THE NEW VALUE FRONTIER
京瓷 创造新价值

KYOCERA

超耐热合金加工用

PR005S/PR015S

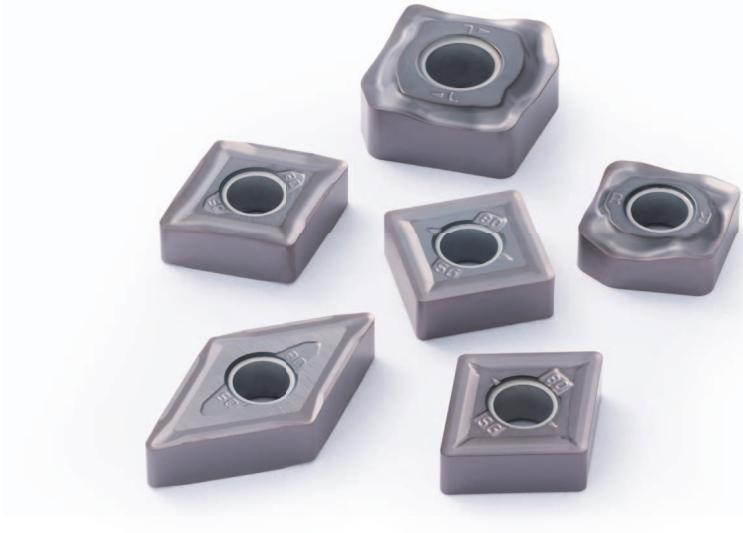
使超耐热合金的稳定加工成为可能，实现生产效率提升

通过改善热性能抑制刀片的突发性崩损·境界磨损

通过采用MEGACOAT HARD提高耐磨损性能提高耐磨损性

专用断屑槽(SQ/SX/SG)实现低阻力稳定加工

NEW 粗加工用 SG断屑槽

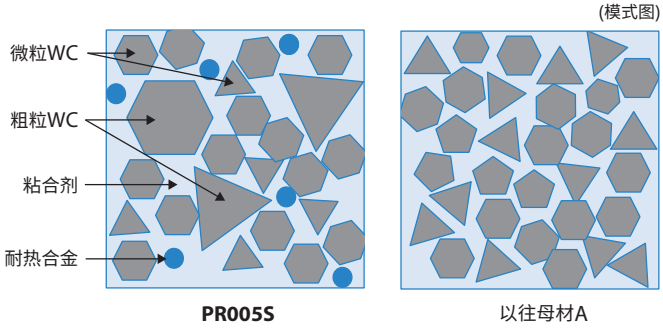


超耐热合金加工用

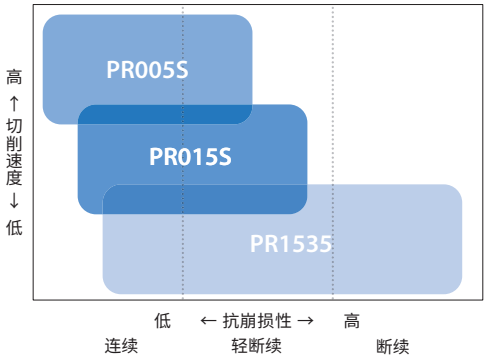
PR005S/PR015S

抑制刀片的突发性崩损·境界磨损
实现超耐热合金的稳定加工

1 通过改善热性能抑制刀片的突发崩损·境界磨损

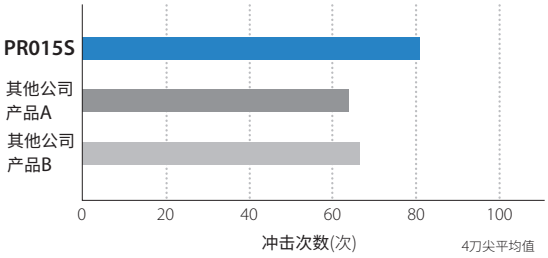


通过最适宜的母材粒子分布提高热传导率(与以往产品对比)
抑制切削时的刀尖温度上升，实现稳定加工



PR005S 高速加工也能够对应的高硬度材质
PR015S 耐磨损性与稳定性卓越的材质

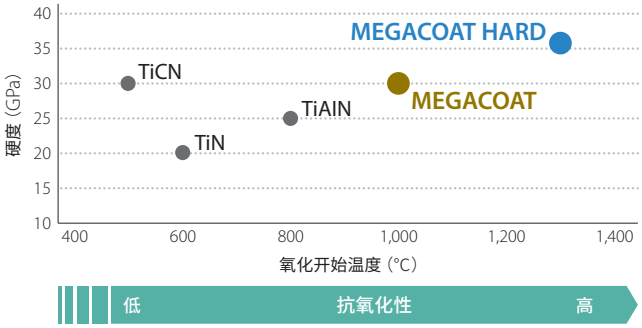
耐磨损性对比 (本公司对比)



切削条件:Vc = 25 m/min, ap = 1.0 mm, f = 0.10 mm/rev, Wet
CNMG120408型　被削材:Ni基超耐熱合金　1面为平面的断续工件

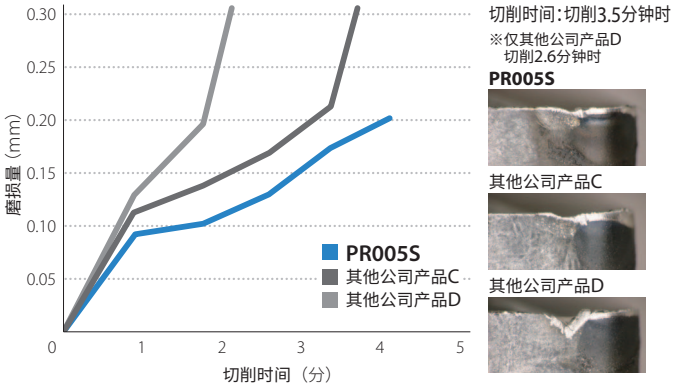
2 采用MEGACOAT HARD提高耐磨损性

涂层特性 (本公司对比)



因硬度高在耐磨损性上表现优异，通过提高热性能抑制境界磨损

耐磨损性对比 (本公司对比)



切削时间:切削3.5分钟时
※仅其他公司产品D
切削2.6分钟时

切削条件:Vc = 60 m/min, ap = 1.0 mm, f = 0.20 mm/rev, Wet, CNMG120408型
被削材:Ni基超耐熱合金

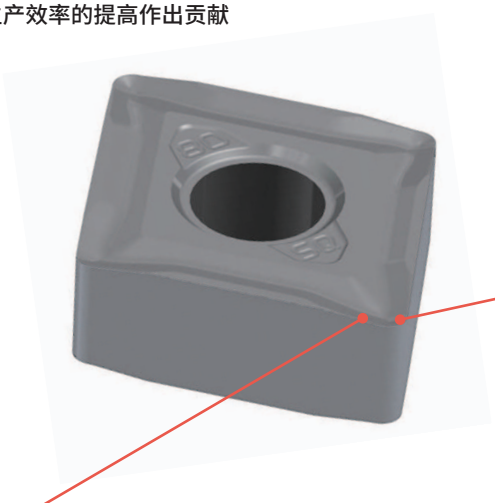
3 通过专用断屑槽(SQ/SX/SG)实现低阻力稳定加工

精加工～半精加工 SQ 断屑槽

双面4刀尖规格

提高超耐热合金的半精加工中的寿命，为生产效率的提高作出贡献

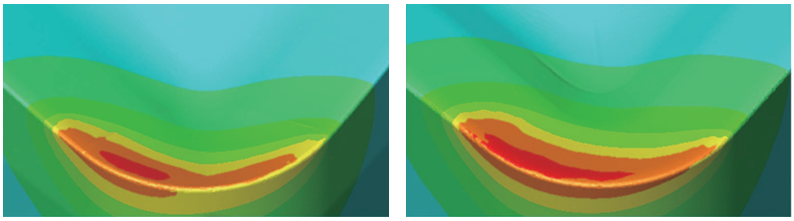
SQ断屑槽的效果
降低刀尖温度→ 提高刀具寿命
抑制毛刺→提高寿命、改善效率



降低刀尖温度的前角面
采用模拟技术的设计

倾斜切刃
向负方向前倾
有效抑制毛刺和境界磨损

刀尖温度对比 模拟 (本公司对比)

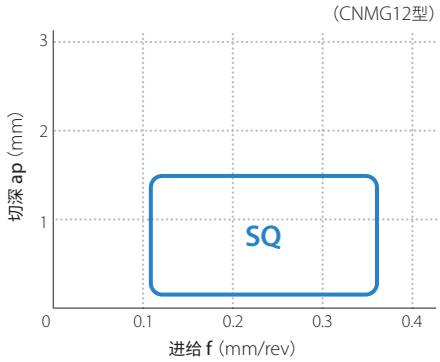


SQ断屑槽　　以往产品B

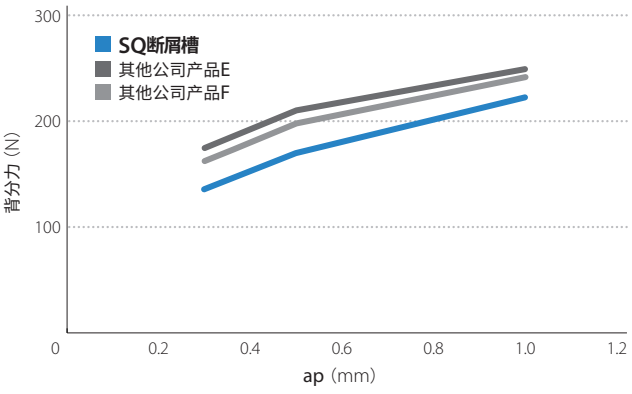
切削条件：Vc = 40 m/min, ap = 1.0 mm, f = 0.15 mm/rev, CNMG120408型, Dry
被削材：Ni基超耐熱合金

SQ断屑槽独特的刀尖形状降低刀尖温度，
在半精加工上延长寿命，对生产效率提高作出贡献

断屑槽适用范围 (切深以半径值〔径向切深〕表示)

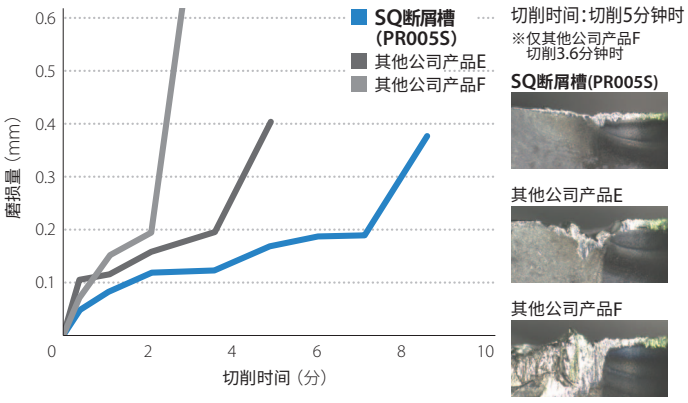


切削阻力对比(背分力) (本公司对比)



切削条件：Vc = 40 m/min, f = 0.15 mm/rev, Wet, CNMG120408型
被削材：Ni基超耐熱合金

耐磨损性对比 (本公司对比)



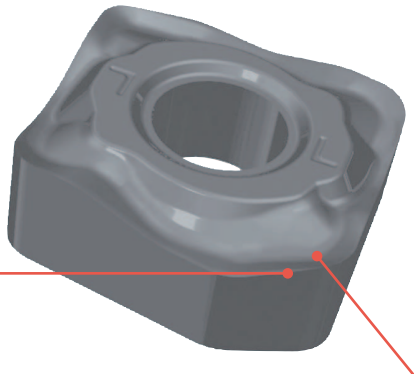
切削条件：Vc = 40 m/min, ap = 1.0 mm, f = 0.20 mm/rev, Wet, CNMG120408型
被削材：Ni基超耐熱合金

高效率粗加工用 SX 断屑槽

可提高超耐热合金的粗加工生产效率

单面2刀尖规格

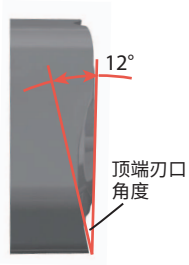
SX断屑槽效果
降低刀尖温度→提高刀具寿命
抑制毛刺→可扩大切深
降低背分力→抑制振刀、改善效率

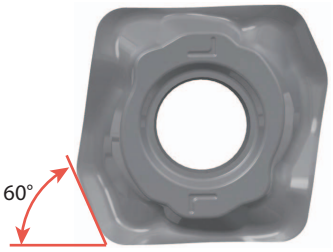


粗加工中希望使用4刀尖规格时请使用SG断屑槽。
详情请参考P5

特殊顶端形状(有方向)
- 切深角60°(装配刀杆时)
- 倾斜角12°

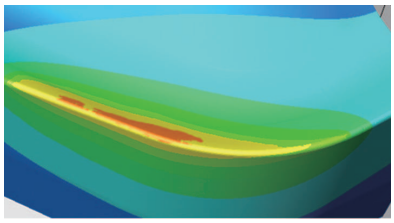
降低刀尖温度的前角面
采用模拟技术的设计



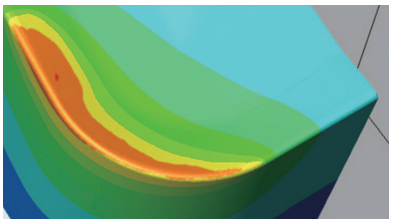


- 京瓷制ISO-C型用刀杆可安装(使用专用垫片)
- 单面、带方向规格

刀尖温度对比 模拟 (本公司对比)



SX断屑槽

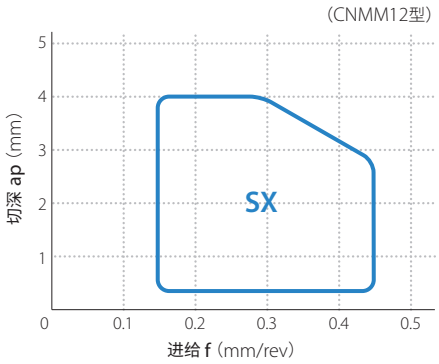


以往产品C

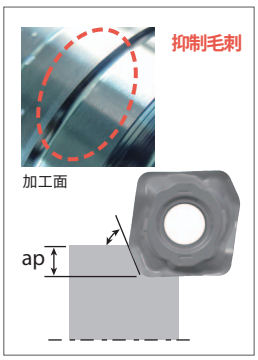
切削条件:Vc = 40 m/min, ap = 2.0 mm, f = 0.25 mm/rev, Dry
CNMM1204XL-SX, CNMG120412型 被削材:Ni基超耐热合金

SX断屑槽通过特殊的刀尖形状和独特的前角面，降低刀尖温度，延长寿命，对生产效率提高作出贡献

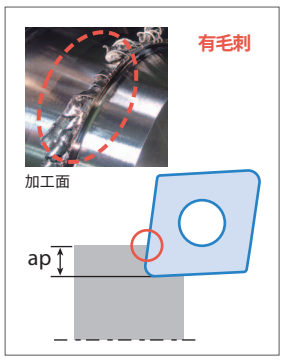
断屑槽适用范围 (切深以半径值〔径向切深〕表示)



毛刺对比 (本公司对比)



SX断屑槽

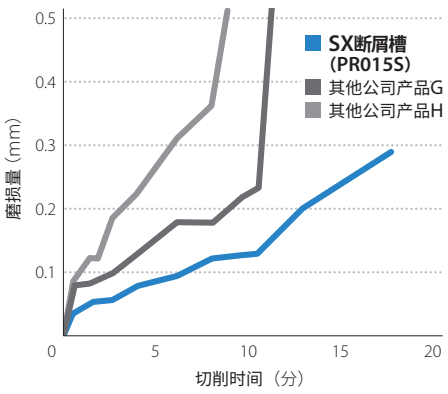


以往产品D

切削条件:Vc = 40 m/min, ap = 2.0 mm, f = 0.25 mm/rev, Wet
CNMM1204XL-SX, CNMG120412型
加工9.4分钟后 被削材:Ni基超耐热合金

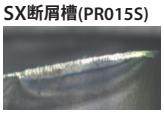
SX断屑槽通过特殊的刀尖形状，即使在大切深条件下也可以抑制毛刺和境界磨损，可以通过扩大切深改善效率

耐磨损性对比 (本公司对比)

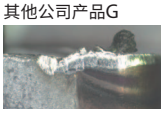


切削时间:切削5分钟时

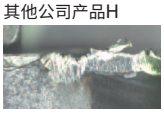
SX断屑槽(PR015S)



其他公司产品G



其他公司产品H



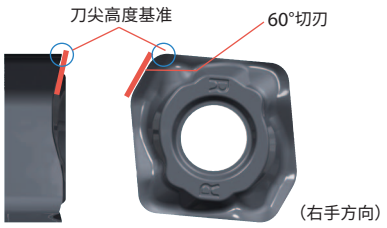
切削条件: Vc = 40 m/min, ap = 2.0 mm, f = 0.25 mm/rev, Wet
CNMM1204XL-SX, CNMG120412型 被削材 : Ni基超耐热合金

SX断屑槽(PR015S)可抑制境界磨损，延长寿命

SX断屑槽使用上的注意点

1. 刀尖高度的基准

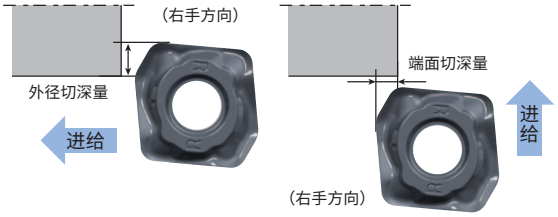
顶端刃口(60°切刃)倾斜
以下图顶端的○部分为基准



2. 推荐切深量

60°切刃的范围内，能发挥最好的性能

型号	推荐切深量 外径 (mm)	最大切深量 端面 (mm)
CNMM1204X R/L-SX	0.5 - **2.0** - 4.0	2.0
CNMM1606X R/L-SX	0.5 - **2.5** - 4.5	2.0
CNMM1906X R/L-SX	0.5 - **3.0** - 5.0	2.5



3. 关于适用刀杆

以下京瓷制刀杆可适用
使用SX断屑槽时需要将标准垫片替换为另售的SX用垫片。不需要对刀杆进行再加工

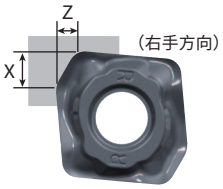
刀片	型号适用刀杆(京瓷)	标准垫片	SX用垫片
CNMM1204X R/L-SX	DCLN R/L2020K-12 DCLN R/L2525M-12	DC-44	DC-44-C
	PCLN R/L2020H-12 PCLN R/L2020K-12 PCLN R/L2525M-12 PCLN R/L3225P-12	LC-42N	LC-42N-C
CNMM1606X R/L-SX	PCLN R/L2525M-16 PCLN R/L3232P-16	LC-53N	LC-53N-C
CNMM1906X R/L-SX	PCLN R/L3232P-19	LC-63	LC-63-C

不推荐用于内径刀杆

4. 关于切削残余

下述为刀尖角部的切削残余

型号	切削残余(mm)	
	X	Z
CNMM1204X R/L-SX	4.1	2.9
CNMM1606X R/L-SX	4.8	3.3
CNMM1906X R/L-SX	5.4	3.6



5. 端面加工

虽然推荐用于外径加工，也可用于端面加工
端面加工时需要降低中心高
(工件中心发生芯残留)

型号	端面加工时中心高的降低量 (mm)
CNMM1204X R/L-SX	0.75
CNMM1606X R/L-SX	0.85
CNMM1906X R/L-SX	1.05

SX断屑槽是用于高效率加工的特殊形状。与通常刀片相比，有以下不同

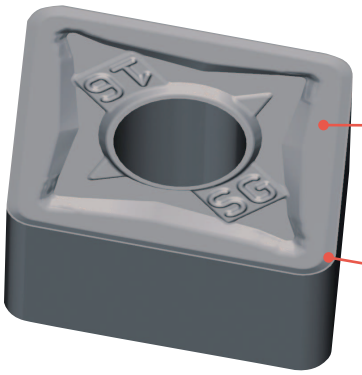
- 带方向单面2刀尖规格
- 请与专用垫片配套使用
- 底角会发生切削残留(4.关于切削残量)
- 端面加工时中心高下降(5.端面加工)

粗加工用 SG 断屑槽 NEW

可广泛对应超耐热合金的粗加工

双面4刀尖规格

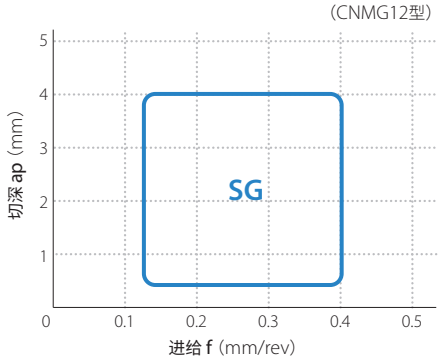
SG断屑槽效果
取得平衡前角形状→工具寿命提高
浅底断屑槽设计→顺畅控制切屑



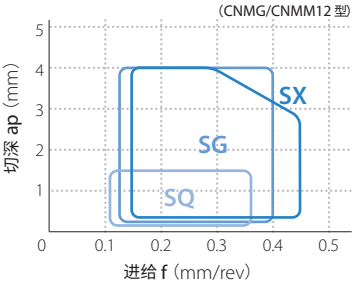
全周断屑槽
高负荷条件下
也能毫不费力控制切屑

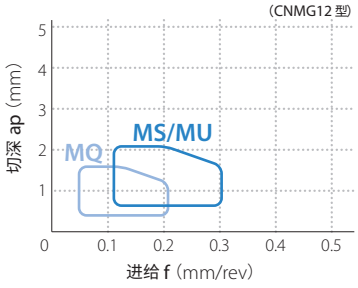
平衡的前角形状
高强度、低阻力的平衡设计

断屑槽适用范围 (切深以半径值(径向切深)表示)



断屑槽适用范围 (切深以半径值径向切深表示)

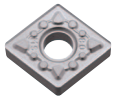
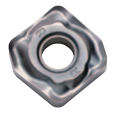
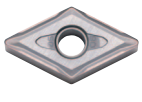
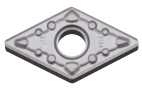
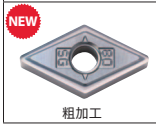


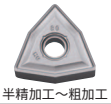


推荐切削条件表

被削材	切削范围	加工形态	推荐断屑槽	推荐材质	下限 - **推荐** - 上限		
					速度 Vc(m/min)	切深 ap(mm)	进给 f(mm/rev)
耐热合金	精加工	连续	MQ	PR005S	30 – **55** – 90	0.2 – **0.3** – 1.0	0.05 – **0.08** – 0.15
		断续		PR015S	25 – **45** – 70	0.2 – **0.5** – 1.0	0.05 – **0.1** – 0.2
	半精加工	连续	MU	PR005S	30 – **55** – 90	0.5 – **1.0** – 2.0	0.1 – **0.15** – 0.3
		断续		PR015S	25 – **45** – 70	0.5 – **1.0** – 2.0	0.1 – **0.15** – 0.3
		连续	MS	PR005S	30 – **55** – 90	0.5 – **1.0** – 2.0	0.1 – **0.15** – 0.3
		断续		PR015S	25 – **45** – 70	0.5 – **1.0** – 2.0	0.1 – **0.15** – 0.3
		连续	SQ	PR005S	30 – **55** – 90	0.3 – **0.5** – 1.5	0.1 – **0.17** – 0.35
		断续		PR015S	25 – **45** – 70	0.3 – **0.5** – 1.5	0.1 – **0.17** – 0.35
	粗加工	连续	SG	PR005S	30 – **55** – 90	0.5 – **2.0** – 4.0	0.1 – **0.3** – 0.4
		断续		PR015S	25 – **45** – 70	0.5 – **2.0** – 4.0	0.1 – **0.3** – 0.4
		连续	SX	PR005S	30 – **55** – 90	0.5 – **2.0** – 4.0	0.15 – **0.3** – 0.45
		断续		PR015S	25 – **45** – 70	0.5 – **2.0** – 4.0	0.15 – **0.3** – 0.45

标准库存型号

形状 带方向刀片显示为右手方向(R)	型号	尺寸(mm) 内接圆直径	厚度	孔径	刀尖角R (rε)	PR005S	PR015S
精加工～半精加工	CNMG 120404SQ 120408SQ 120412SQ	12.70	4.76	5.16	0.4 0.8 1.2	● ● ●	● ● ●
	CNMG 160612SQ 160616SQ	15.875	6.35	6.35	1.2 1.6	● ●	● ●
	CNMG 190612SQ 190616SQ	19.05	6.35	7.94	1.2 1.6	● ●	● ●
精加工～半精加工	CNMG 120404MQ 120408MQ	12.70	4.76	5.16	0.4 0.8	● ●	● ●
 半精加工～粗加工	CNMG 120404MS 120408MS 120412MS 120416MS	12.70	4.76	5.16	0.4 0.8 1.2 1.6	● ● ● ●	● ● ● ●
半精加工～粗加工	CNMG 120404MU 120408MU 120412MU	12.70	4.76	5.16	0.4 0.8 1.2	● ● ●	● ● ●
	CNMG 160608MU 160612MU 160616MU	15.875	6.35	6.35	0.8 1.2 1.6	● ● ●	● ● ●
	CNMG 190612MU 190616MU	19.05	6.35	7.94	1.2 1.6	● ●	● ●
NEW 粗加工	CNMG 120408SG 120412SG	12.70	4.76	5.16	0.8 1.2	● ●	● ●
	CNMG 160612SG 160616SG	15.875	6.35	6.35	1.2 1.6	● ●	● ●
	CNMG 190612SG 190616SG	19.05	6.35	7.94	1.2 1.6	● ●	● ●
 粗加工	CNMM1204X$^{R}_{L}$-SX	12.70	4.42	5.16	–	●	●
	CNMM1606X$^{R}_{L}$-SX	15.875	5.96	6.35	–	●	●
	CNMM1906X$^{R}_{L}$-SX	19.05	5.93	7.94	–	●	●
 精加工～半精加工	DNMG 150404SQ 150408SQ 150412SQ	12.70	4.76	5.16	0.4 0.8 1.2	● ● ●	● ● ●
	DNMG 150604SQ 150608SQ 150612SQ	12.70	6.35	5.16	0.4 0.8 1.2	● ● ●	● ● ●
精加工～半精加工	DNMG 150404MQ 150408MQ	12.70	4.76	5.16	0.4 0.8	● ●	● ●
	DNMG 150604MQ 150608MQ	12.70	6.35	5.16	0.4 0.8	● ●	● ●
 半精加工～粗加工	DNMG 150404MS 150408MS 150412MS	12.70	4.76	5.16	0.4 0.8 1.2	● ● ●	● ● ●
	DNMG 150604MS 150608MS 150612MS	12.70	6.35	5.16	0.4 0.8 1.2	● ● ●	● ● ●
半精加工～粗加工	DNMG 150404MU 150408MU	12.70	4.76	5.16	0.4 0.8	● ●	● ●
	DNMG 150604MU 150608MU	12.70	6.35	5.16	0.4 0.8	● ●	● ●
NEW  粗加工	DNMG 150408SG 150412SG	12.70	4.76	5.16	0.8 1.2	● ●	● ●

形状	型号	尺寸(mm) 内接圆直径	厚度	孔径	刀尖角R (rε)	PR005S	PR015S
精加工～半精加工	SNMG 120404MQ 120408MQ	12.70	4.76	5.16	0.4 0.8	● ●	● ●
半精加工～粗加工	SNMG 120404MS 120408MS 120412MS 120416MS	12.70	4.76	5.16	0.4 0.8 1.2 1.6	● ● ● ●	● ● ● ●
半精加工～粗加工	SNMG 190612MU 190616MU	19.05	6.35	7.94	1.2 1.6	● ●	● ●
NEW 粗加工	SNMG 120408SG 120412SG	12.70	4.76	5.16	0.8 1.2	● ●	● ●
	SNMG 190612SG 190616SG	19.05	6.35	7.94	1.2 1.6	● ●	● ●
精加工～半精加工	TNMG 160404MQ 160408MQ	9.525	4.76	3.81	0.4 0.8	● ●	● ●
半精加工～粗加工	TNMG 160404MS 160408MS 160412MS	9.525	4.76	3.81	0.4 0.8 1.2	● ● ●	● ● ●
半精加工～粗加工	TNMG 160404MU 160408MU	9.525	4.76	3.81	0.4 0.8	● ●	● ●
NEW 粗加工	TNMG 160408SG 160412SG	9.525	4.76	3.81	0.8 1.2	● ●	● ●
	TNMG 220408SG 220412SG	12.70	4.76	5.16	0.8 1.2	● ●	● ●
精加工～半精加工	VNMG160404MQ 160408MQ	9.525	4.76	3.81	0.4 0.8	● ●	● ●
半精加工～粗加工	VNMG160404MS 160408MS 160412MS	9.525	4.76	3.81	0.4 0.8 1.2	● ● ●	● ● ●
半精加工～粗加工	VNMG160404MU 160408MU	9.525	4.76	3.81	0.4 0.8	● ●	● ●
NEW 粗加工	VNMG160404SG 160408SG	9.525	4.76	3.81	0.4 0.8	● ●	● ●
精加工～半精加工	WNMG 080404MQ 080408MQ	12.70	4.76	5.16	0.4 0.8	● ●	● ●
半精加工～粗加工	WNMG 080404MS 080408MS 080412MS	12.70	4.76	5.16	0.4 0.8 1.2	● ● ●	● ● ●
 半精加工～粗加工	WNMG 080404MU 080408MU	12.70	4.76	5.16	0.4 0.8	● ●	● ●
NEW 粗加工	WNMG 080408SG 080412SG	12.70	4.76	5.16	0.8 1.2	● ●	● ●

CNMM…X$^{R}_{L}$-SX为单面2刀尖规格

●:标准库存