

THE NEW VALUE FRONTIER



Great for High Pressure Coolant

JCT Series

Great for High Pressure Coolant

JCT Series

NEW



Excellent Chip Control and Long Tool Life with High Pressure Coolant

Large Holder Lineup for Turning, External Grooving, Cut-off and Threading

Easy Connection with High Pressure Hose and Joint

Internal Coolant Provides Longer Tool Life and Excellent Chip Control

Turning
Double Clamp-JCT



Shallow Grooving
KGBA-JCT



Grooving / Cut-off
KGD-JCT



Threading
KTN-JCT



Great for High Pressure Coolant

JCT Series

Excellent Chip Control and Long Tool Life with High Pressure Coolant
Large Holder Lineup for Turning, External Grooving, Cut-off and Threading

Special Coolant Hole Design

Unique Coolant System for Various Machining Applications

○ : Coolant Hole



Turning: **➡P.3**
Double Clamp-JCT



External Shallow Grooving: **➡P.7**
KGBA-JCT



External Grooving: **➡P.11**
KGD-JCT



Threading: **➡P.15**
KTN-JCT

Advantages of Internal Coolant

Discharges Coolant towards the Cutting Edge
Internal Coolant Provides Longer Tool Life and Excellent Chip Control

Extended Tool Life

Wear Resistance Comparison (In-house Evaluation)

Internal Coolant (7MPa)

External Coolant (0.4MPa)



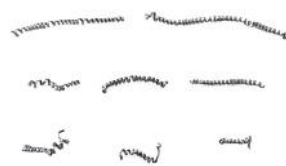
Cutting Conditions: $V_c = 250$ m/min, $f = 0.3$ mm/rev, $a_p = 2$ mm, Wet
CNMG120408 Type Workpiece: SCM435
External Turning After Machining 42.2 min

Improved Chip Control

Chip Control Comparison (In-house Evaluation)

Internal Coolant (7MPa)

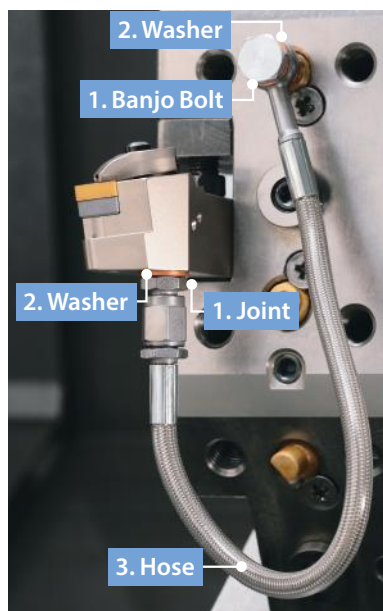
External Coolant (0.4MPa)



Cutting Conditions: $V_c = 200$ m/min, $f = 0.05$ mm/rev, $a_p = 0.5$ mm, Wet
DNMG150408 Type Workpiece: SCM415 External Turning

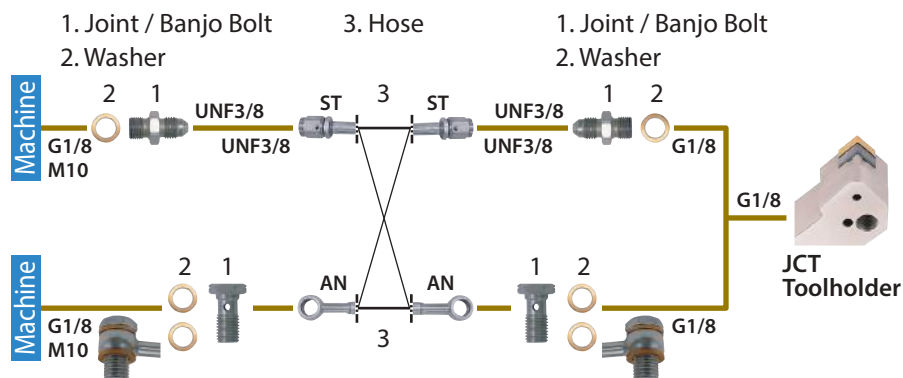
Easy Coolant Connections

Easy Connection with High Pressure Hose and Joint



- Even without a high pressure pump, internal coolant can be used at a normal pressure
- Banjo bolt available for angled hose connection
Can be used in a variety of machines

<Piping Installation Guide>



Piping Parts

Optional Piping Parts Available

Choose from parts below to match your machine specifications

1. Joint / Banjo bolt × 2 2. Washer × 2-4 3. Hose × 1

1. Joint / Banjo Bolt

Pressure Resistance: ~ 30MPa

Shape	Description	Stock	Thread Standard
			Thread connection to the machine
	J-G1/8-UNF3/8	●	G1/8
	J-M10X1.5-UNF3/8	●	M10X1.5
	BB-G1/8	●	G1/8
	BB-M10X1.5	●	M10X1.5

2. Washer

Pressure Resistance: ~ 30MPa

Shape	Description	Stock
	WS-10	●

* Use 2 washers for a banjo bolt

3. Hose

Pressure Resistance: ~ 30MPa

Shape	Description	Stock	Thread Standard		Dimensions (mm)
					L
	HS-ST-ST-200	●	UNF3/8	UNF3/8	200
	HS-ST-ST-250	●			250
	HS-ST-AN-200	●	UNF3/8	(Banjo bolt)	200
	HS-ST-AN-250	●			250
	HS-AN-AN-200	●	(Banjo bolt)	(Banjo bolt)	200
	HS-AN-AN-250	●			250

Precautions

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure.
Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

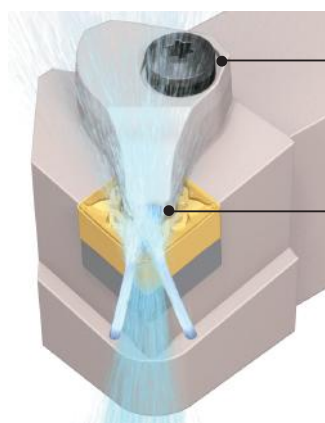
Great for High Pressure Coolant, Toolholder for Turning

Double Clamp-JCT

Discharges Coolant in Three Directions. Improved Chip Control and Longer Tool Life for a Wide Variety of Workpieces including Steel, Hardened Material and Difficult-to-Cut Material

1 Superior Chip Control Performance

Special coolant-through structure designed by careful simulation and analysis technology



Double-Clamp

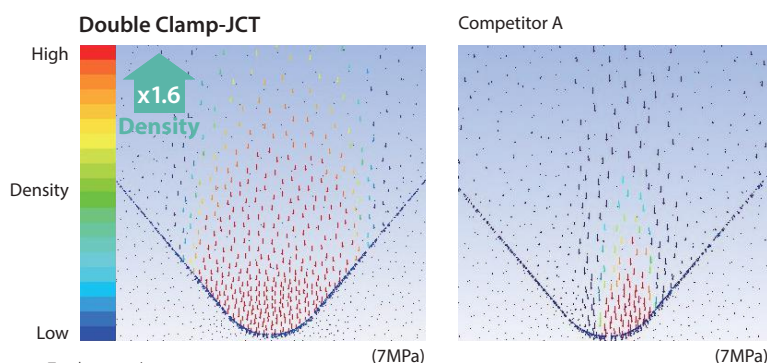
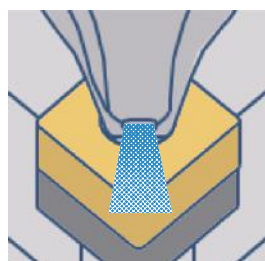
Firm insert clamp and easy to use in single operations
High-density coolant supply close to the cutting edge

Unique Nozzle Shape

Provides coolant to a wide area of the insert surface

Coolant Supply Simulation Comparison (In-house Evaluation)

Discharges a wide stream of high-density coolant towards the rake surface of the insert

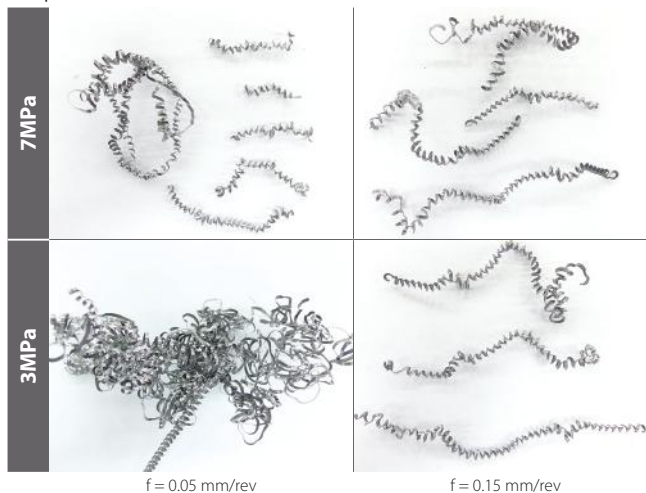


Chip Control Comparison (In-house Evaluation)

Double Clamp-JCT



Competitor A



Cutting Conditions: $V_c = 150$ m/min, $a_p = 0.5$ mm, Wet, CNMG120408 Type Workpiece: SCM415 External Turning

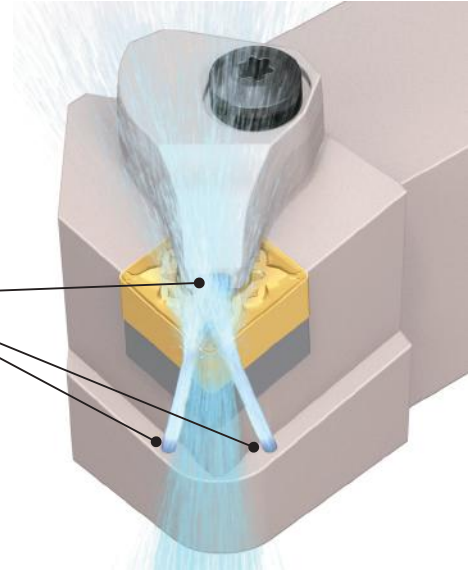
2

Longer Tool Life and High Speed Machining

Coolant is also directed from two directions towards the flank face of the insert to ensure even cooling action

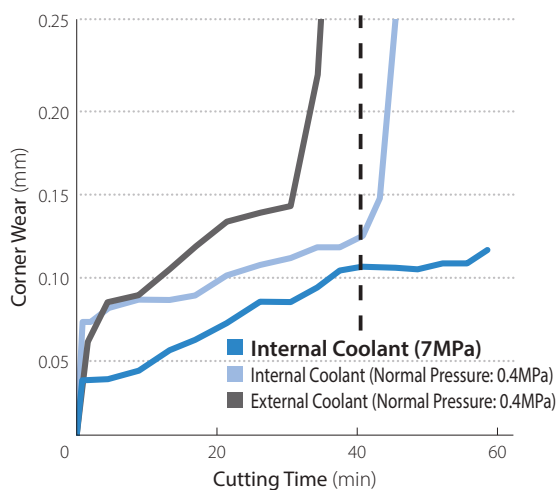
Longer tool life and high-speed machining with improved wear resistance

Discharges Coolant in Three Directions
The Cutting Edge Stays Cool

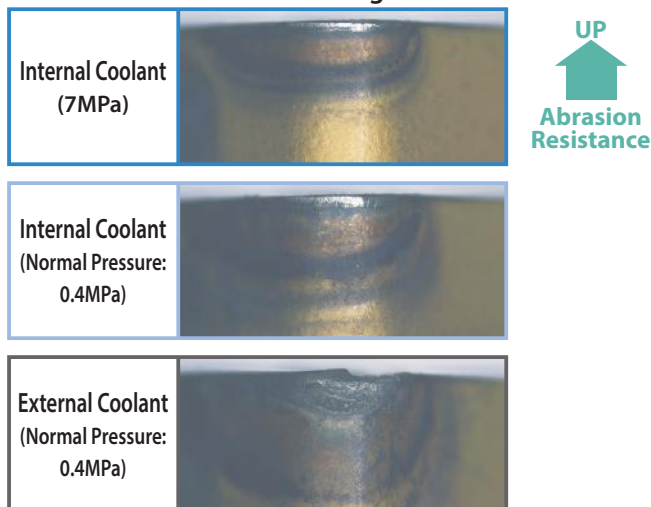


Wear Resistance Comparison (In-house Evaluation)

Alloy Steel (SCM435)

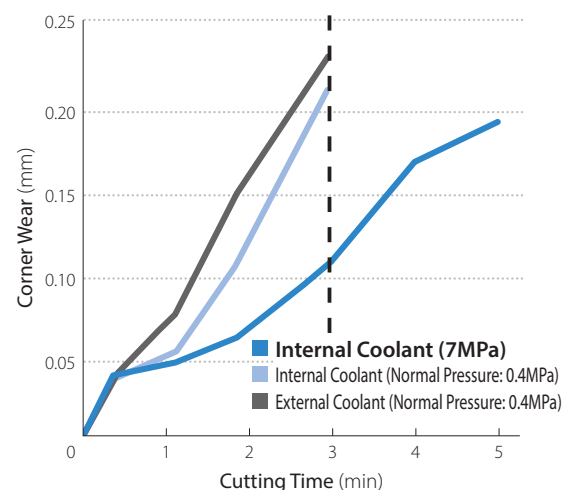


After Machining 42.2 min

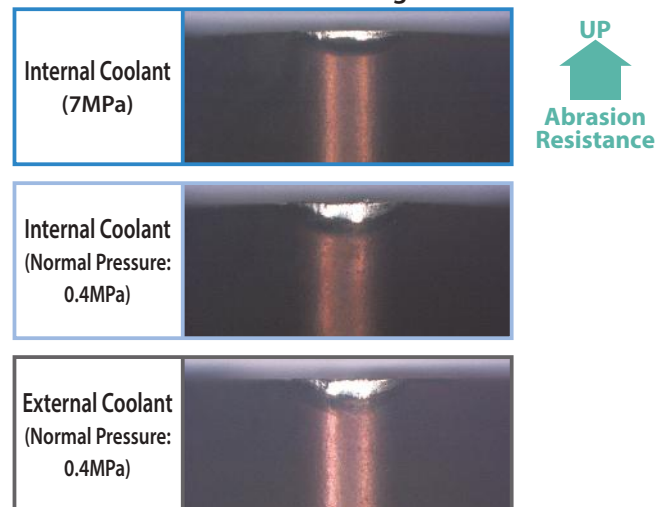


Cutting Conditions: $V_c = 250$ m/min, $f = 0.3$ mm/rev, $a_p = 2$ mm, Wet
CNMG120408 Type External Turning

Heat-resistant Alloys (Inconel®718)



After Machining 3 min

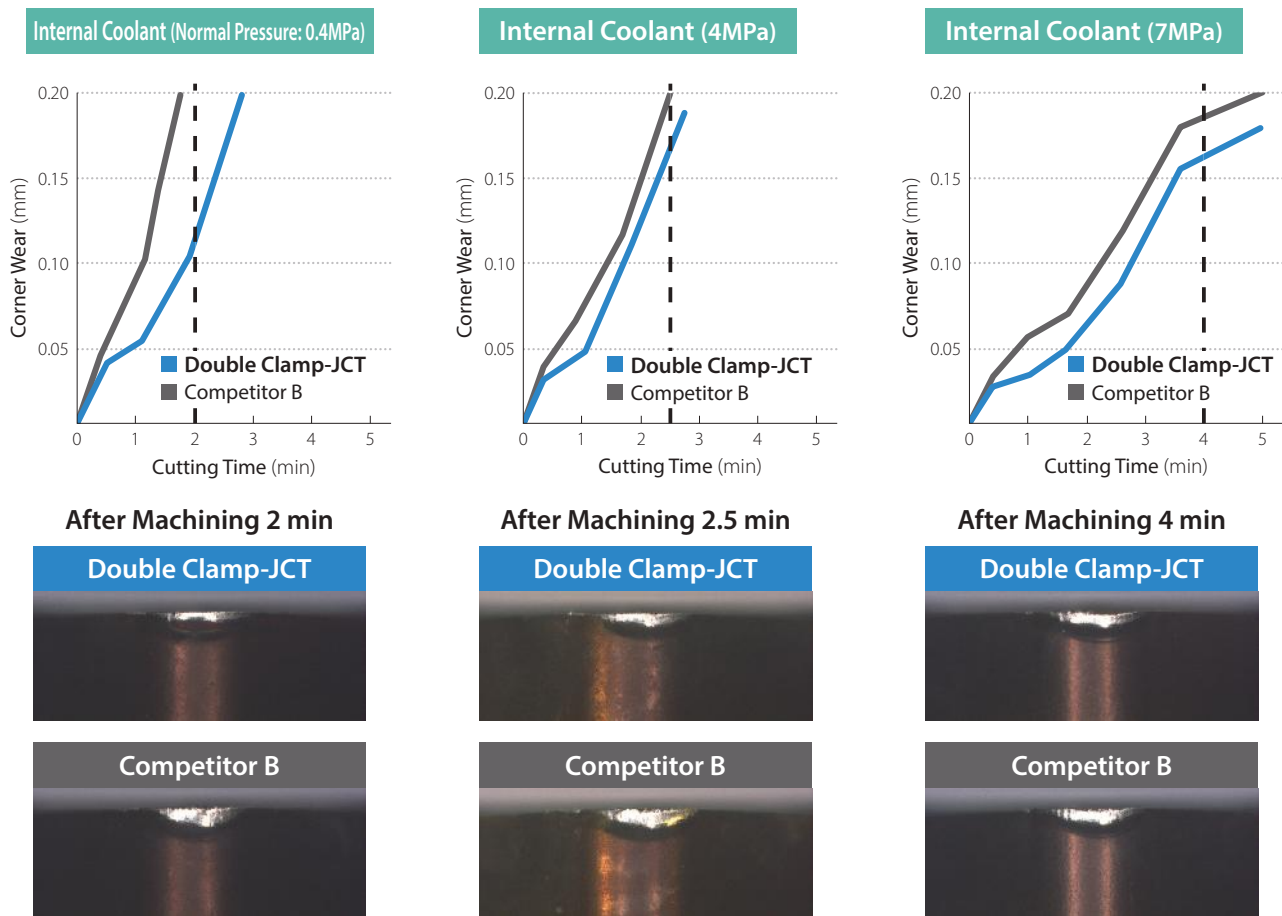


Cutting Conditions: $V_c = 80$ m/min, $f = 0.15$ mm/rev, $a_p = 0.5$ mm, Wet
CNMG120408 Type External Turning

Using internal coolant improves wear-resistance in alloy steel and heat-treated steel
High-pressure coolant is more effective

Wear Resistance Comparison (In-house Evaluation)

Double Clamp-JCT maintains better wear resistance than competitors

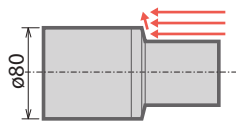


Cutting Conditions: $V_c = 80$ m/min, $f = 0.15$ mm/rev, $a_p = 0.5$ mm, Wet, CNMG120408 Type Workpiece: Inconel®718-equivalent External Turning

Case Studies

Mechanical Parts Carbon Steel

$V_c = 250$ m/min
 $a_p = 3$ mm
 $f = 0.36$ mm/rev
 Wet
 DCLNR2525M-12JCT
 CNMG120408PT CA510



Tool Life

DCLN-JCT Toolholder
 (Internal Coolant: 4MPa)

100 pcs / edge

Tool Life
x1.25

Conventional Toolholder
 (External Coolant)

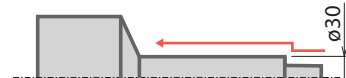
80 pcs / edge

The DCLN-JCT internal coolant improved tool life by 1.5 times when compared to using external coolant

(User evaluation)

Shaft SCr420 (Hardened Steel Over 55HRC)

$V_c = 180$ m/min
 $a_p = 0.1$ mm
 $f = 0.07$ mm/rev
 Wet
 DDJNR2525M-15JCT
 DNGA150408 Type CBN



Tool Life

DDJN-JCT Toolholder
 (Internal Coolant)

100 pcs / edge

Tool Life
x1.4

Competitor C
 (Internal Coolant)

70 pcs / edge (Unstable)

Competitor D
 (External Coolant)

60 pcs / edge (Unstable)

Cutting Edge

DDJN-JCT Toolholder

Competitor C

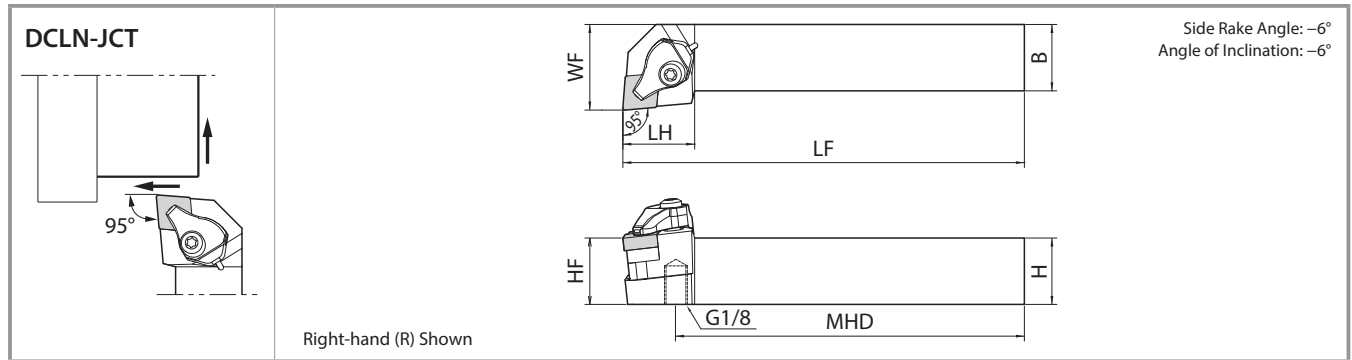
Competitor D



The DDJN-JCT toolholder reduced sudden fracturing and defects with stable machining and maintained 1.4 times longer tool life

(User evaluation)

Double Clamp-JCT (Turning)

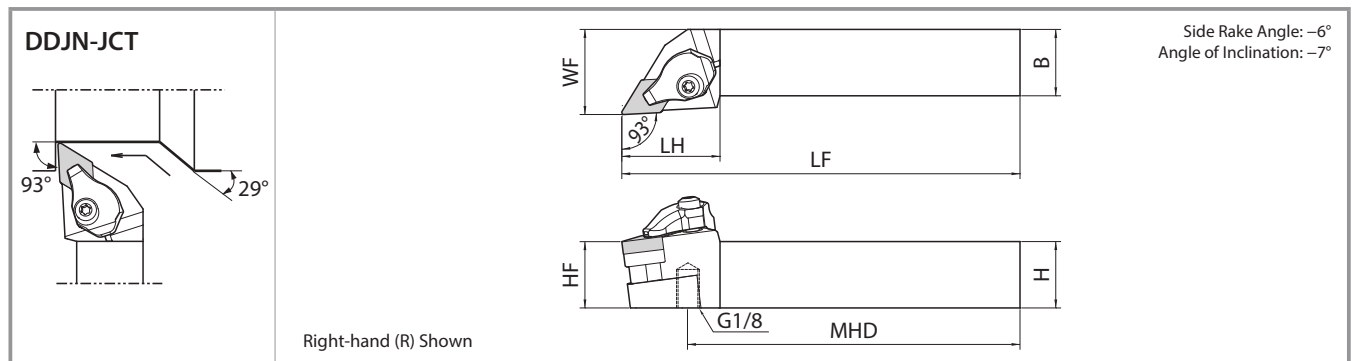


Toolholder Dimensions

Pressure Resistance: ~ 30MPa

Description	Stock		Dimension (mm)						Std. Corner-R(RE)	Spare Parts							Applicable Inserts
	R	L	H=HF	B	LF	LH	WF	MHD		Clamp	Pipe Connection (with O-ring)	Screw	Spring	Wrench	Shim	Shim Screw	
																	
DCLN R/L 2525M-12JCT	●	●	25	25	150	27	32	135.2	0.8	CP-3D-R/L-JCT	FP-12	CS-3D-TR	SP-3D	FT-15	*1 DC-44 *2 DC-44-C	SB-4085TR	CN**1204

● : Standard Stock



Toolholder Dimensions

Pressure Resistance: ~ 30MPa

Description	Stock		Dimension (mm)						Std. Corner-R(RE)	Spare Parts							Applicable Inserts
	R	L	H=HF	B	LF	LH	WF	MHD		Clamp	Pipe Connection (with O-ring)	Screw	Spring	Wrench	Shim	Shim Screw	
																	
DDJN R/L 2525M-15JCT	●	●	25	25	150	37	32	126	0.8	CP-4D-R/L-JCT	FP-12	CS-3D-TR	SP-3D	FT-15	*1 DD-44 (DD-43)	SB-4085TR	DN**1504(06)

Please see P.2 for piping parts

DD-43 is not included with the holder. Please purchase separately when a change in insert thickness is needed.

• O-ring (SS-035) is available to order

*1. When using inserts whose corner-R(RE) is greater than 1.6 mm, additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering each other.

*2. SX chipbreaker inserts require a different shim (optional)

● : Standard Stock

Internal Coolant Advantages (Reference)

Coolant Pressure (MPa)	Tool Life	Chip Control	Notes
Normal Pressure ~ 2 (Low Pressure)	Good	—	Longer tool life under 1MPa.
2-7 (Medium Pressure)	Excellent	Good	Longer tool life and excellent chip control
7-15 (High Pressure)	Excellent	Excellent	Fine chip breaking
15-30 (Extra-high Pressure)	Excellent	Excellent	Fine chip breaking. High speed machining for heat-resistant alloys

Internal coolant under low pressure provides improved performance and stable machining

Great for High Pressure Coolant, Toolholder for Shallow Grooving

KGBA-JCT

KGBA-JCT can direct coolant closer to the cutting edge from the top of the insert
Excellent Chip Control and Longer Tool Life

1

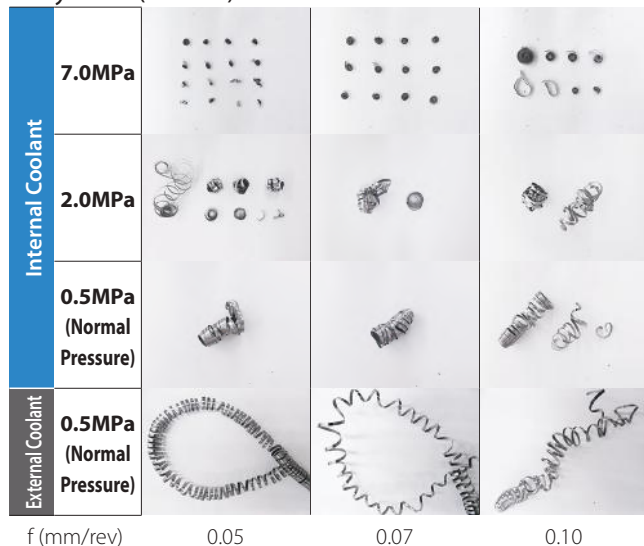
Excellent Chip Control

Ground Chipbreaker

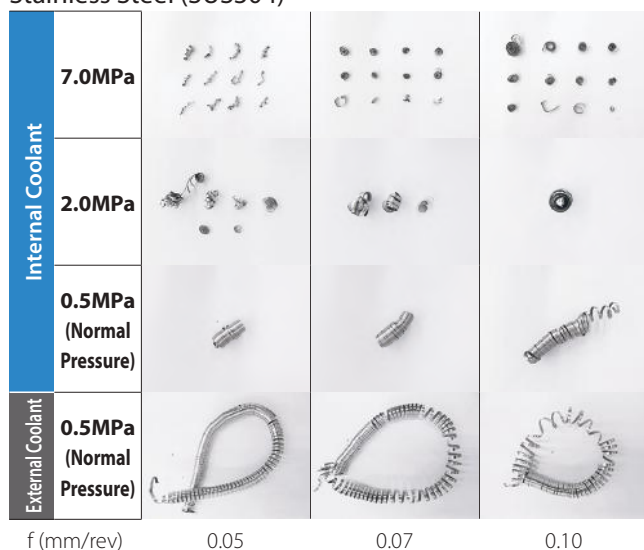
Chip Control Comparison (In-house Evaluation)

Internal Coolant Provides Excellent Chip Control
High-pressure coolant is more effective

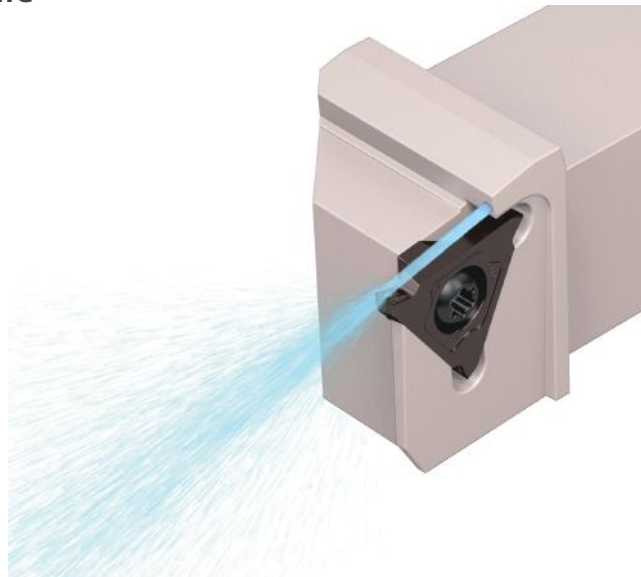
Alloy Steel (SCr420)



Stainless Steel (SUS304)



Cutting Conditions: Vc = 150 m/min (Alloy Steel) / 100 m/min (Stainless Steel),
f = 0.05~0.1 mm/rev, Groove depth = 2 mm, Wet
KGBAR2525K22-15JCT, GBA43R200-020 (PR1215)



Coolant Hole

Coolant is discharged to the cutting edge
Prevents coolant stream spreading which slows the coolant flow

Coolant Direction

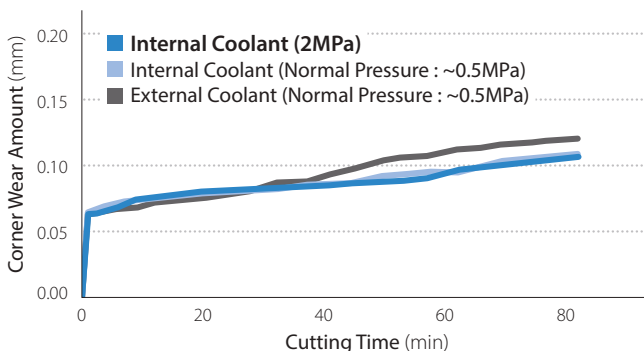
Sufficient coolant between the chipbreaker and the chips
Stable chip curls and sufficient cooling of the insert

2

Superior Cooling Action Improves Tool Life

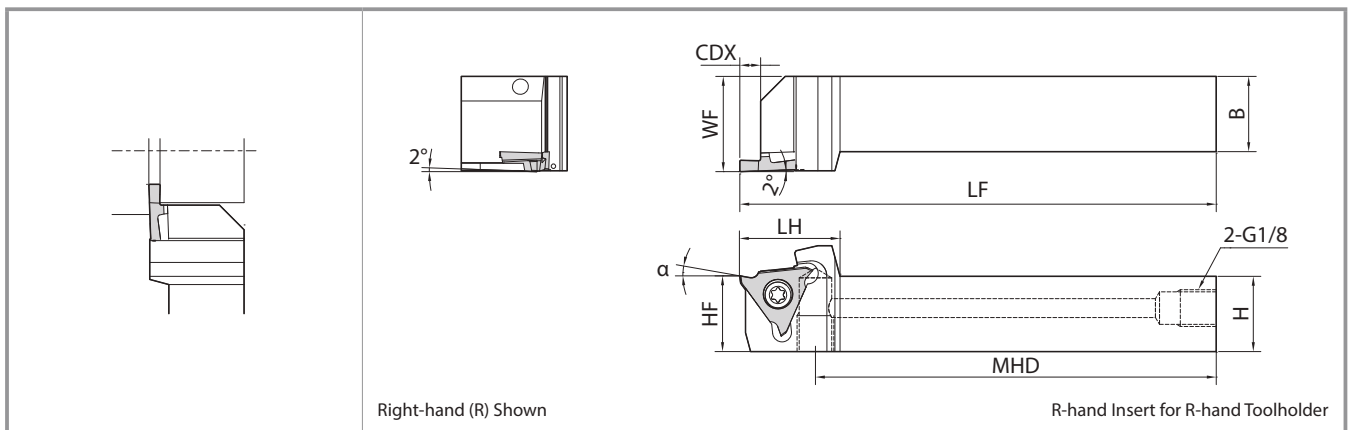
Internal Coolant Provides Better Corner Wear Resistance

Wear Resistance Comparison (In-house Evaluation)



Cutting Conditions: Vc = 150 m/min, f = 0.07 mm/rev, Groove depth = 2 mm, Wet
KGBAR2525K22-15JCT, GBA43R200-020 (PR1215) Workpiece: SCM435

KGBA-JCT (Toolholder for Shallow Grooving)



Toolholder Dimensions

Description	Stock		Dimensions (mm)								Spare Parts				Applicable Inserts						
	R	L	H	HF	B	LF	LH	WF	CDX	MHD	Clamp Screw	Wrench		Plug							
																					
KGBA ^{R/L} 2020K-16JCT	●	●	20	20	20	125	24.0	25	2.5	107.5	SB-4085TR	FT-15	—	HSG1/8x8.0	GBA32 ^{R/L} Type						
2525K-16JCT	●	●	25	25	25			30													
2020K22-15JCT	●	●	20	20	20		26.5	25	4	105	SB-5085TR	—	LTW-20		GBA43 ^{R/L} Type						
2525K22-15JCT	●	●	25	25	25			30													
2020K22-25JCT	●	●	20	20	20			25													
2525K22-25JCT	●	●	25	25	25			30													
2020K22-35JCT	●	●	20	20	20			25	5.5												
2525K22-35JCT	●	●	25	25	25			30													

Please see P.2 for piping parts.

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

KGBA-JCT Toolholder is Screw Clamp Type

Regarding Rake Angle after Installment of GBA (α), please see the KYOCERA general product catalog or GBA brochure

● : Standard Stock

Recommended Grade for Steel

General Purpose : PR1215

(Surface Finish Oriented) : TN620

for Stable Machining : PR1625

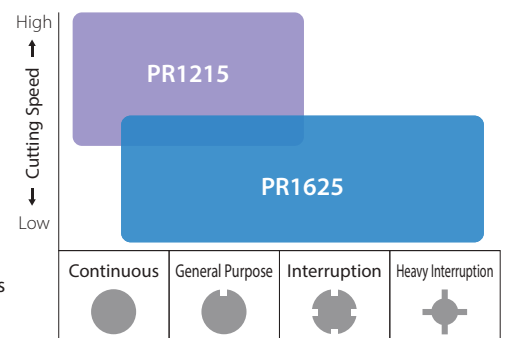
PR1625

NEW



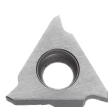
Cemented carbide grade with high stability and MEGACOAT NANO with excellent adhesion resistance provides high toughness and high hardness

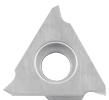
Long tool life is achieved in the interrupted grooving including drum and shaft of transmission engine parts.



Ground Chipbreaker



	P	Carbon Steel / Alloy Steel												
	M	Stainless Steel												
	K	Cast Iron												
	N	Non-ferrous Material												
	S	Titanium Alloy												
	H	Hardened Material (~40HRC)												
Description	Dimensions (mm)			MEGACOAT Cermet	Cermet			MEGACOAT	MEGACOAT NANO	PVD Coated Carbide			Carbide	Applicable Toolholders
	CW	CDX	RE	PV7040	TC40N	TN90	PR1215	PR1625	PR1115	PR905	PR930	KW10		
	Edge Width (W)	Available Grooving Depth	Corner-R											
GBA32 R/L	033-005	0.33	0.8	0.05										
	050-005	0.50	1.0				R							
	050-005		1.2											
	075-005	0.75	2.0				R				R			
	095-005	0.95												
	100-005	1.00									R			
	110-005	1.10									R			
	120-005	1.20												
	125-020	1.25			0.2									
	130-020	1.30												
	140-020	1.40								R				
	145-020	1.45	2.5											
	GBA43 R/L	125-010	1.25	2.0	0.1									
		125-020	3.5	3.5								R		
		140-020		2.0	0.2						R			
		145-020	1.45											
		150-010	1.50	0.1										
		150-020	3.5											
170-020		1.70												
175-020		1.75				R								
185-020		1.85												
195-020		1.95							R					
200-010	2.00	0.1												
200-020	2.00													
225-020	2.25	0.2												
230-020	2.30													
250-010	3.00	0.1												
250-030	2.50		0.3											
	4.0													
	5.0				R									
265-030	2.65	4.0	0.3											
280-030	2.80	5.0			R									
	300-010	3.00	0.1							R				
		4.0												
300-030	3.00	5.0	0.3							R				
325-030	3.25								R					
330-030	3.30	4.0								R				
350-010	3.50	5.0	0.1											
350-030	4.00			0.3										
400-010					0.1									
400-040	0.4													
430-040						R				R				
450-040				4.50		R								
480-040		4.80			R									

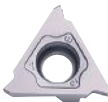
Ground Chipbreaker Sharp Edge Type 	P	Carbon Steel / Alloy Steel	●				
	M	Stainless Steel					
	K	Cast Iron					
	N	Non-ferrous Material					
	S	Titanium Alloy					
	H	Hardened Material (~40HRC)					
Description				Dimensions (mm)		Cermet	Applicable Toolholders
				CW	CDX		
		Edge Width (W)	Available Grooving Depth	Corner-R	TN620		
GBA32 R/L	050-005F	0.50	1.0	0.05	●	1	
	075-005F	0.75	2.0		●		
	095-005F	0.95			●		
	100-005F	1.00			●		
	125-020F	1.25		0.2	●		
	145-020F	1.45	●				
	150-020F	1.50	●				
	175-020F	1.75	●				
200-020F	2.00	2.5	●				
250-020F	2.50		●				
GBA43 R/L	125-020F	1.25	2.0	0.2	●	2	
	145-020F	1.45			●		
	150-020F	1.50			●		
	175-020F	1.75			●		
	185-020F	1.85	3.5		●		
	200-020F	2.00			●		
	230-020F	2.30			●		
	250-030F	2.50			●		
	265-030F	2.65	4.0	0.3	●	3	
	280-030F	2.80			●		
	300-030F	3.00			●		
	330-030F	3.30			●		
	350-030F	3.50	5.0		0.4		●
	400-040F	4.00		R			
430-040F	4.30	R					
450-040F	4.50	R					
480-040F	4.80						

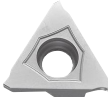
1: KGBAR ... 16 JCT Type
2: KGBA^{R/L} ... 22-15 JCT Type
3: KGBA^{R/L} ... 22-25 JCT Type
4: KGBA^{R/L} ... 22-35 JCT Type

For more details on cutting conditions, please see the KYOCERA general product catalog or GBA brochure

KGBA-JCT Applicable Inserts

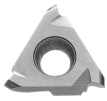
Molded Chipbreaker

Molded Chipbreaker GM Chipbreaker	 GM Chipbreaker 	P	Carbon Steel / Alloy Steel	●	●	●		
		M	Stainless Steel		●	●		
		K	Cast Iron		●			
		N	Non-ferrous Material					
		S	Titanium Alloy					
		H	Hardened Material (~40HRC)		●			
Description	Dimensions (mm)			Cermet	MEGACOAT	MEGACOAT NANO	Applicable toolholders	
	CW	CDX	RE					
	Edge Width (W)	Available Grooving Depth	Corner-R					
GBA43 R/L	140-010GM	1.40	3.5	0.1	●	●		2
	150-020GM	1.50		0.2	●	●	●	
	175-020GM	1.75			●	●		
	185-020GM	1.85			●	●		
	200-020GM	2.00			●	●	●	
	230-020GM	2.30			●	●		
	250-030GM	2.50	5.0		0.3	●	●	●
	265-030GM	2.65		●		●		
	300-030GM	3.00		●		●	●	
	330-030GM	3.30		●		●		
	350-030GM	3.50		●		●		
	400-040GM	4.00		0.4		●	●	●

Molded Chipbreaker MY Chipbreaker				P Carbon Steel / Alloy Steel						
				M Stainless Steel						
				K Cast Iron						
				N Non-ferrous Material						
				S Titanium Alloy						
				H Hardened Material (~40HRC)						
Description				Dimensions (mm)			Cermet	MEGACOAT	PVD Coated Carbide	Applicable Toolholders
				CW	CDX	RE				
				Edge Width (W)	Available Grooving Depth	Corner-R				
GBA43 R/L	175-020MY	1.75	3.5	0.2				2		
	185-020MY	1.85								
	200-020MY	2.00								
	230-020MY	2.30								
		250-030MY	2.50	4.0	0.3				3	
	250-030MY	5.0								
	265-030MY	2.65	4.0							
	265-030MY	5.0					R			
	300-030MY	3.00	4.0							
	300-030MY	5.0								
	330-030MY	3.30	4.0	R						
	330-030MY	5.0					R			
	350-030MY	3.50	5.0	0.4				4		
	400-040MY	4.00								

Full-R

Full-R



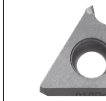
NEW

Description	Dimensions (mm)			MEGACOAT Cermet	Cermet	MEGACOAT	MEGACOAT NANO	PVD Coated Carbide	Carbide	Applicable Toolholders
	CW	CDX	RE							
	Edge Width (W)	Available Grooving Depth	Corner-R							
GBA32R	200-100R	2.00	1.00							1
	300-150R	3.00	1.50			R	R			
GBA43 R/L	100-050R	1.00	0.50	●	●	●	●		●	2
	150-075R	1.50	0.75	●	●	●	●	R	●	
	200-100R	2.00	1.00	●	●	●	●	●	●	
	250-125R	2.50	1.25	●	●	●	●	●	●	
	300-150R	3.00	1.50	●	●	●	●	●	●	
GBA43 R/L	400-200R	4.00	2.00		R	●			●	4
	100-050RF	1.00	0.50	●						
	150-075RF	1.50	0.75	●						
	200-100RF	2.00	1.00	●						
	250-125RF	2.50	1.25	●						
GBA43 R/L	300-150RF	3.00	1.50	●						3
	400-200RF	4.00	2.00		R					

GBA43 R/L ...RF: Sharp Edge Type

CBN / PCD

1-Edge (CBN / PCD)



Description	Dimensions (mm)			CBN	PCD	Applicable Toolholders
	CW	CDX	RE			
	Edge Width (W)	Available Grooving Depth	Corner-R			
GBA32R	125-010	1.25	0.1		R	1
	150-010	1.50	0.1		R	
GBA43 R/L	125-010	1.25	0.1		●	2
	125-020	2.0	0.2	R	●	
	150-010	1.50	0.1		●	
	150-020	3.5	0.2	●	●	
	200-010	2.00	0.1		●	
	200-020	2.0	0.2	●	●	
	250-010	2.50	0.1		●	
	250-020	4.0	0.2	●	●	
	300-010	3.00	0.1		●	
	300-020	3.00	0.2	●	●	

Applicable Toolholders

- 1: KGBAR ... 16 JCT Type
- 2: KGBA R/L ... 22-15 JCT Type
- 3: KGBA R/L ... 22-25 JCT Type
- 4: KGBA R/L ... 22-35 JCT Type

For more details on cutting conditions, please see the KYOCERA general product catalog or GBA brochure
● : Standard Stock R: Standard Stock (Right-hand Only)

Great for High Pressure Coolant, Toolholder for External Grooving and Cut-off

KGD-JCT

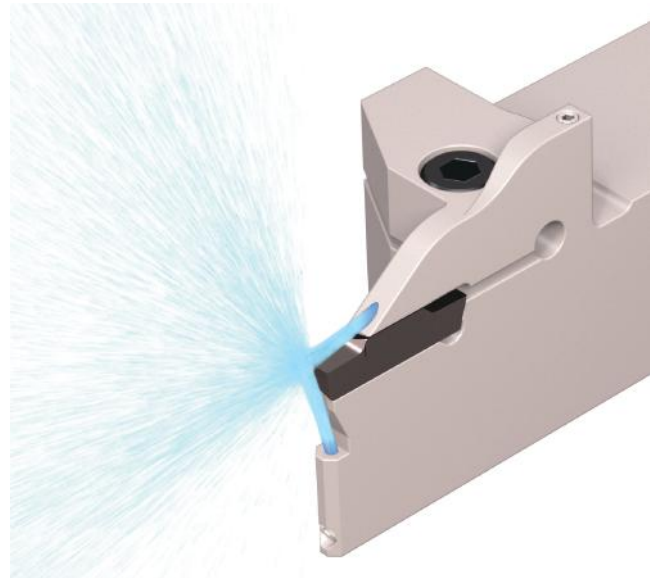
Coolant is Directed from the Rake Surface and the Flank Face of the Insert

Improved Chip Control and Longer Tool Life for External Grooving and Cutting-off

Discharges Coolant in Two Directions

Discharges coolant in two directions toward both the rake surface and the flank face of the insert

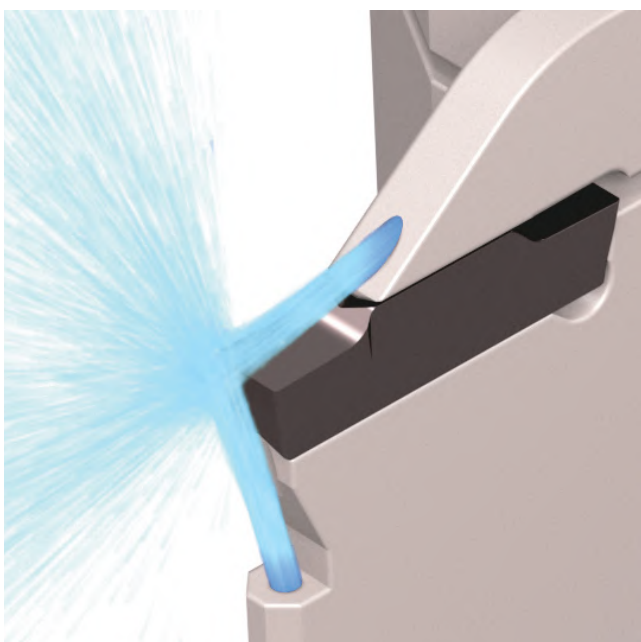
Excellent Chip Control and Long Tool Life



1 Superior Chip Control Performance

Coolant towards the rake face

Coolant hole position and angle improve chip control



Chip Control Comparison (In-house Evaluation)

KGD-JCT showed better chip control performance even at lower feed rates

$f = 0.05 \text{ mm/rev}$ (1.5MPa)



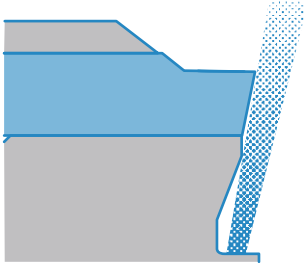
Cutting Conditions: $V_c = 150 \text{ m/min}$, $f = 0.05 \text{ mm/rev}$, $d = 8 \text{ mm}$, Wet
Edge Width 4 mm Workpiece: SCM415 Grooving

2

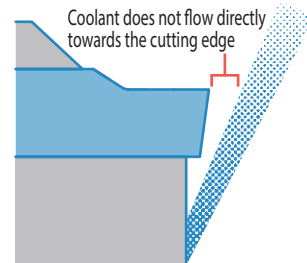
Cooling the Cutting Edge Leads to Longer Tool Life

Coolant towards the rake surface and the flank face of the insert
Directing coolant towards the cutting edge lengthens tool life

KGD-JCT



Competitor E

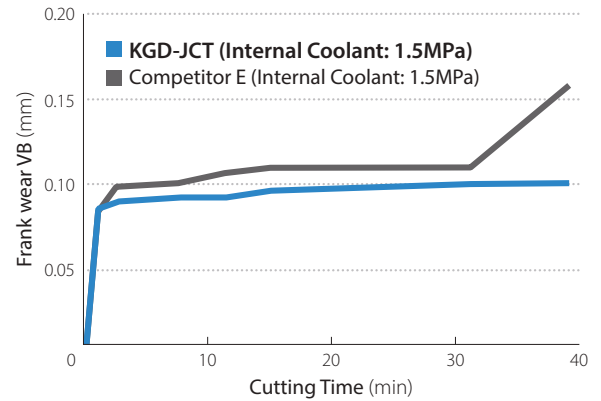


After Machining 39 min



Defect

Wear Resistance Comparison (In-house Evaluation)



Cutting Conditions: $V_c = 180$ m/min, $f = 0.15$ mm/rev, $d = 9$ mm, Wet
Edge Width 4 mm Workpiece: SCM415 Grooving

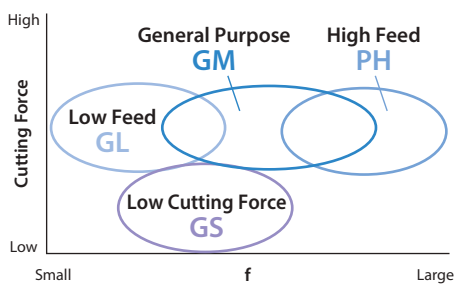
KGD-JCT Minimizes Wear and Provides Longer Tool Life without Insert Fracturing

3

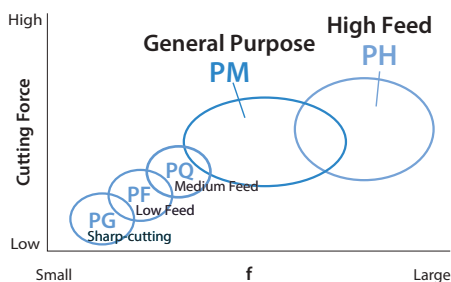
Large Chipbreaker Lineup for Various Machining Applications

Application Maps

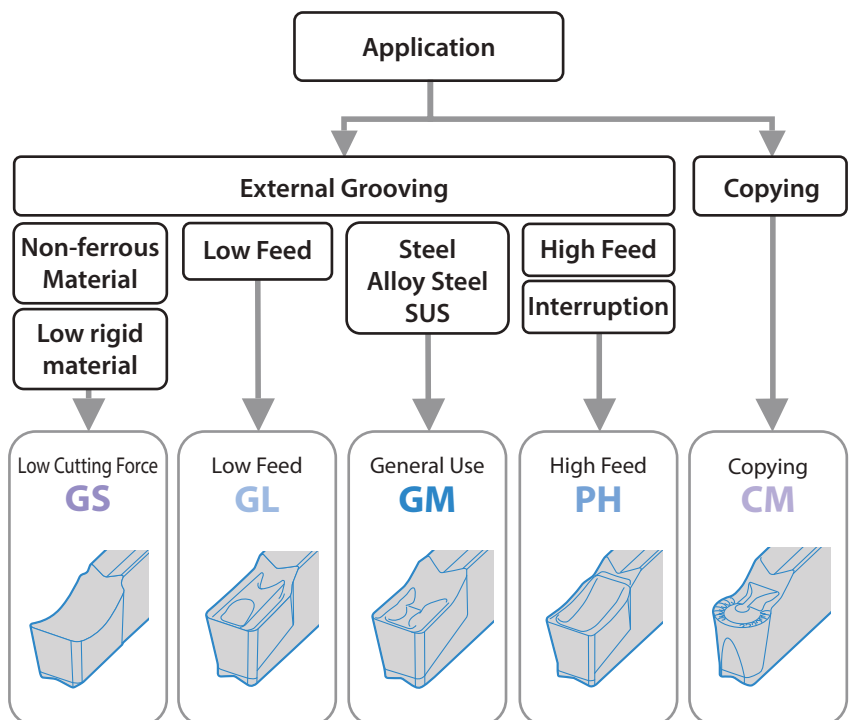
External Grooving and Traversing



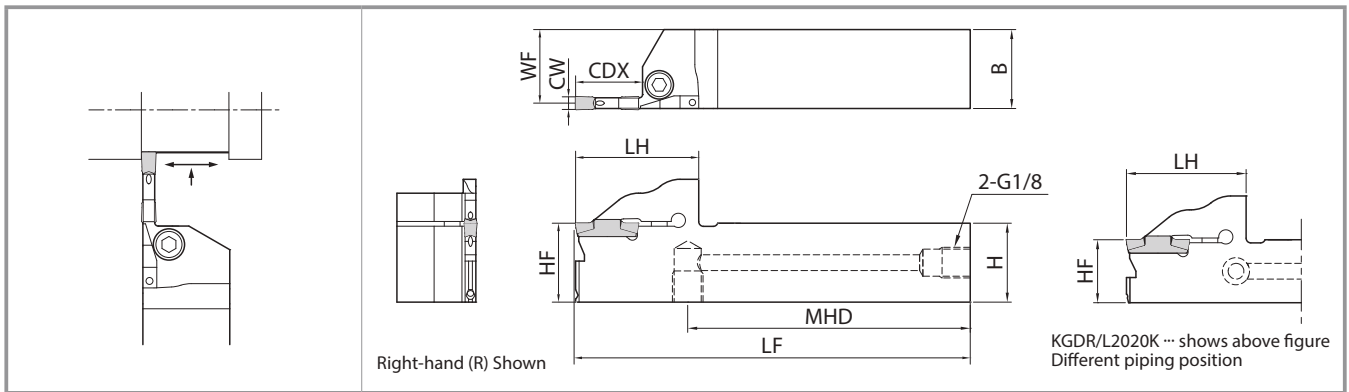
Cut-off



Chipbreaker Selection (External)



KGD-JCT (External Grooving / Cut-Off)



Toolholder Dimensions

Pressure Resistance: ~ 15MPa

Groove Widths (mm)	Max. Grooving Depth (mm)	Description	Stock		Dimensions (mm)							Edge Width CW (mm)		Spare Parts		
			R	L	H=HF	B	LF	LH	WF	CDX	MHD	MIN.	MAX.	Arbor Bolt	Wrench	Plug
3	6	KGD R/L 2020K-3T06JCT	●	●	20	20	125	31.5	18.8	6	96.2	3.0	4.0	HH5X16	LW-4	HSG1/8X8.0
		2525K-3T06JCT	●	●	25	25			23.8		96.5			HH5X25		
	10	2020K-3T10JCT	●	●	20	20		34.0	18.8	10	94.2			HH5X16		
		2525K-3T10JCT	●	●	25	25			23.8		94.5			HH5X25		
	20	2020K-3T20JCT	●	●	20	20		38.0	18.8	20	90.2			HH5X16		
		2525K-3T20JCT	●	●	25	25			23.8		89.5			HH5X25		
4	10	KGD R/L 2020K-4T10JCT	●	●	20	20	125	34.0	18.3	10	94.2	4.0	5.0	HH5X16	LW-4	HSG1/8X8.0
		2525K-4T10JCT	●	●	25	25			23.3		94.5			HH5X25		
	20	KGD R/L 2020K-4T20JCT	●	●	20	20		38.0	18.3	20	90.2			HH5X16		
		2525K-4T20JCT	●	●	25	25			23.3		89.5			HH5X25		
	25	KGD R/L 2525K-4T25JCT	●	●	25	25		44.0	23.3	25	84.5			HH5X25		
			●	●												

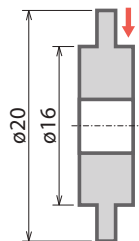
Please see P.2 for piping parts.

● : Standard Stock

Case Studies

Ring SCr415-equivalent

Vc = 160 m/min
(n = 3,200 min⁻¹)
ap = 2.5 mm
f = 0.07 mm/rev
Wet, Normal Pressure
KGDR2020K-3T10JCT
GDM3020M-025PM PR1225



Tool Life

KGD-JCT
(Internal Coolant) **9,000 pcs / edge**

Competitor H
(External Coolant) **6,000 pcs / edge**

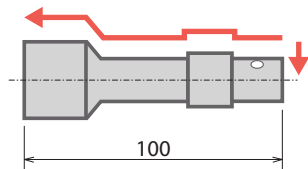
Change to KGD-JCT (internal coolant) from Competitor H (external coolant) extended tool life by 1.5 times.

(User evaluation)

Tool Life
x1.5

Valve SUM-equivalent

Vc = 160 m/min
ap = 14 mm
f = 0.12-0.15 mm/rev
Wet, Normal Pressure
KGDR2525K-3T20JCT
GDM3020M-040GM PR1535



Tool Life

KGD-JCT
(Internal Coolant) **1,000 pcs / edge**

Competitor I
(Internal Coolant) **1,000 pcs / edge**

KGD-JCT maintained stable machining for the required number of pieces
Better chip control and surface finish.

(User evaluation)

Chip Control
Good

Surface Finish
Good

KGD-JCT Applicable Inserts

External Grooving / Turning

Usage Classification		P	Carbon Steel / Alloy Steel	●	○	☺	☹	
		M	Stainless Steel			☺	☹	
☺: Light Interruption / 1st Choice		K	Cast Iron				☺	
☹: Light Interruption / 2nd Choice		N	Non-ferrous Material					☺
●: Continuous / 1st Choice		S	Titanium Alloy			☺		☹
○: Continuous / 2nd Choice		H	Hardened Material (~ 40HRC)			○		
			Hardened Material (40HRC ~)					
Shape	Description	Dimensions (mm)		Cermat		MEGA COAT NANO	MEGACOAT	Carbide
		Edge Width (CW)	re	TN620	TN90	PR1535	PR1225	PR1215
External Grooving and Turning	General Purpose	3.0	0.2	●	●	●	●	●
			0.4	●	●	●	●	●
		4.0	0.2	●	●	●	●	●
			0.4	●	●	●	●	●
		5.0	0.4	●	●	●	●	●
			0.8	●	●	●	●	●
	General Use 1-edge	3.0	0.4	●	●	●	●	●
		4.0	0.4	●	●	●	●	●
		5.0	0.8	●	●	●	●	●
	Low Feed	3.0	0.2	●	●	●	●	●
			0.4	●	●	●	●	●
		4.0	0.2	●	●	●	●	●
			0.4	●	●	●	●	●
Grooving	Wiper Edge	3.0	0.2	●	●	●	●	●
		3.5	0.2	●	●	●	●	●
		4.0	0.4	●	●	●	●	●
		5.0	0.4	●	●	●	●	●
Full-R / Copying		3.0	1.5	●	●	●	●	●
		4.0	2.0	●	●	●	●	●
		5.0	2.5	●	●	●	●	●
Grooving and Cut-Off (High Feed)		3.0	0.3			●	●	●
		4.0	0.3			●	●	●
	1-edge	3.0	0.3			●	●	●
		4.0	0.3			●	●	●

Inserts are sold in 10 piece boxes

Cut-Off

Usage Classification		P	Carbon Steel / Alloy Steel	☺	☹	☺		
☺: Light Interruption / 1st Choice		M	Stainless Steel	☺	☹	☺		
☹: Light Interruption / 2nd Choice		N	Non-ferrous Material				☺	☹
●: Continuous / 1st Choice							☺	☹
○: Continuous / 2nd Choice							☺	☹
Shape	Description	Dimensions (mm)		MEGA COAT NANO	MEGACOAT	DLC Coated Carbide	Carbide	
		Edge Width (CW)	re	PR1535	PR1225	PR1215	PDL025	GW15
Cut-off	Handed Insert shows Right-hand	3.0	0.25	●	●	●		
		4.0	0.3	●	●	●		
	6° Lead Angle	3.0	0.25	R	R	R		
		4.0	0.3	●	●	●		
	1-edge	3.0	0.25	●	●	●		
		4.0	0.3	●	●	●		
	6° Lead Angle 1-edge	3.0	0.25	R	R	R		
		4.0	0.3	R	R	R		
	Cut-Off (Low Feed)	3.0	0.03	●	●	●		
		4.0	0.15	●	●	●		
Cut-Off (Medium Feed)	15° Lead Angle	3.0	0.03	●	●	●		
		4.0	0.15	R	R	R		
		3.0	0.1	●	●	●		
		4.0	0.1	R	R	R		
	15° Lead Angle	3.0	0.1	●	●	●		
		4.0	0.1	R	R	R		
	Cut-Off (Low Cutting Force)	3.0	0.05	●	●	●	●	●
		4.0	0.05	R	R	R	R	R
	15° Lead Angle	3.0	0.05	●	●	●	●	●
		4.0	0.05	R	R	R	R	R

Inserts are sold in 10 piece boxes

(CBN / PCD)

Usage Classification		N	Non-ferrous Material			●
		S	Titanium Alloy			●
☺: Light Interruption / 1st Choice		H	Hardened Material (~ 40HRC)			
☹: Light Interruption / 2nd Choice			Hardened Material (40HRC ~)	●		
●: Continuous / 1st Choice			Sintered Steel		●	
Shape	Description	Dimensions (mm)		MEGA COAT CBN	CBN	PCD
		Edge Width (CW)	re	KBNO5M	KBNS70	KPD001
Grooving	1-edge	3.0	0.2			●
			0.4	●	●	
		4.0	0.2			●
			0.4	●	●	
		5.0	0.2			●
			0.4	●	●	
		5.0	0.2			●
			0.4	●	●	

CBN & PCD Inserts are sold in 1 piece boxes

For more details on cutting conditions, see the KYOCERA general product catalog or KGD/KGDF brochure

●: Standard Stock R: Standard Stock (Right-hand Only)

Great for High Pressure Coolant, Threading Toolholder

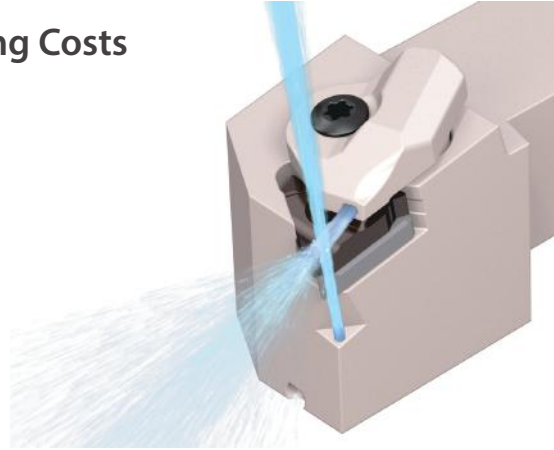
KTN-JCT

New Threading Toolholder

Double Coolant Holes Reduces Defects and Lengthens Tool Life

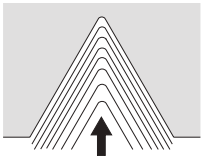
1 Improved Tool Life Lowers Machining Costs

Coolant flows from the top of the clamp
Efficient cooling of the cutting edge prevents wear

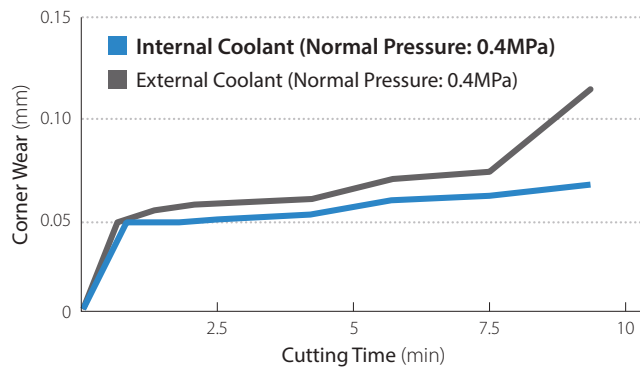


Wear Resistance Comparison of Internal vs. External Coolant (In-house evaluations)

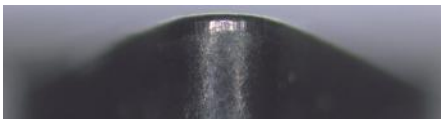
Radial Infeed



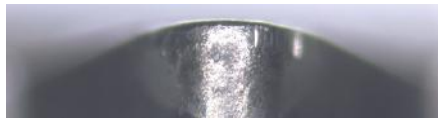
Cutting Conditions: $V_c = 150$ m/min
16ER150ISO-TQ (PR1215)
Workpiece: SCM435



Internal Coolant (Normal Pressure: 0.4MPa)



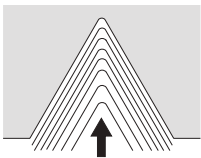
External Coolant (Normal Pressure: 0.4MPa)



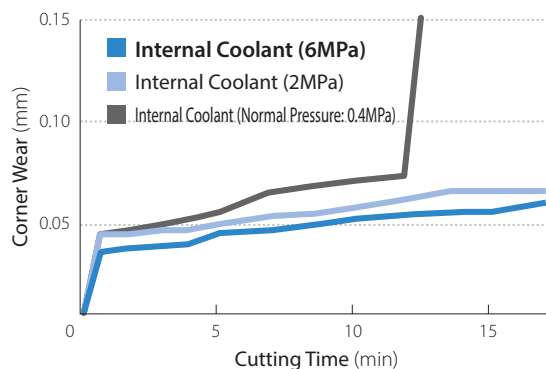
Switching to the KTN-JCT with internal coolant lengthens tool life

Wear Resistance Comparison at Different Pressures (In-house evaluation)

Radial Infeed



Cutting Conditions: $V_c = 150$ m/min
16ER150ISO-TQ (PR1215)
Workpiece: SCM435

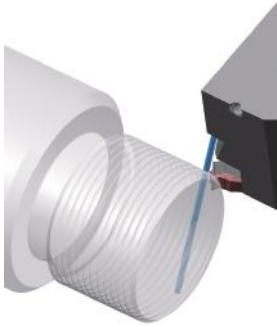


The higher the coolant pressure, the more efficient the wear resistance will be

2 Prevents Chip Recutting

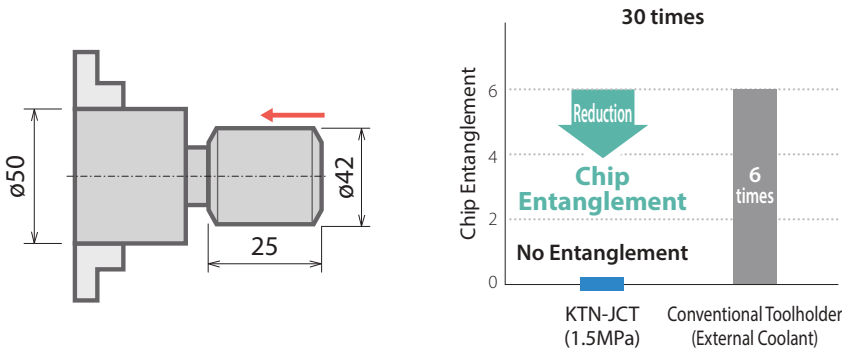
Coolant from the flank face of the insert smoothly evacuates chips away from the cutting edge
Reduced chip clogging

* Coolant from the flank face does not flow directly to the cutting edge.



Chip Evacuation Comparison (In-house evaluation)

Cutting Conditions: $V_c = 150 \text{ m/min}$ 16ER150ISO Type (PR1215) Workpiece: SCM435, Radial Infeed



(Chip Entanglement Example)



KTN-JCT prevents chip entanglement by directing the chips downward

Internal Coolant Advantages (Reference)

Tool life is increased using internal coolant

Items	Workpiece	Advantages to External Coolant
Tool Life	Steel	Better Wear Resistance
	Stainless Steel	Lower Cutting Resistance
Chip Evacuation	Steel	Prevents chip entanglement with 1.5Mpa or higher
Chip Control	Steel	Breaks chips with 6Mpa or higher
	Stainless Steel	

* To prevent chip entanglement, 1.5MPa or higher is recommended. (Steel)

* For chip breaking, high pressure coolant is recommended. (6MPa or higher for Steel and Stainless Steel)

Case Studies

Arbor Bolt Free Cutting Steel

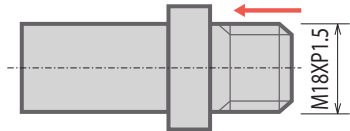
$n = 2,700 \text{ min}^{-1}$ ($V_c = 145 \text{ m/min}$)
 Number of pass: 7, Radial Infeed, Wet (Water Soluble)
 KTNR2020K-16-JCT, 16ER150ISO Type

Tool Life (1,250 pcs/edge)

KTN-JCT Toolholder (Internal Coolant: Normal Pressure)



Good



Competitor Toolholder J (External Coolant: Normal Pressure)

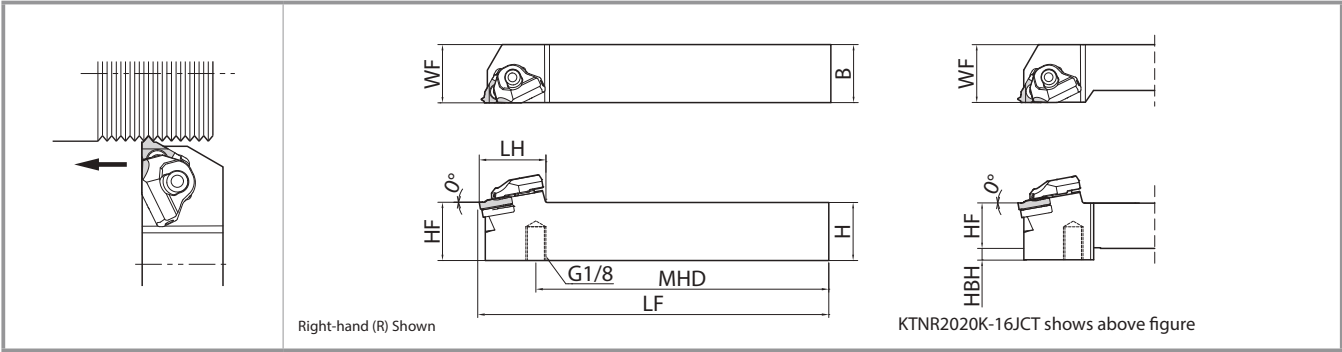


Burned chip

KTN-JCT could extend tool life with less wear than competitors. Also improved chip control and reduced fracturing.

(User evaluation)

KTN-JCT (Threading)



Toolholder Dimensions

Pressure Resistance: ~ 15MPa

Description		Stock		Dimensions (mm)						Spare Parts					Applicable Inserts	
										Clamp Set	Pipe Connection (with O-ring)	Wrench	Shim	Shim Screw		
		R	L	H=HF	HBH	B	WF	LF	LH	MHD						
KTNR	2020K-16JCT	●		20	5	20	25	125	33.3	100.7	CPS-5S-R-JCT	FP-12	FT-15	TN-32	SP3X8	16ER...
	2525M-16JCT	●		25	-	25	25	150	-	125.7						

Please see P2 for piping parts
 • O-ring (SS-035) is available to order

● : Standard Stock

Threading Insert with Molded Chipbreaker

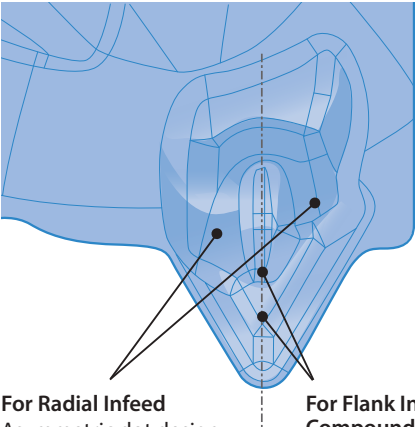
TQ Chipbreaker

Improved Chip Control with Molded Chipbreaker
 Combination with KTN-JCT for Greater Productivity



Chipbreaker Geometry

Stable chip control regardless of cutting direction

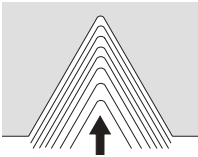


For Radial Infeed
 Asymmetric dot design controls chip-flow direction

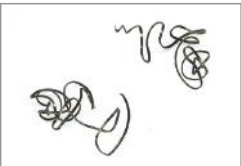
For Flank Infeed / Flank Compound Infeed
 Breaks chips easily with shallow breaker depth

Chip Control Comparison (In-house Evaluation)

Radial Infeed

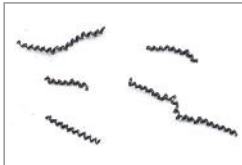
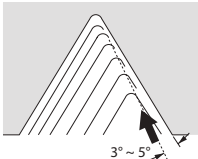


TQ Chipbreaker

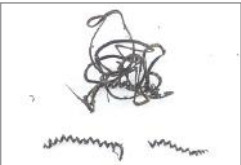


Competitor K

Flank Compound Infeed



TQ Chipbreaker



Competitor K

Cutting Conditions: Vc = 150 m/min, ap = 0.12 mm (4th Pass), L = 25 mm, Wet, 16ER150ISO Type M45 x P1.5 Workpiece: SCM415

KTN-JCT Applicable Inserts

Wiper Edge

Metric (M) 60° Full Profile

Usage Classification ● : 1st Choice ○ : 2nd Choice		P	Carbon Steel / Alloy Steel		●					
		M	Stainless Steel			●	○			
		K	Cast Iron							●
		N	Non-ferrous Material							●
Description		Applicable Thread	Pitch		Cermat		MEGACOAT MEGACOAT NANO		PVD Coated Carbide	Carbide
			mm	TPI	TC60M	PR1215	PR1515	PR1535	PR1115	GW15
					R	R	R	R	R	L R
16ER	100ISO-TF	M	1.0			●	●	●	○	
	125ISO-TF		1.25			●	●	●	○	
	150ISO-TF		1.5			●	●	●	○	
	175ISO-TF		1.75			●	●	●	○	
	200ISO-TF		2.0			●	●	●	○	
	250ISO-TF		2.5			●	●	●	○	
	300ISO-TF		3.0			●	●	●	○	
	16E ^{R/L} 050ISO	M	0.5		●				●	●
	075ISO		0.75		●				●	●
	100ISO		1.0		●				●	●
	125ISO		1.25		●				●	●
	150ISO		1.5		●				●	●
	175ISO		1.75		●				●	●
	200ISO		2.0		●				●	●
	250ISO		2.5		●				●	●
With Chipbreaker	16ER 100ISO-TQ	M	1.0			●	●	●		
	125ISO-TQ		1.25			●	●	●		
	150ISO-TQ		1.5			●	●	●		
	175ISO-TQ		1.75			●	●	●		
	200ISO-TQ		2.0			●	●	●		
	250ISO-TQ		2.5			●	●	●		
	300ISO-TQ		3.0			●	●	●		

Parallel Pipe [G(PF)] Whitworth (W) 55° Full Profile

Usage Classification ● : 1st Choice ○ : 2nd Choice		P	Carbon Steel / Alloy Steel		●					
		M	Stainless Steel			●	○			
		K	Cast Iron							●
		N	Non-ferrous Material							●
Description		Applicable Thread	Pitch		Cermat		MEGACOAT MEGACOAT NANO		PVD Coated Carbide	Carbide
			G(PF)	W	TC60M	PR1215	PR1515	PR1535	PR1115	GW15
			TPI		R	R	R	R	R	L R
16ER	19W-TF	G(PF)	19	-		●	●	●	○	
	16W-TF		-	16		●	●	●	○	
	14W-TF		14	14		●	●	●	○	
	11W-TF		11	11		●	●	●	○	
16ER	19W	W	19	-	●				●	
	14W		14	14	●				●	
	11W		11	11	●				●	
With Chipbreaker	16ER 19W-TQ	W	19	-		●	●	●		
	16W-TQ		-	16		●	●	●		
	14W-TQ		14	14		●	●	●		
	11W-TQ		11	11		●	●	●		

American National Tapered Pipe (NPT) Full Profile 60°

Usage Classification ● : 1st Choice ○ : 2nd Choice		P	Carbon Steel / Alloy Steel		●					
		M	Stainless Steel			●				
		K	Cast Iron							●
		N	Non-ferrous Material							●
Description		Applicable Thread	Pitch		Cermat		MEGACOAT MEGACOAT NANO		PVD Coated Carbide	Carbide
			mm	TPI	TC60M	PR1215	PR1515	PR1535	PR1115	GW15
					R	R	R	R	R	L R
16ER	18NPT	NPT	-	18	●				●	●
	14NPT		-	14	●				●	●
	11.5NPT		-	11.5	●				●	●

Unified (UN) 60° Full Profile

Usage Classification ● : 1st Choice ○ : 2nd Choice		P	Carbon Steel / Alloy Steel		●					
		M	Stainless Steel			●	○			
		K	Cast Iron							●
		N	Non-ferrous Material							●
Description		Applicable Thread	Pitch		Cermat		MEGACOAT MEGACOAT NANO		PVD Coated Carbide	Carbide
			mm	TPI	TC60M	PR1215	PR1515	PR1535	PR1115	GW15
					R	R	R	R	R	L R
16ER	24UN-TF	UN	24			●	●	●	○	
	20UN-TF		20			●	●	●	○	
	18UN-TF		18			●	●	●	○	
	16UN-TF		16			●	●	●	○	
	14UN-TF		14			●	●	●	○	
	13UN-TF		13			●	●	●	○	
	12UN-TF		12			●	●	●	○	
	10UN-TF		10			●	●	●	○	
	08UN-TF		8			●	●	●	○	
	24UN		24		●				●	
	20UN		20		●				●	
	18UN		18		●				●	
	16UN		16		●				●	
	14UN		14		●				●	
	12UN		12		●				●	
With Chipbreaker	24UN-TQ	UN	24			●	●	●		
	20UN-TQ		20			●	●	●		
	18UN-TQ		18			●	●	●		
	16UN-TQ		16			●	●	●		
	14UN-TQ		14			●	●	●		
	13UN-TQ		13			●	●	●		
	12UN-TQ		12			●	●	●		
	10UN-TQ		10			●	●	●		
	08UN-TQ		8			●	●	●		

Tapered Pipe [R(PT), (BSPT)] 55° Full Profile

Usage Classification ● : 1st Choice ○ : 2nd Choice		P	Carbon Steel / Alloy Steel		●					
		M	Stainless Steel			●	○			
		K	Cast Iron							●
		N	Non-ferrous Material							●
Description		Applicable Thread	Pitch		Cermat		MEGACOAT MEGACOAT NANO		PVD Coated Carbide	Carbide
			mm	TPI	TC60M	PR1215	PR1515	PR1535	PR1115	GW15
					R	R	R	R	R	L R
16ER	28BSPT-TF	R(PT)	28			●	●	●	○	
	19BSPT-TF		19			●	●	●	○	
	14BSPT-TF		14			●	●	●	○	
	11BSPT-TF		11			●	●	●	○	
16ER	28BSPT	(BSPT)	28		●				●	●
	19BSPT		19		●				●	●
	14BSPT		14		●				●	●
	11BSPT		11		●				●	●
With Chipbreaker	28BSPT-TQ	R(PT)	28			●	●	●		
	19BSPT-TQ		19			●	●	●		
	14BSPT-TQ		14			●	●	●		
	11BSPT-TQ		11			●	●	●		

TC60M (Threading) are sold in 10 piece boxes.
Others are sold in 5 piece boxes.

16ER -TQ: With Chipbreaker
-TF: Without Chipbreaker
(TF Cutting Edge)
w/o Indication: Without Chipbreaker

● : Standard Stock
○ : Check Availability

KTN-JCT Applicable Inserts

Partial Profile

60° Type
Metric (M), Unified (UN)
60° Partial Profile

Usage Classification ● : 1st Choice ○ : 2nd Choice	P	Carbon Steel / Alloy Steel			●					
	M	Stainless Steel				●	○			
	K	Cast Iron								●
	N	Non-ferrous Material								●
Description	Applicable Thread	Pitch		Cermet	MEGACOAT MEGACOAT NANO			PVD Coated Carbide	Carbide	
		mm	TPI	TC60M	PR1215	PR1515	PR1535	PR1115	GW15	
				R	R	R	R	R	R	
16ER A60-TF	M	0.5 ~ 1.5	48 ~ 16		●	●	●	○		
		1.75 ~ 3	14 ~ 8		●	●	●	○		
		0.5 ~ 3	48 ~ 8		●	●	●	○		
16ER A60	M	0.5 ~ 1.5	48 ~ 16							●
		1.75 ~ 3	14 ~ 8							●
		0.5 ~ 3	48 ~ 8							●
16ER 6001	UNF	1.0 ~ 2.5	24 ~ 11	●						
		1.5 ~ 2.5	16 ~ 11	●						
		0.5 ~ 1.5	48 ~ 16		●	●	●			
16ER A60-TQ	M	0.5 ~ 1.5	48 ~ 16		●	●	●			
		1.75 ~ 3	14 ~ 8		●	●	●			
		0.5 ~ 3	48 ~ 8		●	●	●			

55° Type
Parallel Pipe [G(PF)], Tapered Pipe [R(PT), (BSPT)],
Whitworth[(W)] 55° Partial Profile

Usage Classification ● : 1st Choice ○ : 2nd Choice	P	Carbon Steel / Alloy Steel			●					
	M	Stainless Steel				●	○			
	K	Cast Iron								●
	N	Non-ferrous Material								●
Description	Applicable Thread	Pitch		Cermet	MEGACOAT MEGACOAT NANO			PVD Coated Carbide	Carbide	
		G(PF) R(PT)	W	TC60M	PR1215	PR1515	PR1535	PR1115	GW15	
			TPI	R	R	R	R	R	R	
16ER A55-TF	G(PF)	28, 19	40 ~ 16		●	●	●	○		
		14, 11	14 ~ 8		●	●	●	○		
		28 ~ 11	40 ~ 8		●	●	●	○		
16ER A55	R(PT)	28, 19	40 ~ 16							●
		14, 11	14 ~ 8							●
		28 ~ 11	40 ~ 8							●
16ER 5501	W	28 ~ 11	24 ~ 10	●						
		14, 11	16 ~ 9	●						
		28, 19	40 ~ 16		●	●	●			
16ER A55-TQ	M	14, 11	14 ~ 8		●	●	●			
		28 ~ 11	40 ~ 8		●	●	●			
		28 ~ 11	40 ~ 8		●	●	●			

30° Trapezoidal (Tr)
Partial Profile 30°

Usage Classification ● : 1st Choice ○ : 2nd Choice	P	Carbon Steel / Alloy Steel							●	
	M	Stainless Steel							●	
	K	Cast Iron								
	N	Non-ferrous Material								
Description	Applicable Thread	Pitch		Cermet	MEGACOAT MEGACOAT NANO			PVD Coated Carbide	Carbide	
		mm	TPI	TC60M	PR1215	PR1515	PR1535	PR1115	GW15	
				R	R	R	R	R	R	
16ER 200TR	Tr	2.0	-	●				●		
		3.0	-	●				●		

TC60M (Threading) are sold in 10 piece boxes.
Other inserts are sold in 5 piece boxes

16ER-TQ: With Chipbreaker
-TF: Without Chipbreaker
(TF Cutting Edge)
w/o Indication: Without Chipbreaker

For more details on the cutting conditions, see the KYOCERA general product catalog.

● : Standard Stock
○ : Check Availability