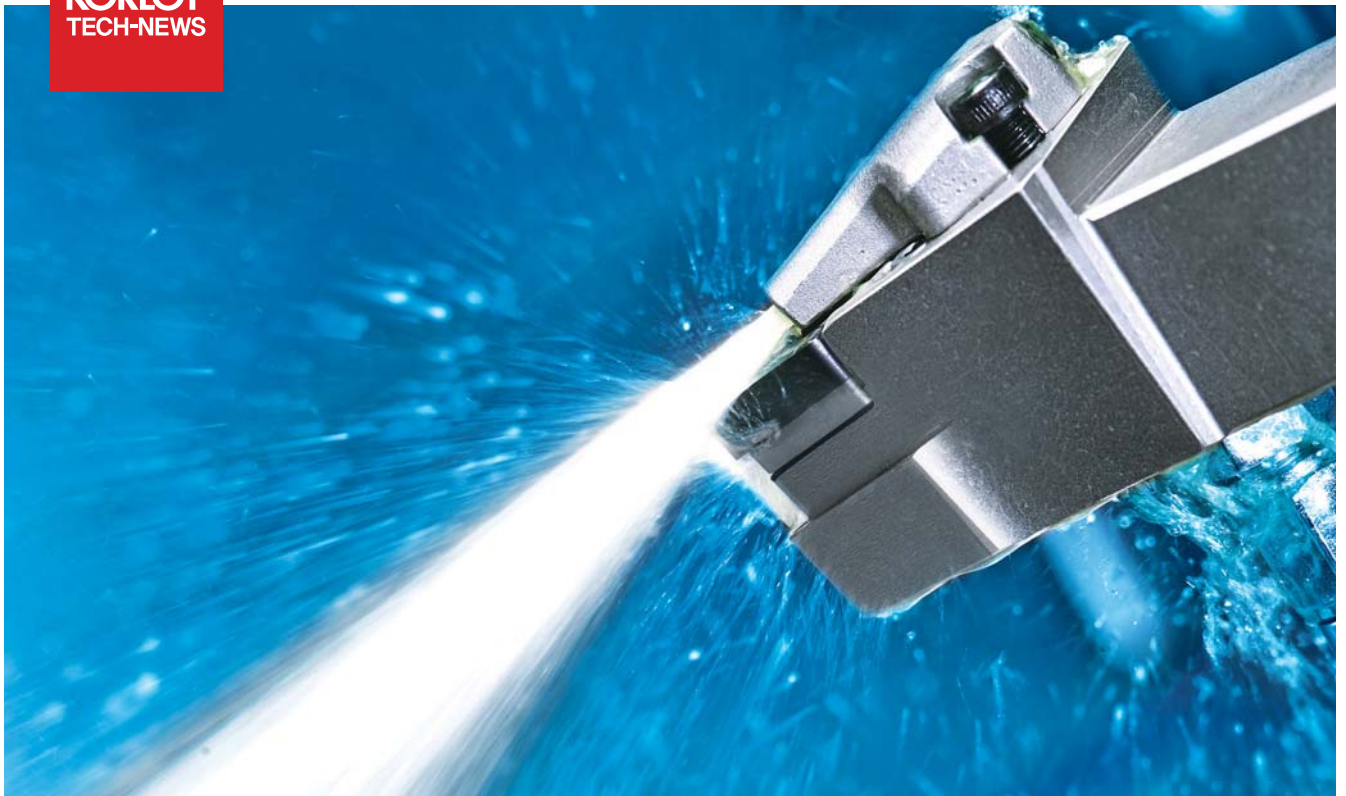


KORLOY High Pressure Coolant

KHP Coolant

(ISO Turning Holder)

KORLOY
TECH-NEWS



- 300% increased productivity on Inconel machining vs. low pressure coolant system
- Cooling, tool life, and chip control are improved by the high pressure coolant multi-directional injection system

High pressure coolant for inconel machining

KHP Coolant

The HRSA (Inconel, titanium and stainless steel) have high strength and low thermal conductivity used in the space, aircraft, and offshore machining industries, results in structure failures causes chipping on the cutting edge due to heat shock and work hardening and decreases tool life rapidly in machining.

The existing coolant spraying to wide parts is not able to reduce the focused heat on the cutting part in HRSA machining effectively. Therefore, to improve the productivity with high efficient cooling, a solution is needed. That is spraying the high pressure coolant directly on the cutting edge.

KHP Coolant will have the optimal distance between the insert cutting edge and the jet orifice, the ideal place of the streamlined jet orifice of the coolant. KORLOY's new KHP sprays high pressure coolant enhancing chip control and wear resistance.

KHP Coolant's sliding clamp system provides easy change of inserts and optimal nozzle cooling.

KHP Coolant provides the best solution meeting the customers' needs with high productivity and highly precise machining, by reducing workpiece damage by limiting fracture of insert, and long chips, for heat removal in HRSA machining.



High productivity

- Tested up to 300% increased tool life comparing to machining with low pressure coolant system
- Increased cutting speeds and high feeds

Excellent coolant effect

- Direct spraying coolant on the edge of insert and on the top and bottom sides of insert

Improved chip control

- Better chip evacuation

Easy to clamp

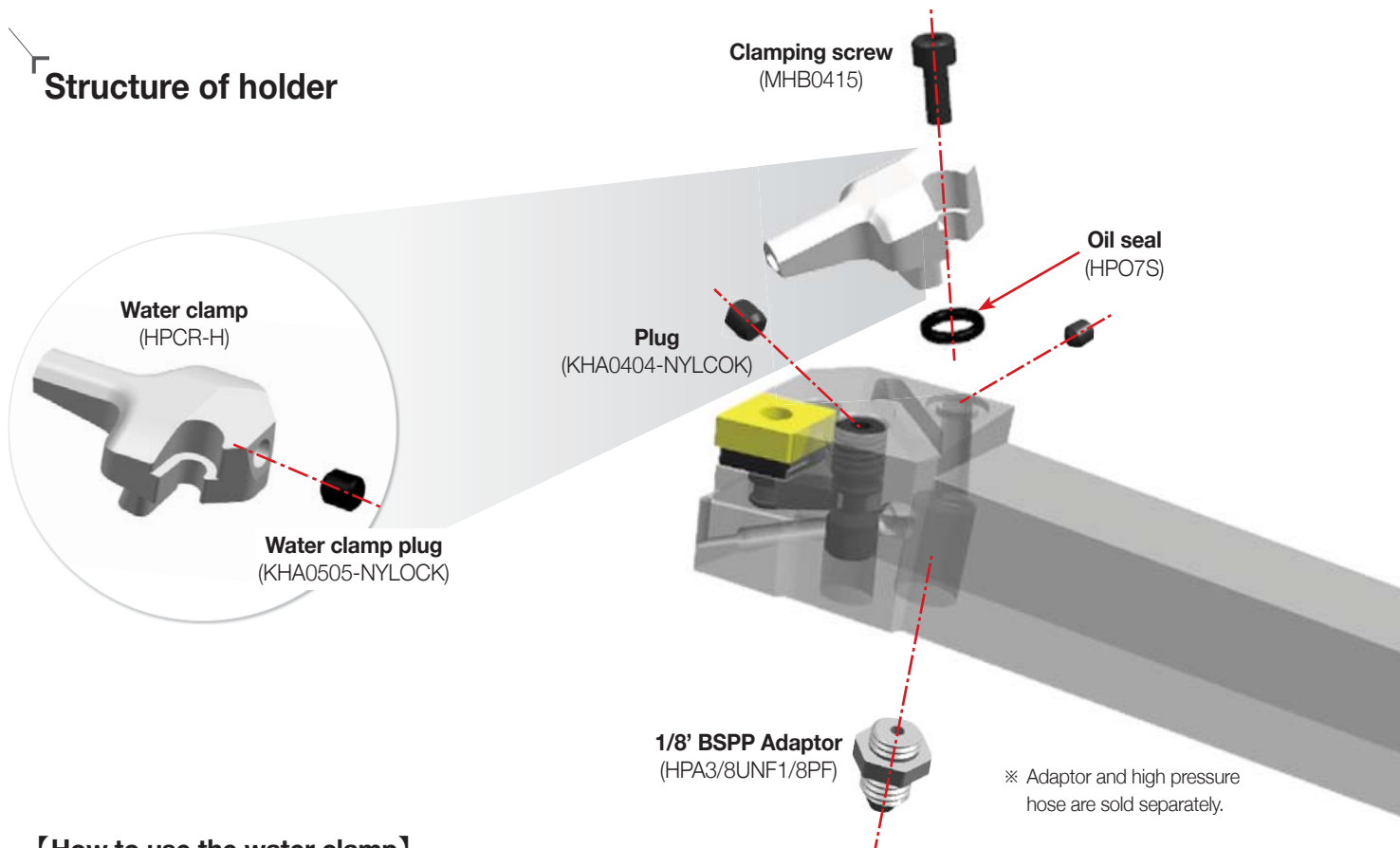
- Sliding clamp system

KHP for ISO turning

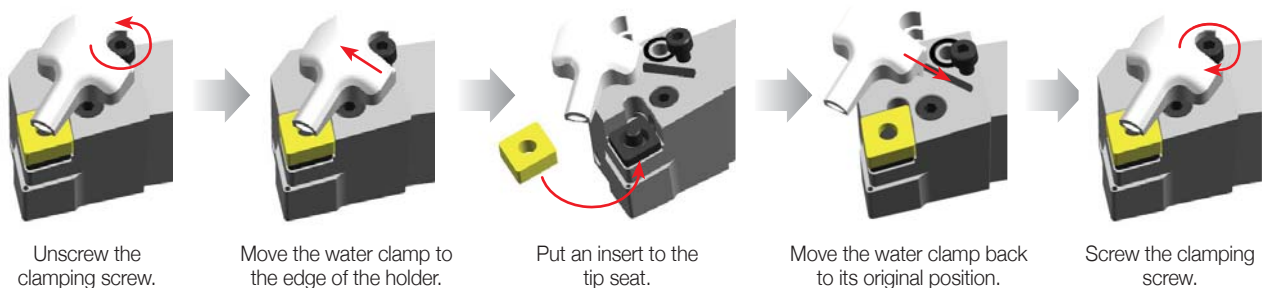
Code system

P	C	L	N	R	25	25 -	M	12 -	KHP
Clamping method of insert P: Lever lock system S: Screw on system	Holder style G: 90° J: 93° L: 95° S: 45°			Hand R: Right handed L: Left handed		Width of shank 25 mm, 32 mm		Length of insert cutting edge 08, 11, 12, 15, 16	
	Insert shape C: C type D: D type R: R type S: S type V: V type W: W type		Clearance angle of insert B: 5° C: 7° N: 0°		Height of shank 25 mm, 32 mm		Length of holder M: 150 mm P: 180 mm		KORLOY High Pressure coolant

Structure of holder

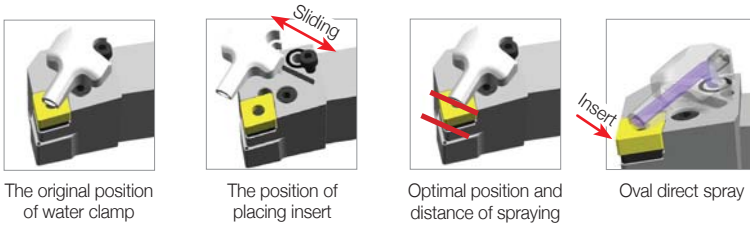


【How to use the water clamp】



Features

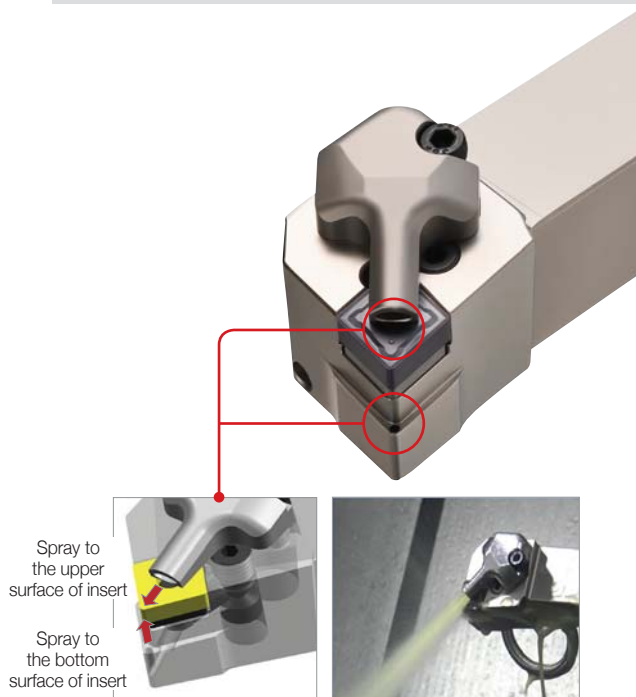
- The optimal distance between the insert and the jet orifice and the ideal place of the jet orifice
- Minimized loss of coolant pressure due to streamlined design of internal path
- Easy to clamp an insert for sliding clamp system



【MAX 300 bar】

Workpiece	The minimum pressure	The maximum pressure
P	50	300
M	70	
K	60	
N	50	
S	70	

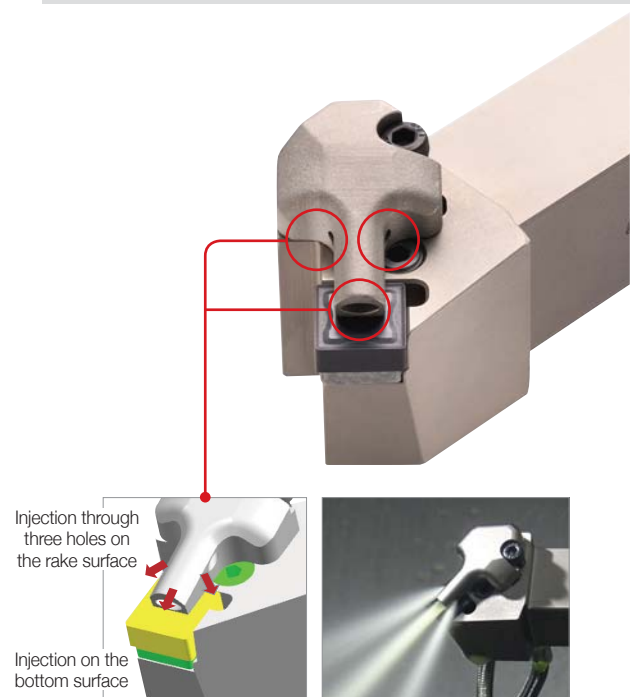
Water clamp with a hole



Recommended holder

- PCLNR/L2525-M12-KHP
- PDJNR/L2525-M1504-KHP
- PDJNR/L2525-M1506-KHP
- PWLNR/L2525-M08-KHP

Water clamp with three holes



Recommended holder

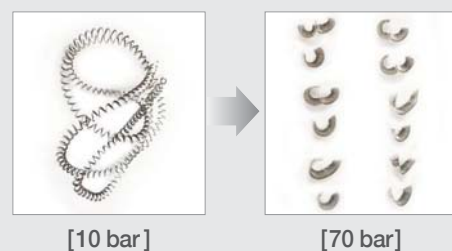
- SRGCR/L2525-M12-KHP
- SVJBR/L2525-M16-KHP

※ Clamp is sold separately.



【Improved chip control】

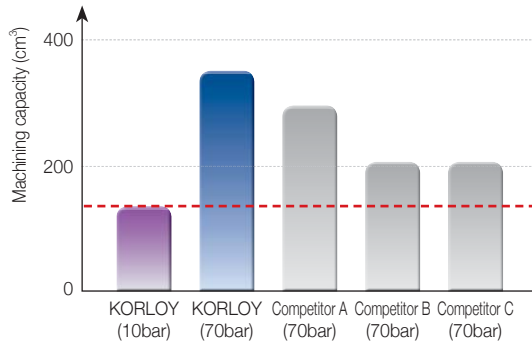
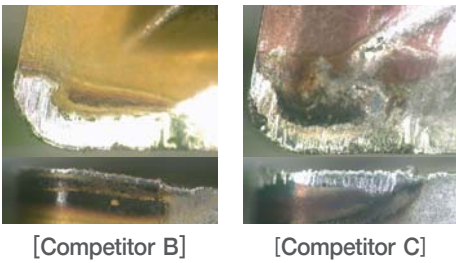
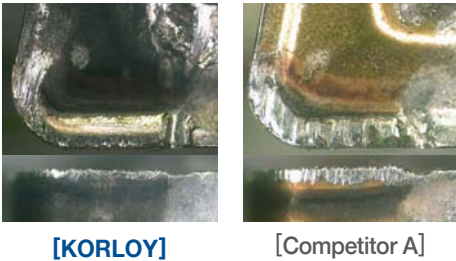
- **Workpiece** HRSA (Inconel718, HRC42)
- **Cutting conditions** vc (m/min) = 50, fn (mm/rev) = 0.25, ap (mm) = 2, wet (70 bar)
- **Tool**
Insert CNMG120408-VP4 (PC8115)
Holder PCLNR2525-M12-KHP



Performance evaluation

Wear resistance

- **Workpiece** HRSA (Inconel718, HRC42)
- **Cutting conditions** vc (m/min) = 50, fn (mm/rev) = 0.25, ap (mm) = 2, wet (70 bar)
- **Tool** Insert CNMG120408-VP4 (PC8115) Holder PCLNR2525-M12-KHP

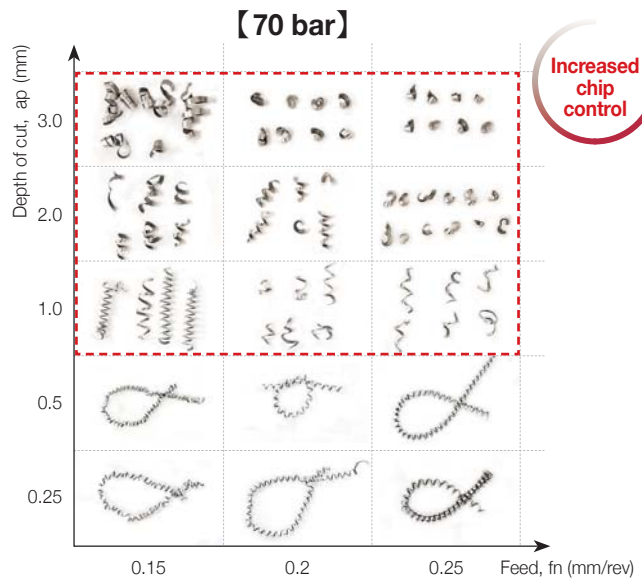
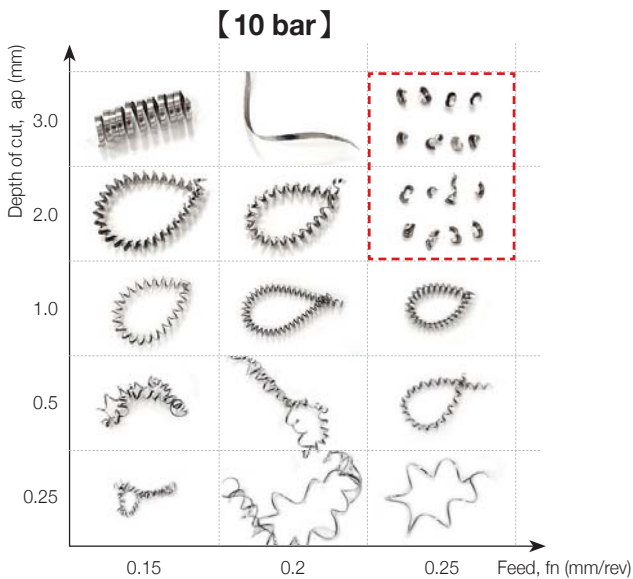


Increased wear resistance

- ▶ Increased tool life up to 60% compared to competitor's in HRSA (Inconel etc.) machining
- ▶ Decreased notch wear and wear on the nose radius and increased chipping resistance

Chip control

- **Workpiece** HRSA (Inconel718, HRC42)
- **Cutting conditions** vc (m/min) = 50
- **Tool** Insert CNMG120408-VP4 (PC8115) Holder PCLNR2525-M12-KHP

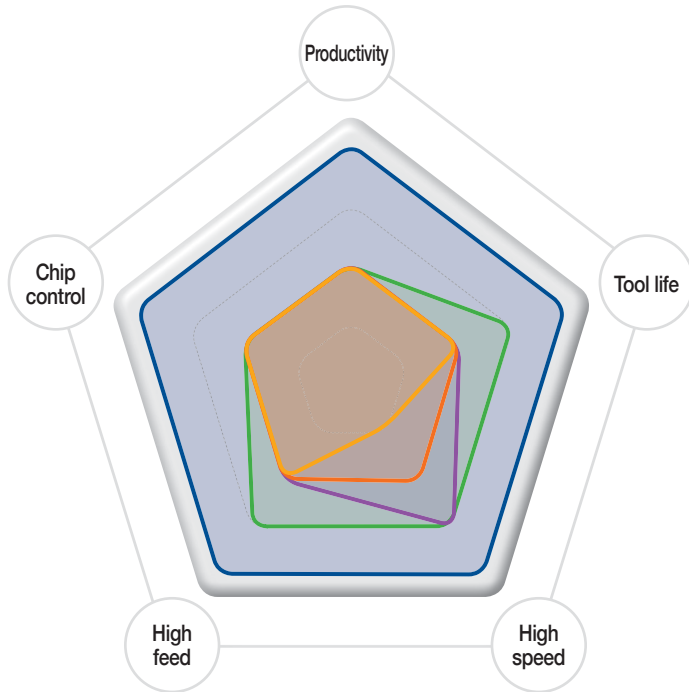


Increased chip control

- ▶ Preventing early fracture of the tool and workpiece due to long chip
- ▶ Longer tool life and improved chip control with direct spraying coolant to the nose R of the insert instead of spraying on the top and bottom sides of the insert

Holder selection guide

— KHP for ISO turning — Lever lock system — Double clamp system — Screw on system — Multi lock system



KHP for ISO turning ^{new}

- Longer tool life
- Better chip control



Lever lock system

- Easy to clamp



Double clamp system

- Solid clamping force
- Easy to clamp



Screw on system

- For small diameter internal machining



Multi lock system

- Solid clamping force

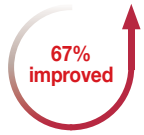
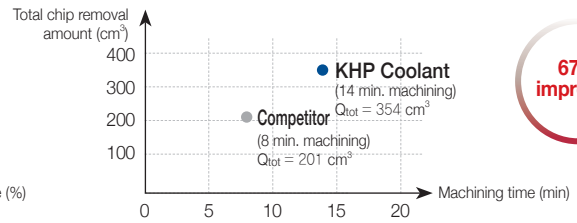
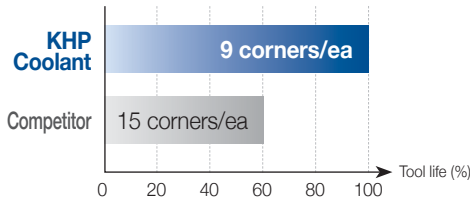


Tools	Productivity	Tool life	High speed	High feed	Chip control
KHP for ISO turning ^{new}	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Lever lock system	★★	★★	★★★	★★	★★
Double clamp system	★★	★★★	★★★	★★★	★★
Screw on system	★★	★★	★	★★	★★
Multi lock system	★★	★★	★★	★★	★★

Application examples

HRSA (Inconel718, HRC42)

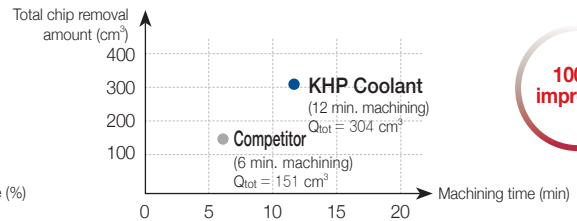
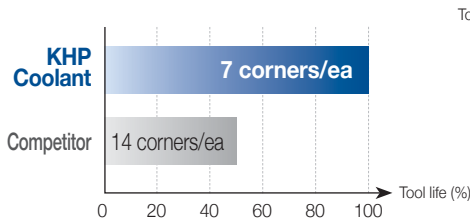
- **Workpiece use** Aerospace turbine case
- **Cutting conditions** vc (m/min) = 50~80, fn (mm/rev) = 0.25, ap (mm) = 2, wet (70 bar)
- **Tool** Insert CNMG120408-VP4 (PC8115) Holder PCLNR2525-M12-KHP



▶ 67% longer tool life per corner

HRSA (Inconel718, HRC42)

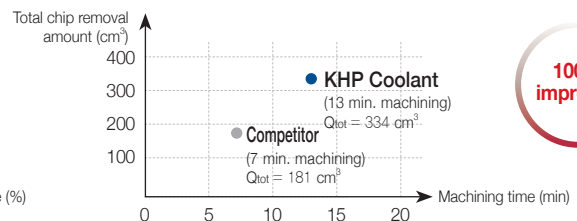
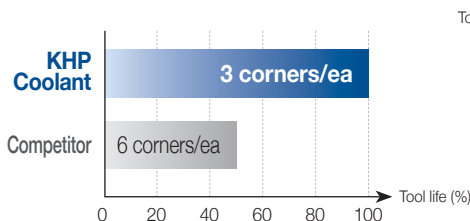
- **Workpiece use** Aerospace turbine disc
- **Cutting conditions** vc (m/min) = 50~80, fn (mm/rev) = 0.25, ap (mm) = 2, wet (70 bar)
- **Tool** Insert CNMG120408-VP4 (PC8115) Holder PCLNR2525-M12-KHP



▶ 100% longer tool life per corner

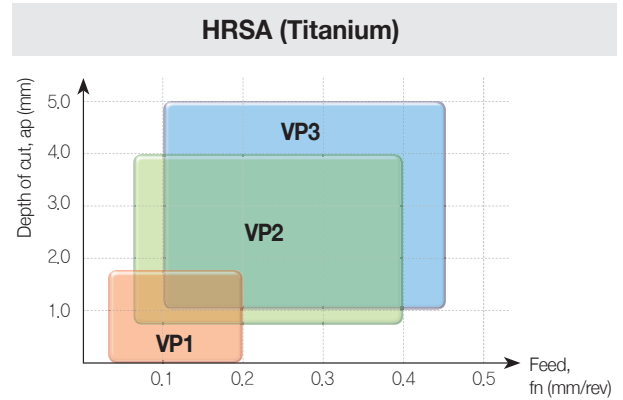
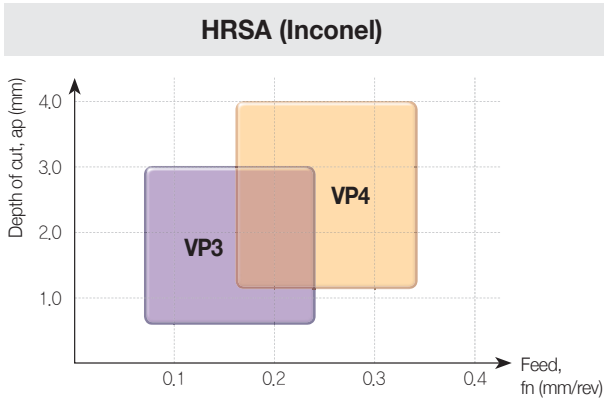
HRSA (Inconel718, HRC42)

- **Workpiece use** Aerospace turbine spool
- **Cutting conditions** vc (m/min) = 50~80, fn (mm/rev) = 0.25, ap (mm) = 2, wet (70 bar)
- **Tool** Insert CNMG120408-VP4 (PC8115) Holder PCLNR2525-M12-KHP

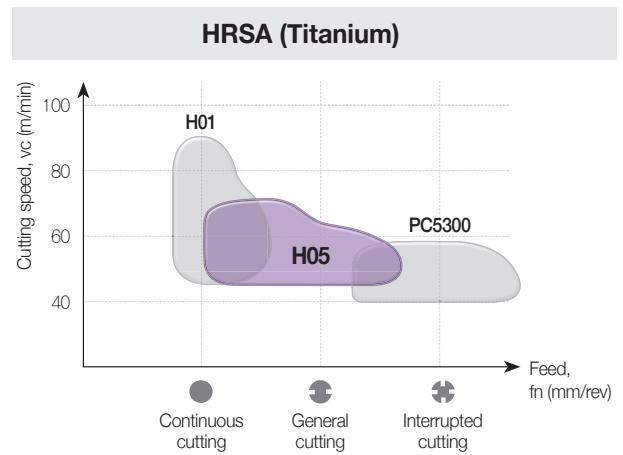
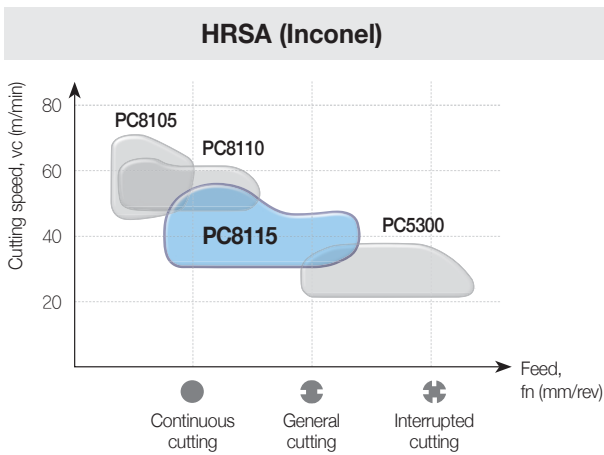


▶ 100% longer tool life per corner

Application range



Grade line-up



【Chip breaker comparison (HRSA/Titanium)】

Application	KORLOY	Competitor A	Competitor B	Competitor C	Competitor D	Competitor E	Competitor F	Competitor G
Roughing	VP4	SMR	RS, GJ	TF	MS	ET	MR4	NRT, NRS
Medium cutting	VP3	SM	MS	VL	MU	EM	MR3	NMS
Medium cutting to finishing	VP2	NGP	MJ	PP	TK	ML	MF1	NMT
Finishing	VP1	SF	LS, FJ	SF	MQ	EA	M1	NFT

【Grade comparison (HRSA)】

ISO	KORLOY	Competitor A	Competitor B	Competitor C	Competitor D	Competitor E	Competitor F	Competitor G
S05	PC8105	S05F	MP9005 VP05RT	IC808	PR1305	TT5080	TS2000	WSM10
S10	PC8110	GC1105	VP10RT	IC907	PR1310			
S15	PC8115	GC1115	MP9015	-	-			

【Grade comparison (Titanium)】

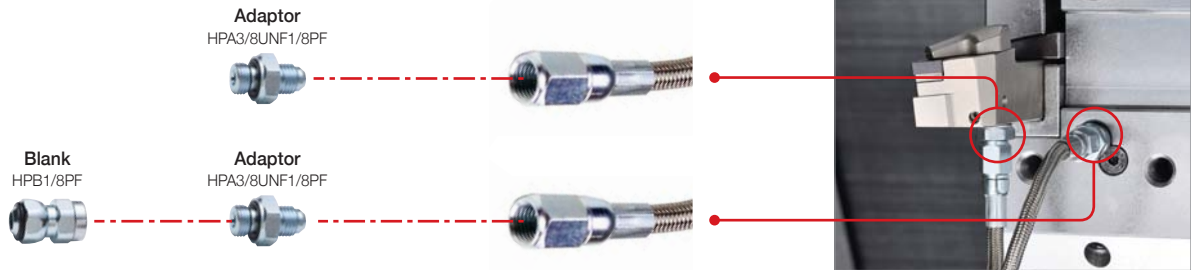
ISO	KORLOY	Competitor A	Competitor B	Competitor C	Competitor D	Competitor E	Competitor F	Competitor G
S05	H01	-	-	-	-	-	-	-
S10	H05	H13A	MT9015	IC20	-	TT5080	THR	WS10
S15	PC5300	GC1125	RT9015	IC908	PR1125 PR1325	TT9030 TT9080	CP500 TS2500	WSM20

How to clamp the KHP Coolant

- 3 types of installation systems makes clamping easy.
- The banjo type hose provides wider area for machining than other types.

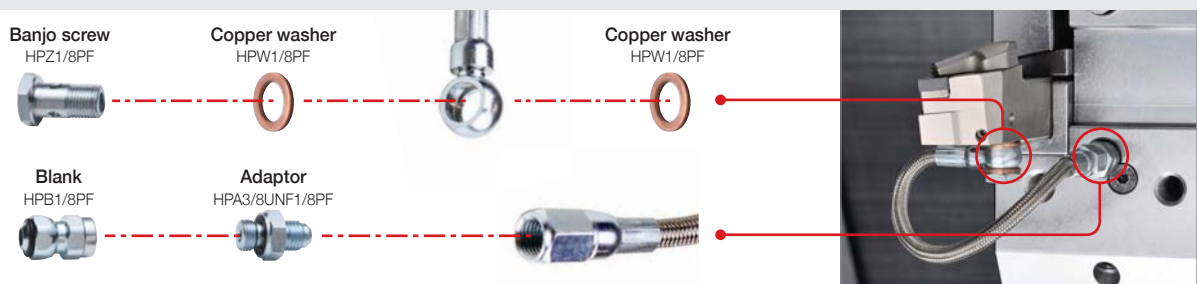
Straight to straight (S-S)

*Pic. 1



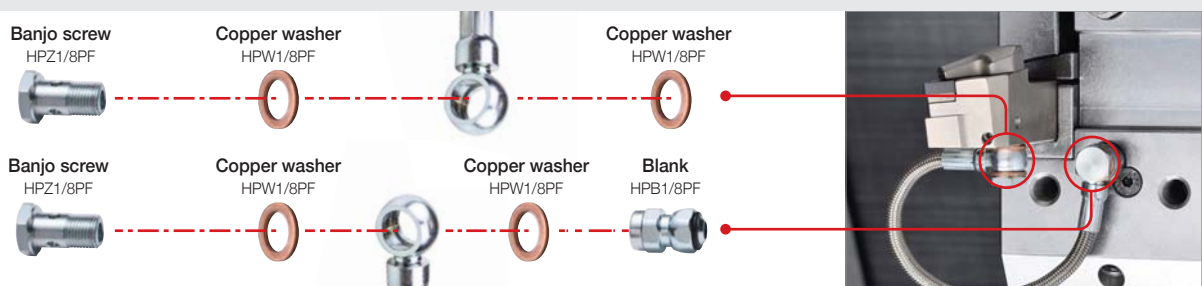
Straight to banjo (S-B)

*Pic. 2



Banjo to banjo (B-B)

*Pic. 3



※ Blank including a fixed oil seal provides easy clamping.

※ Banjo screws provide easy clamping and clamping a holder to the turning machine with various types of blanks.

Components of KHP Coolant

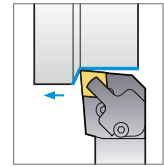
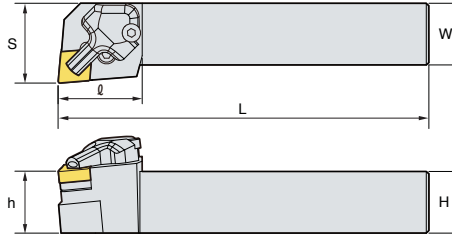
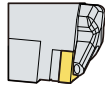
- The components of high pressure coolant are sold separately.
- Various components are available according to different machining sites and uses machining with high pressure coolant.

Designation	Shape	Hose length	High pressure hose	Blank	Adaptor	Banjo screw	Copper washer	Pic No.
HPH3/8UNF-200-SET	S S	200 mm	1 EA	1 EA	2 EA	-	-	1
HPH3/8UNF-250-SET		250 mm						
HPH3/8UNF1/8PF-200-SET	S B	200 mm	1 EA	1 EA	1 EA	1 EA	3 EA	2
HPH3/8UNF1/8PF-250-SET		250 mm						
HPH1/8PF-200-SET	B B	200 mm	1 EA	1 EA	-	2 EA	5 EA	3
HPH1/8PF-250-SET		250 mm						

PCLNR/L



CN□□



95°

R type insert
(mm)

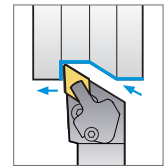
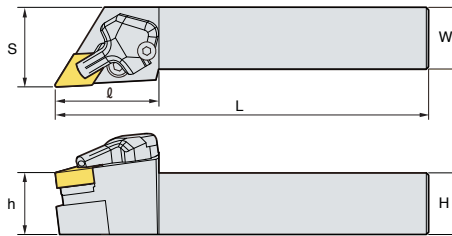
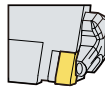
Designation	Stock		H	W	L	S	h	ℓ	Insert	Lever	Screw	Shim	Shim pin	Shim pin punch	Clamp	Clamping screw	Oil seal	Plug	Wrench
	R	L																	
PCLNR/L 2525-M12-KHP	●	●	25	25	150	32	25	34	CN□□1204□□	LV4N	VHX0820N	SC42N	SP4N	LSPS4	HPCR/L-H	MHB0415	HPO7S	KHA0404-NYLOCK	HW20L HW30L
3232-P12-KHP			32	32	170	40	34												

● : Stock items

PDJNR/L



DN□□



93°

R type insert
(mm)

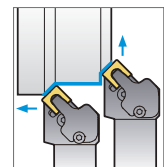
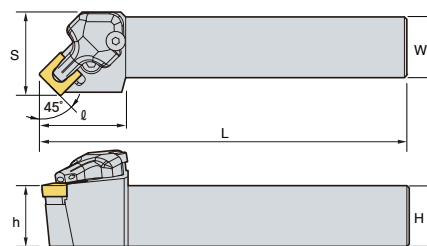
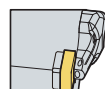
Designation	Stock		H	W	L	S	h	ℓ	Insert	Lever	Screw	Shim	Shim pin	Shim pin punch	Clamp	Clamping screw	Oil seal	Plug	Wrench
	R	L																	
PDJNR/L 2525-M11-KHP			25	25	150	32.25	25	42	DN□□1104□□	LV3AN	VHX0617N	SD32N	SP3	LSPS3	HPCR/L-H	MHB0415	HPO7S	KHA0404-NYLOCK	HW20L HW25L HW30L
2525-M1504-KHP	●	●	25	25	150	32.25	25	42	DN□□1504□□	LV4BN	VHX0821N	SD43N	SP4N	LSPS4	HPCR/L-H	MHB0415	HPO7S	KHA0404-NYLOCK	HW20L HW30L
2525-M1506-KHP	●	●	25	25	150	32.25	25	42	DN□□1506□□	LV4BN	VHX0821N	SD42N	SP4N	LSPS4	HPCR/L-H	MHB0415	HPO7S	KHA0404-NYLOCK	HW20L HW30L

● : Stock items

PSSNR/L



SN□□



45°

R type insert
(mm)

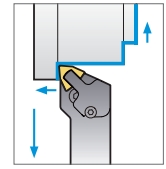
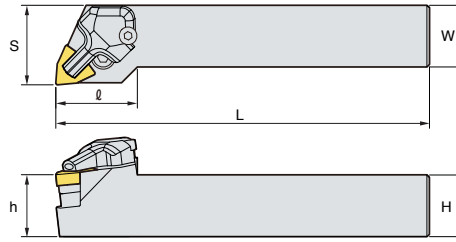
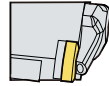
Designation	Stock		H	W	L	S	h	ℓ	Insert	Lever	Screw	Shim	Shim pin	Shim pin punch	Clamp	Clamping screw	Oil seal	Plug	Wrench
	R	L																	
PSSNR/L 2525-M12-KHP	●	●	25	25	150	34.25	25	35.5	SN□□1204□□	LV4N	VHX0821	SS42N	SP4N	LSPS4	HPCR/L-3H	MHB0415	HPO7S	KHA0404-NYLOCK	HW20L HW30L

● : Stock items

PWLNR/L



WN□□



95°

R type insert
(mm)

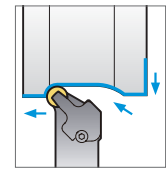
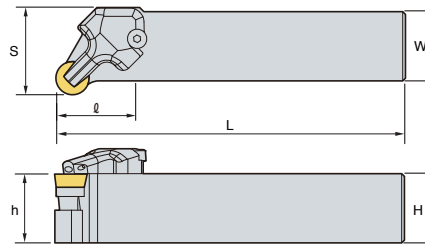
Designation	Stock		H	W	L	S	h	ℓ	Insert	Lever	Screw	Shim	Shim pin	Shim pin punch	Clamp	Clamping screw	Oil seal	Plug	Wrench
	R	L																	
PWLNR/L 2525-M08-KHP	●	●	25	25	150	32.25	25	33	WN□□0804□□										
3232-P08-KHP			32	32	170	39.25	32												

● : Stock items

SRGCR/L



RCGT



R type insert
(mm)

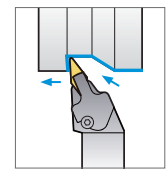
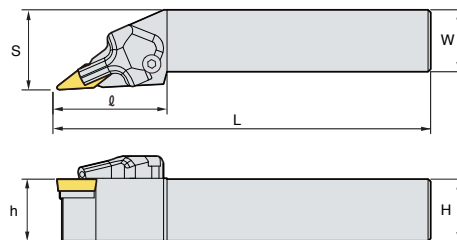
Designation	Stock		H	W	L	S	h	ℓ	Insert	Screw	Shim	Shim screw	Clamp	Clamping screw	Oil seal	Wrench
	R	L														
SRGCR/L 2525-M12-KHP	●	●	25	25	150	31.5	25	-	RCGT1204M0							
										FTGA03512	SR12S	SHXN0509F	HPCR/L-3H	MHB0415	HPO7S	HW15P HW30L HW35L

● : Stock items

SVJBR/L



VB□□




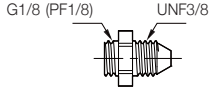

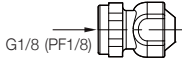

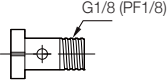

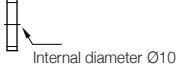
93°

R type insert
(mm)




Designation	Stock		H	W	L	S	h	ℓ	Insert	Screw	Shim	Shim screw	Clamp	Clamping screw	Oil seal	Wrench
	R	L														
SVJBR/L 2525-M16-KHP	●	●	25	25	150	32.5	25	46.5	VB□□1604□□							
										FTGA03512	SV32S	SHXN0509F	HPCR/L-H	MHB0415	HPO7S	TW15P HW30L HW35L

● : Stock items

Parts

Parts	Designation	Shape of parts	
Adaptor	HPA3/8UNF1/8PF		
Blank	HPB1/8PF		
Banjo screw	HPZ1/8PF		
Copper washer	HPW1/8PF		

High pressure hose

The shape of the high pressure hose		Length	Standard S	Standard B
Straight to straight (HPH3/8UNF)		200 mm	UNF3/8	-
		250 mm		
Straight to banjo (HPH3/8UNF1/8PF)		200 mm	UNF3/8	Internal diameter Ø10
		250 mm		
Banjo to banjo (HPH1/8PF)		200 mm	-	Internal diameter Ø10
		250 mm		

! Notice

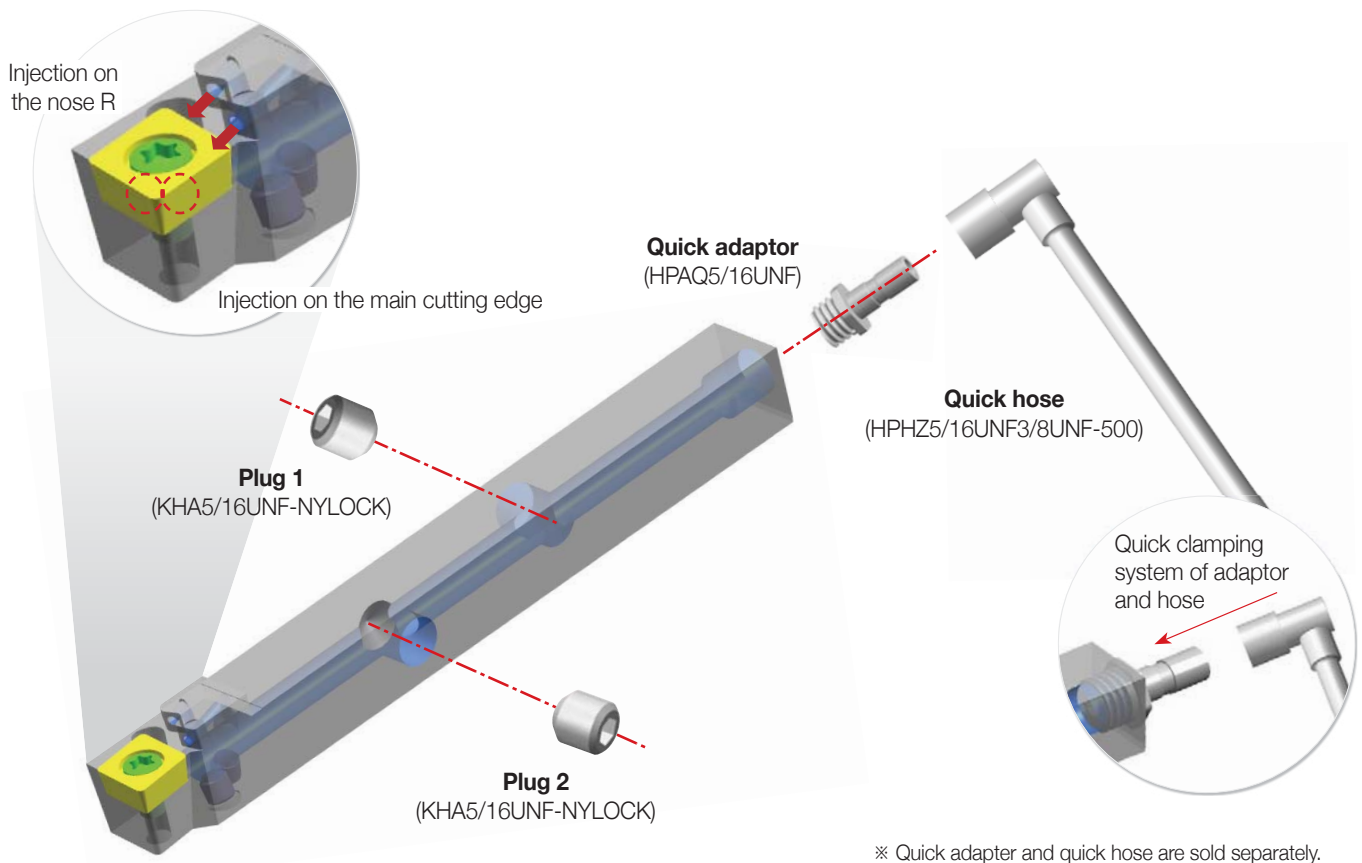
- Use a standard spanner in clamping.
- Be careful of spraying coolant injected by the residual pressure in using high pressure coolant.
- Clamp the parts tightly.
- Clean the turning machine before clamping.
- The O-ring is included in the parts. Don't have to purchase it separately.

KHP for automatic lathe machining

Code system

S	C	L	C	R/L	12	12	-	X	09	A	-	KHP
Clamping method of insert S: Screw on system	Holder style L: 95° J: 93°		Clearance angle of insert C: 7°	Hand R: Right handed L: Left handed	Width of shank 12 mm	Height of shank 12 mm		Length of holder X: 120 mm	Length of insert cutting edge 07, 09, 11, 12			KORLOY High Pressure coolant
	Insert shape C: C type D: D type V: V type									Auto Tools		

Structure of holder

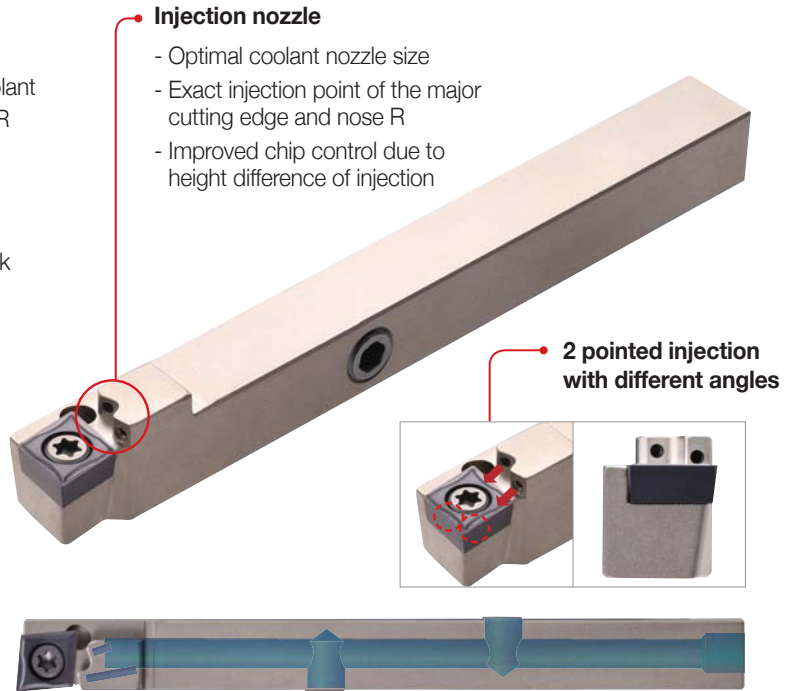


Features

- High pressure coolant holder for high productivity of precise parts machining on automatic lathe
- Improved cooling and chip control due to injecting coolant through two holes to the major cutting edge and nose R concentrically
- Two holes with different injection angles each other increase chip control
- Easy clamping system of quick hose adapter and quick hose provides convenient using

【MAX 300 bar】

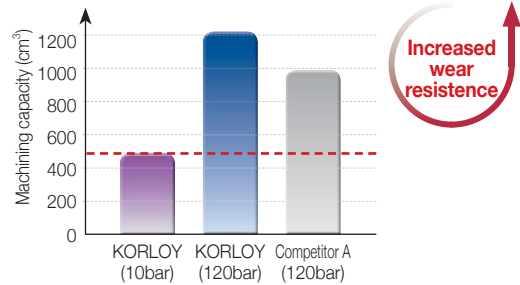
Workpiece	The minimum pressure	The maximum pressure
P	100	300
M	120	
K	110	
N	100	
S	120	



Performance evaluation

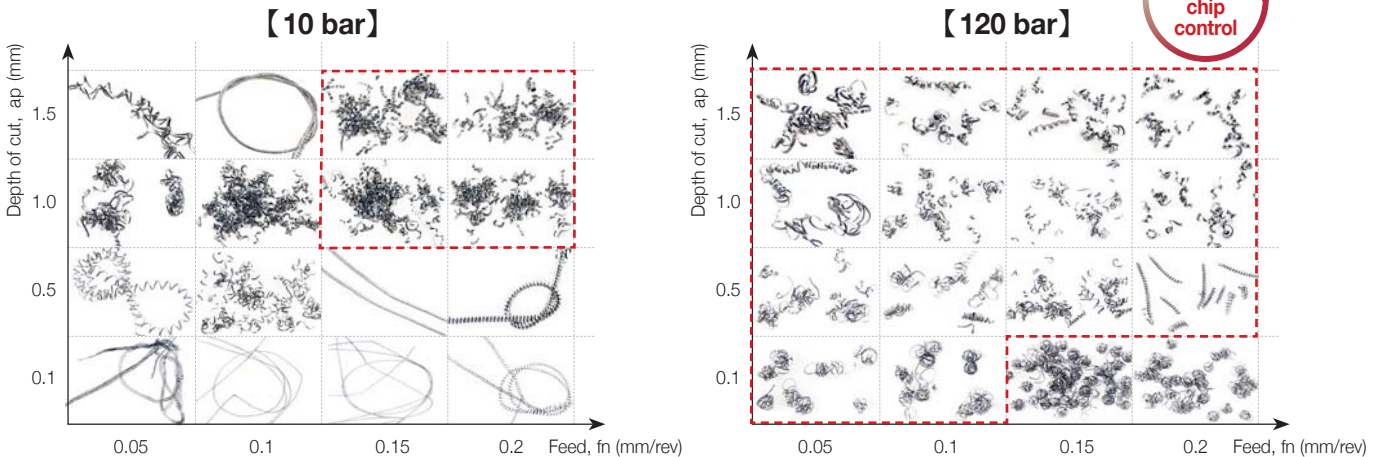
Wear resistance

- **Workpiece** Stainless steel (X5CrNi18-9)
- **Cutting conditions** vc (m/min) = 169, fn (mm/rev) = 0.15, ap (mm) = 0.5, wet (120 bar)
- **Tool**
 - Insert** CCGT09T302MFN-VP1 (PC8110)
 - Holder** SCLCR1212-X09A-KHP

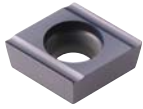


Chip control

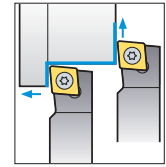
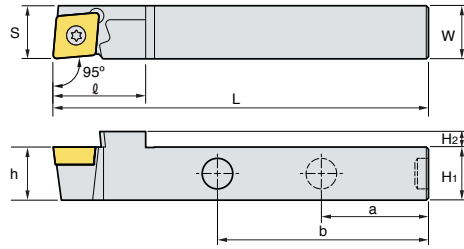
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 - Insert** CCGT09T302MFN-VP1 (PC8110)
 - Holder** SCLCR1212-X09A-KHP



SCLCR/L



CC□T



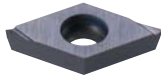
95°

R type insert
(mm)

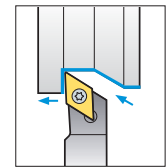
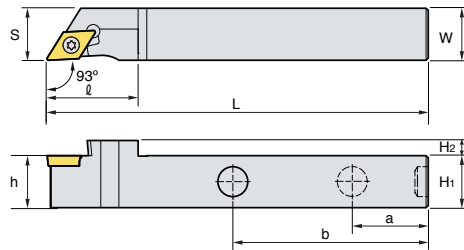
Designation	Stock		H ₁	H ₂	W	L	S	h	ℓ	a	b	Insert	Screw	Plug	Wrench
	R	L													
SCLCR/L 1212-X09A-KHP	●	●	12	3.5	12	120	12	12	21	40	70	CC□T09T3□□	FTKA0410	KHA0404-NYLOCK	TW15P

● : Stock items

SDJCR/L



DC□T



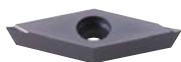
93°

R type insert
(mm)

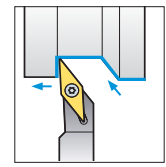
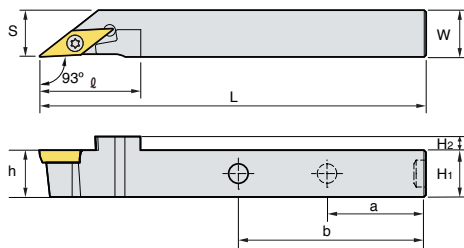
Designation	Stock		H ₁	H ₂	W	L	S	h	ℓ	a	b	Insert	Screw	Plug	Wrench
	R	L													
SDJCR/L 1212-X07A-KHP	●	●	12	3.5	12	120	12	12	21	40	70	DC□T0702□□	FTKA02565	KHA0404-NYLOCK	TW07P
1212-X11A-KHP	●	●	12	3.5	12	120	14	12	29.8	40	70	DC□T11T3□□	FTKA0408	KHA0404-NYLOCK	TW15P

● : Stock items

SVJCR/L



VC□□




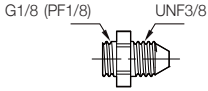

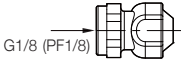

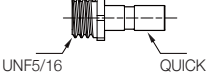
93°

R type insert
(mm)


Designation	Stock		H ₁	H ₂	W	L	S	h	ℓ	a	b	Insert	Screw	Plug	Wrench
	R	L													
SVJCR/L 1212-X11A-KHP	●	●	12	3.5	12	120	12	12	26	40	70	VC□T1103□□	FTKA02565	KHA0404-NYLOCK	TW07P
1212-X12A-KHP	●	●	12	3.5	12	120	12	12	26	40	70	VC□□1203□□	FTKA02565	KHA0404-NYLOCK	TW07P

● : Stock items

Parts



Parts	Designation	Shape of parts	
Adaptor	HPA3/8UNF1/8PF		
Blank	HPB1/8PF		
Quick adapter	HPAQ5/16UNF		

High pressure hose

The shape of the high pressure hose		Length	Standard Q	Standard S
Quick to straight (HPHZ5/16UNF3/8UNF-500)		500 mm	UNF5/16	-

Recommended high pressure pump system

- These 2 recommended systems
- Customers can select a filter, pressure, and discharge according to their cutting conditions

Brand	Kemtech	
System	VF-series	BF-series
Design		
Model no.	VF 70-60 DF	CF 35-25
Filter	Double bag filter	Cyclone filter
Pressure (bar)	70 (Standard pressure)	35 (Standard pressure)
Discharge (ℓ/min)	60 (Standard discharge)	25 (Standard discharge)
Features	- Suitable for high precision HRSA machining - Variable pressure for the dia. of tool	- Suitable for high precision HRSA machining - Variable pressure for the dia. of tool - Applying a cyclone filter - No filter supplies
Automatic pressure control	○	○
Options	- Chiller, Inverter multistage control	- Chiller, Inverter multistage control - Applicable tank, the attached model

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