High-efficiency slot mill

MG90B NEW



Unique design delivers exceptional stability for high-efficiency slot milling

Economical 6-edge insert design with sharp cutting edges

Rigid insert clamping delivers high-efficiency, stable machining

Large chip pockets promote smooth chip evacuation

Custom solutions available to meet a wide range of application requirements



Standard lineup
Cutting width 3.0~12.0mm
Cutting diameter ø50~ø160mm

High-efficiency slot mill

MG90B

Economical 6-edge insert design with excellent sharpness

Rigid clamping and large chip pockets provide high-efficiency, stable machining.Custom solutions are also available

1 Economical 6-edge insert design

Six usable cutting edges maximize insert utilization and reduce tooling costs.
Staggered insert arrangement with inserts mounted on both sides of the cutter body.

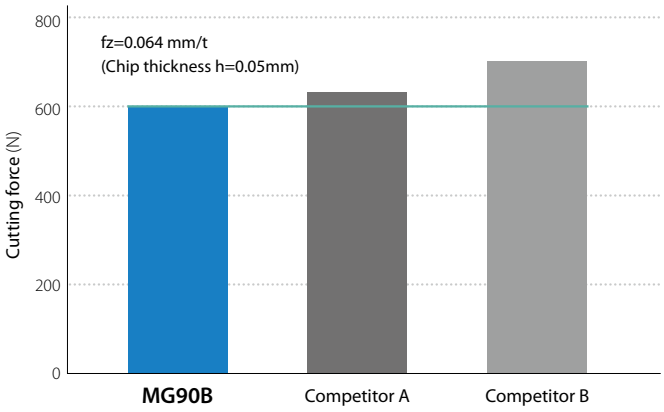
Sharp cutting edge geometry minimizes cutting forces.
Reduces spindle load for smooth, stable machining.



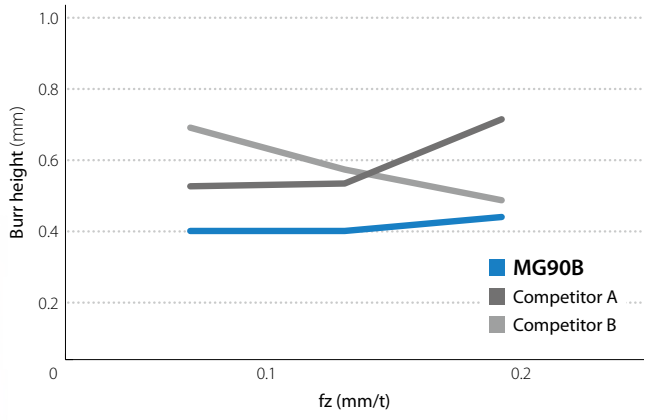
Sharp edge design



Cutting force comparison (Internal evaluation)



Burr height (Internal evaluation)

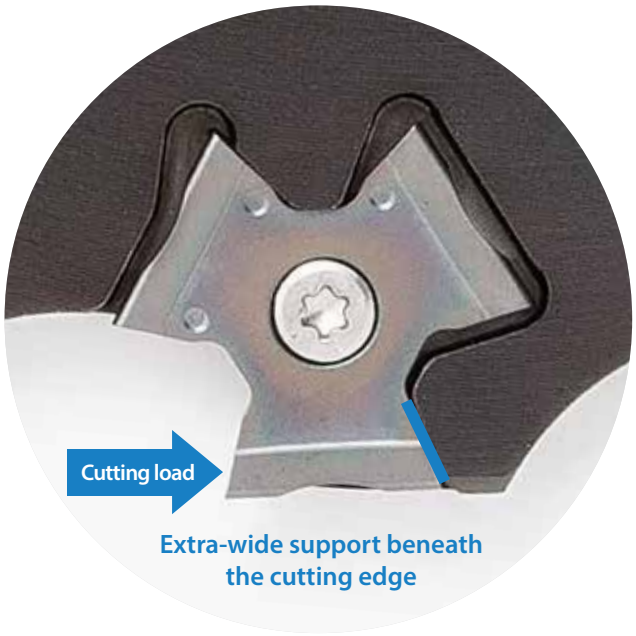


Vc = 160 m/min, ae = 15 mm Dry (air blast) S50C ø80 (5 inserts) Cutting width 6 mm

2 Rigid insert clamping delivers high-efficiency, stable machining

Video

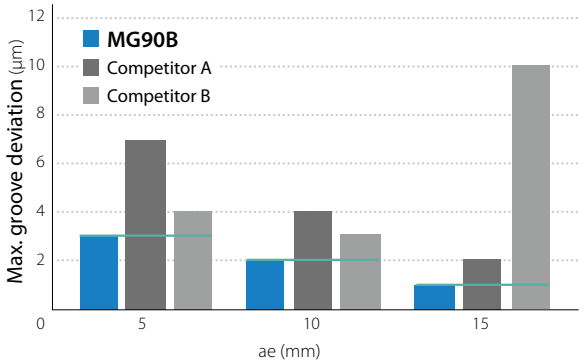
A wide support surface directly beneath the cutting edge firmly withstands cutting loads.
Minimizes insert movement for improved cutting diameter and groove width accuracy.



Extra-wide support beneath the cutting edge



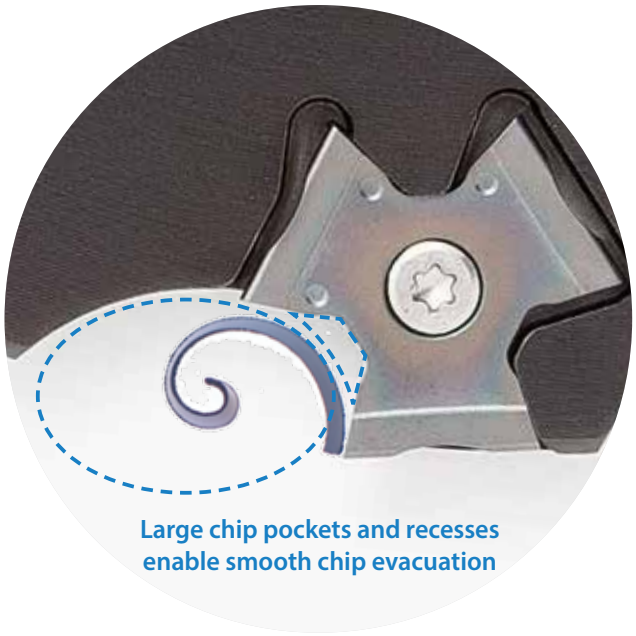
Maximum groove deviation
(Internal evaluation)



Vc = 160 m/min, fz = 0.064 ~ 0.310 mm/t (h = 0.05 / 0.10 / 0.15 mm)
Dry (air blast) S50C ø80 (5 inserts) Cutting width 6 mm

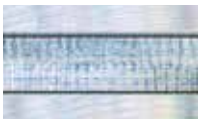
3 Large chip pockets ensure smooth chip evacuation

Wide chip pockets and recessed geometry promote smooth, efficient chip evacuation.
Prevents chip packing, even at high feed rates, to produce superior groove bottom finish.



Large chip pockets and recesses enable smooth chip evacuation

Chips and groove bottom finish (Internal evaluation)

	MG90B	CompetitorA
Chips	 Good	 Chip packing
Groove bottom finish	 Good	 Scratching present

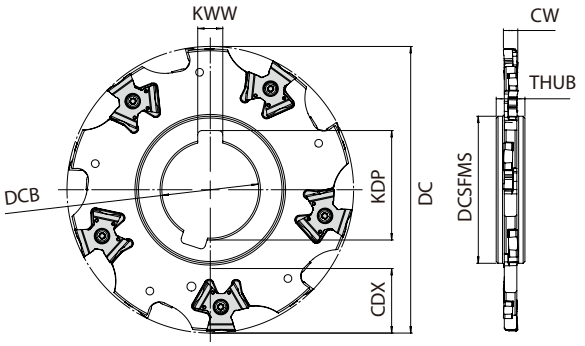
Vc = 160 m/min, ae = 15 mm, fz = 0.192 mm/t (h = 0.15 mm)
Dry (air blast) S50C ø80 (10 inserts) Groove width 6 mm

4 Custom solutions for a wide range of application requirements

Custom specifications are available for groove width, cutting diameter, and edge configuration to meet your application requirements.

MG90B





Toolholder dimensions

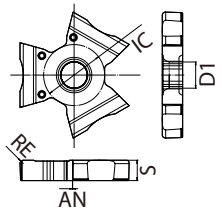
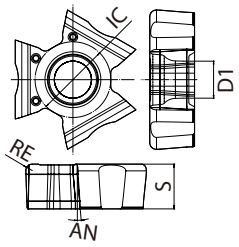
Description		Availability	Number of inserts	No. of effective cutting edges	Dimensions (mm)								Max. revolution (min^{-1})	Weight (kg)	Spare parts		Insert clamping torque	Applicable insert
					DC	CW	CDX	THUB	DCB	KDP	KWW	DCS-FMS			Clamp screw	Wrench		
MG90B-	050AN-03T8-M	●	8	4	50	3	10	8	16	18	4	27	12,000	0.03	SB-2225TRPF	FTP-6	0.5N•m	HNLW 0518…
	063AN-03T10-M	●	10	5	63		13		22	24.5	6	34	10,000	0.05				
	080AN-03T10-M	●	10	5	80		18		27	30	7	41	6,700	0.08	SB-2524TRPF			HNLW 0718…
	100AN-03T12-M	●	12	6	100		25		32	35	8	47	6,000	0.13				
	125AN-03T16-M	●	16	8	125		33.5		40	43.5	10	55	5,400	0.20				
MG90B-	050AN-04T8-M	●	8	4	50	4	10	8	16	18	4	27	10,200	0.04	SB-2235TRPF			HNLW 0525…
	063AN-04T10-M	●	10	5	63		13		22	24.5	6	34	9,100	0.06				
	080AN-04T10-M	●	10	5	80		18		27	30	7	41	5,600	0.10	SB-2534TRPF			HNLW 0725…
	100AN-04T12-M	●	12	6	100		25		32	35	8	47	5,000	0.17				
	125AN-04T16-M	●	16	8	125		33.5		40	43.5	10	55	4,500	0.26				
	160AN-04T20-M	●	20	10	160		51		40	43.5	10	55	4,000	0.45				
MG90B-	050AN-05T8-M	●	8	4	50	5	10	10	16	18	4	27	9,300	0.05	SB-2239TRPF			HNLW 0530…
	063AN-05T10-M	●	10	5	63		13		22	24.5	6	34	8,200	0.08				
	080AN-05T10-M	●	10	5	80		18		27	30	7	41	6,600	0.12	SB-3043TRP	DTPM-8	1.2N•m	HNLW 0830…
	100AN-05T12-M	●	12	6	100		25		32	35	8	47	5,900	0.20				
	125AN-05T16-M	●	16	8	125		33.5		40	43.5	10	55	5,300	0.32				
	160AN-05T20-M	●	20	10	160		51		40	43.5	10	55	4,600	0.57				
MG90B-	050AN-06T8-M	●	8	4	50	6	10	10	16	18	4	27	8,500	0.06	SB-2244TRPF	FTP-6	0.5N•m	HNLW 0535...
	063AN-06T10-M	●	10	5	63		13		22	24.5	6	34	7,600	0.09				
	080AN-06T10-M	●	10	5	80		18		27	30	7	41	6,100	0.14	SB-3053TRP	DTPM-8	1.2N•m	HNLW 0835…
	100AN-06T12-M	●	12	6	100		25		32	35	8	47	5,400	0.24				
	125AN-06T16-M	●	16	8	125		33.5		40	43.5	10	55	4,900	0.38				
	160AN-06T20-M	●	20	10	160		51		40	43.5	10	55	4,300	0.69				
MG90B-	050AN-08T8-M	●	8	4	50	8	10	12	16	18	4	27	10,500	0.07	SB-3070TRP	DTPM-10	2.0N•m	HBLW 0645…
	063AN-08T10-M	●	10	5	63		13		22	24.5	6	34	9,300	0.12				
	080AN-08T10-M	●	10	5	80		18		27	30	7	41	7,500	0.18	SB-4067TRP	DTPM-15	3.5N•m	HBLW 0945…
	100AN-08T12-M	●	12	6	100		25		32	35	8	47	6,700	0.32				
	125AN-08T16-M	●	16	8	125		33.5		40	43.5	10	55	6,000	0.51				
	160AN-08T20-M	●	20	10	160		51		40	43.5	10	55	5,300	0.93				
MG90B-	050AN-10T8-M	●	8	4	50	10	10	14	16	18	4	27	9,500	0.09	SB-3070TRP	DTPM-10	2.0N•m	HBLW 0655…
	063AN-10T10-M	●	10	5	63		13		22	24.5	6	34	8,500	0.15				
	080AN-10T10-M	●	10	5	80		18		27	30	7	41	6,800	0.23	SB-4067TRP	DTPM-15	3.5N•m	HBLW 0955…
	100AN-10T12-M	●	12	6	100		25		32	35	8	47	6,000	0.40				
	125AN-10T16-M	●	16	8	125		33.5		40	43.5	10	55	5,400	0.65				
	160AN-10T20-M	●	20	10	160		51		40	43.5	10	55	4,800	1.17				
MG90B-	080AN-12T10-M	●	10	5	80	12	18	16	27	30	7	41	6,300	0.27	SB-4067TRP	DTPM-15	3.5N•m	HBLW 0965…
	100AN-12T12-M	●	12	6	100		25		32	35	8	47	5,600	0.48				
	125AN-12T16-M	●	16	8	125		33.5		40	43.5	10	55	5,000	0.78				
	160AN-12T20-M	●	20	10	160		51		40	43.5	10	55	4,400	1.42				

Maximum number of revolutions
Set the spindle speed within the recommended cutting speed range for each workpiece material. Do not operate the cutter at or above the maximum number of revolutions.
Even under no-load conditions, centrifugal force may cause inserts or components to be ejected, resulting in a hazardous situation.

● : Standard Item

Applicable insert

Usage Classification						
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice	P	Carbon steel / Alloy steel	★	☆		
		Mold steel	★	☆		
	M	Austenitic stainless steel	☆	★		
		Martensitic stainless steel	☆	★		
		Precipitation hardened stainless steel	☆	★		
	K	Gray cast iron			★	
		Nodular cast iron			★	
	N	Aluminum alloy				★

Insert		Description	Cutting width	Dimensions (mm)				Angle(°)	Carbide			
									MEGACOAT NONO			-
				IC	S	D1	RE	AN	PR1825	PR1835	PR1810	GW25
 Cutting width 3-6 mm		HNLW 051804-GM	3	5.8	1.8	2.8	0.4	0	●	●	●	●
		071804-GM		7.5		3.22	0.4		●	●	●	●
		HNLW 052504-GM	4	5.8	2.5	2.8	0.4		●	●	●	●
		072504-GM		7.5		3.22	0.4		●	●	●	●
		HNLW 053004-GM	5	5.8	3.0	2.8	0.4		●	●	●	●
		083004-GM		8.5		3.5	0.4		●	●	●	●
		HNLW 053504-GM	6	5.8	3.5	2.8	0.4		●	●	●	●
		053508-GM					0.8		●	●	●	●
		083504-GM		8.5		3.5	0.4		●	●	●	●
		083508-GM					0.8		●	●	●	●
 Cutting width 8-12 mm		HBLW 064504-GM	8	6.2	4.5	3.45	0.4	5	●	●	●	●
		064508-GM					0.8		●	●	●	●
		094504-GM		9.3		4.55	0.4		●	●	●	●
		094508-GM					0.8		●	●	●	●
		HBLW 065504-GM	10	6.2	5.5	3.45	0.4		●	●	●	●
		065508-GM					0.8		●	●	●	●
		095504-GM		9.3		4.55	0.4		●	●	●	●
		095508-GM					0.8		●	●	●	●
		HBLW 096504-GM	12	9.3	6.5	4.64	0.4		●	●	●	●
		096508-GM					0.8		●	●	●	●

●: Available

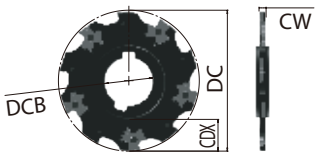
Toolholders identification system

MG90B	-	○○○	A	N	-	○○	T	○○	-	M
Medium-width slot mill		Cutting diameter (mm)	A: No boss	N: Neutral hand		Cutting width (mm)		Number of inserts		Metric

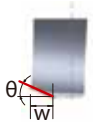
Custom Specification Worksheet

Custom tool configurations are available to match your groove profile and application requirements. Contact your KYOCERA sales representative for more details.

Toolholder (Cutting diameter, Cutting width, Max.depth, Pilot bore dia.)

Cutting diameter (DC)	ø mm	
Cutting width (CW)	mm	
Max. cutting depth (CDX)	(mm)	
Pilot bore dia. (DCB)	mm/inch	
Notes		

Insert (Corner edge design)

	Corner configuration (Additional custom configurations are available.)		
Specifications	Corner chamfer	Corner radius	With lead angle
Image	 Cmax : 0.5 mm	 Rmax : ø<80 : 0.8 mm ø≥80 : 1.2 mm	 θ° × w mm

Insert (grade)

	Grade		
Workpiece	Steel	PR1825	
	Stainless steel	PR1835	
	Cast iron	PR1810	
	Aluminum	GW25	

Next-generation PVD coating for milling

PR18 Series

Double lamination technology with special nano layer. MEGACOAT NANO EX provides longer tool life
The lineup features 3 grades: PR1825/PR1835/PR1810

PR1825 P
for Steel
(Wear resistance oriented)

PR1835 M
for Steel (Stability oriented)
for Stainless steel **1st Recommendation**

PR1810 K
for Cast iron

MEGACOAT NANO EX | Milling

Double Lamination Technology Maintains Longer Tool Life

Multi-layer structure with two unique nano layers
Superior abrasion resistance and fracture resistance

Recommended Cutting Conditions ★: 1st recommendation ☆: 2nd recommendation

Workpiece	fz (mm/t) (t=No. of effective cutting edges)	Recommended insert grades (Vc : m/min)			
		MEGACOAT NANO			Uncoated
		PR1825	PR1835	PR1810	GW25
Carbon steel	0.05 - **0.10** - 0.15	★ 100 - **160** - 220	☆ 100 - **160** - 220	-	-
Alloy steel	0.05 - **0.10** - 0.15	★ 100 - **160** - 220	☆ 100 - **160** - 220	-	-
Austenitic stainless steel	0.05 - **0.08** - 0.10	☆ 80 - **110** - 140	★ 80 - **110** - 140	-	-
Martensitic stainless steel	0.05 - **0.08** - 0.10	☆ 80 - **110** - 140	★ 80 - **110** - 140	-	-
Precipitation hardened stainless steel	0.05 - **0.08** - 0.10	☆ 80 - **110** - 140	★ 80 - **110** - 140	-	-
Gray cast iron	0.05 - **0.10** - 0.15	-	-	★ 100 - **160** - 220	-
Nodular cast iron	0.05 - **0.10** - 0.15	-	-	★ 100 - **160** - 220	-
Aluminum alloy	0.05 - **0.10** - 0.15	-	-	-	★ 200 - **400** - 600

The values in bold are the recommended starting condition. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
Wet machining is recommended for precipitation hardened stainless steels and Ni-based heat-resistant alloys.
Tool life may be reduced under wet machining conditions. Reduce the cutting speed, feed rate, and depth of cut below the recommended values.
For BT30-class machining centers, use no more than 80% of the recommended feed rate.

Maximum feed per tooth by engagement rate (≒ chip thickness)

Engagement rate	ae/DC	5%	10%	15%	20%	25%	30%
Max feed per tooth	Max fz (mm/t)	0.34	0.25	0.21	0.19	0.17	0.16



* Set ae to CDX or less (see page 3).

Case study

Carbon steel joint component

Vc = 200 m/min (n = 1,000 min^{-1}), Vf = 200 mm/min (fz = 0.05 mm/t), ap × ae = 3 mm× 15 mm
Wet, ø63 8 inserts, custom specification



Number of parts machined

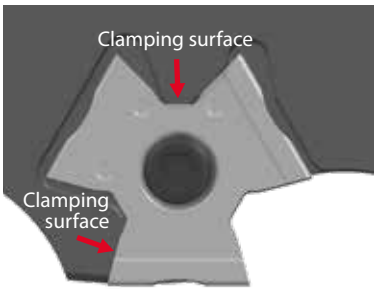
		Tool life
MG90B	2,000pcs/corner	1.3x
Conventional	1,600pcs/corner	

MG90B delivers high-quality, stable machining, achieving 2,000 parts per cutting edge and 1.3× longer tool life.

(User evaluation)

Precautions

How to replace an insert



1. Be sure to completely remove dust and chips from the insert mounting pocket.
2. Attach the clamp screw to the wrench tip, and tighten it while lightly pressing the insert against the seat surface.
   * It is recommended to apply an anti-seize compound to the tapered and threaded portions of the clamp screw.
3. Always use the specified wrench size when tightening the clamp screw.
   * Using the wrong wrench size may damage the screw head or wrench tip, making the clamp screw difficult to remove.
4. Tighten the clamp screw while keeping the wrench parallel to the screw axis.
   * Recommended tightening torque: see p. 3
5. After tightening, verify that there is no gap between the insert seat and the holder support surface, or between the side of the insert and the clamping surface. If a gap is present, remove the insert and reinstall it following the procedure above.

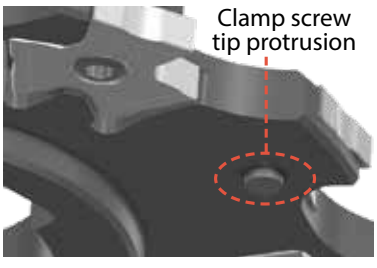
Compatible inserts and clamp screws

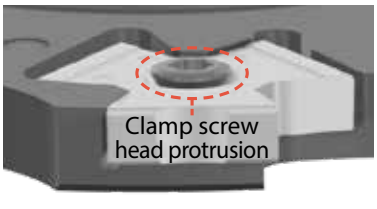
The required insert and clamp screw vary depending on the toolholder cutting diameter and groove width. Do not use incompatible combinations.

* Using incompatible components may result in interference between the clamp screw and the workpiece or damage caused by insufficient clamping force. The compatible insert and clamp screw part numbers are marked on the toolholder. Always verify that the correct components are being used.

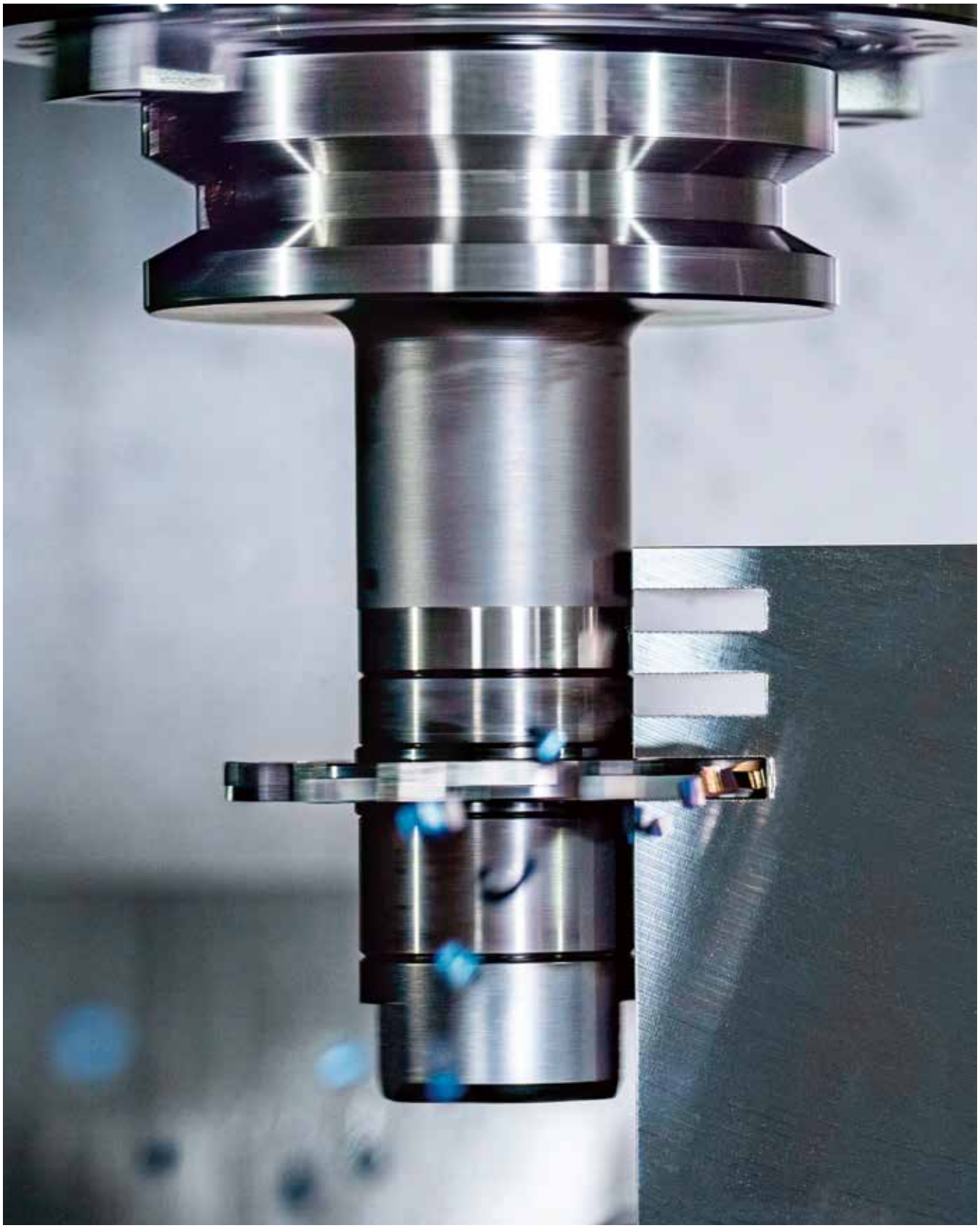
Compatible inserts and clamp screws by toolholder

Cutting width CW	Insert description	Clamp screw description	Toolholder cutting diameter ø50	ø63	ø80	ø100	ø125	ø160
3	HNLW0518**	SB-2225TRPF	●	●	-	-	-	-
	HNLW0718**	SB-2524TRPF	-	-	●	●	●	●
4	HNLW0525**	SB-2235TRPF	●	●	-	-	-	-
	HNLW0725**	SB-2534TRPF	-	-	●	●	●	●
5	HNLW0530**	SB-2239TRPF	●	●	-	-	-	-
	HNLW0830**	SB-3043TRP	-	-	●	●	●	●
6	HNLW0535**	SB-2244TRPF	●	●	-	-	-	-
	HNLW0835**	SB-3053TRP	-	-	●	●	●	●
8	HBLW0645**	SB-3070TRP	●	●	-	-	-	-
	HBLW0945**	SB-4067TRP	-	-	●	●	●	●
10	HBLW0655**	SB-3070TRP	●	●	-	-	-	-
	HBLW0955**	SB-4067TRP	-	-	●	●	●	●
12	HBLW0965**	SB-4067TRP	-	-	●	●	●	●





Clamp screw condition when using incompatible inserts and clamp screws



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