

Exchangeable head turning tool system for Swiss machines

MODUM^{INI}TURN

Tungaloy Report No. 541S3-G

Introducing the QC16 with multiple X & Y-axis heads variety





Lineup

Shanks

Overall length* (mm)	Sizes of square shanks		Page
	New 16 x 16 mm	New 16 x 20 mm Stepped-head shank for modular heads	
120	✓	✓	18

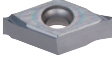
*With the head attached

Modular heads

For external turning

Application	Insert shape	Insert Designation	Approach angle	Sizes of square shanks		Page
				New 16 x 16 mm / 16 x 20 mm (for stepped-head shank)		
Front turning		CC**09T3...	95°	✓		4
		WXGU0403...	95°	✓		5
		DC**11T3...	93°	✓		6
		DX*U0703...	93°	✓		7
		DX*U0703...	62.5°	✓		8
		VB**1103...	93°	✓		9
		VXGU09T2...	93°	✓		10
		VXGU09T2...	72.5°	✓		11
		TN**1604...	95°	✓		12
		J10ER...	60°	✓		13

For external turning (using Y-axis)

Application	Insert shape	Insert Designation	Approach angle	Sizes of square shanks		Page
				New	16 x 16 mm / 16 x 20 mm (for stepped-head shank)	
Front turning (with Y-axis)		CC**09T3...	95°		✓	14
		WXGU0403...	95°		✓	14
		DC**11T3...	93°		✓	15
		DX*U0703...	93°		✓	15
		TN**1604...	95°		✓	16

For parting

Application	Insert shape	Groove width / Insert Designation	Sizes of square shanks		Page
			New	16 x 16 mm / 16 x 20 mm (for stepped-head shank)	
Parting and grooving		CW: 1.2 - 3 mm DG..., SG...		✓	16

For grooving and threading

Application	Insert shape	Groove width / Insert Designation	Thread pitch range / Insert Designation	Sizes of square shanks		Page
				New	16 x 16 mm / 16 x 20 mm (for stepped-head shank)	
Grooving and threading		CW: 0.33 - 3.18 mm TC*18R/L...	0.4 - 3 mm TCT18R...		✓	17

For grooving and threading (using Y-axis)

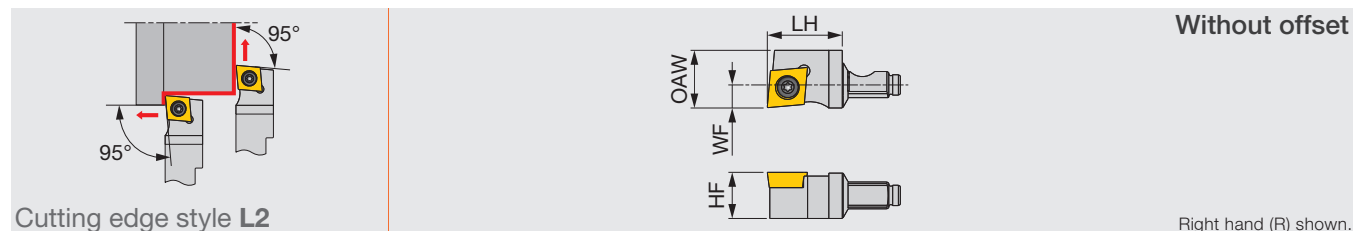
Application	Insert shape	Groove width / Insert Designation	Thread pitch range / Insert Designation	Sizes of square shanks		Page
				New	16 x 16 mm / 16 x 20 mm (for stepped-head shank)	
Grooving and threading		CW: 0.33 - 3.18 mm TC*18R/L...	0.4 - 3 mm TCT18R...		✓	17

MODULAR HEADS

QC16-JSCL2CR

J-SERIES

Screw-on modular head with 95° approach angle, for positive 80° rhombic inserts



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSCL2CR09	21	16	8	20	0.2	CC**09T3...	1.2	QC-16...

Torque*: Recommended clamping torque (N·m)

RE**: Standard corner radius

Related Items



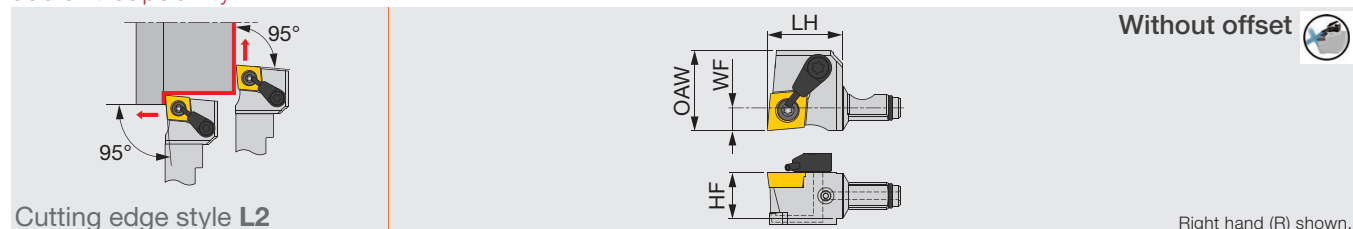
SPARE PARTS

Designation	Clamping screw	Wrench
QC16-JSCL2CR09	CSTB-4SD	T-8F

QC16-JSCL2CR-CHP

J-SERIES

Screw-on modular head with 95° approach angle, for positive 80° rhombic inserts, with high pressure coolant capability



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSCL2CR09-CHP	21	16	8	20	0.2	CC**09T3...	1.2	QC-16...

Torque*: Recommended clamping torque (N·m)

RE**: Standard corner radius

Related Items



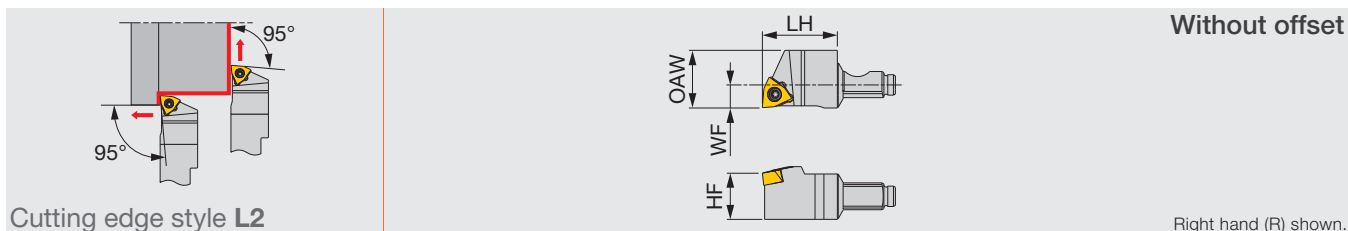
SPARE PARTS

Designation	Clamping screw	Coolant unit	Wrench	O-ring
QC16-JSDJ2CR11-CHP	CSTB-4SD	S-CU-CHP	T-8F	ORSS-0757.5X1.0NBR70

QC16-JSWL2XR

MINIFURN

Screw-on modular head with 95° approach angle, for WXGU inserts



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSWL2XR04	21	16	8	20	0.2	WXGU0403**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items



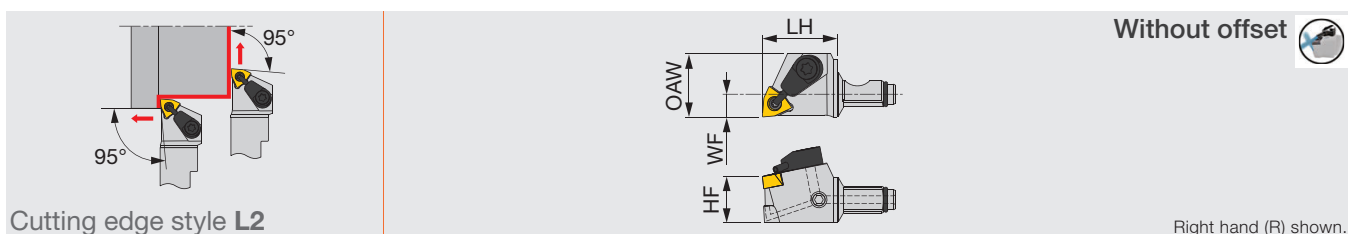
SPARE PARTS

Designation	Clamping screw	Wrench
QC16-JSWL2XR04	SR34-514	T-7F

QC16-JSWL2XR-CHP

MINIFURN

Screw-on modular head with 95° approach angle, for WXGU inserts, with high pressure coolant capability



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSWL2XR04-CHP	21	16	8	20	0.2	WXGU0403**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items



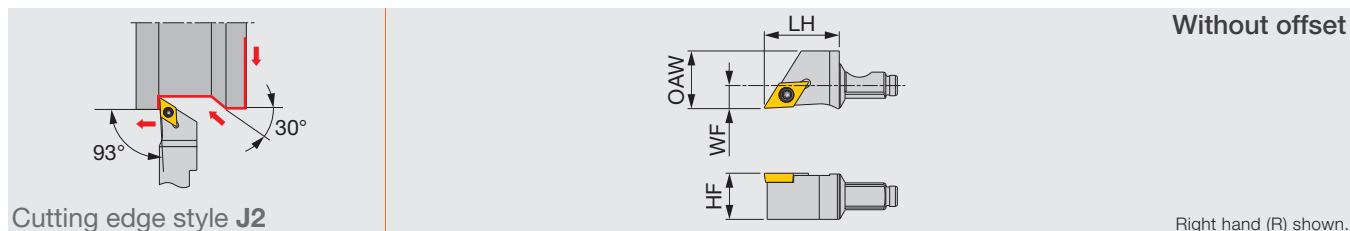
SPARE PARTS

Designation	Clamping screw	Coolant unit	Wrench	O-ring
QC16-JSWL2XR04-CHP	SR34-514	S-CU-CHP	T-7F	ORSS-0757.5X1.0NBR70

QC16-JSDJ2CR

J-SERIES

Screw-on modular head with 93° approach angle, for positive 55° rhombic inserts



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSDJ2CR11	21	16	8	20	0.2	DC**11T3...	1.2	QC-16...

Torque*: Recommended clamping torque (N-m)

RE**: Standard corner radius

Related Items



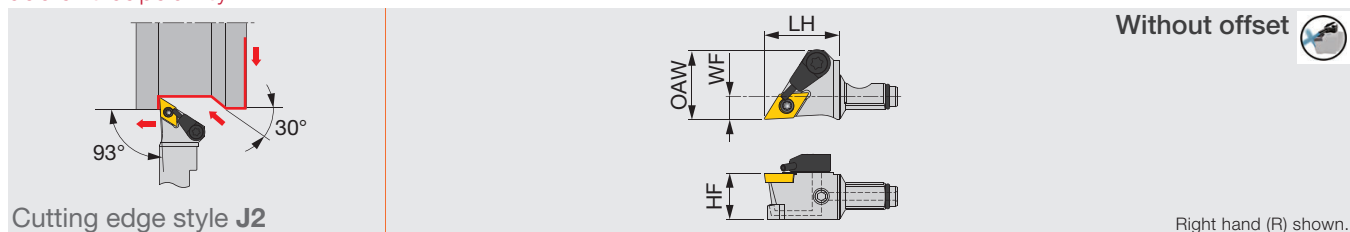
SPARE PARTS

Designation	Clamping screw	Wrench
QC16-JSDJ2CR11	CSTB-4SD	T-8F

QC16-JSDJ2CR-CHP

J-SERIES

Screw-on modular head with 93° approach angle, for positive 55° rhombic inserts, with high pressure coolant capability



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSDJ2CR11-CHP	21	16	8	20	0.2	DC**11T3...	1.2	QC-16...

Torque*: Recommended clamping torque (N-m)

RE**: Standard corner radius

Related Items



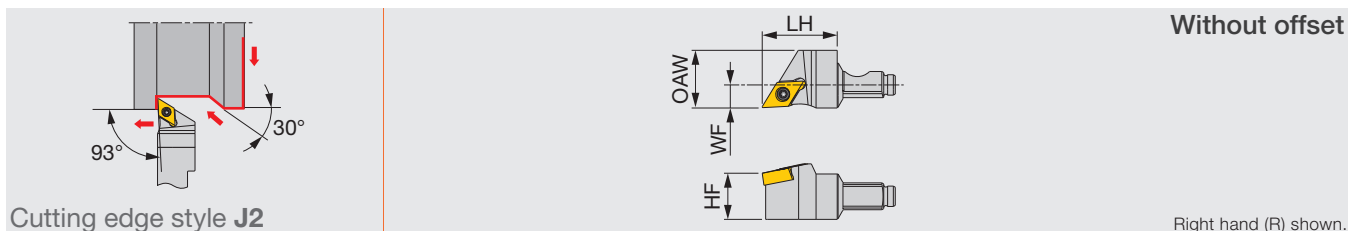
SPARE PARTS

Designation	Clamping screw	Coolant unit	Wrench	O-ring
QC16-JSDJ2CR11-CHP	CSTB-4SD	S-CU-CHP	T-8F	ORSS-0757.5X1.0NBR70

QC16-JSDJ2XR

MINIFURN

Screw-on modular head with 93° approach angle, for DX*U inserts



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSDJ2XR07	21	16	8	20	0.2	DX*U0703**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items



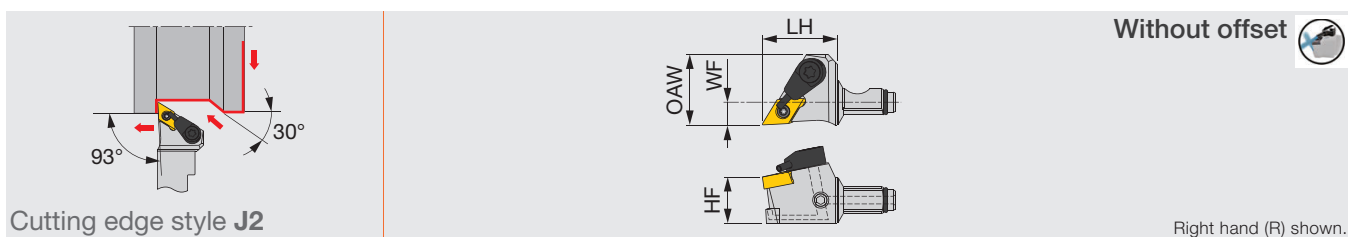
SPARE PARTS

Designation	Clamping screw	Wrench
QC16-JSDJ2XR07	SR34-514	T-7F

QC16-JSDJ2XR-CHP

MINIFURN

Screw-on modular head with 93° approach angle, for DX*U inserts, with high pressure coolant capability



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSDJ2XR07-CHP	21	16	8	20	0.2	DX*U0703**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items

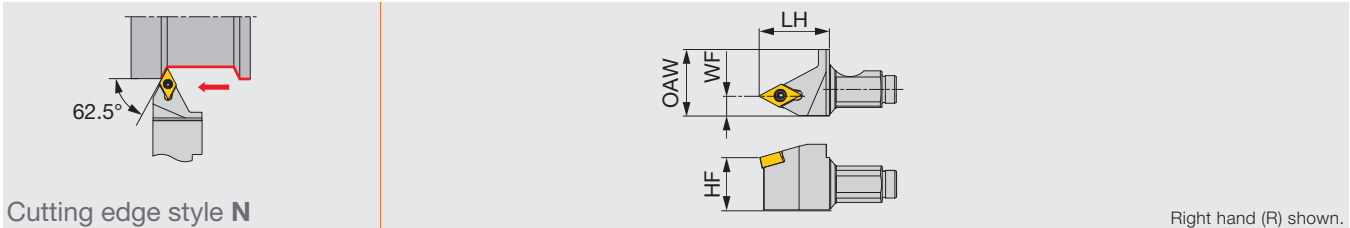


SPARE PARTS

Designation	Clamping screw	Coolant unit	Wrench	O-ring
QC16-JSDJ2XR07-CHP	SR34-514	S-CU-CHP	T-7F	ORSS-0757.5X1.0NBR70

QC16-JSDNXR

Screw-on modular head with 62.5° approach angle, for DX*U inserts,



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSDNXR07	21	16	6	20	0.2	DX*U0703**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items

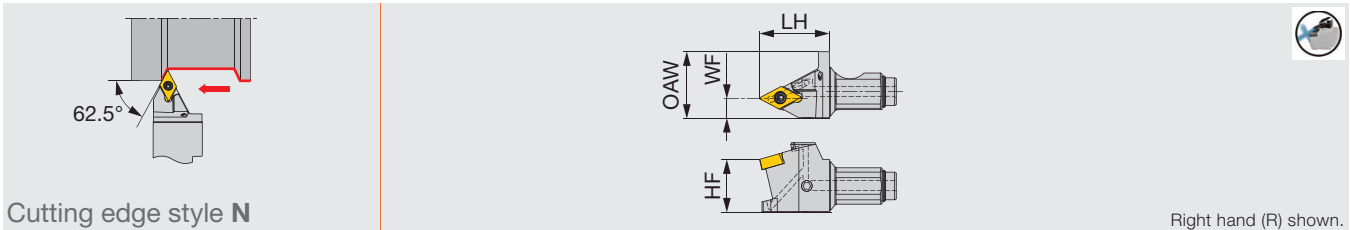


SPARE PARTS

Designation	Clamping screw	Wrench
QC16-JSDNXR07	SR34-514	T-7F

QC16-JSDNXR-CHP

Screw-on modular head with 62.5° approach angle, for DX*U inserts, with high pressure coolant capability



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSDNXR07-CHP	21	16	6	20	0.2	DX*U0703**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items



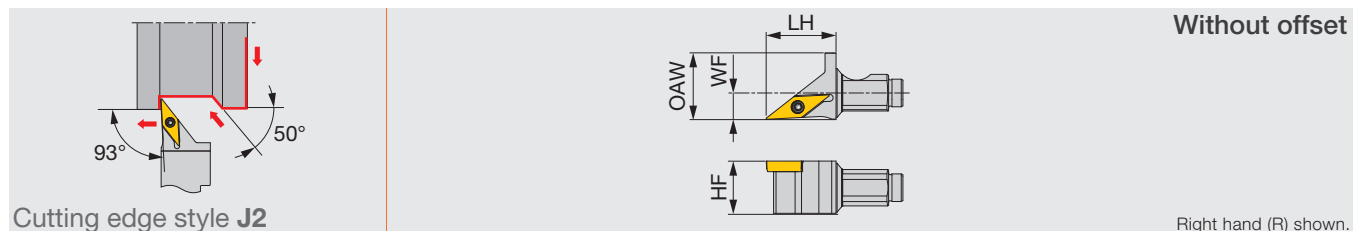
SPARE PARTS

Designation	Clamping screw	Wrench	O-ring
QC16-JSDNXR07-CHP	SR34-514	T-7F	ORSS-0757.5X1.0NBR70

QC16-JSVJ2BR

J-SERIES

Screw-on modular head with 93° approach angle, for positive 35° rhombic inserts



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSVJ2BR11	21	16	8	20	0.2	VB**1103...	1.2	QC-16...

Torque*: Recommended clamping torque (N-m)

RE**: Standard corner radius

Related Items



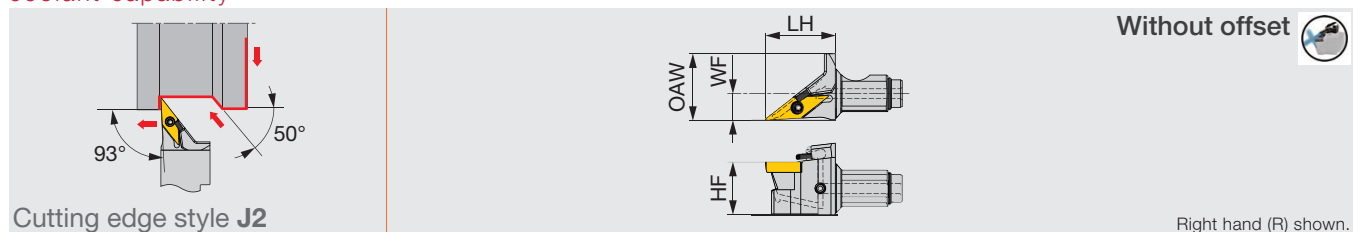
SPARE PARTS

Designation	Clamping screw	Wrench
QC16-JSVJ2BR11	CSTB-2.5	T-8F

QC16-JSVJ2BR-CHP

J-SERIES

Screw-on modular head with 93° approach angle, for positive 35° rhombic inserts, with high pressure coolant capability



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSVJ2BR11-CHP	21	16	8	20	0.2	VB**1103...	1.2	QC-16...

Torque*: Recommended clamping torque (N-m)

RE**: Standard corner radius

Related Items

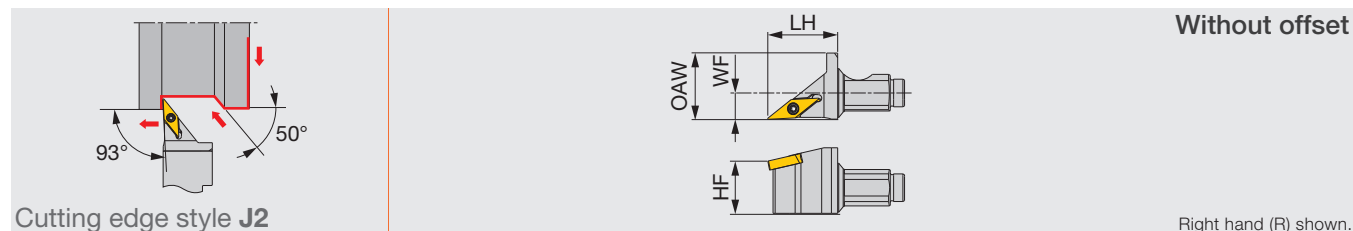


SPARE PARTS

Designation	Clamping screw	Wrench 1	O-ring	Coolant nozzle	Screw
QC16-JSVJ2BR11-CHP	CSTB-2.5	T-8F	ORSS-0757.5X1.0NBR70	NZ-1.10-7-CHP	SSHM3-3

QC16-JSVJ2XR

Screw-on modular head with 93° approach angle, for VXGU inserts



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSVJ2XR09	21	16	8	20	0.2	VXGU09T2**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items

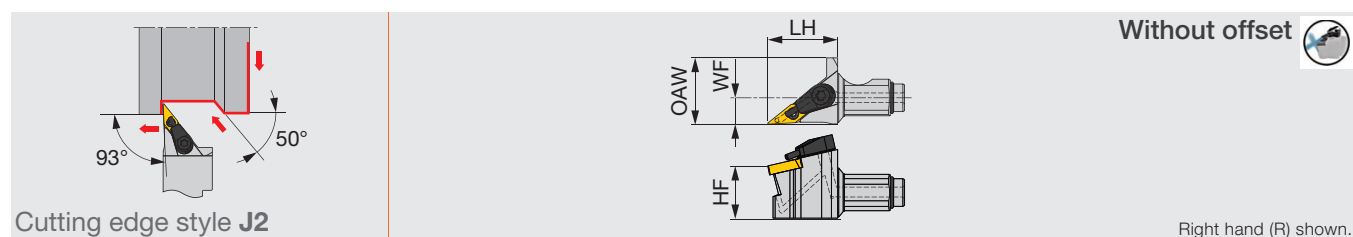


SPARE PARTS

Designation	Clamping screw	Wrench
QC16-JSVJ2XR09	SR34-508	T-7F

QC16-JSVJ2XR-CHP

Screw-on modular head with 93° approach angle, for VXGU inserts, with high pressure coolant capability



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSVJ2XR09-CHP	21	16	8	20	0.2	VXGU09T2**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items



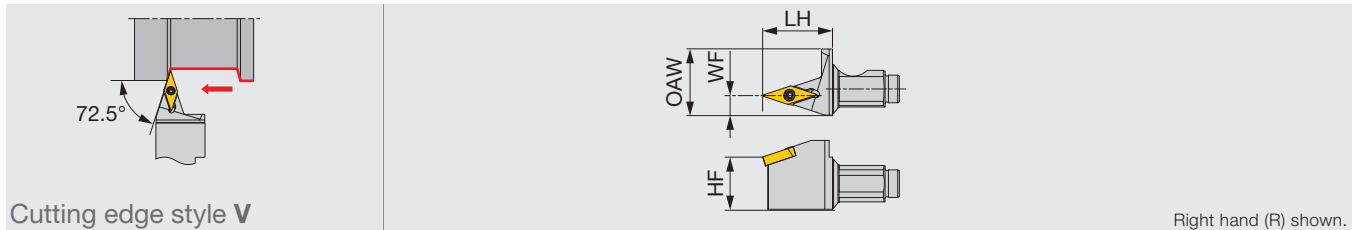
SPARE PARTS

Designation	Clamping screw	Coolant unit	Wrench	O-ring
QC16-JSVJ2XR09-CHP	SR34-508	S-CU-CHP	T-7F	ORSS-0757.5X1.0NBR70

QC16-JSVVXR

MINIFURN

Screw-on modular head with 72.5° approach angle, for VXGU inserts



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSVVXR09	21	16	6	20	0.2	VXGU09T2**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items



SPARE PARTS

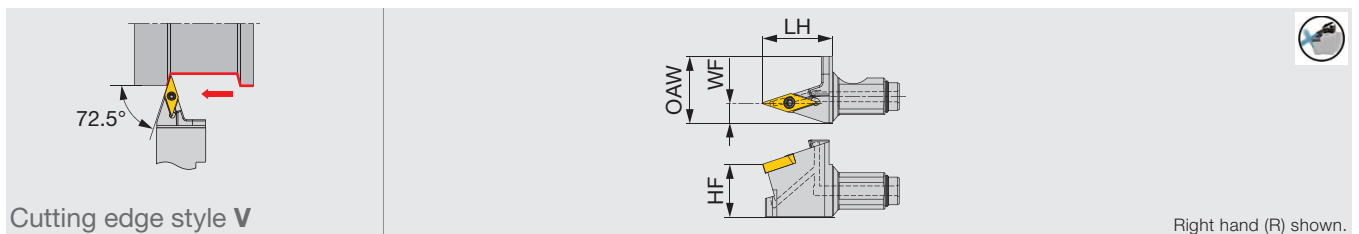


Designation	Clamping screw	Wrench
QC16-JSVVXR09	SR34-508	T-7F

QC16-JSVVXR-CHP

MINIFURN

Screw-on modular head with 72.5° approach angle, for VXGU inserts, with high pressure coolant capability



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-JSVVXR09-CHP	21	16	6	20	0.2	VXGU09T2**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items



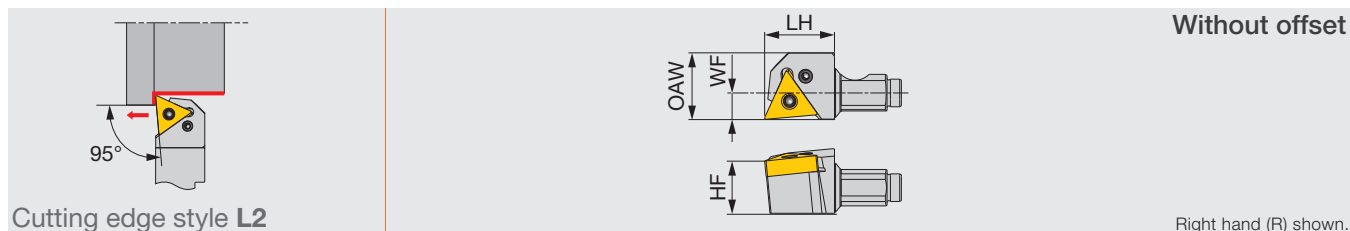
SPARE PARTS



Designation	Clamping screw	Wrench	O-ring
QC16-JSVVXR09-CHP	SR34-508	T-7F	ORSS-0757.5X1.0NBR70

QC16-PTL2NR

Lever-lock modular head with 95° approach angle, for negative 60° triangular inserts



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-PTL2NR16	21	16	8	20	0.4	TN**1604...	1.5	QC-16...

Torque*: Recommended clamping torque (N-m)

RE**: Standard corner radius

Related Items

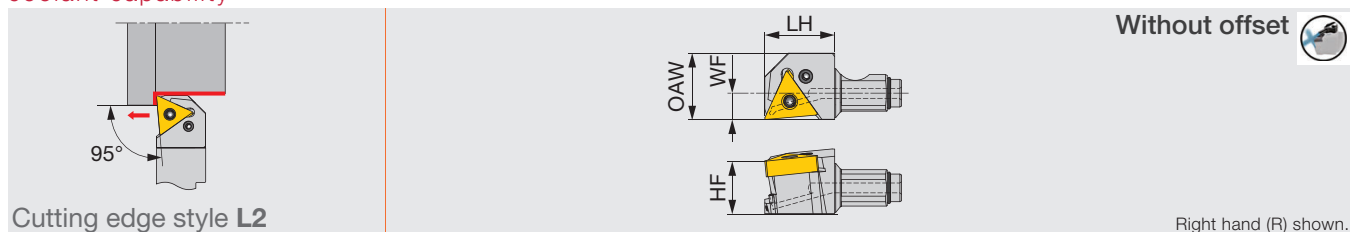


SPARE PARTS

Designation	Clamping screw	Wrench	Lever
QC16-PTL2NR16	LCS33	P-2	LCL33N

QC16-PTL2NR-CHP

Lever-lock modular head with 95° approach angle, for negative 60° triangular inserts, with high pressure coolant capability



Designation	LH	HF	WF	OAW	RE**	Insert	Torque*	Shank
QC16-PTL2NR16-CHP	21	16	8	20	0.4	TN**1604...	1.5	QC-16...

Torque*: Recommended clamping torque (N-m)

RE**: Standard corner radius

Related Items

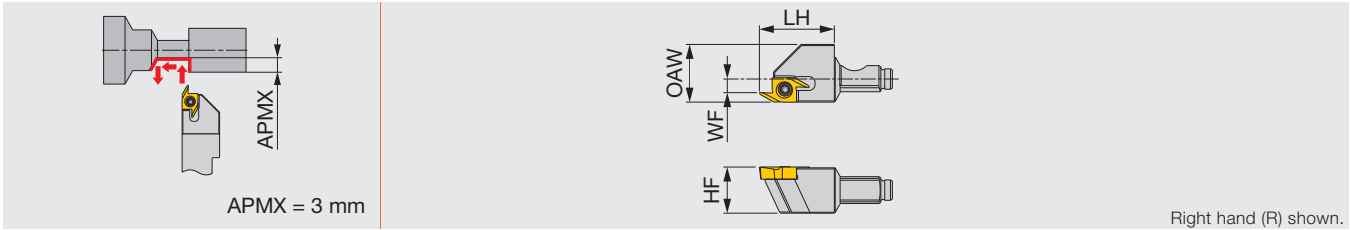


SPARE PARTS

Designation	Clamping screw	Wrench	Lever	O-ring
QC16-PTL2NR16-CHP	LCS33	P-2	LCL33N	ORSS-0757.5X1.0NBR70

QC16-JSEGR

Screw-on modular head for back turning



Designation	LH	HF	WF	OAW	Insert	Torque*	Shank
QC16-JSEGR10	21	16	5.5	20	J10ER...	1.2	QC-16...

Torque*: Recommended clamping torque (N·m)

Related Items

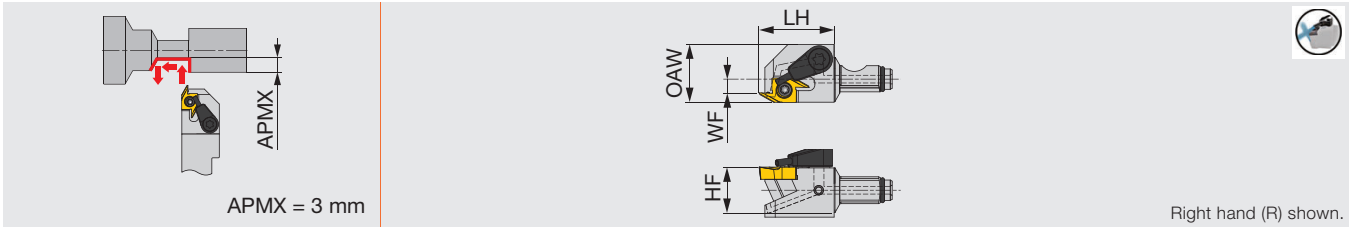
SPARE PARTS

Designation	Clamping screw	Wrench
QC16-JSEGR10	CSTB-2.5	T-8F



QC16-JSEGR-CHP

Screw-on modular head for back turning, with high pressure coolant capability



Designation	LH	HF	WF	OAW	Insert	Torque*	Shank
QC16-JSEGR10-CHP	21	16	5.5	20	J10ER...	1.2	QC-16...

Torque*: Recommended clamping torque (N·m)

Related Items

SPARE PARTS

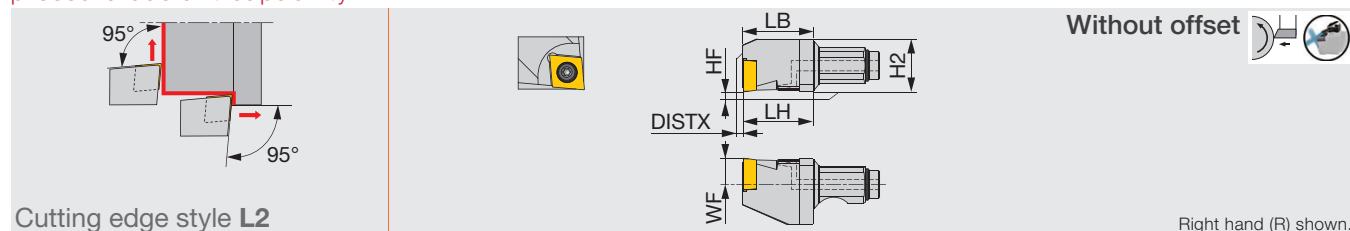
Designation	Clamping screw	Coolant unit	Wrench	O-ring
QC16-JSEGR10-CHP	CSTB-2.5	S-CU-CHP	T-8F	ORSS-0757.5X1.0NBR70



QC16-JSCL2CR-Y-CHP

J-SERIES

Screw-on Y-axis turning modular head with 95° approach angle, for positive 80° rhombic inserts, with high pressure coolant capability



Designation	LH	HF	WF	LB	H2	DISTX	RE**	Insert	Torque*	Shank
QC16-JSCL2CR09-Y-CHP	21	0	8	21.3	16	0.3	0.2	CC**09T3...	1.2	QC-16...

Torque*: Recommended clamping torque (N-m)
RE**: Standard corner radius

Related Items



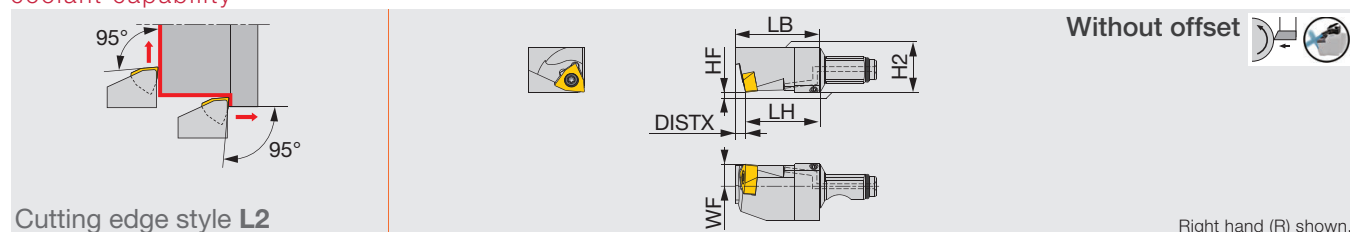
SPARE PARTS

Designation	Clamping screw	Wrench	O-ring
QC16-JSCL2CR09-Y-CHP	CSTB-4SD	T-8F	ORSS-0757.5X1.0NBR70

QC16-JSWL2XR-Y-CHP

MINIFORCE

Screw-on Y-axis turning modular head with 95° approach angle, for WXGU inserts, with high pressure coolant capability



Designation	LH	HF	WF	LB	H2	DISTX	RE**	Insert	Torque*	Shank
QC16-JSWL2XR04-Y-CHP	21	0	8	23.8	16	2.8	0.2	WXGU0403**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N-m)
RE**: Standard corner radius

Related Items



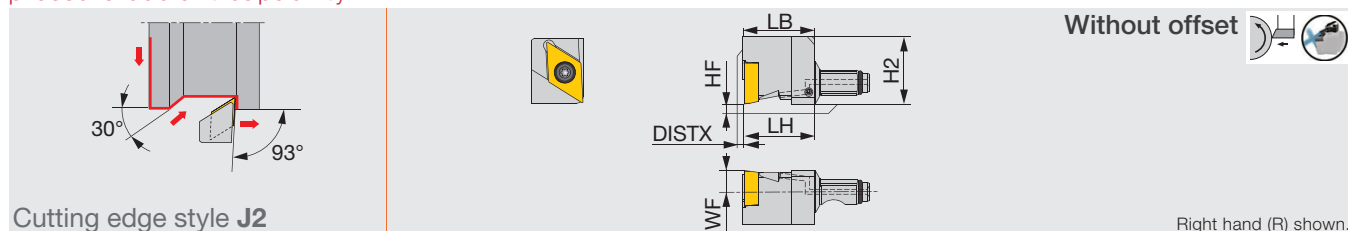
SPARE PARTS

Designation	Clamping screw	Wrench	O-ring
QC16-JSWL2XR04-Y-CHP	SR34-514	T-7F	ORSS-0757.5X1.0NBR70

QC16-JSDJ2CR-Y-CHP

J-SERIES

Screw-on Y-axis turning modular head with 93° approach angle, for positive 55° rhombic inserts, with high pressure coolant capability



Designation	LH	HF	WF	LB	H2	DISTX	RE**	Insert	Torque*	Shank
QC16-JSDJ2CR11-Y-CHP	21	0	8	21.3	18.7	0.3	0.2	DC**11T3...	1.2	QC-16...

Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items



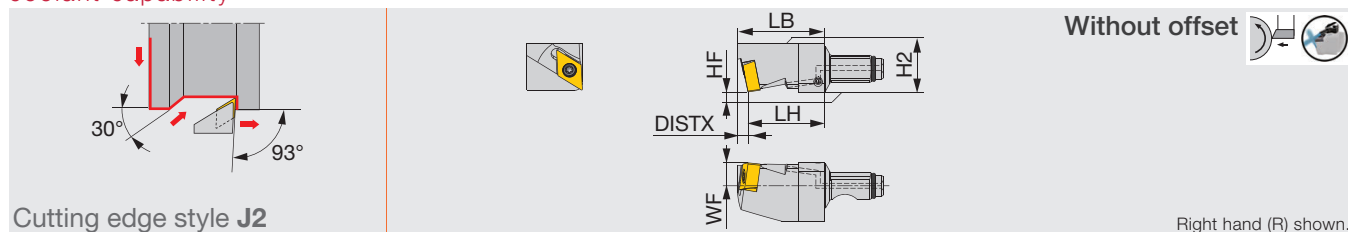
SPARE PARTS

Designation	Clamping screw	Wrench	O-ring
QC16-JSDJ2CR11-Y-CHP	CSTB-4SD	T-8F	ORSS-0757.5X1.0NBR70

QC16-JSDJ2XR-Y-CHP

MINIFORCE

Screw-on Y-axis turning modular head with 93° approach angle, for DX*U inserts, with high pressure coolant capability



Designation	LH	HF	WF	LB	H2	DISTX	RE**	Insert	Torque*	Shank
QC16-JSDJ2XR07-Y-CHP	21	0	8	23.8	16	2.8	0.2	DX*U0703**L...	0.9	QC-16...

Use right-hand toolholders (R) with left-hand inserts (L).
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items



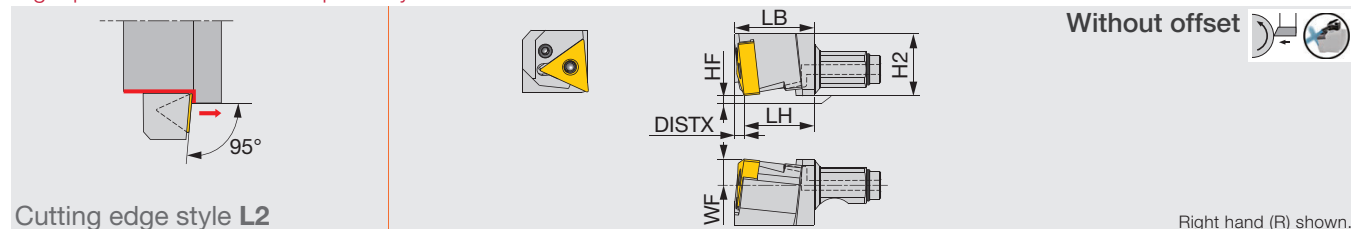
SPARE PARTS

Designation	Clamping screw	Wrench	O-ring
QC16-JSDJ2XR07-Y-CHP	SR34-514	T-7F	ORSS-0757.5X1.0NBR70

QC16-PTL2NR-Y-CHP

J-SERIES

Lever-lock Y-axis turning modular head with 95° approach angle, for negative 60° triangular inserts, with high pressure coolant capability



Designation	LH	HF	WF	LB	H2	DISTX	RE**	Insert	Torque*	Shank
QC16-PTL2NR16-Y-CHP	21	0	8	23.8	18.7	2.8	0.4	TN**1604...	1.5	QC-16...

Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

Related Items



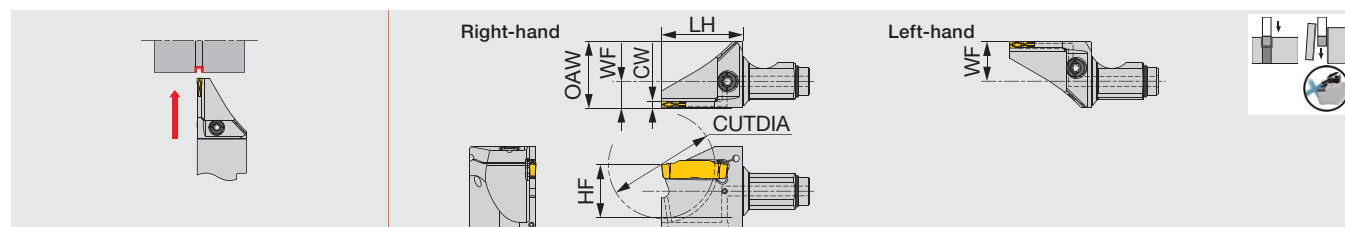
SPARE PARTS

Designation	Clamping screw	Wrench	Lever	O-ring
QC16-PTL2NR16-Y-CHP	LCS33	P-2	LCL33N	ORSS-0757.5X1.0NBR70

QC16-JCTER/L-CHP

TUNG CUT

Modular head for external grooving and parting, with high pressure coolant capability



Designation	CW	Seat size	CUTDIA	LH	HF	WF ⁽¹⁾	OAW	Insert	Torque*	Shank
QC16-JCTER/L1.2D20-CHP	1.2	0.9	20	24.5	16	8/12	20	DG..., SG...	3	QC-16...
QC16-JCTER/L1.4D20-CHP	1.4	1	20	24.5	16	8/12	20	DG..., SG...	3	QC-16...
QC16-JCTER/L2D20-CHP	2	2	20	24.5	16	8/12	20	DG..., SG...	3	QC-16...
QC16-JCTER/L2D26-CHP	2	2	26	24.5	16	8/12	20	DG..., SG...	3	QC-16...
QC16-JCTER/L2D32-CHP	2	2	32	24.5	16	8/12	20	DG..., SG...	3	QC-16...
QC16-JCTER/L3D26-CHP	3	3	26	24.5	16	8/12	20	DG..., SG...	3	QC-16...
QC16-JCTER/L3D32-CHP	3	3	32	24.5	16	8/12	20	DG..., SG...	3	QC-16...

(1) "WF" value is calculated with groove width "CW" shown in the table. The first value before "/" indicates the WF for the right-hand holder and the second value after "/" for the left-hand holder.

Torque*: Recommended clamping torque (N·m)

Related Items



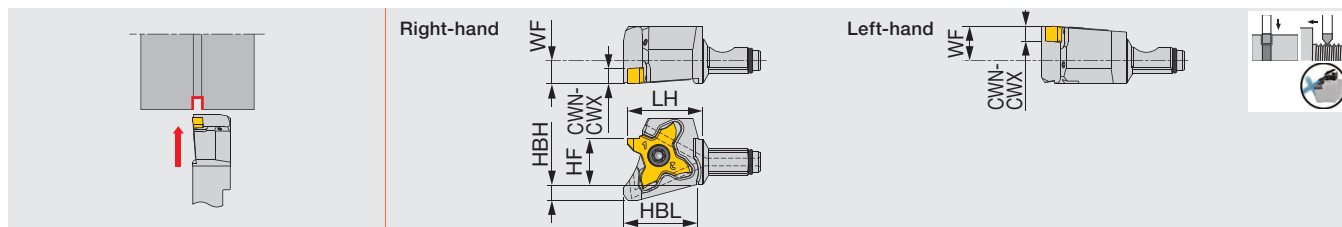
SPARE PARTS

Designation	Clamping screw	Wrench	O-ring
QC16-JCTER/L...	CSHB-4-A	T-15F	ORSS-0757.5X1.0NBR70

QC16-STCR/L-CHP

TETRAMCUT

Modular head for external grooving and threading, with high pressure coolant capability



Designation	CWN	CWX	LH	HF	WF ⁽¹⁾	Insert	Torque*	Shank
QC16-STCR/L18-CHP	0.33	3.18	21	16	8/13	TC*18R/L...	1.2	QC-16...

Use the right hand insert (TC*18R...) with the right hand toolholders (STCR...). Use the left hand insert (TC*18L...) with the left hand holder (STCL...).

Torque*: Recommended clamping torque (N·m)

(1) The first value before "/" indicates the WF for the right-hand holder and the second value after "/" for the left-hand holder.

Related Items



Right-hand



Left-hand

SPARE PARTS

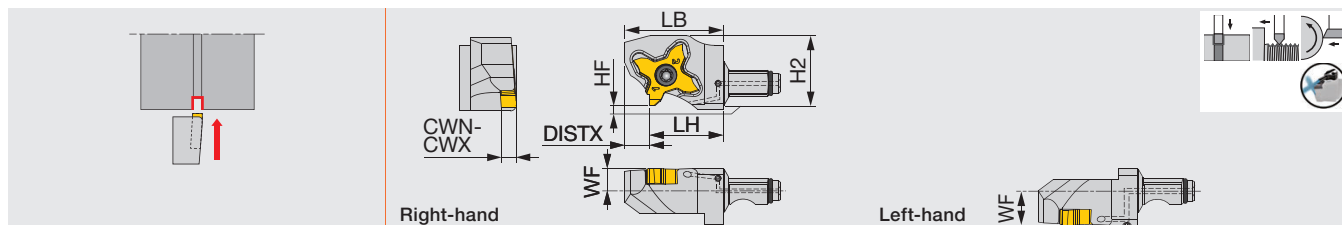


Designation	Clamping screw	Wrench	O-ring
QC16-STCR18-CHP	CSTC-4L100DL	T-1008/5	ORSS-0757.5X1.0NBR70
QC16-STCL18-CHP	CSTC-4L100DR	T-1008/5	ORSS-0757.5X1.0NBR70

QC16-STCR/L-Y-CHP

TETRAMCUT

Y-axis turning modular head for external grooving and threading, with high pressure coolant capability



Designation	CWN	CWX	LH	HF	WF ⁽¹⁾	LB	H2	DISTX	Insert	Torque*	Shank
QC16-STCR/L18-Y-CHP	0.33	3.18	21	0	8/13	27.5	18.6	6.5	TC*18R/L...	1.2	QC-16...

Use the right hand insert (TC*18R...) with the right hand toolholders (STCR...). Use the left hand insert (TC*18L...) with the left hand holder (STCL...).

Torque*: Recommended clamping torque (N·m)

(1) The first value before "/" indicates the WF for the right-hand holder and the second value after "/" for the left-hand holder.

Related Items



Right-hand



Left-hand

SPARE PARTS

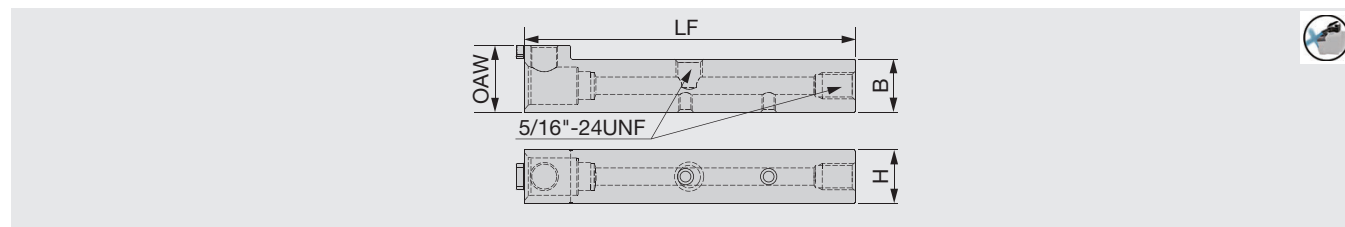


Designation	Clamping screw	Wrench	O-ring
QC16-STCR18-Y-CHP	CSTC-4L100DL	T-1008/5	ORSS-0454.5X1.0NBR70
QC16-STCL18-Y-CHP	CSTC-4L100DR	T-1008/5	ORSS-0757.5X1.0NBR70

SHANKS

QC-1616-CHP

Shank for modular heads, with high pressure coolant capability



Designation	H	B	LF	OAW	Torque*	Head
QC-1616X-CHP	16	16	99	20	8.5	QC16...

Compatible to the direct internal coolant supply system without the use of external coolant hose.

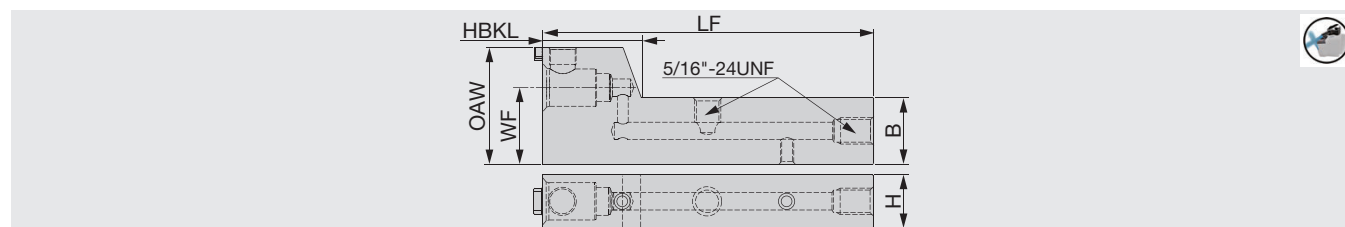
Torque*: Recommended clamping torque (N-m)

SPARE PARTS

Designation	Clamping screw	Wrench 1	Coolant plug	Wrench 2	DirectJet plug	Wrench 3
QC-1616X-CHP	SRM8X0.5	P-5	SR5/16UNFTL360	P-4	SSHM4-6-TB	P-2

QC-1620-F15-CHP

Stepped-head shank for modular heads, with high pressure coolant capability



Designation	H	B	LF	WF	HBKL	OAW	Torque*	Head
QC-1620X-F15-CHP	16	20	99	23	30	35	8.5	QC16...

Compatible to the direct internal coolant supply system without the use of external coolant hose.

Torque*: Recommended clamping torque (N-m)

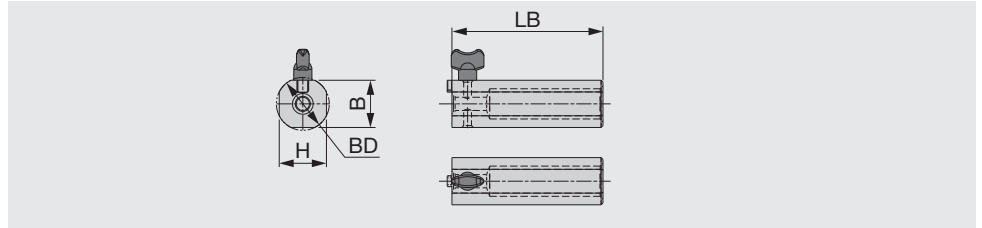
SPARE PARTS

Designation	Clamping screw	Wrench 1	Coolant plug	Wrench 2	DirectJet plug	Wrench 3
QC-1620X-F15-CHP	SRM8X0.5	P-5	SR5/16UNFTL360	P-4	SSHM4-6-TB	P-2

ACCESSORIES

QC-16D28EXC

Modular head holder for insert change



Designation	BD	LB	H	B	Head
QC-16D28EXC	28	80	25	25	QC16...

Note: This is a dedicated modular-head holder designed to facilitate insert changes. Do not use this holder for machining as it may cause damages to tool, workpiece, machine, and possible human injury.

SPARE PARTS



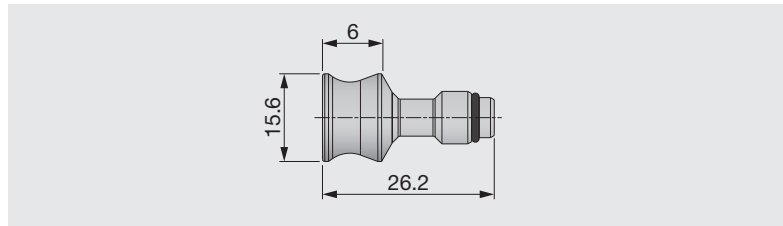
Designation	Fixing screw
QC-16D28EXC	KNOBM5X10



ModuMini-Turn modular heads are small. When it is difficult to change inserts while holding the modular head with fingers, use the dedicated holder to facilitate insert changes.

QC16-STOPPER

Protective plug for shank



Designation	Shank
QC16-STOPPER	QC-16...

SPARE PARTS



Designation	O-ring
QC16-STOPPER	ORSS-0757.5X1.0NBR70

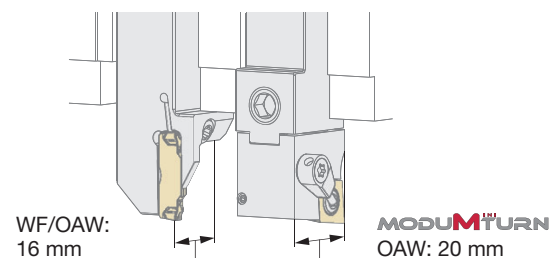


The cutting head located in the feed direction of the Y-axis tool can be removed to make room for machining larger-sized barstock. If this is the case, attach the plug to the shank to protect the coupling surface from chips, as well as prevent coolant leakage during machining.

Caution when using with sub-spindle

● Possible tool collision with the sub-spindle during parting operation

ModuMini-Turn may collide with the sub-spindle when being used with a non **ModuMini-Turn** parting tool set in the adjacent position. This is because the overall widths (OAWs) of the cutting heads are not in uniformity. In such case, please implement necessary compensations to the programming to offset the size difference and avoid collision.

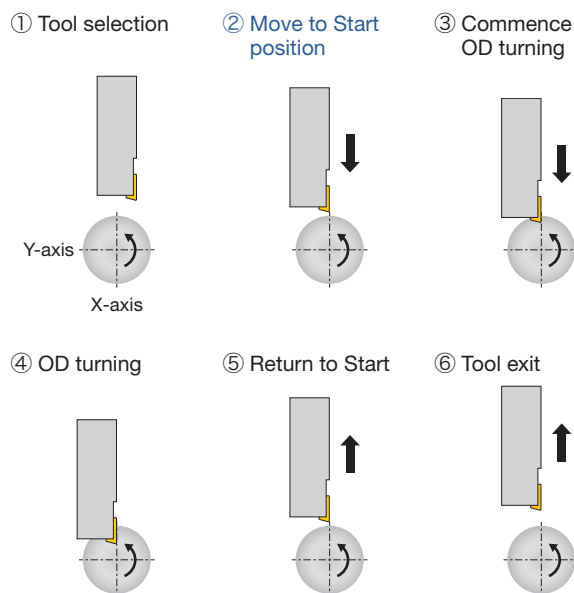


Mixed tooling and varied OAWs

Cautions when using Y-axis cutting heads

Machining procedures

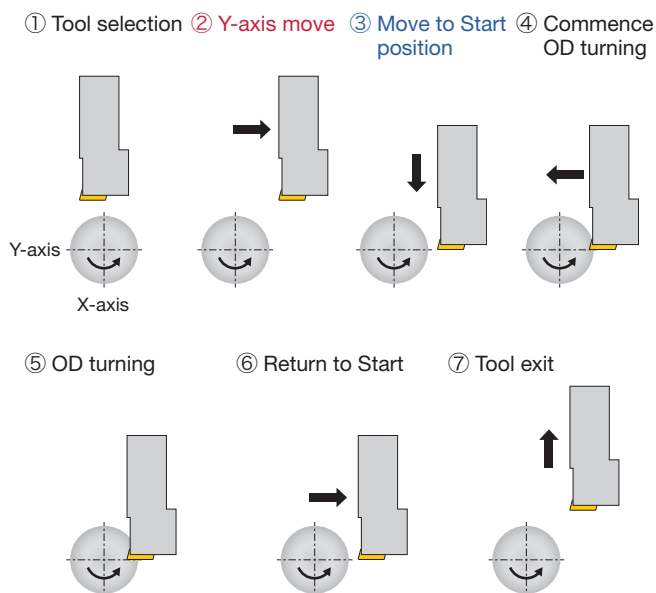
Conventional X-axis machining



Programming sample

① T0200 Tool selection
 ② G00 X13.0 Z0 T2 Move to start position
 ③ G01 X10.0 F0.1 Commence OD turning
 ④ Z5.0 F0.05 OD turning
 ⑤ X13.0 Return to start position
 ⑥ G00X20.0 Tool exit

Y-axis machining



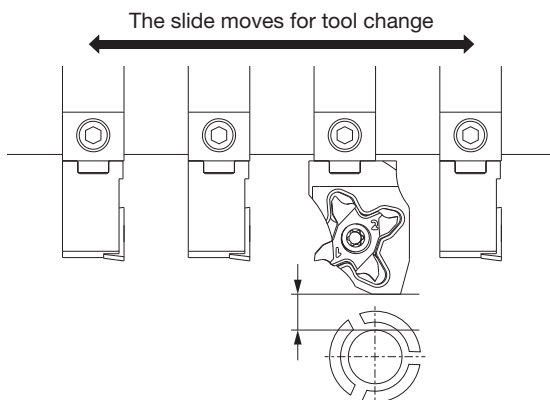
Programming sample

① T0200 Tool selection
 ② G00 Y13.0 Z0 T2 Move the Y-axis
 ③ X0 Move to start position
 ④ G01 Y10.0 F0.1 Commence OD turning
 ⑤ Z5.0 F0.05 OD turning
 ⑥ Y13.0 Return to start position
 ⑦ G00X20.0 Tool exit

Note) Ensure to first move ② Y-axis before ③ moving to the start position.

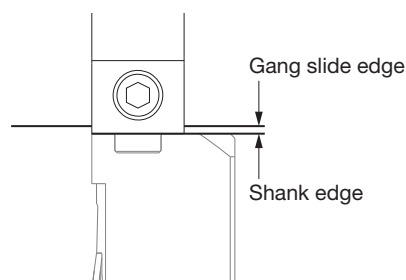
Difference in tool overhang

Due to the difference in overhang from conventional X-axis tools, Y-axis tool needs special attention to avoid collision with the workpiece during the slide movement. To ensure safety, program so that the cutting head stays clear from the workpiece.



Caution when installing the shank on the gang slide

To ensure secure tool coupling, install the shank on the gang slide so that the shank edge protrudes 0.5 mm or more from the edge of the slide unit. Make sure that the cutting head and the slide unit are NOT in contact.



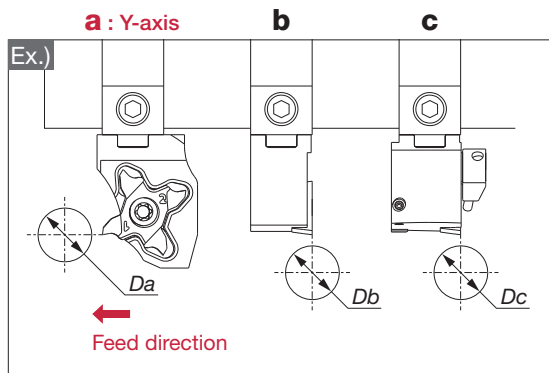
● Reduction of machinable barstock diameters

Depending on the Y-axis cutting tool's location and orientation on the gang tool slide, machinable barstock diameter may vary. To avoid tool collision and damage with the workpiece, check the machinable barstock size in the list below before using Y-axis cutting head.

Note: The values in the list are calculated, provided that the cutting tools on the slide are all accurately set to the equal tool length before operation.

A When there is no tool located in the feed direction of Y-axis tool

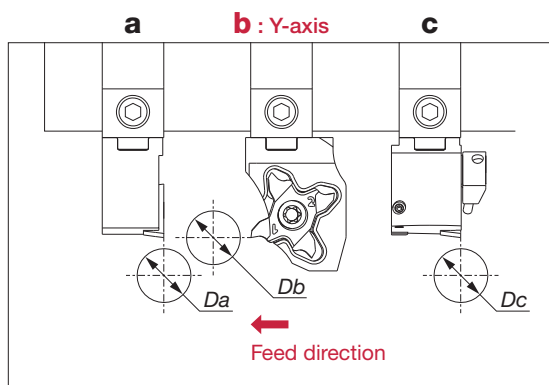
Ex.) Y-axis tool is located at the very end of the slide facing outward



Tool position	a	b	c
Cutting head type	Y-axis head	X-axis head	X-axis head
Machinable barstock dia.	No restriction for the D_a value	$D_b = \varnothing 70 \text{ mm}$	No restriction for the D_c value

B When there is a tool located in the feed direction of the Y-axis tool

B-1: When X-axis tool is in the Y-axis feed direction



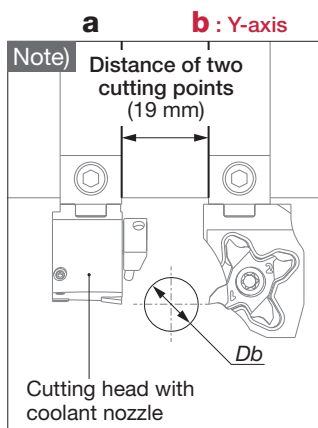
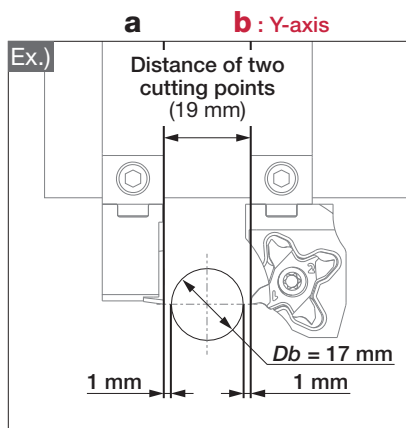
Tool position	a	b	c
Cutting head type	X-axis head	Y-axis head	X-axis head
Machinable barstock dia.	No restriction for the D_a value	See below for the D_b value	$D_c = \varnothing 70 \text{ mm}$

Calculation for D_b

$D_b = \text{Distance between the cutting points} - 2 \text{ mm (for the holder clearances)}$

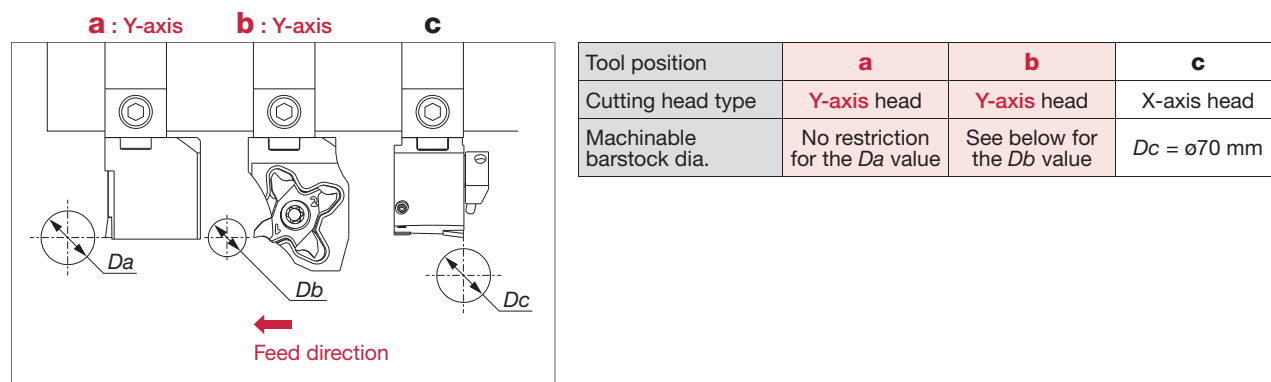
Ex.) Given that the two cutting points are 19 mm apart,

$$D_b = 19 - 2 = \varnothing 17 \text{ mm}$$



Note) When Y-axis tool is adjacent to a tool with coolant nozzle, a collision may occur even if a proper distance is maintained between the tools. For such tool setup, always use precautionary measures to avoid interference before starting the operation.

B-2: When another Y-axis tool is in the Y-axis feed direction



Calculation for D_b

D_b = Distance between the two cutting points – Max head width – 2 mm (for the clearances)

Max head width = Head width (H2) – Shank width (B)

See the catalog for the tool's H2 and B sizes.

Ex.) Given: the cutting point distance = 19 mm

Using QC16-JSDJ2CR11-Y-CHP as the adjacent tool (H2 = 18.7 mm, B = 16 mm)

$$D_b = 19 - (18.7 - 16) - 2 = \phi 14.3 \text{ mm}$$

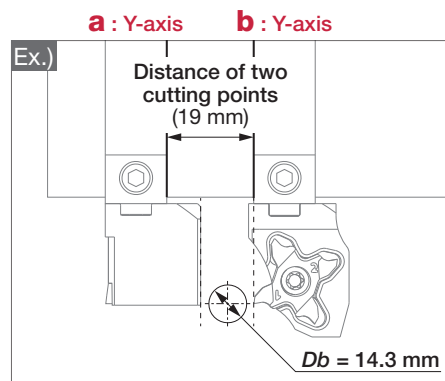


Chart sheet for the D_b values when using ModuMini-Turn Y-axis cutting head

Y-axis cutting head	Distance between the two tools (mm)	H2 (mm)	Shank width B (mm)	Machinable barstock dia. D_b (mm)
QC16-JSCL2CR09-Y-CHP	19	16	16	$\phi 17.9^*$
QC16-JSWL2XR04-Y-CHP		16	16	$\phi 18.5^*$
QC16-JSDJ2CR11-Y-CHP		18.7	16	$\phi 14.3$
QC16-JSDJ2XR07-Y-CHP		16	16	$\phi 17$
QC16-PTL2NR16-Y-CHP		18.7	16	$\phi 14.3$
QC16-STCR/L18-Y-CHP		18.6	16	$\phi 14.4$
QC16-STOPPER		-	16	$\phi 27.5$

* The theoretical maximum machinable diameter for these tools is 17.0 mm.

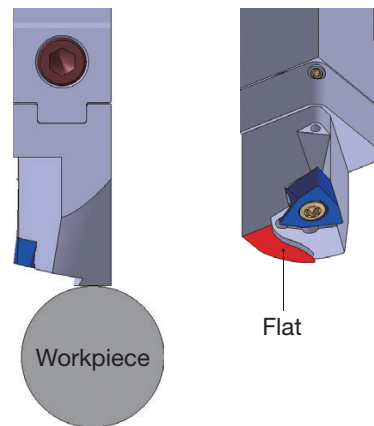
■ Cutting point offset in the radial (X-axis) direction

● Setting Method

To offset the cutting point position in the radial (X-axis) direction during the tool setup, lower the flat (the red-colored area) of the cutting head to contact the workpiece, then compensate the tool position by offsetting the program for the distance between the flat and the cutting point (see the list below for the offset values).

Presetting

- Bring the flat into contact with the workpiece and preset the value for the radial (X-axis) direction.

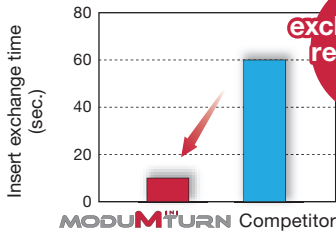
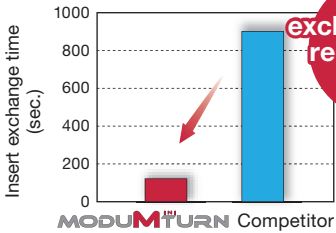


Programming

- The offset values for the cutting point are shown in the list below.
- Set the offset value in the machining program to compensate the cutting point position.

DISTX : Offset value for the cutting point	Offset values for Y-axis cutting head types		
	J-SERIES	MINIFURN	TETRAMCUT
Y-axis cutting head	QC16-JSCL2CR09-Y-CHP QC16-JSDJ2CR11-Y-CHP	QC16-JSWL2XR04-Y-CHP QC16-JSDJ2XR07-Y-CHP QC16-PTL2NR16-Y-CHP	QC16-STCR/L18-Y-CHP
DISTX Offset value for the cutting point	0.3 mm (Ref.)	2.8 mm (Ref.)	6.5 mm (Ref.)

PRACTICAL EXAMPLES

Workpiece type		Screw	Drive shaft
Shank		QC-1616X-CHP	QC-1616X-CHP
Head		QC16-JSDJ2CR11-CHP	QC16-PTL2NR16-CHP
Insert		DCGT11T302N-JS	TNMG160404-TSF
Grade		AH725	T9225
Workpiece material		SUS304 / X5CrNi18-9	Alloy steel
		 M	 P
Cutting conditions	Cutting speed : V_c (m/min)	80	150
	Feed : f (mm/rev)	0.05	0.15
	Machining	External turning	External turning
	Coolant	Wet	Wet
Results		 Insert exchange time (sec.) Insert exchange time reduced by 83% Using ModuMini-Turn modular tooling enabled 83% shorter tool change time.	 Insert exchange time (sec.) Insert exchange time reduced by 87% Using ModuMini-Turn modular tooling system eliminated time-consuming external coolant subassembly and provided 87% shorter insert change time.



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