THE NEW VALUE FRONTIER

KYOCERA

KTKF for small part
Machining applications

GTP chipbreaker

GTP chipbreaker

Reduce cycle time and costs with integrated machining solutions

Grooving and traversing possible

Stable chip control and superior surface finish

KTKF for Small Part Machining Applications

GTP Chipbreaker

Reduce Cycle Time
with Grooving and Traversing Capabilities

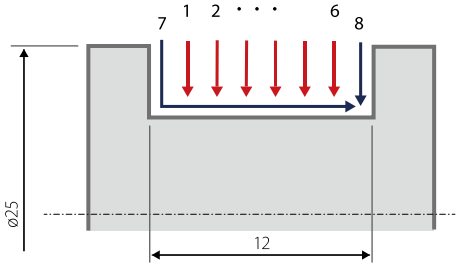
1 Grooving and Traversing Available

Cutting time comparison (Internal Evaluation)

Competitor A

Multiple Grooves and a Finishing Pass

Workpiece：S45C (ø25)



Cutting Conditions: Multiple Grooves

Vc=100m/min
ap=3.5mm,f=0.10mm/rev

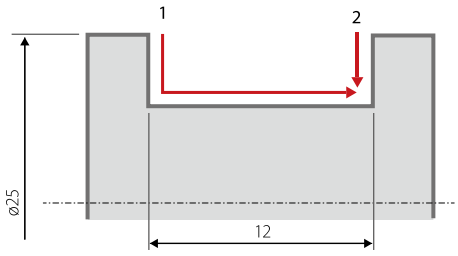
Cutting Conditions: Finishing

Vc=100m/min
ap=0.5mm, f=0.05mm/rev

TKF12R200-GTP

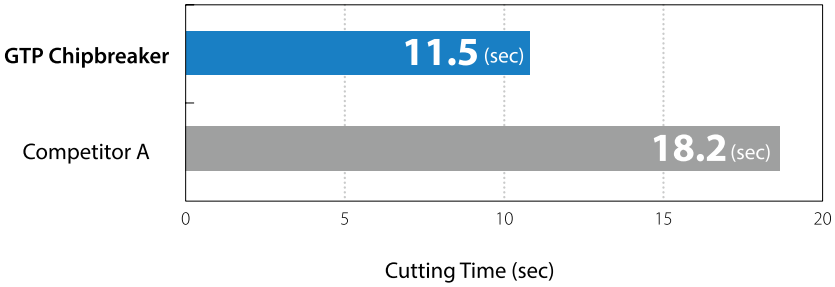
Grooving and Traversing

Workpiece：S45C (ø25)



Cutting Conditions: Grooving and Traversing

Vc=100m/min
ap=4mm, f=0.05mm/rev



GTP chipbreaker required
fewer machining paths than Competitor A.

40%

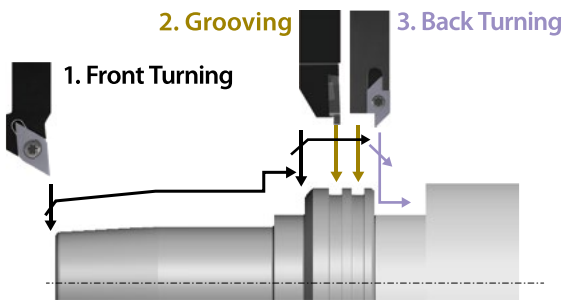
Cutting Time Reduction

Solution to Integrate Tools

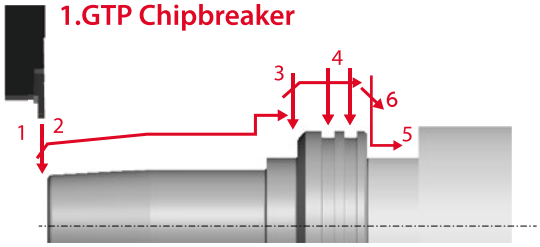
A GTP Chipbreaker provides integration of front turning, grooving and back turning.

Workpiece example

Conventional Tools



GTP Chipbreaker



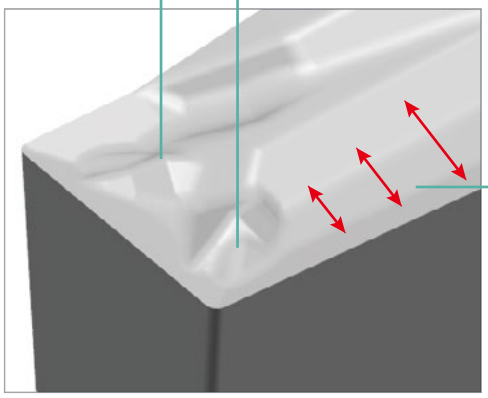
*Maximum grooving width and cutting depth. (Max.grooving width/Max. D.O.C.) TKF12R200-GTP(2.0mm/4.0mm), TKF16R300-GTP(3.0mm/5.5mm)

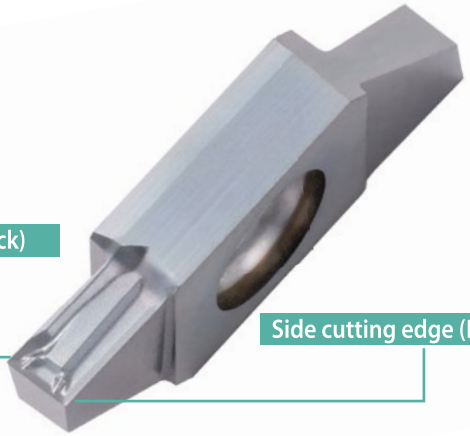
2 Stable Chip Control and Superior Surface Finish Quality for Wide Range of Machining Applications

Chipbreaker Features

Dots for Grooving **Dots for Traversin**

Utilized dots for each machining application
maintains good chip control in small ap.



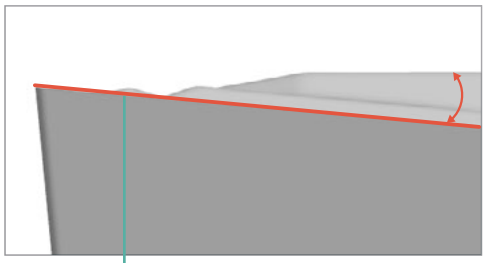


Side cutting edge (Back)

Side cutting edge (Front)

Chipbreaker width

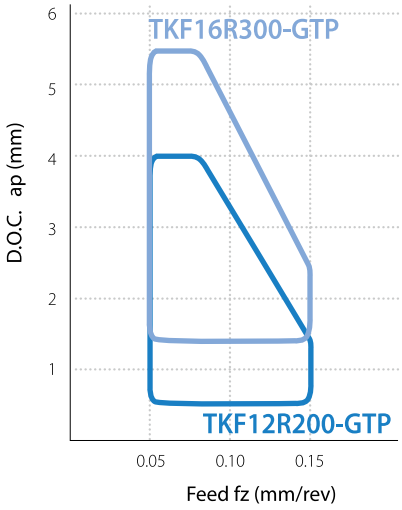
Width is optimized for depth of cut
Maintains good chip control for wide range of machining application



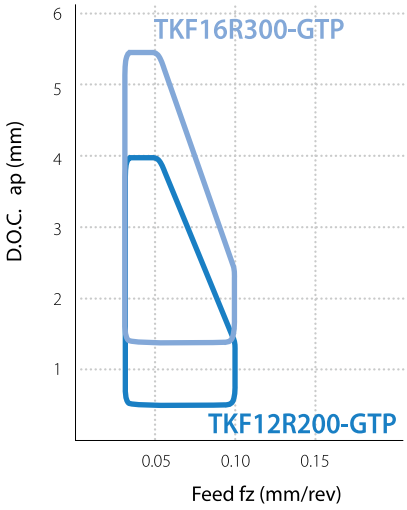
Sloped cutting edge

Sloped cutting edge reduces radial force
Great chattering resistance

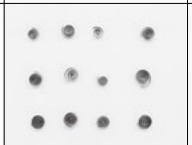
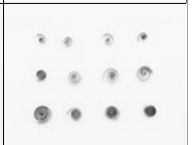
Recommended Chipbreaker Range (Steel)



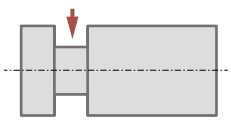
Recommended Chipbreaker Range(SUS)



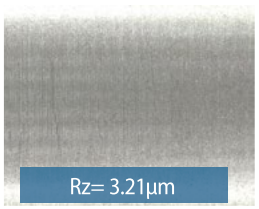
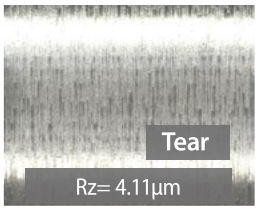
Chip control comparison (Internal evaluation)
Grooving

f (mm/rev)	0.05	0.07	0.10
TKF12R 200-GTP			
Competitor B			

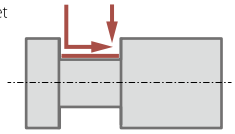
Cutting Conditions : Vc=100m/min, ap=4mm, Wet
Workpiece : S45C (ø25)



Surface finish comparison (Internal evaluation)
Traversing

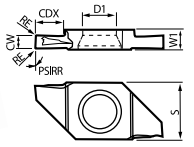
	TKF12R200-GTP	Competitor C
Surface Finish	 Rz= 3.21µm	 Tear Rz= 4.11µm

Cutting Conditions : Vc=100m/min, ap=4mm, f=0.05mm/rev, Wet
Workpiece : S45C (ø25)



GTP Chipbreaker showed superior chip control
and surface finish when compared to Competitor C.

Standard Stock Description

Shape		Description	Dimensions (mm)						Angle	MEGACOAT NANO PLUS	MEGACOAT NANO	Applicable Toolholders
			CW	CDX	RE	W1	S	D1	PSIRR	PR1725	PR1535	
		TKF12R200-GTP	2.0	4.3	0.08	3.0	8.7	5.0	0°	●	●	KTKFR…12
		TKF16R300-GTP	3.0	5.8	0.08	4.0	9.5	5.0	0°	●	●	KTKFR…16

For more details on applicable toolholders, see the KYOCERA general product catalog.

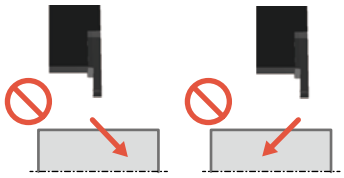
● : Standard Stock

Recommended Cutting Conditions ★ : 1st Recommendation; ☆ : 2nd Recommendation

Workpiece		Recommended Insert Grade			
		MEGACOAT NANO PLUS		MEGACOAT NANO	
		PR1725		PR1535	
		Grooving	Traversing	Grooving	Traversing
Carbon Steel, Alloy Steel (S45C、SCM435, etc.)	Cutting Speed Vc:m/min	★ 60 ~ 200		☆ 60 ~ 150	
	Feed f (mm/rev)	0.03 ~ 0.07	0.05 ~ 0.15	0.03 ~ 0.07	0.05 ~ 0.15
Stainless Steel (SUS304, etc.)	Cutting Speed Vc:m/min	☆ 60 ~ 150		★ 60 ~ 130	
	Feed f (mm/rev)	0.02 ~ 0.05	0.03 ~ 0.10	0.02 ~ 0.05	0.03 ~ 0.10

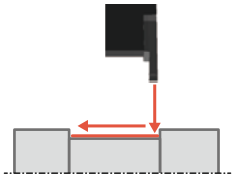
Caution for machining

Ramping



Ramping is not recommended if the workpiece is not pre-machined as shown in the right figures.

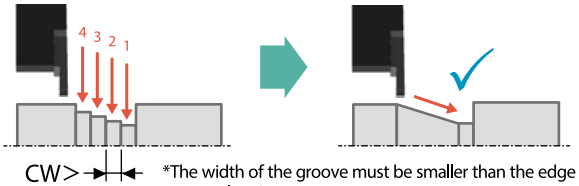
Back Turning



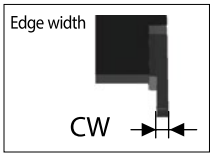
When back turning is used for finishing, make sure that the side cutting edge (back) of the tool is within 1mm.

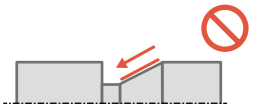
Tips for Ramping

Step grooving is required before ramping. (Refer to the figure below)



*The width of the groove must be smaller than the edge width to overlap the previous groove.





Case Studies

Spool Valves SCM415

GTP Chipbreaker

Vc=120m/min, ap=2.5mm
f=0.02mm/rev, Wet
TKF12R200-GTP (PR1535)

GTP Chipbreaker (Edge width : 2mm)

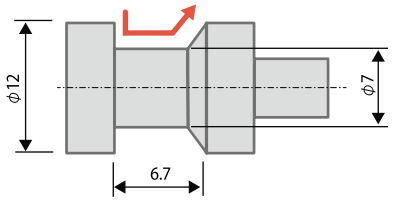
Showed good chip control without chip entanglement. Further machining possible.

Conventional Tools:A

Vc=120m/min, ap=2.3mm : grooving
0.2mm : Finishing
f=0.02mm/rev, Wet

Conventional Tools : A (Edge width : 2mm)

Chip entanglement occurred during traversing (finishing).



GTP chipbreaker reduces the amount of tool paths and improved chip control.

(User evaluation)