

THE NEW VALUE FRONTIER



# KTKF For Swiss Machining

## Back Turning, Threading, and Cut-off Tools

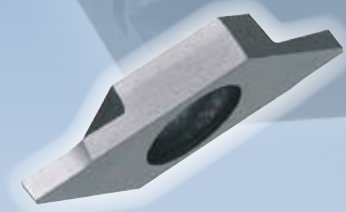
- Grade PR1025 -- Fracture and wear resistant PVD Coated Carbide for general purpose
- Grade KW10 -- Uncoated Carbide for aluminum, brass, and other non-ferrous materials
- KTKFS available for micro-diameter cut-off on sub-spindle operations



Back turning  
**TKFB type**



Threading  
**TKFT type**



Cut-off  
**TKF type**

ADVANCING PRODUCTIVITY

# KTKF

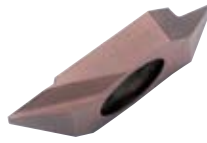
## Back turning / Threading Lineup Expansion!!

Back turning

For back turning

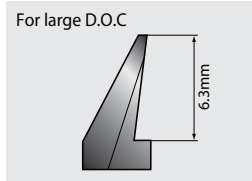
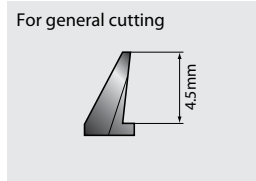
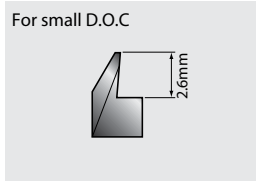
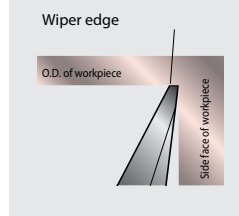
# TKFB

NEW

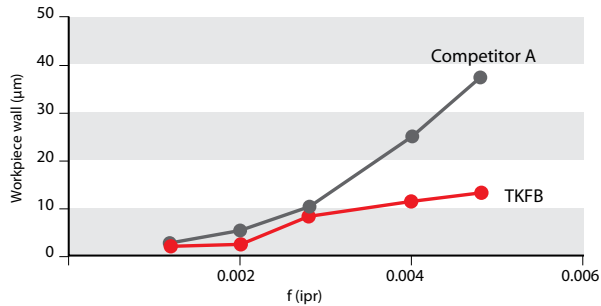


- Minimal deflection due to lower cutting force
- Smooth chip control
- Excellent surface finish due to optimum wiper edge angle

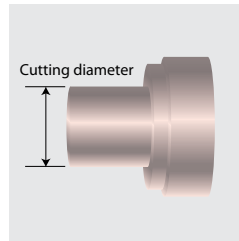
TKFB edge shape



• Surface Roughness



Cutting conditions: Vc=262smf doc=0.040" f=0.03-0.012 ipr WET 1045

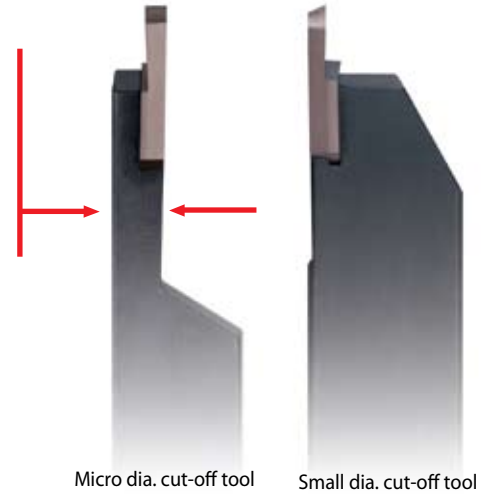


• Surface finish comparison

	TKFB	Competitor B
f=0.002 ipr	 Rz=3.3µm	 Rz=11.2µm
f=0.0028 ipr	 Rz=4.6µm	 Rz=14.2µm

Cutting conditions: Vc=262sfm doc=0.040" WET 1045

Provides improved clearance when machining between the main and sub spindles



Micro dia. cut-off tool (for sub spindle)

Small dia. cut-off tool

KTKFS

For small lathe

## Fracture Resistant PVD Coating

# PR1025

- Fracture resistant substrate reduces chipping
- TiCN PVD Coating improves wear resistance and adhesion resistance

Work Material	Steel			
Classification	P01	P10	P20	P30
Applicable Range		PR1025		

PR1025 is the first choice for steel and stainless steel machining.

Threading

For threading

# TKFT

NEW



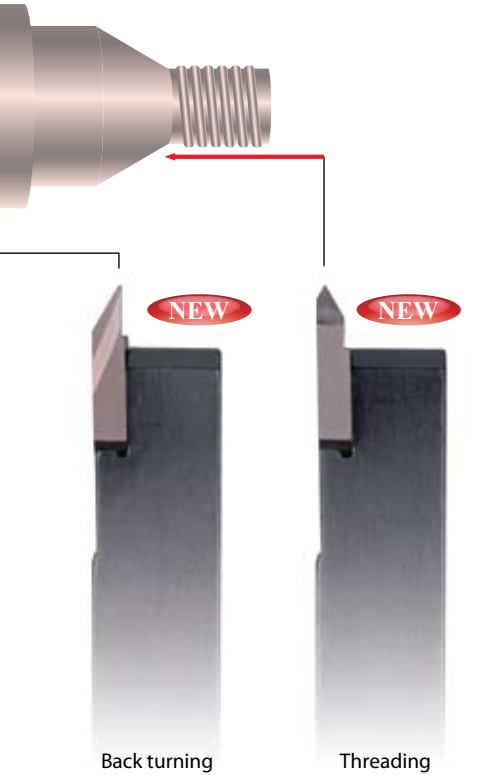
- Applicable for various types of threads

Metric screw thread

Parallel pipe thread

Unified thread

Taper pipe thread



Cut-off



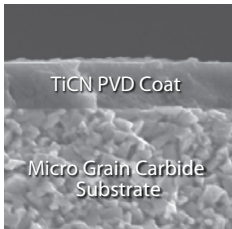
For Small Diameter Cut-off

# KTKF

- Both 5-12mm diameter and small diameter (16mm) toolholders are available. (TKF12/TKF16)
- Minimum cut-off width of 0.5mm is available (TKF12)
- Sharp cutting due to low cutting force chipbreakers
- Sharp corner radius of 0.0 available on inserts without chipbreakers



Coated Grade



Work Material	Stainless steel			
Classification	M01	M10	M20	M30
Applicable Range		PR1025		

Micro Diameter Cut-off for Sub-Spindle

# KTKFS

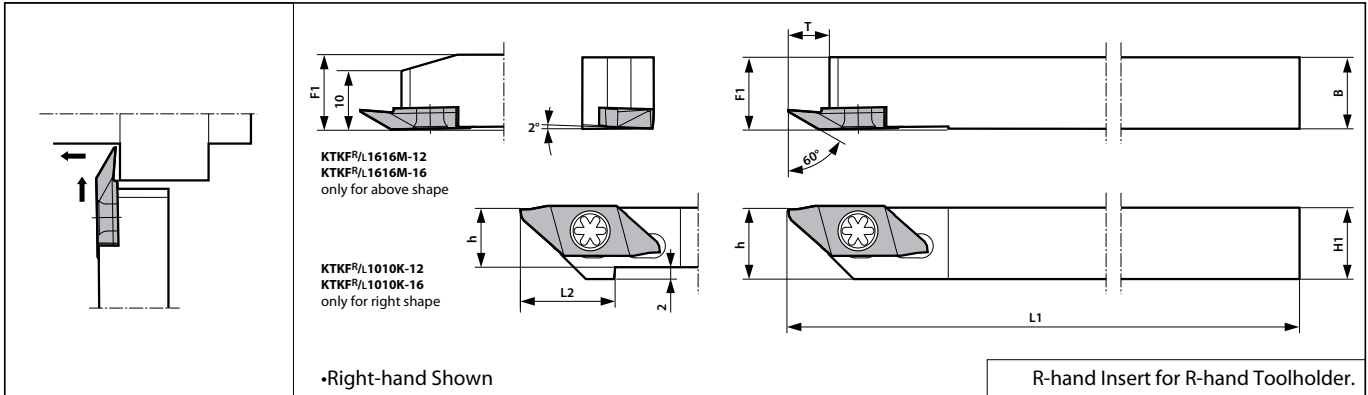
- New Micro-Diameter Cut-off Holder for Sub Spindle (KTKFS Type)
- Recommended for very small diameter workpieces, or when clearance between main and sub-spindle is very small
- Chipbreaker designed for low cutting resistance



KTKFS type is specially designed for cut-off.  
There is no compatibility with back turning / threading inserts.

# Turning (Back Turning)

## KTKF type



## Toolholder Dimension

Description	Stock	Dimension (mm)						Spare Parts		Applicable Insert
		H1=h	B	L1	L2	F1	T	Clamp Screw	Wrench	
KTKFR 1010K-12 1212F-12 1212M-12 1616M-12	●	10	10	125	15	10	6	SB-4590TRWN	LTW-10S	TKFB12R...
	○	12	12	85	-	12				
	●	16	16	150	-	16				
	●	16	16	150	-	16				
KTKFR 1010K-16 1212F-16 1212M-16 1616M-16	●	10	10	125	20	10	8	SB-4590TRWN	LTW-10S	TKFB16R...
	○	12	12	85	-	12				
	●	16	16	150	-	16				
	●	16	16	150	-	16				

- Dimension T shows the distance from the toolholder to the cutting edge.
- When using back turning insert, only right hand toolholder (R) is applicable.

●:Standard Stock  
○:World Express

## Applicable Insert

Shape Right-hand Shown	Description	Dimension (inch)							Stock Grades		Applicable Toolholder
		W	a	B	R(re)	T	H	ød	PVD Coated	Carbide	
	TKFB 12R15005M	1.5	0.25	2.6	<0.05				○	○	KTKFR...12
	TKFB 12R28005M	2.8	0.3	4.6	<0.05	3.0	8.7	5.2	○	○	
	TKFB 12R28010M	2.8	0.3	4.6	<0.1				○	○	
	TKFB 16R38005M	3.8	0.3	6.3	<0.05	4.0	9.5	5.2	○	○	KTKFR...16
TKFB 16R38010M	3.8	0.3	6.3	<0.1				○	○		

●:Standard Stock  
○:World Express

## Insert Description (See Fig. 1)

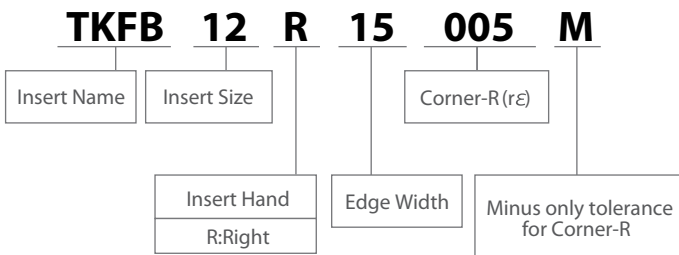
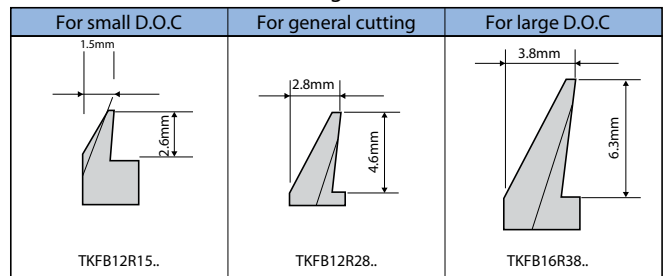


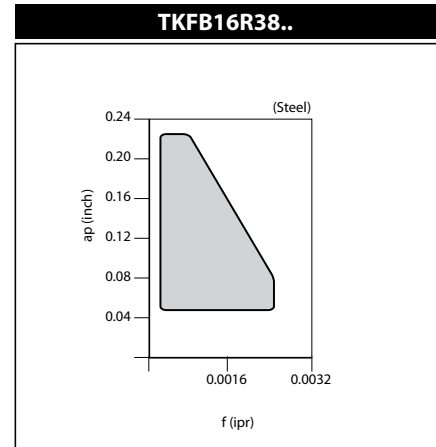
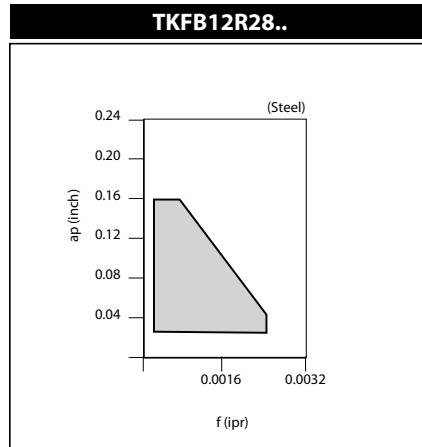
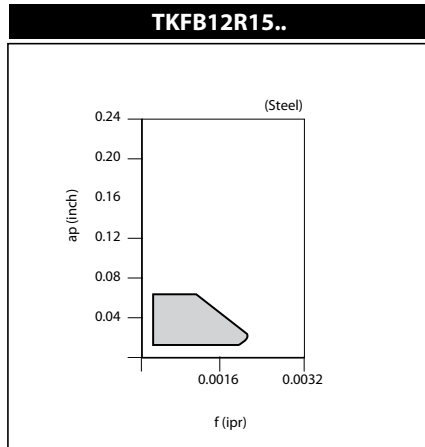
Fig.1



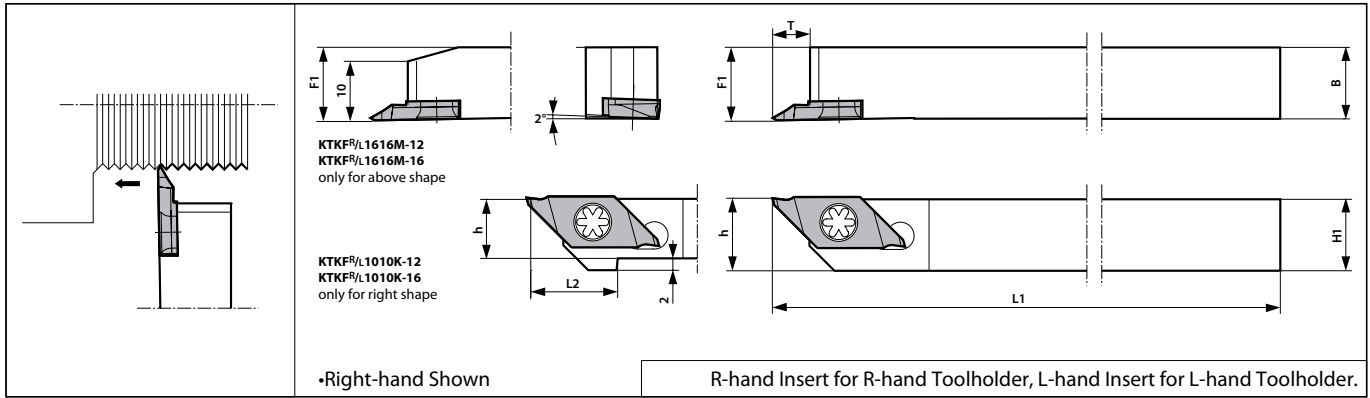
## ● Recommended Cutting Conditions

Workpiece Material		Recommended Insert Grade				Remarks
		PVD Coated		Carbide		
		PR1025		KW10		
		Grooving	Turning	Grooving	Turning	
Carbon Steel	Vc (sfm)	200-500		-		Coolant
	f (ipr)	0.0004-0.0012	0.0008-0.0060	-		
Alloy Steel	Vc (sfm)	200-500		-		
	f (ipr)	0.0004-0.0012	0.0008-0.0060	-		
Stainless Steel	Vc (sfm)	160-400		-		
	f (ipr)	0.0004-0.0008	0.0008-0.0040	-		
Cast Iron	Vc (sfm)	-		160-400		
	f (ipr)	-		0.0004-0.0008	0.0008-0.0060	
Non-ferrous Material	Vc (sfm)	-		650-1500		
	f (ipr)	-		0.0004-0.0012	0.0008-0.0060	
Brass	Vc (sfm)	-		325-650		
	f (ipr)	-		0.0004-0.0020	0.0008-0.0080	

## ● Applicable Chipbreaker Range



## KTKF type



### Toolholder Dimension

Description	Stock		Dimension (mm)						Spare Parts		Applicable Insert
	R	L	H1=h	B	L1	L2	F1	T	Clamp Screw	Wrench	
KTKF <sup>R/L</sup>	●	●	10	10	125	15	10	6	SB-4590TRWN	LTW-10S	TKFT12 <sup>R/L</sup> ...
	○		12	12	85		12				
	●	●	12	12	150		12				
	●	●	16	16	150		16				

Dimension T shows the distance from the toolholder to the cutting edge.

●:Standard Stock  
○:World Express

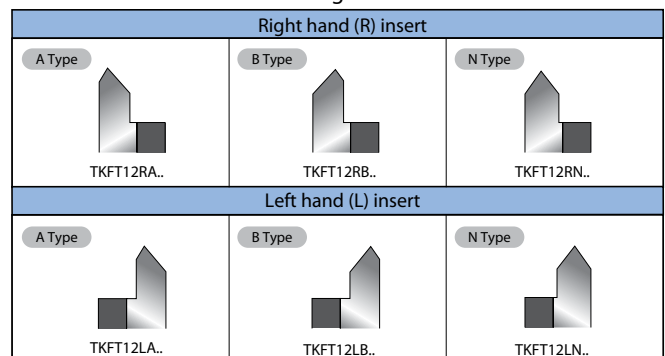
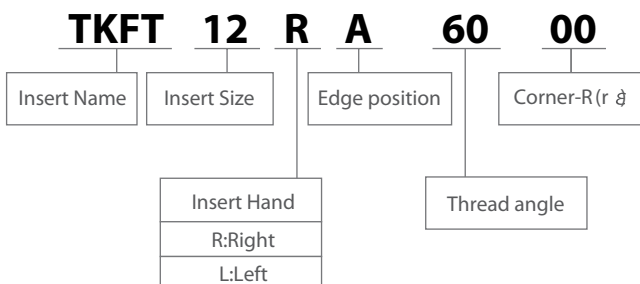
### Applicable Insert

Shape	Description	Applicable Thread	Pitch		Dimension (mm)							Angle	Stock Grades		Applicable Toolholder		
			mm	inch TPI	T	W	H	ød	R(r $\phi$ )	S1	S2		w	PR1025		KW10	
No wiper edge	TKFT 12RA6000 12RB6000 12RA6000S 12RB6000S 12RN6001 12RA5500S 12RB5500S	M UN	0.2-0.6	64-48	3.0	2.5	8.7	5.2	Max 0.05 Flat	0.4	2.1	60°	○	○	KTKFR ...12		
										2.1	0.4		○	○			
										0.8	1.7		○	○			
										1.7	0.8		○	○			
										0.1	1.25		1.25	○		○	
										0.05	0.8		1.7	○		○	
	TKFT 12LA6000 12LB6000 12LA6000S 12LB6000S 12LN6001 12LA5500S 12LB5500S	M UN	0.2-0.6	64-48	3.0	2.5	8.7	5.2	Max 0.05 Flat	2.1	0.4	60°	○	○	KTKFL ...12		
										0.4	2.1		○	○			
										1.7	0.8		○	○			
										0.8	1.7		○	○			
										0.1	1.25		1.25	○		○	
										0.05	1.7		0.8	○		○	
	G,R W	-	40-16					0.05	0.8	1.7	55°	○	○				
									1.7	0.8		○	○				
									0.8	1.7		○	○				
									0.05	0.8		1.7	○		○		
									0.05	0.8		1.7	○		○		
									0.05	0.8		1.7	○		○		

Fig.1

○:World Express

### Insert Description (See Fig. 1)



## ● Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc: sfm)	
	PVD Coated	Carbide
	PR1025	KW10
Carbon Steel	200-500	
	First ap (Radial)	under 0.008"
Alloy Steel	200-500	
	First ap (Radial)	under 0.008"
Stainless Steel	160-300	
	First ap (Radial)	under 0.006"
Cast Iron	400	
	First ap (Radial)	under 0.008"
Non-ferrous Material	500-1300	
	First ap (Radial)	under 0.008"
Brass	500-1000	
	First ap (Radial)	under 0.006"

· Coolant is recommended.

· When threading stainless steel, please add two to three passes more than <ap-passes> listed below.

## ● Depth of Cut & Number of Passes

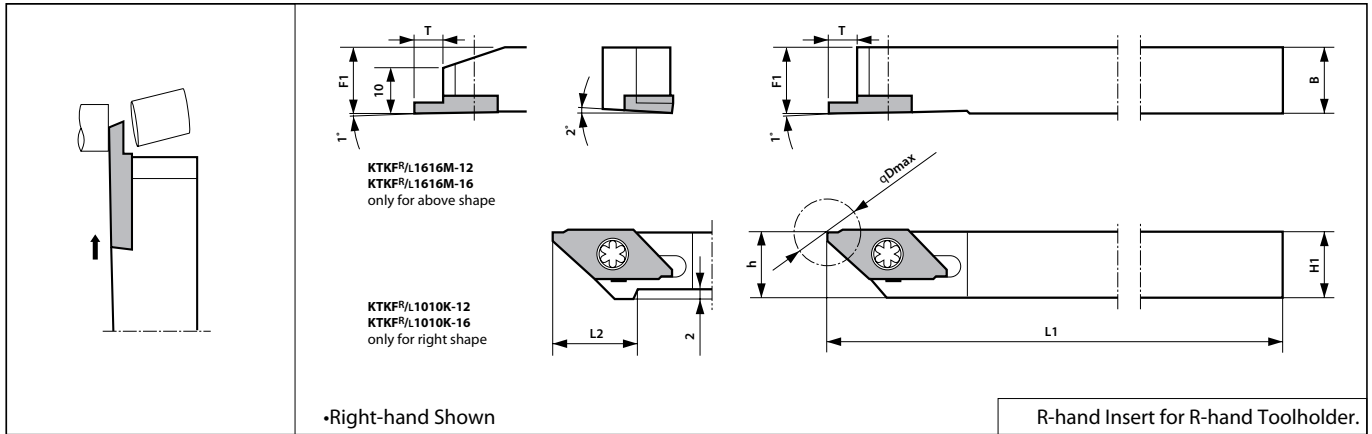
### TKFT Type

60°/55° No wiper edge

ap shows the value of radial ap.

Thread Type	Pitch	Description	R (r <sub>d</sub> )	Total ap	No. of Passes	ap shows the value of radial ap.																
						1	2	3	4	5	6	7	8	9	10	11	12					
Metric screw thread	External thread	TKFT 12 <sup>R</sup> /L A/B6000	0.20mm	0.00	0.15	4	0.06	0.04	0.03	0.02												
			0.25mm	0.00	0.19	4	0.07	0.06	0.04	0.02												
			0.30mm	0.00	0.23	4	0.08	0.07	0.06	0.02												
			0.35mm	0.00	0.27	5	0.08	0.07	0.06	0.04	0.02											
			0.40mm	0.00	0.30	5	0.10	0.08	0.06	0.04	0.02											
			0.45mm	0.00	0.34	6	0.10	0.08	0.06	0.04	0.04	0.02										
		TKFT 12 <sup>R</sup> /L A/B6000 12 <sup>R</sup> /L A/B60005	0.50mm	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02										
			TKFT 12 <sup>R</sup> /L A/B6000 12 <sup>R</sup> /L A/B60005	0.60mm	0.00	0.45	7	0.10	0.10	0.08	0.06	0.05	0.04	0.02								
				0.60mm	0.05	0.40	6	0.10	0.10	0.08	0.06	0.04	0.02									
			TKFT 12 <sup>R</sup> /L A/B60005	0.70mm	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								
			TKFT 12 <sup>R</sup> /L A/B60005 12 <sup>R</sup> /L N6001	1.00mm	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	0.05	0.90	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02						
TKFT 12 <sup>R</sup> /L N6001	1.50mm	0.10	0.85	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02										
		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								
Parallel pipe thread	External thread	TKFT 12 <sup>R</sup> /L A/B55005	28 /inch	0.05	0.67	7	0.18	0.15	0.12	0.10	0.06	0.04	0.02									
			19 /inch	0.05	1.01	9	0.20	0.18	0.14	0.12	0.12	0.10	0.08	0.05	0.02							
Whitworth screw thread	External thread	TKFT 12 <sup>R</sup> /L A/B55005	24 /inch	0.05	0.79	8	0.18	0.18	0.12	0.10	0.08	0.07	0.04	0.02								
			20 /inch	0.05	0.96	9	0.20	0.20	0.15	0.10	0.10	0.08	0.06	0.05	0.02							
			18 /inch	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 /inch	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					

## KTKF type



### Toolholder Dimension

Description	Stock		Cutting Dia. øDmax*	Dimension (mm)						Spare Parts		Applicable Insert
	R	L		H1=h	B	L1	L2	F1	T	Clamp Screw	Wrench	
KTKF <sup>R/L</sup> 1010K-12	●	●	5-12	10	10	125	15	10	6	SB-4590TRWN	LTW-10S	TKFT12 <sup>R/L</sup> ...
	○	○		12	12	85	-	12				
	●	●		16	16	150	-	16				
	●	●		16	16	150	-	16				
KTKF <sup>R/L</sup> 1010K-16	●	○	16	10	10	125	20	10	8	SB-4590TRWN	LTW-10S	TKFT16 <sup>R/L</sup> ...
	○	○		12	12	85	-	12				
	●	●		16	16	150	-	16				
	●	●		16	16	150	-	16				

\*Cutting dia. of -12 type toolholder (Dmax) depends on the insert groove width.

●:Standard Stock  
○:World Express

## Insert Cutting Diameter Dmax

### When Using Main Spindle Only

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)

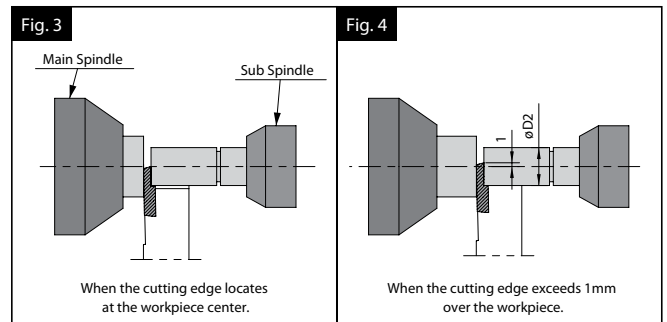
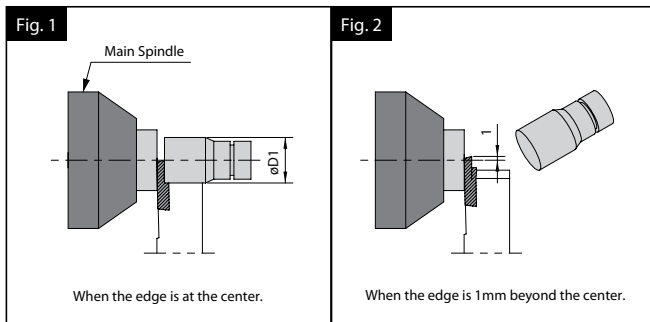
### When using both Main and Sub Spindle

Workpiece max, D2=Dmax-(Programmed distance beyond the center) x 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-1mmx2].

(Max. clearance between insert and workpiece is 0.2mm in radius.)



## ●Applicable Insert

Shape		Description	Dimension (mm)							Angle	Stock Grades				Applicable Toolholder
			W	øD max	R	T	H	ød	S		PVD Coated		Carbide	PCD	
											PR1025	PR930	KW10	KPD001	
Right-hand Shown															
Lead Angle		<b>TKF12<sup>R/L</sup> 050-S-16DR</b>	0.5	5	0.03	3	8.7	5	-	16°	○	Ⓡ	○		
		<b>070-S-16DR</b>	0.7	8							○	Ⓡ	○		
		<b>100-S-16DR</b>	1.0	○							Ⓡ	○			
		<b>150-S-16DR</b>	1.5	12							○	Ⓡ	○		
		<b>200-S-16DR</b>	2.0	○							Ⓡ	○			
Lead Angle		<b>TKF12<sup>R/L</sup> 050-S</b>	0.5	5	0.03	3	8.7	5	-	0°	○	Ⓡ	●		
		<b>070-S</b>	0.7	8							○	Ⓡ	●		
		<b>100-S</b>	1.0	○							Ⓡ	○			
		<b>150-S</b>	1.5	12							○	Ⓡ	○		
		<b>200-S</b>	2.0	○							Ⓡ	○			
Lead Angle		<b>TKF12<sup>R/L</sup> 050-NB-20DR</b>	0.5	5	0.03	3	8.7	5	-	20°	○	Ⓡ	○	KTKF <sup>R/L</sup> ...12	
		<b>070-NB-20DR</b>	0.7	8							○	Ⓡ	○		
		<b>100-NB-20DR</b>	1.0	○							Ⓡ	○			
		<b>150-NB-20DR</b>	1.5	12							○	Ⓡ	○		
		<b>200-NB-20DR</b>	2.0	○							Ⓡ	○			
Without Chipbreaker		<b>TKF12<sup>R/L</sup> 050-NB</b>	0.5	5	0.03	3	8.7	5	-	0°	○	Ⓡ	●		
		<b>070-NB</b>	0.7	8							○	Ⓡ	●		
		<b>100-NB</b>	1.0	○							Ⓡ	○			
		<b>150-NB</b>	1.5	12							○	Ⓡ	○		
		<b>200-NB</b>	2.0	○							Ⓡ	○			
PCD Insert		<b>TKF12<sup>R/L</sup> 150-NB</b>	1.5	7.0	0.1	3	8.7	5	-	0°				○	
		<b>200-NB</b>	2.0	8.0										○	
		<b>250-NB</b>	2.5	8.0										○	
		<b>250-NB4.5</b>	2.5	10.0										○	
Lead Angle		<b>TKF16<sup>R/L</sup> 150-S-16DR</b>	1.5	16	0.05	4	9.5	5	-	16°	○	Ⓡ	○		
		<b>200-S-16DR</b>	2.0								●	Ⓡ	○		
Lead Angle		<b>TKF16<sup>R/L</sup> 150-S</b>	1.5	16	0.05	4	9.5	5	-	0°	○	Ⓡ	○	KTKF <sup>R/L</sup> ...16	
		<b>200-S</b>	2.0								○	Ⓡ	○		
Lead Angle/Without Chipbreaker		<b>TKF16<sup>R/L</sup> 150-NB-20DR</b>	1.5	16	0.00	4	9.5	5	-	20°	○	Ⓡ	○		
		<b>200-NB-20DR</b>	2.0								○	Ⓡ	○		
Without Chipbreaker		<b>TKF16<sup>R/L</sup> 150-NB</b>	1.5	16	0.00	4	9.5	5	-	0°	○	Ⓡ	○		
		<b>200-NB</b>	2.0								●	Ⓡ	○		

\*1 Lead angle indicates the angle when installed in toolholder.

Carbide inserts are packaged in quantities of 10.

● : Standard Stock  
○ : World Express  
Ⓡ : Right Hand Only

PCD inserts are packed in quantities of 1

## ■ Insert Description (See Fig. 1)

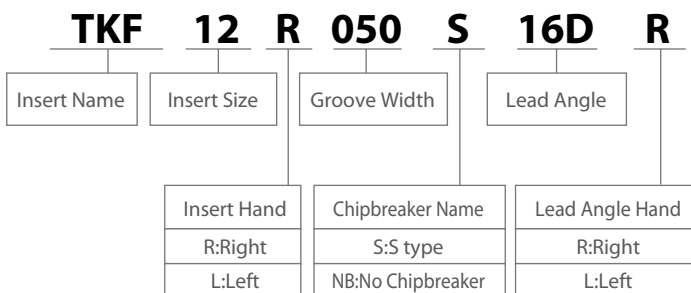
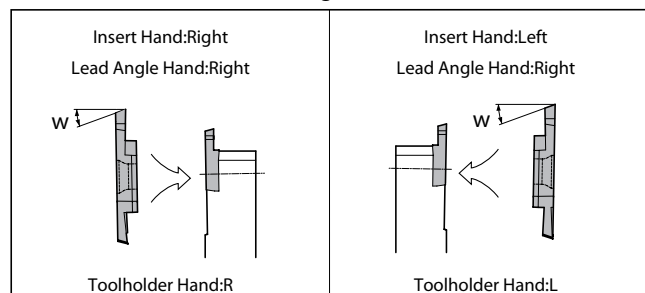
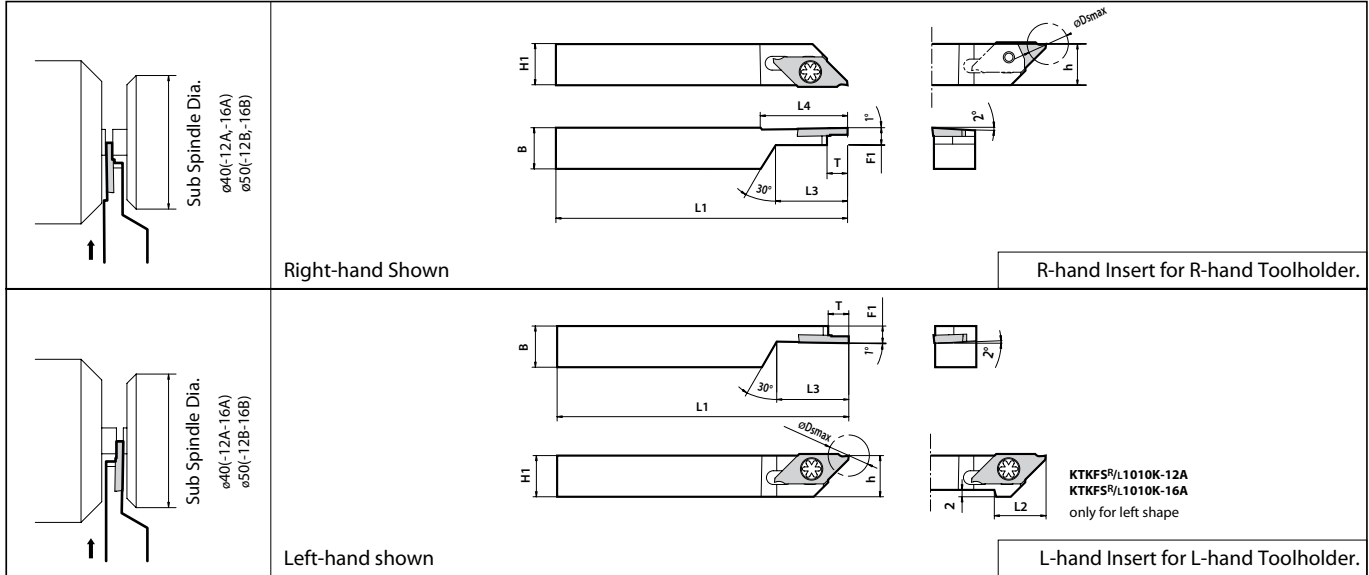


Fig.1



## For Micro Diameter Cutt-off at Sub Spindle



### Toolholder Dimension

Description	Stock	Cutting Dia.	Dimension (mm)									Spare Parts		Applicable Insert		
			R	L	øDmax*	H1=h	B	L1	L2	L3	L4	F1	T		Clamp Screw	Wrench
KTKFS <sup>R/L</sup> 1010K-12A 1212F-12A 1212K-12B	○	○	6-12	10	10	120	15	22	26	5	6	SB-4050TRN	LTW-10S	TKFS12 <sup>R/L</sup> ...		
	○	○		12	12	85	-									
	○	○		120	26											
KTKFS <sup>R/L</sup> 1010K-16A 1212F-16A 1212K-16B	○	○	14-16	10	10	120	20	22	30	5	8	SB-4050TRN	LTW-10S	TKFS16 <sup>R/L</sup> ...		
	○	○		12	12	85	-									
	○	○		120	26											

\*Cutting dia. of -12 type toolholder (Dmax) depends on the insert groove width.

○:World Express

\*KTKFSL1212M-12B will be replaced with KTKFSL1212K-12B.

### Applicable Insert

Shape Left-hand Shown	Description	Dimension (mm)							Stock Grades						Applicable Toolholder	
		W	øDmax	R	H	L2	ød	w	PVD Coated		Carbide		PCD			
									PR1025	KW10	KPD001	R	L	R		L
	TKFS12 <sup>R/L</sup> 100-S 150-S 200-S	1.0	6	0.05	2.2	8.7	4.4	0°	○	○	○	○				KTKFS <sup>R/L</sup> ...12
		1.5	9						○	○	○	○				
		2.0	12						○	○	○	○				
	TKFS16 <sup>R/L</sup> 150-S 200-S	1.5	14	0.05	2.2	9.5	4.4	0°	○	○	○	○				KTKFS <sup>R/L</sup> ...16
2.0		16	○						○	○	○					

\*As Fig. 1 shows, cutting diameter of Insert indicates the cutting diameter when the top of the cutting edge is programmed to run 1mm beyond center.

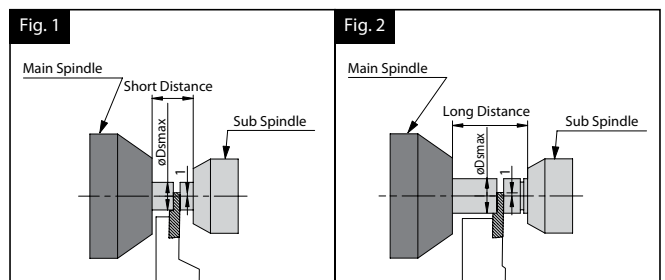
○:World Express

\*Lead angle (front cutting edge angle: w) indicates the angle when installed in a toolholder.

Inserts are sold in 10 piece per 1 box.

### Holder Selections

- As Fig. 1 shows, KTKFS is applicable when minimal clearance exists between the main spindle and sub spindle.
- As Fig. 2 shows, please use KTKFL when additional clearance is available. This will offer improved rigidity.



## ● Recommended Cutting Conditions

### ●TKF12 insert

Workpiece Material	Recommended Insert Grade (Vc: sfm)		Width (inch)					Remarks
	PVD Coated	Carbide	0.5	0.7	1.0	1.5	2.0	
	PR1025	KW10	f (sfm)					
Carbon Steel	200-425	-	0.0004-0.0008	0.0004-0.0012	0.0004-0.0016	0.0004-0.0016	0.0004-0.0016	Coolant
Alloy Steel	200-425	-	0.0004-0.0008	0.0004-0.0012	0.0004-0.0016	0.0004-0.0016	0.0004-0.0016	
Stainless Steel	150-350	-	0.0002-0.0006	0.0004-0.0008	0.0004-0.0008	0.0004-0.0008	0.0004-0.0008	
Cast Iron	-	150-350	0.0004-0.0012	0.0004-0.0016	0.0004-0.0020	0.0004-0.0020	0.0004-0.0020	
Non-ferrous Material	-	650-1500	0.0004-0.0012	0.0004-0.0016	0.0004-0.0020	0.0004-0.0020	0.0004-0.0020	
Brass	-	350-650	0.0004-0.0012	0.0004-0.0016	0.0004-0.0024	0.0004-0.0024	0.0004-0.0024	

### ●TKF16 insert

Workpiece Material	Recommended Insert Grade (Vc: sfm)		Width (inch)		Remarks
	PVD Coated	Carbide	1.5	2.0	
	PR1025	KW10	f (sfm)		
Carbon Steel	200-425	-	0.0008-0.0028	0.0008-0.0028	Coolant
Alloy Steel	200-425	-	0.0008-0.0028	0.0008-0.0028	
Stainless Steel	150-350	-	0.0004-0.0016	0.0004-0.0016	
Cast Iron	-	150-350	0.0008-0.0032	0.0008-0.0032	
Non-ferrous Material	-	650-1500	0.0008-0.0032	0.0008-0.0032	
Brass	-	350-650	0.0008-0.0040	0.0008-0.0040	

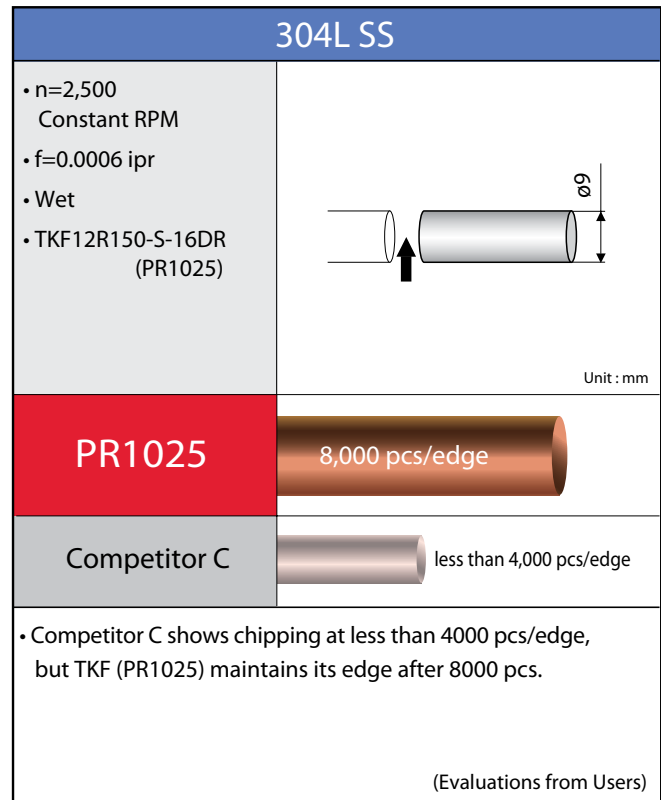
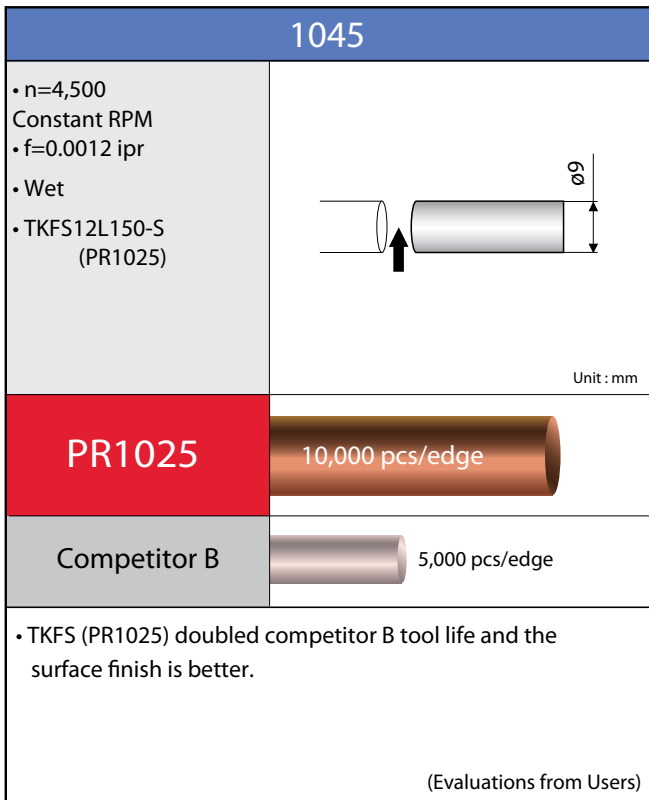
### ●TKFS12 insert

Workpiece Material	Recommended Insert Grade (Vc: sfm)		Width (inch)			Remarks
	PVD Coated	Carbide	1.0	1.5	2.0	
	PR1025	KW10	f (sfm)			
Carbon Steel	200-425	-	0.0004-0.0012	0.0004-0.0012	0.0004-0.0012	Coolant
Alloy Steel	200-425	-	0.0004-0.0012	0.0004-0.0012	0.0004-0.0012	
Stainless Steel	150-350	-	0.0004-0.0008	0.0004-0.0008	0.0004-0.0012	
Cast Iron	-	150-350	0.0004-0.0012	0.0004-0.0012	0.0004-0.0012	
Non-ferrous Material	-	650-1500	0.0004-0.0012	0.0004-0.0012	0.0004-0.0012	
Brass	-	350-650	0.0004-0.0016	0.0004-0.0016	0.0004-0.0016	

### ●TKFS16 insert

Workpiece Material	Recommended Insert Grade (Vc: sfm)		Width (inch)		Remarks
	PVD Coated	Carbide	1.5	2.0	
	PR1025	KW10	f (sfm)		
Carbon Steel	200-425	-	0.0004-0.0012	0.0004-0.0012	Coolant
Alloy Steel	200-425	-	0.0004-0.0012	0.0004-0.0012	
Stainless Steel	150-350	-	0.0004-0.0008	0.0004-0.0012	
Cast Iron	-	150-350	0.0004-0.0012	0.0004-0.0012	
Non-ferrous Material	-	650-1500	0.0004-0.0012	0.0004-0.0012	
Brass	-	350-650	0.0004-0.0016	0.0004-0.0016	

# Case Studies



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