Table of contents

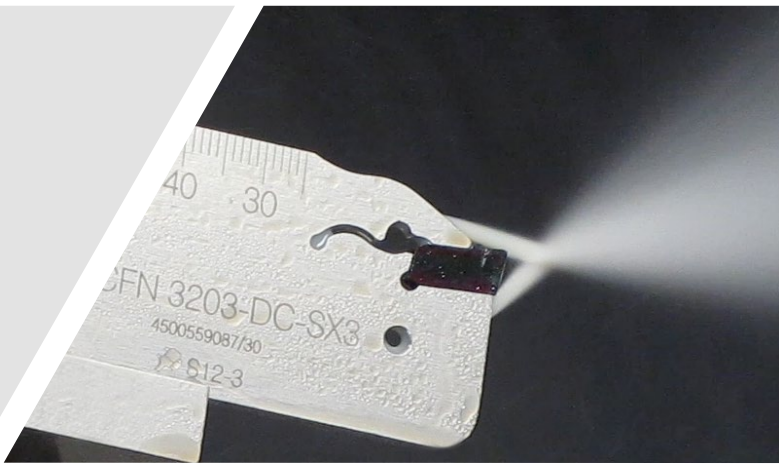
CERATIZIT \ Performance

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 of the DirectCooling blade

- The best machining results, even with reduced pump output
  Highest flow volume of all thru coolant blades on the market
- User friendly
  Reinforced blades without sealing screw
- Process-secure spare part for easy handling and a long service life
  Single-piece sealing screw made from steel (for standard blades)



Symbol explanation

 Grooving

 Turning

 Face turning

 Axial grooving

 Main Application

 Extended application

 Repeatability

F	M	R

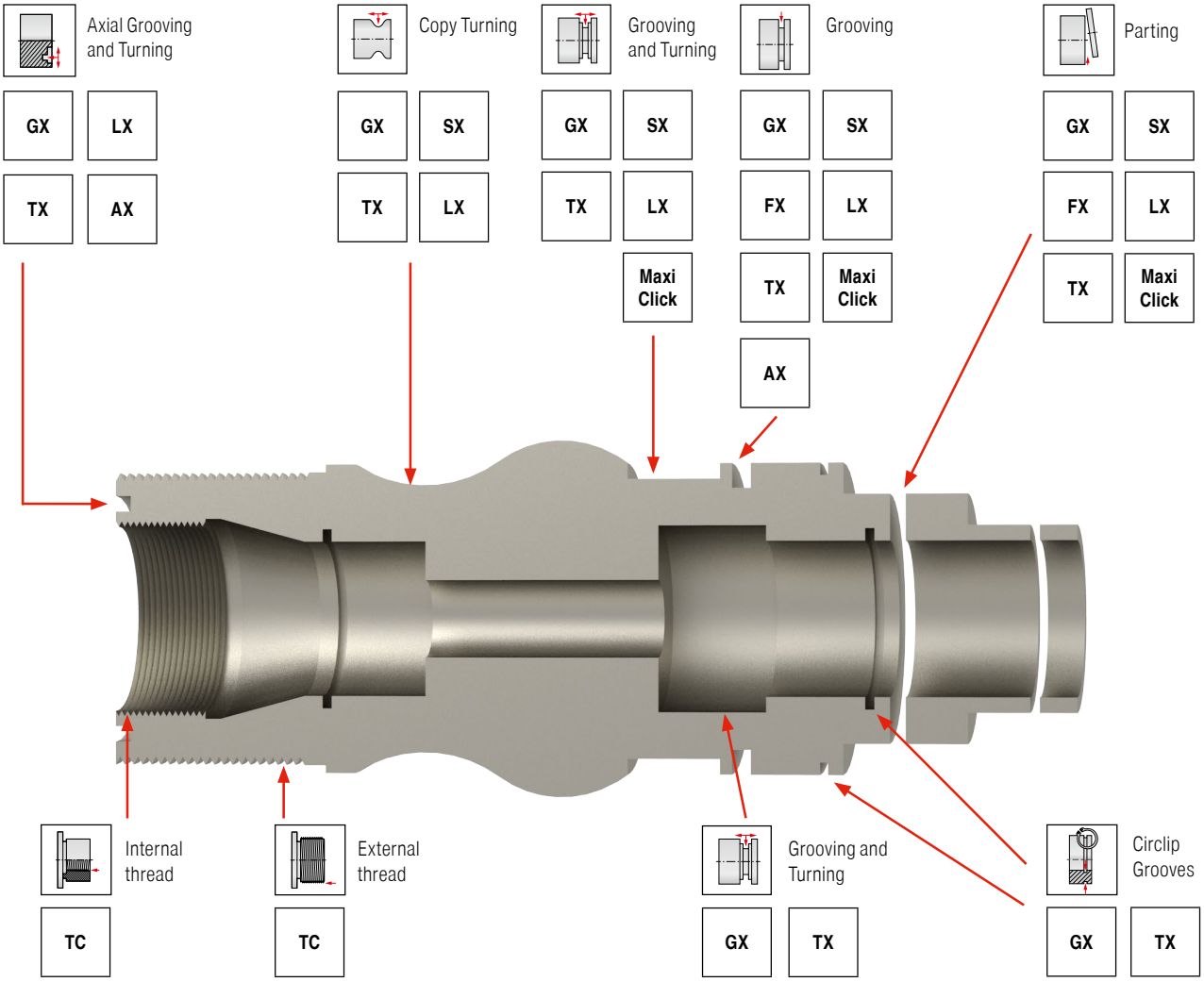
F: Fine Machining
M: Medium Machining
R: Rough Machining

Smooth cut
Irregular cutting depth
Interrupted cut

CTCP325 Carbide Grade

metric Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog

Toolfinder – System Overview

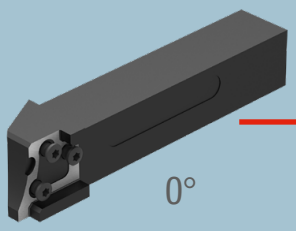


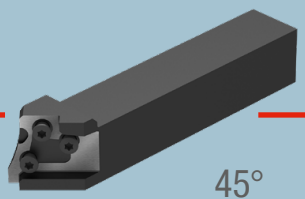
System Description

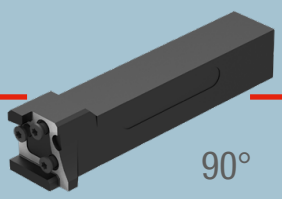
		Page No.
SX	The single edged SX grooving system is even more versatile with the -M3 chip breaker. Besides grooving / parting with the -F2, -M2, or -27P chip breakers, the SX -M3 type also allows copying turning operations with the highest chip control. With this additional option, the SX grooving system can cover all areas of grooving making it a universal grooving tool. Available as a Modular or Mono system.	8
SX-DC	Our tried-and-tested single-edged SX grooving system is now available with targeted DirectCooling (DC) thru coolant supply. The coolant is guided through two coolant holes – one above and one below the grooving insert – straight to the point where it will be most effective: the cutting edge itself.	metric
FX	A single-edged grooving system with a variety of specialized chip geometries. From fine machining in unstable parts through to high-performance machining under stable conditions. Available as a Modular or Mono system.	20–27
GX	Double edged grooving system for grooving, parting off, turning and for producing circlip grooves. Available in sizes GX09, GX16 and GX24. Available as a Modular or Mono system.	28
TX	Three-edged system for parting, grooving, axial grooving, radial grooving, and fine turning. Positive ground cutting geometries, with a very soft cut with minimum cutting forces. Universally applicable for almost all materials. Available as a Monosystem.	metric
LX	Single edged system for extreme applications starting from a cutting width of 0.315 inch. The LX system is for use in stable conditions. Available as a Modular or Mono system	55–58
AX	Double-edged Axial grooving system for grooving and groove turning with high precision. Due to the three different depths (0.1969 inch, 0.3937 inch and 0.5906 inch) stable tools are available for each application.	59
TC	Double-edged thread turning system for the production of external and internal threads. Advantage is the use without pitch angle correction and in narrow or difficult areas of application. Available as a Modular or Mono system.	61
Maxi Click	Five-edged grooving system for grooving and parting	metric

Toolfinder – External Machining

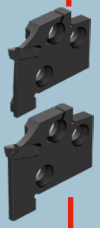
ModularClamp



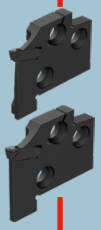




GX 09



GX 16

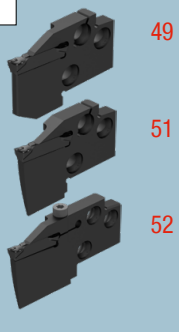


GX 24

Deep Radial Grooving, Parting and Turning

Axial Grooving and Face Turning

Deep Axial Grooving and Face Turning



GX 09

Circlip grooves 33

Cutting width
CW = 0.0197–0.1240 (H13)

Radius grooves

Standard 34

Radius
CRE = 0.0315–0.0472

Grooving and Turning

-F2 28

Standard 29

-M40 30

Cutting width
CW = 0.0787–0.1378

GX 16

Circlip grooves 33

Cutting width
CW = 0.0197–0.2028 (H13)

Radius grooves

Standard 34

-27P 35

Radius
CRE = 0.0315–0.1181

Grooving and Turning

-F2 28

Standard 29

-M40 30

-M1 31

-27P 32

Cutting width
CW = 0.0787–0.2362

GX 24

Radial, axial and deep axial grooving and parting, face turning and turning

-F2 42

-E 43

-M1 44

-M40 45

-27P 47

Cutting width
CW = 0.0787–0.2362

-M3 46

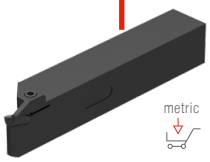
-27P 48

Radius
CRE = 0.0591–0.1575

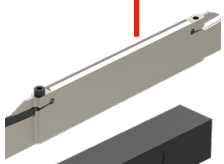
MonoClamp

GX 09

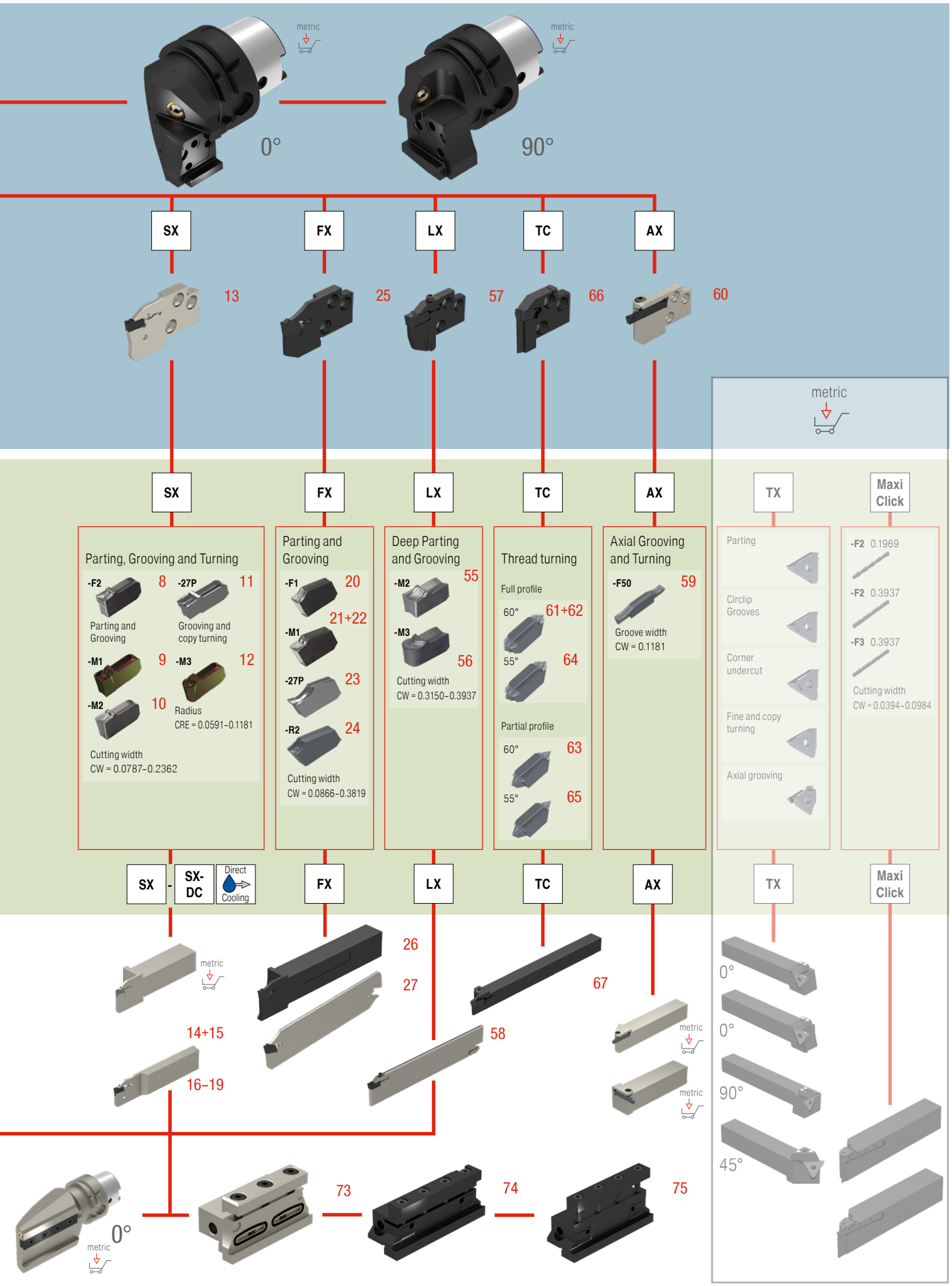
GX 16



GX 24



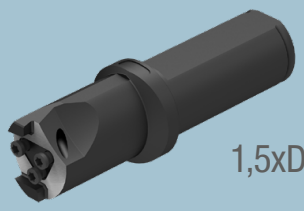
metric Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog


metric
0°
metric
90°
SX
FX
LX
TC
AX
13
25
57
66
60
metric
SX
FX
LX
TC
AX
TX
Maxi Click
Parting, Grooving and Turning
-F2 8
Parting and Grooving
-27P 11
Grooving and copy turning
-M1 9
-M2 10
-M3 12
Radius
CRE = 0.0591–0.1181
Cutting width
CW = 0.0787–0.2362
Parting and Grooving
-F1 20
21+22
-M1
-27P 23
-R2 24
Cutting width
CW = 0.0866–0.3819
Deep Parting and Grooving
-M2 55
-M3 56
Cutting width
CW = 0.3150–0.3937
Thread turning
Full profile
60° 61+62
55° 64
Partial profile
60° 63
55° 65
Axial Grooving and Turning
-F50 59
Groove width
CW = 0.1181
Parting
Circlip Grooves
Corner undercut
Fine and copy turning
Axial grooving
-F2 0.1969
-F2 0.3937
-F3 0.3937
Cutting width
CW = 0.0394–0.0984
SX
SX-DC
Direct Cooling
FX
LX
TC
AX
TX
Maxi Click
metric
14+15
16–19
26
27
58
67
metric
metric
0°
0°
90°
45°
0°
metric
73
74
75

5

Toolfinder – Internal Machining

ModularClamp



72

1,5xD

GX 09

38

39

GX 16

38

39

GX 09

Circlip grooves

33

Cutting width
CW = 0.0197–0.1240 (H13)

Radius grooves

Standard

34

Radius
CRE = 0.0315–0.0472

Grooving and Turning

-F2

28

Standard

29

-M40

30

Cutting width
CW = 0.0787–0.1378

GX 16

Circlip grooves

33

Cutting width
CW = 0.0197–0.2028 (H13)

Radius grooves

Standard

34

-27P

35

Radius
CRE = 0.0315–0.1181

Grooving and Turning

-F2

28

Standard

29

-M40

30

-M1

31

-27P

32

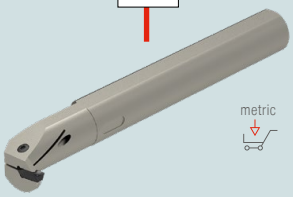
Cutting width
CW = 0.0787–0.2362

MonoClamp

GX 09

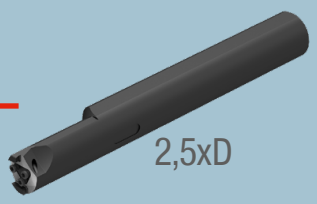
41

GX 16



metric

metric Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog



GX 24

TC

metric

GX 24

Radial, axial and deep axial grooving and parting, face turning and turning

-M1  44

-M40  45

-E  43

-F2  42

-27P  47

Cutting width
CW = 0.0787–0.2362

-M3  46

-27PF  48

Radius
CRE = 0.0591–0.1575

TC

Thread turning

Partial profile 60°  63

Full profile 60°  62

Full profile 55°  64

Partial profile 55°  65

TX

Parting 

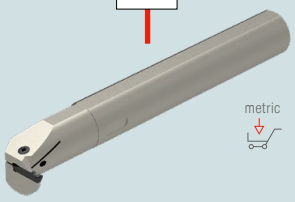
Circlip Grooving Inserts 

For corner relief 

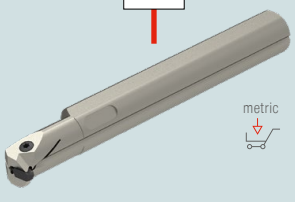
Fine and copy turning 

Axial grooving 

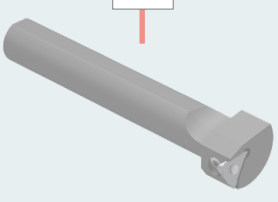
GX 24



TC



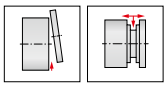
TX



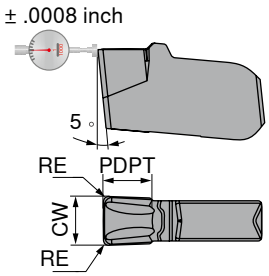
5

Insert SX

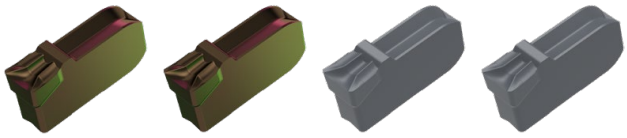
▲ High precision ground geometry



F	M	R



-F2 CTCP325	-F2 CTCP335	-F2 CTPP345	-F2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	CW +/-0,02 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 346 ...		70 346 ...		70 346 ...		70 346 ...	
SX E2.00 N 0.20	0.079	0.008	0.059	-SX2								
SX E3.00 N 0.30	0.118	0.012	0.079	-SX3		**923**		**523**		**823**		**623**
SX E4.00 N 0.40	0.157	0.016	0.098	-SX4						**824**		**624**
P						●		●		●		●
M						○		○		●		●
K						●		●				●
N												○
S						○				○		●
H												
O												○

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→ Application recommendation on page 81

Internal machining | *External machining*

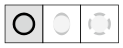
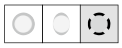
→ 13 | → 14–19

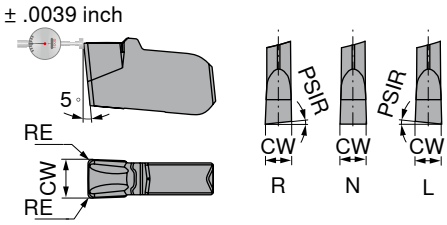
metric

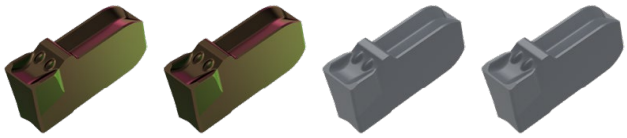
Insert SX

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

F	M	R
		

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





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SX E2.00 L 6	L	0.079	0.008	6°	-SX2								**612**
SX E3.00 L 6	L	0.118	0.008	6°	-SX3	**913**							**613**
SX E4.00 L 6	L	0.157	0.012	6°	-SX4								**614**
SX E2.00 N 0.20	N	0.079	0.008		-SX2	**922**					**822**		**622**
SX E3.00 N 0.20	N	0.118	0.008		-SX3	**923**		**523**			**823**		**623**
SX E4.00 N 0.30	N	0.157	0.012		-SX4	**924**		**524**			**824**		**624**
SX E5.00 N 0.30	N	0.197	0.012		-SX5	**925**					**825**		**625**
SX E6.00 N 0.40	N	0.236	0.016		-SX6	**926**					**826**		**626**
SX E2.00 R 6	R	0.079	0.008	6°	-SX2								**602**
SX E3.00 R 6	R	0.118	0.008	6°	-SX3	**903**							**603**
SX E4.00 R 6	R	0.157	0.012	6°	-SX4								**604**
P						●		●		●		●	
M						○		○		●		●	
K						●		●				●	
N												○	
S						○				○		●	
H													
O												○	

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→ Application recommendation on page 82

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

Internal machining *External machining*

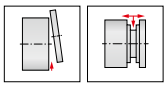
→ 13 → 14–19

metric

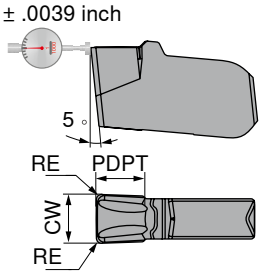
5

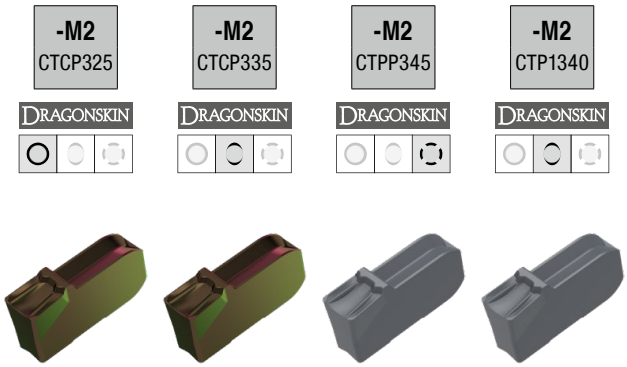
Insert SX

▲ All purpose geometry for parting, grooving & turning.



F	M	R
		





Designation	CW +/-0,05 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 343 ...		70 343 ...		70 343 ...		70 343 ...	
SX E2.00 N 0.20	0.079	0.008	0.059	-SX2	**922**		**522**		**822**		**622**	
SX E3.00 N 0.30	0.118	0.012	0.079	-SX3	**923**		**523**		**823**		**623**	
SX E4.00 N 0.40	0.157	0.016	0.098	-SX4	**924**		**524**		**824**		**624**	
SX E5.00 N 0.40	0.197	0.016	0.106	-SX5	**925**		**525**		**825**		**625**	
SX E6.00 N 0.50	0.236	0.020	0.118	-SX6	**926**		**526**		**826**		**626**	
P					●		●		●		●	
M					○		○		●		●	
K					●		●				●	
N											○	
S					○				○		●	
H												
O											○	

→ v_c Page 77
→ Application recommendation on page 81

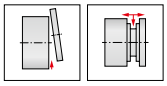
Internal machining | *External machining*

→ 13 | → 14–19

metric

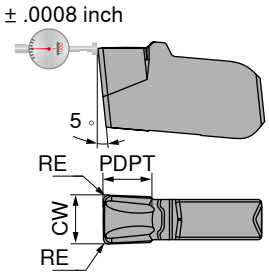
Insert SX

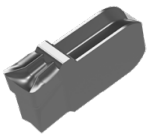
- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
- ▲ Specialist for aluminum and other soft long-chipping non-ferrous metals



F	M	R

-27P
H216T





70 349 ...

Designation	CW +/-0,02 inch	RE +/-0,05 inch	PDPT inch	for tool holder	
SX E2.00 N 0.20	0.079	0.008	0.079	-SX2	**122**
SX E3.00 N 0.30	0.118	0.012	0.098	-SX3	**123**
SX E4.00 N 0.40	0.157	0.016	0.118	-SX4	**124**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 77
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5

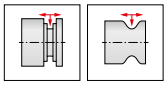
Internal machining | *External machining*

→ 13 | → 14–19

metric

Radius Grooving Insert SX

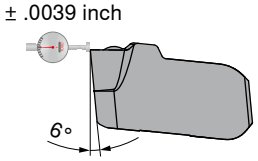
- ▲ for grooving and copy turning
- ▲ very good chip control

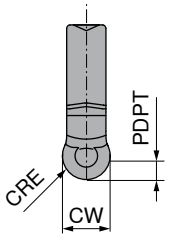


F	M	R
	●	

-M3
CTCP335
DRAGONSKIN

-M3
CTP1340
DRAGONSKIN





Designation	CW +/-0,05 inch	CRE inch	PDPT inch	for tool holder	70 344 ...	70 344 ...
SX R3.00 N 1.50	0.118	0.059	0.059	-SX3	**531**	**631**
SX R4.00 N 2.00	0.157	0.079	0.079	-SX4	**532**	**632**
SX R5.00 N 2.50	0.197	0.098	0.098	-SX5	**533**	**633**
SX R6.00 N 3.00	0.236	0.118	0.118	-SX6		**634**
P					●	●
M					○	●
K					●	●
N						○
S						●
H						
O						○

→ v_c Page 77
→ Application recommendation on page 82

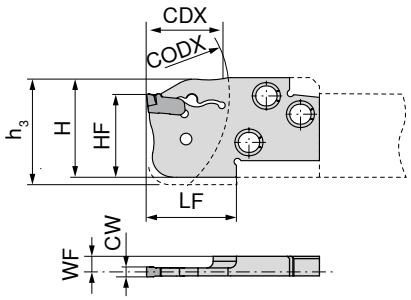
Internal machining | *External machining*

→ 13 → 14–19

metric

ModularClamp MSS – Radial grooving module SX

▲ for parting, grooving and finish turning

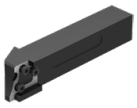


Illustrations show right-hand versions

Designation	HF inch	CW inch	WF inch	LF inch	H inch	h_3 inch	CODX inch	CDX inch	for grooving inserts	Left-hand 70 897 ...	Right-hand 70 896 ...
E20 R/L 20-SX2	0.787	0.079	0.141	0.866	0.945	1.063	2.362	0.787	SX .2..	**020**	**020**
E20 R/L 20-SX3	0.787	0.118	0.126	0.866	0.945	1.063	2.362	0.787	SX .3..	**120**	**120**
E25 R/L 20-SX2	0.984	0.079	0.200	0.866	1.181		2.953	0.787	SX .2..	**025**	**025**
E25 R/L 25-SX3	0.984	0.118	0.185	1.063	1.181		2.953	0.984	SX .3..	**125**	**125**
E25 R/L 35-SX3	0.984	0.118	0.185	1.457	1.181		2.953	1.378	SX .3..	**225**	**225**
E25 R/L 25-SX4	0.984	0.157	0.169	1.063	1.181		2.953	0.984	SX .4..	**325**	**325**
E25 R/L 35-SX4	0.984	0.157	0.169	1.457	1.181		2.953	1.378	SX .4..	**425**	**425**
E32 R/L 35-SX3	1.260	0.118	0.185	1.457	1.496		3.780	1.378	SX .3..	**032**	**032**
E32 R/L 35-SX4	1.260	0.157	0.169	1.457	1.496		3.780	1.378	SX .4..	**132**	**132**

Insert mounting key SX

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

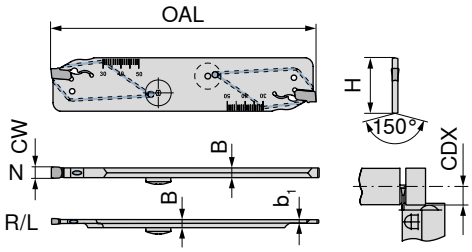

→ 8–12 → 69–71

metric

Please order insert mounting key SX separately if required.

5

MonoClamp – Radial Blade SX-DC Standard



70 884 ...

Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CDX inch	for grooving inserts	R/L/N	
XLCF L 2602-DC-SX2	0.079	1.024	0.094	0.063	4.331	0.984	SX .2..	L	**712**
XLCF L 3202-DC-SX2	0.079	1.260	0.094	0.063	5.906	1.024	SX .2..	L	**702**
XLCF R 2602-DC-SX2	0.079	1.024	0.094	0.063	4.331	0.984	SX .2..	R	**512**
XLCF R 3202-DC-SX2	0.079	1.260	0.094	0.063	5.906	1.024	SX .2..	R	**502**
XLCF N 2603-DC-SX3	0.118	1.024	0.098		4.331	1.378	SX .3..	N	**613**
XLCF N 3203-DC-SX3	0.118	1.260	0.098		5.906	1.969	SX .3..	N	**603**
XLCF N 2604-DC-SX4	0.157	1.024	0.130		4.331	1.575	SX .4..	N	**614**
XLCF N 3204-DC-SX4	0.157	1.260	0.130		5.906	1.969	SX .4..	N	**604**
XLCF N 3205-DC-SX5	0.197	1.260	0.169		5.906	2.165	SX .5..	N	**605**
XLCF N 3206-DC-SX6	0.236	1.260	0.205		5.906	2.362	SX .6..	N	**606**

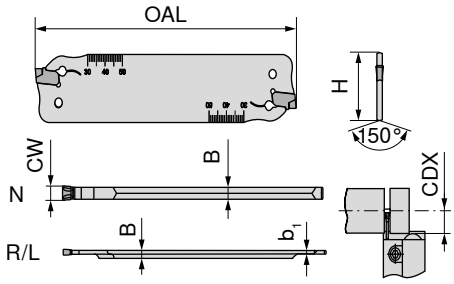
		Screwdriver		Insert mounting key SX		Sealing screw	
		80 950 ...		**70 950 ...**		**70 950 ...**	
Spare parts for grooving inserts							
SX .2..	T15 - IP		**128**	SX 2-3	**836**	M4 x 3	**450**
SX .3..	T15 - IP		**128**	SX 2-3	**836**	M4 x 3	**450**
SX .4..	T15 - IP		**128**	SX 4-6	**837**	M4 x 3	**450**
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**

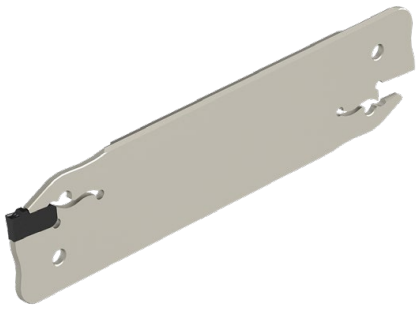



→ 8–12
→ 73
metric
metric

Please order insert mounting key SX separately if required.

MonoClamp – Radial Blade SX Standard





Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CDX inch	for grooving inserts	R/L/N	70 884 ...
XLCF L 2602-SX2	0.079	1.024	0.094	0.059	4.331	0.984	SX .2..	L	**212**
XLCF L 3202-SX2	0.079	1.260	0.094	0.059	5.906	0.984	SX .2..	L	**202**
XLCF R 2602-SX2	0.079	1.024	0.094	0.059	4.331	0.984	SX .2..	R	**012**
XLCF R 3202-SX2	0.079	1.260	0.094	0.059	5.906	0.984	SX .2..	R	**002**
XLCF N 2603-SX3	0.118	1.024	0.094		4.331	1.378	SX .3..	N	**113**
XLCF N 3203-SX3	0.118	1.260	0.094		5.906	1.969	SX .3..	N	**103**
XCLF N 2604-SX4	0.157	1.024	0.126		4.331	1.575	SX .4..	N	**114**
XLCF N 3204-SX4	0.157	1.260	0.126		5.906	1.969	SX .4..	N	**104**
XLCF N 3205-SX5	0.197	1.260	0.165		5.906	2.165	SX .5..	N	**105**
XLCF N 3206-SX6	0.236	1.260	0.205		5.906	2.362	SX .6..	N	**106**

Insert mounting key SX

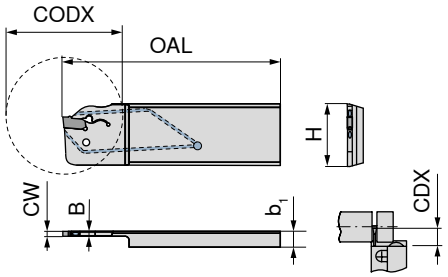
Spare parts for grooving inserts	70 950 ...
SX .2..	SX 2-3 **836**
SX .3..	SX 2-3 **836**
SX .4..	SX 4-6 **837**
SX .5..	SX 4-6 **837**
SX .6..	SX 4-6 **837**

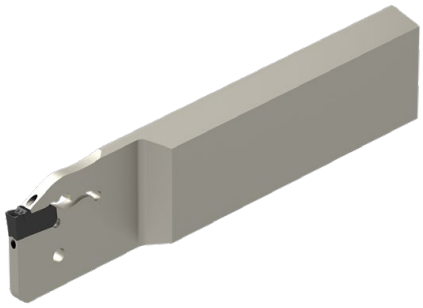



→ 8–12
→ 74+75
metric
metric

Please order insert mounting key SX separately if required.

MonoClamp – Radial Blade SX-DC reinforced





Illustrations show right-hand versions

Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CODX inch	CDX inch	for grooving inserts	R/L/N	70 879 ...
XLCF L 2608-DC-SX3	0.118	1.024	0.098	0.315	4.331	2.598	1.299	SX .3..	L	**713**
XLCF L 3208-DC-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	L	**703**
XLCF R 2608-DC-SX3	0.118	1.024	0.098	0.315	4.331	2.598	1.299	SX .3..	R	**513**
XLCF R 3208-DC-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	R	**503**

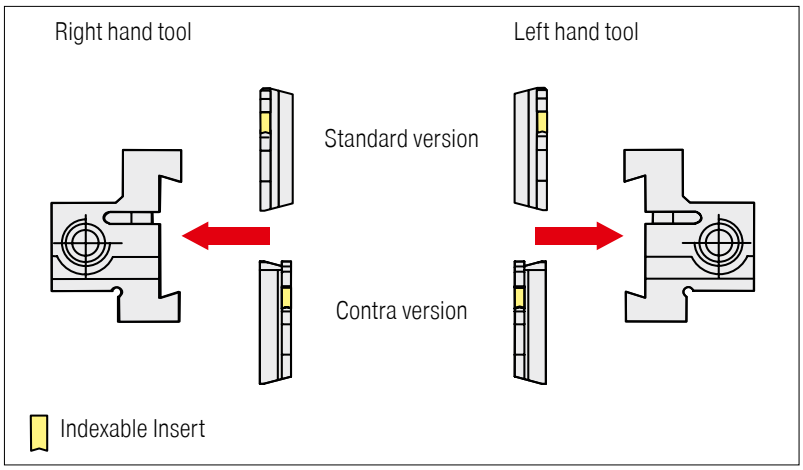
Insert mounting key SX

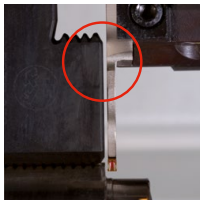
Spare parts for grooving inserts		70 950 ...
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**




→ 8–12 → 73
metric metric

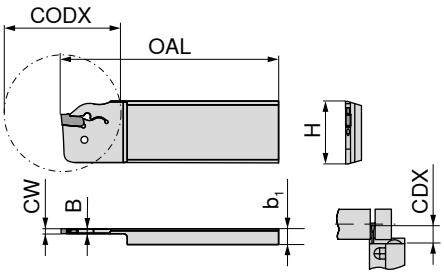
Correct Tool Selection

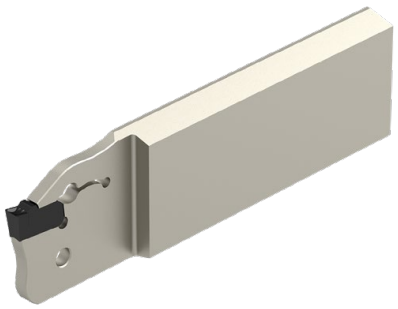




Please order insert mounting key SX separately if required.

MonoClamp – Radial Blade SX reinforced





Illustrations show right-hand versions

Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CODX inch	CDX inch	for grooving inserts	R/L/N	70 879 ...
XLCF L 2608-SX2	0.079	1.024	0.059	0.315	4.331	1.732	0.866	SX .2..	L	**212** 1)
XLCF L 2608-SX3	0.118	1.024	0.098	0.315	4.331	1.732	0.866	SX .3..	L	**213** 1)
XLCF L 3208-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	L	**203**
XLCF L 3208-SX4	0.157	1.260	0.134	0.315	4.331	2.598	1.299	SX .4..	L	**204**
XLCF R 2608-SX2	0.079	1.024	0.059	0.315	4.331	1.732	0.866	SX .2..	R	**012** 1)
XLCF R 2608-SX3	0.118	1.024	0.098	0.315	4.331	1.732	0.866	SX .3..	R	**013** 1)
XLCF R 3208-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	R	**003**
XLCF R 3208-SX4	0.157	1.260	0.134	0.315	4.331	2.598	1.299	SX .4..	R	**004**

1) can be used in both directions

Insert mounting key SX

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

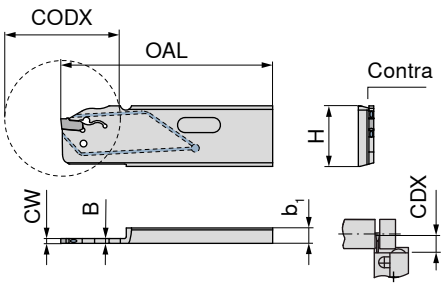


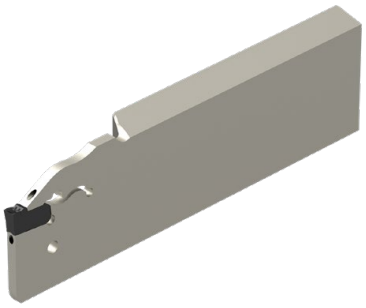

→ 8–12
→ 74+75
metric
metric

Please order insert mounting key SX separately if required.

5

MonoClamp – SX-DC reinforced Contra radial blade





Illustrations show right-hand versions

Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CODX inch	CDX inch	for grooving inserts	R/L/N	70 877 ...
XLCF L 3208C-DC-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	L	**703**
XLCF R 3208C-DC-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	R	**503**

Insert mounting key SX

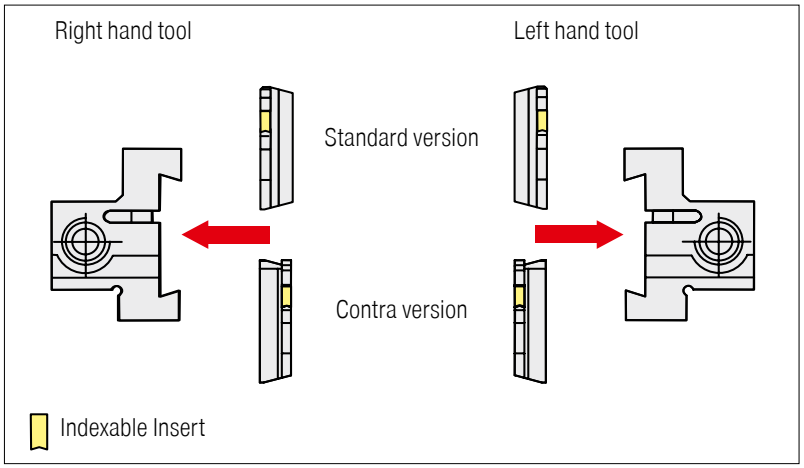
70 950 ...

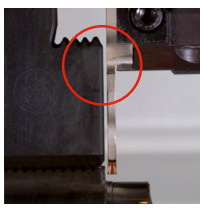
Spare parts for grooving inserts		
SX .3..	SX 2-3	**836**

→ 8–12 → 73

metric metric

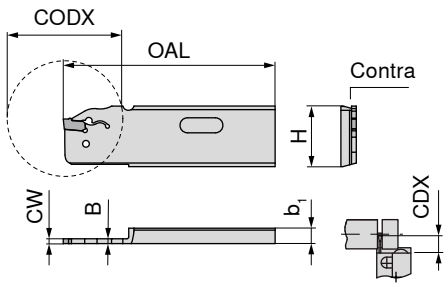
Correct Tool Selection

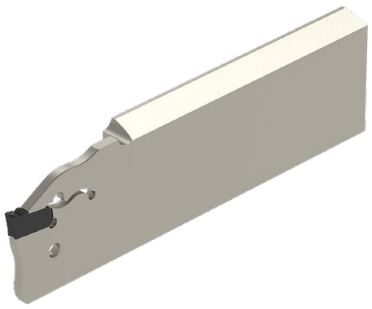




Please order insert mounting key SX separately if required.

MonoClamp – SX reinforced Contra radial blade





Illustrations show right-hand versions

Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CODX inch	CDX inch	for grooving inserts	R/L/N	70 877 ...
XLCF L 3208C-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	L	**203**
XLCF R 3208C-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	R	**003**

Insert mounting key SX

Spare parts for grooving inserts		70 950 ...
SX .3..	SX 2-3	**836**



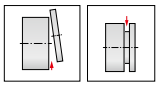

→ 8–12	→ 74+75	metric	metric					

Please order insert mounting key SX separately if required.

5

Insert FX

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

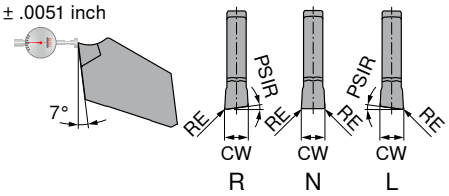


F	M	R

-F1 CTCP325 DRAGONSKIN

-F1 CTPP345 DRAGONSKIN

-F1 CTP1340 DRAGONSKIN



Designation	IH inch	CW -0.1 inch	RE +/-0,05 inch	PSIR	for tool holder	70 331 ...		70 331 ...		70 331 ...	
FX 2.2 L 5-F1	L	0.087	0.006	5°	-FX 2.2			**847**		**647**	
FX 3.1 L 5-F1	L	0.122	0.008	5°	-FX 3.1			**851**		**651**	
FX 3.1 L 8-F1	L	0.122	0.008	8°	-FX 3.1			**855**			
FX 2.2 N 0.15-F1	N	0.087	0.006		-FX 2.2	**998**		**848**		**648**	
FX 3.1 N 0.40-F1	N	0.122	0.016		-FX 3.1	**906**		**856**		**656**	
FX 3.1 N 0.20-F1	N	0.122	0.008		-FX 3.1	**902**		**852**		**652**	
FX 4.1 N 0.20-F1	N	0.161	0.008		-FX 4.1			**860**		**660**	
FX 4.1 N 0.50-F1	N	0.161	0.020		-FX 4.1			**864**			
FX 2.2 R 5-F1	R	0.087	0.006	5°	-FX 2.2			**849**		**649**	
FX 3.1 R 5-F1	R	0.122	0.008	5°	-FX 3.1			**853**		**653**	
FX 3.1 R 8-F1	R	0.122	0.008	8°	-FX 3.1			**857**			
P						●		●		●	
M						○		●		●	
K						●				●	
N										○	
S						○		○		●	
H											
O										○	

→ v_c Page 77
→ Application recommendation on page 83

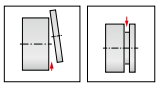
Note: reduce feed rate by 20–50 % with R/L version!

Internal machining *External machining*

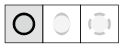
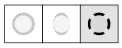
→ 25 → 27 → 26

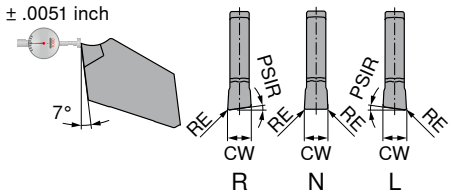
Insert FX

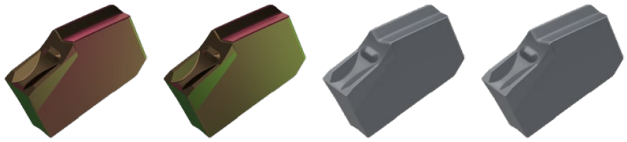
▲ narrow version



F	M	R
		

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





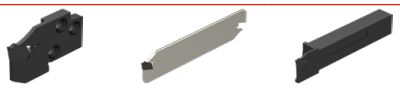
Designation	IH inch	CW -0.1 inch	RE +/-0.05 inch	PSIR	for tool holder	70 330 ...		70 330 ...		70 330 ...		70 330 ...	
FX 2.2 L 4-M1	L	0.087	0.004	4°	-FX 2.2				550		800		600
FX 2.2 N 0.10-M1	N	0.087	0.004		-FX 2.2		902		552		802		602
FX 2.2 R 4-M1	R	0.087	0.004	4°	-FX 2.2				554		804		604
P							●		●		●		●
M							○		○		●		●
K							●		●				●
N													○
S							○				○		●
H													
O													○

→ v_c Page 77
→ Application recommendation on page 83

5

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

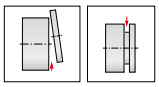
Internal machining *External machining*



→ 25 → 27 → 26

Insert FX

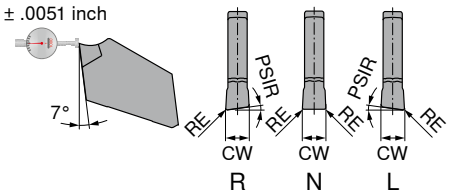
▲ wide version

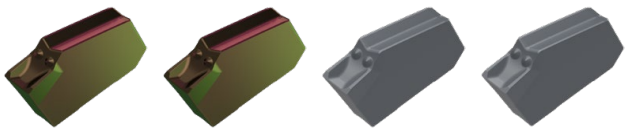


F	M	R

-M1 CTCP325 | -M1 CTCP335 | -M1 CTPP345 | -M1 CTP1340

DRAGONSKIN





Designation	IH inch	CW +/-0,05 inch	RE +/-0,05 inch	PSIR	for tool holder	70 332 ...		70 332 ...		70 332 ...		70 332 ...	
FX 3.1 L 6-M1	L	0.122	0.006	6°	-FX 3.1	**900**		**550**		**800**		**600**	
FX 4.1 L 6-M1	L	0.161	0.008	6°	-FX 4.1			**556**		**806**		**606**	
FX 3.1 N 0.15-M1	N	0.122	0.006		-FX 3.1	**902**		**552**		**802**		**602**	
FX 4.1 N 0.20-M1	N	0.161	0.008		-FX 4.1	**908**		**558**		**808**		**608**	
FX 5.1 N 0.25-M1	N	0.201	0.010		-FX 5.1	**914**		**564**		**814**		**614**	
FX 6.5 N 0.30-M1	N	0.256	0.012		-FX 6.5	**920**		**570**				**620**	
FX 8.2 N 0.40-M1	N	0.323	0.016		XLCEN 4608	**924**		**574**				**624**	
FX 9.7 N 0.40-M1	N	0.382	0.016		XLCEN 4609	**926**		**576**				**626**	
FX 3.1 R 6-M1	R	0.122	0.006	6°	-FX 3.1	**904**		**554**		**804**		**604**	
FX 4.1 R 6-M1	R	0.161	0.008	6°	-FX 4.1			**560**		**810**		**610**	
FX 5.1 R 6-M1	R	0.201	0.010	6°	-FX 5.1					**816**			
P						●		●		●		●	
M						○		○		●		●	
K						●		●				●	
N												○	
S						○				○		●	
H													
O												○	

→ v_c Page 77
→ Application recommendation on page 83

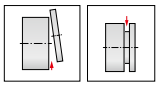
Note: reduce feed rate by 20–50 % with R/L version!

Internal machining | *External machining*

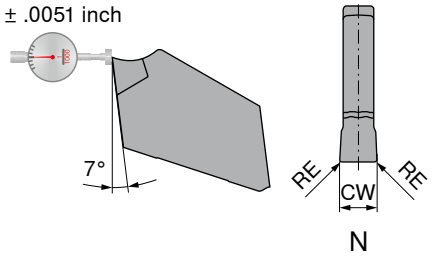
→ 25 | → 27 | → 26

Insert FX

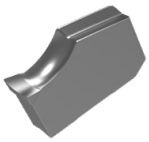
- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
- ▲ Reduced built-up edge



F	M	R
		



-27P
H216T



70 334 ...

Designation	IH inch	CW $_{-0,1}$ inch	RE $_{+/-0,05}$ inch	for tool holder	
FX 2.2 N 0.10	N	0.087	0.004	-FX 2.2	**650**
FX 3.1 N 0.15	N	0.122	0.006	-FX 3.1	**652**
FX 4.1 N 0.15	N	0.161	0.006	-FX 4.1	**654**

P	
M	
K	●
N	●
S	○
H	
O	○

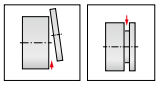
→ v_c Page 77
→ Application recommendation on page 83

5

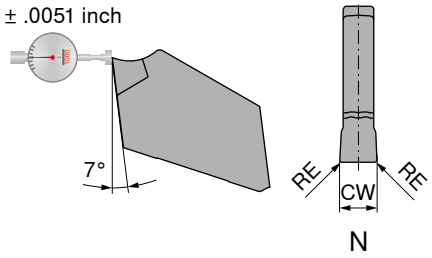
Internal machining		*External machining*						
								
		→ 25	→ 27	→ 26				

Insert FX

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



F	M	R
		



-R2 CTCP325	-R2 CTPP345	-R2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	IH inch	CW -0.1 inch	RE +/-0,05 inch	for tool holder	70 335 ...		70 335 ...		70 335 ...	
FX 3.1 N 0.40-R2	N	0.122	0.016	-FX 3.1	**902**		**852**		**652**	
FX 4.1 N 0.50-R2	N	0.161	0.020	-FX 4.1	**908**		**858**		**658**	
P					●		●		●	
M					○		●		●	
K					●				●	
N									○	
S					○		○		●	
H										
O									○	

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→ Application recommendation on page 83

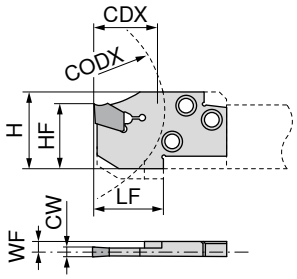
Internal machining *External machining*



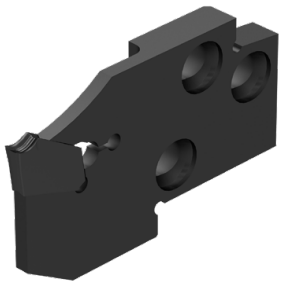
→ 25 → 27 → 26

ModularClamp MSS – Radial grooving module FX short/long

▲ For parting and grooving



Illustrations show right-hand versions

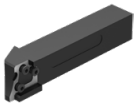


Designation	HF inch	CW inch	WF inch	LF inch	H inch	CODX inch	CDX inch	for grooving inserts	Left-hand 70 876 ...	Right-hand 70 875 ...
E20 R/L 20-FX 2.2	0.906	0.087	0.141	0.866	1.063	2.362	0.787	FX 2.2 ..	020	020
E20 R/L 20-FX 3.1	0.906	0.122	0.126	0.866	1.063	2.362	0.787	FX 3.1 ..	120	120
E20 R/L 20-FX 4.1	0.906	0.161	0.110	0.866	1.063	2.362	0.787	FX 4.1 ..	220	220
E25 R/L 20-FX 2.2	0.984	0.087	0.200	0.866	1.181	2.953	0.787	FX 2.2 ..	025	025
E25 R/L 25-FX 3.1	0.984	0.122	0.185	1.063	1.181	2.953	0.984	FX 3.1 ..	125	125
E25 R/L 25-FX 4.1	0.984	0.161	0.169	1.063	1.181	2.953	0.984	FX 4.1 ..	225	225
E25 R/L 25-FX 5.1	0.984	0.201	0.154	1.063	1.181	2.953	0.984	FX 5.1 ..	325	325
E25 R/L 25-FX 6.5	0.984	0.256	0.130	1.063	1.181	2.953	0.984	FX 6.5 ..	425	425
E25 R/L 35-FX 3.1	0.984	0.122	0.185	1.457	1.181	2.953	1.378	FX 3.1 ..	525	525
E25 R/L 35-FX 4.1	0.984	0.161	0.169	1.457	1.181	2.953	1.378	FX 4.1 ..	625	625
E25 R/L 35-FX 5.1	0.984	0.201	0.154	1.457	1.181	2.953	1.378	FX 5.1 ..	725	725
E25 R/L 35-FX 6.5	0.984	0.256	0.130	1.457	1.181	2.953	1.378	FX 6.5 ..	825	825
E32 R/L 32-FX 3.1	1.260	0.122	0.185	1.339	1.496	3.780	1.260	FX 3.1 ..	032	032
E32 R/L 32-FX 4.1	1.260	0.161	0.169	1.339	1.496	3.780	1.260	FX 4.1 ..	132	132
E32 R/L 32-FX 5.1	1.260	0.201	0.154	1.339	1.496	3.780	1.260	FX 5.1 ..	232	232
E32 R/L 32-FX 6.5	1.260	0.256	0.130	1.339	1.496	3.780	1.260	FX 6.5 ..	332	332
E32 R/L 45-FX 3.1	1.260	0.122	0.185	1.850	1.496	3.780	1.772	FX 3.1 ..	432	432
E32 R/L 45-FX 4.1	1.260	0.161	0.169	1.850	1.496	3.780	1.772	FX 4.1 ..	532	532
E32 R/L 45-FX 5.1	1.260	0.201	0.154	1.850	1.496	3.780	1.772	FX 5.1 ..	632	632
E32 R/L 45-FX 6.5	1.260	0.256	0.130	1.850	1.496	3.780	1.772	FX 6.5 ..	732	732

Insert mounting key

70 950 ...

Spare parts for grooving inserts	
FX 2.2 ..	**375**
FX 3.1 ..	**376**
FX 4.1 ..	**376**
FX 5.1 ..	**376**
FX 6.5 ..	**376**


→ 20–24 → 69–71

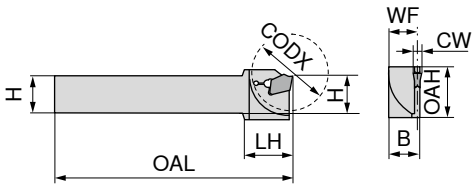
metric

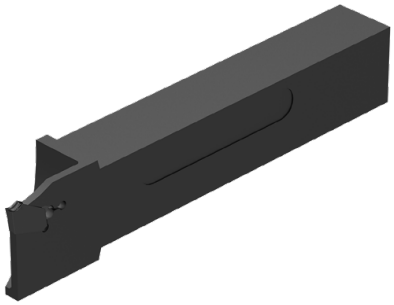
5

MonoClamp – Radial Monoholder FX

Scope of supply:

Blade and insert mounting key





Illustrations show right-hand versions

Designation	H inch	B inch	OAL inch	LH inch	OAH inch	CW inch	WF inch	CODX inch	for grooving inserts	Left-hand 78 837 ...	Right-hand 78 836 ...
XLCE R/L 06 M22 FX-E	0.375	0.375	6.000	0.709	0.498	0.087	0.343	1.181	FX 2.2 ..	**37500**	**37500**
XLCE R/L 08 F22 FX-E	0.500	0.500	3.000	0.709	0.623	0.087	0.497	1.181	FX 2.2 ..	**50000**	**50000**
XLCE R/L 08 M22 FX-E	0.500	0.500	6.000	0.709	0.623	0.087	0.497	1.181	FX 2.2 ..	**50100**	**50100**
XLCE R/L 09 M22 FX-E	0.563	0.563	6.000	0.709	0.686	0.087	0.530	1.181	FX 2.2 ..	**56300**	**56300**
XLCE R/L 10 H22 FX-E	0.625	0.625	4.000	0.709	0.748	0.087	0.593	1.181	FX 2.2 ..	**62500**	**62500**
XLCF R/L 10 H31 FX-E	0.625	0.625	4.000	0.827	0.748	0.122	0.578	1.378	FX 3.1 ..	**62600**	**62600**
XLCF R/L 12 K31 FX-E	0.750	0.750	5.000	0.984	0.906	0.122	0.703	1.575	FX 3.1 ..	**75100**	**75100**
XLCF R/L 64 M31 FX-E	1.000	0.750	6.000	1.220	1.118	0.122	0.703	1.969	FX 3.1 ..	**00100**	**00100**
XLCF R/L 12 K41 FX-E	0.750	0.750	5.000	0.984	0.906	0.161	0.687	1.575	FX 4.1 ..	**75000**	**75000**
XLCF R/L 64 M41 FX-E	1.000	0.750	6.000	1.220	1.118	0.161	0.687	1.969	FX 4.1 ..	**00000**	**00000**

Insert mounting key

70 950 ...

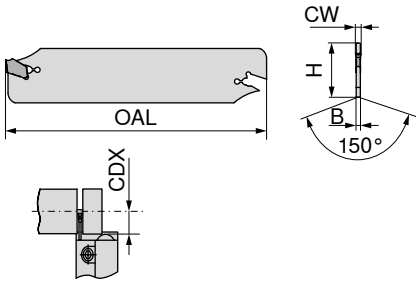
Spare parts for grooving inserts	
FX 2.2 ..	**375**
FX 3.1 ..	**376**
FX 4.1 ..	**376**

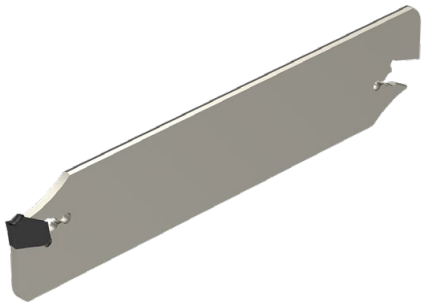
→ 20–24

MonoClamp – Radial Blade FX

Scope of supply:

Blade and insert mounting key





70 832 ...

Designation	H inch	B inch	OAL inch	CW inch	CDX inch	for grooving inserts	
XLCEN 2602 J 22 FX	1.024	0.065	4.331	0.087	0.984	FX 2.2 ..	**101**
XLCFN 2603 J 31 FX	1.024	0.094	4.331	0.122	1.378	FX 3.1 ..	**102**
XLCFN 2604 J 41 FX	1.024	0.126	4.331	0.161	1.575	FX 4.1 ..	**103**
XLCEN 3202 M 22 FX	1.260	0.065	5.906	0.087	1.181	FX 2.2 ..	**004**
XLCFN 3203 M 31 FX	1.260	0.094	5.906	0.122	1.969	FX 3.1 ..	**104**
XLCFN 3204 M 41 FX	1.260	0.126	5.906	0.161	1.969	FX 4.1 ..	**105**
XLCFN 3205 M 51 FX	1.260	0.157	5.906	0.201	2.165	FX 5.1 ..	**106**
XLCFN 3206 M 65 FX	1.260	0.205	5.906	0.256	2.165	FX 6.5 ..	**107**
XLCEN 4608 S 82 FX	1.811	0.268	9.843	0.323	3.150	FX 8.2 ..	**108**
XLCEN 4609 S 97 FX	1.811	0.315	9.843	0.382	3.150	FX 9.7 ..	**109**

Insert mounting key

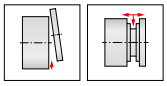
70 950 ...

Spare parts for grooving inserts	
FX 2.2 ..	**375**
FX 3.1 ..	**376**
FX 4.1 ..	**376**
FX 5.1 ..	**376**
FX 6.5 ..	**376**
FX 8.2 ..	**377**
FX 9.7 ..	**377**

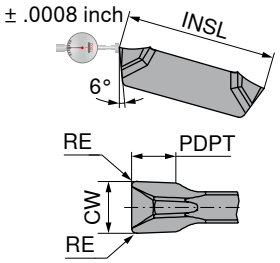
→ 20–24
→ 74+75

Insert GX 09/16

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



F	M	R



-F2
CTP1340

DRAGONSKIN

70 360 ...

Designation	INSL inch	CW +/-0,02 inch	RE +/-0,05 inch	PDPT inch	for tool holder	
GX 09-1 E2.00 N 0.20	0.354	0.079	0.008	0.059	GX 09-1	**600**
GX 09-1 E2.50 N 0.20	0.354	0.098	0.008	0.059	GX 09-1	**602**
GX 09-2 E3.00 N 0.30	0.354	0.118	0.012	0.079	GX 09-2	**604**
GX 16-1 E2.00 N 0.20	0.630	0.079	0.008	0.098	GX 16-1	**650**
GX 16-2 E3.00 N 0.30	0.630	0.118	0.012	0.118	GX 16-2	**652**
GX 16-3 E4.00 N 0.40	0.630	0.157	0.016	0.138	GX 16-3	**654**
GX 16-3 E5.00 N 0.40	0.630	0.197	0.016	0.138	GX 16-3	**656**

P	●
M	●
K	●
N	○
S	●
H	
O	○

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→ Application recommendation on page 78

Internal machining

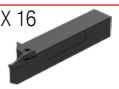

GX 09

GX 16


→ 38+39
→ 41
metric

External machining


GX 09

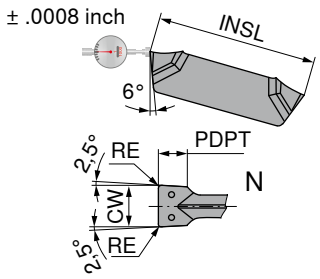
GX 16


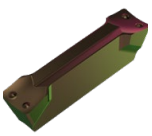
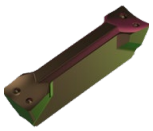
→ 36+37
→ 40
metric

Insert GX 09/16 – Standard

▲ Suitable for parting thin-walled workpieces

F	M	R
		



CTCP325	CTCP335	CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL inch	CW +/-0,02 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 350 ...		70 350 ...		70 350 ...	
GX 09-1 E2.00 N 0.20	0.354	0.079	0.008	0.059	GX 09-1	**984**				**634**	
GX 09-1 E2.50 N 0.20	0.354	0.098	0.008	0.059	GX 09-1	**988**				**638**	
GX 09-2 E3.00 N 0.30	0.354	0.118	0.012	0.079	GX 09-2	**992**				**642**	
GX 16-1 E2.00 N 0.20	0.630	0.079	0.008	0.098	GX 16-1	**900**		**500**		**600**	
GX 16-1 E2.50 N 0.20	0.630	0.098	0.008	0.098	GX 16-1	**904**		**504**		**604**	
GX 16-2 E3.00 N 0.30	0.630	0.118	0.012	0.118	GX 16-2	**908**		**508**		**608**	
GX 16-2 E3.00 N 0.50	0.630	0.118	0.020	0.118	GX 16-2	**910**					
GX 16-2 E3.50 N 0.30	0.630	0.138	0.012	0.118	GX 16-2	**912**		**512**		**612**	
GX 16-3 E4.00 N 0.60	0.630	0.157	0.024	0.138	GX 16-3	**918**					
GX 16-3 E4.00 N 0.40	0.630	0.157	0.016	0.138	GX 16-3	**916**		**516**		**616**	
GX 16-3 E5.00 N 0.40	0.630	0.197	0.016	0.138	GX 16-3	**924**		**524**		**624**	
GX 16-4 E6.00 N 0.50	0.630	0.236	0.020	0.157	GX 16-4	**928**				**628**	
GX 16-4 E6.00 N 0.80	0.630	0.236	0.031	0.157	GX 16-4	**930**					
P						●		●		●	
M						○		○		●	
K						●		●		●	
N										○	
S						○				●	
H											
O										○	

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Internal machining


GX 09

GX 16


→ 38+39 | → 41
metric

External machining


GX 09

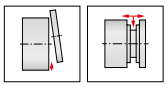
GX 16


→ 36+37 | → 40
metric

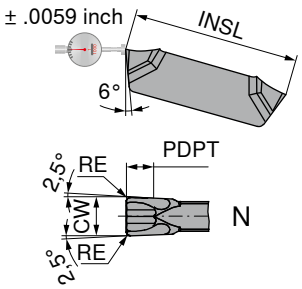
5

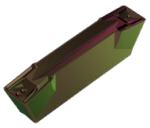
Insert GX 09/16

▲ Very good chip control



F	M	R
		



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL inch	CW +/-0,05 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 351 ...		70 351 ...		70 351 ...	
GX 09-1 E2.00 N 0.20	0.354	0.079	0.008	0.059	GX 09-1	**986**		**886**		**686**	
GX 09-2 E3.00 N 0.30	0.354	0.118	0.012	0.079	GX 09-2	**994**		**894**		**694**	
GX 16-1 E2.00 N 0.20	0.630	0.079	0.008	0.098	GX 16-1	**902**		**802**		**602**	
GX 16-2 E3.00 N 0.30	0.630	0.118	0.012	0.118	GX 16-2	**910**		**810**		**610**	
GX 16-3 E4.00 N 0.40	0.630	0.157	0.016	0.138	GX 16-3	**918**		**818**		**618**	
GX 16-3 E5.00 N 0.40	0.630	0.197	0.016	0.138	GX 16-3	**926**		**826**		**626**	
GX 16-4 E6.00 N 0.50	0.630	0.236	0.020	0.157	GX 16-4	**930**		**830**		**630**	
P						●		●		●	
M						○		●		●	
K						●				●	
N										○	
S						○		○		●	
H											
O										○	

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→ Application recommendation on page 78

Internal machining


GX 09

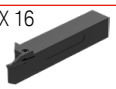
GX 16


→ 38+39 | → 41

metric

External machining


GX 09

GX 16


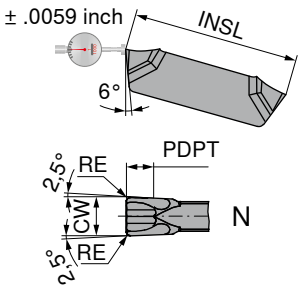
→ 36+37 | → 40

metric

Insert GX 16

▲ Very good chip control

F	M	R
		



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

Designation	INSL inch	CW +/-0,05 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 362 ...	70 362 ...	70 362 ...
GX 16-1 E2.00 N 0.20	0.630	0.079	0.008	0.079	GX 16-1	**902**	**800**	**600**
GX 16-2 E3.00 N 0.20	0.630	0.118	0.008	0.098	GX 16-2	**904**	**802**	**602**
GX 16-3 E4.00 N 0.30	0.630	0.157	0.012	0.118	GX 16-3			**604**
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

→ v_c Page 77
→ Application recommendation on page 79

5

Internal machining

→ 38+39

metric

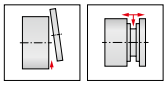
External machining

→ 36+37

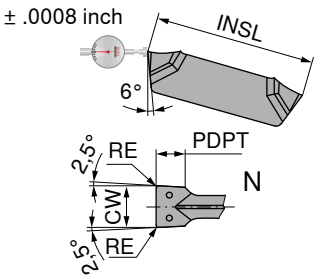
metric

Insert GX 16

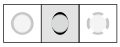
▲ Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
▲ ground periphery

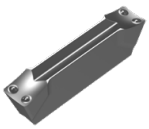


F	M	R
		



-27P
H216T





70 350 ...

Designation	INSL inch	CW +/-0,02 inch	RE +/-0,05 inch	PDPT inch	for tool holder	
GX 16-1 E2.00 N 0.20	0.630	0.079	0.008	0.098	GX 16-1	**650**
GX 16-2 E3.00 N 0.30	0.630	0.118	0.012	0.118	GX 16-2	**658**
GX 16-3 E4.00 N 0.40	0.630	0.157	0.016	0.138	GX 16-3	**670**
GX 16-4 E6.00 N 0.50	0.630	0.236	0.020	0.157	GX 16-4	**678**

P	
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N	●
S	○
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O	○

→ v_c Page 77
→ Application recommendation on page 78

Internal machining

→ 38+39

metric

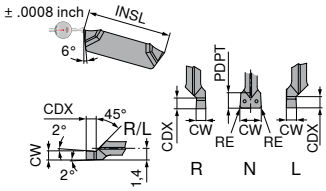
External machining

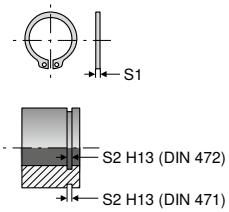
→ 36+37

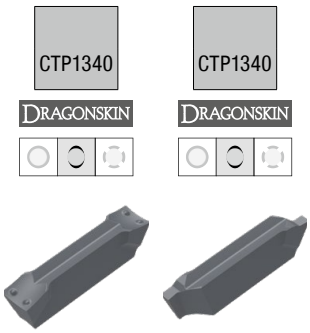
metric

Circlip groove insert GX 09/16 – Standard

F	M	R
		







Designation	IH inch	INSL inch	s_1 inch	s_2 inch	CW +/-0,02 inch	RE +/-0,05 inch	CDX inch	PDPT inch	for tool holder	70 352 ...	70 352 ...
GX 09-1 S0.60 L	L	0.354	0.016	0.020	0.024		0.030		R/L 02-GX 09-1		679
GX 09-1 S0.80 L	L	0.354	0.024	0.028	0.031		0.037		R/L 02-GX 09-1		681
GX 09-1 S0.90 L	L	0.354	0.028	0.031	0.035		0.041		R/L 02-GX 09-1		683
GX 09-1 S1.00 L	L	0.354	0.031	0.035	0.039		0.045		R/L 02-GX 09-1		684
GX 09-1 S1.20 L	L	0.354	0.039	0.043	0.047		0.053		R/L 02-GX 09-1		686
GX 09-1 S1.40 L	L	0.354	0.047	0.051	0.055		0.060		R/L 02-GX 09-1		688
GX 09-1 S1.70 L	L	0.354	0.059	0.063	0.067		0.072		R/L 02-GX 09-1		690
GX 16-2 S0.60 L	L	0.630	0.016	0.020	0.024		0.030		R/L 03-GX 16-2		607
GX 16-2 S0.80 L	L	0.630	0.024	0.028	0.031		0.037		R/L 03-GX 16-2		609
GX 16-2 S0.90 L	L	0.630	0.028	0.031	0.035		0.041		R/L 03-GX 16-2		611
GX 16-2 S1.00 L	L	0.630	0.031	0.035	0.039		0.045		R/L 03-GX 16-2		612
GX 16-2 S1.20 L	L	0.630	0.039	0.043	0.047		0.053		R/L 03-GX 16-2		614
GX 16-2 S1.40 L	L	0.630	0.047	0.051	0.055		0.060		R/L 03-GX 16-2		616
GX 16-2 S1.70 L	L	0.630	0.059	0.063	0.067		0.072		R/L 03-GX 16-2		618
GX 16-2 S1.95 L	L	0.630	0.069	0.073	0.077		0.081		R/L 03-GX 16-2		620
GX 16-2 S2.25 L	L	0.630	0.079	0.085	0.089		0.093		R/L 03-GX 16-2		622
GX 09-1 S1.95 N	N	0.354	0.069	0.073	0.077	0.004		0.079	GX 09-1	692	
GX 09-1 S2.25 N	N	0.354	0.079	0.085	0.089	0.004		0.079	GX 09-1	694	
GX 09-2 S2.75 N	N	0.354	0.098	0.104	0.108	0.004		0.079	GX 09-2	696	
GX 09-2 S3.25 N	N	0.354	0.118	0.124	0.128	0.004		0.079	GX 09-2	698	
GX 16-2 S2.75 N	N	0.630	0.098	0.104	0.108	0.004		0.118	GX 16-2	624	
GX 16-2 S3.25 N	N	0.630	0.118	0.124	0.128	0.004		0.118	GX 16-2	626	
GX 16-3 S4.25 N	N	0.630	0.157	0.163	0.167	0.008		0.138	GX 16-3	628	
GX 16-4 S5.25 N	N	0.630	0.197	0.203	0.207	0.008		0.157	GX 16-4	630	
GX 09-1 S0.60 R	R	0.354	0.016	0.020	0.024		0.030		R/L 02-GX 09-1		670
GX 09-1 S0.80 R	R	0.354	0.024	0.028	0.031		0.037		R/L 02-GX 09-1		672
GX 09-1 S0.90 R	R	0.354	0.028	0.031	0.035		0.041		R/L 02-GX 09-1		674
GX 09-1 S1.00 R	R	0.354	0.031	0.035	0.039		0.045		R/L 02-GX 09-1		676
GX 09-1 S1.20 R	R	0.354	0.039	0.043	0.047		0.053		R/L 02-GX 09-1		678
GX 09-1 S1.40 R	R	0.354	0.047	0.051	0.055		0.060		R/L 02-GX 09-1		680
GX 09-1 S1.70 R	R	0.354	0.059	0.063	0.067		0.072		R/L 02-GX 09-1		682
GX 16-2 S0.60 R	R	0.630	0.016	0.020	0.024		0.030		R/L 03-GX 16-2		695
GX 16-2 S0.80 R	R	0.630	0.024	0.028	0.031		0.037		R/L 03-GX 16-2		697
GX 16-2 S0.90 R	R	0.630	0.028	0.031	0.035		0.041		R/L 03-GX 16-2		699
GX 16-2 S1.00 R	R	0.630	0.031	0.035	0.039		0.045		R/L 03-GX 16-2		600
GX 16-2 S1.20 R	R	0.630	0.039	0.043	0.047		0.053		R/L 03-GX 16-2		602
GX 16-2 S1.40 R	R	0.630	0.047	0.051	0.055		0.060		R/L 03-GX 16-2		604
GX 16-2 S1.70 R	R	0.630	0.059	0.063	0.067		0.072		R/L 03-GX 16-2		606
GX 16-2 S1.95 R	R	0.630	0.069	0.073	0.077		0.081		R/L 03-GX 16-2		608
GX 16-2 S2.25 R	R	0.630	0.079	0.085	0.089		0.093		R/L 03-GX 16-2		610

P	●	●
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O	○	○

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5

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



GX 09 GX 16

→ 38+39 → 41

metric

External machining



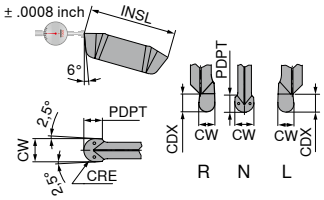
GX 09 GX 16

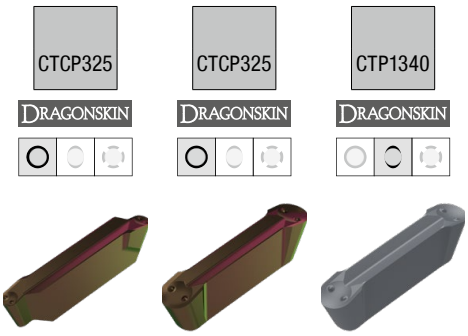
→ 36+37 → 40

metric

Radius groove insert GX 09/16

F	M	R
		





Designation	IH inch	INSL inch	CW +/-0,02 inch	CRE inch	PDPT inch	CDX inch	for tool holder	70 354 ...		70 354 ...		70 354 ...	
GX 09-1 R0.80 L	L	0.354	0.063	0.031		0.070	R/L 02-GX 09-1	**988**					
GX 16-2 R0.80 L	L	0.630	0.063	0.031		0.070	R/L 03-GX 16-2	**912**					
GX 16-2 R1.00 L	L	0.630	0.079	0.039		0.086	R/L 03-GX 16-2	**916**					
GX 16-2 R1.20 L	L	0.630	0.094	0.047		0.102	R/L 03-GX 16-2	**920**					
GX 09-1 R1.00 N	N	0.354	0.079	0.039	0.039		GX 09-1			**992**			
GX 09-1 R1.20 N	N	0.354	0.094	0.047	0.047		GX 09-1			**996**			
GX 16-2 R1.50 N	N	0.630	0.118	0.059	0.059		GX 16-2			**924**		**624**	
GX 16-3 R2.00 N	N	0.630	0.157	0.079	0.079		GX 16-3			**928**		**628**	
GX 16-3 R2.50 N	N	0.630	0.197	0.098	0.098		GX 16-3			**932**		**632**	
GX 16-4 R3.00 N	N	0.630	0.236	0.118	0.118		GX 16-4			**936**		**636**	
GX 09-1 R0.80 R	R	0.354	0.063	0.031		0.070	R/L 02-GX 09-1	**984**					
GX 16-2 R0.80 R	R	0.630	0.063	0.031		0.070	R/L 03-GX 16-2	**900**					
GX 16-2 R1.00 R	R	0.630	0.079	0.039		0.086	R/L 03-GX 16-2	**904**					
GX 16-2 R1.20 R	R	0.630	0.094	0.047		0.102	R/L 03-GX 16-2	**908**					
P								●		●		●	
M								○		○		●	
K								●		●		●	
N												○	
S								○		○		●	
H													
O												○	

→ v_c Page 77
→ Application recommendation on page 79

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


GX 09

GX 16


→ 38+39
→ 41
metric

External machining


GX 09

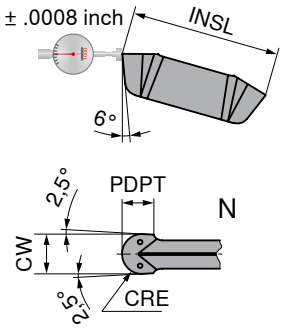
GX 16


→ 36+37
→ 40
metric

Radius groove insert GX 16

▲ Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
▲ ground periphery

F	M	R
		



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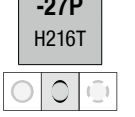


70 354 ...

Designation	INSL inch	CW +/-0,02 inch	CRE inch	PDPT inch	for tool holder	
GX 16-2 R1.50 N	0.630	0.118	0.059	0.059	GX 16-2	**674**
GX 16-3 R2.00 N	0.630	0.157	0.079	0.079	GX 16-3	**678**
GX 16-3 R2.50 N	0.630	0.197	0.098	0.098	GX 16-3	**682**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 77
→ Application recommendation on page 79

5

Internal machining


→ 38+39

metric

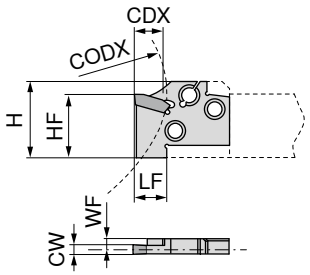
External machining


→ 36+37

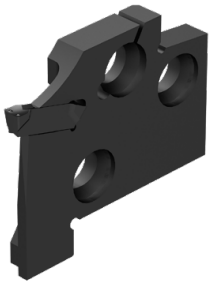
metric

ModularClamp MSS – Radial grooving module GX 09/16

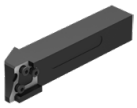
- For circlip grooves ≤ 0.1083 inch
- For radius grooves up to ≤ 0.0472 inch
- For external recessing



Illustrations show right-hand versions



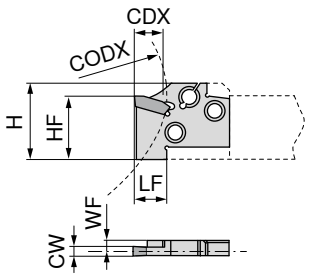
Designation	CW inch	WF inch	LF inch	HF inch	H inch	CODX inch	CDX inch	for grooving inserts	Left-hand 70 871 ...	Right-hand 70 870 ...
E12 R/L 02-GX 09-1	<0.077	0.124	0.315	0.472	0.571	1.417	0.079	GX 09-1 ..R/L	**112**	**112**
E16 R/L 02-GX 09-1	<0.077	0.124	0.315	0.630	0.768	1.890	0.079	GX 09-1 ..R/L	**116**	**116**
E20 R/L 03-GX 16-2	<0.108	0.134	0.512	0.787	0.945	2.362	0.118	GX 16-2 ..R/L	**120**	**120**
E25 R/L 03-GX 16-2	<0.108	0.193	0.512	0.984	1.181	2.953	0.118	GX 16-2 ..R/L	**125**	**125**
E32 R/L 03-GX 16-2	<0.108	0.193	0.512	1.260	1.496	3.780	0.118	GX 16-2 ..R/L	**132**	**132**

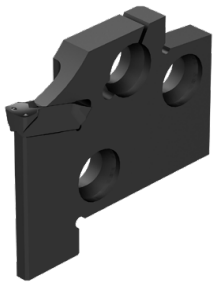

→ 28–35
→ 69–71
metric

ModularClamp MSS – Radial grooving module GX 09/16

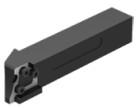
- For grooving and turning
- For circlip grooves ≤ 0.2067 inch
- For radius grooves up to ≤ 0.0984 inch
- For external recessing



Illustrations show right-hand versions



									Left-hand		Right-hand
									70 866 ...		70 865 ...
Designation	CW inch	WF inch	LF inch	HF inch	H inch	CODX inch	CDX inch	for grooving inserts			
E12 R/L 07-GX 09-1	0.079 - 0.108	0.124	0.315	0.472	0.571	1.417	0.276	GX 09-1 ..N	**012**		**012**
E12 R/L 07-GX 09-2	0.109 - 0.148	0.124	0.315	0.472	0.571	1.417	0.276	GX 09-2 ..N	**112**		**112**
E16 R/L 07-GX 09-1	0.079 - 0.108	0.124	0.315	0.630	0.768	1.890	0.276	GX 09-1 ..N	**016**		**016**
E16 R/L 07-GX 09-2	0.109 - 0.148	0.124	0.315	0.630	0.768	1.890	0.276	GX 09-2 ..N	**116**		**116**
E20 R/L 12-GX 16-1	0.079 - 0.108	0.148	0.512	0.787	0.945	2.362	0.472	GX 16-1 ..N	**020**		**020**
E20 R/L 12-GX 16-2	0.109 - 0.148	0.134	0.512	0.787	0.945	2.362	0.472	GX 16-2 ..N	**120**		**120**
E20 R/L 12-GX 16-3	0.148 - 0.197	0.115	0.512	0.787	0.945	2.362	0.472	GX 16-3 ..N	**220**		**220**
E25 R/L 12-GX 16-1	0.079 - 0.108	0.207	0.512	0.984	1.181	2.953	0.472	GX 16-1 ..N	**025**		**025**
E25 R/L 12-GX 16-2	0.109 - 0.148	0.193	0.512	0.984	1.181	2.953	0.472	GX 16-2 ..N	**125**		**125**
E25 R/L 12-GX 16-3	0.148 - 0.197	0.174	0.512	0.984	1.181	2.953	0.472	GX 16-3 ..N	**225**		**225**
E25 R/L 12-GX 16-4	0.197 - 0.256	0.150	0.512	0.984	1.181	2.953	0.472	GX 16-4 ..N	**325**		**325**
E32 R/L 12-GX 16-2	0.109 - 0.148	0.193	0.512	1.260	1.496	3.780	0.472	GX 16-2 ..N	**132**		**132**
E32 R/L 12-GX 16-3	0.148 - 0.197	0.174	0.512	1.260	1.496	3.780	0.472	GX 16-3 ..N	**232**		**232**
E32 R/L 12-GX 16-4	0.197 - 0.256	0.150	0.512	1.260	1.496	3.780	0.472	GX 16-4 ..N	**332**		**332**

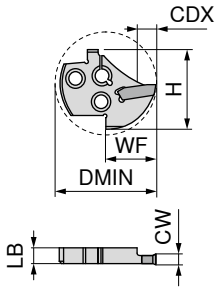




→ 28–35
→ 69–71
metric

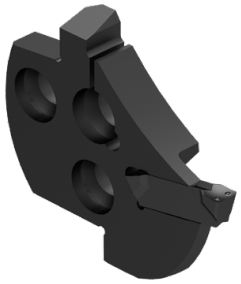
5

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

- For circlip grooves ≤ 0.1083 inch
- For radius grooves up to ≤ 0.0472 inch



Illustrations show right-hand versions



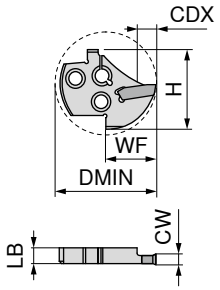
Designation	CW inch	LB inch	WF inch	H inch	CDX inch	DMIN inch	for grooving inserts	Left-hand 70 886 ...	Right-hand 70 885 ...
I16 R/L 02-GX 09-1	<0.077	0.150	0.394	0.646	0.079	0.787	GX 09-1 ..R/L	**016**	**016**
I20 R/L 02-GX 09-1	<0.077	0.150	0.472	0.799	0.079	0.984	GX 09-1 ..R/L	**020**	**020**
I25 R/L 02-GX 09-1	<0.077	0.150	0.610	0.980	0.079	1.260	GX 09-1 ..R/L	**025**	**025**
I32 R/L 03-GX 16-2	<0.108	0.232	0.787	1.268	0.118	1.575	GX 16-2 ..R/L	**032**	**032**
I40 R/L 03-GX 16-2	<0.108	0.232	0.965	1.559	0.118	1.969	GX 16-2 ..R/L	**040**	**040**

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

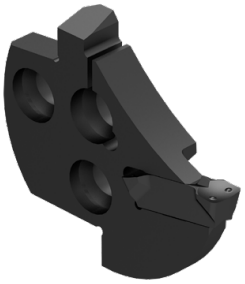

→ 28–35 → 72

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

- For circlip grooves ≤ 0.2067 inch
- For radius grooves up to ≤ 0.0984 inch



Illustrations show right-hand versions

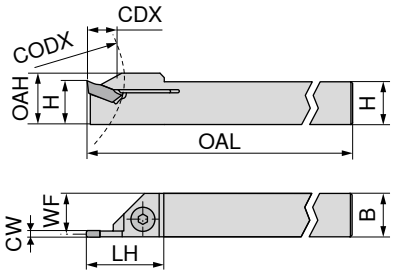


Designation	CW inch	LB inch	WF inch	H inch	CDX inch	DMIN inch	for grooving inserts	Left-hand 70 881 ...	Right-hand 70 880 ...
I16 R/L 04-GX 09-1	0.079 - 0.108	0.150	0.394	0.646	0.157	0.787	GX 09-1 ..N	**017**	**017**
I16 R/L 04-GX 09-2	0.109 - 0.148	0.150	0.394	0.646	0.157	0.787	GX 09-2 ..N	**117**	**117**
I20 R/L 05-GX 09-1	0.079 - 0.108	0.150	0.472	0.799	0.197	0.984	GX 09-1 ..N	**021**	**021**
I20 R/L 05-GX 09-2	0.109 - 0.148	0.150	0.472	0.799	0.197	0.984	GX 09-2 ..N	**121**	**121**
I25 R/L 06-GX 09-1	0.079 - 0.108	0.150	0.610	0.980	0.236	1.260	GX 09-1 ..N	**026**	**026**
I25 R/L 06-GX 09-2	0.109 - 0.148	0.150	0.610	0.980	0.236	1.260	GX 09-2 ..N	**126**	**126**
I32 R/L 09-GX 16-1	0.079 - 0.108	0.232	0.787	1.268	0.354	1.575	GX 16-1 ..N	**033**	**033**
I32 R/L 09-GX 16-2	0.109 - 0.148	0.232	0.787	1.268	0.354	1.575	GX 16-2 ..N	**133**	**133**
I32 R/L 09-GX 16-3	0.148 - 0.197	0.232	0.787	1.268	0.354	1.575	GX 16-3 ..N	**233**	**233**
I32 R/L 09-GX 16-4	0.197 - 0.256	0.232	0.787	1.268	0.354	1.575	GX 16-4 ..N	**333**	**333**
I40 R/L 10-GX 16-1	0.079 - 0.108	0.232	0.965	1.559	0.394	1.969	GX 16-1 ..N	**041**	**041**
I40 R/L 10-GX 16-2	0.109 - 0.148	0.232	0.965	1.559	0.394	1.969	GX 16-2 ..N	**141**	**141**
I40 R/L 10-GX 16-3	0.148 - 0.197	0.232	0.965	1.559	0.394	1.969	GX 16-3 ..N	**241**	**241**
I40 R/L 10-GX 16-4	0.197 - 0.256	0.232	0.965	1.559	0.394	1.969	GX 16-4 ..N	**341**	**341**

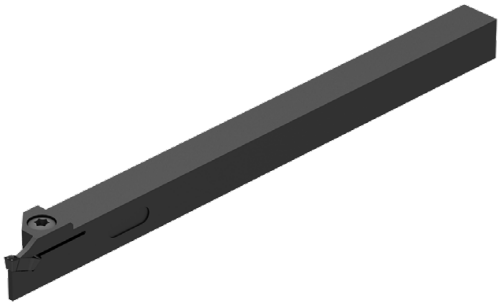

→ 28–35 → 72

5

MonoClamp – Radial Monoholder GX 09

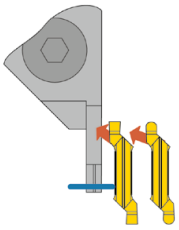


Illustrations show right-hand versions



Designation	H inch	B inch	CW inch	WF inch	OAH inch	OAL inch	LH inch	CODX inch	CDX inch	for grooving inserts	Left-hand 78 863 ...	Right-hand 78 862 ...
E10 R/L 00-06-GX09-E	0.375	0.375	0.079 - 0.138	0.349	0.472	6.000	0.709	1.181	0.270	GX 09 ..	**03800**	**03800**

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



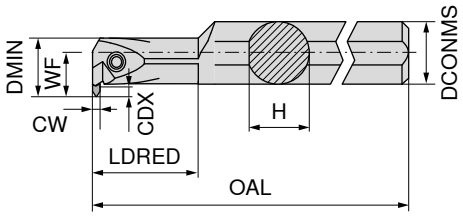

Screwdriver


Clamping screw

Spare parts for grooving inserts		Screwdriver 80 950 ...		Clamping screw 70 950 ...
GX 09 ..	T15	**113**	M4x11	**442**

→ 28–34

MonoClamp – Radial Mono-boring bars GX 09

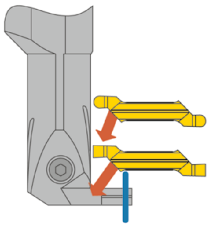


Illustrations show right-hand versions

Designation	H inch	DCONMS inch	DMIN inch	CW inch	CDX inch	WF inch	OAL inch	LDRED inch	for grooving inserts	Left-hand 78 859 ...	Right-hand 78 858 ...
I12 R/L 90-2.5D-GX09-E	0.600	0.625	0.630	0.079 - 0.148	0.118	0.433	6.000	1.181	GX 09 ..	**06300**	**06300**

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.



Screwdriver

80 950 ...


Clamping screw

70 950 ...

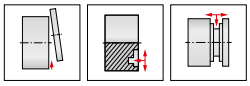
Spare parts for grooving inserts				
GX 09 ..	T15	**113**	M3,5x12,5	**441**

→ 28–34

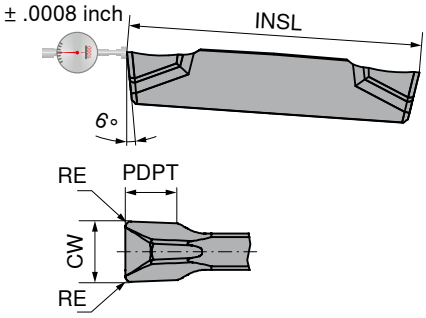
5

Insert GX 24

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



F	M	R



-F2 CTCP325	-F2 CTPP345	-F2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	INSL inch	CW +/-0,02 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 350 ...	70 350 ...	70 350 ...
GX 24-2 E3.00 N 0.30	0.945	0.118	0.012	0.098	GX 24-2	**962**	**862**	**662**
GX 24-2 E3.50 N 0.30	0.945	0.138	0.012	0.098	GX 24-2		**864**	
GX 24-3 E4.00 N 0.40	0.945	0.157	0.016	0.118	GX 24-3	**966**	**866**	**666**
GX 24-3 E5.00 N 0.40	0.945	0.197	0.016	0.138	GX 24-3	**970**	**870**	**671**
GX 24-4 E6.00 N 0.50	0.945	0.236	0.020	0.157	GX 24-4		**872**	**672**
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

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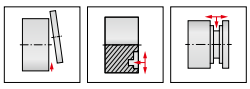
→ Application recommendation on page 78

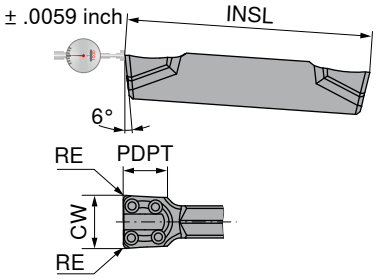
Internal machining | *External machining*

→ 50	metric	→ 49–52	→ 53	→ 54	metric			

Insert GX 24

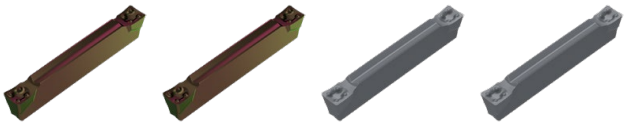


F	M	R
		



-E CTCP325 | -E CTCP335 | -E CTPP345 | -E CTP1340

DRAGONSKIN



Designation	INSL inch	CW +/-0,05 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 350 ...	70 350 ...	70 350 ...	70 350 ...
GX 24-2 E3.00 N 0.30	0.945	0.118	0.012	0.098	GX 24-2	**932**	**532**	**832**	**632**
GX 24-3 E4.00 N 0.40	0.945	0.157	0.016	0.118	GX 24-3	**936**	**536**	**836**	**636**
GX 24-3 E5.00 N 0.40	0.945	0.197	0.016	0.118	GX 24-3	**940**	**540**	**840**	**640**
GX 24-4 E6.00 N 0.50	0.945	0.236	0.020	0.138	GX 24-4	**944**	**544**	**844**	**644**
P						●	●	●	●
M						○	○	●	●
K						●	●		●
N									○
S						○		○	●
H									
O									○

→ v_c Page 77
→ Application recommendation on page 78

5

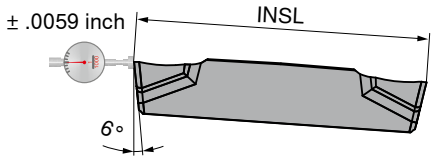
Internal machining | *External machining*

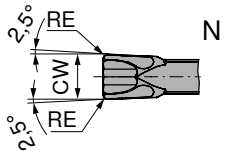
→ 50 | metric | → 49–52 | → 53 | → 54 | metric

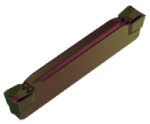
Insert GX 24

▲ Very good chip control

F	M	R
		





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

Designation	INSL inch	CW +/-0,05 inch	RE +/-0,05 inch	for tool holder	70 363 ...	70 363 ...	70 363 ...
GX 24-1 E2.00 N 0.20	0.945	0.079	0.008	GX 24-1	**900**	**800**	**600**
GX 24-2 E3.00 N 0.20	0.945	0.118	0.008	GX 24-2	**902**	**802**	**602**
GX 24-3 E4.00 N 0.30	0.945	0.157	0.012	GX 24-3	**904**	**804**	**604**
P					●	●	●
M					○	●	●
K					●		●
N							○
S					○	○	●
H							
O							○

→ v_c Page 77
→ Application recommendation on page 79

Internal machining

→ 50

metric

External machining

→ 49–52

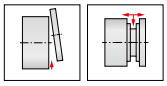
→ 53

→ 54

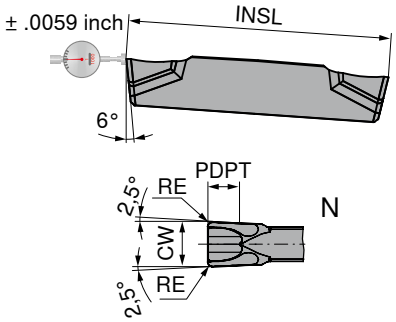
metric

Insert GX 24

▲ Very good chip control



F	M	R



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	INSL inch	CW +/-0,05 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 364 ...	70 364 ...	70 364 ...
GX 24-2 E3.00 N 0.30	0.945	0.118	0.012	0.138	GX 24-2	**900**	**800**	**600**
GX 24-3 E4.00 N 0.40	0.945	0.157	0.016	0.157	GX 24-3	**902**	**802**	**602**
GX 24-3 E5.00 N 0.40	0.945	0.197	0.016	0.157	GX 24-3	**904**	**804**	**604**
GX 24-4 E6.00 N 0.50	0.945	0.236	0.020	0.157	GX 24-4	**906**	**806**	**606**
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

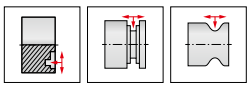
→ v_c Page 77
→ Application recommendation on page 78

5

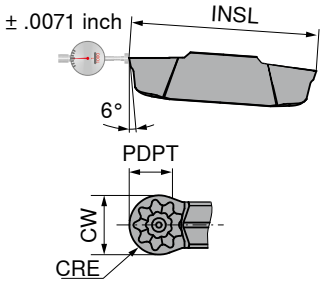
Internal machining | *External machining*

→ 50	metric	→ 49–52	→ 53	→ 54	metric			

Radius groove insert GX 24



F	M	R

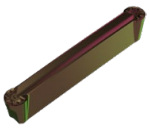


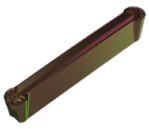
-M3 CTCP325

DRAGONSKIN

-M3 CTCP335

DRAGONSKIN





Designation	INSL inch	CW +/-0,05 inch	CRE inch	PDPT inch	for tool holder	70 354 ...		70 354 ...	
GX 24-2 R1.50 N	0.961	0.118	0.059	0.059	GX 24-2	**952**		**552**	
GX 24-3 R2.00 N	0.961	0.157	0.079	0.098	GX 24-3	**954**		**554**	
GX 24-3 R2.50 N	0.961	0.197	0.098	0.118	GX 24-3	**956**		**556**	
GX 24-4 R3.00 N	0.961	0.236	0.118	0.157	GX 24-4	**958**		**558**	
P						●		●	
M						○		○	
K						●		●	
N									
S						○			
H									
O									

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Internal machining | *External machining*

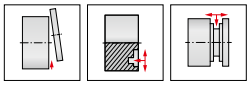




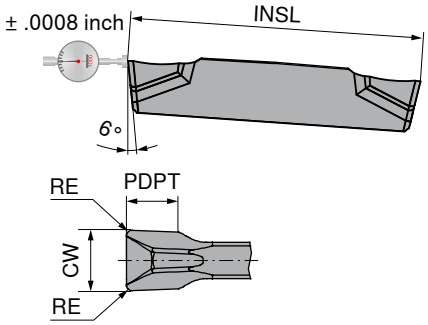

→ 50	metric	→ 49–52	→ 53	→ 54	metric			

Insert GX 24

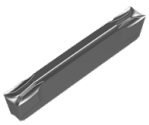
▲ Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
▲ ground periphery



F	M	R



-27P
H216T



70 350 ...

Designation	INSL inch	CW +/-0,02 inch	RE +/-0,05 inch	PDPT inch	for tool holder	
GX 24-2 E3.00 N 0.30	0.945	0.118	0.012	0.098	GX 24-2	**682**
GX 24-3 E4.00 N 0.40	0.945	0.157	0.016	0.118	GX 24-3	**684**
GX 24-3 E5.00 N 0.40	0.945	0.197	0.016	0.138	GX 24-3	**686**
GX 24-4 E6.00 N 0.50	0.945	0.236	0.020	0.157	GX 24-4	**688**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 77
→ Application recommendation on page 78

5

Internal machining *External machining*

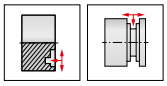




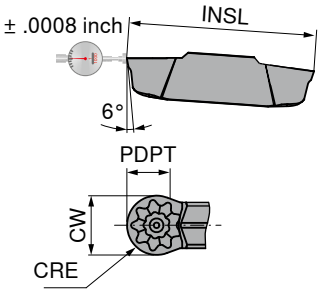

→ 50
metric
→ 49–52
→ 53
→ 54
metric

Radius grooving insert GX 24

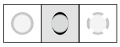
▲ Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
▲ ground periphery



F	M	R
		



-27PF
H216T



70 353 ...

Designation	INSL inch	CW +/-0,02 inch	CRE inch	PDPT inch	for tool holder	
GX 24-4 R3.00 N	1.000	0.236	0.118	0.157	GX 24-4	**500**
GX 24-5 R4.00 N	1.000	0.315	0.157	0.197	GX 24-5	**506**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 77
→ Application recommendation on page 79

Internal machining | *External machining*

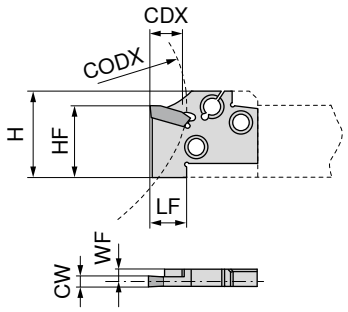




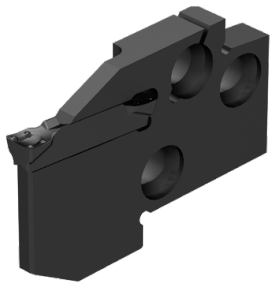

→ 50	metric	→ 49–52	→ 53	→ 54	metric			

ModularClamp MSS – Radial grooving module GX 24

- For deep radial parting and grooving
- For turning

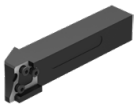


Illustrations show right-hand versions



Designation	CW inch	WF inch	LF inch	HF inch	H inch	CODX inch	CDX inch	for grooving inserts	Left-hand 70 868 ...	Right-hand 70 867 ...
E20 R/L 21-GX 24-1	0.079 - 0.108	0.152	0.866	0.787	0.945	2.362	0.827	GX 24-1	**020**	**020**
E20 R/L 21-GX 24-2	0.118	0.134	0.866	0.787	0.945	2.362	0.827	GX 24-2	**120**	**120**
E20 R/L 21-GX 24-3	0.157/0.197	0.118	0.866	0.787	0.945	1.181	0.827	GX 24-3	**22000**	**22000**
E25 R/L 21-GX 24-1	0.079 - 0.108	0.201	0.866	0.984	1.181	2.953	0.827	GX 24-1	**025**	**025**
E25 R/L 21-GX 24-2	0.118	0.193	0.866	0.984	1.181	2.953	0.827	GX 24-2	**125**	**125**
E25 R/L 21-GX 24-3	0.157/0.197	0.174	0.866	0.984	1.181	2.953	0.827	GX 24-3	**225**	**225**
E25 R/L 21-GX 24-4	0.236	0.150	0.866	0.984	1.181	2.953	0.827	GX 24-4	**325**	**325**
E25 R/L 21-GX 24-5	0.315	0.116	0.866	0.984	1.181	2.953	0.827	GX 24-5	**425**	**425**
E32 R 21-GX 24-2	0.118	0.195	0.866	1.260	1.496	1.890	0.827	GX 24-2		**13200**
E32 R/L 21-GX 24-3	0.157/0.197	0.174	0.866	1.260	1.496	3.780	0.827	GX 24-3	**232**	**232**
E32 R/L 21-GX 24-4	0.236	0.150	0.866	1.260	1.496	3.780	0.827	GX 24-4	**332**	**332**

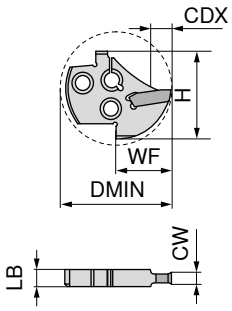
5


→ 42–48
→ 69–71
metric

ModularClamp MSS – Radial Grooving module GX 24 for Internal machining

▲ for grooving and turning



Neutral

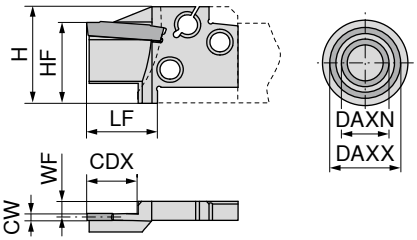
70 880 ...

Designation	CW inch	LB inch	WF inch	H inch	CDX inch	DMIN inch	for grooving inserts	
I40 N 19-GX 24-2	0.109 - 0.148	0.244	1.319	1.602	0.748	2.362	GX 24-2 ..N	**340**
I40 N 19-GX 24-3	0.148 - 0.197	0.244	1.319	1.602	0.748	2.362	GX 24-3 ..N	**440**
I40 N 19-GX 24-4	0.197 - 0.256	0.244	1.319	1.602	0.748	2.362	GX 24-4 ..N	**540**

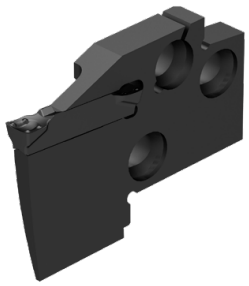
→ 42–48 → 72

ModularClamp MSS – Axial grooving module GX 24 short

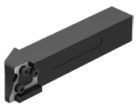
- For axial grooving
- For face turning



Illustrations show right-hand versions



										Left-hand	Right-hand
										70 891 ...	70 890 ...
Designation	DAXN inch	DAXX inch	CW inch	WF inch	LF inch	HF inch	H inch	CDX inch	for grooving inserts		
E20 R/L 14-GX 24-2 A	1.969	2.756	0.118	0.134	0.866	0.787	0.945	0.551	GX 24-2	**100**	**100**
E20 R/L 14-GX 24-2 A	2.756	3.937	0.118	0.134	0.866	0.787	0.945	0.551	GX 24-2	**102**	**102**
E20 R/L 14-GX 24-2 A	3.937	5.906	0.118	0.134	0.866	0.787	0.945	0.551	GX 24-2	**104**	**104**
E25 R/L 15-GX 24-2 A	1.969	2.756	0.118	0.193	0.866	0.984	1.181	0.591	GX 24-2	**200**	**200**
E25 R/L 15-GX 24-2 A	2.756	3.937	0.118	0.193	0.866	0.984	1.181	0.591	GX 24-2	**202**	**202**
E25 R/L 15-GX 24-2 A	3.937	5.906	0.118	0.193	0.866	0.984	1.181	0.591	GX 24-2	**204**	**204**
E25 R/L 15-GX 24-3 A	1.969	2.756	0.157/0.197	0.174	0.866	0.984	1.181	0.591	GX 24-3	**206**	**206**
E25 R/L 15-GX 24-3 A	2.756	3.937	0.157/0.197	0.174	0.866	0.984	1.181	0.591	GX 24-3	**208**	**208**
E25 R/L 15-GX 24-3 A	3.937	5.906	0.157/0.197	0.174	0.866	0.984	1.181	0.591	GX 24-3	**210**	**210**
E25 R/L 15-GX 24-3 A	5.906	11.811	0.157/0.197	0.174	0.866	0.984	1.181	0.591	GX 24-3	**212**	**212**
E25 R/L 15-GX 24-4 A	1.969	2.756	0.236	0.150	0.866	0.984	1.181	0.591	GX 24-4	**214**	**214**
E25 R/L 15-GX 24-4 A	2.756	3.937	0.236	0.150	0.866	0.984	1.181	0.591	GX 24-4	**216**	**216**
E25 R/L 15-GX 24-4 A	3.937	5.906	0.236	0.150	0.866	0.984	1.181	0.591	GX 24-4	**218**	**218**
E25 R/L 15-GX 24-4 A	5.906	11.811	0.236	0.150	0.866	0.984	1.181	0.591	GX 24-4	**220**	**220**
E32 R/L 15-GX 24-3 A	2.756	3.937	0.157/0.197	0.174	0.866	1.260	1.496	0.591	GX 24-3	**300**	**300**
E32 R/L 15-GX 24-3 A	3.937	5.906	0.157/0.197	0.174	0.866	1.260	1.496	0.591	GX 24-3	**302**	**302**
E32 R/L 15-GX 24-3 A	5.906	11.811	0.157/0.197	0.174	0.866	1.260	1.496	0.591	GX 24-3	**304**	**304**
E32 R/L 15-GX 24-4 A	2.756	3.937	0.236	0.150	0.866	1.260	1.496	0.591	GX 24-4	**306**	**306**
E32 R/L 15-GX 24-4 A	3.937	5.906	0.236	0.150	0.866	1.260	1.496	0.591	GX 24-4	**308**	**308**
E32 R/L 15-GX 24-4 A	5.906	11.811	0.236	0.150	0.866	1.260	1.496	0.591	GX 24-4	**310**	**310**
E32 R/L 15-GX 24-4 A	11.811	35.433	0.236	0.150	0.866	1.260	1.496	0.591	GX 24-4	**312**	**312**

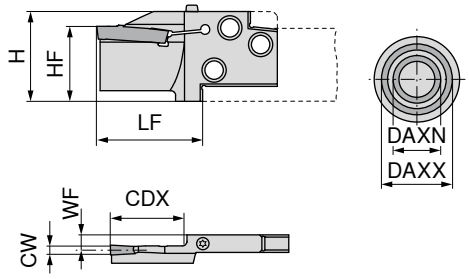




→ 42–48
→ 69–71
metric

5

ModularClamp MSS – Axial grooving module GX 24 long

- For axial grooving
- For face turning



Illustrations show right-hand versions

Designation	DAXN inch	DAXX inch	CW inch	WF inch	LF inch	HF inch	H inch	CDX inch	for grooving inserts	Left-hand 70 895 ...	Right-hand 70 894 ...
E25 R/L 21-GX 24-3 AS	1.969	2.756	0.157/0.197	0.178	1.378	0.984	1.181	0.827	GX 24-3	**200**	**200**
E25 R/L 21-GX 24-3 AS	2.756	3.937	0.157/0.197	0.178	1.378	0.984	1.181	0.827	GX 24-3	**202**	**202**
E25 R/L 21-GX 24-3 AS	3.937	5.906	0.157/0.197	0.178	1.378	0.984	1.181	0.827	GX 24-3	**204**	**204**
E25 R/L 21-GX 24-3 AS	5.906	11.811	0.157/0.197	0.178	1.378	0.984	1.181	0.827	GX 24-3	**206**	**206**
E25 R/L 25-GX 24-4 AS	1.969	2.756	0.236	0.154	1.378	0.984	1.181	0.984	GX 24-4	**210**	**210**
E25 R/L 25-GX 24-4 AS	2.756	3.937	0.236	0.154	1.378	0.984	1.181	0.984	GX 24-4	**212**	**212**
E25 R/L 25-GX 24-4 AS	3.937	5.906	0.236	0.154	1.378	0.984	1.181	0.984	GX 24-4	**214**	**214**
E25 R/L 25-GX 24-4 AS	5.906	11.811	0.236	0.154	1.378	0.984	1.181	0.984	GX 24-4	**216**	**216**

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

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

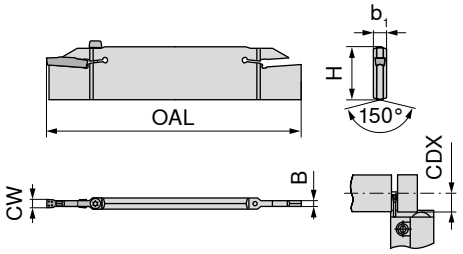


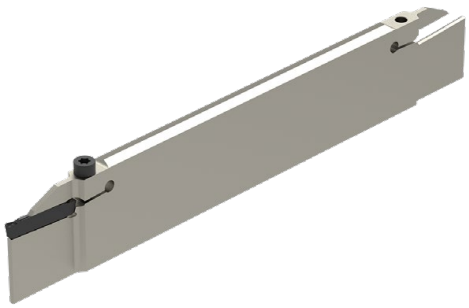
→ 42–48 → 69–71
metric

MonoClamp – Radial Blade GX 24

Scope of supply:

Blade incl. clamping screw and tightening wrench





Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CDX inch	for grooving inserts	70 834 ...
XLCF N 3203-GX24-1S	0.079	1.260	0.041	0.244	7.087	0.827	GX 24-1	**102**
XLCF N 3203-GX24-2S	0.118	1.260	0.083	0.244	7.087	0.827	GX 24-2	**103**
XLCF N 3204-GX24-3S	0.157/0.197	1.260	0.120	0.244	7.087	0.827	GX 24-3	**104**
XLCF N 3206-GX24-4S	0.236	1.260	0.165	0.244	7.087	0.827	GX 24-4	**106**


Screwdriver


Clamping screw

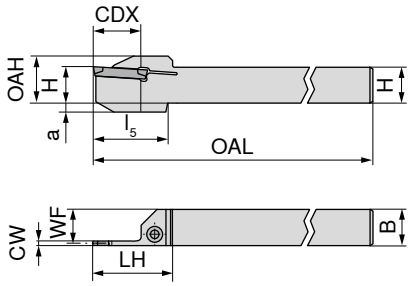
Spare parts for grooving inserts	80 950 ...		70 950 ...	
GX 24-1	T15	**113**	M3,5x14	**160**
GX 24-2	T15	**113**	M3,5x14	**160**
GX 24-3	T15	**113**	M3,5x14	**160**
GX 24-4	T15	**113**	M3,5x14	**160**



→ 42–48
→ 74+75
metric

5

MonoClamp – Radial Monoholder GX 24



Illustrations show right-hand versions

Designation	H inch	B inch	CW inch	WF inch	OAH inch	OAL inch	LH inch	l_5 inch	CDX inch	a inch	for grooving inserts	Left-hand 78 863 ...	Right-hand 78 862 ...
E 16 R/L 0021-10C-GX24-2-E	0.625	0.625	0.109 - 0.148	0.586	0.822	5.000	1.378	1.260	0.827	0.162	GX 24-2	**26300**	**26300**
E 20 R/L 0021-12C-GX24-2-E	0.750	0.750	0.109 - 0.148	0.711	0.947	5.000	1.378		0.827		GX 24-2	**27500**	**27500**
E 20 R/L 0021-12C-GX24-3-E	0.750	0.750	0.148 - 0.197	0.692	0.947	5.000	1.378		0.827		GX 24-3	**37500**	**37500**
E 25 R/L 0021-16D-GX24-2-E	1.000	1.000	0.109 - 0.148	0.961	1.197	6.000	1.378		0.827		GX 24-2	**20000**	**20000**
E 25 R/L 0021-16D-GX24-3-E	1.000	1.000	0.148 - 0.197	0.942	1.197	6.000	1.378		0.827		GX 24-3	**30000**	**30000**
E 25 R/L 0021-16D-GX24-4-E	1.000	1.000	0.197 - 0.256	0.917	1.197	6.000	1.378		0.827		GX 24-4	**40000**	**40000**
E 32 R/L 0021-85D-GX24-2-E	1.250	1.000	0.109 - 0.148	0.961	1.447	6.000	1.378		0.827		GX 24-2	**22500**	**22500**
E 32 R/L 0021-85D-GX24-3-E	1.250	1.000	0.148 - 0.197	0.942	1.447	6.000	1.378		0.827		GX 24-3	**32500**	**32500**
E 32 R/L 0021-85D-GX24-4-E	1.250	1.000	0.197 - 0.256	0.917	1.447	6.000	1.378		0.827		GX 24-4	**42500**	**42500**

Screwdriver

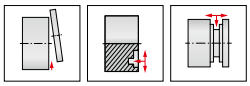
Clamping screw

Spare parts for grooving inserts	Screwdriver 80 950 ...		Clamping screw 70 950 ...	
GX 24-2	T20	**114**	M4x18	**204**
GX 24-3	T20	**114**	M4x18	**204**
GX 24-4	T20	**114**	M4x18	**204**

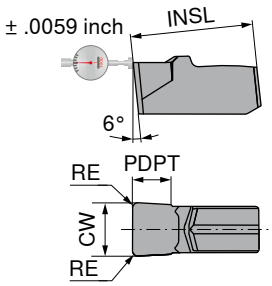
→ 42–48

Insert LX

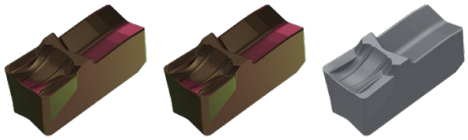
- Grooving width 0.315 and 0.394 inch
- Axial grooving from Ø 19.7 inch onwards
- Internal grooving and turning, from Ø 7.9 inch onwards



F	M	R



-M2 CTCP325	-M2 CTCP335	-M2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL inch	CW -/+0,08 inch	RE +/-0,1 inch	PDPT inch	for tool holder	70 337 ...	70 337 ...	70 337 ...
LXE 8.00N0.80-M2	0.748	0.315	0.031	0.197	E32 N ..-LX	**928**	**578**	**682**
LXE 10.00N0.80-M2	0.748	0.394	0.031	0.197	E32 N ..-LX	**932**	**582**	**678**
P						●	●	●
M						○	○	●
K						●	●	●
N								○
S						○		●
H								
O								○

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→ Application recommendation on page 82

5

Internal machining

→ 57

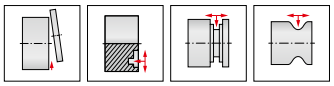
External machining

→ 57

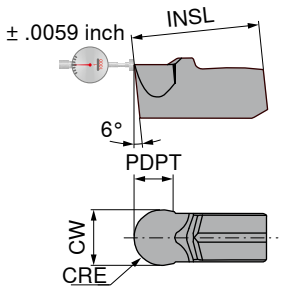
→ 58

Radial Grooving Insert LX

- Grooving width 0.315 inch
- Axial grooving from Ø 19.7 inch
- Internal grooving and turning, from Ø 7.9 inch



F	M	R



-M3 CTCP325	-M3 CTCP335	-M3 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	INSL inch	CW -/+0,08 inch	CRE inch	PDPT inch	for tool holder	70 337 ... 908	70 337 ... 518	70 337 ... 618
LXR 4.00N-M3	0.748	0.315	0.157	0.197	E32 N ..-LX			
P						●	●	●
M						○	○	●
K						●	●	●
N								○
S						○		●
H								
O								○

→ v_c Page 77
→ Application recommendation on page 82

Internal machining

→ 57

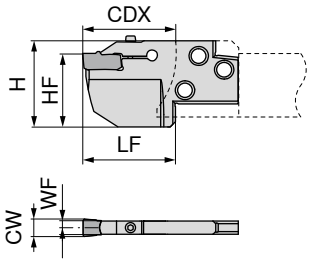
External machining

→ 57

→ 58

ModularClamp MSS – Axial and radial grooving module LX

- Grooving width 0.315 and 0.94 inch
- Axial grooving from Ø 19.7 inch onwards
- Internal grooving and turning, from Ø 7.9 inch onwards

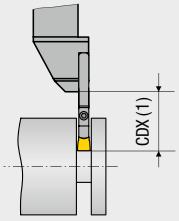


Neutral

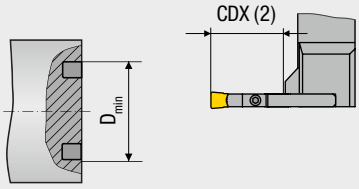
70 835 ...

Designation	CW inch	WF inch	LF inch	HF inch	H inch	CDX (1) inch	CDX (2) inch	CDX (3) inch	for grooving inserts	
E32 N 25-LX	0.315/0.394	0.134	1.063	1.260	1.732	0.984	0.748	0.551	LX ..	**032**
E32 N 32-LX	0.315/0.394	0.134	1.457	1.260	1.732	1.260	1.024	0.827	LX ..	**132**
E32 N 45-LX	0.315/0.394	0.134	1.850	1.260	1.732	1.772	1.535	1.339	LX ..	**232**

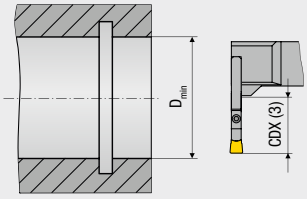
Radial grooving



Axial grooving D_{min} > 19.7 inch



Internal grooving D_{min} > 7.9 inch



5

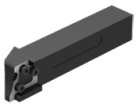
Screwdriver

80 950 ...

Clamping screw

70 950 ...

Spare parts for grooving inserts				
LX ..	T20	**114**	M4x18	**204**

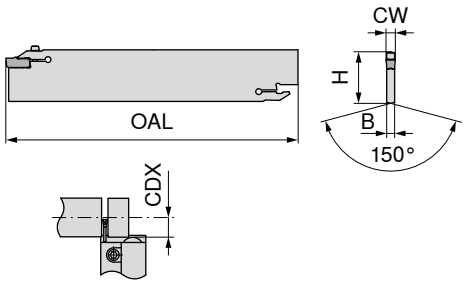


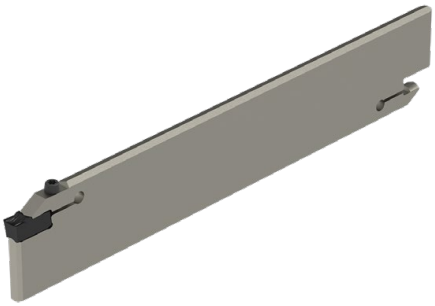
→ 55+56 → 69–71

MonoClamp – Blade LX

Scope of supply:

Blade incl. clamping screw and tightening wrench





Designation	H inch	B inch	OAL inch	CW inch	CDX inch	for grooving inserts		70 833 ...
XLCEN 4608-LX	1.811	0.268	9.843	0.315/0.394	3.150	LX ..		**108**

Screwdriver

Clamping screw

Spare parts for grooving inserts		80 950 ...		70 950 ...
LX ..	T20	**114**	M4x18	**204**

→ 55+56	→ 74+75	metric						

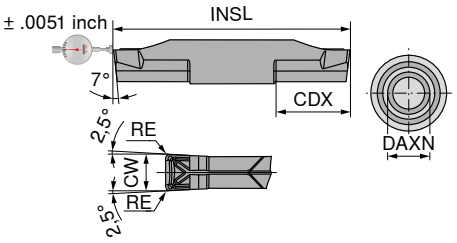
Grooving insert AX

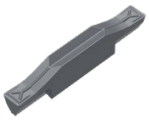
- very good chip control
- DAXN minimum groove diameter refers to the outside diameter

F	M	R

-F50
CTP1340

DRAGONSKIN





70 327 ...

Designation	IH inch	INSL inch	CW +/-0,02 inch	RE +/-0,05 inch	CDX inch	DAXN inch	for tool holder	
AX 05 E3.00 N 0.30	N	0.945	0.118	0.012	0.197	0.394	E.. R/L.. -AX 05	005
AX 10 E3.00 N 0.30	N	1.339	0.118	0.012	0.394	0.787	E.. R/L.. -AX 10	010
AX 15 E3.00 N 0.30	N	1.732	0.118	0.012	0.591	1.181	E.. R/L.. -AX 15	015

P	●
M	●
K	●
N	○
S	●
H	
O	○

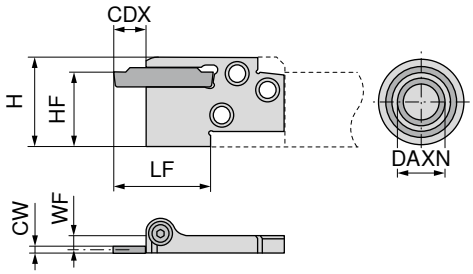
→ v_c Page 77
→ Application recommendation on page 83

5

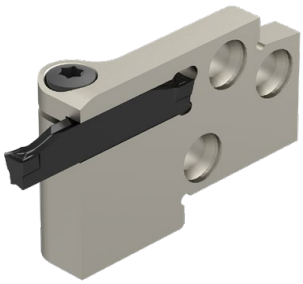
Internal machining		*External machining*						
								
		→ 60	metric	metric				

ModularClamp MSS – Axial grooving module AX

▲ for axial grooving and turning



Illustrations show right-hand versions

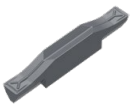


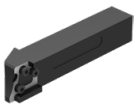
Designation	HF inch	CW inch	WF inch	LF inch	H inch	DAXN inch	CDX inch	for grooving inserts	Left-hand 70 827 ...	Right-hand 70 828 ...
E16 R/L 05-AX 05	0.630	0.118	0.098	0.945	0.807	0.394	0.197	AX05	**016**	**016**
E20 R/L 05-AX 05	0.787	0.118	0.122	1.102	0.984	0.394	0.197	AX05	**020**	**020**
E25 R/L 05-AX 05	0.984	0.118	0.181	1.083	1.181	0.394	0.197	AX05	**025**	**025**
E20 R/L 10-AX 10	0.787	0.118	0.122	1.299	0.984	0.787	0.394	AX10	**120**	**120**
E25 R/L 10-AX 10	0.984	0.118	0.181	1.280	1.181	0.787	0.394	AX10	**125**	**125**
E20 R/L 15-AX 15	0.787	0.118	0.122	1.732	0.984	1.181	0.591	AX15	**220**	**220**
E25 R/L 15-AX 15	0.984	0.118	0.181	1.713	1.181	1.181	0.591	AX15	**225**	**225**

Screwdriver

Clamping screw

Spare parts for Article no.	80 950 ...		70 950 ...	
70 827 016 / 70 828 016	T15	**113**	M3,5x12,5	**441**
70 827 020 / 70 828 020	T15	**113**	M4x14	**403**
70 827 025 / 70 828 025	T20	**114**	M5x18	**404**
70 827 120 / 70 828 120	T15	**113**	M4x14	**403**
70 827 125 / 70 828 125	T20	**114**	M5x18	**404**
70 827 220 / 70 828 220	T15	**113**	M4x14	**403**
70 827 225 / 70 828 225	T20	**114**	M5x18	**404**



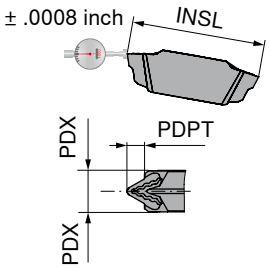


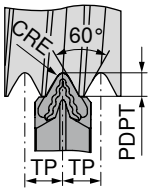
→ 59 → 69–71

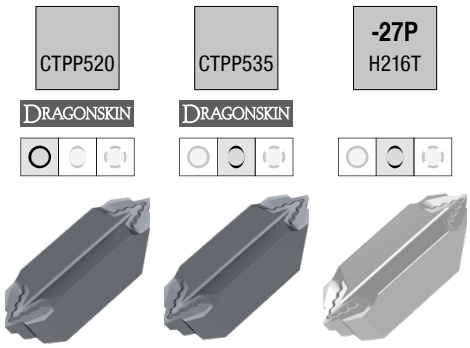
metric

Threading inserts TC full profile – External thread ISO 60°

F	M	R
		







Designation	Size	TP mm	INSL inch	PDPT inch	PDX inch	CRE inch	for tool holder	70 357 ...		70 357 ...		70 357 ...	
TC 16-1 E 0.5 ISO	TC 16-1 ...	0.50	0.630	0.013	0.041	0.002	E.. R/L TC 16-1	**010**		**110**		**610**	
TC 16-1 E 0.75 ISO	TC 16-1 ...	0.75	0.630	0.019	0.041	0.004	E.. R/L TC 16-1	**012**		**112**		**612**	
TC 16-1 E 1.0 ISO	TC 16-1 ...	1.00	0.630	0.025	0.041	0.005	E.. R/L TC 16-1	**014**		**114**		**614**	
TC 16-1 E 1.25 ISO	TC 16-1 ...	1.25	0.630	0.031	0.041	0.006	E.. R/L TC 16-1	**016**		**116**		**616**	
TC 16-1 E 1.5 ISO	TC 16-1 ...	1.50	0.630	0.037	0.041	0.007	E.. R/L TC 16-1	**018**		**118**		**618**	
TC 16-2 E 1.75 ISO	TC 16-2 ...	1.75	0.630	0.043	0.085	0.009	E.. R/L/N TC 16-2	**030**		**130**		**630**	
TC 16-2 E 2.0 ISO	TC 16-2 ...	2.00	0.630	0.050	0.085	0.010	E.. R/L/N TC 16-2	**032**		**132**		**632**	
TC 16-2 E 2.5 ISO	TC 16-2 ...	2.50	0.630	0.062	0.085	0.013	E.. R/L/N TC 16-2	**034**		**134**		**634**	
TC 16-2 E 3.0 ISO	TC 16-2 ...	3.00	0.630	0.074	0.085	0.015	E.. R/L/N TC 16-2	**036**		**136**		**636**	
TC 16-3 E 3.5 ISO	TC 16-3 ...	3.50	0.630	0.087	0.122	0.017	E25 N TC 16-3	**050**		**150**			
TC 16-3 E 4.0 ISO	TC 16-3 ...	4.00	0.630	0.100	0.122	0.020	E25 N TC 16-3	**052**		**152**			
TC 16-3 E 5.0 ISO	TC 16-3 ...	5.00	0.630	0.124	0.122	0.025	E25 N TC 16-3	**056**		**156**			
P								●		●			
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K								●		●		●	
N												●	
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H								○					
O												○	

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→ Application recommendation on page 84

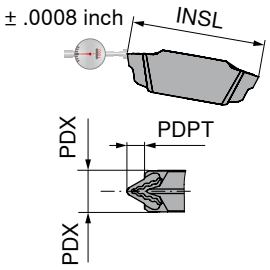
Internal machining *External machining*

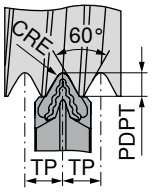

→ 66 → 67

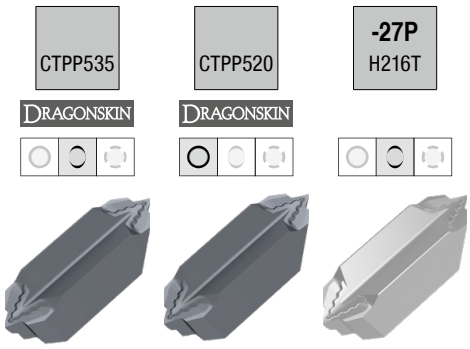
5

Threading inserts TC full profile – Internal thread ISO 60°

F	M	R
		







Designation	Size	TP mm	INSL inch	PDPT inch	PDX inch	CRE inch	for tool holder	70 358 ...		70 358 ...		70 358 ...	
TC 16-1 I 1.0 ISO	TC 16-1 ...	1.00	0.630	0.023	0.041	0.002	I32 R/L TC 16-1	**114**		**014**		**614**	
TC 16-1 I 1.25 ISO	TC 16-1 ...	1.25	0.630	0.029	0.041	0.003	I32 R/L TC 16-1			**016**			
TC 16-1 I 1.5 ISO	TC 16-1 ...	1.50	0.630	0.035	0.041	0.004	I32 R/L TC 16-1	**118**		**018**		**618**	
TC 16-2 I 1.75 ISO	TC 16-2 ...	1.75	0.630	0.040	0.085	0.004	I32 R/L TC 16-2			**030**			
TC 16-2 I 2.0 ISO	TC 16-2 ...	2.00	0.630	0.046	0.085	0.005	I32 R/L TC 16-2	**132**		**032**		**632**	
TC 16-2 I 3.0 ISO	TC 16-2 ...	3.00	0.630	0.069	0.085	0.007	I32 R/L TC 16-2	**136**		**036**		**636**	
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K								●		●		●	
N												●	
S								●		○			
H										○			
O												○	

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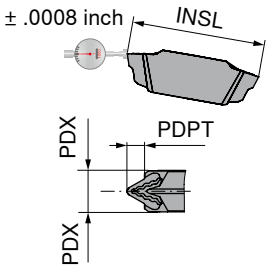
Internal machining *External machining*

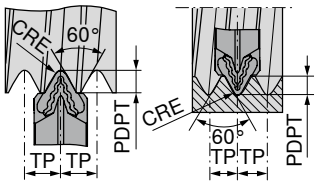

→ 68

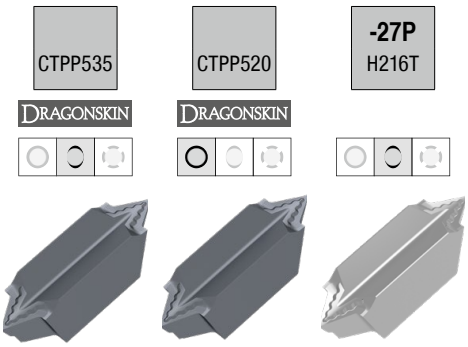
metric

Threading inserts TC partial profile 60°

F	M	R
		







Designation	Size	TP mm	INSL inch	PDPT inch	PDX inch	CRE inch	for tool holder	70 355 ...		70 355 ...		70 355 ...	
TC 16-1 EI A 60	TC 16-1 ...	0,5 - 1,5	0.630	0.050	0.041	0.001	E/I.. R/L TC 16-1	**110**		**010**		**610**	
TC 16-2 EI G 60	TC 16-2 ...	1,75 - 3,0	0.630	0.098	0.085	0.004	E/I.. R/L/N TC 16-2	**130**		**030**		**630**	
TC 16-2 EI AG 60	TC 16-2 ...	0,5 - 3,0	0.630	0.101	0.085	0.001	E/I.. R/L/N TC 16-2	**132**		**032**		**632**	
TC 16-3 EI N 60	TC 16-3 ...	3,5 - 5,0	0.630	0.162	0.122	0.009	E/I.. N TC 16-3	**150**		**050**		**650**	
P								●		●			
M								●		●			
K								●		●		●	
N												●	
S								●		○			
H										○			
O												○	

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Internal machining | *External machining*

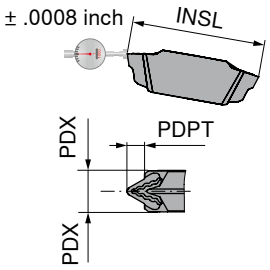


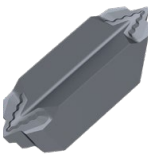
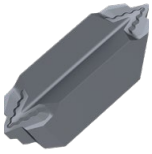
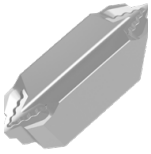

→ 68
metric
→ 66
→ 67

5

Threading inserts TC full profile Whitworth 55°

F	M	R
		



CTPP520	CTPP535	-27P H216T
DRAGONSKIN	DRAGONSKIN	
		

Designation	Size	TPI 1/"	INSL inch	PDPT inch	PDX inch	CRE inch	for tool holder	70 359 ...		70 359 ...		70 359 ...	
TC 16-1 EI 28 W	TC 16-1 ...	28	0.630	0.024	0.041	0.005	E/I.. R/L TC 16-1	**010**		**110**			
TC 16-1 EI 20 W	TC 16-1 ...	20	0.630	0.033	0.041	0.007	E/I.. R/L TC 16-1	**016**					
TC 16-1 EI 19 W	TC 16-1 ...	19	0.630	0.035	0.041	0.007	E/I.. R/L TC 16-1	**018**		**118**		**618**	
TC 16-1 EI 16 W	TC 16-1 ...	16	0.630	0.041	0.041	0.008	E/I.. R/L TC 16-1	**022**					
TC 16-2 EI 14 W	TC 16-2 ...	14	0.630	0.047	0.085	0.009	E/I.. R/L/N TC 16-2	**030**		**130**		**630**	
TC 16-2 EI 12 W	TC 16-2 ...	12	0.630	0.055	0.085	0.011	E/I.. R/L/N TC 16-2			**132**			
TC 16-2 EI 11 W	TC 16-2 ...	11	0.630	0.060	0.085	0.012	E/I.. R/L/N TC 16-2	**034**		**134**		**634**	
P								●		●			
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N												●	
S								○		●			
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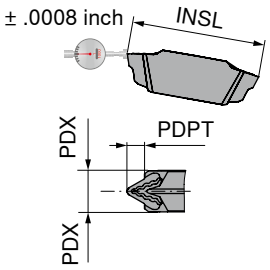
Internal machining | *External machining*

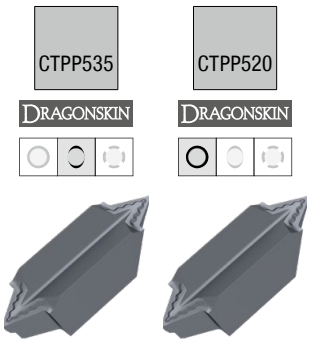



→ 68 | metric | → 66 | → 67

Threading inserts TC partial profile 55°

F	M	R
		





Designation	Size	TPI 1/"	INSL inch	PDPT inch	PDX inch	CRE inch	for tool holder	70 356 ...		70 356 ...	
TC 16-1 EI A 55	TC 16-1 ...	28 - 16	0.630	0.055	0.041	0.005	E/I.. R/L TC 16-1	**110**		**010**	
TC 16-2 EI AG 55	TC 16-2 ...	28 - 8	0.630	0.115	0.085	0.005	E/I.. R/L/N TC 16-2	**132**		**032**	
TC 16-2 EI G 55	TC 16-2 ...	14 - 8	0.630	0.109	0.085	0.009	E/I.. R/L/N TC 16-2	**130**		**030**	
TC 16-3 EI N 55	TC 16-3 ...	7 - 5	0.630	0.171	0.122	0.018	E/I.. N TC 16-3	**150**		**050**	
P								●		●	
M								●		●	
K								●		●	
N											
S								●		○	
H										○	
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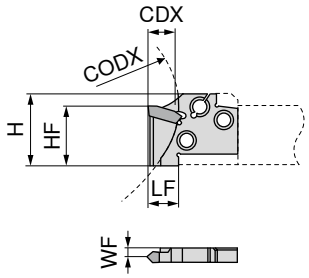
Internal machining | *External machining*



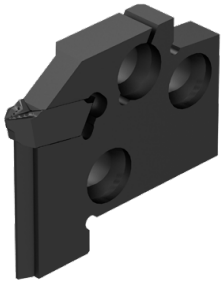

→ 68
metric
→ 66
→ 67

5

ModularClamp MSS – Threading module TC for external threads



Illustrations show right-hand versions

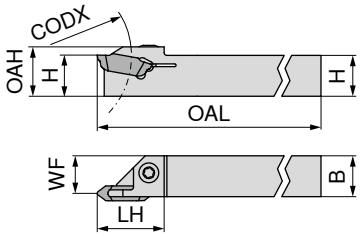


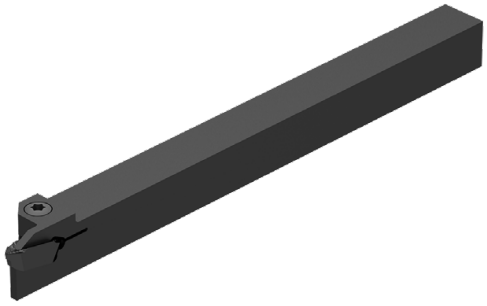
										Left-hand		Neutral		Right-hand	
										70 872 ...		**70 872 ...**		**70 872 ...**	
Designation	TP inch	TPI 1/"	WF inch	HF inch	LF inch	H inch	CODX inch	CDX inch	for grooving inserts						
E20 R/L TC 16-1	0.020 - 0.059	28 - 16	0.136	0.512	0.787	0.945	2.362	0.315	TC 16-1 ...		**120**				**020**
E20 N TC 16-2	0.069 - 0.118	14 - 8	0.087	0.512	0.787	0.945		0.472	TC 16-2 ...				**220**		
E25 R/L TC 16-1	0.020 - 0.059	28 - 16	0.205	0.512	0.984	1.181	2.953	0.315	TC 16-1 ...		**125**				**025**
E25 R/L TC 16-2	0.069 - 0.118	14 - 8	0.161	0.512	0.984	1.181	2.953	0.394	TC 16-2 ...		**325**				**225**
E25 N TC 16-3	0.138 - 0.197	7 - 5	0.122	0.512	0.984	1.181		0.472	TC 16-3 ...				**425**		



→ 61–65
→ 69–71
metric

MonoClamp – Monoholder TC – external thread





Illustrations show right-hand versions

Designation	TP mm	TPI 1/"	H inch	B inch	OAL inch	LH inch	OAH inch	WF inch	CODX inch	for grooving inserts	Left-hand 78 883 ...	Right-hand 78 882 ...
E12 R/L 00-08 TC16-E	0,5 - 3	28 - 8	0.500	0.500	6.000	0.768	0.598	0.461	1.181	TC16-1/2..	**05000**	**05000**


Screwdriver

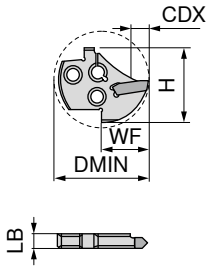

Clamping screw

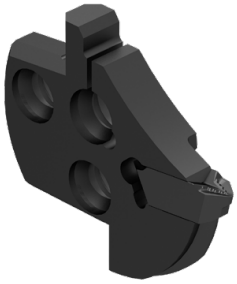
Spare parts for grooving inserts				
TC16-1/2..	T15	**80 950 ... 113**	M4x11	**70 950 ... 442**

→ 61-65

5

ModularClamp MSS – Threading module TC for internal threads

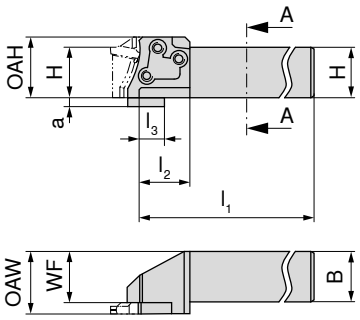




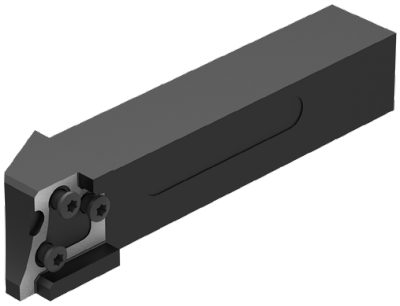
Designation	TP mm	TPI 1/"	LB inch	WF inch	H inch	DMIN inch	CDX inch	for grooving inserts	Left-hand 70 887 ...	Neutral 70 887 ...	Right-hand 70 887 ...
I32 R/L TC 16-1	0,5 - 1,5	28 - 16	0.244	0.205	1.268	1.575	0.276	TC 16-1 ...	**132**		**032**
I32 R/L TC 16-2	1,75 - 3,0	14 - 8	0.244	0.161	1.268	1.575	0.276	TC 16-2 ...	**332**		**232**
I32 N TC 16-3	3,5 - 5,0	7 - 5	0.244	0.122	1.268	1.575	0.276	TC 16-3 ...		**432**	

→ 61–65 → 72

ModularClamp MSS – Tool holder 0°



Illustrations show right-hand versions



										Left-hand	Right-hand
										78 851 ...	**78 850 ...**
Designation	H inch	B inch	OAW inch	OAH inch	WF inch	l_1 inch	l_2 inch	l_3 inch	for modules		
E12 R/L 00-08-E	0.500	0.500	0.650	0.598	0.512	3.000	0.472		E12 R/L ...	**05000**	**05000**
E16 R/L 00-10-E	0.625	0.625	0.787	0.763	0.650	3.500	0.630		E16 R/L ...	**06300**	**06300**
E 20 R/L 00-10-E	0.625	0.787	0.955	0.955	0.793	3.500	0.787		E20 R/L ...	**06400**	**06400**
E 20 R/L 00-12-E	0.750	0.750	0.955	0.955	0.793	4.500	0.787	0.393	E20 R/L ...	**07500**	**07500**
E 25 R/L 00-16-E	1.000	1.000	1.236	1.236	1.020	5.500	0.984		E25 R/L ...	**10000**	**10000**
E 32 R/L 00-20-E	1.250	1.000	1.236	1.236	1.020	6.500	1.260	0.630	E32 R/L ...	**12500**	**12500**
E 32 R/L 00-85-E	1.250	1.250	1.496	1.496	1.279	7.000	1.260	0.630	E32 R/L ...	**12600**	**12600**

Screwdriver

Clamping screw

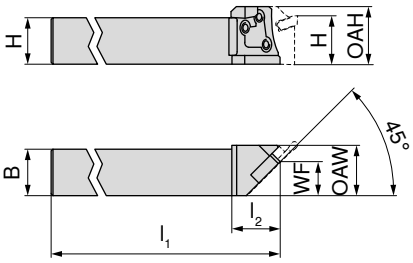
		80 950 ...		**70 950 ...**
Spare parts for Article no.				
78 850 05000 / 78 851 05000	T08	**110**	M2,5x10	**440**
78 850 06300 / 78 851 06300	T15	**113**	M3,5x12,5	**441**
78 850 06400 / 78 851 06400	T15	**113**	M4x14	**403**
78 850 07500 / 78 851 07500	T15	**113**	M4x14	**403**
78 850 10000 / 78 851 10000	T20	**114**	M5x18	**404**
78 850 12500 / 78 851 12500	T25	**115**	M6x20	**405**
78 850 12600 / 78 851 12600	T25	**115**	M6x20	**405**

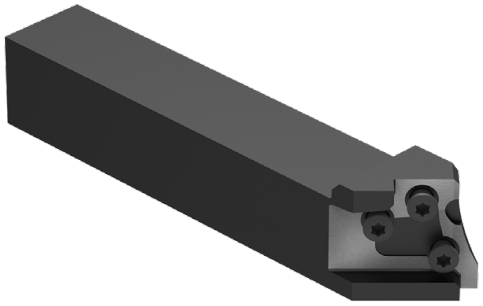
5

Module Overview

→ 4+5

ModularClamp MSS – Tool holder 45°





Illustrations show right-hand versions

Designation	H inch	B inch	OAW inch	OAH inch	WF inch	l_1 inch	l_2 inch	for modules	Left-hand 78 853 ...	Right-hand 78 852 ...
E20 R/L 45-12-E	0.750	0.750	0.846	0.984	0.571	4.500	0.787	E20 R/L ...	**07500**	**07500**
E25 R/L 45-12-E	1.000	1.000	1.024	1.197	0.709	5.500	0.984	E25 R/L ...	**10000**	**10000**

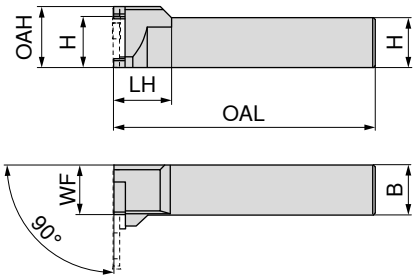
For right hand holder → left hand module only
For left hand holder → right hand module only

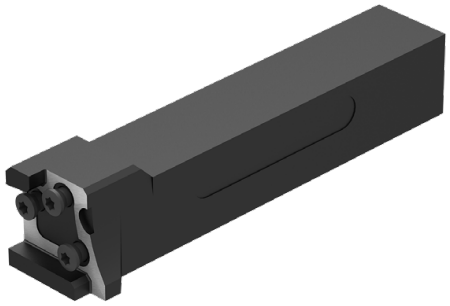
Spare parts for Article no.	Screwdriver 80 950 ...		Clamping screw 70 950 ...		Clamping screw 70 950 ...	
78 852 07500 / 78 853 07500	T15	**113**	M4x11	**442**	M4x14	**403**
78 852 10000 / 78 853 10000	T20	**114**	M5x13,5	**513**	M5x18	**404**

Module Overview

→ 4+5

ModularClamp MSS – Tool holder 90°





Illustrations show right-hand versions

Designation	H inch	B inch	OAH inch	WF inch	OAL inch	LH inch	for modules	Left-hand 78 855 ...	Right-hand 78 854 ...
E20 R/L 90-12-E	0.750	0.750	0.907	0.787	4.500	0.783	E20 R/L ...	**07500**	**07500**
E25 R/L 90-16-E	1.000	1.000	1.197	1.000	5.500	1.098	E25 R/L ...	**10000**	**10000**
E32 R/L 90-85-E	1.250	1.000	1.486	1.260	6.500	1.339	E32 R/L ...	**12500**	**12500**
E32 R/L 90-20-E	1.250	1.250	1.528	1.260	8.000	1.339	E32 R/L ...	**12600**	**12600**

For right hand holder → left hand module only
For left hand holder → right hand module only

Spare parts for Article no.	Screwdriver 80 950 ...		Clamping screw 70 950 ...	
78 854 07500 / 78 855 07500	T15	**113**	M4x14	**403**
78 854 10000 / 78 855 10000	T20	**114**	M5x18	**404**
78 854 12500 / 78 855 12500	T25	**115**	M6x20	**405**
78 854 12600 / 78 855 12600	T25	**115**	M6x20	**405**

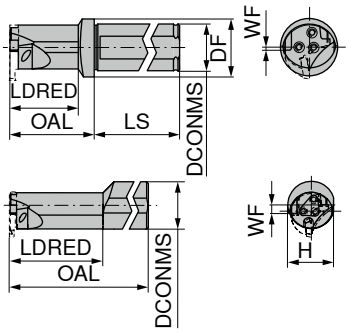
Module Overview

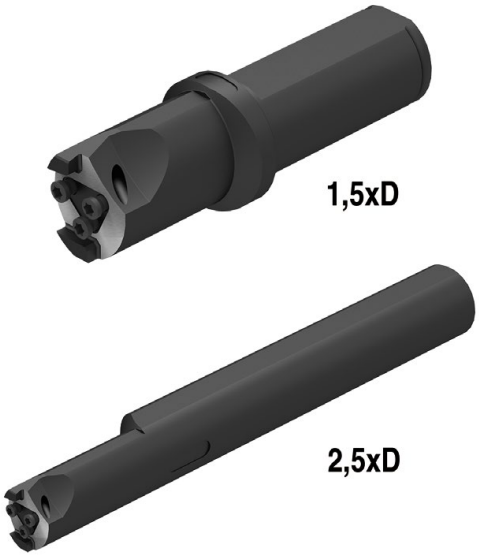
→ 4+5

5

ModularClamp MSS – Boring bars GX / TC

▲ With internal coolant supply





	Designation	DCONMS inch	DF inch	WF inch	H inch	OAL inch	LDRED inch	LS inch	for modules	Left-hand 78 861 ...	Right-hand 78 860 ...
≤ 1,5xD	I16 R/L 90-1.5 D-E	0.750	1.000	0.039	0.693	7.000	0.945	2.000	I 16 R/L	07500	07500
	I20 R/L 90-1.5 D-E	0.750	1.000	0.039	0.842	8.000	1.181	2.000	I 20 R/L	07600	07600
	I25 R/L 90-1.5 D-E	1.000	1.260	0.059	1.086	10.000	1.496	2.250	I 25 R/L	10000	10000
	I32 R/L 90-1.5 D-E	1.250	1.575	0.079	1.378	12.000	1.890	2.250	I 32 R/L	12500	12500
	I40 R/L 90-1.5 D-E	1.500	1.969	0.098	1.724	14.000	2.362	3.000	I 40 R/L/N	15000	15000
≤ 2,5xD	I16 R/L 90-2.5 D-E	0.750	1.000	0.177	0.693	7.000	1.575	2.000	I 16 R/L	27500	27500
	I20 R/L 90-2.5 D-E	1.000	1.000	0.236	0.842	8.000	1.969	2.000	I 20 R/L	20000	20000
	I25 R/L 90-2.5 D-E	1.250	1.250	0.276	1.086	10.000	2.480	2.250	I 25 R/L	22500	22500
	I32 R/L 90-2.5 D-E	1.500	1.575	0.374	1.378	12.000	3.150	2.250	I 32 R/L	25000	25000
	I40 R/L 90-2.5 D-E	2.000	1.969	0.433	1.724	14.000	3.937	3.000	I 40 R/L/N	20100	20100

Screwdriver

Clamping screw

Spare parts for modules				
	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

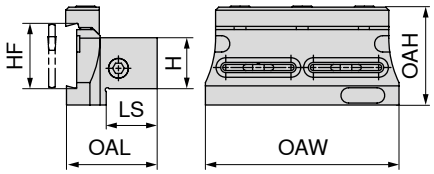
Module Overview

→ 6+7

Split clamping block for blades DC

Scope of supply:

Complete clamping block, but without blade and coolant set



Designation	H inch	HF inch	OAH inch	LS inch	OAL inch	OAW inch	for blades	78 829 ...
SBN 12-26-DC-E	0.750	1.024	1.690	0.700	1.480	3.230	XLC.. 26..	**07500**
SBN 16-32-DC-E	1.000	1.260	1.910	0.950	1.750	3.740	XLC.. 32..	**10000**
SBN 20-32-DC-E	1.250	1.260	1.910	0.950	1.750	3.740	XLC.. 32..	**12500**

Spare parts for Article no.	 Coolant screw plug	70 950 ...	 Clamping rail	70 950 ...	 clamping screw	70 950 ...
78 829 07500	G 1/8"	**294**	CU70	**290**	M6x12	**861**
78 829 10000	G 1/8"	**294**	CU85	**291**	M6x12	**861**
78 829 12500	G 1/8"	**294**	CU85	**291**	M6x12	**861**

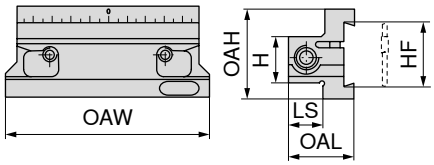
Spare parts for Article no.	 O-Ring	70 950 ...	 O-Ring	70 950 ...
78 829 07500	19x2,5	**293**		
78 829 10000			23x2,5	**292**
78 829 12500			23x2,5	**292**

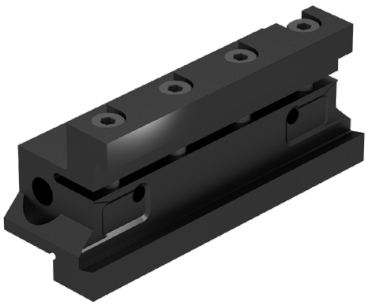
5

Clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H inch	HF inch	OAH inch	LS inch	OAL inch	OAW inch	for blades	78 830 ...
SBN 12-26K-E	0.750	1.024	1.535	0.700	1.369	3.540	XLC.. 26..	**07500**
SBN 20-32K-E	1.250	1.260	1.890	1.200	1.909	4.720	XLC.. 32..	**12500**
SBN 16-32K-E	1.000	1.260	1.890	0.950	1.647	4.330	XLC.. 32..	**10000**
SBN 24-46K-E	1.500	1.811	2.756	1.450	2.362	5.910	XLC.. 46..	**15000**
SBN 20-46K-E	1.250	1.811	2.756	1.200	2.106	5.910	XLC.. 46..	**12600**


Key I


Cooling agent set

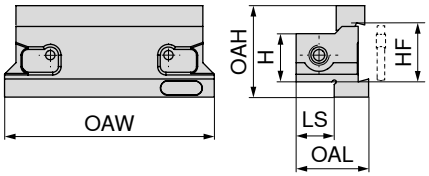

clamping screw

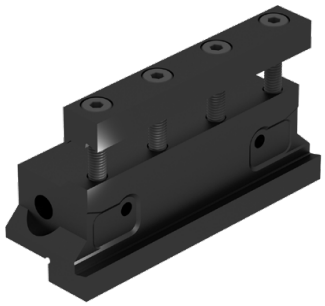
Spare parts for blades		70 950 ...		70 950 ...		70 950 ...
XLC.. 26..	SW5	**265**		**278**	M6x25	**269**
XLC.. 32..	SW5	**265**		**278**	M6x25	**269**
XLC.. 46..	SW6	**266**		**279**	M8x35	**282**

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

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H inch	HF inch	OAH inch	LS inch	OAL inch	OAW inch	for blades	78 831 ...
SBN 12-26KS-E	0.750	1.024	1.688	0.700	1.369	3.540	XLC.. 26..	**07500**
SBN 20-32KS-E	1.250	1.260	2.044	1.200	1.909	4.720	XLC.. 32..	**12500**
SBN 16-32KS-E	1.000	1.260	1.929	0.950	1.647	4.330	XLC.. 32..	**10000**

		 Key I	 Cooling agent set		 clamping screw
		70 950 ...	**70 950 ...**		**70 950 ...**
Spare parts for blades					
XLC.. 26..	SW5	**265**	**278**	M6x25	**269**
XLC.. 32..	SW5	**265**	**278**	M6x25	**269**

5

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0.15 % C	Annealed	60900 lbf/in² / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in² / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in² / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in² / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in² / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	P.2.1		Annealed	88500 lbf/in² / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in² / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in² / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in² / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	98600 lbf/in² / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in² / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in² / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	98600 lbf/in² / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in² / 250 HB	1.4112	S44003	1.4021	420
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in² / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in² / 230 HB	1.4462	S32205	1.4410	S32750
K	Grey cast iron	K.1.1	Pearlitic / ferritic		88500 lbf/in² / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in² / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	K.2.1	Ferritic		78300 lbf/in² / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in² / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	K.3.1	Ferritic		63800 lbf/in² / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in² / 230 HB	0.8170	70003		
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in² / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		36300 lbf/in² / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in² / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in² / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		54400 lbf/in² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in² / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in² / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	98600 lbf/in² / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in² / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in² / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in² / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	S.3.1	Pure titanium		5800 lbf/in²	3.7025	Ti99,8		
		S.3.2	Alpha + beta alloys		152300 lbf/in²	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
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		≤ 21800 lbf/in²				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in²				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in²				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

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

	DRAGONSKIN CTCP325	DRAGONSKIN CTCP335	DRAGONSKIN CTPP345	DRAGONSKIN CTPP520	DRAGONSKIN CTPP535	DRAGONSKIN CTP1340	H216T (SX/FX/GX)	H216T (TC)
Index	v_c in ft/min							
P.1.1	**890**	**760**	**550**	**980**	**770**	**760**		
P.1.2	**890**	**760**	**550**	**980**	**770**	**760**		
P.1.3	**890**	**760**	**550**	**980**	**770**	**760**		
P.1.4	**890**	**760**	**550**	**980**	**770**	**760**		
P.1.5	**890**	**760**	**550**	**980**	**770**	**760**		
P.2.1	**890**	**760**	**550**	**980**	**770**	**760**		
P.2.2	**890**	**760**	**550**	**980**	**770**	**760**		
P.2.3	**890**	**760**	**550**	**980**	**770**	**760**		
P.2.4	**890**	**760**	**550**	**980**	**770**	**760**		
P.3.1	**840**	**670**	**470**	**970**	**590**	**610**		
P.3.2	**840**	**670**	**470**	**970**	**590**	**610**		
P.3.3	**840**	**670**	**470**	**970**	**590**	**610**		
P.4.1	**840**	**670**	**470**	**970**	**590**	**610**		
P.4.2	**840**	**670**	**470**	**970**	**590**	**610**		
M.1.1	840	670	**470**	**970**	**590**	**610**		
M.2.1	840	670	**470**	**970**	**590**	**610**		
M.3.1	840	670	**470**	**970**	**590**	**610**		
K.1.1	**560**	**450**		**460**	**540**	**500**	**460**	**460**
K.1.2	**500**	**380**		**380**	**500**	**410**	**380**	**380**
K.2.1	**530**	**430**		**590**	**480**	**460**	**500**	**500**
K.2.2	**480**	**350**		**380**	**510**	**400**	**360**	**360**
K.3.1	**690**	**500**		**430**	**630**	**560**	**560**	**560**
K.3.2	**460**	**380**		**360**	**480**	**400**	**460**	**460**
N.1.1						990	**1320**	**1490**
N.1.2						660	**330**	**1490**
N.2.1						990	**1490**	**990**
N.2.2						660	**1490**	**990**
N.2.3						500	**1650**	**740**
N.3.1						990	**1400**	**630**
N.3.2						990	**1320**	**960**
N.3.3						660	**910**	**960**
N.4.1						660	**740**	**960**
S.1.1	120			130	**100**	**120**	120	
S.1.2	100		100	100	**80**	**100**	90	
S.2.1	70		80	70	**50**	**70**	90	
S.2.2	50			50	**50**	**50**	80	
S.2.3	50			60	**50**	**50**	70	
S.3.1				410	**280**	**280**	300	
S.3.2				170	**120**	**130**	180	
S.3.3				120	**80**	**100**	130	
H.1.1				50				
H.1.2				50				
H.1.3								
H.1.4								
H.2.1				50				
H.3.1				130				
O.1.1						430	430	960
O.1.2								
O.2.1						350	350	960
O.2.2								
O.3.1								

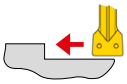
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

5

GX – Depths of cut and feed rates

GX Standard / GX-E

Turning



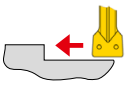
Parting / Grooving

	Depth of Cut a_p in inch							
GX Standard / GX-E	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**GX Standard / GX-E**
Cutting width in inch	Feed rate f in inch/rev.							Feed rate f in inch/rev.
.0787	.0039 – .0059	.0020 – .0059	.0020 – .0047	.0020 – .0039				.0020 – .0079
.1181	.0039 – .0067	.0020 – .0067	.002 – .0067	.0020 – .0059	.0020 – .0047			.0039 – .0098
.1575	.0039 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0067	.0028 – .0059		.0039 – .0098
.1969	.0039 – .0098	.0039 – .0098	.0028 – .0098	.0028 – .0098	.0028 – .0087	.0028 – .0079		.0039 – .0118
.2362	.0059 – .0118	.0059 – .0118	.0059 – .0118	.0059 – .0118	.0059 – .0118	.0059 – .0098	.0059 – .0087	.0059 – .0138

When axial grooving reduce feed by 40%.

GX-F2

Turning



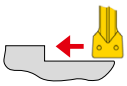
Parting / Grooving

	Depth of Cut a_p in inch								
GX-F2	**.020**	**.030**	**.040**	**.050**	**.060**	**.070**	**.080**	**.090**	**.100**	**GX-F2**
Cutting width in inch	Feed rate f in inch/rev.									Feed rate f in inch/rev.
.0787	.0012 – .0059	.0012 – .0059	.0012 – .0059	.0012 – .0039						.0020 – .0059
.1181	.0016 – .0067	.0016 – .0067	.0016 – .0067	.0016 – .0059	.0016 – .0051	.0016 – .0047				.0028 – .0079
.1575	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0067	.0020 – .0059			.0039 – .0098
.1969	.0028 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0067	.0028 – .0059		.0039 – .0118
.2362	.0039 – .0091	.0039 – .0091	.0039 – .0091	.0039 – .0091	.0039 – .0091	.0039 – .0091	.0039 – .0091	.0039 – .0075	.0039 – .0059	.0059 – .0128

When axial grooving reduce feed by 40%.

GX-M40

Turning



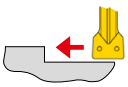
Parting / Grooving

	Depth of Cut a_p in inch							
GX-M40	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**GX-M40**
Cutting width in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0787	.0039 – .0079	.0020 – .0079	.0020 – .0067	.0020 – .0059					.0020 – .0059
.1181	.0039 – .0087	.0039 – .0087	.0039 – .0083	.0039 – .0079	.0039 – .0067				.0028 – .0079
.1575	.0039 – .0098	.0039 – .0098	.0039 – .0098	.0039 – .0098	.0039 – .0087	.0039 – .0067			.0039 – .0098
.1969	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0106	.0039 – .0091	.0039 – .0079		.0039 – .0118
.2362	.0039 – .0138	.0039 – .0138	.0039 – .0138	.0039 – .0138	.0039 – .0126	.0039 – .0106	.0039 – .0091	.0039 – .0079	.0059 – .0128

When axial grooving reduce feed by 40%.

GX-27P

Turning



Parting / Grooving

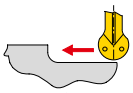
	Depth of Cut a_p in inch							
GX-27P	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**GX-27P**
Cutting width in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0787	.0020 – .0091	.0020 – .0091	.0020 – .0091	.0020 – .0079					.0020 – .0079
.1181	.0020 – .0098	.0020 – .0098	.0020 – .0098	.0020 – .0098	.0020 – .0079				.0020 – .0098
.1575	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0098			.0020 – .0118
.1969	.0039 – .0138	.0039 – .0138	.0039 – .0138	.0039 – .0138	.0039 – .0138	.0039 – .0126	.0039 – .0118		.0039 – .0138
.2362	.0039 – .0157	.0039 – .0157	.0039 – .0157	.0039 – .0157	.0039 – .0157	.0039 – .0142	.0039 – .013	.0039 – .0118	.0039 – .0157

When axial grooving reduce feed by 40%.

GX – Depths of cut and feed rates

GX-M3

Turning

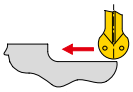


Parting / Grooving

	Depth of Cut a_p in inch								
GX–M3	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**GX–M3**
Radius RE in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0591	.0059 – .0138	.0059 – .0138	.0059 – .0118						.0020 – .0079
.0787	.0059 – .0157	.0059 – .0157	.0059 – .0157	.0059 – .0118					.0039 – .0098
.0984	.0059 – .0197	.0059 – .0197	.0059 – .0197	.0059 – .0157	.0059 – .0138				.0039 – .0098
.1181	.0079 – .0276	.0079 – .0276	.0079 – .0276	.0079 – .0236	.0079 – .0197	.0079 – .0157			.0039 – .0138

GX-27P Full Radius

Turning



Parting / Grooving

	Depth of Cut a_p in inch								
GX-27P Full Radius	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**GX-27P Full Radius**
Radius RE in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0591	.0039 – .0177	.002 – .0177	.002 – .0157						.0020 – .0059
.0787	.0059 – .0197	.0039 – .0197	.0039 – .0197	.0039 – .0157					.0030 – .0079
.0984	.0059 – .0236	.0039 – .0236	.0039 – .0236	.0039 – .0197	.0039 – .0177				.0039 – .0098
.1181	.0098 – .0276	.0079 – .0276	.0059 – .0276	.0059 – .0276	.0059 – .0256	.0059 – .0236	.0059 – .0217		.0039 – .0118
.1575	.0098 – .0315	.0079 – .0315	.0059 – .0315	.0059 – .0315	.0059 – .0315	.0059 – .0315	.0059 – .0295	.0059 – .0276	.0059 – .0138

5

GX-M1

Parting / Grooving

GX-M1	
Cutting width in inch	Feed rate f in inch/rev.
.0787	.0020 – .0059
.1181	.0039 – .0079
.1575	.0039 – .0098

GX Radius grooving inserts

Parting / Grooving

GX Radius grooving insert	
Radius RE in inch	Feed rate f in inch/rev.
.0315	.0020 – .0039
.0394	.0020 – .0059
.0472	.0020 – .0059

GX circlip grooving

Grooving

GX circlip grooves	
Cutting width in inch	Feed rate f in inch/rev.
.0236 – .0669	.0008 – .0035
.0768 – .0886	.0020 – .0039
.1083 – .1280	.0020 – .0047

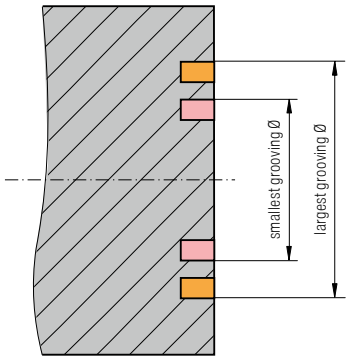
Feed guide and machining instructions for axial grooving and face turning with GX 24 axial

Approximate feed rates

GX

Designation	f in inch/rev.	f in inch/rev.	$a_p$max inch
GX 24-2 E 3.00 ..	.0019 – .0057	.0019 – .0078	0.100
GX 24-3 E 4.00 ..	.0019 – .0057	.0019 – .0098	0.120
GX 24-3 E 5.00 ..	.0019 – .0057	.0039 – .0098	0.120
GX 24-4 E 6.00 ..	.0019 – .0078	.0039 – .0117	0.140

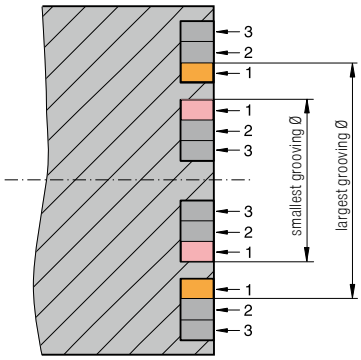
Axial grooving



It is only possible to plunge within the fixed diameter range of the axial grooving module or monoholder (e.g. 1.9685 – 2.7559 inch).

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

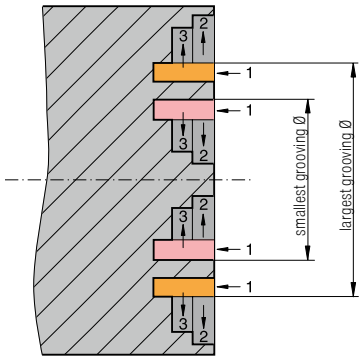
Axial grooving – Groove widening



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

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

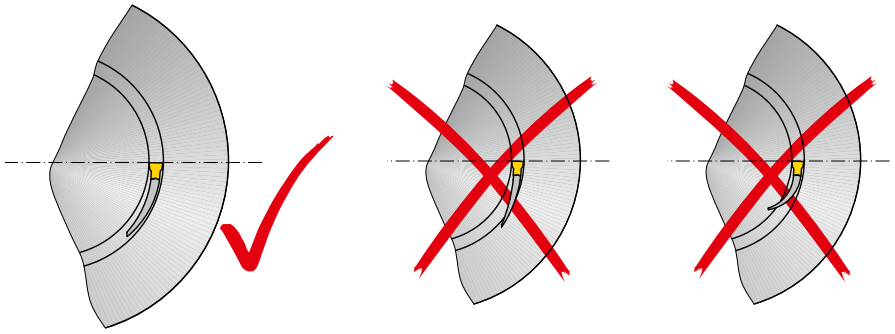
Axial grooving and face turning



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

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

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



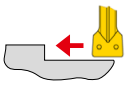
Correct Axial mono holder

Incorrect Axial mono holder

SX – Depths of cut and feed rates

SX-F2

Turning

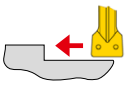


Parting / Grooving

	Depth of Cut a_p in inch									
SX -F2	**.020**	**.003**	**.040**	**.050**	**.060**	**.070**	**.080**	**.090**	**.100**	**SX -F2**
Cutting width in inch	Feed rate f in inch/rev.									Feed rate f in inch/rev.
.0787	.0012 – .0059	.0012 – .0059	.0012 – .0059	.0012 – .0039						.0020 – .0059
.1181	.0016 – .0067	.0016 – .0067	.0016 – .0067	.0016 – .0059	.0016 – .0051	.0016 – .0047				.0028 – .0079
.1575	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0067	.0020 – .0059			.0039 – .0098

SX-M2

Turning

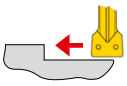


Parting / Grooving

	Depth of Cut a_p in inch								
SX–M2	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**SX–M2**
Cutting width in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0787	.0020 – .0067	.0020 – .0051	.0020 – .0039						.0020 – .0059
.1181	.0028 – .0079	.0028 – .0079	.0028 – .0071	.0028 – .0059					.0028 – .0079
.1575	.0039 – .0098	.0039 – .0098	.0039 – .0098	.0039 – .0087	.0039 – .0071				.0039 – .0098
.1969	.0047 – .0106	.0047 – .0106	.0047 – .0106	.0047 – .0098	.0047 – .0087				.0039 – .0118
.2362	.0059 – .0118	.0059 – .0118	.0059 – .0118	.0059 – .0118	.0059 – .0098	.0059 – .0079			.0059 – .0138

SX-27P

Turning



Parting / Grooving

	Depth of Cut a_p in inch								
SX-27P	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**SX-27P**
Cutting width in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0787	.0029 – .0091	.0020 – .0091	.0020 – .0091	.0020 – .0079					.0020 – .0079
.1181	.0020 – .0098	.0020 – .0098	.0020 – .0098	.0020 – .0098	.0020 – .0079				.0020 – .0098
.1575	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0098			.0020 – .0118

SX/LX – Depths of cut and feed rates

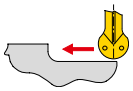
SX-M1

Parting / Grooving

SX-M1	
Cutting width in inch	Feed rate f in inch/rev.
.0787	.0020 – .0059
.1181	.0039 – .0079
.1575	.0039 – .0098
.1969	.0059 – .0118
.2362	.0059 – .0138

SX-M3

Turning

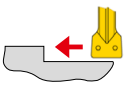


Parting / Grooving

	Depth of Cut a_p in inch								
SX–M3	**.020**	**.040**	**.060**	**.080**	**.010**	**.120**	**.140**	**.160**	**SX–M3**
Radius in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0591	.0059 – .0138	.0059 – .0138	.0059 – .0118						.0022 – .008
.0787	.0059 – .0157	.0059 – .0157	.0059 – .0157	.0059 – .0118					.004 – .0010
.0984	.0059 – .0197	.0059 – .0197	.0059 – .0197	.0059 – .0157	.0059 – .0138				.004 – .0010
.1181	.0079 – .0276	.0079 – .0276	.0079 – .0276	.0079 – .0236	.0079 – .0197	.0079 – .0157			.004 – .0014

LX-M2

Turning

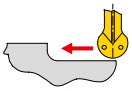


Parting / Grooving

	Depth of Cut a_p in inch								
LX–M2	**.020**	**.040**	**.060**	**.080**	**.010**	**.120**	**.140**	**.160**	**LX–M2**
Cutting width in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.3150	.0067 – .0177	.0067 – .0177	.0067 – .0177	.0067 – .0177	.0067 – .0157	.0067 – .0146	.0067 – .0138		.0080 – .0020
.3937	.0079 – .0197	.0079 – .0197	.0079 – .0197	.0079 – .0197	.0079 – .0181	.0079 – .0165	.0079 – .0150	.0079 – .0138	.0080 – .0020

LX-M3

Turning



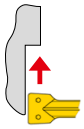
Parting / Grooving

	Depth of Cut a_p in inch								
LX–M3	**.020**	**.040**	**.060**	**.080**	**.010**	**.120**	**.140**	**.160**	**LX–M3**
Radius in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.1575	.0098 – .0315	.0098 – .0315	.0098 – .0315	.0098 – .0315	.0098 – .0315	.0098 – .0276	.0098 – .0236	.0098 – .0197	.0060 – .0014

AX/FX – Depths of cut and feed rates

AX-F50

Face turning



Axial grooving

	Depth of Cut a_p in inch			
AX-F50	**0,5**	**1,0**	**1,5**	**2,3**
Size	Feed rate f in inch/rev.			
AX 05	.0012 – .0039	.0012 – .0039		
AX 10	.0012 – .0051	.0012 – .0051	.0012 – .0053	
AX 15	.0012 – .0059	.0012 – .0059	.0012 – .0059	.0012 – .0059

1. Plunging	
Feed rate f in inch/rev.	Feed rate f in inch/rev.
.0010 – .0031	.0008 – .0079
.0010 – .0026	.0020 – .0098
.0010 – .0020	.0020 – .0118

FX-F1

Parting / Grooving

FX-F1	
Cutting width in inch	Feed rate f in inch/rev.
.0866	.0008 – .0039
.1220	.0020 – .0059
.1614	.0020 – .0079

FX-M1

Parting / Grooving

FX-M1	
Cutting width in inch	Feed rate f in inch/rev.
.0866	.0020 – .0059
.1220	.0031 – .0071
.1614	.0039 – .0079
.2008	.0059 – .0110
.2559	.0059 – .013
.3228	.0079 – .0157
.3819	.0079 – .0157

FX-27P

Parting / Grooving

FX-27P	
Cutting width in inch	Feed rate f in inch/rev.
.0866	.0004 – .0039
.1220	.0004 – .0049
.1614	.0020 – .0059

FX-R2

Grooving

FX-R2	
Cutting width in inch	Feed rate f in inch/rev.
.1220	.0039 – .0108
.1614	.0059 – .0138

5

TC – Reference values for profile depth and number of passes

All listed values are guide values for steel machining

Metric ISO 60° external thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18	10–18	12–20	12–20	12–20
Thread profile depth in inch	.013	.019	.025	.031	.037	.043	.050	.062	.074	.087	0.100	0.112	0.124

Metric ISO 60° internal thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18	10–18	12–20	12–20	12–20
Thread profile depth in inch	.012	.018	.023	.029	.035	.040	.046	.057	.069	.080	.093	.104	.115

Whitworth 55° external and internal thread

TPI	28	26	24	20	19	18	16	14	12	11	10	9	8	7	6	5
Number/cuts	5–8	5–8	5–9	5–9	6–10	6–10	7–11	8–12	9–14	9–14	10–17	10–18	10–18	12–20	12–20	12–20
Thread profile depth in inch	.024	.026	.028	.033	.035	.037	.041	.047	.055	.060	.066	.074	.083	.095	.111	.133

Partial profile 60° external and internal thread

External	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20	12–20	13–21	14–22	14–22
Thread profile depth in inch	.013	.020	.028	.035	.043	.050	.058	.072	.087	.048	.056	.070	.085	.096	.111	.126	.141

Internal	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20	12–20	13–21	14–22	14–22
Thread profile depth in inch	.011	.017	.024	.030	.036	.043	.049	.062	.075	.041	.047	.060	.073	.081	.094	.107	.120

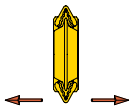
Partial profile 55° external and internal thread

External	TC 16-2EI-AG55												
	TC 16-1EI-A55												
TPI	28	26	24	20	19	18	16	14	12	11	10	9	8
Number/cuts	5–8	5–8	6–9	6–9	7–12	7–12	8–14	9–14	10–16	10–16	11–18	12–20	12–20
Thread profile depth in inch	.026	.028	.031	.037	.040	.042	.048	.055	.064	.070	.078	.087	.098

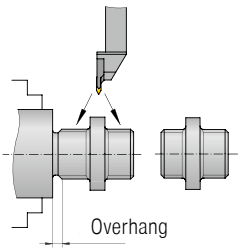
Internal	TC 16-2EI-G55						TC 16-3EI-N55		
TPI	14	12	11	10	9	8	7	6	5
Number/cuts	8–12	9–14	10–15	11–18	12–20	12–20	12–20	12–20	14–22
Thread profile depth in inch	.048	.057	.061	.071	.080	.091	.094	.114	.140

Comparison threading system with TC and conventional

TC

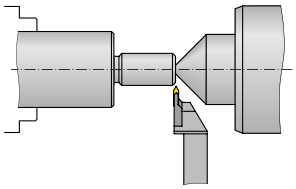


- Neutral configuration of insert makes operation in both directions possible
- Only one threading insert per pitch for partial profile and Whitworth thread; only two threading inserts (internal – external) per pitch for ISO threads
- Reduced stock holding
- good chip formation due to chip breaker with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

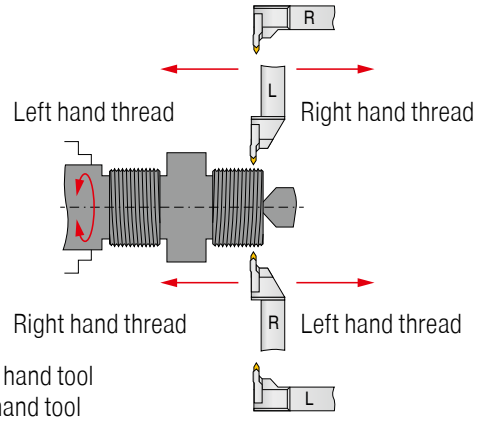


Greater efficiency through:

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



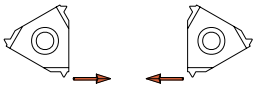
- Very good access to workpiece, therefore use of tailstock also possible with small thread diameters



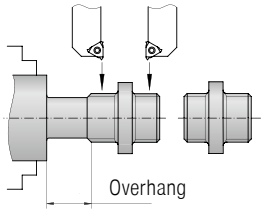
R = Right hand tool
L = Left hand tool

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

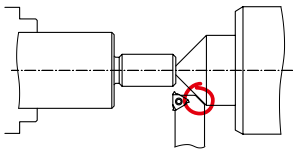
Conventional



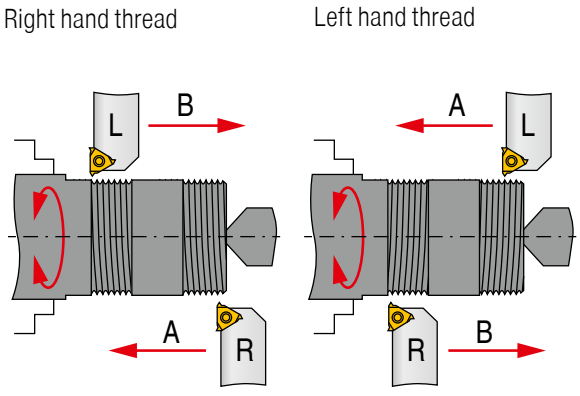
- Right-hand and left-hand version of indexable insert, therefore operation only in one direction
- For every pitch 4 threading inserts are necessary (right – left, internal – external)



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



- poor accessibility
- Collision danger

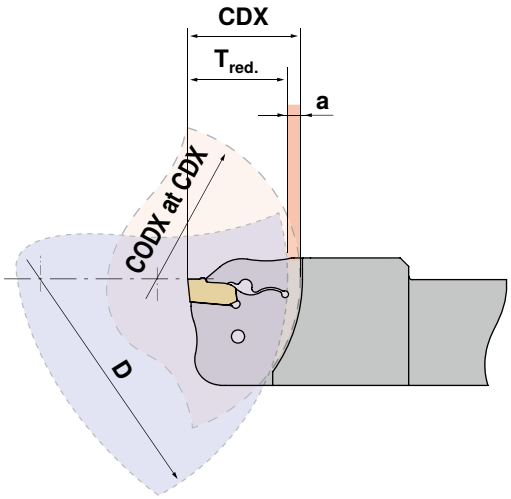


- With conventional thread turning the correction of the helix angle is necessary, therefore a high degree of application know-how is required
- Can only be operated in one direction

5

ModularClamp

GX | SX | LX | FX



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

CDX maximum plunge depth in inch
CODX maximum workpiece Ø with full penetration depth in inch
a Reduction amount in inch

$T_{red.}$ = CDX – a

Grooving depth reduction

	Reduction a (inch) of the maximum grooving depth (CDX)																
Size		.020	.040	.060	.080	.100	.120	.140	.160	.180	.200	.220	.240	.260	.280	.300	.320
E12	1.38	1.57	1.77	2.36	2.95	4.53	9.84										
E16	1.97	2.17	2.36	2.76	3.15	3.94	5.12	7.87	16.54								
E20	2.36	2.56	2.76	2.95	3.35	3.74	4.33	5.12	6.50	8.66	12.99						
E25	2.95	3.15	3.35	3.54	3.94	4.33	4.92	5.51	6.30	7.48	9.45	12.60	19.69				
E32	3.74	3.94	4.13	4.33	4.72	4.92	5.31	5.71	6.30	7.09	7.87	8.86	10.63	12.60	15.75	20.87	31.50
	Workpiece diameter D (inch)																

Maximum workpiece diameter (CODX) with full penetration depth (CDX) in inch

Calculation example:

E25R**21**-GX24-3

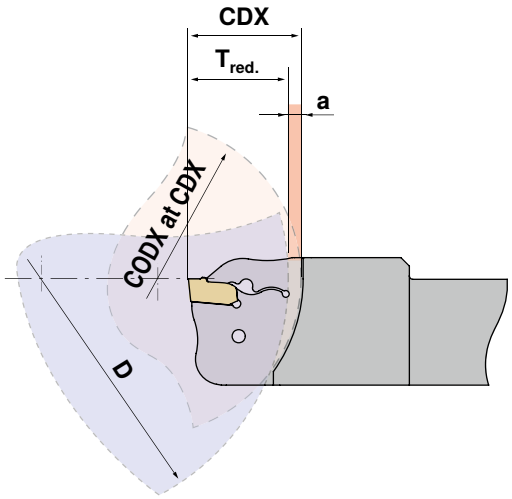
Size 25 — CDX = .826", Ø 2.95"

D = Ø 3.93"

CDX - a = $T_{red.}$
.826" - .080" = .746"

MonoClamp

SX



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

CDX maximum plunge depth in inch
CODX maximum workpiece Ø with full penetration depth in inch
a Reduction amount in inch

$T_{red.}$ = CDX – a

Grooving depth reduction

	Reduction a (inch) of the maximum grooving depth (CDX)																
Shank		.020	.040	.060	.080	.100	.120	.140	.160	.180	.200	.220	.240	.260	.280	.300	.320
E12R/L0022...	1.73	2.76	3.15	3.74	4.53	5.91	8.86	17.72									
E16R/L0026...	2.05	3.54	4.13	4.92	6.10	8.27	12.01	23.62									
E20R/L0026...	2.05	4.33	4.92	5.51	6.30	7.68	9.45	12.60	18.70	37.40							
E20R/L0033...	2.60	4.33	4.92	5.51	6.30	7.68	9.45	12.60	18.70	37.40							
E25R/L0026...	2.05	5.51	6.30	7.48	9.25	12.20	18.31	36.61									
E25R/L0033...	2.60	6.10	6.89	7.87	9.06	10.83	13.39	17.72	26.57	53.15							
E25R/L0040...	3.15	6.10	6.89	7.87	9.06	10.83	13.39	17.72	26.57	53.15							

Workpiece diameter D (inch)

Maximum workpiece diameter (CODX) with full penetration depth (CDX) in inch

Calculation example:

E25R0033...

CDX = 1.30". Ø 2.60"

D = Ø 7.87"

CDX - a = $T_{red.}$
1.30" - .060" = 1.24"

Clamping Method – SX-System

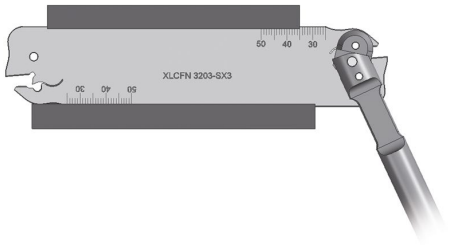
System function – inserting and removing the cutting inserts

Precision system for internal and external grooving.

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

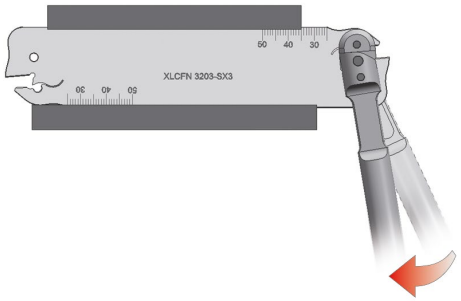
With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.

1



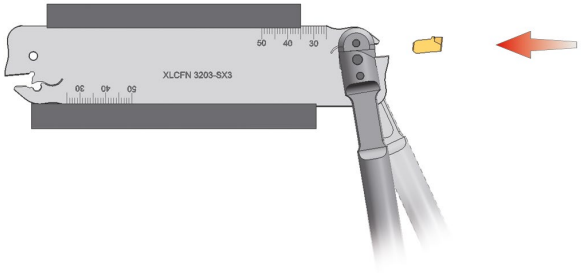
Locate wrench into blade with pins located in two holes

2



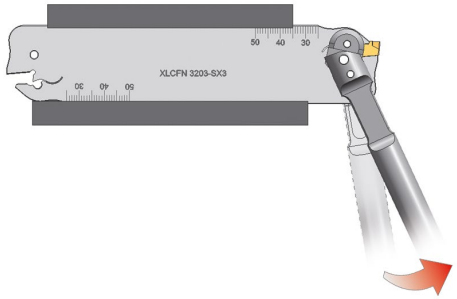
Movement of the fitting key in the direction of the insert seat opens the tool.

3



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

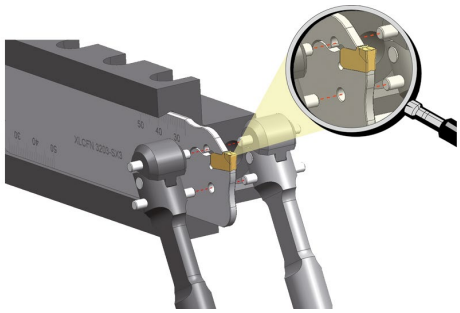
4



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

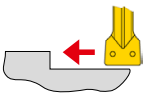
When changing the inserts, always maintain tension on the key!

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



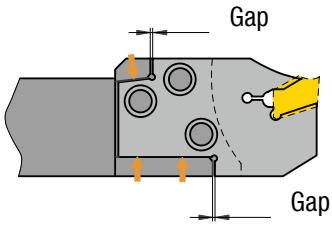
Maximum blade projection when turning

Blade	max. overhang
SX 2 – SX 3	.984 inch
SX 4 – SX 5	1.181 inch
SX 6	1.378 inch



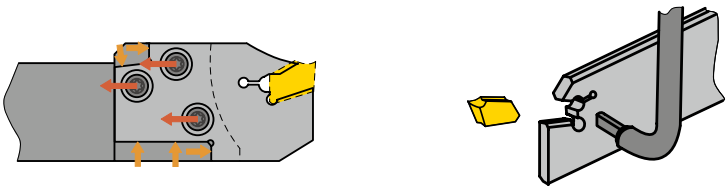
Clamping function – ModularClamp-Module

Module unclamped



- Gap between module and support face for axial clamping

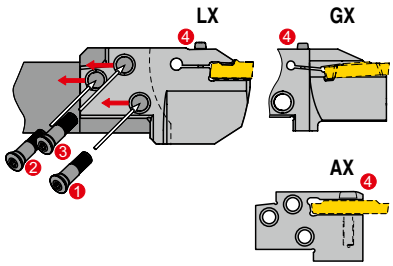
Module clamped



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

GX LX AX

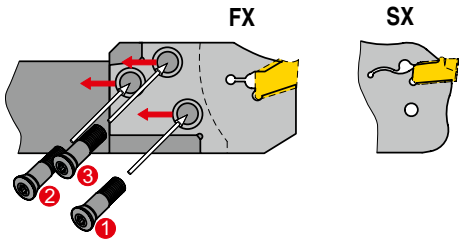
Active insert clamping



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

FX SX

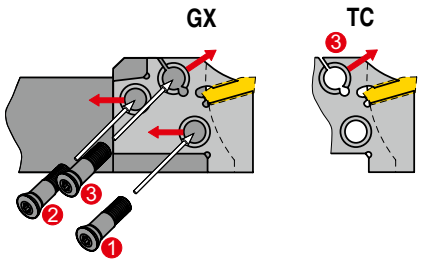
Self clamping of the insert



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

GX TC

Active insert clamping

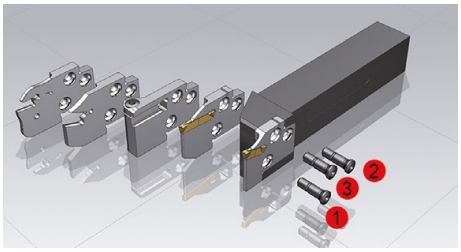


Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

5

Torque Moment ModularClamp Module Screws

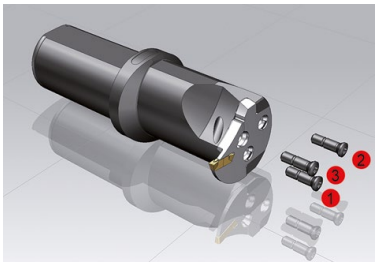
ModularClamp – Tool holder



Tighten screws to the correct Torque moment in this order.

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

ModularClamp – Boring bar



Tighten screws to the correct Torque moment in this order.

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

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

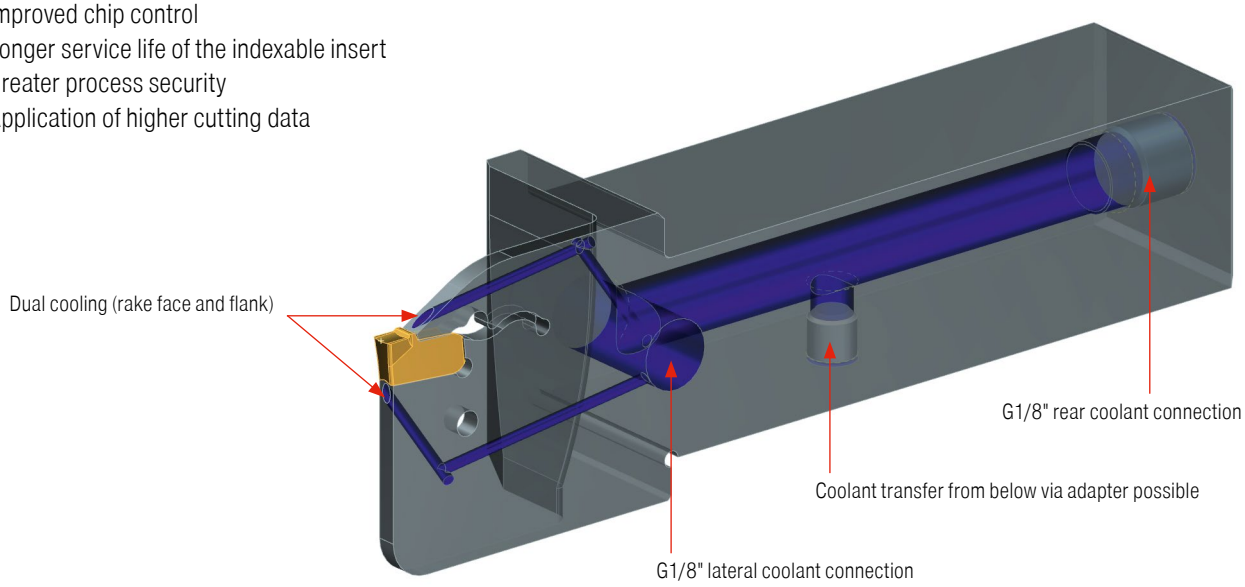
Advantages due to DirectCooling

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:

- **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

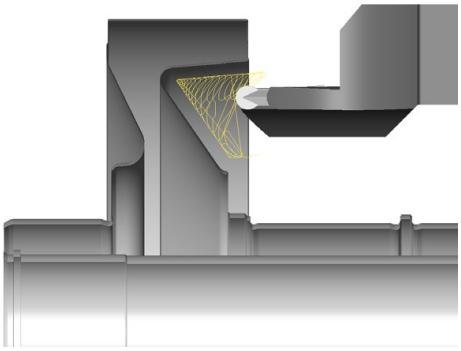
- Less wear and longer tool life due to softer entry and exit
- Smaller angle of engagement = less vibration
- Up to 40% higher feed rate values possible
- Target application: austenitic steels, heat-resistant steels, Inconel and nickel-base alloys as well as long-chipping ductile materials
- Savings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

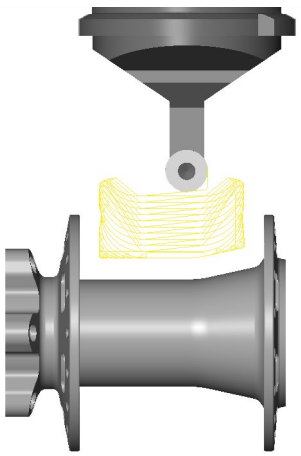
Trochoidal turning with support of the following CAM systems:

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

Possible applications

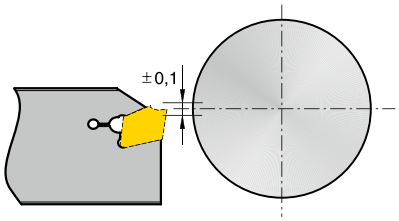
- Radial and axial recesses and grooves
- Rough machining – high-speed turning with button insert

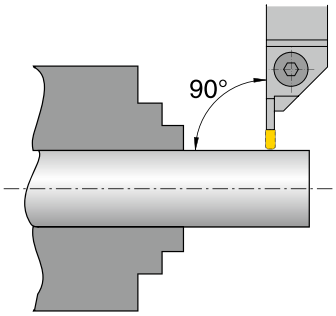




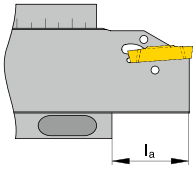
General references

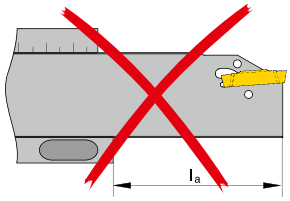
Tool position

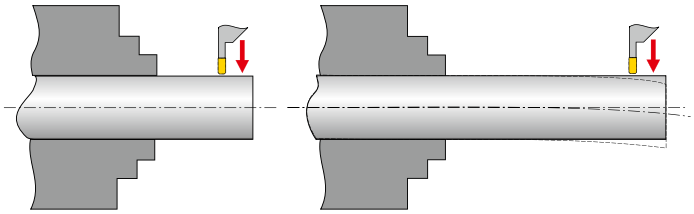




Tool overhang

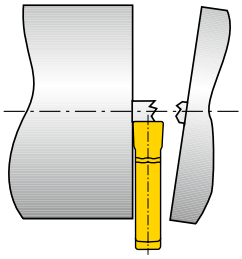




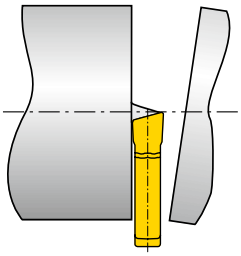


As a rule of thumb: Overhang l_a should not be greater than 8 x s (Groove width).

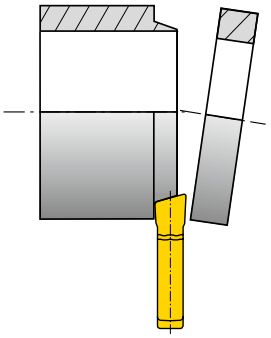
References for Parting off



From Ø 0.1969 inch on, reduce feed "f" by approx. 50%. No parting across centre (risk of breakage).

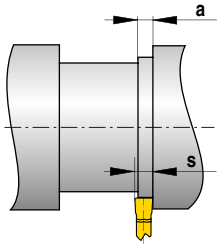


For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

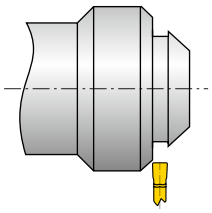


In order to prevent ring formation, use R or L inserts. Reduce feed "f" because of lateral deflection by approx. 20–50%.

References for grooving



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



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

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

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

5

Trouble shooting guide for TC threading

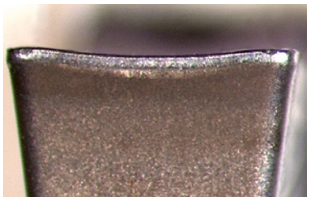
Type of problem												
Type of wear				Workpiece				Chip control				
Wear on clearance face	Break out cut	Plastic deformation	Built-up edge	Formation of a shoulder at the external thread Ø	Profile	Surface quality	Chatter marks, vibrations	Chip too thick	Chip too thin	Chip shape (snarl chip)		
↓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

Remedy measures

↑ 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.

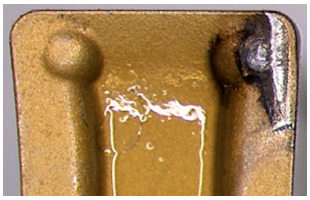
Cause

- 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

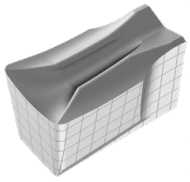
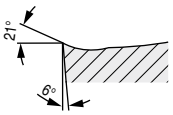
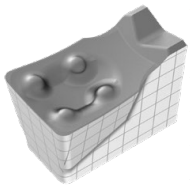
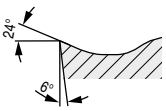
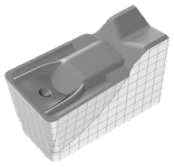
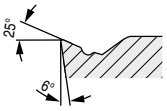
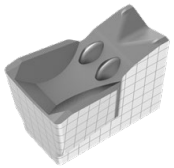
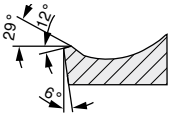
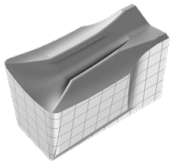
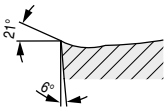
- Oxidation at the cutting edge
- Too high a temperature at the edge

Remedy

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

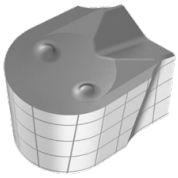
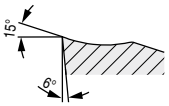
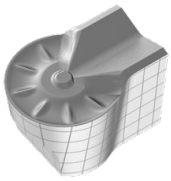
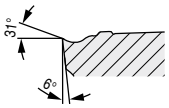
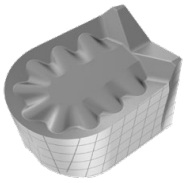
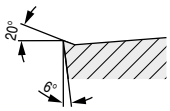
Chip breakers / Applications

System GX

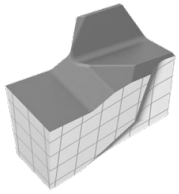
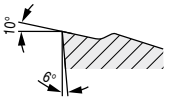
		Smooth cut	irregular cut	interrupted cut	Model	f in inch/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTPP345 		.002–.006
-Standard / -E ▲ positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ universal application ▲ first choice for axial grooving		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340/CTPP345** **CTCP335/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		.002–.007
-M40 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		.003–.008
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		.004–.008
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		.002–.010

Chip breakers / Applications

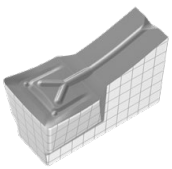
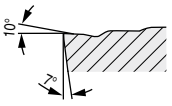
System GX

		Smooth cut	irregular cut	interrupted cut	Model	f in inch/rev.
Standard – Radius ▲ positive geometry ▲ honed cutting edge ▲ low-medium feed rates ▲ low cutting forces ▲ Radius grooving/copy turning		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 		.0018–.008
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325** CTCP335 **CTCP325** CTCP325 CTCP325 	**CTCP325/CTCP335** CTCP335 **CTCP325/CTCP335** 	**CTCP335** **CTCP335** 		.003–.008
-27P – Radius ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		.002–.012

Circlip grooving

Standard ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		.002–.012

System AX

-F50 ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		.001–.005

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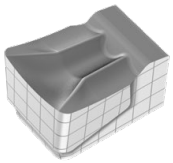
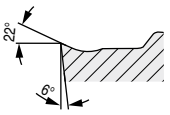
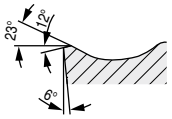
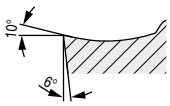
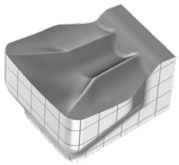
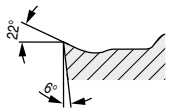
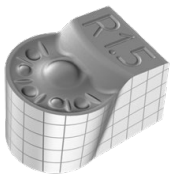
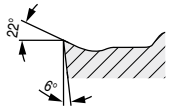
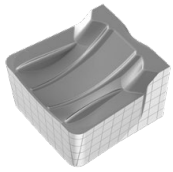
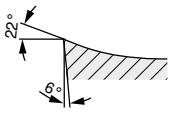
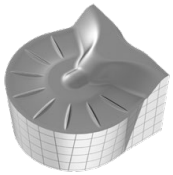
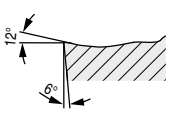
Chip breakers / Applications

System SX

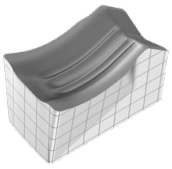
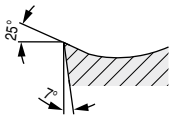
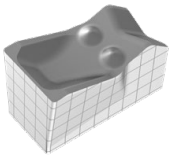
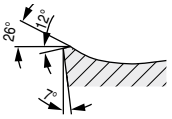
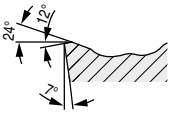
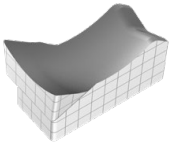
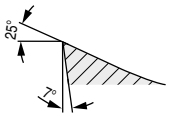
		Smooth cut	irregular cut	interrupted cut	Model	f in inch/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** **CTP1340** CTPP345		.002–.006
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		CTCP325 **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	CTCP335/CTP1340 **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTPP345 **CTPP345** CTP1340 CTPP345		.004–.008
-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		CTCP325 **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	CTCP335/CTP1340 **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTPP345 **CTPP345** CTP1340 CTPP345		.003–.008
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		**H216T** **H216T** H216T H216T	**H216T** **H216T** H216T	**H216T** **H216T**		.002–.010
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving / Copy turning		**CTCP335** **CTP1340** **CTCP335** **CTP1340** CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP335/CTP1340** **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340		.002–.008

System LX

-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325** CTCP335 **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP325** **CTP1340** CTP1340	**CTCP335** CTP1340 **CTCP335** CTP1340		.008–.020
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325** CTCP335 **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340/CTCP335** **CTCP325/CTCP335** **CTP1340** CTP1340	**CTCP335** CTP1340 **CTCP335** CTP1340		.002–.014

Chip breakers / Applications

System FX

		Smooth cut	irregular cut	interrupted cut	Model	f in inch/rev.
-F1 ▲ very positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ good chip control ▲ low cutting edge build up		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		.002–.006
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		.003–.008
-R2 ▲ very stable cutting edge ▲ high feed rates ▲ good chip control		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		.004–.011
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		.001–.005

5

Example of Coding Grooving Tools

Grooving insert

GX	16	2	E	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm / .6299 inch)	Width class of the holder / module or support surface (2 mm / .0787 inch)	Type of insert, application	Groove width (3.0 mm / .1181 inch)	Insert seat N=Neutral L=Left Handed R=Right Handed	Corner radius size (0.5 mm / .0197 inch)

Module

E	25	R	12	GX	16	2
Application E = external I = internal	Size (25 mm / .9843 inch)	Module version R=Right Handed L=Left Handed	Maximum groove depth (12 mm / .4724 inch)	Grooving system (GX)	Insert size (16 mm / .6299 inch)	Width class 2

Basic holder

E	25	R	00	2525	L
Application E = external I = internal	Size (25 mm / .9843 inch)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Shank type 25x25mm / .9843 x .9843 inch	Shank length L = (sh. ISO)

Monobloc tool holder

E	25	R	00	33	2525	M	K	DC	SX3
Application E = external I = internal	Size (25 mm / .9843 inch)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Groove depth (33 mm / 1.2992 inch)	Shank type 25x25mm / .9843 x .9843 inch	Shank length M = (sh. ISO)	Insert clamping K = Key	Cooling system DC = DirectCooling	Grooving system/width (3 mm / .1181 inch)

Compilation

Basic holder: **E25 R 00 - 2525L**

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

Grooving insert: **GX 16-2 E3.00 N 0.50**

Grades Overview

CTCP325
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P25** | M20 | **K30** | S25
- The wear-resistant solution for steel and cast iron materials at high cutting speeds

CTCP335
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P35** | M30 | **K35**
- The reliable choice for machining steel and cast iron materials

CTPP345
- Carbide, TiAlTaN-coated
- ISO | **P45** | **M40** | S40
- The reliable solution for steel materials and austenitic steels under unstable conditions

CTP1340
- Carbide, TiAlTaN-coated
- ISO | **P30** | **M25** | **K30** | N30 | **S30** | O30
- The universal high-performance grade for steel materials, austenitic steel, cast iron materials and heat-resistant alloys

CTPP520
- Carbide, TiAlTaN-coated
- ISO | **P20** | **M15** | **K25** | S25 | H5
- The wear-resistant grade for wet machining of steels

CTPP535
- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K25** | **S30**
- The tough thread turning grade for universal application

H216T
- Carbide, uncoated
- ISO | **K15** | **N15** | S15 | O5
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

Application