

New products for machining technicians

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 18

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 19

NEW MaxiChange – Exchangeable head system



As the MaxiChange exchangeable head system is modular, it is extremely flexible and can be used for a variety of applications thanks to the wide selection of exchangeable heads. On top of these advantages, the MaxiChange GX also includes a grooving function for internal and external machining as well as axial and radial machining.

For radial grooving GX 16 → Page 51

For axial grooving GX 24 → Page 70



1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

9 Turning Tools

10 Multifunctional Tools –
EcoCut and FreeTurn

11 Grooving Tools

11

12 Miniature turning tools

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with
indexable inserts

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples
and article no. Index

Solid drilling and bore machining

Threading

Turning

Milling

Clamping technology

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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.

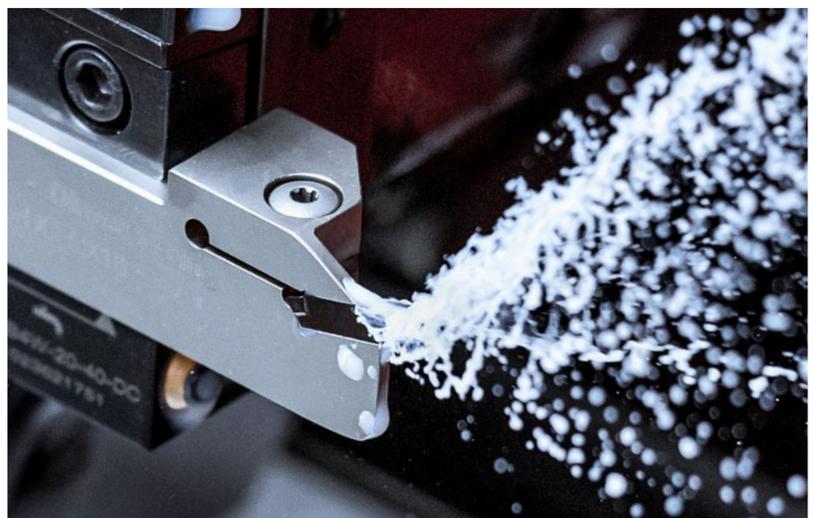
Advantages due to DirectCooling



- ▲ 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



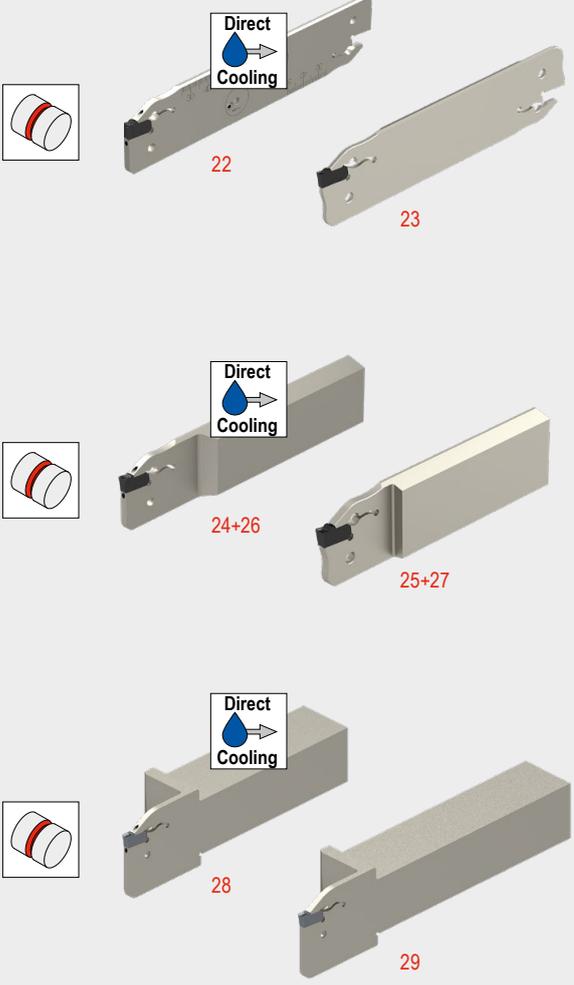
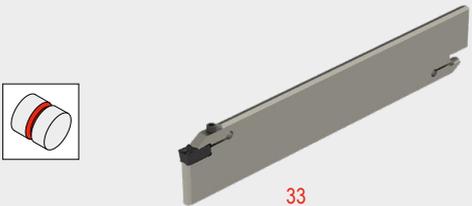
Symbol explanation

	Grooving		Internal machining		DirectCooling
	Parting		Internal thread		Int. coolant supply
	Grooving and Turning		External thread		Repeatability
	Copy Turning	F	Fine Machining	-F2	Chip groove
	Axial Grooving and Turning	M	Medium Machining	CTPP345	Carbide Grade
	Circlip Grooves	R	Rough Machining		Smooth cut
			Main Application		Irregular cutting depth
			Extended application		Interrupted cut

System overview

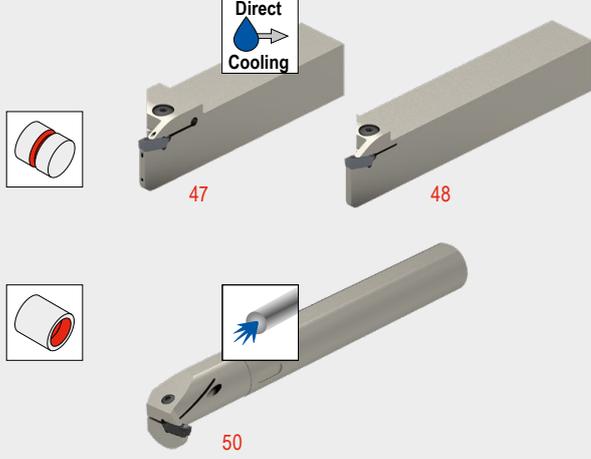
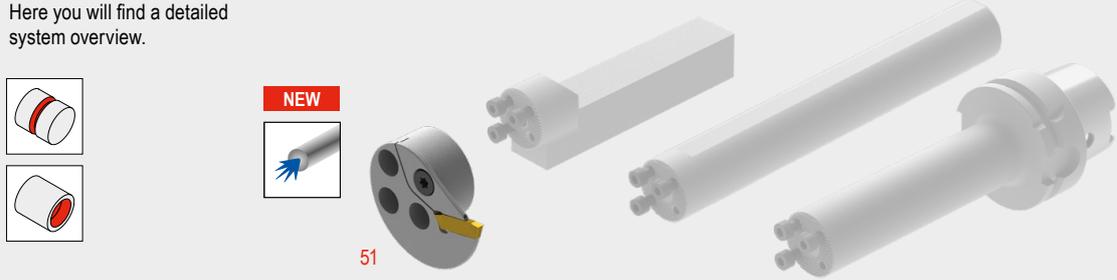
No. of cutting edges	System	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Internal machining	External machining		Internal machining		Axial machining		Page No.
									CW (mm)	CDX max. (mm)	DMIN (mm)	CDX max. (mm)	DAXN (mm)	CDX max. (mm)	
1	SX								2-6	60					14-29
	LX								8-10	80	200	34	500	39	30-33
2	GX 09								2-3,5	7	16	6			34-51
	GX 16								2-6	12	20,5	11			34-51
	GX 24								2-6	21	42	19	45	25	52-70
3	TX								0,5-5,15	8	46	2	20	3	71-79

Toolfinder

	ModularClamp	MonoClamp
System	 <p>0° / 90° 80+81</p> <p>0° 82</p> <p>1,5xD / 2,5xD 83</p>	 <p>84-86</p> <p>→ Chapter 16</p>
SX	  <p>21</p>	 <p>22</p> <p>23</p> <p>24+26</p> <p>25+27</p> <p>28</p> <p>29</p>
LX	  <p>32</p>	 <p>33</p>

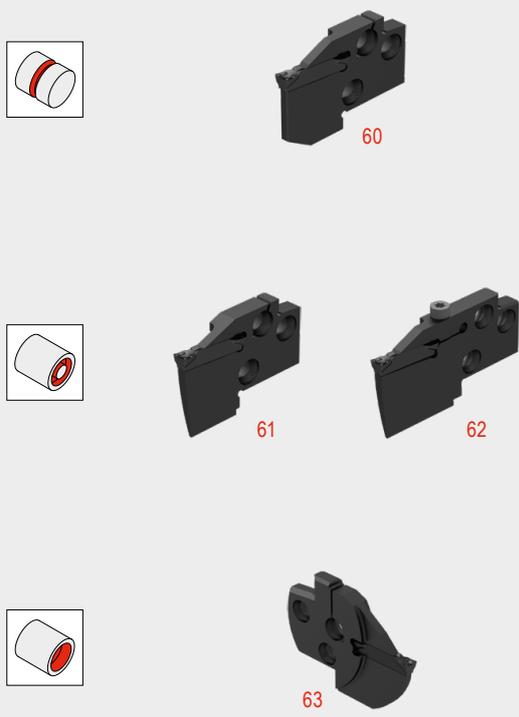
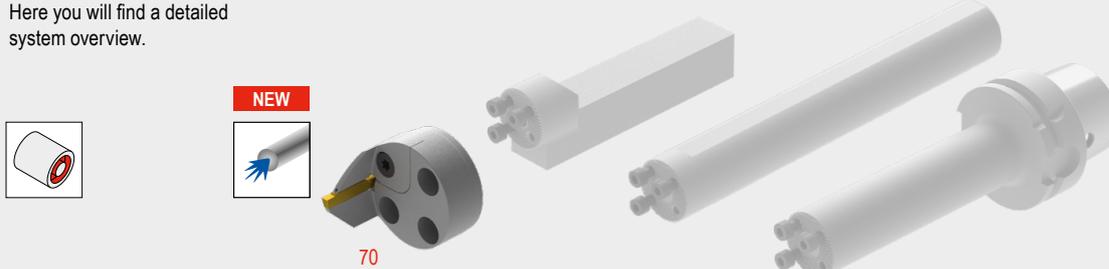
System	Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining	Medium Machining	Rough Machining	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
												P	M	K	N	S	H	O	
SX		-F2	2-4	  									●	●	●	○	●	○	14
		-M1	2-6	 									●	●	●	○	●	○	15
		-M2	2-6	  									●	●	●	○	●	○	16
		-M3	CRE 1,5-3,0	  									●	●	●	○	●	○	17
		NEW -M7	2-6	 									●	●	●	○	●	○	18
		NEW -M8	2-6	 									●	●	●	○	●	○	19
		-27P	2-4	  											●	●	○	○	20
LX		-M2	8-10	  					 				●	●	●	○	●	○	30
		-M3	CRE 4,0	   					 				●	●	●	○	●	○	31

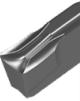
Toolfinder

	ModularClamp	MonoClamp
System	 <p>0° / 90° 80+81</p> <p>0° 82</p> <p>1,5xD / 2,5xD 83</p>	 <p>→ Chapter 16</p>
GX 09	 <p>42 43</p> <p>44 45</p>	 <p>46</p> <p>49</p>
GX 16	 <p>42 43</p> <p>44 45</p>	 <p>Direct Cooling</p> <p>47 48</p> <p>50</p>
MaxiChange		
<p>→ Page 12+13 Here you will find a detailed system overview.</p>  <p>51</p> <p>→ Chapter 9 – Turning Tools Here you will find the suitable base adaptors.</p>		

System	Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining	Medium Machining	Rough Machining	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
												P	M	K	N	S	H	O	
GX 09 GX 16		-F2	2-5									●	●	●	○	●	○	○	34
		Standard	2-6						 			●	●	●	○	●	○	○	35
		-M40	2-6						 			●	●	●	○	●	○	○	36
		Standard	CRE 0,8-3,0						 			●	●	●	○	●	○	○	40
		Standard	1-4,25									●	●	●	○	●	○	○	39
GX 16		-M1	2-4						 			●	●	●	○	●	○	○	37
		-27P	2-6						 				●	●	○		○	○	38
		-27P	CRE 1,5-2,5						 				●	●	○		○	○	41

Toolfinder

	ModularClamp	MonoClamp
System	 <p>0° / 90° 80+81</p> <p>0° 82</p> <p>1,5xD / 2,5xD 83</p>	 <p>85+86</p> <p>→ Chapter 16</p>
	GX 24	 <p>60</p> <p>61</p> <p>62</p> <p>63</p>
<h2>MaxiChange</h2>		
<p>→ Page 12+13 Here you will find a detailed system overview.</p>  <p>70</p> <p>NEW</p> <p>→ Chapter 9 – Turning Tools Here you will find the suitable base adaptors.</p>		

System	Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining		Medium Machining		Rough Machining		Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.	
									F	M	M	R	P	M									K
GX 24		-F2	3-6												●	●	●	○	●		○	52	
		-E	3-6												●	●	●	○	●		○	53	
		-M1	2-4												●	●	●	○	●		○	54	
		-M40	3-6												●	●	●	○	●		○	55	
		-M3	CRE 1,5-3,0												●	○	●		○			○	56
		-M33	CRE 1,5-3,0												●	○	●		○			○	57
		-27P	3-6														●	●	○			○	58
		-27PF	CRE 3-4														●	●	○			○	59

Toolfinder

MonoClamp

→ Chapter 16

System

TX

<p>0°</p> <p>76</p>	<p>0°</p> <p>77</p>	<p>90°</p> <p>78</p>	<p>79</p>

MaxiChange

Exchangeable heads

For radial grooving

NEW

GX 16
51

→ Chapter 9 – Turning Tools

Exchangeable heads

<p>For negative inserts</p> <p>PCLN 95°</p>	<p>PDUN 93°</p>	<p>PDQN 107,5°</p>	<p>PWLN 95°</p>
<p>For positive inserts</p> <p>SCLC 95°</p>	<p>SDUC 93°</p>	<p>SDQC 107,5°</p>	<p>For internal thread</p>
<p>SVPC 117,5°</p>	<p>SVUC 93°</p>	<p>SVQC 107,5°</p>	

System overview

System	Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining	Medium Machining	Rough Machining	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.	
									F	M	R	P	M	K	N	S	H	O		
TX		1,99–2,79										●	●	●	●	●	○	●	71	
		0,57–5,29										●	●	●	●	●	○	●	72	
		CRE 0,25–2,5											●	●	●	●	●	○	●	73
		1,5–4,0											●	●	●	●	●	○	●	74
		1,5–3,0											●	●	●	●	●	○	●	75

MaxiChange

→ Chapter 9 – Turning Tools
Tool holder

PSC

HSK-T

Vibration damped

Actively vibration-damped

Square shank holder
0°

90°

Cylindrical shank

Actively vibration-damped

→ cuttingtools.ceratizit.com

VertiClamp
→ catalogue:
sliding head

MaxiClick

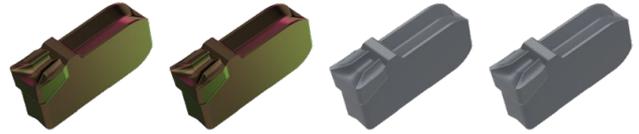
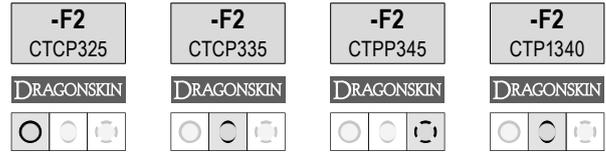
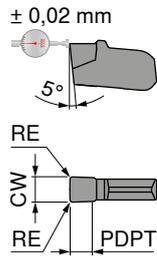
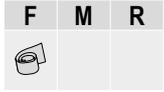
System FX

System AX

System TC

Insert SX

▲ High precision ground geometry



Designation	CW $\pm 0,02$ mm	RE $\pm 0,05$ mm	PDPT mm	for tool holder	70 346 ...	70 346 ...	70 346 ...	70 346 ...
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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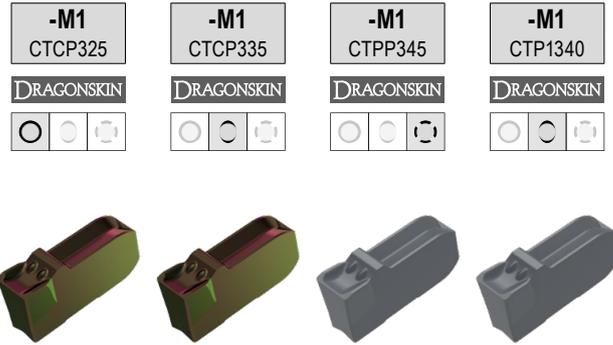
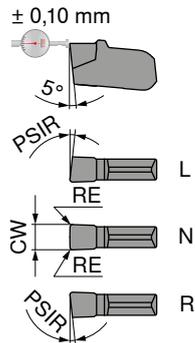
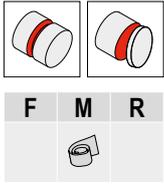
Internal machining

External machining



Insert SX

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



	70 342 ...	70 342 ...	70 342 ...	70 342 ...
SX E2.00 L 6				612
SX E3.00 L 6	913			613
SX E4.00 L 6				614
SX E2.00 N 0.20	922	52200	822	622
SX E3.00 N 0.20	923	523	823	623
SX E4.00 N 0.30	924	524	824	624
SX E5.00 N 0.30	925	52500	825	625
SX E6.00 N 0.40	926	52600	826	626
SX E2.00 R 6				602
SX E3.00 R 6	903			603
SX E4.00 R 6				604

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

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

→ Page 100
Here you will find further information.

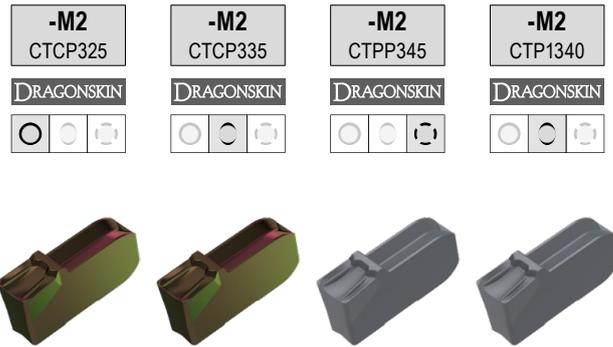
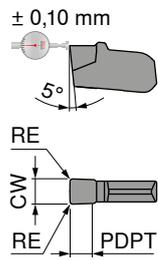
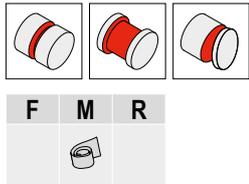
Internal machining

External machining



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 ...			
					922	522	822	622
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 88
→ Application recommendation on page 92

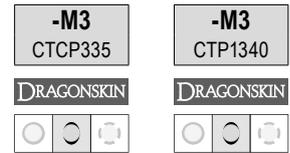
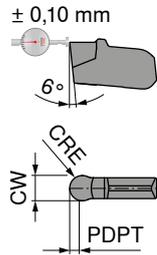
Internal machining

External machining



Radius Grooving Insert SX

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



Designation	CW $_{+/-0,05}$ mm	CRE mm	PDPT mm	for tool holder
SX R1.50 N	3	1,5	1,5	-SX3
SX R2.00 N	4	2,0	2,0	-SX4
SX R2.50 N	5	2,5	2,5	-SX5
SX R3.00 N	6	3,0	3,0	-SX6

70 344 ...	70 344 ...
531	631
532	632
533	633
	634

P	●	●
M	○	●
K	●	●
N		○
S		●
H		
O		○

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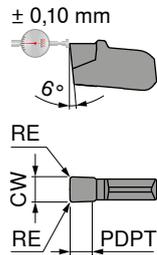
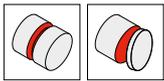
Internal machining

External machining

	→ 21	→ 22+23	→ 24-27	→ 28+29

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	○

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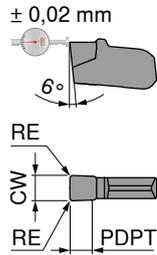
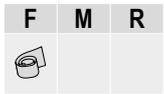
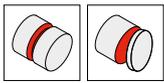
Internal machining

External machining



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	○

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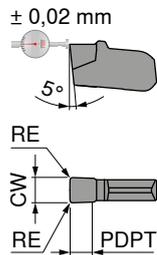
Internal machining

External machining



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 ...
122
123
124

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

P	
M	
K	●
N	●
S	○
H	
O	○

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Internal machining

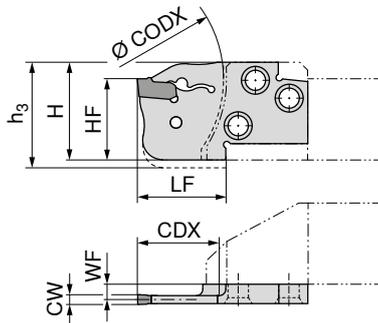
External machining



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	Right-hand
										70 897 ...	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**

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

 Please order SX assembly key separately if required.



→ 14-20



→ 80+81

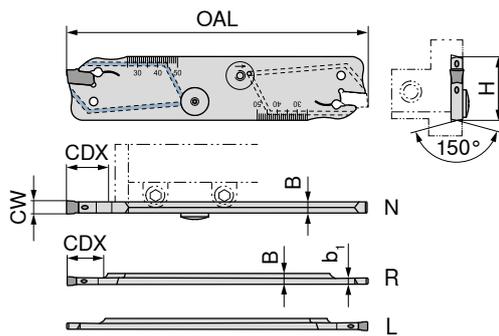


→ 82

MonoClamp – Radial Blade SX-DC Standard

Scope of supply:

Blade incl. 1 sealing screw



70 884 ...

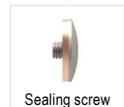
ISO designation	R/L/N	CW mm	H mm	B mm	b ₁ mm	OAL mm	CDX mm	for grooving inserts	
XLCF L 2602-DC-SX2	L	2	26	2,4	1,6	110	25	SX 2..	712
XLCF R 2602-DC-SX2	R	2	26	2,4	1,6	110	25	SX 2..	512
XLCF N 2603-DC-SX3	N	3	26	2,5		110	35	SX 3..	613
XLCF N 2604-DC-SX4	N	4	26	3,3		110	40	SX 4..	614
XLCF L 3202-DC-SX2	L	2	32	2,4	1,6	150	26	SX 2..	702
XLCF R 3202-DC-SX2	R	2	32	2,4	1,6	150	26	SX 2..	502
XLCF N 3203-DC-SX3	N	3	32	2,5		150	50	SX 3..	603
XLCF N 3204-DC-SX4	N	4	32	3,3		150	50	SX 4..	604
XLCF N 3205-DC-SX5	N	5	32	4,3		150	55	SX 5..	605
XLCF N 3206-DC-SX6	N	6	32	5,2		150	60	SX 6..	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



Please order SX assembly key separately if required.



→ 14-20



→ 84



→ Chapter 16

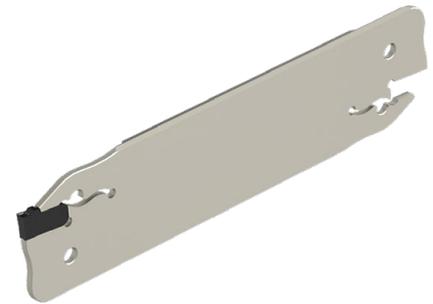
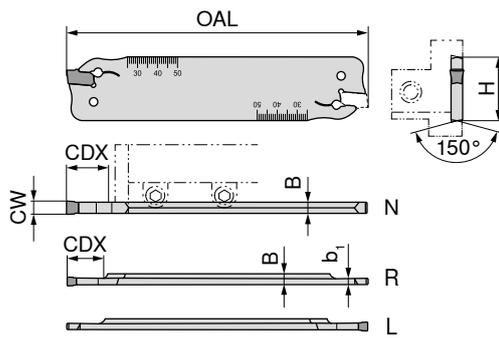


→ Chapter 16

MonoClamp – Radial Blade SX Standard

Scope of supply:

Blade only



70 884 ...

ISO designation	R/L/N	CW mm	H mm	B mm	b ₁ mm	OAL mm	CDX mm	for grooving inserts	
XLCF L 2602-SX2	L	2	26	2,4	1,5	110	25	SX .2..	212
XLCF R 2602-SX2	R	2	26	2,4	1,5	110	25	SX .2..	012
XLCF N 2603-SX3	N	3	26	2,4		110	35	SX .3..	113
XCLF N 2604-SX4	N	4	26	3,2		110	40	SX .4..	114
XLCF L 3202-SX2	L	2	32	2,4	1,5	150	25	SX .2..	202
XLCF R 3202-SX2	R	2	32	2,4	1,5	150	25	SX .2..	002
XLCF N 3203-SX3	N	3	32	2,4		150	50	SX .3..	103
XLCF N 3204-SX4	N	4	32	3,2		150	50	SX .4..	104
XLCF N 3205-SX5	N	5	32	4,2		150	55	SX .5..	105
XLCF N 3206-SX6	N	6	32	5,2		150	60	SX .6..	106



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

 Please order SX assembly key separately if required.



→ 14-20



→ 85+86



→ Chapter 16

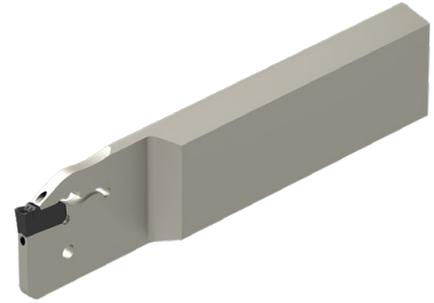
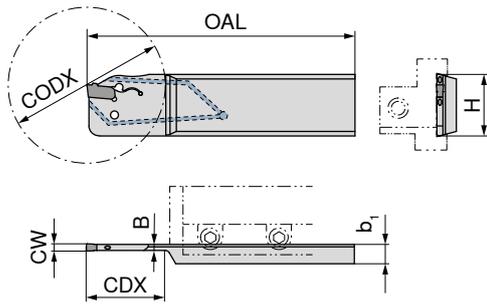


→ Chapter 16

MonoClamp – Radial Blade SX-DC reinforced

Scope of supply:

Blade only



Illustrations show right-hand versions

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

70 879 ...

713

513

703

503



Ejector SX

70 950 ...

Spare parts
for grooving inserts

SX .3..

SX 2-3

836

Please order SX assembly key separately if required.



→ 14-20



→ 84

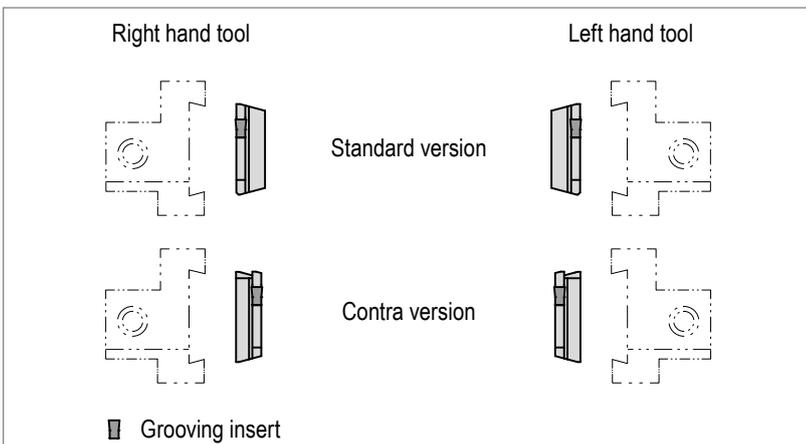


→ Chapter 16



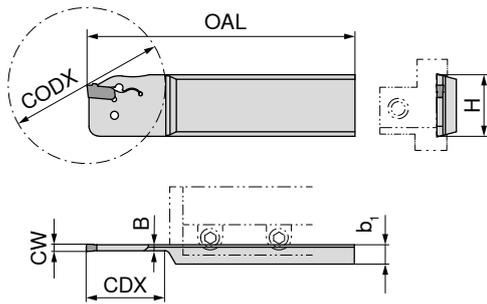
→ Chapter 16

Correct Tool Selection



MonoClamp – Radial Blade SX reinforced

Scope of supply:
Blade only



Illustrations show right-hand versions

ISO designation	R/L/N	CW mm	H mm	B mm	b ₁ mm	OAL mm	CODX mm	CDX mm	for grooving inserts	70 879 ...
XLCF L 2608-SX3	L	3	26	2,5	8	110	44	22	SX .3..	213 ¹⁾
XLCF R 2608-SX3	R	3	26	2,5	8	110	44	22	SX .3..	013 ¹⁾
XLCF L 3208-SX3	L	3	32	2,5	8	110	66	33	SX .3..	203
XLCF R 3208-SX3	R	3	32	2,5	8	110	66	33	SX .3..	003
XLCF L 3208-SX4	L	4	32	3,4	8	110	66	33	SX .4..	204
XLCF R 3208-SX4	R	4	32	3,4	8	110	66	33	SX .4..	004

1) can be used in both directions



Ejector SX

Spare parts for grooving inserts

Spare parts for grooving inserts	70 950 ...
SX .3..	SX 2-3 836
SX .4..	SX 4-6 837

 Please order SX assembly key separately if required.



→ 14-20



→ 85+86



→ Chapter 16

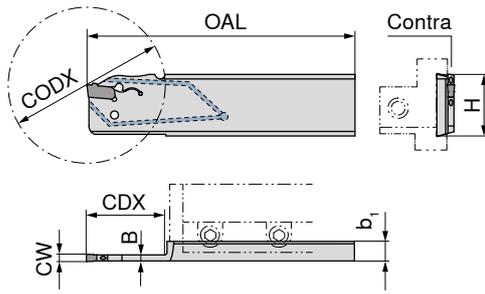


→ Chapter 16

MonoClamp – SX-DC reinforced Contra radial blade

Scope of supply:

Blade only



Illustrations show right-hand versions

ISO designation	R/L/N	Version	CW mm	H mm	B mm	b ₁ mm	OAL mm	CODX mm	CDX mm	for grooving inserts	70 877 ...
XLCF L 3208C-DC-SX3	L	Contra	3	32	2,5	8	110	66	33	SX .3..	703
XLCF R 3208C-DC-SX3	R	Contra	3	32	2,5	8	110	66	33	SX .3..	503



Ejector SX

Spare parts
for grooving inserts

SX .3..

SX 2-3

70 950 ...

836



Please order SX assembly key separately if required.



→ 14-20



→ 84

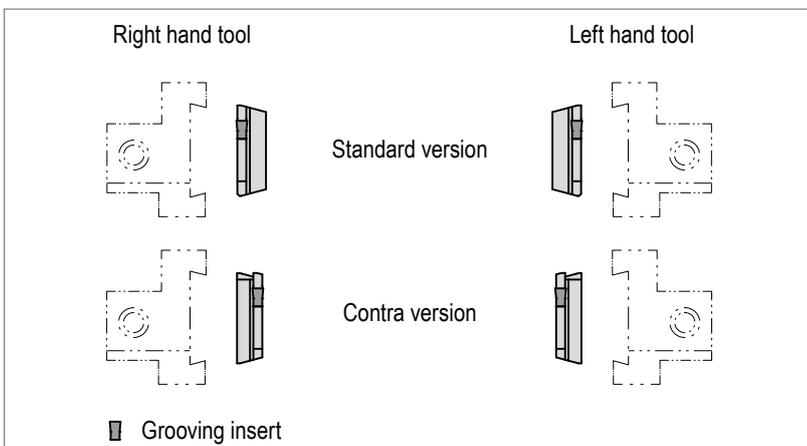


→ Chapter 16



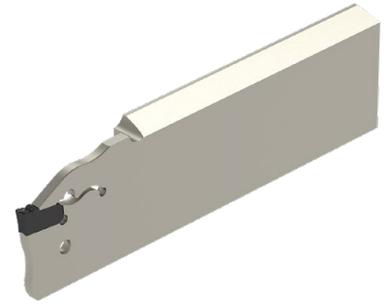
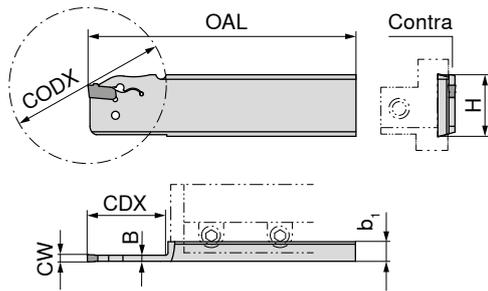
→ Chapter 16

Correct Tool Selection



MonoClamp – SX reinforced Contra radial blade

Scope of supply:
Blade only



Illustrations show right-hand versions

ISO designation	R/L/N	Version	CW mm	H mm	B mm	b ₁ mm	OAL mm	CODX mm	CDX mm	for grooving inserts	70 877 ...
XLCF L 3208C-SX3	L	Contra	3	32	2,5	8	110	66	33	SX .3..	203
XLCF R 3208C-SX3	R	Contra	3	32	2,5	8	110	66	33	SX .3..	003



Spare parts
for grooving inserts

SX .3..	SX 2-3	70 950 ...	836
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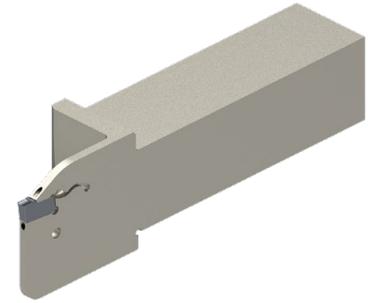
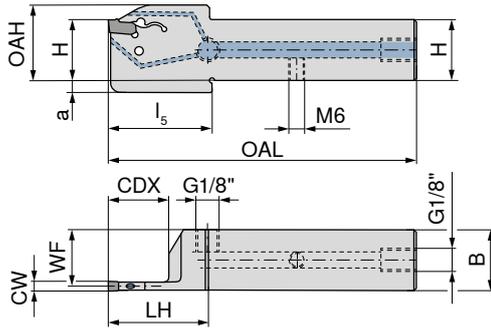
 Please order SX assembly key separately if required.

							
→ 14-20	→ 85+86	→ Chapter 16	→ Chapter 16				

MonoClamp – Radial Monoholder SX-DC

Scope of supply:

Mono holder incl. screw plug and grub screw



Illustrations show right-hand versions

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	Left-hand	Right-hand
												70 847 ...	70 847 ...
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



Ejector SX



Coolant screw plug



Grubscrew

		70 950 ...	70 950 ...	70 950 ...
Spare parts for grooving inserts				
SX .2..	SX 2-3	836	G 1/8"	294
SX .3..	SX 2-3	836	G 1/8"	294
SX .4..	SX 4-6	837	G 1/8"	294
SX .5..	SX 4-6	837	G 1/8"	294
SX .6..	SX 4-6	837	G 1/8"	294
				M6x6
				86700
				86700
				86700
				86700

Please order SX assembly key separately if required.

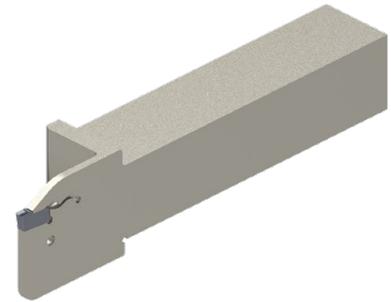
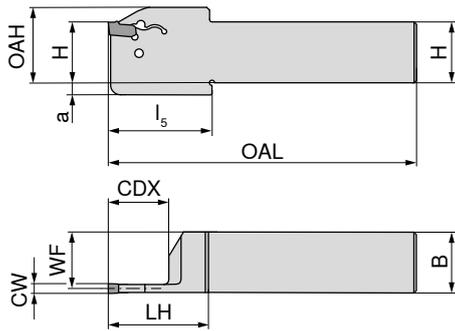


→ 14-20

→ Chapter 16

MonoClamp – Radial Monoholder SX

Scope of supply:
Mono holder only



Illustrations show right-hand versions

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	Left-hand	Right-hand
												70 846 ...	70 846 ...
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

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

 Please order SX assembly key separately if required.

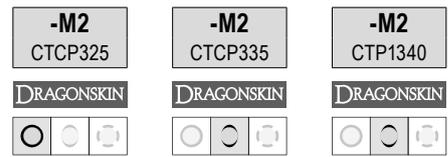
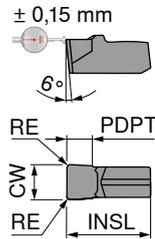
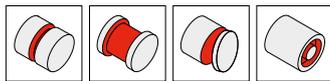


→ 14-20

→ 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 $_{-0,08}$ mm	RE $_{+0,1}$ mm	PDPT mm	for tool holder	70 337 ...		
						928	578	682
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								○

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→ Application recommendation on page 93

Internal machining



→ 32

External machining



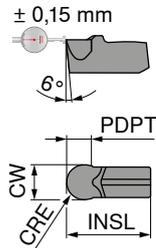
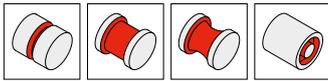
→ 32



→ 33

Radial Grooving Insert LX

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



Designation	INSL mm	CW mm -/+0,08	CRE mm	PDPT mm	for tool holder	70 337 ...	70 337 ...	70 337 ...
LXR 4.00N-M3	19	8	4	5	E32 N ..-LX	908	518	618
P						●	●	●
M						○	○	●
K						●	●	●
N								○
S						○		●
H								
O								○

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→ Application recommendation on page 93

Internal machining

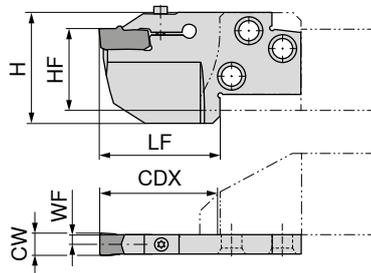
External machining



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

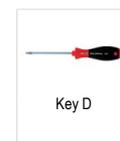
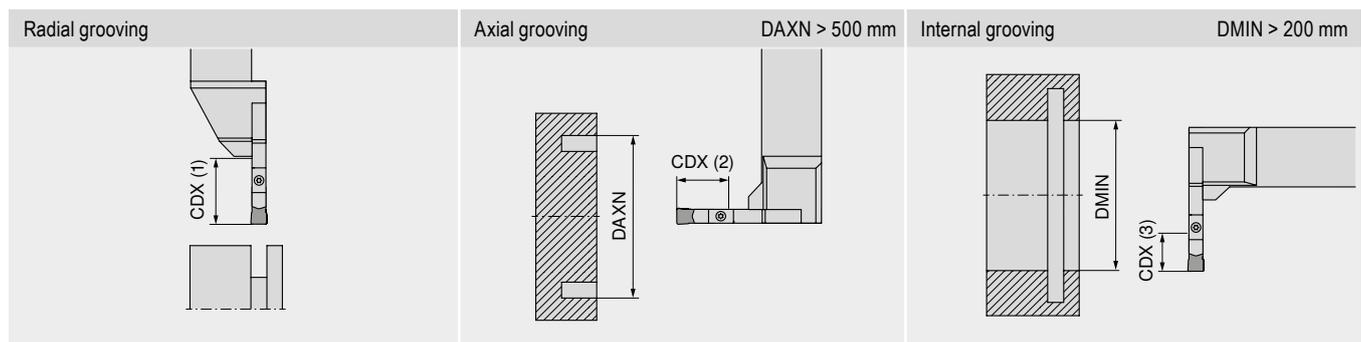
Scope of supply:
Grooving module only



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	34	32	44	32	26	21	LX ..	132
E32 N 45-LX	8 / 10	3,4	47	32	44	45	39	34	LX ..	232



80 950 ...



70 950 ...

**Spare parts
for grooving inserts**
LX ..

T20

114

M4x18

204



→ 30+31



→ 80+81



→ 82

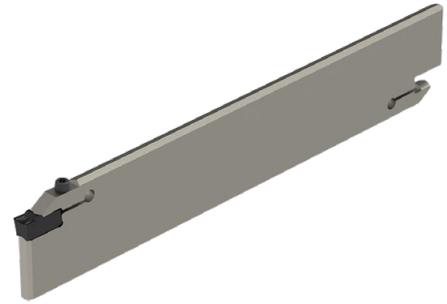
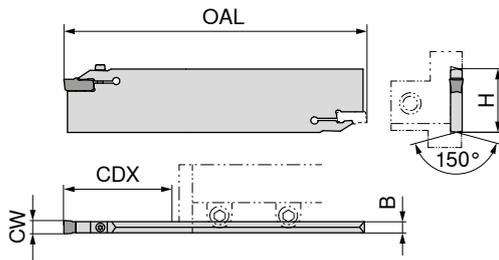


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MonoClamp – Blade LX

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 ..



80 950 ...



70 950 ...

T20

114

M4x18

204



→ 30+31



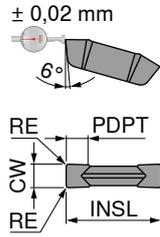
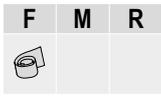
→ 85+86



→ 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	CW $\pm 0,02$	RE $\pm 0,05$	PDPT	for tool holder	
	mm	mm	mm	mm		
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						○

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→ Application recommendation on page 89

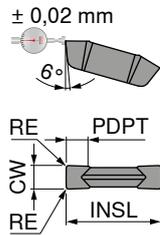
Internal machining

External machining



Insert GX 09/16 – Standard

▲ Suitable for parting thin-walled workpieces



Designation	INSL mm	CW mm	RE mm	PDPT mm	for tool holder	70 350 ...		
GX 09-1 E2.00 N 0.20	9	2,0	0,2	1,5	GX 09-1	984		634
GX 09-1 E2.50 N 0.20	9	2,5	0,2	1,5	GX 09-1	988		638
GX 09-2 E3.00 N 0.30	9	3,0	0,3	2,0	GX 09-2	992		642
GX 16-1 E2.00 N 0.20	16	2,0	0,2	2,5	GX 16-1	900	500	600
GX 16-1 E2.50 N 0.20	16	2,5	0,2	2,5	GX 16-1	904	504	604
GX 16-2 E3.00 N 0.30	16	3,0	0,3	3,0	GX 16-2	908	508	608
GX 16-2 E3.00 N 0.50	16	3,0	0,5	3,0	GX 16-2	910		
GX 16-2 E3.50 N 0.30	16	3,5	0,3	3,0	GX 16-2	912	512	612
GX 16-3 E4.00 N 0.40	16	4,0	0,4	3,5	GX 16-3	916	516	616
GX 16-3 E5.00 N 0.40	16	5,0	0,4	3,5	GX 16-3	924	524	624
GX 16-4 E6.00 N 0.50	16	6,0	0,5	4,0	GX 16-4	928		628
GX 16-4 E6.00 N 0.80	16	6,0	0,8	4,0	GX 16-4	930		
P						●	●	●
M						○	○	●
K						●	●	●
N								○
S						○		●
H								
O								○

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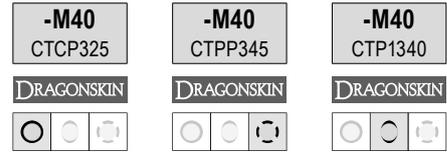
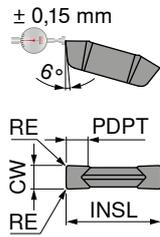
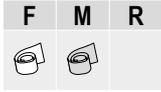
Internal machining

External machining



Insert GX 09/16

▲ Very good swarf control



Designation	INSL mm	CW mm	RE mm	PDPT mm	for tool holder	70 351 ...		
						986	886	686
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								○

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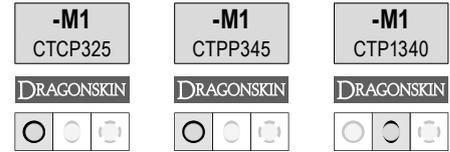
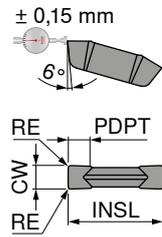
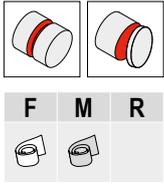
Internal machining

External machining



Insert GX 16

▲ Very good swarf control



Designation	INSL mm	CW mm	RE mm	PDPT mm	for tool holder	70 362 ...		
						902	800	600
GX 16-1 E2.00 N 0.20	16	2	0,2	2,0	GX 16-1		800	600
GX 16-2 E3.00 N 0.20	16	3	0,2	2,5	GX 16-2	902	802	602
GX 16-3 E4.00 N 0.30	16	4	0,3	3,0	GX 16-3	904		604
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

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→ Application recommendation on page 90

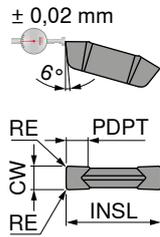
Internal machining

External machining



Insert GX 16

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



70 350 ...

Designation	INSL mm	CW ^{+/-0,02} mm	RE ^{+/-0,05} 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

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M	
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N	●
S	○
H	
O	○

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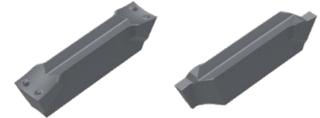
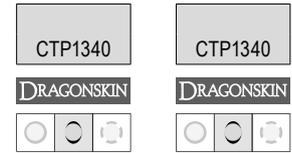
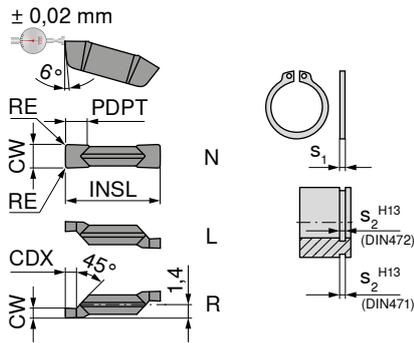
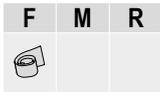
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Internal machining

External machining



Circlip groove insert GX 09/16 – Standard



Designation	IH	INSL mm	s ₁ mm	s ₂ mm	CW _{+/-0,02} mm	RE _{+/-0,05} mm	CDX mm	PDPT mm	for tool holder	70 352 ...	
										684	686
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										●	●
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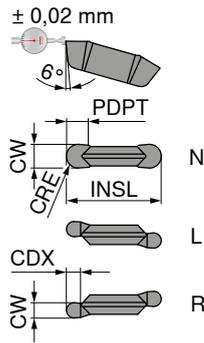
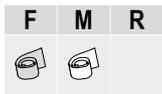
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→ Application recommendation on page 90

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



Radius groove insert GX 09/16 – Standard



Designation	IH	INSL mm	CW $\pm 0,02$ mm	CRE mm	PDPT mm	CDX mm	for tool holder	70 354 ...	70 354 ...	70 354 ...
GX 09-1 R1.00 N	N	9	2,0	1,0	1,0		GX 09-1		992	
GX 09-1 R1.20 N	N	9	2,4	1,2	1,2		GX 09-1		996	
GX 16-2 R0.80 L	L	16	1,6	0,8		1,78	R/L 03-GX 16-2	912		
GX 16-2 R1.00 L	L	16	2,0	1,0		2,18	R/L 03-GX 16-2	916		
GX 16-2 R1.20 L	L	16	2,4	1,2		2,58	R/L 03-GX 16-2	920		
GX 16-2 R1.50 N	N	16	3,0	1,5	1,5		GX 16-2		924	624
GX 16-3 R2.00 N	N	16	4,0	2,0	2,0		GX 16-3		928	628
GX 16-3 R2.50 N	N	16	5,0	2,5	2,5		GX 16-3		932	632
GX 16-4 R3.00 N	N	16	6,0	3,0	3,0		GX 16-4		936	636
GX 16-2 R0.80 R	R	16	1,6	0,8		1,78	R/L 03-GX 16-2	900		
GX 16-2 R1.00 R	R	16	2,0	1,0		2,18	R/L 03-GX 16-2	904		
GX 16-2 R1.20 R	R	16	2,4	1,2		2,58	R/L 03-GX 16-2	908		
P								●	●	●
M								○	○	●
K								●	●	●
N										○
S								○	○	●
H										
O										○

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→ Application recommendation on page 90



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

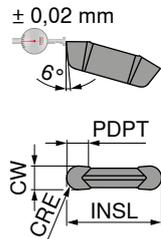
Internal machining

External machining



Radius groove insert GX 16

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



70 354 ...

Designation	INSL mm	CW ^{+0,02} 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

674
678
682

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N	●
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O	○

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Internal machining

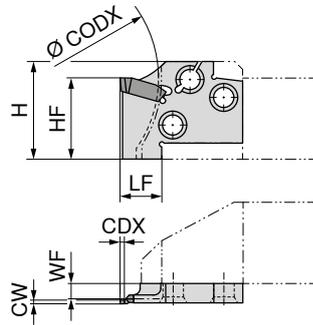
External machining



ModularClamp MSS – Radial grooving module GX 09/16

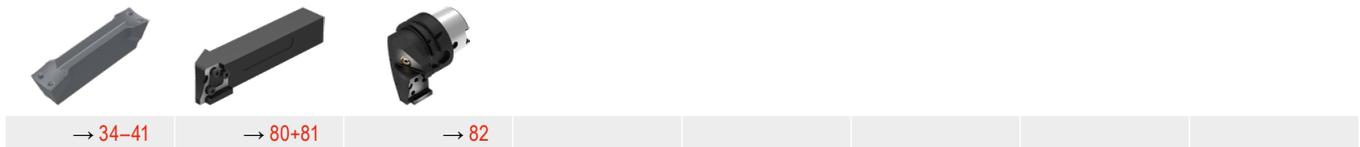
- ▲ For circlip grooves $\leq 2,75$ mm
- ▲ For radius grooves up to $\leq 1,2$ mm
- ▲ For external recessing

Scope of supply:
Grooving module only



Illustrations show right-hand versions

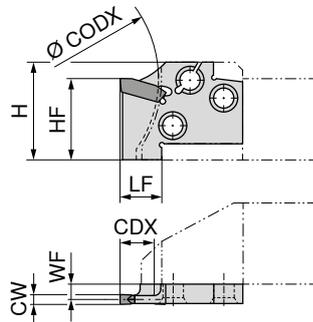
ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand	Right-hand
									70 871 ...	70 870 ...
E16 R/L 02-GX 09-1	<1,95	3,15	8	16	19,5	48	2	GX 09-1 ..R/L	116	116
E20 R/L 03-GX 16-2	<2,75	3,40	13	20	24,0	60	3	GX 16-2 ..R/L	120	120
E25 R/L 03-GX 16-2	<2,75	4,90	13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



ModularClamp MSS – Radial grooving module GX 09/16

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

Scope of supply:
Grooving module only



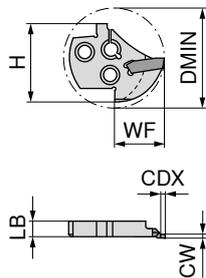
ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand	Right-hand
									70 866 ...	70 865 ...
E16 R/L 07-GX 09-1	2,00 - 2,75	3,15	8	16	19,5	48	7	GX 09-1 ..N	016	016
E16 R/L 07-GX 09-2	2,76 - 3,75	2,80	8	16	19,5	48	7	GX 09-2 ..N	116	116
E20 R/L 12-GX 16-1	2,00 - 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



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

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



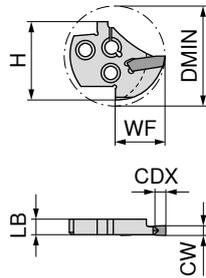
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ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

- ▲ For circlip grooves ≤ 5,25 mm
- ▲ For radius grooves up to ≤ 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



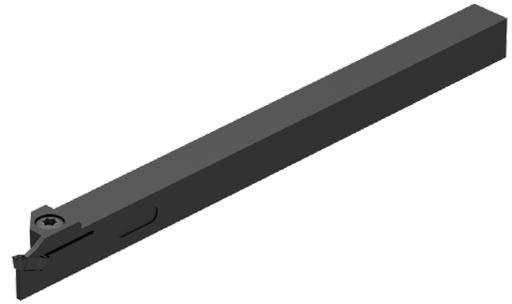
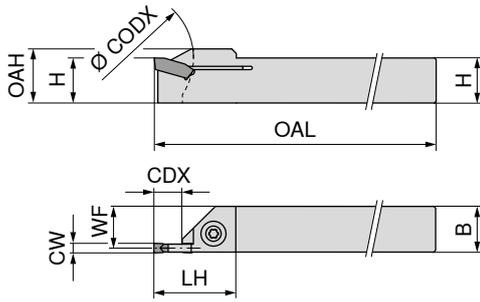
→ 34-41

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MonoClamp – Radial Monoholder GX 09

Scope of supply:

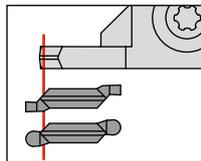
Mono holder incl. Torx key and clamping screw



Illustrations show right-hand versions

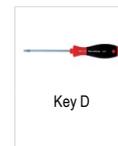
ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	CODX mm	CDX mm	for grooving inserts GX 09 ..	Left-hand	Right-hand
											70 863 ...	70 862 ...
E10 R/L 00-1010M-GX09	10	10	2,00 - 3,50	9,35	12	150	18	30	7	GX 09 ..	010	010

1 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	80 950 ...	70 950 ...
		113	442



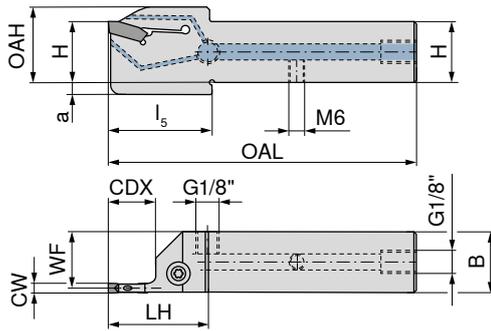
→ 34-40

→ Chapter 16

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 ₅ mm	a mm	CDX mm	for grooving inserts	Left-hand	Right-hand
												70 842 ...	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



Key D



Clamping screw

**Spare parts
for grooving inserts**

		80 950 ...		70 950 ...
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



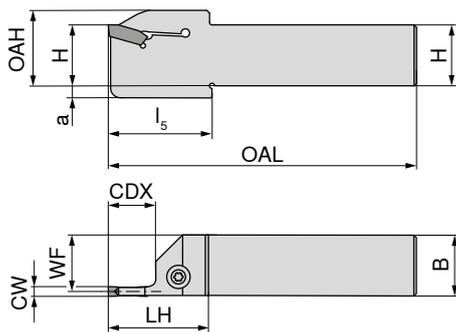
→ 34-41

→ Chapter 16

MonoClamp – Radial Monoholder GX 16

Scope of supply:

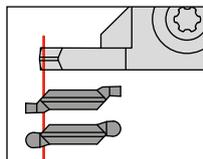
Mono holder incl. Torx key and clamping screw



Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l ₅ mm	a mm	CDX mm	for grooving inserts	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

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



Key D



Clamping screw

**Spare parts
for grooving inserts**

		80 950 ...	70 950 ...
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



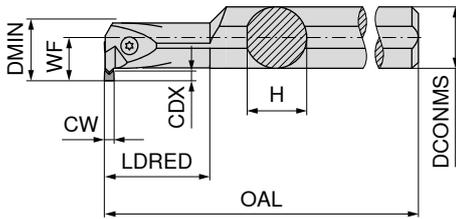
→ 34-41

→ Chapter 16

MonoClamp – Radial Mono-boring bars GX 09

Scope of supply:

Boring bar incl. key and clamping screw

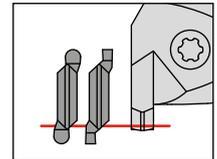


Illustrations show right-hand versions

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

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

1 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	M3,5x12,5
113	441



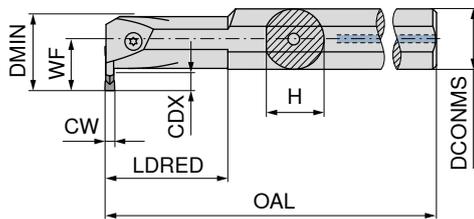
→ 34-40

→ Chapter 16

MonoClamp – Radial Mono-boring bars GX 16

Scope of supply:

Boring bar incl. key and clamping screw



Illustrations show right-hand versions

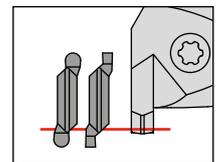
ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand	Right-hand
										70 893 ...	70 892 ...
I16 R/L 90-2.0D-GX16-1	15,25	16	20,5	2,00 - 2,75	5,0	13,5	150	32	GX 16-1	516	516
I16 R/L 90-2.0D-GX16-2	15,25	16	20,5	2,76 - 3,75	5,0	13,5	150	32	GX 16-2	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

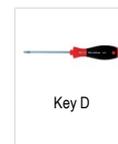


When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



Spare parts for grooving inserts

		80 950 ...		70 950 ...
GX 16-1	T15	113	M4x14	403
GX 16-2	T15	113	M4x14	403
GX 16-3	T15	113	M4x14	403



→ 34-41

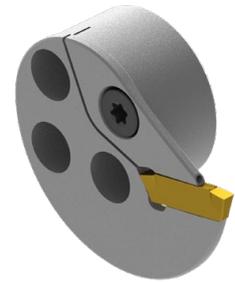
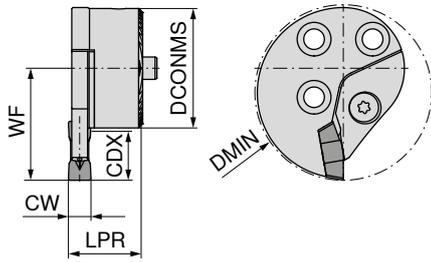
→ Chapter 16

MaxiChange-GX – GX-DC 16 exchangeable grooving head

▲ For grooving and turning

Scope of supply:

Exchangeable grooving head with clamping claw and clamping screw



Illustrations show right-hand versions

ISO designation	DCONMS mm	CW mm	WF mm	LPR mm	DMIN mm	CDX mm	for grooving inserts	NEW	
								Left-hand 84 188 ...	Right-hand 84 189 ...
WK25 R/L 14-DC GX 16-S2	25	2	27	14,00	41	14	GX 16-1 ..N	22500	22500
WK25 R/L 14-DC GX 16-S3	25	3	27	14,75	41	14	GX 16-2 ..N	32500	32500
WK25 R/L 14-DC GX 16-S4/5	25	4/5	27	15,75	41	14	GX 16-3 ..N	42500	42500
WK32 R/L 13-DC GX 16-S4/5	32	4/5	30	17,75	47	13	GX 16-3 ..N	43200	43200
WK32 R/L 13-DC GX 16-S6	32	6	30	19,35	47	13	GX 16-3 ..N	63200	63200

Spare parts for Article no.	Clamping claw		O-Ring		Clamping screw		Guide pin	
	84 950 ...	84 950 ...	84 950 ...	84 950 ...	84 950 ...	84 950 ...	84 950 ...	84 950 ...
84 189 22500	50400	2x1	50300	M4X4/T15	50000	D3H6X10	53000	53000
84 188 22500	50500	2x1	50300	M4X4/T15	50000	D3H6X10	53000	53000
84 189 32500	50600	2x1	50300	M4X4/T15	50000	D3H6X10	53000	53000
84 188 32500	50700	2x1	50300	M4X4/T15	50000	D3H6X10	53000	53000
84 189 42500	50800	2x1	50300	M4X4/T15	50000	D3H6X10	53000	53000
84 188 42500	50900	2x1	50300	M4X4/T15	50000	D3H6X10	53000	53000
84 189 43200	51000	2x1	50300	M5X5,5/T15	50100	D4H6X10	53100	53100
84 188 43200	51100	2x1	50300	M5X5,5/T15	50100	D4H6X10	53100	53100
84 189 63200	51200	2x1	50300	M5X5,5/T15	50100	D4H6X10	53100	53100
84 188 63200	51300	2x1	50300	M5X5,5/T15	50100	D4H6X10	53100	53100

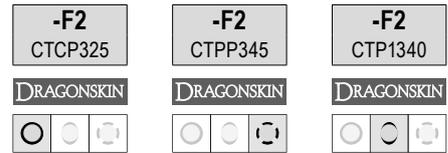
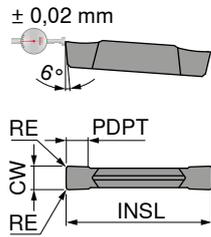
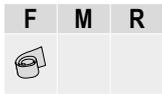
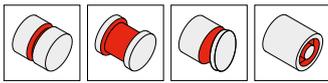


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→ Chapter 9

Insert GX 24

- ▲ Insert with ground periphery
- ▲ Suitable also for parting off tubes and thin-walled workpieces



Designation	INSL mm	CW $\pm 0,02$ mm	RE $\pm 0,05$ mm	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	866	666
970	870	671
	872	672

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

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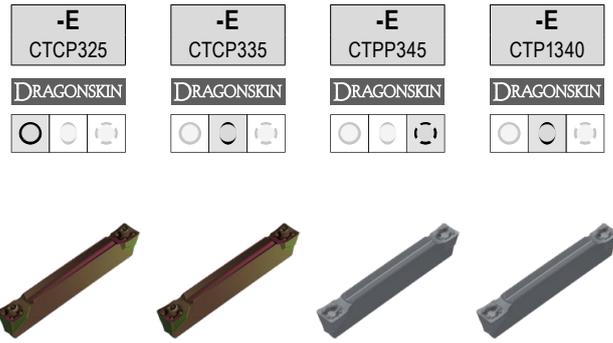
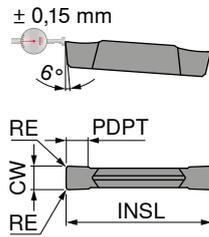
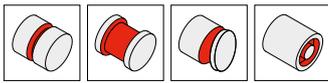
Internal machining

External machining



Insert GX 24

- ▲ Universal application
- ▲ First choice for axial grooving



Designation	INSL mm	CW $\pm 0,05$ mm	RE $\pm 0,05$ 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												○	

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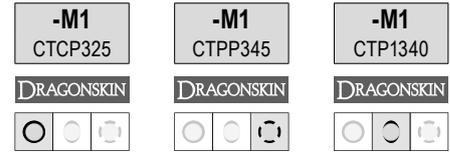
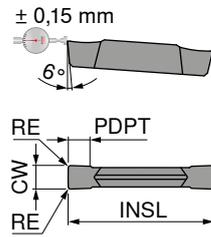
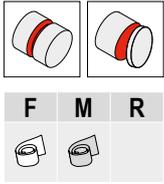
Internal machining

External machining



Insert GX 24

▲ Very good swarf control



Designation	INSL mm	CW mm	RE mm	for tool holder	70 363 ...		
					900	800	600
GX 24-1 E2.00 N 0.20	24	2	0,2	GX 24-1	902	802	602
GX 24-2 E3.00 N 0.20	24	3	0,2	GX 24-2	904	804	604
GX 24-3 E4.00 N 0.30	24	4	0,3	GX 24-3			
P					●	●	●
M					○	●	●
K					●		●
N							○
S					○	○	●
H							
O							○

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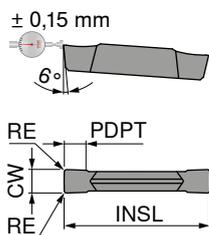
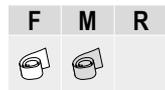
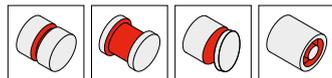
Internal machining

External machining



Insert GX 24

▲ Very good swarf control



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

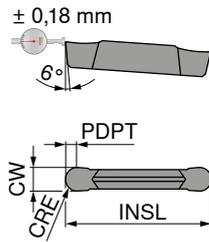
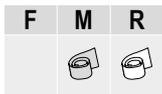
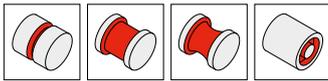
→ v_c Page 88
→ Application recommendation on page 89

Internal machining

External machining



Radius groove insert GX 24



Designation	INSL mm	CW $\pm 0,05$ mm	CRE mm	PDPT mm	for tool holder	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							

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→ Application recommendation on page 90

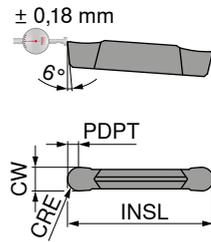
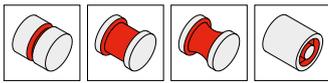
Internal machining

External machining



Radius groove insert GX 24

▲ Suitable for the machining of tough and ductile materials



70 365 ...

Designation	INSL mm	CW $\pm 0,05$ mm	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	

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→ Application recommendation on page 90

Internal machining

External machining

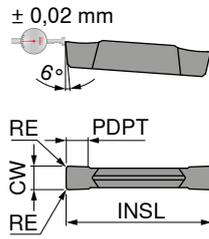


Insert GX 24

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



-27P
H216T



70 350 ...

Designation	INSL mm	CW $\pm 0,02$ mm	RE $\pm 0,05$ 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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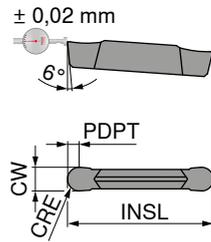
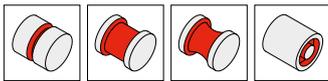
Internal machining

External machining



Radius grooving insert GX 24

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



70 353 ...

Designation	INSL mm	CW ^{+0,02} mm	CRE mm	PDPT mm	for tool holder	
GX 24-4 R3.00 N	25,4	6	3	4	GX 24-4	500
GX 24-5 R4.00 N	25,4	8	4	5	GX 24-5	506

P	
M	
K	●
N	●
S	○
H	
O	○

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Internal machining

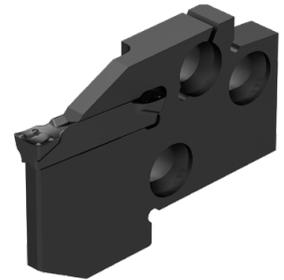
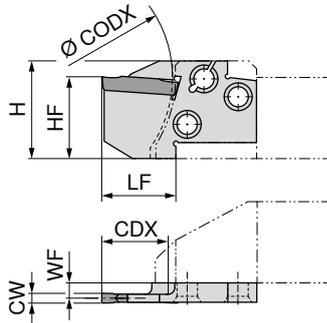
External machining



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	Right-hand
									70 868 ...	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	23	25	30	75	21	GX 24-5	425	425



→ 52-59



→ 80+81

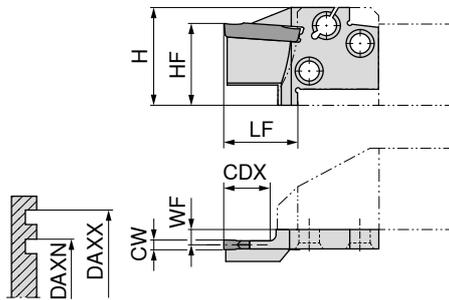


→ 82

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	Right-hand
										70 891 ...	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

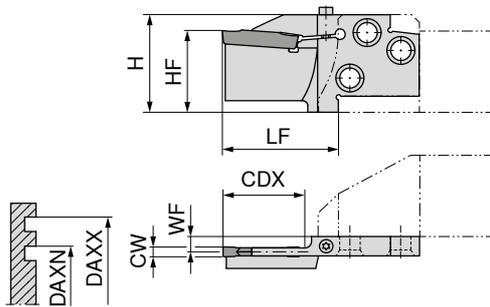
→ 80+81

→ 82

ModularClamp MSS – Axial grooving module GX 24 long

- ▲ For axial grooving
- ▲ For face turning

Scope of supply:
Grooving module only

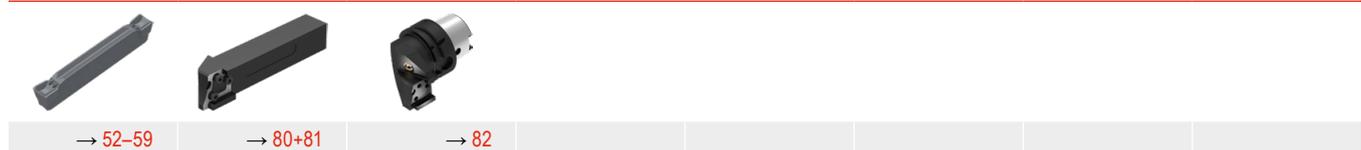


Illustrations show right-hand versions

ISO designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand	Right-hand
										70 895 ...	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	Clamping screw
			80 950 ...	70 950 ...
GX 24-3	T15	113	M3,5x14	160
GX 24-4	T15	113	M3,5x14	160

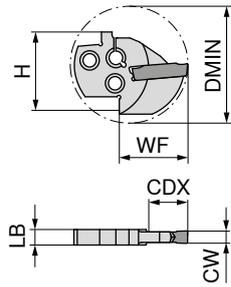


ModularClamp MSS – Radial Grooving module GX 24 for Internal machining

▲ 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	340
I40 N 19-GX 24-3	3,76 - 5,00	6,2	33,5	40,7	19	60	GX 24-3 ..N	440
I40 N 19-GX 24-4	5,01 - 6,50	6,2	33,5	40,7	19	60	GX 24-4 ..N	540



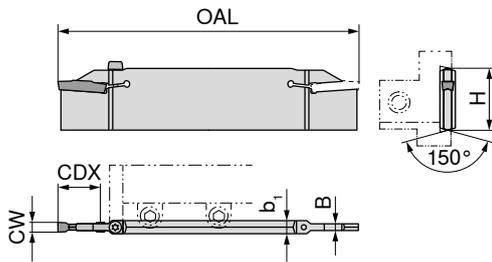
→ 52-59

→ 83

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



Key D



Clamping screw

80 950 ...

70 950 ...

**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



→ 52-59



→ 85+86

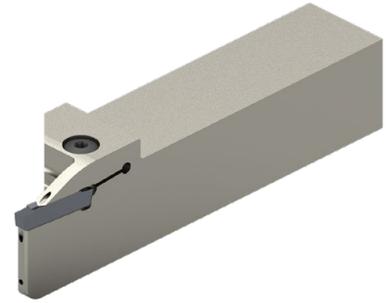
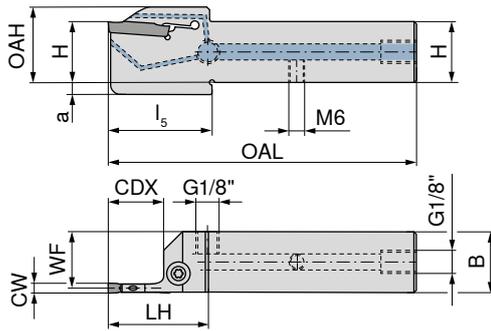


→ Chapter 16

MonoClamp – Radial Monoholder GX-DC 24

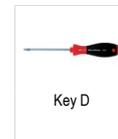
Scope of supply:

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 ₅ mm	CDX mm	a mm	for grooving inserts	Left-hand	Right-hand
												70 844 ...	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



Key D



Clamping screw

**Spare parts
for grooving inserts**

		80 950 ...		70 950 ...
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



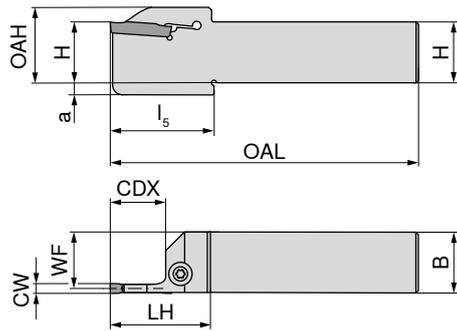
→ 52-59

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MonoClamp – Radial Monoholder GX 24

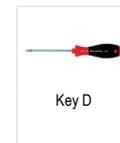
Scope of supply:

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	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

		80 950 ...		70 950 ...
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



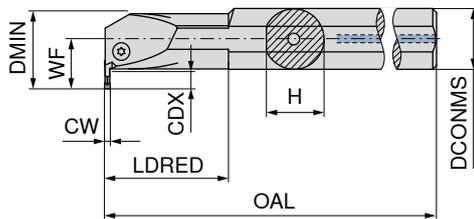
→ 52-59

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MonoClamp – Radial Mono-boring bars GX 24

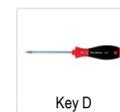
Scope of supply:

Boring bar incl. key and clamping screw



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
										70 895 ...	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



Key D



Clamping screw

**Spare parts
for grooving inserts**

		80 950 ...	70 950 ...
GX 24-2	T20	114	404
GX 24-3	T20	114	404



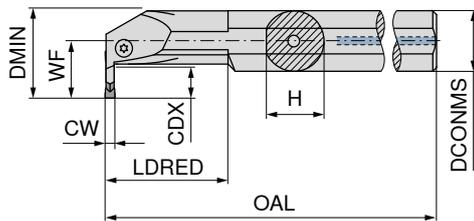
→ 52-59

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MonoClamp – Radial Mono-boring bars GX 24

Scope of supply:

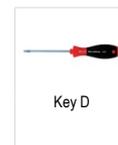
Boring bar incl. key and clamping screw



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
										70 895 ...	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 24-4



	80 950 ...	70 950 ...
T20	114	404
	M5x18	



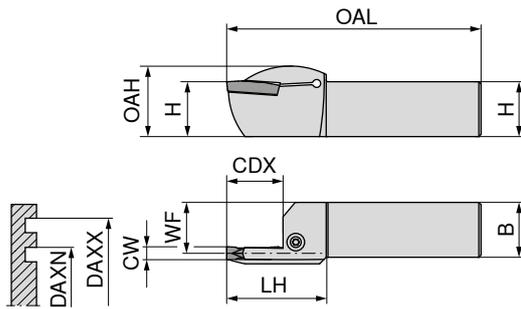
→ 52-59

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MonoClamp – Axial Monoholder GX 24

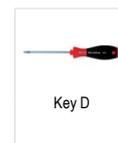
Scope of supply:

Mono holder incl. key and clamping screw



Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	DAXN mm	DAXX mm	OAH mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand	Right-hand
												70 904 ...	70 903 ...
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



Key D



Clamping screw

**Spare parts
for grooving inserts**

		80 950 ...		70 950 ...
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



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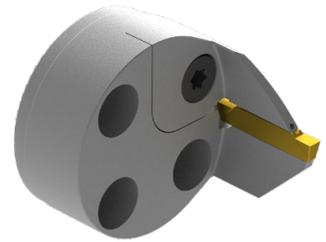
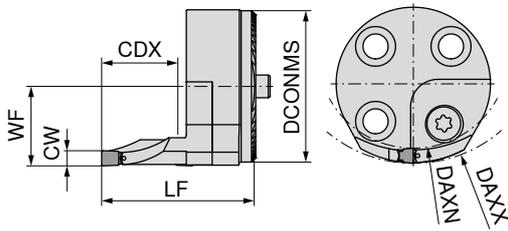
→ Chapter 16

MaxiChange-GX – GX-DC 24 axial exchangeable grooving head

▲ For axial grooving

Scope of supply:

Exchangeable grooving head with clamping claw and clamping screw



Illustrations show right-hand versions

ISO designation	DCONMS mm	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	CDX mm	for grooving inserts	NEW	
									Left-hand 84 186 ...	Right-hand 84 187 ...
WK40 R/L 20-DC GX 24-S3 D50-70	40	50	70	3	21	40	20	GX 24-2 ..N	34000	34000
WK40 R/L 20-DC GX 24-S3 D70-100	40	70	100	3	21	40	20	GX 24-2 ..N	34100	34100
WK40 R/L 20-DC GX 24-S3 D100-150	40	100	150	3	21	40	20	GX 24-2 ..N	34200	34200
WK40 R/L 20-DC GX 24-S3 D150-300	40	150	300	3	21	40	20	GX 24-2 ..N	34300	34300
WK40 R/L 20-DC GX 24-S4 D50-70	40	50	70	4	21	40	20	GX 24-3 ..N	44000	44000
WK40 R/L 20-DC GX 24-S4 D70-100	40	70	100	4	21	40	20	GX 24-3 ..N	44100	44100
WK40 R/L 20-DC GX 24-S4 D100-150	40	100	150	4	21	40	20	GX 24-3 ..N	44200	44200
WK40 R/L 20-DC GX 24-S4 D150-300	40	150	300	4	21	40	20	GX 24-3 ..N	44300	44300



Clamping claw

84 950 ...



O-Ring

84 950 ...



Clamping screw

84 950 ...



Guide pin

84 950 ...

Spare parts for Article no.

84 187 34000	51400	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 186 34000	51800	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 187 34100	51500	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 186 34100	51900	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 187 34200	51600	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 186 34200	52000	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 187 34300	51700	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 186 34300	52100	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 187 44000	52200	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 186 44000	52600	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 187 44100	52300	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 186 44100	52700	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 187 44200	52400	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 186 44200	52800	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 187 44300	52500	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200
84 186 44300	52900	2x1	50300	M6x0,5X5/T25	50200	D4H6X12	53200

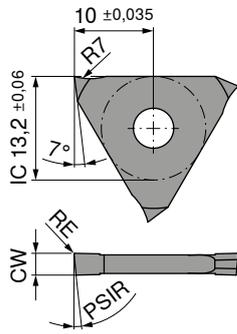
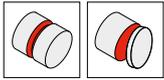


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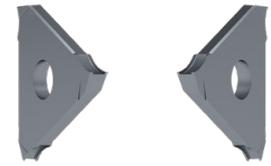
→ Chapter 9

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

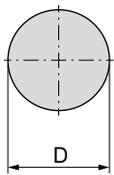


ISO designation	CW _{-0.05} mm	RE mm	PSIR	for tool holder	Left-hand		Right-hand	
					73 302 ...	73 301 ...		
TX R/L 0518.00.1	1,99	0,1	5°	R/L 207 ... / 780 ... 1	204		204	
TX R/L 0521.00.2	2,29	0,1	5°	R/L 207 ... / 780 ... 2	206		206	
TX R/L 0526.00.2	2,79	0,1	5°	R/L 207 ... / 780 ... 2	208		208	
P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

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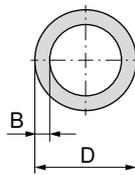
Grooving depth

Full material



max. 10 mm

Pipe



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

Internal machining



→ 79

External machining



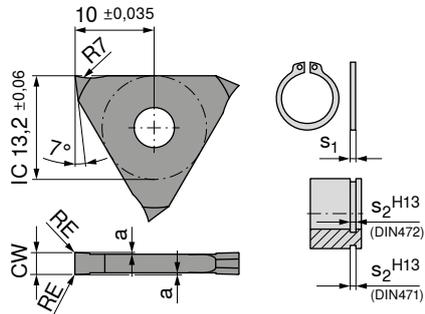
→ 76–78

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

→ v_c Page 88

Internal machining

External machining

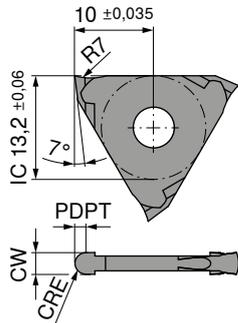


Radial TX insert for corner recessing

▲ 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 88

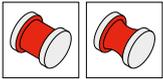
11

Internal machining

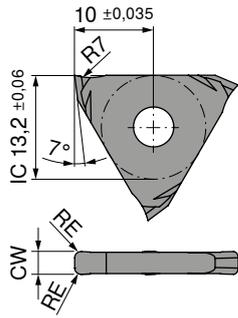
External machining



TX insert for fine and copy turning



CWX500



Neutral

73 303 ...

Designation	CW ^{+0,03} mm	RE mm	for tool holder	
TX N 0150.02.1	1,5	0,2	R/L 207 ... / 738 ... / 660 ... 1	204
TX N 0200.02.1	2,0	0,2	R/L 207 ... / 738 ... / 660 ... 1	206
TX N 0200.04.1	2,0	0,4	R/L 207 ... / 738 ... / 660 ... 1	208
TX N 0300.02.2	3,0	0,2	R/L 207 ... / 738 ... / 660 ... 2	210
TX N 0300.06.2	3,0	0,6	R/L 207 ... / 738 ... / 660 ... 2	212
TX N 0300.08.2	3,0	0,8	R/L 207 ... / 738 ... / 660 ... 2	214
TX N 0400.02.3	4,0	0,2	R/L 207 ... / 738 ... / 660 ... 3	216
TX N 0400.08.3	4,0	0,8	R/L 207 ... / 738 ... / 660 ... 3	218
TX N 0400.12.3	4,0	1,2	R/L 207 ... / 738 ... / 660 ... 3	220
P				●
M				●
K				●
N				●
S				●
H				○
O				●

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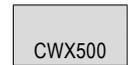
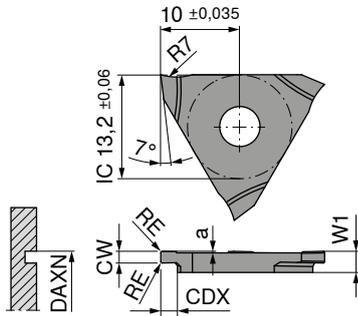
Internal machining

External machining



TX insert for axial grooving

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



Illustrations show right-hand versions

ISO designation	CW mm	W1 mm	CDX mm	a mm	DAXN mm	RE mm	for tool holder	Left-hand		Right-hand	
								73 306 ...		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 88

Internal machining

External machining

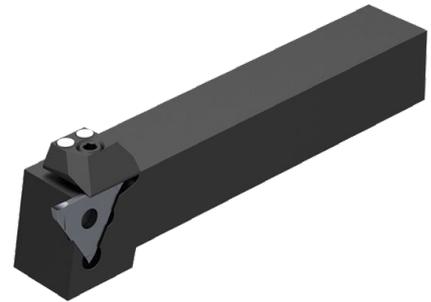
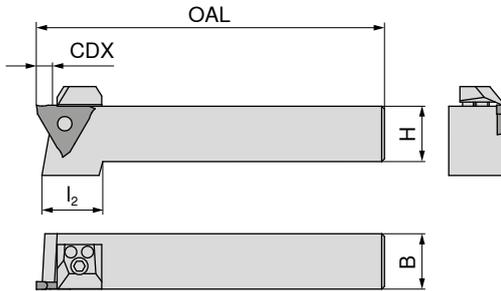


→ 76+77

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

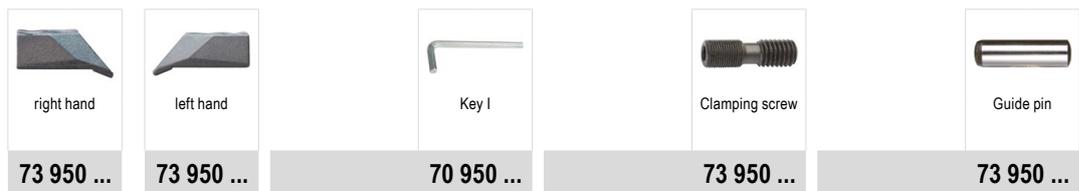
- ▲ For radial and axial grooving
- ▲ Cutting width 0.5–6.3 mm

Scope of supply:
Grooving holder only



Illustrations show right-hand versions

ISO designation	H mm	B ^{+0.1} mm	OAL mm	l ₂ mm	CDX mm	for grooving inserts	Left-hand	Right-hand
							73 501 ...	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	73 950 ...	73 950 ...	70 950 ...	73 950 ...	73 950 ...
	TX R/N/L ...1	020		176	028
TX R/N/L ...1		024	176	028	030
TX R/N/L ...2		024	176	028	030
TX R/N/L ...2	020		176	028	030
TX R/N/L ...3		024	176	028	030
TX R/N/L ...3	020		176	028	030
TX R/N/L ...4	022		176	028	030
TX R/N/L ...4		026	176	028	030



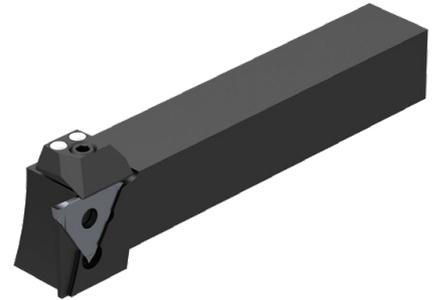
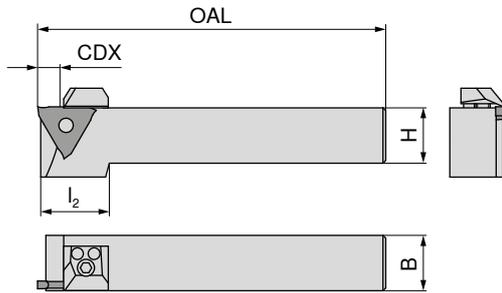
→ 71–75

→ 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 $\pm 0,1$ 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 ...	70 950 ...	73 950 ...	73 950 ...
TX R/N/L ...2	020		176	028	030
TX R/N/L ...2		024	176	028	030
TX R/N/L ...3	020		176	028	030
TX R/N/L ...3		024	176	028	030
TX R/N/L ...4	022		176	028	030
TX R/N/L ...4		026	176	028	030



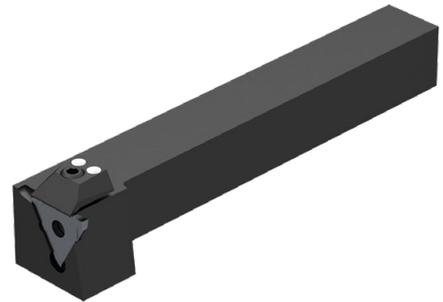
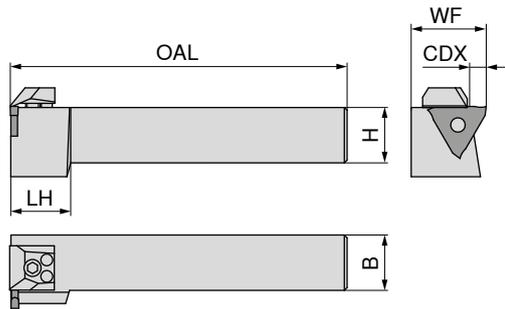
→ 71–75

→ 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 $_{\pm 0.07}$ 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	right hand	left hand	Key I	Clamping screw	Guide pin
	73 950 ...	73 950 ...	70 950 ...	73 950 ...	73 950 ...
TX R/N/L ...1	020		176	028	030
TX R/N/L ...1		024	176	028	030
TX R/N/L ...2		024	176	028	030
TX R/N/L ...2	020		176	028	030
TX R/N/L ...3		024	176	028	030
TX R/N/L ...3	020		176	028	030
TX R/N/L ...4	022		176	028	030
TX R/N/L ...4		026	176	028	030



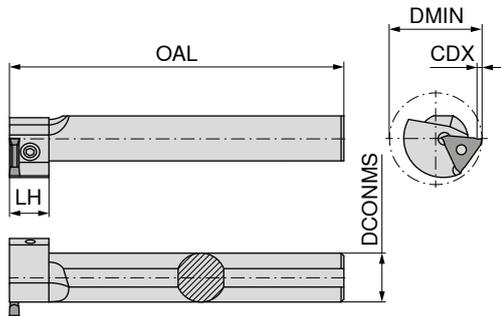
→ 71–75

→ Chapter 16

MonoClamp – Radial Boring bar TX

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

Scope of supply:
Boring bar only

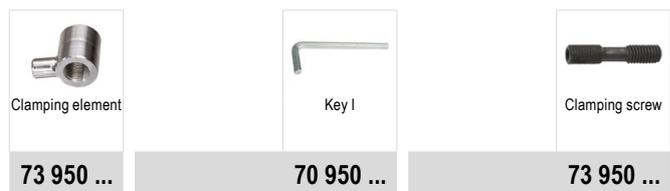


Illustrations show right-hand versions

ISO designation	DCONMS _{gr} mm	DMIN mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand	Right-hand
							73 511 ...	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

11



Spare parts
for grooving inserts

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



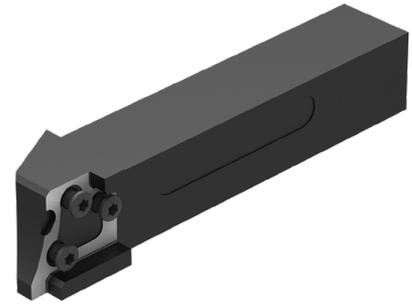
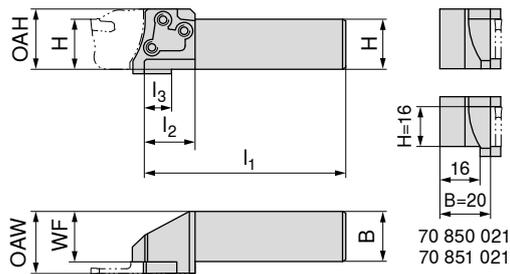
→ 71-74

→ Chapter 16

ModularClamp MSS – Tool holder 0°

Scope of supply:

Base holder incl. clamping screw

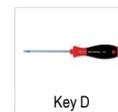


Illustrations show right-hand versions

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	Right-hand
										70 851 ...	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 drawing

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.**

Article no.	Part no.	Part no.
70 851 016 / 70 850 016	T15	113 M3,5x12,5 441
70 851 021 / 70 850 021	T15	113 M4x14 403
70 851 020 / 70 850 020	T15	113 M4x14 403
70 851 025 / 70 850 025	T20	114 M5x18 404
70 851 032 / 70 850 032	T25	115 M6x20 405



SX

→ 21



LX

→ 32



GX 09 / GX 16

→ 42+43



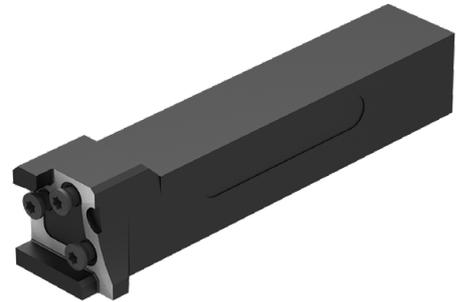
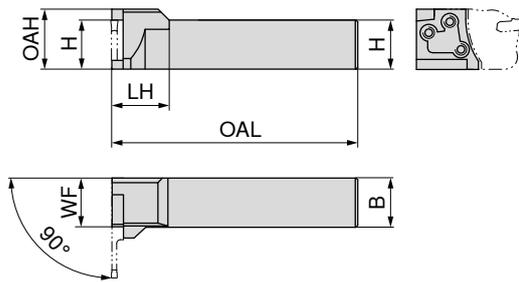
GX 24

→ 60-62

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

i 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.**

Article no.	Key D	Clamping screw
70 855 020 / 70 854 020	T15	M4x14
70 855 025 / 70 854 025	T20	M5x18
70 855 032 / 70 854 032	T25	M6x20



Key D



Clamping screw



SX

→ 21



LX

→ 32



GX 09 / GX 16

→ 42+43



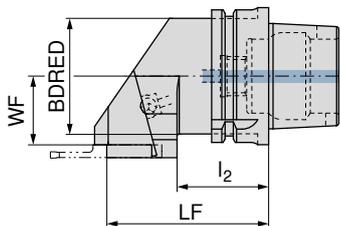
GX 24

→ 60-62

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

i 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

70 950 ...	70 950 ...	80 950 ...	70 950 ...	70 950 ...
05600	05500	114	404	05700

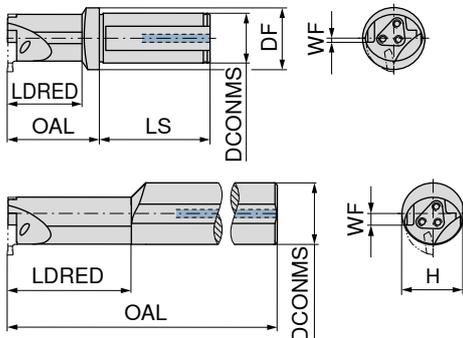
SX	LX	GX 09 / GX 16	GX 24				
→ 21	→ 32	→ 42+43	→ 60-62				

ModularClamp MSS – Boring bars GX

▲ 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	Right-hand
										70 861 ...	70 860 ...
≤ 1,5xD	I16 R/L 90-1,5 D-N	20	25	1,0		32	24	50	I 16 R/L	017	017
	I20 R/L 90-1,5 D-N	20	25	1,0		37	30	50	I 20 R/L	021	021
	I25 R/L 90-1,5 D-N	25	32	1,5		46	38	56	I 25 R/L	026	026
	I32 R/L 90-1,5 D-N	32	40	2,0		59	48	60	I 32 R/L	033 ¹⁾	033 ¹⁾
	I40 R/L 90-1,5 D-N	40	50	2,5		72	60	70	I 40 R/L/N	041	041
≤ 2,5xD	I16 R/L 90-2,5 D-N	20		4,5	19,0	180	40		I 16 R/L	117	117
	I20 R/L 90-2,5 D-N	25		6,0	24,0	200	50		I 20 R/L	121	121
	I25 R/L 90-2,5 D-N	32		7,0	31,0	250	63		I 25 R/L	126	126
	I32 R/L 90-2,5 D-N	40		9,5	38,0	300	80		I 32 R/L	133 ¹⁾	133 ¹⁾
	I40 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

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

Spare parts for modules		Key D	Clamping screw	80 950 ...	70 950 ...
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	



GX 09 / GX 16

→ 44+45



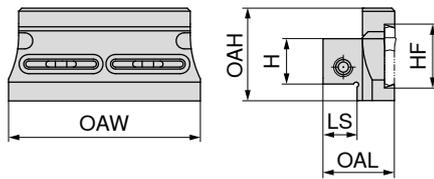
GX 24

→ 63

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

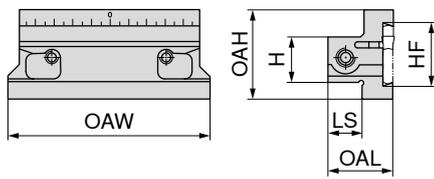
Spare parts for Article no.	Coolant screw plug		Clamping rail		clamping screw	
	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 829 020	G 1/8"	294	CU70	290	M6x12	861
70 829 120	G 1/8"	294	CU85	291	M6x12	861
70 829 025	G 1/8"	294	CU85	291	M6x12	861
70 829 032	G 1/8"	294	CU85	291	M6x12	861

Spare parts for Article no.	Key I		O-Ring		O-Ring	
	70 950 ...	70 950 ...	70 950 ...	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

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

Spare parts for blades

		70 950 ...	70 950 ...	70 950 ...
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

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	Key I		Cooling agent set		clamping screw	
	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
XLC.. 26..	SW5	265	278	M6x25	269	
XLC.. 32..	SW5	265	278	M6x25	269	

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	< 0,45 % C 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	< 0,75 % C 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	Fe - basis 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	Ni or Co basis Age-hardened	1180 N/mm ² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3	Ni or Co basis 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					

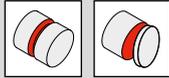
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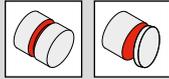
Cutting data values for grooving inserts

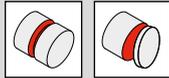
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	CTCP325	CTCP335	CTPP345	CTPP520	CTPP535	CTP1340	H216T	CWX500				
	DRAGONSKIN							v _c (m/min.)	f (mm/rev)	Emulsion	Compressed air	MMS
	v _c (m/min.)											
P.1.1	220	185	135	235	180	180		160	0,03–0,10	●		
P.1.2	195	160	120	205	150	150		140	0,03–0,10	●		
P.1.3	170	140	105	175	125	125		110	0,03–0,10	●		
P.1.4	165	130	100	165	120	115		110	0,03–0,10	●		
P.1.5	150	120	95	150	105	100		90	0,03–0,10	●		
P.2.1	200	165	120	210	160	155		110	0,03–0,10	●		
P.2.2	160	130	100	160	115	110		90	0,03–0,10	●		
P.2.3	150	120	95	150	105	100		90	0,03–0,07	●		
P.2.4	120	90	75	115	75	70		80	0,03–0,06	●		
P.3.1	150	130	100	185	120	110		80	0,03–0,07	●		
P.3.2	95	90	80	130	90	75		60	0,03–0,07	●		
P.3.3	45	50	60	75	60	40		50	0,03–0,07	●		
P.4.1	150	130	100	185	120	110		100	0,03–0,06	●		
P.4.2	125	110	90	160	105	95		90	0,03–0,06	●		
M.1.1	150	130	100	185	120	110		110	0,02–0,06	●		
M.2.1	95	90	80	130	90	80		90	0,02–0,06	●		
M.3.1	135	115	95	170	110	100		70	0,02–0,06	●		
K.1.1	170	135		140	165	150	140	140	0,03–0,10	●		
K.1.2	150	115		115	150	125	115	100	0,03–0,10	●		
K.2.1	160	130		180	145	140	150	90	0,03–0,10	●		
K.2.2	145	105		115	155	120	110	80	0,03–0,10	●		
K.3.1	210	150		130	190	170	170	140	0,03–0,10	●		
K.3.2	140	115		110	145	120	140	120	0,03–0,10	●		
N.1.1						300	400	330	0,05–0,12	●		
N.1.2						200	400	310	0,05–0,12	●		
N.2.1						300	450	270	0,05–0,12	●		
N.2.2						200	450	230	0,05–0,12	●		
N.2.3						150	500	140	0,05–0,12	●		
N.3.1						300	425	240	0,05–0,12	●		
N.3.2						300	400	200	0,05–0,12	●		
N.3.3						200	275	180	0,05–0,12	●		
N.4.1						200	225	180	0,05–0,12	●		
S.1.1	35			40	30	35	40	60	0,02–0,07	●		
S.1.2	30		30	30	25	30	30	50	0,02–0,08	●		
S.2.1	20		25	20	15	20	30	60	0,02–0,09	●		
S.2.2	15			15	15	15	25	50	0,02–0,10	●		
S.2.3	15			20	15	15	20	40	0,02–0,11	●		
S.3.1				125	85	85	90	60	0,02–0,12	●		
S.3.2				50	35	40	55	40	0,02–0,13	●		
S.3.3				35	25	30	40	30	0,02–0,14	●		
H.1.1				15				50	0,01–0,07	●		
H.1.2				15								
H.1.3												
H.1.4												
H.2.1				15								
H.3.1				40								
O.1.1						130	130	180	0,05–0,12	●		
O.1.2								180	0,05–0,12	●		
O.2.1						105	105	150	0,05–0,12	●		
O.2.2								110	0,05–0,12	●		
O.3.1								170	0,03–0,10	●		

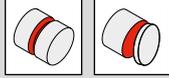
 The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. ±20% according to the usage conditions.

GX – Depths of cut and feed rates

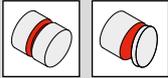
GX Standard / GX-E										
Groove width CW (mm)	 Turning Depth of cut a_p (mm)							 Parting / Grooving		 Axial grooving
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	f (mm/rev)		f (mm/rev)
	Feed rate f (mm/rev.)							f (mm/rev)		f (mm/rev)
2	0,10–0,15	0,05–0,15	0,05–0,12	0,05–0,10				0,05–0,20		When axial grooving reduce feed by 40%.
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		

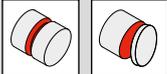
GX-M40											
Groove width CW (mm)	 Turning Depth of cut a_p (mm)							 Parting / Grooving		 Axial grooving	
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	f (mm/rev)		f (mm/rev)
	Feed rate f (mm/rev.)							f (mm/rev)		f (mm/rev)	
2	0,10–0,20	0,05–0,20	0,05–0,17	0,05–0,15					0,05–0,15		When axial grooving reduce feed by 40%.
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		

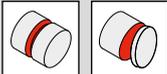
GX-F2												
Groove width CW (mm)	 Turning Depth of cut a_p (mm)							 Parting / Grooving		 Axial grooving		
	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,25	2,50	f (mm/rev)		f (mm/rev)
	Feed rate f (mm/rev.)							f (mm/rev)		f (mm/rev)		
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10						0,05–0,15		When axial grooving reduce feed by 40%.
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		

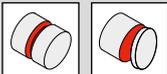
GX-27P											
Groove width CW (mm)	 Turning Depth of cut a_p (mm)							 Parting / Grooving		 Axial grooving	
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	f (mm/rev)		f (mm/rev)
	Feed rate f (mm/rev.)							f (mm/rev)		f (mm/rev)	
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20					0,05–0,20		When axial grooving reduce feed by 40%.
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		

GX – Depths of cut and feed rates

GX-M1		GX circlip grooving	
Groove width CW (mm)			
	Parting / Grooving		Grooving
	Feed rate f (mm/rev.)		Feed rate f (mm/rev.)
2	0,05–0,15	0,60–1,70	0,02–0,09
3	0,10–0,20	1,95–2,25	0,05–0,10
4	0,10–0,25	2,75–3,25	0,05–0,12

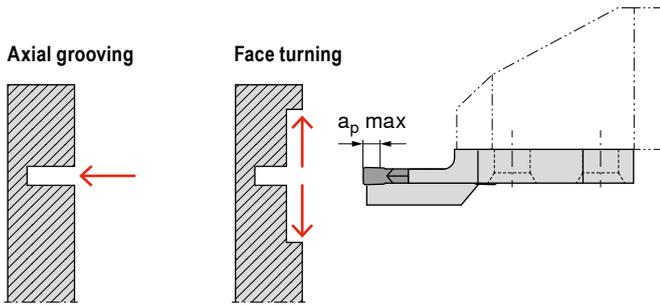
GX Standard / GX-27P / GX-27PF										
Radius CRE (mm)	 Turning									
	Depth of cut a_p (mm)								Parting / Grooving	
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	f (mm/rev.)	
	Feed rate f (mm/rev.)									
0,8									0,05–0,10	
1,0									0,05–0,15	
1,2									0,05–0,15	
1,5	0,10–0,45	0,05–0,45	0,05–0,40						0,05–0,15	
2,0	0,15–0,50	0,10–0,50	0,10–0,50	0,10–0,40					0,075–0,20	
2,5	0,15–0,60	0,10–0,60	0,10–0,60	0,10–0,50	0,10–0,45				0,10–0,25	
3,0	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		0,10–0,30	
4,0	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	0,15–0,35	

GX-M3								
Radius CRE (mm)	 Turning							
	Depth of cut a_p (mm)						Parting / Grooving	
	0,5	1,0	1,5	2,0	2,5	3,0	f (mm/rev.)	
	Feed rate f (mm/rev.)							
1,5	0,15–0,35	0,15–0,35	0,15–0,30				0,05–0,20	
2,0	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30			0,10–0,25	
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35		0,10–0,25	
3,0	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40	0,10–0,35	

GX-M33								
Radius CRE (mm)	 Turning							
	Depth of cut a_p (mm)						Parting / Grooving	
	0,5	1,0	1,5	2,0	2,5	3,0	f (mm/rev.)	
	Feed rate f (mm/rev.)							
1,5	0,05–0,25	0,05–0,20	0,05–0,15				0,05–0,15	
2,0	0,05–0,35	0,05–0,30	0,05–0,25	0,05–0,20			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		0,05–0,25	
3,0	0,10–0,50	0,10–0,45	0,10–0,40	0,10–0,35	0,10–0,30	0,10–0,25	0,10–0,25	

GX 24 – Axial grooving and face turning

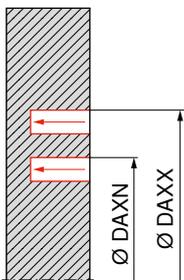
Approximate feed rates



Designation	Axial grooving	Face turning	
	Feed rate f (mm/rev.)	f (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

Processing notes

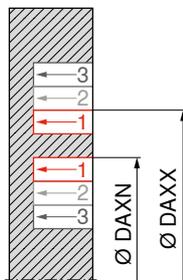
Axial grooving



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!

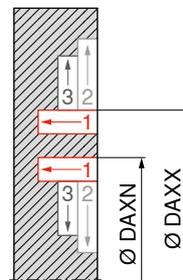
Axial grooving – Groove widening



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.

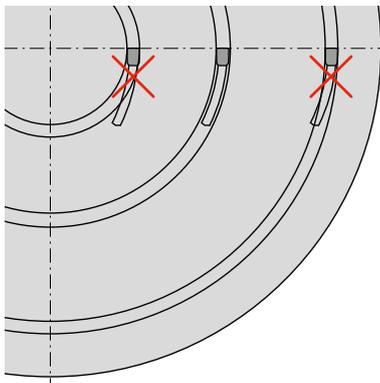
Important: Only the first groove must lie within the diameter range of the axial grooving module or axial monoholder. The depth of the widening groove must not be larger than the depth of the original groove.

Axial grooving and face turning



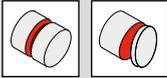
Groove widening by face turning in the diameter range above and below the values specified for the Axial grooving module and Axial monoholder are possible.

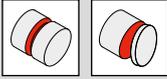
Important: Only the first groove must lie within the diameter range of the module.

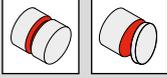


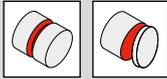
Attention: The diameter of face grooves must lie within the diameter range indicated on the axial grooving module and axial monoholder. Not following this range will result in the tool being damaged or destroyed.

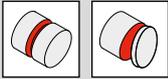
SX – Depths of cut and feed rates

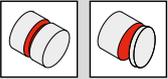
SX-F2									
Groove width CW (mm)	 Turning Depth of cut a_p (mm)							 Parting / Grooving	
	0,50	0,75	1,00	1,25	1,50	1,75	2,00	f (mm/rev)	
	Feed rate f (mm/rev.)							f (mm/rev)	
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10				0,05–0,15	
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12		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-27P								
Groove width CW (mm)	 Turning Depth of cut a_p (mm)						 Parting / Grooving	
	0,5	1,0	1,5	2,0	2,5	3,0	f (mm/rev)	
	Feed rate f (mm/rev.)						f (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	

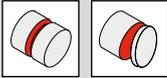
SX-M2								
Groove width CW (mm)	 Turning Depth of cut a_p (mm)						 Parting / Grooving	
	0,5	1,0	1,5	2,0	2,5	3,0	f (mm/rev)	
	Feed rate f (mm/rev.)						f (mm/rev)	
2	0,05–0,17	0,05–0,13	0,05–0,10				0,05–0,15	
3	0,07–0,20	0,07–0,20	0,07–0,18	0,07–0,15			0,075–0,20	
4	0,10–0,25	0,10–0,25	0,10–0,25	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	

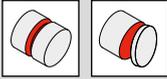
SX-M1		
Groove width CW (mm)	 Parting / Grooving	
	f (mm/rev)	
	2	0,05–0,15
3	0,10–0,20	
4	0,10–0,25	
5	0,15–0,30	
6	0,15–0,35	

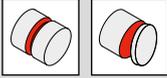
SX-M7		
Groove width CW (mm)	 Parting / Grooving	
	f (mm/rev)	
	2	0,10–0,20
3	0,10–0,20	
4	0,10–0,20	
5	0,15–0,25	
6	0,15–0,25	

SX-M8		
Groove width CW (mm)	 Parting / Grooving	
	f (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/LX – Depths of cut and feed rates

SX-M3								
Radius CRE (mm)	 Turning						 Parting / Grooving	
	Depth of cut a_p (mm)						f (mm/rev)	
	0,5	1,0	1,5	2,0	2,5	3,0	f (mm/rev)	
1,5	0,15–0,35	0,15–0,35	0,15–0,30				0,05–0,20	
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30			0,10–0,25	
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35		0,10–0,25	
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	0,10–0,35	

LX-M2										
Groove width CW (mm)	 Turning								 Parting / Grooving	
	Depth of cut a_p (mm)								f (mm/rev)	
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	f (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		0,20–0,50	
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	0,20–0,50	

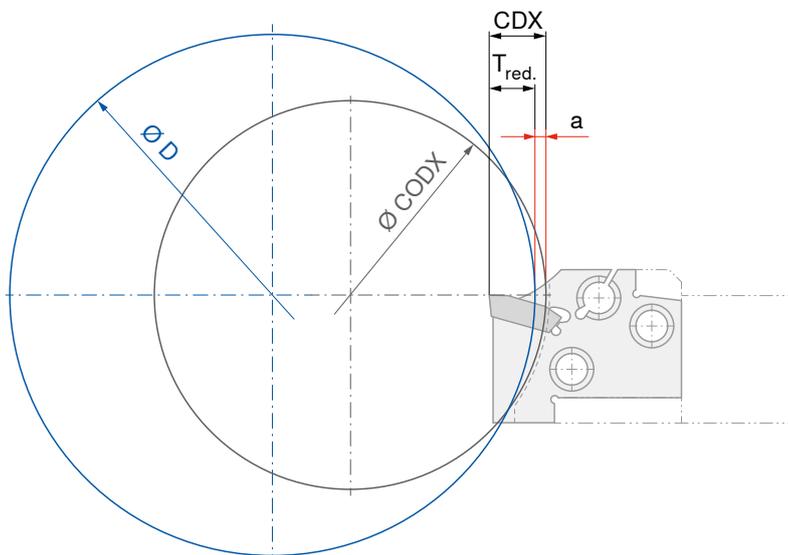
LX-M3										
Radius CRE (mm)	 Turning								 Parting / Grooving	
	Depth of cut a_p (mm)								f (mm/rev)	
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	f (mm/rev)	
4	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,70	0,25–0,60	0,25–0,50	0,15–0,35	

ModularClamp – Grooving depth reduction

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.

		Reduction a (mm) of the maximum grooving depth (CDX)																
		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	
Size	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:



$CDX =$
maximum plunge depth (mm)

$CODX =$
maximum workpiece \varnothing with full penetration depth (mm)

$a =$
Reduction amount (mm)

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

E25R21-GX24-3

CDX = 21 mm, $\varnothing CODX = 75$ mm
Size 25

Workpiece diameter
 $D = \varnothing 100$ mm

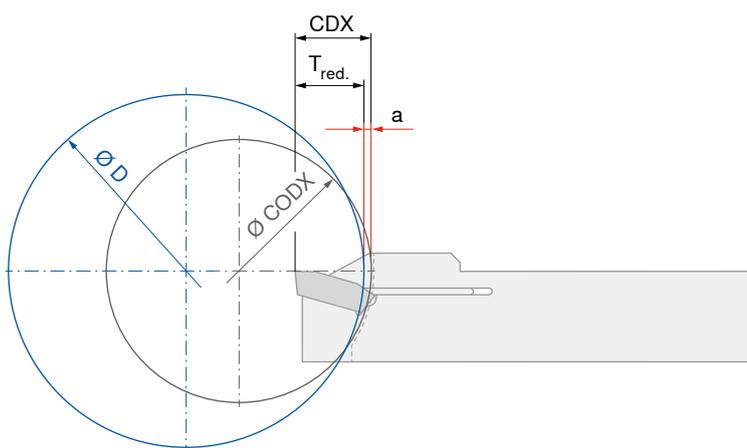
$$T_{red} = CDX - a = 21 - 2 = 19 \text{ mm}$$

MonoClamp – Grooving depth reduction

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.

		Reduction a (mm) of the maximum grooving depth (CDX)									
		0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	
Shank	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:



CDX =
maximum plunge depth (mm)

CODX =
maximum workpiece Ø with full penetration depth (mm)

a =
Reduction amount (mm)

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

E25R0033...
CDX = 33 mm, Ø CODX = 66 mm

Workpiece diameter
D = Ø 200 mm

$$T_{red.} = CDX - a = 33 - 1,5 = 31,5 \text{ mm}$$

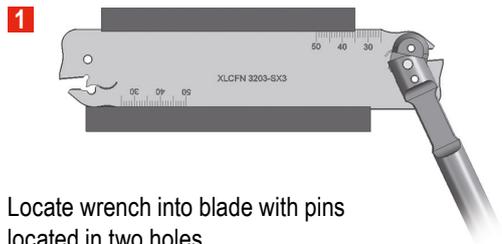
Clamping Method – SX-System

System function – inserting and removing the cutting inserts

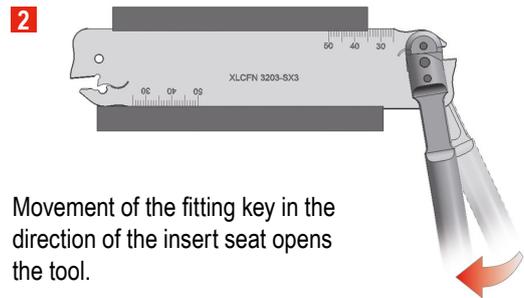
Precision system for internal and external grooving.

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

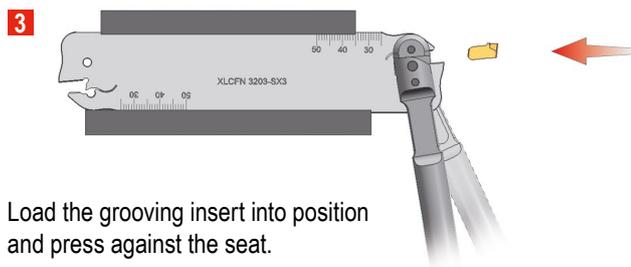
With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.



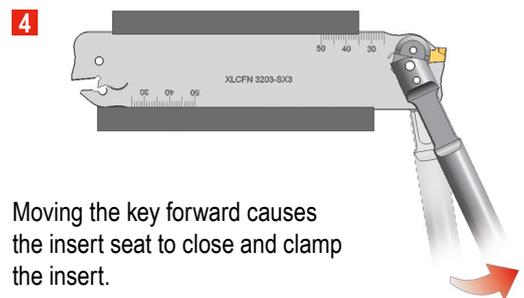
1 Locate wrench into blade with pins located in two holes



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

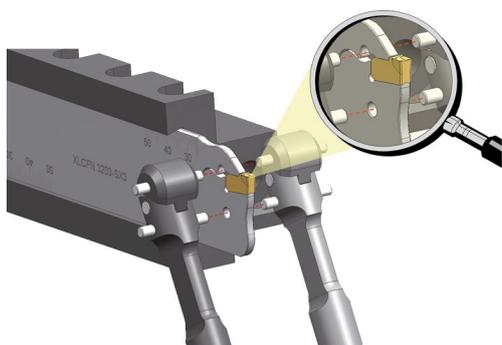


3 Load the grooving insert into position and press against the seat.



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

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



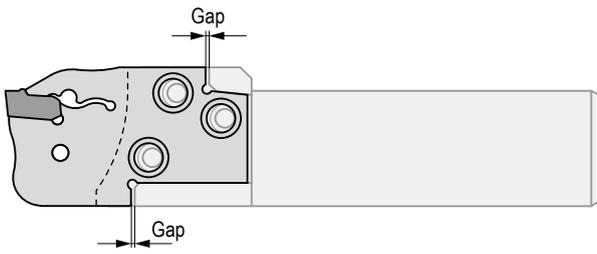
The clamp is designed so that the wrench can be inserted from both sides of the blade according to the accessibility.



Maximum blade projection when turning

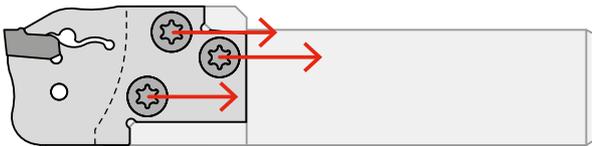
Blade	max. overhang (mm)
SX 2 – SX 3	25
SX 4 – SX 5	30
SX 6	35

Clamping function – ModularClamp-Module



Module unclamped

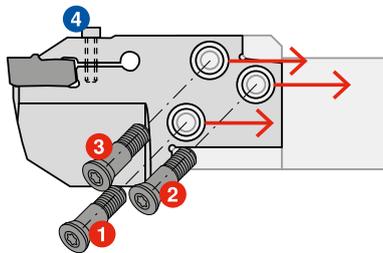
- ▲ Gap between module and support face for axial clamping



Module clamped

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

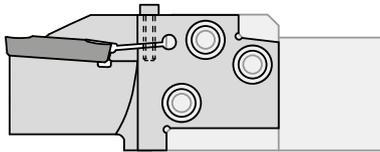
System
LX



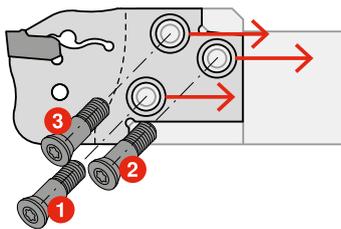
Active insert clamping

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

GX 24



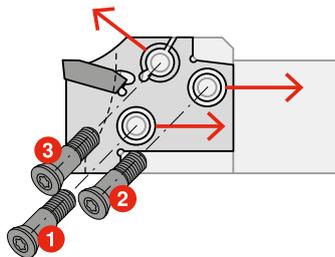
System
SX



Self clamping of the insert

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

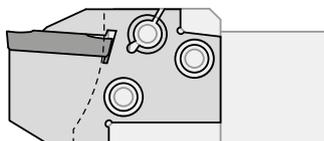
System
GX 09 / GX 16



Active insert clamping

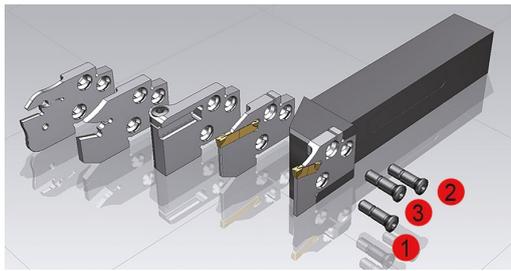
Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

GX 24



Torque Moment ModularClamp Module Screws

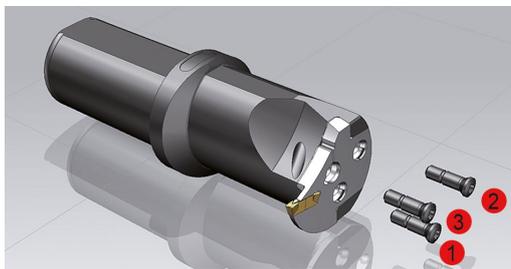
ModularClamp – Tool holder



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

 Tighten screws to the correct Torque moment in this order.

ModularClamp – Boring bar



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

 Tighten screws to the correct Torque moment in this order.

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

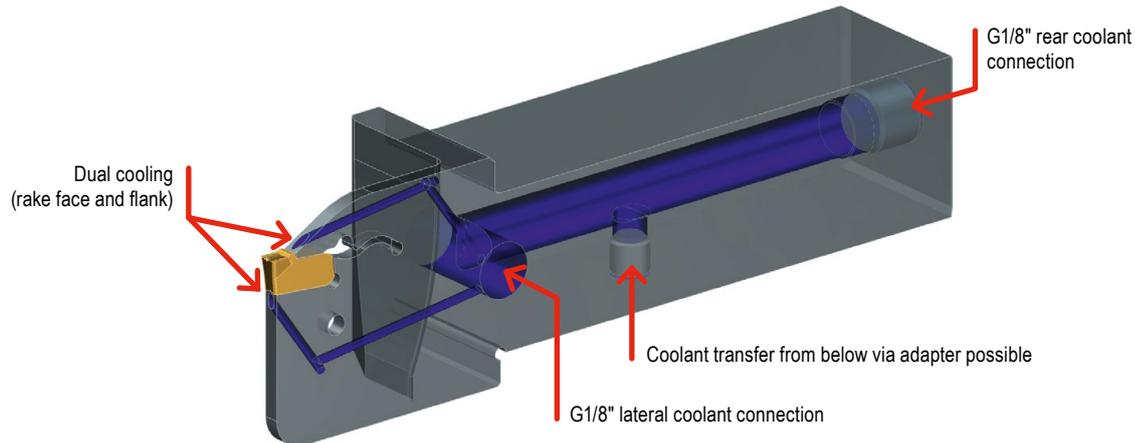
Internal coolant supply with groove machining has a decisively positive effect on your turning process.

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



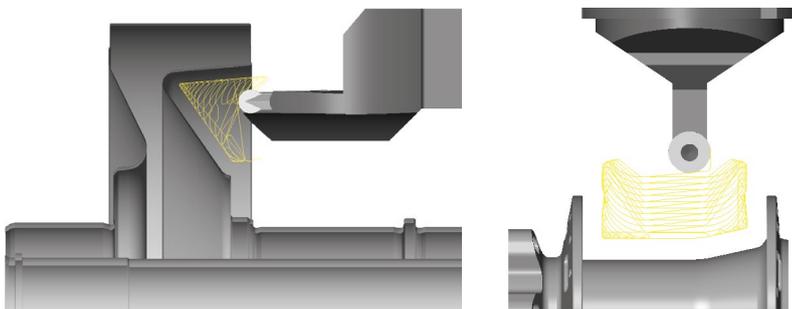
Advantages of the trochoidal turning strategy

- ▲ 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

11

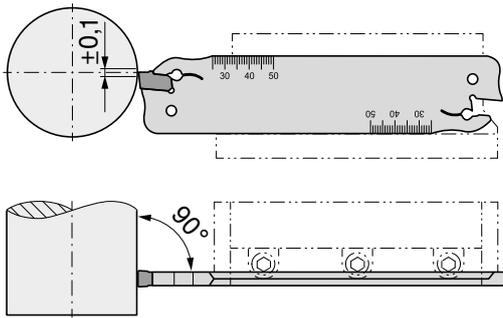


Possible applications

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

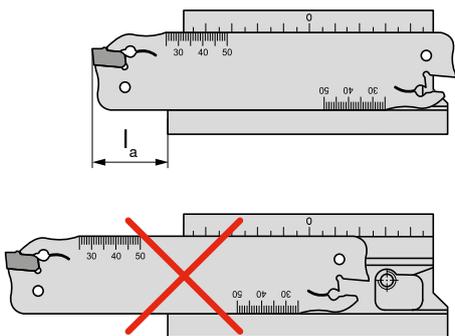
General references

Tool position

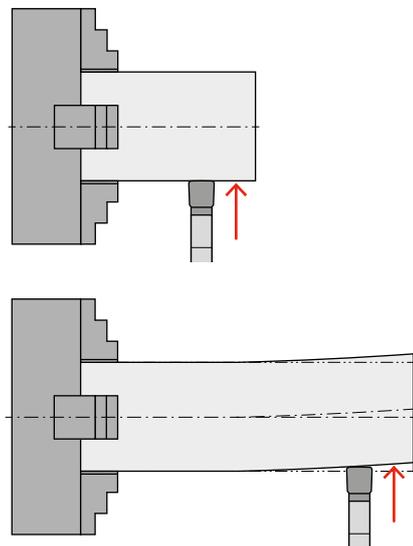


Tool overhang

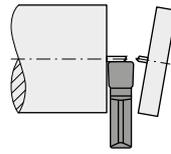
1 As a rule of thumb: Overhang l_a should not be greater than $8 \times CW$ (Groove width).



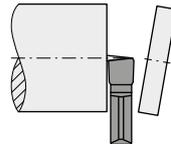
Workpiece overhang



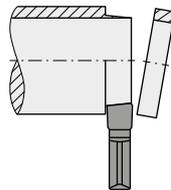
References for Parting off



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

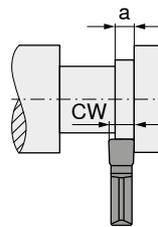


For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

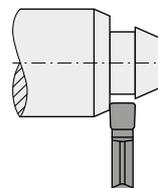


In order to prevent ring formation, use R or L inserts. Reduce feed "f" because of lateral deflection by approx. 20–50 %.

References for grooving



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



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					Cutting data	Insert selection	Remedy measures
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					
↓			↓	↑		↓	↓	↑	↓	Feed rate					
↓		↓	↓		↓	↓	↓			Feed rate at centre	-R ↑ -F ↓ -M ↓				
↑	↓		~	~	↓	↓	↓	↓	↑	Chip groove					
					●					R/L execution					
↑		↑	↑	↓	↓	↓	↑			Corner radius	↑ larger ↓ smaller				
↓		↑	↑							Tool Material	↑ Wear resistance ↓ toughness				
				↓		↑	↑			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

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.

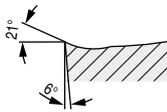
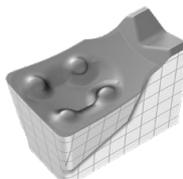
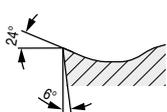
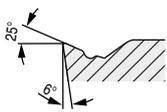
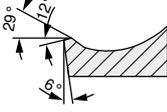
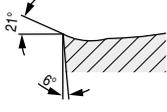
Cause

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

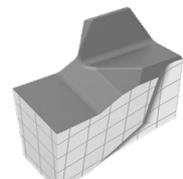
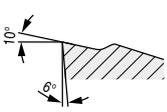
Remedy

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

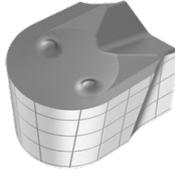
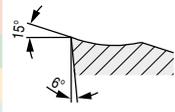
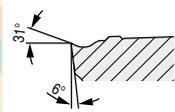
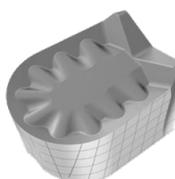
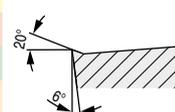
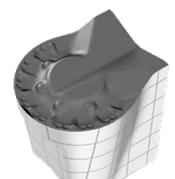
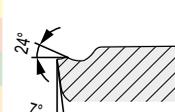
Chip breakers / Applications

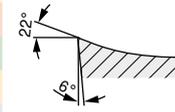
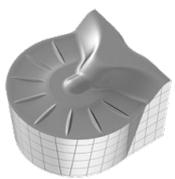
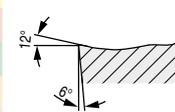
System GX		Smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
						
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		CTCP325	CTP1340	CTPP345		0,05–0,15
		CTP1340	CTP1340/CTPP345	CTPP345		
		CTCP325	CTP1340			
		CTP1340	CTP1340	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-Standard / -E ▲ positive geometry ▲ low-medium feed rates ▲ 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				
		H216T				

Circlip grooving

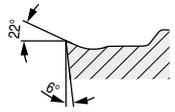
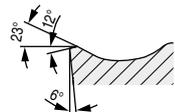
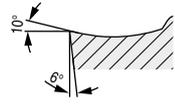
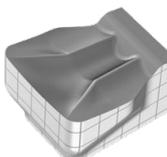
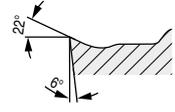
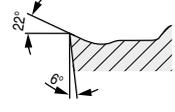
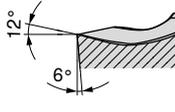
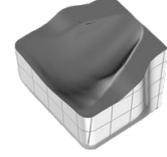
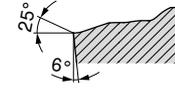
Standard ▲ positive geometry ▲ honed cutting edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		CTP1340	CTP1340	CTP1340		0,05–0,30
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	CTP1340			

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		
		CTCP325				
		CTP1340	CTP1340			
		CTCP325	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				
		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				
		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		

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		
		CTCP325				
		CTP1340	CTP1340	CTP1340		
		CTCP325	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		
		CTCP325				
		CTP1340	CTP1340	CTP1340		
		CTCP325	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			

Example of Coding Grooving Tools

Grooving insert

GX	16	2	E	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm)	Width class of the holder / module or support surface (2 mm)	Type of insert, application	Groove width (3.0 mm)	Insert seat N = Neutral L = Left R = Right	Corner radius size (0.5 mm)

Module

E	25	R	12	GX	16	2
Application E = External I = Internal	Size (25 mm)	Module version R = Right L = Left	Maximum groove depth (12 mm)	Grooving system (GX)	Insert size (16 mm)	Width class 2

Basic holder

E	25	R	00	2525	L
Application E = External I = Internal	Size (25 mm)	Holder version R = Right L = Left	Approach angle 0°	Shank type 25x25mm	Shank length L = (see ISO)

Monobloc tool holder

E	25	R	00	13	S3	2525	X	S	DC	GX16
Application E = External I = Internal	Size (25 mm)	Holder version R = Right L = Left	Approach angle 0°	Groove depth (13 mm)	Groove width (3.0 mm)	Shank type 25x25mm	Shank length X = (see ISO)	Insert clamping S = Key	Cooling system DC = DirectCooling	Grooving system/width (3 mm)

Summary

Grooving insert

GX 16-2 E3.00 N 0.50

Module

E25 R 12- **GX 16-2**

Basic holder

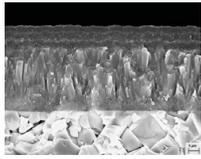
E25 R 00 - 2525L

Monobloc tool holder

E25 R 0013S3-2525X-S-DC- **GX16**

Grade description

CTCP325



ISO | P25 | M20 | K30 | S25



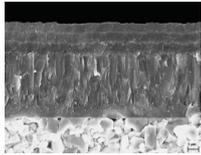
Specifications:

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

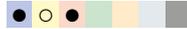
Recommended use:

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

CTCP335



ISO | P35 | M30 | K35



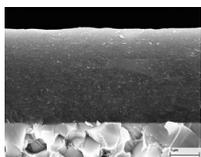
Specifications:

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 | M35 | K30 | N30 | S30 | O30



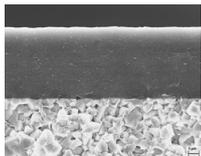
Specifications:

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



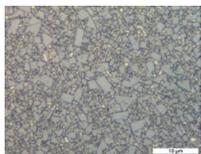
Specifications:

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.

H216T



ISO | K15 | N15 | S15 | O10



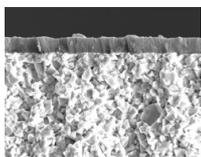
Specification:

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

