FACE GROOVE-TURN TOOLS

Metric Version 2013

Member IMC Group

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Quality Standard

ISCAR has been certified by the prestigious Standards Institution, as being in full compliance with Quality and Environmental & Occupational Health and Safety Management Standards -
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ISO 9001:2008
ISO 14001:2004
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In addition, completed products are inspected before shipping, to ensure delivery of the finest quality goods. Quality control facilities include the metallurgical laboratory, raw metal testing, an online testing procedure and a machining center for tool performance testing and final product inspection.
Only the finest products are packaged for entry into ISCAR's inventory.

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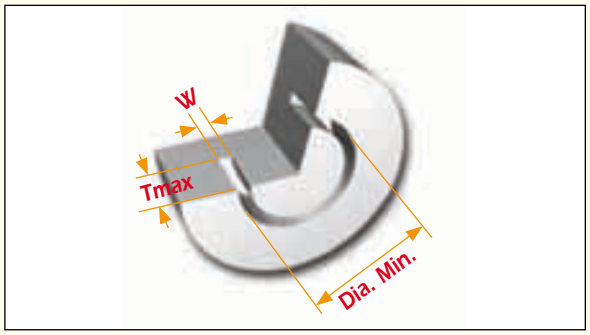
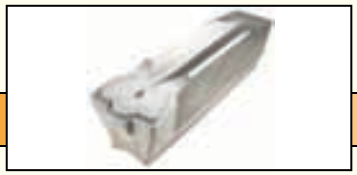
A Variety of Inserts for Face Machining Applications



Face Grooving D min 6-30 mm

		D min	D max	W min	W max	T max	Page
PICCO		6	_	1	3	30	**9-12**
MIFR		8	34	1.5	3	9	**18**
GFQR		12	19	1	2.5	3	**13**
HGPL		12	∞	3	6	∞	**50**
GRIP		12	∞	3	6	∞	**45-46**
DGN		21	∞	4	6	∞	**48-49**

Face Grooving D min 22-80 mm

		D min	D max	W min	W max	T max	Page
HFPR/L		24	∞	3	6	∞	**44**
PENTA 34F		22	∞	2.39	4	5	**90**
TNF		30	∞	3	6	∞	**88-89**
GDMY/N		50	∞	8	8	25	**70 73-75**
GIF 8		80	∞	8	8	25	**71-72**
GIFG 8		50	∞	8	8	25	**68**
GIMM 8CC		80	∞	7	8	∞	**75**
GDMM 8CC		50	∞	8	8	∞	**76**

Small Diameter

Face Machining Systems

Tool: HGHR/L see page 22
Insert: GRIP... / HGPL...

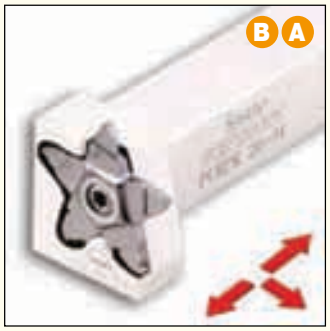
W = 3 mm
Tmax = 6 mm
Min. dia. = 12 mm

Integral shank toolholder which uses double-ended 3 mm inserts. Used for face grooving and face turning of small parts, for 12 mm minimum groove diameter.

Tool: HGAER/L... (adapter) see page 29
Tool: HFAER/L... (adapter) see page 30
Insert: HFPR/L...

W = 3-6 mm
Tmax = 32 mm
Min. dia. = 12 mm

Exchangeable external adapters. Used with HELIFACE and GRIP inserts, for deep face machining.



Tool: PCHPR/L see page 91
Insert: PENTA 34F...

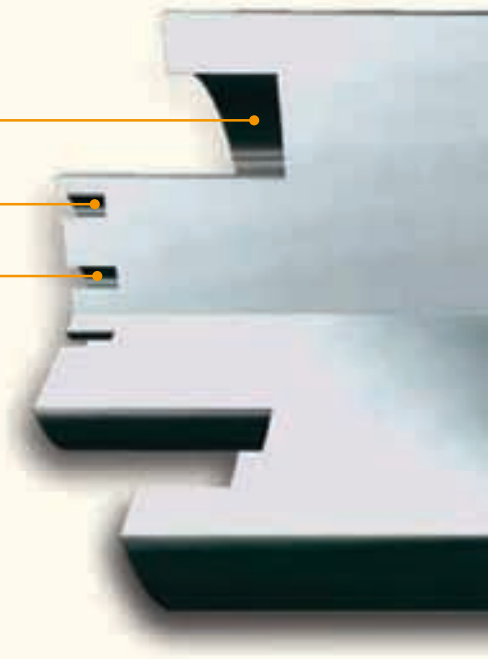
W = 2.39-4 mm
Tmax = 5 mm
Min. dia. = 22 mm

Pentagonal insert for face grooving and recessing up to 5 mm depth of cut at a minimum 22 mm diameter.

Tool: PICCO R010 see pages 9-10

W = 1-3 mm
Tmax = 6 mm
Min. dia. = 6 mm

Small solid carbide bars, for machining shallow grooves from 6 mm minimum diameter.



Tool: PICCO R015 see page 5

W = 2.5-3 mm

Tmax = 30 mm

Min. dia. = 15 mm

Small solid carbide bars for machining deep face grooves of up to 30 and 15 mm minimum diameter.

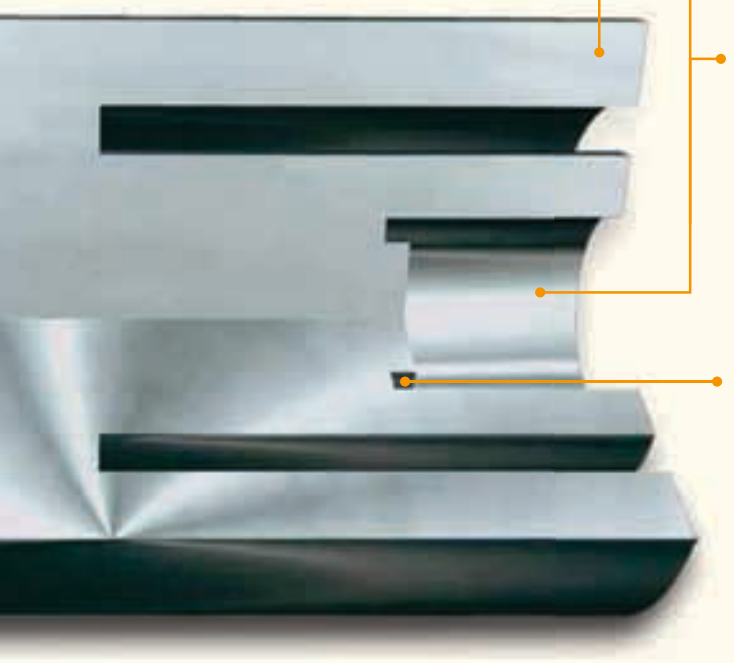
Tool: MIFHR ... see page 17
Insert: MIFR ...

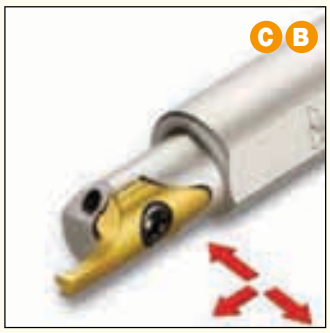
W = 2-3 mm

Tmax = 9 mm

Min. dia. = 10 mm

MINCUT - A new family of internal face grooving and face turning tools for machining small diameters ranging from 10-34 mm. Strong and stable tangential pocket with internal coolant.





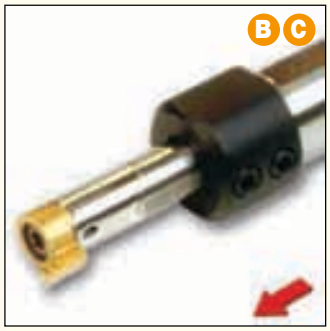
Tool: MIFHR ... see page 17
Insert: MIFR ...

W = 1.5-3 mm

Tmax = 5.5 mm

Min. dia. = 8 mm

MINCUT - A new family of internal face grooving and face turning tools for machining small diameters ranging from 8-17 mm. Strong and stable tangential pocket with internal coolant.



Tool: MGCH 09C see page 13
Insert: GFQR...

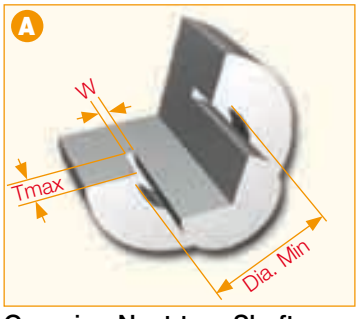
W = 1-2.5 mm

Tmax = 3 mm

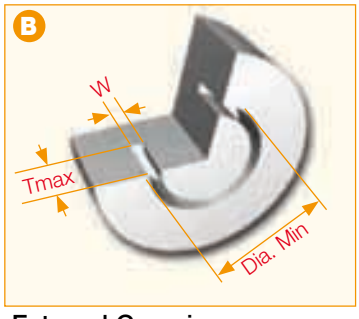
Min. dia. = 12 mm

A screw-clamped insert on an internal coolant solid carbide bar. Used for machining shallow grooves of 12 mm minimum diameter.

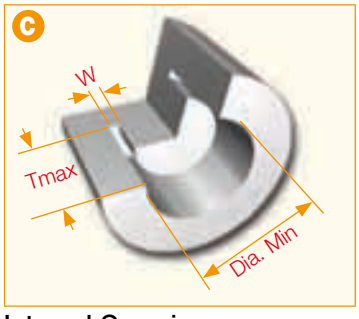
Main Applications



Grooving Next to a Shaft



External Grooving



Internal Grooving

Medium Diameter

Face Machining Systems

Tool: HFHR/L... see pages 23-26
Insert: HFPR/L...

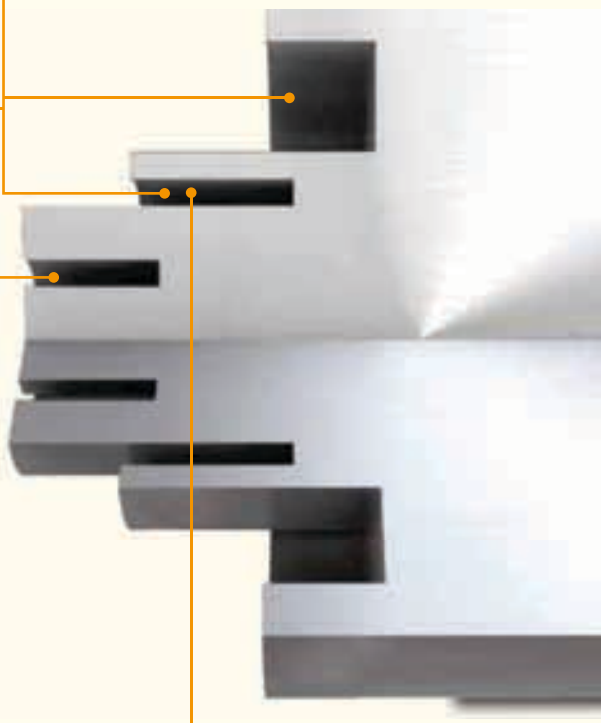
W = 3-6 mm
Tmax = 32 mm
Min. dia. = 25 mm

Integral shank toolholders which use HELIFACE and GRIP inserts.
For deep face grooving and side face turning.

Tool: HFPAD... (adapter) see pages 27-28
Insert: HFPR/L...

W = 3-6 mm
Tmax = 22 mm
Min. dia. = 25 mm

Slanted, screw-clamped adapter, used with HELIFACE and GRIP inserts.
A part of the MODULAR-GRIP system. Very rigid, for tough face operations.



Tool: TNFFH see page 86
Insert: TNF 3-6C...

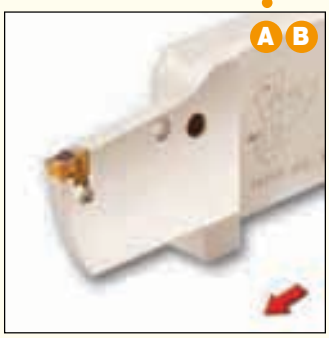
W = 3-6 mm
Tmax = 32 mm
Min. dia. = 30 mm

Adapter and blade toolholders which use TNF 3-6C inserts.
For deep face grooving.

Tool: HFFR/L... see page 29
Insert: HFPR/L...

W = 4-6 mm
Tmax = 38 mm
Min. dia. = 48 mm

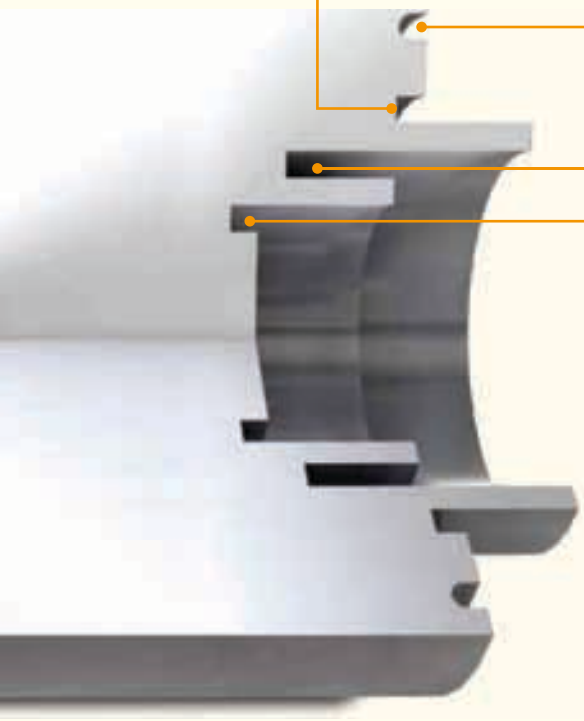
Economical, double-ended blades which use HELIFACE and GRIP inserts.
Recommended for deep face grooving and face turning to a maximum depth of 38 mm.



Tool: TNFFA see page 87
Insert: TNF 3-6C...

W = 3-6 mm
Tmax = 32 mm
Min. dia. = 30 mm

Reinforced blades which use TNF 3-6C inserts.
Recommended for face grooving only, can machine along shaft. Excellent chip evacuation.



Tool: PCHPRS/LS see page 94
Insert: PENTA 34F-RS/LS...

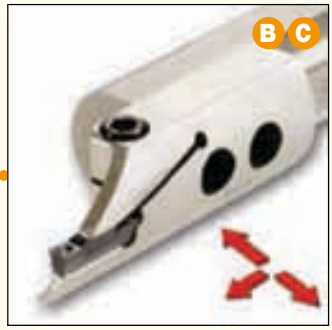
W = 2.39-4 mm
Tmax = 5 mm
Min. dia. = 22 mm

Pentagonal insert for face grooving and recessing next to shoulder to 5 mm depth of cut at a minimum 22 mm diameter.

Tool: HFHR/L..-M see page 34
Insert: HFPR/L...

W = 3-6 mm
Tmax = 5 mm
Min. dia. = 20 mm

Integral toolholders, used with HELIFACE and GRIP inserts. For machining up to 5 mm depth. 3-6 mm wide inserts can be mounted in the same pocket.



Tool: HFAIR/L...& HGAIR/L (adapter) see pages 38, 40
Insert: HFPR/L...

W = 3-6 mm
Tmax = 12 mm
Min. dia. = 32 mm

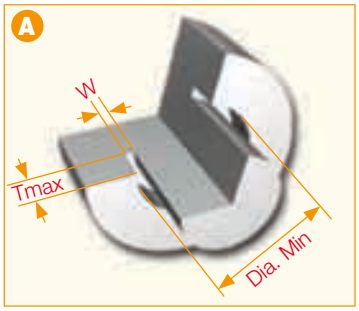
Exchangeable, internal coolant, internal adapters. Used with HELIFACE and GRIP inserts. Recommended for deep internal face machining.

Tool: HFIR/L..-MC see page 41
Insert: HFPR/L...

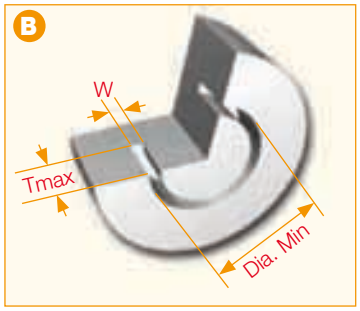
W = 3-6 mm
Tmax = 5 mm
Min. dia. = 20 mm

Boring bars for shallow face machining of up to 5 mm depth. Used with HELIFACE and GRIP inserts. Internal coolant. 3-6 mm width inserts can be mounted on the same pocket.

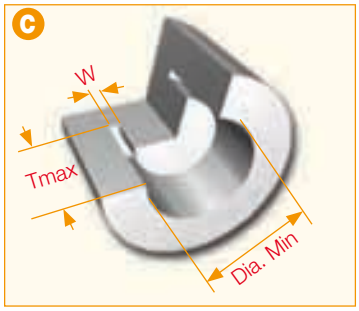
Main Applications



Grooving Next to a Shaft



External Grooving



Internal Grooving

Large Diameter

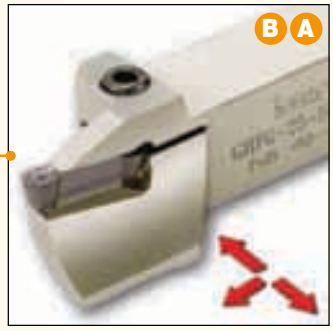
Face Machining Systems

Tool: CGFG 51-..R/L-P8
see page 67
Insert: GIMY 8...

W = 8 mm
Tmax = 120 mm
Min. dia. = 180 mm

Blades used with 8 mm single-ended CUT-GRIP inserts. Can machine up to 120 mm depth next to a shaft. Used for large diameters.

A B



Tool: GHFG ..R/L-8 see page 62
Insert: GDMY 8..

W = 8 mm
Tmax = 25 mm
Min. dia. = 50 mm

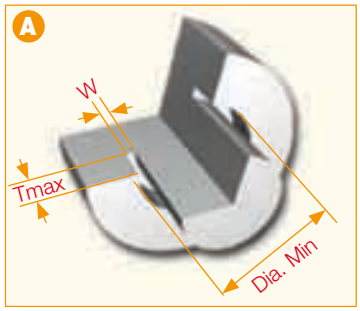
Integral toolholders, used with 8 mm CUT-GRIP inserts. For heavy machining of medium and large parts. Can machine next to a shaft up to 25 mm depth.

Tool: GAFG ..R/L-8 (adapter)
see page 67
Insert: GDMM 8CC

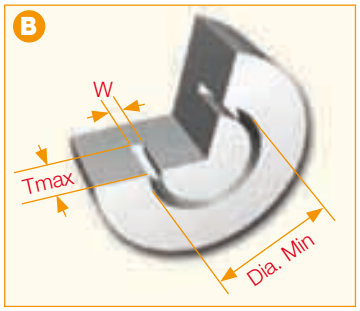
W = 8 mm
Tmax = 25 mm
Min. dia. = 80 mm

Exchangeable adapters, used with 8 mm CUT-GRIP inserts. Can machine up to 25 mm depth next to a shaft. For heavy machining of medium and large parts.

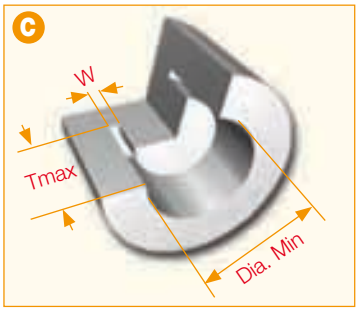
Main Applications



Grooving Next to a Shaft



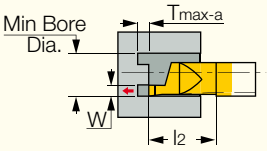
External Grooving

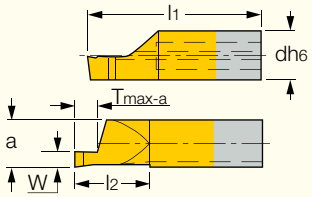


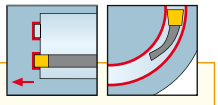
Internal Grooving

PICCO-010/610 (face grooving)

Inserts for Face Grooving







Right-hand shown

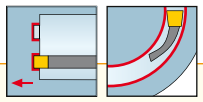
Designation	Dimensions							IC228	Recommended Machining Data
	$D_{1\ min}$	W	T_{max-a}	d	a	l_2	l_1		f face-groove (mm/rev)
PICCO R 010.1006-10	6.0	1.00	1.50	6.00	5.20	11.0	26.00	●	0.01-0.04
PICCO R 010.1506-10	6.0	1.50	2.00	6.00	5.20	11.0	26.00	●	0.01-0.04
PICCO R 010.1008-10	8.0	1.00	1.50	7.00	5.90	11.0	26.00	●	0.01-0.04
PICCO R 010.1008-20	8.0	1.00	1.50	7.00	5.90	21.0	35.00	●	0.01-0.04
PICCO R 010.1008-30	8.0	1.00	1.50	7.00	5.90	30.0	45.00	●	0.01-0.04
PICCO R 610.1008-10	8.0	1.00	1.50	6.00	5.20	11.0	26.00	●	0.01-0.04
PICCO R 610.1008-20	8.0	1.00	1.50	6.00	5.20	20.0	35.00	●	0.01-0.04
PICCO R/L 010.1508-20	8.0	1.50	2.50	7.00	5.90	21.0	35.00	●	0.01-0.04
PICCO R/L 010.1508-30	8.0	1.50	2.50	7.00	5.90	30.0	45.00	●	0.01-0.04
PICCO R 010.1508-10	8.0	1.50	2.50	7.00	5.90	11.0	26.00	●	0.01-0.04
PICCO R 610.1508-10	8.0	1.50	2.50	6.00	5.20	11.0	26.00	●	0.01-0.04
PICCO R 610.1508-20	8.0	1.50	2.50	6.00	5.20	20.0	35.00	●	0.01-0.04
PICCO R/L 010.2008-30	8.0	2.00	3.00	7.00	5.90	30.0	45.00	●	0.02-0.05
PICCO R 010.2008-10	8.0	2.00	3.00	7.00	5.90	11.0	26.00	●	0.02-0.05
PICCO R 010.2008-20	8.0	2.00	3.00	7.00	5.90	21.0	35.00	●	0.02-0.05
PICCO R 610.2008-10	8.0	2.00	3.00	6.00	5.20	11.0	26.00	●	0.02-0.05
PICCO R 610.2008-20	8.0	2.00	3.00	6.00	5.20	20.0	35.00	●	0.02-0.05
PICCO R 010.2508-10	8.0	2.50	3.50	7.00	5.90	11.0	26.00	●	0.02-0.05
PICCO R 010.2508-20	8.0	2.50	3.50	7.00	5.90	21.0	35.00	●	0.02-0.05
PICCO R 010.2508-30	8.0	2.50	3.50	7.00	5.90	30.0	45.00	●	0.02-0.05
PICCO R 610.2508-10	8.0	2.50	3.50	6.00	5.20	11.0	26.00	●	0.02-0.05
PICCO R 610.2508-20	8.0	2.50	3.50	6.00	5.20	20.0	35.00	●	0.02-0.05
PICCO R 010.3008-10	8.0	3.00	3.50	7.00	5.90	11.0	26.00	●	0.02-0.06
PICCO R 010.3008-20	8.0	3.00	3.50	7.00	5.90	21.0	35.00	●	0.02-0.06
PICCO R 010.3008-30	8.0	3.00	3.50	7.00	5.90	30.0	45.00	●	0.02-0.06
PICCO R 610.3008-10	8.0	3.00	3.50	6.00	5.20	11.0	26.00	●	0.02-0.06
PICCO R 610.3008-20	8.0	3.00	3.50	6.00	5.20	20.0	35.00	●	0.02-0.06

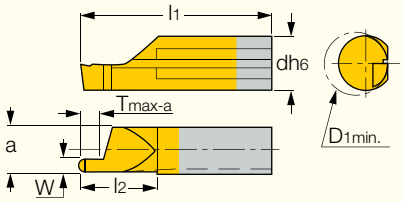
• Only right-hand inserts are available as standard • All inserts are with sharp corners • For detailed cutting data, see pages 108-109.

For holders, see pages: PICCO/MG PCO (holder) (14-16).

PICCO-010 (round face groove)

Inserts for Round Profile Face Grooving





Right-hand shown

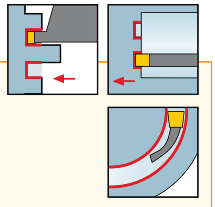
Designation	Dimensions								IC1008	Recommended Machining Data
	$D_{1\ min}$	W	R	T_{max-a}	d	a	l_2	l_1		f face-groove (mm/rev)
PICCO R 010.1005-10	8.0	1.00	0.50	2.00	7.00	5.90	11.0	26.00	●	0.01-0.04
PICCO R 010.1005-20	8.0	1.00	0.50	2.00	7.00	5.90	20.0	35.00	●	0.01-0.04
PICCO R 010.1608-10	8.0	1.60	0.80	3.00	7.00	5.90	11.0	26.00	●	0.01-0.05
PICCO R 010.1608-20	8.0	1.60	0.80	3.00	7.00	5.90	20.0	35.00	●	0.01-0.05
PICCO R 010.2010-10	8.0	2.00	1.00	4.00	7.00	5.90	11.0	26.00	●	0.02-0.05
PICCO R 010.2010-20	8.0	2.00	1.00	4.00	7.00	5.90	20.0	35.00	●	0.02-0.05
PICCO R 010.2512-10	8.0	2.50	1.25	5.00	7.00	5.90	11.0	26.00	●	0.02-0.05
PICCO R 010.2512-20	8.0	2.50	1.25	5.00	7.00	5.90	20.0	35.00	●	0.02-0.05
PICCO R 010.3015-10	8.0	3.00	1.50	6.00	7.00	5.90	11.0	26.00	●	0.02-0.05
PICCO R 010.3015-20	8.0	3.00	1.50	6.00	7.00	5.90	20.0	35.00	●	0.02-0.05

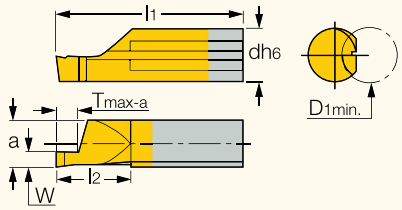
• Only right-hand inserts are available as standard. Left-hand inserts on request. • For detailed cutting data, see pages 108-109.

For holders, see pages: PICCO/MG PCO (holder) (14-16).

PICCO-620 (groov. along shaft)

Inserts for Grooving Along a Shaft Dmin 6 mm





Right-hand shown

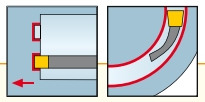
Designation	Dimensions							IC1008	Recommended Machining Data
	$D_{1\ min}$	W	T_{max-a}	d	a	l_2	l_1		f face-groove (mm/rev)
PICCO R 620.1006-20	6.0	1.00	2.00	6.00	5.20	20.0	35.00	●	0.01-0.04
PICCO R 620.1506-20	6.0	1.50	3.00	6.00	5.20	20.0	35.00	●	0.01-0.05
PICCO R 620.2006-20	6.0	2.00	4.00	6.00	5.20	20.0	35.00	●	0.02-0.06
PICCO R 620.2506-20	6.0	2.50	5.00	6.00	5.20	20.0	35.00	●	0.02-0.06
PICCO R 620.3006-20	6.0	3.00	6.00	6.00	5.20	20.0	35.00	●	0.02-0.06

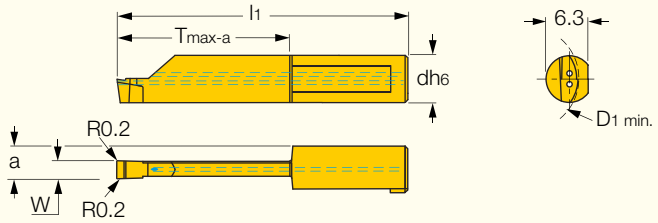
• Only right-hand inserts are available as standard. Left-hand inserts on request. • All carbide inserts are with sharp corners
• For detailed cutting data, see pages 108-109.

For holders, see pages: PICCO/MG PCO (holder) (14-16).

PICCO-016/020 (face grooving)

Inserts with Coolant Holes for Deep Face Grooving





Right-hand shown

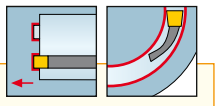
Designation	Dimensions						IC1008	Recommended Machining Data
	$D_{1\ min}$	W	T_{max-a}	d	a	l_1		f face-groove (mm/rev)
PICCO R 016.0300-10	16.0	3.00	10.00	8.00	5.50	30.00	●	0.01-0.05
PICCO R 016.0300-20	16.0	3.00	20.00	8.00	5.50	40.00	●	0.01-0.05
PICCO R 016.0400-10	16.0	4.00	10.00	8.00	6.00	30.00	●	0.01-0.05
PICCO R 016.0400-20	16.0	4.00	20.00	8.00	6.00	40.00	●	0.01-0.05
PICCO R 020.0300-25	20.0	3.00	25.00	8.00	5.50	45.00	●	0.01-0.05
PICCO R 020.0300-30	20.0	3.00	30.00	8.00	5.50	50.00	●	0.01-0.04
PICCO R 020.0300-35	20.0	3.00	35.00	8.00	5.50	55.00	●	0.01-0.04
PICCO R 020.0300-40	20.0	3.00	40.00	8.00	5.50	60.00	●	0.01-0.04
PICCO R 020.0400-25	20.0	4.00	25.00	8.00	6.00	45.00	●	0.01-0.06
PICCO R 020.0400-30	20.0	4.00	30.00	8.00	6.00	50.00	●	0.01-0.06
PICCO R 020.0400-35	20.0	4.00	35.00	8.00	6.00	55.00	●	0.01-0.05
PICCO R 020.0400-40	20.0	4.00	40.00	8.00	6.00	60.00	●	0.01-0.05
PICCO R 020.0500-20	20.0	5.00	20.00	8.00	6.50	40.00	●	0.02-0.06
PICCO R 020.0500-25	20.0	5.00	25.00	8.00	6.50	45.00	●	0.02-0.06
PICCO R 020.0500-30	20.0	5.00	30.00	8.00	6.50	50.00	●	0.02-0.06
PICCO R 020.0500-35	20.0	5.00	35.00	8.00	6.50	55.00	●	0.02-0.05
PICCO R 020.0500-40	20.0	5.00	40.00	8.00	6.50	60.00	●	0.02-0.05

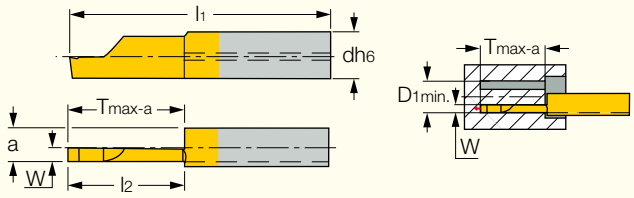
• All inserts have two coolant holes which may be used with coolant pressure up to 100 bars. • For detailed cutting data, see pages 108-109.

For holders, see pages: PICCO/MG PCO (holder) (14-16).

PICCO-015 (face grooving)

Inserts for Deep Face Grooving



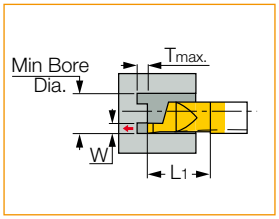


Right-hand shown

Designation	Dimensions							IC228	Recommended Machining Data
	$D_{1\ min}$	W	T_{max-a}	d	a	l_2	l_1		f face-groove (mm/rev)
PICCO R 015.2515-20	15.0	2.50	20.00	7.00	5.90	20.0	35.00	●	0.01-0.04
PICCO R/L 015.3015-20	15.0	3.00	20.00	7.00	5.90	20.0	35.00	●	0.02-0.05
PICCO R 015.3015-30	15.0	3.00	30.00	7.00	5.90	30.0	45.00	●	0.01-0.04

• Only right-hand inserts are available as standard. Left-hand inserts on request. • All inserts are with sharp corners.
• For detailed cutting data, see pages 108-109.

For holders, see pages: PICCO/MG PCO (holder) (14-16).



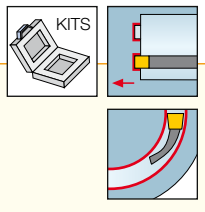
PICCO Mini-Bar Tool Kit Face Grooving KIT Picco SET-4R

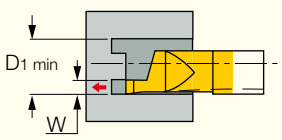
Designation	Mini Bore Dia.	L_1	Tmax	W	Pcs.	Designation
PICCO 16.D6				1x		Holder
PICCO R/L 010.1008-10	8.0	11	1.5	1.0	1x	Mini Carbide Bar
PICCO R/L 010.1508-10	8.0	11	2.5	1.5	1x	Mini Carbide Bar
PICCO R/L 010.2008-10	8.0	11	3.0	2.0	1x	Mini Carbide Bar
PICCO R/L 010.2508-20	8.0	21	3.5	2.5	1x	Mini Carbide Bar
PICCO R/L 010.3008-20	8.0	21	3.5	3.0	1x	Mini Carbide Bar

Available grade: IC228.

KIT PICCO Face

Contains One Toolholder and a Set of Solid Carbide Miniature Face Turning and Grooving Boring Bars

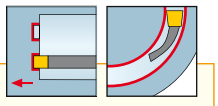


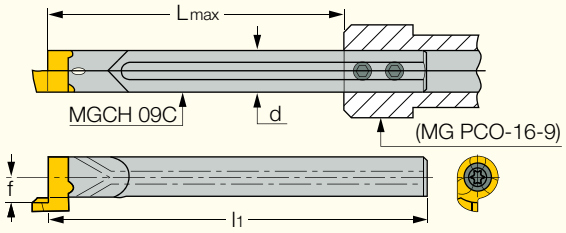


Designation	$D_{1\ min}$	W min	W max
KIT PICCO SET-4R	8.0	1.00	3.00

MGCH-C (face)

Face Machining Inserts for Dmin 12 - Dmax 19 mm Penetration Range, Using GFQR Inserts





The same tool applies for right-and left-machining

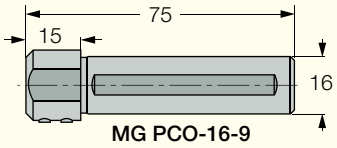
Designation	D min	d	l1	L max	f
MGCH 09C	12.00	9.00	83.50	65.0	5.5

For inserts, see pages: GFQR (13).

For holders, see pages: PICCO/MG PCO (holder) (14).

MG PCO

Holder Bar for Adjustable Shank



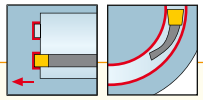
MG PCO-16-9

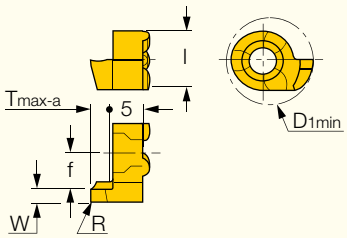
Spare Parts

Designation	Screw	Key
MGCH-C (face)	SR 76-2145	T-15/5

GFQR

Face Grooving Inserts





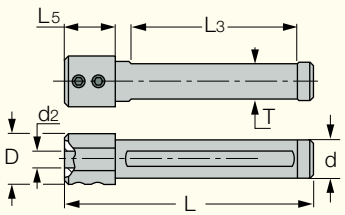
Designation	Dimensions W±0.02	R	Tmax-a	D1 min(1)	D1 max(2)	IC528	Recommended Machining Data f face-groove (mm/rev)
GFQR 12-1.00-0.05	1.00	0.05	1.50	12.0	16.0	●	0.01-0.04
GFQR 12-1.50-0.20	1.50	0.20	2.50	12.0	17.0	●	0.01-0.04
GFQR 12-2.00-0.20	2.00	0.20	3.00	12.4	18.0	●	0.02-0.05
GFQR 12-2.50-0.20	2.50	0.20	3.00	13.0	19.0	●	0.02-0.05

• For detailed cutting data, see pages 108-109.

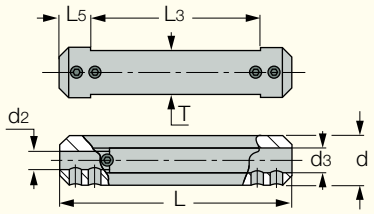
(1) Minimum penetration diameter (2) Maximum penetration diameter

PICCO/MG PCO (holder)

Holders for PICCO Inserts and Small Diameter Boring Bars



MG PCO 12-6



PICCO.../MG PCO

Designation	d	d_2	d_3	L	L_5	L_3	T	D
PICCO 12-4-5	12.00	4.00	5.00	75.00	10.00	55.00	10.3	18.00
PICCO 16-4-5	16.00	4.00	5.00	75.00	10.00	55.00	14.0	18.00
PICCO 20-4-5	20.00	4.00	5.00	90.00	10.00	70.00	18.0	18.00
PICCO 22-4-5 (1)	22.00	4.00	5.00	90.00	10.00	70.00	20.0	18.00
PICCO 16-6-7	16.00	6.00	7.00	75.00	10.00	55.00	14.0	18.00
PICCO 20-6-7	20.00	6.00	7.00	90.00	10.00	70.00	18.0	18.00
PICCO 22-6-7 (1)	22.00	6.00	7.00	90.00	10.00	70.00	20.0	18.00
MG PCO-12-6	12.00	6.00	-	75.00	15.00	50.80	11.0	18.00
MG PCO-16-6-8	16.00	6.00	8.00	75.00	10.00	55.00	14.0	18.00
MG PCO-20-6-8	20.00	6.00	8.00	90.00	10.00	70.00	18.0	18.00
MG PCO-22-6-8 (1)	22.00	6.00	8.00	90.00	10.00	70.00	20.0	18.00
MG PCO-25-6-8	25.00	6.00	8.00	90.00	10.00	70.00	23.0	18.00
MG PCO-16-9	16.00	9.00	-	75.00	15.00	53.00	18.0	18.00

• Holders are suitable for right- and left-hand inserts, and boring bars.

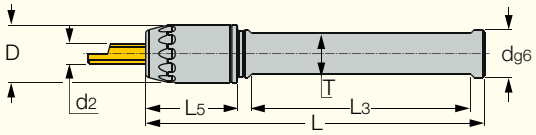
(1) Tools for Swiss-type CNC

Spare Parts

Designation	Screw	Key	Seal
PICCO 12-4-5	SR M5X4-PF	HW 2.5	
PICCO 16-4-5	SR M5X6-PF	HW 2.5	
PICCO 20-4-5	SR M5X6-PF	HW 2.5	
PICCO 22-4-5	SR M5X6-PF	HW 2.5	
PICCO 16-6-7	SR M5X6-PF	HW 2.5	
PICCO 20-6-7	SR M5X6-PF	HW 2.5	
PICCO 22-6-7	SR M5X6-PF	HW 2.5	
MG PCO-12-6	SR M5X6-PF	HW 2.5	
MG PCO-16-6-8	SR M5X6-PF	HW 2.5	
MG PCO-20-6-8	SR M5X6-PF	HW 2.5	
MG PCO-22-6-8	SR M5X6-PF	HW 2.5	
MG PCO-25-6-8	SR M5X6-PF	HW 2.5	
MG PCO-16-9	SR M5X6-PF	HW 2.5	PL 16

PICCO ACE

Collet Chuck Holders for PICCOCUT Inserts



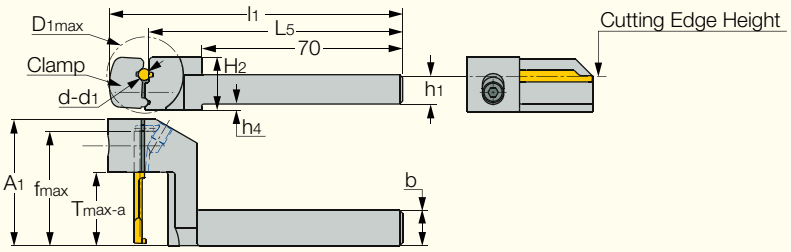
	Dimensions							
Designation	d	d2	D	L	L5	L3	T	Wrench	Cap Ace
PICCO ACE 12-4	12.00	4.00	14.50	85.00	23.00	55.00	10.3	WRENCH ACE 4-5	CAP ACE 4
PICCO ACE 12-5	12.00	5.00	14.50	85.00	23.00	55.00	10.3	WRENCH ACE 4-5	CAP ACE 5
PICCO ACE 16-4	16.00	4.00	14.50	85.00	23.00	58.50	14.0	WRENCH ACE 4-5	CAP ACE 4
PICCO ACE 16-5	16.00	5.00	14.50	85.00	23.00	58.50	14.0	WRENCH ACE 4-5	CAP ACE 5
PICCO ACE 16-6	16.00	6.00	14.50	85.00	23.00	58.50	14.0	WRENCH ACE 6-7	CAP ACE 6
PICCO ACE 16-7	16.00	7.00	14.50	85.00	23.00	58.50	14.0	WRENCH ACE 6-7	CAP ACE 7
PICCO ACE 20-4	20.00	4.00	14.50	100.00	23.00	73.50	18.0	WRENCH ACE 4-5	CAP ACE 4
PICCO ACE 20-5	20.00	5.00	14.50	100.00	23.00	73.50	18.0	WRENCH ACE 4-5	CAP ACE 5
PICCO ACE 20-6	20.00	6.00	14.50	100.00	23.00	73.50	18.0	WRENCH ACE 6-7	CAP ACE 6
PICCO ACE 20-7	20.00	7.00	14.50	100.00	23.00	73.50	18.0	WRENCH ACE 6-7	CAP ACE 7
PICCO ACE 22-4	22.00	4.00	14.50	100.00	23.00	73.50	20.0	WRENCH ACE 4-5	CAP ACE 4
PICCO ACE 22-5	22.00	5.00	14.50	100.00	23.00	73.50	20.0	WRENCH ACE 4-5	CAP ACE 5
PICCO ACE 22-6	22.00	6.00	14.50	100.00	23.00	73.50	20.0	WRENCH ACE 6-7	CAP ACE 6
PICCO ACE 22-7	22.00	7.00	14.50	100.00	23.00	73.50	20.0	WRENCH ACE 6-7	CAP ACE 7

• Holders are suitable for left- and right-hand PICCO inserts

Designation	d	d_2	D	L	L_5	L_3	T	Wrench
PICCO ACE 12-4	12.00	4	14.5	85	23	55	10.3	Wrench ACE 4-5
PICCO ACE 12-5	12.00	5	14.5	85	23	55	10.3	Wrench ACE 4-5
PICCO ACE 16-4	16.00	4	14.5	85	23	58.5	14	Wrench ACE 4-5
PICCO ACE 16-5	16.00	5	14.5	85	23	58.5	14	Wrench ACE 4-5
PICCO ACE 16-6	16.00	6	20.0	85	23	58.5	14	Wrench ACE 6-7
PICCO ACE 16-7	16.00	7	20.0	85	23	58.5	14	Wrench ACE 6-7
PICCO ACE 20-4	20.00	4	14.5	100	23	73.5	18	Wrench ACE 4-5
PICCO ACE 20-5	20.00	5	14.5	100	23	73.5	18	Wrench ACE 4-5
PICCO ACE 20-6	20.00	6	20.0	100	23	73.5	18	Wrench ACE 6-7
PICCO ACE 20-7	20.00	7	20.0	100	23	73.5	18	Wrench ACE 6-7
PICCO ACE 22-4	22.00	4	14.5	100	23	73.5	20	Wrench ACE 4-5
PICCO ACE 22-5	22.00	5	14.5	100	23	73.5	20	Wrench ACE 4-5
PICCO ACE 22-6	22.00	6	20.0	100	23	73.5	20	Wrench ACE 6-7
PICCO ACE 22-7	22.00	7	20.0	100	23	73.5	20	Wrench ACE 6-7

GHPCOR/L

Perpendicular Square-Shank Tools for Use on the Cross Slide Units of Swiss-Type and Automatic Machines



Right-hand shown

Designation	h	b	l_1	L_5	h_4	H_2	A_1	$D_{1\ max}$	T_{max-a}	f_{max}	d	d_1
GHPCOR/L 08-16-4-5	8.0	8.0	102.00	88.00	4.0	15.0	34.00	26.0	16.00	30.0	4.00	5.00
GHPCOL 08-25-4-5	8.0	8.0	102.00	88.00	4.0	15.0	34.00	26.0	25.00	30.0	4.00	5.00
GHPCOR 08-28-4-5	8.0	8.0	102.00	88.00	4.0	15.0	34.00	26.0	28.00	30.0	4.00	5.00
GHPCOR/L 10-16-4-5	10.0	10.0	102.00	88.00	2.0	18.0	34.00	26.0	16.00	30.0	4.00	5.00
GHPCOR/L 10-25-4-5	10.0	10.0	102.00	88.00	2.0	18.0	34.00	26.0	25.00	30.0	4.00	5.00
GHPCOR/L 12-16-4-6	12.0	12.0	102.00	88.00	-	18.0	34.00	26.0	16.00	30.0	4.00	6.00
GHPCOR/L 12-25-4-6	12.0	12.0	102.00	88.00	-	18.0	43.00	26.0	25.00	39.0	4.00	6.00
GHPCOR/L 16-16-4-6	16.0	16.0	112.00	98.00	-	22.0	35.00	36.0	16.00	31.0	4.00	6.00
GHPCOR/L 16-25-4-6	16.0	16.0	112.00	98.00	-	22.0	44.00	36.0	25.00	40.0	4.00	6.00
GHPCOR/L 16-30-7-8	16.0	16.0	112.00	98.00	-	22.0	49.00	36.0	30.00	45.0	7.00	8.00

• PICCOCUT insert should not exceed A1 length. • Left-hand holders are available upon request. • Coolant tube adapter: KQ2L06-M5 (for 6 mm coolant tube)

Indexing from the top

Indexing from the front

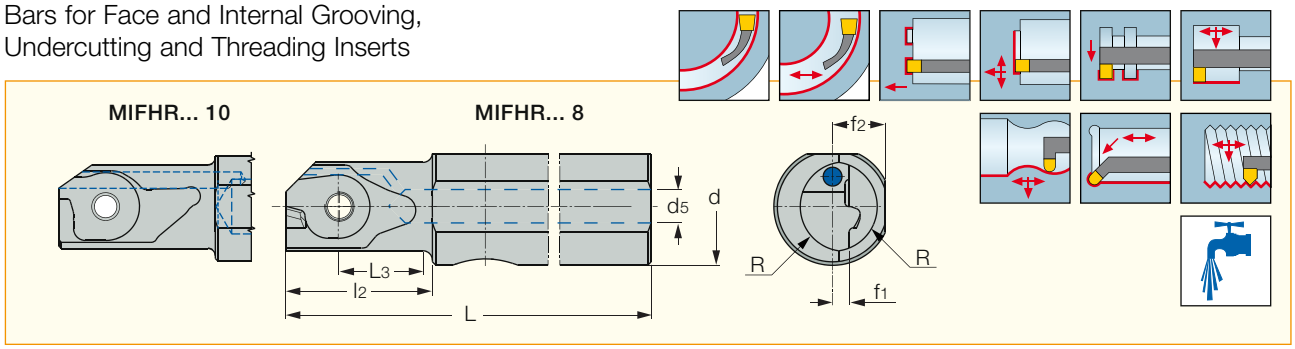
Spare Parts

Designation	Side Clamp	Screw	Key	Pipe Fitting
GHPCOR/L 08-16-4-5	HED 08	SR M4X14DIN912 12.9	HW 3.0	KQ2L06-M5
GHPCOL 08-25-4-5	HED 08	SR M4X14DIN912 12.9	HW 3.0	KQ2L06-M5
GHPCOR 08-28-4-5	HED 08	SR M4X14DIN912 12.9	HW 3.0	KQ2L06-M5
GHPCOR/L 10-16-4-5	HED 10	SR M4X14DIN912 12.9	HW 3.0	KQ2L06-M5
GHPCOR/L 10-25-4-5	HED 10	SR M4X14DIN912 12.9	HW 3.0	KQ2L06-M5
GHPCOR/L 12-16-4-6	HED 12	SR M4X14DIN912 12.9	HW 3.0	KQ2L06-M5
GHPCOR/L 12-25-4-6	HED 12	SR M4X14DIN912 12.9	HW 3.0	KQ2L06-M5
GHPCOR/L 16-16-4-6	HED 16-4-6	SR M4X14DIN912 12.9	HW 3.0	KQ2L06-M5
GHPCOR/L 16-25-4-6	HED 16-4-6	SR M4X14DIN912 12.9	HW 3.0	KQ2L06-M5
GHPCOL 16-30-7-8	HED 16-7-8	SR M4X14DIN912 12.9	HW 3.0	KQ2L06-M5
GHPCOR 16-30-7-8	HED 16-7-8	SR M4X14DIN912 12.9	HW 3.0	

MIN CUT
MINI FACE LINE

MIFHR

Bars for Face and Internal Grooving,
Undercutting and Threading Inserts



Designation	d	d_5	f_1	f_2	L	L_3	l_2	R	Insert
MIFHR 8SC-8-SRK (1)	8.00	1.2	1.4	3.70	75.00	7.40	11.7	3.80	MIFR 8
MIFHR 10C-8	10.00	4.0	1.4	4.50	102.50	7.40	12.5	3.80	MIFR 8
MIFHR 12C-8	12.00	5.0	1.4	5.50	102.50	7.40	12.5	3.80	MIFR 8
MIFHR 12C-10 (2)	12.00	6.0	2.4	5.50	90.00	11.20	17.2	4.60	MIFR 10
MIFHR 16C-10 (2)	16.00	6.0	2.4	7.50	90.00	11.20	17.2	4.60	MIFR 10

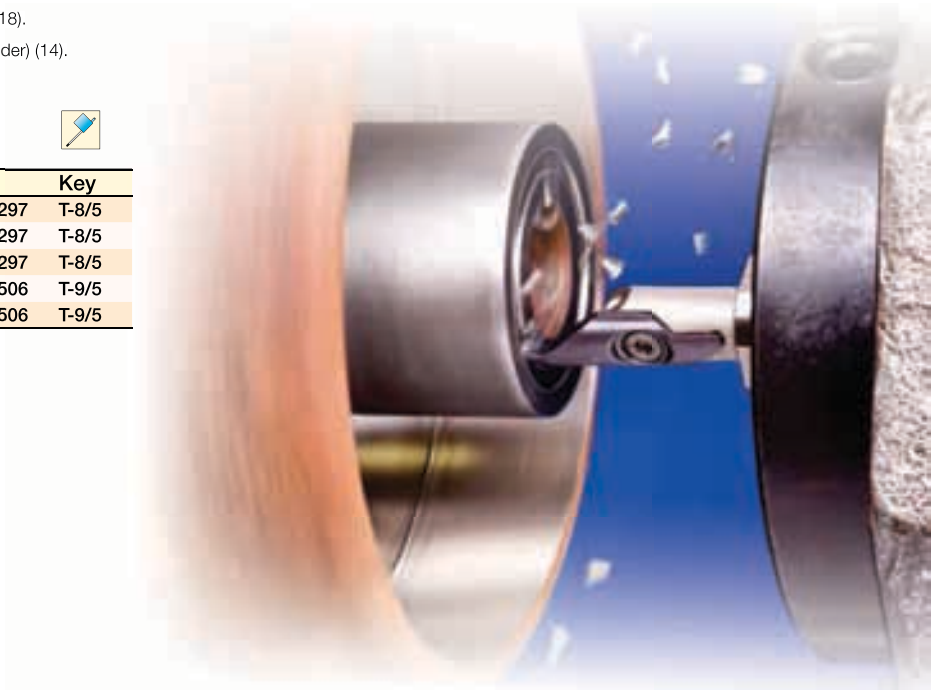
(1) Solid carbide shank (2) Only face grooving inserts are available for this tool

For inserts, see pages: MIFR (18) • MIUR 8 (18).

For holders, see pages: PICCO/MG PCO (holder) (14).

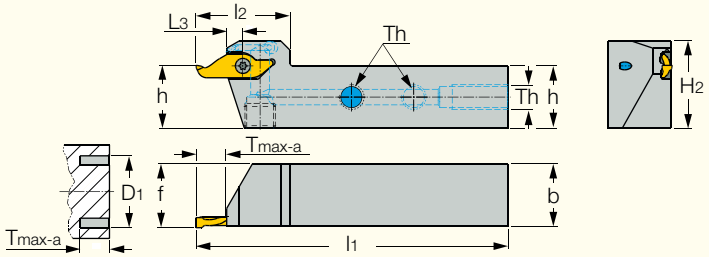
Spare Parts

Designation	Screw	Key
MIFHR 8SC-8-SRK	SR 14-297	T-8/5
MIFHR 10C-8	SR 14-297	T-8/5
MIFHR 12C-8	SR 14-297	T-8/5
MIFHR 12C-10	SR 34-506	T-9/5
MIFHR 16C-10	SR 34-506	T-9/5



MFHR-JHP

Square Shank Tools for MIFR 10 Face Grooving Inserts



Designation	h	b	l_1	l_2	T_{max-a}	$D_{1\ min}$	H_2	Th	Insert
MFHR 12C-10-JHP	12.0	12.0	100.00	27.0	9.00	10.0	20.0	UNF 5/16-24	MIFR 10
MFHR 16C-10-JHP	16.0	16.0	100.00	27.0	9.00	10.0	24.0	UNF 5/16-24	MIFR 10
MFHR 20C-10-JHP	20.0	20.0	100.00	30.0	9.00	10.0	28.0	UNF 5/16-24	MIFR 10

• For D1max, refer to insert data

For inserts, see pages: MIFR (18).

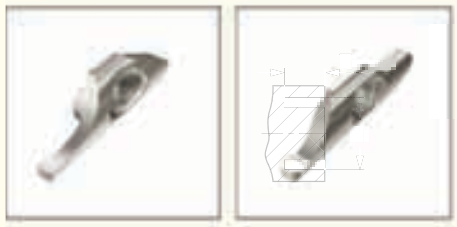
Spare Parts

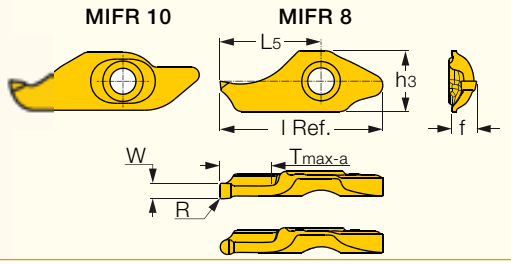
Designation	Screw	Key	Plug
MFHR-JHP	SR 34-506	T-9/5	SR 5/16UNF TL360

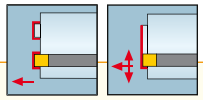
MIN CUT
MINI FACE LINE

MIFR

MINCUT Screw-Clamped Inserts for Internal Face Grooving and Turning, Penetration
Diameter Range: 8-17 mm







Designation	Dimensions									IC908	Recommended Machining Data	
	l Ref.	W±0.02	R±0.02	f	h_3	$D_{1\ min}$	$D_{1\ max}$	T_{max-a}	L_5		f face-groove (mm/rev)	f face-turn (mm/rev)
MIFR 8-1.50-0.20	17.7	1.50	0.20	2.6	6.5	8.0	11.5	5.70	11.00	●	0.02-0.10	0.02-0.06
MIFR 8-1.60-0.80	17.7	1.60	0.80	2.6	6.5	8.0	12.1	5.70	11.00	●	0.02-0.10	0.02-0.06
MIFR 8-2.00-0.20	17.7	2.00	0.20	2.8	6.5	8.0	15.1	5.70	11.00	●	0.02-0.10	0.02-0.06
MIFR 8-2.20-0.20	17.7	2.20	0.20	2.9	6.5	8.0	17.0	5.70	11.00	●	0.02-0.10	0.02-0.06
MIFR 10-2.00-1.00	25.1	2.00	1.00	2.4	7.6	10.0	30.0	9.00	14.80	●	0.02-0.10	0.02-0.06
MIFR 10-2.50-0.20	25.1	2.50	0.20	3.1	7.6	9.5	30.0	9.00	14.80	●	0.02-0.10	0.02-0.06
MIFR 10-3.00-0.20	25.1	3.00	0.20	3.4	7.6	9.7	30.0	9.00	14.80	●	0.02-0.10	0.02-0.06
MIFR 10-3.00-1.50	25.1	3.00	1.50	3.3	7.6	9.2	34.0	9.00	14.80	●	0.02-0.10	0.02-0.06

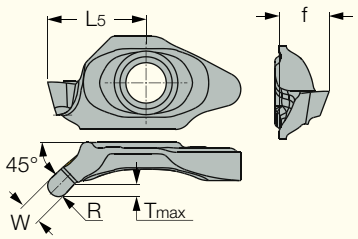
• For cutting speed recommendations, see pages 98-114.

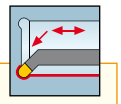
For tools, see pages: MFHR-JHP (17) • MIFHR (17).

MIN CUT
MINI FACE LINE

MIUR 8

45° Full Radius Internal Undercutting Inserts



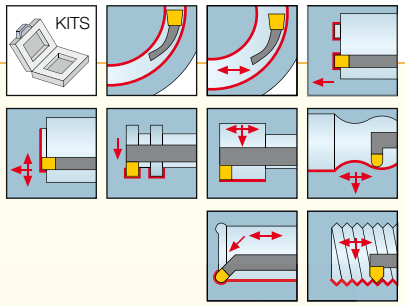


Designation	Dimensions						IC908	Recommended Machining Data		
	W±0.02	R±0.02	D_{min}	T_{max-r}	L_5	f		a_p (mm)	f turn (mm/rev)	f groove (mm/rev)
MIUR 8-1.00-0.50	1.00	0.50	8.00	1.10	6.70	3.6	●	0.03-0.50	0.03-0.10	0.01-0.03
MIUR 8-1.5-0.75	1.50	0.75	8.10	1.20	6.70	3.6	●	0.03-0.50	0.03-0.10	0.01-0.03
MIUR 8-2.00-1.00	2.00	1.00	8.30	1.36	6.70	3.6	●	0.03-0.50	0.03-0.10	0.01-0.03

For tools, see pages: MIFHR (17).

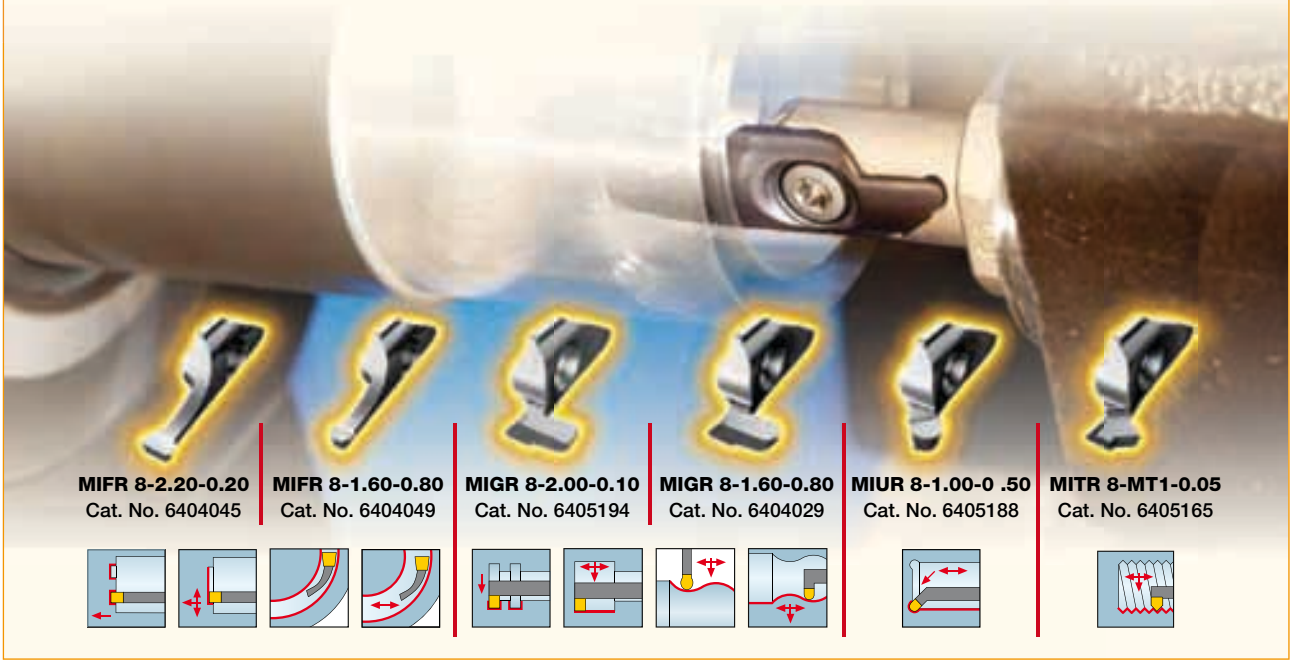
KIT MINCUT

Contains One Toolholder and a Set of 6 Different Inserts for Internal Face Grooving and Turning Applications



KIT MINCUT Contents

Designation	
MIFHR 12C-8	
MIGR 8-1.60-0.80	IC908
MIFR 8-2.20-0.20	IC908
MITR 8-MT1-0.05	IC908
MIUR 8-1.00-0.50	IC908
MIGR 8-2.00-0.10	IC908
HGHR 2525-16-3T6	IC908



MIFR 8-2.20-0.20
Cat. No. 6404045

MIFR 8-1.60-0.80
Cat. No. 6404049

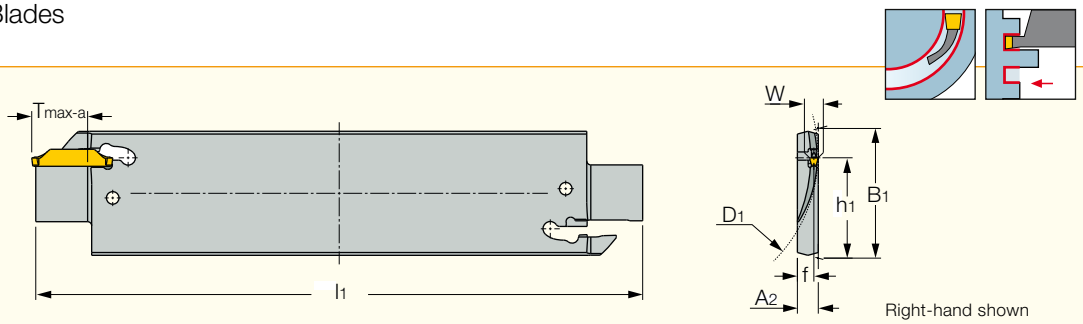
MIGR 8-2.00-0.10
Cat. No. 6405194

MIGR 8-1.60-0.80
Cat. No. 6404029

MIUR 8-1.00-0 .50
Cat. No. 6405188

MITR 8-MT1-0.05
Cat. No. 6405165

HFFH
Face Grooving Blades



Designation	W	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	T_{max-a}	h_1	B_1	f	A_2	l_1
HFFH 38R/L-2	2.00	38.0	45.0	14.00	24.8	32.0	8.2	5.2	150.00
HFFH 45R/L-2	2.00	45.0	60.0	14.00	24.8	32.0	8.2	5.2	150.00
HFFH 60R/L-2	2.00	60.0	80.0	14.00	24.8	32.0	8.2	5.2	150.00
HFFH 80R/L-2	2.00	80.0	100.0	14.00	24.8	32.0	8.2	5.2	150.00
HFFH 100R/L-2	2.00	100.0	130.0	14.00	24.8	32.0	8.2	5.2	150.00

• B1 dimension links blades and blocks

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPN (21).

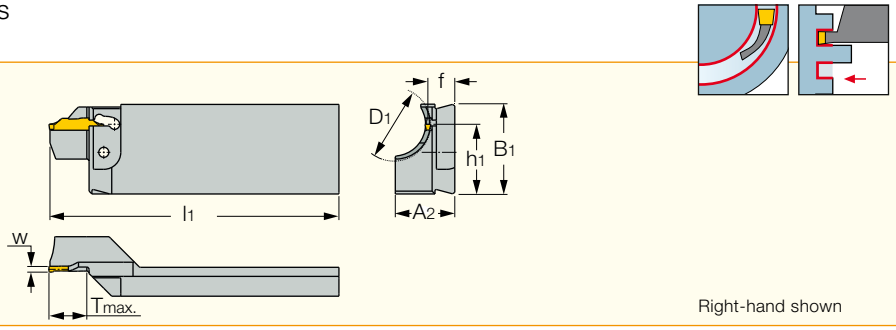
For holders, see pages: C#-TBK-R/L (59) • HSK A-WH-TBK-R/L (60) • IM63 XMZ TBK (60) • SGTBF (61) • SGTBK (59) • SGTBU/SGTBN (58) • UBHCR/L (61).

Spare Parts

Designation	Extractor
HFFH	EDG 33B*

* Optional, should be ordered separately

HFFA
Reinforced Face Grooving Blades



Designation	W	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	T_{max-a}	B_1	f	h_1	l_1	A_2
HFFA 27R/L-2	2.00	27.0	29.0	14.00	32.0	9.5	24.8	102.00	21.0
HFFA 29R/L-2	2.00	29.0	33.0	14.00	32.0	9.5	24.8	102.00	21.0
HFFA 33R/L-2	2.00	33.0	38.0	14.00	32.0	9.5	24.8	102.00	20.0
HFFA 38R/L-2	2.00	38.0	55.0	14.00	32.0	9.5	24.8	102.00	19.0
HFFA 55R/L-2	2.00	55.0	80.0	14.00	32.0	9.5	24.8	102.00	18.0
HFFA 80R/L-2	2.00	80.0	105.0	14.00	32.0	9.5	24.8	102.00	16.1

• For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPN (21).

For holders, see pages: C#-TBK-R/L (59) • HSK A-WH-TBK-R/L (60) • IM63 XMZ TBK (60) • SGTBK (59) • SGTBU/SGTBN (58) • UBHCR/L (61).

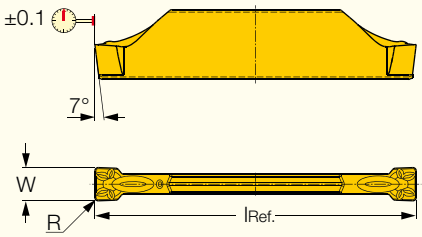
Spare Parts

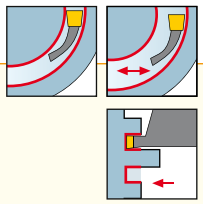
Designation	Extractor
HFFA	EDG 33B*

* Optional, should be ordered separately

HFPN

Utility Double-Ended Face Machining Inserts





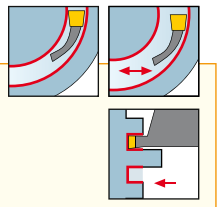
Designation	Dimensions W±0.04	R	l Ref.	IC808	Recommended Machining Data f groove (mm/rev)
HFPN 2002	2.00	0.20	19.4	●	0.03-0.10

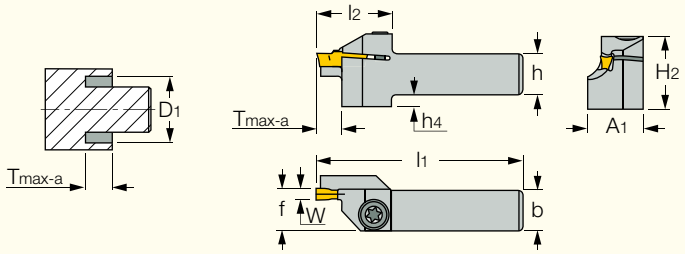
• For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: HFFA (20) • HFFH (20).

HGHR/L-3

Integral Holders for Face Grooving and Turning, Dmin. 12 mm





Right-hand shown

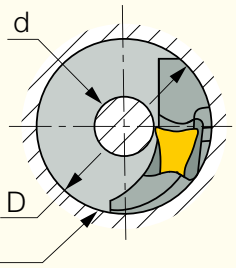
Designation	W	Tmax-a	h	b	h4	f	D1 min(1)	D1 max(2)	l1	l2	H2	A1
HGHR/L 1010-12-3T6	3.00	6.00	10.0	10.0	2.0	9.5	12.0	16.0	120.00	19.0	19.0	13.70
HGHR/L 1212-12-3T6	3.00	6.00	12.0	12.0	-	11.0	12.0	16.0	120.00	19.0	19.0	15.70
HGHR/L 1616-12-3T6	3.00	6.00	16.0	16.0	-	15.0	12.0	16.0	120.00	19.0	21.0	19.70
HGHR/L 1616-16-3T6	3.00	6.00	16.0	16.0	-	15.0	16.0	25.0	120.00	19.0	21.0	18.80
HGHR/L 2020-12-3T6	3.00	6.00	20.0	20.0	-	20.0	12.0	16.0	120.00	19.0	25.0	24.00
HGHR/L 2020-16-3T6	3.00	6.00	20.0	20.0	-	20.0	16.0	25.0	120.00	19.0	25.0	24.00
HGHR/L 2525-12-3T6	3.00	6.00	25.0	25.0	-	25.0	12.0	16.0	120.00	19.0	30.0	29.00
HGHR/L 2525-16-3T6	3.00	6.00	25.0	25.0	-	25.0	16.0	25.0	120.00	19.0	30.0	29.00
HGHR 1010-16-3T6	3.00	6.00	10.0	10.0	2.0	9.5	16.0	25.0	120.00	19.0	19.0	12.80
HGHR 1212-16-3T6	3.00	6.00	12.0	12.0	-	11.0	16.0	25.0	120.00	19.0	19.0	14.80

• Use HGN and GRIP inserts with right-hand toolholders only and HGPL inserts with left-hand toolholders • For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: GRIP (45) • GRIP (full radius) (46) • HGN-C (47) • HGN-J (47) • HGN-UT (48) • HGPL (50).

No limitation for widening groove toward or away from center, except for the following tools:



Limitation of widening toward center depends on the major diameter (D) as per chart.

HGHR/L...-12-3T6

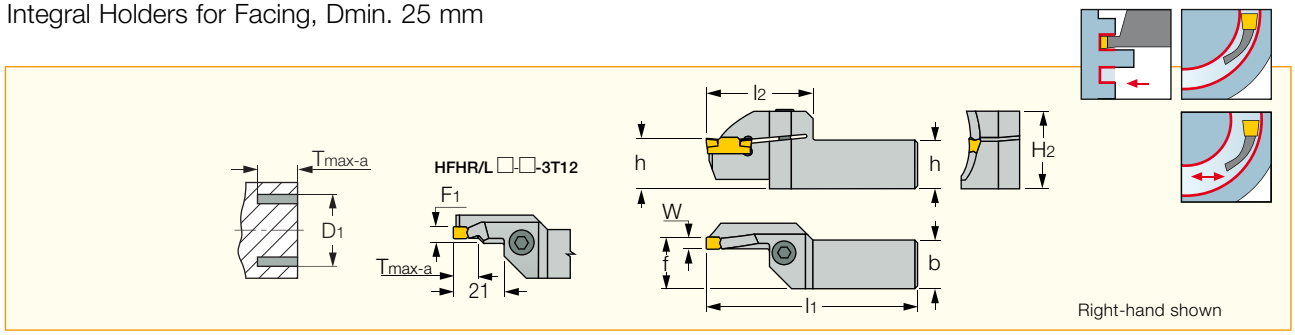
D	d
12.0	4.0
13.0	1.0
13.5	0

Spare Parts

Designation	Key	Screw
HGHR/L-3	T-20/3	SR 76-1400

HFHR/L-3T

Integral Holders for Facing, Dmin. 25 mm



Designation	W	Tmax-a	h	b	l1	f	F1	D1 min(2)	D1 max(3)	l2	H2
HFHR/L 20-25-3T12	3.00	12.00	20.0	20.0	140.00	20.5	5.3	25.0	30.0	38.0	28.0
HFHR/L 20-30-3T12	3.00	12.00	20.0	20.0	140.00	20.5	5.3	30.0	38.0	38.0	29.0
HFHR/L 20-38-3T12	3.00	12.00	20.0	20.0	140.00	20.5	5.3	38.0	48.0	38.0	30.0
HFHR/L 20-48-3T12	3.00	12.00	20.0	20.0	140.00	20.5	5.3	48.0	60.0	38.0	30.0
HFHR/L 25-25-3T12	3.00	12.00	25.0	25.0	150.00	25.5	5.3	25.0	30.0	38.0	33.0
HFHR/L 25-30-3T12	3.00	12.00	25.0	25.0	150.00	25.5	5.3	30.0	38.0	38.0	34.0
HFHR/L 25-38-3T12	3.00	12.00	25.0	25.0	150.00	25.5	5.3	38.0	48.0	38.0	35.0
HFHR/L 20-60-3T22 (1)	3.00	22.00	20.0	20.0	140.00	20.5	-	60.0	75.0	40.0	31.0
HFHR/L 25-48-3T22 (1)	3.00	22.00	25.0	25.0	150.00	25.5	-	48.0	60.0	40.0	36.0
HFHR/L 25-60-3T22 (1)	3.00	22.00	25.0	25.0	150.00	25.5	-	60.0	75.0	40.0	36.0
HFHR/L 20-75-3T25 (1)	3.00	25.00	20.0	20.0	140.00	20.5	-	75.0	100.0	43.0	31.0
HFHR/L 25-75-3T25 (1)	3.00	25.00	25.0	25.0	150.00	25.5	-	75.0	100.0	43.0	36.0

• For user guide, see pages 98-114.

(1) For deep face grooving only. (2) Minimum penetration diameter (3) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44).

HFHR/L-□-25-3T12

D	d
25	5
26	2
≥27	0

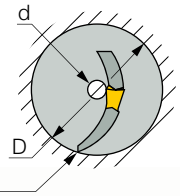
No limitation for widening groove toward or away from center, except for the following tools:

HFHR/L-□-25-4T12

D	d
25	1
≥26	0

HFHR/L-□-29-4T12

D	d
29	1
≥46	0



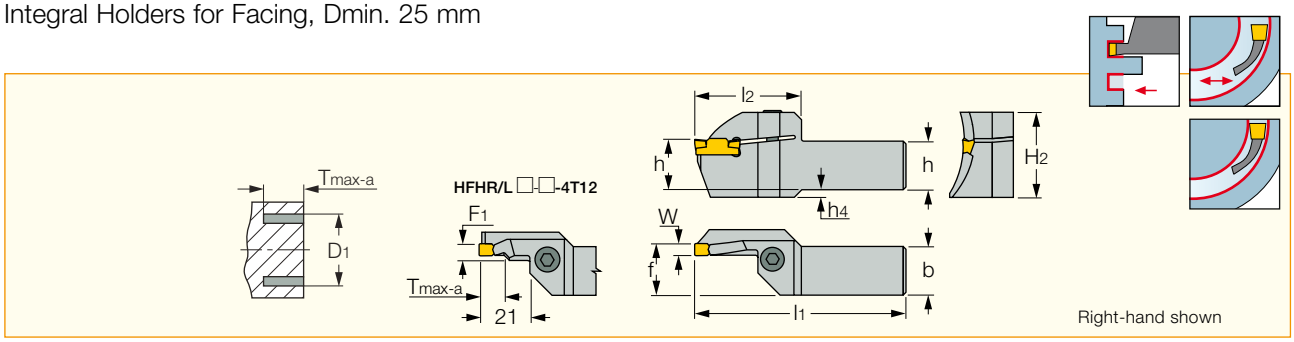
Limitation of widening toward center (d) depends on the major diameter (D) as per chart.

Spare Parts

Designation	Screw	Key
HFHR/L-3T	SR M6X16DIN912 12.9	HW 5.0

HFHR/L-4T

Integral Holders for Facing, Dmin. 25 mm



Designation	W	Tmax-a	h	b	l1	f	D1 min(1)	D1 max(2)	l2	H2	h4
HFHR/L 20-25-4T12	4.00	12.00	20.0	20.0	140.00	20.6	25.0	29.0	39.0	29.0	-
HFHR/L 20-29-4T12	4.00	12.00	20.0	20.0	140.00	20.6	29.0	34.0	39.0	30.0	-
HFHR/L 25-25-4T12	4.00	12.00	25.0	25.0	150.00	25.6	25.0	29.0	39.0	34.0	-
HFHR/L 25-29-4T12	4.00	12.00	25.0	25.0	150.00	25.6	29.0	34.0	39.0	35.0	-
HFHR/L 20-34-4T20	4.00	20.00	20.0	20.0	140.00	20.6	34.0	40.0	39.0	30.0	-
HFHR/L 25-34-4T20	4.00	20.00	25.0	25.0	150.00	25.6	34.0	40.0	39.0	35.0	-
HFHR/L 20-40-4T25	4.00	25.00	20.0	20.0	140.00	20.6	40.0	48.0	44.0	31.0	-
HFHR/L 20-48-4T25	4.00	25.00	20.0	20.0	140.00	20.6	48.0	60.0	44.0	32.0	-
HFHR/L 20-60-4T25	4.00	25.00	20.0	20.0	140.00	20.6	60.0	75.0	44.0	32.0	-
HFHR/L 20-75-4T25	4.00	25.00	20.0	20.0	140.00	20.6	75.0	100.0	44.0	34.0	2.0
HFHR/L 25-100-4T25	4.00	25.00	25.0	25.0	150.00	25.6	100.0	140.0	44.0	37.0	-
HFHR/L 25-140-4T25	4.00	25.00	25.0	25.0	150.00	25.6	140.0	240.0	44.0	37.0	-
HFHR/L 25-240-4T25	4.00	25.00	25.0	25.0	150.00	25.6	240.0	800.0	44.0	37.0	-
HFHR/L 25-40-4T25	4.00	25.00	25.0	25.0	150.00	25.6	40.0	48.0	44.0	36.0	-
HFHR/L 25-48-4T25	4.00	25.00	25.0	25.0	150.00	25.6	48.0	60.0	44.0	37.0	-
HFHR/L 25-60-4T25	4.00	25.00	25.0	25.0	150.00	25.6	60.0	75.0	44.0	37.0	-
HFHR/L 25-75-4T25	4.00	25.00	25.0	25.0	150.00	25.6	75.0	100.0	44.0	37.0	-

• DGN & GRIP 4 mm inserts can be used only with right-hand tools, HGPL 4 mm with left-hand tools. • For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • HGPL (50).

Penetration Range

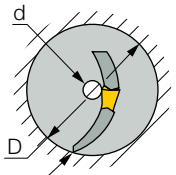
HFHR/L-□-25-4T12

D	d
25	1
≥26	0

HFHR/L-□-29-4T12

D	d
29	1
≥46	0

Limitation of widening toward center (d) depends on the major diameter (D) as per chart.

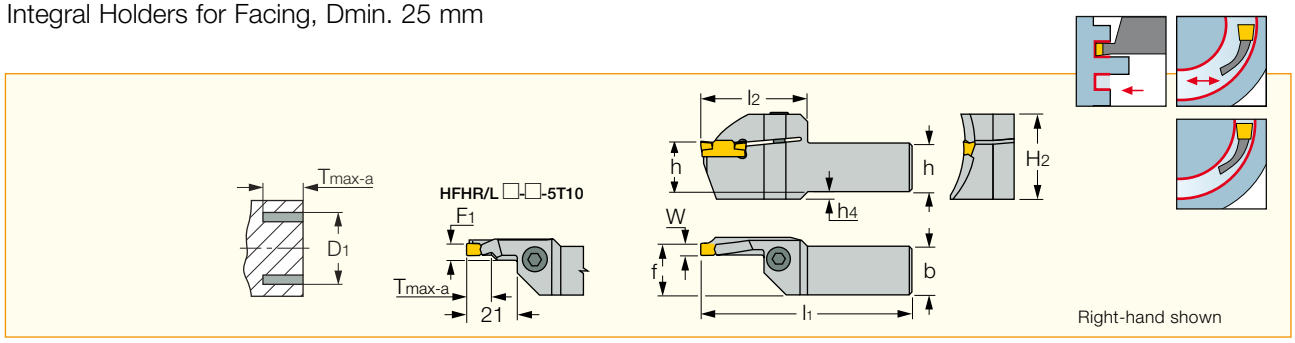


Spare Parts

Designation	Screw	Key
HFHR/L-4T	SR M6X16DIN912 12.9	HW 5.0

HFHR/L-5T

Integral Holders for Facing, Dmin. 25 mm



Designation	W	Tmax-a	h	b	l1	F1	f	D1 min(1)	D1 max(2)	l2	H2	h4
HFHR/L 20-25-5T10	5.00	10.00	20.0	20.0	140.00	7.1	21.0	25.0	30.0	38.0	28.0	-
HFHR/L 25-25-5T10	5.00	10.00	25.0	25.0	150.00	7.1	26.0	25.0	30.0	38.0	33.0	-
HFHR/L 25-110-5T14	5.00	14.00	25.0	25.0	150.00	-	23.5	110.0	200.0	32.5	33.0	-
HFHR/L 25-52-5T14	5.00	14.00	25.0	25.0	150.00	-	23.5	52.0	75.0	32.5	33.0	-
HFHR/L 25-75-5T14	5.00	14.00	25.0	25.0	150.00	-	23.5	75.0	110.0	32.5	33.0	-
HFHR/L 20-28-5T15	5.00	17.00	20.0	20.0	140.00	-	21.0	28.0	31.0	34.0	30.0	-
HFHR/L 20-31-5T15	5.00	17.00	20.0	20.0	140.00	-	21.0	31.0	35.0	34.0	30.0	-
HFHR/L 25-28-5T15	5.00	17.00	25.0	25.0	150.00	-	26.0	28.0	31.0	34.0	35.0	-
HFHR/L 25-31-5T15	5.00	17.00	25.0	25.0	150.00	-	26.0	31.0	35.0	34.0	35.0	-
HFHR/L 20-35-5T20	5.00	20.00	20.0	20.0	140.00	-	21.0	35.0	40.0	39.0	31.0	-
HFHR/L 20-40-5T20	5.00	20.00	20.0	20.0	140.00	-	21.0	40.0	45.0	39.0	31.0	-
HFHR/L 25-200-5T20	5.00	20.00	25.0	25.0	150.00	-	23.5	200.0	800.0	32.5	33.0	-
HFHR/L 25-35-5T20	5.00	20.00	25.0	25.0	150.00	-	26.0	35.0	40.0	39.0	36.0	-
HFHR/L 25-40-5T20	5.00	20.00	25.0	25.0	140.00	-	26.0	40.0	45.0	39.0	36.0	-
HFHR/L 20-45-5T25	5.00	25.00	20.0	20.0	140.00	-	21.0	45.0	55.0	44.0	32.0	-
HFHR/L 20-55-5T25	5.00	25.00	20.0	20.0	140.00	-	21.0	55.0	70.0	44.0	35.0	3.0
HFHR/L 25-45-5T25	5.00	25.00	25.0	25.0	150.00	-	26.0	45.0	55.0	44.0	37.0	-
HFHR/L 25-55-5T25	5.00	25.00	25.0	25.0	150.00	-	26.0	55.0	70.0	44.0	37.0	-
HFHR/L 20-70-5T28	5.00	28.00	20.0	20.0	140.00	-	21.0	70.0	95.0	47.0	35.0	3.0
HFHR/L 25-130-5T32	5.00	32.00	25.0	25.0	150.00	-	26.0	130.0	180.0	51.0	37.0	-
HFHR/L 25-180-5T32	5.00	32.00	25.0	25.0	150.00	-	26.0	180.0	800.0	51.0	37.0	-
HFHR/L 25-70-5T32	5.00	32.00	25.0	25.0	150.00	-	26.0	70.0	95.0	51.0	37.0	-
HFHR/L 25-95-5T32	5.00	32.00	25.0	25.0	150.00	-	26.0	95.0	130.0	51.0	37.0	-

- DGN & GRIP 5.. inserts can be used only with right-hand tools, HGPL 5.. inserts with left-hand tools.
- For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • DGN-W (49) • HGPL (50).

Spare Parts

Designation	Screw	Key
HFHR/L-5T	SR M6X16DIN912 12.9	HW 5.0

No limitation for widening groove toward or away from center, except for the following tools:

HFHR/L-□-31-5T15

D	d
31	15
32	10
33	7
34	4
35	2
≥36	0

HFHR/L-□-28-5T15

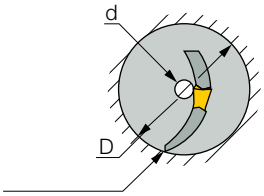
D	d
28	13
29	8
30	5
31	3
32	1
≥33	0

HFHR/L-□-25-5T10

D	d
25	4
26	1
≥27	0

HFHR/L-□-30-6T10

D	d
30	7
31	4
32	1
≥33	0

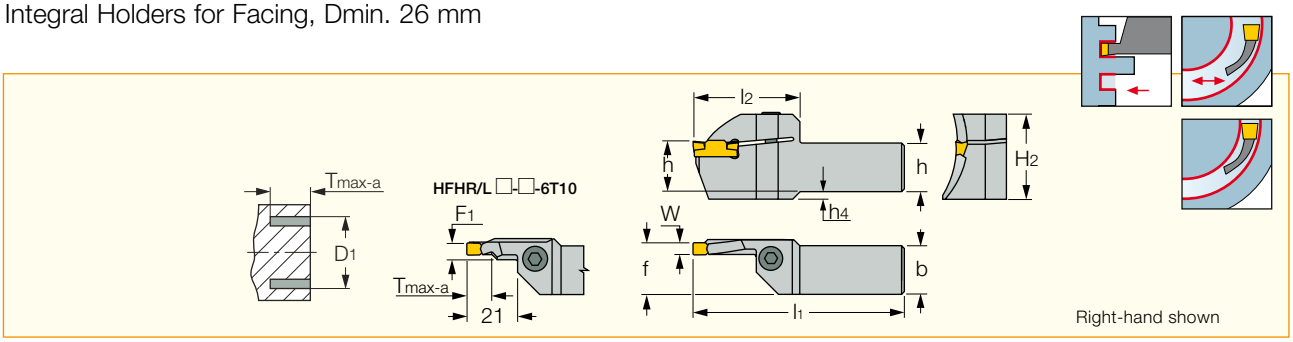


Limitation of widening toward center (d) depends on the major diameter (D) as per chart.

HELIFACE

HFHR/L-6T

Integral Holders for Facing, Dmin. 26 mm



Designation	W	T_{max-a}	h	b	l_1	F_1	f	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	l_2	H_2	h_4
HFHL 20-26-6T10	6.00	10.00	20.0	20.0	140.00	7.9	21.4	26.0	30.0	39.0	29.0	-
HFHR/L 20-30-6T15	6.00	17.00	20.0	20.0	140.00	-	21.4	30.0	38.0	36.0	30.0	-
HFHR/L 25-30-6T15	6.00	17.00	25.0	25.0	150.00	-	26.4	30.0	38.0	36.0	35.0	-
HFHR/L 20-38-6T20	6.00	20.00	20.0	20.0	140.00	-	21.4	38.0	50.0	39.0	31.0	-
HFHR/L 25-100-6T20	6.00	20.00	25.0	25.0	150.00	-	26.0	100.0	200.0	40.0	33.0	-
HFHR/L 25-200-6T20	6.00	20.00	25.0	25.0	150.00	-	23.0	200.0	3000.0	37.5	33.0	-
HFHR/L 25-38-6T20	6.00	20.00	25.0	25.0	150.00	-	26.4	38.0	50.0	39.0	36.0	-
HFHR/L 25-50-6T20	6.00	20.00	25.0	25.0	150.00	-	23.0	50.0	65.0	37.5	33.0	-
HFHR/L 25-65-6T20	6.00	20.00	25.0	25.0	150.00	-	23.0	65.0	100.0	37.5	33.0	-
HFHR/L 20-50-6T25	6.00	25.00	20.0	20.0	140.00	-	21.4	50.0	70.0	44.0	32.0	-
HFHR/L 25-50-6T25	6.00	25.00	25.0	25.0	150.00	-	26.4	50.0	70.0	44.0	37.0	-
HFHR/L 25-100-6T32	6.00	32.00	25.0	25.0	150.00	-	26.4	100.0	180.0	51.0	37.0	-
HFHR/L 25-180-6T32	6.00	32.00	25.0	25.0	150.00	-	26.4	180.0	400.0	51.0	40.0	3.0
HFHR/L 25-400-6T32	6.00	32.00	25.0	25.0	150.00	-	26.4	400.0	3000.0	51.0	40.0	3.0
HFHR/L 25-70-6T32	6.00	32.00	25.0	25.0	150.00	-	26.4	70.0	100.0	51.0	37.0	-

• DGN & GRIP 6.. inserts can be used only with right-hand tools, HGPL 6.. inserts with left-hand tools. • For user guide, see pages 98-114.

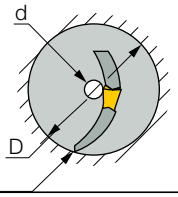
(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • HGPL (50).

No limitation for widening groove toward or away from center, except for the following tools:

HFHR/L-□-30-6T10

D	d
30	7
31	4
32	1
≥33	0

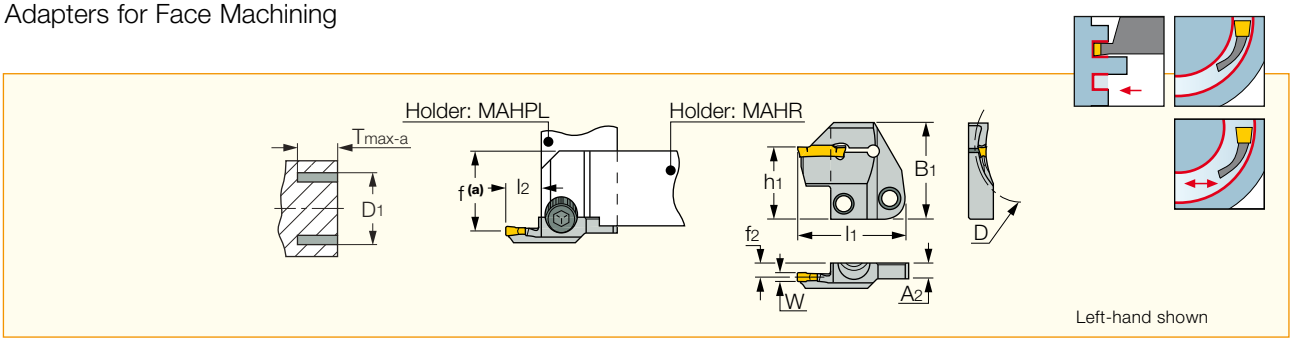


Limitation of widening toward center (d) depends on the major diameter (D) as per chart.

Spare Parts

Designation	Screw	Key
HFHR/L-6T	SR M6X16DIN912 12.9	HW 5.0

HFPAD-3
Adapters for Face Machining



Designation	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	W	T_{max-a}	l_2	f_2	A_2	l_1
HFPAD 3R/L-25-T10	25.0	30.0	3.00	10.00	15.0	4.80	5.8	39.50
HFPAD 3R/L-30-T10	30.0	40.0	3.00	10.00	15.0	4.80	5.8	39.50
HFPAD 3R/L-40-T10	40.0	65.0	3.00	10.00	15.0	4.80	5.8	39.50
HFPAD 3R/L-65-T18	65.0	115.0	3.00	18.00	19.0	4.80	5.8	43.50
HFPAD 3R/L-115-T18	115.0	400.0	3.00	18.00	19.0	4.80	5.8	43.50

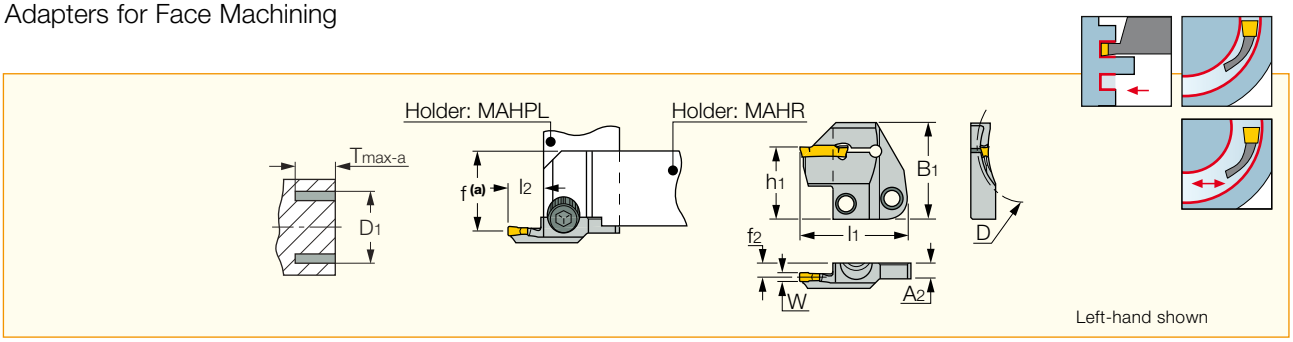
• f(a)=f1(shank) + f2(adapter) • HGN & GRIP 3.. inserts can be used only with right-hand adapters, HGPL 3.. inserts with left-hand adapters. • For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: GRIP (45) • GRIP (full radius) (46) • HGN-C (47) • HGN-J (47) • HGN-UT (48) • HGPL (50).

For holders, see pages: MAHR/L (51) • MAHPR/L (51) • C#-MAHD (53) • C#-MAHPD (54) • C#-MAHUR/L (53) • C#-MAHDR-45 (52) • HSK A63WH-MAHUR/L (56) • HSK A-WH-MAHDR/L-45 (55) • HSK A63WH-MAHDOR (56) • IM-MAHD (57) • IM-MAHPD (57).

HFPAD-4
Adapters for Face Machining



Designation	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	W	T_{max-a}	l_2	f_2	A_2	l_1
HFPAD 4R/L-25-T10	25.0	31.0	4.00	10.00	16.0	4.50	5.8	40.50
HFPAD 4R/L-31-T10	31.0	44.0	4.00	10.00	16.0	4.50	5.8	40.50
HFPAD 4R/L-44-T14	44.0	58.0	4.00	14.00	16.0	4.50	5.8	40.50
HFPAD 4R/L-58-T14	58.0	88.0	4.00	14.00	16.0	4.50	5.8	40.50
HFPAD 4R/L-88-T14	88.0	175.0	4.00	14.00	16.0	4.50	5.8	40.50
HFPAD 4R/L-175-T20	175.0	800.0	4.00	20.00	21.0	4.50	6.5	45.50

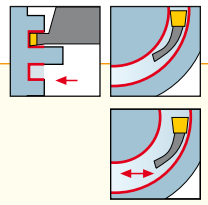
• f(a)=f1(shank) + f2(adapter) • DGN & GRIP 4.. inserts can be used only with right-hand adapters, HGPL 4.. inserts with left-hand adapters.
• For user guide, see pages 98-114.

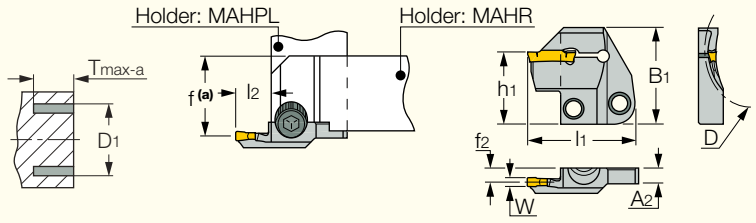
(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • HGPL (50).

For holders, see pages: MAHR/L (51) • MAHPR/L (51) • C#-MAHD (53) • C#-MAHPD (54) • C#-MAHUR/L (53) • C#-MAHDR-45 (52) • HSK A63WH-MAHUR/L (56) • HSK A-WH-MAHDR/L-45 (55) • HSK A63WH-MAHDOR (56) • IM-MAHD (57) • IM-MAHPD (57).

HFPAD-5
Adapters for Face Machining





Left-hand shown

Designation	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	W	T_{max-a}	l_2	f_2	A_2	l_1	h_1	B_1
HFPAD 5R/L-40-T14	40.0	50.0	5.00	14.00	16.0	4.50	6.3	40.50	24.0	32.0
HFPAD 5R/L-50-T14	50.0	75.0	5.00	14.00	16.0	4.50	6.3	40.50	24.0	32.0
HFPAD 5R/L-75-T14	75.0	110.0	5.00	14.00	16.0	4.50	6.3	40.50	24.0	32.0
HFPAD 5R/L-110-T14	110.0	200.0	5.00	14.00	16.0	4.50	6.3	40.50	24.0	32.0
HFPAD 5R/L-200-T20	200.0	800.0	5.00	20.00	21.0	4.50	6.6	45.50	24.0	32.0

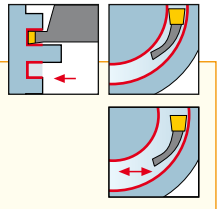
• f(a)=f1(shank) + f2(adapter) • DGN & GRIP 5.. inserts can be used only with right-hand adapters, HGPL 5.. inserts with left-hand adapters.
• For user guide, see pages 98-114.

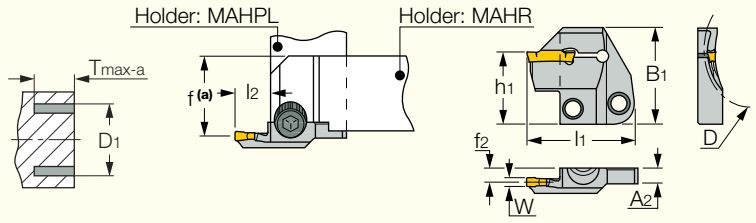
(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • DGN-W (49) • HGPL (50).

For holders, see pages: MAHR/L (51) • MAHPR/L (51) • C#-MAHD (53) • C#-MAHPD (54) • C#-MAHUR/L (53) • C#-MAHDR-45 (52) • HSK A63WH-MAHUR/L (56) • HSK A-WH-MAHDR/L-45 (55) • HSK A63WH-MAHDOR (56) • IM-MAHD (57) • IM-MAHPD (57).

HFPAD-6
Adapters for Face Machining





Left-hand shown

Designation	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	W	T_{max-a}	l_2	f_2	A_2	l_1	h_1	B_1
HFPAD 6R/L-60-T14	60.0	100.0	6.00	14.00	16.0	4.50	6.8	40.50	24.0	32.0
HFPAD 6R/L-100-T20	100.0	200.0	6.00	20.00	21.0	4.50	6.8	45.50	24.0	32.0
HFPAD 6R/L-200-T20	200.0	3000.0	6.00	20.00	21.0	4.50	7.1	45.50	24.0	32.0

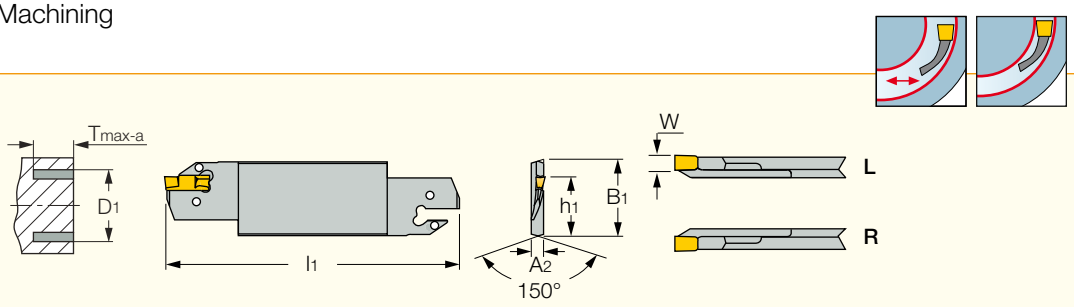
• f(a)=f1(shank) + f2(adapter) • DGN & GRIP 6.. inserts can be used only with right-hand adapters, HGPL 6.. inserts with left-hand adapters.
• For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • HGPL (50).

For holders, see pages: MAHR/L (51) • MAHPR/L (51) • C#-MAHD (53) • C#-MAHPD (54) • C#-MAHUR/L (53) • C#-MAHDR-45 (52) • HSK A63WH-MAHUR/L (56) • HSK A-WH-MAHDR/L-45 (55) • HSK A63WH-MAHDOR (56) • IM-MAHD (57) • IM-MAHPD (57).

HFFR/L-T
Blades for Face Machining



Right-hand shown

Designation	W	$D_{1\ min}$ (2)	T_{max-a}	$D_{1\ max}$ (3)	l_1	B_1	A_2
HFFR/L 48-4T25 (1)	4.00	48.0	25.00	60.0	150.00	32.0	5.2
HFFR/L 60-4T25	4.00	60.0	25.00	75.0	150.00	32.0	5.2
HFFR/L 75-4T30	4.00	75.0	30.00	140.0	150.00	32.0	5.2
HFFR/L 140-4T30	4.00	140.0	30.00	1500.0	150.00	32.0	3.2
HFFR/L 70-5T32	5.00	70.0	32.00	95.0	150.00	32.0	5.2
HFFR/L 95-5T35	5.00	95.0	35.00	130.0	150.00	32.0	5.2
HFFR/L 130-5T38	5.00	130.0	38.00	180.0	150.00	32.0	5.2
HFFR/L 180-5T38	5.00	180.0	38.00	1500.0	150.00	32.0	4.0
HFFR/L 90-6T32	6.00	90.0	32.00	180.0	150.00	32.0	5.2
HFFR/L 180-6T38	6.00	180.0	38.00	400.0	150.00	32.0	5.2

• After initial groove, no limitation to widening groove outward or toward center.
• DGN & GRIP inserts can be used only with right-hand adapters, HGPL inserts with left-hand blades. • For user guide, see pages 98-114.

(1) HGPL 4...Y with LH blade. (2) Minimum penetration diameter (3) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • DGN-W (49) • HGPL (50).

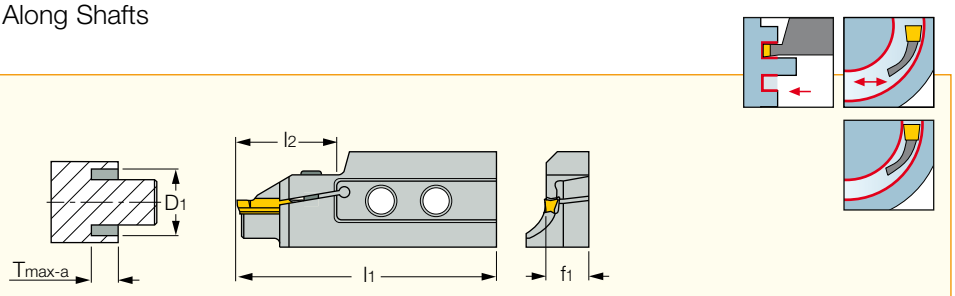
For holders, see pages: SGTBF (61) • SGTBU/SGTBN (58) • UBHCR/L (61).

Spare Parts

Designation	Extractor
HFFR/L-T	EDG 33B*

* Optional, should be ordered separately

HGAER/L-3
Adapters for External Facing Along Shafts



Right-hand shown

Designation	T_{max-a}	W	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	l_2	f_1	l_1
HGAER/L 12-3M	2.00	3.00	12.0	500.0	21.0	10.2	55.00
HGAER/L 12-3T6	6.00	3.00	12.0	15.0	21.0	10.2	55.00
HGAER/L 14-3T7	7.00	3.00	14.0	17.0	21.0	10.2	55.00
HGAE R/L 17-3T8	8.00	3.00	17.0	21.0	21.0	10.2	55.00
HGAER/L 21-3T9	9.00	3.00	21.0	25.0	21.0	10.2	55.00

• GRIP 3... inserts can be used with right-hand adapters only, HGPL 3 with left-hand adapters. • For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: GRIP (45) • GRIP (full radius) (46) • HGPL (50).

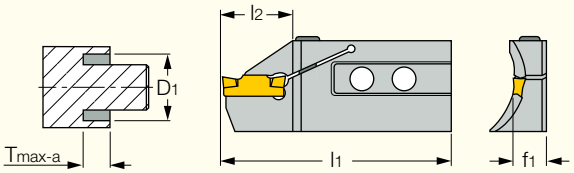
For holders, see pages: C#-HAD (33) • C#-HAPR/L (32) • HAPR/L (31) • HAR/L (31) • IM-HAD (33) • IM-HAPR/L (32).

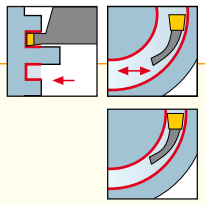
Spare Parts

Designation	Screw	Key
HGAEL 12-3M	SR 16-236 P	T-15/5
HGAER 12-3M	SR 16-236 P	T-15/3
HGAEL 12-3T6	SR 16-236 P	T-15/5
HGAER 12-3T6	SR 16-236 P	T-15/3
HGAER/L 14-3T7	SR 16-236 P	T-15/3
HGAEL 17-3T8	SR 16-236 P	T-15/5
HGAER 17-3T8	SR 16-236 P	T-15/3
HGAER/L 21-3T9	SR 16-236 P	T-15/3

HFAER/L-4T

Adapters for External Facing Along Shafts





Right-hand shown

Designation	T_{max-a}	W	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	l_1	l_2	f_1
HFAER/L 40-4T20	20.00	4.00	40.0	48.0	68.50	21.0	11.6
HFAER/L 48-4T20	20.00	4.00	48.0	60.0	68.50	21.0	11.6
HFAER/L 60-4T25	25.00	4.00	60.0	75.0	68.50	26.0	11.6
HFAER/L 75-4T25	25.00	4.00	75.0	100.0	68.50	26.0	11.6

• DGN & GRIP inserts can be used only with right-hand adapters, HGPL inserts with left-hand blades. • For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • HGPL (50).

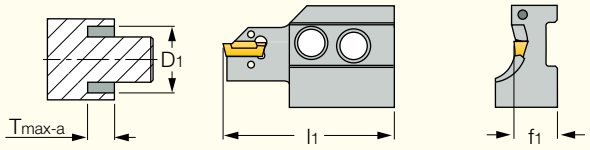
For holders, see pages: C#-HAD (33) • C#-HAPR/L (32) • HAPR/L (31) • HAR/L (31) • IM-HAD (33) • IM-HAPR/L (32).

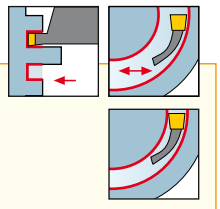
Spare Parts

Designation	Screw	Key
HFAER/L-4T	SR M5X16DIN912 12.9	HW 4.0

HFAER/L-5T, 6T

Adapters for External Facing Along Shafts





Right-hand shown

Designation	W	T_{max-a}	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	l_1	f_1
HFAER/L 70C-5T25	5.00	25.00	70.0	95.0	66.00	12.2
HFAER/L 95C-5T25	5.00	25.00	95.0	130.0	66.00	12.2
HFAER/L 70C-6T28	6.00	28.00	70.0	100.0	69.00	12.3
HFAER/L 100C-6T32	6.00	32.00	100.0	180.0	73.00	12.3
HFAER/L 180C-6T32	6.00	32.00	180.0	400.0	73.00	12.3

• After initial groove, no limitation to widening groove outward from or toward center. • Adapters can be mounted on standard HAR/L, HAPR/L, HAI holders for external machining. • DGN & GRIP inserts can be used only with right-hand adapters, HGPL inserts with left-hand blades. • For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • DGN-W (49) • HGPL (50).

For holders, see pages: C#-HAD (33) • C#-HAPR/L (32) • HAPR/L (31) • HAR/L (31) • IM-HAD (33) • IM-HAPR/L (32).

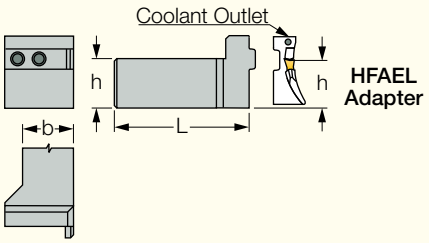
Spare Parts

Designation	Extractor
HFAER/L-5T, 6T	EDG 33B*

* Optional, should be ordered separately

HAPR/L

Face Machining Perpendicular Holders for Adapters



Left-hand shown

Designation	L	h	b
HAPR/L 25C	124.00	25.0	25.0
HAPR/L 32C	139.00	32.0	32.0

• Holders for adapters HFAER/L & HGAER/L, HFAIR/L & HGAIR/L.

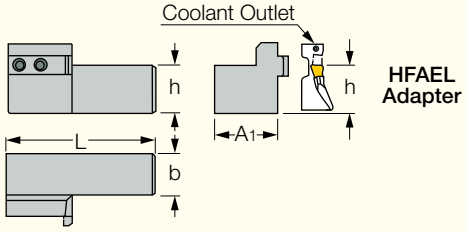
For tools, see pages: HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HGAER/L-3 (29) • HGAIR/L-3 (38).

Spare Parts

Designation	Key	Screw
HAPR/L	T-20/3	SR 14-519

HAR/L

Face Machining Adapter Holders



Right-hand shown

Designation	L	b	h	A_1	W
HAR/L 25C	110.00	25.0	25.0	39.00	-
HAR/L 32C	130.00	32.0	32.0	46.00	-

• Holders for adapters HFAER/L & HGAER/L, HFAIR/L & HGAIR/L.

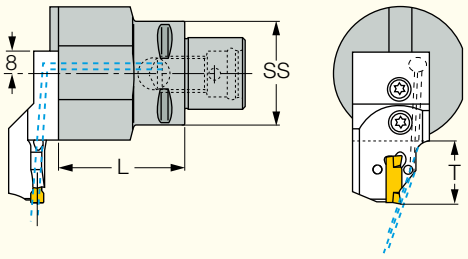
For tools, see pages: HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HGAER/L-3 (29) • HGAIR/L-3 (38).

Spare Parts

Designation	Key	Screw
HAR/L	T-20/3	SR 14-519

C#-HAPR/L

Perpendicular Holders for Internal Facing Adapters with CAMFIX Exchangeable, Tapered Shanks



Right-hand shown • T= See specific blade dimensions

Designation	SS	L
C4 HAPR/L	40	50.00
C6 HAPR/L	63	50.00

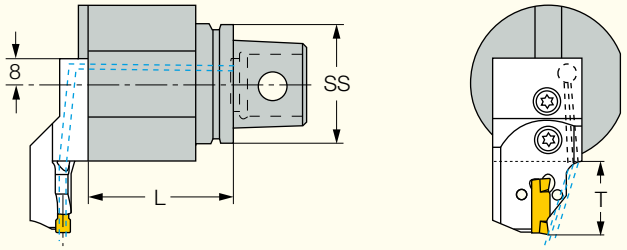
For tools, see pages: HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HGAER/L-3 (29) • HGAIR/L-3 (38).

Spare Parts

Designation	Screw	Key
C#-HAPR/L	SR 14-519	T-20/3

IM-HAPR/L

Perpendicular Holders for Internal Facing Adapters with ISO 26622-1(*) Tapered Shank



T= See specific adapter dimensions
• Right-hand shown

Designation	SS	L
IM40 HAPR/L	40	50.00
IM50 HAPR	50	50.00

• (*) Tools with orientation holes in the flange groove can be supplied on request

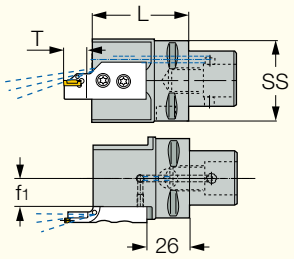
For tools, see pages: HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HGAER/L-3 (29) • HGAIR/L-3 (38).

Spare Parts

Designation	Screw	Key
IM-HAPR/L	SR 14-519	T-20/3

C#-HAD

Holders for Internal Facing Adapters with CAMFIX Exchangeable Tapered Shanks



T-See specific adapter dimensions.

Designation	SS	L	f1
C4 HAD	40	60.00	18.0
C5 HAD	50	60.00	18.0
C6 HAD	63	60.00	22.0

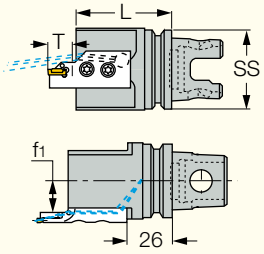
For tools, see pages: HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HGAER/L-3 (29) • HGAIR/L-3 (38).

Spare Parts

Designation	Side Locking Screw	Key	Screw	Key 1
C4 HAD	SR 14-519	T-20/3	SR M4X6DIN912	HW 3.0
C5 HAD	SR 14-519	T-20/3	SR M4X6DIN912	HW 3.0
C6 HAD	SR 14-519	T-20/3	SR M4X6	HW 2.0

IM-HAD

Holders for Internal Facing Adapters with ISO 26622-1(*) Tapered Shank



T= See specific adapter dimensions
Right-hand shown

Designation	SS	L	f1
IM40 HAD	40	60.00	18.0
IM50 HAD	50	60.00	18.0

• (*) Tools with orientation holes in the flange groove can be supplied on request

For tools, see pages: HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HGAER/L-3 (29) • HGAIR/L-3 (38).

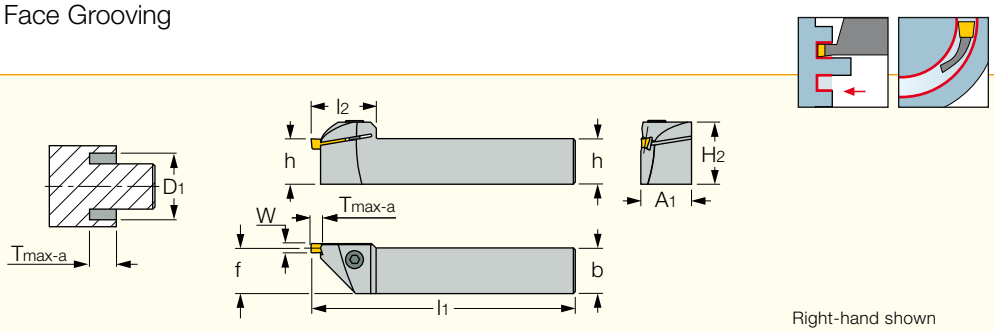
Spare Parts

Designation	Side Locking Screw	Key	Screw	Key 1	Screw 1
IM-HAD	SR 14-519	T-20/3	SR M5X10DIN916	HW 3.0	SR M4X6DIN912

HELIFACE

HFHR/L-M

Toolholders for Shallow Face Grooving



Right-hand shown

Designation	Ord	W min	W max	Tmax-a	f	h	b	l1	D1 min(1)	D1 max(2)	H2	A1
HFHR/L 20M	1	3.00	6.00	5.30	20.0	20.0	20.0	130.00	20.0	2000.0	29.0	22.50
HFHR/L 25M	2	3.00	6.00	5.30	25.0	25.0	25.0	150.00	20.0	2000.0	34.0	27.50

- DGN & GRIP 4.. - 6.. inserts can be used only with right-hand tools, HGPL 4.. - 6.. inserts with left-hand tools.
- After initial groove, no limitation to widening groove outward or toward center.
- For user guide, see pages 98-114 .

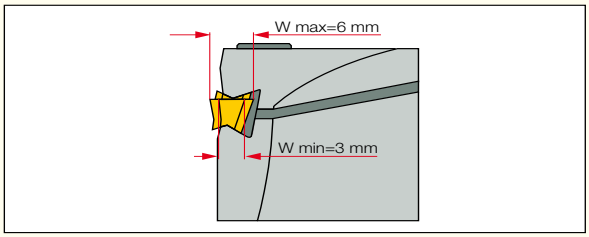
(1) Minimum penetration diameter (2) Maximum penetration diameter

Spare Parts

Designation	Key	Screw
HFHR/L-M	HW 5.0	SR M6X16DIN912 12.9

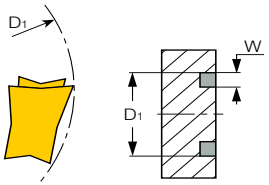
HFHR/L-□M & HFHPR/L-□M
Integral Toolholders

For shallow machining to max. 5 mm depth of groove.
One toolholder can be mounted with inserts in 3-6 mm widths.
The initial major diameter groove is limited by the insert geometry in each size.
After initial groove, face recessing outward or toward center is not limited by insert geometry.



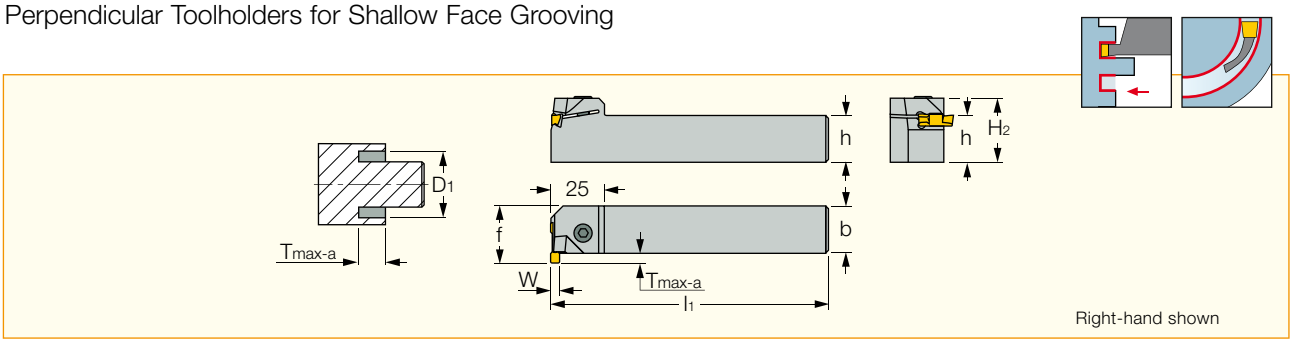
Insert initial face grooving range

W	D1 Min.	D1 Max.
3	24	60
4	23	90
5	21	300
6	20	



HFHPR/L-M

Perpendicular Toolholders for Shallow Face Grooving



Designation	W min	W max	Tmax-a	f	h	b	l1	D1 min(1)	D1 max(2)	H2
HFHPR/L 20M	3.00	6.00	5.00	25.3	20.0	20.0	130.00	20.0	2000.0	29.0
HFHPR/L 25M	3.00	6.00	5.00	30.3	25.0	25.0	150.00	20.0	2000.0	34.0

• DGN & GRIP 4.. - 6.. inserts can be used only with right-hand tools, HGPL 4.. - 6.. inserts with left-hand tools.
• After initial groove, no limitation to widening groove outward or toward center. • For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44).

Spare Parts

Designation	Key	Screw
HFHPR/L-M	HW 5.0	SR M6X20DIN912 12.9

Boring Bars for Adapters

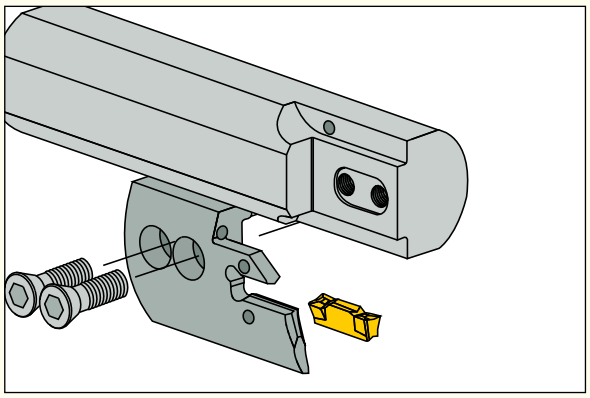
HGAIR/L & HFAIR/L Adapters and HAI Holders
Adapter clamped on HAI round shank holders can machine deep internal boring and grooving applications. The tool can bore down to bottom.
Tool is supplied with internal coolant for better performance.

HFAIR/L & HGAIR/L
Exchangeable adapters,
see pages 38, 40

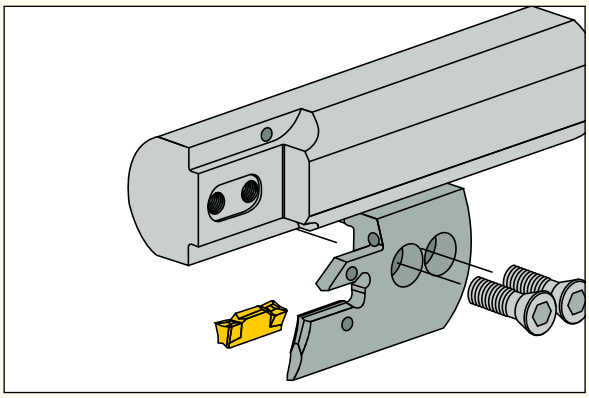
HAI Holders
for adapters,
see page 38.

HFAIR/L HGAIR/L	**- □**	**C**	**- □**	**T □**
HELIFACE Internal adapters Right or left	Min. initial groove diameter	Internal coolant	Insert width	Max. depth of groove

HAI Holder System Assembly



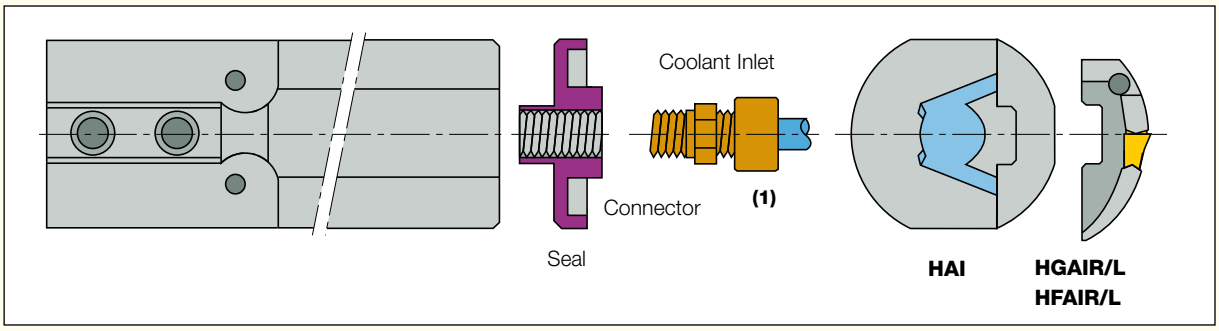
HFAIL & HGAIL
Left-hand Adapters

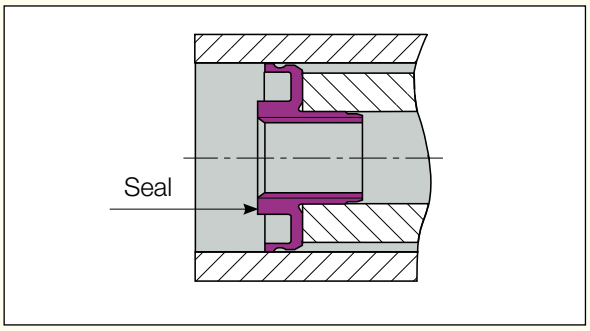


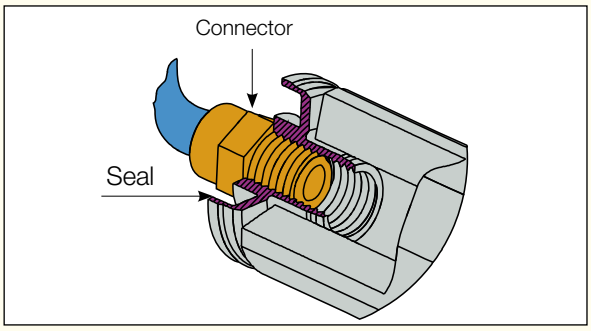
HFAIR & HGAIR
Right-hand Adapters

The same HAI boring bar can be used with right- and left-hand adapters in a wide range of face machining applications. The two screws and the central guiding slot on the adapter correspond to the key and holes on the holder ensuring strong, safe, and accurate clamping.

Coolant System



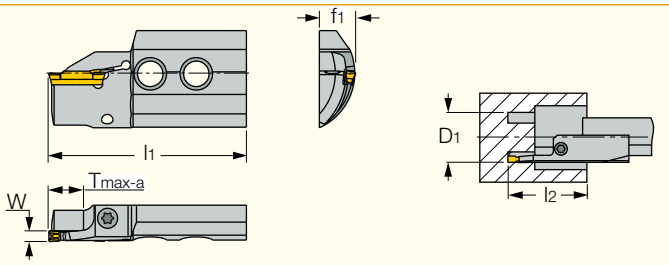


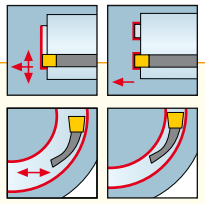


(1) Connector for coolant inlet BSP 1/8 thread. For PL-20, use M6 thread. Connector not supplied with tools.

HGAIR/L-3

Adapters for Internal Face Grooving and Turning





Right-hand shown

Designation	Tmax-a	W	D1 min(1)	D1 max(2)	l1	f1	l2
HGAIR/L 12-3M	2.00	3.00	12.0	500.0	55.00	10.2	21.0
HGAIR/L 12-3T6	6.00	3.00	12.0	15.0	55.00	10.2	21.0
HGAIR/L 14-3T7	7.00	3.00	14.0	17.0	55.00	10.2	21.0
HGAIR/L 17-3T8	8.00	3.00	17.0	21.0	55.00	10.2	21.0
HGAIR/L 21-3T9	9.00	3.00	21.0	25.0	55.00	10.2	21.0
HGAIR/L 25-3T9	9.00	3.00	25.0	34.0	55.00	10.2	21.0
HGAIR/L 35-3T10	10.00	3.00	35.0	45.0	56.00	10.3	22.0
HGAIR/L 45-3T10	10.00	3.00	45.0	65.0	56.00	10.3	22.0
HGAIR/L 65-3T18	18.00	3.00	65.0	115.0	64.00	11.3	30.0
HGAIR/L 115-3T18	18.00	3.00	115.0	400.0	64.00	11.3	30.0

For holders, see pages: C#-HAD (33) • C#-HAPR/L (32) • HAI-C (39) • HAPR/L (31) • HAR/L (31) • IM-HAD (33) • IM-HAPR/L (32).

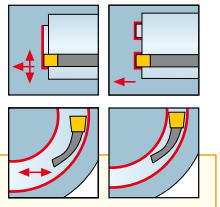
For user guide, see pages 98-114.

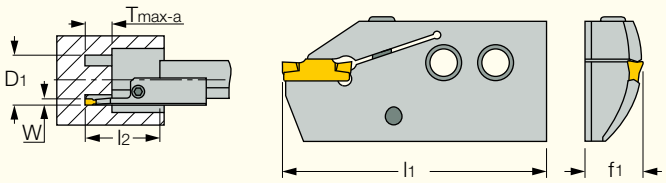
Spare Parts

Designation	Key	Screw
HGAIR/L-3	T-15/3	SR 16-236 P

HFAIR/L-4

Adapters for Internal Face Grooving and Turning





Right-hand shown

Designation	Tmax-a	W	D1 min(1)	D1 max(2)	l1	f1	l2
HFAIR/L 34-4T18	18.00	4.00	34.0	40.0	67.00	15.3	33.0
HFAIR/L 40-4T20	20.00	4.00	40.0	48.0	67.00	15.3	33.0
HFAIR/L 48-4T20	20.00	4.00	48.0	60.0	67.00	15.3	33.0
HFAIR/L 60-4T25	25.00	4.00	60.0	75.0	67.00	15.3	33.0

• DGN & GRIP inserts can be used only with right-hand adapters, HGPL inserts with left-hand blades. • For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • HGPL (50).

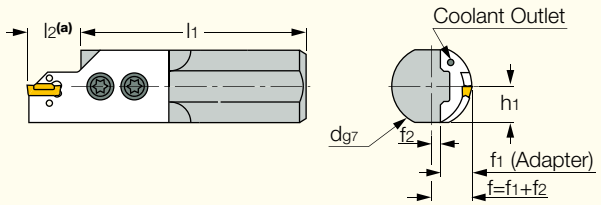
For holders, see pages: C#-HAD (33) • C#-HAPR/L (32) • HAI-C (39) • HAPR/L (31) • HAR/L (31) • IM-HAD (33) • IM-HAPR/L (32).

Spare Parts

Designation	Screw	Key
HFAIR/L-4	SR M5X16DIN912 12.9	HW 4.0

HAI-C

Boring Bars with Coolant Holes for Internal Grooving and Turning Adapters



Designation	d	l_1	h_1	f_2	Coolant
HAI 20	20.00	130.00	9.0	0.50	N
HAI 25C	25.00	150.00	11.5	3.00	Y
HAI 32C	32.00	200.00	14.5	6.50	Y
HAI 40C	40.00	250.00	18.0	10.50	Y

• (a) l2 - see corresponding adapters • The HAI boring bars can be used with right- and left-hand adapters.

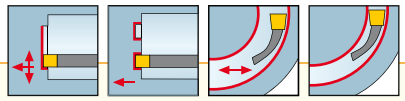
For tools, see pages: HFAIR/L-4 (38) • HFAIR/L-DG (40) • HGAIR/L-3 (38).

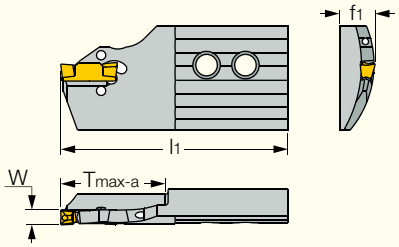
Spare Parts

Designation	Screw	Key	Seal
HAI 20	SR 14-519	T-20/3	
HAI 25C	SR 14-519	T-20/3	PL 25
HAI 32C	SR 14-519	T-20/3	PL 32
HAI 40C	SR 14-519	T-20/3	PL 40

HFAIR/L-DG

Adapters for Internal Face Grooving and Turning





Right-hand shown

Designation	W	$D_{1\ min}$(1)	$D_{1\ max}$(2)	T_{max-a}	f_1	l_2	l_1
HFAIR/L 75C-4T30DG	4.00	75.0	140.0	30.00	10.9	34.5	68.50
HFAIR/L 140C-4T30DG	4.00	140.0	-	30.00	10.9	34.5	68.50
HFAIR/L 55C-5T25DG	5.00	55.0	70.0	25.00	11.9	32.0	66.00
HFAIR/L 70C-5T25DG	5.00	70.0	95.0	25.00	11.9	32.0	66.00
HFAIR/L 95C-5T35DG	5.00	95.0	130.0	35.00	11.9	39.5	73.50
HFAIR/L 130C-5T38DG	5.00	130.0	180.0	38.00	11.9	42.5	76.50
HFAIR/L 180C-5T38DG	5.00	180.0	-	38.00	11.9	42.5	76.50
HFAIR/L 70C-6T28DG	6.00	70.0	100.0	28.00	12.0	35.0	69.00
HFAIR/L 100C-6T32DG	6.00	100.0	180.0	32.00	12.0	39.0	73.00
HFAIR/L 180C-6T38DG	6.00	180.0	-	38.00	12.4	42.5	76.50

• After initial groove, no limitation to widening groove outward or toward center

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • DGN-W (49) • HGPL (50).

For holders, see pages: C#-HAD (33) • C#-HAPR/L (32) • HAI-C (39) • HAPR/L (31) • HAR/L (31) • IM-HAD (33) • IM-HAPR/L (32).

Spare Parts

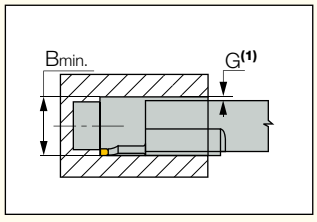
Designation	Extractor
HFAIR/L-DG	EDG 33B*

* Optional, should be ordered separately

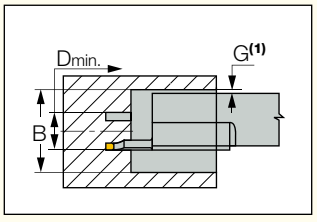
Adapters can be used for internal machining along bore.
Adapters can be mounted on standard HAI boring bars for internal machining and on HAR/L, HAPR/L holders for external machining

Boring, Face Grooving & Face Recessing Capacity

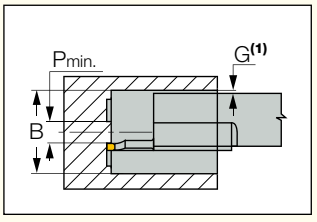
Boring
B Min. =F+G+d/2



Face Grooving
D Min. =2F-B+2G+d



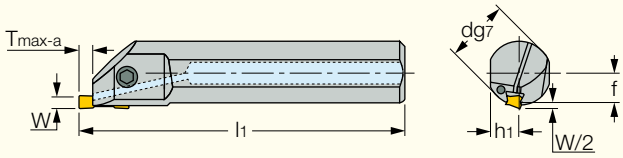
Face Recessing
P Min. =2F-B-2W+2G+d

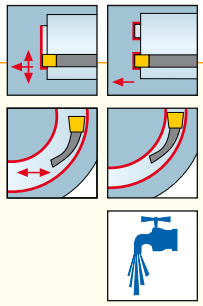


(1) The minimum recommended value for clearance (G) is 0.5 mm.

HFIR/L-MC

Boring Bars for Internal Grooving and Turning





Designation	W min	W max	d	l1	f±0.10	h1	Tmax-a
HFIR/L 25MC	3.00	6.00	25.00	200.00	11.14	11.5	5.00
HFIR/L 32MC	3.00	6.00	32.00	250.00	14.68	14.5	5.00
HFIR/L 40MC	3.00	6.00	40.00	300.00	18.70	18.0	5.00

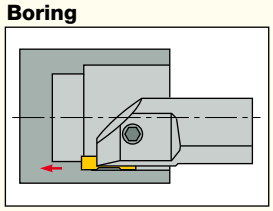
• DGN & GRIP 4.. - 6.. inserts can be used only with right-hand tools, HGPL 4.. - 6.. inserts with left-hand tools.
• After initial groove, no limitation to widening groove outward or toward center. • For user guide, see pages 98-114 .

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • DGN-W (49) • HGPL (50).

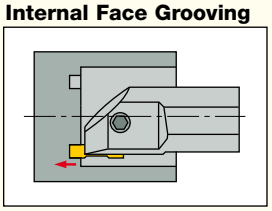
Spare Parts

Designation	Key	Screw	Seal
HFIR/L 25MC	HW 4.0	SR M5X16DIN912 12.9	PL 25
HFIR/L 32MC	HW 5.0	SR M6X20DIN912 12.9	PL 32
HFIR/L 40MC	HW 5.0	SR M6X20DIN912 12.9	PL 40

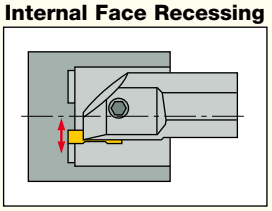
Boring



Internal Face Grooving



Internal Face Recessing



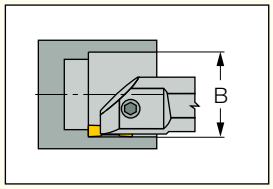
HFIR/L-: MC Integral Boring Bars

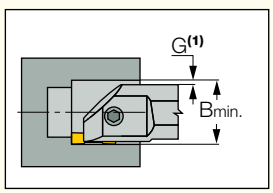
For shallow, internal face machining to max. 5 mm depth of groove. One boring bar can be mounted with inserts in 3-6 mm widths.

The initial major diameter groove is limited by the insert geometry in each size.
After initial groove, face recessing outward or toward center is not limited by insert geometry.

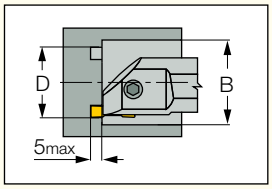
Boring, Face Grooving and Face Recessing Capacity

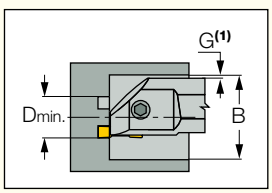
Boring
B Min.=F+d/2+W/2+2G



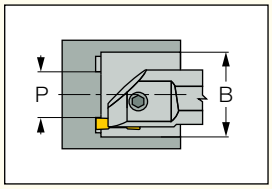


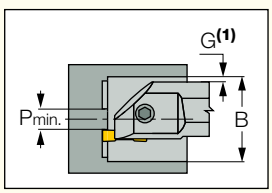
Face Grooving
D Min.=2F+d+W-B+2G





Face Recessing
P Min.=2F+d-W-B+2G



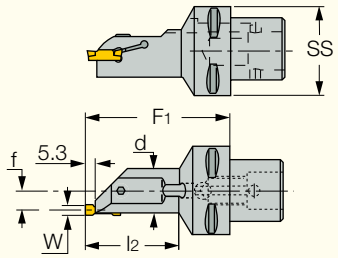


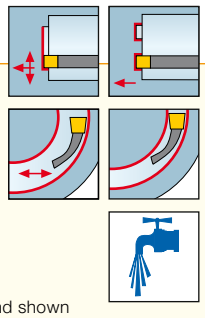
(1) The minimum recommended value for clearance (G) is 0.5 mm.

EXCHANGEABLEHEADS • CAMFIX

C#-HFIR/L-MC

Boring Bars for Internal Grooving and Turning with CAMFIX (ISO 26623-1 standard)
Exchangeable, Tapered Shanks





Right-hand shown

Designation	W min	W max	SS	f	l2	F1	d
C4 HFIR/L-MC	3.00	6.00	40	11.3	52.0	80.0	25.00
C5 HFIR/L-MC	3.00	6.00	50	11.3	52.0	80.0	25.00

• DGN & GRIP 4.. - 6.. inserts can be used only with right-hand tools, HGPL 4.. - 6.. inserts with left-hand tools.
• After initial groove, no limitation to widening groove outward or toward center. • For user guide, see pages 98-114.

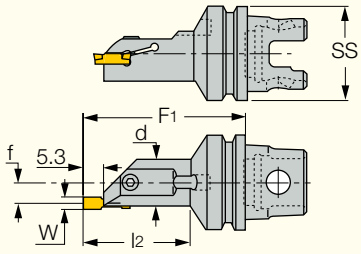
For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • DGN-W (49) • HGPL (50).

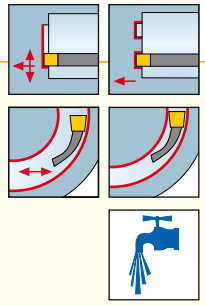
Designation	Screw	Key	Cooling Nozzle
C#-HFIR/L-MC	SR M5X16DIN912 12.9	HW 4.0	EZ 83

HELIFACE • EXCHANGEABLEHEADS

IM-HFIR/L-MC

Tools for Internal Grooving and Turning with ISO 26622-1(*) Tapered Shank





Designation	SS	F1	d	f	l2	W min	W max
IM40 HFIR-MC	40	80.0	25.00	11.3	52.0	3.00	6.00
IM50 HFIR-MC	50	80.0	25.00	11.3	52.0	3.00	6.00

• (*) Tools with orientation holes in the flange groove can be supplied on request
• DGN & GRIP 4.. - 6.. inserts can be used only with right-hand tools, HGPL 4.. - 6.. inserts with left-hand tools.
• After initial groove, no limitation to widening groove outward or toward center. • For user guide, see pages 98-114.

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • DGN-W (49).

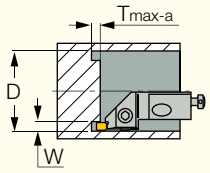
Spare Parts

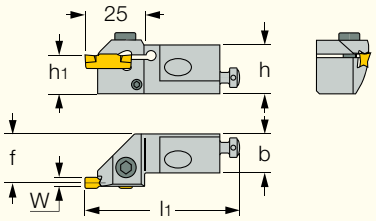
Designation	Cooling Nozzle	Key	Screw
IM-HFIR/L-MC	EZ 83	HW 4.0	SR M5X16DIN912 12.9

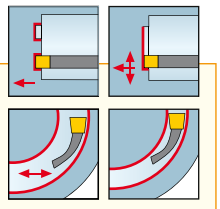
CR HFIR/L-M

Cartridges for Face Grooving and Turning

W	D	
	Min	Max
3	60	130
4,5,6	60	=







Right-hand shown

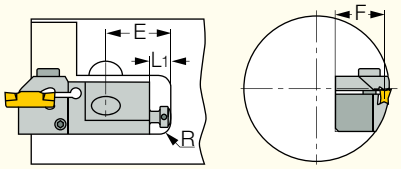
Designation	W min	W max	h1	b	h	l1	f	Tmax-a
CR HFIR-16M	3.00	6.00	16.0	16.0	20.0	67.00	20.0	5.00
CR HFIR-20M	3.00	6.00	20.0	20.0	24.0	72.00	24.0	5.00

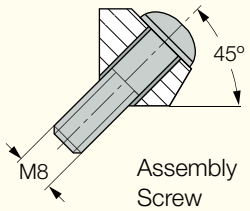
- Used for shallow internal face machining to max. 5 mm depth of groove
- Inserts in 3-6 mm widths can be mounted on the cartridges
- Only DGN & GRIP 4.. - 6.. inserts can be used with the right-hand tools

For inserts, see pages: HFPR/L (44) • HFPR/L (full radius) (44) • GRIP (45) • GRIP (full radius) (46) • DGN/DGNC/DGNM-C (48) • DGN/DGNM-J/JS/JT (49) • DGN-W (49).

CR-HFIR/L-M

Assembly Dimensions





Designation	E	L1(1)	F(2)	Rmax.	Assembly Screw(3)
CR HFIR/L-16M	25	8	20	6	M8X30
CR HFIR/L-20M	30	10	24	6	M8X30

(1) L adjustment ± 1.

(2) F adjustment $^{+0.3}_{-0}$

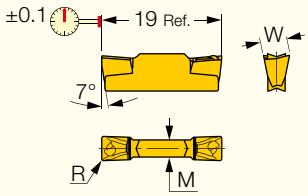
(3) Assembly screws ISO 7380 are recommended.

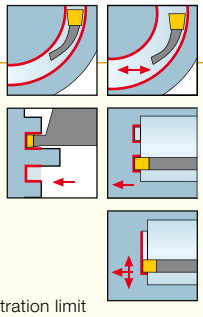
Spare Parts

Designation	Upper Locking Screw	Key	Rear Adjustment Screw	Side Adjustment Screw	Hex Key
CR HFIR-16M	SR M5X20DIN912 12.9	HW 4.0	SR 76-1401	SR M4X10DIN916	HW 2.0
CR HFIR-20M	SR M5X20DIN912 12.9	HW 4.0	SR 76-1401	SR M4X10DIN913	HW 2.0

HFPR/L

Utility Double-Ended Face Machining Inserts





No depth penetration limit

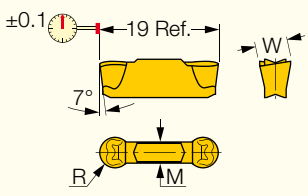
Designation	Dimensions					Tough ↔ Hard										Recommended Machining Data		
	W±0.05	R±0.05	M	D1 min	D1 max	IC328	IC830	IC354	IC8250	IC808	IC9015	IC9054	IC20	IC428	IC5010	ap (mm)	f face-groove (mm/rev)	f face-turn (mm/rev)
HFPR/L 3003	3.00	0.30	2.1	25.6	51.5		●	●	●	●	●	●	●	●	●	0.30-1.50	0.08-0.20	0.10-0.20
HFPR/L 4004	4.00	0.40	2.8	24.1	73.7	●	●	●	●	●	●	●	●	●	●	0.40-2.00	0.10-0.24	0.15-0.25
HFPR/L 5004	5.00	0.40	3.4	21.0	170.0		●	●	●	●	●	●	●	●	●	0.50-2.50	0.12-0.24	0.15-0.35
HFPR/L 6004	6.00	0.40	4.0	20.8	-		●	●	●	●	●	●	●	●	●	0.40-3.00	0.12-0.28	0.15-0.40

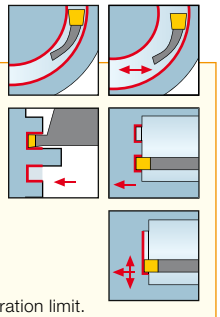
• For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: C#-HFIR/L-MC (42) • CR HFIR/L-M (43) • HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HFFR/L-T (29) • HFHPR/L-M (35) • HFHR/L-3T (23) • HFHR/L-4T (24) • HFHR/L-5T (25) • HFHR/L-6T (26) • HFHR/L-M (34) • HFIR/L-MC (41) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28) • IM-HFIR/L-MC (42).

HFPR/L (full radius)

Utility Double-Ended Full Radius Face Machining Inserts





No depth penetration limit.

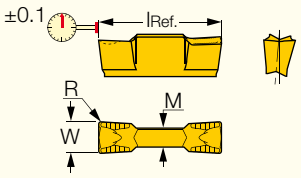
Designation	Dimensions					Tough ↔ Hard									Recommended Machining Data		
	W±0.05	R±0.05	M	D1 min	D1 max	IC830	IC354	IC8250	IC808	IC9015	IC9054	IC20	IC428	IC5010	ap (mm)	f face-groove (mm/rev)	f face-turn (mm/rev)
HFPR/L 3015	3.00	1.50	2.1	25.6	51.5	●	●	●	●	●	●	●	●	●	0.00-1.50	0.08-0.20	0.12-0.20
HFPR/L 4020	4.00	2.00	2.8	24.1	73.7	●	●	●	●	●	●	●	●	●	0.00-2.00	0.10-0.24	0.15-0.25
HFPR/L 5025	5.00	2.50	3.4	22.1	170.0	●	●	●	●	●	●	●	●	●	0.00-2.50	0.12-0.24	0.15-0.35
HFPR/L 6030	6.00	3.00	4.0	20.8	-	●	●	●	●	●	●	●	●	●	0.00-3.00	0.12-0.28	0.20-0.40

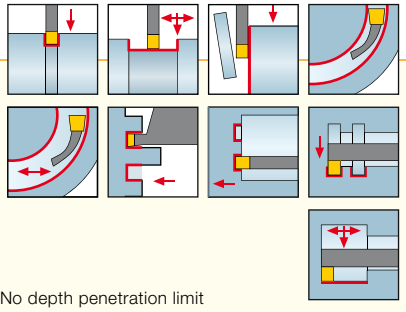
• For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: C#-HFIR/L-MC (42) • CR HFIR/L-M (43) • HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HFFR/L-T (29) • HFHPR/L-M (35) • HFHR/L-3T (23) • HFHR/L-4T (24) • HFHR/L-5T (25) • HFHR/L-6T (26) • HFHR/L-M (34) • HFIR/L-MC (41) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28) • IM-HFIR/L-MC (42).

GRIP

Utility Double-Ended Inserts for External, Internal and Face Machining



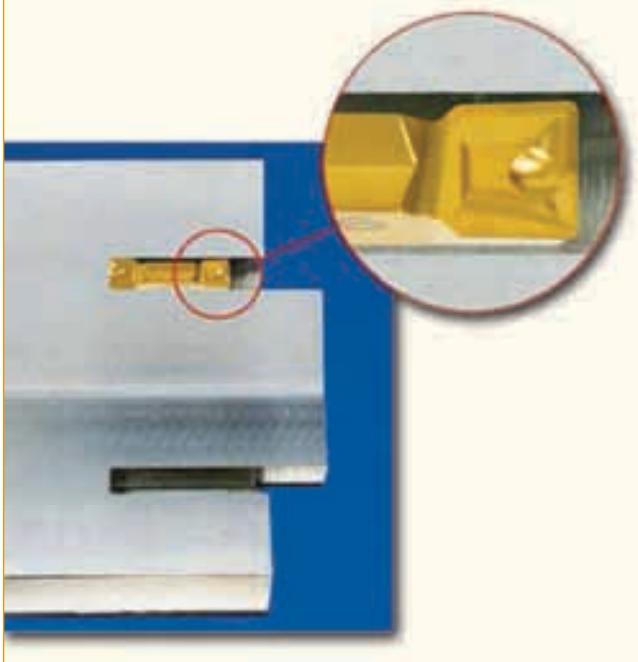


No depth penetration limit

Designation	Dimensions				Tough ↔ Hard							Recommended Machining Data				
	W±0.05	R±0.05	l	M	IC830	IC8250	IC808	IC908	IC418	IC807	IC5010	ap (mm)	f turn (mm/rev)	f groove (mm/rev)	f face-groove (mm/rev)	f face-turn (mm/rev)
GRIP 3002Y	3.00	0.20	16.00	2.3	●	●	●	●		●		0.25-1.80	0.14-0.18	0.07-0.11	0.08-0.20	0.10-0.20
GRIP 3003Y	3.00	0.30	16.00	2.3	●	●	●		●		●	0.40-1.80	0.15-0.19	0.07-0.11	0.08-0.20	0.10-0.20
GRIP 318-040Y	3.18	0.40	16.00	2.3	●	●	●	●	●			0.50-1.90	0.17-0.22	0.07-0.12	0.08-0.20	0.10-0.20
GRIP 4002Y	4.00	0.20	19.00	2.8	●	●	●	●		●		0.25-2.40	0.16-0.21	0.09-0.14	0.10-0.24	0.15-0.30
GRIP 4004Y	4.00	0.40	19.00	2.8	●	●	●	●	●	●	●	0.50-2.40	0.18-0.24	0.09-0.15	0.10-0.24	0.15-0.30
GRIP 476-080Y	4.76	0.80	19.00	3.1	●	●	●	●	●			1.00-2.80	0.21-0.33	0.10-0.20	0.10-0.24	0.15-0.30
GRIP 5005Y	5.00	0.50	19.00	3.3	●	●	●	●	●	●	●	0.60-3.00	0.20-0.30	0.11-0.20	0.12-0.24	0.15-0.35
GRIP 5008Y	5.00	0.80	19.00	3.4	●	●	●	●	●	●	●	1.00-3.00	0.23-0.35	0.11-0.21	0.12-0.24	0.15-0.35
GRIP 6005Y	6.00	0.50	19.00	4.2	●	●	●	●	●	●	●	0.60-3.60	0.22-0.36	0.13-0.23	0.12-0.28	0.15-0.40
GRIP 6008Y	6.00	0.80	19.00	4.2	●	●	●	●	●	●	●	1.00-3.60	0.24-0.42	0.13-0.25	0.12-0.28	0.15-0.40
GRIP 635-080Y	6.35	0.80	19.00	4.2	●	●	●	●	●			1.00-3.80	0.25-0.44	0.14-0.27	0.12-0.28	0.15-0.40

• For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: C#-HFIR/L-MC (42) • CR HFIR/L-M (43) • HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HFFR/L-T (29) • HFHR/L-4T (24) • HFHR/L-5T (25) • HFIR/L-MC (41) • HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28) • HGAER/L-3 (29) • HGAIR/L-3 (38) • HGHR/L-3 (22) • IM-HFIR/L-MC (42).



The Twisted Insert

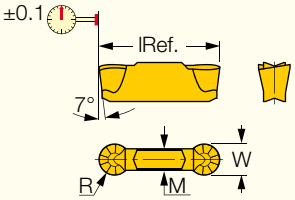
for Face Machining

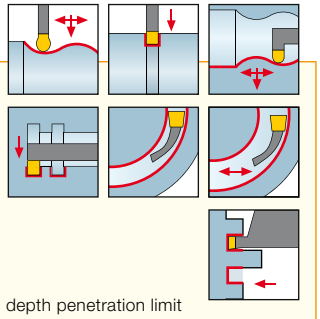
The double-ended, twisted insert body makes it possible to machine to depths much larger than insert length. Unique chipformer for controlled chip flow in axial and radial directions.
The rear angle is slanted in relation to the frontal edge so it does not come into contact with the machined groove surface, as tool penetrates deeply into the workpiece.

HELI-GRIP

GRIP (full radius)

Utility Double-Ended Full Radius Inserts, for External, Internal and Face Machining



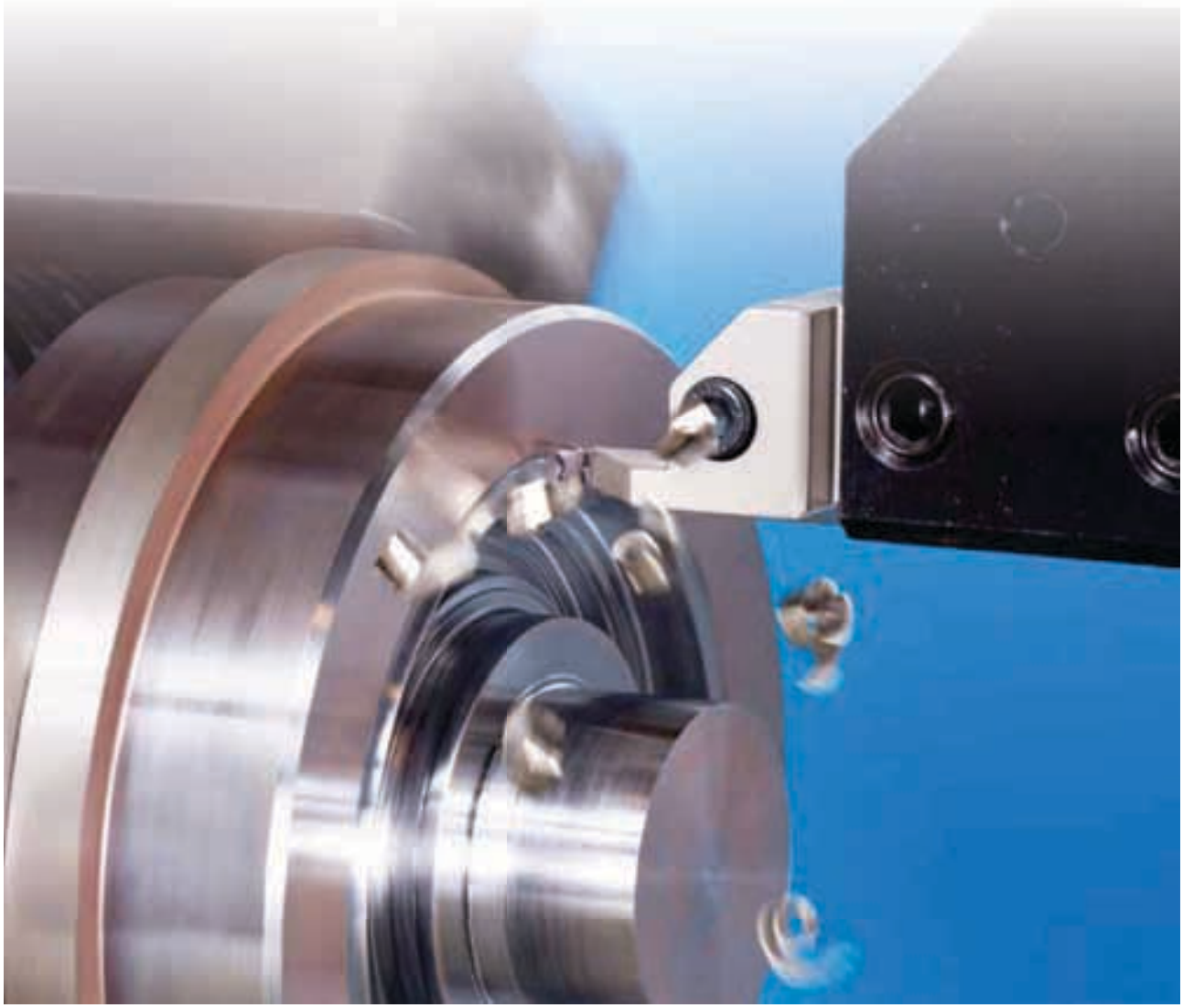


No depth penetration limit

Designation	Dimensions				Tough ↔ Hard							Recommended Machining Data				
	W±0.05	R±0.05	l	M	IC830	IC8250	IC808	IC908	IC418	IC807	IC5010	a_p (mm)	f turn (mm/rev)	f groove (mm/rev)	f face-groove (mm/rev)	f face-turn (mm/rev)
GRIP 3015Y	3.00	1.50	16.00	2.1	●	●	●	●	●	●	●	0.00-1.50	0.18-0.26	0.07-0.13	0.08-0.20	0.10-0.20
GRIP 318-159Y	3.18	1.59	16.00	2.3			●	●				0.00-1.50	0.19-0.28	0.07-0.13	0.08-0.20	0.10-0.20
GRIP 4020Y	4.00	2.00	19.00	2.8	●	●	●	●	●	●	●	0.00-2.00	0.20-0.34	0.09-0.17	0.10-0.24	0.15-0.30
GRIP 476-238Y	4.76	2.38	19.00	3.2			●	●	●			0.00-2.30	0.21-0.40	0.10-0.20	0.10-0.24	0.15-0.30
GRIP 5025Y	5.00	2.50	19.00	3.4	●	●	●	●	●	●	●	0.00-2.50	0.23-0.42	0.11-0.21	0.12-0.24	0.15-0.35
GRIP 6030Y	6.00	3.00	19.00	4.2	●	●	●	●	●	●	●	0.00-3.00	0.24-0.50	0.13-0.25	0.12-0.28	0.15-0.40
GRIP 635-318Y	6.35	3.18	19.00	4.0			●	●				0.00-3.10	0.25-0.53	0.14-0.27	0.12-0.28	0.15-0.40

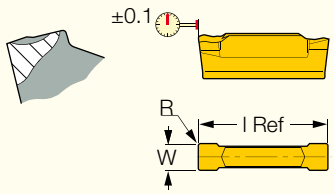
• For cutting speed recommendations and user guide, see pages 98-114.

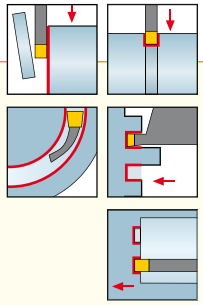
For tools, see pages: C#-HFIR/L-MC (42) • CR HFIR/L-M (43) • HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HFFR/L-T (29) • HFHR/L-4T (24) • HFHR/L-5T (25) • HFIR/L-MC (41) • HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28) • HGAER/L-3 (29) • HGAIR/L-3 (38) • HGHR/L-3 (22) • IM-HFIR/L-MC (42).



HGN-C

Parting and Grooving Insert, for Parting Bars, Hard Materials and Tough Applications





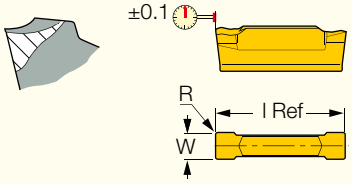
Designation	Dimensions W±0.05	R	l	Tough ↔ Hard IC328	IC830	IC354	IC308	IC908	Recommended Machining Data f groove (mm/rev)
HGN 3003C	3.00	0.30	15.80	●	●	●	●	●	0.08-0.20

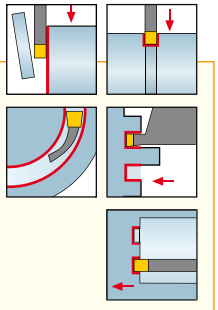
• No depth limit • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: HFPAD-3 (27) • HGAIR/L-3 (38) • HGHR/L-3 (22).

HGN-J

Parting and Grooving Insert for Soft Materials, Parting of Tubes, Small Diameters and Thin-Walled Parts





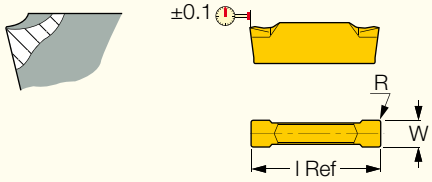
Designation	Dimensions W±0.05	R	l	Tough ↔ Hard IC328	IC830	IC354	IC308	Recommended Machining Data f groove (mm/rev)
HGN 3002J	3.00	0.20	16.10	●	●	●	●	0.04-0.15

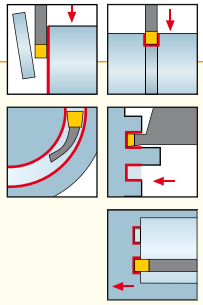
• No depth limit • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: HFPAD-3 (27) • HGAIR/L-3 (38) • HGHR/L-3 (22).

HGN-UT

Parting and Grooving Double-Sided Insert, for Low Feeds on Cr-Ni Alloys and Low Carbon Steel





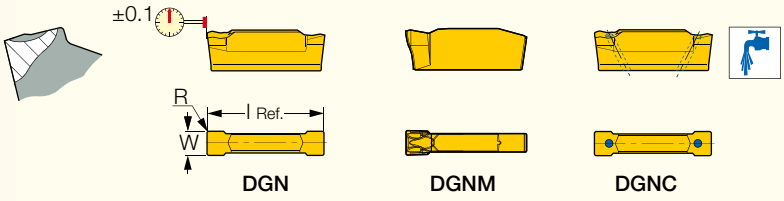
Designation	Dimensions W±0.05	R	l	Tough ↔ Hard IC328	IC354	Recommended Machining Data f groove (mm/rev)
HGN 3003UT	3.00	0.30	15.80	●	●	0.04-0.13

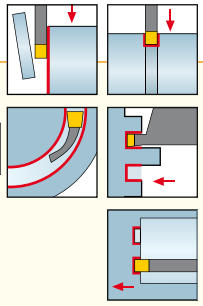
• No depth limit • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: HFPAD-3 (27) • HGAIR/L-3 (38) • HGHR/L-3 (22).

DGN/DGNC/DGNM-C

Double-Sided Parting Insert, for Parting and Grooving of Bars, Hard Materials and Tough Applications





Designation	Dimensions W	W±toler	R	Tmax-r	l Ref.	Tough ↔ Hard IC328	IC830	IC1028	IC354	IC5400	IC308	IC808	IC908	IC30N	IC807	IC907	IC20	Recommended Machining Data f groove (mm/rev)
DGN 4003C	4.00	0.04	0.30	- (2)	18.8	●	●	●	●		●	●	●	●	●		●	0.10-0.30
DGNC 4003C (1)	4.00	0.04	0.30	- (2)	19.0							●	●					0.10-0.30
DGN 4803C	4.80	0.04	0.30	- (2)	19.9	●												0.12-0.35
DGN 5003C	5.00	0.04	0.30	- (2)	19.1	●	●	●	●			●	●	●			●	0.12-0.35
DGN 6303C	6.35	0.04	0.35	- (2)	19.1	●	●	●	●			●	●				●	0.15-0.40

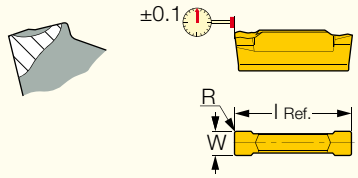
• DGN & GRIP inserts can be used only with right-hand adapters • Feed values for grade IC20 should be decreased by 50%
• For cutting speed recommendations and user guide, see pages 98-114.

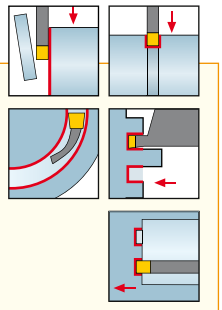
(1) Inserts with coolant holes, recommended coolant pressure 10 bar minimum (2) No depth limit

For tools, see pages: C#-HFIR/L-MC (42) • CR HFIR/L-M (43) • HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HFFR/L-T (29) • HFHR/L-4T (24) • HFHR/L-5T (25) • HFHR/L-6T (26) • HFIR/L-MC (41) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28) • IM-HFIR/L-MC (42).

DGN-W

Parting and Grooving Double-Sided Insert. Central Ridged Chipformer used on Hard Materials and Interrupted Cuts





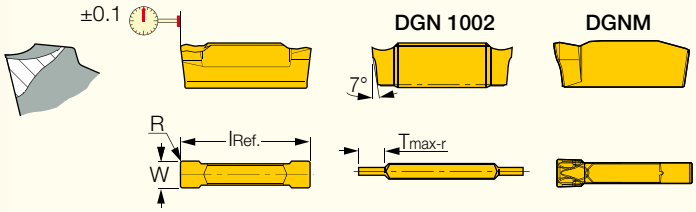
Designation	Dimensions W±0.04	R	l Ref.	Tough ↔ Hard IC328	IC354	Recommended Machining Data f groove (mm/rev)
DGN 5003W	5.00	0.30	19.0	●	●	0.12-0.33

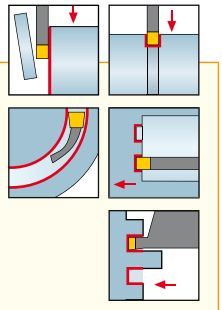
• No depth limit • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: C#-HFIR/L-MC (42) • CR HFIR/L-M (43) • HFAER/L-5T, 6T (30) • HFAIR/L-DG (40) • HFFR/L-T (29) • HFHR/L-5T (25) • HFIR/L-MC (41) • HFPAD-5 (28) • IM-HFIR/L-MC (42).

DGN/DGNM-J/JS/JT

Double-Sided Parting and Grooving Insert for Soft Materials, Parting of Tubes, Small Diameters and Thin-Walled Parts





Designation	Dimensions W	W±toler	R	Tmax-r	l Ref.	Tough ↔ Hard IC328	IC830	IC1028	IC354	IC5400	IC308	IC808	IC908	IC807	IC907	IC20	Recommended Machining Data f groove (mm/rev)
DGN 4003J	4.00	0.04	0.30	- (1)	18.9	●	●	●	●		●	●	●	●		●	0.05-0.18
DGN 4003JT	4.00	0.04	0.30	- (1)	18.9		●					●					0.05-0.18
DGN 4803J	4.80	0.04	0.30	- (1)	20.4	●											0.05-0.20
DGN 5003J	5.00	0.04	0.30	- (1)	19.0	●	●	●	●			●	●			●	0.05-0.20
DGN 6303J	6.35	0.04	0.35	- (1)	19.1	●	●	●	●			●	●			●	0.05-0.25

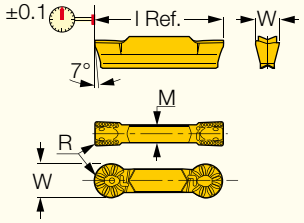
• DGN & GRIP inserts can be used only with right-hand adapters • JT chipformer has the basic positive configuration of the J-type and a reinforced negative frontal edge. Most suitable for soft materials at low to medium feeds. • For cutting speed recommendations and user guide, see pages 98-114.

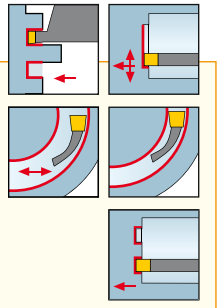
(1) No depth limit

For tools, see pages: C#-HFIR/L-MC (42) • CR HFIR/L-M (43) • HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HFFR/L-T (29) • HFHR/L-4T (24) • HFHR/L-5T (25) • HFHR/L-6T (26) • HFIR/L-MC (41) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28) • IM-HFIR/L-MC (42).

HGPL

Utility Double-Ended Face Machining Insert





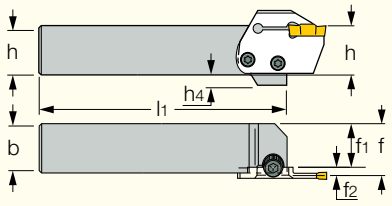
Designation	Dimensions				Tough ⟷ Hard					Recommended Machining Data		
	W±0.03	M	R±0.05	l	IC328	IC354	IC08	IC808	IC908	a_p (mm)	f face-groove (mm/rev)	f face-turn (mm/rev)
HGPL 3015Y	3.00	2.1	1.50	16.00			●	●	●	0.00-1.50	0.08-0.20	0.12-0.23
HGPL 3002Y	3.00	2.3	0.20	16.00		●	●	●	●	0.24-1.80	0.08-0.20	0.12-0.23
HGPL 3003Y	3.00	2.3	0.30	16.00	●	●	●	●	●	0.36-1.80	0.08-0.20	0.12-0.23
HGPL 4002Y	4.00	2.8	0.20	19.00		●	●	●	●	0.24-2.40	0.10-0.24	0.16-0.30
HGPL 4004Y	4.00	2.8	0.40	19.00		●	●	●	●	0.48-2.40	0.10-0.24	0.16-0.30
HGPL 4020Y	4.00	2.8	2.00	19.00			●	●	●	0.00-2.00	0.10-0.24	0.16-0.30
HGPL 5005Y	5.00	3.3	0.50	19.00		●		●	●	0.60-3.00	0.12-0.24	0.20-0.38
HGPL 5025Y	5.00	3.3	2.50	19.00			●	●	●	0.00-2.50	0.12-0.24	0.20-0.38
HGPL 6005Y	6.00	4.2	0.50	19.00		●	●	●	●	0.60-3.60	0.12-0.28	0.24-0.45
HGPL 6030Y	6.00	4.2	3.00	19.00			●	●	●	0.00-3.00	0.12-0.28	0.24-0.45

• No depth penetration limit • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: C#-HFIR/L-MC (42) • HFAER/L-4T (30) • HFAER/L-5T, 6T (30) • HFAIR/L-4 (38) • HFAIR/L-DG (40) • HFFR/L-T (29) • HFHR/L-4T (24) • HFHR/L-5T (25) • HFHR/L-6T (26) • HFIR/L-MC (41) • HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28) • HGAER/L-3 (29) • HGAIR/L-3 (38) • HGHR/L-3 (22).

MAHR/L

Holders for Adapters of all GRIP Systems



Left-hand shown
• f=f1(shank)+f2(adapter)

Designation	h	b	l_1	h_4	f_1
MAHR/L 20	20.0	20.0	130.00	10.0	17.1
MAHR/L 25	25.0	25.0	130.00	5.0	22.1
MAHR/L 32	32.0	32.0	140.00	-	29.1

For tools, see pages: HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28).

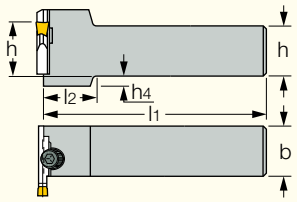
Spare Parts

Designation	Lower Locking Screw	Key	Screw	Upper Locking Screw	Key 1	Screw 1
MAHR/L	SR M5-04451	T-20/5	SR 14-519	SR M6X20-XT(1)	HW 5.0	SR M6X6DIN551

(1) For CGPAD, HGPAD, TGPAD and HFPAD adapters. Supplied with the tools.

MAHPR/L

Holders for all GRIP Systems, Perpendicularly Mounted Adapters



Right-hand shown

Designation	h	b	l_1	l_2	h_4
MAHPR/L 20	20.0	20.0	140.00	25.0	10.0
MAHPR/L 25	25.0	25.0	140.00	25.0	5.0
MAHPR/L 32	32.0	32.0	150.00	25.0	-

For tools, see pages: HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28).

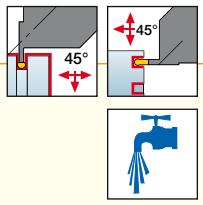
Spare Parts

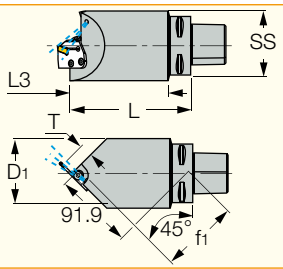
Designation	Lower Locking Screw	Key	Screw	Upper Locking Screw	Key 1	Screw 1
MAHPR/L	SR M5-04451	T-20/5	SR 14-519	SR M6X20-XT(1)	HW 5.0	SR M6X6DIN551

(1) For CGPAD, HGPAD, TGPAD and HFPAD adapters. Supplied with the tools.

C#-MAHDR-45

Holders for Parting, Grooving, Turning and Facing Adapters with CAMFIX (ISO 26623-1 standard) Exchangeable Shanks





Right-hand shown • T= See specific adapter dimensions

Designation	SS	L	L_1	f_1	D_1	L_3
C6 MAHDR-45	63	130.00	91.9	89.0	75.0	105.78
C8 MAHDR-45	80	130.00	91.9	89.0	80.0	-

• For mill-turn machines.

For tools, see pages: HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28).

Spare Parts

Designation	Lower Locking Screw	Key	Side Locking Screw	Upper Locking Screw	Key 1	Sealing Screw	Cooling Nozzle
C6 MAHDR-45	SR M5-04451	T-20/5	SR 14-519[2]	SR M6X20DIN7984	HW 4.0	SR M6X6DIN551[3]	EZ 83
C8 MAHDR-45	SR M5-04451	T-20/5	SR 14-519[2]	SR M6X20-XT[1]	HW 5.0	SR M6X6DIN551[3]	EZ 83

[1] For CGPAD, HGPAD, TGPAD and HFPAD adapters. Supplied with the tools.

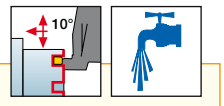
[2] For DGAD, HGAD and PCADR/L adapters. Supplied in the attached plastic bag.

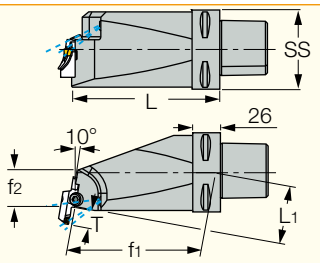
[3] Used to prevent chips from entering the upper locking screw hole.

HELIFACE

C#-MAHUR/L

Holders for Parting, Grooving, Turning and Facing Adapters with CAMFIX Shanks, 10° Mounting on Mill-Turn Machines





Right-hand shown • T= See specific adapter dimensions.

Designation	SS	f_1	f_2	L	L_1
C6 MAHUR/L-10	63	113.1	29.00	123.00	49.4
C8 MAHUR-10	80	113.1	29.00	123.00	49.4

For tools, see pages: HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28).

Spare Parts

Designation	Lower Locking Screw	Key	Side Locking Screw	Upper Locking Screw	Key 1	Sealing Screw	Cooling Nozzle
C#-MAHUR/L	SR M5-04451	T-20/5	SR 14-519[2]	SR M6X20-XT[1]	HW 5.0	SR M6X6DIN551[3]	EZ 125

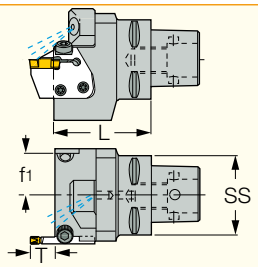
[1] For CGPAD, HGPAD, TGPAD and HFPAD adapters. Supplied with the tools.

[2] For DGAD, HGAD and PCADR/L adapters. Supplied in the attached plastic bag.

[3] Used to prevent chips from entering the upper locking screw hole.

C#-MAHD

Holders for Parting, Grooving, Turning and Facing Adapters with CAMFIX Exchangeable Shanks



Right-hand shown • T - See specific adapter dimensions

Designation	SS	L	f_1
C4 MAHD	40	46.50	22.1
C5 MAHD	50	47.00	23.0
C6 MAHD	63	50.00	29.0
C8 MAHD	80	60.00	37.5

For tools, see pages: HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28).

Spare Parts

Designation	Lower Locking Screw	Key	Side Locking Screw	Upper Locking Screw	Key 1	Sealing Screw	Cooling Nozzle	Nozzle	Nozzle Screw
C#-MAHD	SR M5-04451	T-20/5	SR 14-519[2]	SR M6X20-XT[1]	HW 5.0	SR M6X6DIN551[3]	EZ 125	EZA 125	SR 76-1022

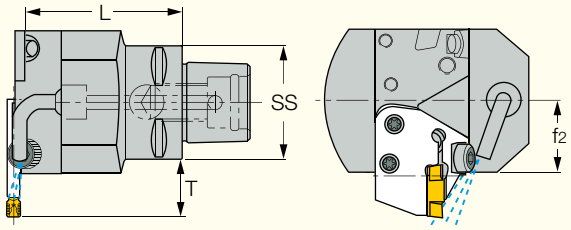
[1] For CGPAD, HGPAD, TGPAD and HFPAD adapters. Supplied with the tools.

[2] For DGAD, HGAD and PCADR/L adapters. Supplied in the attached plastic bag.

[3] Used to prevent chips from entering the upper locking screw hole.

C#-MAHPD

Perpendicular Holders for Parting, Grooving, Turning and Facing Adapters with CAMFIX Exchangeable Shanks



T= See specific adapter dimensions.

Designation	SS	L	f_2
C4 MAHPD	40	46.00	25.00
C5 MAHPD	50	46.00	26.00
C6 MAHPD	63	47.00	33.00

For tools, see pages: HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28).

Spare Parts

Designation	Lower Locking Screw	Key	Side Locking Screw	Upper Locking Screw	Key 1	Sealing Screw	Cooling Nozzle	Screw	Nozzle Body
C#-MAHPD	SR M5-04451	T-20/5	SR 14-519[2]	SR M6X20-XT[1]	HW 5.0	SR M6X6DIN551[3]	EZ 125	SR 76-1022	EZA-21414

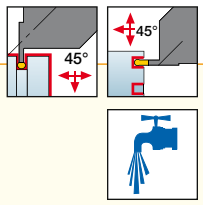
[1] For CGPAD, HGPAD, TGPAD and HFPAD adapters. Supplied with the tools.

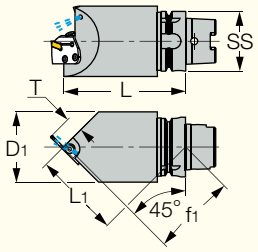
[2] For DGAD, HGAD and PCADR/L adapters. Supplied in the attached plastic bag.

[3] Used to prevent chips from entering the upper locking screw hole when it is not used for the adaptation. Supplied in the attached plastic bag.

HSK A-WH-MAHDR/L-45

Holders for MODULAR-GRIP, Parting, Grooving and Facing Adapters with HSK Tapered Shanks





T= See specific adapter dimensions
• Right-hand shown

Designation	SS	L	L_1	f_1	D_1
HSK A63WH-MAHDR-45	63	130.00	91.9	89.0	75.0
HSK A100WH-MAHDL-45	100	140.00	99.0	97.6	100.0

• A cooling tube must be used with all coolant through HSK spindles (should be ordered separately) • Complies with the ICTM and HSK-T standards

For tools, see pages: HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28).

Spare Parts

Designation	Lower Locking Screw	Key	Side Locking Screw	Screw	Key 2	Sealing Screw	Cooling Nozzle
HSK A63WH-MAHDR-45	SR M5-04451	T-20/5	SR 14-519[2]	SR M6X20-XT	HW 5.0	SR M6X6DIN551[3]	SATZ-M8X1-M3
HSK A100WH-MAHDL-45	SR M5-04451	T-20/5	SR 14-519[2]	SR M6X20-XT[1]	HW 5.0	SR M6X6DIN551[3]	SATZ-M8X1-M3

[1] For CGPAD, HGPAD, TGPAD and HFPAD adapters. Supplied with the tools.

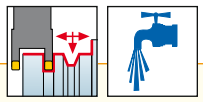
[2] For DGAD, HGAD and PCADR/L adapters. Supplied in the attached plastic bag.

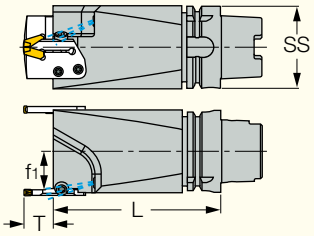
[3] Used to prevent chips from entering the upper locking screw hole when it is not used for the adaptation. Supplied in the attached plastic bag.

HELIFACE

HSK A63WH-MAHDOR

Holders for Parting, Grooving, Turning and Facing Adapters with HSK Exchangeable Shanks





T= See specific adapter dimensions
• Right-hand shown

Designation	SS	f_1	L
HSK A63WH-MAHDOR	63	29.0	130.00

• A cooling tube must be used with all coolant through HSK spindles (should be ordered separately). • Complies with the ICTM and HSK-T standards.

For tools, see pages: HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28).

Spare Parts

Designation	Lower Locking Screw	Key	Side Locking Screw	Upper Locking Screw	Key 1	Sealing Screw	Cooling Nozzle
HSK A63WH-MAHDOR	SR M5-04451	T-20/5	SR 14-519[2]	SR M6X20-XT[1]	HW 5.0	SR M6X6DIN551[3]	EZ 125

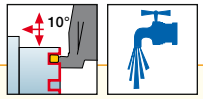
[1] For CGPAD, HGPAD, TGPAD and HFPAD adapters. Supplied with the tools.

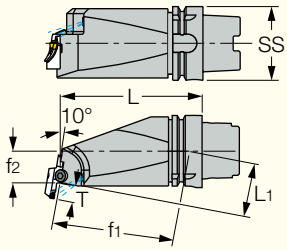
[2] For DGAD, HGAD and PCADR/L adapters. Supplied in the attached plastic bag.

[3] Used to prevent chips from entering the upper locking screw hole when it is not used for the adaptation. Supplied in the attached plastic bag.

HSK A63WH-MAHUR/L

Holders for Parting, Grooving, Turning and Facing Adapters with HSK-T Shanks, 10° Mounting on Mill-Turn Machines





T= See specific adapter dimensions
• Right-hand shown

Designation	SS	f_1	f_2	L	L_1
HSK A63WH-MAHUR/L-10	63	113.1	29.00	130.00	49.4

• A cooling tube must be used with all coolant through HSK spindles (should be ordered separately) • Complies with the ICTM and HSK-T standards

For tools, see pages: HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28).

Spare Parts

Designation	Lower Locking Screw	Key	Side Locking Screw	Upper Locking Screw	Key 1	Sealing Screw	Cooling Nozzle
HSK A63WH-MAHUR/L-10	SR M5-04451	T-20/5	SR 14-519[2]	SR M6X20-XT[1]	HW 5.0	SR M6X6DIN551[3]	EZ 125

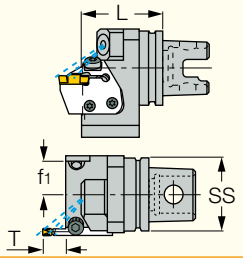
[1] For CGPAD, HGPAD, TGPAD and HFPAD adapters. Supplied with the tools.

[2] For DGAD, HGAD and PCADR/L adapters. Supplied in the attached plastic bag.

[3] Used to prevent chips from entering the upper locking screw hole when it is not used for the adaptation. Supplied in the attached plastic bag.

IM-MAHD

Holders for Parting, Grooving, Turning and Facing Adapters with ISO 26622-1(*) Tapered Shank



T= See specific adapter dimensions
• Right-h and shown

Designation	SS	L	f1
IM40 MAHD	40	43.00	18.0
IM50 MAHD	50	47.00	23.0
IM63 MAHD	63	47.00	29.0

• (*) Tools with orientation holes in the flange groove can be supplied on request

For tools, see pages: HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28).

Spare Parts

Designation	Lower Locking Screw	Key	Side Locking Screw	Upper Locking Screw	Key 1	Sealing Screw	Nozzle Screw	Nozzle	Cooling Nozzle
IM40 MAHD	SR M5-04451	T-20/5	SR 14-519(2)	SR M6X20-XT(1)	HW 5.0	SR M6X6DIN551(3)	SR 76-1022	EZA 125	EZ 125
IM50 MAHD	SR M5-04451	T-20/5	SR 14-519(2)	SR M6X20-XT(1)	HW 5.0	SR M6X6DIN551(3)	SR 76-1022	EZA 125*	EZ 125
IM63 MAHD	SR M5-04451	T-20/5	SR 14-519(2)	SR M6X20-XT(1)	HW 5.0	SR M6X6DIN551(3)	SR 76-1022	EZA 125	EZ 125

* Optional, should be ordered separately

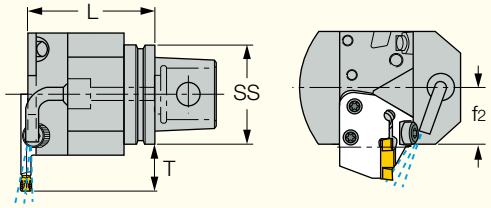
(1) For CGPAD, HGPAD, TGPAD and HFPAD adapters. Supplied with the tools.

(2) For DGAD, HGAD and PCADR/L adapters. Supplied in the attached plastic bag.

(3) Used to prevent chips from entering the upper locking screw hole when it is not used for the adaptation. Supplied in the attached plastic bag.

IM-MAHPD

Perpendicular Holders for Parting, Grooving, Turning and Facing Adapters with ISO 26622-1(*) Tapered Shank



T= See specific adapter dimensions
• Right-hand shown

Designation	SS	L	f2
IM40 MAHPD	40	44.00	25.00
IM50 MAHPD	50	45.00	26.00
IM63 MAHPD	63	45.00	33.00

• (*) Tools with orientation holes in the flange groove can be supplied on request

For tools, see pages: HFPAD-3 (27) • HFPAD-4 (27) • HFPAD-5 (28) • HFPAD-6 (28).

Spare Parts

Designation	Lower Locking Screw	Key	Side Locking Screw	Upper Locking Screw	Key 1	Sealing Screw	Pipe	Cooling Nozzle
IM-MAHPD	SR M5-04451	T-20/5	SR 14-519(2)	SR M6X20-XT(1)	HW 5.0	SR M6X6DIN551(3)	EZP 5	EZ 125

(1) For CGPAD, HGPAD, TGPAD and HFPAD adapters. Supplied with the tools.

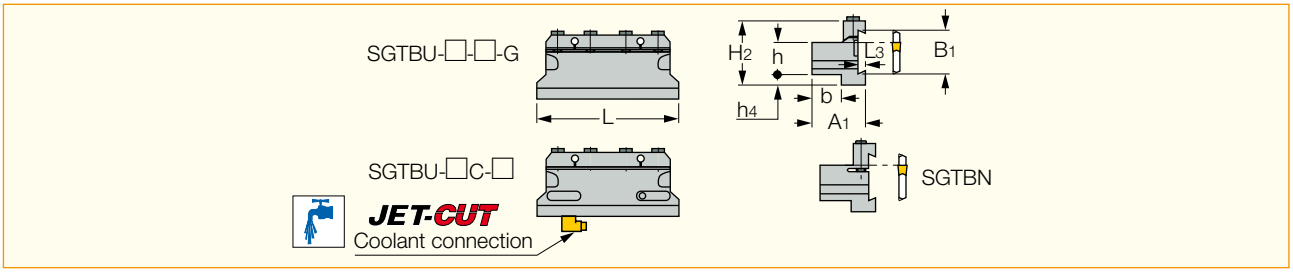
(2) For DGAD, HGAD and PCADR/L adapters. Supplied in the attached plastic bag.

(3) Used to prevent chips from entering the upper locking screw hole when it is not used for the adaptation. Supplied in the attached plastic bag.

TOOL BLOCKS

SGTBU/SGTBN

Blocks for Various Parting and Grooving Blades



Designation	h	b	B1	A1	H2	h4	L3	L
SGTBN 16-2	16.0	16.0	19.0	26.00	30.0	4.0	2.00	76.00
SGTBU 16-5G	16.0	17.0	26.0	34.00	43.0	13.0	4.00	86.00
SGTBU 20-5G	20.0	21.0	26.0	38.00	43.0	9.0	4.00	86.00
SGTBU 20-6G	20.0	19.0	32.0	38.00	50.0	13.0	5.30	100.00
SGTBU 25-5G	25.0	23.0	26.0	42.00	45.0	5.0	4.00	110.00
SGTBU 25-6G	25.0	23.0	32.0	42.00	50.0	8.0	5.30	110.00
SGTBU 25-8M	25.0	23.0	45.0	42.00	70.0	27.0	5.30	110.00
SGTBU 25C-6 (1)	25.0	23.0	32.0	42.00	50.0	8.0	5.30	110.00
SGTBU 32-25-6G	32.0	25.0	32.0	44.00	54.0	5.0	5.30	110.00
SGTBU 32-6G	32.0	29.0	32.0	48.00	54.0	5.0	5.30	110.00
SGTBU 32-8M	32.0	29.0	45.0	48.00	70.0	20.0	5.30	110.00
SGTBU 40-6G	40.0	-	32.0	60.00	57.0	-	5.30	114.00
SGTBU 40-9	40.0	41.0	52.6	66.00	81.0	22.0	8.00	130.00
SGTBU 50-9	50.0	41.0	52.6	66.00	83.0	14.0	8.00	135.00

• Choose blade by B1 dimension

(1) Elbow-style connector unit supplied with each JET-CUT tool block

For tools, see pages: CGFG 51-P8 (67) • HFFA (20) • HFFH (20) • HFFR/L-T (29) • PCHBR/L (92) • TNFFA-IQ (87) • TNFFH-IQ (86).

Spare Parts

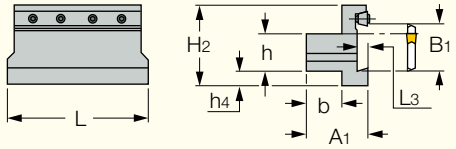
Designation	Top Clamp	Screw	Key	Pipe Fitting	Pipe Fitting 1	Pipe Fitting 2	Pipe Fitting 3
SGTBN 16-2		SR M5X25DIN912 12.9	HW 4.0				
SGTBU 16-5G	BKU 86	SR M6X30DIN912 12.9	HW 5.0				
SGTBU 20-5G	BKU 86	SR M6X30DIN912 12.9	HW 5.0				
SGTBU 20-6G	BKU 100	SR M6X30DIN912 12.9	HW 5.0				
SGTBU 25-5G	BKU 105	SR M6X30DIN912 12.9	HW 5.0				
SGTBU 25-6G	BKU 110	SR M6X30DIN912 12.9	HW 5.0				
SGTBU 25-8M	BKU 110	SR M6X30DIN912 12.9	HW 5.0				
SGTBU 25C-6	BKU 110	SR M6X30DIN912 12.9	HW 5.0	SGCU-344	CF 343*	CGF 343*	CGM 343*
SGTBU 32-25-6G	BKU 110	SR M6X30DIN912 12.9	HW 5.0				
SGTBU 32-6G	BKU 110	SR M6X30DIN912 12.9	HW 5.0				
SGTBU 32-8M	BKU 110	SR M6X30DIN912 12.9	HW 5.0				
SGTBU 40-6G	BKU 110	SR M6X30DIN912 12.9	HW 5.0				
SGTBU 40-9	BK 509	SR M8X30DIN912 12.9	HW 6.0				
SGTBU 50-9	BK 509	SR M8X30DIN912 12.9	HW 6.0				

* Optional, should be ordered separately

TOOL BLOCKS

SGTBK

Blocks for Heavy Duty Parting and Grooving Blades



Designation	h	b	L_3	B_1	A_1	H_2	h_4	L
SGTBK 32-9	32.0	28.0	8.50	32.0	48.00	62.0	3.0	120.00
SGTBK 38-9	38.0	35.0	8.50	52.6	60.00	90.0	25.0	135.00
SGTBK 40-9	40.0	35.0	8.50	52.6	60.00	90.0	23.0	135.00
SGTBK 50-9	50.0	40.0	8.50	52.6	65.00	90.0	15.0	135.00

• Choose blade by B1 dimension

For tools, see pages: CGFG 51-P8 (67) • HFFA (20) • HFFH (20) • PCHBR/L (92) • TNFFA-IQ (87) • TNFFH-IQ (86).

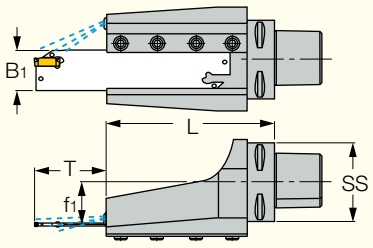
Spare Parts

Designation	Key	Side Clamp	Screw
SGTBK 32-9	HW 5.0	BK 32-9 WEDG	SR M6X16DIN912 12.9
SGTBK 38-9	HW 5.0	BK 40-9	SR M6X20DIN912 12.9
SGTBK 40-9	HW 5.0	BK 40-9	SR M6X20DIN912 12.9
SGTBK 50-9	HW 5.0	BK 40-9	SR M6X20DIN912 12.9

MODULAR-GRIP • CAMFIX

C#-TBK-R/L

Blocks with CAMFIX (ISO 26623-1 standard) Exchangeable, Tapered Shanks for Parting and Grooving Blades



Right-hand shown • T= See specific blade dimensions

Designation	SS	f_1	L	B_1
C6 TBK-32R/L	63	32.0	138.00	32.0
C8 TBK-32R	80	40.5	147.00	32.0
C8 TBK-52R	80	40.5	161.00	52.0

For tools, see pages: HFFA (20) • HFFH (20) • PCHBR/L (92) • TNFFA-IQ (87) • TNFFH-IQ (86).

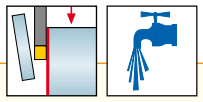
Spare Parts

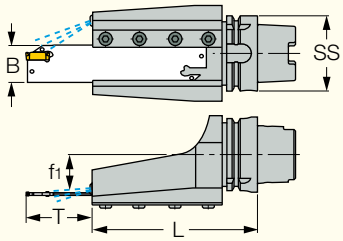
Designation	Side Clamp	Screw	Key	Cooling Nozzle
C6 TBK-32R/L	BK 32-9 WEDG	SR M6X16DIN912 12.9	HW 5.0	EZ 125
C8 TBK-32R	BK 32-9 WEDG	SR M6X16DIN912 12.9	HW 5.0	EZ 125
C8 TBK-52R	BK 40-9	SR M6X16DIN912 12.9	HW 5.0	EZ 125

MODULAR-GRIP • HSK

HSK A-WH-TBK-R/L

Blocks with HSK Exchangeable Tapered Shanks for Parting and Grooving Blades





T= See specific blade dimensions • Right-hand shown

Designation	SS	L	f_1	B_1[1]
HSK A63WH-TBK-32R/L	63	138.00	32.0	32.0
HSK A100WH-TBK-32L	100	150.00	50.0	32.0
HSK A100WH-TBK-52L	100	168.00	25.0	52.0

• A cooling tube must be used with all coolant through HSK spindles (should be ordered separately). • Complies with the ICTM and HSK-T standards.

[1] Blade size B1, has to fit this dimension.

For tools, see pages: HFFA (20) • HFFH (20) • PCHBR/L (92) • TNFFA-IQ (87) • TNFFH-IQ (86).

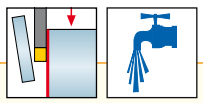
Spare Parts

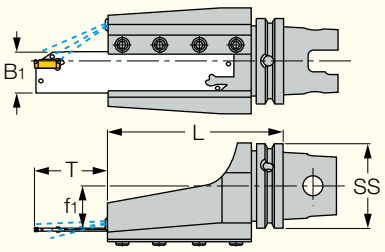
Designation	Side Clamp	Screw	Key	Cooling Nozzle
HSK A63WH-TBK-32L	BK 32-9 WEDG	SR M6X16DIN912 12.9	HW 5.0	EZ 125
HSK A63WH-TBK-32R	BK 32-9 WEDG	SR M6X16DIN912 12.9	HW 5.0	EZ 125
HSK A100WH-TBK-32L	BK 32-9 WEDG	SR M6X16DIN912 12.9	HW 5.0	SATZ-M12X1-M6

EXCHANGEABLEHEADS • ISCAR-GRIP

IM63 XMZ TBK

Blocks for Parting and Grooving Blades with ISO 26622-1 XMZ Tapered Shanks for Mazak Integrex Machines





T= See specific blade dimensions • Right-hand shown

Designation	SS	f_1	L	B_1
IM63 XMZ TBK-32L	63	29.0	130.00	32.0

For tools, see pages: HFFA (20) • HFFH (20) • PCHBR/L (92) • TNFFA-IQ (87) • TNFFH-IQ (86).

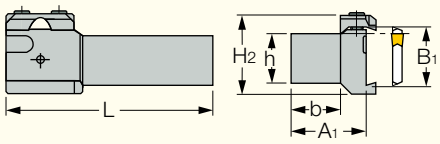
Spare Parts

Designation	Key	Side Clamp	Screw	Cooling Nozzle
IM63 XMZ TBK	HW 5.0	BK 32-9 WEDG	SR M6X16DIN912 12.9	EZ 125

TOOL BLOCKS

UBHCR/L

Holders for Grooving, Turning and Parting Blades



Right-hand shown

Designation	h	B_1	b	H_2	A_1	L
UBHCR/L 20-26	20.0	26.0	20.0	42.0	35.60	100.00
UBHCR/L 25-32	25.0	32.0	25.0	46.0	40.00	130.00
UBHCR/L 32-32	32.0	32.0	32.0	46.0	47.00	130.00

• Choose blade by B1 dimension

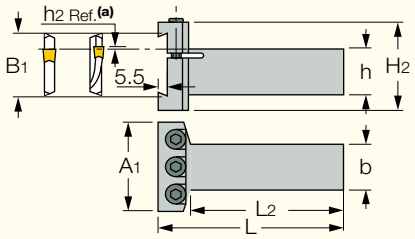
For tools, see pages: HFFA (20) • HFFH (20) • HFFR/L-T (29) • TNFFA-IQ (87) • TNFFH-IQ (86).

Spare Parts

Designation	Key	Top Clamp	Screw	Spring Plunger
UBHCR/L	HW 5.0	BKU 176 307	SR M6X16DIN912 12.9	SPRING PLUNGER M6X14X3.5

SGTBF

Perpendicular Blocks for Parting and Grooving Blades



Designation	h	b	B_1	L	L_2	A_1	H_2	L_3
SGTBF 25-A	25.0	25.0	32.0	102.00	80.00	48.00	48.0	5.50
SGTBF 32-A	32.0	32.0	32.0	116.00	100.00	48.00	48.0	5.50

• (a) h2 Ref. as defined for SELF-GRIP face grooving blades • Choose blade by B1 dimension

For tools, see pages: HFFH (20) • HFFR/L-T (29) • TNFFH-IQ (86).

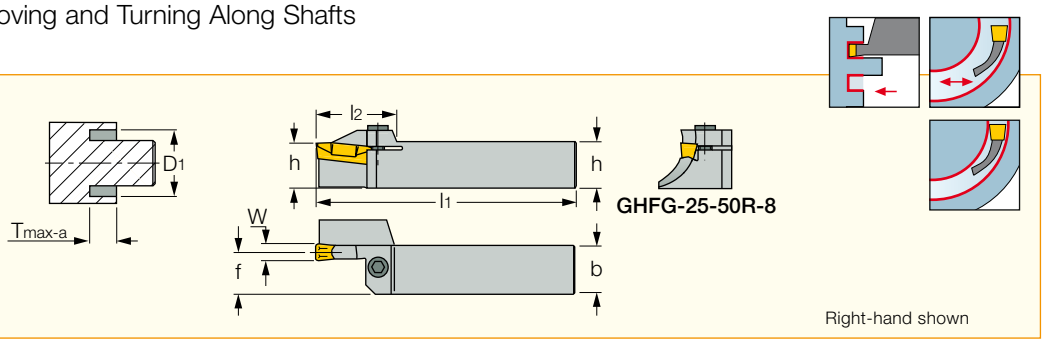
Spare Parts

Designation	Key	Screw
SGTBF	HW 5.0	SR M6X40DIN912

CUT-GRIP

GHFG-R/L-8

Holders for Face Grooving and Turning Along Shafts



Designation	T_{max-a}	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	h	b	l_1	l_2	f
GHFG 25-50R/L-8	25.00	50.0	64.0	25.0	25.0	150.00	41.0	22.0
GHFG 25-63R/L-8	25.00	63.0	82.0	25.0	25.0	150.00	41.0	22.0
GHFG 32-63R-8	25.00	63.0	82.0	32.0	32.0	170.00	41.0	30.0

• For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: GDMM-CC (76) • GDMY (73) • GDMY (full radius) (74) • GDMY-F (75) • GIFG-E (W=8) (68).

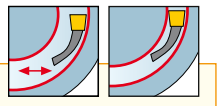
Spare Parts

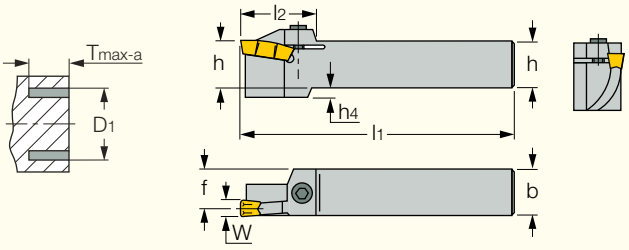
Designation	Screw	Key
GHFG-R/L-8	SR M6X25DIN912 12.9 U	HW 5.0

CUT-GRIP

GHFGR/L-8

Holders for Face Grooving and Turning





Right-hand shown

Designation	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	h	b	l_1	l_2	f	h_4
GHFGR/L 25-80-8	80.0	115.0	25.0	25.0	150.00	43.5	21.3	6.0
GHFGR/L 32-80-8	80.0	115.0	32.0	32.0	170.00	43.5	28.3	-
GHFGR/L 25-105-8	105.0	160.0	25.0	25.0	150.00	43.5	21.3	6.0
GHFGR/L 32-105-8	105.0	160.0	32.0	32.0	170.00	43.5	28.3	-
GHFGR/L 25-155-8	155.0	510.0	25.0	25.0	150.00	43.5	21.3	6.0
GHFGR/L 32-155-8	155.0	510.0	32.0	32.0	170.00	43.5	28.3	-

Tmax for GHFGR/L (25/32)-80-8							
D	GIF 8...	GIFG 8...	GDMY 8...	GIPA 8...	GIDA 8...	GIA 8...	GDMM 8CC...
80	16	23	23	20	24	16	24
82	17	23	23	20	24	17	24
84	18	23	23	21	24	18	24
86	19	23	23	21	24	19	24
88	20	23	23	22	24	20	24
90	20	23	23	22	24	20	24
96	20	23	23	22	24	20	24
104	20	23	23	22	24	20	24
115	22	23	23	22	24	22	24

Tmax for GHFGR/L (25/32)-105-8							
D	GIF 8...	GIFG 8...	GDMY 8...	GIPA 8...	GIDA 8...	GIA 8...	GDMM 8CC...
105	21	23	23	23	24	21	24
114	22	23	23	23	24	22	24
126	23	23	24	23	24	23	24
140-160	24	24	24	23	24	24	24

Tmax for GHFGR/L (25/32)-155-8							
D	GIF 8...	GIFG 8...	GDMY 8...	GIPA 8...	GIDA 8...	GIA 8...	GDMM 8CC...
155	24	24	24	23	24	24	24
180	24	24	24	23	24	24	24
210-510	24	24	24	23	24	24	24

• No limitation to widening groove either way after initial grooving. • Tmax depends on the penetration diameter and the insert.
• For user guide see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

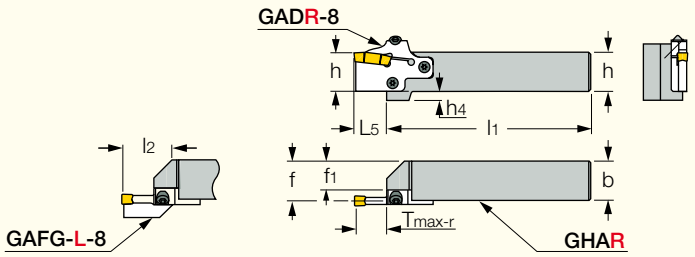
For inserts, see pages: GDMF (69) • GDMM-CC (76) • GDMN (70) • GDMY (73) • GDMY (full radius) (74) • GDMY-F (75) • GIA-K (long pocket) (73) • GIF (long pocket) (71) • GIF-E (W=8,10 full radius) (72) • GIF-E (W=8,10) (71) • GIFG-E (W=8) (68) • GIPA/GIDA 8 (full radius) (81).

Spare Parts

Designation	Screw	Key
GHFGR/L 25-80-8	SR M6X25DIN912 12.9 U	HW 5.0
GHFGR/L 32-80-8	SR M6X20DIN912 12.9	HW 5.0
GHFGR/L 25-105-8	SR M6X25DIN912 12.9 U	HW 5.0
GHFGR/L 32-105-8	SR M6X25DIN912 12.9 U	HW 5.0
GHFGR/L 25-155-8	SR M6X25DIN912 12.9 U	HW 5.0
GHFGR/L 32-155-8	SR M6X25DIN912 12.9 U	HW 5.0

GHAR/L-8

External Holders for Grooving and Turning Adapters



Right-hand shown

Designation	h	b	f1	l1	l2	L5	h4	TG(1)	Tmax-r(2)	FG(2)	Tmax-a(2)
GHAR/L 25-8	25.0	25.0	16.0	124.50	45.0	25.50	14.0	GADR/L 8	25.50	GAFG...R/L-8	25.00
GHAR/L 32-8	32.0	32.0	23.0	144.50	45.0	25.50	7.0	GADR/L 8	25.50	GAFG...R/L-8	25.00

• Adapters GADR/L-8 for turning and grooving, GAFG-R/L-8 for face-grooving • f=f1+f2 (see adapter dimensions)

(1) Adapters to be ordered separately. (2) Adapters to be ordered separately.

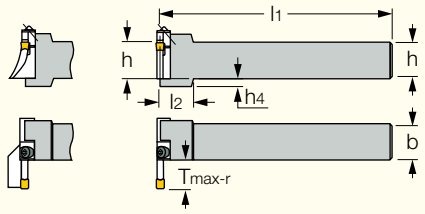
For tools, see pages: GAFG-R/L-8 (67) • PCADR/L 34N-RE (93).

Spare Parts

Designation	Side Locking Screw	Key	Upper Locking Screw	Key 1
GHAR/L-8	SR 14-519	T-20/5	SR M6X25DIN912 12.9 U	HW 5.0

GHAPR/L-8

External Holders for Grooving and Turning Perpendicularly Oriented Adapters



Right-hand shown

Designation	h	b	l1	l2	h4	TG(1)	Tmax-r(2)	FG(3)	Tmax-a
GHAPR/L 32-8	32.0	32.0	155.00	30.0	7.0	GADR/L 8	25.50	GAFG...R/L-8	26.00

(1) Adapters to be ordered separately (2) See specific adapter dimensions (3) Adapters to be ordered separately.

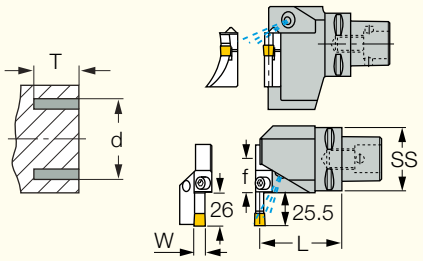
For tools, see pages: GAFG-R/L-8 (67) • PCADR/L 34N-RE (93).

Spare Parts

Designation	Side Locking Screw	Key	Upper Locking Screw	Key 1
GHAPR/L 32-8	SR 14-519	T-20/5	SR M6X25DIN912 12.9 U	HW 5.0

C#-GHAPR/L-8

Perpendicular Holders for Grooving, Turning and Facing Adapters with CAMFIX Exchangeable Shanks



Right-hand shown • T= See specific blade dimensions

Designation	SS	L	f	W	d Range	T range
C5 GHAPR/L-8	50	64.00	26.00	8.00	80-510	15-25
C6 GHAPR/L-8	63	75.00	33.00	8.00	80-510	15-25
C8 GHAPR-8	80	75.00	43.00	8.00	80-510	15-25

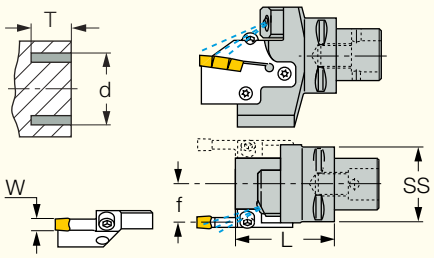
For tools, see pages: GAFG-R/L-8 (67) • PCADR/L 34N-RE (93).

Spare Parts

Designation	Screw	Key	Screw 1	Key 1	Cooling Nozzle
C#-GHAPR/L-8	SR 14-519	T-20/5	SR M6X25DIN912 12.9U	HW 5.0	EZ 125

C#-GHAD-8

Holders for Grooving, Turning and Facing Adapters with CAMFIX Exchangeable Shanks



T= See specific adapter dimensions

Designation	SS	L	f	W	d Range	T Range
C5 GHAD-8	50	65.00	26.00	8.00	80-510	15-25
C6 GHAD-8	63	65.00	32.50	8.00	80-510	15-25

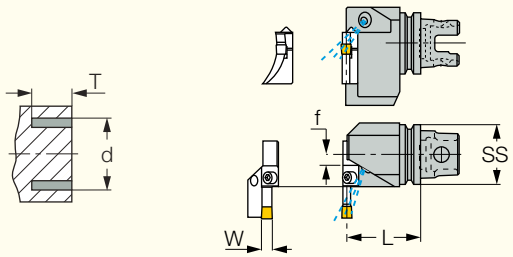
For tools, see pages: GAFG-R/L-8 (67) • PCADR/L 34N-RE (93).

Spare Parts

Designation	Screw	Key	Screw 1	Key 1	Screw 2	Nozzle Body	Cooling Nozzle
C#-GHAD-8	SR 14-519	T-20/5	SR M6X25DIN912 12.9U	HW 5.0	SR 76-1022	EZA 125	EZ 125

IM-GHAPR/L-8

Perpendicular Holders for Grooving, Turning and Facing Adapters with ISO 26622-1(*)
Tapered Shank



T= See specific adapter dimensions
• Right-hand shown

Designation	SS	L	f	W	d Range	T range
IM50 GHAPR/L-8	50	60.00	26.00	8.00	80-510	15-25
IM63 GHAPL-8	63	75.00	33.00	8.00	80-510	15-25

• (*) Tools with orientation holes in the flange groove can be supplied on request

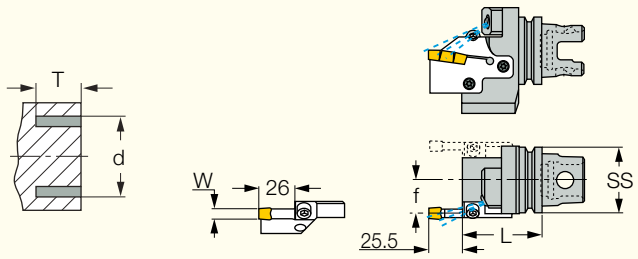
For tools, see pages: GAFG-R/L-8 (67) • PCADR/L 34N-RE (93).

Spare Parts

Designation	Screw	Key	Screw 1	Key 1	Cooling Nozzle
IM-GHAPR/L-8	SR 14-519	T-20/5	SR M6X25DIN912 12.9U	HW 5.0	EZ 125

IM-GHAD-8

Holders for Grooving, Turning and Facing Adapters with ISO 26622-1(*)
Tapered Shank



T= See specific adapter dimensions

Designation	SS	L	f	W	d Range	T range
IM50 GHAD-8	50	60.00	26.00	8.00	80-510	15-25
IM63 GHAD-8	63	60.00	32.50	8.00	80-510	15-25

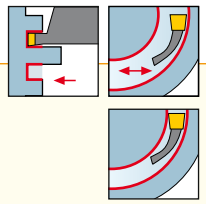
• (*) Tools with orientation holes in the flange groove can be supplied on request

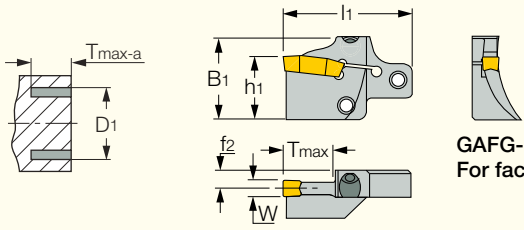
For tools, see pages: GAFG-R/L-8 (67) • PCADR/L 34N-RE (93).

Spare Parts

Designation	Screw	Key	Screw 1	Key 1	Screw 2	Nozzle Body	Cooling Nozzle
IM-GHAD-8	SR 14-519	T-20/5	SR M6X25DIN912 12.9U	HW 5.0	SR 76-1022	EZA 125	EZ 125

GAFG-R/L-8
Adapters for Face Machining





GAFG-...L8
For face grooving

Left-hand shown

Designation	W	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	T_{max-a} (3)	f_2	h_1	B_1	l_1
GAFG 80R/L-8	8.00	80.0	115.0	23.00	9.00	32.0	42.0	63.50
GAFG 105R/L-8	8.00	105.0	160.0	25.00	9.00	32.0	42.0	63.50
GAFG 155R/L-8	8.00	155.0	510.0	25.00	9.00	32.0	42.0	63.50

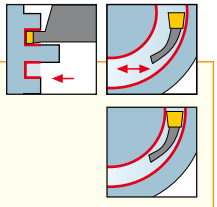
• No limitation for widening of groove either way after initial grooving • For user guide, see pages 98-114.

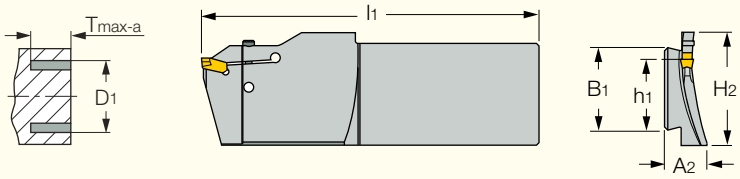
(1) Minimum penetration diameter (2) Maximum penetration diameter (3) For GIFG-8 & GDMY-8 Tmax=25 mm for D range.

For inserts, see pages: GDMA (79) • GDMF (69) • GDMM-CC (76) • GDMN (70) • GDMY (73) • GDMY (full radius) (74) • GDMY-F (75) • GIA-K (long pocket) (73) • GIF (long pocket) (71) • GIF-E (W=8,10 full radius) (72) • GIF-E (W=8,10) (71) • GIFG-E (W=8) (68) • GIPA/GIDA 8 (full radius) (81).

For holders, see pages: C#-GHAD-8 (65) • C#-GHAPR/L-8 (65) • GHAPR/L-8 (64) • GHAR/L-8 (64) • IM-GHAD-8 (66) • IM-GHAPR/L-8 (66).

CGFG 51-P8
Blades for Face Machining, with 8 mm Inserts





Left-hand shown

Designation	W	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	T_{max-a}	B_1	h_1	l_1	H_2	A_2
CGFG 51-180R/L-P8	8.00	180.0	240.0	70.00	52.6	45.0	200.00	60.0	27.5
CGFG 51-240R/L-P8	8.00	240.0	320.0	80.00	52.6	45.0	210.00	70.0	26.0
CGFG 51-320R/L-P8	8.00	320.0	440.0	90.00	52.6	45.0	220.00	80.0	24.5
CGFG 51-440R/L-P8	8.00	440.0	700.0	100.00	52.6	45.0	230.00	90.0	22.5
CGFG 51-700R/L-P8	8.00	700.0	1500.0	120.00	52.6	45.0	250.00	100.0	20.0

• For user guide, see pages 98-114.

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: GIMF (68) • GIMM 8CC (75) • GIMY (69) • GIMY (full radius) (70) • GIMY-F (74).

For holders, see pages: SGTBK (59) • SGTBU/SGTBN (58).

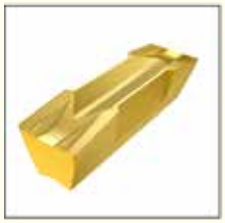
Spare Parts

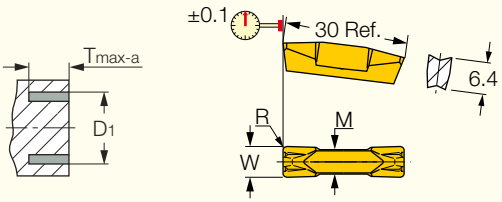
Designation	Screw	Key
CGFG 51-P8	SR M4-2052	HW 3.0

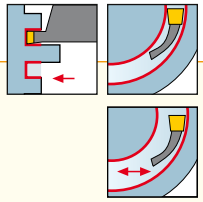
CUT-GRIP

GIFG-E (W=8)

Inserts for Deep Face Grooving and Turning







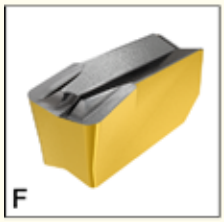
Designation	Dimensions W±0.02	R±0.05	D1 min	Tmax-a	M	Tough ↔ Hard IC635	IC20	Recommended Machining Data f face-groove (mm/rev)
GIFG 8.00E-0.80	8.00	0.80	50.0	25.00	6.0	●	●	0.15-0.25
GIFG 8.00E-1.20	8.00	1.20	50.0	25.00	6.0	●		0.15-0.25

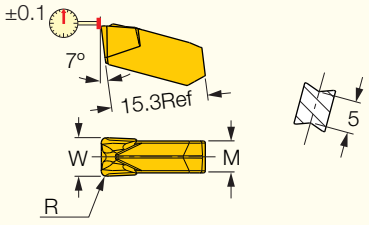
• For cutting speed recommendations, see pages 98-114.

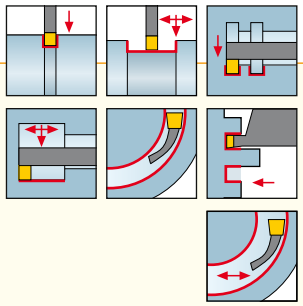
For tools, see pages: GAFG-R/L-8 (67) • GHFG-R/L-8 (62) • GHFGR/L-8 (63).

GIMF

Utility Single-Ended Inserts for Grooving and Turning







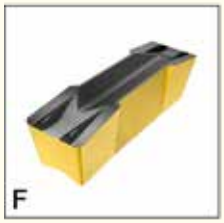
Designation	Dimensions W±0.05	R±0.05	M	Tough ↔ Hard IC830	IC8250	IC808	IC908	IC806	IC907	IC20	IC428	IC5010	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GIMF 406	4.00	0.60	3.2	●	●	●	●	●	●	●	●	●	0.75-2.40	0.19-0.25	0.09-0.16
GIMF 502	5.00	0.20	4.0		●					●			0.25-3.00	0.18-0.26	0.11-0.18
GIMF 508	5.00	0.80	4.0	●	●	●		●		●	●	●	1.00-3.00	0.23-0.35	0.11-0.21
GIMF 605	6.00	0.50	5.0	●		●							0.60-3.60	0.22-0.36	0.13-0.23
GIMF 608	6.00	0.80	5.0	●	●	●		●		●		●	1.00-3.60	0.24-0.42	0.13-0.25
GIMF 808	8.00	0.80	6.0	●	●	●							1.00-4.80	0.32-0.56	0.18-0.34

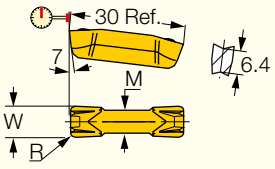
• Dmin for internal applications = 70 mm • For cutting speed recommendations and user guide, see pages 98-114.

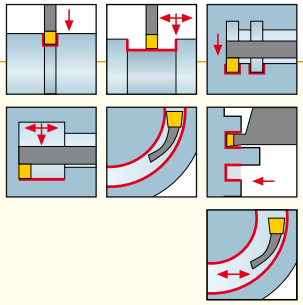
For tools, see pages: CGFG 51-P8 (67) • GHMPR/L (84) • GHMR/L (83).

GDMF

Utility Double-Ended Inserts for Grooving and Turning







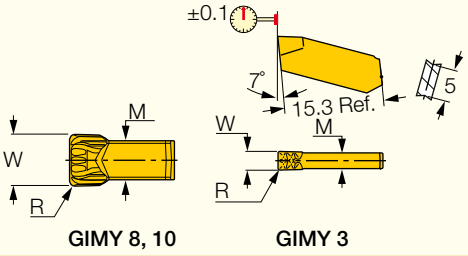
Designation	Dimensions W±0.05	R±0.05	Tmax-r	M	Tough ↔ Hard IC830	IC8250	IC808	IC428	IC5010	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GDMF 808	8.00	0.80	27.00	6.0	●	●	●	●	●	1.00-4.80	0.32-0.56	0.18-0.34

• Dmin for internal machining = 65 mm • For cutting speed recommendations and user guide, see pages 98-114.

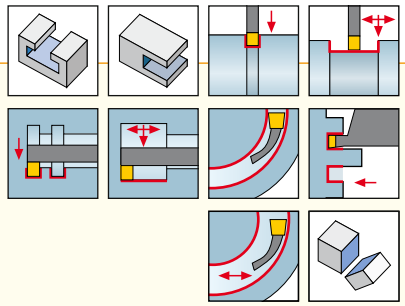
For tools, see pages: GAFG-R/L-8 (67) • GHFGR/L-8 (63).

GIMY

Utility Single-Ended Inserts, for Grooving and Turning



GIMY 8, 10 GIMY 3



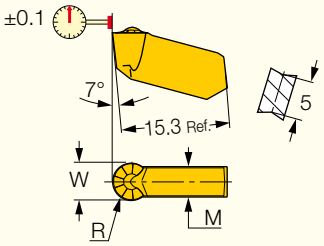
Designation	Dimensions W±0.05	R±0.05	M	Tough ↔ Hard IC830	IC8250	IC808	IC908	IC806	IC20	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GIMY 304	3.00	0.40	2.4	●	●			●	●	0.50-1.80	0.16-0.20	0.07-0.12
GIMY 808	8.00	0.80	6.0	●	●	●	●	●	●	1.00-4.80	0.32-0.56	0.18-0.34
GIMY 1008	10.00	0.80	8.0	●		●				1.00-6.00	0.35-0.65	0.22-0.40

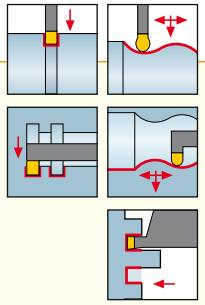
• Dmin for internal applications =70 mm • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: CGFG 51-P8 (67) • GHMPR/L (84) • GHMR/L (83).

GIMY (full radius)

Utility Single-Ended Inserts, for Grooving and Profiling





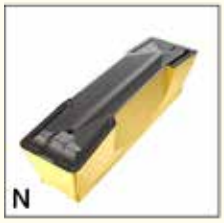
Designation	Dimensions W±0.05	R±0.05	M	Tough ↔ Hard IC830	IC8250	IC808	IC806	IC20	IC20N	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GIMY 315	3.00	1.50	2.4	●	●	●	●	●	●	0.00-1.50	0.18-0.26	0.07-0.13
GIMY 420	4.00	2.00	3.2	●	●	●	●	●	●	0.00-2.00	0.20-0.28	0.09-0.17
GIMY 525	5.00	2.50	3.9	●	●	●	●	●	●	0.00-2.50	0.23-0.42	0.11-0.21
GIMY 630	6.00	3.00	5.0	●	●	●	●	●	●	0.00-3.00	0.24-0.50	0.13-0.25
GIMY 635-318	6.35	3.18	5.1	●	●	●		●		0.00-3.10	0.25-0.53	0.14-0.27
GIMY 840	8.00	4.00	5.6	●	●	●		●		0.00-4.00	0.32-0.67	0.18-0.34

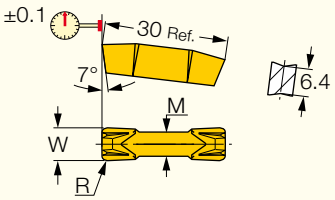
• Dmin for internal application=70 mm • Can cut arcs to 250° • For cutting speed recommendations and user guide, see pages 98-114..

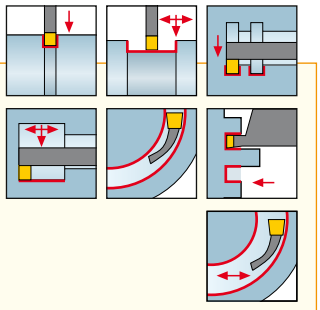
For tools, see pages: CGFG 51-P8 (67) • GHMPR/L (84) • GHMR/L (83).

GDMN

Utility Double-Ended Inserts for Grooving and Turning Ductile Materials







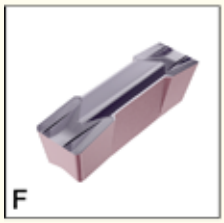
Designation	Dimensions W±0.05	R±0.05	Tmax-r	M	Tough ↔ Hard IC830	IC8250	IC808	IC907	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GDMN 808	8.00	0.80	27.00	6.0	●	●	●	●	1.00-3.20	0.20-0.35	0.10-0.30

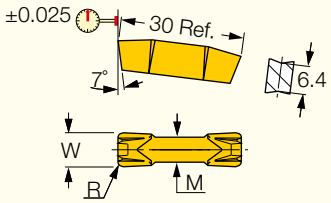
• Dmin for internal machining = 65 mm • For cutting speed recommendations and user guide, see pages 98-114.

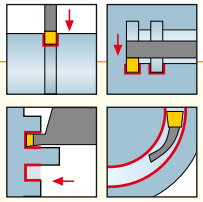
For tools, see pages: GAFG-R/L-8 (67) • GHFGR/L-8 (63).

GIF (long pocket)

Precision Double-Ended Inserts for Grooving







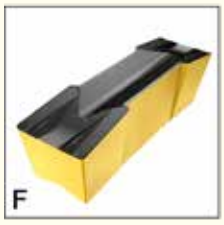
Designation	Dimensions W±0.02	R±0.03	M	Tmax-r	Tough ↔ Hard IC806	IC20	Recommended Machining Data f groove (mm/rev)	f face-groove (mm/rev)
GIF 8.00-0.40	8.00	0.40	6.0	27.00	●	●	0.18-0.31	0.14-0.23
GIF 8.00-0.80	8.00	0.80	6.0	27.00	●	●	0.18-0.34	0.14-0.25

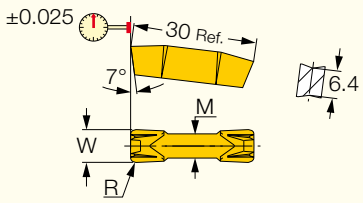
• Dmin for internal machining = 65 mm • For cutting speed recommendations and user guide, see pages 98-114.

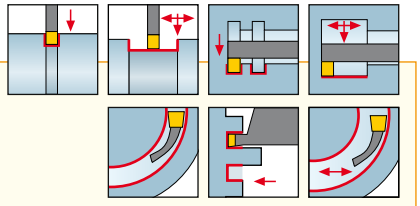
For tools, see pages: GAFG-R/L-8 (59) • GHFGR/L-8 (57).

GIF-E (W=8,10)

Precision Double-Ended Inserts for Grooving and Turning







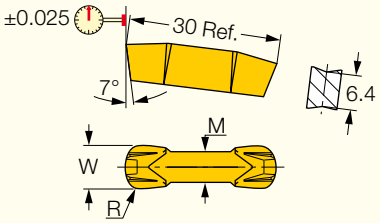
Designation	Dimensions W±0.02	R±0.05	M	Tmax-r	Tough ↔ Hard IC830	IC8250	IC808	IC806	IC807	IC20	IC428	IC5010	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GIF 8.00E-0.40	8.00	0.40	6.0	27.00		●	●						0.50-4.80	0.29-0.48	0.18-0.31
GIF 8.00E-0.80	8.00	0.80	6.0	27.00	●	●	●	●	●	●	●	●	1.00-4.80	0.32-0.56	0.18-0.34
GIF 8.00E-1.20	8.00	1.20	6.0	27.00	●	●	●			●	●	●	1.45-4.80	0.32-0.62	0.18-0.34
GIF 10.00E-0.80	10.00	0.80	8.0	27.00	●	●	●		●	●	●	●	1.00-6.00	0.35-0.65	0.22-0.40
GIF 10.00E-1.20	10.00	1.20	8.0	27.00	●	●	●	●		●			1.45-6.00	0.35-0.72	0.22-0.40

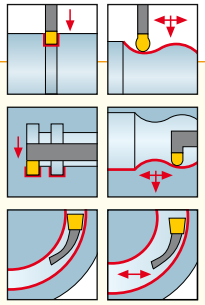
• Dmin for internal machining = 65 mm • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: GAFG-R/L-8 (67) • GHFGR/L-8 (63).

GIF-E (W=8,10 full radius)

Precision Double-Ended Full Radius Inserts, for Profiling and Grooving





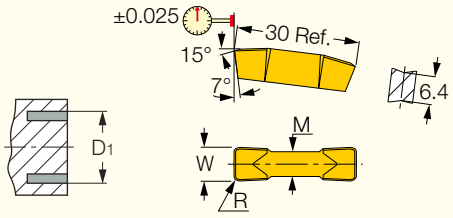
Designation	Dimensions W±0.02	R±0.05	M	Tough ↔ Hard IC830	IC8250	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GIF 8.00E-4.00	8.00	4.00	6.0			0.00-4.00	0.32-0.67	0.18-0.34
GIF 10.00E-5.00	10.00	5.00	8.0		●	0.00-5.00	0.35-0.78	0.22-0.40

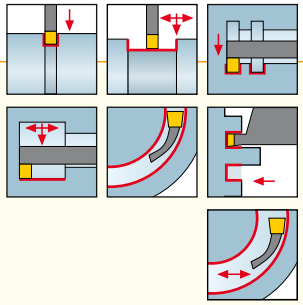
• Dmin for internal machining = 65 mm • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: GAFG-R/L-8 (67) • GHFGR/L-8 (63).

GIA-K (long pocket)

Flat Top Precision Double-Ended Inserts with T-Land, for Machining Cast Iron





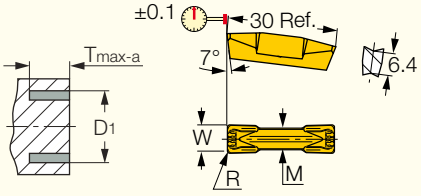
Designation	Dimensions W±0.02	R±0.05	M	Tmax-r	D1 min	Tough ↔ Hard IC428	IC5010	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GIA 8.00K-0.80	8.00	0.80	6.0	25.00	160.0	●	●	1.00-4.80	0.36-0.64	0.18-0.38
GIA 8.00K-1.20	8.00	1.20	6.0	25.00	160.0	●	●	1.45-4.80	0.36-0.70	0.18-0.38

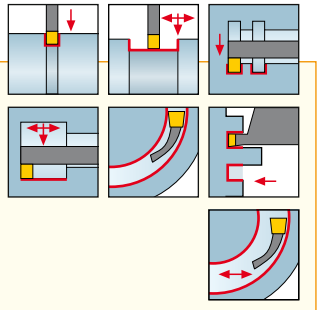
• Dmin for internal machining = 65 mm • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: GAFG-R/L-8 (67) • GHFGR/L-8 (63).

GDMY

Utility Double-Ended Inserts, for Grooving and Turning





Designation	Dimensions W±0.05	R±0.05	M	D1 min	Tmax-r	Tough ↔ Hard IC830	IC8250	IC808	IC20	IC428	IC5010	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GDMY 808	8.00	0.80	6.0	50.0	27.00	●	●	●	●	●	●	1.00-4.80	0.32-0.56	0.18-0.34

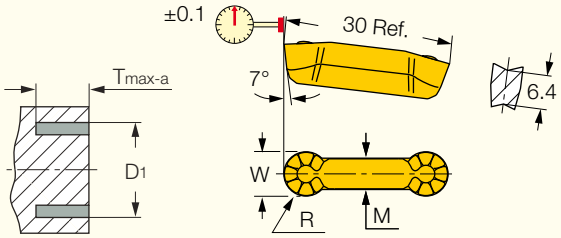
• Dmin for internal machining = 65 mm • For cutting speed recommendations and user guide, see pages 98-114.

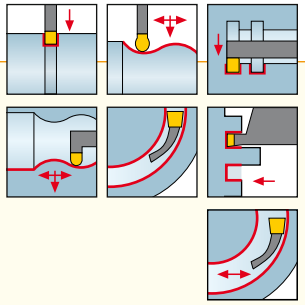
For tools, see pages: GAFG-R/L-8 (67) • GHFG-R/L-8 (62) • GHFGR/L-8 (63).

CUT-GRIP

GDMY (full radius)

Utility Double-Ended Full Radius Inserts for Grooving and Profiling





Designation	Dimensions					Tough ↔ Hard							Recommended Machining Data		
	W±0.05	R±0.05	M	D1 min	Tmax-r	IC830	IC8250	IC808	IC806	IC20	IC428	IC5010	ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GDMY 840	8.00	4.00	5.6	50.0	25.00	●	●	●	●	●	●	●	0.00-4.00	0.32-0.67	0.18-0.34

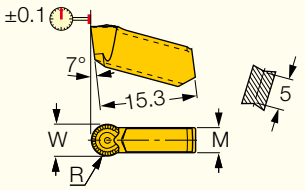
• Can cut arcs to 250° • Dmin for internal machining = 65 mm • For cutting speed recommendations and user guide, see pages 98-114.

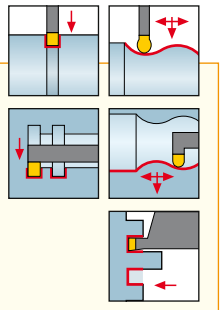
For tools, see pages: GAFG-R/L-8 (67) • GHFG-R/L-8 (62) • GHFGR/L-8 (63).

CUT-GRIP

GIMY-F

Utility Single-Ended Inserts, for Grooving and Profiling Ductile Materials





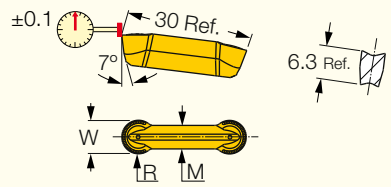
Designation	Dimensions			Tough ↔ Hard				Recommended Machining Data		
	W±0.05	R±0.05	M	IC8250	IC808	IC908	IC806	ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GIMY 315F	3.00	1.50	2.4		●			0.00-1.50	0.18-0.26	0.07-0.13
GIMY 525F	5.00	2.50	3.9		●		●	0.00-2.50	0.23-0.42	0.11-0.21
GIMY 630F	6.00	3.00	5.0		●	●	●	0.00-3.00	0.24-0.50	0.13-0.25
GIMY 840F	8.00	4.00	5.6	●				0.00-4.00	0.32-0.67	0.18-0.34

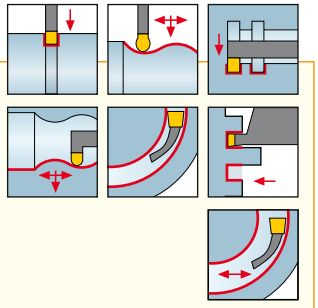
• Dmin for internal applications =70 mm • Can cut arcs to 250° • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: CGFG 51-P8 (59) • GHMPR/L (71) • GHMR/L (70).

GDMY-F

Utility Double-Ended Inserts, for Grooving and Profiling Ductile Materials





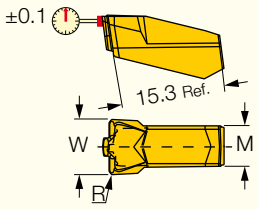
Designation	Dimensions W±0.05	R±0.05	M	Tmax-r	Tough ↔ Hard IC808	IC908	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GDMY 840F	8.00	4.00	5.6	25.00	●	●	0.00-4.00	0.32-0.67	0.18-0.34

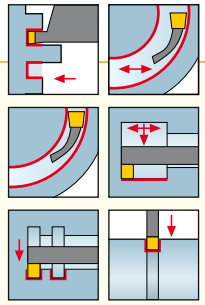
• Dmin for internal applications = 65 mm • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: GAFG-R/L-8 (59) • GHFG-R/L-8 (56) • GHFGR/L-8 (57).

GIMM 8CC

Single-Ended Utility Insert with a Frontal Chip Splitter for External Rough Grooving and Side Turning





Designation	Dimensions W±0.05	R±0.05	M	Tough ↔ Hard IC808	IC908	Recommended Machining Data f face-groove (mm/rev)
GIMM 8CC	8.00	0.80	5.8	●	●	0.30-0.45

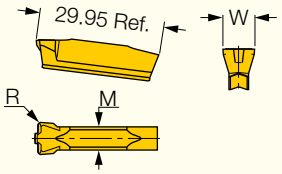
• For cutting speed recommendations, see pages 98-114.

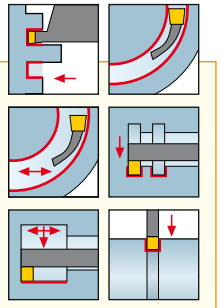
For tools, see pages: CGFG 51-P8 (59).

CUT-GRIP

GDMM-CC

Single-Ended Utility Insert for External Rough Grooving and Side Turning with a Frontal Chip Splitter





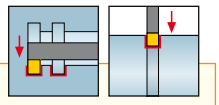
Designation	Dimensions W±0.05	R±0.05	M	Tough ↔ Hard IC830	IC354	IC808	IC907	Recommended Machining Data f face-groove (mm/rev)
GDMM 7CC	7.00	0.80	6.0		●			0.30-0.45
GDMM 8CC	8.00	0.80	5.6	●		●	●	0.30-0.45

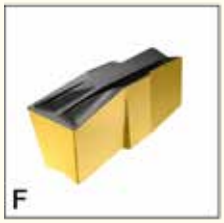
• For cutting speed recommendations, see pages 98-114.

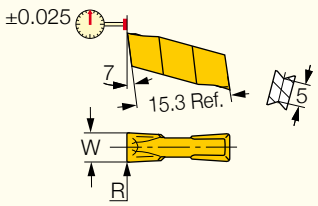
For tools, see pages: GAFG-R/L-8 (67) • GHFG-R/L-8 (62) • GHFGR/L-8 (63).

GIF

Precision Double-Ended Inserts for Grooving







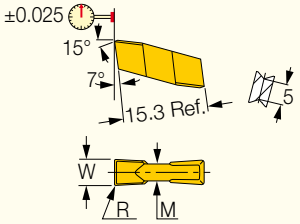
Designation	Dimensions W±0.02	R±0.03	M	T_{max-r}	Tough ↔ Hard IC830	IC8250	IC808	IC20	Recommended Machining Data f groove (mm/rev)
GIF 3.48-0.20	3.48	0.20	3.2	13.00	●	●	●	●	0.08-0.12
GIF 3.56-0.20	3.56	0.20	3.2	13.00		●	●		0.08-0.13
GIF 3.74-0.20	3.74	0.20	3.2	13.00		●	●		0.08-0.13
GIF 3.98-0.20	3.98	0.20	3.2	13.00	●	●	●	●	0.09-0.14
GIF 4.23-0.10	4.23	0.10	3.2	13.00		●	●		0.08-0.13
GIF 4.45-0.15	4.45	0.15	4.0	13.00	●	●	●	●	0.09-0.14
GIF 4.78-0.55	4.78	0.55	4.0	13.00	●	●	●	●	0.11-0.18
GIF 4.86-0.30	4.86	0.30	4.0	13.00		●	●	●	0.11-0.18
GIF 5.28-0.20	5.28	0.20	4.0	13.00		●	●	●	0.12-0.18
GIF 5.39-0.20	5.39	0.20	4.0	13.00		●	●	●	0.12-0.19
GIF 5.90-0.20	5.90	0.20	4.8	13.00		●	●		0.12-0.21
GIF 6.35-0.50	6.35	0.50	4.8	13.00		●	●	●	0.14-0.24
GIF 6.35-0.55	6.35	0.55	4.8	13.00		●	●		0.14-0.24

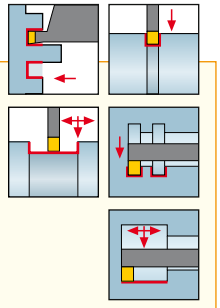
• Dmin for internal machining = 70 mm • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: GHMPR/L (84) • GHMR/L (83).

GIA-K (W=3-6)

Flat Top Precision Double-Ended Inserts with T-Land for Machining Cast Iron





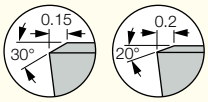
Designation	Dimensions W±0.02	R±0.05	M	Tmax-r	Tough ↔ Hard IC428	IC5010	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GIA 3.00K-0.40	3.00	0.40	2.4	13.00	●	●	0.50-1.80	0.12-0.20	0.07-0.13
GIA 4.00K-0.40	4.00	0.40	3.2	13.00	●	●	0.50-2.40	0.16-0.27	0.09-0.18
GIA 4.00K-0.80	4.00	0.80	3.2	13.00	●	●	1.00-2.40	0.18-0.32	0.09-0.19
GIA 5.00K-0.80	5.00	0.80	4.0	13.00	●	●	1.00-3.00	0.23-0.40	0.11-0.24
GIA 6.00K-0.80	6.00	0.80	4.8	13.00	●	●	1.00-3.60	0.27-0.48	0.14-0.29

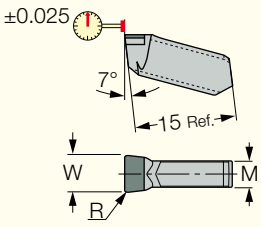
• Dmin for internal machining = 70 mm • For cutting speed recommendations and user guide, see pages 98-114.

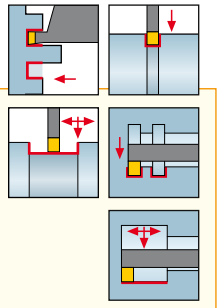
For tools, see pages: GHMPR/L (84) • GHMR/L (83).

GITM

CBN Tipped Inserts for Turning and Grooving on Hard Ferrous Materials







HARD MATERIALS

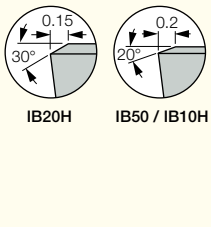
Designation	Dimensions W±0.02	R±0.05	M	Tough ↔ Hard IB20H	IB50	IB10H	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GITM 3.00K-0.20	3.00	0.20	2.4	●	●	●	0.00-0.30	0.02-0.07	0.02-0.05
GITM 4.00K-0.20	4.00	0.20	3.2	●	●		0.00-0.40	0.03-0.09	0.02-0.07
GITM 5.00K-0.40	5.00	0.40	4.0	●	●	●	0.00-0.50	0.05-0.13	0.03-0.10
GITM 6.00K-0.40	6.00	0.40	4.8	●	●	●	0.00-0.60	0.05-0.15	0.04-0.12
GITM 8.00K-0.40	8.00	0.40	6.0		●		0.00-0.80	0.07-0.20	0.05-0.16

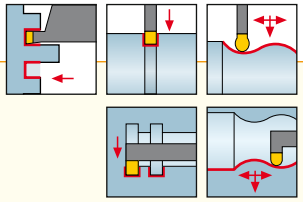
• Dmin for internal machining = 70 mm • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: GHMPR/L (84) • GHMR/L (83).

GITM (full radius)

CBN Tipped Inserts, Full Radius for Grooving and Turning on Hard Ferrous Materials





HARD MATERIALS

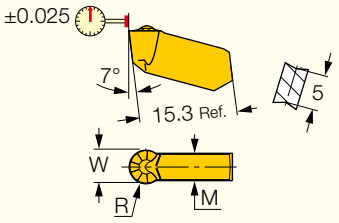
Designation	Dimensions W±0.02	R±0.05	M	D1 min	Tough ↔ Hard IB20H	IB50	IB10H	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GITM 3.00K-1.50	3.00	1.50	2.4	160.0	●	●	●	0.00-0.30	0.03-0.10	0.02-0.06
GITM 4.00K-2.00	4.00	2.00	3.2	160.0	●	●	●	0.00-0.40	0.04-0.14	0.02-0.09
GITM 5.00K-2.50	5.00	2.50	3.9	160.0	●	●	●	0.00-0.50	0.05-0.18	0.03-0.11
GITM 6.00K-3.00	6.00	3.00	5.0	160.0	●	●	●	0.00-0.60	0.06-0.22	0.04-0.13
GITM 8.00K-4.00	8.00	4.00	5.6	160.0		●		0.00-0.80	0.08-0.29	0.05-0.17

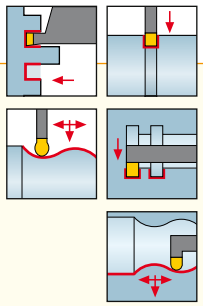
• Dmin for internal machining = 70 mm • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: GHMPR/L (84) • GHMR/L (83).

GIPY

Single-Ended Full Radius Sharp Edged Precision Inserts for Profiling of High Temperature Alloys





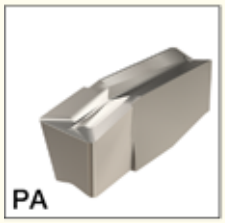
Designation	Dimensions W±0.02	R±0.05	M	Tough ↔ Hard IC07	IC806	IC907	IC20	Recommended Machining Data f turn (mm/rev)	f groove (mm/rev)
GIPY 3.00-1.50	3.00	1.50	2.4	●	●	●	●	0.19-0.28	0.08-0.15
GIPY 4.00-2.00	4.00	2.00	3.2	●	●	●	●	0.22-0.37	0.10-0.20
GIPY 5.00-2.50	5.00	2.50	3.9	●	●	●	●	0.24-0.46	0.13-0.23
GIPY 6.00-3.00	6.00	3.00	5.0		●	●	●	0.26-0.55	0.15-0.27
GIPY 8.00-4.00	8.00	4.00	5.6	●	●	●	●	0.34-0.74	0.20-0.36

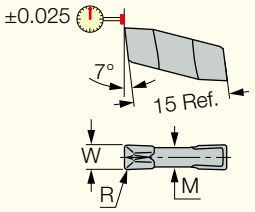
• Can cut arcs to 250° • Dmin for internal machining = 70 mm • For cutting speed recommendations and user guide, see pages 98-114.

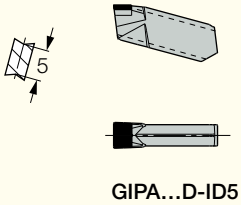
For tools, see pages: GHMPR/L (84) • GHMR/L (83).

GIPA (W=3-6)

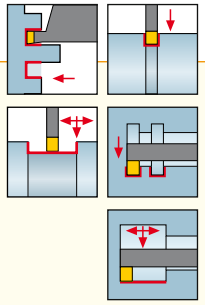
Double-Ended Precision Ground Inserts with a Polished Top Rake, for Machining Aluminum







GIPA...D-ID5



Designation	Dimensions W±0.02	R±0.03	M	IC20	ID5	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GIPA 3.00-0.20	3.00	0.20	2.4	●		0.25-1.80	0.12-0.20	0.08-0.14
GIPA 3.00-0.20-D (1)	3.00	0.20	2.4		●	0.25-1.80	0.12-0.25	0.09-0.16
GIPA 4.00-0.40	4.00	0.40	3.2	●		0.50-2.40	0.14-0.31	0.10-0.20
GIPA 5.00-0.40	5.00	0.40	4.0	●		0.50-3.00	0.16-0.34	0.11-0.23
GIPA 6.00-0.40	6.00	0.40	4.8	●		0.50-3.60	0.19-0.41	0.11-0.26

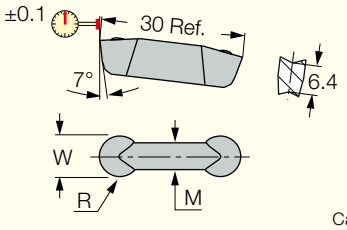
• Dmin for internal machining = 70 mm • For cutting speed recommendations and user guide, see pages 98-114.

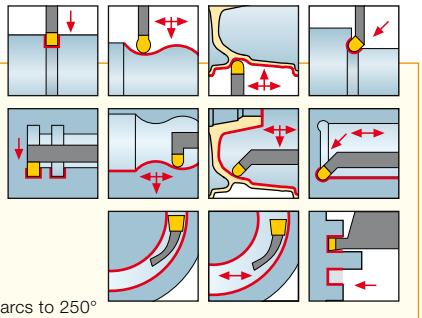
(1) Single-ended PCD tipped insert

For tools, see pages: GHMPR/L (84) • GHMR/L (83).

GDMA

Utility Double-Ended Insert with a Polished Top Rake, for Machining Aluminum





Can cut arcs to 250°

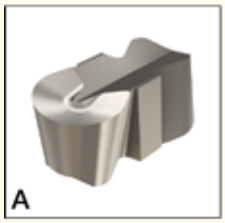
Designation	Dimensions W±0.05	R±0.05	M	Tough ↔ Hard IC07	IC507	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GDMA 840	8.00	4.00	5.6	●	●	0.00-4.00	0.24-0.67	0.14-0.38

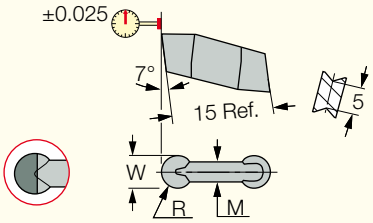
For tools, see pages: GAFG-R/L-8 (67).

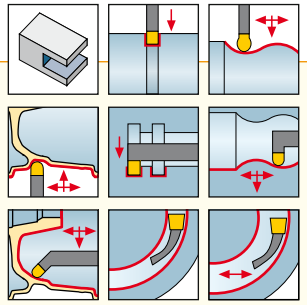
CUT-GRIP

GIPA (full radius W=3-6)

Precision Double-Ended Inserts with Polished Top Rake, for Machining Aluminum





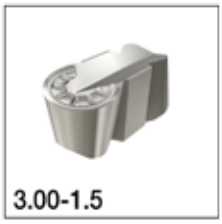


Designation	Dimensions W±0.02	R±0.05	M	Tough ↔ Hard IC806	IC20	ID5	Recommended Machining Data a_p (mm)	f turn (mm/rev)	f groove (mm/rev)
GIPA 3.00-1.50	3.00	1.50	2.4		●		0.00-1.50	0.15-0.30	0.08-0.16
GIPA 3.00-1.50-D (1)	3.00	1.50	2.4			●	0.00-1.50	0.19-0.36	0.09-0.19
GIPA 3.00-1.50YZ-D (2)	3.00	1.50	2.4			●	0.00-1.50	0.19-0.36	0.09-0.19
GIPA 4.00-2.00	4.00	2.00	3.2	●	●		0.00-2.00	0.20-0.43	0.10-0.22
GIPA 4.00-2.00-D (1)	4.00	2.00	3.2			●	0.00-2.00	0.25-0.53	0.12-0.26
GIPA 4.00-2.00YZ-D (2)	4.00	2.00	3.2			●	0.00-2.00	0.25-0.53	0.12-0.26
GIPA 5.00-2.50	5.00	2.50	3.9	●	●		0.00-2.50	0.21-0.48	0.09-0.24
GIPA 5.00-2.50-D (1)	5.00	2.50	3.9			●	0.00-2.50	0.22-0.60	0.11-0.30
GIPA 5.00-2.50YZ-D (2)	5.00	2.50	3.9			●	0.00-2.50	0.22-0.60	0.11-0.30
GIPA 6.00-3.00	6.00	3.00	4.8		●		0.00-3.00	0.21-0.58	0.11-0.29
GIPA 6.00-3.00-D (1)	6.00	3.00	4.8			●	0.00-3.00	0.26-0.72	0.13-0.36
GIPA 6.00-3.00YZ	6.00	3.00	4.8		●		0.00-3.00	0.21-0.58	0.11-0.29
GIPA 6.00-3.00YZ-D (2)	6.00	3.00	4.8			●	0.00-3.00	0.26-0.72	0.13-0.36
GIPA 6.00-3.00CB (3)	6.00	3.00	4.8			●	0.00-3.00	0.21-0.58	0.11-0.29

• For cutting speed recommendations and user guide, see pages 98-114.

(1) Single-ended PCD tipped insert (2) Single-ended molded PCD chipformer tipped insert (3) Single-ended flat PCD tipped insert with chip deflector

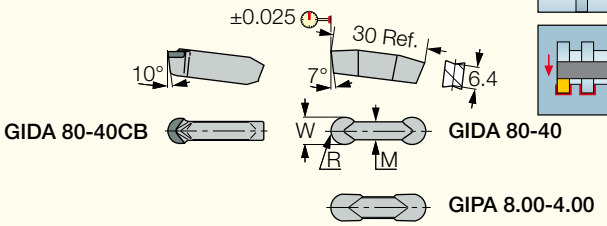
For tools, see pages: GHMPR/L (84) • GHMR/L (83) .

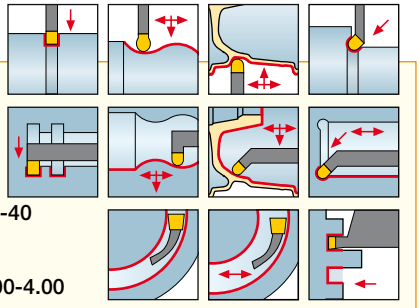


CUT-GRIP

GIPA/GIDA 8 (full radius)

Precision Double-Ended Inserts with Polished Top Rake, for Machining Aluminum



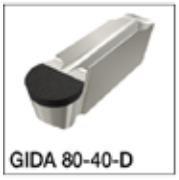


Designation	Dimensions W±0.02	R±0.05	M	Tough ↔ Hard IC20	ID5	Recommended Machining Data ap (mm)	f turn (mm/rev)	f groove (mm/rev)
GIDA 80-40	8.00	4.00	5.6	●		0.00-4.00	0.24-0.67	0.14-0.38
GIDA 80-40-D	8.00	4.00	5.6		●	0.00-4.00	0.24-0.67	0.14-0.38
GIDA 80-40CB-D (1)	8.00	4.00	5.6		●	0.00-4.00	0.24-0.67	0.14-0.38
GIDA 80-40YZ	8.00	4.00	5.6	●		0.00-4.00	0.24-0.67	0.14-0.38
GIDA 80-40YZ-D	8.00	4.00	5.6		●	0.00-4.00	0.35-0.96	0.18-0.48
GIPA 8.00-4.00	8.00	4.00	6.0			0.00-4.00	0.24-0.67	0.14-0.38

• ID5 is a single-ended PCD tipped insert • For cutting speed recommendations and user guide, see pages 98-114.

(1) Should not be clamped on tools with "A" suffix

For tools, see pages: GAFG-R/L-8 (67) • GHFGR/L-8 (63).


GIDA 80-40-D


GIDA 80-40CB-D


GIDA 80-40YZ-D


GIDA 80-40YZ

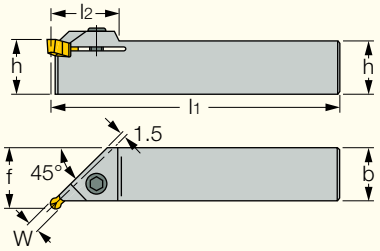

GIPA 8.00-4.00


GIDA 80-40

CUT-GRIP

GHMUR/L

External Holders for 45° Undercutting



Right-hand shown

Designation	W max	h	b	l1	l2	f
GHMUR/L 16	4.80	16.0	16.0	112.00	25.0	19.0
GHMUR/L 20	6.40	20.0	20.0	122.00	25.0	23.0
GHMUR/L 25	6.40	25.0	25.0	137.00	25.0	28.0

• For D>100 mm, GIP/GIF inserts can be used (clearance types UN, D or G are not required).

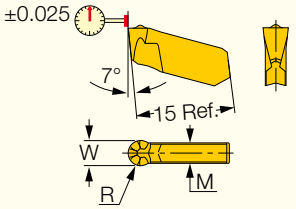
For inserts, see pages: GIMY-UN (82) • GIP-UN (83).

Spare Parts

Designation	Screw	Key
GHMUR/L 16	SR M6X16DIN912 12.9	HW 5.0
GHMUR/L 20	SR M6X20DIN912 12.9	HW 5.0
GHMUR/L 25	SR M6X25DIN912 12.9 U	HW 5.0

GIMY-UN

Utility Single-Ended Inserts for External Undercutting



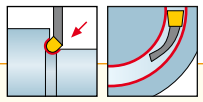
Designation	Dimensions W±0.05	R±0.05	M	Tmax-r	IC8250	Recommended Machining Data f groove (mm/rev)
GIMY 315-UN	3.00	1.50	2.4	2.00	●	0.05-0.15
GIMY 420-UN	4.00	2.00	3.2	2.50	●	0.05-0.15

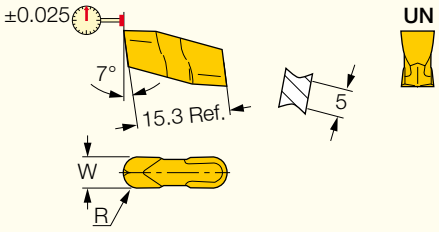
• For 45° undercutting on D 100 mm, regular GIMY inserts may be used. • For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: GHMUR/L (82).

GIP-UN

Precision Double-Ended Inserts for External Undercutting





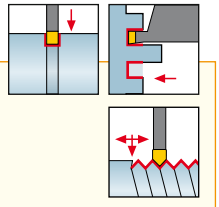
Designation	Dimensions W±0.05	R±0.05	D min	M	Tmax-r	Tough ↔ Hard IC830	IC8250	IC808	IC20	Recommended Machining Data f groove (mm/rev)
GIP 3.00-1.50UN	3.00	1.50	35.00	2.4	4.00	●	●	●	●	0.05-0.15
GIP 4.00-2.0UN	4.00	2.00	35.00	3.2	4.00		●		●	0.05-0.15

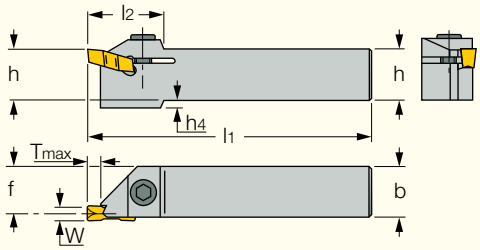
• Not recommended for turning. • For undercutting at 45° and D100 mm, other GIP inserts apply as well.
• For cutting speed recommendations and user guide, see pages 98-114.

For tools, see pages: GHMPR/L (84) • GHMR/L (83) • GHMUR/L (82).

GHMR/L

Toolholders for Shallow Radial and Axial Grooving
with Narrow and Special Profile Inserts





Right-hand shown

Designation	W max	Tmax-r	Tmax-a	h	b	l1	l2	f	h4
GHMR/L 12	4.00	4.80	4.80	12.0	12.0	110.00	25.0	10.8	4.0
GHMR/L 16	4.80	4.80	4.80	16.0	16.0	115.00	25.0	14.5	-
GHMR 16-3 ST (1)	5.00	4.80	4.80	16.0	16.0	78.00	25.0	15.0	-
GHMR/L 20	6.40	4.80	4.80	20.0	20.0	125.00	25.0	18.5	-
GHMR/L 25	6.40	4.80	4.80	25.0	25.0	140.00	25.0	23.5	-
GHMR/L 32	6.40	4.80	4.80	32.0	32.0	150.00	25.0	30.2	-

• Use for recessing: light turning, small depth of cut (ap=0.1-0.5 mm) and small feed (f=0.1 mm/rev). • For user guide, see pages 98-114.

(1) For Star and multi-spindle machines.

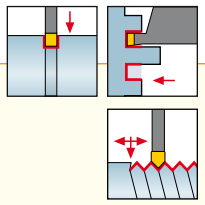
For inserts, see pages: GIA-K (W=3-6) (77) • GIF (76) • GIMF (68) • GIMY (69) • GIMY (full radius) (70) • GIMY-F (74) • GIP-UN (83) • GIPA (full radius W=3-6) (80) • GIPA (W=3-6) (79) • GIPY (78) • GITM (77) • GITM (full radius) (78).

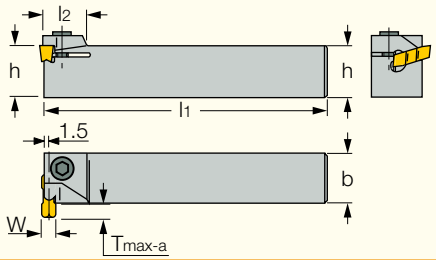
Spare Parts

Designation	Screw	Key	Screw 1	Key 1
GHMR/L 12	SR 76-1022	T-20/5		
GHMR/L 16			SR M6X16DIN912 12.9	HW 5.0
GHMR 16-3 ST			SR M6X16DIN912 12.9	HW 5.0
GHMR/L 20			SR M6X20DIN912 12.9	HW 5.0
GHMR/L 25			SR M6X25DIN912 12.9 U	HW 5.0
GHMR/L 32			SR M6X25DIN912 12.9 U	HW 5.0

GHMPR/L

Perpendicular Toolholders for Shallow Radial and Axial Grooving with Narrow and Special Profile Inserts





Right-hand shown

Designation	W max	Tmax-r	Tmax-a	h	b	l1	l2
GHMPR/L 16	4.80	4.80	4.80	16.0	16.0	110.00	17.0
GHMPR/L 20	6.40	4.80	4.80	20.0	20.0	120.00	17.0
GHMPR/L 25	6.40	4.80	4.80	25.0	25.0	135.00	17.0

• Use for recessing: light turning, small depth of cut (ap=0.1-0.5 mm) and small feed (f=0.1 mm/rev). • For user guide, see pages 98-114.

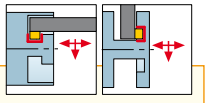
For inserts, see pages: GIA-K (W=3-6) (77) • GIF (76) • GIMF (68) • GIMY (69) • GIMY (full radius) (70) • GIMY-F (74) • GIPA (full radius W=3-6) (80) • GIPA (W=3-6) (79) • GIPY (78) • GITM (77) • GITM (full radius) (78) • GIP-UN (83).

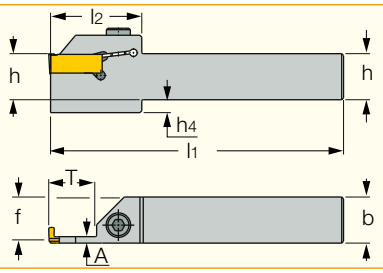
Spare Parts

Designation	Screw	Key
GHMPR/L 16	SR M6X16DIN912 12.9	HW 5.0
GHMPR/L 20	SR M6X20DIN912 12.9	HW 5.0
GHMPR/L 25	SR M6X25DIN912 12.9 U	HW 5.0

HLPGR/L

Tools for L-Type LPGIR/L Inserts





Designation	Tmax-r	h	h1	h4	b	A	f	l1	l2
HLPGR/L 2525-12-A3.5-T25	25.00	25.0	25.0	7.0	25.0	3.50	23.3	160.00	50.0
HLPGR/L 3225-12-A3.5-T25	25.00	32.0	32.0	-	25.0	3.50	23.3	160.00	50.0
HLPGR/L 2525-12-A4.5-T30	30.00	25.0	25.0	7.0	25.0	4.50	22.8	160.00	55.0
HLPGR/L 3225-12-A4.5-T30	30.00	32.0	32.0	-	25.0	4.50	22.8	160.00	55.0

• In case of face penetration prior to radial grooving, please check that the lower insert support is relieved from the groove's outer diameter.

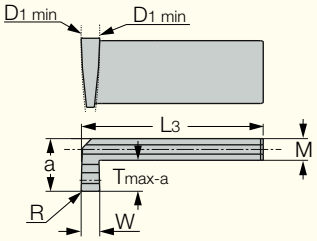
For inserts, see pages: LPGIR (85).

Spare Parts

Designation	Screw	Key
HLPGR/L	SR M6X20DIN912 12.9	HW 5.0

LPGIR

Inserts for Axial Grooves Inside Radial Grooves and for Radial Grooves Inside Axial Grooves



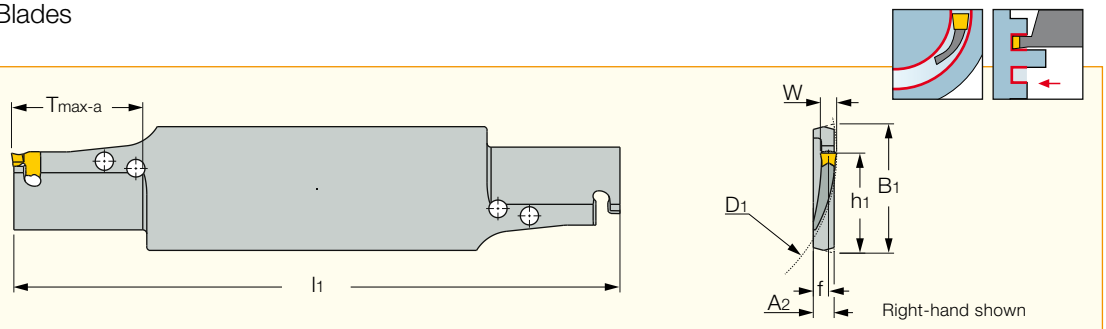
Designation	Dimensions							IC907
	W	R	M	Tmax-a	L3	a	D1 min	
LPGIL 12-8-2T4PR	2.00	0.20	4.0	4.00	30.00	8.00	200.0	●
LPGIR 12-8-2T4PR	2.00	0.20	4.0	4.00	30.00	8.00	200.0	●
LPGIL 12-8.5-3T5PR	3.00	0.30	3.5	5.00	30.00	8.50	200.0	●
LPGIR 12-8.5-3T5PR	3.00	0.30	3.5	5.00	30.00	8.50	200.0	●
LPGIL 12-9.5-4T6PR	4.00	0.40	3.5	6.00	30.00	9.50	200.0	●
LPGIR 12-9.5-4T6PR	4.00	0.40	3.5	6.00	30.00	9.50	200.0	●
LPGIL 12-11-5T6.5PR	5.00	0.40	4.5	6.50	30.00	11.00	200.0	●
LPGIR 12-11-5T6.5PR	5.00	0.40	4.5	6.50	30.00	11.00	200.0	●

• For cutting speed recommendations and user guide, see pages 98-114

For tools, see pages: HLPGR/L (84).

TNFFH-IQ

Face Grooving Blades



Designation	W	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	T_{max-a}	h_1	B_1	f	A_2	l_1
TNFFH 65R/L-3IQ	3.00	65.0	90.0	18.00	24.8	32.0	4.1	5.2	150.00
TNFFH 90R/L-3IQ	3.00	90.0	120.0	18.00	24.8	32.0	4.1	5.2	150.00
TNFFH 120R/L-3IQ	3.00	120.0	160.0	24.00	24.8	32.0	4.1	5.2	150.00
TNFFH 80R/L-4IQ	4.00	80.0	150.0	32.00	24.8	32.0	3.8	5.2	150.00
TNFFH 150R/L-4IQ	4.00	150.0	500.0	32.00	24.8	32.0	3.8	5.2	150.00
TNFFH 80R/L-5IQ	5.00	80.0	150.0	30.00	24.8	32.0	3.5	5.2	150.00
TNFFH 150R/L-5IQ	5.00	150.0	500.0	35.00	24.8	32.0	3.5	5.2	150.00
TNFFH 80R/L-6IQ	6.00	80.0	150.0	30.00	24.8	32.0	3.3	5.2	150.00
TNFFH 150R/L-6IQ	6.00	150.0	700.0	35.00	24.8	32.0	3.3	5.2	150.00

• B1 dimension links blades and blocks

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: TNF-M-IQ (89) • TNF-P-IQ (88).

For holders, see pages: C#-TBK-R/L (59) • HSK A-WH-TBK-R/L (60) • IM63 XMZ TBK (60) • SGTBF (61) • SGTBK (59) • SGTBU/SGTBN (58) • UBHCR/L (61).

ETF 3-6 extractor (should be ordered separately).

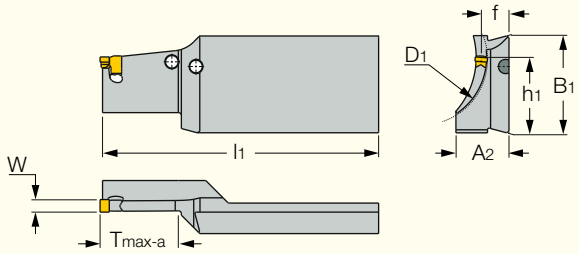
Spare Parts

Designation	Extractor
TNFFH-IQ	ETF 3-6*

* Optional, should be ordered separately

TNFFA-IQ

Reinforced Face Grooving Blades



Right-hand shown

Designation	W	$D_{1\ min}$ (1)	$D_{1\ max}$ (2)	T_{max-a}	B_1	f	h_1	l_1	A_2
TNFFA 30R/L-3IQ	3.00	30.0	35.0	19.00	32.0	9.5	24.8	90.00	18.5
TNFFA 35R/L-3IQ	3.00	35.0	40.0	19.00	32.0	9.5	24.8	90.00	18.5
TNFFA 40R/L-3IQ	3.00	40.0	46.0	23.00	32.0	9.5	24.8	90.00	18.5
TNFFA 46R/L-3IQ	3.00	46.0	54.0	25.00	32.0	9.5	24.8	90.00	18.5
TNFFA 54R/L-3IQ	3.00	54.0	65.0	26.00	32.0	9.5	24.8	90.00	18.5
TNFFA 65R/L-3IQ	3.00	65.0	80.0	27.00	32.0	9.5	24.8	90.00	18.5
TNFFA 80R/L-3IQ	3.00	80.0	100.0	27.00	32.0	9.5	24.8	90.00	16.7
TNFFA 35R/L-4IQ	4.00	35.0	45.0	25.00	32.0	9.0	24.8	90.00	18.1
TNFFA 45R/L-4IQ	4.00	45.0	60.0	25.00	32.0	9.0	24.8	90.00	17.3
TNFFA 60R/L-4IQ	4.00	60.0	80.0	27.00	32.0	9.0	24.8	90.00	18.0
TNFFA 80R/L-4IQ	4.00	80.0	130.0	27.00	32.0	9.0	24.8	90.00	14.8
TNFFA 40R/L-5IQ	5.00	45.0	50.0	25.00	32.0	9.7	24.8	90.00	18.0
TNFFA 50R/L-5IQ	5.00	60.0	70.0	28.00	32.0	9.7	24.8	90.00	18.0
TNFFA 70R/L-5IQ	5.00	80.0	100.0	30.00	32.0	9.7	24.8	90.00	18.0
TNFFA 100R/L-5IQ	5.00	100.0	180.0	35.00	32.0	9.7	24.8	90.00	18.0
TNFFA 45R/L-6IQ	6.00	45.0	60.0	25.00	32.0	10.2	24.8	90.00	18.0
TNFFA 60R/L-6IQ	6.00	60.0	80.0	28.00	32.0	10.2	24.8	90.00	18.0
TNFFA 80R/L-6IQ	6.00	75.0	110.0	30.00	32.0	10.2	24.8	90.00	18.0
TNFFA 110R/L-6IQ	6.00	100.0	300.0	35.00	32.0	10.2	24.8	90.00	18.0

• For user guide, see pages 98-114

(1) Minimum penetration diameter (2) Maximum penetration diameter

For inserts, see pages: TNF-M-IQ (89) • TNF-P-IQ (88).

For holders, see pages: C#-TBK-R/L (59) • HSK A-WH-TBK-R/L (60) • IM63 XMZ TBK (60) • SGTBK (59) • SGTBU/SGTBN (58) • UBHCR/L (61).

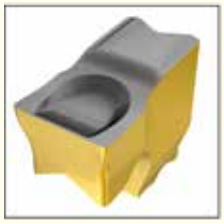
Spare Parts

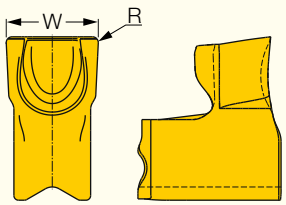
Designation	Extractor
TNFFA-IQ	ETF 3-6*

* Optional, should be ordered separately

TNF-P-IQ

Face Grooving Single-Ended Inserts for Machining Steel





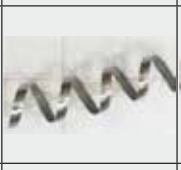
Designation	Dimensions W±0.05	Dimensions R	IC808	Recommended Machining Data f face-groove (mm/rev)
TNF 3P-IQ	3.00	0.30	●	0.10-0.15
TNF 4P-IQ	4.00	0.25	●	0.10-0.15
TNF 5P-IQ	5.00	0.35	●	0.12-0.20
TNF 6P-IQ	6.00	0.35	●	0.12-0.20

• For user guide, see pages 98-114

For tools, see pages: TNFFA-IQ (87) • TNFFH-IQ (86).

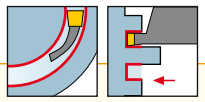
Workpiece M aterial: SAE 4340 Alloy Steel
T = 13 mm
D = 80-130 mm

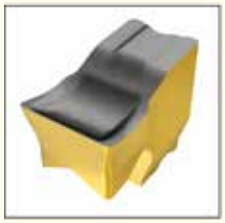
TNF 4P-IQ

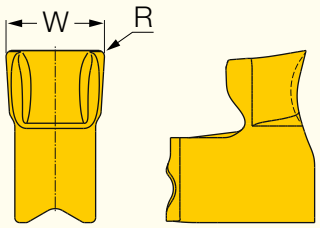
f mm/rev / Vc m/min	0.08	0.12	0.15
80			
100			
120			

TNF-M-IQ

Face Grooving Single-Ended Inserts for Machining Stainless Steel and High Temperature Alloys







Designation	Dimensions W±0.05	Dimensions R	IC808	Recommended Machining Data f face-groove (mm/rev)
TNF 3M-IQ	3.00	0.30	●	0.08-0.10
TNF 4M-IQ	4.00	0.25	●	0.08-0.12
TNF 5M-IQ	5.00	0.35	●	0.12-0.20
TNF 6M-IQ	6.00	0.35	●	0.12-0.20

• For user guide, see pages 98-114.

For tools, see pages: TNFFA-IQ (87) • TNFFH-IQ (86).

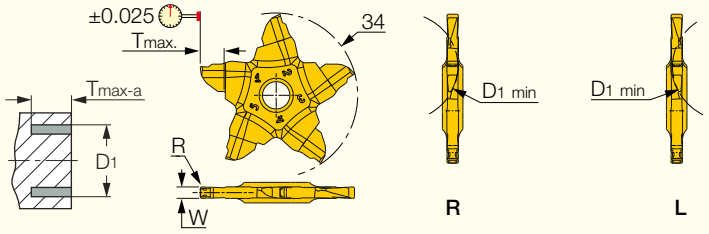
Workpiece material: 316L Stainless Steel
T = 13 mm
D = 80-130 mm

TNF 4M-IQ

f mm/rev / Vc m/min	0.08	0.10
80		
100		

PENTA 34F-R/L

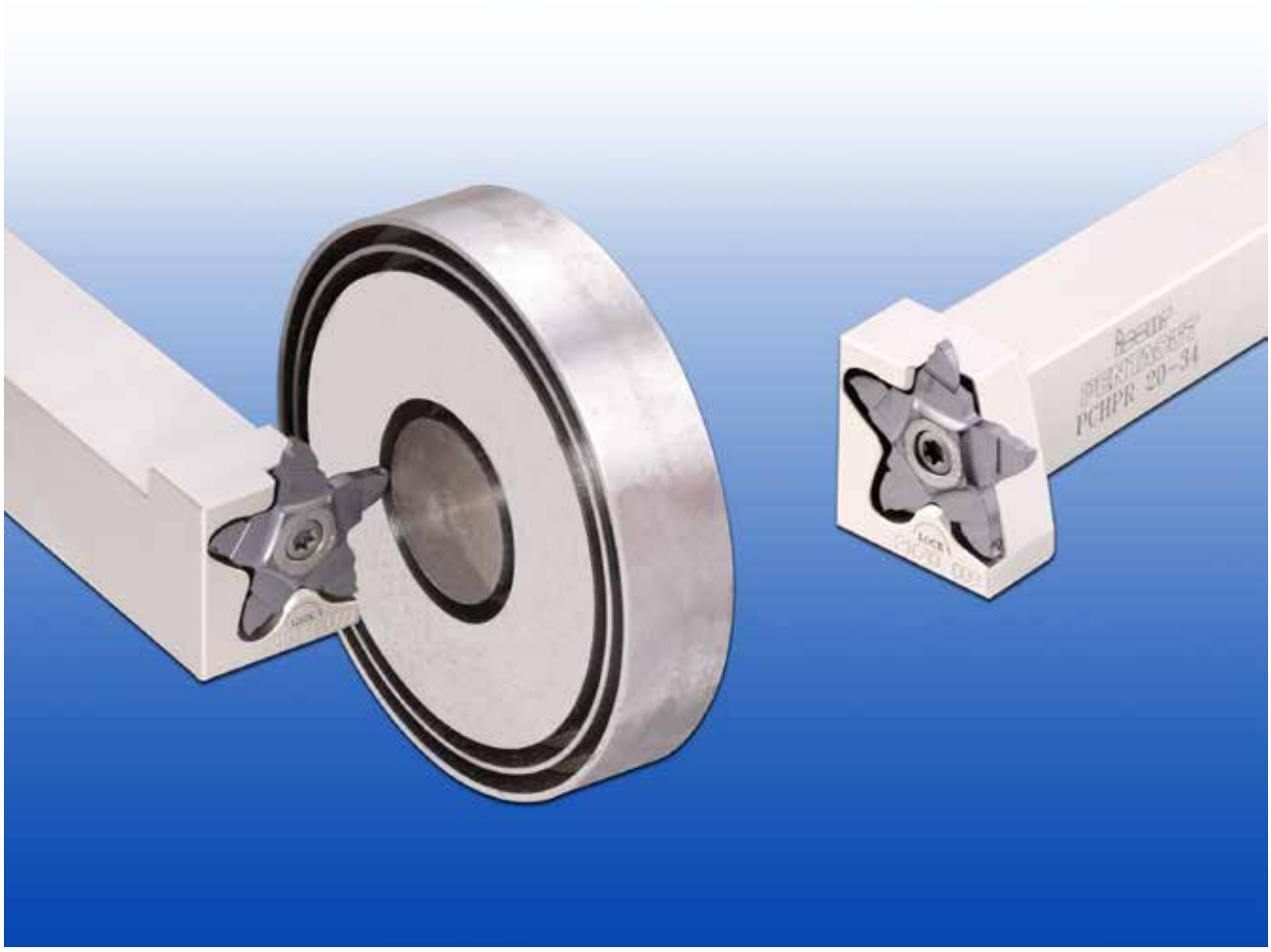
Pentagonal Inserts for Face Grooving and Recessing



Designation	Dimensions W	R	Tmax-a	D1 min	IC908	Recommended Machining Data f face-groove (mm/rev)
PENTA 34F239-0.15-22R/L	2.39	0.15	5.00	22.0	●	0.08-0.12
PENTA 34F247-0.20-22R/L	2.47	0.20	5.00	22.0	●	0.08-0.12
PENTA 34F300-0.40-22R/L	3.00	0.40	5.00	22.0	●	0.08-0.15
PENTA 34F400-0.40-22R/L	4.00	0.40	5.00	22.0	●	0.08-0.15

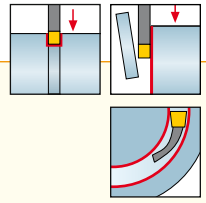
• For cutting speed recommendations, see pages 98-114.

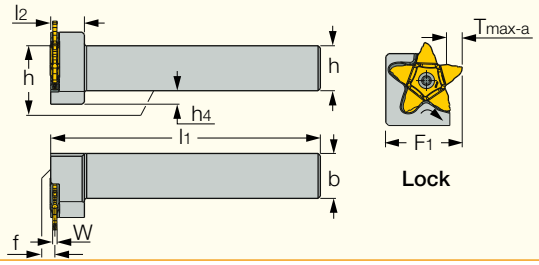
For tools, see pages: PCADR/L 34N-RE (93) • PCHBR/L (92) • PCHPR/L (91) • PCHR/L-34 (91).



PCHPR/L

Facing, Grooving, Parting and Recessing Perpendicular Holders for Inserts with 5 Cutting Edges





Right-hand shown

Designation	h	b	W min	W max	f	F1	l1	l2	h4	Tmax-a(1)
PCHPR/L 16-24	16.0	16.0	0.50	3.20 (2)	1.5 (3)	23.5	120.00	11.5	-	6.50
PCHPR/L 20-24	20.0	20.0	0.50	3.20 (2)	1.5 (3)	28.0	120.00	11.5	-	6.50
PCHPR/L 25-24	25.0	25.0	0.50	3.20 (2)	1.5 (3)	33.0	135.00	11.5	-	6.50
PCHPR/L 20-34	20.0	20.0	1.40	4.00	1.9	34.0	120.00	15.0	6.0	10.00
PCHPR/L 25-34	25.0	25.0	1.40	4.00	1.9	34.0	135.00	15.0	-	10.00

(1) For specific information, refer to insert data. (2) Up to 6.2 mm width may be ordered on request. (3) Valid for inserts with W<3.2 mm

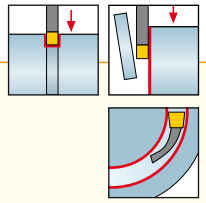
For inserts, see pages: PENTA 34F-R/L (90).

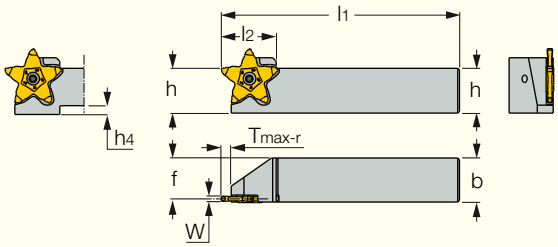
Spare Parts

Designation	Screw	Key
PCHPL 16-24	SR 16-212-01397	T-20/5
PCHPR 16-24	SR 16-212-01397L	T-20/5
PCHPL 20-24	SR 16-212-01397	T-20/5
PCHPR 20-24	SR 16-212-01397L	T-20/5
PCHPL 25-24	SR 16-212-01397	T-20/5
PCHPR 25-24	SR 16-212-01397L	T-20/5
PCHPR/L 20-34	SR 16-212-01397	T-20/5
PCHPR/L 25-34	SR 16-212-01397	T-20/5

PCHR/L-34

Grooving, Parting and Recessing Holders for Inserts with 5 Cutting Edges





Right-hand shown

Designation	h	b	W min	W max	f	Tmax-r(2)	l1	l2	h4
PCHR/L 16-34	16.0	16.0	1.50	4.00	14.2	10.00	120.00	31.0	9.0
PCHR/L 20-34	20.0	20.0	1.50	4.00	18.2	10.00	120.00	31.0	6.0
PCHR/L 25-34	25.0	25.0	1.50	4.00	23.2	10.00	135.00	31.0	-
PCHR/L 25-34-8 (1)	25.0	25.0	3.19	8.20	22.5	10.00	135.00	31.0	-
PCHR/L 32-34	32.0	32.0	1.50	4.00	30.1	10.00	135.00	31.0	-

(1) Used with special inserts only (2) For specific information, refer to insert data.

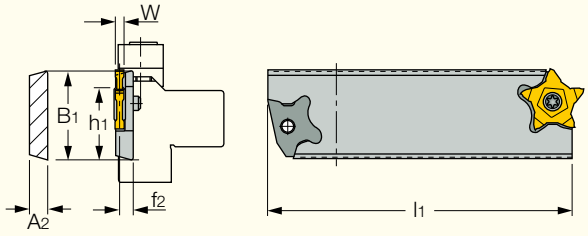
For inserts, see pages: PENTA 34F-R/L (90).

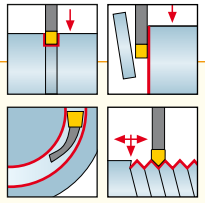
Spare Parts

Designation	Screw 1	Key 1
PCHR/L 16-34	SR 16-212-01397	T-2010/5
PCHR/L 20-34	SR 16-212-01397	T-2010/5
PCHR/L 25-34	SR 16-212-01397	T-2010/5
PCHR/L 25-34-8	SR PCHR-8-06642	T-15/5
PCHR/L 32-34	SR 16-212-01397	T-2010/5

PCHBR/L

Double-Ended Parting and Grooving Blades for PENTACUT Inserts





Left-hand shown

Designation	B_1	W min	W max	h_1	f_2 (2)	l_1	A_2	Insert
PCHBR/L 26-24R (1)	26.0	0.50	6.20	21.4	7.00	110.00	8.5	PENTA 24
PCHBR 26-24L (1)	26.0	0.50	6.20	21.4	7.00	110.00	8.5	PENTA 24
PCHBL 32-24R	32.0	0.50	6.20	24.8	7.00	110.00	8.5	PENTA 24
PCHBR 32-24L	32.0	0.50	6.20	24.8	7.00	110.00	8.5	PENTA 24
PCHBR/L 26-34R (1)	26.0	1.50	4.00	21.4	7.15	110.00	8.5	PENTA 34
PCHBR 26-34L (1)	26.0	1.50	4.00	21.4	7.15	110.00	8.5	PENTA 34
PCHBL 32-34R	32.0	1.50	4.00	24.8	7.15	110.00	8.5	PENTA 34
PCHBR 32-34L	32.0	1.50	4.00	24.8	7.15	110.00	8.5	PENTA 34

• For insert/blade orientation, see the following drawings

(1) Single pocket blade (2) To the center of inserts up to 4.15 mm width

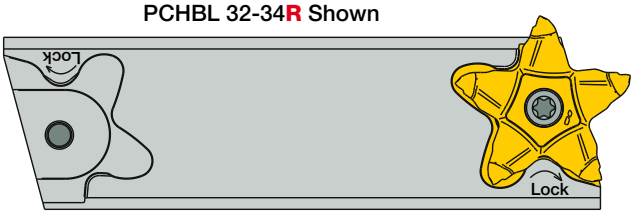
For inserts, see pages: PENTA 34F-R/L (90).

For holders, see pages: C#-TBK-R/L (59) • HSK A-WH-TBK-R/L (60) • IM63 XMZ TBK (60) • SGTBK (59) • SGTBU/SGTBN (58).

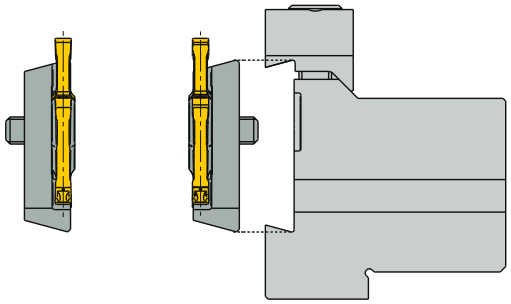
Spare Parts

Designation	Screw	Key
PCHBR/L 26-24R	SR 16-212-01397L	T-2010/5
PCHBR 26-24L	SR 16-212-01397	
PCHBL 32-24R	SR 16-212-01397L	T-2010/5
PCHBR 32-24L	SR 16-212-01397	T-2010/5
PCHBR/L 26-34R	SR 16-212-01397	T-2010/5
PCHBL 32-34R	SR 16-212-01397	T-2010/5
PCHBR 32-34L	SR 16-212-01397	T-2010/5

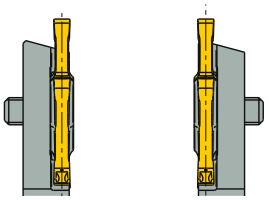
PCHBL 32-34**R** Shown



PCHBL 32-34L PCHBL 32-34R



PCHBR 32-34L PCHBR 32-34R

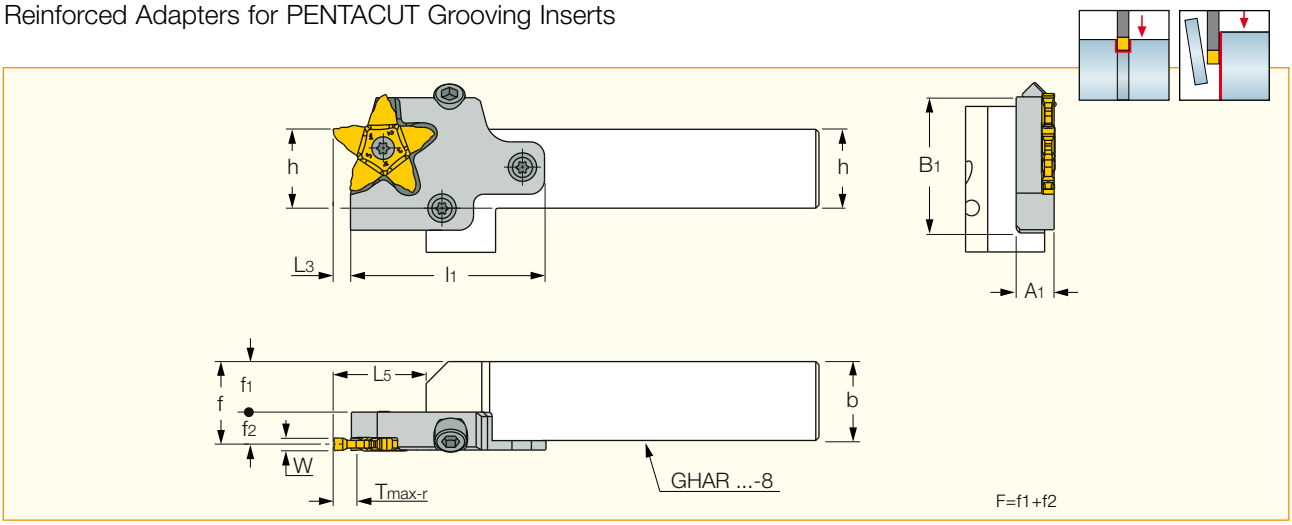


Right-hand blade

Right-hand pocket location on the blade

PCADR/L 34N-RE

Reinforced Adapters for PENTACUT Grooving Inserts



Designation	W min	W max	L3	L5	l1	f2	B1	A1
PCADR/L 34N-RE	1.50	4.00	5.50	29.50	61.50	10.15	42.0	12.00

• Tmax and Dmax according to insert limitation • h, b, and f1 according to holder being used

For inserts, see pages: PENTA 34F-R/L (90.

For holders, see pages: C#-GHAD-8 (65) • C#-GHAPR/L-8 (65) • GHAPR/L-8 (64) • GHAR/L-8 (64) • IM-GHAD-8 (66) • IM-GHAPR/L-8 (66).

Spare Parts

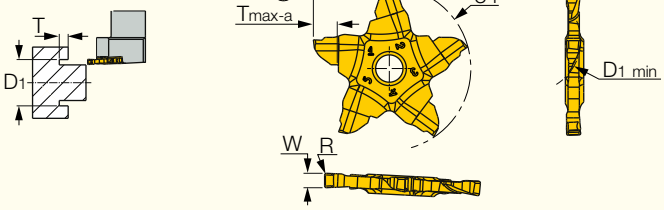
Designation	Screw	Key
PCADR/L 34N-RE	SR 16-212-01397	T-2010/5

PENTACUT

PENTACUT

PENTA 34F-RS/LS

Pentagonal Inserts for Face Grooving and Recessing Along Shafts, up to 5 mm Depth of Cut at a Minimum of 22 mm Diameter



Designation	Dimensions W	R	Tmax-a	D1 min	IC908	Recommended Machining Data f face-groove (mm/rev)
PENTA 34F239-0.15-22R/LS	2.39	0.15	5.00	22.0	●	0.08-0.12
PENTA 34F247-0.20-22R/LS	2.47	0.20	5.00	22.0	●	0.08-0.12
PENTA 34F300-0.40-22R/LS	3.00	0.40	5.00	22.0	●	0.08-0.15
PENTA 34F400-0.40-22R/LS	4.00	0.40	5.00	22.0	●	0.08-0.15

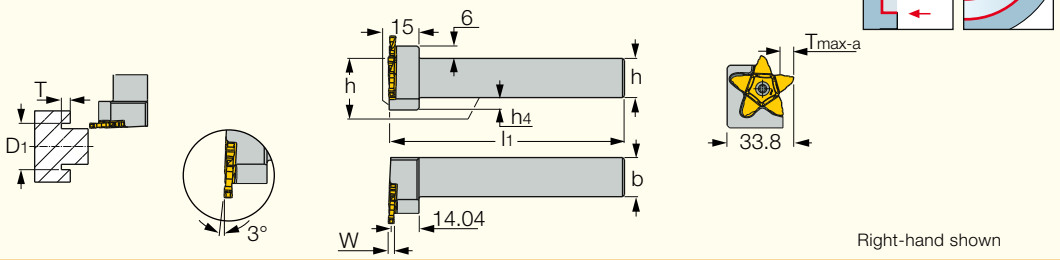
• For cutting speed recommendations, see pages 98-114.

For tools, see pages: PCHPRS/LS (94).

PENTACUT

PCHPRS/LS

Perpendicular Shank Tools, for Machining Next to Long Central Shaft, Carrying Pentagonal Inserts



Designation	h	b	W min	W max	l1	h4	Tmax-a(1)
PCHPR/LS 20-34	20.0	20.0	2.39	4.00	120.00	6.0	5.00
PCHPR/LS 25-34	25.0	25.0	2.39	4.00	135.00	-	5.00

(1) Insert limit

For inserts, see pages: PENTA 34F-RS/LS (94).

Spare Parts

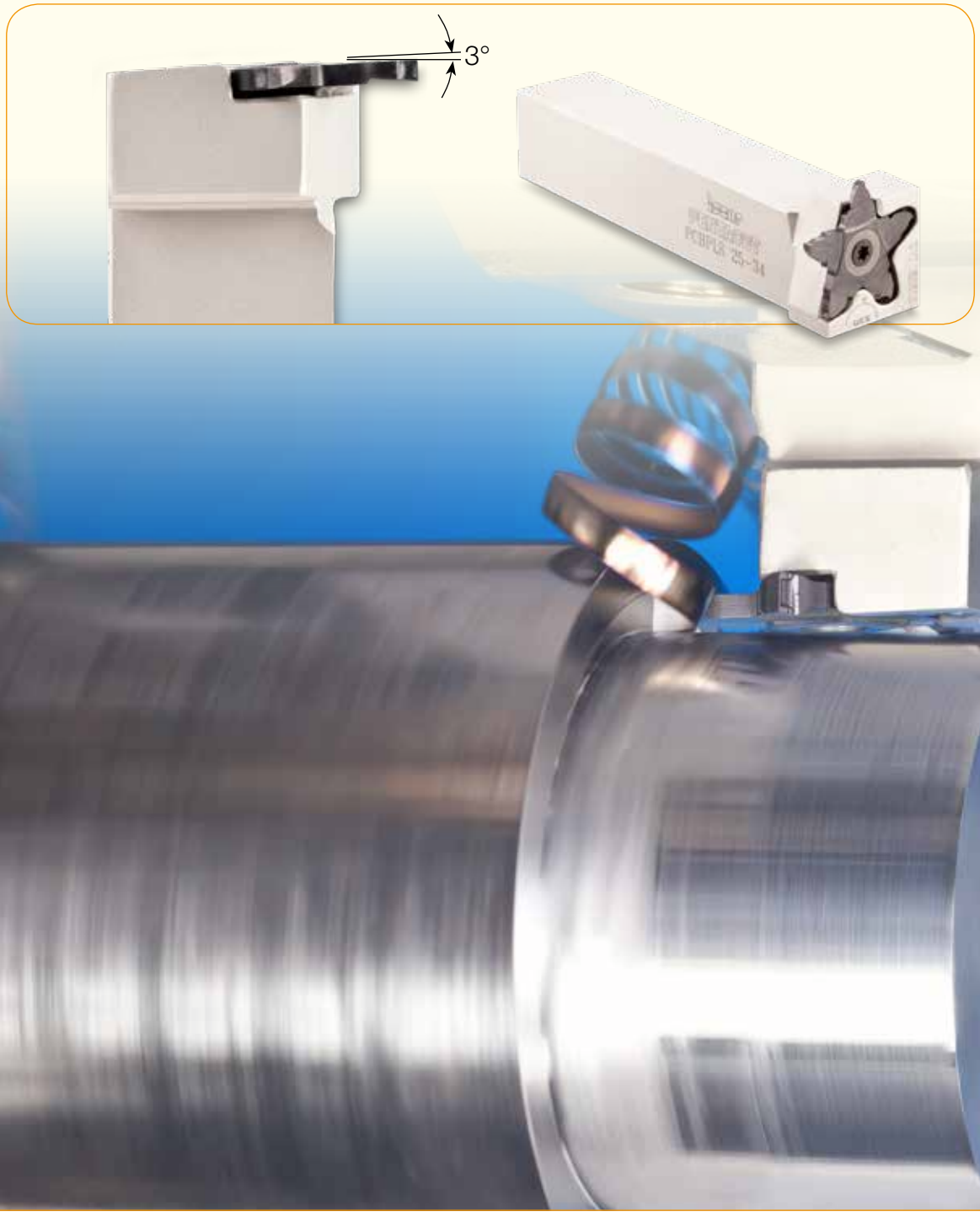
Designation	Screw	Key
PCHPRS/LS	SR 16-212-01397RS	T-20/5

Following the very successful performance in face grooving of the PENTA 34F pentagonal insert, ISCAR has developed the **PENTA 34F RS/LS** inserts, **for face grooving and recessing along shafts** up to 5 mm depth of cut at a minimum 22 mm diameter. **After the initial groove, there is no** limitation for widening the groove outwards.

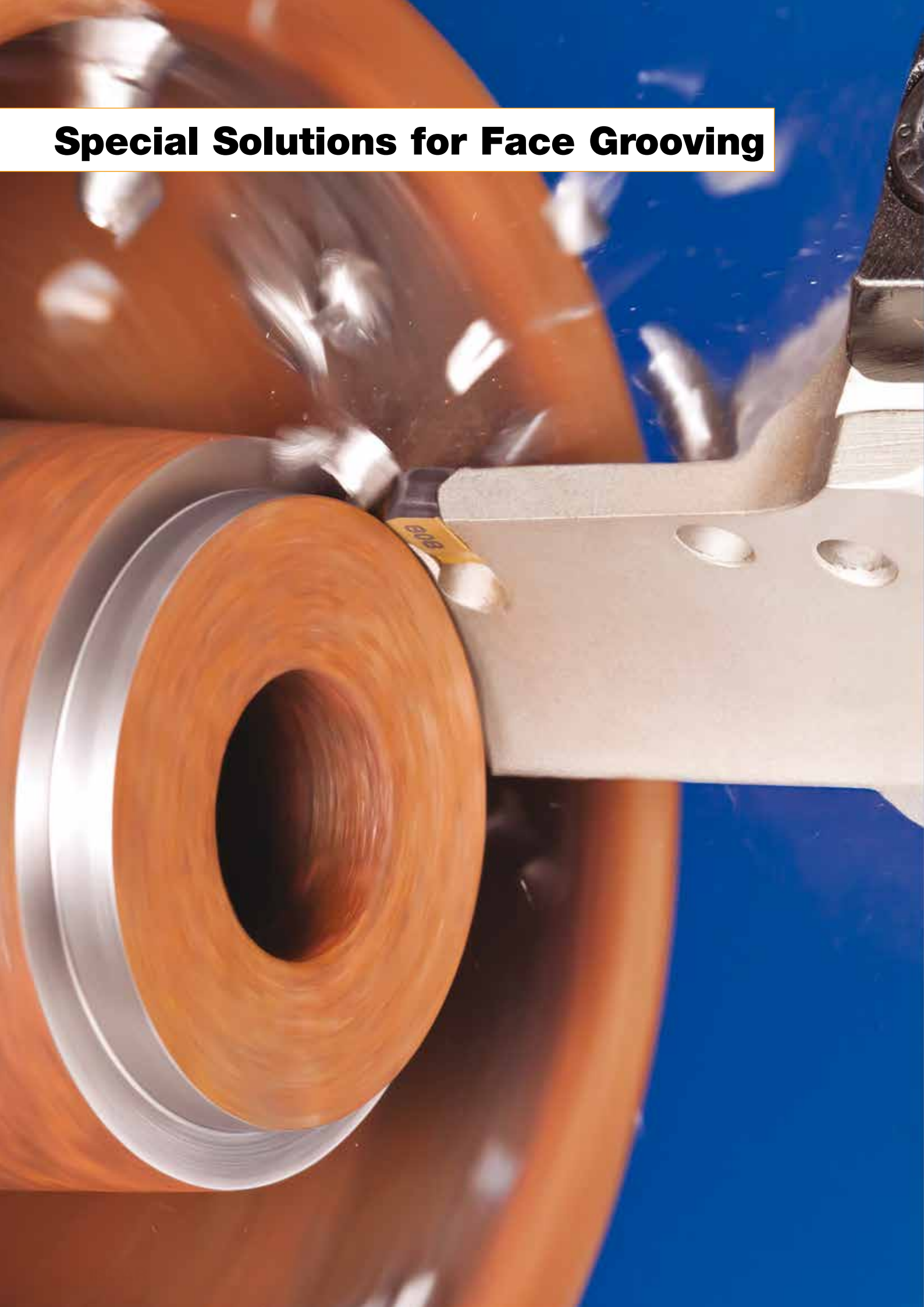
The new inserts are clamped on **PCHP-RS/LS ..-34 -** newly designed tools. They are positioned nearly perpendicular to the shanks, **slightly tilted** (3°), to enable machining next to long central shaft.

Features

- A combination of very rigid clamping system and strong insert design enables machining at very high machining parameters.
- Improved C-type chipformer with an expanded feed range of 0.05-0.25 mm/rev.
- Very rigid clamping system produces excellent sidewall straightness and surface quality and flat groove bottoms.
- In case of edge breakage, the tool will survive and other cutting corners may still be used.
- Easy and fast edge indexing from either side of the holder.
- Multi-corner, **five cutting edges**, which provide the most advantageous price per cutting edge.



Special Solutions for Face Grooving



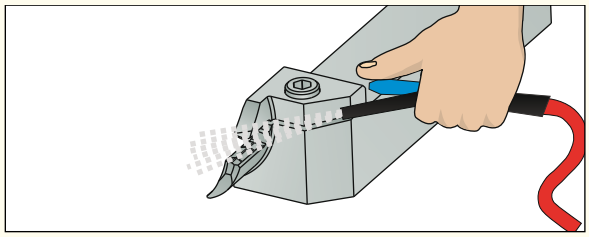
ISCAR's Variety of Specially Tailored Tools for Face Machining Applications

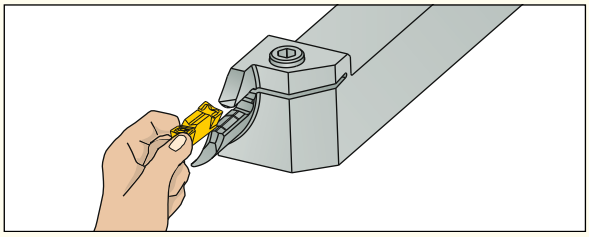
SPECIALLY
TAILORED

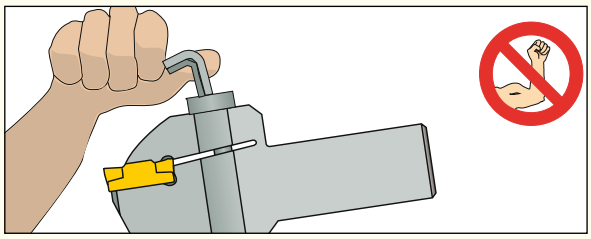
Clamping the Insert

Clamping an insert correctly into the holder is necessary for stable machining.

- Be sure that the seat is clean of dirt and swarf.
- At the first stage of clamping, ease the insert gently into place. Make sure that the prismatic surfaces match.







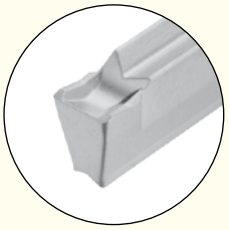
• Screw Clamping Torque

Insert Width	Nxm
3	4-5
4	5-6
5	6-7
6/8	7-9
CGFG 51...	4-6

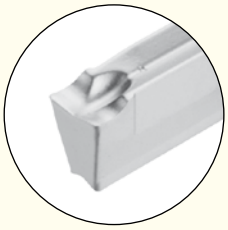
The unique chipformer is designed for deep grooving and face turning both toward and away from center, with excellent chip formation.

HELIFACE
HFPR/L & HGPL Type
For general use in turning and grooving on all kinds of materials. For deep grooving in low-to-medium feeds 0.04-0.15 mm/rev.
Min grooving dia. 12 mm.

HELI-GRIP
GRIP...Y Type
The “all in one” insert: for parting, external grooving and turning, internal grooving and turning, face grooving and turning.



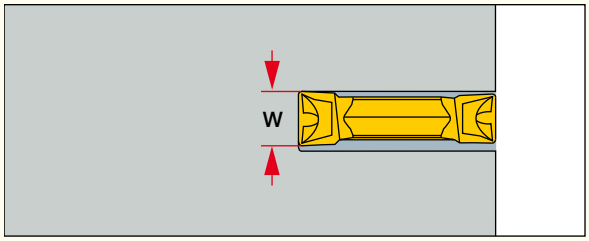
DO-GRIP
DGN...C Type
For grooving operations only.
Strong cutting edge for hard materials and tough applications in feeds 0.1-0.2 mm/rev.



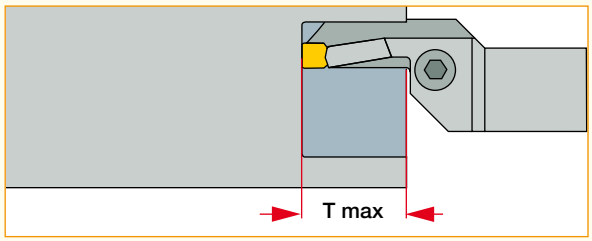
DO-GRIP
DGN...J Type
For grooving operations only.
Positive rake, for soft materials in low-to-medium feeds 0.05-0.15 mm/rev.

Face Machining Guide

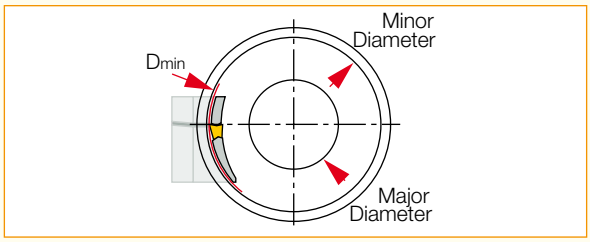
Tool Selection - Follow these recommendations to choose the right tool for high peformance



Choose the widest possible insert and tool, according to the cutting width and geometry to be machined.



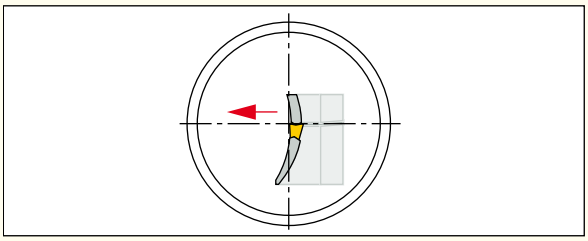
Choose the shortest tool blade overhang, according to the maximum depth required.



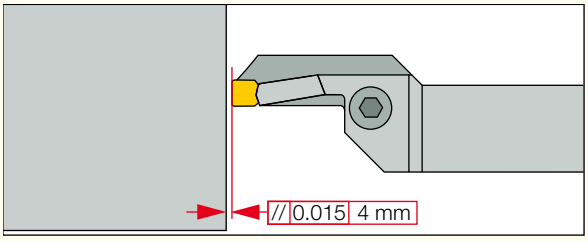
Choose the tool range with the largest diameter, depending on the initial grooving diameter required in the application.

Note: On integral shank tools the given range refers to the holder capacity.

Tool Adjustment - Prior to machining, check and adjust the following tool positions.



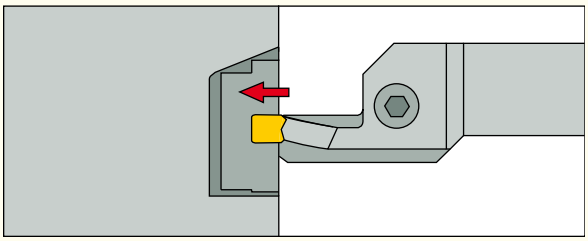
Check the cutting edge height at center line, machine in light turning down to center, and check for burr.



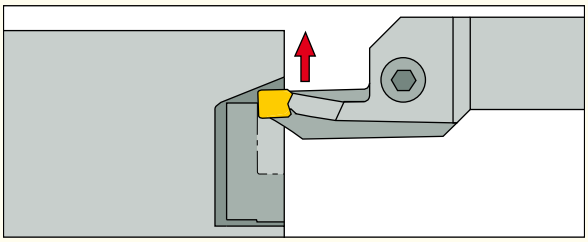
Check parallelism of cutting edge and the machined surface. Correct position can guarantee good surface quality when face turning in both directions.

Face Machining Guide

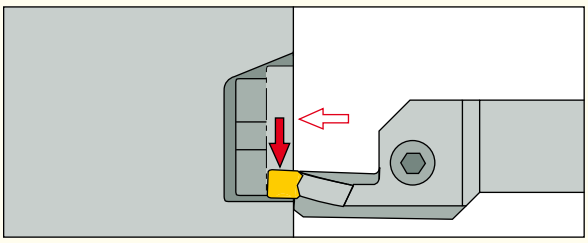
Recommended machining sequence in roughing operation using multifunction HELIFACE tools



1 Groove at the initial diameter up to the depth of cut selected for next step in face turning.



2 Continue with face turning away from center.

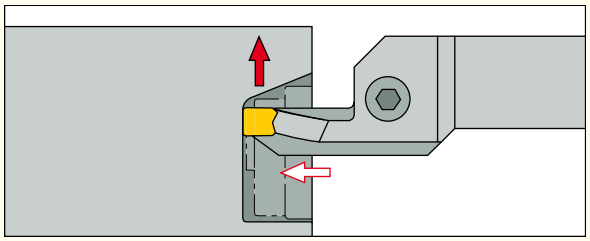


3 After rapid positioning back into initial groove, continue with face turning to center.

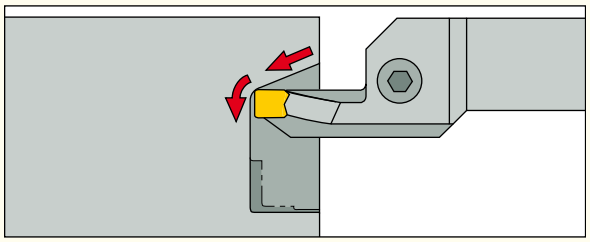
Note: When face grooving, reduce the speed by 40% in relation to that used in face turning.

Optimizing the Machining Sequence

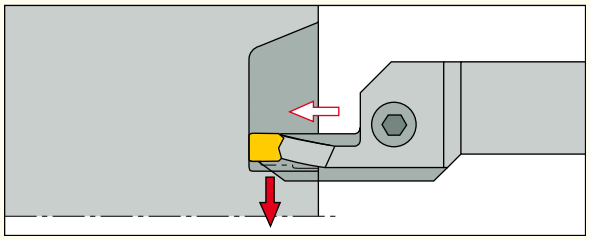
Recommended machining sequence using multifunction tools



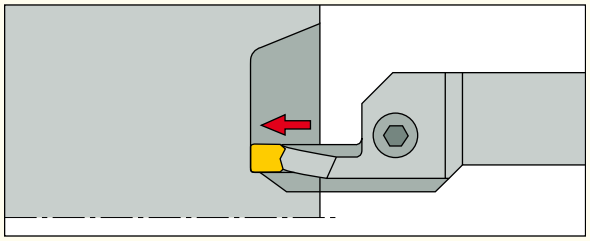
1 Groove at the initial diameter to the final depth of groove and continue face turning away from center to the tangential point on the radius.



2 Finish major diameter toward the bottom and generate the radius.



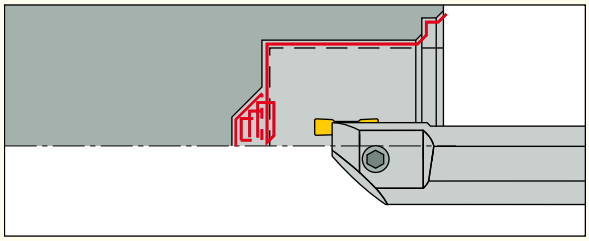
3 Position the tool in rapid movement in the initial groove, continue face turning to center, without touching the machined roughing steps on the wall.



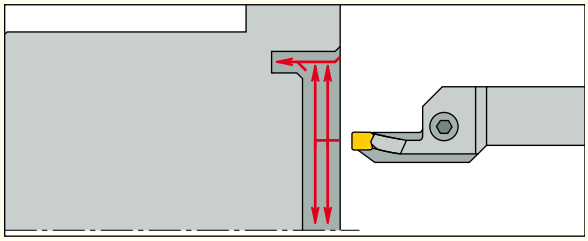
4 Finish boring the minor diameter to the bottom, up to final depth.

Note: When face grooving, reduce the speed by 40% in relation to that used in face turning.

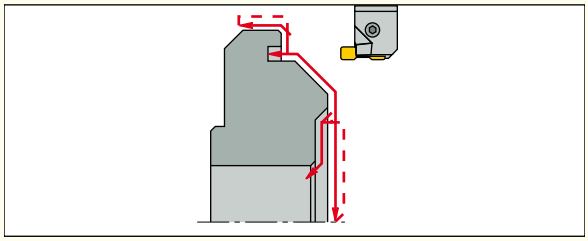
The Multifunction Advantage



1 The **HELIFACE** internal boring bar **HFIR/L MC** type with internal coolant can replace the three different ISO tools and shorten machining time by 20%.



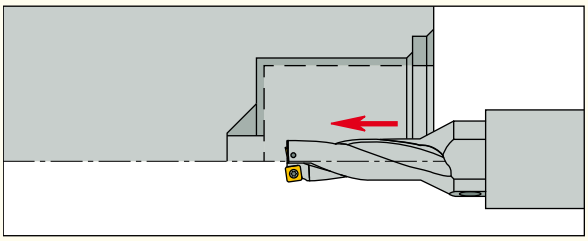
2 A single multifunction tool machines the whole part: grooving, face turning and chamfering, replacing three ISO tools and reducing machining time by 40%.



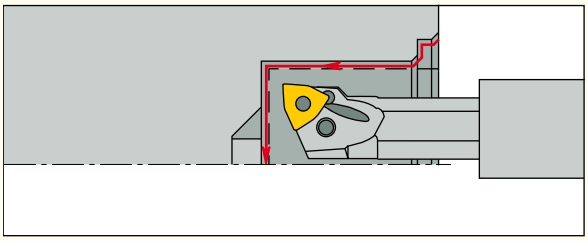
3 A single integral **HELIFACE** tool **HFHPL-M** replaces three ISO tools and reduces machining time by 50%.

The Multifunction Advantage

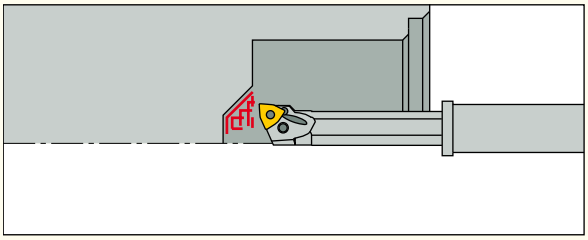
This workpiece was machined using three different conventional tools



1 An indexable drill for bottom drilling.



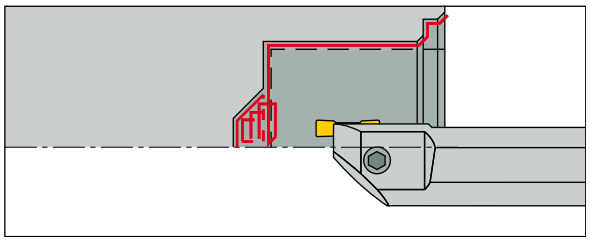
2 A standard internal boring bar with trigon insert for roughing and finishing.



3 A standard internal boring bar with trigon insert for bottom machining.
This operation requires a small diameter shank and long overhang.

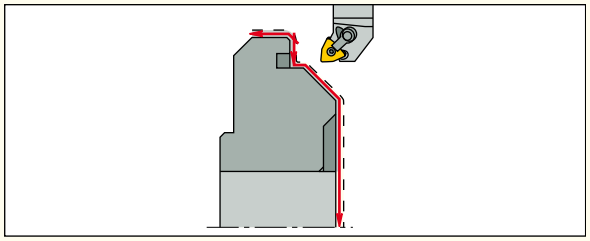
The HELIFACE Solution

The HELIFACE internal boring bar **HFIR/L MC** type with internal coolant can replace the three different ISO tools and shorten machining time by 20%.

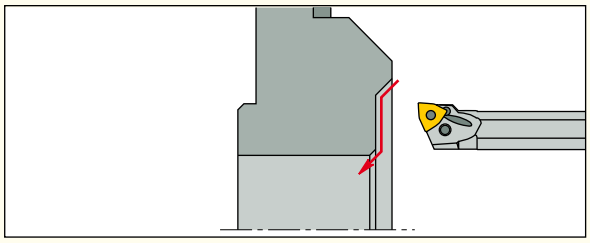


The Multifunction Advantage

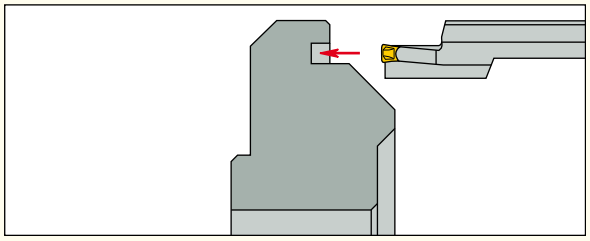
This part was machined using three different conventional tools



1 A standad ISO tool for external turning.



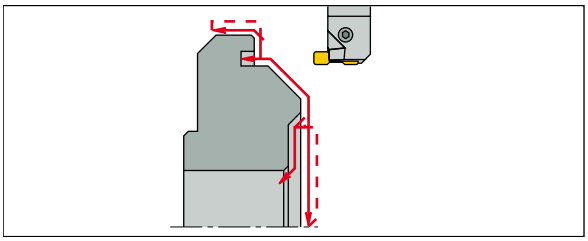
2 A boring bar for face turning and chamfering.



3 A face grooving tool for grooving, recessing and chamfering.

The HELIFACE Solution

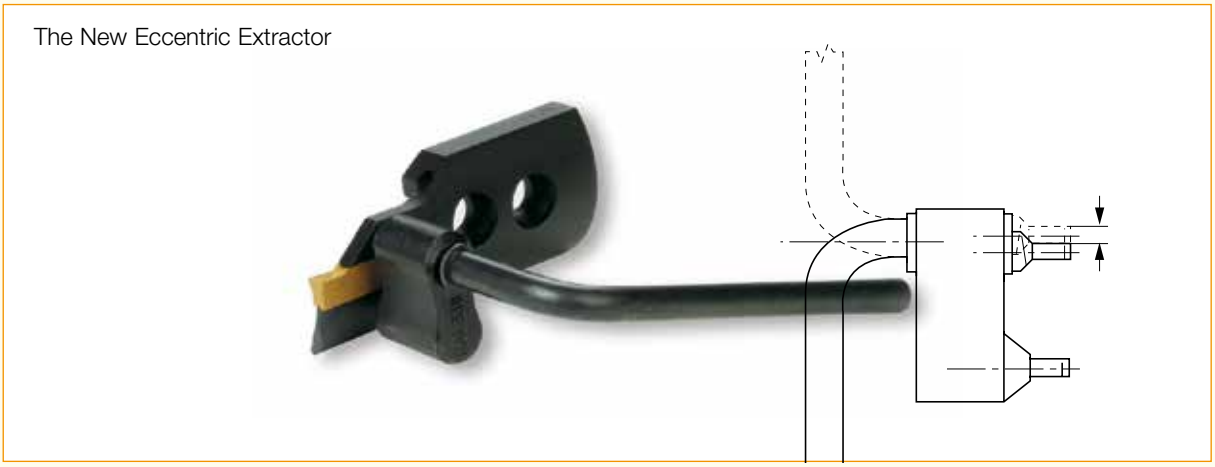
A single integral HELIFACE tool **HFHPL-M** replaces three ISO tools and reduces machining time by 50%.



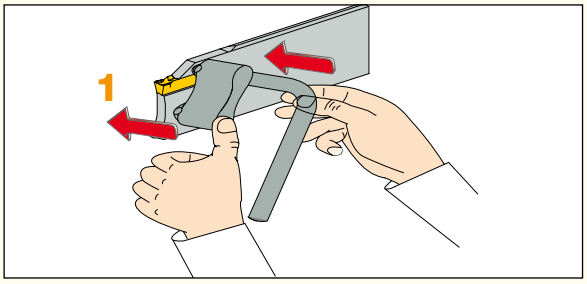
Insert Replacement

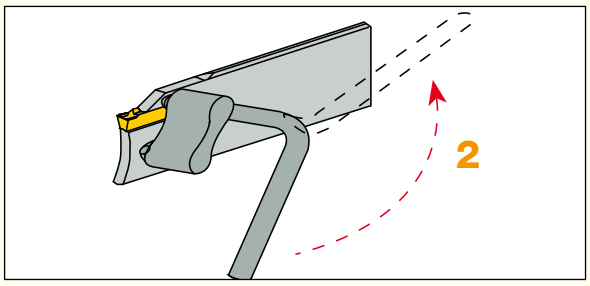
EDG 33B

The New Eccentric Extractor



Simple to operate; controlled rotation requires low force; guarantees limited upper jaw movement and secures maximum load on blade.
Two extractor pins are placed in the two holes in the holder blades.





Indexing
Place the EDG extractor in the holes
1- Hold the extractor against the tool
2- Rotate the eccentric handle to lift the upper jaw

Grade Selection for Facing Applications

Material Groups	ISO P	ISO H	ISO M	ISO S	ISO K	ISO N
	1 - 11	38 - 41	12 - 14	31 - 37	15 - 20	21 - 28
	Steel	Hard Steel	Stainless Steel	High Temp.	Cast Iron	Nonferrous
 FACING	Harder IC808 IC8250 IC830 Tougher	Harder IC808 IC20 Tougher	Harder IC808 IC8250 IC354 IC830 Tougher	Harder IC808 IC20 Tougher	Harder IC5010 IC428 Tougher	Harder IC20 Tougher

■ First choice

Machining Data for Face Machining

ISO	Material		Condition	Tensile Strength [N/mm2]	Hardness HB	Material No.
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1
		>= 0.25 %C	Annealed	650	190	2
		< 0.55 %C	Quenched and tempered	850	250	3
		>= 0.55 %C	Annealed	750	220	4
			Quenched and tempered	1000	300	5
	Low alloy steel and cast steel (less than 5% all elements)		Annealed	600	200	6
			Quenched and tempered	930	275	7
				1000	300	8
				1200	350	9
	High alloyed steel, cast steel, and tool steel		Annealed	680	200	10
			Quenched and tempered	1100	325	11
M	Stainless steel and cast steel		Ferritic/martensitic	680	200	12
			Martensitic	820	240	13
			Austenitic	600	180	14
K	Grey cast iron (GG)		Ferritic/pearlitic		180	15
			Pearlitic		260	16
	Ductile cast iron (nodular GGG)		Ferritic		160	17
			Pearlitic		250	18
	Malleable cast iron		Ferritic		130	19
			Pearlitic		230	20
N	Aluminum-wrought alloy		Not cureable		60	21
			Cured		100	22
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23
			Cured		90	24
		>12% Si	High temperature		130	25
		>1% Pb	Free cutting		110	26
	Copper alloys		Brass		90	27
			Electrolitic copper		100	28
	Non-metallic		Duroplastics, fiber plastics			29
			Hard rubber			30
S	High temp. alloys	Fe based	Annealed		200	31
			Cured		280	32
		Ni or Co based	Annealed		250	33
			Cured		350	34
			Cast		320	35
	Titanium and Ti alloys			RM 400		36
			Alpha+beta alloys cured	RM 1050		37
H	Hardened steel		Hardened		55 HRc	38
			Hardened		60 HRc	39
	Chilled cast iron		Cast		400	40
	Cast iron		Hardened		55 HRc	41

Material	Groove-Turn, Profiling				
No.	**IC228/528**	**IC830**	**IC354**	**IC808**	**IC8250**
1	80 - 100	90 - 110	70 - 100	120 - 160	170 - 220
2	70 - 90	70 - 100	60 - 90	100 - 140	150 - 200
3	60 - 80	60 - 90	50 - 80	80 - 130	120 - 180
4	60 - 90	60 - 100	60 - 80	90 - 140	130 - 190
5	50 - 80	50 - 80	50 - 70	70 - 120	100 - 160
6	60 - 90	60 - 100	60 - 80	90 - 140	130 - 190
7	50 - 80	50 - 90	50 - 70	70 - 120	100 - 170
8	50 - 70	50 - 80	50 - 70	70 - 110	100 - 160
9	40 - 70	40 - 70	40 - 60	60 - 100	90 - 150
10	70 - 90	70 - 100	60 - 90	100 - 140	150 - 200
11	40 - 70	40 - 70	40 - 60	60 - 100	90 - 150
No.	**IC830**	**IC808**	**IC907**	**IC8250**	**IC08**
12	60 - 110	90 - 160	90 - 160	90 - 160	40 - 70
13	60 - 100	80 - 150	80 - 150	80 - 150	40 - 70
14	50 - 100	70 - 140	70 - 140	80 - 140	30 - 60
No.	**IC808**	**IC8250**	**IC428**	**IC5010**	**IC20**
15	90 - 150	110 - 190	115-200	130 - 220	60 - 100
16	70 - 100	90 - 130	100-140	110 - 150	50 - 70
17	70 - 130	90 - 160	100-170	110 - 190	50 - 80
18	60 - 100	80 - 130	85-135	90 - 150	40 - 70
19	100 - 160	120 - 200	130-210	140 - 230	60 - 100
20	80 - 130	100 - 160	105-170	120 - 190	50 - 80
No.	**IC08**	**IC20**			
21	330 - 990	300-900			
22	250 - 770	225-700			
23	250 - 770	225-700			
24	165 - 495	150-450			
25	165 - 330	150-300			
26	165 - 330	150-300			
27	125 - 250	115-225			
28	80 - 165	75-150			
29	45 - 165	40-150			
30					
No.	**IC808**	**IC20**			
31	20-40	20-30			
32	15-30	15-20			
33	15-20	15-20			
34	15-20	15-20			
35	15-20	15-20			
36	90-120	80-100			
37	20-50	20-40			
No.	**IC808**	**IC20**			
38	25-30	20-30			
39	20-30	15-25			
40	30-45	30-40			
41	25-30	25-30			

Machining Data for Face Machining

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				1200	350	9
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		>12% Si	High temperature		130	25
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			Brass		90	27
			Electrolitic copper		100	28
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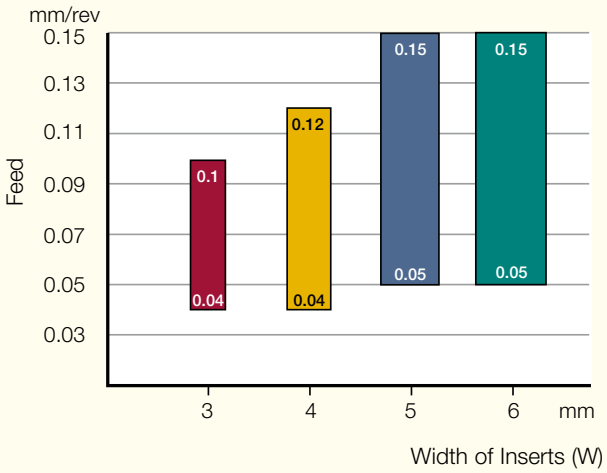
			Hard rubber			30
S	High temp. alloys	Fe based	Annealed		200	31
			Cured		280	32
		Ni or Co based	Annealed		250	33
			Cured		350	34
			Cast		320	35
	Titanium and Ti alloys			RM 400		36
			Alpha+beta alloys cured	RM 1050		37
H	Hardened steel		Hardened		55 HRc	38
			Hardened		60 HRc	39
	Chilled cast iron		Cast		400	40
	Cast iron		Hardened		55 HRc	41

Cutting Speed (m/min)	GFQR IC528 Feed (mm/rev)	PICCO IC228 Feed (mm/rev)	MIFR 8 IC908 Feed (mm/rev)	MIFR 10 IC908 Feed (mm/rev)
40-180	0.02-0.08	0.015-0.05		
40-130	0.02-0.06	0.015-0.04		
40-120	0.02-0.06	0.015-0.04		
40-140	0.02-0.08	0.015-0.04		
40-140	0.02-0.08	0.015-0.04	0.015-0.08	0.03-0.10
40-120	0.02-0.06	0.015-0.03		
40-120	0.02-0.05	0.015-0.03		
40-140	0.02-0.08	0.015-0.04		
40-120	0.02-0.08	0.015-0.03		
40-120	0.02-0.08	0.015-0.04		
40-120	0.02-0.07	0.015-0.04	0.015-0.07	0.03-0.08
40-100	0.02-0.06	0.015-0.03		
40-140	0.02-0.08	0.015-0.05		
40-120	0.02-0.07	0.015-0.04		
40-140	0.02-0.08	0.015-0.04	0.02-0.10	0.05-0.12
40-120	0.02-0.07	0.015-0.04		
40-140	0.02-0.06	0.015-0.04		
40-120	0.02-0.07	0.015-0.04		
150-320	0.02-0.08	0.015-0.05		
100-250	0.02-0.08	0.015-0.05		
150-300	0.02-0.08	0.015-0.05		
150-300	0.02-0.08	0.015-0.05		
100-150	0.02-0.08	0.015-0.05		
80-230	0.02-0.08	0.015-0.05	0.02-0.10	0.05-0.15
70-200	0.02-0.08	0.015-0.05		
50-180	0.02-0.08	0.015-0.05		
20-40	0.02-0.06	0.015-0.04		
15-30	0.02-0.06	0.015-0.04		
15-20	0.02-0.06	0.015-0.04		
15-20	0.02-0.06	0.015-0.04	0.015-0.07	0.02-0.08
15-20	0.02-0.06	0.015-0.04		
40-120	0.02-0.06	0.015-0.04		
20-50	0.02-0.06	0.015-0.04		

Machining Conditions in Face Grooving

Recommended feed range for grooving, with **HFPR/L** inserts in various widths

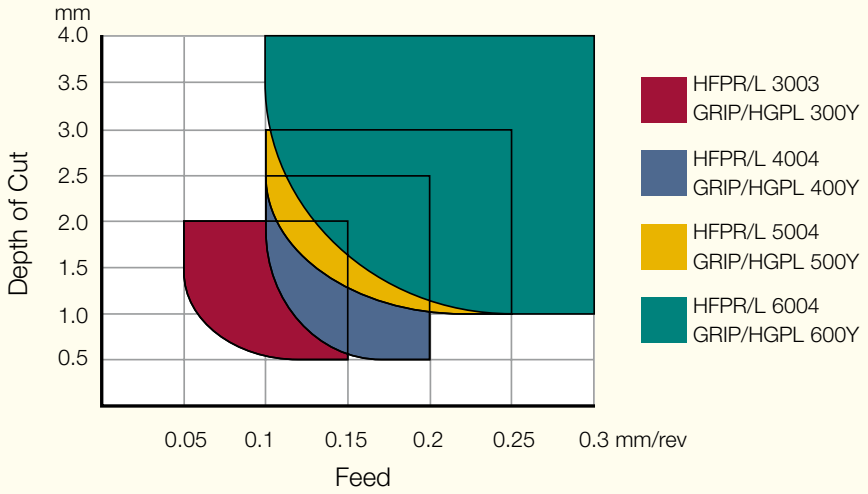


Chip shapes for grooving, according to width of insert and feed, using **HFHR/L** toolholders

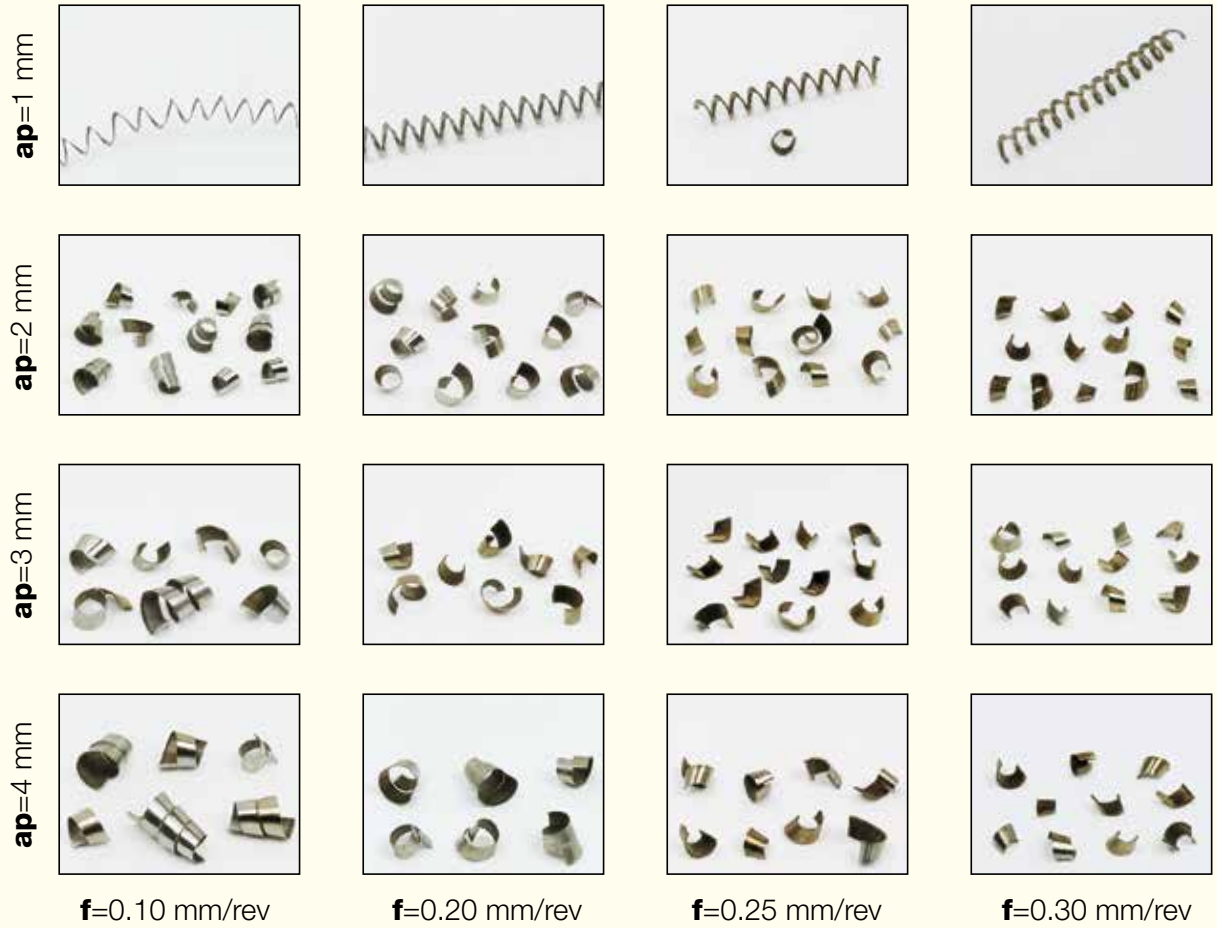
Note: In face grooving, narrow and deformed chips are preferred. Curled and long chips can flow out more easily from deep grooves.

Machining Conditions in Face Turning

Recommended depth of cut and feed range for face turning with **HFPR/L** inserts in various widths, using **HFHR/L** toolholders



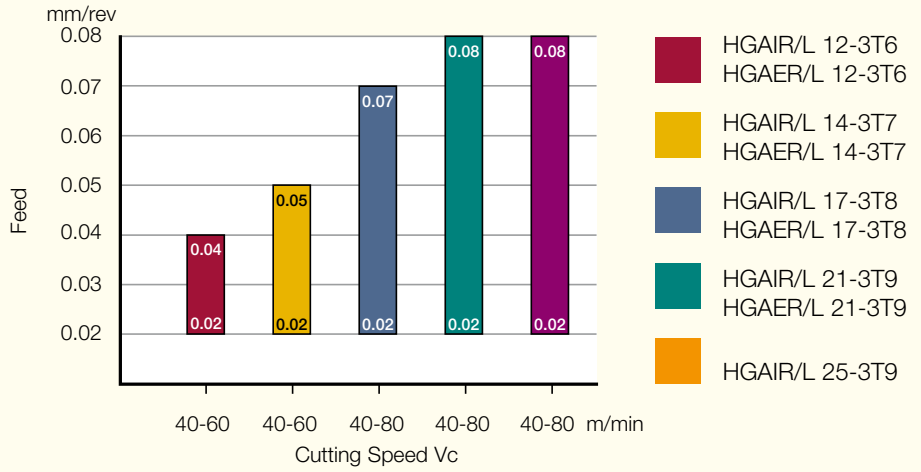
Chip shapes in face turning with inserts **HFPR/L-5004** & **HFPR/L 6004** and **HFHR/L** toolholders



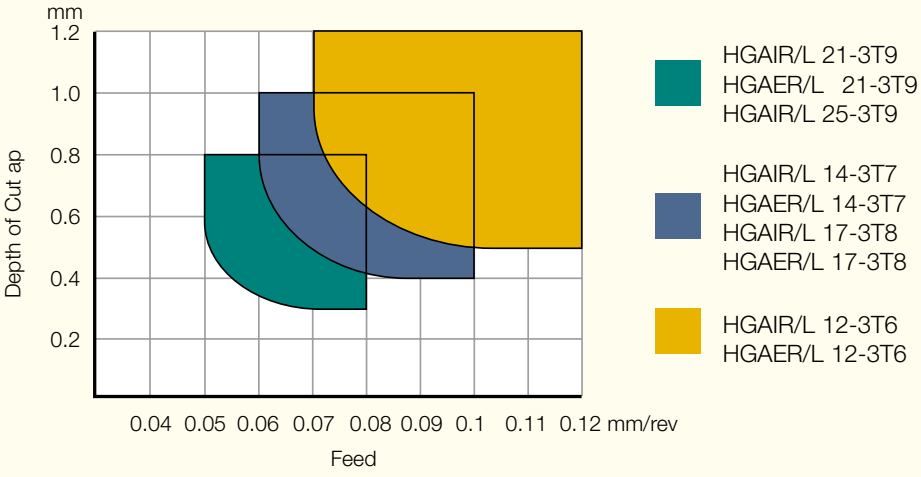
Note: In roughing, increase feed at small depth of cut, and reduce feed at large depth of cut

Face Grooving and Turning Recommendations Using Adapters for 3 mm Inserts

Recommended feed range for grooving with **GRIP 3...** and **HGPL 3...** inserts, with HGAIR/L and HGAER/L adapters. Feed range changes according to adapter type.



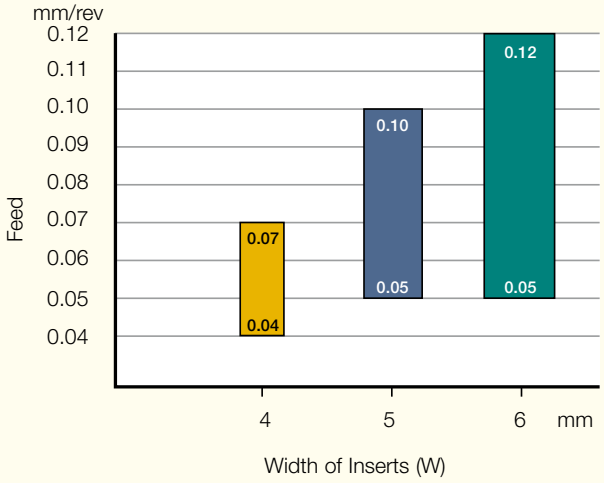
Recommended depth of cut and feed range for turning with and inserts, with **HGAIR/L** and **HGAER/L** adapters. Feed range changes according to adapter type.



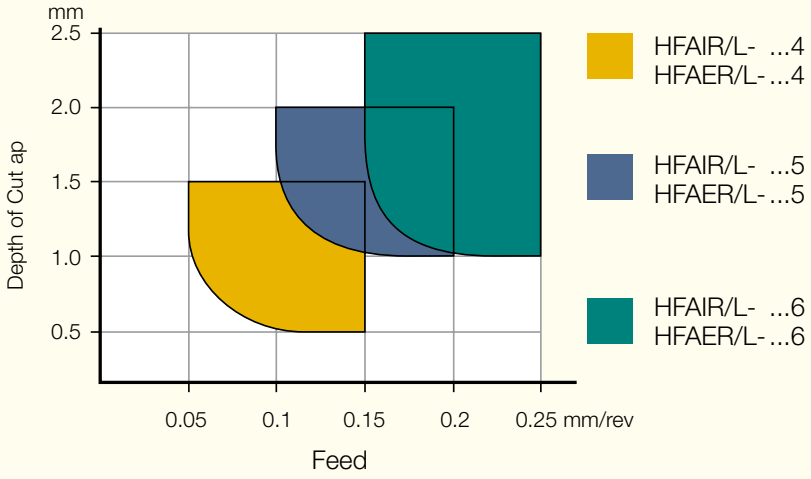
Note: In roughing, increase feed at small depth of cut, and reduce feed at large depth of cut.

Face Grooving and Turning Recommendations Using Adapters for 4-6 mm Inserts

Recommended feed range in grooving with **HFPR/L** inserts and **HFAIR/L** & **HFAER/L** adapters

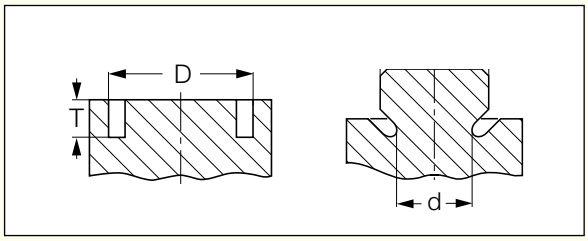


Recommended depth of cut and feed range in turning with **HFPR/L** inserts and **HFAIR/L** & **HFAER/L** adapters. Feed range changes according to adapter type.



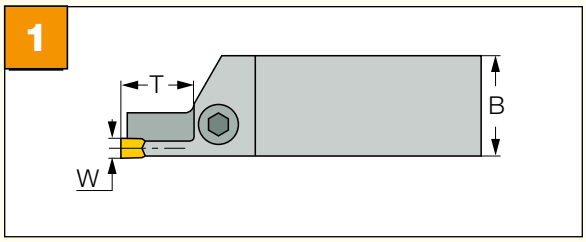
Note: In roughing, reduce feed when depth of cut is increased, and increase feed at small depth of cut.

Semi-Standard Face Grooving and Undercutting Tools

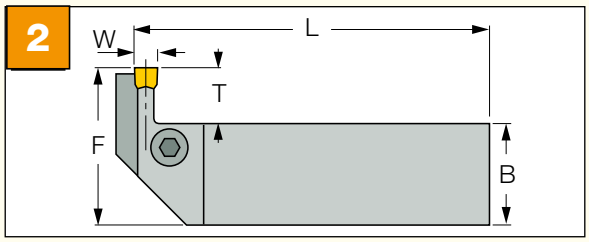


The following drawings show typical semi-standard face grooving tools which can be ordered. Please specify all relevant dimensions and attach workpiece material geometric details.

1



2



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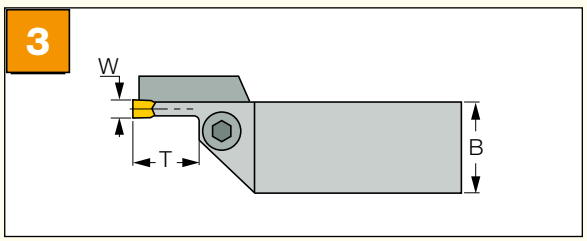

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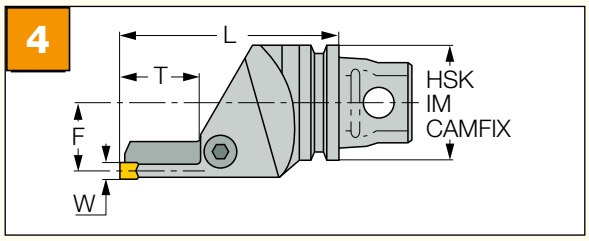

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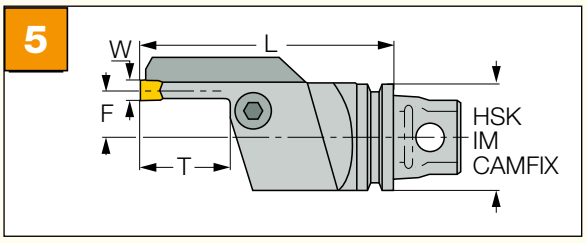

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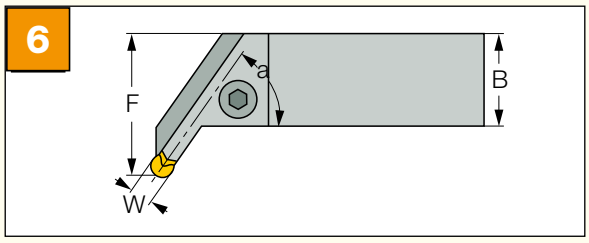


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