

THE NEW VALUE FRONTIER



KTKF for Small Part
Machining Applications

GTP Chipbreaker

KTKF for Small Part Machining Applications

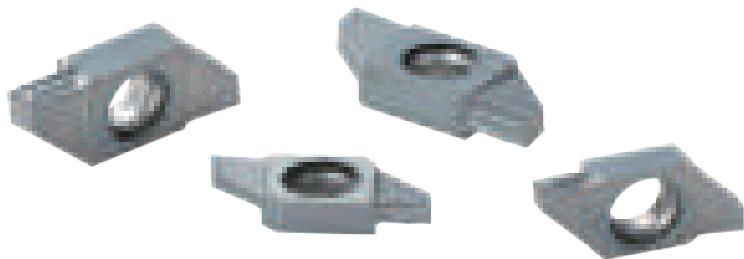
GTP Chipbreaker



Reduce Cycle Time and Costs with Integrated Machining Solutions

Grooving and Traversing Possible

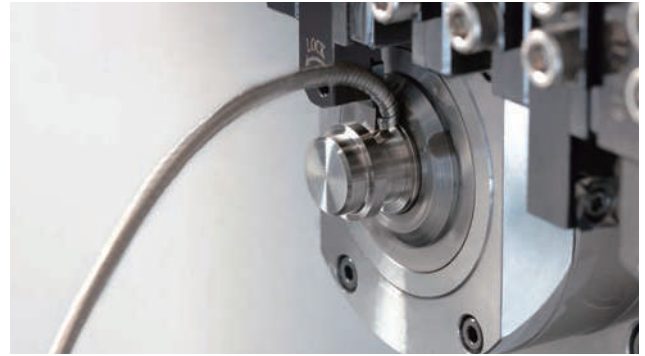
Stable Chip Control and Superior Surface Finish



KTKF for Small Part Machining Applications

GTP Chipbreaker

Reduce Cycle Time
with Grooving and Traversing Capabilities

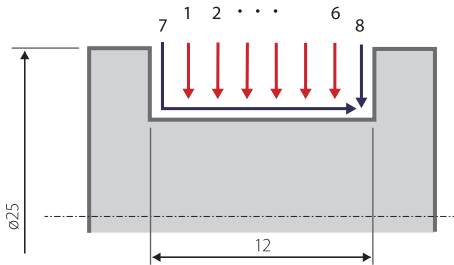


1 Grooving and Traversing Available

Cutting time comparison (Internal Evaluation)

Competitor A

Multiple Grooves and a Finishing Pass
Workpiece : S45C (ø25)



Cutting Conditions: Multiple Grooves

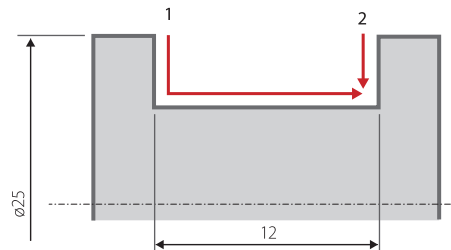
$V_c=100\text{m/min}$
 $a_p=3.5\text{mm}, f=0.10\text{mm/rev}$

Cutting Conditions: Finishing

$V_c=100\text{m/min}$
 $a_p=0.5\text{mm}, f=0.05\text{mm/rev}$

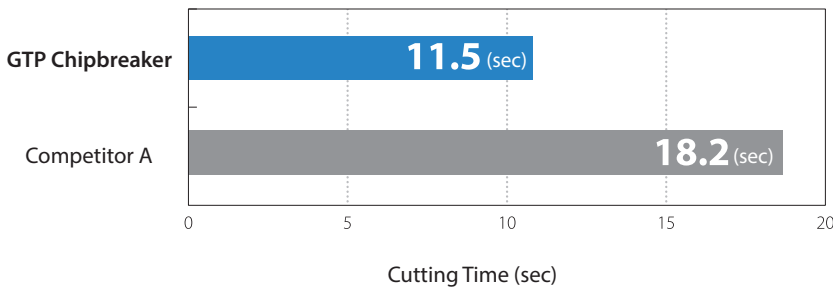
TKF12R200-GTP

Grooving and Traversing
Workpiece : S45C (ø25)



Cutting Conditions: Grooving and Traversing

$V_c=100\text{m/min}$
 $a_p=4\text{mm}, f=0.05\text{mm/rev}$



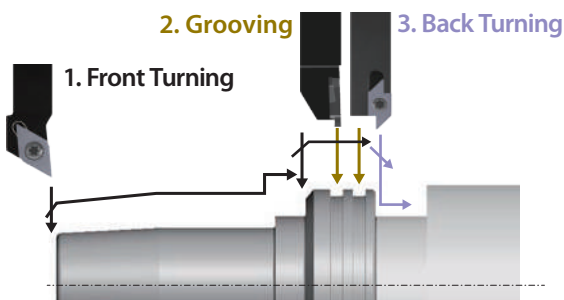
GTP chipbreaker required fewer machining paths than Competitor A.

40%
Cutting Time Reduction

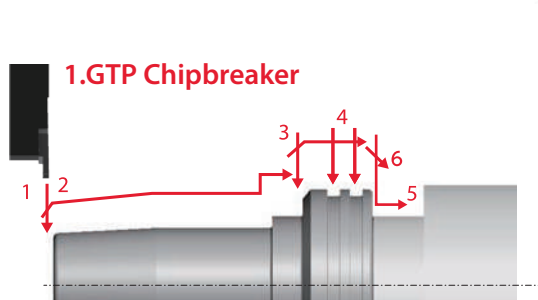
Solution to Integrate Tools

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

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

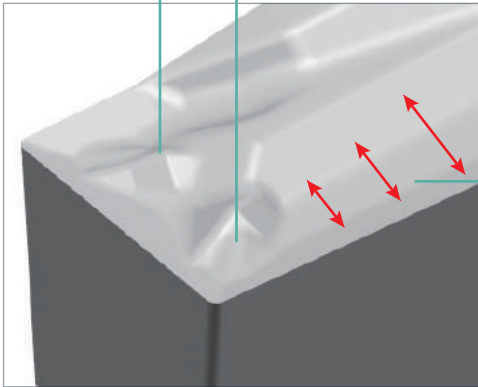
Stable Chip Control and Superior Surface Finish Quality for Wide Range of Machining Applications

Chipbreaker Features

Dots for Grooving

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

Dots for Traversin

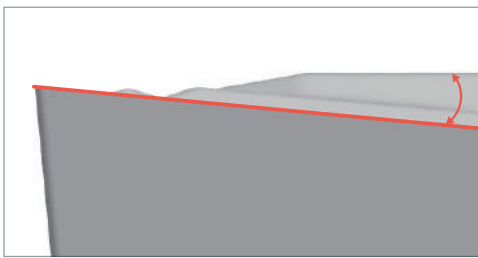
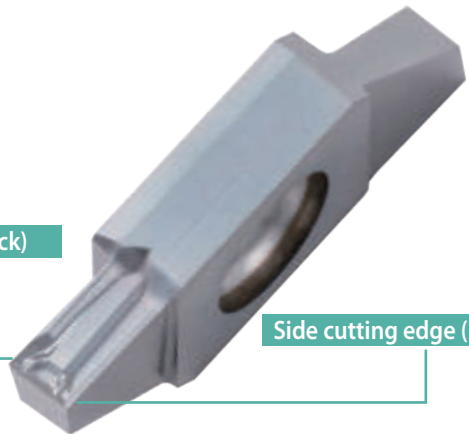


Side cutting edge (Back)

Side cutting edge (Front)

Chipbreaker width

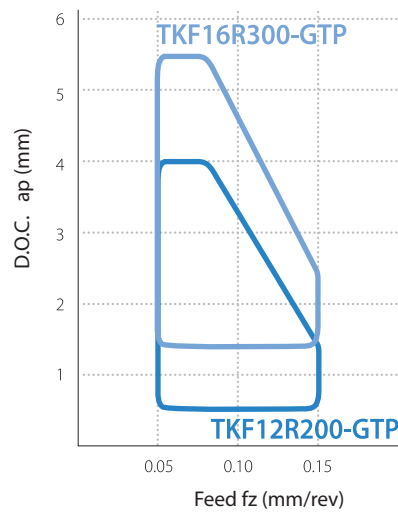
Width is optimized for depth of cut
Maintains good chip control for wide range of machining application



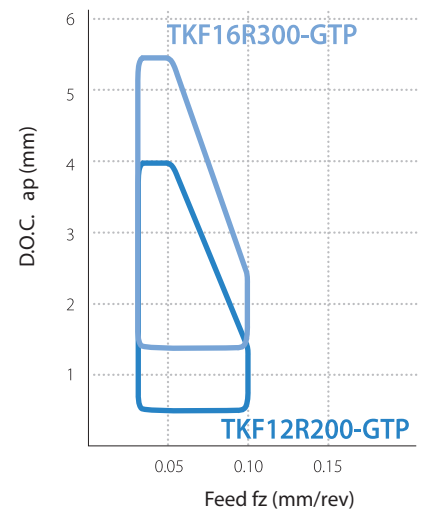
Sloped cutting edge

Sloped cutting edge reduces radial force
Great chattering resistance

Recommended Chipbreaker Range (Steel)



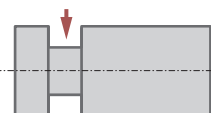
Recommended Chipbreaker Range(SUS)



Chip control comparison (Internal evaluation) Grooving

f (mm/rev)	0.05	0.07	0.10
TKF12R200-GTP			
Competitor B			

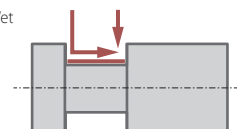
Cutting Conditions : Vc=100m/min, ap=4mm, Wet
Workpiece : S45C (ø25)



Surface finish comparison (Internal evaluation) Traversing


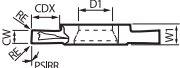

	TKF12R200-GTP	Competitor C
Surface Finish	 Rz= 3.21µm	 Rz= 4.11µm

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.

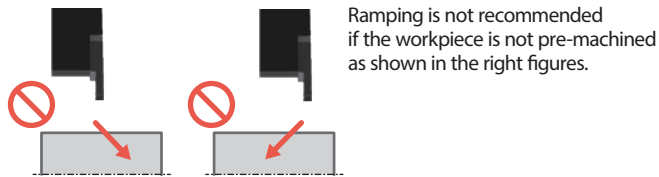
● : Standard Stock

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

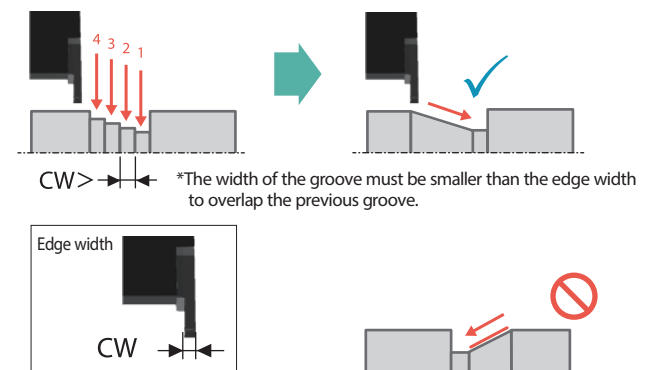
Caution for machining

Ramping

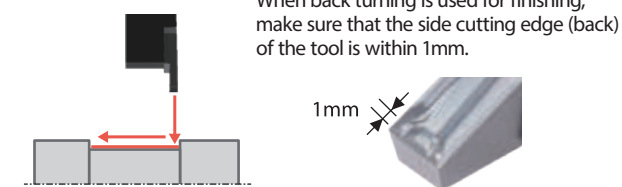


Tips for Ramping

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



Back Turning



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

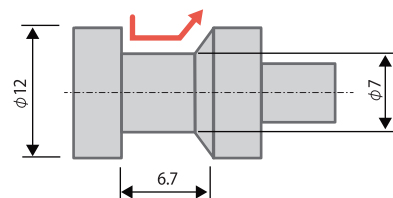
Vc=120m/min, ap=2.3mm : grooving
0.2mm : Finishing
f=0.02mm/rev, Wet

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)