tool Number DLC Coated	
X LONG	16mm	16mm	17mm	Sq. End	80mm	130mm	MFM-204-16	MFM-204-16 **DLC**	16 mm DIAMETER
	16mm	16mm	17mm	2,0mm	80mm	130mm	MFM-204-16-200	MFM-204-16-200 **DLC**	
	16mm	16mm	17mm	2,5mm	80mm	130mm	MFM-204-16-250	MFM-204-16-250 **DLC**	
	16mm	16mm	17mm	3,0mm	80mm	130mm	MFM-204-16-300	MFM-204-16-300 **DLC**	
	16mm	16mm	17mm	4,0mm	80mm	130mm	MFM-204-16-400	MFM-204-16-400 **DLC**	
	16mm	16mm	17mm	Ball End	80mm	130mm	MFM-204-16-BN	MFM-204-16-BN **DLC**	
SHORT	20mm	20mm	21mm	Sq. End	40mm	150mm	MFM-201-20	MFM-201-20 **DLC**	20 mm DIAMETER
	20mm	20mm	21mm	2,0mm	40mm	150mm	MFM-201-20-200	MFM-201-20-200 **DLC**	
	20mm	20mm	21mm	2,5mm	40mm	150mm	MFM-201-20-250	MFM-201-20-250 **DLC**	
	20mm	20mm	21mm	3,0mm	40mm	150mm	MFM-201-20-300	MFM-201-20-300 **DLC**	
	20mm	20mm	21mm	4,0mm	40mm	150mm	MFM-201-20-400	MFM-201-20-400 **DLC**	
	20mm	20mm	21mm	Ball End	40mm	150mm	MFM-201-20-BN	MFM-201-20-BN **DLC**	
MEDIUM	20mm	20mm	21mm	Sq. End	60mm	150mm	MFM-202-20	MFM-202-20 **DLC**	
	20mm	20mm	21mm	2,0mm	60mm	150mm	MFM-202-20-200	MFM-202-20-200 **DLC**	
	20mm	20mm	21mm	2,5mm	60mm	150mm	MFM-202-20-250	MFM-202-20-250 **DLC**	
	20mm	20mm	21mm	3,0mm	60mm	150mm	MFM-202-20-300	MFM-202-20-300 **DLC**	
	20mm	20mm	21mm	4,0mm	60mm	150mm	MFM-202-20-400	MFM-202-20-400 **DLC**	
	20mm	20mm	21mm	Ball End	60mm	150mm	MFM-202-20-BN	MFM-202-20-BN **DLC**	
LONG	20mm	20mm	21mm	Sq. End	80mm	150mm	MFM-203-20	MFM-203-20 **DLC**	
	20mm	20mm	21mm	2,0mm	80mm	150mm	MFM-203-20-200	MFM-203-20-200 **DLC**	
	20mm	20mm	21mm	2,5mm	80mm	150mm	MFM-203-20-250	MFM-203-20-250 **DLC**	
	20mm	20mm	21mm	3,0mm	80mm	150mm	MFM-203-20-300	MFM-203-20-300 **DLC**	
	20mm	20mm	21mm	4,0mm	80mm	150mm	MFM-203-20-400	MFM-203-20-400 **DLC**	
	20mm	20mm	21mm	Ball End	80mm	150mm	MFM-203-20-BN	MFM-203-20-BN **DLC**	
X LONG	20mm	20mm	21mm	Sq. End	100mm	150mm	MFM-204-20	MFM-204-20 **DLC**	
	20mm	20mm	21mm	2,0mm	100mm	150mm	MFM-204-20-200	MFM-204-20-200 **DLC**	
	20mm	20mm	21mm	2,5mm	100mm	150mm	MFM-204-20-250	MFM-204-20-250 **DLC**	
	20mm	20mm	21mm	3,0mm	100mm	150mm	MFM-204-20-300	MFM-204-20-300 **DLC**	
	20mm	20mm	21mm	4,0mm	100mm	150mm	MFM-204-20-400	MFM-204-20-400 **DLC**	
	20mm	20mm	21mm	Ball End	100mm	150mm	MFM-204-20-BN	MFM-204-20-BN **DLC**	
S	25mm	25mm	26mm	Sq. End	50mm	165mm	MFM-201-25	MFM-201-25 **DLC**	25 mm DIAMETER
	25mm	25mm	26mm	2,5mm	50mm	165mm	MFM-201-25-250	MFM-201-25-250 **DLC**	
	25mm	25mm	26mm	4,0mm	50mm	165mm	MFM-201-25-400	MFM-201-25-400 **DLC**	
	25mm	25mm	26mm	Ball End	50mm	165mm	MFM-201-25-BN	MFM-201-25-BN **DLC**	
M	25mm	25mm	26mm	Sq. End	75mm	165mm	MFM-202-25	MFM-202-25 **DLC**	
	25mm	25mm	26mm	2,5mm	75mm	165mm	MFM-202-25-250	MFM-202-25-250 **DLC**	
	25mm	25mm	26mm	4,0mm	75mm	165mm	MFM-202-25-400	MFM-202-25-400 **DLC**	
	25mm	25mm	26mm	Ball End	75mm	165mm	MFM-202-25-BN	MFM-202-25-BN **DLC**	
XL	25mm	25mm	26mm	Sq. End	100mm	165mm	MFM-204-25	MFM-204-25 **DLC**	
	25mm	25mm	26mm	2,5mm	100mm	165mm	MFM-204-25-250	MFM-204-25-250 **DLC**	
	25mm	25mm	26mm	4,0mm	100mm	165mm	MFM-204-25-400	MFM-204-25-400 **DLC**	
	25mm	25mm	26mm	Ball End	100mm	165mm	MFM-204-25-BN	MFM-204-25-BN **DLC**	

MFM SERIES SPEED & FEED

Tool Diameter	Typical Z-Depth	Aluminum 6061-T6		Aluminum 6061-T3		Aluminum 7075		Aluminum 2024	
		RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth
6mm	4mm	Max	0,096mm	Max	0,084mm	Max	0,096mm	Max	0,096mm
8mm	4mm	Max	0,128mm	Max	0,112mm	Max	0,128mm	Max	0,128mm
10mm	5mm	Max	0,16mm	Max	0,14mm	Max	0,16mm	Max	0,16mm
12mm	5mm	Max	0,192mm	Max	0,168mm	Max	0,192mm	Max	0,192mm
16mm	5mm	Max	0,256mm	Max	0,224mm	Max	0,256mm	Max	0,256mm
20mm	6,5mm	Max	0,32mm	Max	0,28mm	Max	0,32mm	Max	0,32mm
25mm	6,5mm	Max	0,4mm	Max	0,35mm	Max	0,4mm	Max	0,4mm

Z-Depth of cut per pass should be deeper than the corner radius to help reduce chatter

MFM Metric 3 Flute High Performance Tools for Aluminum

Characteristics: Corner Radius, 3 Flute, 40° Helix, Feather Blend, Necked, Mirror Edge (Chatter Reduction)

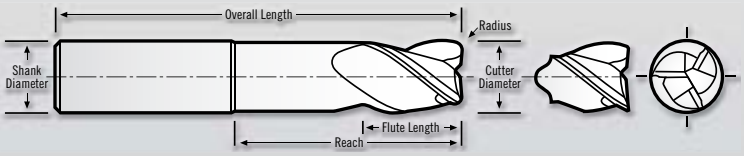
Applications: Slotting, Side Milling, Helical Interpolation, Ramping, High Performance, 3-D, Roughing, Semi-Finishing, Finishing, Wet

Materials: Aluminum, Copper, Magnesium, Brass

Coatings: Diamond-Like Carbon (DLC)

MFM Series comes with **Mirror Edge for Chatter Reduction**

Eliminate Tool Pull Out!
6–8mm h5 Shank Tolerance
10–25mm h4 Shank Tolerance
Tightest in the Industry!



MFM Series Tolerances:
Cutting Dia. = –0,025/–0,038 mm
Shank Dia. = –0,002/–0,005 mm
Flute Length (<10D) = +0,750/–,000 mm
(>10D) = +1,500/–,000 mm
OAL = +/– 1,000 mm

MFM 3 Flute Metric (Short to Long Reach)

	Cutting Diameter	Shank Diameter	Flute Length	Corner Radius	Reach Length*	Overall Length	Tool Number Uncoated	Tool Number DLC Coated	
S	6mm	6mm	7mm	Sq. End	12mm	75mm	MFM-301-06	MFM-301-06 **DLC**	6 mm DIAMETER
	6mm	6mm	7mm	0,5mm	12mm	75mm	MFM-301-06-050	MFM-301-06-050 **DLC**	
	6mm	6mm	7mm	1,0mm	12mm	75mm	MFM-301-06-100	MFM-301-06-100 **DLC**	
	6mm	6mm	7mm	Ball End	12mm	75mm	MFM-301-06-BN	MFM-301-06-BN **DLC**	
M	6mm	6mm	7mm	Sq. End	18mm	75mm	MFM-302-06	MFM-302-06 **DLC**	
	6mm	6mm	7mm	0,5mm	18mm	75mm	MFM-302-06-050	MFM-302-06-050 **DLC**	
	6mm	6mm	7mm	1,0mm	18mm	75mm	MFM-302-06-100	MFM-302-06-100 **DLC**	
	6mm	6mm	7mm	Ball End	18mm	75mm	MFM-302-06-BN	MFM-302-06-BN **DLC**	
L	6mm	6mm	7mm	Sq. End	24mm	75mm	MFM-303-06	MFM-303-06 **DLC**	
	6mm	6mm	7mm	0,5mm	24mm	75mm	MFM-303-06-050	MFM-303-06-050 **DLC**	
	6mm	6mm	7mm	1,0mm	24mm	75mm	MFM-303-06-100	MFM-303-06-100 **DLC**	
	6mm	6mm	7mm	Ball End	24mm	75mm	MFM-303-06-BN	MFM-303-06-BN **DLC**	
XL	6mm	6mm	7mm	Sq. End	30mm	75mm	MFM-304-06	MFM-304-06 **DLC**	
	6mm	6mm	7mm	0,5mm	30mm	75mm	MFM-304-06-050	MFM-304-06-050 **DLC**	
	6mm	6mm	7mm	1,0mm	30mm	75mm	MFM-304-06-100	MFM-304-06-100 **DLC**	
	6mm	6mm	7mm	Ball End	30mm	75mm	MFM-304-06-BN	MFM-304-06-BN **DLC**	
SHORT	8mm	8mm	9mm	Sq. End	16mm	80mm	MFM-301-08	MFM-301-08 **DLC**	8 mm DIAMETER
	8mm	8mm	9mm	1,0mm	16mm	80mm	MFM-301-08-100	MFM-301-08-100 **DLC**	
	8mm	8mm	9mm	2,0mm	16mm	80mm	MFM-301-08-200	MFM-301-08-200 **DLC**	
	8mm	8mm	9mm	2,5mm	16mm	80mm	MFM-301-08-250	MFM-301-08-250 **DLC**	
	8mm	8mm	9mm	Ball End	16mm	80mm	MFM-301-08-BN	MFM-301-08-BN **DLC**	
MED	8mm	8mm	9mm	Sq. End	24mm	80mm	MFM-302-08	MFM-302-08 **DLC**	
	8mm	8mm	9mm	1,0mm	24mm	80mm	MFM-302-08-100	MFM-302-08-100 **DLC**	
	8mm	8mm	9mm	2,0mm	24mm	80mm	MFM-302-08-200	MFM-302-08-200 **DLC**	
	8mm	8mm	9mm	2,5mm	24mm	80mm	MFM-302-08-250	MFM-302-08-250 **DLC**	
	8mm	8mm	9mm	Ball End	24mm	80mm	MFM-302-08-BN	MFM-302-08-BN **DLC**	
LONG	8mm	8mm	9mm	Sq. End	32mm	80mm	MFM-303-08	MFM-303-08 **DLC**	
	8mm	8mm	9mm	1,0mm	32mm	80mm	MFM-303-08-100	MFM-303-08-100 **DLC**	
	8mm	8mm	9mm	2,0mm	32mm	80mm	MFM-303-08-200	MFM-303-08-200 **DLC**	
	8mm	8mm	9mm	2,5mm	32mm	80mm	MFM-303-08-250	MFM-303-08-250 **DLC**	
	8mm	8mm	9mm	Ball End	32mm	80mm	MFM-303-08-BN	MFM-303-08-BN **DLC**	
X LONG	8mm	8mm	9mm	Sq. End	40mm	80mm	MFM-304-08	MFM-304-08 **DLC**	
	8mm	8mm	9mm	1,0mm	40mm	80mm	MFM-304-08-100	MFM-304-08-100 **DLC**	
	8mm	8mm	9mm	2,0mm	40mm	80mm	MFM-304-08-200	MFM-304-08-200 **DLC**	
	8mm	8mm	9mm	2,5mm	40mm	80mm	MFM-304-08-250	MFM-304-08-250 **DLC**	
	8mm	8mm	9mm	Ball End	40mm	80mm	MFM-304-08-BN	MFM-304-08-BN **DLC**	

*Other Reach Lengths available upon request.

CONTINUED ON NEXT PAGE—

Metric 3 Flute High Performance Tools for Aluminum MFM

MFM 3 Flute (Short to Long Reach) —CONTINUED FROM PREVIOUS

	Cutting Diameter	Shank Diameter	Flute Length	Corner Radius	Reach Length*	Overall Length	Tool Number Uncoated	Tool Number DLC Coated	
S	10mm	10mm	11mm	Sq. End	20mm		MFM-301-10	MFM-301-10 **DLC**	10 mm DIAMETER
	10mm	10mm	11mm	1,5mm	20mm	100mm	MFM-301-10-150	MFM-301-10-150 **DLC**	
	10mm	10mm	11mm	2,5mm	20mm	100mm	MFM-301-10-250	MFM-301-10-250 **DLC**	
	10mm	10mm	11mm	Ball End	20mm	100mm	MFM-301-10-BN	MFM-301-10-BN **DLC**	
M	10mm	10mm	11mm	Sq. End	30mm	100mm	MFM-302-10	MFM-302-10 **DLC**	
	10mm	10mm	11mm	1,5mm	30mm	100mm	MFM-302-10-150	MFM-302-10-150 **DLC**	
	10mm	10mm	11mm	2,5mm	30mm	100mm	MFM-302-10-250	MFM-302-10-250 **DLC**	
	10mm	10mm	11mm	Ball End	30mm	100mm	MFM-302-10-BN	MFM-302-10-BN **DLC**	
L	10mm	10mm	11mm	Sq. End	40mm	100mm	MFM-303-10	MFM-303-10 **DLC**	
	10mm	10mm	11mm	1,5mm	40mm	100mm	MFM-303-10-150	MFM-303-10-150 **DLC**	
	10mm	10mm	11mm	2,5mm	40mm	100mm	MFM-303-10-250	MFM-303-10-250 **DLC**	
	10mm	10mm	11mm	Ball End	40mm	100mm	MFM-303-10-BN	MFM-303-10-BN **DLC**	
XL	10mm	10mm	11mm	Sq. End	50mm	100mm	MFM-304-10	MFM-304-10 **DLC**	
	10mm	10mm	11mm	1,5mm	50mm	100mm	MFM-304-10-150	MFM-304-10-150 **DLC**	
	10mm	10mm	11mm	2,5mm	50mm	100mm	MFM-204-10-250	MFM-304-10-250 **DLC**	
	10mm	10mm	11mm	Ball End	50mm	100mm	MFM-304-10-BN	MFM-304-10-BN **DLC**	
S	12mm	12mm	13mm	Sq. End	24mm	110mm	MFM-301-12	MFM-301-12 **DLC**	12 mm DIAMETER
	12mm	12mm	13mm	1,5mm	24mm	110mm	MFM-301-12-150	MFM-301-12-150 **DLC**	
	12mm	12mm	13mm	2,5mm	24mm	110mm	MFM-301-12-250	MFM-301-12-250 **DLC**	
	12mm	12mm	13mm	4,0mm	24mm	110mm	MFM-301-12-400	MFM-301-12-400 **DLC**	
	12mm	12mm	13mm	Ball End	24mm	110mm	MFM-301-12-BN	MFM-301-12-BN **DLC**	
M	12mm	12mm	13mm	Sq. End	36mm	110mm	MFM-302-12	MFM-302-12 **DLC**	
	12mm	12mm	13mm	1,5mm	36mm	110mm	MFM-302-12-150	MFM-302-12-150 **DLC**	
	12mm	12mm	13mm	2,5mm	36mm	110mm	MFM-302-12-250	MFM-302-12-250 **DLC**	
	12mm	12mm	13mm	4,0mm	36mm	110mm	MFM-302-12-400	MFM-302-12-400 **DLC**	
	12mm	12mm	13mm	Ball End	36mm	110mm	MFM-302-12-BN	MFM-302-12-BN **DLC**	
L	12mm	12mm	13mm	Sq. End	48mm	110mm	MFM-303-12	MFM-303-12 **DLC**	
	12mm	12mm	13mm	1,5mm	48mm	110mm	MFM-303-12-150	MFM-303-12-150 **DLC**	
	12mm	12mm	13mm	2,5mm	48mm	110mm	MFM-303-12-250	MFM-303-12-250 **DLC**	
	12mm	12mm	13mm	4,0mm	48mm	110mm	MFM-303-12-400	MFM-303-12-400 **DLC**	
	12mm	12mm	13mm	Ball End	48mm	110mm	MFM-303-12-BN	MFM-303-12-BN **DLC**	
XL	12mm	12mm	13mm	Sq. End	60mm	110mm	MFM-304-12	MFM-304-12 **DLC**	
	12mm	12mm	13mm	1,5mm	60mm	110mm	MFM-304-12-150	MFM-304-12-150 **DLC**	
	12mm	12mm	13mm	2,5mm	60mm	110mm	MFM-304-12-250	MFM-304-12-250 **DLC**	
	12mm	12mm	13mm	4,0mm	60mm	110mm	MFM-304-12-400	MFM-304-12-400 **DLC**	
	12mm	12mm	13mm	Ball End	60mm	110mm	MFM-304-12-BN	MFM-304-12-BN **DLC**	
SHORT	16mm	16mm	17mm	Sq. End	32mm	130mm	MFM-301-16	MFM-301-16 **DLC**	16 mm DIAMETER
	16mm	16mm	17mm	2,0mm	32mm	130mm	MFM-301-16-200	MFM-301-16-200 **DLC**	
	16mm	16mm	17mm	2,5mm	32mm	130mm	MFM-301-16-250	MFM-301-16-250 **DLC**	
	16mm	16mm	17mm	3,0mm	32mm	130mm	MFM-301-16-300	MFM-301-16-300 **DLC**	
	16mm	16mm	17mm	4,0mm	32mm	130mm	MFM-301-16-400	MFM-301-16-400 **DLC**	
	16mm	16mm	17mm	Ball End	32mm	130mm	MFM-301-16-BN	MFM-301-16-BN **DLC**	
MEDIUM	16mm	16mm	17mm	Sq. End	48mm	130mm	MFM-302-16	MFM-302-16 **DLC**	
	16mm	16mm	17mm	2,0mm	48mm	130mm	MFM-302-16-200	MFM-302-16-200 **DLC**	
	16mm	16mm	17mm	2,5mm	48mm	130mm	MFM-302-16-250	MFM-302-16-250 **DLC**	
	16mm	16mm	17mm	3,0mm	48mm	130mm	MFM-302-16-300	MFM-302-16-300 **DLC**	
	16mm	16mm	17mm	4,0mm	48mm	130mm	MFM-302-16-400	MFM-302-16-400 **DLC**	
	16mm	16mm	17mm	Ball End	48mm	130mm	MFM-302-16-BN	MFM-302-16-BN **DLC**	
LONG	16mm	16mm	17mm	Sq. End	64mm	130mm	MFM-303-16	MFM-303-16DLC	
	16mm	16mm	17mm	2,0mm	64mm	130mm	MFM-303-16-200	MFM-303-16-200 **DLC**	
	16mm	16mm	17mm	2,5mm	64mm	130mm	MFM-303-16-250	MFM-303-16-250 **DLC**	
	16mm	16mm	17mm	3,0mm	64mm	130mm	MFM-303-16-300	MFM-303-16-300 **DLC**	
	16mm	16mm	17mm	4,0mm	64mm	130mm	MFM-303-16-400	MFM-303-16-400 **DLC**	
	16mm	16mm	17mm	Ball End	64mm	130mm	MFM-303-16-BN	MFM-303-16-BN **DLC**	
X LONG	16mm	16mm	17mm	Sq. End	80mm	130mm	MFM-304-16	MFM-304-16 **DLC**	
	16mm	16mm	17mm	2,0mm	80mm	130mm	MFM-304-16-200	MFM-304-16-200 **DLC**	
	16mm	16mm	17mm	2,5mm	80mm	130mm	MFM-304-16-250	MFM-304-16-250 **DLC**	
	16mm	16mm	17mm	3,0mm	80mm	130mm	MFM-304-16-300	MFM-304-16-300 **DLC**	
	16mm	16mm	17mm	4,0mm	80mm	130mm	MFM-304-16-400	MFM-304-16-400 **DLC**	
	16mm	16mm	17mm	Ball End	80mm	130mm	MFM-304-16-BN	MFM-304-16-BN **DLC**	

**Other Reach Lengths available upon request.*

CONTINUED ON NEXT PAGE—

MFM Metric 3 Flute High Performance Tools for Aluminum

MFM 3 Flute (Short to Long Reach) —CONTINUED FROM PREVIOUS

	Cutting Diameter	Shank Diameter	Flute Length	Corner Radius	Reach Length*	Overall Length	Tool Number Uncoated	Tool Number DLC Coated	
SHORT	20mm	20mm	21mm	Sq. End	40mm	150mm	MFM-301-20	MFM-301-20 **DLC**	20 mm DIAMETER
	20mm	20mm	21mm	2,0mm	40mm	150mm	MFM-301-20-200	MFM-301-20-200 **DLC**	
	20mm	20mm	21mm	2,5mm	40mm	150mm	MFM-301-20-250	MFM-301-20-250 **DLC**	
	20mm	20mm	21mm	3,0mm	40mm	150mm	MFM-301-20-300	MFM-301-20-300 **DLC**	
	20mm	20mm	21mm	4,0mm	40mm	150mm	MFM-301-20-400	MFM-301-20-400 **DLC**	
	20mm	20mm	21mm	Ball End	40mm	150mm	MFM-301-20-BN	MFM-301-20-BN **DLC**	
MEDIUM	20mm	20mm	21mm	Sq. End	60mm	150mm	MFM-302-20	MFM-302-20 **DLC**	
	20mm	20mm	21mm	2,0mm	60mm	150mm	MFM-302-20-200	MFM-302-20-200 **DLC**	
	20mm	20mm	21mm	2,5mm	60mm	150mm	MFM-302-20-250	MFM-302-20-250 **DLC**	
	20mm	20mm	21mm	3,0mm	60mm	150mm	MFM-302-20-300	MFM-302-20-300 **DLC**	
	20mm	20mm	21mm	4,0mm	60mm	150mm	MFM-302-20-400	MFM-302-20-400 **DLC**	
	20mm	20mm	21mm	Ball End	60mm	150mm	MFM-302-20-BN	MFM-302-20-BN **DLC**	
LONG	20mm	20mm	21mm	Sq. End	80mm	150mm	MFM-303-20	MFM-303-20 **DLC**	
	20mm	20mm	21mm	2,0mm	80mm	150mm	MFM-303-20-200	MFM-303-20-200 **DLC**	
	20mm	20mm	21mm	2,5mm	80mm	150mm	MFM-303-20-250	MFM-303-20-250 **DLC**	
	20mm	20mm	21mm	3,0mm	80mm	150mm	MFM-303-20-300	MFM-303-20-300 **DLC**	
	20mm	20mm	21mm	4,0mm	80mm	150mm	MFM-303-20-400	MFM-303-20-400 **DLC**	
	20mm	20mm	21mm	Ball End	80mm	150mm	MFM-303-20-BN	MFM-303-20-BN **DLC**	
X LONG	20mm	20mm	21mm	Sq. End	100mm	150mm	MFM-304-20	MFM-304-20 **DLC**	
	20mm	20mm	21mm	2,0mm	100mm	150mm	MFM-304-20-200	MFM-304-20-200 **DLC**	
	20mm	20mm	21mm	2,5mm	100mm	150mm	MFM-304-20-250	MFM-304-20-250 **DLC**	
	20mm	20mm	21mm	3,0mm	100mm	150mm	MFM-304-20-300	MFM-304-20-300 **DLC**	
	20mm	20mm	21mm	4,0mm	100mm	150mm	MFM-304-20-400	MFM-304-20-400 **DLC**	
	20mm	20mm	21mm	Ball End	100mm	150mm	MFM-304-20-BN	MFM-304-20-BN **DLC**	
S	25mm	25mm	26mm	Sq. End	50mm	165mm	MFM-301-25	MFM-301-25 **DLC**	25 mm DIAMETER
	25mm	25mm	26mm	2,5mm	50mm	165mm	MFM-301-25-250	MFM-301-25-250 **DLC**	
	25mm	25mm	26mm	4,0mm	50mm	165mm	MFM-301-25-400	MFM-301-25-400 **DLC**	
	25mm	25mm	26mm	Ball End	50mm	165mm	MFM-301-25-BN	MFM-301-25-BN **DLC**	
M	25mm	25mm	26mm	Sq. End	75mm	165mm	MFM-302-25	MFM-302-25 **DLC**	
	25mm	25mm	26mm	2,5mm	75mm	165mm	MFM-302-25-250	MFM-302-25-250 **DLC**	
	25mm	25mm	26mm	4,0mm	75mm	165mm	MFM-302-25-400	MFM-302-25-400 **DLC**	
	25mm	25mm	26mm	Ball End	75mm	165mm	MFM-302-25-BN	MFM-302-25-BN **DLC**	
XL	25mm	25mm	26mm	Sq. End	100mm	165mm	MFM-304-25	MFM-304-25 **DLC**	
	25mm	25mm	26mm	2,5mm	100mm	165mm	MFM-304-25-250	MFM-304-25-250 **DLC**	
	25mm	25mm	26mm	4,0mm	100mm	165mm	MFM-304-25-400	MFM-304-25-400 **DLC**	
	25mm	25mm	26mm	Ball End	100mm	165mm	MFM-304-25-BN	MFM-304-25-BN **DLC**	

**Other Reach Lengths available upon request.*

MFM SERIES SPEED & FEED

Tool Diameter	Typical Z-Depth	Aluminum 6061-T6		Aluminum 6061-T3		Aluminum 7075		Aluminum 2024	
		RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth
6mm	4mm	Max	0,096mm	Max	0,084mm	Max	0,096mm	Max	0,096mm
8mm	4mm	Max	0,128mm	Max	0,112mm	Max	0,128mm	Max	0,128mm
10mm	5mm	Max	0,16mm	Max	0,14mm	Max	0,16mm	Max	0,16mm
12mm	5mm	Max	0,192mm	Max	0,168mm	Max	0,192mm	Max	0,192mm
16mm	5mm	Max	0,256mm	Max	0,224mm	Max	0,256mm	Max	0,256mm
20mm	6,5mm	Max	0,32mm	Max	0,28mm	Max	0,32mm	Max	0,32mm
25mm	6,5mm	Max	0,4mm	Max	0,35mm	Max	0,4mm	Max	0,4mm

Z-Depth of cut per pass should be deeper than the corner radius to help reduce chatter

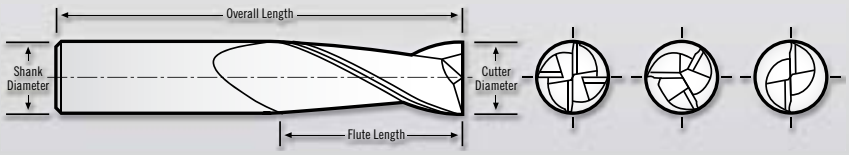
C-2 Grade Carbide End Mills MS1

Characteristics Square End, 2 Flute, 3 Flute, 4 Flute, 30° Helix

Applications Slotting, Side Milling, High Performance, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials Aluminum, Copper, Magnesium, Plastics, Composites, Brass

Coatings Diamond-Like Carbon (DLC)



MS1 Tolerances
Cutting Dia. = +0,000/–0,075mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,500/+1,500mm
OAL = ±1,000mm

Slotting, Side Milling, Helical Interpolation

MS1-201 Metric 2 Flute C-2 Grade Stub Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated
2mm	3mm	5mm	38mm	MS1-201-02
3mm	3mm	6mm	38mm	MS1-201-03
4mm	4mm	8mm	50mm	MS1-201-04
5mm	5mm	8mm	50mm	MS1-201-05
6mm	6mm	8mm	50mm	MS1-201-06
8mm	8mm	12mm	58mm	MS1-201-08
10mm	10mm	14mm	66mm	MS1-201-10
12mm	12mm	16mm	73mm	MS1-201-12
16mm	16mm	20mm	82mm	MS1-201-16
20mm	20mm	25mm	92mm	MS1-201-20

Slotting, Side Milling, Helical Interpolation

MS1-201 Metric 2 Flute C-2 Grade Stub Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number DLC Coated
2mm	3mm	5mm	38mm	MS1-201-02 **DLC**
3mm	3mm	6mm	38mm	MS1-201-03 **DLC**
4mm	4mm	8mm	50mm	MS1-201-04 **DLC**
5mm	5mm	8mm	50mm	MS1-201-05 **DLC**
6mm	6mm	8mm	50mm	MS1-201-06 **DLC**
8mm	8mm	12mm	58mm	MS1-201-08 **DLC**
10mm	10mm	14mm	66mm	MS1-201-10 **DLC**
12mm	12mm	16mm	73mm	MS1-201-12 **DLC**
16mm	16mm	20mm	82mm	MS1-201-16 **DLC**
20mm	20mm	25mm	92mm	MS1-201-20 **DLC**

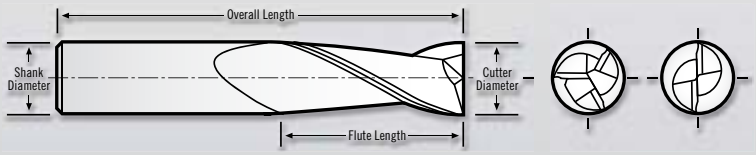
MC1 C-2 Grade Carbide End Mills

Characteristics Square End, 2 Flute, 3 Flute, 30° Helix

Applications Slotting, Side Milling, Conventional, High Performance, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials Aluminum, Copper, Magnesium, Plastics, Composites, Brass

Coatings Diamond-Like Carbon (DLC)



MC1 Tolerances
Cutting Dia. = +0,000/–0,075mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,500/+1,500mm
OAL = ±1,000mm

Slotting, Side Milling, Helical Interpolation

MC1-201 Metric 2 Flute C-2 Grade Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number	Tool Number DLC Coated
2mm	3mm	8mm	38mm	MC1-201-02	MC1-201-02 **DLC**
3mm	3mm	12mm	38mm	MC1-201-03	MC1-201-03 **DLC**
4mm	4mm	12mm	50mm	MC1-201-04	MC1-201-04 **DLC**
5mm	5mm	14mm	50mm	MC1-201-05	MC1-201-05 **DLC**
6mm	6mm	14mm	57mm	MC1-201-06	MC1-201-06 **DLC**
8mm	8mm	16mm	63mm	MC1-201-08	MC1-201-08 **DLC**
10mm	10mm	20mm	72mm	MC1-201-10	MC1-201-10 **DLC**
12mm	12mm	25mm	83mm	MC1-201-12	MC1-201-12 **DLC**
16mm	16mm	32mm	92mm	MC1-201-16	MC1-201-16 **DLC**
20mm	20mm	38mm	104mm	MC1-201-20	MC1-201-20 **DLC**
25mm	25mm	38mm	104mm	MC1-201-25	MC1-201-25 **DLC**

Side Milling

MC1-301 Metric 3 Flute C-2 Grade Standard Length

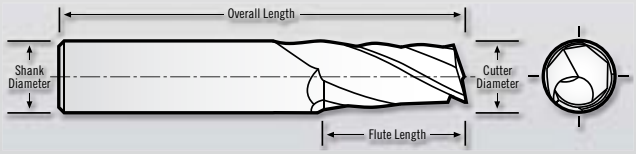
Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number	Tool Number DLC Coated
2mm	3mm	8mm	38mm	MC1-301-02	MC1-301-02 **DLC**
3mm	3mm	12mm	38mm	MC1-301-03	MC1-301-03 **DLC**
4mm	4mm	12mm	50mm	MC1-301-04	MC1-301-04 **DLC**
5mm	5mm	14mm	50mm	MC1-301-05	MC1-301-05 **DLC**
6mm	6mm	14mm	57mm	MC1-301-06	MC1-301-06 **DLC**
8mm	8mm	16mm	63mm	MC1-301-08	MC1-301-08 **DLC**
10mm	10mm	20mm	72mm	MC1-301-10	MC1-301-10 **DLC**
12mm	12mm	25mm	83mm	MC1-301-12	MC1-301-12 **DLC**
16mm	16mm	32mm	92mm	MC1-301-16	MC1-301-16 **DLC**
20mm	20mm	38mm	104mm	MC1-301-20	MC1-301-20 **DLC**
25mm	25mm	38mm	104mm	MC1-301-25	MC1-301-25 **DLC**

Tuffy Grade Carbide Router Bits MPM

Characteristics Square End, 1 Flute, Polished

Applications Slotting, Side Milling, Helical Interpolation, Ramping, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials Aluminum, Plastics



MPM Series Tolerances
Cutting Dia. = +0,000/–0,002"
Shank Dia. = –0,0001/–0,0002"
LOC = +0,060/ –0,000"
OAL = ±0,060"

1 Flute, Polished

NEW

MPM Up Shear 1 Flute Tuffy Grade

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number
4mm	3mm	12mm	50mm	MPM-104-04
6mm	4mm	12mm	50mm	MPM-106-04
6mm	6mm	14mm	50mm	MPM-106-05
6mm	6mm	14mm	57mm	MPM-106-06
8mm	8mm	22mm	63mm	MPM-108-08
10mm	10mm	25mm	72mm	MPM-110-10
12mm	12mm	25mm	83mm	MPM-112-12

Polished
Best Tool for Gummy/Soft Aluminum
Reduces Material Sticking to Tool

TOOLS FOR Titanium, Steel & High-Temp Alloys

Titanium, Steel & High-Temp Alloys Tools

MNS 402	4 Flute Tuffy Grade	NEW Variable Helix	24
MXG 402	4 Flute Tuffy Grade	Variable Helix	25
MXG 502	5 Flute Tuffy Grade	Variable Helix	25
MXG-BN	4 Flute Tuffy Grade, Ball End	Variable Helix	25
MXF	6 and 8 Flute Tuffy Grade		26
MST 341	3 Flute Super Tuffy Grade		28
MSTR 301/303	3 Flute Super Tuffy Grade		29
MSTR 401/404	4 Flute Super Tuffy Grade		30
MB 440	4 Flute Tuffy Grade Ball End		31
MST 360	3 Flute Super Tuffy Grade		32
MST 646	6 Flute Super Tuffy Grade		33
MST 430/434	4 Flute Super Tuffy Grade		34
MTS 401	4 Flute (See Multiple Applications)		60
MINIATURES	(See Miniatures Applications)		53

MNS Tuffy Grade Carbide End Mills

Characteristics Square End, 4 Flute, Variable Helix, Flats

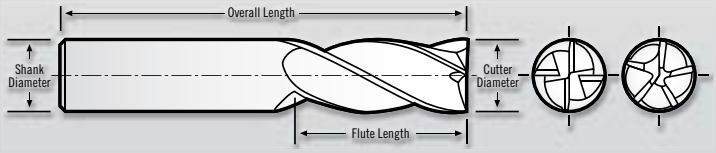
Applications Slotting, Side Milling, Helical Interpolation, Ramping, High Performance, Roughing, Semi-Finishing, Finishing, Dry, Wet

Materials Cast Iron, Steel, 40 HRc Hardness

Coatings Aluminum Titan. Nitride

MNS Tolerances

Cutting Dia. = –0,025/–0,050mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,50/+1,50mm
OAL = +/– 1,00mm

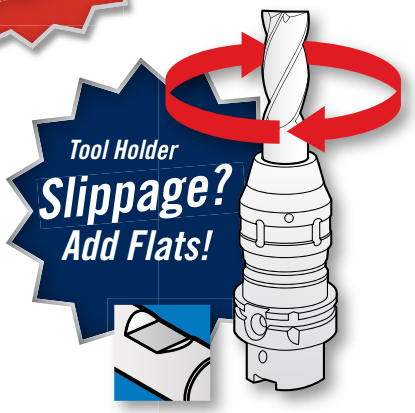


MNS-402 Metric 4 Flute Standard Length

Add Flats for High Torque Cuts!

NEW

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Flats, AlTiN Coated	Tool Number AlTiN Coated
6mm	6mm	14mm	58mm	MNS-402-06 **FL**	MNS-402-06
8mm	8mm	16mm	64mm	MNS-402-08 **FL**	MNS-402-08
10mm	10mm	20mm	73mm	MNS-402-10 **FL**	MNS-402-10
12mm	12mm	25mm	84mm	MNS-402-12 **FL**	MNS-402-12
16mm	16mm	32mm	93mm	MNS-402-16 **FL**	MNS-402-16
20mm	20mm	38mm	105mm	MNS-402-20 **FL**	MNS-402-20
25mm	25mm	45mm	121mm	MNS-402-25 **FL**	MNS-402-25



SPEED & FEED ADJUSTMENT CALCULATIONS

ap/Ø	Fact.	ap/Ø	Fact.	ap/Ø	Fact.
0,5	**1,0**	0,5	1,2	0,5	1,3
1,0	0,7	**1,0**	**1,0**	1,0	1,2
1,5	0,5	1,5	0,7	**1,5**	**1,0**
ae/Ø = 1	2,0	0,3	ae/Ø = 0,5	2,0	0,5	ae/Ø = 0,2	2,0	0,8

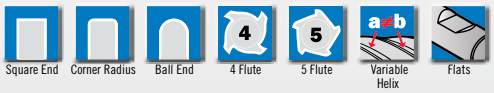
*The following example data are valid for the **red highlighted** applications.*

MNS SERIES SPEED & FEEDS

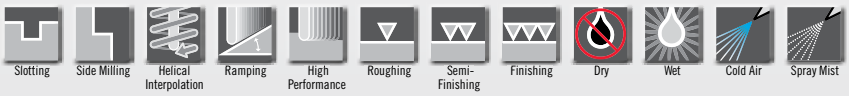
Tool Diameter	Steel						Cast Iron			
	HB 150–250		HRc 20–30		HRc 30–40		<HB 180		>HB 180	
	500–800 N/mm²		500–800 N/mm²		500–800 N/mm²					
	170 m/min		150 m/min		130 m/min		160 m/min		130 m/min	
	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM
6mm	0,050	9050	0,040	7960	0,032	6900	0,050	8490	0,026	6900
8mm	0,550	6760	0,044	5970	0,035	5170	0,055	6370	0,028	5170
10mm	0,060	5410	0,048	4770	0,038	4140	0,060	5090	0,031	4140
12mm	0,070	4510	0,056	3980	0,045	3450	0,070	4240	0,036	3450
16mm	0,085	3380	0,068	2980	0,054	2590	0,085	3180	0,044	2590
20mm	0,100	2710	0,080	2390	0,064	2070	0,100	2550	0,051	2070
25mm	0,150	2160	0,120	1910	0,096	1660	0,150	2040	0,077	1660

Tuffy Grade Carbide End Mills MXG

Characteristics

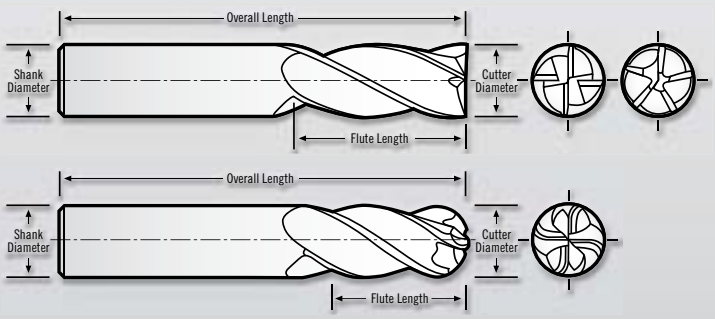


Applications



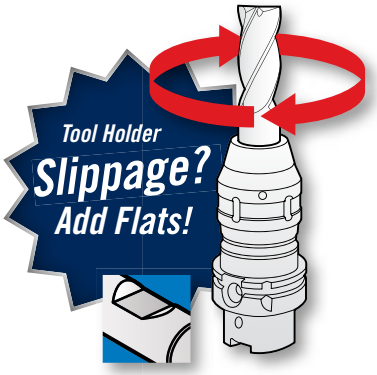
Materials

Coatings



MXG Tolerances

Cutting Dia. = –0,025/–0,050mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,50/+1,50mm
OAL = +/– 1,00mm



MXG-402 Metric 4 Flute Standard Length

Cutting Diameter	Corner Radius	Shank Diameter	Flute Length	Overall Length	Tool Number Flats, AlTiN Coated	Tool Number AlTiN Coated
6mm	0,50–0,55mm	6mm	14mm	57mm	MXG-402-06 **FL**	MXG-402-06
8mm	0,55–0,60mm	8mm	16mm	63mm	MXG-402-08 **FL**	MXG-402-08
10mm	060–0,65mm	10mm	20mm	72mm	MXG-402-10 **FL**	MXG-402-10
12mm	0,65–0,70mm	12mm	25mm	83mm	MXG-402-12 **FL**	MXG-402-12
16mm	0,70–0,75mm	16mm	32mm	92mm	MXG-402-16 **FL**	MXG-402-16
20mm	0,90–1,0mm	20mm	38mm	104mm	MXG-402-20 **FL**	MXG-402-20

MXG-502 Metric 5 Flute Standard Length

Cutting Diameter	Corner Radius	Shank Diameter	Flute Length	Overall Length	Tool Number Flats, AlTiN Coated	Tool Number AlTiN Coated
6mm	0,50–0,55mm	6mm	14mm	57mm	MXG-502-06 **FL**	MXG-502-06
8mm	0,55–0,60mm	8mm	16mm	63mm	MXG-502-08 **FL**	MXG-502-08
10mm	0,60–0,65mm	10mm	20mm	72mm	MXG-502-10 **FL**	MXG-502-10
12mm	0,65–0,70mm	12mm	25mm	83mm	MXG-502-12 **FL**	MXG-502-12
16mm	0,70–0,75mm	16mm	32mm	92mm	MXG-502-16 **FL**	MXG-502-16
20mm	0,90–1,0mm	20mm	38mm	104mm	MXG-502-20 **FL**	MXG-502-20

MXG-402BN Metric 4 Flute Ball End Standard Length

Cutting Diameter	Corner Radius	Shank Diameter	Flute Length	Overall Length	Tool Number Flats, AlTiN Coated	Tool Number AlTiN Coated
6mm	–	6mm	14mm	57mm	MXG-402-06BN **FL**	MXG-402-06BN
8mm	–	8mm	16mm	63mm	MXG-402-08BN **FL**	MXG-402-08BN
10mm	–	10mm	20mm	72mm	MXG-402-10BN **FL**	MXG-402-10BN
12mm	–	12mm	25mm	83mm	MXG-402-12BN **FL**	MXG-402-12BN
16mm	–	16mm	32mm	92mm	MXG-402-16BN **FL**	MXG-402-16BN
20mm	–	20mm	38mm	104mm	MXG-402-20BN **FL**	MXG-402-20BN

MXF Tuffy Grade Carbide End Mills

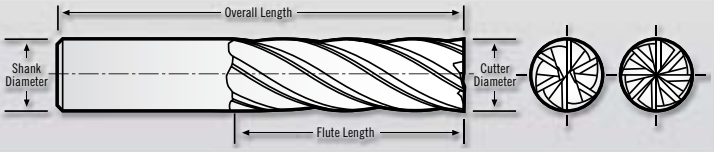
Characteristics Square End, Corner Radius, 6 Flute, 8 Flute, 45° Helix

Applications Side Milling, High Performance, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials Titanium, Cast Iron, Steel, Stainless Steel, Super Alloys, 40 HRc Hardness

Coatings Aluminum Titan. Nitride

Eliminate Tool Pull Out!
6–8mm h5 Shank Tolerances
10–25mm h4 Shank Tolerances
Tightest in the Industry!



MXF Tolerances
Cutting Dia. = -0,025/–0,050mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,500/+1,500mm
OAL = ±1,000mm

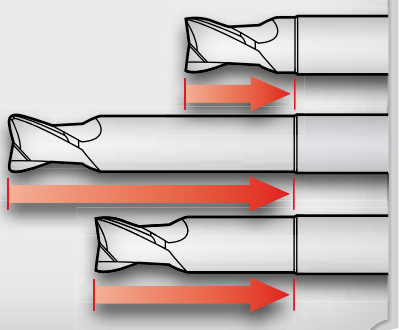
MXF-602/802 6/8 Flute Standard Length

Cutting Diameter	Corner Radius	Shank Diameter	Flute Length	Overall Length	Tool Number AlTiN Coated
10mm	2,0mm	10mm	20mm	72mm	MXF-602-10-200
10mm	2,5mm	10mm	20mm	72mm	MXF-602-10-250
10mm	3,0mm	10mm	20mm	72mm	MXF-602-10-300
12mm	2,0mm	12mm	25mm	83mm	MXF-602-12-200
12mm	2,5mm	12mm	25mm	83mm	MXF-602-12-250
12mm	3,0mm	12mm	25mm	83mm	MXF-602-12-300
16mm	2,0mm	16mm	32mm	92mm	MXF-602-16-200
16mm	2,5mm	16mm	32mm	92mm	MXF-602-16-250
16mm	3,0mm	16mm	32mm	92mm	MXF-602-16-300
20mm	2,0mm	20mm	38mm	104mm	MXF-602-20-200
20mm	2,5mm	20mm	38mm	104mm	MXF-602-20-250
20mm	3,0mm	20mm	38mm	104mm	MXF-802-20-300
25mm	2,0mm	25mm	38mm	104mm	MXF-802-25-200
25mm	2,5mm	25mm	38mm	104mm	MXF-802-25-250
25mm	3,0mm	25mm	38mm	104mm	MXF-802-35-300

See New Trochoidal Tool Paths
www.robbjack.com/videos

Cut Titanium up to 1905 mm/minute

Need Reach?
See End Mill Modifications (page 6)



Speed & Feeds MXG MXF

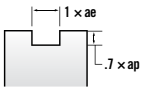
MXG SERIES SPEED & FEED

Material	Surface Meters	6 mm		8 mm		10 mm		12 mm		16 mm		20 mm	
		RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min
CAST IRON													
Ductile	122	6475	706	4851	869	3881	978	3235	1087	2426	978	1941	869
Gray	160	8498	1060	6367	1304	5094	1467	4245	1630	3184	1467	2547	1304
INCONEL													
625/718	30	1619	108	1213	134	970	150	809	167	606	150	485	134
STEEL													
1018/1020	152	8093	807	6063	994	4851	1118	4043	1242	3032	1118	2426	994
4130	122	6475	505	4851	621	3881	699	3235	776	2426	699	1941	621
4140	122	6475	505	4851	621	3881	699	3235	776	2426	699	1941	621
4340	126	6717	523	5033	644	4027	725	3356	805	2517	725	2013	644
STAINLESS STEEL													
303	168	8903	791	6670	973	5337	1095	4448	1217	3335	1095	2668	973
304	122	6475	444	4851	546	3881	615	3235	683	2426	615	1941	546
316	122	6475	444	4851	546	3881	615	3235	683	2426	615	1941	546
15-5/17-4	91	4856	333	3638	410	2911	461	2426	512	1819	461	1455	410
13-8	91	4856	333	3638	410	2911	461	2426	512	1819	461	1455	410
440C	91	4856	333	3638	410	2911	461	2426	512	1819	461	1455	410
TOOL STEEL (ANNEALED)													
A2	122	6475	444	4851	546	3881	615	3235	683	2426	615	1941	546
D2	110	5827	400	4366	492	3493	553	2911	615	2183	553	1747	492
H13	122	6475	444	4851	546	3881	615	3235	683	2426	615	1941	546
P20	122	6475	575	4851	708	3881	796	3235	885	2426	796	1941	708
TITANIUM													
Com. pure	91	4856	431	3638	531	2911	597	2426	664	1819	597	1455	531
6AL-4V	61	3237	222	2425	273	1941	307	1617	342	1213	307	970	273
6AL-6V	53	2833	194	2122	239	1698	269	1415	299	1061	269	849	239

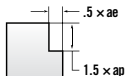
General Guidelines

- Speed and feeds are based on applications with very rigid machine tools, toolholders, and fixturing. Speeds and feeds will vary dramatically depending on the application. Extreme forces can be generated and can cause damage, if not appropriate for the cutting conditions.
- Helical interpolation or ramping should be used to enter pockets.
- For the highest material removal rates and longest tool life profile milling is preferred over slotting (See diagrams at right).
- Use shrink fit or equivalent tool holder. If not, use flats to eliminate slippage in the tool holder!
- Climb milling is recommended.
- For ball end tools reduce feed rate by 10%.
- Trochoidal tool paths are recommended.

Slotting



Profiling



MXF SERIES SPEED & FEED

Material	Surface Meters	10mm		12mm		16mm		20mm		25mm	
		RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min
CAST IRON											
Ductile	122	3881	734	3235	815	2426	734	1941	869	1554	761
Gray	160	5094	1100	4245	1223	3184	1100	2547	1304	2040	1141
INCONEL											
625/718	46	1455	165	1213	183	910	165	728	196	583	171
STEEL											
1018/1020	152	4851	786	4043	873	3032	786	2426	931	1942	815
4130	122	3881	524	3235	582	2426	524	1941	621	1554	543
4140	122	3881	524	3235	582	2426	524	1941	621	1554	543
4340	126	4027	544	3356	604	2517	544	2013	644	1612	564
STAINLESS STEEL											
303	168	5337	778	4448	865	3335	778	2668	922	2137	807
304	122	3881	461	3235	512	2426	461	1941	546	1554	478
316	122	3881	461	3235	512	2426	461	1941	546	1554	478
15-5/17-4	91	2911	346	2426	384	1819	346	1455	410	1165	359
13-8	91	2911	346	2426	384	1819	346	1455	410	1165	359
440C	91	2911	346	2426	384	1819	346	1455	410	1165	359
TOOL STEEL (ANNEALED)											
A2	122	3881	461	3235	512	2426	461	1941	546	1554	478
D2	110	3493	415	2911	461	2183	415	1747	492	1399	430
H13	122	3881	461	3235	512	2426	461	1941	546	1554	478
P20	122	3881	566	3235	629	2426	566	1941	671	1554	587
TITANIUM											
Com. pure	91	2911	424	2426	472	1819	424	1455	503	1165	440
6AL-4V	116	3687	538	3073	597	2304	538	1844	637	1476	557
6AL-6V	53	1698	248	1415	275	1061	248	849	293	680	257

Finish Profiling

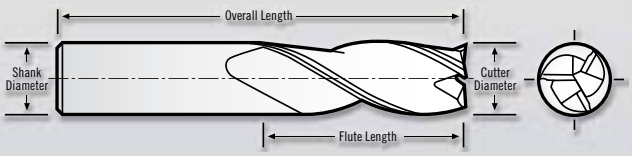
MST Super Tuffy Grade Carbide End Mills

Characteristics: Square End, Corner Radius, 3 Flute, 40° Helix, T-Process Hone

Applications: Slotting, Side Milling, Helical Interpolation, Ramping, High Performance, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials: Cast Iron, Steel, Stainless Steel, Super Alloys

Coatings: Titanium Nitride (TiN), Titanium Carbo-Nitride (TiCN), Aluminum Titan. Nitride (AlTiN)



MST-341 Tolerances
Cutting Dia. = +0,000/–0,075mm
Shank Dia. = –0,002/–0,005mm
OAL = ±1,000mm
Flute Length = +0,500/+1,500mm

HONED EDGE!

MST-341 Metric 3 Flute Super Tuffy Carbide Stub Length

Cutting Diameter	Shank Diameter	Flute Length	Corner Break Size	Overall Length	Tool Number Uncoated
3mm	3mm	6mm	0,075/0,125mm	38mm	MST-341-03
4mm	4mm	8mm	0,075/0,125mm	50mm	MST-341-04
5mm	5mm	8mm	0,075/0,125mm	50mm	MST-341-05
6mm	6mm	8mm	0,075/0,125mm	57mm	MST-341-06
8mm	8mm	12mm	0,100/0,150mm	63mm	MST-341-08
10mm	10mm	14mm	0,125/0,175mm	72mm	MST-341-10
12mm	12mm	16mm	0,150/0,130mm	83mm	MST-341-12
16mm	16mm	20mm	0,230/0,280mm	92mm	MST-341-16
20mm	20mm	25mm	0,280/0,360mm	104mm	MST-341-20

TiN

Cutting Diameter	Shank Diameter	Flute Length	Corner Break Size	Overall Length	Tool Number TiN Coated
3mm	3mm	6mm	0,075/0,125mm	38mm	MST-341-03 **T**
4mm	4mm	8mm	0,075/0,125mm	50mm	MST-341-04 **T**
5mm	5mm	8mm	0,075/0,125mm	50mm	MST-341-05 **T**
6mm	6mm	8mm	0,075/0,125mm	57mm	MST-341-06 **T**
8mm	8mm	12mm	0,100/0,150mm	63mm	MST-341-08 **T**
10mm	10mm	14mm	0,125/0,175mm	72mm	MST-341-10 **T**
12mm	12mm	16mm	0,150/0,130mm	83mm	MST-341-12 **T**
16mm	16mm	20mm	0,230/0,280mm	92mm	MST-341-16 **T**
20mm	20mm	25mm	0,280/0,360mm	104mm	MST-341-20 **T**

TiCN

Cutting Diameter	Shank Diameter	Flute Length	Corner Break Size	Overall Length	Tool Number TiCN Coated
3mm	3mm	6mm	0,075/0,125mm	38mm	MST-341-03 **C**
4mm	4mm	8mm	0,075/0,125mm	50mm	MST-341-04 **C**
5mm	5mm	8mm	0,075/0,125mm	50mm	MST-341-05 **C**
6mm	6mm	8mm	0,075/0,125mm	57mm	MST-341-06 **C**
8mm	8mm	12mm	0,100/,150mm	63mm	MST-341-08 **C**
10mm	10mm	14mm	0,125/0,175mm	72mm	MST-341-10 **C**
12mm	12mm	16mm	0,150/0,130mm	83mm	MST-341-12 **C**
16mm	16mm	20mm	0,230/0,280mm	92mm	MST-341-16 **C**
20mm	20mm	25mm	0,280/0,360mm	104mm	MST-341-20 **C**

AlTiN

Cutting Diameter	Shank Diameter	Flute Length	Corner Break Size	Overall Length	Tool Number AlTiN Coated
3mm	3mm	6mm	0,075/0,125mm	38mm	MST-341-03 **A**
4mm	4mm	8mm	0,075/0,125mm	50mm	MST-341-04 **A**
5mm	5mm	8mm	0,075/0,125mm	50mm	MST-341-05 **A**
6mm	6mm	8mm	0,075/0,125mm	57mm	MST-341-06 **A**
8mm	8mm	12mm	0,100/0,150mm	63mm	MST-341-08 **A**
10mm	10mm	14mm	0,125/0,175mm	72mm	MST-341-10 **A**
12mm	12mm	16mm	0,150/0,130mm	83mm	MST-341-12 **A**
16mm	16mm	20mm	0,230/0,280mm	92mm	MST-341-16 **A**
20mm	20mm	25mm	0,280/0,360mm	104mm	MST-341-20 **A**

3 Flute Super Tuffy Grade Carbide Ruffers MSTR

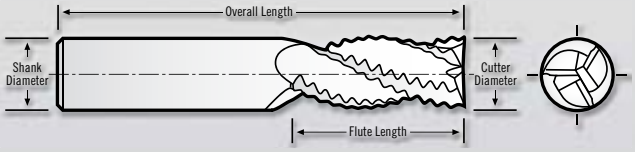
Characteristics: Square End, Corner Break, 3 Flute, 30° Helix, T-Process Hone

Applications: Slotting, Side Milling, Ramping, Roughing, Dry, Wet, Cold Air, Spray Mist

Materials: Cast Iron, Steel, Stainless Steel

Coatings: Titanium Nitride, Titanium Carbo-Nitride, Aluminum Titan. Nitride

STR Series comes with T-Process Honed Edges



MSTR Tolerances
Cutting Dia. = –0,075/–0,180mm
Shank Dia. = –0,002/–0,005mm
OAL = ±1,000mm
Flute Length = +0,500/+1,500mm

MSTR-301 Metric 3 Flute Super Tuffy Carbide Ruffer Stub Length

HONED EDGE!

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated
6mm	6mm	8mm	57mm	MSTR-301-06	MSTR-301-06 **T**
8mm	8mm	12mm	63mm	MSTR-301-08	MSTR-301-08 **T**
10mm	10mm	14mm	72mm	MSTR-301-10	MSTR-301-10 **T**
12mm	12mm	16mm	83mm	MSTR-301-12	MSTR-301-12 **T**
16mm	16mm	20mm	92mm	MSTR-301-16	MSTR-301-16 **T**
20mm	20mm	25mm	104mm	MSTR-301-20	MSTR-301-20 **T**

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number TiCN Coated	Tool Number AlTiN Coated
6mm	6mm	8mm	57mm	MSTR-301-06 **C**	MSTR-301-06 **A**
8mm	8mm	12mm	63mm	MSTR-301-08 **C**	MSTR-301-08 **A**
10mm	10mm	14mm	72mm	MSTR-301-10 **C**	MSTR-301-10 **A**
12mm	12mm	16mm	83mm	MSTR-301-12 **C**	MSTR-301-12 **A**
16mm	16mm	20mm	92mm	MSTR-301-16 **C**	MSTR-301-16 **A**
20mm	20mm	25mm	104mm	MSTR-301-20 **C**	MSTR-301-20 **A**

MSTR-303 Metric 3 Flute Super Tuffy Carbide Ruffer Std. Length

HONED EDGE!

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated
6mm	6mm	14mm	57mm	MSTR-303-06	MSTR-303-06 **T**
8mm	8mm	16mm	63mm	MSTR-303-08	MSTR-303-08 **T**
10mm	10mm	20mm	72mm	MSTR-303-10	MSTR-303-10 **T**
12mm	12mm	25mm	83mm	MSTR-303-12	MSTR-303-12 **T**
16mm	16mm	32mm	92mm	MSTR-303-16	MSTR-303-16 **T**
20mm	20mm	38mm	104mm	MSTR-303-20	MSTR-303-20 **T**

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number TiCN Coated	Tool Number AlTiN Coated
6mm	6mm	14mm	57mm	MSTR-303-06 **C**	MSTR-303-06 **A**
8mm	8mm	16mm	63mm	MSTR-303-08 **C**	MSTR-303-08 **A**
10mm	10mm	20mm	72mm	MSTR-303-10 **C**	MSTR-303-10 **A**
12mm	12mm	25mm	83mm	MSTR-303-12 **C**	MSTR-303-12 **A**
16mm	16mm	32mm	92mm	MSTR-303-16 **C**	MSTR-303-16 **A**
20mm	20mm	38mm	104mm	MSTR-303-20 **C**	MSTR-303-20 **A**

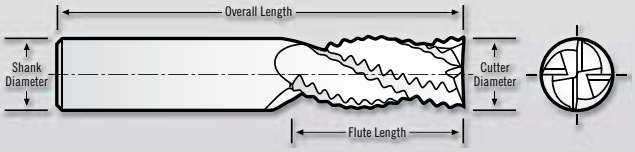
MSTR 4 Flute Tuffy Grade Carbide Ruffers

Characteristics: Square End, Corner Break, 4 Flute, 30° Helix, T-Process Hone

Applications: Side Milling, Ramping, Roughing, Dry, Wet, Cold Air, Spray Mist

Materials: Cast Iron, Steel, Stainless Steel

Coatings: Titanium Nitride, Titanium Carbo-Nitride, Aluminum Titan. Nitride



MSTR Tolerances

Cutting Dia. = –0,075/–0,180mm
Shank Dia. = –0,002/–0,005mm
OAL = ±1,000mm
Flute Length = +0,500/+1,500mm

MSTR-401 Metric 4 Flute Super Tuffy Carbide Ruffer Stub Length

HONED EDGE!

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated
6mm	6mm	8mm	57mm	MSTR-401-06	MSTR-401-06 **T**
8mm	8mm	12mm	63mm	MSTR-401-08	MSTR-401-08 **T**
10mm	10mm	14mm	72mm	MSTR-401-10	MSTR-401-10 **T**
12mm	12mm	16mm	83mm	MSTR-401-12	MSTR-401-12 **T**
16mm	16mm	20mm	92mm	MSTR-401-16	MSTR-401-16 **T**
20mm	20mm	25mm	104mm	MSTR-401-20	MSTR-401-16 **T**

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number TiCN Coated	Tool Number AlTiN Coated
6mm	6mm	8mm	57mm	MSTR-401-06 **C**	MSTR-401-06 **A**
8mm	8mm	12mm	63mm	MSTR-401-08 **C**	MSTR-401-08 **A**
10mm	10mm	14mm	72mm	MSTR-401-10 **C**	MSTR-401-10 **A**
12mm	12mm	16mm	83mm	MSTR-401-12 **C**	MSTR-401-12 **A**
16mm	16mm	20mm	92mm	MSTR-401-16 **C**	MSTR-401-16 **A**
20mm	20mm	25mm	104mm	MSTR-401-16 **C**	MSTR-401-16 **A**

MSTR-404 Metric 4 Flute Super Tuffy Carbide Ruffer Std. Length

HONED EDGE!

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated
6mm	6mm	14mm	57mm	MSTR-404-06	MSTR-404-06 **T**
8mm	8mm	16mm	63mm	MSTR-404-08	MSTR-404-08 **T**
10mm	10mm	20mm	72mm	MSTR-404-10	MSTR-404-10 **T**
12mm	12mm	25mm	83mm	MSTR-404-12	MSTR-404-12 **T**
16mm	16mm	32mm	92mm	MSTR-404-16	MSTR-404-16 **T**
20mm	20mm	38mm	104mm	MSTR-404-20	MSTR-404-20 **T**

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number TiCN Coated	Tool Number AlTiN Coated
6mm	6mm	14mm	57mm	MSTR-404-06 **C**	MSTR-404-06 **A**
8mm	8mm	16mm	63mm	MSTR-404-08 **C**	MSTR-404-08 **A**
10mm	10mm	20mm	72mm	MSTR-404-10 **C**	MSTR-404-10 **A**
12mm	12mm	25mm	83mm	MSTR-404-12 **C**	MSTR-404-12 **A**
16mm	16mm	32mm	92mm	MSTR-404-16 **C**	MSTR-404-16 **A**
20mm	20mm	38mm	104mm	MSTR-404-20 **C**	MSTR-404-20 **A**

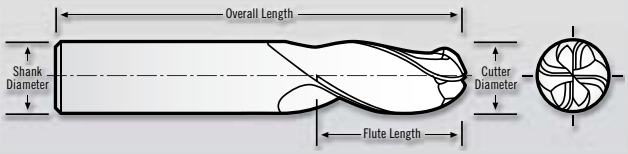
4 Flute Super Tuffy Grade Carbide End Mills MB

Characteristics: Ball End, 4 Flute, 40° Helix, T-Process Hone

Applications: Slotting, Side Milling, Helical Interpolation, Conventional, Ramping, High Performance, 3-D, Roughing, Semi-Finishing, Finishing

Materials: Cast Iron, Steel, Stainless Steel, Super Alloys

Coatings: Titanium Nitride, Titanium Carbo-Nitride, Aluminum Titan. Nitride



MB Tolerances

Cutting Dia. = +0,000/–0,075mm
Shank Dia. = –0,002/–0,005mm
OAL = ±1,000mm
Flute Length = +0,500/+1,500mm

HONED EDGE!

MB-440 Metric 4 Flute Tuffy Ball End Standard Length 40° Helix

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated
3mm	3mm	12mm	38mm	MB-440-03
4mm	4mm	12mm	50mm	MB-440-04
5mm	5mm	14mm	50mm	MB-440-05
6mm	6mm	14mm	57mm	MB-440-06
8mm	8mm	16mm	63mm	MB-440-08
10mm	10mm	20mm	72mm	MB-440-10
12mm	12mm	25mm	83mm	MB-440-12
16mm	16mm	32mm	92mm	MB-440-16
20mm	20mm	38mm	104mm	MB-440-20

TiN

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number TiN Coated
3mm	3mm	12mm	38mm	MB-440-03 **T**
4mm	4mm	12mm	50mm	MB-440-04 **T**
5mm	5mm	14mm	50mm	MB-440-05 **T**
6mm	6mm	14mm	57mm	MB-440-06 **T**
8mm	8mm	16mm	63mm	MB-440-08 **T**
10mm	10mm	20mm	72mm	MB-440-10 **T**
12mm	12mm	25mm	83mm	MB-440-12 **T**
16mm	16mm	32mm	92mm	MB-440-16 **T**
20mm	20mm	38mm	104mm	MB-440-20 **T**

TiCN

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number TiCN Coated
3mm	3mm	12mm	38mm	MB-440-03 **C**
4mm	4mm	12mm	50mm	MB-440-04 **C**
5mm	5mm	14mm	50mm	MB-440-05 **C**
6mm	6mm	14mm	57mm	MB-440-06 **C**
8mm	8mm	16mm	63mm	MB-440-08 **C**
10mm	10mm	20mm	72mm	MB-440-10 **C**
12mm	12mm	25mm	83mm	MB-440-12 **C**
16mm	16mm	32mm	92mm	MB-440-16 **C**
20mm	20mm	38mm	104mm	MB-440-20 **C**

AlTiN

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number AlTiN Coated
3mm	3mm	12mm	38mm	MB-440-03 **A**
4mm	4mm	12mm	50mm	MB-440-04 **A**
5mm	5mm	14mm	50mm	MB-440-05 **A**
6mm	6mm	14mm	57mm	MB-440-06 **A**
8mm	8mm	16mm	63mm	MB-440-08 **A**
10mm	10mm	20mm	72mm	MB-440-10 **A**
12mm	12mm	25mm	83mm	MB-440-12 **A**
16mm	16mm	32mm	92mm	MB-440-16 **A**
20mm	20mm	38mm	104mm	MB-440-20 **A**

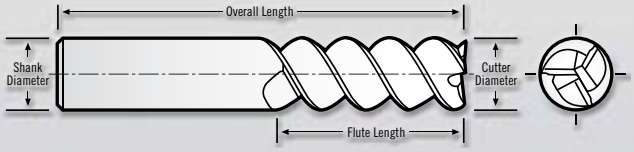
MST 3 Flute Super Tuffy Grade Carbide End Mills

Characteristics Square End · 3 Flute · 60° Helix

Applications Side Milling · Finishing · Dry · Wet · Cold Air · Spray Mist

Materials Cast Iron · Steel · Stainless Steel · Super Alloys

Coatings Titanium Nitride · Titanium Carbo-Nitride · Aluminum Titan. Nitride



MST-360 Tolerances
Cutting Dia. = +0,000/–0,075mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,500/+1,500mm
OAL = ±1,000mm

MST-360 Metric 3 Flute Super Tuffy Carbide Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated
3mm	3mm	12mm	38mm	MST-360-03
4mm	4mm	12mm	50mm	MST-360-04
5mm	5mm	14mm	50mm	MST-360-05
6mm	6mm	14mm	57mm	MST-360-06
8mm	8mm	16mm	63mm	MST-360-08
10mm	10mm	20mm	72mm	MST-360-10
12mm	12mm	25mm	83mm	MST-360-12
16mm	16mm	32mm	92mm	MST-360-16
20mm	20mm	38mm	104mm	MST-360-20

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number TiN Coated
3mm	3mm	12mm	38mm	MST-360-03 **T**
4mm	4mm	12mm	50mm	MST-360-04 **T**
5mm	5mm	14mm	50mm	MST-360-05 **T**
6mm	6mm	14mm	57mm	MST-360-06 **T**
8mm	8mm	16mm	63mm	MST-360-08 **T**
10mm	10mm	20mm	72mm	MST-360-10 **T**
12mm	12mm	25mm	83mm	MST-360-12 **T**
16mm	16mm	32mm	92mm	MST-360-16 **T**
20mm	20mm	38mm	104mm	MST-360-20 **T**

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number TiCN Coated
3mm	3mm	12mm	38mm	MST-360-03 **C**
4mm	4mm	12mm	50mm	MST-360-04 **C**
5mm	5mm	14mm	50mm	MST-360-05 **C**
6mm	6mm	14mm	57mm	MST-360-06 **C**
8mm	8mm	16mm	63mm	MST-360-08 **C**
10mm	10mm	20mm	72mm	MST-360-10 **C**
12mm	12mm	25mm	83mm	MST-360-12 **C**
16mm	16mm	32mm	92mm	MST-360-16 **C**
20mm	20mm	38mm	104mm	MST-360-20 **C**

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number AlTiN Coated
3mm	3mm	12mm	38mm	MST-360-03 **A**
4mm	4mm	12mm	50mm	MST-360-04 **A**
5mm	5mm	14mm	50mm	MST-360-05 **A**
6mm	6mm	14mm	57mm	MST-360-06 **A**
8mm	8mm	16mm	63mm	MST-360-08 **A**
10mm	10mm	20mm	72mm	MST-360-10 **A**
12mm	12mm	25mm	83mm	MST-360-12 **A**
16mm	16mm	32mm	92mm	MST-360-16 **A**
20mm	20mm	38mm	104mm	MST-360-20 **A**

6 Flute Super Tuffy Grade Carbide End Mills MST

Characteristics: Square End, Corner Radius, 6 Flute, 40° Helix

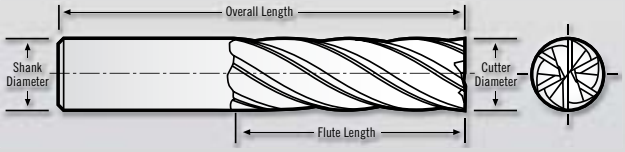
Applications: Side Milling, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials: Cast Iron, Steel, Stainless Steel, Super Alloys

Coatings: TiN Titanium Nitride, TiCN Titanium Carbo-Nitride, AlTiN Aluminum Titan. Nitride

Available with **Coolant Grooves**

See Page 5



MST-646 Tolerances

Cutting Dia. = +0,025/–0,000mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,500/+1,500mm
OAL = ±1,000mm

+ Tolerances

Honed Radius

MST-646 Metric 6 Flute Super Tuffy Carbide Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Corner Radius	Overall Length	Tool Number Uncoated
10mm	10mm	20mm	0,125/0,180mm	72mm	MST-646-10
12mm	12mm	25mm	0,150/0,230mm	83mm	MST-646-12
16mm	16mm	32mm	0,230/0,280mm	92mm	MST-646-16
20mm	20mm	38mm	0,280/0,355mm	104mm	MST-646-20

TiN

Cutting Diameter	Shank Diameter	Flute Length	Corner Radius	Overall Length	Tool Number TiN Coated
10mm	10mm	20mm	0,125/0,180mm	72mm	MST-646-10 **T**
12mm	12mm	25mm	0,150/0,230mm	83mm	MST-646-12 **T**
16mm	16mm	32mm	0,230/0,280mm	92mm	MST-646-16 **T**
20mm	20mm	38mm	0,280/0,355mm	104mm	MST-646-20 **T**

TiCN

Cutting Diameter	Shank Diameter	Flute Length	Corner Radius	Overall Length	Tool Number TiCN Coated
10mm	10mm	20mm	0,125/0,180mm	72mm	MST-646-10 **C**
12mm	12mm	25mm	0,150/0,230mm	83mm	MST-646-12 **C**
16mm	16mm	32mm	0,230/0,280mm	92mm	MST-646-16 **C**
20mm	20mm	38mm	0,280/0,355mm	104mm	MST-646-20 **C**

AlTiN

Cutting Diameter	Shank Diameter	Flute Length	Corner Radius	Overall Length	Tool Number AlTiN Coated
10mm	10mm	20mm	0,125/0,180mm	72mm	MST-646-10 **A**
12mm	12mm	25mm	0,150/0,230mm	83mm	MST-646-12 **A**
16mm	16mm	32mm	0,230/0,280mm	92mm	MST-646-16 **A**
20mm	20mm	38mm	0,280/0,355mm	104mm	MST-646-20 **A**

Eliminate Tool Pull Out!
6–8mm h5 Shank Tolerances
10–25mm h4 Shank Tolerances
Tightest in the Industry!

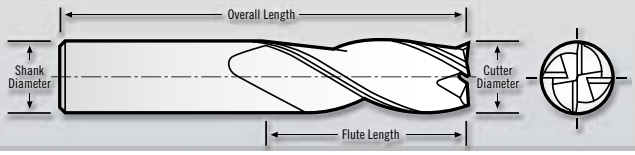
MST 4 Flute Super Tuffy Grade Carbide End Mills

Characteristics Square End · 4 Flute · 30° Helix

Applications Side Milling · Roughing · Semi-Finishing · Finishing · Dry · Wet · Cold Air · Spray Mist

Materials Cast Iron · Steel · Stainless Steel · Super Alloys

Coatings Titanium Nitride · Titanium Carbo-Nitride · Aluminum Titan. Nitride



MST-430 and MST-434 Tolerances
Cutting Dia. = +0,025/–0,000mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,500/+1,500mm
OAL = ±1 000mm

Sharp Edges + Tolerances

MST-430 Metric 4 Flute Super Tuffy Carbide Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated	Tool Number TiCN Coated	Tool Number AlTiN Coated
3mm	3mm	12mm	38mm	MST-430-03	MST-430-03 **T**	MST-430-03 **C**	MST-430-03 **A**
4mm	4mm	12mm	50mm	MST-430-04	MST-430-04 **T**	MST-430-04 **C**	MST-430-04 **A**
5mm	5mm	14mm	50mm	MST-430-05	MST-430-05 **T**	MST-430-05 **C**	MST-430-05 **A**
6mm	6mm	14mm	57mm	MST-430-06	MST-430-06 **T**	MST-430-06 **C**	MST-430-06 **A**
8mm	8mm	16mm	63mm	MST-430-08	MST-430-08 **T**	MST-430-08 **C**	MST-430-08 **A**
10mm	10mm	20mm	72mm	MST-430-10	MST-430-10 **T**	MST-430-10 **C**	MST-430-10 **A**
12mm	12mm	25mm	83mm	MST-430-12	MST-430-12 **T**	MST-430-12 **C**	MST-430-12 **A**
16mm	16mm	32mm	92mm	MST-430-16	MST-430-16 **T**	MST-430-16 **C**	MST-430-16 **A**
20mm	20mm	38mm	104mm	MST-430-20	MST-430-20 **T**	MST-430-20 **C**	MST-430-20 **A**

T-Process Hone

HONED EDGE! + Tolerances

MST-434 Metric 4 Flute Super Tuffy Carbide Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Corner Break Size	Overall Length	Tool Number Uncoated	Tool Number TiN Coated
3mm	3mm	12mm	0,075/0,125mm	38mm	MST-434-03	MST-434-03 **T**
4mm	4mm	12mm	0,075/0,125mm	50mm	MST-434-04	MST-434-04 **T**
5mm	5mm	14mm	0,075/0,125mm	50mm	MST-434-05	MST-434-05 **T**
6mm	6mm	14mm	0,075/0,125mm	57mm	MST-434-06	MST-434-06 **T**
8mm	8mm	16mm	0,100/0,150mm	63mm	MST-434-08	MST-434-08 **T**
10mm	10mm	20mm	0,125/0,175mm	72mm	MST-434-10	MST-434-10 **T**
12mm	12mm	25mm	0,150/0,130mm	83mm	MST-434-12	MST-434-12 **T**
16mm	16mm	32mm	0,230/0,280mm	92mm	MST-434-16	MST-434-16 **T**
20mm	20mm	38mm	0,280/0,360mm	104mm	MST-434-20	MST-434-20 **T**

Cutting Diameter	Shank Diameter	Flute Length	Corner Break Size	Overall Length	Tool Number TiCN Coated	Tool Number AlTiN Coated
3mm	3mm	12mm	0,075/0,125mm	38mm	MST-434-03 **C**	MST-434-03 **A**
4mm	4mm	12mm	0,075/0,125mm	50mm	MST-434-04 **C**	MST-434-04 **A**
5mm	5mm	14mm	0,075/0,125mm	50mm	MST-434-05 **C**	MST-434-05 **A**
6mm	6mm	14mm	0,075/0,125mm	57mm	MST-434-06 **C**	MST-434-06 **A**
8mm	8mm	16mm	0,100/0,150mm	63mm	MST-434-08 **C**	MST-434-08 **A**
10mm	10mm	20mm	0,125/0,175mm	72mm	MST-434-10 **C**	MST-434-10 **A**
12mm	12mm	25mm	0,150/0,130mm	83mm	MST-434-12 **C**	MST-434-12 **A**
16mm	16mm	32mm	0,230/0,280mm	92mm	MST-434-16 **C**	MST-434-16 **A**
20mm	20mm	38mm	0,280/0,360mm	104mm	MST-434-20 **C**	MST-434-20 **A**

TOOLS FOR Composites & Plastics

Composites & Plastics Tools

MCR 402/602	4 and 6 Flute Compression Routers	37
MCE 602/802	6 and 8 Flute Carbide Composite Routers	38
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MINIATURES	(See Miniatures Applications)	53
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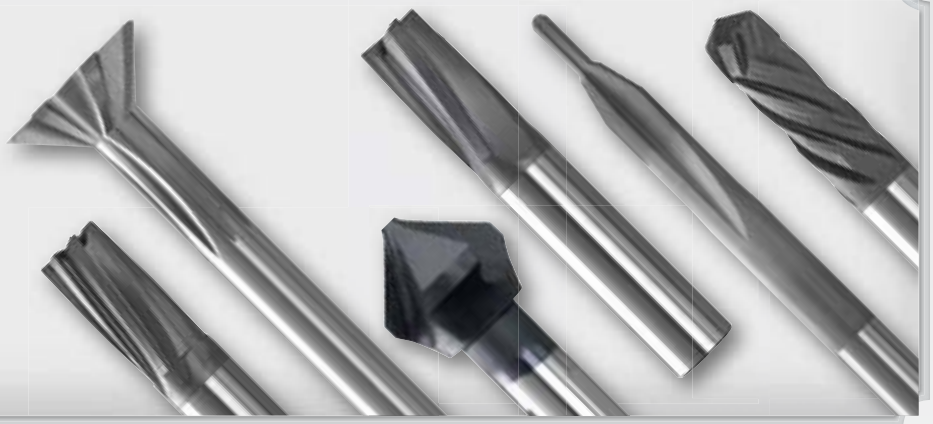
NEW Tools

NEW

Made to Order!

Available on Request!
See pages 38, 39 and 40.



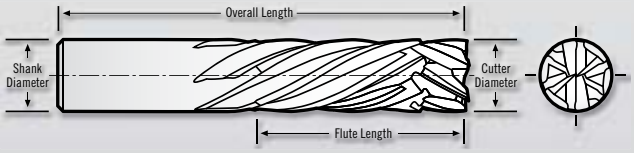
Compression Router MCR

Characteristics Square End · 4 Flute · 6 Flute

Applications Slotting · Side Milling · Helical Interpolation · Ramping · Roughing · Semi-Finishing · Finishing · Dry · Wet · Cold Air · Spray Mist

Materials Composites

Coatings Diamond Coated (DCC) · Diamond-Like Carbon (DLC)



MCR Tolerances
Cutting Dia. = –0,025/–0,075mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,500/+1,500mm
OAL = ±1,000mm

MCR Compression Router – 4/6 Flute Uncoated

Cutting Diameter	Shank Diameter	Number of Flutes	Upshear Length	Flute Length	Overall Length	Tool Number Uncoated
6mm	6mm	4	5mm	20mm	63mm	MCR-402-06
10mm	10mm	6	6mm	25mm	63mm	MCR-602-10
12mm	12mm	6	6mm	28mm	76mm	MCR-602-12

Diamond-Like Carbon (DLC)

MCR Compression Router – 4/6 Flute Black Widow DLC Coated

Cutting Diameter	Shank Diameter	Number of Flutes	Upshear Length	Flute Length	Overall Length	Tool Number DLC Coated
6mm	6mm	4	5mm	20mm	63mm	MCR-402-06 **DLC**
10mm	10mm	6	6mm	25mm	63mm	MCR-602-10 **DLC**
12mm	12mm	6	6mm	28mm	76mm	MCR-602-12 **DLC**

Diamond Coated (DCC)

10-20X Tool Life!

MCR Compression Router – 4/6 Flute Diamond Coated

Cutting Diameter	Shank Diameter	Number of Flutes	Upshear Length	Flute Length	Overall Length	Tool Number Diamond Coated
6mm	6mm	4	5mm	20mm	63mm	MCR-402-06 **D**
10mm	10mm	6	6mm	25mm	63mm	MCR-602-10 **D**
12mm	12mm	6	6mm	28mm	76mm	MCR-602-12 **D**

MCE Carbide Composite Router

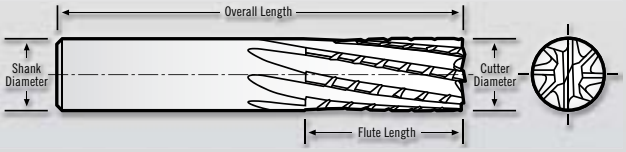
Characteristics Square End, 6 Flute, 8 Flute

Applications Slotting, Side Milling, Helical Interpolation, Ramping, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials Composites

Coatings Diamond Coated (DCC), Diamond-Like Carbon (DLC)

NEW!



MCE Tolerances
Cutting Dia. = –0,025/–0,075mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,500/+1,500mm
OAL = ±1,000mm

MCE Carbide Composite Router – 6/8 Flute Uncoated

Cutting Diameter	Shank Diameter	Number of Flutes	Flute Length	Overall Length	Tool Number Uncoated
6mm	6mm	6	20mm	63mm	MCE-602-06
10mm	10mm	8	25mm	63mm	MCE-802-10
12mm	12mm	8	28mm	76mm	MCE-802-12

Diamond-Like Carbon (DLC)

MCE Carbide Composite Router – 6/8 Flute Black Widow DLC Coated

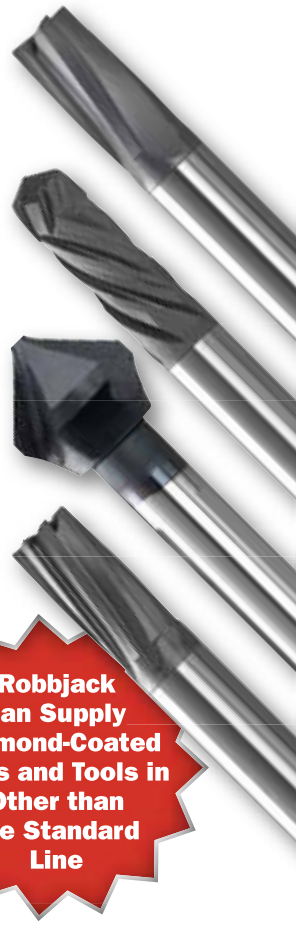
Cutting Diameter	Shank Diameter	Number of Flutes	Flute Length	Overall Length	Tool Number DLC Coated
6mm	6mm	6	20mm	63mm	MCE-602-06 **DLC**
10mm	10mm	8	25mm	63mm	MCE-802-10 **DLC**
12mm	12mm	8	28mm	76mm	MCE-802-12 **DLC**

Diamond Coated (DCC)

10-20X Tool Life!

MCE Carbide Composite Router – 6/8 Flute Diamond Coated

Cutting Diameter	Shank Diameter	Number of Flutes	Flute Length	Overall Length	Tool Number Diamond Coated
6mm	6mm	6	20mm	63mm	MCE-602-06 **D**
10mm	10mm	8	25mm	63mm	MCE-802-10 **D**
12mm	12mm	8	28mm	76mm	MCE-802-12 **D**



Robbjack can Supply Diamond-Coated Drills and Tools in Other than the Standard Line

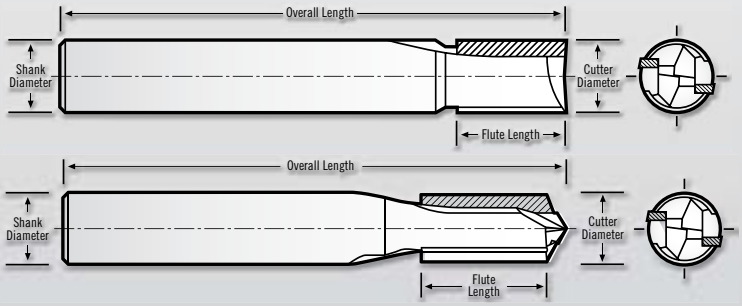
PCD-Tipped Router Bits MCPCD

Characteristics: Square End, Ball End, 2 Flute, 118° Drill Tip, PCD Diamond

Applications: Slotting, Side Milling, Helical Interpolation, Ramping, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials: Aluminum, Copper, Magnesium, Plastics, Composites, Brass

10-20X Tool Life Over Carbide!



PCD Tolerances
Cutting Dia. = ±0,076mm
Shank Dia. = –0,003/–0,005mm
Flute Length = ±0,76mm
OAL = ±1,5mm

MCPCD-203 Specifically Designed for CFRP Materials

Composites & Plastics

118° Drill Tip

MCPCD-203 Drill Point Composite 2 Flute Standard Length

Cutting Diameter	Shank Diameter	Number of Flutes	Flute Length	Drill Point	Overall Length	Tool Number
3mm	3mm	2	8mm	118°	38mm	MCPCD-203-03-118
6mm	6mm	2	14mm	118°	50mm	MCPCD-203-06-118
10mm	10mm	2	16mm	118°	63mm	MCPCD-203-10-118
12mm	12mm	2	22mm	118°	76mm	MCPCD-203-12-118

See RobbJack Videos at www.robbjack.com/videos

Square End

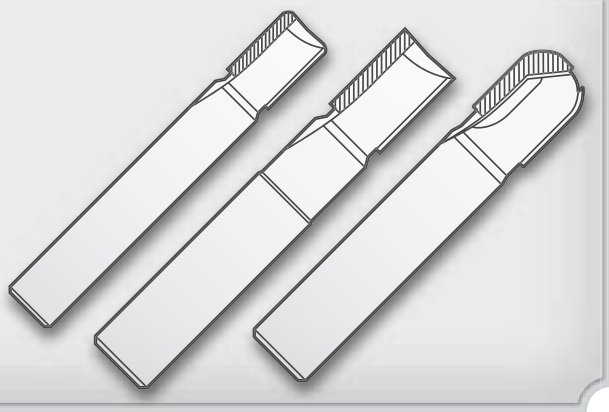
MCPCD-203 Square End Composite 2 Flute Standard Length

Cutting Diameter	Shank Diameter	Number of Flutes	Flute Length	End Style	Overall Length	Tool Number
3mm	3mm	2	8mm	SE	38mm	MCPCD-203-03
6mm	6mm	2	14mm	SE	50mm	MCPCD-203-06
10mm	10mm	2	16mm	SE	63mm	MCPCD-203-10
12mm	12mm	2	22mm	SE	76mm	MCPCD-203-12

Eliminate Operations!
Dove Tail Cutters for Carbon Fiber

Special dove tail cutters for carbon fiber that eliminate the operation of trimming the part to match the CAD file. Used in composite aircraft ribs and spars or where any dovetail cuts are needed.

Made to Order Standards
Available on Request!



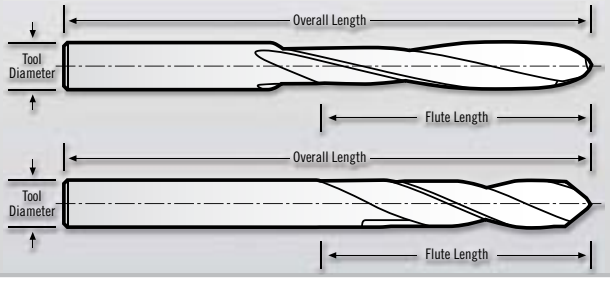
P810/F104 Diamond Coated Aircraft Drills

Characteristics: 2 Flute; 118° Drill Tip; Elliptical Drill Tip

Applications: Hole Drilling; Dry; Wet; Cold Air; Spray Mist

Materials: Aluminum; Copper; Magnesium; Plastics; Composites; Brass

Coatings: Diamond Coated (DCC)



P810/F104 Drills Tolerances

Drill Dia. = +0,0000/–0,0005"
+0,000mm/–0,0127mm
Shank Dia. = –0,0001/–0,0030"
+0,000mm/–0,076mm
Flute Length = +0,030"
+0,762mm
OAL = +/–0,060"
+/–1,5mm

10-20X Tool Life Over Carbide!

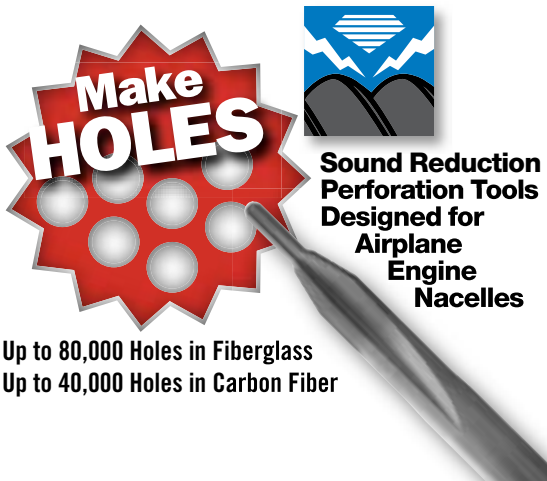
P810 118° Diamond Coated Standard Length Drills – 4 Facet

Metric Drill Diameter	Inch Drill Diameter	Flute Length	Overall Length	Tool Number Diamond Coated
2,489mm	0,0980"	1,4"	2,7"	P810-100345-1
3,264mm	0,1285"	1,4"	2,7"	P810-100344-1
3,609mm	0,1421"	1,4"	2,7"	P810-100402-1
3,962mm	0,1560"	1,4"	2,7"	P810-100409-1
4,204mm	0,1655"	1,4"	2,7"	P810-100335-1
4,404mm	0,1734"	1,4"	2,7"	P810-100404-1
4,826mm	0,1900"	1,4"	2,7"	P810-100400-1
4,864mm	0,1915"	1,4"	2,7"	P810-100336-1
5,055mm	0,1990"	1,4"	2,7"	P810-100411-1
5,220mm	0,2055"	1,4"	2,7"	P810-100405-1
5,613mm	0,2210"	1,4"	2,7"	P810-100346-1
6,388mm	0,2515"	1,4"	2,7"	P810-100337-1
6,579mm	0,2590"	1,4"	2,7"	P810-100406-1
6,883mm	0,2710"	1,4"	2,7"	P810-100407-1
7,036mm	0,2770"	1,4"	2,7"	P810-100412-1
7,112mm	0,2800"	1,4"	2,7"	P810-100408-1
7,142mm	0,2812"	1,4"	2,7"	P810-100410-1
7,963mm	0,3135"	1,5"	2,7"	P810-100338-1
9,563mm	0,3765"	1,5"	2,7"	P810-100341-1

F104 Elliptical Diamond Coated Standard Length Drills

Metric Drill Diameter	Inch Drill Diameter	Flute Length	Overall Length	Tool Number Diamond Coated
2,489mm	0,0980"	1,4"	2,7"	F104-100001-1
3,264mm	0,1285"	1,4"	2,7"	F104-100003-1
3,609mm	0,1421"	1,4"	2,7"	F104-100005-1
3,962mm	0,1560"	1,4"	2,7"	F104-100006-1
4,204mm	0,1655"	1,4"	2,7"	F104-100007-1
4,404mm	0,1734"	1,4"	2,7"	F104-100008-1
4,826mm	0,1900"	1,4"	2,7"	F104-100009-1
4,864mm	0,1915"	1,4"	2,7"	F104-100010-1
5,055mm	0,1990"	1,4"	2,7"	F104-100011-1
5,220mm	0,2055"	1,4"	2,7"	F104-100012-1
5,613mm	0,2210"	1,4"	2,7"	F104-100004-1
6,388mm	0,2515"	1,4"	2,7"	F104-100002-1
6,579mm	0,2590"	1,4"	2,7"	F104-100013-1
6,883mm	0,2710"	1,4"	2,7"	F104-100014-1
7,036mm	0,2770"	1,4"	2,7"	F104-100015-1
7,112mm	0,2800"	1,4"	2,7"	F104-100016-1
7,142mm	0,2812"	1,4"	2,7"	F104-100017-1
7,963mm	0,3135"	1,5"	2,7"	F104-100018-1
9,563mm	0,3765"	1,5"	2,7"	F104-100019-1

Get the advantage of geometries that used to be only available in carbide. Get the wear resistance of Diamond and the ability to re-sharpen PCD drills.



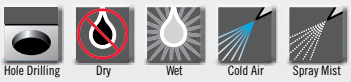
Sound Reduction Perforation Tools Designed for Airplane Engine Nacelles

Up to 80,000 Holes in Fiberglass
Up to 40,000 Holes in Carbon Fiber

PCD-Tipped Diamond Drills PCD

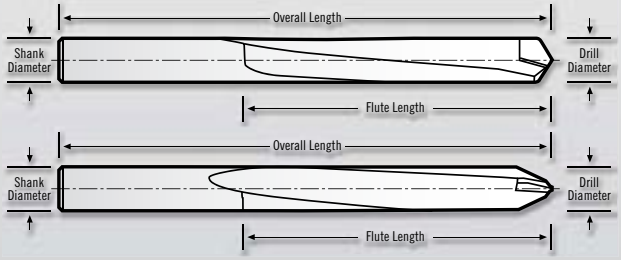
Characteristics

Applications



Materials

10-20X Tool Life Over Carbide!



PCD-Tipped Drills Tolerances

Drill Dia. = +0,0000/–0,0005"
+0,0000/–0,0013mm
Shank Dia. = –0,0001/–0,0002"
–0,002/–0,005mm
Flute Length = +0,030"
+0,762mm
OAL = +0,060"
+1,5mm

See RobbJack Videos at
www.robbjack.com/videos

PCD 118° PCD-Tipped Standard Length – 4 Facet

Metric Tool Diameter	Inch Tool Diameter	Flute Length	Overall Length	Tool Number
4,204mm	0,1655"	1,4"	2,7"	PCD-118-166
4,864mm	0,1915"	1,4"	2,7"	PCD-118-192
5,613mm	0,2210"	1,4"	2,7"	PCD-118-221
6,375mm	0,2510"	1,4"	2,7"	PCD-118-251
7,938mm	0,3125"	1,5"	2,7"	PCD-118-313
9,563mm	0,3765"	1,5"	2,7"	PCD-118-377

PCD 135/20° PCD-Tipped Standard Length – 8 Facet

Metric Tool Diameter	Inch Tool Diameter	Flute Length	Overall Length	Tool Number
4,204mm	0,1655"	1,4"	2,7"	PCD-13520-166
4,864mm	0,1915"	1,4"	2,7"	PCD-13520-192
5,613mm	0,2210"	1,4"	2,7"	PCD-13520-221
6,375mm	0,2510"	1,4"	2,7"	PCD-13520-251
7,938mm	0,3125"	1,5"	2,7"	PCD-13520-313
9,563mm	0,3765"	1,5"	2,7"	PCD-13520-377

PCD CTT Point 118/62° PCD-Tipped Std. Length – 8 Facet

Metric Tool Diameter	Inch Tool Diameter	Flute Length	Overall Length	Tool Number
4,204mm	0,1655"	1,4"	2,7"	PCD-11862-166
4,864mm	0,1915"	1,4"	2,7"	PCD-11862-192
5,613mm	0,2210"	1,4"	2,7"	PCD-11862-221
6,375mm	0,2510"	1,4"	2,7"	PCD-11862-251
7,938mm	0,3125"	1,5"	2,7"	PCD-11862-313
9,563mm	0,3765"	1,5"	2,7"	PCD-11862-377

PCD W Point PCD-Tipped Standard Length – Solid Tip

Metric Tool Diameter	Inch Tool Diameter	Flute Length	Overall Length	Tool Number
4,204mm	0,1655"	1,4"	2,7"	PCD-11987-166
4,864mm	0,1915"	1,4"	2,7"	PCD-11987-192
5,613mm	0,2210"	1,4"	2,7"	PCD-11987-221
6,375mm	0,2510"	1,4"	2,7"	PCD-11987-251
7,938mm	0,3125"	1,5"	2,7"	PCD-11987-313
9,563mm	0,3765"	1,5"	2,7"	PCD-11987-377

PCD 118/20° PCD-Tipped Standard Length – 8 Facet

Metric Tool Diameter	Inch Tool Diameter	Flute Length	Overall Length	Tool Number
4,204mm	0,1655"	1,4"	2,7"	PCD-11820-166
4,864mm	0,1915"	1,4"	2,7"	PCD-11820-192
5,613mm	0,2210"	1,4"	2,7"	PCD-11820-221
6,375mm	0,2510"	1,4"	2,7"	PCD-11820-251
7,938mm	0,3125"	1,5"	2,7"	PCD-11820-313
9,563mm	0,3765"	1,5"	2,7"	PCD-11820-377

PCD Elliptical PCD-Tipped Standard Length

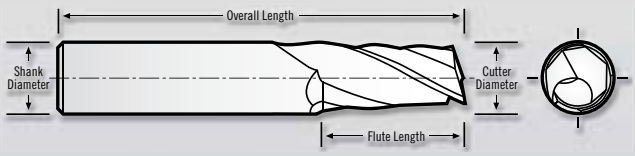
Metric Tool Diameter	Inch Tool Diameter	Flute Length	Overall Length	Tool Number
4,204mm	0,1655"	1,4"	2,7"	PCD-360-166
4,864mm	0,1915"	1,4"	2,7"	PCD-360-192
5,613mm	0,2210"	1,4"	2,7"	PCD-360-221
6,375mm	0,2510"	1,4"	2,7"	PCD-360-251
7,938mm	0,3125"	1,5"	2,7"	PCD-360-313
9,563mm	0,3765"	1,5"	2,7"	PCD-360-377

MPM Tuffy Grade Carbide Router Bits

Characteristics Square End, 1 Flute, Polished

Applications Slotting, Side Milling, Helical Interpolation, Ramping, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials Aluminum, Plastics



MPM Series Tolerances
Cutting Dia. = +0,000/–0,002"
Shank Dia. = –0,0001/–0,0002"
LOC = +0,060/ –0,000"
OAL = ±0,060"

1 Flute, Polished

NEW

MPM Up Shear 1 Flute Tuffy Grade

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number
4mm	3mm	12mm	50mm	MPM-104-04
6mm	4mm	12mm	50mm	MPM-106-04
6mm	6mm	14mm	50mm	MPM-106-05
6mm	6mm	14mm	57mm	MPM-106-06
8mm	8mm	22mm	63mm	MPM-108-08
10mm	10mm	25mm	72mm	MPM-110-10
12mm	12mm	25mm	83mm	MPM-112-12

Polished
Best Tool for Plastics
Eliminates Material Sticking to Tool and Melting in the Cut

Countersink Bodies & Inserts CSKB/CSKI

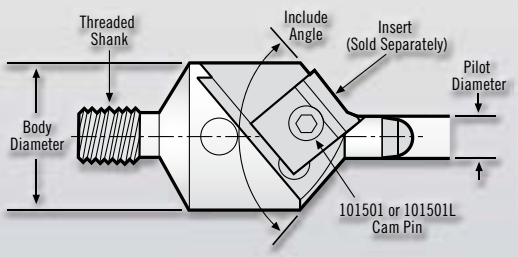
Characteristics 1 Flute

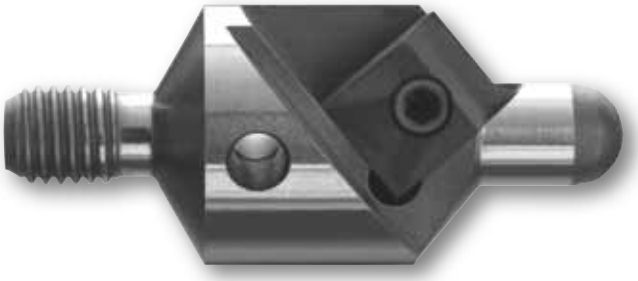
Applications

Materials Aluminum, Copper, Magnesium, Plastics, Composites, Brass

Coatings Diamond Coated (DCC)

10-20X Tool Life Over Carbide!





Threaded Shank Tools in a **Solid Piece of Carbide** by RobbJack

Eliminate the problem of TIR and tool length associated with brazed threads. Can be diamond coated.

For Ordering Use Inch Measurements

CSKB Countersink Bodies

Inch Body Diameter	Thread Size	Pilot Size Range	Angle	Part Number
5/8"	1/4"-28	0.097"-0.257"	100°	CSKB1T-6XXXX1-1
3/4"	3/8"-24	0.257"-0.319"	100°	CSKB1T-7XXXX1-1
7/8"	3/8"-24	0.319"-0.394"	100°	CSKB1T-8XXXX1-1
1"	7/16"-20	0.394"-0.559"	100°	CSKB1T-9XXXX1-1

For the tool holder body specify the pilot diameter **XXXX (e.g. 0.2515" is **2515**).*

CSKI Countersink Inserts

Inch Body Diameter	Thread Size	Angle	Part Number
5/8"	25° Double-Angle	100°	CSKIC-6IC025-1
3/4",7/8", 1"	25° Double-Angle	100°	CSKIC-7IC025-1
5/8"	0,020" Radius	100°	CSKIC-6IR020-1
3/4",7/8", 1"	0,035" Radius	100°	CSKIC-7IR035-2

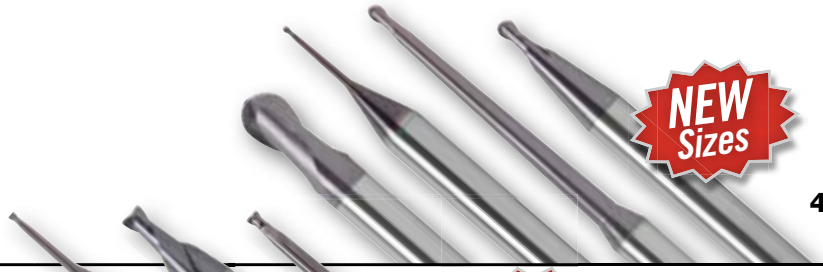
Nut Plate Drills Made from a Solid Piece of Carbide

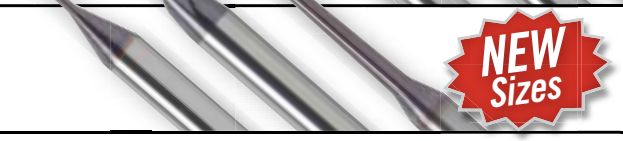
TOOLS FOR

Die/Mold & Hardened Materials

Die/Mold & Hardened Materials Tools

MDM	2 Flute Extended Length Ball Nose	**46**
MTM	2 Flute Extended Length Toroidal Corner Radius	**48**
MHM	4, 6, 8 and 10 Flute Corner Radius	**50**
P820	2, 4 Flute Diamond Coated	**51**
P820	2, 4 Flute Big Shank Diamond Coated	**52**





MDM Die/Mold End Mills

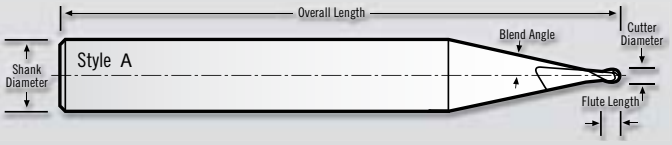
Characteristics Ball End · 2 Flute · 30° Helix

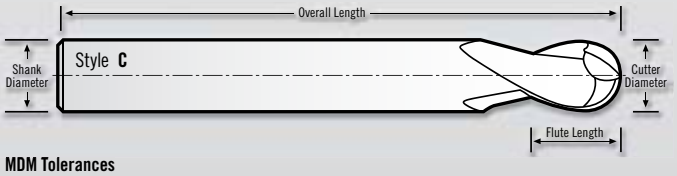
Applications Conventional · Ramping · High Performance · 3-D · Roughing · Semi-Finishing · Finishing · Dry · Cold Air · Spray Mist

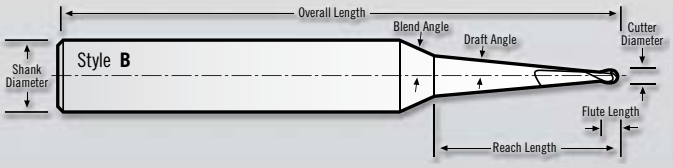
Materials 40 HRc Hardness · 50 HRc Hardness · 64 HRc Hardness

Coatings Aluminum Titan. Nitride

NEW Sizes Now Available!







MDM Tolerances

Cutting Dia. (0,5 – 5) = +/–0,008mm
Cutting Dia. (6 – 12) = –0,018/–0,033mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,500/+1,500mm
OAL = ±1,000mm

MDM-201 2 Flute Tuffy Ball End Extended Length

Cutting Diameter	Shank Diameter	Flute Length	Reach Length	Draft Angle	Blend Angle	Tool Style	Overall Length	Tool Number AlTiN Coated
0,5mm	6mm	0,5mm	–	–	8°	A	63mm	MDM-201-0.5
0,5mm	6mm	0,5mm	1mm	3°	18°	B	63mm	MDM-203-0.5
0,5mm	6mm	0,5mm	3mm	1,5°	16,5°	B	63mm	MDM-204-0.5
0,5mm	6mm	0,5mm	5mm	1,5°	16,5°	B	63mm	MDM-205-0.5
0,5mm	6mm	0,5mm	10mm	1,5°	16,5°	B	63mm	MDM-206-0.5
0,8mm	6mm	0,8mm	–	–	8°	A	63mm	MDM-201-0.8
0,8mm	6mm	0,8mm	3mm	3°	18°	B	63mm	MDM-203-0.8
0,8mm	6mm	0,8mm	5mm	1,5°	16,5°	B	63mm	MDM-204-0.8
0,8mm	6mm	0,8mm	10mm	1,5°	16,5°	B	63mm	MDM-205-0.8
0,8mm	6mm	0,8mm	15mm	1,5°	16,5°	B	63mm	MDM-206-0.8
1mm	6mm	1mm	–	–	8°	A	63mm	MDM-201-01
1mm	6mm	1mm	3mm	3°	18°	B	63mm	MDM-203-01
1mm	6mm	1mm	5mm	1,5°	16,5°	B	63mm	MDM-204-01
1mm	6mm	1mm	10mm	1,5°	16,5°	B	63mm	MDM-205-01
1mm	6mm	1mm	20mm	1,5°	16,5°	B	63mm	MDM-206-01
1,5mm	6mm	1,5mm	–	–	8°	A	63mm	MDM-201-01.5
1,5mm	6mm	1,5mm	5mm	3°	18°	B	63mm	MDM-203-01.5
1,5mm	6mm	1,5mm	10mm	1,5°	16,5°	B	63mm	MDM-204-01.5
1,5mm	6mm	1,5mm	20mm	1,5°	16,5°	B	63mm	MDM-205-01.5
1,5mm	6mm	1,5mm	30mm	1,5°	16,5°	B	63mm	MDM-206-01.5
2mm	6mm	2mm	–	–	8°	A	63mm	MDM-201-02
2mm	6mm	2mm	5mm	3°	18°	B	63mm	MDM-203-02
2mm	6mm	2mm	10mm	1,5°	16,5°	B	63mm	MDM-204-02
2mm	6mm	2mm	20mm	1,5°	16,5°	B	63mm	MDM-205-02
2mm	6mm	2mm	30mm	1,5°	16,5°	B	63mm	MDM-206-02
3mm	6mm	3mm	–	–	8°	A	75mm	MDM-201-03
3mm	6mm	3mm	5mm	3°	18°	B	75mm	MDM-203-03
3mm	6mm	3mm	15mm	1,5°	16,5°	B	75mm	MDM-204-03
3mm	6mm	3mm	30mm	1°	16°	B	75mm	MDM-205-03
3mm	6mm	3mm	45mm	1°	16°	B	75mm	MDM-206-03

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MDM-201 2 Flute Tuffy Ball End Extended Length

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Cutting Diameter	Shank Diameter	Flute Length	Reach Length	Draft Angle	Blend Angle	Tool Style	Overall Length	Tool Number AlTiN Coated
4mm	6mm	4mm	–	–	8°	A	75mm	MDM-201-04
4mm	6mm	4mm	10mm	2°	17°	B	75mm	MDM-203-04
4mm	6mm	4mm	15mm	1,5°	16,5°	B	75mm	MDM-204-04
4mm	6mm	4mm	20mm	1°	16°	B	75mm	MDM-205-04
5mm	6mm	5mm	–	–	8°	B	75mm	MDM-201-05
5mm	6mm	5mm	10mm	2°	17°	B	75mm	MDM-203-05
5mm	6mm	5mm	25mm	1°	16°	B	75mm	MDM-204-05
6mm	6mm	6mm	–	–	–	C	75mm	MDM-201-06
8mm	8mm	8mm	–	–	–	C	80mm	MDM-201-08
10mm	10mm	10mm	–	–	–	C	82mm	MDM-201-10
12mm	12mm	12mm	–	–	–	C	100mm	MDM-201-12

MDM SERIES SPEED & FEED (Chipload per Tooth)

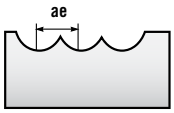
Cutter Diameter	Steels 30–40 HRc		Steels 40–50 HRc		Steels 50–60 HRc	
	ROUGHING	FINISHING	ROUGHING	FINISHING	ROUGHING	FINISHING
0,5	0,010-0,012	0,008-0,010	0,008-0,010	0,006-0,008	0,006-0,008	0,004-0,006
1	0,020-0,024	0,016-0,020	0,016-0,020	0,012-0,016	0,012-0,016	0,008-0,012
1,5	0,030-0,036	0,024-0,030	0,024-0,030	0,018-0,024	0,018-0,024	0,012-0,018
2	0,040-0,048	0,032-0,040	0,032-0,040	0,024-0,032	0,024-0,032	0,016-0,024
3	0,060-0,072	0,048-0,060	0,048-0,060	0,036-0,048	0,036-0,048	0,024-0,036
4	0,080-0,096	0,064-0,080	0,064-0,080	0,048-0,064	0,048-0,064	0,032-0,048
5	0,100-0,120	0,080-0,100	0,080-0,100	0,060-0,080	0,060-0,080	0,040-0,060
6	0,120-0,144	0,096-0,120	0,096-0,120	0,072-0,096	0,072-0,096	0,048-0,072
8	0,160-0,192	0,128-0,160	0,128-0,160	0,096-0,128	0,096-0,128	0,064-0,096
10	0,200-0,240	0,160-0,200	0,160-0,200	0,120-0,160	0,120-0,160	0,080-0,120
12	0,240-0,288	0,192-0,240	0,192-0,240	0,144-0,192	0,144-0,192	0,096-0,144

MDM SERIES SPEED & FEED (Roughing & Semi-Finishing)

Cutter Diameter	Rotations Per Minute (RPM)		
	STEELS 30–40HRc	STEELS 40–50HRc	STEELS 50–60HRc
0,5	20000-40000	20000-40000	20000-40000
1	20000-40000	20000-40000	20000-40000
1,5	20000-40000	20000-40000	20000-38600
2	20000-38100	20000-38100	19400-28900
3	16100-25400	19300-25400	12900-19300
4	12100-19100	14500-19100	9700-14500
5	9600-15300	11600-15300	7800-11600
6	8000-12700	9700-12700	6500-9600
8	6000-9500	7200-9500	4900-7200
10	4800-7600	5800-7600	3900-5800
12	4000-6400	4800-6400	3200-4800

MDM Series Guidelines

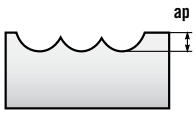
- Special diameters and lengths are available on a make-to-order basis.
- Air or mist coolant on materials greater than 40 HRc.



Roughing or Semi-Finishing
ae (Radial Width) = 25%–40% of the cutting diameter

MDM SERIES SPEED & FEED (Finishing)

Cutter Diameter	Rotations Per Minute (RPM)		
	STEELS 30–40HRc	STEELS 40–50HRc	STEELS 50–60HRc
0,5	20000-40000	20000-40000	20000-40000
1	20000-40000	20000-40000	20000-40000
1,5	20000-40000	20000-40000	20000-40000
2	20000-40000	20000-40000	20000-40000
3	20000-38600	20000-40000	20000-31800
4	20000-28900	20000-38800	19100-23800
5	19100-23100	20000-31000	15300-19100
6	15900-19300	19400-25900	12700-15900
8	11900-14500	14600-19400	9500-11900
10	9500-11600	11600-15500	7600-9500
12	7900-9600	9700-12900	6400-7900



30–40 HRc ap (Axial Depth) = 10% of the cutting diameter
40–50 HRc ap (Axial Depth) = 5% of the cutting diameter
50–60 HRc ap (Axial Depth) = 4% of the cutting diameter

MTM Solid Carbide Toroid Style End Mills

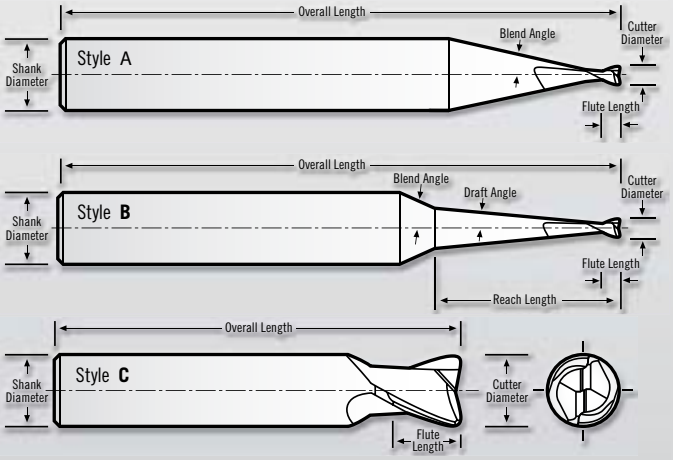
Characteristics Corner Radius · 2 Flute · 30° Helix

Applications Side Milling · Helical Interpolation · Conventional · Ramping · High Performance · Roughing · Semi-Finishing · Finishing · Dry · Cold Air · Spray Mist

Materials 40 HRc Hardness · 50 HRc Hardness · 64 HRc Hardness

Coatings Aluminum Titan. Nitride

Best Tool for Helical Bores or Tight Corners



MTM Tolerances:
Cutting Dia. = –0,025/–0,050 mm
Shank Dia. = –0,002/–0,005 mm
Flute Length = +0,500/0
OAL = ±1,000 mm

NEW Sizes Now Available!

MTM-201 Metrics 2 Flute Tuffy Grade Toroid End Mill

Cutting Diameter	Shank Diameter	Flute Length	Reach Length	Draft Angle	Blend Angle	Corner Radius	Tool Style	Overall Length	Tool Number AlTiN Coated
0,8mm	6mm	0,8mm	–	–	8°	0,2mm	A	63mm	MTM-201-0.8
0,8mm	6mm	0,8mm	3mm	3°	18°	0,2mm	B	63mm	MTM-202-0.8
0,8mm	6mm	0,8mm	5mm	1,5°	16,5°	0,2mm	B	63mm	MTM-203-0.8
0,8mm	6mm	0,8mm	10mm	1,5°	16,5°	0,2mm	B	63mm	MTM-204-0.8
0,8mm	6mm	0,8mm	15mm	1,5°	16,5°	0,2mm	B	63mm	MTM-205-0.8
1mm	6mm	1mm	–	–	8°	0,3mm	A	63mm	MTM-201-01
1mm	6mm	1mm	3mm	3°	18°	0,3mm	B	63mm	MTM-202-01
1mm	6mm	1mm	5mm	1,5°	16,5°	0,3mm	B	63mm	MTM-203-01
1mm	6mm	1mm	10mm	1,5°	16,5°	0,3mm	B	63mm	MTM-204-01
1mm	6mm	1mm	20mm	1,5°	16,5°	0,3mm	B	63mm	MTM-205-01
1,5mm	6mm	1,5mm	–	–	8°	0,5mm	A	63mm	MTM-201-01.5
1,5mm	6mm	1,5mm	5mm	3°	18°	0,5mm	B	63mm	MTM-202-01.5
1,5mm	6mm	1,5mm	10mm	1,5°	16,5°	0,5mm	B	63mm	MTM-203-01.5
1,5mm	6mm	1,5mm	20mm	1,5°	16,5°	0,5mm	B	63mm	MTM-204-01.5
1,5mm	6mm	1,5mm	30mm	1,5°	16,5°	0,5mm	B	63mm	MTM-205-01.5
2mm	6mm	2mm	–	–	8°	0,5mm	A	63mm	MTM-201-02
2mm	6mm	2mm	5mm	3°	18°	0,5mm	B	63mm	MTM-202-02
2mm	6mm	2mm	10mm	1,5°	16,5°	0,5mm	B	63mm	MTM-203-02
2mm	6mm	2mm	20mm	1,5°	16,5°	0,5mm	B	63mm	MTM-204-02
2mm	6mm	2mm	30mm	1,5°	16,5°	0,5mm	B	63mm	MTM-205-02
3mm	6mm	3mm	–	–	8°	0,5mm	A	75mm	MTM-201-03
3mm	6mm	3mm	5mm	3°	18°	0,5mm	B	75mm	MTM-202-03
3mm	6mm	3mm	15mm	1,5°	16,5°	0,5mm	B	75mm	MTM-203-03
3mm	6mm	3mm	30mm	1°	16°	0,5mm	B	75mm	MTM-204-03
3mm	6mm	3mm	45mm	1°	16°	0,5mm	B	75mm	MTM-205-03

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MTM-201 Metrics 2 Flute Tuffy Grade Toroid End Mill

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Cutting Diameter	Shank Diameter	Flute Length	Reach Length	Draft Angle	Blend Angle	Corner Radius	Tool Style	Overall Length	Tool Number AlTiN Coated
4mm	6mm	4mm	–	–	8°	0,5mm	A	75mm	MTM-201-04
4mm	6mm	4mm	10mm	2°	17°	0,5mm	B	75mm	MTM-202-04
4mm	6mm	4mm	15mm	1,5°	16,5°	0,5mm	B	75mm	MTM-203-04
4mm	6mm	4mm	20mm	1°	16°	0,5mm	B	75mm	MTM-204-04
5mm	6mm	5mm	–	–	8°	1mm	A	75mm	MTM-201-05
5mm	6mm	5mm	10mm	3°	18°	1mm	B	75mm	MTM-202-05
5mm	6mm	5mm	25mm	1°	16°	1mm	B	75mm	MTM-203-05
6mm	6mm	6mm	–	–	–	1mm	C	75mm	MTM-201-06
8mm	8mm	8mm	–	–	–	1mm	C	80mm	MTM-201-08
10mm	10mm	10mm	–	–	–	2mm	C	82mm	MTM-201-10
12mm	12mm	12mm	–	–	–	3mm	C	100mm	MTM-201-12

NEW Sizes Now Available!

MTM SERIES SPEED & FEED (Semi-Finishing & Finishing)

Cutter Diameter	Steels 30–40 HRc		Steels 40–50 HRc		Steels 50–60 HRc	
	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth
0,8	20000-78800	0,006-0,010	20000-66700	0,006-0,007	20000-50900	0,005-0,006
1	20000-63100	0,008-0,012	20000-53400	0,007-0,009	20000-40800	0,006-0,007
2	20000-31500	0,016-0,024	20000-26700	0,014-0,018	11600-20400	0,012-0,014
3	17800-21000	0,018-0,024	13600-17800	0,017-0,022	7800-13600	0,014-0,019
4	13300-15800	0,024-0,032	10200-13300	0,022-0,029	5800-10200	0,019-0,026
5	11400-13400	0,030-0,040	8200-10700	0,028-0,036	4700-8200	0,024-0,032
6	9500-11200	0,036-0,048	7400-8900	0,034-0,043	4000-6800	0,029-0,038
8	7100-8400	0,040-0,064	5600-7200	0,045-0,058	3300-5600	0,038-0,051
10	5700-6700	0,040-0,080	4400-5700	0,046-0,070	2700-4400	0,048-0,064
12	4800-5600	0,048-0,096	3700-4800	0,048-0,082	2200-3700	0,048-0,077

(Use maximum RPM if suggested RPM is higher than the machine's capabilities)

MTM Series Guidelines

- Speed and Feeds are only general starting points and may vary depending on specific applications.
- Use Climb Milling for better finish and longer tool life.
- Air or mist coolant on materials greater than 40 HRc.
- Good machines, tool holders, and programming methods all help in extending tool life.
- The best way to engage into the material is by helical interpolation or entering from off the part.
- Use for tight areas like helical bores or tight corners. For large open areas use HM/MHM Series.

Additional Notes

- Facing radial width = 25% ae.
- Facing axial depth = 2% ap.
- Special diameters, lengths, and corner radii are available on a make-to-order basis.
- Special draft angles (blend angle) or necked shanks for part clearance are available upon request and usually ship within the next business day.

MHM Die/Mold End Mills

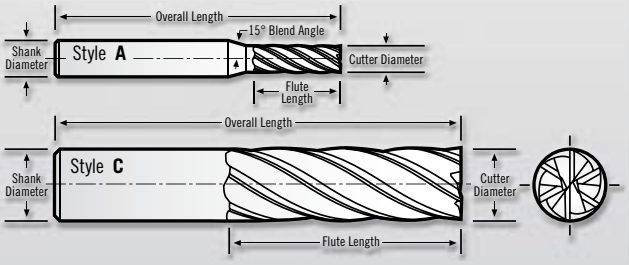
Characteristics: 4 Flute, 6 Flute, 8 Flute, 10 Flute, 45° Helix

Applications: Side Milling, High Performance, Roughing, Semi-Finishing, Finishing, Dry, Cold Air, Spray Mist

Materials: 40 HRc Hardness, 50 HRc Hardness, 64 HRc Hardness

Coatings: Aluminum Titan. Nitride

Best Tool for Open Areas of Floors & Walls



MHM Tolerances

Cutting Dia. = –0,025/–0,050mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,50/+1,50mm
OAL = ±1,000mm

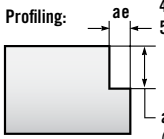
MHM Metric Multi-Flute Tuffy Grade

Cutting Diameter	Shank Diameter	Number of Flutes	Flute Length	Corner Radius	Tool Style	Overall Length	Tool Number AlTiN Coated
3mm	6mm	4	9mm	0,4mm	A	76mm	MHM-402-03
4mm	6mm	4	12mm	0,5mm	A	76mm	MHM-402-04
5mm	6mm	4	15mm	0,5mm	C	90mm	MHM-402-05
6mm	6mm	6	15mm	0,5mm	C	90mm	MHM-602-06
8mm	8mm	6	20mm	0,75mm	C	100mm	MHM-602-08
10mm	10mm	6	25mm	0,75mm	C	100mm	MHM-602-10
12mm	12mm	6	30mm	1mm	C	100mm	MHM-602-12
16mm	16mm	6	40mm	1mm	C	150mm	MHM-602-16
20mm	20mm	8	45mm	1,5mm	C	150mm	MHM-802-20
25mm	25mm	10	50mm	1,5mm	C	150mm	MHM-102-25

MHM SERIES SPEED & FEED (Semi-Finishing & Finishing)

Cutter Diameter	Steels 30–40 HRc		Steels 40–50 HRc		Steels 50–60 HRc	
	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth	RPM	Chip Load per Tooth
3	17800-21000	0,018-0,024	13600-17800	0,017-0,022	7800-13600	0,014-0,019
4	13300-15800	0,024-0,032	10200-13300	0,022-0,029	5800-10200	0,019-0,026
5	11400-13400	0,030-0,040	8200-10700	0,028-0,036	4700-8200	0,024-0,032
6	9500-11200	0,036-0,048	7400-8900	0,034-0,043	4000-6800	0,029-0,038
8	7100-8400	0,040-0,064	5600-7200	0,045-0,058	3300-5600	0,038-0,051
10	5700-6700	0,040-0,080	4400-5700	0,046-0,070	2700-4400	0,048-0,064
12	4800-5600	0,048-0,096	3700-4800	0,048-0,082	2200-3700	0,048-0,077
16	3600-4200	0,048-0,096	2800-3600	0,056-0,088	1700-2800	0,053-0,080
20	2900-3300	0,060-0,120	2200-2900	0,064-0,108	1300-2200	0,056-0,100
25	2300-2700	0,075-0,150	1800-2300	0,068-0,135	1100-1800	0,060-0,123

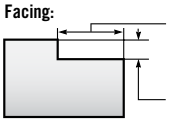
Profiling:



30–40 HRc **ae** = 5% of the cutting diameter
40–50 HRc **ae** = 5% of the cutting diameter
50–60 HRc **ae** = 2% of the cutting diameter

ap = 1 x cutting diameter (Axial Depth)

Facing:



ae = 25% of the cutting diameter (Radial Width)

ap = 2% of the cutting diameter (Axial Depth)

MHM Series Guidelines

- Speed and Feeds are only general starting points and may vary depending on specific applications.
- Use Climb Milling for better finish and longer tool life.
- Air or mist coolant on materials greater than 40 HRc.
- Good machines, tool holders, and programming methods all help in extending tool life.
- The best way to engage into the material is by helical interpolation or entering from off the part.
- Use for open areas of floors or walls. For tight areas like helical bores or tight corners use TM/MTM Series.

Additional Notes

- Special draft angles (blend angle) or necked shanks for part clearance are available upon request.
- Special diameters, lengths, and corner radii are available on a make-to-order basis.

MoldMaker End Mills P820

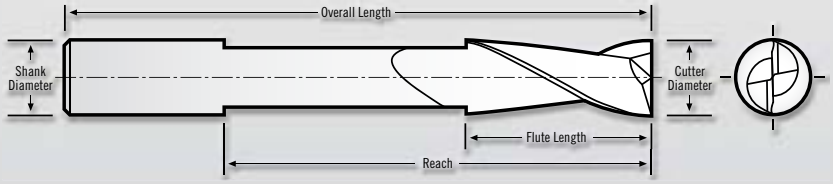
Characteristics Square End, Ball End, 2 Flute, 4 Flute, Necked

Applications Slotting, Side Milling, High Performance, Ramping, 3-D, High-Speed, Roughing, Semi-Finishing, Finishing, Dry, Cold Air, Spray Mist

Materials Aluminum, Copper, Brass, Composites

Coatings Diamond Coated (DCC)

10-20X Tool Life Over Carbide!



Metric Tolerances
Cutting Diameter
(up to 3,000 mm) = +0,000/–0,013mm
(3 mm to 6mm) = +0,000/–0,025mm
Shank Diameter = –0,002/–0,005mm
Flute Length = ±1,000mm
Overall Length = +0,500/–1,500mm

P820 2 Flute Mold Maker End Mills (with Reach)

Cutting Diameter	Flute Length	Overall Length	Reach Length	End Style	Shank Diameter	Tool Number Coated
0,5mm	2,5mm	62mm	3mm	BN	3mm	P820-200338-1
0,5mm	2,5mm	62mm	3mm	SE	3mm	P820-200337-1

P820 2 Flute Mold Maker End Mills w/o Reach

Cutting Diameter	Flute Length	Overall Length	End Style	Shank Diameter	Tool Number Coated
0,5mm	2,5mm	62mm	BN	3mm	P820-200670-1
0,5mm	2,5mm	62mm	SE	3mm	P820-200669-1

P820 4 Flute Mold Maker End Mills (with Reach)

Cutting Diameter	Flute Length	Overall Length	Reach Length	End Style	Shank Diameter	Tool Number Coated
1mm	5mm	62mm	12mm	BN	3mm	P820-200340-1
1mm	5mm	62mm	12mm	SE	3mm	P820-200339-1
1,5mm	7,5mm	62mm	25mm	BN	3mm	P820-200342-1
1,5mm	7,5mm	62mm	25mm	SE	3mm	P820-200341-1
2mm	10mm	62mm	25mm	BN	3mm	P820-200344-1
2mm	10mm	62mm	25mm	SE	3mm	P820-200343-1
3mm	15mm	62mm	30mm	BN	3mm	P820-200346-1
3mm	15mm	62mm	30mm	SE	3mm	P820-200345-1
4mm	20mm	75mm	40mm	BN	4mm	P820-200348-1
4mm	20mm	75mm	40mm	SE	4mm	P820-200347-1
6mm	24mm	75mm	50mm	BN	6mm	P820-200350-1
6mm	24mm	75mm	50mm	SE	6mm	P820-200349-1

P820 4 Flute Mold Maker End Mills (w/o Reach)

Cutting Diameter	Flute Length	Overall Length	End Style	Shank Diameter	Tool Number Coated
1mm	5mm	62mm	BN	3mm	P820-200672-1
1mm	5mm	62mm	SE	3mm	P820-200671-1
1,5mm	7,5mm	62mm	BN	3mm	P820-200674-1
1,5mm	7,5mm	62mm	SE	3mm	P820-200673-1
2mm	10mm	62mm	BN	3mm	P820-200676-1
2mm	10mm	62mm	SE	3mm	P820-200675-1
3mm	15mm	62mm	BN	3mm	P820-200678-1
3mm	15mm	62mm	SE	3mm	P820-200677-1
4mm	20mm	75mm	BN	4mm	P820-200680-1
4mm	20mm	75mm	SE	4mm	P820-200679-1
6mm	24mm	75mm	BN	6mm	P820-200682-1
6mm	24mm	75mm	SE	6mm	P820-200681-1

P820 SERIES SPEED & FEED (Graphite)

Tool Diameter	Chip Load Per Tooth (mm)					
	SOFT GRAPHITE		MEDIUM GRAPHITE		HARD GRAPHITE	
	ROUGHING	FINISHING	ROUGHING	FINISHING	ROUGHING	FINISHING
1,0mm	0,0152-0,0203	0,0127-0,0152	0,0127-0,0152	0,0102-0,0127	0,0102-0,0127	0,0076-0,0102
1,5mm	0,0330-0,0381	0,0254-0,0330	0,0254-0,0330	0,0203-0,0254	0,0203-0,0254	0,0127-0,0203
2,0mm	0,0483-0,0584	0,0381-0,0483	0,0381-0,0483	0,0279-0,0381	0,0279-0,0381	0,0203-0,0279
3,0mm	0,0635-0,0762	0,0508-0,0635	0,0508-0,0635	0,0381-0,0508	0,0381-0,0508	0,0254-0,0381
4,0mm	0,0965-0,1143	0,0762-0,0965	0,0762-0,0965	0,0584-0,0762	0,0584-0,0762	0,0381-0,0584
6,0mm	0,1270-0,1524	0,1016-0,1270	0,1016-0,1270	0,0762-0,1016	0,0762-0,1016	0,0508-0,0762
8,0mm	0,1600-0,1905	0,1270-0,1600	0,1270-0,1600	0,0965-,01270	0,0965-0,1270	0,0635-0,0965
10,0mm	0,1905-0,2286	0,1524-0,1905	0,1524-0,1905	0,1143-0,1524	0,1143-0,1524	0,0762-0,1143
11,0mm	0,2235-0,2667	0,1778-0,2235	0,1778-0,2235	0,1346-0,1778	0,1346-0,1778	0,0889-0,1346
12,0mm	0,2540-0,3048	0,2322-0,2540	0,2322-0,2540	0,1524-0,2322	0,1524-0,2322	0,1016-0,1524

Cutting Speed	
Soft Graphite	305-610smm
Medium Graphite	229-457smm
Hard Graphite	152-381smm

Use maximum RPM if suggested RPM is higher than the machines capabilities.

Speeds and feeds are only general starting points and may vary depending on specific applications.

P820 Metric Big Shank Tools

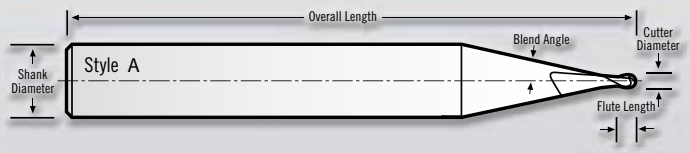
Characteristics Square End, Ball End, 4 Flute, Necked

Applications Slotting, Side Milling, Ramping, High Performance, 3-D, High-Speed, Roughing, Semi-Finishing, Finishing, Dry, Cold Air, Spray Mist

Materials Aluminum, Copper, Brass, Composites

Coatings Diamond Coated (DCC)

10-20X Tool Life Over Carbide!



Big Shank Tolerances

Cutting Diameter (0,400 to 4mm) = +0,010/–0,000mm
(6mm) = ±0,010mm
(8 to 10mm) = +0,025/–0,050mm
Shank Diameter = –0,002/–0,005mm
Flute Length = ±1,000mm
Overall Length = +0,500/+1,500 mm

P820 2 Flute Big Shank Tools

Cutting Diameter	Flute Length	Overall Length	Reach Length	End Style	Shank Diameter	Tool Number Coated
0,4mm	2mm	62mm	–	Ball End	6mm	P820-200745-1
0,4mm	2mm	62mm	–	Square End	6mm	P820-200744-1
0,5mm	2,5mm	62mm	–	Ball End	6mm	P820-200733-1
0,5mm	2,5mm	62mm	–	Square End	6mm	P820-200746-1
0,6mm	3mm	63mm	–	Ball End	6mm	P820-200784-1
0,6mm	3mm	63mm	–	Square End	6mm	P820-200785-1

P820 4 Flute Big Shank Tools

Cutting Diameter	Flute Length	Overall Length	Reach Length	End Style	Shank Diameter	Tool Number Coated
0,8mm	5mm	50mm	7mm	Ball End	6mm	P820-200734-1
0,8mm	5mm	50mm	7mm	Square End	6mm	P820-200783-1
1mm	5mm	50mm	7mm	Ball End	6mm	P820-200768-1
1mm	5mm	50mm	7mm	Square End	6mm	P820-200747-1
2mm	8mm	50mm	–	Ball End	6mm	P820-200749-1
2mm	8mm	50mm	–	Square End	6mm	P820-200748-1
3mm	12mm	50mm	–	Ball End	6mm	P820-200769-1
3mm	12mm	50mm	–	Square End	6mm	P820-200770-1
4mm	14mm	50mm	–	Ball End	6mm	P820-200737-1
4mm	14mm	50mm	–	Square End	6mm	P820-200771-1
6mm	14mm	57mm	–	Ball End	6mm	P820-200772-1
6mm	14mm	57mm	–	Square End	6mm	P820-200773-1
8mm	18mm	63mm	–	Ball End	8mm	P820-200574-1
8mm	18mm	63mm	–	Square End	8mm	P820-200573-1
10mm	10mm	63mm	25mm	Ball End	10mm	P820-200786-1
10mm	10mm	63mm	25mm	Square End	10mm	P820-200575-1

TOOLS FOR Miniatures Applications

NEW Coatings Available!

TiN TiCN AlTiN

MSS-2	2 Flute Stub Length		**54**
MSR-2	2 Flute Standard Length		**54**
MSS-2BN	2 Flute Stub Length Ball Nose		**55**
MSR-2BN	2 Flute Standard Length Ball Nose		**55**
MSS-4	4 Flute Stub Length		**56**
MSR-4	4 Flute Standard Length		**56**
MAH **Accuhold**	Extension Holder (Also in Multiple Apps)		**56**

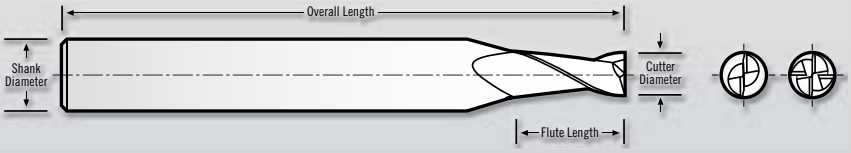
MSS/MSR-2 2 Flute Miniature End Mills

Characteristics: Square End, 2 Flute, 30° Helix

Applications: Slotting, Side Milling, Helical Interpolation, Ramping, High Performance, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials: Aluminum, Copper, Titanium, Magnesium, Cast Iron, Steel, Stainless Steel, Super Alloys, Plastics, Composites, 40 HRc Hardness, Brass

Coatings: Titanium Nitride, Titanium Carbo-Nitride, Aluminum Titan. Nitride, Diamond-Like Carbon (DLC)



MSS/MSR Tolerances

Cutting Dia. = ±0,010mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,10/–0,00mm
OAL = +1,00/–0,00mm

Tight Tolerances

MSS-2 Metric 2 Flute Miniature Stub Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated	Tool Number TiCN Coated	Tool Number AlTiN Coated	Tool Number DLC Coated
0,15mm	3mm	0,225mm	38mm	MSS-2-015	MSS-2-015 **T**	MSS-2-015 **C**	MSS-2-015 **A**	MSS-2-015 **DLC**
0,20mm	3mm	0,300mm	38mm	MSS-2-020	MSS-2-020 **T**	MSS-2-020 **C**	MSS-2-020 **A**	MSS-2-020 **DLC**
0,25mm	3mm	0,375mm	38mm	MSS-2-025	MSS-2-025 **T**	MSS-2-025 **C**	MSS-2-025 **A**	MSS-2-025 **DLC**
0,30mm	3mm	0,450mm	38mm	MSS-2-030	MSS-2-030 **T**	MSS-2-030 **C**	MSS-2-030 **A**	MSS-2-030 **DLC**
0,35mm	3mm	0,525mm	38mm	MSS-2-035	MSS-2-035 **T**	MSS-2-035 **C**	MSS-2-035 **A**	MSS-2-035 **DLC**
0,40mm	3mm	0,600mm	38mm	MSS-2-040	MSS-2-040 **T**	MSS-2-040 **C**	MSS-2-040 **A**	MSS-2-040 **DLC**
0,45mm	3mm	0,675mm	38mm	MSS-2-045	MSS-2-045 **T**	MSS-2-045 **C**	MSS-2-045 **A**	MSS-2-045 **DLC**
0,50mm	3mm	0,750mm	38mm	MSS-2-050	MSS-2-050 **T**	MSS-2-050 **C**	MSS-2-050 **A**	MSS-2-050 **DLC**
0,55mm	3mm	0,825mm	38mm	MSS-2-055	MSS-2-055 **T**	MSS-2-055 **C**	MSS-2-055 **A**	MSS-2-055 **DLC**
0,60mm	3mm	0,900mm	38mm	MSS-2-060	MSS-2-060 **T**	MSS-2-060 **C**	MSS-2-060 **A**	MSS-2-060 **DLC**
0,65mm	3mm	0,975mm	38mm	MSS-2-065	MSS-2-065 **T**	MSS-2-065 **C**	MSS-2-065 **A**	MSS-2-065 **DLC**
0,70mm	3mm	1,05mm	38mm	MSS-2-070	MSS-2-070 **T**	MSS-2-070 **C**	MSS-2-070 **A**	MSS-2-070 **DLC**
0,80mm	3mm	1,20mm	38mm	MSS-2-080	MSS-2-080 **T**	MSS-2-080 **C**	MSS-2-080 **A**	MSS-2-080 **DLC**
1,00mm	3mm	1,50mm	38mm	MSS-2-100	MSS-2-100 **T**	MSS-2-100 **C**	MSS-2-100 **A**	MSS-2-100 **DLC**
1,50mm	3mm	2,25mm	38mm	MSS-2-150	MSS-2-150 **T**	MSS-2-150 **C**	MSS-2-150 **A**	MSS-2-150 **DLC**

Tight Tolerances

MSR-2 2 Flute Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated	Tool Number TiCN Coated	Tool Number AlTiN Coated	Tool Number DLC Coated
0,25mm	3mm	0,75mm	38mm	MSR-2-025	MSR-2-025 **T**	MSR-2-025 **C**	MSR-2-025 **A**	MSR-2-025 **DLC**
0,30mm	3mm	0,90mm	38mm	MSR-2-030	MSR-2-030 **T**	MSR-2-030 **C**	MSR-2-030 **A**	MSR-2-030 **DLC**
0,35mm	3mm	1,05mm	38mm	MSR-2-035	MSR-2-035 **T**	MSR-2-035 **C**	MSR-2-035 **A**	MSR-2-035 **DLC**
0,40mm	3mm	1,20mm	38mm	MSR-2-040	MSR-2-040 **T**	MSR-2-040 **C**	MSR-2-040 **A**	MSR-2-040 **DLC**
0,45mm	3mm	1,35mm	38mm	MSR-2-045	MSR-2-045 **T**	MSR-2-045 **C**	MSR-2-045 **A**	MSR-2-045 **DLC**
0,50mm	3mm	1,50mm	38mm	MSR-2-050	MSR-2-050 **T**	MSR-2-050 **C**	MSR-2-050 **A**	MSR-2-050 **DLC**
0,55mm	3mm	1,65mm	38mm	MSR-2-055	MSR-2-055 **T**	MSR-2-055 **C**	MSR-2-055 **A**	MSR-2-055 **DLC**
0,60mm	3mm	1,80mm	38mm	MSR-2-060	MSR-2-060 **T**	MSR-2-060 **C**	MSR-2-060 **A**	MSR-2-060 **DLC**
0,65mm	3mm	1,95mm	38mm	MSR-2-065	MSR-2-065 **T**	MSR-2-065 **C**	MSR-2-065 **A**	MSR-2-065 **DLC**
0,70mm	3mm	2,10mm	38mm	MSR-2-070	MSR-2-070 **T**	MSR-2-070 **C**	MSR-2-070 **A**	MSR-2-070 **DLC**
0,80mm	3mm	2,40mm	38mm	MSR-2-080	MSR-2-080 **T**	MSR-2-080 **C**	MSR-2-080 **A**	MSR-2-080 **DLC**
1,00mm	3mm	3,00mm	38mm	MSR-2-100	MSR-2-100 **T**	MSR-2-100 **C**	MSR-2-100 **A**	MSR-2-100 **DLC**
1,50mm	3mm	4,50mm	38mm	MSR-2-150	MSR-2-150 **T**	MSR-2-150 **C**	MSR-2-150 **A**	MSR-2-150 **DLC**

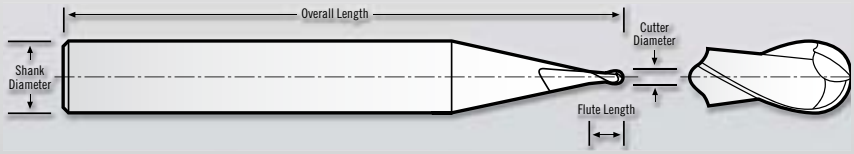
2 Flute Miniature Ball End Mills MSS/MSR-2BN

Characteristics: Ball End, 2 Flute, 30° Helix

Applications: Slotting, Side Milling, Helical Interpolation, Conventional, Ramping, 3-D, High Performance, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials: Aluminum, Copper, Titanium, Magnesium, Cast Iron, Steel, Stainless Steel, Super Alloys, Plastics, Composites, 40 HRc Hardness, Brass

Coatings: Titanium Nitride, Titanium Carbo-Nitride, Aluminum Titan. Nitride, Diamond-Like Carbon (DLC)



MSS/MSR Tolerances
Cutting Dia. = ±0,010 mm
Shank Dia. = –0,002/–0,005 mm
Flute Length = +0,10/–0,00 mm
OAL = +1,00/–0,00 mm

Tight Tolerances

MSS-2BN Metric 2 Flute Ball End Stub Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated	Tool Number TiCN Coated
0,50mm	3mm	0,750mm	38mm	MSS-2-050BN	MSS-2-050BN **T**	MSS-2-050BN **C**
0,60mm	3mm	0,900mm	38mm	MSS-2-060BN	MSS-2-060BN **T**	MSS-2-060BN **C**
0,70mm	3mm	1,05mm	38mm	MSS-2-070BN	MSS-2-070BN **T**	MSS-2-070BN **C**
0,80mm	3mm	1,20mm	38mm	MSS-2-080BN	MSS-2-080BN **T**	MSS-2-080BN **C**
1,00mm	3mm	1,50mm	38mm	MSS-2-100BN	MSS-2-100BN **T**	MSS-2-100BN **C**
1,50mm	3mm	2,25mm	38mm	MSS-2-150BN	MSS-2-150BN **T**	MSS-2-150BN **C**

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number AlTiN Coated	Tool Number DLC Coated
0,50mm	3mm	0,750mm	38mm	MSS-2-050BN **A**	MSS-2-050BN **DLC**
0,60mm	3mm	0,900mm	38mm	MSS-2-060BN **A**	MSS-2-060BN **DLC**
0,70mm	3mm	1,05mm	38mm	MSS-2-070BN **A**	MSS-2-070BN **DLC**
0,80mm	3mm	1,20mm	38mm	MSS-2-080BN **A**	MSS-2-080BN **DLC**
1,00mm	3mm	1,50mm	38mm	MSS-2-100BN **A**	MSS-2-100BN **DLC**
1,50mm	3mm	2,25mm	38mm	MSS-2-150BN **A**	MSS-2-150BN **DLC**

Tight Tolerances

MSR-2BN Metric 2 Flute Ball End Tuffy Grade Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated	Tool Number TiCN Coated
,50mm	3mm	1,50mm	38mm	MSR-2-050BN	MSR-2-050BN **T**	MSR-2-050BN **C**
,60mm	3mm	1,80mm	38mm	MSR-2-060BN	MSR-2-060BN **T**	MSR-2-060BN **C**
,70mm	3mm	2,10mm	38mm	MSR-2-070BN	MSR-2-070BN **T**	MSR-2-070BN **C**
,80mm	3mm	2,40mm	38mm	MSR-2-080BN	MSR-2-080BN **T**	MSR-2-080BN **C**
1,00mm	3mm	3,00mm	38mm	MSR-2-100BN	MSR-2-100BN **T**	MSR-2-100BN **C**
1,50mm	3mm	4,50mm	38mm	MSR-2-150BN	MSR-2-150BN **T**	MSR-2-150BN **C**

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number AlTiN Coated	Tool Number DLC Coated
,50mm	3mm	1,50mm	38mm	MSR-2-050BN **A**	MSR-2-050BN **DLC**
,60mm	3mm	1,80mm	38mm	MSR-2-060BN **A**	MSR-2-060BN **DLC**
,70mm	3mm	2,10mm	38mm	MSR-2-070BN **A**	MSR-2-070BN **DLC**
,80mm	3mm	2,40mm	38mm	MSR-2-080BN **A**	MSR-2-080BN **DLC**
1,00mm	3mm	3,00mm	38mm	MSR-2-100BN **A**	MSR-2-100BN **DLC**
1,50mm	3mm	4,50mm	38mm	MSR-2-150BN **A**	MSR-2-150BN **DLC**

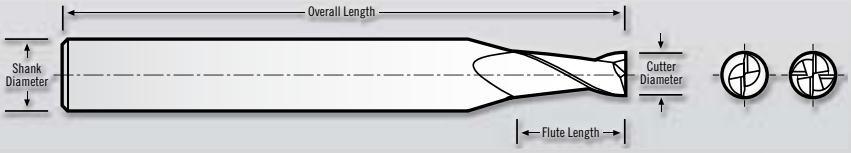
MSS/MSR-4 4 Flute Miniature End Mills

Characteristics: Square End, 4 Flute, 30° Helix

Applications: Slotting, Side Milling, Helical Interpolation, Ramping, High Performance, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials: Aluminum, Copper, Titanium, Magnesium, Cast Iron, Steel, Stainless Steel, Super Alloys, Plastics, Composites, 40 HRc Hardness, Brass

Coatings: Titanium Nitride, Titanium Carbo-Nitride, Aluminum Titan. Nitride, Diamond-Like Carbon (DLC)



MSS/MSR Tolerances
Cutting Dia. = ±0,010mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,10/–0,00mm
OAL = +1,00/–0,00mm

Tight Tolerances

MSS-4 Metric 4 Flute Tuffy Grade Stub Length

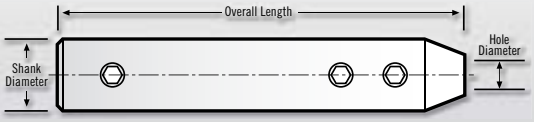
Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated	Tool Number TiCN Coated	Tool Number AlTiN Coated	Tool Number DLC Coated
0,80mm	3mm	1,20mm	38mm	MSS-4-080	MSS-4-080 **T**	MSS-4-080 **C**	MSS-4-080 **A**	MSS-4-080 **DLC**
1,00mm	3mm	1,50mm	38mm	MSS-4-100	MSS-4-100 **T**	MSS-4-100 **C**	MSS-4-100 **A**	MSS-4-100 **DLC**
1,50mm	3mm	2,25mm	38mm	MSS-4-150	MSS-4-150 **T**	MSS-4-150 **C**	MSS-4-150 **A**	MSS-4-150 **DLC**

Tight Tolerances

MSR-4 Metric 4 Flute Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated	Tool Number TiCN Coated	Tool Number AlTiN Coated	Tool Number DLC Coated
0,80mm	3mm	2,40mm	38mm	MSR-4-080	MSR-4-080 **T**	MSR-4-080 **C**	MSR-4-080 **C**	MSR-4-080 **DLC**
1,00mm	3mm	3,00mm	38mm	MSR-4-100	MSR-4-100 **T**	MSR-4-100 **C**	MSR-4-100 **C**	MSR-4-100 **DLC**
1,50mm	3mm	4,50mm	38mm	MSR-4-150	MSR-4-150 **T**	MSR-4-150 **C**	MSR-4-150 **C**	MSR-4-150 **DLC**

MAH Accuhold End Mill Extension Holder

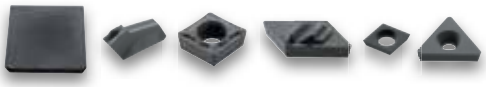


MAH Tolerances
Hole Dia. = +,004/–,000 mm
Shank Dia. = +,000/–,007 mm
OAL = ±1,5 mm

MAH Accuhold – Metric End Mill Extension Holder

Hole Diameter	Shank Diameter	Overall Length	Tool Number
3mm	10mm	82,5mm	MAH-03
4mm	12mm	110mm	MAH-04
5mm	12mm	110mm	MAH-05
6mm	16mm	125mm	MAH-06
8mm	20mm	135mm	MAH-08
10mm	20mm	135mm	MAH-10
12mm	25mm	150mm	MAH-12

TOOLS FOR Multiple Applications

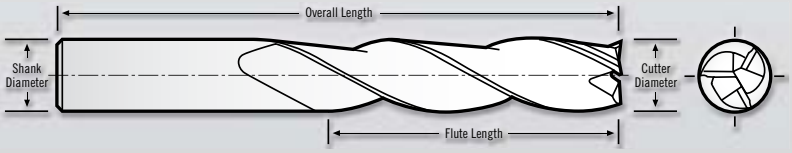
MNR 204/303	2 and 3 Flute Nominal Plus Diameter Tolerance		63
MTS 401	4 Flute		60
MSB 201 **MB** 203	2 Flute Ball End		61
MSB 301 **MB** 333	3 Flute Ball End		62
MTL 303	3 Flute Extra Long Cutting Length		58
MC8 201/203	2 and 3 Flute		59
P830	Diamond Coated Inserts		64
MAH Accuhold	Extension Holder		65

MTL Tuffy Grade Carbide End Mills

Characteristics: Square End, 3 Flute, 30° Helix

Applications: Side Milling, Semi-Finishing, Finishing, Wet, Cold Air, Spray Mist

Materials: Aluminum, Copper, Magnesium, Cast Iron, Steel, Stainless Steel, Plastics, Brass



MTL Tolerances

Cutting Dia. = +0,025/–0,000mm
Shank Dia. = –0,002/–0,005mm
OAL = ±1,000mm
Flute Length = +0,500/+1,500mm

+ Tolerances

MTL-303 Metric 3 Flute Tuffy Grade Extra Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number
3mm	3mm	25mm	75mm	MTL-303-03
4mm	4mm	26mm	75mm	MTL-303-04
5mm	5mm	28mm	75mm	MTL-303-05
6mm	6mm	32mm	75mm	MTL-303-06
8mm	8mm	35mm	80mm	MTL-303-08
10mm	10mm	38mm	82mm	MTL-303-10
12mm	12mm	50mm	100mm	MTL-303-12
16mm	16mm	63mm	110mm	MTL-303-16
20mm	20mm	75mm	130mm	MTL-303-20

Have Chatter?

See Robbjack's MFM Series (p.13) or Add Mirror Edge (p.6)!

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www.robbjack.com

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2. Find a Tool by:
Tool Type
Your Specifications
Tool Characteristics
Materials
Application

3. See Search Results Here!

Make changes in your search criteria, see new results here immediately!

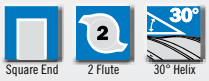
4. Click on a Tool Number

5. Complete Tool Description

Prices, available coatings, specifications, tolerances, features, speed and feeds, videos and much more!

C-2 Grade Carbide End Mills **MC8**

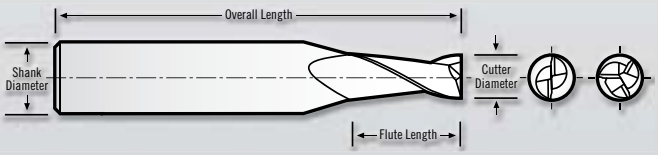
Characteristics



Applications

Materials

Coatings



MC8 Series Tolerances

Cutting Dia. = –0,025/–0,075 mm
Shank Dia. = –0,002/–0,005 mm
Flute Length = +1,0/–0 mm
OAL = ±1,000 mm

MC8-201 2 Flute C-2 Grade Stub Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated
1,5mm	6mm	3mm	50mm	MC8-201-01.5
3mm	6mm	6mm	50mm	MC8-201-03
4mm	6mm	8mm	50mm	MC8-201-04
5mm	6mm	10mm	50mm	MC8-201-05
6mm	6mm	12mm	50mm	MC8-201-06

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number DLC Coated
1,5mm	6mm	3mm	50mm	MC8-201-01.5 **DLC**
3mm	6mm	6mm	50mm	MC8-201-03 **DLC**
4mm	6mm	8mm	50mm	MC8-201-04 **DLC**
5mm	6mm	10mm	50mm	MC8-201-05 **DLC**
6mm	6mm	12mm	50mm	MC8-201-06 **DLC**

MC8-203 2 Flute C-2 Grade Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated
1,5mm	6mm	6mm	63mm	MC8-203-01.5
3mm	6mm	12mm	63mm	MC8-203-03
4mm	6mm	16mm	63mm	MC8-203-04
5mm	6mm	18mm	63mm	MC8-203-05
6mm	6mm	20mm	63mm	MC8-203-06

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number DLC Coated
1,5mm	6mm	6mm	63mm	MC8-203-01.5 **DLC**
3mm	6mm	12mm	63mm	MC8-203-03 **DLC**
4mm	6mm	16mm	63mm	MC8-203-04 **DLC**
5mm	6mm	18mm	63mm	MC8-203-05 **DLC**
6mm	6mm	20mm	63mm	MC8-203-06 **DLC**

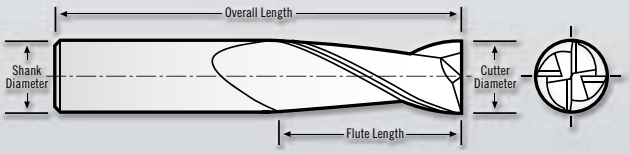
MTS Tuffy Grade Carbide End Mills

Characteristics: Square End, 4 Flute, 30° Helix

Applications: Side Milling, High Performance, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials: Aluminum, Copper, Titanium, Magnesium, Cast Iron, Steel, Brass

Coatings: Titanium Nitride, Titanium Carbo-Nitride, Aluminum Titan. Nitride, Diamond-Like Carbon (DLC)



MTS Tolerances

Cutting Dia. = +0,000/–0,075mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,500/+1,500mm
OAL = ±1,000mm

MTS-401 Metric 4 Flute Tuffy Grade Stub Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated
2mm	3mm	5mm	38mm	MTS-401-02	MTS-401-02 **T**
3mm	3mm	6mm	38mm	MTS-401-03	MTS-401-03 **T**
4mm	4mm	8mm	50mm	MTS-401-04	MTS-401-04 **T**
5mm	5mm	8mm	50mm	MTS-401-05	MTS-401-05 **T**
6mm	6mm	8mm	50mm	MTS-401-06	MTS-401-06 **T**
8mm	8mm	12mm	58mm	MTS-401-08	MTS-401-08 **T**
10mm	10mm	14mm	66mm	MTS-401-10	MTS-401-10 **T**
12mm	12mm	16mm	73mm	MTS-401-12	MTS-401-12 **T**
16mm	16mm	20mm	82mm	MTS-401-16	MTS-401-16 **T**
20mm	20mm	25mm	92mm	MTS-401-20	MTS-401-20 **T**

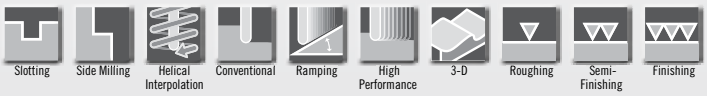
Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number TiCN Coated	Tool Number AlTiN Coated
2mm	3mm	5mm	38mm	MTS-401-02 **C**	MTS-401-02 **A**
3mm	3mm	6mm	38mm	MTS-401-03 **C**	MTS-401-03 **A**
4mm	4mm	8mm	50mm	MTS-401-04 **C**	MTS-401-04 **A**
5mm	5mm	8mm	50mm	MTS-401-05 **C**	MTS-401-05 **A**
6mm	6mm	8mm	50mm	MTS-401-06 **C**	MTS-401-06 **A**
8mm	8mm	12mm	58mm	MTS-401-08 **C**	MTS-401-08 **A**
10mm	10mm	14mm	66mm	MTS-401-10 **C**	MTS-401-10 **A**
12mm	12mm	16mm	73mm	MTS-401-12 **C**	MTS-401-12 **A**
16mm	16mm	20mm	82mm	MTS-401-16 **C**	MTS-401-16 **A**
20mm	20mm	25mm	92mm	MTS-401-20 **C**	MTS-401-20 **A**

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number DLC Coated
2mm	3mm	5mm	38mm	MTS-401-02 **DLC**
3mm	3mm	6mm	38mm	MTS-401-03 **DLC**
4mm	4mm	8mm	50mm	MTS-401-04 **DLC**
5mm	5mm	8mm	50mm	MTS-401-05 **DLC**
6mm	6mm	8mm	50mm	MTS-401-06 **DLC**
8mm	8mm	12mm	58mm	MTS-401-08 **DLC**
10mm	10mm	14mm	66mm	MTS-401-10 **DLC**
12mm	12mm	16mm	73mm	MTS-401-12 **DLC**
16mm	16mm	20mm	82mm	MTS-401-16 **DLC**
20mm	20mm	25mm	92mm	MTS-401-20 **DLC**

2 Flute Tuffy Grade Carbide Ball End Mills MSB/MB

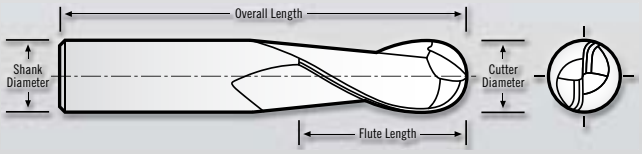
Characteristics

Applications



Materials

Coatings



MSB Tolerances

Cutting Dia. = +0,000/–0,075mm
Shank Dia. = –0,002/–0,005mm
OAL = ±1,000mm
Flute Length = +0,500/+1,500mm

NEW Coatings Available!

MSB-201 Metric 2 Flute Tuffy Ball End Mill Stub

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated	Tool Number TiCN Coated	Tool Number AlTiN Coated	Tool Number DLC Coated
2mm	3mm	5mm	38mm	MSB-201-02	MSB-201-02 **T**	MSB-201-02 **C**	MSB-201-02 **A**	MSB-201-02 **DLC**
3mm	3mm	6mm	38mm	MSB-201-03	MSB-201-03 **T**	MSB-201-03 **C**	MSB-201-03 **A**	MSB-201-03 **DLC**
4mm	4mm	8mm	50mm	MSB-201-04	MSB-201-04 **T**	MSB-201-04 **C**	MSB-201-04 **A**	MSB-201-04 **DLC**
5mm	5mm	8mm	50mm	MSB-201-05	MSB-201-05 **T**	MSB-201-05 **C**	MSB-201-05 **A**	MSB-201-05 **DLC**
6mm	6mm	8mm	50mm	MSB-201-06	MSB-201-06 **T**	MSB-201-06 **C**	MSB-201-06 **A**	MSB-201-06 **DLC**
8mm	8mm	12mm	58mm	MSB-201-08	MSB-201-08 **T**	MSB-201-08 **C**	MSB-201-08 **A**	MSB-201-08 **DLC**
10mm	10mm	14mm	66mm	MSB-201-10	MSB-201-10 **T**	MSB-201-10 **C**	MSB-201-10 **A**	MSB-201-10 **DLC**
12mm	12mm	16mm	73mm	MSB-201-12	MSB-201-12 **T**	MSB-201-12 **C**	MSB-201-12 **A**	MSB-201-12 **DLC**
16mm	16mm	20mm	82mm	MSB-201-16	MSB-201-16 **T**	MSB-201-16 **C**	MSB-201-16 **A**	MSB-201-16 **DLC**
20mm	20mm	25mm	92mm	MSB-201-20	MSB-201-20 **T**	MSB-201-20 **C**	MSB-201-20 **A**	MSB-201-20 **DLC**

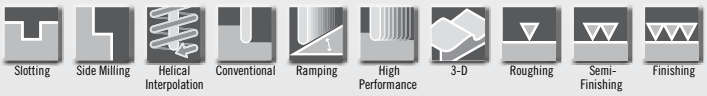
MB-203 Metric 2 Flute Tuffy Ball End Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated	Tool Number TiCN Coated	Tool Number AlTiN Coated	Tool Number DLC Coated
2mm	3mm	8mm	38mm	MB-203-02	MB-203-02 **T**	MB-203-02 **C**	MB-203-02 **A**	MB-203-02 **DLC**
3mm	3mm	12mm	38mm	MB-203-03	MB-203-03 **T**	MB-203-03 **C**	MB-203-03 **A**	MB-203-03 **DLC**
4mm	4mm	12mm	50mm	MB-203-04	MB-203-04 **T**	MB-203-04 **C**	MB-203-04 **A**	MB-203-04 **DLC**
5mm	5mm	14mm	50mm	MB-203-05	MB-203-05 **T**	MB-203-05 **C**	MB-203-05 **A**	MB-203-05 **DLC**
6mm	6mm	14mm	57mm	MB-203-06	MB-203-06 **T**	MB-203-06 **C**	MB-203-06 **A**	MB-203-06 **DLC**
8mm	8mm	16mm	63mm	MB-203-08	MB-203-08 **T**	MB-203-08 **C**	MB-203-08 **A**	MB-203-08 **DLC**
10mm	10mm	20mm	72mm	MB-203-10	MB-203-10 **T**	MB-203-10 **C**	MB-203-10 **A**	MB-203-10 **DLC**
12mm	12mm	25mm	83mm	MB-203-12	MB-203-12 **T**	MB-203-12 **C**	MB-203-12 **A**	MB-203-12 **DLC**
16mm	16mm	32mm	92mm	MB-203-16	MB-203-16 **T**	MB-203-16 **C**	MB-203-16 **A**	MB-203-16 **DLC**
20mm	20mm	38mm	104mm	MB-203-20	MB-203-20 **T**	MB-203-20 **C**	MB-203-20 **A**	MB-203-20 **DLC**

MSB/MB 3 Flute Tuffy Grade Carbide Ball End Mills

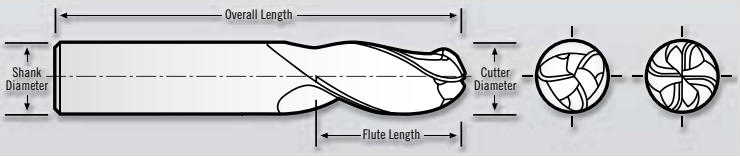
Characteristics

Applications



Materials

Coatings



MB Tolerances

Cutting Dia. = +0,000/–0,075mm
Shank Dia. = –0,002/–0,005mm
OAL = ±1,000mm
Flute Length = +0,500/+1,500mm

MSB-301 Metric 3 Flute Tuffy Ball End Stub Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated	Tool Number TiCN Coated	Tool Number AlTiN Coated	Tool Number DLC Coated
1,5mm	3mm	3mm	38mm	MSB-301-1.5	MSB-301-1.5 **T**	MSB-301-1.5 **C**	MSB-301-1.5 **A**	MSB-301-1.5 **DLC**
2mm	3mm	5mm	38mm	MSB-301-02	MSB-301-02 **T**	MSB-301-02 **C**	MSB-301-02 **A**	MSB-301-02 **DLC**
3mm	3mm	6mm	38mm	MSB-301-03	MSB-301-03 **T**	MSB-301-03 **C**	MSB-301-03 **A**	MSB-301-03 **DLC**
4mm	4mm	8mm	50mm	MSB-301-04	MSB-301-04 **T**	MSB-301-04 **C**	MSB-301-04 **A**	MSB-301-04 **DLC**
5mm	5mm	8mm	50mm	MSB-301-05	MSB-301-05 **T**	MSB-301-05 **C**	MSB-301-05 **A**	MSB-301-05 **DLC**
6mm	6mm	8mm	50mm	MSB-301-06	MSB-301-06 **T**	MSB-301-06 **C**	MSB-301-06 **A**	MSB-301-06 **DLC**
8mm	8mm	12mm	58mm	MSB-301-08	MSB-301-08 **T**	MSB-301-08 **C**	MSB-301-08 **A**	MSB-301-08 **DLC**
10mm	10mm	14mm	66mm	MSB-301-10	MSB-301-10 **T**	MSB-301-10 **C**	MSB-301-10 **A**	MSB-301-10 **DLC**
12mm	12mm	16mm	73mm	MSB-301-12	MSB-301-12 **T**	MSB-301-12 **C**	MSB-301-12 **A**	MSB-301-12 **DLC**
16mm	16mm	20mm	82mm	MSB-301-16	MSB-301-16 **T**	MSB-301-16 **C**	MSB-301-16 **A**	MSB-301-16 **DLC**
20mm	20mm	25mm	92mm	MSB-301-20	MSB-301-20 **T**	MSB-301-20 **C**	MSB-301-20 **A**	MSB-301-20 **DLC**

MB-333 Metric 3 Flute Tuffy Ball End Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated	Tool Number TiN Coated	Tool Number TiCN Coated	Tool Number AlTiN Coated	Tool Number DLC Coated
1,5mm	3mm	6mm	38mm	MB-333-1.5	MB-333-1.5 **T**	MB-333-1.5 **C**	MB-333-1.5 **A**	MB-333-1.5 **DLC**
2mm	3mm	8mm	38mm	MB-333-02	MB-333-02 **T**	MB-333-02 **C**	MB-333-02 **A**	MB-333-02 **DLC**
3mm	3mm	12mm	38mm	MB-333-03	MB-333-03 **T**	MB-333-03 **C**	MB-333-03 **A**	MB-333-03 **DLC**
4mm	4mm	12mm	50mm	MB-333-04	MB-333-04 **T**	MB-333-04 **C**	MB-333-04 **A**	MB-333-04 **DLC**
5mm	5mm	14mm	50mm	MB-333-05	MB-333-05 **T**	MB-333-05 **C**	MB-333-05 **A**	MB-333-05 **DLC**
6mm	6mm	14mm	57mm	MB-333-06	MB-333-06 **T**	MB-333-06 **C**	MB-333-06 **A**	MB-333-06 **DLC**
8mm	8mm	16mm	63mm	MB-333-08	MB-333-08 **T**	MB-333-08 **C**	MB-333-08 **A**	MB-333-08 **DLC**
10mm	10mm	20mm	72mm	MB-333-10	MB-333-10 **T**	MB-333-10 **C**	MB-333-10 **A**	MB-333-10 **DLC**
12mm	12mm	25mm	83mm	MB-333-12	MB-333-12 **T**	MB-333-12 **C**	MB-333-12 **A**	MB-333-12 **DLC**
16mm	16mm	32mm	92mm	MB-333-16	MB-333-16 **T**	MB-333-16 **C**	MB-333-16 **A**	MB-333-16 **DLC**
20mm	20mm	38mm	104mm	MB-333-20	MB-333-20 **T**	MB-333-20 **C**	MB-333-20 **A**	MB-333-20 **DLC**

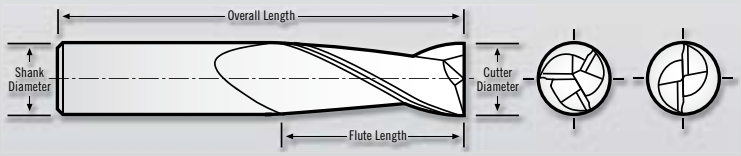
C-2 Grade Carbide End Mills MNR

Characteristics Square End, 2 Flute, 3 Flute, 30° Helix, Flats

Applications Side Milling, High Performance, Roughing, Semi-Finishing, Finishing, Dry, Wet, Cold Air, Spray Mist

Materials Aluminum, Copper, Magnesium, Plastics, Composites, Brass

Coatings Diamond-Like Carbon (DLC)



MNR Tolerances
Cutting Dia. = +0,025/–0,000mm
Shank Dia. = –0,002/–0,005mm
Flute Length = +0,500/+1,500mm
OAL = ±1,000mm

Slotting, Side Milling, Helical Interpolation

+ Tolerances

MNR-204 Metric 2 Flute C-2 Grade Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated
2mm	3mm	8mm	38mm	MNR-204-02
3mm	3mm	12mm	38mm	MNR-204-03
4mm	4mm	12mm	50mm	MNR-204-04
5mm	5mm	14mm	50mm	MNR-204-05
6mm	6mm	14mm	57mm	MNR-204-06
8mm	8mm	16mm	63mm	MNR-204-08
10mm	10mm	20mm	72mm	MNR-204-10
12mm	12mm	25mm	83mm	MNR-204-12
16mm	16mm	32mm	92mm	MNR-204-16
20mm	20mm	38mm	104mm	MNR-204-20
25mm	25mm	38mm	104mm	MNR-204-25

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number DLC Coated
2mm	3mm	8mm	38mm	MNR-204-02 **DLC**
3mm	3mm	12mm	38mm	MNR-204-03 **DLC**
4mm	4mm	12mm	50mm	MNR-204-04 **DLC**
5mm	5mm	14mm	50mm	MNR-204-05 **DLC**
6mm	6mm	14mm	57mm	MNR-204-06 **DLC**
8mm	8mm	16mm	63mm	MNR-204-08 **DLC**
10mm	10mm	20mm	72mm	MNR-204-10 **DLC**
12mm	12mm	25mm	83mm	MNR-204-12 **DLC**
16mm	16mm	32mm	92mm	MNR-204-16 **DLC**
20mm	20mm	38mm	104mm	MNR-204-20 **DLC**
25mm	25mm	38mm	104mm	MNR-204-25 **DLC**

+ Tolerances

MNR-303 Metric 3 Flute C-2 Grade Standard Length

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number Uncoated
2mm	3mm	8mm	38mm	MNR-303-02
3mm	3mm	12mm	38mm	MNR-303-03
4mm	4mm	12mm	50mm	MNR-303-04
5mm	5mm	14mm	50mm	MNR-303-05
6mm	6mm	14mm	57mm	MNR-303-06
8mm	8mm	16mm	63mm	MNR-303-08
10mm	10mm	20mm	72mm	MNR-303-10
12mm	12mm	25mm	83mm	MNR-303-12
16mm	16mm	32mm	92mm	MNR-303-16
20mm	20mm	38mm	104mm	MNR-303-20
25mm	25mm	38mm	104mm	MNR-303-25

Cutting Diameter	Shank Diameter	Flute Length	Overall Length	Tool Number DLC Coated
2mm	3mm	8mm	38mm	MNR-303-02 **DLC**
3mm	3mm	12mm	38mm	MNR-303-03 **DLC**
4mm	4mm	12mm	50mm	MNR-303-04 **DLC**
5mm	5mm	14mm	50mm	MNR-303-05 **DLC**
6mm	6mm	14mm	57mm	MNR-303-06 **DLC**
8mm	8mm	16mm	63mm	MNR-303-08 **DLC**
10mm	10mm	20mm	72mm	MNR-303-10 **DLC**
12mm	12mm	25mm	83mm	MNR-303-12 **DLC**
16mm	16mm	32mm	92mm	MNR-303-16 **DLC**
20mm	20mm	38mm	104mm	MNR-303-20 **DLC**
25mm	25mm	38mm	104mm	MNR-303-25 **DLC**

P830 Diamond Coated Inserts

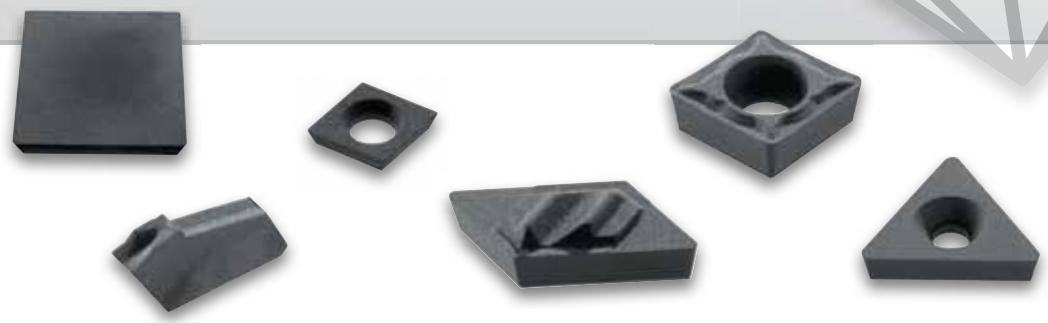
Characteristics

Applications

Materials Aluminum, Copper, Magnesium, Plastics, Composites, Brass

Coatings Diamond Coated (DCC)

10-20X Tool Life Over Carbide!



MP830 Diamond Coated Inserts

Insert ANSI Code	Insert ISO Code	Part Number Coated
ADKT-1505 PDR	ADKT1505 PDR	P830-100551-1
BDR-0500-N-F1-R1-R1/32	–	P830-100690-1
BDR-1000-N-F1-R1/32	–	P830-100699-1
CCGT-32.50HP	CCGT09T302HP	P830-100547-1
CCGX-431 AL	CCGX120404 AL	P830-100523-1
CCMT-21.50	CCMT060202	P830-100309-1
CCMT-21.51	CCMT060204	P830-100310-1
CDCD-500	–	P830-100006-1
CDCD-505	–	P830-100007-1
CNGA-430	CNGA120402	P830-100009-1
CNMG-431	CNMG120404	P830-100491-1
CNMG-432	CNMG120408	P830-100012-1
CNMP-431	CNMP120404	P830-100013-1
CPG-421	CPGN120304	P830-100017-1
CPG-422	CPGN120308	P830-100018-1
CPGT-32.52	CPGT09T308	P830-100091-1
DCMT-32.51	DCMT11T304	P830-100170-1
DDGB-522	DDGB190308	P830-100722-1
DNMG-431	DNMG150404	P830-100211-1
DPG-432	DPG150408	P830-100279-1
DPGT-32.52	DPGT11T308	P830-100347-1
FLGD 3062R	–	P830-100628-1
GFN-3	–	P830-100605-1
N151.2-300-30-4P	–	P830-100597-1
N151.2-400-40-4P	–	P830-100596-1
N151.4-600-40-AL	–	P830-100595-1
NG-2062L	–	P830-100436-1
NG-2062R	–	P830-100031-1
NPL-51	–	P830-100438-1
RCGX-10T3MO-AL	RCGX-10T3MO-AL	P830-100505-1
RCHT-130400KL	RCHT130400KL	P830-100588-1
RCHT-190600-KL	RCHT190600-KL	P830-100598-1

Insert ANSI Code	Insert ISO Code	Part Number Coated
RCMT-0803MO-100	RCMT0803MO-100	P830-100607-1
RD-6P	RXGB090300	P830-100224-1
RD-8P	RXGB120300	P830-100040-1
RD-10P	RXGB150300	P830-100153-1
RD-16P	RXGB250600	P830-100196-1
RFG-21F (5/16IC)	–	P830-100399-1
SPG-322	SPGN090308	P830-100063-1
SPG-422	SPGN120308	P830-100064-1
SPG-424	SPGN120316	P830-100065-1
SPG-428	SPGN120332	P830-100162-1
SPG-632	SPGN190408	P830-100343-1
SPG-634	SPGN190416	P830-100175-1
SPG-842	SPGN250608	P830-100583-1
SPGB-432	SPGB120408	P830-100385-1
SPMT-432-WH	SPMT120408WH	P830-100244-1
TCGW-32.52	TCGW16T308	P830-100072-1
TCGX-21.51-AL	TCGX110204-AL	P830-100327-1
TCGX-3(2.5)1-AL	TCGX16T304	P830-100602-1
TCMT-32.52	TCMT16T308	P830-100269-1
TCMW-21.51	TCMW110204	P830-100076-1
TD-6P	–	P830-100078-1
TD-6P1	–	P830-100080-1
TD-8P	–	P830-100081-1
TDAB-51	TDAB070104	P830-100083-1
TDAB-52	TDAB070108	P830-100084-1
TNMA-432	TNMA220408	P830-100454-1
TPCB-221	TCPB110304	P830-100360-1
TPG-221	TPGN110304	P830-100101-1
TPG-222	TPGN110308	P830-100102-1
TPG-320	TPGN160301	P830-100252-1
TPG-321	TPGN160304	P830-100104-1
TPG-322	TPGN160308	P830-100105-1

CONTINUED ON NEXT PAGE—

MP830 Diamond Coated Inserts —CONTINUED FROM PREVIOUS

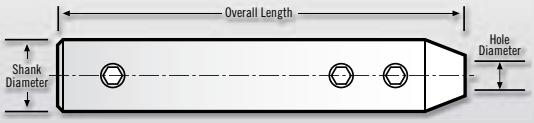
Insert ANSI Code	Insert ISO Code	Part Number Coated
TPG-324	TPGN160316	P830-100107-1
TPG-431	TPGN220404	P830-100109-1
TPG-432	TPGN220408	P830-100110-1
TPG-433	TPGN220412	P830-100111-1
TPMA-322	TPMA160308	P830-100227-1
TPMM-321	TPMM160304	P830-100373-1
TPMM-322	TPMM160308	P830-100023-1
VBMT-221	VBMT110304	P830-100127-1
VBMT-331	VBMT160404	P830-100217-1
VBMT-332	VBMT160408	P830-100165-1

Insert ANSI Code	Insert ISO Code	Part Number Coated
VCGT-221HP	VCGT110304HP	P830-100524-1
VCGT-331HP	VCGT160404HP	P830-100531-1
VCGX-331-AL	VCGX160404-AL	P830-100395-1
VCGX-332-AL	VCGX160408-AL	P830-100498-1
VNGP-330	VNGP160402	P830-100615-1
VNGP-330.5	VNGP160403	P830-100575-1
VPGR-331	VPGR160404	P830-100485-1
VPGR-332	VPGR160408	P830-100136-1
WNMG-431	WNMG080404	P830-100314-1
WNMG-432	WNMG080408	P830-100209-1

P830 SERIES SPEED & FEED (Turning)

Working Material	Application	Cutting Speed m/min	Chip Load m/r
ALUMINUM			
Aluminum (5–8% Si) (356, 308, 242, 208)	Rough Turning	610–1525	0,254–0,635
Aluminum (5–8% Si) (356, 308, 242, 208)	Finish Turning	610–1830	0,127–0,254
Aluminum Cast (8–12% Si) (354, 357, 380)	Rough Turning	460–1220	0,178–0,508
Aluminum Cast (8–12% Si) (354, 357, 380)	Finish Turning	460–1525	0,102–0,204
Aluminum Cast (12–18% Si) (390)	Rough Turning	305–610	0,127–0,254
Aluminum Cast (12–18% Si) (390)	Finish Turning	305–915	0,050–0,150
OTHER MATERIALS			
Babbitt	Turning	210–335	0,076–0,254
Brass	Turning	610–1220	0,076–0,381
Bronze	Turning	275–410	0,076–0,254
Carbon	Turning	150–610	0,127–0,381
Carbon Fiber Materials	Turning	150–610	0,076–0,508
Copper	Turning	230–460	0,076–0,254
Glass Fiber Material	Turning	230–460	0,025–0,381
Green Ceramic Materials	Turning	150–460	0,050–0,508
Unfilled Plastic	Turning	305–1220	0,076–0,508
Wood	Turning	1000–3000	0,102–0,762

Accuhold End Mill Extension Holder MAH



MAH Tolerances
Hole Dia. = +,004/–,000 mm
Shank Dia. = +,000/–,007 mm
OAL = ±1,5 mm

MAH Accuhold – Metric End Mill Extension Holder

Hole Diameter	Shank Diameter	Overall Length	Tool Number
3mm	10mm	82,5mm	MAH-03
4mm	12mm	110mm	MAH-04
5mm	12mm	110mm	MAH-05
6mm	16mm	125mm	MAH-06
8mm	20mm	135mm	MAH-08
10mm	20mm	135mm	MAH-10
12mm	25mm	150mm	MAH-12

DON'T SEE WHAT YOU NEED?

RobbJack manufactures a wide variety of end mills in addition to those listed in our catalog. We can make tools for your specific needs by modifying standard tools or through custom manufacture. We can work directly from your prints to design and build the exact tool for your requirements. Contact us if you need:

- **Special Cutting and/or Shank Diameters**
- **Special Cutting Length and/or Overall Lengths**
- **Corner Radii, Full Ball or Corner Chamfer Configurations**
- **Chip Breakers or Roughing Cutters**
- **Special Tolerances**
- **Tapered End Mills, Constant Helix or Constant Lead.**
- **Special Coatings Available**.

To get a quote or more information about a custom tool, fax or call us with your specifications and any other pertinent information (photocopy the form below). If you are not sure of the best configuration for your application, we will be glad to help you.

Remember, to obtain the best performance in all end mill applications:

- Use the largest diameter possible.
- Use the shortest flute length possible.
- Use the correct number of flutes for your application.
- Use recommended speed and feed rates.

ROBBJACK CUSTOM END MILL

Request for Quote/Information

Description of Application:

Order Quantity:

Cutting Diameter: Tolerance:

Cutting Length: Shank Diameter:

Overall Length: Number of Flutes:

Special Configurations (Radii, Chamfers, Set Screw Flats, Chip Breakers, Coatings, etc.):

For Tapered Tools: Major Diameter: Tip Diameter:

Per Side/Included Angle: Tolerance:

End Configuration (Full Ball, Corner Radii, Square End):

(Note: RobbJack recommends 3 flutes for all tapered applications)

Other Information:

Terms & Conditions

Terms

1% Ten Days, Net 30 Days. Minimum Invoice, $25.00.

Shipping

Most tools stocked in Europe. F.O.B. Lincoln, California. All shipments via **FedEx International Economy**, unless otherwise specified.

Claims

Goods are considered sold and our responsibility ceases when delivery is made to the transportation company. In the event of goods being lost in transit, we will make every effort on behalf of customers to have lost goods found or to have the transportation company make proper restitution for loss.

Damage claims must be made against carrier.

Specials

Orders for special tools, non-catalog or modified tools are accepted on a no-cancellation basis and tools are not returnable. A confirming purchase order is required before any work begins on special tools.

A 10% over or under shipment on a special is acceptable based on industry practices unless no overshipment is stated at time of quoting.

Return Policy

No merchandise may be returned without prior authorization from the factory. Credit will not be issued for merchandise returned without a return authorization number.

All merchandise returned for credit will be subject to a 15% restocking charge.

Errors

RobbJack Corporation can not be held responsible for incorrect parts made with our products due to mislabeling or defect. We assume all tools used by our customers are inspected before use and that first part inspections in customer's plant is the rule. We will replace or credit tools in those situations.

Prices

Prices subject to change without notice.

ROBBJACK CORPORATION

Questions?

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