

Excellent shouldering with 3-corner insert

RM3



Rich Mill - Multifunctional Shouldering Milling Tool

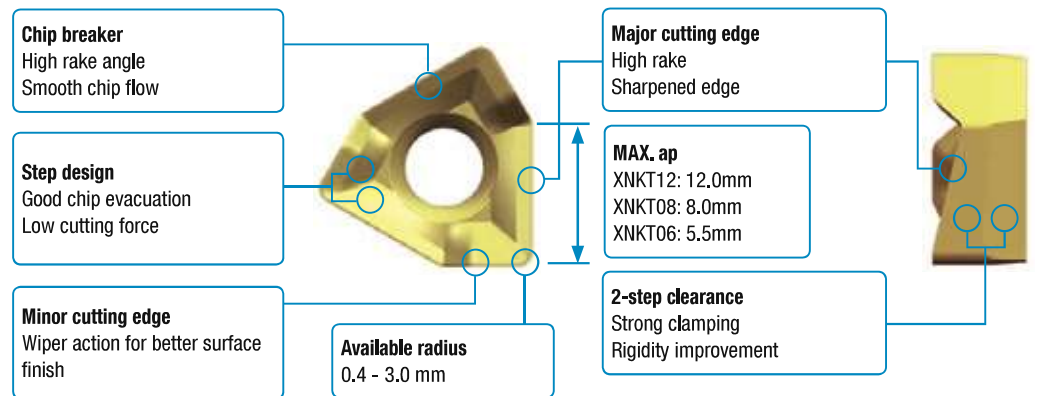
- ▣ Multi milling tool for best results in perpendicular shouldering
- ▣ High rake chipbreaker for high speed and high feed machining
- ▣ Strong clamping force for better stability



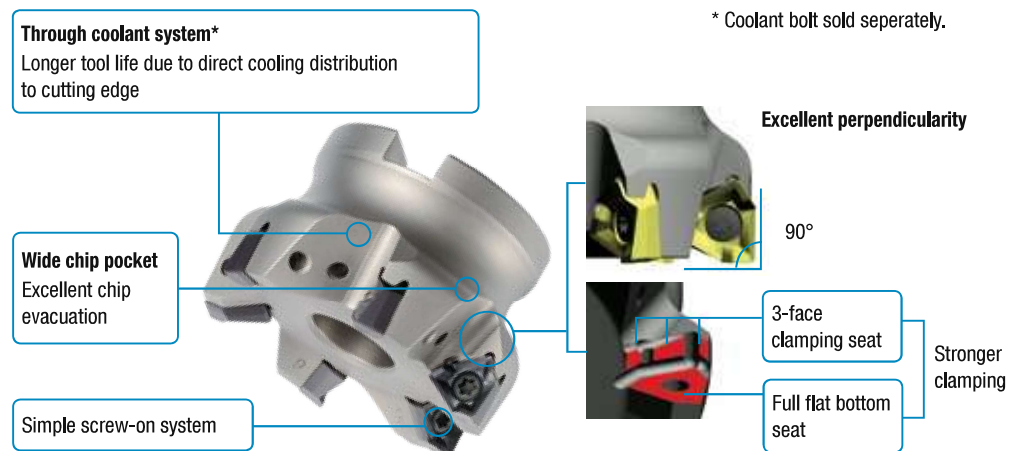
⇒ Features

- **High quality** True 90° shouldering operation
- **High productivity** Strong thick insert and 3-face clamping ensure stable operation even tough conditions
- **High economics** Long tool life due to optimized manufacturing process

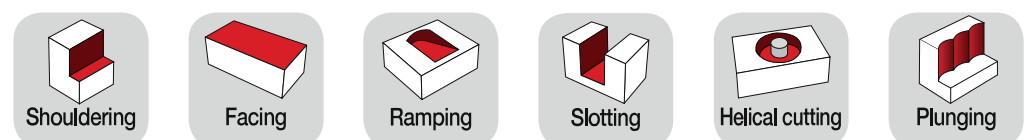
⇒ Features of insert



⇒ Features of cutter

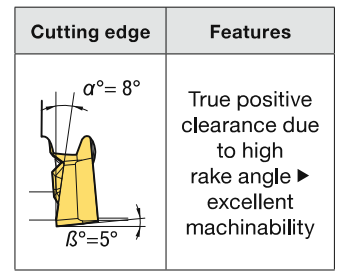
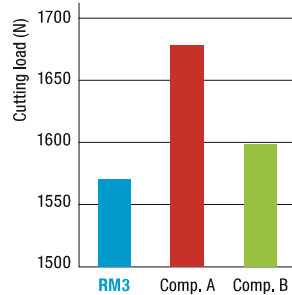


⇒ Application area

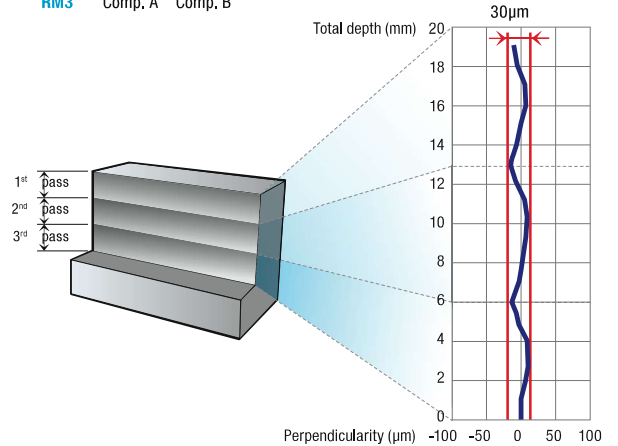


➔ Performance evaluation

- **Workpiece** 42CrMo4 (200HB)
- **Cutting conditions** vc (m/min) = 250
fz (mm/t) = 0.1
ap (mm) = 3.0
Dry
- **Tool** Insert XNKT080508PNSR-MM PC5300
Cutter RM3PCM4063HR-M
- **Machine** Vertical M/C



- **Workpiece** 42CrMo4 (200HB)
- **Cutting conditions** vc (m/min) = 200
fz (mm/t) = 0.1
ap (mm) = 7.0x3 pass
ae (mm) = 10.0
Dry
- **Tool** Insert XNKT080508PNSR-MM PC5300
Cutter RM3PCM4063HR-M
- **Machine** Vertical M/C









➔ Cutting Performance

Carbon steel (C45, HB200)		P
■ Cutting conditions	vc(m/min) = 270 / fz(mm/tooth) = 1.0 / ap(mm) = 3.0 x 8 pass ae (mm) = 5.0 / Shouldering	
■ Tools	Insert XNKT08508PNSR-MM PC5300 / Holder RM3PCM4063HR-M	
Chip removal rate (cm ³ /min)	122.8 RM3 49.1 Competitor	2.5 times increase
Machining time (min)	3.9 min RM3 9.8 min Competitor	60% reduction

Alloy steel (42CrMo4, HB200)		P
■ Cutting conditions	vc(m/min) = 250 / fz(mm/tooth) = 0.125 ap(mm) = Finishing: 0.5 / Roughing: 7.0 / Facing	
■ Tools	Insert XNKT080508PNSR-MM PC5300 / Holder RM3PCM4063HR-M	
Workpiece (ea)	1500 ea RM3 1050 ea Competitor	1.4 times increase
Surface roughness (R _{MAX})	1.81 micrometers RM3 3.29 micrometers Competitor	45% increase

⇒ Features of chip breakers

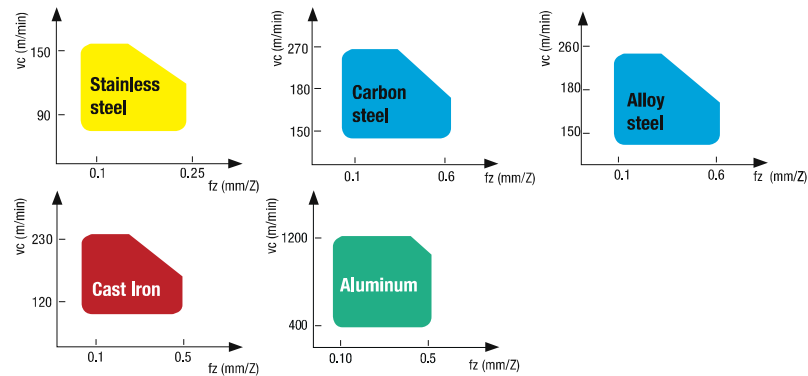
Insert	Cutting-edge	Features
Aluminum MA 		Superior cutting quality for aluminum due to sharp cutting-edge and buffed surface
Light ML 		Superior cutting quality for light and light cutting, difficult-to-cut material machining through the low cutting load of chip breaker
General MM 		Suitable for various cutting due to special shape design for general cutting

⇒ Application guideline for grade

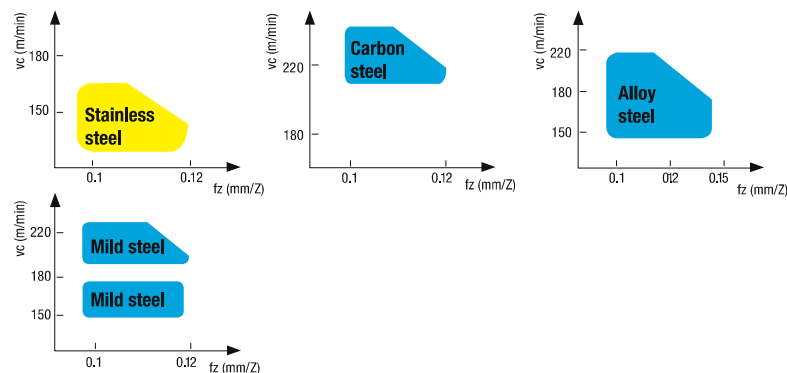
Workpiece		P			M	K	N
		Carbon steel	Alloy steel		Stainless steel	Cast iron	Non-ferrous
			up to 40 HRC	up to 60 HRC			
Chip breaker	First choice	MM	MM	MM	ML	ML	MA
	Second choice	ML	ML	ML	-	MM	-
Grade	High speed machining	PC3600	PC3600	-	PC5300	PC6510	H01
	General machining	PC5400	PC5300	PC2505 PC2510	PC5400	PC5300	
	Interrupted machining	PC5400	PC5400	-	PC5400	PC5400	

⇒ Cutting condition for slotting and shouldering


Shouldering (ap 3mm step. Ø63)




Slotting (ap 3mm step. Ø63)




⇒ Cutter

Designation	Image	A.A.	Diameter range	Insert	ap	Application				
						Facing	Shouldering	Slotting	Copying	Ramping-Helical
RM3PCM3000		90°	Ø40 - Ø80	XNKT06 XNCT06	5.5 mm	●	●	●	●	●
RM3PCM4000			Ø40 - Ø125	XNKT08 XNCT08	8.0 mm	●	●	●	●	●
RM3PCM5000			Ø80 - Ø125	XNKT12 XNCT12	12.0 mm	●	●	●	●	●





⇒ Shank

Designation	Image	A.A.	Diameter range	Insert	ap	Application				
						Facing	Shouldering	Slotting	Copying	Ramping-Helical
RM3PS3000		90°	Ø20 - Ø40	XNKT06 XNCT06	5.5 mm	●	●	●	●	●
RM3PS4000			Ø32 - Ø63	XNKT08 XNCT08	8.0 mm	●	●	●	●	●

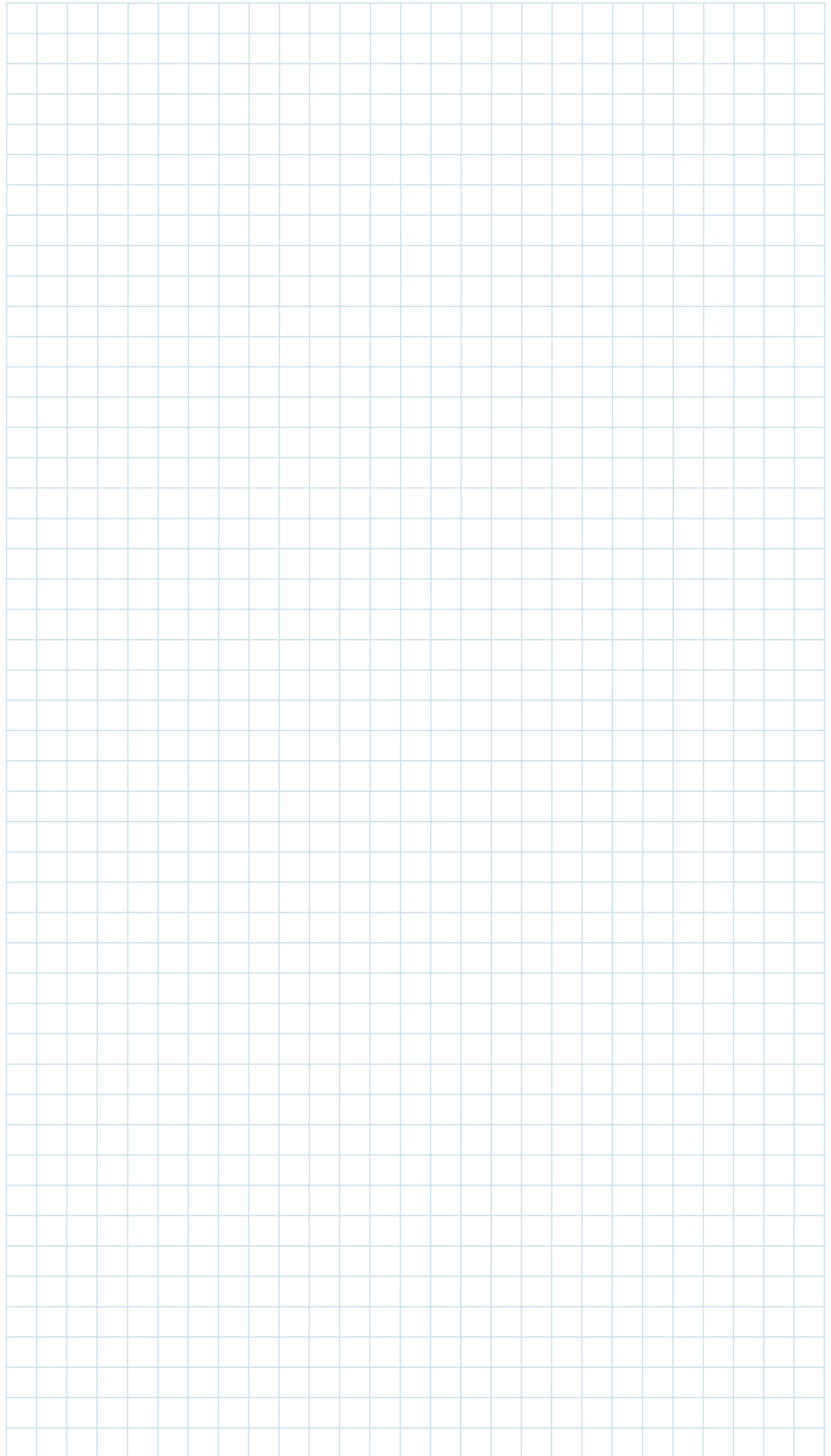
⇒ Modular

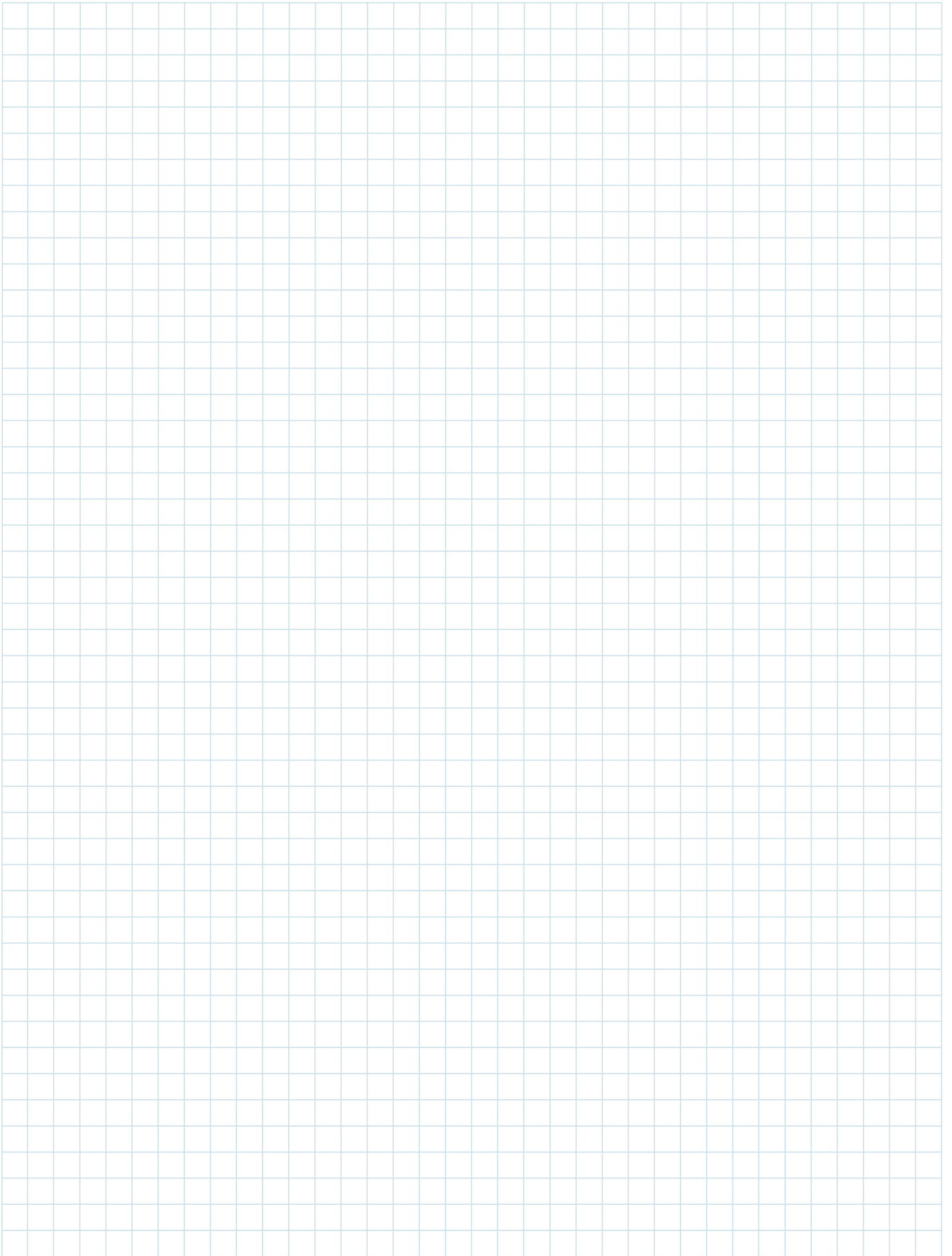
Designation	Image	A.A.	Diameter range	Insert	ap	Application				
						Facing	Shouldering	Slotting	Copying	Ramping-Helical
RM3PM3000		90°	Ø20 - Ø40	XNKT06 XNCT06	5.5 mm	●	●	●	●	●
RM3PM4000			Ø32 - Ø50	XNKT08 XNCT08	8.0 mm	●	●	●	●	●

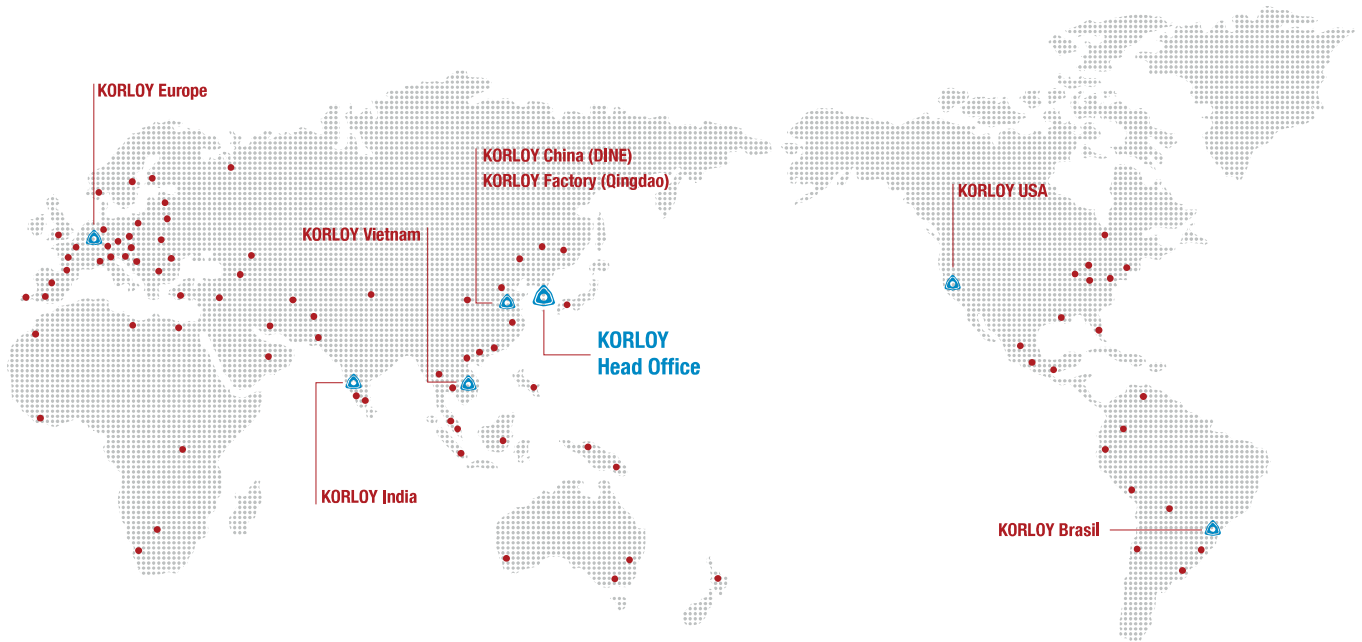
⇒ Modular Adaptors

Steel Shank type	Carbide Shank type	BT / SK Arbor type	HSK Arbor type
			

Notice








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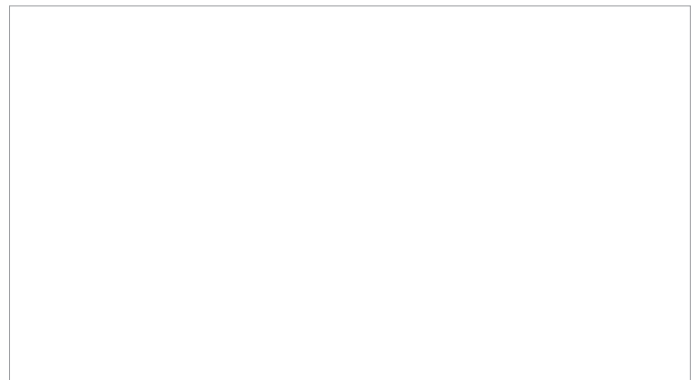
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