

New products for machining technicians



→ Page 15

NEW -M7

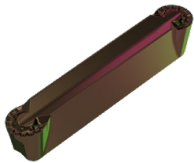
The new M7 geometry is designed for grooving and parting off. With medium-high feed rates, its best performance is achieved in steel.



→ Page 16

NEW -M8

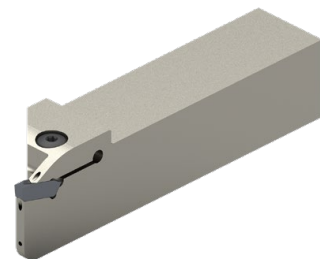
The ground M8 geometry will become the first choice for the machining of stainless steel. This geometry can only be used for grooving and parting off.



→ Page 57

NEW -M33

M33 geometry is the ideal extension to the existing M3 geometry, which is particularly suitable for finish machining. This geometry is also exceptionally well-suited to the machining of tough and ductile materials.



→ Page 48+49

→ Page 65+66

NEW GX Mono with DirectCooling

The new generation of the GX MonoClamp tool holder is available with and without DirectCooling. The update to the GX Mono holder ensures greater stability, improved performance and process security.



Solid drilling and bore machining

- 1 HSS drilling
- 2 Solid carbide drilling
- 3 Indexable insert drilling
- 4 Reaming and Countersinking
- 5 Spindle Tooling

Threading

- 6 Taps and thread formers
- 7 Circular and Thread Milling
- 8 Thread turning

Turning

- 9 Turning Tools
- 10 Multifunctional Tools – EcoCut and FreeTurn
- 11 Grooving Tools
- 12 Miniature turning tools

Milling

- 13 HSS Milling Cutters
- 14 Solid Carbide milling cutters
- 15 Milling tools with indexable inserts

Clamping technology

- 16 Adaptors and Accessories
- 17 Workpiece clamping

- 18 Material examples

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CERATIZIT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

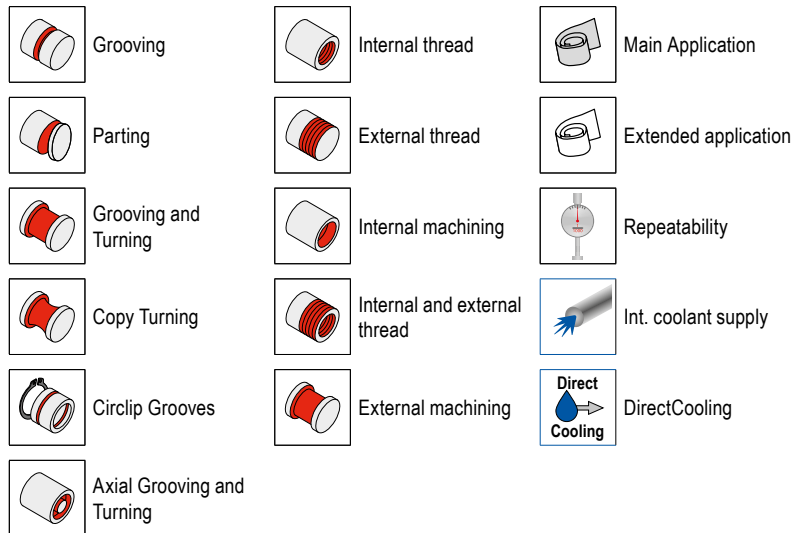
Advantages due to DirectCooling

- ▲ Improved chip control
- ▲ Longer service life of the indexable insert
- ▲ Greater process security
- ▲ Application of higher cutting data
- ▲ Reduced wear
- ▲ Universal application



cuttingtools.ceratizit.com/int/en/direct-cooling

Symbol explanation



F	M	R
F: Fine Machining M: Medium Machining R: Rough Machining		

	Smooth cut
	Irregular cutting depth
	Interrupted cut

-F2 CTPP345	Chip groove Carbide Grade
-----------------------	------------------------------

System overview

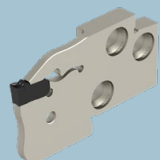
No. of cutting edges	System	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	External thread	Internal thread	Circlip Grooves	Internal machining	External machining		Internal machining		Axial machining		Page No.
											CW	CDX	DMIN	CDX	DAXN	CDX	
											(mm)	(max/mm)	(mm)	(max/mm)	(Ø min.)	(max/mm)	
1	SX										2 – 6	60					11–26
	FX										2,2 – 9,7	80					27–34
	LX										8 – 10	80	200	34	500	39	79–82
2	GX 09										2 – 3,5	7	16	6			35–51
	GX 16										2 – 6	12	20,5	11			35–51
	GX 24										2 – 6	21	42	19	45	25	52–69
	TC												20				87–94
	AX										3	15			10	15	83–86
3	TX										0,5 – 5,15	8	46	2	20	3	70–78

Toolfinder

ModularClamp



SX



18



FX



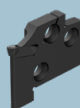
32



GX
09



43



44



45



46



GX
16



43



44

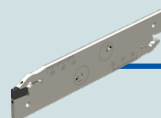


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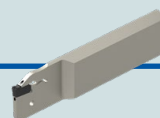


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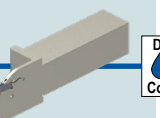
MonoClamp



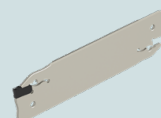
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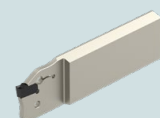
21+23



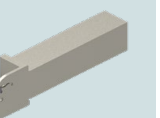
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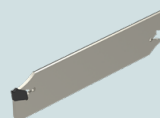
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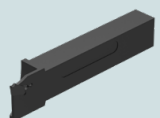
22+24



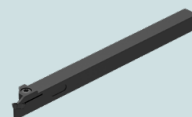
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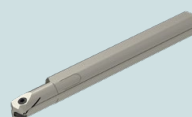
33



34



47



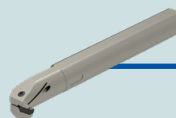
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48



49



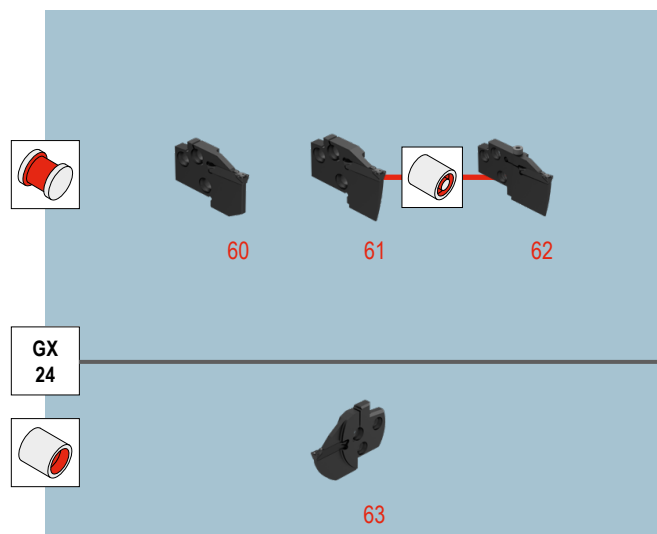
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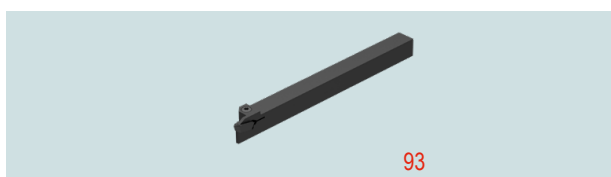
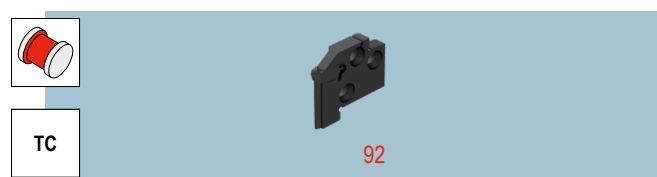
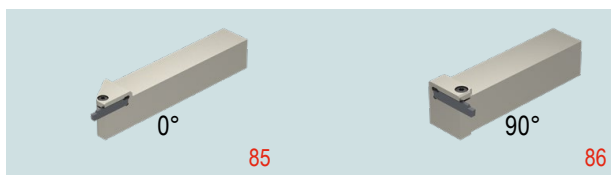
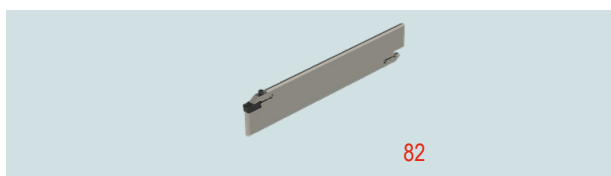
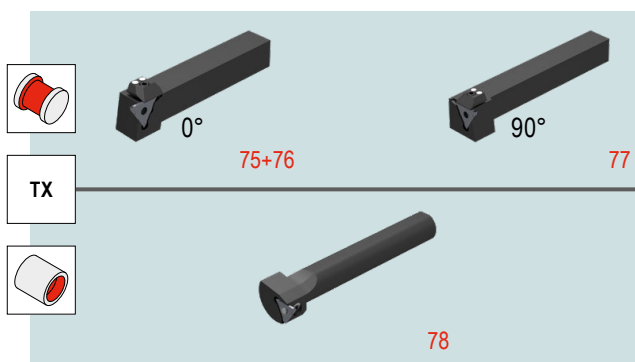
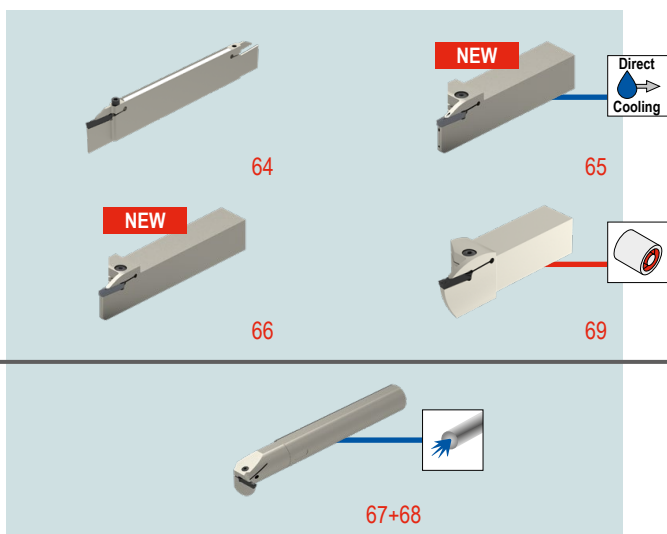
		Chip groove		Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circclip Grooves	Fine Machining F	Medium Machining M	Rough Machining R	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
SX	-F2			2-4																	11
	-M1			2-6																	12
	-M2			2-6																	13
	-M3			CRE 1,5-3,0																	14
	NEW -M7			2-6																	15
	NEW -M8			2-6																	16
	-27P			2-4																	17
FX	-F1			2,2-4,1																	27
	-M1			2,2-9,7																	28+29
	-27P			2,2-4,1																	30
	-R2			3,1-4,1																	31
GX 09 GX 16	-F2	GX09/16		2-5																	35
	Standard	GX09/16		2-6																	36
	-M40	GX09/16		2-6																	37
	-M1	GX16		2-4																	38
	-27P	GX16		2-6																	39
		GX09/16		1-4,25																	40
	Standard Radius	GX09/16		CRE 0,8-3,0																	41
	-27P Radius	GX16		CRE 1,5-2,5																	42

Toolfinder

ModularClamp



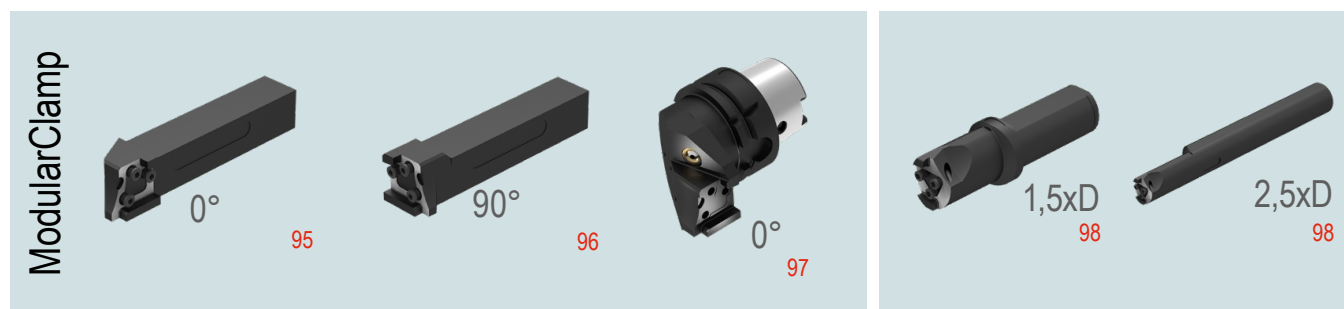
MonoClamp



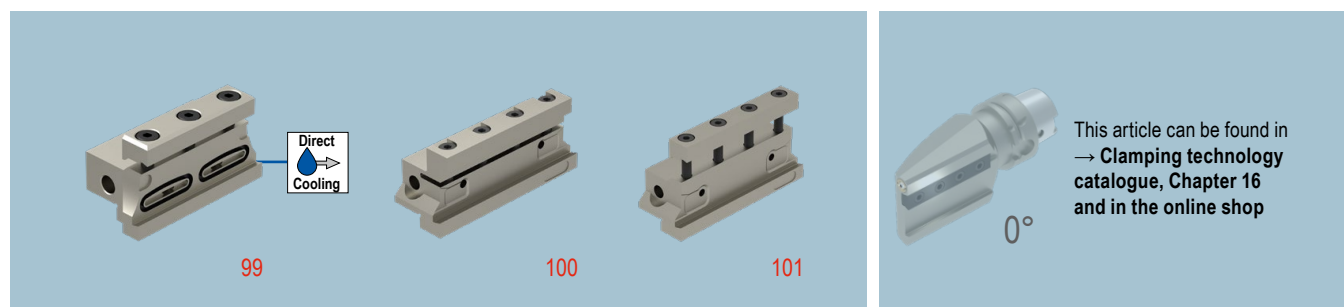
Chip groove			Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circulip Grooves	Fine Machining F	Medium Machining M	Rough Machining R	Steel Stainless steel Cast iron Non-ferrous metals Heat-resistant Tempered steel Non-metal materials	Page No.
GX 24	-F2	GX24	3-6											52
	-E	GX24	3-6											53
	-M1	GX24	2-4											54
	-M40	GX24	3-6											55
	-M3	GX24	CRE 1,5-3,0											56
	NEW -M33	GX24	CRE 1,5-3,0											57
	-27P	GX24	3-6											58
	-27PF	GX24	CRE 3-4											59
TX			1,99-2,79											70
			0,57-5,29											71
			CRE 0,25-2,50											72
			1,5-4,0											73
			1,5-3,0											74
LX	-M2		8-10											79
	-M3		CRE 4,0											80
AX	-F50		3											83

Thread type		Threading					
TC		60° Full profile					
		60° Partial profile					
		55° Full profile					
		55° Partial profile					

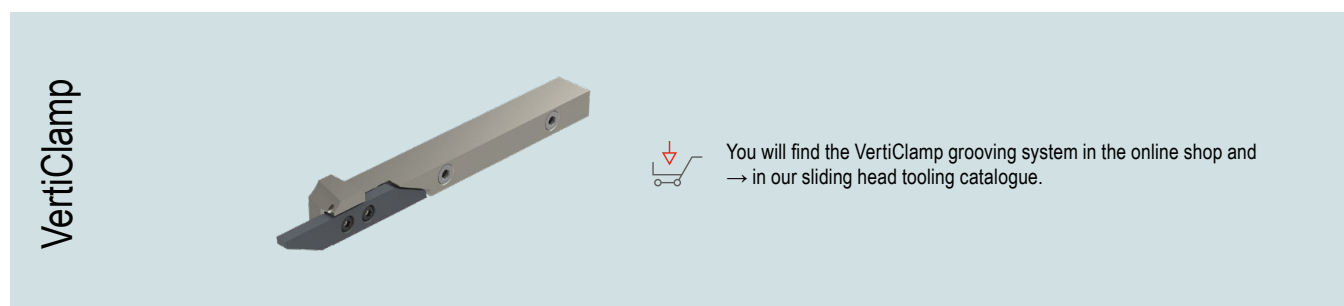
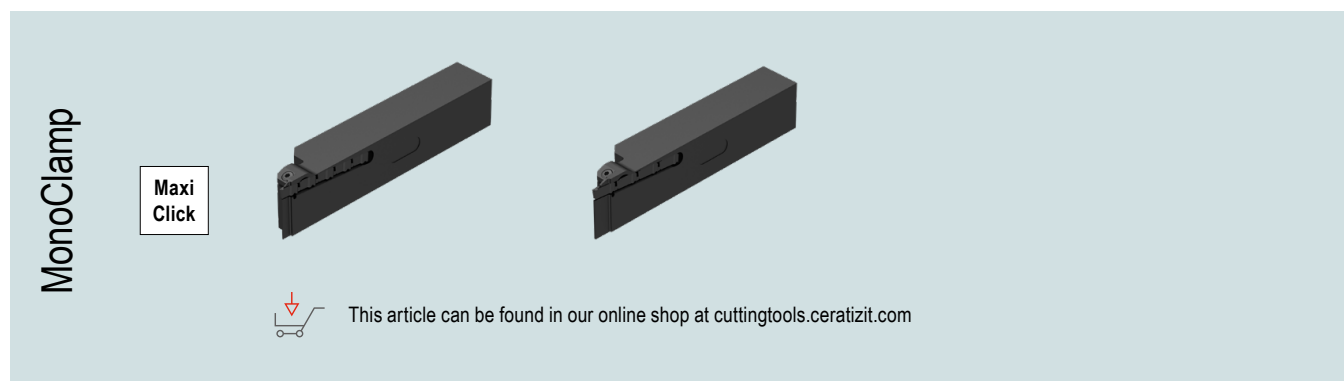
Base holder ModularClamp system



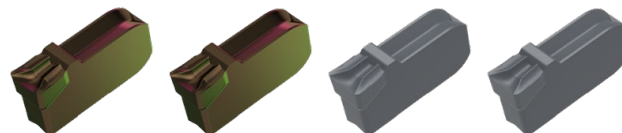
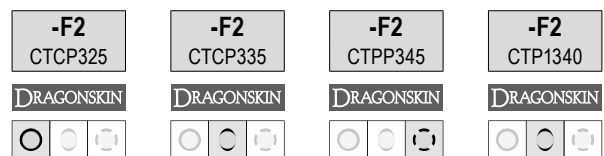
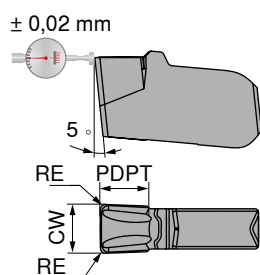
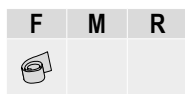
Clamping blocks for blades



OTHER GROOVING SYSTEMS



▲ High precision ground geometry



					70 346 ...	70 346 ...	70 346 ...	70 346 ...
Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder				
SX E2.00 N 0.20	2	0,2	1,5	-SX2			822	622
SX E3.00 N 0.30	3	0,3	2,0	-SX3	923	523	823	623
SX E4.00 N 0.40	4	0,4	2,5	-SX4			824	624

P	●	●	●	●
M	○	○	●	●
K	●	●		●
N				○
S	○		○	●
H				
O				○

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→ Application recommendation on page 108

Internal machining

External machining



→ 18

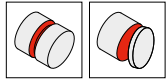
→ 19+20

→ 21-24

→ 25+26

Insert SX

▲ Specially developed geometry with negative edge-chamfers available in right, left and neutral types



-M1
CTCP325

DRAGONSKIN



-M1
CTCP335

DRAGONSKIN



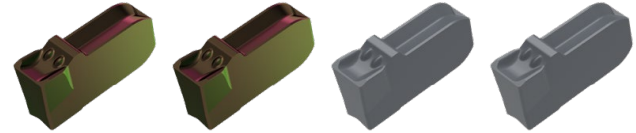
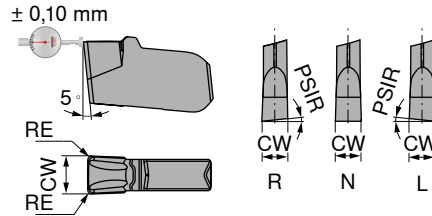
-M1
CTPP345

DRAGONSKIN



-M1
CTP1340

DRAGONSKIN



Designation	IH	CW $\pm 0,05$ mm	RE $\pm 0,05$ mm	PSIR	for tool holder	70 342 ...	70 342 ...	70 342 ...	70 342 ...
SX E2.00 L 6	L	2	0,2	6°	-SX2				612
SX E3.00 L 6	L	3	0,2	6°	-SX3	913			613
SX E4.00 L 6	L	4	0,3	6°	-SX4				614
SX E2.00 N 0.20	N	2	0,2		-SX2	922	52200	822	622
SX E3.00 N 0.20	N	3	0,2		-SX3	923	523	823	623
SX E4.00 N 0.30	N	4	0,3		-SX4	924	524	824	624
SX E5.00 N 0.30	N	5	0,3		-SX5	925	52500	825	625
SX E6.00 N 0.40	N	6	0,4		-SX6	926	52600	826	626
SX E2.00 R 6	R	2	0,2	6°	-SX2				602
SX E3.00 R 6	R	3	0,2	6°	-SX3	903			603
SX E4.00 R 6	R	4	0,3	6°	-SX4				604
P						●	●	●	●
M						○	○	●	●
K						●	●		●
N									○
S						○		○	●
H									
O									○

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Note: reduce feed rate by 20–50 % with R/L version!

You can find more information on page 119

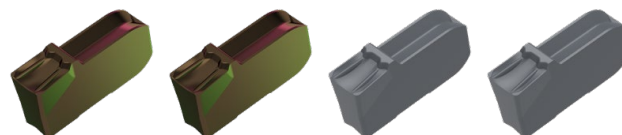
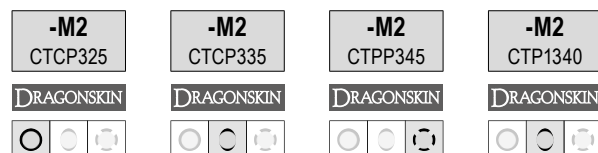
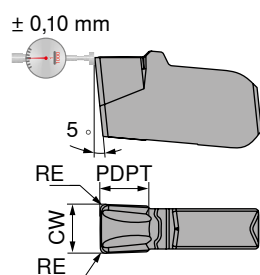
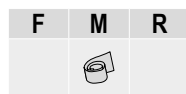
Internal machining

External machining

		→ 18	→ 19+20	→ 21–24	→ 25+26		

Insert SX

▲ All purpose geometry for parting, grooving & turning.



Designation	CW $\pm 0,05$ mm	RE $\pm 0,05$ mm	PDPT mm	for tool holder	70 343 ...	70 343 ...	70 343 ...	70 343 ...
SX E2.00 N 0.20	2	0,2	1,5	-SX2	922	522	822	622
SX E3.00 N 0.30	3	0,3	2,0	-SX3	923	523	823	623
SX E4.00 N 0.40	4	0,4	2,5	-SX4	924	524	824	624
SX E5.00 N 0.40	5	0,4	2,7	-SX5	925	525	825	625
SX E6.00 N 0.50	6	0,5	3,0	-SX6	926	526	826	626
P					●	●	●	●
M					○	○	●	●
K					●	●		●
N								○
S					○		○	●
H								
O								○

→ v_c Page 103

→ Application recommendation on page 108

Internal machining

External machining

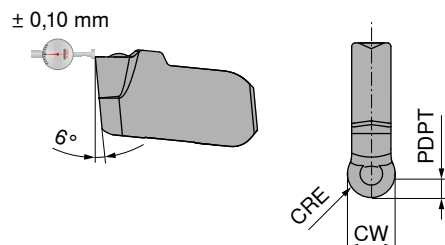
		→ 18	→ 19+20	→ 21-24	→ 25+26			

Radius Grooving Insert SX

- ▲ for grooving and copy turning
- ▲ very good chip control



F	M	R



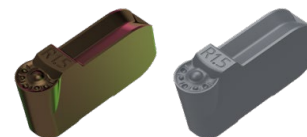
-M3
CTCP335

DRAGONSKIN



-M3
CTP1340

DRAGONSKIN



Designation	CW mm +/-0,05	CRE mm	PDPT mm	for tool holder
SX R3.00 N 1.50	3	1,5	1,5	-SX3
SX R4.00 N 2.00	4	2,0	2,0	-SX4
SX R5.00 N 2.50	5	2,5	2,5	-SX5
SX R6.00 N 3.00	6	3,0	3,0	-SX6

70 344 ...

70 344 ...

P	●	●
M	○	●
K	●	●
N		○
S		●
H		
O		○

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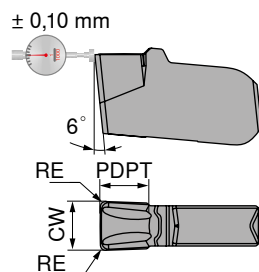
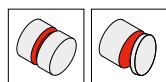
Internal machining

External machining

		→ 18	→ 19+20	→ 21-24	→ 25+26			

Insert SX

▲ For grooving and parting off in steel at medium to high feed rates

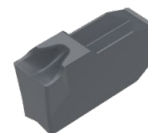


NEW

-M7

CTP1340

DRAGONSKIN



70 347 ...

Designation	CW $\pm 0,05$ mm	RE $\pm 0,05$ mm	PDPT mm	for tool holder	
SX E2.00 N 0.20	2	0,2	1,5	-SX2	62200
SX E3.00 N 0.20	3	0,2	2,0	-SX3	62300
SX E4.00 N 0.30	4	0,3	2,5	-SX4	62400
SX E5.00 N 0.30	5	0,3	2,7	-SX5	62500
SX E6.00 N 0.40	6	0,4	3,0	-SX6	62600

P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 103

→ Application recommendation on page 108

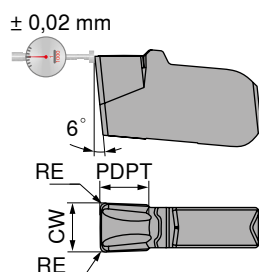
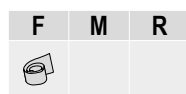
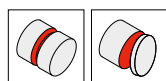
Internal machining

External machining

								
		→ 18	→ 19+20	→ 21-24	→ 25+26			

Insert SX

- ▲ Ground geometry
- ▲ First choice for the grooving and parting off of stainless steel

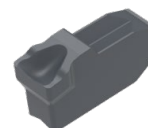


NEW

-M8

CTP1340

DRAGONSKIN



70 348 ...

Designation	CW $\pm 0,05$ mm	RE $\pm 0,05$ mm	PDPT mm	for tool holder	
SX E2.00 N 0.20	2	0,2	1,5	-SX2	62200
SX E3.00 N 0.20	3	0,2	2,0	-SX3	62300
SX E4.00 N 0.30	4	0,3	2,5	-SX4	62400
SX E5.00 N 0.30	5	0,3	2,7	-SX5	62500
SX E6.00 N 0.40	6	0,4	3,0	-SX6	62600

P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 103

→ Application recommendation on page 108

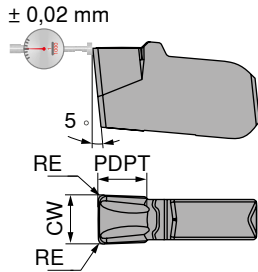
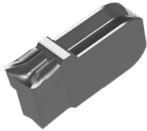
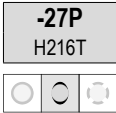
Internal machining

External machining

		→ 18	→ 19+20	→ 21-24	→ 25+26			

Insert SX

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ Specialist for aluminum and other soft long-chipping non-ferrous metals



70 349 ...

Designation	CW $\pm 0,02$ mm	RE $\pm 0,05$ mm	PDPT mm	for tool holder
SX E2.00 N 0.20	2	0,2	2,0	-SX2
SX E3.00 N 0.30	3	0,3	2,5	-SX3
SX E4.00 N 0.40	4	0,4	3,0	-SX4

122
123
124

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 103
→ Application recommendation on page 109

Internal machining

External machining

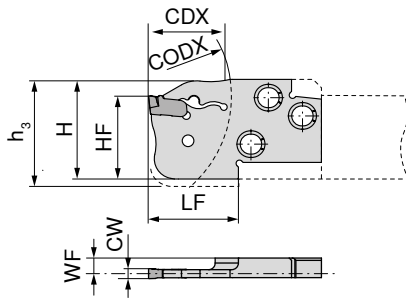
		→ 18	→ 19+20	→ 21-24	→ 25+26			

ModularClamp MSS – Radial grooving module SX

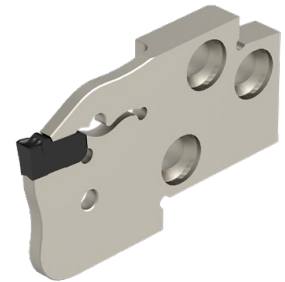
▲ for parting, grooving and finish turning

Scope of supply:

Grooving module only



Illustrations show right-hand versions



ISO designation	HF mm	CW mm	WF mm	LF mm	H mm	h ₃ mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 897 ...	Right-hand 70 896 ...
E20 R/L 20-SX2	20	2	3,57	22	24	27	60	20	SX .2..	020	020
E20 R/L 20-SX3	20	3	3,20	22	24	27	60	20	SX .3..	120	120
E25 R/L 20-SX2	25	2	5,07	22	30		75	20	SX .2..	025	025
E25 R/L 25-SX3	25	3	4,70	27	30		75	25	SX .3..	125	125
E25 R/L 35-SX3	25	3	4,70	37	30		75	35	SX .3..	225	225
E25 R/L 25-SX4	25	4	4,30	27	30		75	25	SX .4..	325	325
E25 R/L 35-SX4	25	4	4,30	37	30		75	35	SX .4..	425	425

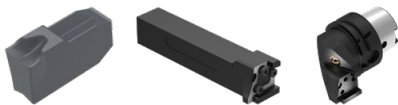


Ejector SX

Spare parts for grooving inserts

SX .2..	SX 2-3	836
SX .3..	SX 2-3	836
SX .4..	SX 4-6	837

70 950 ...



→ 11-17

→ 95+96

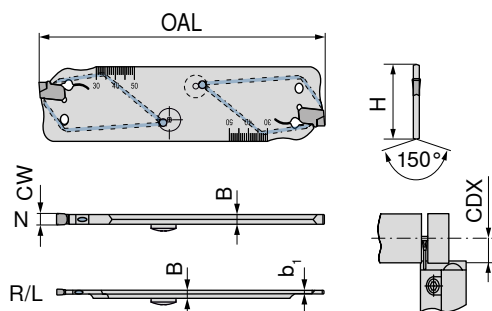
→ 97

 Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX-DC Standard

Scope of supply:

Blade incl. 1 sealing screw



70 884 ...

ISO designation	CW mm	H mm	B mm	b ₁ mm	OAL mm	CDX mm	for grooving inserts	R/L/N
XLCF L 2602-DC-SX2	2	26	2,4	1,6	110	25	SX .2..	L
XLCF R 2602-DC-SX2	2	26	2,4	1,6	110	25	SX .2..	R
XLCF N 2603-DC-SX3	3	26	2,5		110	35	SX .3..	N
XLCF N 2604-DC-SX4	4	26	3,3		110	40	SX .4..	N
XLCF L 3202-DC-SX2	2	32	2,4	1,6	150	26	SX .2..	L
XLCF R 3202-DC-SX2	2	32	2,4	1,6	150	26	SX .2..	R
XLCF N 3203-DC-SX3	3	32	2,5		150	50	SX .3..	N
XLCF N 3204-DC-SX4	4	32	3,3		150	50	SX .4..	N
XLCF N 3205-DC-SX5	5	32	4,3		150	55	SX .5..	N
XLCF N 3206-DC-SX6	6	32	5,2		150	60	SX .6..	N

712
512
613
614
702
502
603
604
605
606

Key D



Ejector SX



Sealing screw

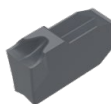
80 950 ...

70 950 ...

70 950 ...

Spare parts for grooving inserts

SX .2..	T15 - IP	128	SX 2-3	836	M4 x 3	450
SX .3..	T15 - IP	128	SX 2-3	836	M4 x 3	450
SX .4..	T15 - IP	128	SX 4-6	837	M4 x 3	450
SX .5..	T15 - IP	128	SX 4-6	837	M4 x 3	450
SX .6..	T15 - IP	128	SX 4-6	837	M4 x 3	450



→ 11-17

→ 99

→ Chapter 16

→ Chapter 16

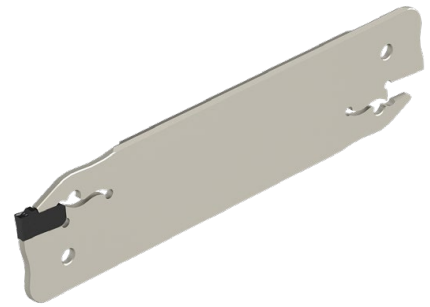
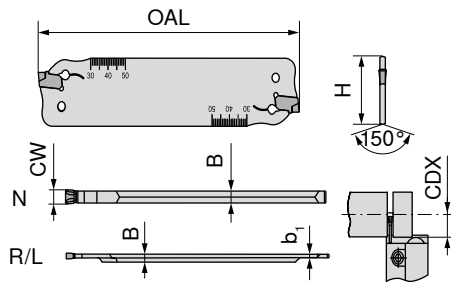


Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX Standard

Scope of supply:

Blade only



70 884 ...

ISO designation	CW mm	H mm	B mm	b ₁ mm	OAL mm	CDX mm	for grooving inserts	R/L/N
XLCF L 2602-SX2	2	26	2,4	1,5	110	25	SX .2..	L
XLCF R 2602-SX2	2	26	2,4	1,5	110	25	SX .2..	R
XLCF N 2603-SX3	3	26	2,4		110	35	SX .3..	N
XCLF N 2604-SX4	4	26	3,2		110	40	SX .4..	N
XLCF L 3202-SX2	2	32	2,4	1,5	150	25	SX .2..	L
XLCF R 3202-SX2	2	32	2,4	1,5	150	25	SX .2..	R
XLCF N 3203-SX3	3	32	2,4		150	50	SX .3..	N
XLCF N 3204-SX4	4	32	3,2		150	50	SX .4..	N
XLCF N 3205-SX5	5	32	4,2		150	55	SX .5..	N
XLCF N 3206-SX6	6	32	5,2		150	60	SX .6..	N

212

012

113

114

202

002

103

104

105

106



Ejector SX

70 950 ...

Spare parts for grooving inserts

SX .2..	SX 2-3	836
SX .3..	SX 2-3	836
SX .4..	SX 4-6	837
SX .5..	SX 4-6	837
SX .6..	SX 4-6	837



→ 11-17

→ 100+101

→ Chapter 16

→ Chapter 16

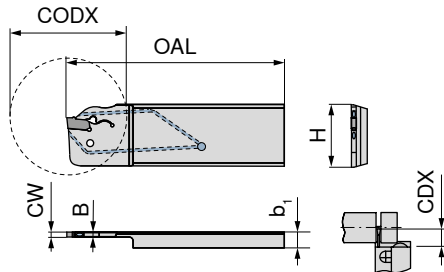


Please order SX assembly key separately if required.

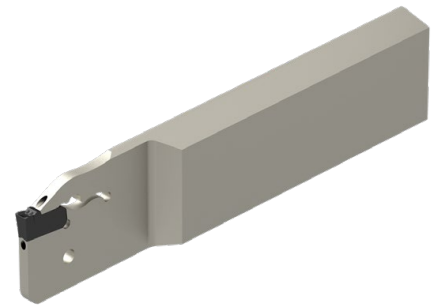
MonoClamp – Radial Blade SX-DC reinforced

Scope of supply:

Blade only



Illustrations show right-hand versions



ISO designation	CW mm	H mm	B mm	b ₁ mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N
XLCF L 2608-DC-SX3	3	26	2,5	8	110	66	33	SX .3..	L
XLCF R 2608-DC-SX3	3	26	2,5	8	110	66	33	SX .3..	R
XLCF L 3208-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	L
XLCF R 3208-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	R

70 879 ...

713

513

703

503



70 950 ...

Spare parts
for grooving inserts

SX .3..

SX 2-3

836

SX .4..

SX 4-6

837



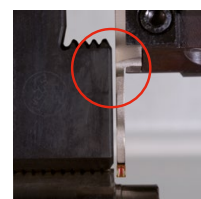
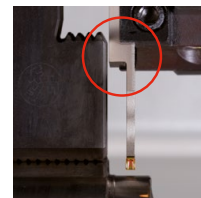
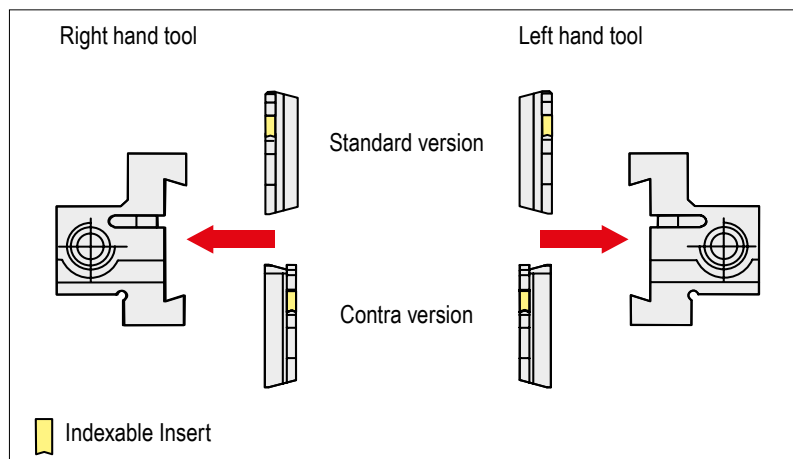
→ 11-17

→ 99

→ Chapter 16

→ Chapter 16

Correct Tool Selection

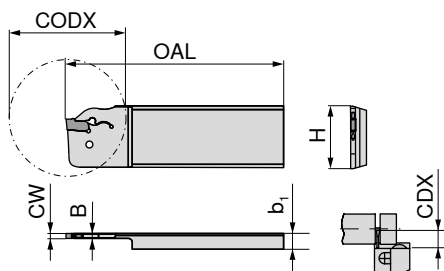


Please order SX assembly key separately if required.

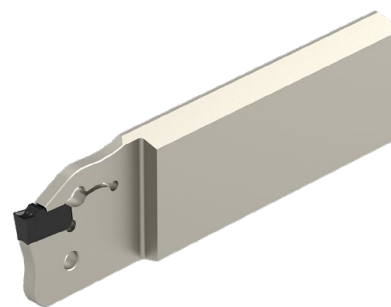
MonoClamp – Radial Blade SX reinforced

Scope of supply:

Blade only



Illustrations show right-hand versions



70 879 ...

ISO designation	CW mm	H mm	B mm	b ₁ mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N
XLCF L 2608-SX3	3	26	2,5	8	110	44	22	SX .3..	L
XLCF R 2608-SX3	3	26	2,5	8	110	44	22	SX .3..	R
XLCF L 3208-SX3	3	32	2,5	8	110	66	33	SX .3..	L
XLCF R 3208-SX3	3	32	2,5	8	110	66	33	SX .3..	R
XLCF L 3208-SX4	4	32	3,4	8	110	66	33	SX .4..	L
XLCF R 3208-SX4	4	32	3,4	8	110	66	33	SX .4..	R

213 ¹⁾

013 ¹⁾

203

003

204

004

1) can be used in both directions



Ejector SX

70 950 ...

Spare parts for grooving inserts

SX .3..

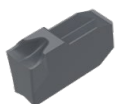
SX .4..

SX 2-3

SX 4-6

836

837



→ 11-17

→ 100+101

→ Chapter 16

→ Chapter 16

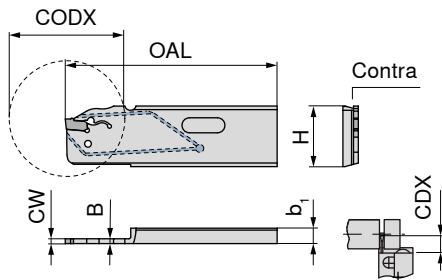


Please order SX assembly key separately if required.

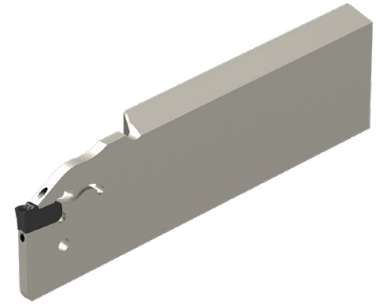
MonoClamp – SX-DC reinforced Contra radial blade

Scope of supply:

Blade only



Illustrations show right-hand versions



ISO designation	CW mm	H mm	B mm	b ₁ mm	OAL mm	CODX mm	CDX mm	for grooving inserts	Version	R/L/N
XLCF L 3208C-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	Contra	L
XLCF R 3208C-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	Contra	R

70 877 ...

703
503

Spare parts
for grooving inserts
SX .3..



Ejector SX

70 950 ...

SX 2-3

836



→ 11-17

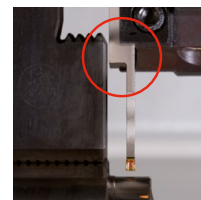
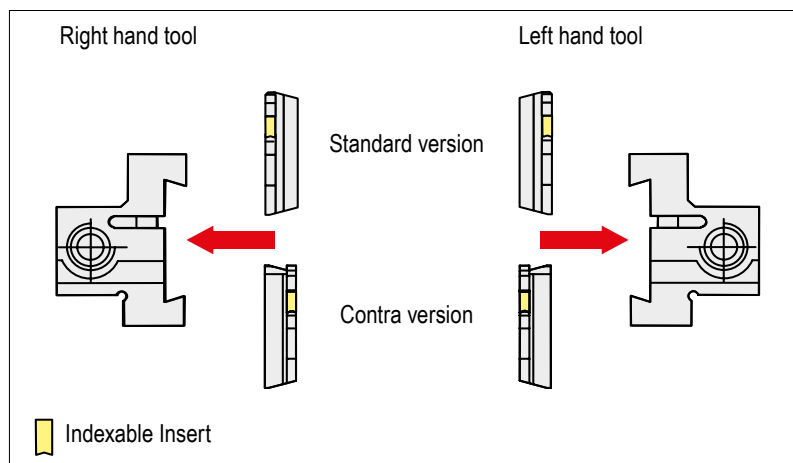
→ 99

→ Chapter 16

→ Chapter 16

11

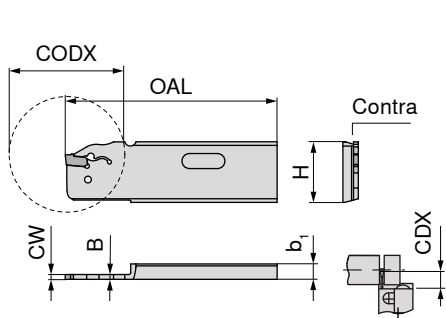
Correct Tool Selection



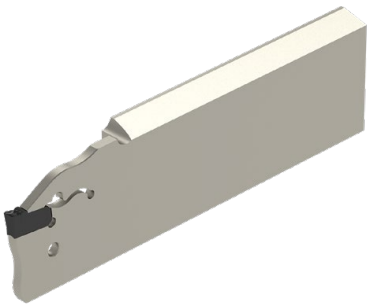
Please order SX assembly key separately if required.

MonoClamp – SX reinforced Contra radial blade

Scope of supply:
Blade only



Illustrations show right-hand versions



ISO designation	CW mm	H mm	B mm	b ₁ mm	OAL mm	CODX mm	CDX mm	for grooving inserts	Version	R/L/N
XLCF L 3208C-SX3	3	32	2,5	8	110	66	33	SX .3..	Contra	L
XLCF R 3208C-SX3	3	32	2,5	8	110	66	33	SX .3..	Contra	R

70 877 ...

203
003



Ejector SX

70 950 ...

Spare parts
for grooving inserts
SX .3..

SX 2-3

836



→ 11-17

→ 100+101

→ Chapter 16

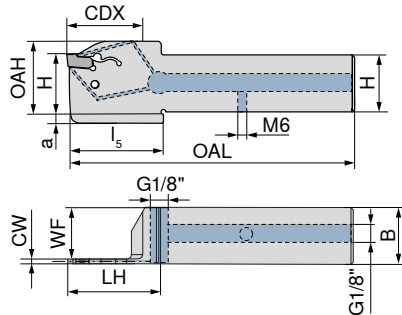
→ Chapter 16

 Please order SX assembly key separately if required.

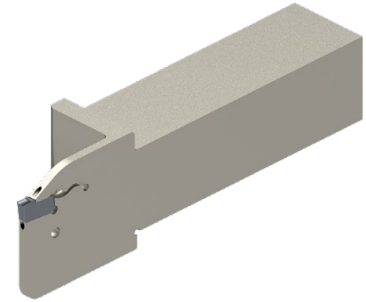
MonoClamp – Radial Monoholder SX-DC

Scope of supply:

Mono holder incl. screw plug and grub screw



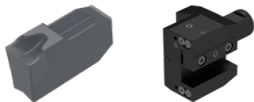
Illustrations show right-hand versions



												Left-hand	Right-hand
												70 847 ...	70 847 ...
ISO designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	I ₅ mm	OAH mm	CDX mm	a mm	for grooving inserts		
E12 R/L 0022-1212X-K-DC-SX2	12	12	2	11,20	71	27	28	22	22	5	SX .2..	21201	21200
E16 R/L 0026-1616X-K-DC-SX2	16	16	2	15,20	87	32	33	26	26	4	SX .2..	21601	21600
E16 R/L 0026-1616X-K-DC-SX3	16	16	3	14,75	87	32	33	26	26	4	SX .3..	31601	31600
E20 R/L 0026-2020X-K-DC-SX2	20	20	2	19,20	102	32	33	31	26	5	SX .2..	22001	22000
E20 R/L 0026-2020X-K-DC-SX3	20	20	3	18,75	102	32	33	31	26	5	SX .3..	32001	32000
E20 R/L 0033-2020X-K-DC-SX4	20	20	4	18,30	109	39	40	32	33	5	SX .4..	42001	42000
E25 R/L 0033-2525X-K-DC-SX2	25	25	2	24,20	126	41	42	36	33	5	SX .2..	22501	22500
E25 R/L 0026-2525X-K-DC-SX3	25	25	3	23,75	117	33		31	26		SX .3..	32501	32500
E25 R/L 0033-2525X-K-DC-SX3	25	25	3	23,75	126	41	42	36	33	5	SX .3..	32601	32600
E25 R/L 0033-2525X-K-DC-SX4	25	25	4	23,30	126	41	42	36	33	5	SX .4..	42501	42500
E25 R/L 0040-2525X-K-DC-SX4	25	25	4	23,30	133	48	49	38	40	6	SX .4..	42601	42600
E25 R/L 0040-2525X-K-DC-SX5	25	25	5	22,85	133	48	49	38	40	6	SX .5..	52501	52500
E25 R/L 0040-2525X-K-DC-SX6	25	25	6	22,35	133	48	49	38	40	6	SX .6..	62501	62500

Spare parts for grooving inserts

SX .2..	SX 2-3	836	G 1/8"	294	M6x6	86700
SX .3..	SX 2-3	836	G 1/8"	294	M6x6	86700
SX .4..	SX 4-6	837	G 1/8"	294	M6x6	86700
SX .5..	SX 4-6	837	G 1/8"	294	M6x6	86700
SX .6..	SX 4-6	837	G 1/8"	294	M6x6	86700



→ 11-17 → Chapter 16

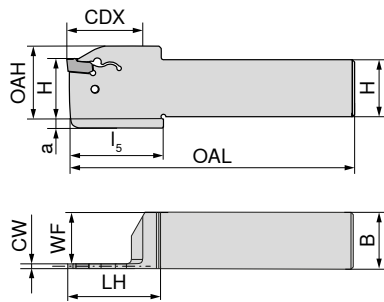


Please order SX assembly key separately if required.

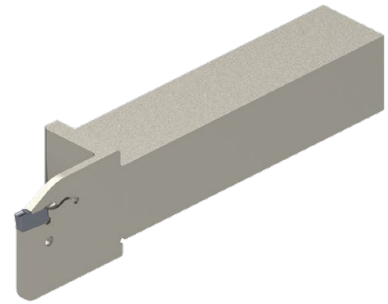
MonoClamp – Radial Monoholder SX

Scope of supply:

Mono holder only



Illustrations show right-hand versions



												Left-hand	Right-hand
												70 846 ...	70 846 ...
ISO designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	I ₅ mm	OAH mm	CDX mm	a mm	for grooving inserts		
E12 R/L 0022-1212K-K-SX2	12	12	2	11,20	125	27	28	22	22	5	SX .2..	21201	21200
E16 R/L 0026-1616K-K-SX2	16	16	2	15,20	125	32	33	26	26	4	SX .2..	21601	21600
E16 R/L 0026-1616K-K-SX3	16	16	3	14,75	125	32	33	26	26	4	SX .3..	31601	31600
E20 R/L 0026-2020K-K-SX2	20	20	2	19,20	125	32	33	31	26	5	SX .2..	22001	22000
E20 R/L 0026-2020K-K-SX3	20	20	3	18,75	125	32	33	31	26	5	SX .3..	32001	32000
E20 R/L 0033-2020K-K-SX4	20	20	4	18,30	125	39	40	32	33	5	SX .4..	42001	42000
E25 R/L 0033-2525M-K-SX2	25	25	2	24,20	150	41	42	36	33	5	SX .2..	22501	22500
E25 R/L 0033-2525M-K-SX3	25	25	3	23,75	150	41	42	36	33	5	SX .3..	32601	32600
E25 R/L 0026-2525M-K-SX3	25	25	3	23,75	150	33		31	26		SX .3..	32501	32500
E25 R/L 0040-2525M-K-SX4	25	25	4	23,30	150	48	49	38	40	6	SX .4..	42601	42600
E25 R/L 0033-2525M-K-SX4	25	25	4	23,30	150	41	42	37	33	5	SX .4..	42501	42500
E25 R/L 0040-2525M-K-SX5	25	25	5	22,85	150	48	49	38	40	6	SX .5..	52501	52500
E25 R/L 0040-2525M-K-SX6	25	25	6	22,35	150	48	49	38	40	6	SX .6..	62501	62500

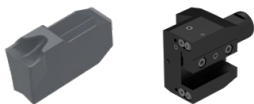


Ejector SX

Spare parts for grooving inserts

	Left-hand 70 846 ...	Right-hand 70 846 ...
SX .2..	SX 2-3	836
SX .3..	SX 2-3	836
SX .4..	SX 4-6	837
SX .5..	SX 4-6	837
SX .6..	SX 4-6	837

70 950 ...

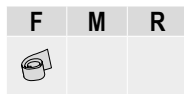
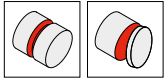


→ 11-17 → Chapter 16

 Please order SX assembly key separately if required.

Insert FX

- ▲ Excellent cutting geometry with low cutting forces
- ▲ Very good swarf control also with low feed rates
- ▲ Reduced built-up edge

-F1
CTCP325

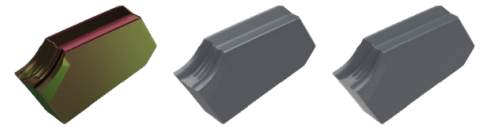
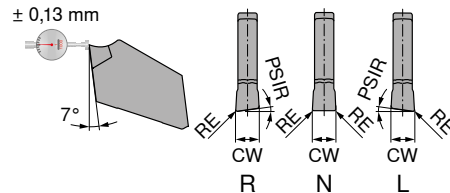
DRAGONSkin

-F1
CTPP345

DRAGONSkin

-F1
CTP1340

DRAGONSkin



Designation	IH	CW mm	RE mm	PSIR	for tool holder
FX 2.2 L 5-F1	L	2,2	0,15	5°	-FX 2.2
FX 3.1 L 5-F1	L	3,1	0,20	5°	-FX 3.1
FX 3.1 L 8-F1	L	3,1	0,20	8°	-FX 3.1
FX 2.2 N 0.15-F1	N	2,2	0,15		-FX 2.2
FX 3.1 N 0.40-F1	N	3,1	0,40		-FX 3.1
FX 3.1 N 0.20-F1	N	3,1	0,20		-FX 3.1
FX 4.1 N 0.20-F1	N	4,1	0,20		-FX 4.1
FX 4.1 N 0.50-F1	N	4,1	0,50		-FX 4.1
FX 2.2 R 5-F1	R	2,2	0,15	5°	-FX 2.2
FX 3.1 R 5-F1	R	3,1	0,20	5°	-FX 3.1
FX 3.1 R 8-F1	R	3,1	0,20	8°	-FX 3.1

70 331 ...

70 331 ...

70 331 ...

P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

→ v_c Page 103

→ Application recommendation on page 110



Note: reduce feed rate by 20–50 % with R/L version!

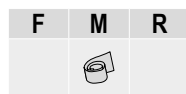
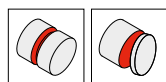
Internal machining

External machining

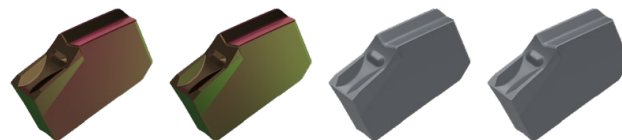
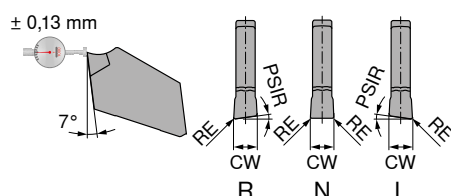
		→ 32	→ 33	→ 34				

Insert FX

▲ narrow version



-M1	-M1	-M1	-M1
CTCP325	CTCP335	CTPP345	CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH	CW _{-0,1} mm	RE _{±0,05} mm	PSIR	for tool holder	70 330 ...	70 330 ...	70 330 ...	70 330 ...
FX 2.2 L 4-M1	L	2,2	0,1	4°	-FX 2.2		550	800	600
FX 2.2 N 0.10-M1	N	2,2	0,1		-FX 2.2	902	552	802	602
FX 2.2 R 4-M1	R	2,2	0,1	4°	-FX 2.2		554	804	604
P						●	●	●	●
M						○	○	●	●
K						●	●		●
N									○
S						○		○	●
H									
O									○

→ v_c Page 103

→ Application recommendation on page 110



Note: reduce feed rate by 20–50 % with R/L version!

Internal machining

External machining



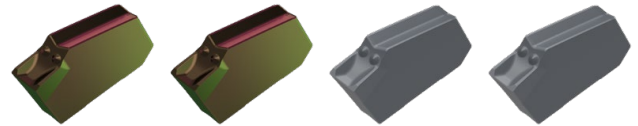
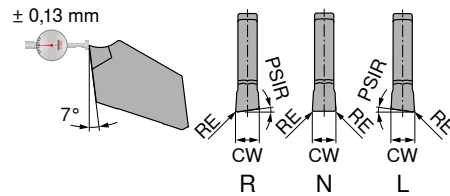
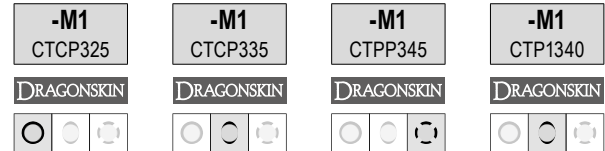
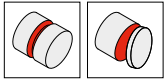
→ 32

→ 33

→ 34

Insert FX

▲ wide version



Designation	IH	CW $\pm 0,05$ mm	RE $\pm 0,05$ mm	PSIR	for tool holder	70 332 ...	70 332 ...	70 332 ...	70 332 ...
FX 3.1 L 6-M1	L	3,1	0,15	6°	-FX 3.1	900	550	800	600
FX 4.1 L 6-M1	L	4,1	0,20	6°	-FX 4.1		556	806	606
FX 3.1 N 0.15-M1	N	3,1	0,15		-FX 3.1	902	552	802	602
FX 4.1 N 0.20-M1	N	4,1	0,20		-FX 4.1	908	558	808	608
FX 5.1 N 0.25-M1	N	5,1	0,25		-FX 5.1	914	564	814	614
FX 6.5 N 0.30-M1	N	6,5	0,30		-FX 6.5	920	570		620
FX 8.2 N 0.40-M1	N	8,2	0,40		XLCEN 4608	924	574		624
FX 9.7 N 0.40-M1	N	9,7	0,40		XLCEN 4609	926	576		626
FX 3.1 R 6-M1	R	3,1	0,15	6°	-FX 3.1	904	554	804	604
FX 4.1 R 6-M1	R	4,1	0,20	6°	-FX 4.1		560	810	610
P						●	●	●	●
M						○	○		●
K						●	●		●
N									○
S						○		○	●
H									
O									○

→ v_c Page 103

→ Application recommendation on page 110

11

**Note:** reduce feed rate by 20–50 % with R/L version!

Internal machining

External machining



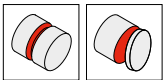
→ 32

→ 33

→ 34

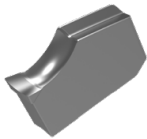
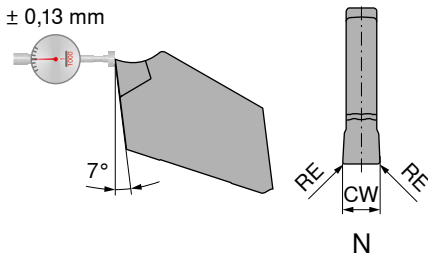
Insert FX

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
- ▲ Reduced built-up edge



F	M	R

-27P
H216T



70 334 ...

Designation	IH	CW _{0,1} mm	RE _{±0,05} mm	for tool holder
FX 2.2 N 0.10	N	2,2	0,10	-FX 2.2
FX 3.1 N 0.15	N	3,1	0,15	-FX 3.1
FX 4.1 N 0.15	N	4,1	0,15	-FX 4.1

650
652
654

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 103
→ Application recommendation on page 110

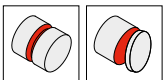
Internal machining

External machining

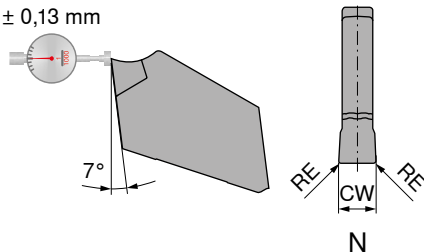
		→ 32	→ 33	→ 34				

Insert FX

- ▲ Insert with excellent swarf control for a wide range of feed rates
- ▲ Very stable cutting edge

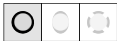


F	M	R



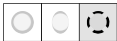
-R2
CTCP325

DRAGONSkin



-R2
CTPP345

DRAGONSkin



-R2
CTP1340

DRAGONSkin



Designation	IH	CW ^{-0,1} mm	RE ^{+/-0,05} mm	for tool holder	70 335 ...	70 335 ...	70 335 ...
FX 3.1 N 0.40-R2	N	3,1	0,4	-FX 3.1	902	852	652
FX 4.1 N 0.50-R2	N	4,1	0,5	-FX 4.1	908	858	658
P					●	●	●
M					○	●	●
K					●		●
N							○
S					○	○	●
H							
O							○

→ v_c Page 103

→ Application recommendation on page 110

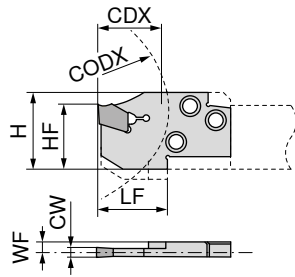
Internal machining

External machining

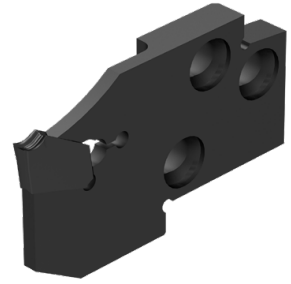
		→ 32	→ 33	→ 34				

ModularClamp MSS – Radial grooving module FX short/long

Scope of supply:
Grooving module only



Illustrations show right-hand versions



ISO designation	HF mm	CW mm	WF mm	LF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 876 ...	Right-hand 70 875 ...
E20 R/L 20-FX 2.2	23	2,2	3,58	22	27	60	20	FX 2.2 ..	020	020
E20 R/L 20-FX 3.1	23	3,1	3,20	22	27	60	20	FX 3.1 ..	120	120
E20 R/L 20-FX 4.1	23	4,1	2,80	22	27	60	20	FX 4.1 ..	220	220
E25 R/L 20-FX 2.2	25	2,2	5,08	22	30	75	20	FX 2.2 ..	025	025
E25 R/L 25-FX 3.1	25	3,1	4,70	27	30	75	25	FX 3.1 ..	125	125
E25 R/L 35-FX 3.1	25	3,1	4,70	37	30	75	35	FX 3.1 ..	525	525
E25 R/L 25-FX 4.1	25	4,1	4,30	27	30	75	25	FX 4.1 ..	225	225
E25 R/L 35-FX 4.1	25	4,1	4,30	37	30	75	35	FX 4.1 ..	625	625
E25 R/L 25-FX 5.1	25	5,1	3,90	27	30	75	25	FX 5.1 ..	325	325
E25 R/L 35-FX 5.1	25	5,1	3,90	37	30	75	35	FX 5.1 ..	725	725
E25 R/L 25-FX 6.5	25	6,5	3,30	27	30	75	25	FX 6.5 ..	425	425
E25 R/L 35-FX 6.5	25	6,5	3,30	37	30	75	35	FX 6.5 ..	825	825



Ejector

70 950 ...

Spare parts for grooving inserts

FX 2.2 ..	375
FX 3.1 ..	376
FX 4.1 ..	376
FX 5.1 ..	376
FX 6.5 ..	376



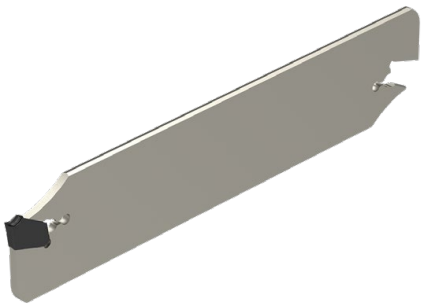
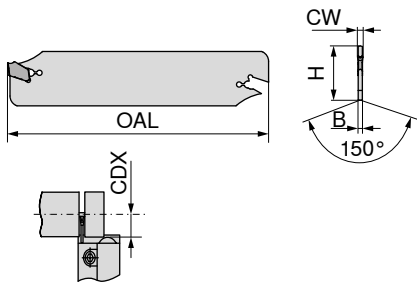
→ 27-31

→ 95+96

→ 97

MonoClamp – Radial Blade FX

Scope of supply:
Blade and ejector



ISO designation	H mm	B mm	OAL mm	CW mm	CDX mm	for grooving inserts
XLCEN 2602 J 22 FX	26	1,65	110	2,2	25	FX 2.2 ..
XLCFN 2603 J 31 FX	26	2,40	110	3,1	35	FX 3.1 ..
XLCFN 2604 J 41 FX	26	3,20	110	4,1	40	FX 4.1 ..
XLCEN 3202 M 22 FX	32	1,65	150	2,2	30	FX 2.2 ..
XLCFN 3203 M 31 FX	32	2,40	150	3,1	50	FX 3.1 ..
XLCFN 3204 M 41 FX	32	3,20	150	4,1	50	FX 4.1 ..
XLCFN 3205 M 51 FX	32	4,00	150	5,1	55	FX 5.1 ..
XLCFN 3206 M 65 FX	32	5,20	150	6,5	55	FX 6.5 ..
XLCEN 4608 S 82 FX	46	6,80	250	8,2	80	FX 8.2 ..
XLCEN 4609 S 97 FX	46	8,00	250	9,7	80	FX 9.7 ..

70 832 ...

101

102

103

004

104

105

106

107

108

109



Ejector

70 950 ...

Spare parts for grooving inserts

FX 2.2 ..	375
FX 3.1 ..	376
FX 4.1 ..	376
FX 5.1 ..	376
FX 6.5 ..	376
FX 8.2 ..	377
FX 9.7 ..	377



→ 27-31

→ 100+101

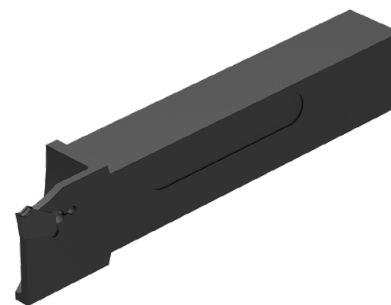
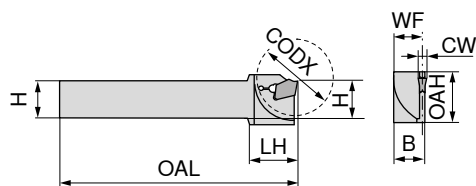
→ Chapter 16

→ Chapter 16

MonoClamp – Radial Monoholder FX

Scope of supply:

Mono holder incl. ejector



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	OAH mm	CW mm	WF mm	CODX mm	for grooving inserts	Left-hand 70 837 ...	Right-hand 70 836 ...
XLCE R/L 1010 M-FX2.2	10	10	150	19,4	21	2,2	9,18	30	FX 2.2 ..	101	101
XLCE R/L 1212 F-FX2.2	12	12	80	21,0	21	2,2	11,18	30	FX 2.2 ..	102	102
XLCE R/L 1414 M-FX2.2	14	14	150	19,4	21	2,2	13,18	30	FX 2.2 ..	104	104
XLCE R/L 1612 H-FX2.2	16	12	100	21,0	21	2,2	11,18	30	FX 2.2 ..	105	105
XLCE R/L 1612 H-FX3.1	16	12	100	21,4	25	3,1	10,80	35	FX 3.1 ..	106	106
XLCE R/L 2016 K-FX3.1	20	16	125	26,4	26	3,1	14,80	40	FX 3.1 ..	107	107
XLCE R/L 2016 K-FX4.1	20	16	125	26,4	26	4,1	14,40	40	FX 4.1 ..	109	109
XLCE R/L 2520 M-FX3.1	25	20	150	35,2	34	3,1	18,80	50	FX 3.1 ..	108	108
XLCE R/L 2520 M-FX4.1	25	20	150	35,2	34	4,1	18,40	50	FX 4.1 ..	110	110

Spare parts for grooving inserts

FX 2.2 ..

FX 3.1 ..

FX 4.1 ..



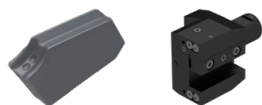
Ejector

70 950 ...

375

376

376



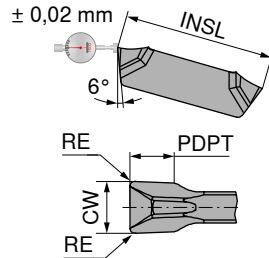
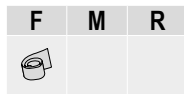
→ 27-31

→ Chapter 16

Insert GX 09/16

▲ Insert with ground periphery

▲ Suitable also for parting off tubes and thin-walled workpieces

-F2
CTP1340

DRAGONSKIN



70 360 ...

Designation	INSL mm	CW mm +/-0,02	RE mm +/-0,05	PDPT mm	for tool holder	
GX 09-1 E2.00 N 0.20	9	2,0	0,2	1,5	GX 09-1	600
GX 09-1 E2.50 N 0.20	9	2,5	0,2	1,5	GX 09-1	602
GX 09-2 E3.00 N 0.30	9	3,0	0,3	2,0	GX 09-2	604
GX 16-1 E2.00 N 0.20	16	2,0	0,2	2,5	GX 16-1	650
GX 16-2 E3.00 N 0.30	16	3,0	0,3	3,0	GX 16-2	652
GX 16-3 E4.00 N 0.40	16	4,0	0,4	3,5	GX 16-3	654
GX 16-3 E5.00 N 0.40	16	5,0	0,4	3,5	GX 16-3	656
P						●
M						●
K						●
N						○
S						●
H						
O						○

→ v_c Page 103

→ Application recommendation on page 105

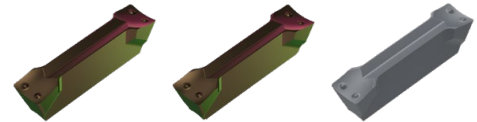
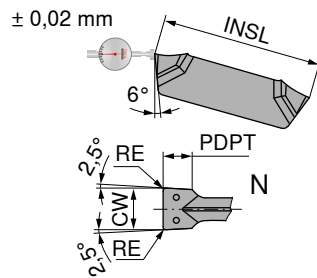
Internal machining

External machining

→ 45+46	→ 50+51	→ 43+44	→ 47-49						

Insert GX 09/16 – Standard

▲ Suitable for parting thin-walled workpieces



Designation	INSL mm	CW mm +/-0,02	RE mm +/-0,05	PDPT mm	for tool holder
GX 09-1 E2.00 N 0.20	9	2,0	0,2	1,5	GX 09-1
GX 09-1 E2.50 N 0.20	9	2,5	0,2	1,5	GX 09-1
GX 09-2 E3.00 N 0.30	9	3,0	0,3	2,0	GX 09-2
GX 16-1 E2.00 N 0.20	16	2,0	0,2	2,5	GX 16-1
GX 16-1 E2.50 N 0.20	16	2,5	0,2	2,5	GX 16-1
GX 16-2 E3.00 N 0.30	16	3,0	0,3	3,0	GX 16-2
GX 16-2 E3.00 N 0.50	16	3,0	0,5	3,0	GX 16-2
GX 16-2 E3.50 N 0.30	16	3,5	0,3	3,0	GX 16-2
GX 16-3 E4.00 N 0.40	16	4,0	0,4	3,5	GX 16-3
GX 16-3 E5.00 N 0.40	16	5,0	0,4	3,5	GX 16-3
GX 16-4 E6.00 N 0.50	16	6,0	0,5	4,0	GX 16-4
GX 16-4 E6.00 N 0.80	16	6,0	0,8	4,0	GX 16-4

70 350 ...	70 350 ...	70 350 ...
984		634
988		638
992		642
900	500	600
904	504	604
908	508	608
910		
912	512	612
916	516	616
924	524	624
928		628
930		

P	●	●	●
M	○	○	●
K	●	●	●
N			○
S	○		●
H			
O			○

→ v_c Page 103

→ Application recommendation on page 105

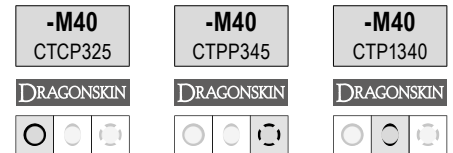
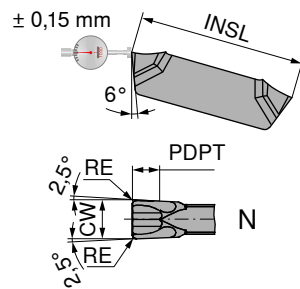
Internal machining

External machining

→ 45+46	→ 50+51	→ 43+44	→ 47-49					

Insert GX 09/16

▲ Very good swarf control



Designation	INSL mm	CW mm	RE mm	PDPT mm	for tool holder	70 351 ...	70 351 ...	70 351 ...
GX 09-1 E2.00 N 0.20	9	2	0,2	1,5	GX 09-1	986	886	686
GX 09-2 E3.00 N 0.30	9	3	0,3	2,0	GX 09-2	994	894	694
GX 16-1 E2.00 N 0.20	16	2	0,2	2,5	GX 16-1	902	802	602
GX 16-2 E3.00 N 0.30	16	3	0,3	3,0	GX 16-2	910	810	610
GX 16-3 E4.00 N 0.40	16	4	0,4	3,5	GX 16-3	918	818	618
GX 16-3 E5.00 N 0.40	16	5	0,4	3,5	GX 16-3	926	826	626
GX 16-4 E6.00 N 0.50	16	6	0,5	4,0	GX 16-4	930	830	630
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

→ v_c Page 103

→ Application recommendation on page 105

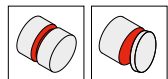
Internal machining

External machining

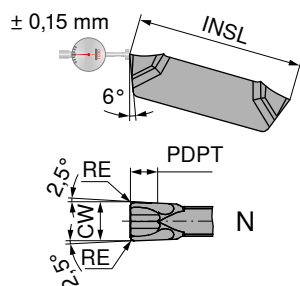
→ 45+46	→ 50+51	→ 43+44	→ 47-49					

Insert GX 16

▲ Very good swarf control



F	M	R



Designation	INSL mm	CW mm +/-0,05	RE mm +/-0,05	PDPT mm	for tool holder	70 362 ...	70 362 ...	70 362 ...
GX 16-1 E2.00 N 0.20	16	2	0,2	2,0	GX 16-1			
GX 16-2 E3.00 N 0.20	16	3	0,2	2,5	GX 16-2	902	800	600
GX 16-3 E4.00 N 0.30	16	4	0,3	3,0	GX 16-3	904	802	602
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

→ v_c Page 103

→ Application recommendation on page 106

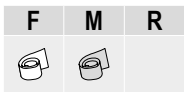
Internal machining

External machining

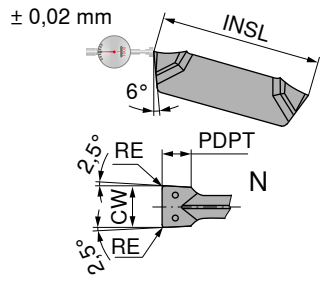
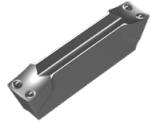
→ 45+46	→ 51	→ 43+44	→ 48+49					

Insert GX 16

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ ground periphery



-27P
H216T



70 350 ...

Designation	INSL mm	CW mm	RE mm	PDPT mm	for tool holder	
GX 16-1 E2.00 N 0.20	16	2	0,2	2,5	GX 16-1	650
GX 16-2 E3.00 N 0.30	16	3	0,3	3,0	GX 16-2	658
GX 16-3 E4.00 N 0.40	16	4	0,4	3,5	GX 16-3	670
GX 16-4 E6.00 N 0.50	16	6	0,5	4,0	GX 16-4	678

P	
M	
K	●
N	●
S	○
H	
O	○

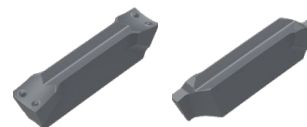
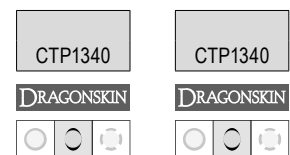
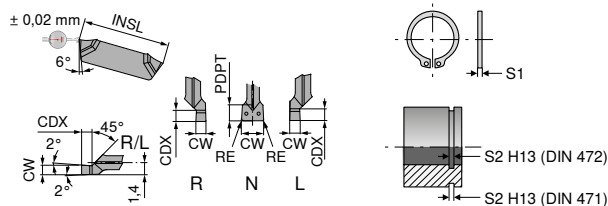
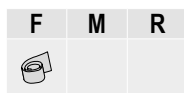
→ v_c Page 103
→ Application recommendation on page 105

Internal machining

External machining

→ 45+46	→ 51	→ 43+44	→ 48+49						

Circlip groove insert GX 09/16 – Standard



Designation	IH	INSL	s ₁	s ₂	CW $\pm 0,02$	RE $\pm 0,05$	CDX	PDPT	for tool holder	70 352 ...	70 352 ...
GX 09-1 S1.00 L	L	9	0,80	0,90	1,00		1,14		R/L 02-GX 09-1		684
GX 09-1 S1.20 L	L	9	1,00	1,10	1,20		1,34		R/L 02-GX 09-1		686
GX 09-1 S1.40 L	L	9	1,20	1,30	1,40		1,53		R/L 02-GX 09-1		688
GX 09-1 S1.70 L	L	9	1,50	1,60	1,70		1,82		R/L 02-GX 09-1		690
GX 09-1 S1.95 N	N	9	1,75	1,85	1,95	0,1		2,0	GX 09-1	692	
GX 09-1 S2.25 N	N	9	2,00	2,15	2,25	0,1		2,0	GX 09-1	694	
GX 09-2 S2.75 N	N	9	2,50	2,65	2,75	0,1		2,0	GX 09-2	696	
GX 09-2 S3.25 N	N	9	3,00	3,15	3,25	0,1		2,0	GX 09-2	698	
GX 09-1 S1.00 R	R	9	0,80	0,90	1,00		1,14		R/L 02-GX 09-1		676
GX 09-1 S1.20 R	R	9	1,00	1,10	1,20		1,34		R/L 02-GX 09-1		678
GX 09-1 S1.40 R	R	9	1,20	1,30	1,40		1,53		R/L 02-GX 09-1		680
GX 09-1 S1.70 R	R	9	1,50	1,60	1,70		1,82		R/L 02-GX 09-1		682
GX 16-2 S0.60 L	L	16	0,40	0,50	0,60		0,75		R/L 03-GX 16-2		607
GX 16-2 S0.80 L	L	16	0,60	0,70	0,80		0,94		R/L 03-GX 16-2		609
GX 16-2 S0.90 L	L	16	0,70	0,80	0,90		1,04		R/L 03-GX 16-2		611
GX 16-2 S1.00 L	L	16	0,80	0,90	1,00		1,14		R/L 03-GX 16-2		612
GX 16-2 S1.20 L	L	16	1,00	1,10	1,20		1,34		R/L 03-GX 16-2		614
GX 16-2 S1.40 L	L	16	1,20	1,30	1,40		1,53		R/L 03-GX 16-2		616
GX 16-2 S1.70 L	L	16	1,50	1,60	1,70		1,82		R/L 03-GX 16-2		618
GX 16-2 S1.95 L	L	16	1,75	1,85	1,95		2,07		R/L 03-GX 16-2		620
GX 16-2 S2.25 L	L	16	2,00	2,15	2,25		2,36		R/L 03-GX 16-2		622
GX 16-2 S2.75 N	N	16	2,50	2,65	2,75	0,1		3,0	GX 16-2	624	
GX 16-2 S3.25 N	N	16	3,00	3,15	3,25	0,1		3,0	GX 16-2	626	
GX 16-3 S4.25 N	N	16	4,00	4,15	4,25	0,2		3,5	GX 16-3	628	
GX 16-2 S0.60 R	R	16	0,40	0,50	0,60		0,75		R/L 03-GX 16-2		695
GX 16-2 S0.80 R	R	16	0,60	0,70	0,80		0,94		R/L 03-GX 16-2		697
GX 16-2 S0.90 R	R	16	0,70	0,80	0,90		1,04		R/L 03-GX 16-2		699
GX 16-2 S1.00 R	R	16	0,80	0,90	1,00		1,14		R/L 03-GX 16-2		600
GX 16-2 S1.20 R	R	16	1,00	1,10	1,20		1,34		R/L 03-GX 16-2		602
GX 16-2 S1.40 R	R	16	1,20	1,30	1,40		1,53		R/L 03-GX 16-2		604
GX 16-2 S1.70 R	R	16	1,50	1,60	1,70		1,82		R/L 03-GX 16-2		606
GX 16-2 S1.95 R	R	16	1,75	1,85	1,95		2,07		R/L 03-GX 16-2		608
GX 16-2 S2.25 R	R	16	2,00	2,15	2,25		2,36		R/L 03-GX 16-2		610
P										●	●
M										●	●
K										●	●
N										○	○
S										●	●
H											
O										○	○

→ v. Page 103

→ Application recommendation on page 105

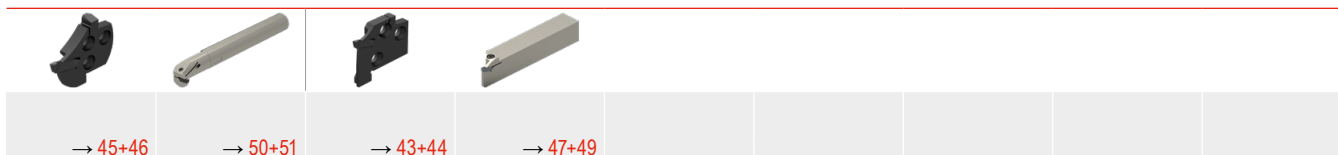
**Attention - applies only to internal machining:**

Right-hand insert → left-hand module or monobloc boring bar

Left-hand insert → right-hand module or monobloc boring bar

Internal machining

External machining



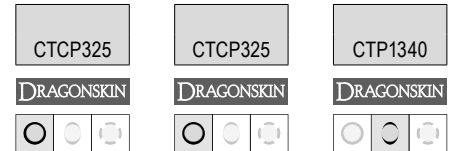
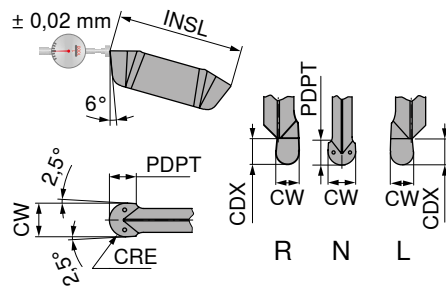
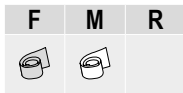
→ 45+46

→ 50+51

→ 43+44

→ 47+49

Radius groove insert GX 09/16



Designation	IH	INSL mm	CW mm	CRE mm	PDPT mm	CDX mm	for tool holder
GX 09-1 R1.00 N	N	9	2,0	1,0	1,0		GX 09-1
GX 09-1 R1.20 N	N	9	2,4	1,2	1,2		GX 09-1
GX 16-2 R0.80 L	L	16	1,6	0,8		1,78	R/L 03-GX 16-2
GX 16-2 R1.00 L	L	16	2,0	1,0		2,18	R/L 03-GX 16-2
GX 16-2 R1.20 L	L	16	2,4	1,2		2,58	R/L 03-GX 16-2
GX 16-2 R1.50 N	N	16	3,0	1,5	1,5		GX 16-2
GX 16-3 R2.00 N	N	16	4,0	2,0	2,0		GX 16-3
GX 16-3 R2.50 N	N	16	5,0	2,5	2,5		GX 16-3
GX 16-4 R3.00 N	N	16	6,0	3,0	3,0		GX 16-4
GX 16-2 R0.80 R	R	16	1,6	0,8		1,78	R/L 03-GX 16-2
GX 16-2 R1.00 R	R	16	2,0	1,0		2,18	R/L 03-GX 16-2
GX 16-2 R1.20 R	R	16	2,4	1,2		2,58	R/L 03-GX 16-2

70 354 ...	70 354 ...	70 354 ...
	992	
	996	
912		
916		
920		
	924	624
	928	628
	932	632
	936	636
900		
904		
908		
P	●	●
M	○	○
K	●	●
N		○
S	○	●
H		
O		○

→ v_c Page 103

→ Application recommendation on page 105

**Attention - applies only to internal machining:**

Right-hand insert → left-hand module or monobloc boring bar

Left-hand insert → right-hand module or monobloc boring bar

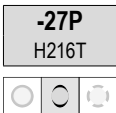
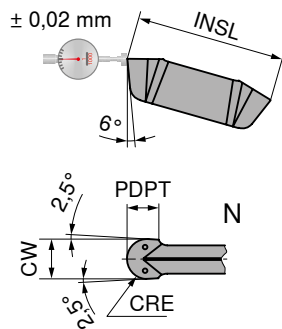
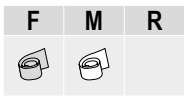
Internal machining

External machining

→ 45+46	→ 50+51	→ 43+44	→ 47-49					

Radius groove insert GX 16

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ ground periphery



Designation	INSL mm	CW mm	CRE mm	PDPT mm	for tool holder
GX 16-2 R1.50 N	16	3	1,5	1,5	GX 16-2
GX 16-3 R2.00 N	16	4	2,0	2,0	GX 16-3
GX 16-3 R2.50 N	16	5	2,5	2,5	GX 16-3

70 354 ...

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 103
→ Application recommendation on page 106

Internal machining

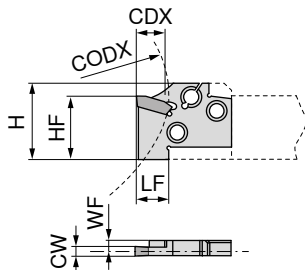
External machining

→ 45+46	→ 51	→ 43+44	→ 48					

ModularClamp MSS – Radial grooving module GX 09/16

- ▲ For circlip grooves ≤ 2,75 mm
- ▲ For radius grooves up to ≤ 1,2 mm
- ▲ For external recessing

Scope of supply:
Grooving module only



Illustrations show right-hand versions



ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand	Right-hand
									70 871 ...	70 870 ...
E16 R/L 02-GX 09-1	<1,95	3,15	8	16	19,5	48	2	GX 09-1 ..R/L	116	116
E20 R/L 03-GX 16-2	<2,75	3,40	13	20	24,0	60	3	GX 16-2 ..R/L	120	120
E25 R/L 03-GX 16-2	<2,75	4,90	13	25	30,0	75	3	GX 16-2 ..R/L	125	125



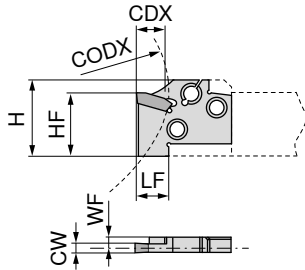
→ 35-42	→ 95+96	→ 97						
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ModularClamp MSS – Radial grooving module GX 09/16

- ▲ For grooving and turning
- ▲ For circlip grooves $\leq 5,25$ mm
- ▲ For radius grooves up to $\leq 2,5$ mm
- ▲ For external recessing

Scope of supply:

Grooving module only



Illustrations show right-hand versions



ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand	Right-hand
									70 866 ...	70 865 ...
E16 R/L 07-GX 09-1	2,00 - 2,75	3,15	8	16	19,5	48	7	GX 09-1 ..N	016	016
E16 R/L 07-GX 09-2	2,76 - 3,75	2,80	8	16	19,5	48	7	GX 09-2 ..N	116	116
E20 R/L 12-GX 16-1	2,00 - 2,75	3,75	13	20	24,0	60	12	GX 16-1 ..N	020	020
E20 R/L 12-GX 16-2	2,76 - 3,75	3,40	13	20	24,0	60	12	GX 16-2 ..N	120	120
E20 R/L 12-GX 16-3	3,76 - 5,00	2,93	13	20	24,0	60	12	GX 16-3 ..N	220	220
E25 R/L 12-GX 16-1	2,00 - 2,75	5,25	13	25	30,0	75	12	GX 16-1 ..N	025	025
E25 R/L 12-GX 16-2	2,76 - 3,75	4,90	13	25	30,0	75	12	GX 16-2 ..N	125	125
E25 R/L 12-GX 16-3	3,76 - 5,00	4,43	13	25	30,0	75	12	GX 16-3 ..N	225	225
E25 R/L 12-GX 16-4	5,01 - 6,50	3,80	13	25	30,0	75	12	GX 16-4 ..N	325	325



→ 35-42

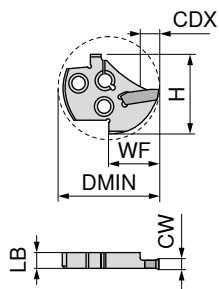
→ 95+96

→ 97

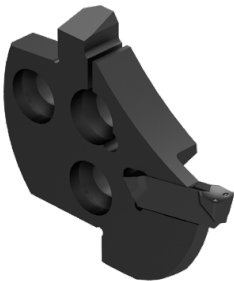
ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

- ▲ For circlip grooves ≤ 2,75 mm
- ▲ For radius grooves up to ≤ 1,2 mm

Scope of supply:
Grooving module only

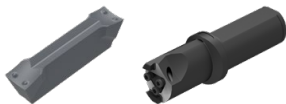


Illustrations show right-hand versions



ISO designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	Left-hand	Right-hand
								70 886 ...	70 885 ...
I16 R/L 02-GX 09-1	<1,95	3,8	10,0	16,4	2	20	GX 09-1 ..R/L	016	016
I20 R/L 02-GX 09-1	<1,95	3,8	12,0	20,3	2	25	GX 09-1 ..R/L	020	020
I25 R/L 02-GX 09-1	<1,95	3,8	15,5	24,9	2	32	GX 09-1 ..R/L	025	025
I32 R/L 03-GX 16-2	<2,75	5,9	20,0	32,2	3	40	GX 16-2 ..R/L	032	032
I40 R/L 03-GX 16-2	<2,75	5,9	24,5	39,6	3	50	GX 16-2 ..R/L	040	040

 Right hand module → left hand insert only
Left hand module → right hand insert only



→ 35-42	→ 98								
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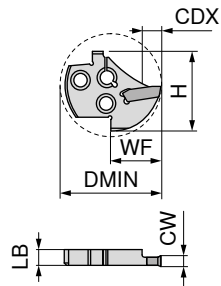
ModularClamp MSS – Radial Grooving module 09/16 for Internal machining

▲ For circlip grooves $\leq 5,25$ mm

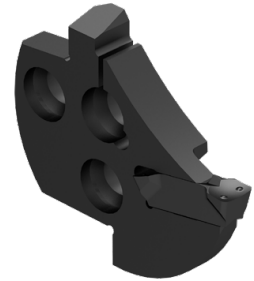
▲ For radius grooves up to $\leq 2,5$ mm

Scope of supply:

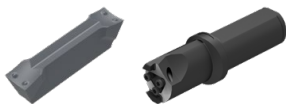
Grooving module only



Illustrations show right-hand versions



ISO designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	Left-hand	Right-hand
								70 881 ...	70 880 ...
I16 R/L 04-GX 09-1	2,00 - 2,75	3,8	10,0	16,4	4	20	GX 09-1 ..N	017	017
I16 R/L 04-GX 09-2	2,76 - 3,75	3,8	10,0	16,4	4	20	GX 09-2 ..N	117	117
I20 R/L 05-GX 09-1	2,00 - 2,75	3,8	12,0	20,3	5	25	GX 09-1 ..N	021	021
I20 R/L 05-GX 09-2	2,76 - 3,75	3,8	12,0	20,3	5	25	GX 09-2 ..N	121	121
I25 R/L 06-GX 09-1	2,00 - 2,75	3,8	15,5	24,9	6	32	GX 09-1 ..N	026	026
I25 R/L 06-GX 09-2	2,76 - 3,75	3,8	15,5	24,9	6	32	GX 09-2 ..N	126	126
I32 R/L 09-GX 16-1	2,00 - 2,75	5,9	20,0	32,2	9	40	GX 16-1 ..N	033	033
I32 R/L 09-GX 16-2	2,76 - 3,75	5,9	20,0	32,2	9	40	GX 16-2 ..N	133	133
I32 R/L 09-GX 16-3	3,76 - 5,00	5,9	20,0	32,2	9	40	GX 16-3 ..N	233	233
I32 R/L 09-GX 16-4	5,01 - 6,50	5,9	20,0	32,2	9	40	GX 16-4 ..N	333	333
I40 R/L 10-GX 16-1	2,00 - 2,75	5,9	24,5	39,6	10	50	GX 16-1 ..N	041	041
I40 R/L 10-GX 16-2	2,76 - 3,75	5,9	24,5	39,6	10	50	GX 16-2 ..N	141	141
I40 R/L 10-GX 16-3	3,76 - 5,00	5,9	24,5	39,6	10	50	GX 16-3 ..N	241	241
I40 R/L 10-GX 16-4	5,01 - 6,50	5,9	24,5	39,6	10	50	GX 16-4 ..N	341	341

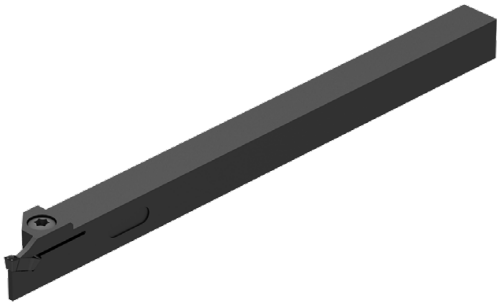
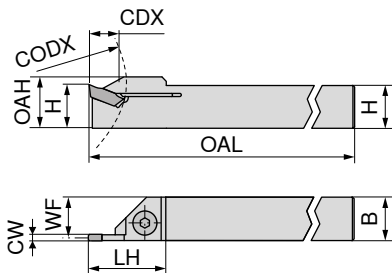


→ 35-42

→ 98

MonoClamp – Radial Monoholder GX 09

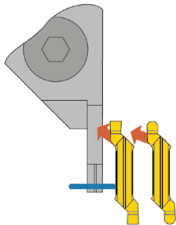
Scope of supply:
Mono holder incl. Torx key and clamping screw



Illustrations show right-hand versions

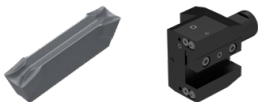
ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	CODX mm	CDX mm	for grooving inserts	Left-hand		Right-hand	
											70 863 ...		70 862 ...	
E10 R/L 00-1010M-GX09	10	10	2,00 - 3,50	9,35	12	150	18	30	7	GX 09 ..		010		010

 When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clearance.



Spare parts
for grooving inserts
GX 09 ..

T15	Key D	80 950 ...	113	M4x11	Clamping screw	70 950 ...	442

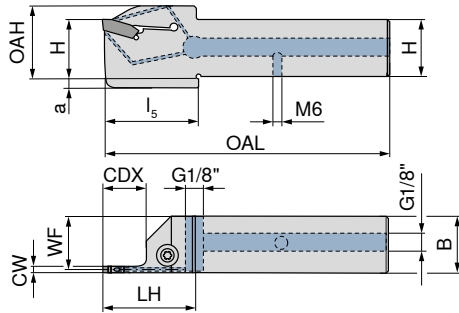


→ 35-41	→ Chapter 16								
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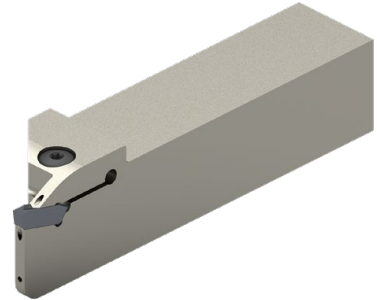
MonoClamp – Radial Monoholder GX-DC 16

Scope of supply:

Mono holder incl. Torx key and clamping screw



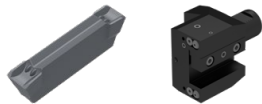
Illustrations show right-hand versions



ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	I _s mm	a mm	CDX mm	for grooving inserts	NEW	
												Left-hand 70 842 ...	Right-hand 70 842 ...
E16 R/L 0013S2-1616X-S-DC-GX16	16	16	2	15,20	21	90	35	36	4	13	GX 16-1 E2..	21601	21600
E16 R/L 0013S3-1616X-S-DC-GX16	16	16	3	14,85	21	90	35	36	4	13	GX 16-2 E3..	31601	31600
E16 R/L 0013S4-1616X-S-DC-GX16	16	16	4	14,40	21	90	35	36	4	13	GX 16-3 E4..	41601	41600
E16 R/L 0013S5-1616X-S-DC-GX16	16	16	5	14,00	21	90	35	36	4	13	GX 16-3 E5..	51601	51600
E20 R/L 0013S2-2020X-S-DC-GX16	20	20	2	19,20	25	104	35			13	GX 16-1 E2..	22001	22000
E20 R/L 0013S3-2020X-S-DC-GX16	20	20	3	18,85	25	104	35			13	GX 16-2 E3..	32001	32000
E20 R/L 0013S4-2020X-S-DC-GX16	20	20	4	18,40	25	104	35			13	GX 16-3 E4..	42001	42000
E20 R/L 0013S5-2020X-S-DC-GX16	20	20	5	18,00	25	104	35			13	GX 16-3 E5..	52001	52000
E25 R/L 0013S3-2525X-S-DC-GX16	25	25	3	23,85	30	119	35			13	GX 16-2 E3..	32501	32500
E25 R/L 0013S4-2525X-S-DC-GX16	25	25	4	23,40	30	119	35			13	GX 16-3 E4..	42501	42500
E25 R/L 0013S5-2525X-S-DC-GX16	25	25	5	23,00	30	119	35			13	GX 16-3 E5..	52501	52500

Spare parts for grooving inserts

GX 16-1 E2..	T15 - IP	128	M5x18 - 15IP	865
GX 16-2 E3..	T15 - IP	128	M5x18 - 15IP	865
GX 16-3 E4..	T15 - IP	128	M5x18 - 15IP	865
GX 16-3 E5..	T15 - IP	128	M5x18 - 15IP	865

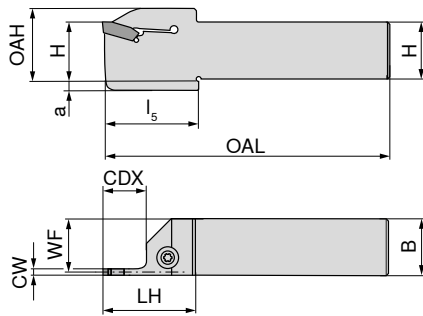


→ 35-42 → Chapter 16

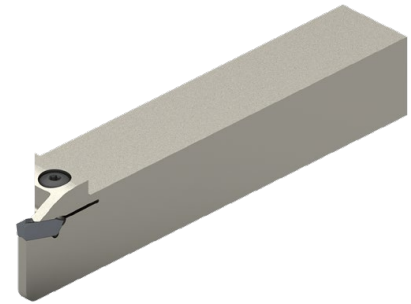
MonoClamp – Radial Monoholder GX 16

Scope of supply:

Mono holder incl. Torx key and clamping screw



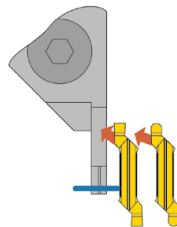
Illustrations show right-hand versions



ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	I ₅ mm	a mm	CDX mm	for grooving inserts	NEW	
												Left-hand	Right-hand
												70 843 ...	70 843 ...
E12 R/L 0013S2-1212K-S-GX16	12	12	2	11,20	17	125	25	26	4	13	GX 16-1 E2..	21201	21200
E12 R/L 0013S3-1212K-S-GX16	12	12	3	10,85	17	125	25	26	4	13	GX 16-2 E3..	31201	31200
E16 R/L 0013S2-1616K-S-GX16	16	16	2	15,20	21	125	25	26	4	13	GX 16-1 E2..	21601	21600
E16 R/L 0013S3-1616K-S-GX16	16	16	3	14,85	21	125	25	26	4	13	GX 16-2 E3..	31601	31600
E16 R/L 0013S4-1616K-S-GX16	16	16	4	14,40	21	125	25	26	4	13	GX 16-3 E4..	41601	41600
E16 R/L 0013S5-1616K-S-GX16	16	16	5	14,00	21	125	25	26	4	13	GX 16-3 E5..	51601	51600
E20 R/L 0013S2-2020K-S-GX16	20	20	2	19,20	25	125	25			13	GX 16-1 E2..	22001	22000
E20 R/L 0013S3-2020K-S-GX16	20	20	3	18,85	25	125	25			13	GX 16-2 E3..	32001	32000
E20 R/L 0013S4-2020K-S-GX16	20	20	4	18,40	25	125	25			13	GX 16-3 E4..	42001	42000
E20 R/L 0013S5-2020K-S-GX16	20	20	5	18,00	25	125	25			13	GX 16-3 E5..	52001	52000
E25 R/L 0013S3-2525M-S-GX16	25	25	3	23,85	30	150	25			13	GX 16-2 E3..	32501	32500
E25 R/L 0013S4-2525M-S-GX16	25	25	4	23,40	30	150	25			13	GX 16-3 E4..	42501	42500
E25 R/L 0013S5-2525M-S-GX16	25	25	5	23,00	30	150	25			13	GX 16-3 E5..	52501	52500



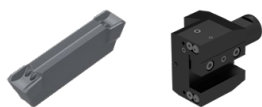
When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clearance.



11

Spare parts for grooving inserts

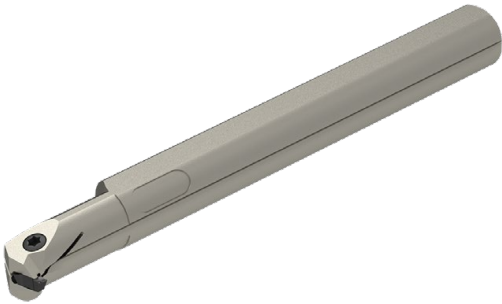
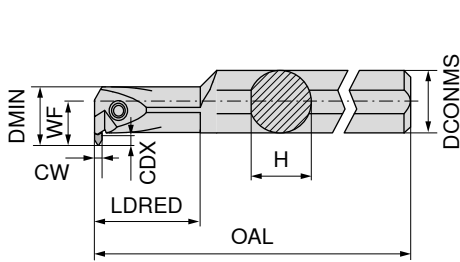
GX 16-1 E2..	T15 - IP	128	M5x18 - 15IP	865
GX 16-2 E3..	T15 - IP	128	M5x18 - 15IP	865
GX 16-3 E4..	T15 - IP	128	M5x18 - 15IP	865
GX 16-3 E5..	T15 - IP	128	M5x18 - 15IP	865



→ 35-42 → Chapter 16

MonoClamp – Radial Mono-boring bars GX 09

Scope of supply:
Boring bar incl. key and clamping screw

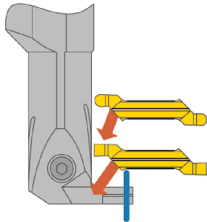


Illustrations show right-hand versions

ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand		Right-hand	
										70 859 ...		70 858 ...	
I12 R/L 90-2,5D-GX09	15,25	16	16	2,00 - 3,75	3	11	150	30	GX 09 ..		012		012

 Right hand boring bar → left hand insert only
Left hand boring bar → right hand insert only

 When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



Spare parts
for grooving inserts
GX 09 ..

Key D	Clamping screw
80 950 ...	70 950 ...
T15	113
	M3,5x12,5
	441

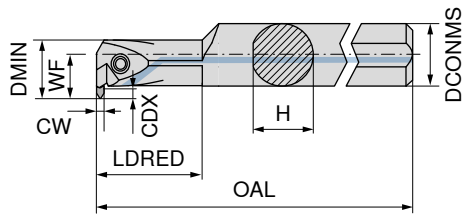


→ 35-41	→ Chapter 16								
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MonoClamp – Radial Mono-boring bars GX 16

Scope of supply:

Boring bar incl. key and clamping screw



Illustrations show right-hand versions

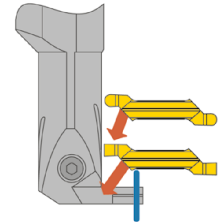
ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 893 ...	Right-hand 70 892 ...
I16 R/L 90-2.0D-GX16-1	15,25	16	20,5	2,00 - 2,75	5,0	13,5	150	32	GX 16-1	516	516
I16 R/L 90-2.0D-GX16-2	15,25	16	20,5	2,76 - 3,75	5,0	13,5	150	32	GX 16-2	616	616
I20 R/L 90-2.0D-GX16-2	19,00	20	25,0	2,76 - 3,75	5,5	15,5	180	40	GX 16-2	620	620
I25 R/L 90-2.0D-GX16-2	24,00	25	32,0	2,76 - 3,75	8,0	20,5	200	50	GX 16-2	625	625
I25 R/L 90-2.0D-GX16-3	24,00	25	32,0	3,76 - 5,00	10,0	22,5	200	50	GX 16-3	725	725
I32 R/L 90-2.0D-GX16-2	31,00	32	42,0	2,76 - 3,75	11,0	27,5	250	64	GX 16-2	632	632
I32 R/L 90-2.0D-GX16-3	31,00	32	42,0	3,76 - 5,00	11,0	27,5	250	64	GX 16-3	732	732



Right hand boring bar → left hand insert only
Left hand boring bar → right hand insert only



When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



11

Spare parts for grooving inserts

		80 950 ...	70 950 ...
GX 16-1	T15	113	403
GX 16-2	T15	113	403
GX 16-3	T15	113	403



Key D



Clamping screw

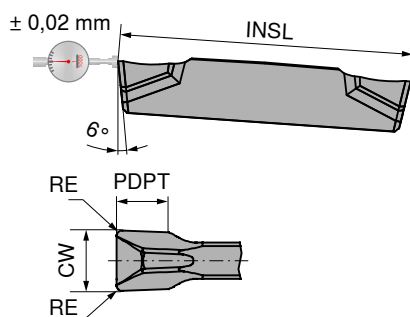
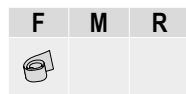
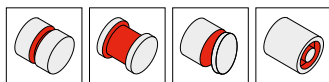


→ 35-42 → Chapter 16

Insert GX 24

▲ Insert with ground periphery

▲ Suitable also for parting off tubes and thin-walled workpieces

-F2
CTCP325

DRAGONSkin

-F2
CTPP345

DRAGONSkin

-F2
CTP1340

DRAGONSkin



Designation	INSL mm	CW mm +/-0,02	RE mm +/-0,05	PDPT mm	for tool holder
GX 24-2 E3.00 N 0.30	24	3,0	0,3	2,5	GX 24-2
GX 24-2 E3.50 N 0.30	24	3,5	0,3	2,5	GX 24-2
GX 24-3 E4.00 N 0.40	24	4,0	0,4	3,0	GX 24-3
GX 24-3 E5.00 N 0.40	24	5,0	0,4	3,5	GX 24-3
GX 24-4 E6.00 N 0.50	24	6,0	0,5	4,0	GX 24-4

70 350 ...	70 350 ...	70 350 ...
962	862	662
966	864	666
970	866	671
	870	672
	872	

P	●	●	●
M	○	●	●
K	●	○	●
N	○	○	○
S	○	○	●
H			
O			○

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→ Application recommendation on page 105

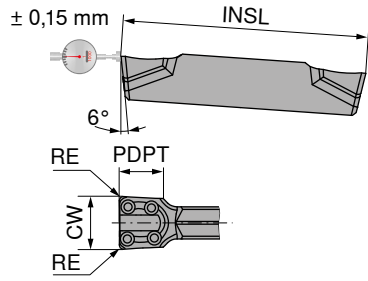
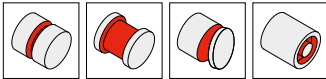
Internal machining

External machining

→ 63	→ 67+68	→ 60-62	→ 64	→ 65+66	→ 69			

Insert GX 24

- ▲ Universal application
- ▲ First choice for axial grooving



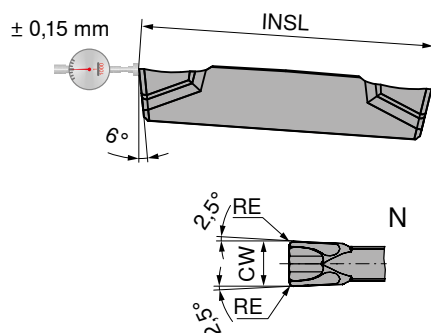
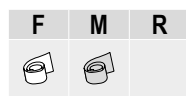
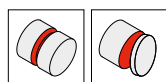
Designation	INSL mm	CW mm	RE mm	PDPT mm	for tool holder	70 350 ...	70 350 ...	70 350 ...	70 350 ...
GX 24-2 E3.00 N 0.30	24	3	0,3	2,5	GX 24-2	932	532	832	632
GX 24-3 E4.00 N 0.40	24	4	0,4	3,0	GX 24-3	936	536	836	636
GX 24-3 E5.00 N 0.40	24	5	0,4	3,0	GX 24-3	940	540	840	640
GX 24-4 E6.00 N 0.50	24	6	0,5	3,5	GX 24-4	944	544	844	644
P						●	●	●	●
M						○	○	●	●
K						●	●		●
N									○
S						○		○	●
H									
O									○

→ v_c Page 103
→ Application recommendation on page 105

Internal machining	External machining
→ 63	→ 67+68
	→ 60-62
	→ 64
	→ 65+66
	→ 69

Insert GX 24

▲ Very good swarf control



-M1
CTCP325

DRAGONSkin



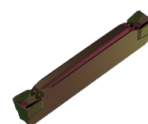
-M1
CTPP345

DRAGONSkin



-M1
CTP1340

DRAGONSkin



Designation	INSL mm	CW mm +/-0,05	RE mm +/-0,05	for tool holder
GX 24-1 E2.00 N 0.20	24	2	0,2	GX 24-1
GX 24-2 E3.00 N 0.20	24	3	0,2	GX 24-2
GX 24-3 E4.00 N 0.30	24	4	0,3	GX 24-3

70 363 ...	70 363 ...	70 363 ...
900	800	600
902	802	602
904	804	604

P	●	●	●
M	○	●	●
K	●	●	●
N	○	○	○
S	○	○	●
H			
O			○

→ v_c Page 103
→ Application recommendation on page 106

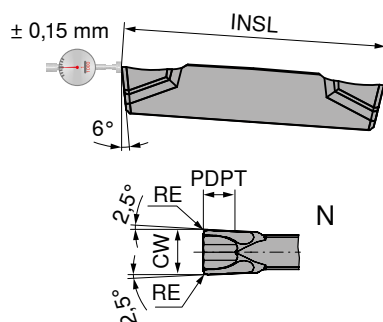
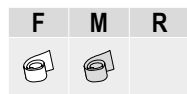
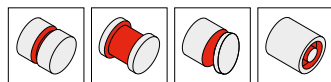
Internal machining

External machining

→ 63	→ 67+68	→ 60-63	→ 64	→ 65+66	→ 69			

Insert GX 24

▲ Very good swarf control

**-M40**
CTCP325

DRAGONSkin

**-M40**
CTPP345

DRAGONSkin

**-M40**
CTP1340

DRAGONSkin



Designation	INSL mm	CW mm +/-0,05	RE mm +/-0,05	PDPT mm	for tool holder	70 364 ...	70 364 ...	70 364 ...
GX 24-2 E3.00 N 0.30	24	3	0,3	3,5	GX 24-2	900	800	600
GX 24-3 E4.00 N 0.40	24	4	0,4	4,0	GX 24-3	902	802	602
GX 24-3 E5.00 N 0.40	24	5	0,4	4,0	GX 24-3	904	804	604
GX 24-4 E6.00 N 0.50	24	6	0,5	4,0	GX 24-4	906	806	606
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

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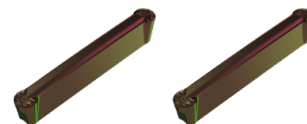
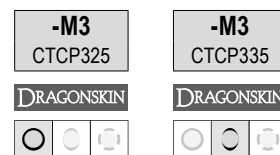
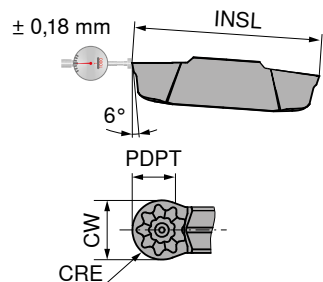
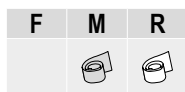
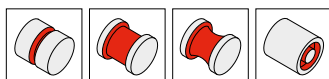
→ Application recommendation on page 105

Internal machining

External machining

→ 63	→ 67+68	→ 60-63	→ 64	→ 65-66	→ 69			

Radius groove insert GX 24



Designation	INSL mm	CW mm	CRE mm	PDPT mm	for tool holder	70 354 ...	70 354 ...
GX 24-2 R1.50 N	24,4	3	1,5	1,5	GX 24-2	952	552
GX 24-3 R2.00 N	24,4	4	2,0	2,5	GX 24-3	954	554
GX 24-3 R2.50 N	24,4	5	2,5	3,0	GX 24-3	956	556
GX 24-4 R3.00 N	24,4	6	3,0	4,0	GX 24-4	958	558
P						●	●
M						○	○
K						●	●
N							
S						○	
H							
O							

→ v_c Page 103
→ Application recommendation on page 106

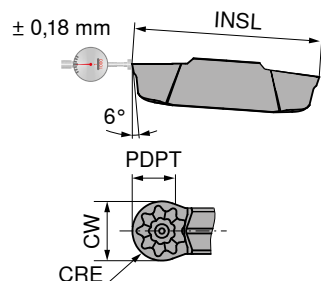
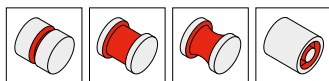
Internal machining

External machining



Radius groove insert GX 24

▲ Suitable for the machining of tough and ductile materials



NEW

-M33

CTCP325

DRAGONSKIN



70 365 ...

Designation	INSL mm	CW mm +/-0,05	CRE mm	PDPT mm	for tool holder	
GX 24-2 R1.50 N	24,4	3	1,5	1,5	GX 24-2	95200
GX 24-3 R2.00 N	24,4	4	2,0	2,5	GX 24-3	95400
GX 24-3 R2.50 N	24,4	5	2,5	3,0	GX 24-3	95600
GX 24-4 R3.00 N	24,4	6	3,0	4,0	GX 24-4	95800

P	●
M	○
K	●
N	
S	○
H	
O	

→ v_c Page 103

→ Application recommendation on page 106

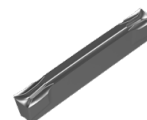
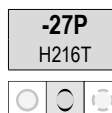
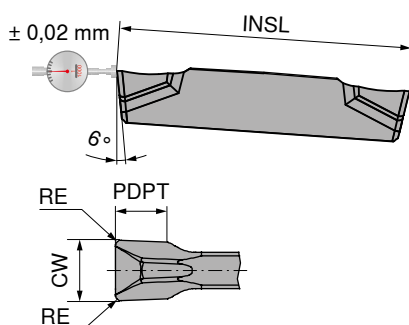
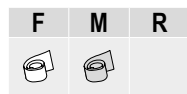
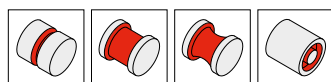
Internal machining

External machining

→ 63	→ 67+68	→ 60-63	→ 64	→ 65+66	→ 69					

Insert GX 24

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ ground periphery



70 350 ...

Designation	INSL mm	CW mm	RE mm	PDPT mm	for tool holder	
GX 24-2 E3.00 N 0.30	24	3	0,3	2,5	GX 24-2	682
GX 24-3 E4.00 N 0.40	24	4	0,4	3,0	GX 24-3	684
GX 24-3 E5.00 N 0.40	24	5	0,4	3,5	GX 24-3	686
GX 24-4 E6.00 N 0.50	24	6	0,5	4,0	GX 24-4	688

P	
M	
K	●
N	●
S	○
H	
O	○

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→ Application recommendation on page 105

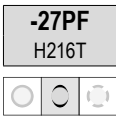
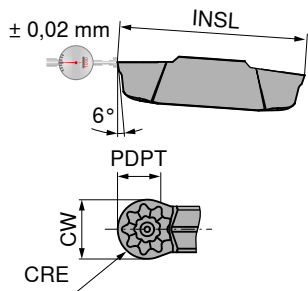
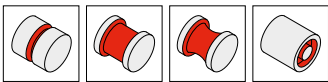
Internal machining

External machining

→ 63	→ 67+68	→ 60-63	→ 64	→ 65+66	→ 69			

Radius grooving insert GX 24

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ ground periphery



Designation	INSL mm	CW mm +/-0,02	CRE mm	PDPT mm	for tool holder
GX 24-4 R3.00 N	25,4	6	3	4	GX 24-4
GX 24-5 R4.00 N	25,4	8	4	5	GX 24-5

70 353 ...

500
506

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 103

→ Application recommendation on page 106

Internal machining

External machining

→ 63	→ 67+68	→ 60-63	→ 64	→ 65+66	→ 69			

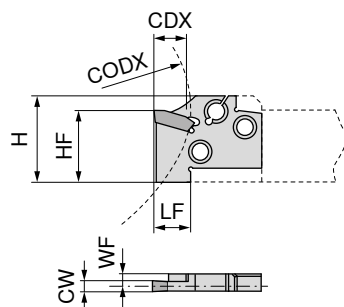
ModularClamp MSS – Radial grooving module GX 24

▲ For deep radial parting and grooving

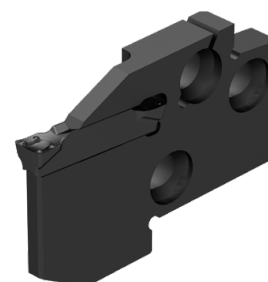
▲ For turning

Scope of supply:

Grooving module only



Illustrations show right-hand versions



ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 868 ...	Right-hand 70 867 ...
E20 R/L 21-GX 24-1	2,00 - 2,75	3,60	22	20	24	60	21	GX 24-1	020	020
E20 R/L 21-GX 24-2	3	3,40	22	20	24	60	21	GX 24-2	120	120
E20 R/L 21-GX 24-3	4/5	2,93	22	20	24	30	21	GX 24-3	22000	22000
E25 R/L 21-GX 24-1	2,00 - 2,75	5,10	22	25	30	75	21	GX 24-1	025	025
E25 R/L 21-GX 24-2	3	4,90	22	25	30	75	21	GX 24-2	125	125
E25 R/L 21-GX 24-3	4/5	4,43	22	25	30	75	21	GX 24-3	225	225
E25 R/L 21-GX 24-4	6	3,80	22	25	30	75	21	GX 24-4	325	325
E25 R/L 21-GX 24-5	8	2,95	22	25	30	75	21	GX 24-5	425	425



→ 52-59

→ 95+96

→ 97

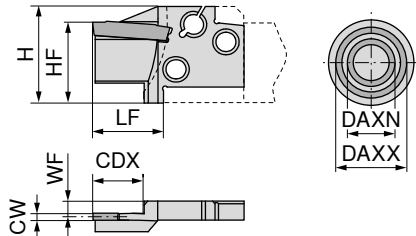
ModularClamp MSS – Axial grooving module GX 24 short

▲ For axial grooving

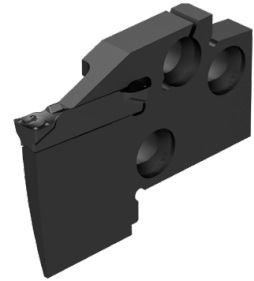
▲ For face turning

Scope of supply:

Grooving module only



Illustrations show right-hand versions



ISO designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand 70 891 ...	Right-hand 70 890 ...
E20 R/L 14-GX 24-2 A	50	70	3	3,40	22	20	24	14	GX 24-2	100	100
E20 R/L 14-GX 24-2 A	70	100	3	3,40	22	20	24	14	GX 24-2	102	102
E20 R/L 14-GX 24-2 A	100	150	3	3,40	22	20	24	14	GX 24-2	104	104
E25 R/L 15-GX 24-2 A	50	70	3	4,90	22	25	30	15	GX 24-2	200	200
E25 R/L 15-GX 24-2 A	70	100	3	4,90	22	25	30	15	GX 24-2	202	202
E25 R/L 15-GX 24-2 A	100	150	3	4,90	22	25	30	15	GX 24-2	204	204
E25 R/L 15-GX 24-3 A	50	70	4/5	4,43	22	25	30	15	GX 24-3	206	206
E25 R/L 15-GX 24-3 A	70	100	4/5	4,43	22	25	30	15	GX 24-3	208	208
E25 R/L 15-GX 24-3 A	100	150	4/5	4,43	22	25	30	15	GX 24-3	210	210
E25 R/L 15-GX 24-3 A	150	300	4/5	4,43	22	25	30	15	GX 24-3	212	212
E25 R/L 15-GX 24-4 A	50	70	6	3,80	22	25	30	15	GX 24-4	214	214
E25 R/L 15-GX 24-4 A	70	100	6	3,80	22	25	30	15	GX 24-4	216	216
E25 R/L 15-GX 24-4 A	100	150	6	3,80	22	25	30	15	GX 24-4	218	218
E25 R/L 15-GX 24-4 A	150	300	6	3,80	22	25	30	15	GX 24-4	220	220



→ 52-59

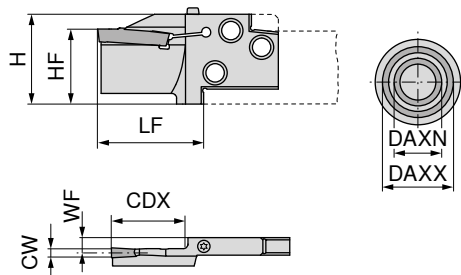
→ 95+96

→ 97

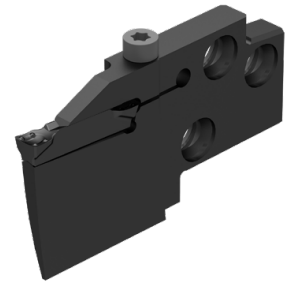
ModularClamp MSS – Axial grooving module GX 24 long

- ▲ For axial grooving
- ▲ For face turning

Scope of supply:
Grooving module only



Illustrations show right-hand versions



ISO designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand 70 895 ...	Right-hand 70 894 ...
E25 R/L 21-GX 24-3 AS	50	70	4/5	4,53	35	25	30	21	GX 24-3	200	200
E25 R/L 21-GX 24-3 AS	70	100	4/5	4,53	35	25	30	21	GX 24-3	202	202
E25 R/L 21-GX 24-3 AS	100	150	4/5	4,53	35	25	30	21	GX 24-3	204	204
E25 R/L 21-GX 24-3 AS	150	300	4/5	4,53	35	25	30	21	GX 24-3	206	206
E25 R/L 25-GX 24-4 AS	50	70	6	3,90	35	25	30	25	GX 24-4	210	210
E25 R/L 25-GX 24-4 AS	70	100	6	3,90	35	25	30	25	GX 24-4	212	212
E25 R/L 25-GX 24-4 AS	100	150	6	3,90	35	25	30	25	GX 24-4	214	214
E25 R/L 25-GX 24-4 AS	150	300	6	3,90	35	25	30	25	GX 24-4	216	216

 Axial modules version „GX 24 long“ can be clamped on both sides.

Spare parts for grooving inserts										Key D 80 950 ...	Clamping screw 70 950 ...
GX 24-3	T15	113	M3,5x14	160							
GX 24-4	T15	113	M3,5x14	160							



→ 52-59

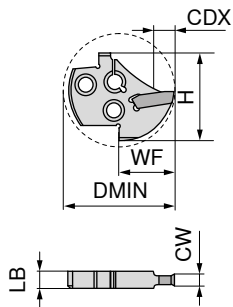
→ 95+96

→ 97

ModularClamp MSS – Radial Grooving module GX 24 for Internal machining

▲ for grooving and turning

Scope of supply:
Grooving module only



Neutral

70 880 ...

ISO designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts
I40 N 19-GX 24-2	2,76 - 3,75	6,2	33,5	40,7	19	60	GX 24-2 ..N
I40 N 19-GX 24-3	3,76 - 5,00	6,2	33,5	40,7	19	60	GX 24-3 ..N
I40 N 19-GX 24-4	5,01 - 6,50	6,2	33,5	40,7	19	60	GX 24-4 ..N

340
440
540

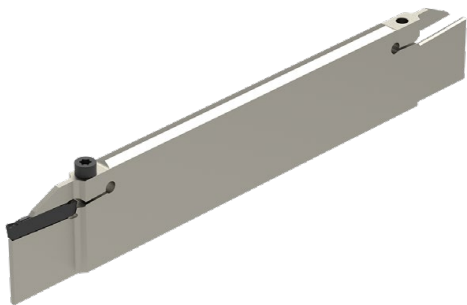
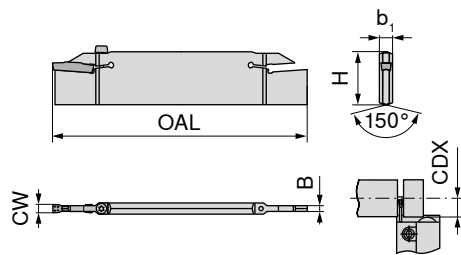


→ 52-59

→ 98

MonoClamp – Radial Blade GX 24

Scope of supply:
Blade incl. key and clamping screw



								70 834 ...
ISO designation	CW mm	H mm	B mm	b ₁ mm	OAL mm	CDX mm	for grooving inserts	
XLCF N 3203-GX24-1S	2	32	1,05	6,2	180	21	GX 24-1	102
XLCF N 3203-GX24-2S	3	32	2,10	6,2	180	21	GX 24-2	103
XLCF N 3204-GX24-3S	4/5	32	3,05	6,2	180	21	GX 24-3	104
XLCF N 3206-GX24-4S	6	32	4,20	6,2	180	21	GX 24-4	106

Spare parts for grooving inserts

GX 24-1	T15	113	M3,5x14	160
GX 24-2	T15	113	M3,5x14	160
GX 24-3	T15	113	M3,5x14	160
GX 24-4	T15	113	M3,5x14	160



Key D



Clamping screw

80 950 ...

70 950 ...



→ 52-59

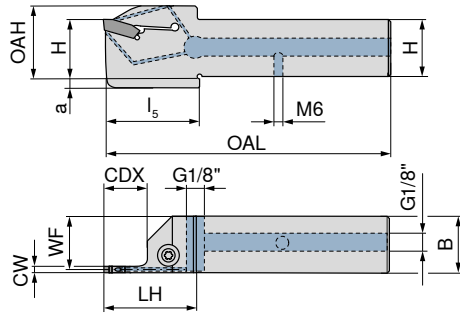
→ 100+101

→ Chapter 16

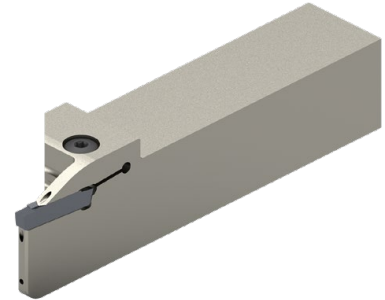
MonoClamp – Radial Monoholder GX-DC 24

Scope of supply:

Mono holder incl. key and clamping screw



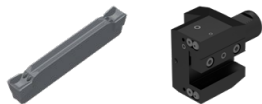
Illustrations show right-hand versions



ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	I _s mm	CDX mm	a mm	for grooving inserts	NEW Left-hand 70 844 ...		NEW Right-hand 70 844 ...	
E16 R/L 0021S2-1616X-S-DC-GX24	16	16	2	15,2	22	94	39	40	21	4	GX 24-1 E2..	21601		21600	
E16 R/L 0021S3-1616X-S-DC-GX24	16	16	3	14,8	22	94	39	40	21	4	GX 24-2 E3..	31601		31600	
E20 R/L 0021S2-2020X-S-DC-GX24	20	20	2	19,2	26	109	40		21		GX 24-1 E2..	22001		22000	
E20 R/L 0021S3-2020X-S-DC-GX24	20	20	3	18,8	26	109	40		21		GX 24-2 E3..	32001		32000	
E20 R/L 0021S4-2020X-S-DC-GX24	20	20	4	18,3	26	109	40		21		GX 24-3 E4..	42001		42000	
E20 R/L 0021S5-2020X-S-DC-GX24	20	20	5	18,0	26	109	40		21		GX 24-3 E5..	52001		52000	
E25 R/L 0021S3-2525X-S-DC-GX24	25	25	3	23,8	31	124	40		21		GX 24-2 E3..	32501		32500	
E25 R/L 0021S4-2525X-S-DC-GX24	25	25	4	23,3	31	124	40		21		GX 24-3 E4..	42501		42500	
E25 R/L 0021S5-2525X-S-DC-GX24	25	25	5	23,0	31	124	40		21		GX 24-3 E5..	52501		52500	
E25 R/L 0021S6-2525X-S-DC-GX24	25	25	6	22,5	31	124	40		21		GX 24-4 E6..	62501		62500	

Spare parts for grooving inserts

GX 24-1 E2..	T15 - IP	128	M5x18 - 15IP	865
GX 24-2 E3..	T15 - IP	128	M5x18 - 15IP	865
GX 24-3 E4..	T15 - IP	128	M5x18 - 15IP	865
GX 24-3 E5..	T15 - IP	128	M5x18 - 15IP	865
GX 24-4 E6..	T15 - IP	128	M5x18 - 15IP	865



Key D



Clamping screw

80 950 ...

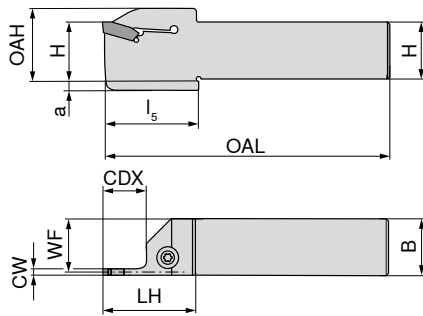
70 950 ...

→ 52-59 → Chapter 16

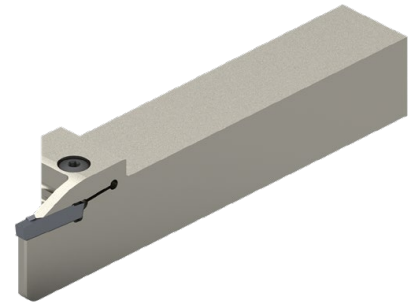
MonoClamp – Radial Monoholder GX 24

Scope of supply:

Mono holder incl. key and clamping screw



Illustrations show right-hand versions

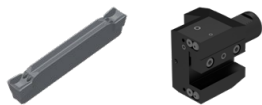


ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	I ₅ mm	CDX mm	a mm	for grooving inserts	NEW	
												Left-hand	Right-hand
												70 845 ...	70 845 ...
E16 R/L 0021S2-1616K-S-GX24	16	16	2	15,2	22	125	39	40	21	4	GX 24-1 E2..	21601	21600
E16 R/L 0021S3-1616K-S-GX24	16	16	3	14,8	22	125	39	40	21	4	GX 24-2 E3..	31601	31600
E20 R/L 0021S2-2020K-S-GX24	20	20	2	19,2	26	125	40		21		GX 24-1 E2..	22001	22000
E20 R/L 0021S3-2020K-S-GX24	20	20	3	18,8	26	125	40		21		GX 24-2 E3..	32001	32000
E20 R/L 0021S4-2020K-S-GX24	20	20	4	18,3	26	125	40		21		GX 24-3 E4..	42001	42000
E20 R/L 0021S5-2020K-S-GX24	20	20	5	18,0	26	125	40		21		GX 24-3 E5..	52001	52000
E25 R/L 0021S3-2525M-S-GX24	25	25	3	23,8	31	150	40		21		GX 24-2 E3..	32501	32500
E25 R/L 0021S4-2525M-S-GX24	25	25	4	23,3	31	150	40		21		GX 24-3 E4..	42501	42500
E25 R/L 0021S5-2525M-S-GX24	25	25	5	23,0	31	150	40		21		GX 24-3 E5..	52501	52500
E25 R/L 0021S6-2525M-S-GX24	25	25	6	22,5	31	150	40		21		GX 24-4 E6..	62501	62500

Spare parts

for grooving inserts

GX 24-1 E2..	T15 - IP	128	M5x18 - 15IP	865
GX 24-2 E3..	T15 - IP	128	M5x18 - 15IP	865
GX 24-3 E4..	T15 - IP	128	M5x18 - 15IP	865
GX 24-3 E5..	T15 - IP	128	M5x18 - 15IP	865
GX 24-4 E6..	T15 - IP	128	M5x18 - 15IP	865

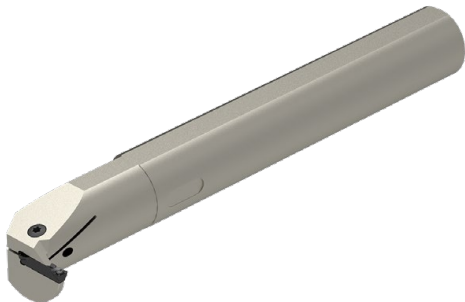
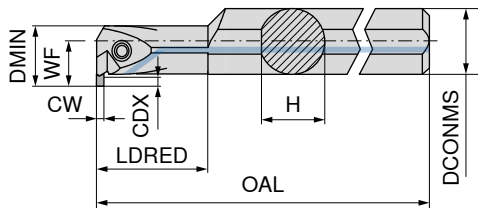


→ 52-59

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MonoClamp – Radial Mono-boring bars GX 24

Scope of supply:
Boring bar incl. key and clamping screw



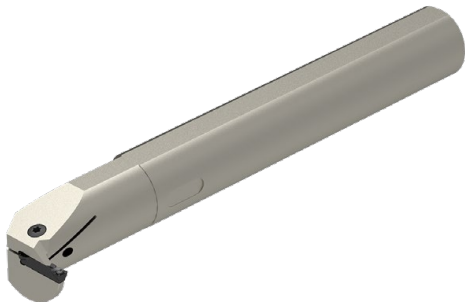
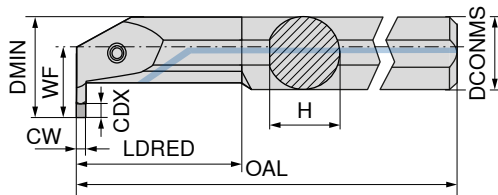
ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 895 ...	Right-hand 70 894 ...
I32 R/L 90-2.0D-GX24-2	31,0	32	42	2,76 - 3,75	11	27,5	250	64	GX 24-2	132	132
I32 R/L 90-2.0D-GX24-3	31,0	32	42	3,76 - 5,00	11	27,5	250	64	GX 24-3	232	232
I40 R/L 90-2.0D-GX24-3	38,5	40	53	3,76 - 5,00	12	32,5	300	80	GX 24-3	240	240



→ 52-59 → Chapter 16

MonoClamp – Radial Mono-boring bars GX 24

Scope of supply:
Boring bar incl. key and clamping screw



ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 895 ...	Right-hand 70 894 ...
I32 R/L 90-2.0D-GX24-4	31,0	32	47	5,01 - 6,50	17,5	30,4	250	64	GX 24-4	332	332
I40 R/L 90-2.0D-GX24-4	38,5	40	57	5,01 - 6,50	17,5	34,4	300	80	GX 24-4	340	340

Spare parts
for grooving inserts
GX 24-2
GX 24-3
GX 24-4

	
Key D	Clamping screw
80 950 ...	70 950 ...
114	404
114	404
114	404

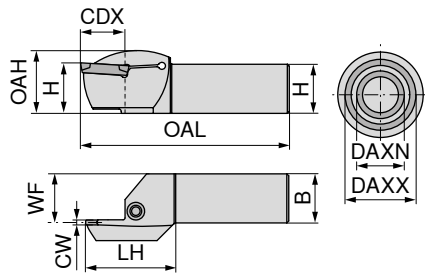


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MonoClamp – Axial Monoholder GX24

Scope of supply:

Mono holder incl. key and clamping screw



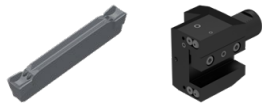
Illustrations show right-hand versions



												Left-hand	Right-hand
												70 904 ...	70 903 ...
ISO designation	H mm	B mm	CW mm	WF mm	DAXN mm	DAXX mm	OAH mm	OAL mm	LH mm	CDX mm	for grooving inserts		
E25 R/L 0012-2525X-GX24-2	25	25	3	24,7	45	50	32	115	45	12	GX 24-2	202	202
E25 R/L 0016-2525X-GX24-2	25	25	3	24,7	50	60	32	115	45	16	GX 24-2	204	204
E25 R/L 0019-2525X-GX24-2	25	25	3	24,7	60	75	32	115	45	19	GX 24-2	206	206
E25 R/L 0019-2525X-GX24-2	25	25	3	24,7	75	100	32	115	45	19	GX 24-2	208	208
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	100	130	32	115	45	22	GX 24-2	210	210
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	130	180	32	115	45	22	GX 24-2	212	212
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	180	300	32	115	45	22	GX 24-2	214	214
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24,2	45	50	32	115	45	12	GX 24-3	232	232
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24,2	50	60	32	115	45	20	GX 24-3	234	234
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24,2	60	75	32	115	45	20	GX 24-3	236	236
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	75	100	32	115	45	22	GX 24-3	238	238
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	100	150	32	115	45	22	GX 24-3	240	240
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	150	300	32	115	45	22	GX 24-3	242	242
E25 R/L 0022-2525X-GX24-4	25	25	6	23,2	50	70	32	115	45	22	GX 24-4	262	262
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	70	100	32	115	45	25	GX 24-4	264	264
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	100	150	32	115	45	25	GX 24-4	266	266
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	150	300	32	115	45	25	GX 24-4	268	268

Spare parts for grooving inserts

GX 24-2	T15 - IP	128	M5x18 - 15IP	865
GX 24-3	T15 - IP	128	M5x18 - 15IP	865
GX 24-4	T15 - IP	128	M5x18 - 15IP	865



→ 52-59

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Key D

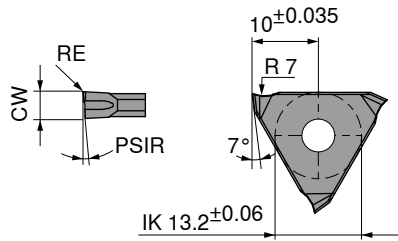
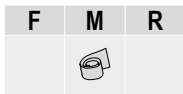
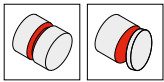
Clamping screw

80 950 ...

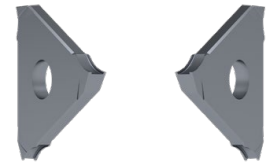
70 950 ...

TX grooving insert for grooving and parting off

- ▲ Cutting depth 5.0 mm
- ▲ Cutting width 1.99–2.79 mm



Illustrations show right-hand versions



Left-hand

Right-hand

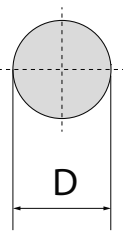
ISO designation	CW mm -0.05	RE mm	PSIR	for tool holder	73 302 ...	73 301 ...
TX R/L 0518.00.1	1,99	0,1	5°	R/L 207 ... / 780 ... 1	204	204
TX R/L 0521.00.2	2,29	0,1	5°	R/L 207 ... / 780 ... 2	206	206
TX R/L 0526.00.2	2,79	0,1	5°	R/L 207 ... / 780 ... 2	208	208
P					●	●
M					●	●
K					●	●
N					●	●
S					●	●
H					○	○
O					●	●

→ v_c Page 104

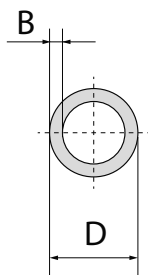
Grooving depth

Full material

Pipe



max. 10 mm



D ≤ 50 mm: Wall thickness B = approx. 5 mm
D ≥ 50 mm: Wall thickness B = approx. 4 mm

Internal machining

External machining



→ 78

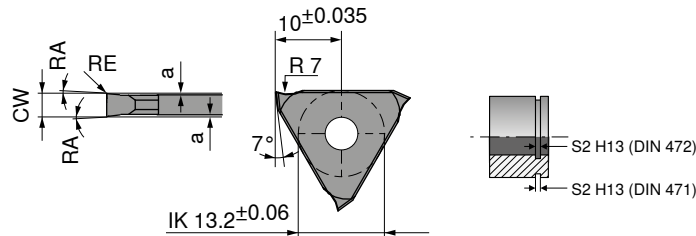
→ 75–77

TX insert for circlip grooves

▲ For circlip grooves according to DIN 471 / 472



CWX500



Neutral

73 300 ...

Designation	s ₂ mm	CW _{-0,05} mm	RE mm	RA °	a _{+/-0,02} mm	for tool holder	
TX N 0050.00.1	0,50	0,57	0,05	1	0,07	R/L ... 1	204
TX N 0060.00.1	0,60	0,67	0,05	1	0,07	R/L ... 1	206
TX N 0070.00.1	0,70	0,77	0,05	1	0,08	R/L ... 1	208
TX N 0080.00.1	0,80	0,87	0,05	1	0,08	R/L ... 1	210
TX N 0090.00.1	0,90	0,97	0,05	1	0,08	R/L ... 1	212
TX N 0100.00.1	1,00	1,07	0,10	1	0,09	R/L ... 1	214
TX N 0110.00.1	1,10	1,24	0,10	3	0,15	R/L ... 1	216
TX N 0130.00.1	1,30	1,44	0,10	3	0,15	R/L ... 1	218
TX N 0160.00.1	1,60	1,74	0,10	3	0,20	R/L ... 1	220
TX N 0185.00.1	1,85	1,99	0,10	3	0,20	R/L ... 1	222
TX N 0215.00.2	2,15	2,29	0,10	3	0,20	R/L ... 2	224
TX N 0265.00.2	2,65	2,79	0,10	3	0,20	R/L ... 2	226
TX N 0315.00.3	3,15	3,29	0,10	3	0,20	R/L ... 3	228
TX N 0415.00.4	4,15	4,29	0,10	3	0,20	R/L ... 4	230
TX N 0515.00.4	5,15	5,29	0,10	3	0,20	R/L ... 4	232
P							●
M							●
K							●
N							●
S							●
H							○
O							●

11

→ v_c Page 104

Internal machining

External machining



→ 78

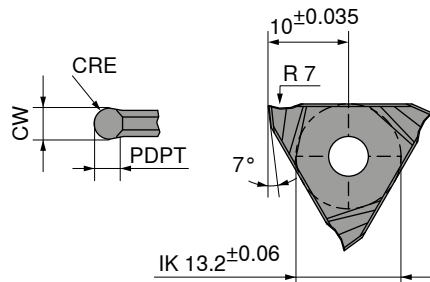
→ 75-77

Radial TX insert for corner recessing

▲ Full radius for cutting width 0.5–5.0 mm



CWX500



Neutral

73 304 ...

Designation	CRE mm	CW ± 0.05 mm	PDPT mm	for tool holder	
TX N 0002.05.1	0,25	0,5	0,20	R/L ...1	212
TX N 0005.10.1	0,50	1,0	0,35	R/L ...1	214
TX N 0006.12.1	0,60	1,2	0,40	R/L ...1	216
TX N 0008.16.1	0,80	1,6	0,55	R/L ...1	218
TX N 0010.20.2	1,00	2,0	0,70	R/L ...2	204
TX N 0012.25.2	1,25	2,5	0,85	R/L ...2	220
TX N 0015.30.3	1,50	3,0	1,00	R/L ...3	206
TX N 0020.40.4	2,00	4,0	1,20	R/L ...4	208
TX N 0025.50.4	2,50	5,0	1,50	R/L ...4	210
P					●
M					●
K					●
N					●
S					●
H					○
O					●

→ v_c Page 104

Internal machining

External machining

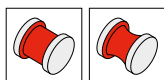


→ 78

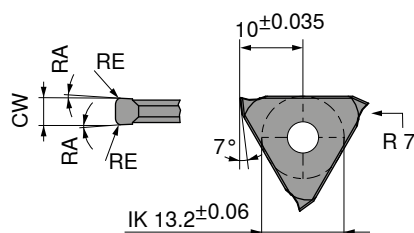


→ 75–77

TX insert for fine and copy turning



CWX500



Neutral

73 303 ...

Designation	CW $^{+0.03}$ mm	RE mm	RA °	for tool holder	
TX N 0150.02.1	1,5	0,2	3	R/L 207 ... / 738 ... / 660 ... 1	204
TX N 0200.02.1	2,0	0,2	3	R/L 207 ... / 738 ... / 660 ... 1	206
TX N 0200.04.1	2,0	0,4	3	R/L 207 ... / 738 ... / 660 ... 1	208
TX N 0300.06.2	3,0	0,6	3	R/L 207 ... / 738 ... / 660 ... 2	212
TX N 0300.02.2	3,0	0,2	3	R/L 207 ... / 738 ... / 660 ... 2	210
TX N 0300.08.2	3,0	0,8	3	R/L 207 ... / 738 ... / 660 ... 2	214
TX N 0400.08.3	4,0	0,8	3	R/L 207 ... / 738 ... / 660 ... 3	218
TX N 0400.02.3	4,0	0,2	3	R/L 207 ... / 738 ... / 660 ... 3	216
TX N 0400.12.3	4,0	1,2	3	R/L 207 ... / 738 ... / 660 ... 3	220
P					●
M					●
K					●
N					●
S					●
H					○
O					●

→ v_c Page 104

11

Internal machining

External machining



→ 78

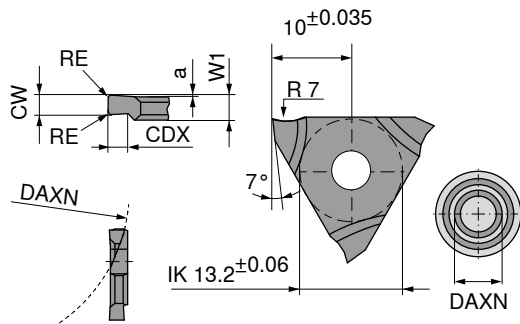
→ 75-77

TX insert for axial grooving

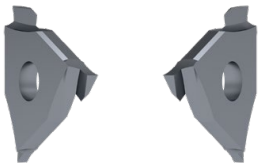
- ▲ Up to cutting depth 3.5 mm
- ▲ Cutting width 1.5–5.0 mm
- ▲ Groove-Ø external D_a ≥ 20 mm



F	M	R



Illustrations show right-hand versions



Left-hand Right-hand

ISO designation	CW mm	W1 mm	CDX mm	a mm	DAXN mm	RE mm	for tool holder	Left-hand 73 306 ...	Right-hand 73 305 ...
TX R/L 2015.2.2	1,5	2,7	2	0,2	20	0,2	R/L 207 ... 2	204	204
TX R/L 3020.2.2	2,0	2,7	3	0,2	30	0,2	R/L 207 ... 2	206	206
TX R/L 3030.2.3	3,0	3,7	3	0,2	30	0,2	R/L 207 ... 3	208	208
P								●	●
M								●	●
K								●	●
N								●	●
S								●	●
H								○	○
O								●	●

→ v_c Page 104

Internal machining	External machining
	→ 75+76

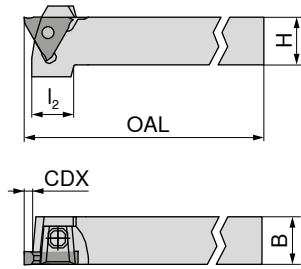
MonoClamp – Radial/Axial TX Grooving Holder 0°, 6 mm cutting depth

▲ For radial and axial grooving

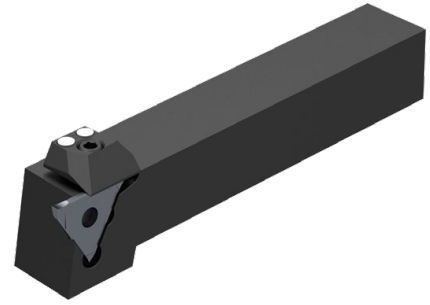
▲ Cutting width 0.5–6.3 mm

Scope of supply:

Grooving holder only



Illustrations show right-hand versions



ISO designation	H mm	B +/-0,1 mm	OAL mm	I ₂ mm	CDX mm	for grooving inserts	Left-hand 73 501 ...	Right-hand 73 500 ...
R/L 207.1212.1	12	12	100	24	4	TX R/N/L ...1	112	112
R/L 207.1616.1	16	16	125	22	4	TX R/N/L ...1	116	116
R/L 207.2020.1	20	20	125	21	4	TX R/N/L ...1	120	120
R/L 207.2525.1	25	25	150		4	TX R/N/L ...1	125	125
R/L 207.1212.2	12	12	100	24	6	TX R/N/L ...2	212	212
R/L 207.1616.2	16	16	125	22	6	TX R/N/L ...2	216	216
R/L 207.2020.2	20	20	125	21	6	TX R/N/L ...2	220	220
R/L 207.2525.2	25	25	150		6	TX R/N/L ...2	225	225
R/L 207.1212.3	12	12	100	24	6	TX R/N/L ...3	312	312
R/L 207.1616.3	16	16	125	22	6	TX R/N/L ...3	316	316
R/L 207.2020.3	20	20	125	21	6	TX R/N/L ...3	320	320
R/L 207.2525.3	25	25	150		6	TX R/N/L ...3	325	325
R 207.3232.3	32	32	170		6	TX R/N/L ...3		332
R/L 207.1616.4	16	16	125	22	6	TX R/N/L ...4	416	416
R/L 207.2020.4	20	20	125	21	6	TX R/N/L ...4	420	420
R/L 207.2525.4	25	25	150		6	TX R/N/L ...4	425	425

Spare parts for grooving inserts	right hand 73 950 ...		left hand 73 950 ...		Key I 70 950 ...		Clamping screw 73 950 ...		Guide pin 73 950 ...	
TX R/N/L ...1	020		024		SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...1					SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...2			024		SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...2	020				SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...3			024		SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...3	020				SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...4	022				SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...4			026		SW3	176	M6x20	028	Ø 4x18	030



→ 70-74 → Chapter 16

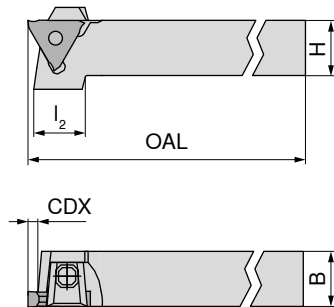
MonoClamp – Radial TX Grooving holder 0° 8 mm cutting depth

▲ For radial parting and grooving

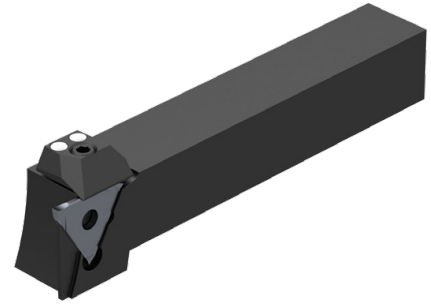
▲ Cutting width 1.9–6.3 mm

Scope of supply:

Grooving holder only



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	l ₂ mm	CDX mm	for grooving inserts	Left-hand	Right-hand
							73 503 ...	73 502 ...
R/L 780.2020.2	20	20	125	24	8	TX R/N/L ...2	120	120
R/L 780.2525.2	25	25	150		8	TX R/N/L ...2	125	125
R/L 780.2020.3	20	20	125	24	8	TX R/N/L ...3	220	220
R/L 780.2525.3	25	25	150		8	TX R/N/L ...3	225	225
R/L 780.2020.4	20	20	125	24	8	TX R/N/L ...4	320	320
R/L 780.2525.4	25	25	150		8	TX R/N/L ...4	325	325

Spare parts for grooving inserts	right hand		left hand		Key I	Clamping screw	Guide pin
	73 950 ...	73 950 ...	73 950 ...	73 950 ...			
TX R/N/L ...2	020		024		176	028	030
TX R/N/L ...2					176	028	030
TX R/N/L ...3	020		024		176	028	030
TX R/N/L ...3					176	028	030
TX R/N/L ...4	022		026		176	028	030
TX R/N/L ...4					176	028	030



→ 70–74

→ Chapter 16

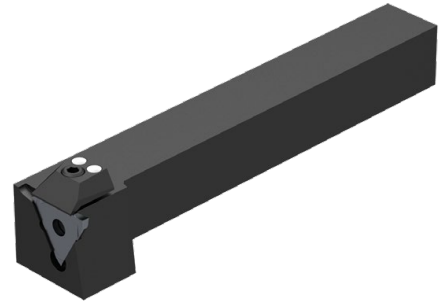
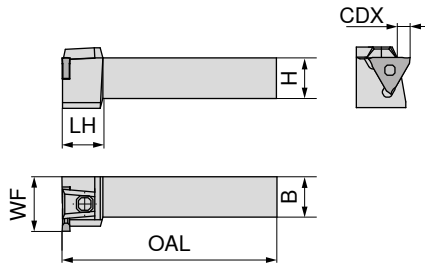
MonoClamp – Radial TX Grooving holder 90° 6 mm cutting depth

▲ For radial grooving

▲ Cutting width 0.5–6.3 mm

Scope of supply:

Grooving holder only



Illustrations show right-hand versions

ISO designation	H mm	B ± 0.1 mm	OAL mm	LH mm	WF ± 0.07 mm	CDX mm	for grooving inserts	Left-hand	Right-hand
								73 505 ...	73 504 ...
R/L 738.2020.1	20	20	150	20	27	4	TX R/N/L ...1	120	120
R/L 738.2525.1	25	25	150		32	4	TX R/N/L ...1	125	125
R/L 738.2020.2	20	20	150	20	27	6	TX R/N/L ...2	220	220
R/L 738.2525.2	25	25	150		32	6	TX R/N/L ...2	225	225
R/L 738.2020.3	20	20	150	20	27	6	TX R/N/L ...3	320	320
R/L 738.2525.3	25	25	150		32	6	TX R/N/L ...3	325	325
R/L 738.2020.4	20	20	150	20	27	6	TX R/N/L ...4	420	420
R/L 738.2525.4	25	25	150		32	6	TX R/N/L ...4	425	425

Spare parts for grooving inserts

TX R/N/L ...1	020		SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...1		024	SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...2		024	SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...2	020		SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...3		024	SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...3	020		SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...4	022		SW3	176	M6x20	028	Ø 4x18	030
TX R/N/L ...4		026	SW3	176	M6x20	028	Ø 4x18	030



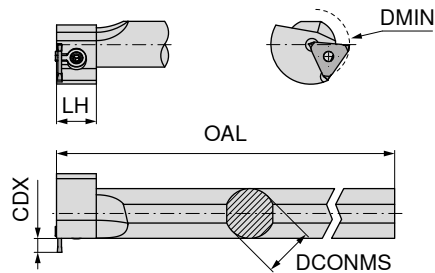
→ 70-74 → Chapter 16

MonoClamp – Radial Boring bar TX

- ▲ For radial internal grooving
- ▲ Cutting width 0.5–6.3 mm

Scope of supply:

Boring bar only



Illustrations show right-hand versions

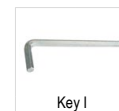


ISO designation	DCONMS _{gr} mm	DMIN mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand 73 511 ...	Right-hand 73 510 ...
R/L 660.0025.1	25	46	170	20	2	TX R/N/L ...1	125	125
R/L 660.0032.1	32	46	200	20	2	TX R/N/L ...1	132	132
R/L 660.0040.1	40	46	250		2	TX R/N/L ...1	140	140
R/L 660.0025.2	25	46	170	20	2	TX R/N/L ...2	225	225
R/L 660.0032.2	32	46	200	20	2	TX R/N/L ...2	232	232
R/L 660.0040.2	40	46	250		2	TX R/N/L ...2	240	240
R/L 660.0025.3	25	46	170	20	2	TX R/N/L ...3	325	325
R/L 660.0032.3	32	46	200	20	2	TX R/N/L ...3	332	332
R/L 660.0040.3	40	46	250		2	TX R/N/L ...3	340	340

Bore-Ø _{min.} in mm	46	50	60	80	100	for grooving insert
CDX _{max.} (mm)	2	3	4	4,5	5	TX R/N/L ...1
	2	3	4	4,5	5	TX R/N/L ...2
	2	3	4	4,5	5	TX R/N/L ...3
	2	3	4	4,5	5	TX R/N/L ...4



Clamping element



Key I



Clamping screw

Spare parts for grooving inserts

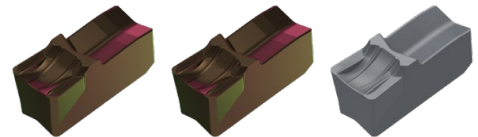
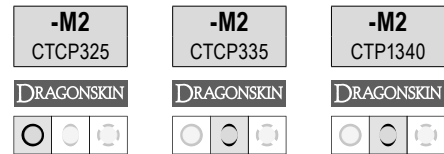
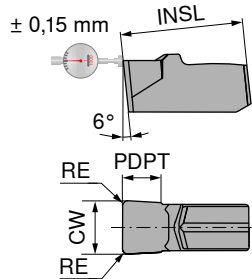
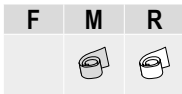
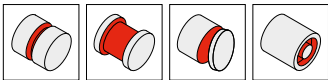
	73 950 ...	70 950 ...	73 950 ...
TX R/N/L ...1	011 SW3	176 M6x30	009
TX R/N/L ...2	011 SW3	176 M6x30	009
TX R/N/L ...3	011 SW3	176 M6x30	009



→ 70-73 → Chapter 16

Insert LX

- ▲ Grooving width 8 and 10 mm
- ▲ Axial grooving from Ø 500 mm onwards
- ▲ Internal grooving and turning, from Ø 200 mm onwards

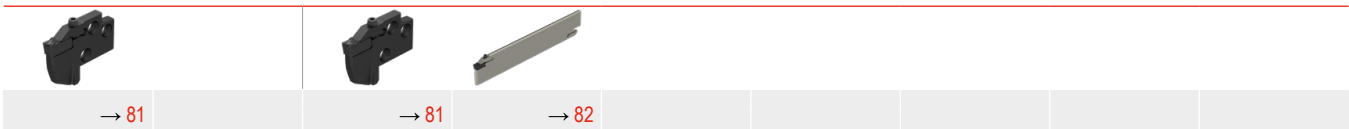


Designation	INSL mm	CW mm	RE mm	PDPT mm	for tool holder	70 337 ...	70 337 ...	70 337 ...
LXE 8.00N0.80-M2	19	8	0,8	5	E32 N ..-LX	928	578	682
LXE 10.00N0.80-M2	19	10	0,8	5	E32 N ..-LX	932	582	678
P						●	●	●
M						○	○	●
K						●	●	●
N								○
S						○		●
H								
O								○

→ v_c Page 103
→ Application recommendation on page 109

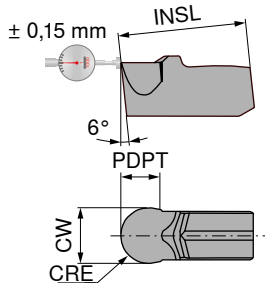
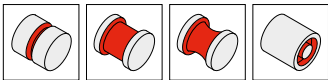
Internal machining

External machining



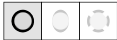
Radial Grooving Insert LX

- ▲ Grooving width 8 mm
- ▲ Axial grooving from Ø 500 mm
- ▲ Internal grooving and turning, from Ø 200 mm



-M3
CTCP325

DRAGONSKIN



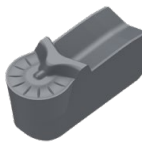
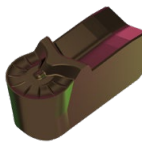
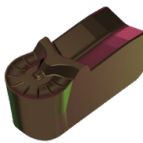
-M3
CTCP335

DRAGONSKIN



-M3
CTP1340

DRAGONSKIN



Designation	INSL mm	CW mm +/-0,08	CRE mm	PDPT mm	for tool holder
LXR 4.00N-M3	19	8	4	5	E32 N ...-LX

70 337 ...

908

70 337 ...

518

70 337 ...

618

P	●	●	●
M	○	○	●
K	●	●	●
N			○
S	○		●
H			
O			○

→ v_c Page 103

→ Application recommendation on page 109

Internal machining

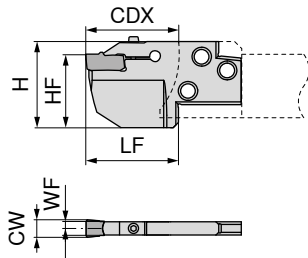
External machining

							
→ 81	→ 81	→ 82					

ModularClamp MSS – Axial and radial grooving module LX

- ▲ Grooving width 8 and 10 mm
- ▲ Axial grooving from Ø 500 mm onwards
- ▲ Internal grooving and turning, from Ø 200 mm onwards

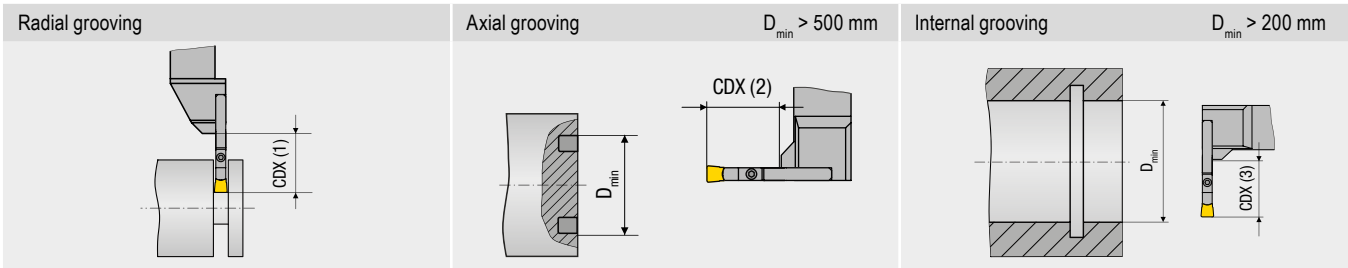
Scope of supply:
Grooving module only



Neutral

70 835 ...

ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CDX (1) mm	CDX (2) mm	CDX (3) mm	for grooving inserts	
E32 N 25-LX	8 / 10	3,4	27	32	44	25	19	14	LX ..	032
E32 N 32-LX	8 / 10	3,4	37	32	44	32	26	21	LX ..	132
E32 N 45-LX	8 / 10	3,4	47	32	44	45	39	34	LX ..	232



Key D



Clamping screw

80 950 ...

70 950 ...

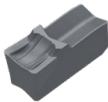
Spare parts
for grooving inserts
LX ..

T20

114

M4x18

204



→ 79+80

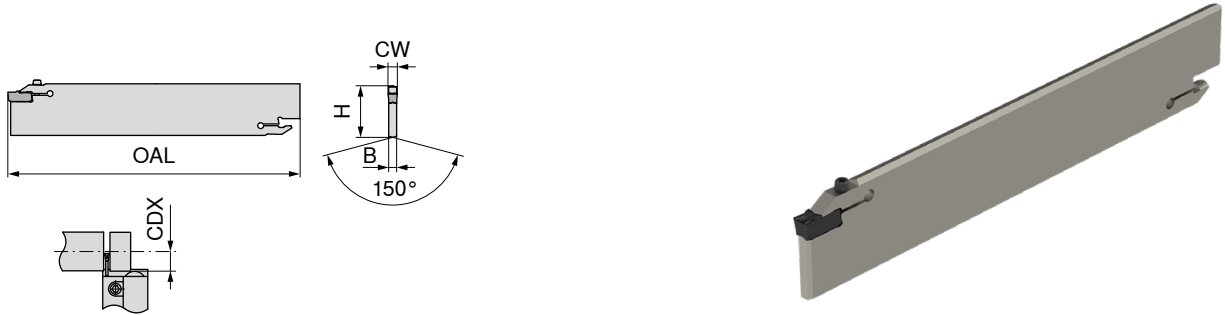
→ 95+96

→ 95

→ 98

MonoClamp – Blade LX

Scope of supply:
Blade incl. key and clamping screw



ISO designation	H mm	B mm	OAL mm	CW mm	CDX mm	for grooving inserts
XLCEN 4608-LX	46	6,8	250	8/10	80	LX ..

70 833 ...

108

Spare parts
for grooving inserts
LX ..



Key D



Clamping screw

80 950 ...

70 950 ...

T20

114

M4x18

204



→ 79+80

→ 100+101

→ Chapter 16

Grooving insert AX

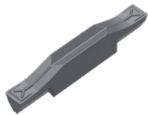
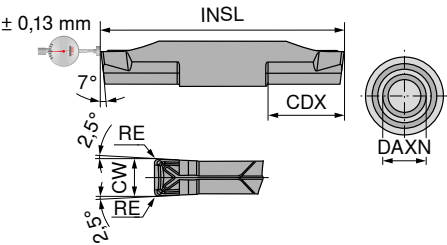
- ▲ very good chip control
- ▲ DAXN minimum groove diameter refers to the outside diameter



F	M	R

-F50
CTP1340

DRAGONSKIN



Designation	IH	INSL mm	CW mm +/-0,02	RE mm +/-0,05	CDX mm	DAXN mm	for tool holder
AX 05 E3.00 N 0.30	N	24	3	0,3	5	10	E.. R/L... -AX 05
AX 10 E3.00 N 0.30	N	34	3	0,3	10	20	E.. R/L... -AX 10
AX 15 E3.00 N 0.30	N	44	3	0,3	15	30	E.. R/L... -AX 15

70 327 ...

P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v. Page 103
→ Application recommendation on page 110

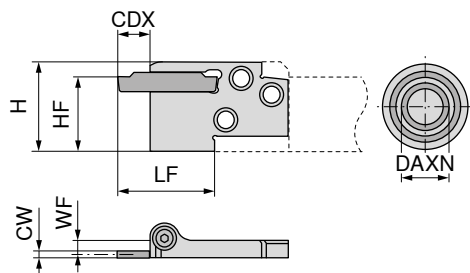
Internal machining	External machining
	→ 84 → 85 → 86

ModularClamp MSS – Axial grooving module AX

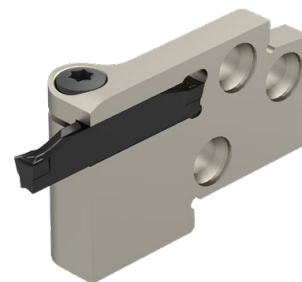
▲ for axial grooving and turning

Scope of supply:

Grooving module only



Illustrations show right-hand versions



ISO designation	HF mm	CW mm	WF mm	LF mm	H mm	DAXN mm	CDX mm	for grooving inserts	Left-hand 70 827 ...	Right-hand 70 828 ...
E16 R/L 05-AX 05	16	3	2,5	24,0	20,5	10	5	AX05	016	016
E20 R/L 05-AX 05	20	3	3,1	28,0	25,0	10	5	AX05	020	020
E25 R/L 05-AX 05	25	3	4,6	27,5	30,0	10	5	AX05	025	025
E20 R/L 10-AX 10	20	3	3,1	33,0	25,0	20	10	AX10	120	120
E25 R/L 10-AX 10	25	3	4,6	32,5	30,0	20	10	AX10	125	125
E20 R/L 15-AX 15	20	3	3,1	44,0	25,0	30	15	AX15	220	220
E25 R/L 15-AX 15	25	3	4,6	43,5	30,0	30	15	AX15	225	225

Spare parts for Article no.

70 827 016 / 70 828 016	T15	113	M3,5x12,5	441
70 827 020 / 70 828 020	T15	113	M4x14	403
70 827 025 / 70 828 025	T20	114	M5x18	404
70 827 120 / 70 828 120	T15	113	M4x14	403
70 827 125 / 70 828 125	T20	114	M5x18	404
70 827 220 / 70 828 220	T15	113	M4x14	403
70 827 225 / 70 828 225	T20	114	M5x18	404



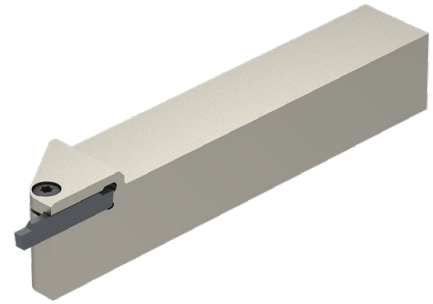
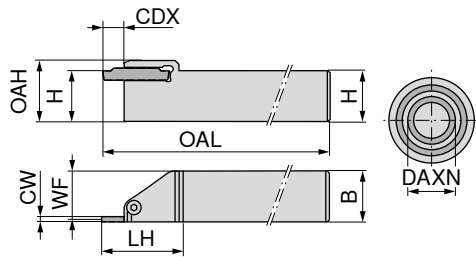
→ 83

→ 95+96

→ 97

MonoClamp – Axial AX Grooving Holder 0°, up to 15 mm groove depth**Scope of supply:**

Grooving holder incl. key and clamping screw



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	OAH mm	CDX mm	CW mm	WF mm	DAXN mm	for grooving inserts	Left-hand 70 823 ...	Right-hand 70 824 ...
E20 R/L 0005-2020-AX 05	20	20	140	28	25	5	3	18,7	10	AX05	02000	02000
E20 R/L 0010-2020-AX 10	20	20	140	38	25	10	3	18,7	20	AX10	12000	12000
E20 R/L 0015-2020-AX 15	20	20	140	49	25	15	3	18,7	30	AX15	22000	22000
E25 R/L 0005-2525-AX 05	25	25	160	28	30	5	3	23,7	10	AX05	02500	02500
E25 R/L 0010-2525-AX 10	25	25	160	38	30	10	3	23,7	20	AX10	12500	12500
E25 R/L 0015-2525-AX 15	25	25	160	49	30	15	3	23,7	30	AX15	22500	22500



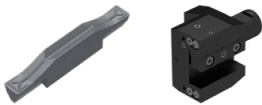
Key D



Clamping screw

**Spare parts
for Article no.**

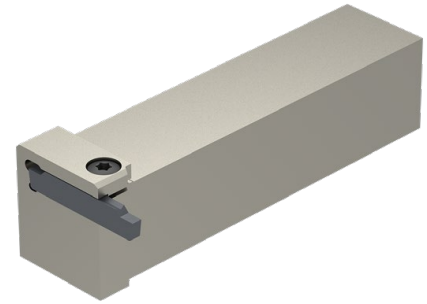
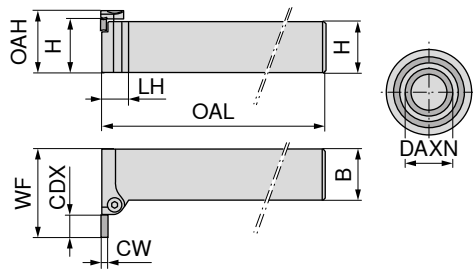
		80 950 ...	70 950 ...
70 824 02000 / 70 823 02000	T20	106	404
70 824 12000 / 70 823 12000	T20	106	404
70 824 22000 / 70 823 22000	T20	106	404
70 824 02500 / 70 823 02500	T20	106	404
70 824 12500 / 70 823 12500	T20	106	404
70 824 22500 / 70 823 22500	T20	106	404



→ 83 → Chapter 16

MonoClamp – Axial AX Grooving Holder 90°, up to 15 mm groove depth**Scope of supply:**

Grooving holder incl. key and clamping screw



Illustrations show right-hand versions

ISO designation	H mm	B mm	WF mm	OAH mm	OAL mm	LH mm	CDX mm	DAXN mm	CW mm	for grooving inserts	Left-hand 70 825 ...	Right-hand 70 826 ...
E20 R/L 9005-2020-AX 05	20	20	28	25	110	12	5	10	3	AX05	02000	02000
E20 R/L 9010-2020-AX 10	20	20	38	25	110	13	10	20	3	AX10	12000	12000
E20 R/L 9015-2020-AX 15	20	20	49	25	110	13	15	30	3	AX15	22000	22000
E25 R/L 9005-2525-AX 05	25	25	33	30	140	12	5	10	3	AX05	02500	02500
E25 R/L 9010-2525-AX 10	25	25	43	30	110	13	10	20	3	AX10	12500	12500
E25 R/L 9015-2525-AX 15	25	25	49	30	140	13	15	30	3	AX15	22500	22500



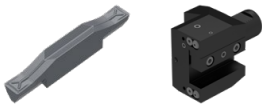
Key D



Clamping screw

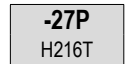
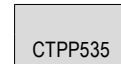
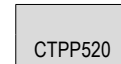
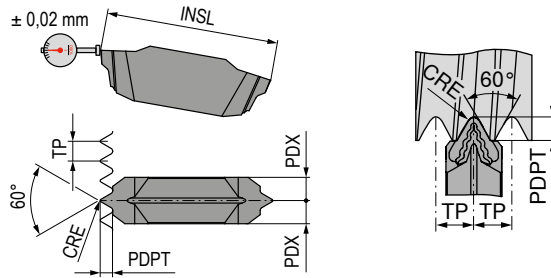
**Spare parts
for Article no.**

		80 950 ...	70 950 ...
70 825 02000 / 70 826 02000	T15	105	403
70 825 12000 / 70 826 12000	T20	106	404
70 825 22000 / 70 826 22000	T20	106	404
70 825 02500 / 70 826 02500	T15	105	403
70 825 12500 / 70 826 12500	T20	106	404
70 825 22500 / 70 826 22500	T20	106	404



→ 83 → Chapter 16

Threading inserts TC full profile – External thread 60°



Designation	Size	TP mm	INS mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 357 ...	70 357 ...	70 357 ...
TC 16-1 E 0.5 ISO	TC 16-1 ...	0,50	16	0,32	1,05	0,06	E.. R/L TC 16-1	010	110	610
TC 16-1 E 0.75 ISO	TC 16-1 ...	0,75	16	0,48	1,05	0,09	E.. R/L TC 16-1	012	112	612
TC 16-1 E 1.0 ISO	TC 16-1 ...	1,00	16	0,64	1,05	0,12	E.. R/L TC 16-1	014	114	614
TC 16-1 E 1.25 ISO	TC 16-1 ...	1,25	16	0,80	1,05	0,15	E.. R/L TC 16-1	016	116	616
TC 16-1 E 1.5 ISO	TC 16-1 ...	1,50	16	0,95	1,05	0,18	E.. R/L TC 16-1	018	118	618
TC 16-2 E 1.75 ISO	TC 16-2 ...	1,75	16	1,10	2,15	0,22	E.. R/L/N TC 16-2	030	130	630
TC 16-2 E 2.0 ISO	TC 16-2 ...	2,00	16	1,26	2,15	0,25	E.. R/L/N TC 16-2	032	132	632
TC 16-2 E 2.5 ISO	TC 16-2 ...	2,50	16	1,58	2,15	0,32	E.. R/L/N TC 16-2	034	134	634
TC 16-2 E 3.0 ISO	TC 16-2 ...	3,00	16	1,89	2,15	0,38	E.. R/L/N TC 16-2	036	136	636
P								●	●	
M								●	●	
K								●	●	●
N										●
S								○	●	
H								○		
O										○

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Internal machining

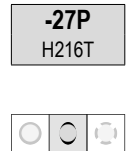
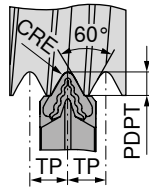
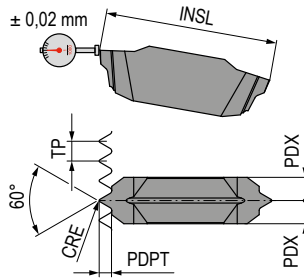
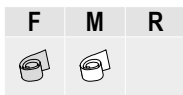
External machining



→ 92

→ 93

Threading inserts TC full profile – Internal thread 60°



Designation	Size	TP mm	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 358 ...	70 358 ...	70 358 ...
TC 16-1 1.0 ISO	TC 16-1 ...	1,00	16	0,59	1,05	0,06	I32 R/L TC 16-1	014	114	614
TC 16-1 1.25 ISO	TC 16-1 ...	1,25	16	0,74	1,05	0,07	I32 R/L TC 16-1	016		
TC 16-1 1.5 ISO	TC 16-1 ...	1,50	16	0,89	1,05	0,09	I32 R/L TC 16-1	018	118	618
TC 16-2 1.75 ISO	TC 16-2 ...	1,75	16	1,02	2,15	0,11	I32 R/L TC 16-2	030		
TC 16-2 2.0 ISO	TC 16-2 ...	2,00	16	1,17	2,15	0,13	I32 R/L TC 16-2	032	132	632
TC 16-2 3.0 ISO	TC 16-2 ...	3,00	16	1,76	2,15	0,19	I32 R/L TC 16-2	036	136	636
P								●	●	
M								●	●	
K								●	●	●
N										●
S								○	●	
H								○		
O										○

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Internal machining

External machining

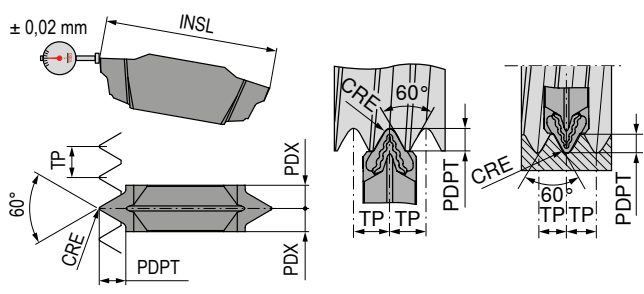


→ 94

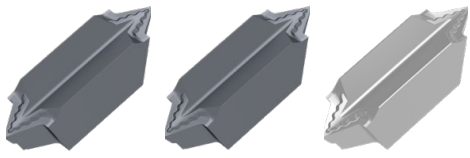
Threading inserts TC partial profile 60°



F	M	R



CTPP520	CTPP535	-27P H216T
DRAGONSKIN	DRAGONSKIN	



Designation	Size	TP mm	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 355 ...	70 355 ...	70 355 ...
TC 16-1 EI A 60	TC 16-1 ...	0,5 - 1,5	16	1,27	1,05	0,03	E/L... R/L TC 16-1	010	110	610
TC 16-2 EI AG 60	TC 16-2 ...	0,5 - 3,0	16	2,57	2,15	0,03	E/L... R/L/N TC 16-2	032	132	632
TC 16-2 EI G 60	TC 16-2 ...	1,75 - 3,0	16	2,49	2,15	0,11	E/L... R/L/N TC 16-2	030	130	630
P								●	●	
M								●	●	
K								●	●	●
N										●
S								○	●	
H								○		
O										○

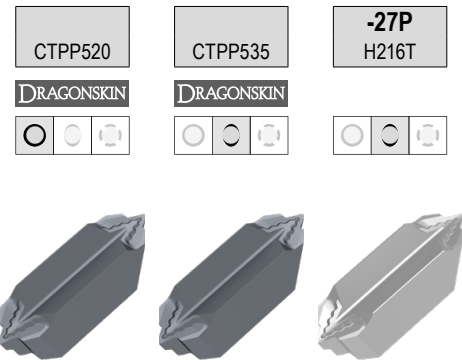
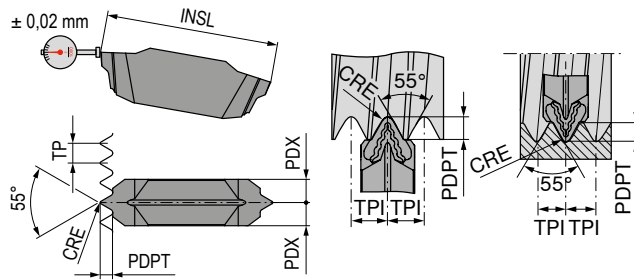
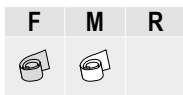
→ v_c Page 103
→ Application recommendation on page 111

Internal machining

External machining

→ 94	→ 92	→ 93							

Threading inserts TC full profile 55°



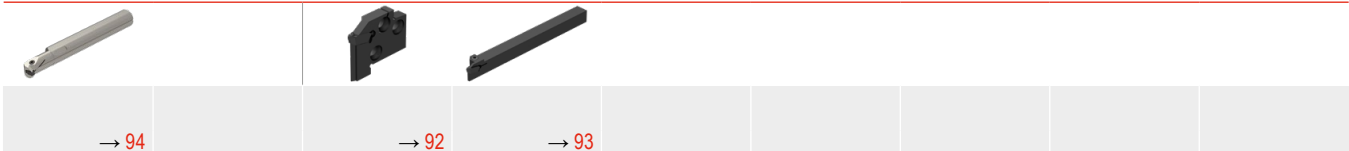
Designation	Size	TPI 1/"	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 359 ...	70 359 ...	70 359 ...
TC 16-1 EI 28 W	TC 16-1 ...	28	16	0,60	1,05	0,12	E/L... R/L TC 16-1	010	110	
TC 16-1 EI 20 W	TC 16-1 ...	20	16	0,84	1,05	0,17	E/L... R/L TC 16-1	016		
TC 16-1 EI 19 W	TC 16-1 ...	19	16	0,88	1,05	0,17	E/L... R/L TC 16-1	018	118	618
TC 16-1 EI 16 W	TC 16-1 ...	16	16	1,05	1,05	0,21	E/L... R/L TC 16-1	022		
TC 16-2 EI 14 W	TC 16-2 ...	14	16	1,20	2,15	0,23	E/L... R/L/N TC 16-2	030	130	630
TC 16-2 EI 12 W	TC 16-2 ...	12	16	1,40	2,15	0,27	E/L... R/L/N TC 16-2		132	
TC 16-2 EI 11 W	TC 16-2 ...	11	16	1,53	2,15	0,30	E/L... R/L/N TC 16-2	034	134	634
P								●	●	
M								●	●	
K								●	●	●
N										●
S								○	●	
H								○		
O										○

→ v_c Page 103

→ Application recommendation on page 111

Internal machining

External machining

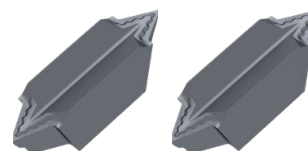
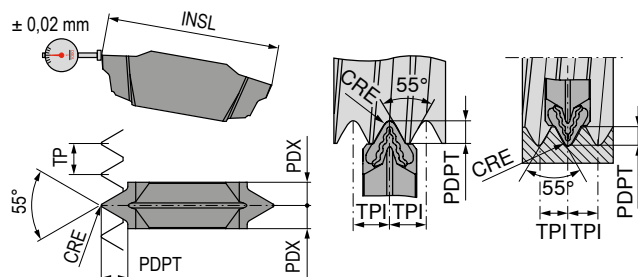


→ 94

→ 92

→ 93

Threading inserts TC partial profile 55°



Designation	Size	TPI 1/"	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 356 ...	70 356 ...
TC 16-1 EI A 55	TC 16-1 ...	28 - 16	16	1,39	1,05	0,12	E/I.. R/L TC 16-1	010	110
TC 16-2 EI AG 55	TC 16-2 ...	28 - 8	16	2,91	2,15	0,12	E/I.. R/L/N TC 16-2	032	132
TC 16-2 EI G 55	TC 16-2 ...	14 - 8	16	2,78	2,15	0,23	E/I.. R/L/N TC 16-2	030	130
P								●	●
M								●	●
K								●	●
N									
S								○	●
H								○	
O									

→ v_c Page 103
→ Application recommendation on page 111

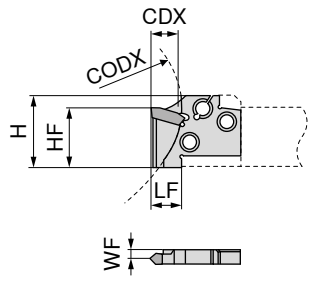
Internal machining

External machining

→ 94	→ 92	→ 93							

ModularClamp MSS – Threading module TC for external threads

Scope of supply:
Grooving module only



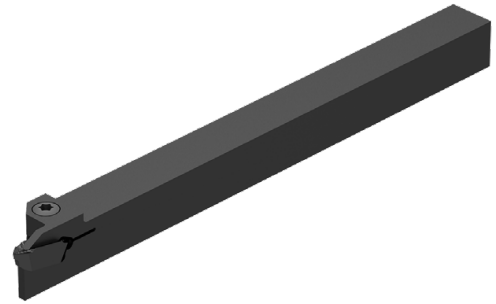
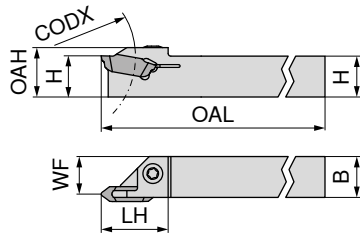
Illustrations show right-hand versions

ISO designation	TP mm	TPI 1/"	WF mm	HF mm	LF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand	Neutral	Right-hand
										70 872 ...	70 872 ...	70 872 ...
E20 R/L TC 16-1	0,5 - 1,5	28 - 16	3,45	13	20	24	60	8	TC 16-1 ...	120		020
E20 N TC 16-2	1,75 - 3,0	14 - 8	2,20	13	20	24		12	TC 16-2 ...		220	
E25 R/L TC 16-1	0,5 - 1,5	28 - 16	5,20	13	25	30	75	8	TC 16-1 ...	125		025
E25 R/L TC 16-2	1,75 - 3,0	14 - 8	4,10	13	25	30	75	10	TC 16-2 ...	325		225

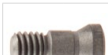


→ 87-91	→ 95+96	→ 97							
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Mono holder incl. key and clamping screw



Illustrations show right-hand versions

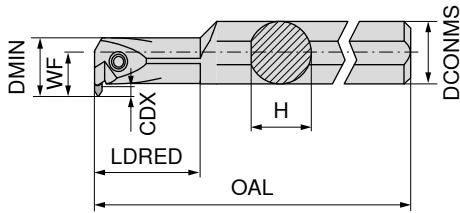
											Left-hand		Right-hand	
											70 883 ...		70 882 ...	
ISO designation	TP mm	TPI 1/"	H mm	B mm	OAL mm	LH mm	OAH mm	WF mm	CODX mm	for grooving inserts				
E12 R/L 00-1212 TC16	0,5 - 3	28 - 8	12	12	150	20	14,5	11	30	TC16-1/2..		012		012
											 Key D		 Clamping screw	
											80 950 ...		70 950 ...	
Spare parts for grooving inserts														
TC16-1/2..											T15	113	M4x11	442



MonoClamp – Monobloc boring bar TC – internal thread

Scope of supply:

Boring bar incl. key and clamping screw



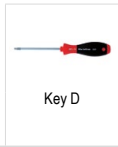
Illustrations show right-hand versions

ISO designation	WF mm	DCONMS mm	H mm	OAL mm	LDRED mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 857 ...		Right-hand 70 856 ...	
I16 R/L 90-2D TC16	14,0	20	18	180	32	4	20	TC16-1/2..		016		016
I20 R/L 90-2D TC16	17,5	25	23	200	40	5	25	TC16-..		020		020
I25 R/L 90-2D TC16	22,0	32	30	250	50	6	32	TC16-..		025		025

Spare parts

for Article no.

70 857 016 / 70 856 016	T15	113	M4x14	403
70 857 020 / 70 856 020	T20	114	M5x18	404
70 857 025 / 70 856 025	T25	115	M6x20	405

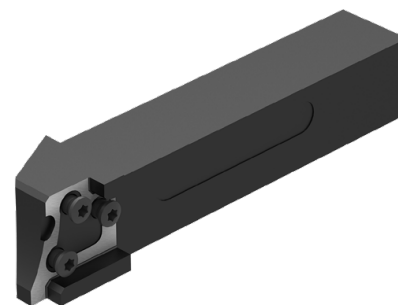
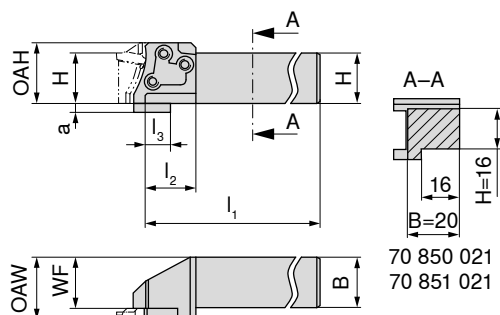


→ 87-91	→ Chapter 16								
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ModularClamp MSS – Tool holder 0°

Scope of supply:

Base holder incl. clamping screw



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAW mm	OAH mm	WF mm	l ₁ mm	l ₂ mm	l ₃ mm	for modules	Left-hand 70 851 ...	Right-hand 70 850 ...
E16 R/L 00-1616G	16	16	19,25	19,5	15,75	90	16		E16 R/L ...	016	016
E20 R/L 00-1620G	16	20	24,25	24,0	20,15	90	20		E20 R/L/N ...	021 ¹⁾	021 ¹⁾
E20 R/L 00-2020J	20	20	24,25	24,0	20,15	110	20		E20 R/L/N ...	020	020
E25 R/L 00-2525L	25	25	31,00	30,0	25,50	140	25		E25 R/L ...	025	025
E32 R/L 00-3225N	32	25	31,00	38,0	25,50	160	32		E32 R/L ...	032	032
E32 L 00-3232N	32	32	38,00	38,8	32,50	180	32	16	E32 R/L ...	13200	
E32 R 00-3232Q	32	32	38,00	38,8	32,50	180	32	16	E32 R/L ...		13200

1) see view A-A



for right hand holder → use right hand (or neutral) module
for left hand holder → use left hand (or neutral) module



Key D



Clamping screw

Spare parts for Article no.

		80 950 ...	70 950 ...
70 851 016 / 70 850 016	T15	113	441
70 851 021 / 70 850 021	T15	113	403
70 851 020 / 70 850 020	T15	113	403
70 851 025 / 70 850 025	T20	114	404
70 851 032 / 70 850 032	T25	115	405

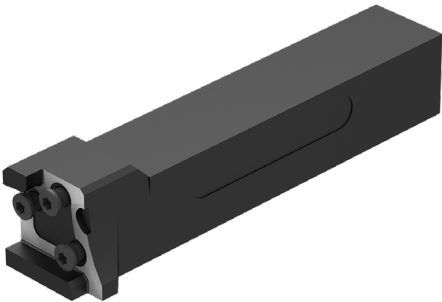
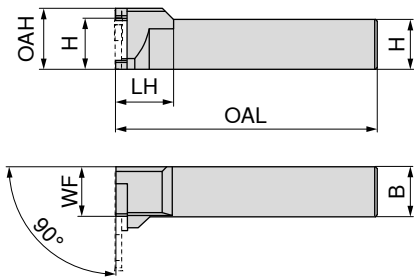
Module Overview



→ 6+8

ModularClamp MSS – Tool holder 90°

Scope of supply:
Base holder incl. clamping screw



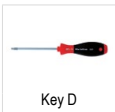
Illustrations show right-hand versions

ISO designation	H mm	B mm	OAH mm	WF mm	OAL mm	LH mm	for modules	Left-hand		Right-hand	
								70 855 ...		70 854 ...	
E20 R/L 90-2020J	20	20	24	20	110	20	E20 R/L/N ...		020		020
E25 R/L 90-2525L	25	25	30	25	140	28	E25 R/L ...		025		025
E32 R/L 90-3225N	32	25	38	32	160	34	E32 R/L ...		032		032

 for right hand holder → use left hand (or neutral) module
for left hand holder → use right hand (or neutral) module

Spare parts
for Article no.

70 855 020 / 70 854 020	T15	113	M4x14	403
70 855 025 / 70 854 025	T20	114	M5x18	404
70 855 032 / 70 854 032	T25	115	M6x20	405



Key D



Clamping screw

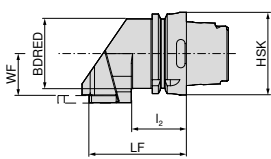
Module Overview



→ 6+8

ModularClamp MSS – HSK-T Base Holder 0°

Scope of supply:
Base holder incl. clamping screw



Illustrations show right-hand versions

ISO designation	Adapter	LF mm	l ₂ mm	BDRED mm	WF mm	for modules	Left-hand		Right-hand	
							74 581 ...		74 580 ...	
HSK T63 E25 R/L 00	HSK-T 63	67	42	53	38,7	E25 R/L...		525		525

 for right hand holder → use right hand module
for left hand holder → use left hand module

Spare parts
for Article no.
74 580 525 / 74 581 525

				
Protection plugs	Nozzle	Key D	Clamping screw	Hollow key with nose
70 950 ...	70 950 ...	80 950 ...	70 950 ...	70 950 ...
05600	05500	114	404	05700

Module Overview



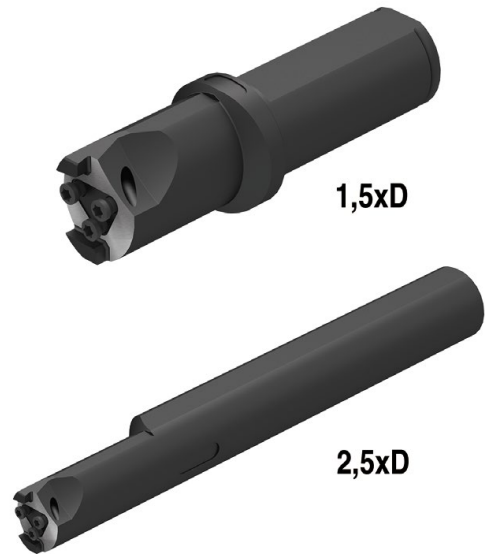
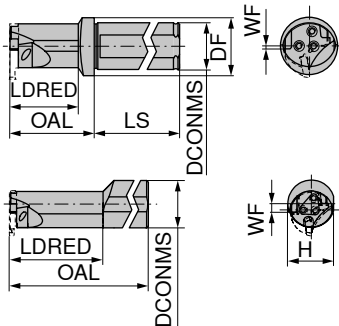
→ 6+8									
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ModularClamp MSS – Boring bars GX / TC

▲ with thro' coolant

Scope of supply:

Boring bar incl. clamping screw



Illustrations show right-hand versions

	ISO designation	DCONMS mm	DF mm	WF mm	H mm	OAL mm	LDRED mm	LS mm	for modules	Left-hand 70 861 ...	Right-hand 70 860 ...
≤ 1,5xD	I 16 R/L 90-1,5 D-N	20	25	1,0		32	24	50	I 16 R/L	017	017
	I 20 R/L 90-1,5 D-N	20	25	1,0		37	30	50	I 20 R/L	021	021
	I 25 R/L 90-1,5 D-N	25	32	1,5		46	38	56	I 25 R/L	026	026
	I 32 R/L 90-1,5 D-N	32	40	2,0		59	48	60	I 32 R/L	033 ¹⁾	033 ¹⁾
	I 40 R/L 90-1,5 D-N	40	50	2,5		72	60	70	I 40 R/L/N	041	041
≤ 2,5xD	I 16 R/L 90-2,5 D-N	20		4,5	19,0	180	40		I 16 R/L	117	117
	I 20 R/L 90-2,5 D-N	25		6,0	24,0	200	50		I 20 R/L	121	121
	I 25 R/L 90-2,5 D-N	32		7,0	31,0	250	63		I 25 R/L	126	126
	I 32 R/L 90-2,5 D-N	40		9,5	38,0	300	80		I 32 R/L	133 ¹⁾	133 ¹⁾
	I 40 R/L 90-2,5 D-N	50		11,5	48,5	350	100		I 40 R/L/N	141	141

1) with 2 clamping surfaces

Spare parts for modules

I 16 R/L	T08	110	M2,5x10	440
I 20 R/L	T10	112	M3x11	444
I 25 R/L	T15	113	M3,5x12,5	441
I 32 R/L	T20	114	M4,5x17	445
I 40 R/L/N	T20	114	M5x18	404

Module Overview



→ 6+8

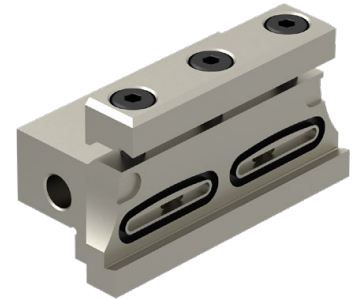
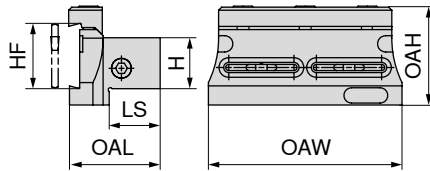


for right hand holder → use right hand (or neutral) module
for left hand holder → use left hand (or neutral) module

Split clamping block for blades DC

Scope of supply:

Complete clamping block, but without blade



Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 829 ...
SBN 2020-26-DC	20	26	43,0	20	40,0	82	XLC.. 26..	020
SBN 2020-32-DC	20	32	43,0	20	40,0	95	XLC.. 32..	120
SBN 2525-32-DC	25	32	48,5	25	44,5	95	XLC.. 32..	025
SBN 3232-32-DC	32	32	52,0	32	51,0	95	XLC.. 32..	032

Spare parts
for Article no.

		70 950 ...		70 950 ...		70 950 ...
70 829 020	G 1/8"	294	CU70	290	M6x12	861
70 829 120	G 1/8"	294	CU85	291	M6x12	861
70 829 025	G 1/8"	294	CU85	291	M6x12	861
70 829 032	G 1/8"	294	CU85	291	M6x12	861

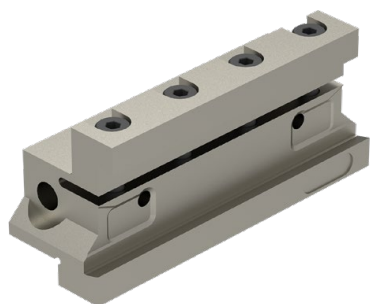
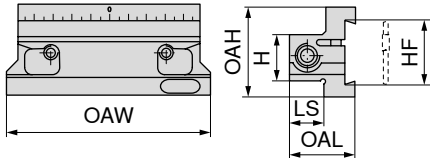
Spare parts
for Article no.

		70 950 ...		70 950 ...		70 950 ...
70 829 020	SW5	265	19x2,5	293		
70 829 120	SW5	265	19x2,5	293	23x2,5	292
70 829 025	SW5	265			23x2,5	292
70 829 032	SW5	265			23x2,5	292

Clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set



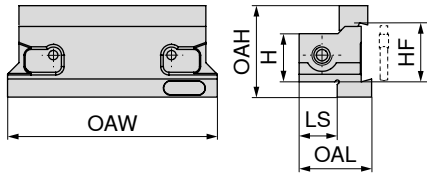
Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 830 ...
SBN 2020-26-K	20	26	39	20	33,0	90	XLC.. 26..	020
SBN 2520-32-K	25	32	48	20	36,0	110	XLC.. 32..	025
SBN 3229-32-K	32	32	48	29	44,5	120	XLC.. 32..	032
SBN 3229-46-K	32	46	70	29	52,0	150	XLC.. 46..	132
SBN 4037-46-K	40	46	70	37	60,0	150	XLC.. 46..	140

				Key I		Cooling agent set		clamping screw	
				70 950 ...		70 950 ...		70 950 ...	
Spare parts for blades									
XLC.. 26..	SW5			265	278	M6x25	269		
XLC.. 32..	SW5			265	278	M6x25	269		
XLC.. 46..	SW6			266	279	M8x35	282		

Split clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set



Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 831 ...
SBN 2020-26-KS	20	26	39	20	35,0	90	XLC.. 26..	020
SBN 2520-32-KS	25	32	48	20	38,0	110	XLC.. 32..	025
SBN 3229-32-KS	32	32	48	29	46,5	120	XLC.. 32..	032

Spare parts for blades

XLC.. 26..	SW5	265	278	M6x25	269
XLC.. 32..	SW5	265	278	M6x25	269



70 950 ...

70 950 ...

70 950 ...

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm ² / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm ² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm ² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm ² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm ² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm ² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm ² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm ² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm ² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm ² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm ² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm ² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm ² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm ² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm ² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm ² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm ² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm ² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm ² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm ² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm ² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm ² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm ² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm ² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm ² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm ² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm ² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm ² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm ² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm ² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm ² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm ² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm ² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm ² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm ² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm ²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm ² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm ² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm ²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm ²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm ²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm ²				
		O.3.1	Graphite						

* Tensile strength

Cutting data values for grooving inserts GX/LX/FX/SX/AX/TC

Index	DRAGONSKIN						H216T (SX/FX/GX)	H216T (TC)
	CTCP325	CTCP335	CTPP345	CTPP520	CTPP535	CTP1340		
	v _e in m/min.							
P.1.1	220	185	135	235	180	180		
P.1.2	195	160	120	205	150	150		
P.1.3	170	140	105	175	125	125		
P.1.4	165	130	100	165	120	115		
P.1.5	150	120	95	150	105	100		
P.2.1	200	165	120	210	160	155		
P.2.2	160	130	100	160	115	110		
P.2.3	150	120	95	150	105	100		
P.2.4	120	90	75	115	75	70		
P.3.1	150	130	100	185	120	110		
P.3.2	95	90	80	130	90	75		
P.3.3	45	50	60	75	60	40		
P.4.1	150	130	100	185	120	110		
P.4.2	125	110	90	160	105	95		
M.1.1	150	130	100	185	120	110		
M.2.1	95	90	80	130	90	80		
M.3.1	135	115	95	170	110	100		
K.1.1	170	135		140	165	150	140	140
K.1.2	150	115		115	150	125	115	115
K.2.1	160	130		180	145	140	150	150
K.2.2	145	105		115	155	120	110	110
K.3.1	210	150		130	190	170	170	170
K.3.2	140	115		110	145	120	140	140
N.1.1						300	400	450
N.1.2						200	400	450
N.2.1						300	450	300
N.2.2						200	450	300
N.2.3						150	500	225
N.3.1						300	425	190
N.3.2						300	400	290
N.3.3						200	275	290
N.4.1						200	225	290
S.1.1	35			40	30	35	40	
S.1.2	30		30	30	25	30	30	
S.2.1	20		25	20	15	20	30	
S.2.2	15			15	15	15	25	
S.2.3	15			20	15	15	20	
S.3.1				125	85	85	90	
S.3.2				50	35	40	55	
S.3.3				35	25	30	40	
H.1.1				15				
H.1.2				15				
H.1.3								
H.1.4								
H.2.1				15				
H.3.1				40				
O.1.1						130	130	290
O.1.2								
O.2.1						105	105	290
O.2.2								
O.3.1								



The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. $\pm 20\%$ according to the usage conditions.

Cutting data values for TX grooving inserts

Index	CWX500		● 1st choice ○ suitable		
	v _c (m/min)	f (mm/rev)	Emulsion	Compressed air	MMS
P.1.1	160	0,03–0,10	●		
P.1.2	140	0,03–0,10	●		
P.1.3	110	0,03–0,10	●		
P.1.4	110	0,03–0,10	●		
P.1.5	90	0,03–0,10	●		
P.2.1	110	0,03–0,10	●		
P.2.2	90	0,03–0,10	●		
P.2.3	90	0,03–0,07	●		
P.2.4	80	0,03–0,06	●		
P.3.1	80	0,03–0,07	●		
P.3.2	60	0,03–0,07	●		
P.3.3	50	0,03–0,07	●		
P.4.1	100	0,03–0,06	●		
P.4.2	90	0,03–0,06	●		
M.1.1	110	0,02–0,06	●		
M.2.1	90	0,02–0,06	●		
M.3.1	70	0,02–0,06	●		
K.1.1	140	0,03–0,10	●		
K.1.2	100	0,03–0,10	●		
K.2.1	90	0,03–0,10	●		
K.2.2	80	0,03–0,10	●		
K.3.1	140	0,03–0,10	●		
K.3.2	120	0,03–0,10	●		
N.1.1	330	0,05–0,12	●		
N.1.2	310	0,05–0,12	●		
N.2.1	270	0,05–0,12	●		
N.2.2	230	0,05–0,12	●		
N.2.3	140	0,05–0,12	●		
N.3.1	240	0,05–0,12	●		
N.3.2	200	0,05–0,12	●		
N.3.3	180	0,05–0,12	●		
N.4.1	180	0,05–0,12	●		
S.1.1	60	0,02–0,07	●		
S.1.2	50	0,02–0,08	●		
S.2.1	60	0,02–0,09	●		
S.2.2	50	0,02–0,10	●		
S.2.3	40	0,02–0,11	●		
S.3.1	60	0,02–0,12	●		
S.3.2	40	0,02–0,13	●		
S.3.3	30	0,02–0,14	●		
H.1.1	50	0,01–0,07	●		
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1	180	0,05–0,12	●		
O.1.2	180	0,05–0,12	●		
O.2.1	150	0,05–0,12	●		
O.2.2	110	0,05–0,12	●		
O.3.1	170	0,03–0,10	●		



The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. $\pm 20\%$ according to the usage conditions.

GX – Depths of cut and feed rates

GX Standard / GX-E

Turning



Parting / Grooving



GX Standard / GX-E	Depth of Cut a_p in mm							GX Standard / GX-E
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	
Cutting width in mm	Feed rate f in mm/rev.							Feed rate f in mm/rev.
2	0,10–0,15	0,05–0,15	0,05–0,12	0,05–0,10				0,05–0,20
3	0,10–0,17	0,05–0,17	0,05–0,17	0,05–0,15	0,05–0,12			0,10–0,25
4	0,10–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,25
5	0,10–0,25	0,10–0,25	0,07–0,25	0,07–0,25	0,07–0,22	0,07–0,20		0,10–0,30
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,22	0,15–0,35



When axial grooving reduce feed by 40%.

GX-F2

Turning



Parting / Grooving



GX-F2	Depth of Cut a_p in mm									GX-F2
	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,25	2,50	
Cutting width in mm	Feed rate f in mm/rev.									Feed rate f in mm/rev.
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10						0,05–0,15
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12				0,075–0,20
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15			0,10–0,25
5	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,30
6	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,19	0,10–0,15	0,15–0,325



When axial grooving reduce feed by 40%.

GX-M40

Turning



Parting / Grooving



GX-M40	Depth of Cut a_p in mm								GX-M40
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,10–0,20	0,05–0,20	0,05–0,17	0,05–0,15					0,05–0,15
3	0,10–0,22	0,10–0,22	0,10–0,21	0,10–0,20	0,10–0,17				0,075–0,20
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,17			0,10–0,25
5	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,27	0,10–0,23	0,10–0,20		0,10–0,30
6	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,27	0,10–0,23	0,10–0,20	0,15–0,325



When axial grooving reduce feed by 40%.

GX-27P

Turning



Parting / Grooving



GX-27P	Depth of Cut a_p in mm								GX-27P
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20					0,05–0,20
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20				0,05–0,25
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25			0,05–0,30
5	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,30		0,10–0,35
6	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,36	0,10–0,33	0,10–0,30	0,10–0,40



When axial grooving reduce feed by 40%.

GX – Depths of cut and feed rates

GX-M3

Turning



Parting / Grooving



GX-M3	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,15–0,35	0,15–0,35	0,15–0,30					
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30				
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35			
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40		

GX-M3
Feed rate f in mm/rev.
0,05–0,20
0,10–0,25
0,10–0,25
0,10–0,35

GX-M33

Turning



Parting / Grooving



GX-M33	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,05–0,25	0,05–0,20	0,05–0,15					
2	0,05–0,35	0,05–0,30	0,05–0,25	0,05–0,20				
2,5	0,10–0,45	0,10–0,40	0,10–0,35	0,10–0,30	0,10–0,25			
3	0,10–0,50	0,10–0,45	0,10–0,40	0,10–0,35	0,10–0,30	0,10–0,25		

GX-M33
Feed rate f in mm/rev.
0,05–0,15
0,05–0,20
0,05–0,25
0,10–0,25

GX-27P /-27PF Radius

Turning



Parting / Grooving



GX-27P /-27PF Radius	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,10–0,45	0,05–0,45	0,05–0,40					
2	0,15–0,50	0,10–0,50	0,10–0,50	0,10–0,40				
2,5	0,15–0,60	0,10–0,60	0,10–0,60	0,10–0,50	0,10–0,45			
3	0,25–0,70	0,20–0,70	0,15–0,70	0,15–0,70	0,15–0,65	0,15–0,60	0,15–0,55	
4	0,25–0,80	0,20–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,75	0,15–0,70

GX-27P /-27PF Radius
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20
0,10–0,25
0,10–0,30
0,15–0,35

GX-M1

GX Radius grooving inserts

GX circlip grooving

Parting / Grooving



Parting / Grooving



Grooving



GX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25

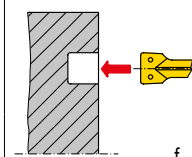
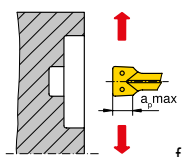
GX Radius grooving insert	
Radius RE in mm	Feed rate f in mm/rev.
0,80	0,05–0,10
1,00	0,05–0,15
1,20	0,05–0,15

GX circlip grooves	
Cutting width in mm	Feed rate f in mm/rev.
0,60–1,70	0,02–0,09
1,95–2,25	0,05–0,10
2,75–3,25	0,05–0,12

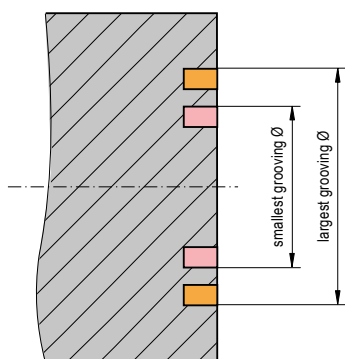
Feed guide and machining instructions for axial grooving and face turning with GX 24 axial

Approximate feed rates

GX

Designation	 f in mm/rev.	 f in mm/rev.	$a_{p,max}$ mm
GX 24-2 E 3.00 ..	0,05–0,15	0,05–0,20	2,5
GX 24-3 E 4.00 ..	0,05–0,15	0,05–0,25	3,0
GX 24-3 E 5.00 ..	0,05–0,15	0,10–0,25	3,0
GX 24-4 E 6.00 ..	0,05–0,20	0,10–0,30	3,5

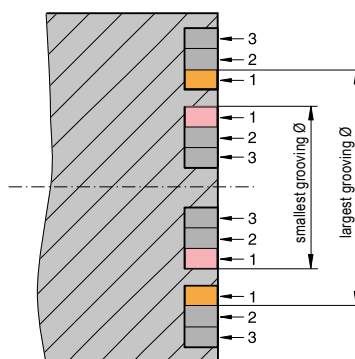
Axial grooving



It is only possible to plunge within the fixed diameter range of the axial grooving module or monoholder (e.g. 50 - 70 mm).

Important: The indicated diameter range is always valid for the external diameter of the groove!

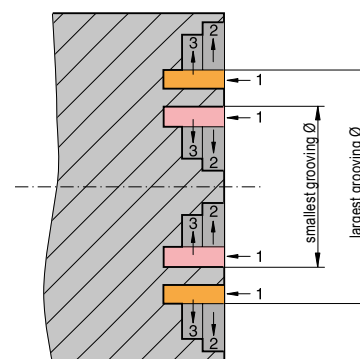
Axial grooving – Groove widening



In case of face turning it is possible to widen the groove above and below the diameter range indicated on the Axial grooving module or monoholder.

Important: Only the first groove must lie within the diameter range of the axial grooving module or axial monoholder. The depth of the widening groove must not be larger than the depth of the original groove.

Axial grooving and face turning

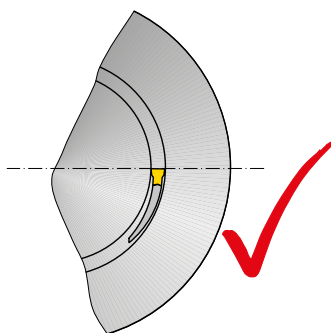


Groove widening by face turning in the diameter range above and below the values specified for the Axial grooving module and Axial monoholder are possible.

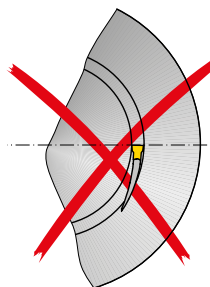
Important: Only the first groove must lie within the diameter range of the module.



Attention: The diameter of face grooves must lie within the diameter range indicated on the axial grooving module and axial monoholder. Not following this range will result in the tool being damaged or destroyed.



Correct Axial mono holder



Incorrect Axial mono holder

SX – Depths of cut and feed rates

SX-F2

Turning



Parting / Grooving



SX-F2	Depth of Cut a_p in mm									SX-F2
	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,25	2,50	
Cutting width in mm	Feed rate f in mm/rev.									Feed rate f in mm/rev.
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10						0,05–0,15
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12				0,075–0,20
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15			0,10–0,25

SX-M2

Turning



Parting / Grooving



SX-M2	Depth of Cut a_p in mm								SX-M2
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,05–0,17	0,05–0,13	0,05–0,10						0,05–0,15
3	0,07–0,20	0,07–0,20	0,07–0,18	0,07–0,15					0,075–0,20
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,18				0,10–0,25
5	0,12–0,27	0,12–0,27	0,12–0,27	0,12–0,25	0,12–0,22				0,10–0,30
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,20			0,15–0,35

SX-27P

Turning



Parting / Grooving



SX-27P	Depth of Cut a_p in mm								SX-27P
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20					0,05–0,20
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20				0,05–0,25
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25			0,05–0,30

SX/LX – Depths of cut and feed rates

SX-M1

Parting / Grooving



SX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25
5	0,15–0,30
6	0,15–0,35

SX-M7

Parting / Grooving



SX-M7	
Cutting width in mm	Feed rate f in mm/rev.
2	0,10–0,20
3	0,10–0,20
4	0,10–0,20
5	0,15–0,25
6	0,15–0,25

SX-M8

Parting / Grooving



SX-M8	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,20
3	0,05–0,20
4	0,05–0,15
5	0,05–0,15
6	0,05–0,15

SX-M3

Turning



SX-M3	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Radius in mm	Feed rate f in mm/rev.							
1,5	0,15–0,35	0,15–0,35	0,15–0,30					
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30				
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35			
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40		

Parting / Grooving



SX-M3	
Feed rate f in mm/rev.	
0,05–0,20	
0,10–0,25	
0,10–0,25	
0,10–0,35	

LX-M2

Turning



LX-M2	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Cutting width in mm	Feed rate f in mm/rev.							
8	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,40	0,17–0,37	0,17–0,35	
10	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,46	0,20–0,42	0,20–0,38	0,20–0,35

Parting / Grooving



LX-M2	
Feed rate f in mm/rev.	
0,20–0,50	
0,20–0,50	

LX-M3

Turning



LX-M3	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Radius in mm	Feed rate f in mm/rev.							
4	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,70	0,25–0,60	0,25–0,50

Parting / Grooving



LX-M3	
Feed rate f in mm/rev.	
0,15–0,35	

AX/FX – Depths of cut and feed rates

AX-F50

Face turning



AX-F50	Depth of Cut a_p in mm			
	0,5	1,0	1,5	2,3
Size	Feed rate f in mm/rev.			
AX 05	0,03–0,10	0,03–0,10		
AX 10	0,03–0,13	0,03–0,13	0,03–0,135	
AX 15	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,15

Axial grooving



1. Plunging	
Feed rate f in mm/rev.	Feed rate f in mm/rev.
0,025–0,080	0,025–0,20
0,025–0,065	0,05–0,25
0,025–0,050	0,05–0,30

FX-F1

Parting / Grooving



FX-F1	
Cutting width in mm	Feed rate f in mm/rev.
2,2	0,025–0,10
3,1	0,05–0,15
4,1	0,05–0,20

FX-M1

Parting / Grooving



FX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,05–0,15
3,10	0,08–0,18
4,10	0,10–0,20
5,10	0,15–0,28
6,50	0,15–0,33
8,20	0,20–0,40
9,70	0,20–0,40

FX-27P

Parting / Grooving



FX-27P	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,01–0,10
3,10	0,015–0,125
4,10	0,05–0,15

FX-R2

Grooving



FX-R2	
Cutting width in mm	Feed rate f in mm/rev.
3,10	0,10–0,275
4,10	0,15–0,35

TC – Reference values for profile depth and number of passes



All listed values are guide values for steel machining

Metric ISO 60° external thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,32	0,48	0,64	0,8	0,95	1,10	1,26	1,58	1,89	2,21	2,53	2,84	3,16

Metric ISO 60° internal thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,30	0,45	0,59	0,74	0,89	1,02	1,17	1,46	1,76	2,02	2,35	2,64	2,93

Whitworth 55° external and internal thread

TPI	28	26	24	20	19	18	16	14	12	11	10	9	8	7	6	5
Number/cuts	5–8	5–8	5–9	5–9	6–10	6–10	7–11	8–12	9–14	9–14	10–17	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,60	0,65	0,70	0,84	0,88	0,93	1,05	1,20	1,40	1,53	1,68	1,87	2,11	2,41	2,81	3,37

Partial profile 60° external and internal thread

External	TC 16–2EI–AG60																
	TC 16–1EI–A60									TC 16–2EI–G60				TC 16–3EI–N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20	12–20	13–21	14–22	14–22
Thread profile depth in mm	0,33	0,52	0,71	0,90	1,09	1,28	1,47	1,84	2,22	1,23	1,42	1,79	2,17	2,45	2,83	3,21	3,59

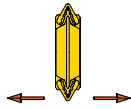
Internal	TC 16–2EI–AG60																
	TC 16–1EI–A60									TC 16–2EI–G60				TC 16–3EI–N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20	12–20	13–21	14–22	14–22
Thread profile depth in mm	0,27	0,44	0,60	0,76	0,92	1,09	1,25	1,57	1,90	1,04	1,20	1,52	1,85	2,07	2,40	2,72	3,05

Partial profile 55° external and internal thread

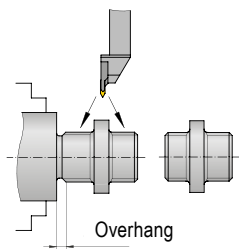
External	TC 16–2EI–AG55												
	TC 16–1EI–A55												
TPI	28	26	24	20	19	18	16	14	12	11	10	9	8
Number/cuts	5–8	5–8	6–9	6–9	7–12	7–12	8–14	9–14	10–16	10–16	11–18	12–20	12–20
Thread profile depth in mm	0,66	0,72	0,79	0,95	1,01	1,07	1,21	1,39	1,63	1,79	1,97	2,20	2,48
Internal	TC 16–2EI–G55								TC 16–3EI–N55				
	14	12	11	10	9	8		7	6	5			
TPI	14	12	11	10	9	8		7	6	5			
Number/cuts	8–12	9–14	10–15	11–18	12–20	12–20		12–20	12–20	14–22			
Thread profile depth in mm	1,22	1,46	1,56	1,80	2,03	2,31		2,40	2,89	3,56			

Comparison threading system with TC and conventional

TC

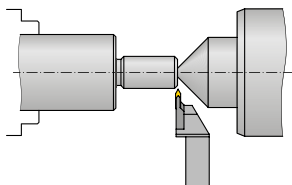


- ▲ Neutral configuration of insert makes operation in both directions possible
- ▲ Only one threading insert per pitch for partial profile and Whitworth thread; only two threading inserts (internal – external) per pitch for ISO threads
- ▲ Reduced stock holding
- ▲ good chip formation due to chip breaker with rake angle + 10 °

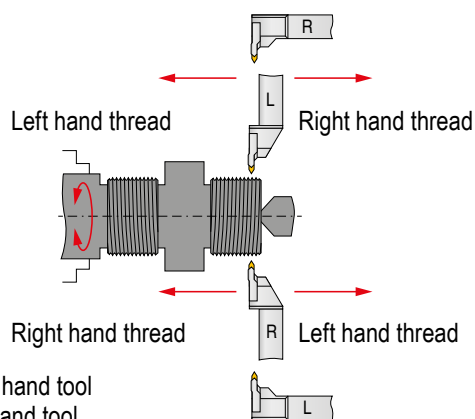


Greater efficiency through:

- ▲ shorter operating time
- ▲ Less tool changing
- ▲ High stability with small overhang
- ▲ Material saving
- ▲ Thread turning between shoulders
- ▲ Fewer tools and indexable inserts

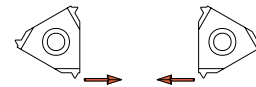


- ▲ Very good access to workpiece, therefore use of tailstock also possible with small thread diameters

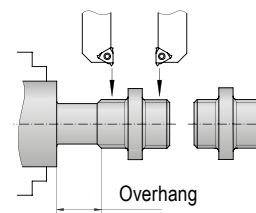


- ▲ ease of use, as the tools have no pitch angle correction they can be used in both directions

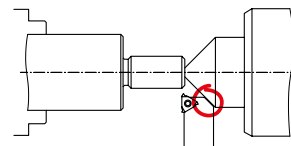
Conventional



- ▲ Right-hand and left-hand version of indexable insert, therefore operation only in one direction
- ▲ For every pitch 4 threading inserts are necessary (right – left, internal – external)



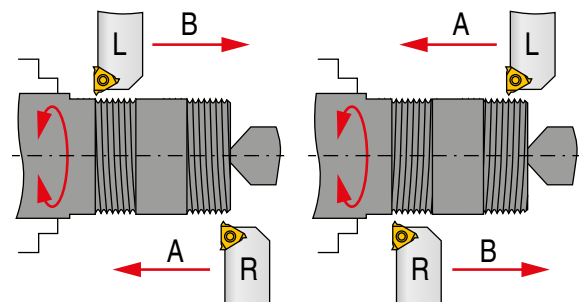
- ▲ For this machining method 2 tools are required
- ▲ additional material and stability loss with large overhang



- ▲ poor accessibility
- ▲ Collision danger

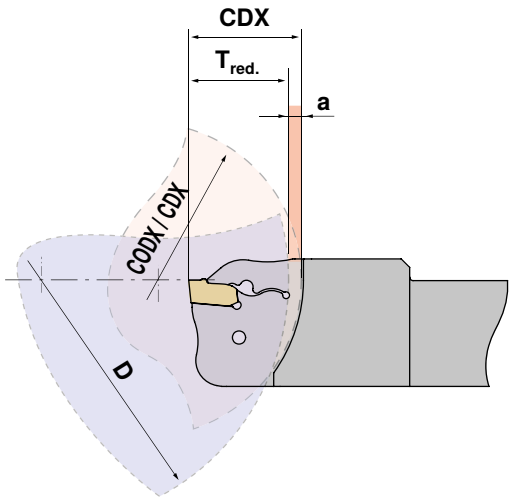
Right hand thread

Left hand thread



- ▲ With conventional thread turning the correction of the helix angle is necessary, therefore a high degree of application know-how is required
- ▲ Can only be operated in one direction

ModularClamp



The ModularClamp grooving modules are matched according to size on a particular workpiece diameter CODX. If the diameter of the workpiece is greater than CODX of the grooving Modules, this reduces the achievable penetration depth by the dimension „a“. The extent of reduction can be determined with the following table.

- CDX** maximum plunge depth in mm
- CODX** maximum workpiece Ø with full penetration depth in mm
- a** Reduction amount in mm

$T_{red.} = CDX - a$

Grooving depth reduction

Reduction a (mm) of the maximum grooving depth (CDX)																	
Size		0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0	7,5	8,0
E12	35	40	45	60	75	115	>250										
E16	50	55	60	70	80	100	130	200	>420								
E20	60	65	70	75	85	95	110	130	165	220	>330						
E25	75	80	85	90	100	110	125	140	160	190	240	320	>500				
E32	95	100	105	110	120	125	135	145	160	180	200	225	270	320	400	530	>800
Workpiece diameter D (mm)																	
Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm																	

Calculation example:

E25R21-GX24-3

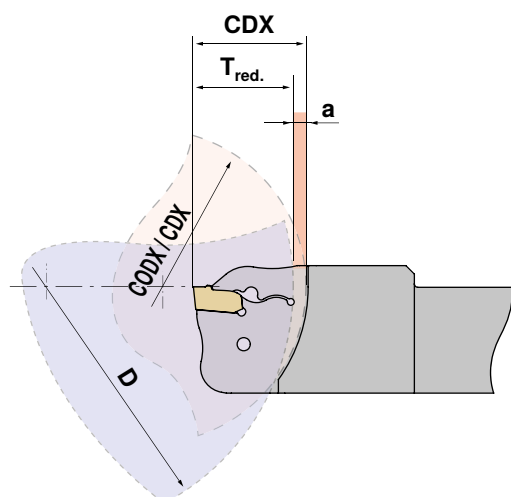
Size 25 CDX = 21 mm, Ø 75 mm

D = Ø 100 mm

$CDX - a = T_{red.}$
 $21 - 2 = 19 \text{ mm}$

MonoClamp

SX



Depending on the groove width and shank size, the MonoClamp tools are designed for use with a specific workpiece diameter CODX. If the workpiece diameter is larger than the CODX of the grooving module, the achievable groove depth is reduced by the dimension „a“. The extent of the reduction is determined using the following table.

CDX maximum plunge depth in mm

CODX maximum workpiece Ø with full penetration depth in mm

a Reduction amount in mm

$$T_{red.} = CDX - a$$

Grooving depth reduction

Shank	Reduction a (mm) of the maximum grooving depth (CDX)																
	0	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8
E12R/L0022...	44	70	80	95	115	150	225	>450									
E16R/L0026...	52	90	105	125	155	210	305	>600									
E20R/L0026...	52	110	125	140	160	195	240	320	475	>950							
E20R/L0033...	66	110	125	140	160	195	240	320	475	>950							
E25R/L0026...	52	140	160	190	235	310	465	>930									
E25R/L0033...	66	155	175	200	230	275	340	450	675	>1350							
E25R/L0040...	80	155	175	200	230	275	340	450	675	>1350							
Workpiece diameter D (mm)																	
Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm																	

Calculation example:

E25R0033...

CDX = 33 mm, Ø 66 mm

D = Ø 200 mm

$$CDX - a = T_{red.}$$

$$33 - 1,5 = 31,5 \text{ mm}$$

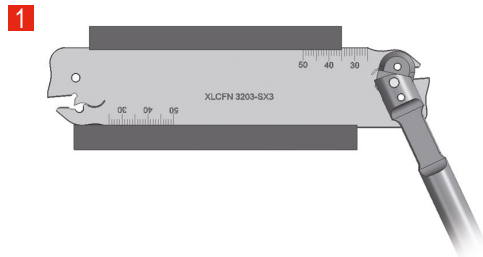
Clamping Method – SX-System

System function – inserting and removing the cutting inserts

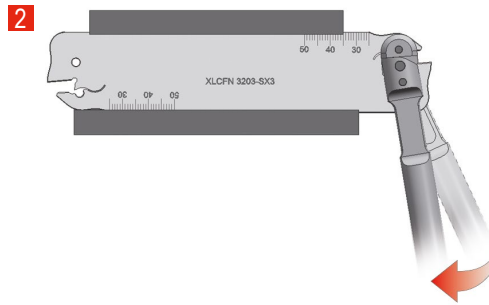
Precision system for internal and external grooving.

The key has been designed in such a way that it will not stress the material beyond its 'elastic limit'.

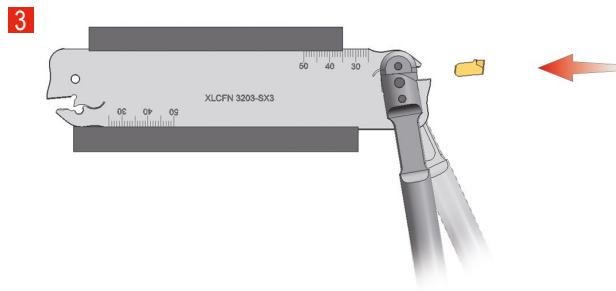
With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.



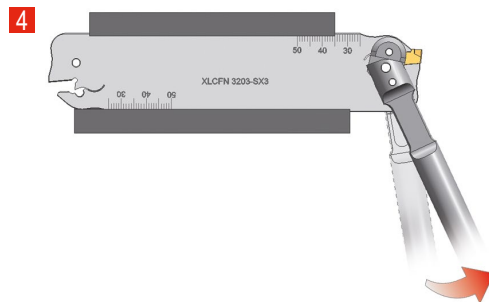
1 Locate wrench into blade with pins located in two holes



2 Movement of the fitting key in the direction of the insert seat opens the tool.



3 Load the grooving insert into position and press against the seat.

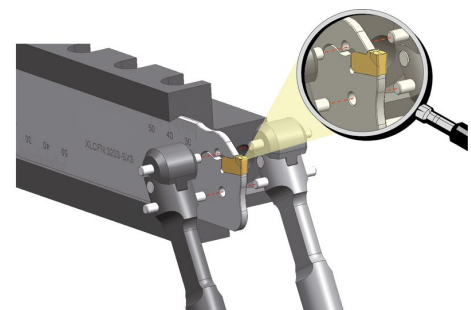


4 Moving the key forward causes the insert seat to close and clamp the insert.



When changing the inserts, always maintain tension on the key!

The clamp is designed so that the wrench can be inserted from both sides of the blade according to the accessibility.



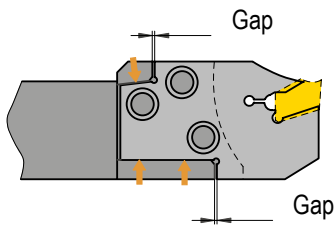
Maximum blade projection when turning

Blade	max. overhang
SX 2 – SX 3	25 mm
SX 4 – SX 5	30 mm
SX 6	35 mm



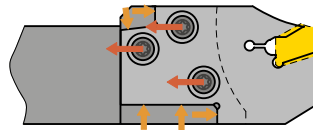
Clamping function – ModularClamp-Module

Module unclamped

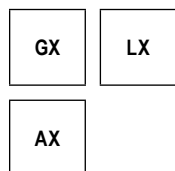
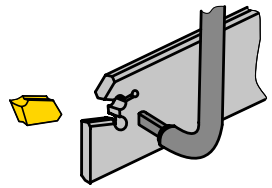


- ▲ Gap between module and support face for axial clamping

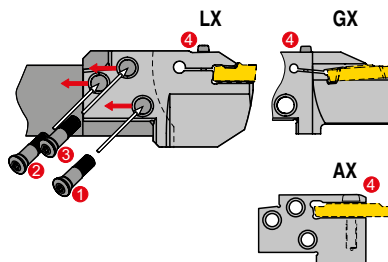
Module clamped



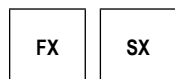
- ▲ Axial clamping with support face
- ▲ Connection free from play, therefore maximum stability



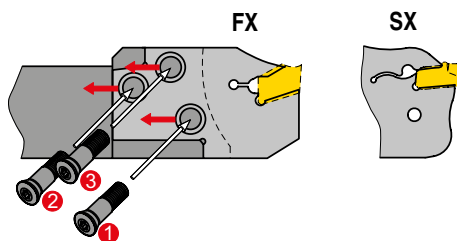
Active insert clamping



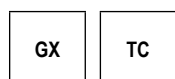
Clamping screws 1, 2 and 3 are used to clamp the modules.
The insert is clamped in the module via the additional screw 4.



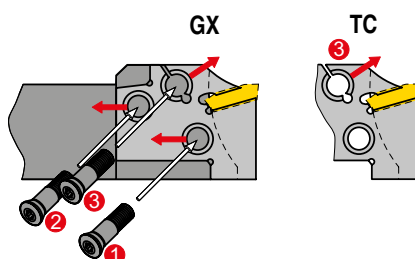
Self clamping of the insert



Clamping screws 1, 2 and 3 are used for clamping the module.
The insert is self-clamping.



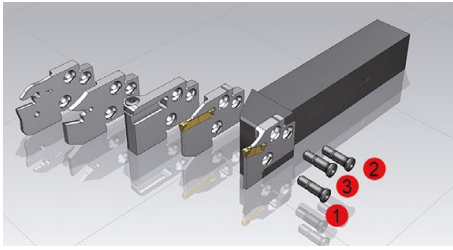
Active insert clamping



Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

Torque Moment ModularClamp Module Screws

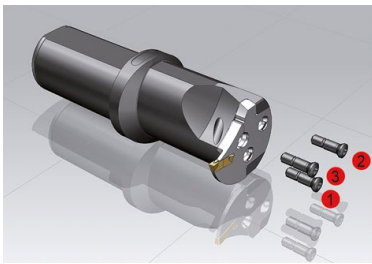
ModularClamp – Tool holder



Tighten screws to the correct Torque moment in this order.

ModularClamp – Tool holder	Screw	Torx	Torque moment	
			Nm	in.lbs
E12..	M2,5x10	T08	1,2	10,6
E16..	M3,5x12,5	T15	3,2	28,3
E20..	M4x14	T15	4,0	35,4
E25..	M5x18	T20	5,0	44,3
E32..	M6x20	T25	6,0	53,1

ModularClamp – Boring bar



Tighten screws to the correct Torque moment in this order.

ModularClamp – Boring bar	Screw	Torx	Torque moment	
			Nm	in.lbs
I16..	M2,5x10	T08	1,2	10,6
I20..	M3x11	T10	2,0	17,7
I25..	M3,5x12,5	T15	3,2	28,3
I32..	M4,5x17	T20	4,0	35,4
I40..	M5x18	T20	5,0	44,3

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Tightening torque for the insert clamping

Recommended tightening torque

Grooving systems	Screw	Torx	Torque moment	
			Nm	in.lbs
GX / AX / LX	M3,5	T15	3,2	28,3
	M4,0	T15/T20	4,0	35,4
	M5,0	T20	5,0	44,3

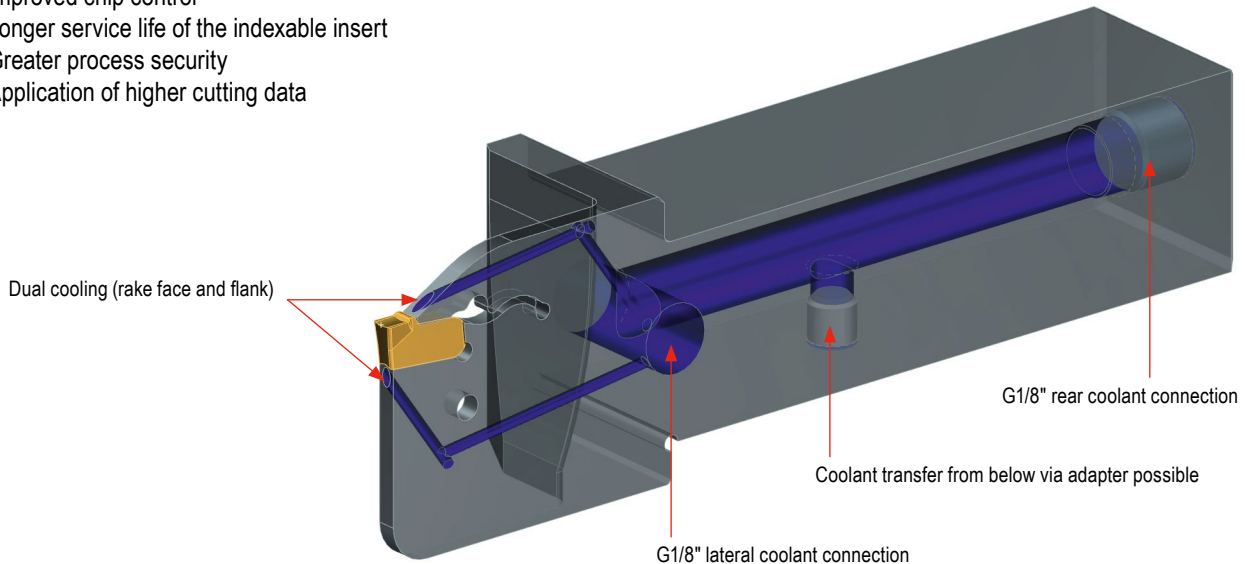
Advantages due to DirectCooling

Internal coolant supply with groove machining has a decisively positive effect on your turning process. In our CERATIZIT grooving range, the following grooving systems have an internal coolant supply:

- ▲ **SX** Grooving holder (single tool)
- ▲ **GX** Grooving holder (single tool)

Advantages due to DirectCooling

- ▲ Improved chip control
- ▲ Longer service life of the indexable insert
- ▲ Greater process security
- ▲ Application of higher cutting data



Advantages of the trochoidal turning strategy

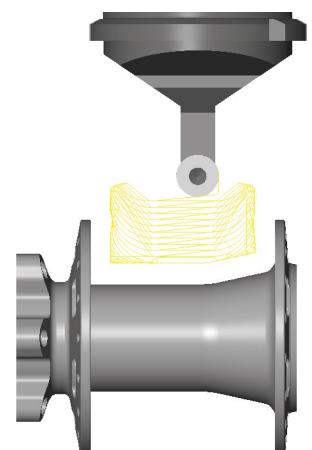
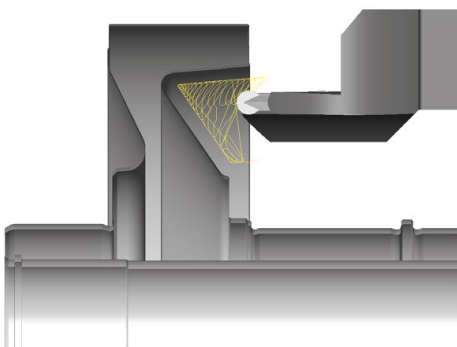
- ▲ Less wear and longer tool life due to softer entry and exit
- ▲ Smaller angle of engagement = less vibration
- ▲ Up to 40% higher feed rate values possible
- ▲ Broad field of application in austenitic steels, heat-resistant steels, Inconel and nickel-base alloys as well as long-chipping ductile materials
- ▲ Savings on tools

Trochoidal turning with support of the following CAM systems:

- ▲ hyperMill – High-performance turning
- ▲ Esprit CAM – ProfitTurning
- ▲ SolidCAM – Turning
- ▲ EdgeCAM – Waveform turning
- ▲ MasterCAM – Dynamic turning

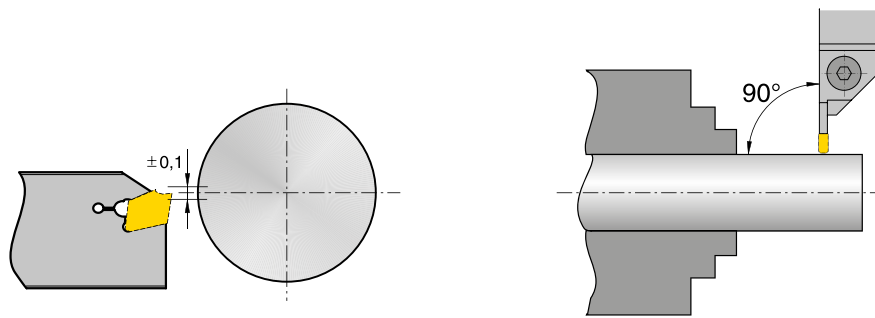
Possible applications

- ▲ Radial and axial recesses and grooves
- ▲ Rough machining – high-speed turning with button insert

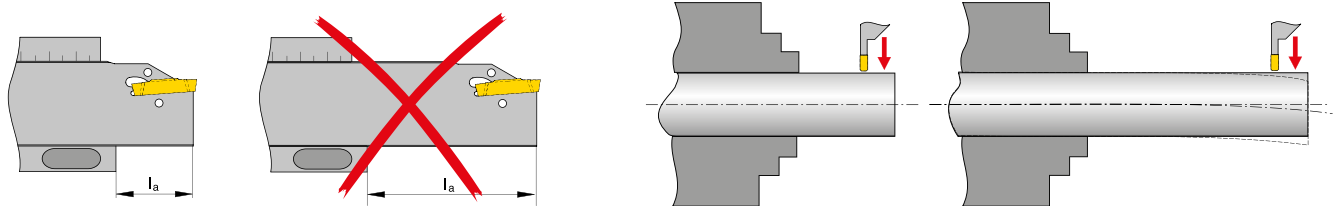


General references

Tool position

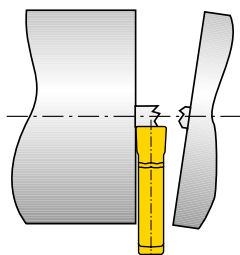


Tool overhang

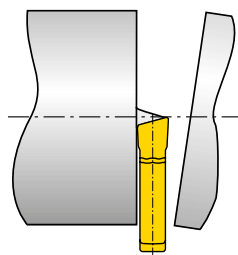


As a rule of thumb: Overhang l_a should not be greater than $8 \times s$ (Groove width).

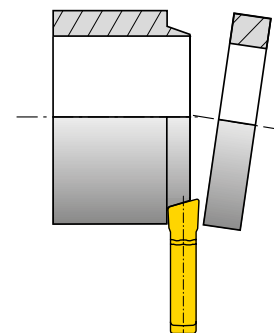
References for Parting off



From $\varnothing 5$ mm on, reduce feed "f" by approx. 50%. No parting across centre (risk of breakage).



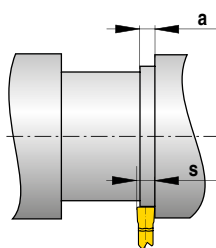
For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20%–50%.



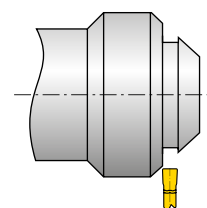
In order to prevent ring formation, use R or L inserts. Reduce feed "f" because of lateral deflection by approx. 20%–50%.

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References for grooving



When grooving with an axial displacement the width „a“ should amount to at least 70 % of the grooving width „s“.



When grooving oblique surfaces the feed should be reduced by approx. 20%–50% until fully engaged.

Trouble shooting guide for grooving FX/SX/GX/LX

Type of problem												
Type of wear				Work piece problems				Swarf control				
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Formation of pips and burrs	Chattered surface	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)			
	↑	↓	↓	↓			↑	↓		Cutting speed	Cutting data	Remedy measures
↓			↓	↑		↓	↓	↑	↓	Feed rate		
↓		↓	↓		↓	↓	↓			Feed rate at centre -R ↑ -F ↓ -M ↓		
↑	↓		~	~	↓	↓	↓	↓	↑	Chip groove	Insert selection	
					●					R/L execution		
↑		↑	↑	↓	↓	↓	↑			Corner radius ↑ larger ↓ smaller		
↓		↑	↑							Tool Material ↑ Wear resistance ↑ toughness ↓	General criteria	
				↓		↑	↑			Groove width		
~				~		~	~			Tool clamping		
~				~		~	~			Work piece clamping		
~				~			↓			Overhang		
~		~		~	~		~			Tip height		
	●	●	●		●		●	●		Cooling lubricant		

↑ raise, increase
large influence

↑ raise, increase
small influence

↓ avoid, reduce
large influence

↓ avoid, reduce
small influence

~ check, optimise

● use

Trouble shooting guide for TC threading

Type of problem												
Type of wear				Workpiece				Swarf control				
Wear on clearance face	Break out cut	Plastic deformation	Built-up edge	Formation of a shoulder at the external thread Ø	Profile	Surface quality	Chatter marks, vibrations	Chip too thick	Chip too thin	Chip shape (snarl chip)		
↓		↓	↑			↑	↓				Cutting speed	
a, b	a, b		a, b	a, b		a, b	a, b	a, b		a, b	Feed	a – over the flanks
												b – Alternating flanks
↑	↓	↓		↓	↓	↓	↓	↓	↑	~	Feed (Cutting depth)	
↓	↑	↑		~	~	↑	~	↑	↓	↓	Number of passes	
				●	●	●					Spring cut (Air cut)	
			●			●	●			●	Chip groove	
↑	↓	↑									Tool Material	Wear resistance ↑ toughness ↓
				●	●	●						
											Full profile	
											Partial profile	
	~					~	~				Stable tool holder / insert	
	~					~	~				Stable workpiece	
	↓					↓	↓				Overhang	
~	~	~			~	~	~				Tip height	
●	●	●	●	●		●					Cooling lubricant	

↑

raise, increase large influence

↑

raise, increase small influence

↓

avoid, reduce large influence

↓

avoid, reduce small influence

~

check, optimise

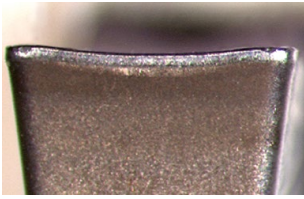
●

use

Wear resistance ↑ toughness ↓

Wear causes

Wear on clearance face



Abrasion on the flank, normal wear after a given operation time

Cause

- ▲ cutting speed too high
- ▲ grade with too low wear resistance
- ▲ insufficient coolant

Remedy

- ▲ Reduce the cutting speed
- ▲ select a more wear resistant grade
- ▲ Improve/check coolant feed

Edge chipping



Excessive mechanical stress on the cutting edge causing carbide particles to break out.

Cause

- ▲ too hard grade
- ▲ vibration
- ▲ too high feed and depth of cut
- ▲ chip impact

Remedy

- ▲ use tougher grade
- ▲ use negative geometry with chip breaker
- ▲ reduce overhang, check center height
- ▲ stabilize the cutting edge

Cratering



The outgoing hot chip causes cratering of the insert on the clamping surface.

Cause

- ▲ too high cutting speed, feed, or both
- ▲ too low rake angle
- ▲ grade with too low wear resistance
- ▲ incorrectly supplied cooling

Remedy

- ▲ Reduce cutting speed and / or feed
- ▲ Check coolant flow and / or increase pressure
- ▲ Use harder grade

Plastic deformation



Large mechanical load produces high temperature machining, this can lead to plastic deformation.

Cause

- ▲ too high operating temperature, thus softening the base material
- ▲ unsuitable grade
- ▲ inadequate coolant supply

Remedy

- ▲ Reduce the cutting speed
- ▲ select a more wear resistant grade
- ▲ use coolant

Built-up edge



Weld deposits of material on the cutting edge occurs when the chip does not flow caused by low average temperature.

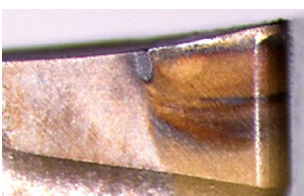
Cause

- ▲ too low cutting speed
- ▲ too low rake angle
- ▲ Incorrect grade
- ▲ lack of cooling / lubrication

Remedy

- ▲ Increase the cutting speed
- ▲ Increase rake angle
- ▲ Use TiN coating
- ▲ increase coolant strength

Notch wear



Contraction at maximum cutting depth.

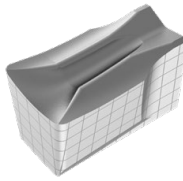
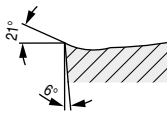
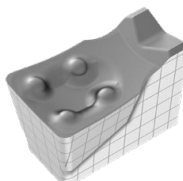
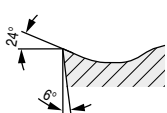
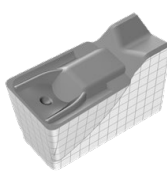
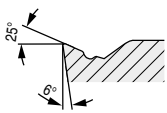
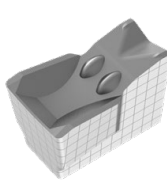
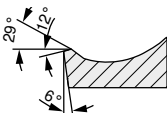
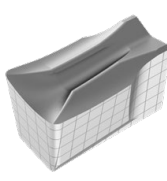
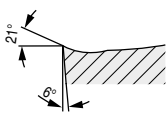
Cause

- ▲ Oxidation at the cutting edge
- ▲ Too high a temperature at the edge

Remedy

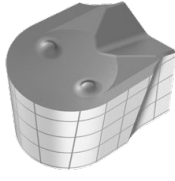
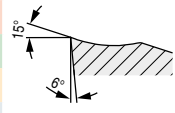
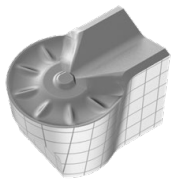
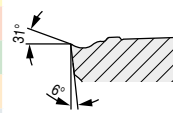
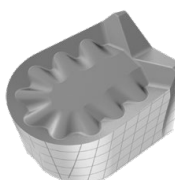
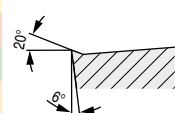
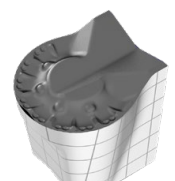
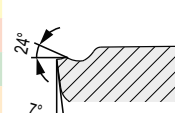
- ▲ Use different cutting depths
- ▲ Reduce cutting speed
- ▲ Improve/check coolant feed

Chip breakers / Applications

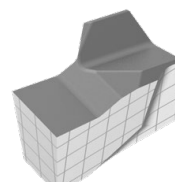
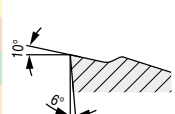
System GX		Smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
						
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		CTCP325	CTP1340	CTPP345		0,05–0,15
		CTP1340	CTP1340/CTPP345	CTPP345		
		CTCP325	CTP1340			
		CTP1340	CTP1340	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-Standard / -E ▲ positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ universal application ▲ first choice for axial grooving		CTCP325	CTCP335/CTP1340	CTPP345		0,05–0,17
		CTP1340	CTP1340/CTPP345	CTPP345		
		CTCP325	CTCP335/CTP1340	CTP1340		
		CTP1340	CTP1340	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M40 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		CTCP325	CTP1340	CTPP345		0,075–0,20
		CTP1340	CTP1340/CTPP345	CTPP345		
		CTCP325	CTCP325/CTP1340	CTP1340		
		CTP1340	CTP1340	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for interrupted cut ▲ for high tensile materials ▲ first choice for parting off		CTCP325	CTP1340	CTPP345		0,1–0,20
		CTP1340	CTP1340/CTPP345	CTPP345		
		CTCP325	CTCP325/CTP1340	CTP1340		
		CTP1340	CTP1340	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						0,05–0,25
		H216T	H216T	H216T		
		H216T	H216T	H216T		
		H216T	H216T			
		H216T				

Chip breakers / Applications

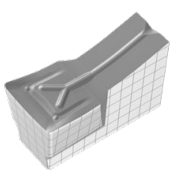
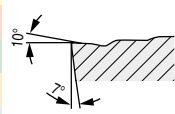
System GX

		Smooth cut 	irregular cut 	interrupted cut 	Model	f in mm/rev.
Standard – Radius ▲ positive geometry ▲ honed cutting edge ▲ low-medium feed rates ▲ low cutting forces ▲ Radius grooving/copy turning		CTCP325	CTCP325/CTP1340	CTP1340		0,05–0,20
		CTP1340	CTP1340	CTP1340		
		CTCP325	CTCP325/CTP1340	CTP1340		
		CTP1340	CTP1340			
		CTCP325				
		CTP1340	CTP1340			
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		CTCP325	CTCP325/CTCP335	CTCP335		0,07–0,20
		CTCP335	CTCP335			
		CTCP325	CTCP325/CTCP335	CTCP335		
		CTCP325				
		CTCP325				
-27P – Radius ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						0,05–0,30
		H216T	H216T	H216T		
		H216T	H216T	H216T		
		H216T	H216T			
		H216T				
M33 ▲ Radius grooving & copy turning ▲ Finishing geometry ▲ Specially for tough and ductile steels ▲ Low - medium feed rates ▲ High surface quality		CTCP325	CTCP325	CTCP325		0,05 - 0,20
		CTCP325	CTCP325	CTCP325		
		CTCP325	CTCP325	CTCP325		

Circlip grooving

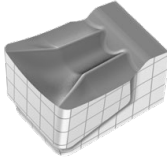
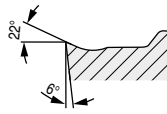
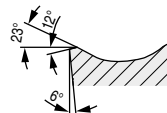
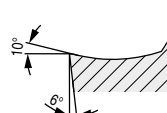
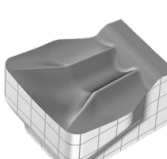
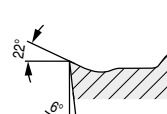
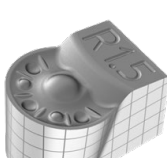
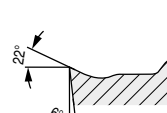
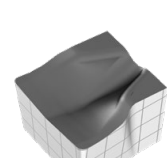
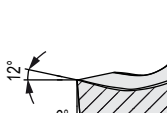
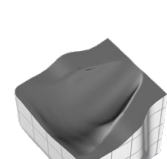
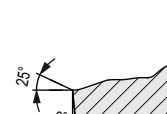
Standard ▲ positive geometry ▲ honed cutting edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		CTP1340	CTP1340	CTP1340		0,05–0,30
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340			

System AX

-F50 ▲ positive geometry ▲ honed cutting edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		CTP1340	CTP1340	CTP1340		0,025–0,125
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340			

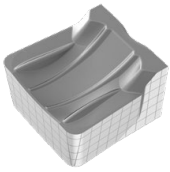
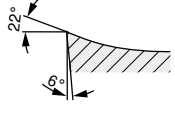
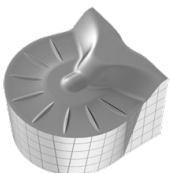
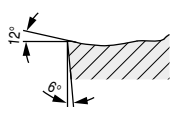
Chip breakers / Applications

System SX

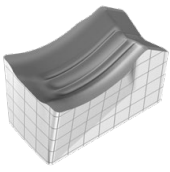
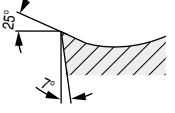
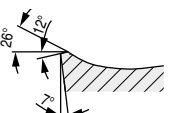
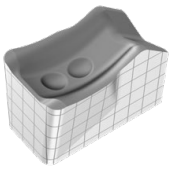
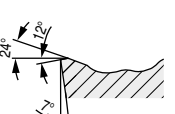
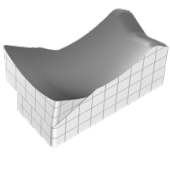
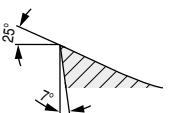
		Smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
						
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		CTCP325	CTCP325/CTP1340	CTPP345		0,05–0,15
		CTP1340	CTP1340/CTPP345	CTPP345		
		CTCP325	CTCP325/CTP1340	CTP1340		
		CTP1340	CTP1340	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for interrupted cut ▲ for high tensile materials ▲ first choice for parting off		CTCP325	CTCP335/CTP1340	CTPP345		0,10–0,20
		CTP1340	CTP1340	CTPP345		
		CTCP325	CTCP325/CTP1340	CTP1340		
		CTP1340	CTP1340	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		CTCP325	CTCP335/CTP1340	CTPP345		0,075–0,20
		CTP1340	CTP1340	CTPP345		
		CTCP325	CTCP325/CTP1340	CTP1340		
		CTP1340	CTP1340	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						0,05–0,25
		H216T	H216T	H216T		
		H216T	H216T	H216T		
		H216T	H216T			
		H216T				
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving / Copy turning		CTCP335	CTCP335/CTP1340	CTP1340		0,05–0,20
		CTP1340	CTP1340	CTP1340		
		CTCP335	CTCP335/CTP1340	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340			
M7 ▲ Grooving & parting off ▲ First choice for steel ▲ Medium - high feed rates ▲ Good chip control ▲ Positive geometry		CTP1340	CTP1340			0,10 - 0,20
		CTP1340	CTP1340			
		CTP1340	CTP1340			
		CTP1340	CTP1340			
		CTP1340	CTP1340			
		CTP1340	CTP1340			
M8 ▲ Grooving & parting off ▲ Ground cutting edge ▲ Good chip control ▲ First choice for stainless steel ▲ Low feeds		CTP1340	CTP1340			0,03 - 0,15
		CTP1340	CTP1340			
		CTP1340	CTP1340			
		CTP1340	CTP1340			
		CTP1340	CTP1340			
		CTP1340	CTP1340			

Chip breakers / Applications

System LX

		Smooth cut 	irregular cut 	interrupted cut 	Model	f in mm/rev.
-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		CTCP325	CTCP335/CTP1340	CTCP335		0,20–0,50
		CTCP335	CTP1340	CTP1340		
		CTCP325	CTCP325	CTCP335		
		CTP1340	CTP1340	CTP1340		
		CTCP325				
		CTP1340	CTP1340			
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		CTCP325	CTCP335/CTP1340	CTCP335		0,15–0,35
		CTCP335	CTCP335/CTP1340	CTP1340		
		CTCP325	CTCP325/CTCP335	CTCP335		
		CTP1340	CTP1340	CTP1340		
		CTCP325				
		CTP1340	CTP1340			

System FX

-F1 ▲ very positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ good chip control ▲ low cutting edge build up		CTCP325	CTCP325/CTP1340	CTPP345		0,05–0,15
		CTP1340	CTP1340/CTPP345	CTPP345		
		CTCP325	CTCP325/CTP1340	CTP1340		
		CTP1340	CTP1340	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for interrupted cut ▲ for high tensile materials ▲ first choice for parting off		CTCP325	CTCP335/CTP1340	CTPP345		0,08–0,20
		CTP1340	CTP1340/CTPP345	CTPP345		
		CTCP325	CTCP325/CTP1340	CTP1340		
		CTP1340	CTP1340	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-R2 ▲ very stable cutting edge ▲ high feed rates ▲ good chip control		CTCP325	CTCP325/CTP1340	CTPP345		0,10–0,27
		CTP1340	CTP1340/CTPP345	CTPP345		
		CTCP325	CTCP325/CTP1340	CTP1340		
		CTP1340	CTP1340	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						0,03–0,13
		H216T	H216T	H216T		
		H216T	H216T	H216T		
		H216T	H216T			
		H216T				

Example of Coding Grooving Tools
Grooving insert

GX	16	E	2	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm)	Type of insert, application	Width class of the holder / module or support surface (2 mm)	Groove width (3.0 mm)	Insert seat N=Neutral L=Left Handed R=Right Handed	Corner radius size (0.5 mm)
Module						
E	25	12	R	GX	16	2
Application E = external I = internal	Size (25 mm)	Maximum groove depth (12 mm)	Module version R=Right Handed L=Left Handed	Grooving system (GX)	Insert size (16 mm)	Width class 2

Basic holder

E	25	00	R	2525	L
Application E = external I = internal	Size (25 mm)	Approach angle 0°	Holder version R=Right Handed L=Left Handed	Shank type 25x25mm	Shank length L = (sh. ISO)

Monobloc tool holder

E	20	R	00	21	S3	2020	X	S	DC	GX24
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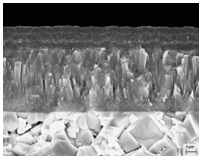
Application E = external I = internal	Size (20 mm)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Groove depth (21 mm)	Groove width (3 mm)	Shank type 20x20 mm	Shank length X = (sh. ISO)	Insert clamping S = Key	Cooling system DC = DirectCooling	Grooving system/width (3 mm)
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Summary

Grooving insert	Module	Basic holder	Monobloc tool holder
GX 16-2	E3.00 N 0.50	E25 R 12 - GX 16-2	E25 R 00 - 2525L
			E20 R/L 0021S3-2020X-S-DC-GX24

Grade description

CTCP325



ISO | P25 | M20 | K30 | S25

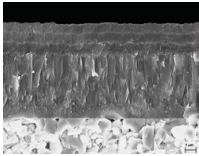
**Specifications:**

Composition: Co 7.0%; mixed carbide 8.1%; WC balance | grain size: 1-2 µm |
Hardness: HV₃₀ 1470 | Layer system: CVD TiCN-Al₂O₃ Multilayer

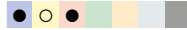
Recommended use:

The wear-resistant solution for steel and cast iron materials at high cutting speeds

CTCP335



ISO | P35 | M30 | K35

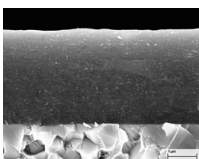
**Specifications:**

Composition: Co 10.5%; mixed carbide 1.9%; WC balance | grain size: 1 µm | Hardness: HV₃₀ 1370 |
Layer system: CVD TiCN-Al₂O₃ Multilayer

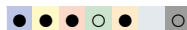
Recommended use:

The reliable choice for machining steel and cast iron materials.

CTP1340



ISO | P30 | K30 | N30 | S30 | O30

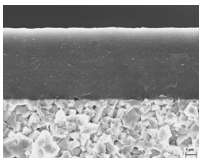
**Specifications:**

Composition: Co 9.0%; mixed carbide 0.75%; WC balance | grain size: 0.7-1 µm | Hardness: HV₃₀ 1590 |
Layer system: PVD TiAlTaN

Recommended use:

The universal high-performance grade for steels, austenitic steel, cast iron materials and heat-resistant alloys

CTPP345



ISO | P45 | M40 | S40

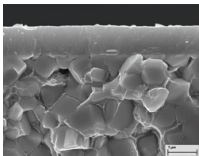
**Specifications:**

Composition: Co 12.5%; mixed carbide 2.0%; WC balance | grain size: 1-1.5 µm | Hardness: HV₃₀ 1350 |
Layer system: PVD TiAlTaN

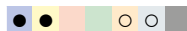
Recommended use:

The reliable solution for steel and austenitic steels in unstable conditions.

CTPP520



ISO | P20 | M25 | S25 | H05

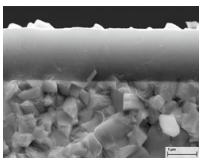
**Specification:**

Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV₃₀ 1650 | Layer system: PVD AlTiN

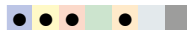
Recommended use:

The wear-resistant thread turning grade for high cutting speeds.

CTPP535



ISO | P35 | M30 | K25 | S30

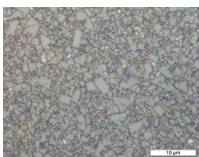
**Specification:**

Composition: Co 10%; Others 1.2%; WC balance | Grain size: 0.7 µm | Hardness: HV₃₀ 1600 |
Layer system: PVD AlTiN

Recommended use:

The tough thread turning grade for universal application.

H216T



ISO | K15 | N15 | S15 | O10

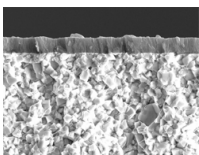
**Specification:**

Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV₃₀ 1630

Recommended application:

The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

CWX500



ISO | P30 | M30 | K35 | N35 | S15 | H05 | O10

**Specification:**

Composition: Co 10.0%; Others 0.7 %, WC balance | Grain size: 1 µm | Hardness: HV₃₀ 1660

Recommended application:

The universal carbide grade for almost all materials

Application

