THE NEW VALUE FRONTIER
京瓷 创造新价值

KYOCERA

背车加工・螺纹加工・切断加工
Back Turning/Threading/Cut-Off
KTKF型

小零件加工用刀具

KTKF型

For Small Part Cutting　KTKF type

1把刀杆实现
背车加工・螺纹加工・切断加工

Applicable to back turning, threading and cut-off with a single toolholder

NEW

背车加工用TKFB型3坐标GQ断屑槽隆重上市
优越的切屑处理实现完美加工面

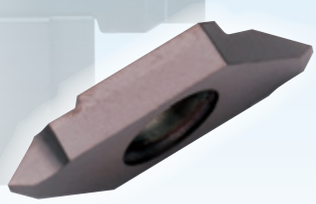
GQ Chipbreaker for KTKF back turning toolholder
Excellent surface finish by smooth chip control

NEW

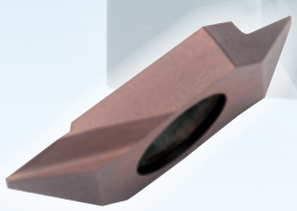
追加不锈钢加工用PR1535系列
特殊纳米涂层 MEGACOAT NANO 实现长寿命・稳定加工

PR1535 for stainless steel is now available
Special nano layer MEGACOAT NANO enables long tool life and stable cutting

切断加工
Cut-off
TKF 型



螺纹加工
Threading
TKFT 型



背车加工
Back turning
TKFB 型

3坐标断屑槽 TKFB-GQ型
TKFB-GQ with 3D molded chipbreaker

PCD(金刚石)刀片 TKF-AS型
TKF-AS PCD Inserts

ADVANCING PRODUCTIVITY
致力于生产效率提高的京瓷

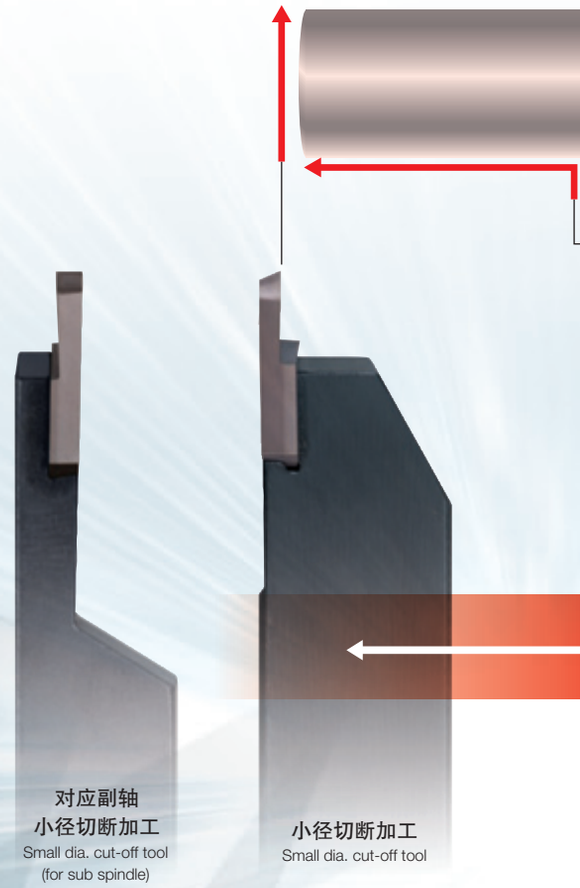
小零件加工用刀具

KTKF型

For Small Part Cutting　KTKF type

NEW **追加不锈钢加工用PR1535系列**
特殊纳米涂层 MEGACOAT NANO 实现长寿命·稳定加工
PR1535 for stainless steel is now available
Special nano layer MEGACOAT NANO enables long tool life and stable cutting

NEW **背车加工用TKFB型的3坐标GQ断屑槽上市**
GQ Chipbreaker for KTKF back turning toolholder



切断加工
Cut-off

小径切断加工用刀具
For small diameter cut-off

TKF型

- 极小径用以及小径用的2个尺寸切断刀片系列化
  TKF12：最大直径φ5～φ12/TKF16：最大直径φ16
  Two kinds of cut-off inserts are available; for micro and small diameters
  TKF12: Dmax 5 to 12mm / TKF16: Dmax 16mm
- 最小切断宽度0.5mm标准化(TKF12型)
  Minimum cut-off width of 0.5mm are available
- 低阻力 S断屑槽可实现锋利的切断加工
  Low resistant S Chipbreaker for sharp cutting
- 刃口强化型 T断屑槽、在提高进给·
  断续部位等切断加工中发挥威力，
  并且在不锈钢加工中提高工具寿命。
  Tough edge T Chipbreaker for high feed and interrupted cut-off
  In stainless steel cutting, extended tool life
- 无断屑槽采用R角(rε)=0mm
  Sharp corner radius of 0.0 available on inserts without chipbreakers

对应副轴小径切断用
For small diameter cut-off for sub-spindle

KTKFS型

- 工件直径小，主轴与副轴之间的距离变短，可对应切断加工
  Recommended for very small diameter workpieces, or when clearance between main and sub-spindle is very small
- 采用低阻力断屑槽
  实现锋利的切断加工
  Chipbreaker designed for low cutting resistance

  切断专用刀具。
  与背车加工・螺纹加工刀片没有互换性。
  KTKFS type is specially designed for cut-off.
  There is no compatibility with back turning / threading inserts.

刀片材质
Insert Grade

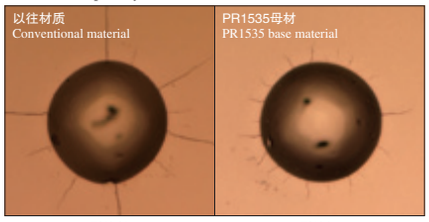
不锈钢加工用
MEGACOAT NANO

PR1535

详情请见第5页 Page 5 for details

- 新钴配合比率强韧化
  (破坏韧性值：※提高约23%)
  Toughening by a new cobalt mixing ratio. (Fracture toughness values are at approximately 23% improvements)
- 母材粒子的最佳化与均一化提高稳定性
  Stability improvement by optimization and homogenization of the particles of matrix
- MEGACOAT NANO 实现长寿命·稳定加工
  Long tool life and stable machining with MEGACOAT NANO

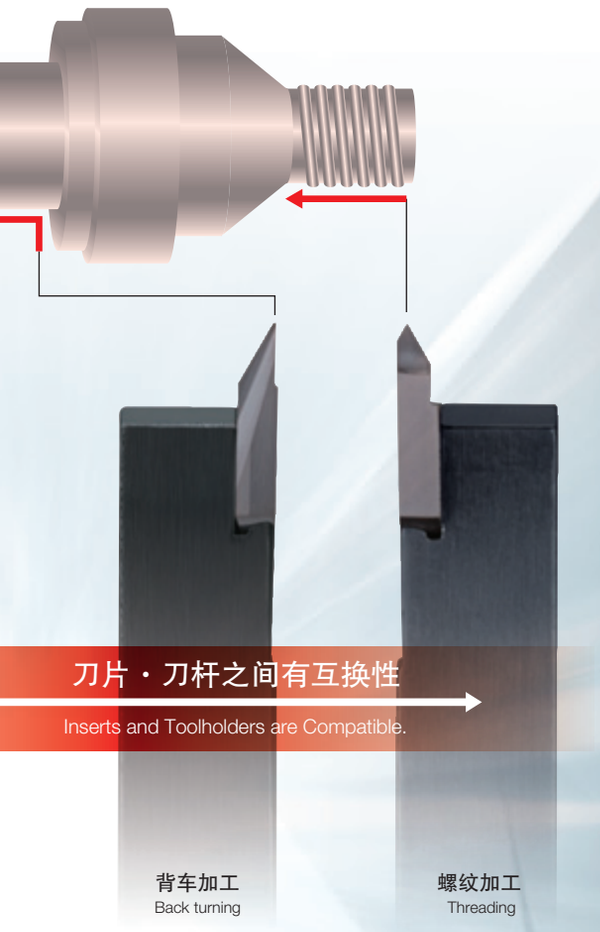
■金刚石压子的裂纹比较
Cracks compare by diamond indentor



裂纹长
Long cracks

裂纹短
Short cracks
→抗冲击性提高
High-impact improvement

※本公司以往比 Our conventional material ratio



钢加工用

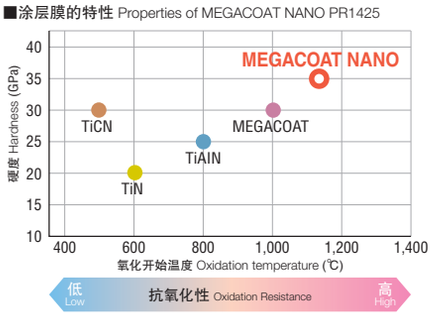
MEGACOAT NANO

PR1425

● 采用特殊纳米涂层 “MEGACOAT NANO”、在钢的广泛加工领域中发挥出优越的切削性能

Superior cutting performance in various applications of steel cutting by Special Multilayer Nano Coating "MEGACOAT NANO"

■涂层膜的特性 Properties of MEGACOAT NANO PR1425



● MEGACOAT NANO具有高硬度(35GPa)与优越的抗氧化性(氧化开始温度：1,150℃)，抑制磨损、提高抗崩损性能

MEGACOAT NANO prevents wear and fracture with high hardness (35GPa) and superior oxidation resistance (oxidation temperature: 1,150℃)

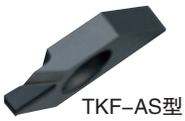
背车加工
Back turning

背车加工用

For back turning

TKFB型

GQ断屑槽



TKF-AS型

● 低阻力设计尺寸变化小！！

Minimal deflection due to low resistance design

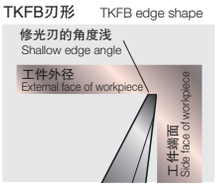
● 良好的切屑处理

Smooth chip control

● 修光刃角度的最佳化完成面良好

Excellent surface finish due to optimum wiper edge angle

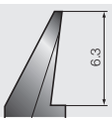
TKFB刃形 TKFB edge shape



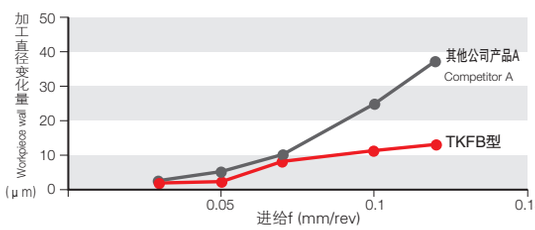
小切深用
For small D.O.C

通用
For general cutting

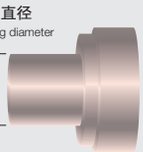
大切深用
For large D.O.C



● 加工直径变化量 Workpiece wall



加工直径
Cutting diameter



加工参数 Cutting conditions：Vc=80m/min ap=1mm f=0.03～0.12mm/rev wet S45C

● 3坐标GQ断屑槽上市

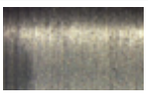
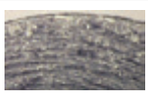
独家的3坐标断屑槽具有优越的切屑处理、实现精美完成面

New molded GQ Chipbreaker

Original 3D molded chipbreaker realizes excellent surface finish by smooth chip control

详情请见第3页 Page 3 for details

■端面・外径 完成面状态 Surface finish comparison

	TKFB型GQ断屑槽 TKFB-GQ Chipbreaker		其他公司产品B(研磨断屑槽) Comp. B (ground)	
	端 面 Grooving	外 径 Turning	端 面 Grooving	外 径 Turning
工件加工面 Workpiece surface				
	卓越的加工面 Excellent surface		切屑夹刀 Chip biting	
	Rz=2.92μm	Rz=3.85μm	Rz=31.23μm	Rz=7.67μm

加工参数 Conditions：Vc＝100m/min ap=3.0mm f=0.02mm/rev(槽 Grooving) 0.05mm/rev(外径 Turning)

被切削材 Workpiece：S45C wet

(本公司比较) Internal evalnation

螺纹加工
Threading

螺纹加工用

For threading

TKFT型

● 对应各种螺纹加工

Applicable for various types of thread

- 公制螺纹(M) Metric screw thread
- 管用平行螺纹〔G(PF)〕 Parallel pipe thread
- 英制螺纹(UN) Unified thread
- 锥度管螺纹〔R(PT)(BSPT)〕 Taper pipe thread

背车加工用

TKFB型GQ断屑槽

TKFB-GQ Chipbreaker for back-turning

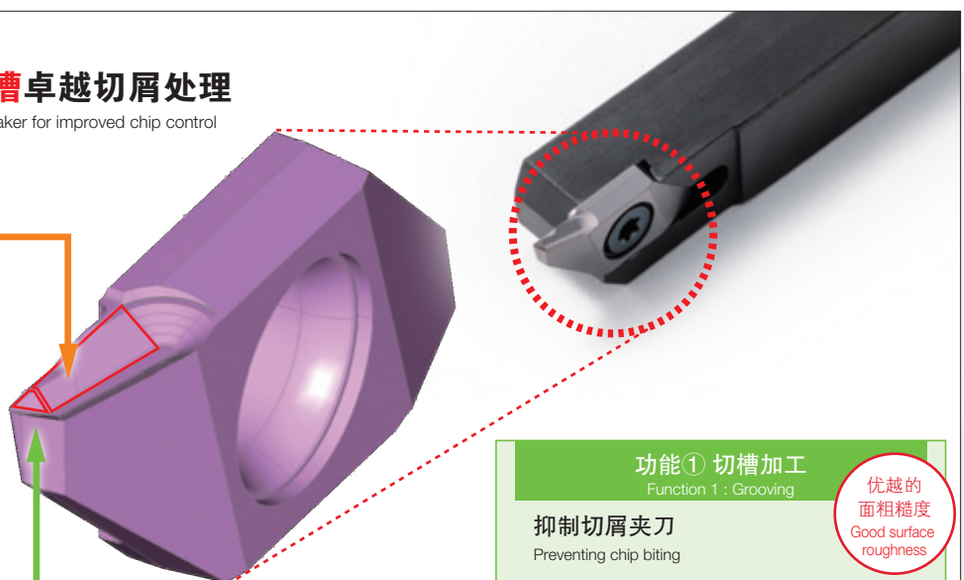
解决以往背车刀具的问题!
独家的3坐标断屑槽具有卓越的切屑处理。实现精美完成面

Solution for problems in the conventional back-turning tools
Original 3D molded chipbreaker realizes excellent surface finish by smooth chip control

Point 1

具备两大功能
独家3坐标断屑槽卓越切屑处理

Original double-function chipbreaker for improved chip control

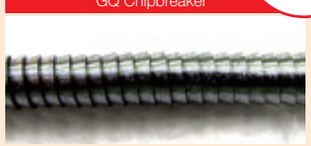


功能② 外径加工用
Function 2 : Turning

抑制切屑朝向
工件方向卷曲
Preventing chip entanglement

稳定的
切屑处理
Stable chip control

GQ断屑槽
GQ Chipbreaker



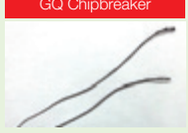
其他公司产品C(研磨断屑槽)
Competitor C (ground)

功能① 切槽加工
Function 1 : Grooving

优越的
面粗糙度
Good surface roughness

抑制切屑夹刀
Preventing chip biting

GQ断屑槽
GQ Chipbreaker



其他公司产品E(研磨断屑槽)
Competitor E (ground)

■ 外径加工 切屑处理比较 Chip control comparison (Turning)

S45C

切深(ap) \ 进给(f)	GQ断屑槽 GQ Chipbreaker 0.03 mm/rev	GQ断屑槽 0.05 mm/rev	GQ断屑槽 0.07 mm/rev	其他公司产品D(3坐标断屑槽) Comp. D (molded) 0.03 mm/rev	0.05 mm/rev	0.07 mm/rev
4mm (其他公司3.5) Comp.	○	○	○	○	○	×切屑堵塞 Clogging
3mm	○	○	○	○	○	○
2mm	○	○	○	△切屑处理不稳定 Unstable chip control		

加工参数 Conditions： Vc = 100m/min Wet

卷曲直径小不容易朝向工件方向卷曲

Tight curling chip reduces chip entanglement

SUS304

切深(ap) \ 进给(f)	GQ断屑槽 GQ Chipbreaker 0.02 mm/rev	GQ断屑槽 0.04 mm/rev	GQ断屑槽 0.06 mm/rev	其他公司产品F(3坐标断屑槽) Comp. F (molded) 0.02 mm/rev	0.04 mm/rev	0.06 mm/rev
4mm (其他公司3.5) Comp.	○	○	○	○	×刀片崩损 Fracture	
3mm	○	○	○	○	×切屑堵塞 Clogging	
2mm	△切屑处理不稳定 Unstable chip control		○	△切屑处理不稳定 Unstable chip control		

加工参数 Conditions： Vc = 80m/min Wet

广泛的切削领域实现稳定加工

Stable cutting in wide application range

(本公司比较) Internal evalnation

Point2

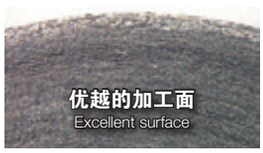
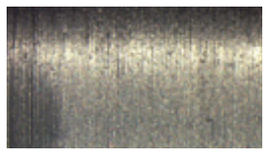
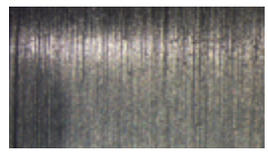
抑制切屑的夹刀・堵塞、实现优越的完成面

Excellent surface finish by preventing chip biting and clogging

・刀具走刀 Tooling　1刀加工 Single pass

加工参数 Conditions： Vc＝100m/min　ap=3.0mm
f=0.02mm/rev(槽(Grooving)) 0.05mm/rev(外径(Turning))
被切削材 Workpiece：S45C　Wet

■ 端面・外径 精加工面状态 Surface finish comparison

	GQ断屑槽 GQ Chipbreaker		其他公司产品G(研磨断屑槽) Comp. G (ground)	
	端　面 Grooving	外　径 Turning	端　面 Grooving	外　径 Turning
工件加工面 Workpiece surface	 优越的加工面 Excellent surface		 切屑夹刀 Chip biting	
	Rz=2.92μm	Rz=3.85μm	Rz=31.23μm	Rz=7.67μm

GQ断屑槽1刀加工完成优越的加工面。缩短作业周期时间!

GQ Chipbreaker realizes excellent surface finish with single pass. Suitable for cycle time reduction.

切槽加工 Grooving

轴环表面粗糙度比较

Flange surface roughness

即使是大切深也具有优越的完成面

Excellent surface finish at large ap cutting

切深 ap	GQ断屑槽 GQ Chipbreaker	其他公司产品H(研磨断屑槽) Comp. H (ground)
4mm	 Rz=2.63μm	 Rz=27.88μm
3mm	 Rz=2.92μm	 Rz=31.23μm
2mm	 Rz=2.41μm	 Rz=25.56μm

加工参数 Conditions： Vc＝100m/min　f=0.02mm/rev
被切削材 Workpiece： S45C　wet

(本公司比较) Internal evalnation

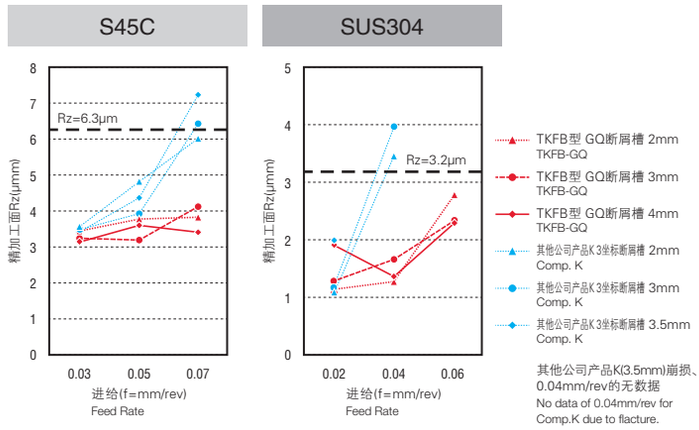
外径加工 Turning

外径面的面粗糙度比较

Surface roughness at external turning

即使提高进给也能抑制切屑堵塞和缠绕

Preventing chip clogging and entanglement at high feed rate



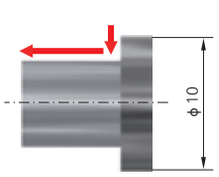
加工参数 Conditions： Vc＝100m/min(S45C), 80m/min(SUS304)
f=0.03～0.07mm/rev(S45C), 0.02～0.06mm/rev(SUS304)　wet

(本公司比较) Internal evalnation

■ 加工案例 Cast Study

SUM23

螺栓 Bolt
・Vc=90m/min
・ap=2mm
・f=0.025mm/rev(槽) Grooving
f=0.04mm/rev(外径) Turning
Wet
TKFB12R28015–GQ (PR1225)



PR1225	5,000个/刃口 pcs/edge
其他公司产品I Competitor I	2,500个/刃口 pcs/edge

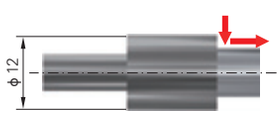
●TKFB–GQ断屑槽(PR1225)与其他公司产品I相比，加工数量提高了2倍
TKFB-GQ chip breaker (PR1225) shows 2 times longer tool life compared to competitor I.

●尺寸偏差小、可实现稳定加工
Minimal deflection realize stable machining.

(来自用户评价) User evaluation

SUJ2

轴 Shaft
・Vc=50m/min
・ap=2mm
・f=0.03mm/rev(槽) Grooving
f=0.05mm/rev(外径) Turning
Wet
TKFB12R28015–GQ (PR1225)



PR1225	1,500个/刃口 pcs/edge
其他公司产品J Competitor J	1,500个/刃口 pcs/edge

●TKFB–GQ断屑槽(PR1225)与其他公司产品J相比，切屑处理稳定
TKFB-GQ chip breaker (PR1225) improved smooth chip control to competitor J.

 GQ断屑槽 GQ chip breaker

 其他公司产品J Competitor J

(来自用户评价) User evaluation

不锈钢加工用

PR1535

PR1535 for Stainless Steel Machining

特殊纳米涂层 MEGACOAT NANO PR1535 在不锈钢加工中实现长寿命·稳定加工

Special nano layer coating MEGACOAT NANO PR1535 realizes the long tool life and stable machining of stainless steel

Point1

新钴配合比率强韧化
(破坏韧性值：※提高约23%)

Toughening by a new cobalt mixing ratio
(Fracture toughness values are at approximately 23% improvements)

Point2

母材粒子的最佳化与均一化提高稳定性

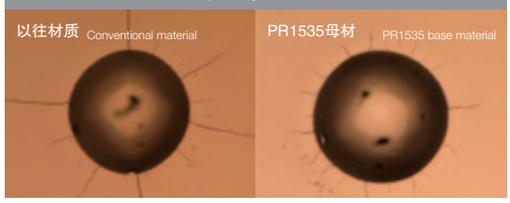
Stability improvement by optimization and homogenization of the particles of matrix

Point3

MEGACOAT NANO 实现长寿命・稳定加工

Long tool life and stable machining with MEGACOAT NANO

PCD(金刚石)压子的裂纹比较
Cracks compare by diamond indentor

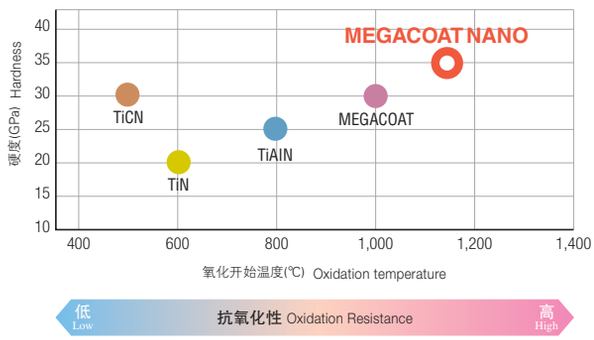


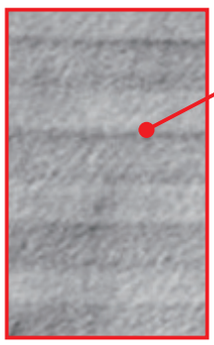
裂纹长 Long cracks　　**裂纹短** Short cracks

→抗冲击性提高 High-impact improvement

※：本公司以往比 Our conventional material ratio

●涂层特性 Coating film property





MEGACOAT
积层构造
Layer structure of MEGACOAT

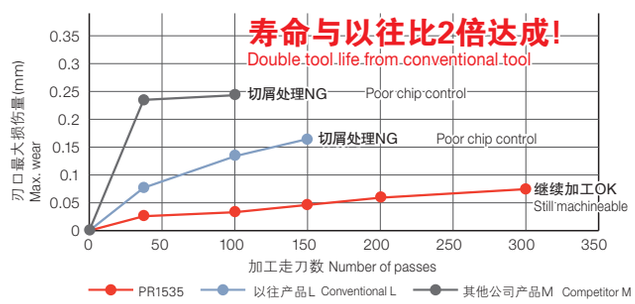
1大重点
One Point

PR1535在钢加工的早期崩损和寿命的偏差等不稳定加工中发挥威力!

PR1535 is good solution for unstable conditions such as early fracture and variable tool life at steel machining

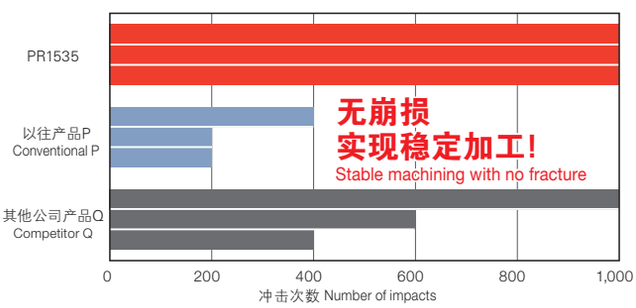
※：根据与本公司以往材质比较 Our conventional material ratio

●耐磨性评价 Wear resistance evaluation



n=1,273min^{-1}(VC=80m/min)　f=0.025mm/rev
被切削材 Workpiece：SUS304(φ20)　wet(油性 Oil base)

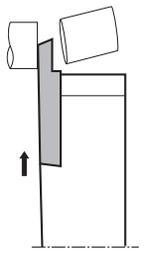
●抗崩损比较 Fracture resistance comparison



Vc=80m/min　f=0.12mm/rev
被切削材 Workpiece：SUS304(φ50 10mm槽宽4个 4 slots, width: 10mm)
wet(水溶性 Water soluble)

本公司比较 Internal evalnation

KTKF型 (小径切断加工用) (For small diameter cut-off)



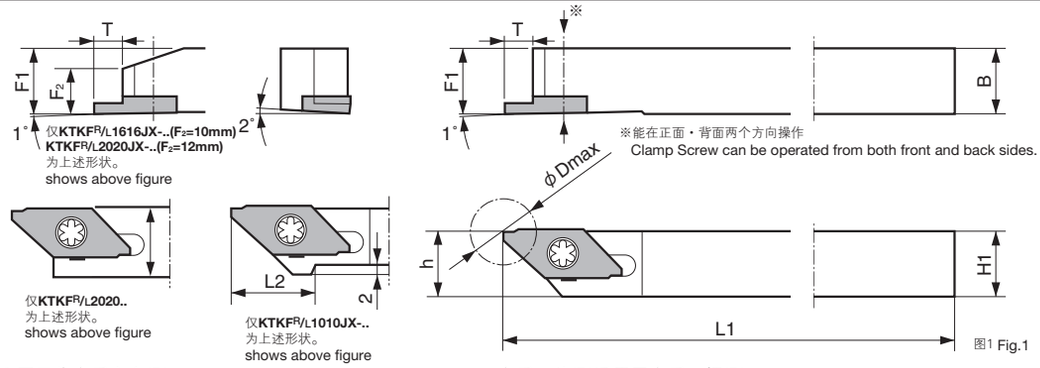
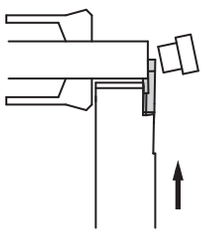


图1 Fig.1

●图示为右手方向(R) Right-hand Shown

右手刀片(R)适用于右手刀杆(R)。 Right-hand insert for R-hand toolholder

〈空间刀杆〉 Goose-neck holder



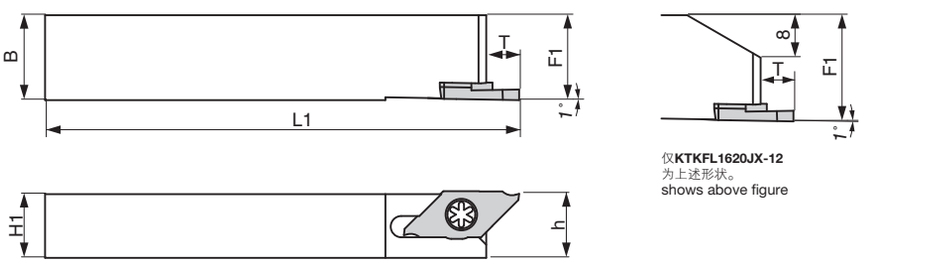


图2 Fig.2

●图示为左手方向(L) Left-hand Shown

左手刀片(L)适用于左手刀杆(L)。 Left-hand insert for L-hand toolholder

●刀杆尺寸 Toolholder Dimensions

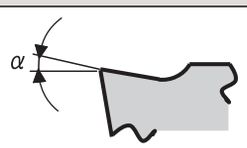
型号 Description		库存 Stock R	库存 Stock L	尺寸(mm) Dimension (mm) H1=h	B	L1	L2	F1	T	形状 Shape	零件 Spare Parts 紧固螺丝 Clamp Screw	零件 Spare Parts 扳手 Wrench	适用刀片 Applicable Inserts
KTKFR/L	1010JX-12	●	●	10	10	120	15	10	6	图1 Fig.1	SB-4590TRWN	LTW-10S	TKF12R/L …
	1212JX-12	●	●	12	12		-	12					
	1616JX-12	●	●	16	16			16					
	2020JX-12	●	●	20	20			20					
KTKFR/L	1010JX-16	●	●	10	10	120	20	10	8		SB-4590TRWN	LTW-10S	TKF16R/L …
	1212JX-16	●	●	12	12		-	12					
	1616JX-16	●	●	16	16			16					
	2020JX-16	●	●	20	20			20					
KTKFR/L	1212F-12	●	●	12	12	85	-	12	6		SB-4590TRWN	LTW-10S	TKF12R/L …
	1212F-16	●	●						8				TKF16R/L …
KTKFL	1216JX-12		●	12	16	120	-	16	6	图2 Fig.2	SB-4590TRWN	LTW-10S	TKF12L …
	1620JX-12		●	16	20			20					

・尺寸T：表示从刀杆到刃口的距离。Dimension T shows the distance from the Toolholder to the cutting edge.

●：标准库存 Standard Stock

注)–12型刀杆的加工直径(φDmax)由刀片的槽宽而异。
Note: Cutting diameter of -12 type toolholder(φDmax) depends on the insert grooving width.

●各断屑槽的刃口详情 Descriptions of Chipbreakar Edge Shape

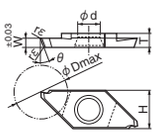
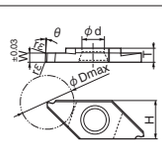
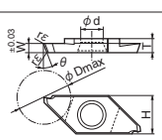
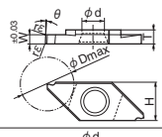
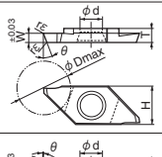
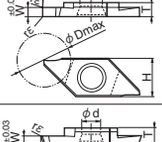
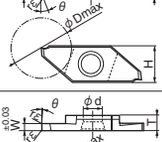
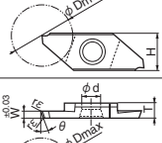
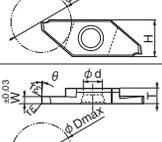
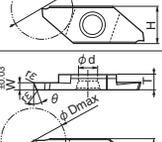
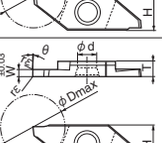
刃口形状 Edge Shape / 断屑槽名 Chipbreaker	S断屑槽 S-Chipbreaker α	S断屑槽 S-Chipbreaker 型号 Description	T断屑槽 T-Chipbreaker (刃口强化型 Tough Edge) α	T断屑槽 T-Chipbreaker (刃口强化型 Tough Edge) 型号 Description	NB断屑槽 NB Chipbreaker α	NB断屑槽 NB Chipbreaker 型号 Description
	15°	TKF12・・-S	12	TKF・・-T TKF・・-T-16DR	0	TKF・・-NB TKF・・-NB-20DR
	20°	TKF16・・-S TKF16・・-S-16DR				
	25°	TKF12・・-S-16DR				

切断加工 Cut-Off

使用分类标准 Classification of usage								
●：连续～断续/第1选择Continuous to light Interruption / 1st Choice ◔：连续～断续/第2选择Continuous to light Interruption / 2nd Choice ●：连续/第1选择Continuous / 1st Choice ○：连续/第2选择Continuous / 2nd Choice	P	碳钢・合金钢 Carbon steel / Alloy steel	●	◔	◔	◔		
	M	不锈钢 Stainless Steel	◔	●	◔	◔		
	K	铸铁 Cast Iron					●	
	N	有色金属 Non-ferrous Metals					●	

NEW

● 适用刀片 Applicable Inserts

形 状 Shape 带刀片方向的表示为右手方向(R) Handed Insert shows Right-hand.		型 号 Description		尺 寸(mm) Dimension (mm)						角度(°) Angle	MEGACOAT NANO		MEGACOAT	PVD涂层 PVD Coated Carbide	硬质合金 Carbide	适用刀杆 Applicable Toolholder
				W	ϕD max	R(rε)	T	H	ϕd	θ	PR1425	PR1535	PR1225	PR1025	KW10	
右导程角 Right lead angle		TKF12R/L	050-S-16DR	0.5	5	0.03	3	8.7	5	16°	●	●	●	●	●	KTKFR/L ...12
			070-S-16DR	0.7	8						●	●	●	●	●	
			100-S-16DR	1.0	12						●	●	●	●	●	
			125-S-16DR	1.25							●	●				
			150-S-16DR	1.5							●	●	●	●	●	
			200-S-16DR	2.0							●	●	●	●	●	
		TKF12R/L	050-S	0.5	5	0.03	3	8.7	5	0°	●	●	●	●	●	
			070-S	0.7	8						●	●	●	●	●	
			100-S	1.0	12						●	●	●	●	●	
			125-S	1.25							●	●				
			150-S	1.5							●	●	●	●	●	
			200-S	2.0							●	●	●	●	●	
右导程角・刃口强化型 Right lead angle/Tough Edge		TKF12R/L	100-T-16DR	1.0	12	0.08	3	8.7	5	16°	●	●	●			
			150-T-16DR	1.5							●	●	●			
			200-T-16DR	2.0							●	●	●			
刃口强化型 Tough Edge		TKF12R/L	100-T	1.0	12	0.08	3	8.7	5	0°	●	●	●			
			150-T	1.5							●	●	●			
			200-T	2.0							●	●	●			
右导程角 Right lead angle		TKF12R/L	050-NB-20DR	0.5	5	0	3	8.7	5	20°	●	●		●	●	
			070-NB-20DR	0.7	8						●	●		●	●	
			100-NB-20DR	1.0	12						●	●		●	●	
			150-NB-20DR	1.5							●	●		●	●	
			200-NB-20DR	2.0							●	●		●	●	
无断屑槽 Without Chipbreaker		TKF12R/L	050-NB	0.5	5	0	3	8.7	5	0°	●	●		●	●	
			070-NB	0.7	8						●	●		●	●	
			100-NB	1.0	12						●	●		●	●	
			150-NB	1.5							●	●		●	●	
			200-NB	2.0							●	●		●	●	
右导程角 Right lead angle		TKF16R/L	150-S-16DR	1.5	16	0.05	4	9.5	5	16°	●	●	●	●	●	KTKFR/L ...16
			200-S-16DR	2.0							●	●	●	●	●	
		TKF16R/L	150-S	1.5	16	0.05	4	9.5	5	0°	●	●	●	●	●	
			200-S	2.0							●	●	●	●	●	
右导程角・刃口强化型 Right lead angle/Tough Edge		TKF16R/L	150-T-16DR	1.5	16	0.08	4	9.5	5	16°	●	●	●			
			200-T-16DR	2.0							●	●	●			
刃口强化型 Tough Edge		TKF16R/L	150-T	1.5	16	0.08	4	9.5	5	0°	●	●	●			
			200-T	2.0							●	●	●			
右导程角・无断屑槽 Right lead angle/Without Chipbreaker		TKF16R/L	150-NB-20DR	1.5	16	0	4	9.5	5	20°	●	●		●	●	
			200-NB-20DR	2.0							●	●		●	●	
无断屑槽 Without Chipbreaker		TKF16R/L	150-NB	1.5	16	0	4	9.5	5	0°	●	●		●	●	
			200-NB	2.0							●	●		●	●	

・导程角(前切刃角度:θ)显示为安装刀杆时的角度。
Lead angle shows the angle when installed in toolholder.

・刀片的加工直径(ϕDmax)如P5图1所示，是刃口前端进行到工件中心时的加工直径。
As Fig. 1 of P5 shows, Dmax indicates the cutting diameter of the insert when the top of the cutting edge progresses to the center of the workpiece.

● : 标准库存 Standard Stock

刀片型号的表示方法 (见表–1)

Insert Description (See Fig. 1)

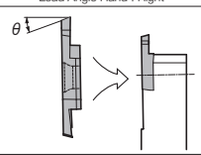
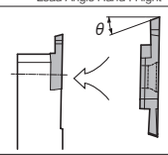
TKF	12	R	050	S	16D	R
刀片公称 Insert Name	刀片尺寸 Insert Size	刀片方向 Insert Hand	槽宽 Groove Width	断屑槽公称 Chipbreaker Name	导程角(θ) (前切刃角度) Lead Angle	导程角的方向 Lead Angle Hand

刀片方向 Insert Hand	
R：右手刀	Right
L：左手刀	Left

断屑槽公称 Chipbreaker Name	
S：S断屑槽	S type
T：T断屑槽(刃口强化型)	T type (Tough Edge)
NB：无断屑槽	No Chipbreaker

导程角的方向 Lead Angle Hand	
R：右导程角	Right
L：左导程角	Left

表1 Fig.1

刀片方向：R Insert Hand : Right	刀片方向：L Insert Hand : Left
导程角的方向：R Lead Angle Hand : Right	导程角的方向：R Lead Angle Hand : Right
	
刀杆的方向：R Toolholder Hand : R	刀杆的方向：L Toolholder Hand : L

关于刀片的加工径 ϕDmax

Insert Cutting Diameter Dmax

只使用主轴的情况下

When Using Main Spindle Only

切断侧工件的最大加工直径ϕD1(图–1)为ϕD1 = ϕDmax。
从程序上讲，图2所示刃口即使超过中心，因工件落下，刀片和工件不会产生干涉。
(刀片和工件最大加工直径的清除值的半径值为0.2mm)

Workpiece max, D1=Dmax. Even if the cutting edge runs beyond the center line, the insert does not contact the workpiece, since the workpiece falls off. (The clearance between the insert and the work is 0.2mm)

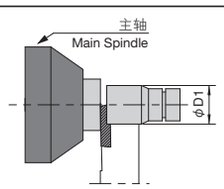
主轴与副轴同时夹持工件进行加工时

When using both Main and Sub Spindle

进行该加工时即使刃口到达工件中心工件也不会落下，刃口超过工件中心后刀片会与工件发生干涉，最大加工径也会改变。
例：程序上，如图–4所示刃口超过工件中心1mm的设定情况下，
切断侧的工件最大加工直径ϕD2(图–4)是ϕD2=〔ϕDmax – 1mm × 2〕(mm)。
(刀片和工件最大加工直径的清除值的半径直为0.2mm)

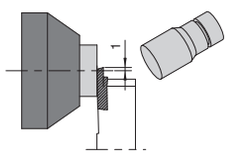
Workpiece max, D2=Dmax-(Programmed distance beyond the center) × 2
In this case, when the cutting edge runs beyond the center line, the insert will contact the workpiece, since the workpiece does not fall off. Therefore the programmed distance beyond the center must be considered. When the cutting edge is programmed to run 1mm beyond the center, [D2=Dmax-1mm×2]. (Max. clearance between insert and workpiece is 0.2mm in radius.)

图1 Fig. 1



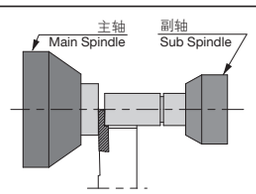
(刃口处于工件中心时)
When the edge is at the center

图2 Fig. 2



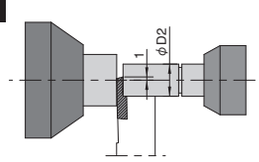
(刃口超过工件中心1mm时)
When the edge is 1mm beyond the center

图3 Fig. 3



(刃口处于工件中心时)
When the cutting edge locates at the workpiece center

图4 Fig. 4



(刃口超过工件中心1mm时)
When the cutting edge exceeds 1mm over the workpiece

刃口强化型T断屑槽 Tough Edge Type T Chipbreaker

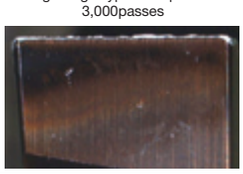
抗崩性比较(断续加工)

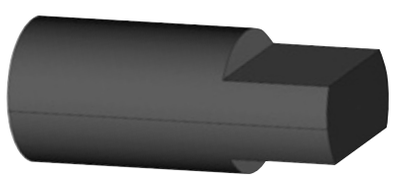
Fracture resistance comparison (Interrupted machining)

加工参数 Cutting Conditions

Vc=80m/min f=0.05mm/rev(切断时0.015mm/rev)wet SK4(有两面切断) TKF12R200–T–16DR PR1225
Vc=80m/min f=0.05mm/rev (cut-off 0.015mm/rev) WET SK4 (with flat cuts on two sides) TKF12R200-T-16DR PR1225

刃口状态(前后刀面) Cutting Edge (Front Relief Surface)

T断屑槽(PR1225) 走刀数3,000 Tough Edge Type T Chipbreaker 3,000passes	其他公司产品R 走刀数700 Competitor R 700passes	其他公司产品S 走刀数3,000 Competitor S 3,000passes
	 刃口部崩损 Cracking	 刃口部崩损 Cracking



工件形状(有两面切断)
Workpiece (with flat cuts on two sides)

	走刀数1,000 1,000 passes	走刀数2,000 2,000 passes	走刀数3,000 3,000 passes
刃口强化型T断屑槽(PR1225) Tough Edge Type T Chipbreaker (PR1225)	→	→	→
其他公司产品T Competitor T	→ ×		
其他公司产品U Competitor U	→	→	→ ×

刃口强化型T断屑槽在断续加工中与其他公司产品T・U相比，实现优越的抗崩损性。

Compared to Comp. T and U, Tough Edge "T Chipbreaker" achieves superior fracture resistance in interrupted cutting.

TKF12/16推荐加工参数
Recommended Cutting Conditions (TKF12/16)

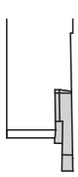
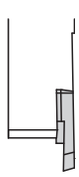
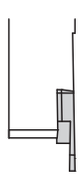
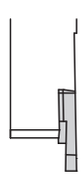
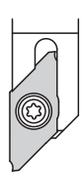
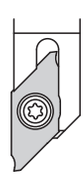
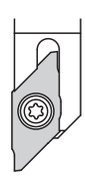
被切削材 Workpiece Material	推荐刀片材质 Recommended Insert Grade (切削速度Vc m/min)					TKF12 刃宽Width W(mm)						TKF16 刃宽Width W(mm)		备注 Remarks
	MEGACOAT NANO		MEGACOAT	PVD涂层 PVD Coated Carbide	硬质合金 Carbide	0.5	0.7	1.0	1.25	1.5	2.0	1.5	2.0	
	PR1425	PR1535	PR1225	PR1025	KW10	进给Feed Rate(mm/rev)						进给Feed Rate(mm/rev)		
碳钢(SxxC等) Carbon Steel (SxxC etc)	★ 70 ~ 170 (50 ~ 140)	☆ 70 ~ 150 (50 ~ 120)	☆ 70 ~ 150 (50 ~ 120)	☆ 60 ~ 130	-	0.01 ~ 0.02	0.01 ~ 0.03	0.01 ~ 0.04 (0.01 ~ 0.05)	0.01 ~ 0.04	0.01 ~ 0.04 (0.02 ~ 0.1)	0.01 ~ 0.04 (0.02 ~ 0.1)	0.02 ~ 0.07 (0.02 ~ 0.1)	0.02 ~ 0.07 (0.02 ~ 0.1)	湿式 Wet
合金钢(SCM等) Alloy Steel (SCM etc)	★ 70 ~ 170 (50 ~ 140)	☆ 70 ~ 150 (50 ~ 120)	☆ 70 ~ 150 (50 ~ 120)	☆ 60 ~ 130	-	0.01 ~ 0.02	0.01 ~ 0.03	0.01 ~ 0.04 (0.01 ~ 0.05)	0.01 ~ 0.04	0.01 ~ 0.04 (0.02 ~ 0.1)	0.01 ~ 0.04 (0.02 ~ 0.1)	0.02 ~ 0.07 (0.02~0.1)	0.02 ~ 0.07 (0.02 ~ 0.1)	
不锈钢(SUS304等) Stainless Steel (SUS304 etc)	☆ 60 ~ 140 (40 ~ 120)	★ 60 ~ 120 (40 ~ 100)	☆ 60 ~ 120 (40 ~ 100)	☆ 50 ~ 100	-	0.005 ~ 0.015	0.01 ~ 0.02	0.01 ~ 0.02 (0.01 ~ 0.03)	0.01 ~ 0.02	0.01 ~ 0.02 (0.01 ~ 0.05)	0.01 ~ 0.02 (0.01 ~ 0.05)	0.01 ~ 0.04 (0.01 ~ 0.05)	0.01 ~ 0.04 (0.01 ~ 0.05)	
铸铁(FC・FCD等) Cast Iron (FC/FCD etc)	-	-	-	-	★ 50 ~ 100	0.01 ~ 0.03	0.01 ~ 0.04	0.01 ~ 0.05	0.01 ~ 0.05	0.01 ~ 0.05	0.01 ~ 0.05	0.02 ~ 0.08	0.02 ~ 0.08	
铝合金 Aluminum alloy	-	-	-	-	★ 200 ~ 450	0.01 ~ 0.03	0.01 ~ 0.04	0.01 ~ 0.05	0.01 ~ 0.05	0.01 ~ 0.05	0.01 ~ 0.05	0.02 ~ 0.08	0.02 ~ 0.08	
黄铜 Brass	-	-	-	-	★ 100 ~ 200	0.01 ~ 0.03	0.01 ~ 0.04	0.01 ~ 0.06	0.01 ~ 0.06	0.01 ~ 0.06	0.01 ~ 0.06	0.02 ~ 0.1	0.02 ~ 0.1	

※( )内是刃口强化型(TKF..T..)的切削参数。 ( ): Cutting condition of tough edge type inserts (TKF..T..)

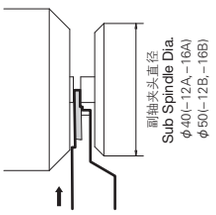
★：第1推荐 1st Recommendation ☆：第2推荐 2nd Recommendation

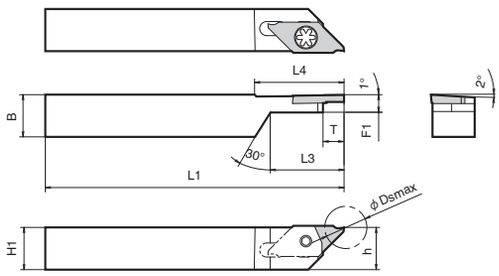
刃口规格的使用区别(切断加工时)
How to select edge prep. (cutt-off)

●问题点和对策 Troubleshooting

问题点 Problems	对策内容 Countermeasures	对策项目 Countermeasures						
		导程角(θ) Lead Angle (θ)		槽宽(刃宽) Edge Width		断屑槽的称呼 Name of Chipbreaker		
		无(0°) No (0°)	有 Yes	变窄 Narrower	变宽 Wider	S	T	NB
								
发生刀片崩损 Insert Fracture	防止刀片崩损 Insert Fracture Prevention	有效 Effective			有效 Effective		有效 Effective	有效 Effective
加工时间长 Long cutting time	缩短加工时间 Cutting time reduction	有效 Effective			有效 Effective		有效 Effective	有效 Effective
绕屑 Entangled chips	防止绕屑 Prevention of chip entanglement	有效 Effective		有效 Effective		有效 Effective		
留芯大 Large boss remain	想将留芯变小 Small boss remain		有效 Effective	有效 Effective		有效 Effective		
中空(管)有残留圈 Ring Remain (Hollow Workpiece)	防止残留圈 Prevention of Ring Remain		有效 Effective	有效 Effective		有效 Effective		
中空(管)变形 Deformation of Hollow Workpiece (pipe)	防止变形 Preventing deformation		有效 Effective	有效 Effective		有效 Effective		

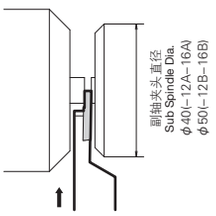
KTKFS型 (对应副轴夹持的小径切断用) (Small diameter cut-off which is applicable for sub spindle.)

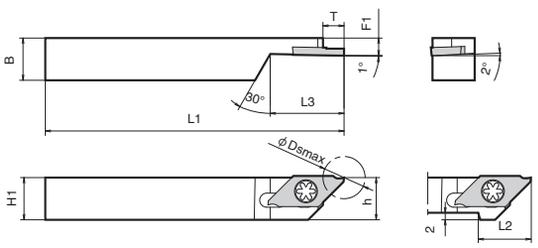




●图示为右手方向(R)
Right-hand Shown

右手刀片(R)适用于右手刀杆(R)。
Right-hand Insert for R-hand Toolholder





仅KTKFS$^{R}_{L}$1010K-12A
KTKFS$^{R}_{L}$1010K-16A
为左边形状
only for left shape

●图示为左手方向(L)
Left-hand Shown

左手刀片(L)适用于左手刀杆(L)。
Left-hand Insert for L-hand Toolholder

●刀杆尺寸 Toolholder Dimensions

型号 Description		库存 Stock R	库存 Stock L	加工直径 Cut-Off Diameter φDsmax	尺寸(mm) Dimension (mm) H1=h	B	L1	L2	L3	※L4	F1	T	零件 Spare Parts 紧固螺钉 Clamp Screw	零件 Spare Parts 扳手 Wrench	适用刀片 Applicable Inserts
KTKFS$^{R}_{L}$	1010K-12A	●	●	6 ~ 12	10	10	120	15	22	26	5	6	SB-4050TRN	LTW-10S	TKFS12$^{R}_{L}$
	1212F-12A	●	●		12	12	85	-							
	1212K-12B	●	●				120		26						
KTKFS$^{R}_{L}$	1010K-16A	●	●	14 ~ 16	10	10	120	20	22	30	5	8	SB-4050TRN	LTW-10S	TKFS16$^{R}_{L}$
	1212F-16A	●	●		12	12	85	-							
	1212K-16B	●	●				120		26						

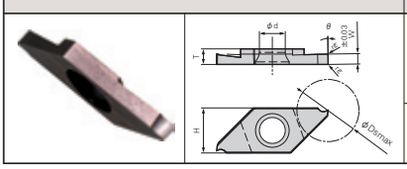
・尺寸T：表示从刀杆至刃口的距离。
Dimension T shows the distance from the Toolholder to the cutting edge.

・加工直径(φDsmax)因刀片宽幅而异。
Cutting diameter (φDsmax) depends on the insert grooving width.

※只有右手刀杆(R)才有L4尺寸。
Only Right-hand is available for L4 dimension.

●：标准库存 Standard Stock

TKFS型 (极小径切断用 φDsmax)

形状 Shape 带方向的刀片表示为左手方向(L) Handed insert shows Left-hand	型号 Description	尺寸(mm) Dimension (mm) W	φDs max
	TKFS12$^{R}_{L}$ 100-S	1.0	6
	150-S	1.5	9
	200-S	2.0	12
	TKFS16$^{R}_{L}$ 150-S	1.5	14
	200-S	2.0	16

注) 刀片的加工直径(φDsmax)如图2(参照右图)表示从刃口前端超过工件中心1mm后时的加工直径。
As Fig.2 shows, the cutting diameter of the insert is indicated when the top of the cutting edge progresses 1mm from the center.

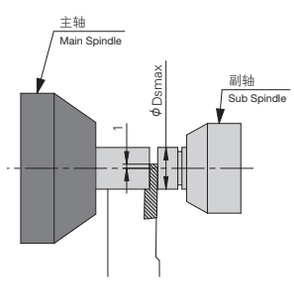


图1
Fig.1

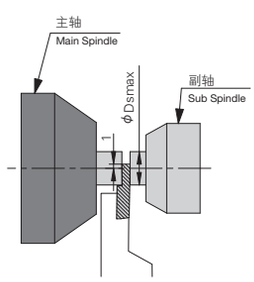


图2
Fig.2

❶ 如图1所示主轴与副轴之间的距离较长时，请使用KTKFL型(左手刀)。
As Fig.1 shows, use KTKFL (Left-hand) when the distance between main spindle and sub spindle are long.

❷ 如图2所示KTKFS型，对应主轴与副轴之间距离较短的小径工件加工。
As Fig.2 shows, KTKFS is recommended when the workpiece diameters are small and the distance between the main spindle and sub spindle are short.

使用分类标准 Classification of usage			NEW				
●：连续～轻断续/第1选择 Continuous to light Interruption / 1st Choice ◔：连续～轻断续/第2选择 Continuous to light Interruption / 2nd Choice ●：连续/第1选择 Continuous / 1st Choice ○：连续/第2选择 Continuous / 2nd Choice	P	碳钢・合金钢 Carbon steel/Alloy steel	●	◔	◔	◔		
	M	不锈钢 Stainless Steel	◔	●	◔	◔		
	K	铸铁 Cast Iron					●	
	N	有色金属 Non-ferrous Metals					●	

●适用刀片 Applicable Inserts

形状 Shape 带方向的刀片表示为左手方向(L) Handed Insert shows Left-hand.	型号 Description		尺寸(mm) Dimension (mm)						角度(°) Angle	MEGACOAT NANO		MEGACOAT	PVD涂层 PVD Coated Carbide	硬质合金 Carbide
			W	B	R(rε)	T	H	ϕd	θ	PR1425	PR1535	PR1225	PR1025	KW10
	TKFS12R/L	100-S	1.0	6	0.05	2.2	8.7	4.4	0°	●	●	●	●	●
		150-S	1.5	9						●	●	●	●	●
		200-S	2.0	12						●	●	●	●	●
	TKFS16R/L	150-S	1.5	14	0.05	2.2	9.5	4.4	0°	●	●	●	●	●
		200-S	2.0	16						●	●	●	●	●

・刀片的加工直径(ϕDsmax)如图2(参照P7)表示从刃口前端超过工件中心1mm后时的加工直径。
As Fig. 2 of P7 shows, Dsmax is indicated the cutting diameter of the insert when the top of the cutting edge progresses 1mm from the center.

・导程角(前切刃角度：θ)表示刀杆安装时的角度。
Lead angle (θ) shows the angle when installed in toolholder.

●：标准库存 Standard Stock

●推荐加工参数 Recommended Cutting Conditions

被切削材 Workpiece Material	推荐刀片材质(切削速度 m/min) Recommended Insert Grade (Vc: m/min)					TKFS12			TKFS16		备注 Remarks
	MEGACOAT NANO		MEGACOAT	PVD涂层 PVD Coated Carbide	硬质合金 Carbide	刃宽(mm) Width (mm)			刃宽(mm) Width (mm)		
						1.0	1.5	2.0	1.5	2.0	
	PR1425	PR1535	PR1225	PR1025	KW10	进给(mm/rev) Feed Rate (mm/rev)			进给(mm/rev) Feed Rate (mm/rev)		
碳钢(SxxC等) Carbon Steel (SxxC etc)	★ 70 ~ 170	☆ 70 ~ 150	☆ 70 ~ 150	☆ 60 ~ 130	-	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	湿式 Wet
合金钢(SCM等) Alloy Steel (SCM etc)	☆ 70 ~ 170	☆ 70 ~ 150	☆ 70 ~ 150	☆ 60 ~ 130	-	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	
不锈钢(SUS304等) Stainless Steel (SUS304 etc)	☆ 60 ~ 140	★ 60 ~ 120	☆ 60 ~ 120	☆ 50 ~ 100	-	0.01 ~ 0.02	0.01 ~ 0.02	0.01 ~ 0.03	0.01 ~ 0.02	0.01 ~ 0.03	
铸铁(FC・FCD等) Cast Iron (FC/FCD etc)	-	-	-	-	★ 50 ~ 100	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	
铝合金 Aluminum alloy	-	-	-	-	★ 200 ~ 450	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	
黄铜 Brass	-	-	-	-	★ 100 ~ 200	0.01 ~ 0.04	0.01 ~ 0.04	0.01 ~ 0.04	0.01 ~ 0.04	0.01 ~ 0.04	

★：1次推荐 1st Recommendation ☆：2次推荐 2nd Recommendation

KTKF型和KTKFS型的使用区别

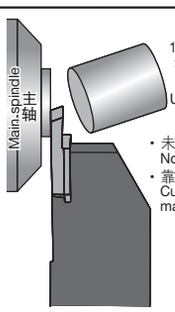
How to use small diameter cut-off tool

●KTKF型

・左右手共同使用与排刀台。
Both Right-hand and Left-hand types are applicable to gang tool post.

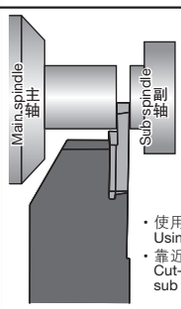
・使用副轴协助夹持工件进行切断时，主要使用左手刀。
Basically Left-hand type is used at cut-off operation using sub spindle.

KTKFR型(右手刀杆(R)) Right-hand Toolholder



＜第一推荐＞ 1st Recommendation
有残留芯请使用带导程角刀片 Use insert without lead angle.
・未使用副轴 Not using sub spindle
・靠近主轴侧切断 Cut-off operation near main spindle

KTKFL型(左手刀杆(L)) Left-hand Toolholder

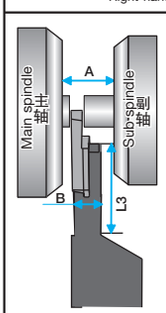


＜第一推荐＞ 1st Recommendation
没有残留芯使用不带导程角刀片 Use insert with lead angle to remove boss.
・使用副轴 Using sub spindle
・靠近副轴侧切断 Cut-off operation near sub spindle side

●KTKFS型

・工件直径小、抑制主轴悬伸量时，请使用KTKFS型。
When cutting workpiece with small diameter, use KTKFS to reduce overhang distance from the main spindle.

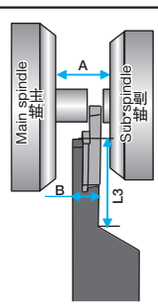
KTKFSR型(右手刀杆(R)) Right-hand Toolholder



＜选择基准＞ How to select
刀杆方向 Right-hand
・工件长度长、多少有些刚性时 Long workpiece and higher rigidity
・靠近主轴侧切断 Cut-off operation near main spindle

＜选择基准＞ How to select
L3尺寸 L3 Dimension
・副轴尖头直径
ϕ40→22(A型)
ϕ50→26(B型)
・Sub spindle Dia.
40mm → 22 (A-type)
50mm → 26 (B-type)

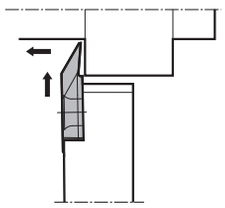
KTKFSL型(左手刀杆(L)) Left-hand Toolholder

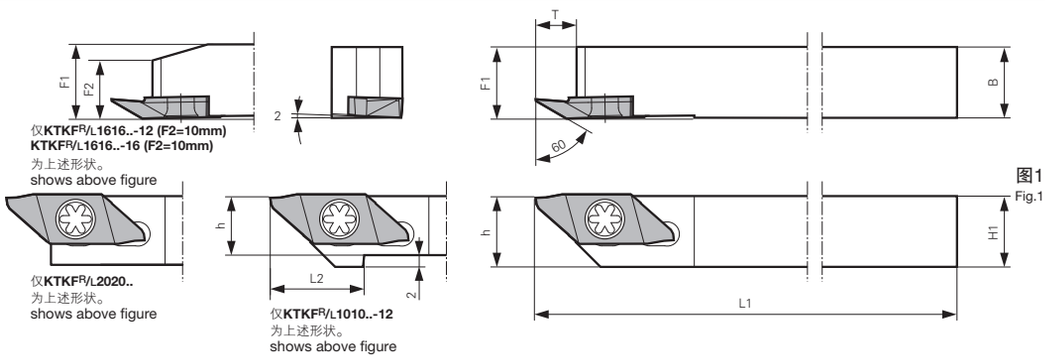


＜选择基准＞ How to select
刀杆方向 Left-hand
・工件长度短、没有刚性时 Short workpiece and less rigidity
・靠近副轴侧切断 Cut-off operation near sub spindle side

＜选择基准＞ How to select
L3尺寸 L3 Dimension
・副轴尖头直径
ϕ40→22(A型)
ϕ50→26(B型)
・Sub spindle Dia.
40mm → 22 (A-type)
50mm → 26 (B-type)

KTKF型 / KTKF型空间刀杆 Goose-neck Holder





仅**KTKF$^{R}_{L}$1616..-12 (F2=10mm)**
KTKF$^{R}_{L}$1616..-16 (F2=10mm)
为上述形状。
shows above figure

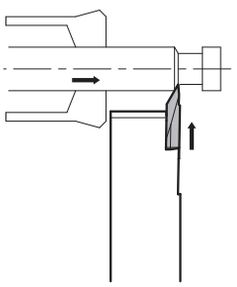
仅**KTKF$^{R}_{L}$2020..**
为上述形状。
shows above figure

仅**KTKF$^{R}_{L}$1010..-12**
为上述形状。
shows above figure

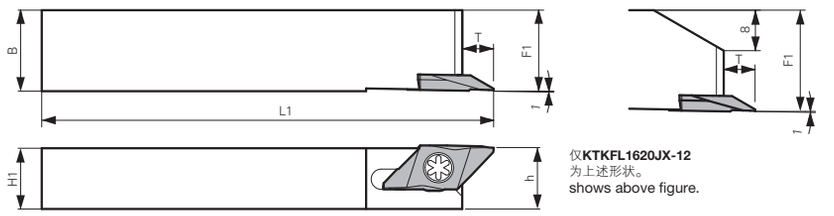
图1
Fig.1

●图示为右手方向(R)
Right-hand Shown

右手刀片(R)适用右手刀杆(R)、左手刀片(L)适用左手刀杆(L)。
Right-hand Insert for R-hand Toolholder, Light-hand Insert for L-hand Toolholder.



空间刀杆 Goose-neck Holder



仅**KTKFL1620JX-12**
为上述形状。
shows above figure.

图2
Fig.2

●图示为左手方向(L)
Left-hand Shown

左手刀片(L)适用于左手刀杆(L)。
Left-hand Insert for L-hand Toolholder

●刀杆尺寸 Toolholder Dimensions

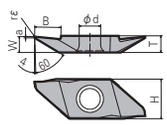
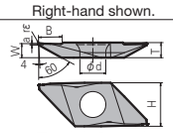
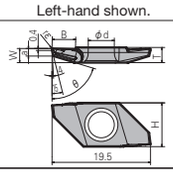
型号 Description		库存 Stock		尺寸(mm) Dimension (mm)						形状 Shape	零件 Spare Parts		适用刀片 Applicable Inserts
		R	L	H1=h	B	L1	L2	F1	T		紧固螺钉 Clamp Screw	扳手 Wrench	
KTKF$^{R}_{L}$	**1010JX-12**	●	●	10	10	120	15	10	6	图1 Fig.1	**SB-4590TRWN**	**LTW-10S**	**TKFB12$^{R}_{L}$ ...**
	1212JX-12	●	●	12	12		-	12					
	1616JX-12	●	●	16	16			16					
	2020JX-12	●	●	20	20			20					
KTKF$^{R}_{L}$	**1010JX-16**	●	●	10	10	120	20	10	8		**SB-4590TRWN**	**LTW-10S**	**TKFB16$^{R}_{L}$ ...**
	1212JX-16	●	●	12	12		-	12					
	1616JX-16	●	●	16	16			16					
	2020JX-16	●	●	20	20			20					
KTKF$^{R}_{L}$	**1212F-12**	●	●	12	12	85	-	12	6		**SB-4590TRWN**	**LTW-10S**	**TKFB12$^{R}_{L}$ ...**
	1212F-16	●	●						8				**TKFB16$^{R}_{L}$ ...**
KTKFL	**1216JX-12**		●	12	16	120	-	16	6	图2 Fig.2	**SB-4590TRWN**	**LTW-10S**	**TKFB12L ...**
	1620JX-12		●	16	20			20					

・尺寸T：表示从刀杆至刃口的距离。 Dimension T shows the distance from the toolholder to the cutting edge.

●：标准库存 Standard Stock

使用分类标准 Classification of usage			NEW					适用刀杆 Applicable Toolholder
●：连续～轻断续/第1选择 Continuous-Light Int. / 1st Choice ◔：连续～轻断续/第2选择 Continuous-Light Int. / 2nd Choice ○：连续/第1选择 Continuous / 1st Choice ◯：连续/第2选择 Continuous / 2nd Choice	P	碳钢・合金钢 Carbon Steel / Alloy Steel	●	◔	◔	◔		
	M	不锈钢 Stainless Steel	◔	●	◔	◔		
	K	灰口铸铁 Gray Cast Iron					●	
		球墨铸铁 Nodular Cast Iron					◔	
	N	有色金属 Non-ferrous Material					●	
	S	耐热合金 Heat-Resistant Alloy	◔	●	◔	◔		
		钛合金 Titanium Alloy		●			●	
	H	高硬度材 Hardened Material						

●适用刀片 Applicable Inserts

形状 Shape 图片表示为右手方向(R) The photograph shows R-hand.		型号 Description		尺寸(mm) Dimension (mm)							角度(°) Angle	MEGACOAT NANO	MEGACOAT NANO	MEGACOAT	PVD涂层 PVD Coated Carbide	硬质合金 Carbide	适用刀杆 Applicable Toolholder
				W	a	B	R(rε)	T	H	ϕd	θ	PR1425	PR1535	PR1225	PR1025	KW10	
	 图示为右手(R)方向 Right-hand shown.	TKFB	12R15005M	1.5	0.25	2.6	< 0.05	3.0	8.7	5.2		●	●	●	●	●	KTKFR ...12
			12R28005M	2.8	0.3	4.6	< 0.05					●	●	●	●	●	
			12R28010M				< 0.1					●	●	●	●	●	
		TKFB	16R38005M	3.8	0.3	6.3	< 0.05	4.0	9.5	5.2		●	●	●	●	●	KTKFR ...16
			16R38010M				< 0.1					●	●	●	●	●	
	 图示为左手(L)方向 Left-hand shown.	TKFB	12L28005MR	2.8	0.3	4.6	< 0.05	3.0	8.7	5.2			●	●			KTKFL ...12
			12L28010MR				< 0.1						●	●			
		TKFB	16L38005MR	3.8	0.3	6.3	< 0.05	4.0	9.5	5.2			●	●			KTKFL ...16
			16L38010MR				< 0.1						●	●			
NEW 		TKFB	12R28005-GQ	2.8	1.5	4.6	0.05	3.0	8.7	5.2	74°	●	●	●			KTKFR ...12
			12R28015-GQ				0.15					●	●	●			
		TKFB	16R38005-GQ	3.8	1.8	6.3	0.05	4.0	9.5	5.2	72°	●	●	●			KTKFR ...16
			16R38015-GQ				0.15					●	●	●			

●：标准库存 Standard Stock

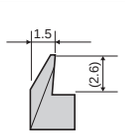
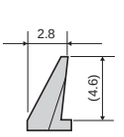
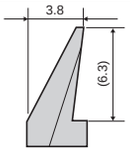
刀片型号的表示方法(参照表–1)

Insert Description (See Fig. 1)

TKFB 12 R 28 005 M R

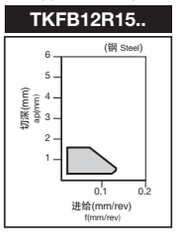
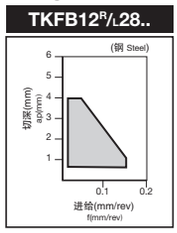
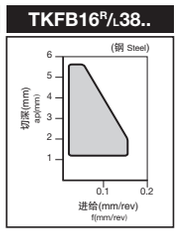
- TKFB — 刀片公称 Insert Name
- 12 — 刀片尺寸 Insert Size
- R — 刀片方向 Insert Hand
  - R：右手方向 Right
  - L：左手方向 Left
- 28 — 刀片刃宽 Edge Width
- 005 — 刃口角R(rε) Corner-R (rε)
- M — 刃口角R(rε)公差 表示“负公差” Corner R(rε) tolerance represents minus tolerance.
- R — 刃口导程角的方向 Lead Angle Hand of Cutting Edge

表1(刀片刃宽) Fig.1 (Edge Width)

小切深用 For small ap	通用 For general cutting	大切深用 For large ap
		
TKFB12R15..	TKFB12R/L28..	TKFB16R/L38..

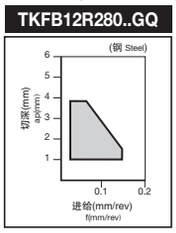
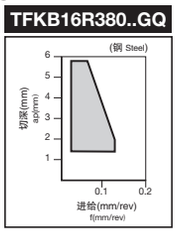
●断屑槽适用范围 (切深表示为半径值)

Applicable Chipbreaker Range

TKFB12R15..	TKFB12R/L28..	TKFB16R/L38..
		

●GQ断屑槽适用范围

GQ Chipbreaker Range

TKFB12R280..GQ	TFKB16R380..GQ
	

●推荐加工参数 Recommended Cutting Conditions

被切削材 Workpiece Material		推荐刀片材质 Recommended Insert Grade						备注 Remarks
		MEGACOAT NANO				MEGACOAT		
		PR1425		PR1535		PR1225		
		切槽加工 Grooving	横进给加工 Traversing	切槽加工 Grooving	横进给加工 Traversing	切槽加工 Grooving	横进给加工 Traversing	
碳钢・合金钢 (SxxC・SCM等) Carbon Steel / Alloy Steel	切削速度(m/min) Vc(m/min)	★ 80 ~ 200		☆ 60 ~ 150		☆ 60 ~ 150		湿式 Wet
	进给(mm/rev) f(mm/rev)	0.01 ~ 0.03	0.02 ~ 0.15	0.01 ~ 0.03	0.02 ~ 0.15	0.01 ~ 0.03	0.02 ~ 0.15	
不锈钢(SUS304等) Stainless Steel	切削速度(m/min) Vc(m/min)	☆ 60 ~ 150		★ 60 ~ 130		☆ 60 ~ 130		
	进给(mm/rev) f(mm/rev)	0.01 ~ 0.02	0.02 ~ 0.1	0.01 ~ 0.02	0.02 ~ 0.1	0.01 ~ 0.02	0.02 ~ 0.1	
铸铁(FC・FCD等) Cast Iron	切削速度(m/min) Vc(m/min)	-		-		-		
	进给(mm/rev) f(mm/rev)	-		-		-		
铝合金 Aluminum alloy	切削速度(m/min) Vc(m/min)	-		-		-		
	进给(mm/rev) f(mm/rev)	-		-		-		
黄铜 Brass	切削速度(m/min) Vc(m/min)	-		-		-		
	进给(mm/rev) f(mm/rev)	-		-		-		

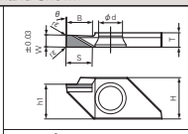
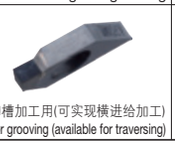
★：1次推荐 1st Recommendation ☆：2次推荐 2nd Recommendation

被切削材 Workpiece Material		推荐刀片材质 Recommended Insert Grade				备注 Remarks
		PVD涂层 PVD Coated Carbide		硬质合金 Carbide		
		PR1025		KW10		
		切槽加工 Grooving	横进给加工 Traversing	切槽加工 Grooving	横进给加工 Traversing	
碳钢・合金钢 (SxxC・SCM等) Carbon Steel / Alloy Steel	切削速度(m/min) Vc(m/min)	☆ 60 ~ 150		-		湿式 Wet
	进给(mm/rev) f(mm/rev)	0.01 ~ 0.03	0.02 ~ 0.15	-		
不锈钢(SUS304等) Stainless Steel	切削速度(m/min) Vc(m/min)	☆ 50 ~ 120		-		
	进给(mm/rev) f(mm/rev)	0.01 ~ 0.02	0.02 ~ 0.1	-		
铸铁(FC・FCD等) Cast Iron	切削速度(m/min) Vc(m/min)	-		50 ~ 100		
	进给(mm/rev) f(mm/rev)	-		0.01 ~ 0.02	0.02 ~ 0.15	
铝合金 Aluminum alloy	切削速度(m/min) Vc(m/min)	-		200 ~ 450		
	进给(mm/rev) f(mm/rev)	-		0.01 ~ 0.03	0.02 ~ 0.15	
黄铜 Brass	切削速度(m/min) Vc(m/min)	-		100 ~ 200		
	进给(mm/rev) f(mm/rev)	-		0.01 ~ 0.05	0.02 ~ 0.2	

★：1次推荐 1st Recommendation ☆：2次推荐 2nd Recommendation

●适用刀片 Applicable Inserts

使用分类标准 Classification of usage				
◕：连续～轻断续/第1选择 Continuous-Light Int./1st Choice ◔：连续～轻断续/第2选择 Continuous-Light Int./2nd Choice ●：连续/第1选择 Continuous/1st Choice ○：连续/第2选择 Continuous/2nd Choice	N	有色合金(有断续) Non-ferrous Material (with interruption)	◕	适用刀杆 Applicable Toolholder
		有色合金(无断续) Non-ferrous Material (without interruption)	●	
	S	钛合金(有断续) Titanium Alloy (with interruption)	◕	
		钛合金(无断续) Titanium Alloy (without interruption)	●	

刃口规格 Edge Prep			形状 Shape 图片表示为右手方向(R) Right-hand Shown		型号 Description		尺寸(mm) Dimension (mm)								角度(°) Angle	PCD(金刚石) PCD		适用刀杆 Applicable Toolholder
PCD(金刚石) PCD inserts	锋利刃口 Sharp Edge						W	B	R(rε)	T	H	ϕd	h1	S	θ	KPD001 R	KPD001 L	
●	●				TKF12R/L	200-AS	2.0	5	$0.1^{+0}_{-0.05}$	3	8.7	5	7.3	5.5	0°	●	●	KTKFR/L …12
						250-AS	2.5	5						5.5		●	●	
					TKF16R/L	250-AS	2.5	8		4	9.5		8.0	6.5		●	●	KTKFR/L …16
					TKF12L	200-ASR	2.0	5	$0.1^{+0}_{-0.05}$	3	8.7	5	7.3	5.5	0°		●	KTKFL …12
						250-ASR	2.5	5									●	
					TKF16L	250-ASR	2.5	8		4	9.5		8.0	6.5			●	KTKFL …16
					TKF12R/L	150-NB	1.5	3.5	$0.1^{+0}_{-0.05}$	3	8.7	5	8.3	2.0	0°	●	●	KTKFR/L …12
						200-NB	2.0	4						3.0		●	●	
						250-NB	2.5	4						3.0		●		
						250-NB4.5	2.5	5						4.5		●		

横进给・切槽加工用 For traversing and grooving

切槽加工用(可实现横进给加工) For grooving (available for traversing)

注1)

※ 导程角(前切刃角度：θ)表示刀杆安装时的角度。
Lead angle indicates the angle when installed in toolholder.

※ PCD(金刚石)刀片时横进给・切槽加工用。
PCD inserts are for traversing and grooving.

※ 不推荐切断加工用。
Cut-off is not recommended with these inserts.

※ 尺寸B：表示加工可能深度。
Dimension B shows available grooving depth.

●：标准库存 Standard Stock

PCD(金刚石)刀片的销售单位为1盒1片装
PCD inserts are sold in 1 piece boxes.

注1) 本图表示左手刀片(L)适用带金刚石的右手刀片(R)。
Shown in the figure above is Left-hand Insert with Right-hand edge of PCD.

注记1) KTKF型刀杆上安装“TKF–AS”时，刃口比中心低1mm (参照图1)，所以请使用NC装置进行参数调整，或采用盖板进行刃口高度调整。

2) 无法进行1mm刃口高度调整情况下请使用“TKF–NB” (参照图2)

Note 1) When using TKF-AS insert with KTKF toolholder, the edge position is 1.0mm below the center. (See Fig.1) Please adjust the edge height at the parameter of the NC lathe or using soleplates.

2) When the edge height can not be adjusted, please use TKF-NB insert. (Fig. 2)

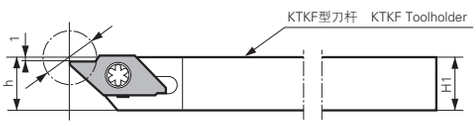


图1 TKF–AS安装时(刃口高度比中心低1mm)
Fig.1 When TKF-AS installed (the edge position: 1.0mm below the center)

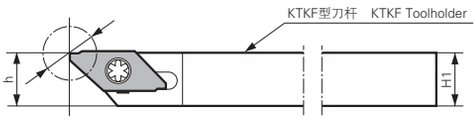


图2 TKF–NB安装时
Fig.2 When TKF-NB installed

■ 关于TKF–AS型刀片的使用
Usage of TKF-AS Inserts

KTKF型刀杆搭配使用TKF–AS型刀片时可作为有色金属、非金属材料多功能刀具使用。(参照图3)

KTKF toolholders, with TKF-AS inserts installed, are able to accommodate multi-functional machining for non-ferrous metals and nonmetals. (See Fig.3)

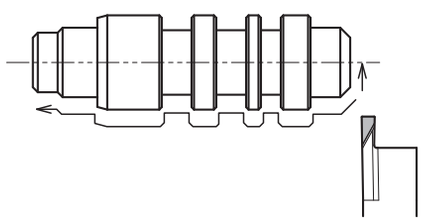


图3 KTKF型刀杆+TKF–AS型刀片搭配的走刀案例
Fig.3 Example: Tool path of KTKF toolholder with TKF-AS insert

■ 刀片型号的表示方法
Inserts Identification System

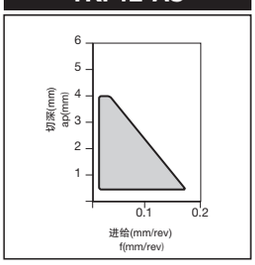
TKF 12 R 200 - AS

TKF 12 L 200 - AS R

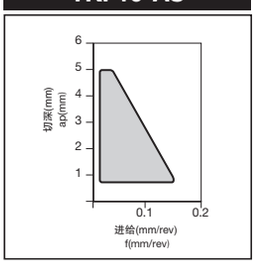
- TKF：刀片称呼 Insert Type
- 12：刀片尺寸 Insert Size
- R/L：刀片的方向 Insert Hand — R：右手刀 R: Right-hand；L：左手刀 L: Left-hand
- 200：槽宽(刃宽) Width (Edge Width)
- AS：断屑槽的称呼 Name of Chipbreaker — AS：AS断屑槽 AS : AS Chipbreaker；NB：无断屑槽 NB : Without Chipbreaker
- R：金刚石(PCD)的方向 PCD insert hand — 无记号：刀片的方向和同方向 Without Indication: The edge hand is same as the insert hand.；R：右手刀 R: Right-hand

●适用范围
Applicable Range

TKF12-AS



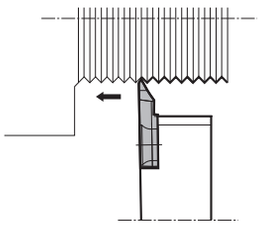
TKF16-AS

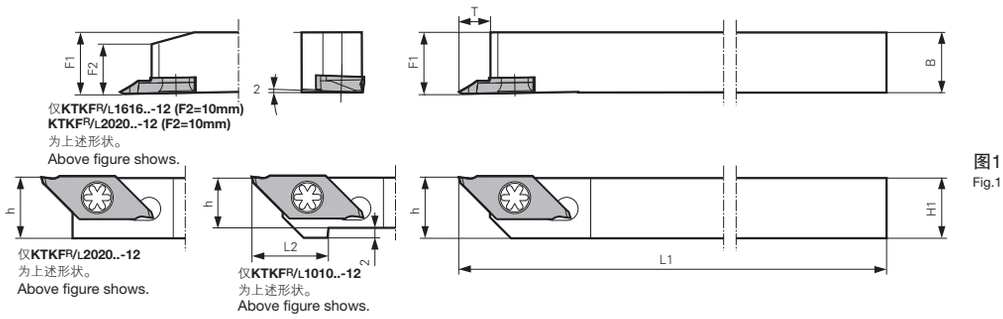


●TKF12/TKF16推荐切削参数 Recommended Cutting Conditions (TKF12/TKF16)

被切削材 Workpiece Material		PCD(金刚石) PCD KPD001 切槽加工 Grooving	PCD(金刚石) PCD KPD001 横进给加工 Traversing	备注 Remarks
铝合金 Aluminum alloy	切削速度(m/min) Vc (m/min)	200 ~ 500		湿式 Wet
	进给(mm/rev) f (mm/rev)	0.01 ~ 0.03	0.02 ~ 0.12	
黄铜 Brass	切削速度(m/min) Vc (m/min)	100 ~ 350		
	进给(mm/rev) f (mm/rev)	0.01 ~ 0.05	0.02 ~ 0.15	

KTKF型/KTKF型空间刀杆 Goose-neck Holder





仅**KTKF$^{R}_{L}$1616..-12 (F2=10mm)**
KTKF$^{R}_{L}$2020..-12 (F2=10mm)
为上述形状。
Above figure shows.

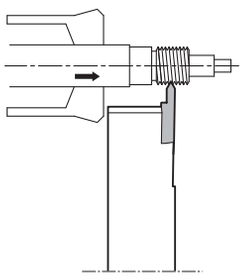
仅**KTKF$^{R}_{L}$2020..-12**
为上述形状。
Above figure shows.

仅**KTKF$^{R}_{L}$1010..-12**
为上述形状。
Above figure shows.

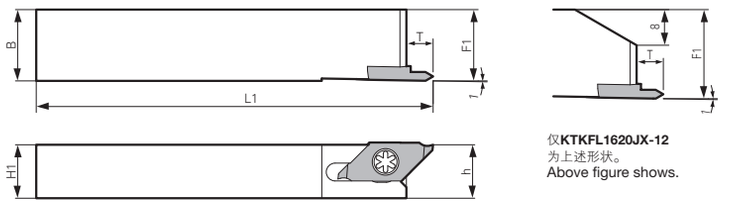
图1
Fig.1

●图示为右手方向(R)
Right-hand Shown

右手刀片(R)适用右手刀杆(R)、左手刀片(L)适用左手刀杆(L)。
Right-hand Insert for R-hand Toolholder, Left-hand Insert for L-hand Toolholder



空间刀杆 Goose-neck Holders



仅**KTKFL1620JX-12**
为上述形状。
Above figure shows.

图2
Fig.2

●图示为左手方向(L)
Left-hand Shown

左手刀片(L)适用于左手刀杆(L)。
Left-hand Insert for L-hand Toolholder

●刀杆尺寸 Toolholder Dimensions

型号 Description		库存 Stock		尺寸(mm) Dimension (mm)						形状 Shape	零件 Spare Parts		适用刀片 Applicable Insert
		R	L	H1=h	B	L1	L2	F1	T		紧固螺钉 Clamp Screw	扳手 Wrench	
KTKF$^{R}_{L}$	**1010JX-12**	●	●	10	10	120	15	10	6	图1 Fig.1	**SB-4590TRWN**	**LTW-10S**	**TKFT12$^{R}_{L}$ ...**
	1212JX-12	●	●	12	12		-	12					
	1616JX-12	●	●	16	16			16					
	2020JX-12	●	●	20	20			20			**SB-4590TRWN**	**LTW-10S**	**TKFT12$^{R}_{L}$ ...**
KTKF$^{R}_{L}$	**1212F-12**	●	●	12	12	85	-	12	6				
KTKFL	**1216JX-12**		●	12	16	120	-	16	6	图2 Fig.2	**SB-4590TRWN**	**LTW-10S**	**TKFT12L ...**
	1620JX-12		●	16	20			20					

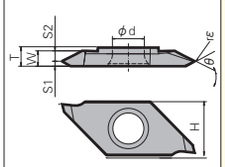
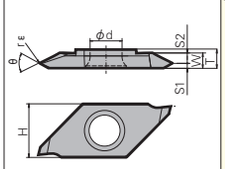
・尺寸T：表示从刀杆至刃口的距离。
Dimension T shows the distance from the Toolholder to the cutting edge.

●：标准库存 Standard Stock

使用分类标准 Classification of usage
●：第1选择 1st Choice
○：第2选择 2nd Choice

P	碳钢・合金钢 Carbon Steel / Alloy steel	●	○	○	○		适用刀杆 Applicable Toolholders
M	不锈钢 Stainless Steel	○	●	○	○		
K	铸铁 Cast Iron					●	
N	有色金属 Non-ferrous Materia					●	

●适用刀片 Applicable Inserts

形状 Shape 照片表示为右手方向(R) The photograph shows R-hand.	型号 Description	适用螺纹 Applicable Thread	螺距 Pitch mm	螺距 Pitch 牙/inch TPI	尺寸(mm) Dimension (mm) T	W	H	φd	R(rε)	S1	S2	角度(°) Angle θ	库存材质 Stock Grades MEGACOAT NANO PR1425	MEGACOAT NANO NEW PR1535	MEGACOAT PR1225	PVD涂层 PVD Coated Carbide PR1025	硬质合金 Carbide KW10	适用刀杆 Applicable Toolholders
无修光刃 Partial Profile   图示为右手方向(R) R-hand Shown	TKFT 12RA6000	M UN	0.2 ~ 0.6	64 ~ 48	3.0	2.5	8.7	5.2	Max 0.05 平滑 Flat	0.4	2.1	60°	●	●	●	●	●	KTKFR ...12
	12RB6000									2.1	0.4		●	●	●	●	●	
	12RA60005		0.5 ~ 1.25	48 ~ 24					0.05	0.8	1.7		●	●	●	●	●	
	12RB60005									1.7	0.8		●	●	●	●	●	
	12RN6001		1 ~ 1.5	24 ~ 18					0.1	1.25	1.25		●	●	●	●	●	
	12RA55005	G,R W	-	40 ~ 16					0.05	0.8	1.7	55°	●	●	●	●	●	
	12RB55005									1.7	0.8		●	●	●	●	●	
 图示为左手方向(L) L-hand Shown	TKFT 12LA6000	M UN	0.2 ~ 0.6	64 ~ 48	3.0	2.5	8.7	5.2	Max 0.05 平滑 Flat	2.1	0.4	60°	●	●	●	●	●	KTKFL ...12
	12LB6000									0.4	2.1		●	●	●	●	●	
	12LA60005		0.5 ~ 1.25	48 ~ 24					0.05	1.7	0.8		●	●	●	●	●	
	12LB60005									0.8	1.7		●	●	●	●	●	
	12LN6001		1 ~ 1.5	24 ~ 18					0.1	1.25	1.25		●	●	●	●	●	
	12LA55005	G,R W	-	40 ~ 16					0.05	1.7	0.8	55°	●	●	●	●	●	
	12LB55005									0.8	1.7		●	●	●	●	●	

●：标准库存 Standard Stock

■ 刀片型号的表示方法(参照表–1)
Insert Description (See Fig. 1)

TKFT 12 R A 60 00

- TKFT — 刀片公称 Insert Name
- 12 — 刀片尺寸 Insert Size
- R — 刀片方向 Insert Hand（R：右手方向 Right；L：左手方向 Left）
- A — 刃口位置 Edge position
- 60 — 螺牙的角度 Thread angle
- 00 — 刃口角R(rε) Corner-R (rε)

表1 Fig.1

右手刀片(R) Right hand (R) insert

A型 A Type	B型 B Type	N型 N Type
TKFT12RA..	TKFT12RB..	TKFT12RN..

左手刀片(L) Left hand (L) insert

A型 A Type	B型 B Type	N型 N Type
TKFT12LA..	TKFT12LB..	TKFT12LN..

KTKF型空间刀杆 小型自动车床(导套方式)的利用方法

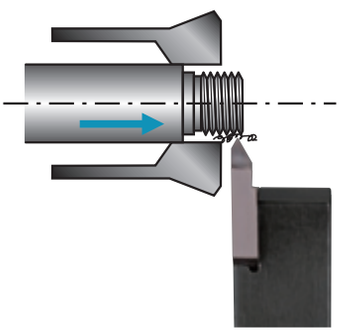
How to use Goose-neck Holder on Automatic lathe (guide bush system)

以刀具纵向(Z轴方向)无法移动的自动车床为对象。

Goose-neck Holder is applicable to automatic lathes whose toolholder does not move to longitudinal direction (Z-axis direction).

●以往螺纹刀杆时

Conventional Treading Tool

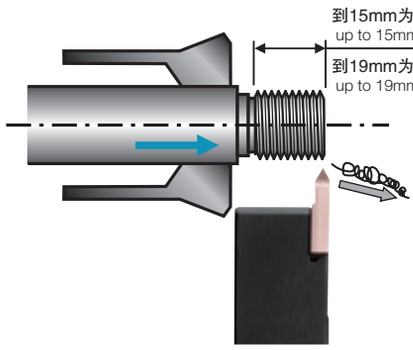


切屑进入导套，可能导致螺牙受损

Chips may come into guide bush and scratch thread surface

●空间刀杆螺纹刀杆时

Goose-neck Holder (for threading)



空间刀杆不将螺纹切到导套附近，螺纹长度可到达15mm(19mm)为止!!

Goose-neck Holder is available for threading without returning tread part into guide bush. (thread length 15mm / 19mm)

使用上的注意点

Precautions for using Goose-neck Holder

空间刀杆

When using Goose-neck Holder,

1. 与以往刀杆来讲，偏头尺寸设定的更大，请注意与以往刀杆相比更容易与背面主轴发生干涉。
   Be careful of interference with back spindle because offset dimension is larger than the conventional toolholders.
2. 副轴在前进时请注意干涉。⇒安装位置有限制。
   Be careful of interference with sub spindle ⇒Toolholder installation position is limited
3. 同时加工时(平均切割和靠近下一步工序时)有可能与其他刀具发生干涉。
   At simultaneous machining (balance cut and tool approach for next process), interference with other toolholder may occur.
4. NC装置的画面中在指定刀杆形状时，根据CAM等也有无法对应的情况。
   In some cases, such as specifying toolholder shape on NC display or using CAM, Goose-neck Holder can not be drawn perfectly.

●推荐切削参数 **Recommended Cutting Conditions**

被切削材 Workpiece Material	推荐刀片材质 Recommended Insert Grade					
	MEGACOAT NANO	MEGACOAT	PVD涂层 PVD Coated Carbide		硬质合金 Carbide	
	PR1425/PR1535	PR1225	PR1025		KW10	
碳钢(SxxC等) Carbon Steel (SxxC etc)	Vc = 70 ~ 170 m/mim		Vc = 60 ~ 150 m/mim		–	
	最初的切深(半径) First ap (Radial)	0.2mm以下 under 0.2mm	最初的切深(半径) First ap (Radial)	0.2mm以下 under 0.2mm		
合金钢(SCM等) Alloy Steel (SCM etc)	Vc = 70 ~ 170 m/mim		Vc = 60 ~ 150 m/mim		–	
	最初的切深(半径) First ap (Radial)	0.2mm以下 under 0.2mm	最初的切深(半径) First ap (Radial)	0.2mm以下 under 0.2mm		
不锈钢(SUS304等) Stainless Steel (SUS304 etc)	Vc = 60 ~ 100 m/mim		Vc = 50 ~ 80 m/mim		–	
	最初的切深(半径) First ap (Radial)	0.15mm以下 under 0.15mm	最初的切深(半径) First ap (Radial)	0.15mm以下 under 0.15mm		
铸铁(FC・FCD等) Cast Iron (FC/FCD etc)	–		–		Vc = 100 m/mim	
					最初的切深(半径) First ap (Radial)	0.2mm以下 under 0.2mm
铝合金 Aluminum alloy	–		–		Vc = 150 ~ 400 m/mim	
					最初的切深(半径) First ap (Radial)	0.2mm以下 under 0.2mm
黄铜 Brass	–		–		Vc = 150 ~ 300 m/mim	
					最初的切深(半径) First ap (Radial)	0.15mm以下 under 0.15mm

・推荐湿式加工。
Coolant is recommended.

・不锈钢加工时，请将<切深量–走刀数>多设定2 ~ 3刀。
When threading stainless steel, please set two to three passes more than <ap-passes>.

●切深量和走刀数 ap & number of passes

TKFT型 TKFT Type

(60°・55°无修光刃) 60°·55°Partial Profile

(切深表示半径切深的值) (ap shows the value of radial ap.)

种类 Thread Type		螺距 Pitch mm 牙/inch TPI	型号 Description	刃口角 R(rε) Corner-R (rε)	总切深 Total ap (mm)	走刀数 No. of Passes (次)	1	2	3	4	5	6	7	8	9	10	11	12
公制螺纹 Metric	外螺纹 External Threading	0.20mm	TKFT 12R/L A/B6000	Max 0.05 平滑 Flat	0.15	4	0.06	0.04	0.03	0.02								
		0.25mm			0.19	4	0.07	0.06	0.04	0.02								
		0.30mm			0.23	4	0.08	0.07	0.06	0.02								
		0.35mm			0.27	5	0.08	0.07	0.06	0.04	0.02							
		0.40mm			0.30	5	0.10	0.08	0.06	0.04	0.02							
		0.45mm			0.34	6	0.10	0.08	0.06	0.04	0.04	0.02						
		0.50mm	TKFT 12R/L A/B6000		0.38	6	0.10	0.10	0.07	0.05	0.04	0.02						
			TKFT 12R/L A/B60005	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02							
		0.60mm	TKFT 12R/L A/B6000	Max 0.05 平滑 Flat	0.45	7	0.10	0.10	0.08	0.06	0.05	0.04	0.02					
			TKFT 12R/L A/B60005	0.05	0.40	6	0.10	0.10	0.08	0.06	0.04	0.02						
		0.70mm	TKFT 12R/L A/B60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02						
		0.75mm		0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02					
		0.80mm		0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02					
		1.00mm	TKFT 12R/L A/B60005	0.05	0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02				
				0.10	0.66	7	0.18	0.15	0.12	0.10	0.06	0.03	0.02					
		1.25mm	TKFT 12R/L N6001	0.05	0.90	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02			
				0.10	0.85	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02				
		1.50mm	TKFT 12R/L N6001	0.10	1.04	10	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02		
管用平行螺纹 Parallel Pipe	外螺纹 External Threading	28 牙/inch TPI	TKFT 12R/L A/B55005	0.05	0.67	7	0.18	0.15	0.12	0.10	0.06	0.04	0.02					
		19 牙/inch TPI		0.05	1.01	9	0.20	0.18	0.14	0.12	0.12	0.10	0.08	0.05	0.02			
惠氏螺纹 Whitworth	外螺纹 External Threading	24 牙/inch TPI	TKFT 12R/L A/B55005	0.05	0.79	8	0.18	0.18	0.12	0.10	0.08	0.07	0.04	0.02				
		20 牙/inch TPI		0.05	0.96	9	0.20	0.20	0.15	0.10	0.10	0.08	0.06	0.05	0.02			
		18 牙/inch TPI		0.05	1.07	10	0.20	0.18	0.15	0.12	0.10	0.10	0.08	0.07	0.05	0.02		
		16 牙/inch TPI		0.05	1.21	11	0.20	0.18	0.15	0.15	0.12	0.10	0.10	0.08	0.07	0.04	0.02	

京瓷(中国)商贸有限公司

机械工具事业部

上海市闸北区万荣路700号大宁中心广场A3幢140室(200072)

TEL:021-3660-7711 FAX:021-5638-6200

http://www.kyocera.com.cn/prdct/cuttingtool/index.html

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