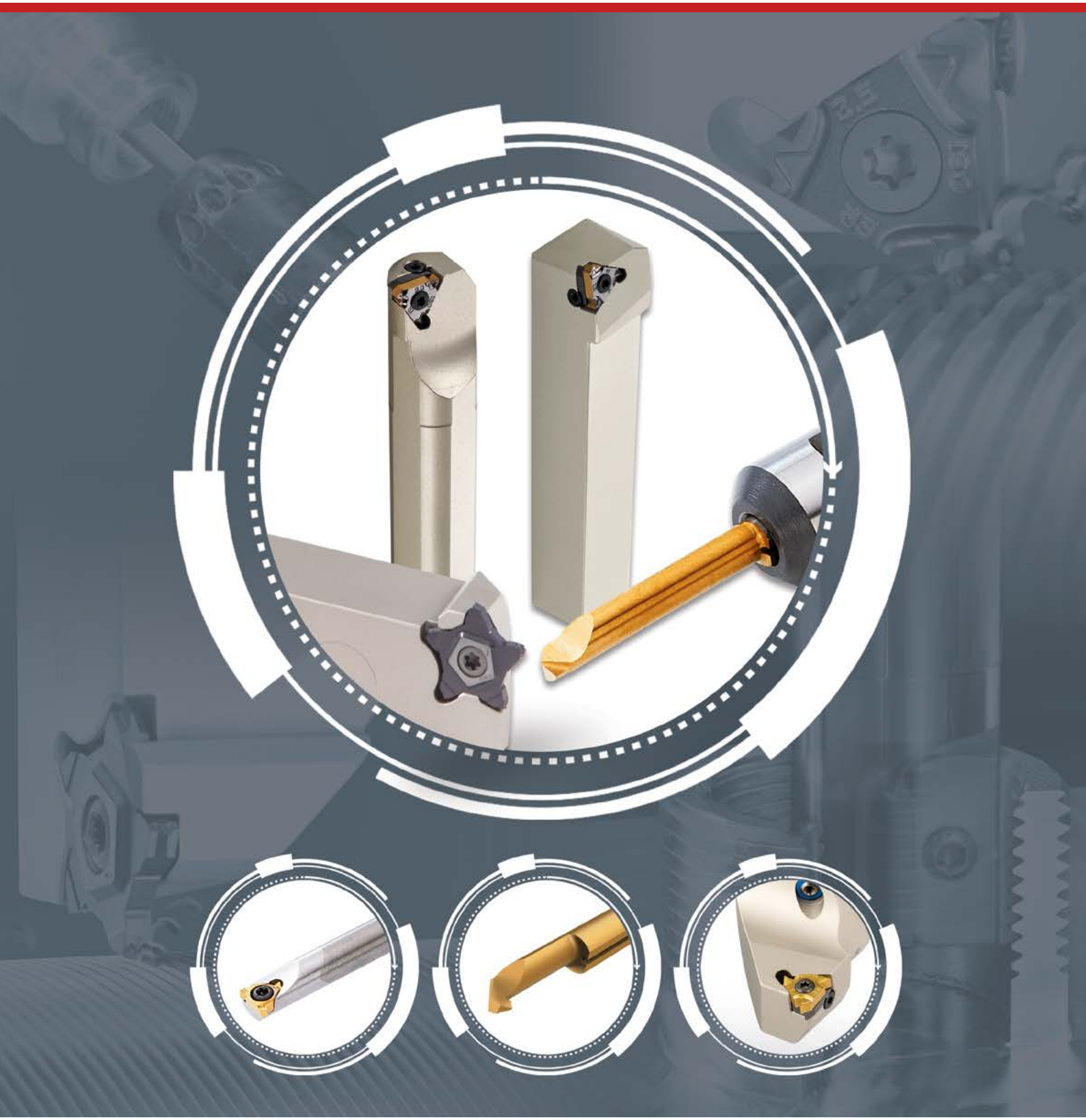
THREADING TOOLS & INSERTS

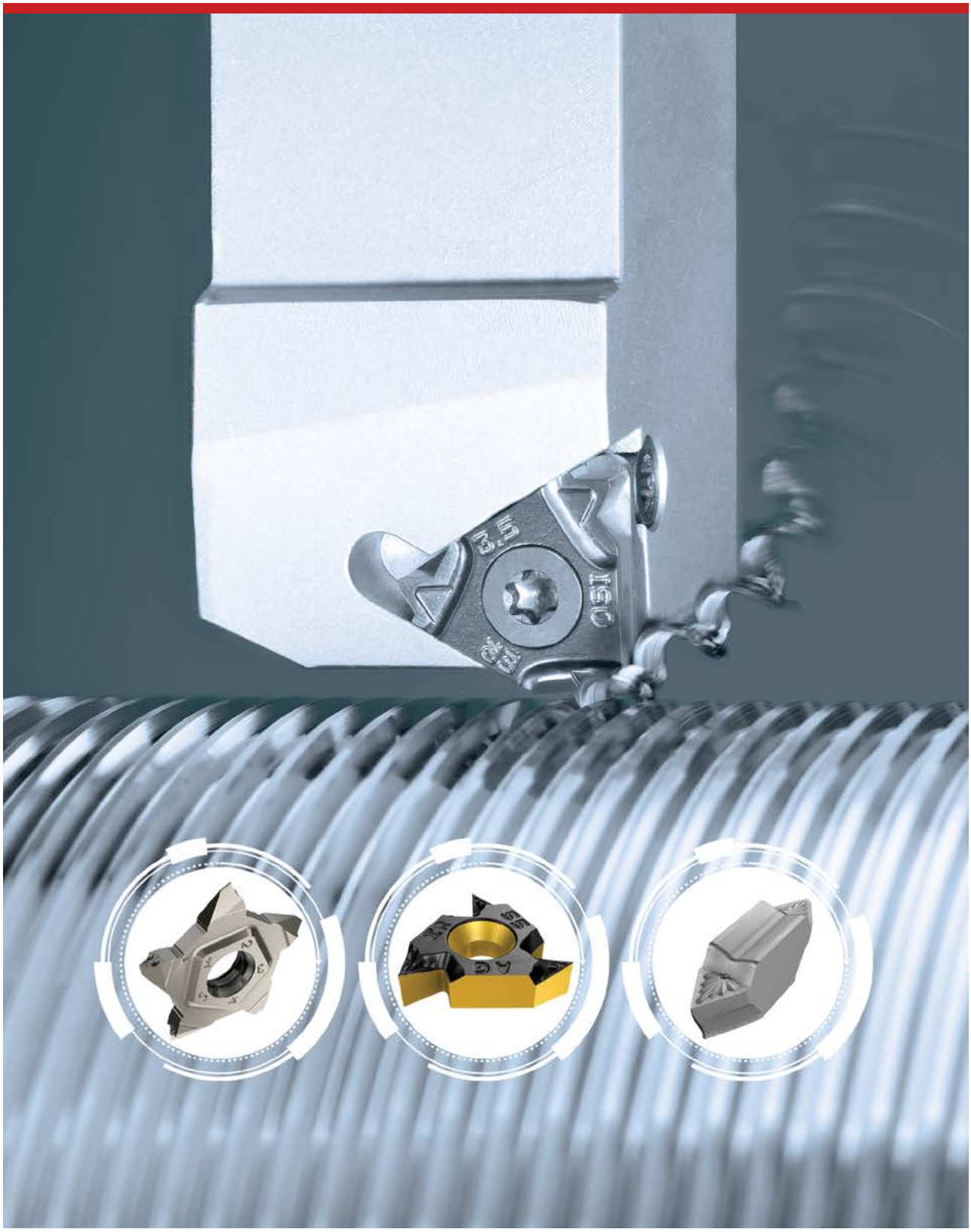


Member IMC Group

ISCAR

TABLE OF CONTENTS

THREADING INSERTS



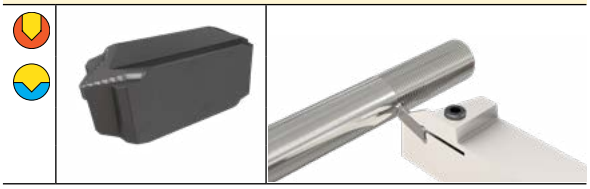
Main Types of Laydown Inserts

B/M-TYPE	U-TYPE	REGULAR TYPE	MULTI-TOOTH
			

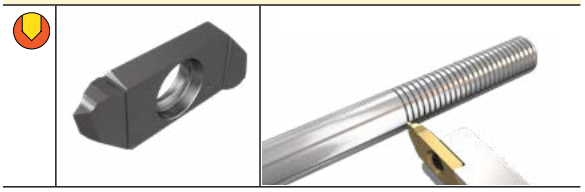
Additional Threading Systems

External

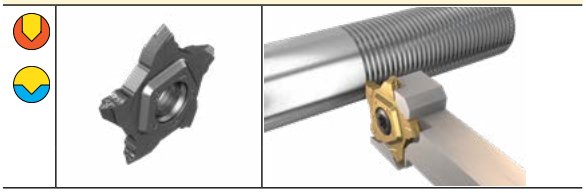
CUT-GRIP External



SWISSCUT External



PENTACUT External

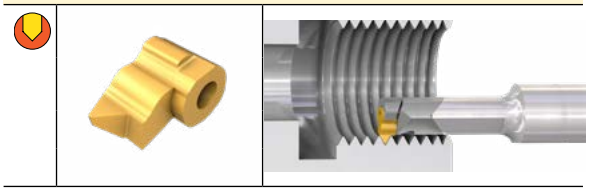


Partial profile

Full profile

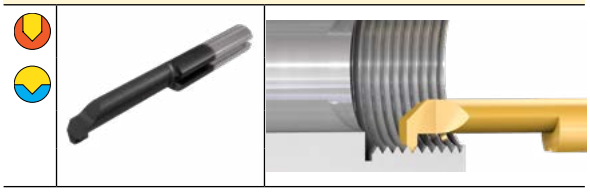
Internal

MINICHAM Internal



Minimum bore dia. 4 mm

PICCOCUT Mini-Bar



Minimum bore dia. 2.4 mm

CHAMGROOVE Internal

Minimum bore dia. 8.0 mm

CUT-GRIP Internal

Minimum bore dia. 12.5 mm

Minimum bore dia. 20 mm

Partial profile

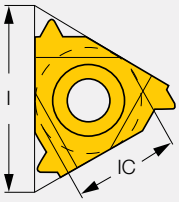
Full profile

Insert Identification System

16	E	R	M	1.50	ISO	2M	IC808
1	2	3	4	5	6	7	8

1. Insert Size

l (mm)	IC
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"
27	5/8"



2. Application

E	External
I	Internal
UE	U-type, External
UI	U-type, Internal
UEI	U-type, External and Internal

U-type

Regular Type

3. Hand of Tool

R	Right-hand
L	Left-hand
RL	Right- and Left-hand

4. Type

B	Peripherally ground & chipformer
M	Press to size with a chipformer
□	No indication regular type

5. Pitch

Full Profile (value by number)

0.35-9.0 mm

72-2 TPI

Partial Profile (range by letter)

	mm	TPI
A	0.5-1.5	48-16
AG	0.5-3.0	48-8
G	1.75-3.0	14-8
N	3.5-5.0	7-5
Q	5.5-6.0	4.5-4
U	5.5-9.0	4.5-2.75

6. Thread Standard

60	Partial Profile 60°
55	Partial Profile 55°
ISO	ISO Metric
UN	American UN
W	Whitworth
BSPT	British BSPT
RND	Round DIN 405
TR	Trapeze DIN 103
ACME	ACME
STACME	Stub ACME
ABUT	American Buttress
UNJ	UNJ
NPT	NPT
API RD	API Round
BUT	API Buttress Casing
API	API
H90	H-90
EL	Extreme Line Casing
MJ	ISO 5855

7. No. of Teeth (Optional)

2M	2 teeth
3M	3 teeth

8. Grade

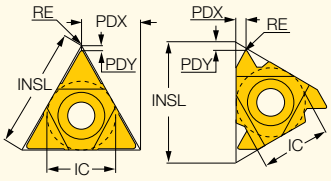
IC1007
IC908
IC808
IC508
IC250
IC228
IC50M
IC806

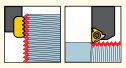
Partial Profle 55° (Whitworth)

ISCARTHREAD

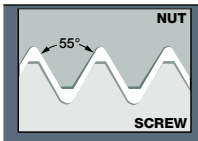
ER/L-55°

External Laydown Threading Inserts with a 55° Partial Profile for General Industry





External right-hand shown



Designation	Dimensions IC	TPN(2)	TPX(3)	TPIX(4)	TPIN(5)	INSL	RE	PDY	PDX	Tough ↔ Hard IC228	IC50M	IC250	IC808	IC908	IC1007
11ER A 55	6.35	0.500	1.500	48.00	16.00	11.00	0.05	0.8	0.9			●		●	
16EL A 55	9.52	0.500	1.500	48.00	16.00	16.49	0.05	0.8	0.9		●	●			
16ER A 55	9.52	0.500	1.500	48.00	16.00	16.49	0.05	0.8	0.9		●	●		●	
16EL AG 55	9.52	0.500	3.000	48.00	8.00	16.49	0.07	1.2	1.7			●		●	
16ER AG 55	9.52	0.500	3.000	48.00	8.00	16.49	0.07	1.2	1.7	●		●		●	●
16ERB AG 55 (1)	9.52	0.500	3.000	48.00	8.00	16.49	0.07	1.2	1.7					●	
16ERM AG 55 (1)	9.52	0.500	3.000	48.00	8.00	16.49	0.07	1.2	1.7		●	●	●	●	●
16EL G 55	9.52	1.750	3.000	14.00	8.00	16.49	0.20	1.2	1.7			●			
16ER G 55	9.52	1.750	3.000	14.00	8.00	16.49	0.23	1.2	1.7			●		●	
16ERB G 55 (1)	9.52	1.750	3.000	14.00	8.00	16.49	0.23	1.2	1.7					●	
16ERM G 55 (1)	9.52	1.750	3.000	14.00	8.00	16.49	0.23	1.2	1.7			●	●	●	●
22EL N 55	12.70	3.500	5.000	7.00	5.00	22.00	0.42	1.7	2.5			●			
22ER N 55	12.70	3.500	5.000	7.00	5.00	22.00	0.48	1.7	2.5			●		●	
22UEIRL U 55	12.70	5.500	8.000	4.50	3.25	22.00	0.60	0.9	11.0		●	●			
27ER Q 55	15.88	5.500	6.000	4.50	4.00	27.50	0.60	2.0	2.9			●		●	
27UEIRL U 55	15.88	6.500	9.000	4.00	2.75	27.50	0.81	1.2	13.7			●			

- For insert identification system, see pages 638-639 • For threading between walls use GRIP-type inserts TIP-WT, GEPI-WT, TIPI-WT
- For detailed cutting data, see page 711

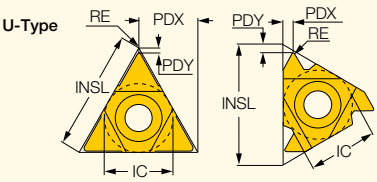
(1) With pressed chipformer
(2) Threads per inch maximum
(3) Threads per inch minimum
(4) Threads per inch maximum
(5) Threads per inch minimum

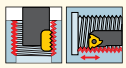
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

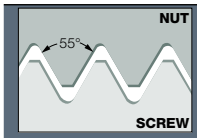
IR/L-55°

Internal Laydown Threading Inserts with a 55° Partial Profile for General Industry





Internal left-hand shown



Designation	Dimensions IC	TPIX(2)	TPIN(3)	INSL	RE	PDY	PDX	Tough ↔ Hard IC228	IC928	IC50M	IC250	IC508	IC808	IC908	IC1007
06IL A 55	4.00	48.00	20.00	6.88	0.07	0.6	0.6	●							
06IR A 55	4.00	48.00	20.00	6.88	0.08	0.6	0.6	●							
08IL A 55	5.00	48.00	16.00	8.24	0.08	0.6	0.7	●							
08IR A 55	5.00	48.00	16.00	8.24	0.08	0.6	0.7	●	●					●	
08UIRL U 55	5.00	18.00	12.00	8.24	0.10	0.9	4.0	●							
11IL A 55	6.35	48.00	16.00	11.00	0.05	0.8	0.9				●			●	
11IR A 55	6.35	48.00	16.00	11.00	0.05	0.8	0.9	●			●			●	●
16IR A 55	9.52	48.00	16.00	16.49	0.05	0.8	0.9			●				●	
16IL AG 55	9.52	48.00	8.00	16.49	0.07	1.2	1.7							●	
16IR AG 55	9.52	48.00	8.00	16.49	0.07	1.2	1.7				●			●	
16IRB AG 55 (1)	9.52	48.00	8.00	16.49	0.07	1.2	1.7							●	
16IRM AG 55 (1)	9.52	48.00	8.00	16.49	0.05	1.2	1.7				●		●	●	●
16IL G 55	9.52	14.00	8.00	16.49	0.20	1.2	1.7							●	
16IR G 55	9.52	14.00	8.00	16.49	0.23	1.2	1.7				●	●		●	
16IRB G 55 (1)	9.52	14.00	8.00	16.49	0.23	1.2	1.7							●	
16IRM G 55 (1)	9.52	14.00	8.00	16.49	0.20	1.2	1.7				●		●	●	●
22IR N 55	12.70	7.00	5.00	22.00	0.42	1.7	2.5			●	●			●	
27IR Q 55	15.88	4.00	4.00	27.50	0.60	2.0	2.9							●	

- For insert identification system, see pages 638-639 • For threading between walls use GRIP-type inserts TIP-WT, GEPI-WT, TIPI-WT.
- For detailed cutting data, see page 711

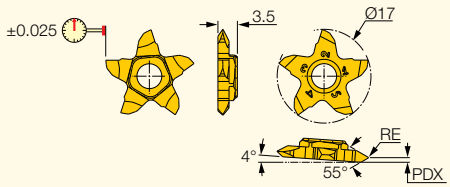
(1) With pressed chipformer
(2) Threads per inch maximum
(3) Threads per inch minimum

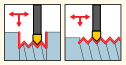
For tools, see pages: AVC-D-SIR/L (707) • MGSIR/L (118) • PICIN-MGSIR/L (386) • SIR/L (703)

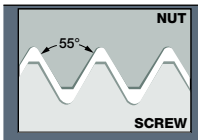
PENTACUT THREADING LINE

PENTA 17-WT-RS/LS

Precision Ground Pentagonal External Threading Inserts with a 55° Partial Profile for General Industry







Designation	Dimensions TPIX[1]	TPIN[2]	RE	PDX	IC1008
PENTA 17-WTL003LS	72.00	16.00	0.03	0.80	●
PENTA 17-WTR003RS	72.00	16.00	0.03	0.80	●
PENTA 17-WTL008LS	31.00	8.00	0.08	1.40	●
PENTA 17-WTR008RS	31.00	8.00	0.08	1.40	●

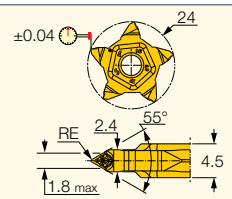
(1) Threads per inch maximum
(2) Threads per inch minimum

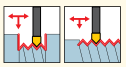
For tools, see pages: NQCH-PCHR/L-S-JHP (378) • PCADRS/LS-JHP (317) • PCHRS/LS-17 (307) • PCHRS/LS-17-JHP (307) • Y-PCHRS-17 (308) • Y-PCHRS-17-JHP (308)

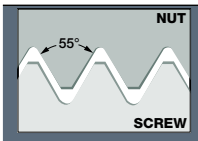
PENTACUT THREADING LINE

PENTA 24-WT

Precision Ground Pentagonal External Threading Inserts with a Whitworth 55° Partial Profile







Designation	Dimensions TPIX[2]	TPIN[3]	RE	IC908
PENTA 24A-WT-0.15 (1)	24.00	8.00	0.15	●
PENTA 24A-WT-0.05 (1)	80.00	8.00	0.05	●

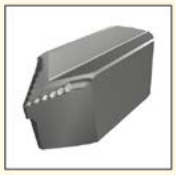
• TPIN=6.4/D(inch) D-nominal thread diameter (inch)
(1) Flat rake (without a chipformer)
(2) Threads per inch maximum
(3) Threads per inch minimum

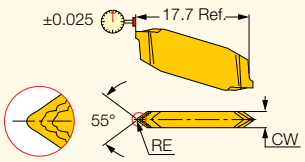
For tools, see pages: PCAD RE/LE-JHP (499) • PCADR/L (316) • PCADR/L-JHP (317) • PCHBR/L (318) • PCHPR/L (316) • PCHR/L-24 (312) • PCHR/L-24-JHP (313) • PCHR/L-24-JHP-MC (313)

ISCARTHREAD
CUTGRIP

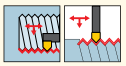
TIP-WT

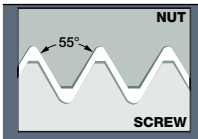
Precision Ground Double-Ended Threading Inserts with a 55° Partial Profile and a Chipformer





TIP inserts are 1.6 mm longer than GIP in the same pocket





Designation	Dimensions CW	RE	RETOL[2]	TPIX[3]	TPIN[4]	Tough ↔ Hard IC08	IC908
TIP 2WT-0.05 (1)	2.40	0.05	0.030	54.00	12.00	●	●
TIP 4WT-0.15 (1)	4.00	0.15	0.030	19.00	7.00	●	●
TIP 5WT-0.25 (1)	5.50	0.25	0.030	12.00	6.00		●

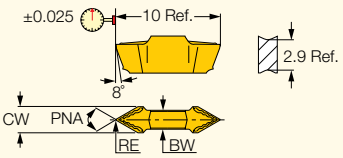
• Toolholder seat needs to be modified according to insert profile to ensure clearance • Pitch max 0.187xD
(1) TPIN(thread per inch minimum) = D/6.4 • D-Diameter of thread (inch)
(2) Corner radius tolerance (+/-)
(3) Threads per inch maximum
(4) Threads per inch minimum

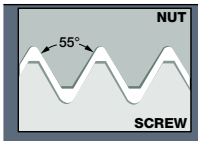
For tools, see pages: C#-GHDR/L (274) • CGHN 26-M (356) • CGHN 32-DGM (358) • CGHN 32-M (357) • CGHN-D (283) • CGHN-DG (283) • CGHN-S (282) • CGPAD (281) • CGPAD-JHP (282) • GHDR/L (short pocket) (275) • GHDR/L-JHP (short pocket) (276) • GHDR/L-JHP-MC (short pocket) (277) • GHGR/L (278) • GHMPR/L (273) • GHMR/L (273) • GHSR/L (373) • GHSR/L-JHP-SL (374) • NQCH-GHSR/L-JHP (374)

ISCARTHREAD
CUTGRIP

GEPI-WT

Precision Ground Double-Ended Threading Inserts with a 55° Partial Profile and a Chipformer for 11.5 mm Bore Diameter





Designation	Dimensions									Tough ↔ Hard	
	CW	RE	RETOL(1)	PNA	BW	TPN(2)	TPX(3)	TPIN(4)	TPIX(5)	IC08	IC908
GEPI 2.5-WT0.05	2.50	0.05	0.030	55.0	1.80	0.470	2.540	10.00	54.00	●	●

• Toolholder seat needs to be modified according to insert profile to ensure clearance • Pitch max 0.167xD, TPI min D/6.0

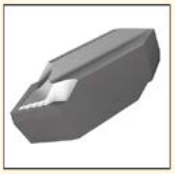
(1) Corner radius tolerance (+/-)
(2) Thread pitch minimum (mm)
(3) Thread pitch maximum (mm)
(4) Threads per inch minimum
(5) Threads per inch maximum

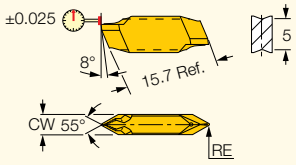
For tools, see pages: AVC-GEAIR/L (346) • E-GEHIR / E-GHIR (340) • GEAIR/L (340) • GEHIMR/L (337) • GEHIMR/L-SC (337) • GEHIR/L (338) • GEHIR/L-SC (339) • GEHSR (373) • GEHSR/L-SL (372)

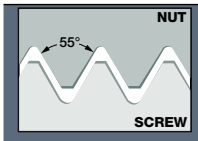
ISCARTHREAD
CUTGRIP

TIPI-WT

Double-Ended Internal Threading Inserts with a 55° Partial Profile and a Chipformer for 20 mm Min. Bore Diameter







Designation	Dimensions						Tough ↔ Hard	
	CW	RE	RETOL(1)	TPN(2)	TPIX(3)	TPIN(4)	IC08	IC908
TIPI 3.4WT-0.10	3.40	0.10	0.030	0.950	27.00	8.00	●	●
TIPI 5.4WT-0.20	5.40	0.20	0.030	1.670	15.00	5.00		●

• Toolholder seat needs to be modified according to insert profile to ensure clearance • Pitch max 0.187xD, TPI min D/5.25 D=Diameter of thread (pitch max<=CW)

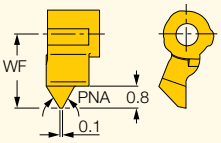
(1) Corner radius tolerance (+/-)
(2) Thread pitch minimum (mm)
(3) Threads per inch maximum
(4) Threads per inch minimum

For tools, see pages: AVC-GAIR/L (347) • GAIR/L (346) • GHIR/L (W=1.9-6.4) (344) • GHIR/L-SC (W=2-4.8) (345)

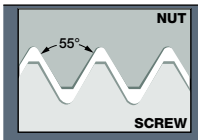
ISCARTHREAD
MINICHAM

UMGR-A55

Mini Indexable Inserts with Whitworth Partial Profile for Threading in 5.2 mm and Larger Holes



Right-hand shown



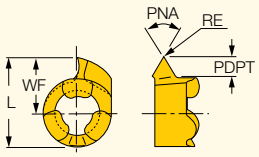
Designation	Dimensions							IC508
	WF	PNA	TPIX(1)	TPIN(2)	TPN(3)	TPX(4)	DMIN	
UMGR 4.0-A55	2.70	55.0	40.00	24.00	0.500	1.400	5.20	●

(1) Threads per inch maximum
(2) Threads per inch minimum
(3) Thread pitch minimum (mm)
(4) Thread pitch maximum (mm)

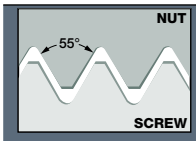
For tools, see pages: MGUHR (411)

ISCARTHREAD
CHAMGROOVE

GIQR/L-WT
Internal Inserts with Whitworth Partial Profile for Threading in 8 mm and Larger Holes



Left-hand shown



Designation	Dimensions L	RE	PNA	PDPT(1)	WF	DMIN	TPIN(2)	TPIX(3)	IC528
GIQR/L 8-WT-0.05	7.78	0.05	55.0	1.50	4.80	8.00	16.00	50.00	●
GIQR/L 11-WT-0.05	10.68	0.05	55.0	2.00	6.70	11.00	11.00	50.00	●

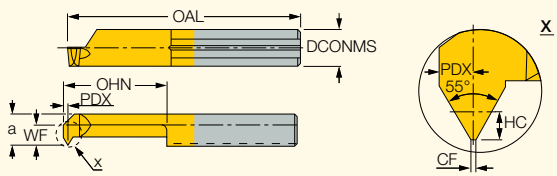
• Can be used for thread milling by circular interpolation • TPI min D/5.9 • D-diameter of thread (pitch max<=W) • For cutting speed recommendations, see page 711

(1) Cutting depth maximum
(3) Threads per inch maximum
(3) Threads per inch maximum

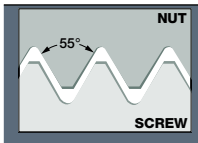
For tools, see pages: MG (414) • MGCH (414)

ISCARTHREAD
PICCOCUT

PICCO-55°-Thread
Inserts for 55° Internal Threading Profile



Right-hand shown



Designation	Dimensions DCONMS	TPIX(1)	TPIN(2)	HC	CF	PDX	WF	a	OHN(3)	OAL	DMIN	IC228
PICCO R 005.5548-15	5.00	48.00	24.00	0.40	0.06	0.5	1.90	4.40	15.0	30.00	4.80	●
PICCO R 006.5548-15	6.00	48.00	24.00	0.40	0.06	0.5	2.30	5.30	15.0	30.00	6.00	●
PICCO R 006.5524-15	6.00	24.00	16.00	0.81	0.12	0.8	2.30	5.30	15.0	30.00	6.00	●
PICCO R 007.5524-15	7.00	24.00	16.00	0.81	0.12	0.8	2.80	6.30	15.0	30.00	7.00	●

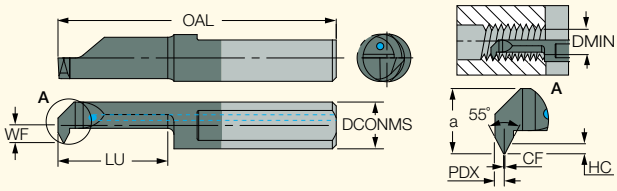
• All mini-bars have sharp corners • For detailed cutting data, see page 711

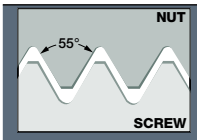
(1) Threads per inch maximum
(2) Threads per inch minimum
(3) Minimum overhang

For holders, see pages: GHPCOR (361) • PICCO ACE (359) • PICCO/MG PCO (holder) (360)

ISCARTHREAD
PICCOCUT

PICCO-55°-N (55° Threading)
Inserts with Internal Coolant Channel for 55° Internal Threading Profile





Designation	Dimensions DCONMS	TPIX(1)	TPIN(2)	HC	CF	PDX	WF	a	LU	OAL	DMIN	IC908
PICCO R 006.5524-15N	6.05	24.00	16.00	0.81	0.12	0.8	2.30	5.30	14.0	36.00	6.00	●
PICCO R 007.5524-15N	7.05	24.00	16.00	0.81	0.12	0.8	2.80	6.30	14.0	36.00	7.00	●

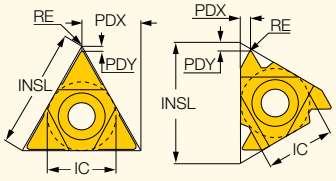
• All mini-bars have sharp corners • Solid tools are suitable for PICCO-N / PICCO ACE-N type holders only • For detailed cutting data, see page 711

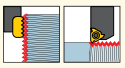
(1) Threads per inch maximum
(2) Threads per inch minimum

For holders, see pages: PICCO ACE-N (710) • PICCO-N (holder) (710)

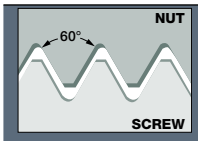
ISCARTHREAD

ER/L-60°
External Laydown Threading Inserts with a 60° Partial Profile for General Industries





External right-hand shown



Designation	Dimensions									Tough ↔ Hard							
	IC	TPN[2]	TPX[3]	TPIX[4]	TPIN[5]	INSL	RE	PDY	PDX	IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
11EL A 60	6.35	0.500	1.500	48.00	16.00	11.00	0.05	0.8	0.9							●	
11ER A 60	6.35	0.500	1.500	48.00	16.00	11.00	0.06	0.8	0.9							●	
16EL A 60	9.52	0.500	1.500	48.00	16.00	16.49	0.06	0.8	0.9		●	●				●	
16ER A 60	9.52	0.500	1.500	48.00	16.00	16.49	0.06	0.8	0.9	●		●	●			●	●
16ERB A 60 [1]	9.52	0.500	1.500	48.00	16.00	16.49	0.06	0.8	0.8				●			●	
16ERM A 60 [1]	9.52	0.500	1.500	48.00	16.00	16.49	0.05	0.8	0.9		●	●			●	●	●
16EL AG 60	9.52	0.500	3.000	48.00	8.00	16.49	0.06	1.2	1.7		●	●				●	
16ER AG 60	9.52	0.500	3.000	48.00	8.00	16.49	0.06	1.2	1.7	●	●	●	●	●		●	●
16ERB AG 60 [1]	9.52	0.500	3.000	48.00	8.00	16.49	0.06	1.2	1.7							●	
16ERM AG 60 [1]	9.52	0.500	3.000	48.00	8.00	16.49	0.06	1.2	1.7		●	●		●	●	●	●
16EL G 60	9.52	1.750	3.000	14.00	8.00	16.49	0.22	1.2	1.7			●				●	
16ER G 60	9.52	1.750	3.000	14.00	8.00	16.49	0.22	1.2	1.7	●		●	●			●	●
16ERB G 60 [1]	9.52	1.750	3.000	14.00	8.00	16.49	0.22	1.2	1.7							●	
16ERM G 60 [1]	9.52	1.750	3.000	14.00	8.00	16.49	0.25	1.2	1.7		●	●			●	●	●
22EL N 60	12.70	3.500	5.000	7.00	5.00	22.00	0.42	1.7	2.5		●					●	
22ER N 60	12.70	3.500	5.000	7.00	5.00	22.00	0.42	1.7	2.5	●	●	●	●			●	●
22ERM N 60 [1]	12.70	3.500	5.000	7.00	5.00	22.00	0.32	1.7	2.5		●	●			●	●	●
22UEIRL U 60	12.70	5.500	8.000	4.50	3.25	22.00	0.28	0.6	0.6			●				●	
27EL Q 60	15.88	5.500	6.000	4.50	4.00	27.50	0.63	2.0	3.0	●							
27ER Q 60	15.88	5.500	6.000	4.50	4.00	27.50	0.63	2.0	3.0		●	●				●	
27UEIRL U 60	15.88	6.500	9.000	4.00	2.75	27.50	0.28	1.0	13.7		●	●					

- For Insert Identification System, see pages 638-639
- For threading between walls use GRIP-type inserts SCIR/L B/F -MTR/L, TIP-MT, GEPI-MT, TIPI-MT.
- For technical information and detailed cutting data, see pages 711-727

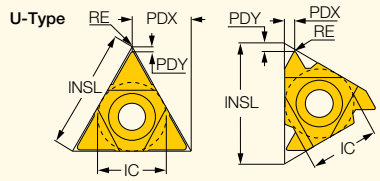
[1] With pressed chipformer
[2] Thread pitch minimum (mm)
[3] Thread pitch maximum (mm)
[4] Threads per inch maximum
[5] Threads per inch minimum

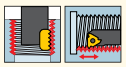
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

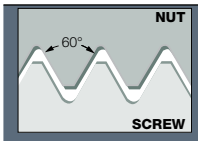
IR/L-60°

Internal Laydown Threading Inserts with a 60° Partial Profile for General Industry





Internal left-hand shown



Designation	Dimensions IC	TPN[2]	TPX[3]	TPIX[4]	TPIN[5]	INSL	RE	PDY	PDX	Tough ↔ Hard IC28	IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
06IL A 60	4.00	0.500	1.250	48.00	20.00	6.88	0.04	0.6	0.6		●							
06IR A 60	4.00	0.500	1.250	48.00	20.00	6.88	0.04	0.6	0.6	●	●						●	
06IRM A 60 [1]	4.00	0.500	1.250	48.00	20.00	6.88	0.05	0.5	0.6		●							
08IL A 60	5.00	0.500	1.500	48.00	16.00	8.24	0.05	0.6	0.7		●							
08IR A 60	5.00	0.500	1.500	48.00	16.00	8.24	0.05	0.5	0.7	●	●			●			●	●
08IRM A 60 [1]	5.00	0.500	1.500	48.00	16.00	8.24	0.04	0.6	0.7		●					●	●	●
08UIRL U 60	5.00	1.250	2.000	18.00	12.00	8.24	0.10	0.8	4.0		●							
11IL A 60	6.35	0.500	1.500	48.00	16.00	11.00	0.04	0.8	0.9			●	●				●	
11IR A 60	6.35	0.500	0.500	48.00	16.00	11.00	0.04	0.8	0.9		●	●	●	●			●	●
11IRM A 60 [1]	6.35	0.500	1.500	48.00	16.00	11.00	0.05	0.7	0.9				●			●	●	●
16IL A 60	9.52	0.500	1.500	48.00	16.00	16.49	0.04	0.8	0.8				●				●	
16IR A 60	9.52	0.500	1.500	48.00	16.00	16.49	0.04	0.8	0.9		●	●	●				●	●
16IRB A 60 [1]	9.52	0.500	1.500	48.00	16.00	16.49	0.04	0.8	0.8								●	
16IRM A 60 [1]	9.52	0.500	1.500	48.00	16.00	16.49	0.05	0.8	0.9				●			●	●	●
16IL AG 60	9.52	0.500	3.000	48.00	8.00	16.49	0.04	1.2	1.7				●				●	●
16IR AG 60	9.52	0.500	3.000	48.00	8.00	16.49	0.04	1.2	1.7		●	●	●		●		●	●
16IRB AG 60 [1]	9.52	0.500	3.000	48.00	8.00	16.49	0.03	1.2	1.7								●	
16IRM AG 60 [1]	9.52	0.500	3.000	48.00	8.00	16.49	0.05	1.2	1.7			●	●			●	●	●
16IL G 60	9.52	1.750	3.000	14.00	8.00	16.49	0.13	1.2	1.7								●	
16IR G 60	9.52	1.750	3.000	14.00	8.00	16.49	0.13	1.2	1.7		●	●	●	●			●	●
16IRB G 60 [1]	9.52	1.750	3.000	14.00	8.00	16.49	0.13	1.2	1.7								●	
16IRM G 60 [1]	9.52	1.750	3.000	14.00	8.00	16.49	0.10	1.2	1.7			●	●			●	●	●
22IL N 60	12.70	3.500	5.000	7.00	5.00	22.00	0.22	1.7	2.5								●	
22IR N 60	12.70	3.500	5.000	7.00	5.00	22.00	0.22	1.7	2.5				●	●			●	●
22IRM N 60 [1]	12.70	3.500	5.000	7.00	5.00	22.00	0.19	1.7	2.5			●	●			●	●	●
27IL Q 60	15.88	5.500	6.000	4.50	4.00	27.50	0.31	2.1	3.1			●						
27IR Q 60	15.88	5.500	6.000	4.50	4.00	27.50	0.31	1.9	2.7				●				●	

• For Insert Identification System, see pages 638-639 • For technical information and detailed cutting data, see pages 711-727

[1] With a pressed chipformer

[2] Thread pitch minimum (mm)

[3] Thread pitch maximum (mm)

[4] Threads per inch maximum

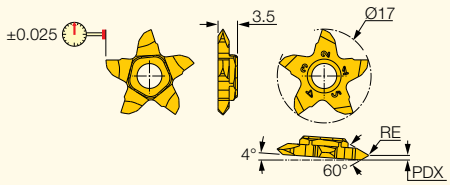
[5] Threads per inch minimum

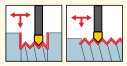
For tools, see pages: AVC-D-SIR/L (707) • MGSIR/L (118) • PICIN-MGSIR/L (386) • SIR/L (703)

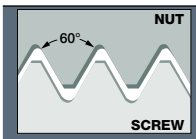
PENTACUT THREADING LINE

PENTA 17-MT-RS/LS

Precision Ground Pentagonal External Threading Inserts with a 60° Partial Profile for General Industry







Designation	Dimensions TPIN[1]	TPIX[2]	TPN[3]	TPX[4]	RE	PDX	IC1008
PENTA 17-MTL008LS	8.00	36.00	0.700	3.000	0.08	1.40	●
PENTA 17-MTR008RS	8.00	36.00	0.700	3.000	0.08	1.40	●
PENTA 17-MTL003LS	17.00	80.00	0.300	1.500	0.03	0.80	●
PENTA 17-MTR003RS	17.00	80.00	0.300	1.500	0.03	0.80	●

[1] Threads per inch minimum

[2] Threads per inch maximum

[3] Thread pitch minimum (mm)

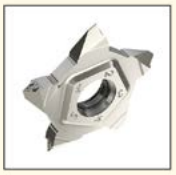
[4] Thread pitch maximum (mm)

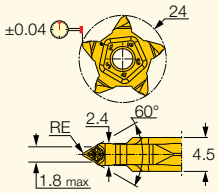
For tools, see pages: NQCH-PCHR/L-S-JHP (378) • PCADRS/LS-JHP (317) • PCHRS/LS-17 (307) • PCHRS/LS-17-JHP (307) • Y-PCHRS-17 (308) • Y-PCHRS-17-JHP (308)

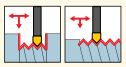
PENTACUT THREADING LINE

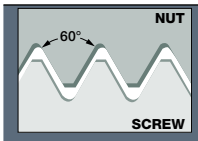
PENTA 24-MT

Precision Ground Pentagonal External Threading Inserts with a 60° Partial Profile for General Industry









Designation	Dimensions TPN[2]	TPX[3]	RE	IC908
PENTA 24A-MT-0.05 [1]	0.250	3.000	0.05	●
PENTA 24-MT-0.05	0.250	3.500	0.05	●
PENTA 24A-MT-0.15	0.800	3.000	0.15	●

- TPX=0.175xD

[1] Flat rake (without a chipformer)
[2] Thread pitch minimum (mm)
[3] Thread pitch maximum (mm)

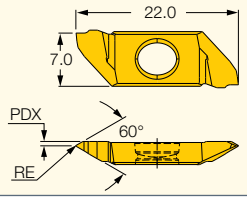
For tools, see pages: PCAD RE/LE-JHP (499) • PCADR/L (316) • PCADR/L-JHP (317) • PCHBR/L (318) • PCHPR/L (316) • PCHR/L-24 (312) • PCHR/L-24-JHP (313) • PCHR/L-24-JHP-MC (313)

ISCARTHREAD

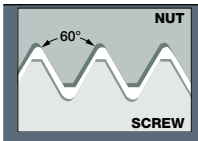
SWISSCUT INNOVAL LINE

SCIR/L-22-MTR/MTL

Threading Inserts with a 60° Partial Profile



Left-hand shown



Designation	Dimensions RE	PDX	TPN[1]	TPX[2]	TPIX[3]	TPIN[4]	Tough ↔ Hard IC1008	IC07	IC1007
SCIL 22-MTL003	0.03	0.4	0.300	0.900	83.00	28.00	●	●	●
SCIR 22-MTR003	0.03	0.4	0.300	0.900	83.00	28.00	●	●	●
SCIL 22-MTL007	0.07	0.5	0.700	1.100	36.00	23.00	●	●	●
SCIL 22-MTR007	0.07	0.5	0.700	1.100	36.00	23.00	●		
SCIR 22-MTL007	0.07	0.5	0.700	1.100	36.00	23.00	●		
SCIR 22-MTR007	0.07	0.5	0.700	1.100	36.00	23.00	●	●	●
SCIL 22-MTL010	0.10	0.8	0.900	1.700	28.00	15.00	●	●	●
SCIR 22-MTR010	0.10	0.8	0.900	1.700	28.00	15.00	●	●	●

- For detailed cutting data, see page 711

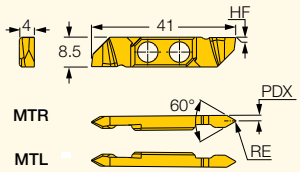
[1] Thread pitch minimum (mm)
[2] Thread pitch maximum (mm)
[3] Threads per inch maximum
[4] Threads per inch minimum

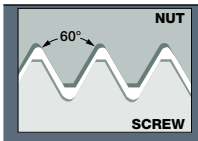
For tools, see pages: NQCH-SCHR/L-BF-JHP (364) • NQCH-Y-SCHR-BF-JHP (364) • SCHR/L-22BF (363) • SCHR/L-22BF-JHP (363) • Y-SCHR-22BF (363) • Y-SCHR-22BF-JHP (364)

SWISSCUT EXTRA LONG
ISCARTHREAD

SCIR/L-41-MTR/MTL

Threading Inserts with a 60° Partial Profile





Designation	Dimensions RE	PDX	TPN(1)	TPX(2)	TPIN(3)	TPIX(4)	HF(5)	IC1008
SCIL 41-MTL006	0.06	0.90	0.400	1.500	17.00	64.00	0.2	●
SCIR 41-MTR006	0.06	0.90	0.400	1.500	17.00	64.00	0.2	●
SCIL 41-MTL020	0.20	1.60	1.500	2.500	10.00	17.00	0.2	●
SCIR 41-MTR020	0.20	1.60	1.500	2.500	10.00	17.00	0.2	●

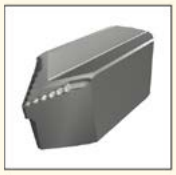
• For detailed cutting data, see page 711
(1) Thread pitch minimum (mm)
(2) Thread pitch maximum (mm)
(3) Threads per inch minimum
(4) Threads per inch maximum
(5) Cutting edge below center

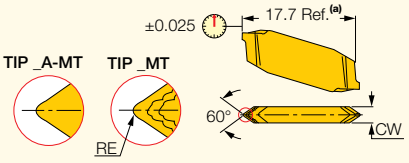
For tools, see pages: SCHR/L-41BF (369)

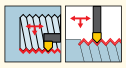
ISCARTHREAD
CUTGRIP

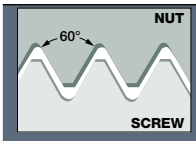
TIP-MT

Precision Ground Double-Ended Threading Inserts with a 60° Partial Profile and Chipformer









Designation	Dimensions CW	RE	RETOL(2)	TPN(3)	TPIX(4)	TPIN(5)	TPX(6)	Tough ↔ Hard IC08	IC908
TIP 2A-MT-0.05 (1)	2.40	0.05	0.030	0.450	56.00	12.00	2.120		●
TIP 2MT-0.05	2.40	0.05	0.030	0.450	56.00	12.00	2.120	●	●
TIP 2MT-0.14	2.40	0.14	0.030	1.110	23.00	12.00	2.120	●	●
TIP 4A-MT-0.15 (1)	4.00	0.15	0.030	1.270	20.00	7.00	3.630		●
TIP 4MT-0.15	4.00	0.15	0.030	1.270	20.00	7.00	3.630		●
TIP 4MT-0.20	4.00	0.20	0.030	1.600	16.00	7.00	3.630	●	●
TIP 5MT-0.25	5.50	0.25	0.030	1.950	13.00	5.00	5.100	●	●

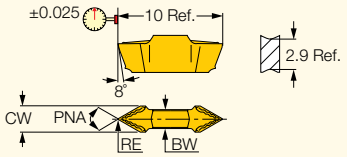
• (a) TIP inserts are 1.6 mm longer than GIP in the same pocket • Toolholder seat needs to be modified according to insert profile to ensure clearance
(1) Without chipformer (flat rake)
(2) Corner radius tolerance (+/-)
(3) Thread pitch minimum (mm)
(4) Threads per inch maximum
(5) Threads per inch minimum
(6) Thread pitch maximum (mm)

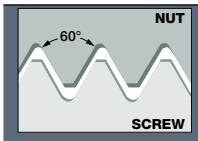
For tools, see pages: C#-GHDR/L (274) • CGHN 26-M (356) • CGHN 32-DGM (358) • CGHN 32-M (357) • CGHN-D (283) • CGHN-DG (283) • CGHN-S (282) • CGPAD (281) • CGPAD-JHP (282) • GHDR/L (short pocket) (275) • GHDR/L-JHP (short pocket) (276) • GHDR/L-JHP-MC (short pocket) (277) • GHGR/L (278) • GHMPR/L (273) • GHMR/L (273) • GHSR/L (373) • GHSR/L-JHP-SL (374) • NQCH-GHSR/L-JHP (374)

ISCARTHREAD
CUTGRIP

GEPI-MT

Precision Ground Internal Double-Ended Threading Inserts with a 60° Partial Profile for General Applications





Designation	Dimensions CW	RE	RETOL(1)	PNA	BW	TPN(2)	TPX(3)	TPIN(4)	TPIX(5)	Tough ↔ Hard IC08	IC908
GEPI 2.5-MT0.05	2.50	0.05	0.030	60.0	1.80	0.910	2.540	10.00	28.00	●	●

- Toolholder seat needs to be modified according to insert profile to ensure clearance • Pitch max 0.187xD, TPI min D/5.35
- D=Diameter of thread (pitch max<=CW)

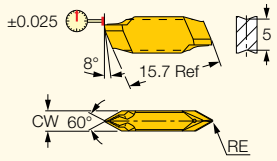
(1) Corner radius tolerance (+/-)
(2) Thread pitch minimum (mm)
(3) Thread pitch maximum (mm)
(4) Threads per inch minimum
(5) Threads per inch maximum

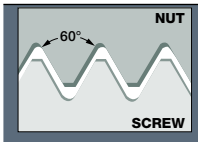
For tools, see pages: AVC-GEAIR/L (346) • E-GEHIR / E-GHIR (340) • GEAIR/L (340) • GEHIMR/L (337) • GEHIMR/L-SC (337) • GEHIR/L (338) • GEHIR/L-SC (339) • GEHSR (373) • GEHSR/L-SL (372)

ISCARTHREAD
CUTGRIP

TIPI-MT

Precision Ground Double-Ended Internal Threading Inserts with 60° Partial Profile and Chipformer for 20mm Min. Bore Dia.





Designation	Dimensions CW	RE	RETOL(1)	TPN(2)	TPIX(3)	TPIN(4)	TPX(5)	Tough ↔ Hard IC08	IC908
TIPI 3.4MT-0.10	3.40	0.10	0.030	1.800	14.00	8.00	3.180	●	●
TIPI 5.4MT-0.20	5.40	0.20	0.030	3.190	8.00	5.00	5.100	●	●

- Toolholder seat needs to be modified according to insert profile to ensure clearance. • Pitch max 0.205xD, TPI min D/4.8
- D=Diameter of thread (pitch max<=CW) • TIPI inserts are 1.6 mm longer than GIPI in the same pocket

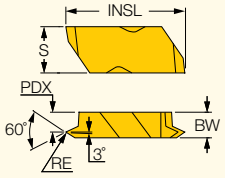
(1) Corner radius tolerance (+/-)
(2) Thread pitch minimum (mm)
(3) Threads per inch maximum
(4) Threads per inch minimum
(5) Thread pitch maximum (mm)

For tools, see pages: AVC-GAIR/L (347) • CGIN 26 (348) • GAIR/L (346) • GHIR/L (W=1.9-6.4) (344) • GHIR/L-C (W=4-6.4) (344) • GHIR/L-SC (W=2-4.8) (345)

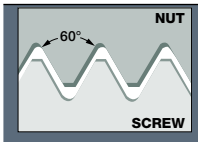
NOTCHGRIP
GROOVE-TURN LINE
ISCARTHREAD

60° PARTIAL PROFILE THREADING FLTF

Double-Ended Precision Flat Top Threading Inserts



Right-hand shown



Designation	Dimensions TPIN(1)	TPIX(2)	TPIN_DF2(3)	TPIX_DF2(4)	RE	PDX	BW	S	INSL	TPN_DF2	TPX_DF2	IC908
FLTF-3R/L	9.00	24.00	10.00	44.00	0.00	3.60	4.95	8.74	22.60	2.500	1.750	●
FLTF-4R/L	9.00	24.00	10.00	44.00	0.00	5.10	6.48	11.51	28.45	2.500	1.750	●
FLTF-2R/L	12.00	24.00	14.00	44.00	0.00	2.80	3.81	5.56	12.95	0.600	1.750	●

- DMIN according to related boring bar

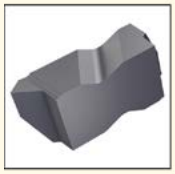
(1) TPI int. min.
(2) TPI int. max.
(3) TPI ext. min.
(4) TPI ext. max.

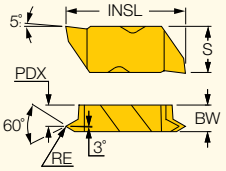
For tools, see pages: FLASR/L (708) • FLSR/L (708)

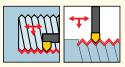
NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

60° PARTIAL PROFILE THREADING FLTK

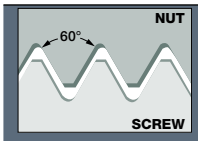
Double-Ended Precision Positive Rake Threading Inserts







Right-hand shown



Designation	Dimensions										IC908
	TPIN[1]	TPIX[2]	TPIN_ DF2[3]	TPIX_ DF2[4]	RE	TTP	PDX	BW	S	INSL	
FLTK-3R/L	9.00	24.00	10.00	44.00	0.00	BOTH	3.60	4.95	8.74	22.60	●
FLTK-4R/L	9.00	24.00	10.00	44.00	0.00	BOTH	5.10	6.48	11.51	28.45	●
FLTK-2R/L	12.00	24.00	14.00	44.00	0.00	BOTH	2.80	3.81	5.56	12.95	●

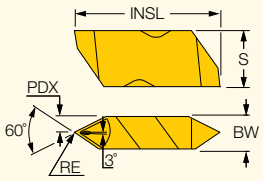
• DMIN according to related boring bar
[1] TPI int. min.
[2] TPI int. max.
[3] TPI ext. min.
[4] TPI ext. max.

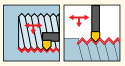
For tools, see pages: FLASR/L (708) • FLSR/L (708)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

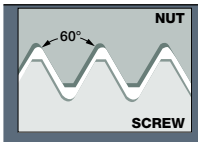
60° PARTIAL PROFILE THREADING FLT-CB

Double-Ended Precision Threading Inserts with Chipbreakers





Right-hand shown



Designation	Dimensions									IC908
	TPIN[1]	TPIX[2]	TPIN_ DF2[3]	TPIX_ DF2[4]	RE	PDX	BW	S	INSL	
FLT-4R/L-HCB	4.00	12.00	4.00	20.00	0.00	3.30	6.48	11.51	28.45	●
FLT-3R/LC-HCB	5.00	6.00	6.00	11.00	0.00	2.50	4.95	8.74	22.60	●
FLT-3R/L-HCB	5.00	12.00	6.00	20.00	0.00	2.50	4.95	8.74	22.60	●
FLT-3R/L-FCB	7.00	20.00	8.00	36.00	0.00	2.50	4.95	8.74	22.60	●
FLT-3R/L-CB	8.00	12.00	8.00	20.00	0.00	2.50	4.95	8.74	22.60	●

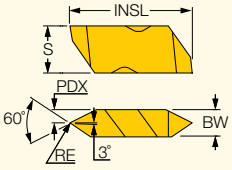
• DMIN according to related boring bar
[1] TPI int. min.
[2] TPI int. max.
[3] TPI ext. min.
[4] TPI ext. max.

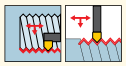
For tools, see pages: FLASR/L (708) • FLSR/L (708)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

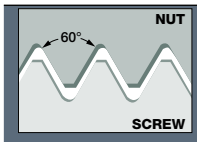
60° PARTIAL PROFILE THREADING FLT

Double-Ended Precision Flat Top Threading Inserts





Right-hand shown



Designation	Dimensions									IC908
	TPIN[1]	TPIX[2]	TPIN_DF2[3]	TPIX_DF2[4]	RE	PDX	BW	S	INSL	
FLT-4R/L	4.00	12.00	4.00	20.00	0.00	3.30	6.48	11.51	28.45	●
FLT-3R/L	5.00	12.00	6.00	20.00	0.00	2.50	4.95	8.74	22.60	●
FLT-3010R/L	5.00	12.00	6.00	18.00	0.00	2.50	4.95	8.74	22.60	●
FLT-2R/L	7.00	20.00	8.00	36.00	0.00	1.90	3.81	5.56	12.95	●

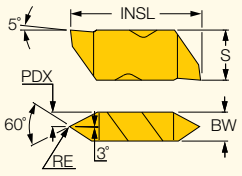
• DMIN according to related boring bar
[1] TPI int. min.
[2] TPI int. max.
[3] TPI ext. min.
[4] TPI ext. max.

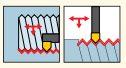
For tools, see pages: FLASR/L (708) • FLSR/L (708)

NOTCH GRIP
GROOVE-TURN LINE
ISCARTHREAD

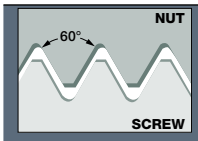
60° PARTIAL PROFILE THREADING FLTP

Double-Ended Precision Positive Rake Threading Inserts





Right-hand shown



Designation	Dimensions TPIN[1]	TPIX[2]	TPIN_ DF2[3]	TPIX_ DF2[4]	RE	PDX	BW	S	INSL	IC908
FLTP-4R/L	4.00	12.00	4.00	20.00	0.00	3.30	6.50	11.51	28.45	●
FLTP-3R/L	5.00	12.00	6.00	20.00	0.00	2.50	5.00	8.74	22.60	●
FLTP-2R/L	7.00	20.00	8.00	36.00	0.00	1.90	3.80	5.56	12.95	●

- DMIN according to related boring bar

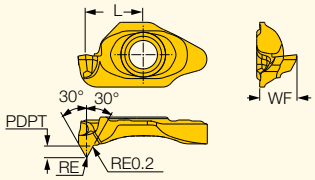
(1) TPI int. min.
(2) TPI int. max.
(3) TPI ext. min.
(4) TPI ext. max.

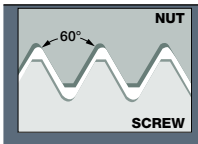
For tools, see pages: FLASR/L (708) • FLSR/L (708)

ISCARTHREAD
MIN CUT
MINI FACE LINE

MITR 8-MT

Internal ISO Metric Threading Inserts for Partial Profile





Designation	Dimensions PDPT[1]	RE	L	WF	DMIN[2]	TPN[3]	TPX[4]	IC908
MITR 8-MT2-0.1	1.17	0.10	5.75	3.80	10.00	1.500	2.000	●
MITR 8-MT1-0.05	1.23	0.05	5.75	3.80	10.00	0.750	1.250	●

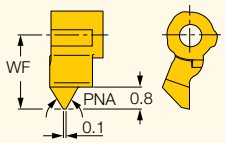
(1) Cutting depth maximum
(2) Minimum diameter
(3) Thread pitch minimum (mm)
(4) Thread pitch maximum (mm)

For tools, see pages: MIFHR (413)

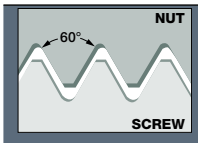
ISCARTHREAD
MINICHAM

UMGR-A60

Mini Indexable Inserts with a 60° Partial Profile for Threading in 5.2 mm and Larger Holes



Right-hand shown



Designation	Dimensions PNA	WF	DMIN	TPN[1]	TPX[2]	TPIN[3]	TPIX[4]	IC508
UMGR 4.0-A60	60.0	2.70	5.20	0.600	1.250	20.00	40.00	●

- For detailed cutting data, see page 711

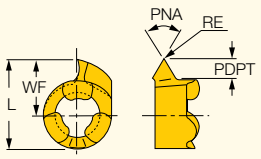
(1) Thread pitch minimum (mm)
(2) Thread pitch maximum (mm)
(3) Threads per inch minimum
(4) Threads per inch maximum

For tools, see pages: MGUHR (411)

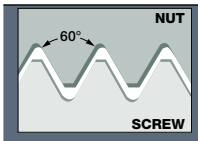
ISCARTHREAD
CHAMGROOVE

GIQR/L-MT

Internal Threading Inserts with a 60° Partial Profile for Threading in 8 mm and Larger Holes



Left-hand shown



Designation	Dimensions										IC528
	L	RE	PNA	PDPT(1)	WF	DMIN(2)	TPN(3)	TPX(4)	TPIN(5)	TPIX(6)	
GIQR/L 8-MT-0.05	7.78	0.05	60.0	1.50	4.80	8.00	0.500	1.590	16.00	50.00	●
GIQR/L 11-MT-0.05	10.68	0.05	60.0	2.00	6.70	11.00	0.500	2.300	11.00	50.00	●

• Can be used for thread milling by circular interpolation • Pitch max 0.19xD • D-diameter of thread • For cutting speed recommendations, see page 711

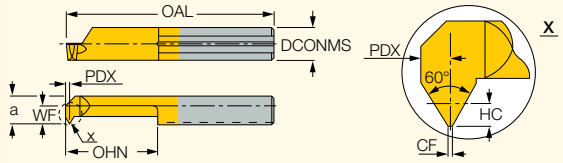
(1) Cutting depth maximum
(2) Minimum diameter
(3) Thread pitch minimum (mm)
(4) Thread pitch maximum (mm)
(5) Threads per inch minimum
(6) Threads per inch maximum

For tools, see pages: MG (414) • MGCH (414)

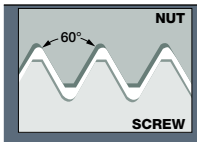
ISCARTHREAD
PICCOCUT

PICCO R/L-60°-Thread

Inserts with a 60° Internal Thread Profile for 2.4 mm Min. Bore Diameter



Right-hand shown



Designation	Dimensions													Tough ↔ Hard	
	DCONMS	HC	CF	PDX	WF	a	OHN(1)	OAL	DMIN	TPN(2)	TPX(3)	TPIN(4)	TPIX(5)	IC228	IC908
PICCO R 003.0105-8	4.00	0.27	0.04	0.3	0.30	2.30	8.0	22.00	2.40	0.500	0.700	36.00	48.00		●
PICCO R 004.0105-10	4.00	0.27	0.09	0.4	1.00	3.00	10.0	24.00	3.20	0.500	0.750	36.00	48.00		●
PICCO R/L 004.0205-15	4.00	0.27	0.06	0.4	1.50	3.50	15.0	30.00	4.00	0.500	0.750	36.00	48.00	●	
PICCO R/L 005.0205-15	5.00	0.27	0.06	0.4	1.90	4.40	15.0	30.00	5.00	0.500	0.750	36.00	48.00	●	
PICCO L 005.0407-15	5.00	0.40	0.09	0.5	1.90	4.40	15.0	30.00	5.00	0.750	1.000	24.00	36.00	●	
PICCO R 005.0407-15	5.00	0.40	0.09	0.5	1.90	4.40	15.0	30.00	5.00	0.750	1.000	24.00	36.00	●	●
PICCO R 005.0407-20	5.00	0.40	0.09	0.5	1.90	4.40	20.0	35.00	5.00	0.750	1.000	24.00	36.00		●
PICCO R/L 005.0510-15	5.00	0.55	0.12	0.6	1.90	4.40	15.0	30.00	4.80	1.000	1.250	20.00	24.00	●	
PICCO R 005.0510-20	5.00	0.55	0.12	0.6	1.90	4.40	20.0	35.00	4.80	1.000	1.250	20.00	24.00		●
PICCO R/L 006.0510-15	6.00	0.55	0.12	0.6	2.30	5.30	15.0	30.00	6.00	1.000	1.250	20.00	24.00	●	
PICCO R 006.0510-22	6.00	0.55	0.12	0.6	2.30	5.30	22.0	37.00	6.00	1.000	1.250	20.00	24.00		●
PICCO R/L 006.0612-15	6.00	0.68	0.15	0.7	2.30	5.30	15.0	30.00	6.00	1.250	1.500	16.00	20.00	●	
PICCO R 006.0612-22	6.00	0.68	0.15	0.7	2.30	5.30	22.0	37.00	6.00	1.250	1.500	16.00	20.00		●
PICCO R/L 006.0815-15	6.00	0.81	0.18	0.8	2.30	5.30	15.0	30.00	6.00	1.500	1.750	14.00	16.00	●	
PICCO R 006.0815-22	6.00	0.81	0.18	0.8	2.30	5.30	22.0	37.00	6.00	1.500	1.750	14.00	16.00		●
PICCO R/L 007.0815-15	7.00	0.81	0.18	0.8	2.70	6.30	15.0	30.00	7.00	1.500	1.750	14.00	16.00	●	

• For detailed cutting data, see page 711

(1) Minimum overhang
(2) Thread pitch minimum (mm)
(3) Thread pitch maximum (mm)
(4) Threads per inch minimum
(5) Threads per inch maximum

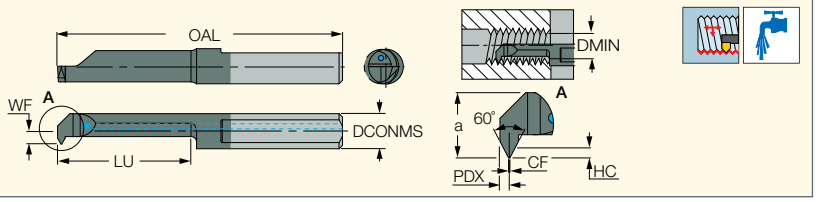
For holders, see pages: GHPCOR (361) • PICCO ACE (359) • PICCO/MG PCO (holder) (360)

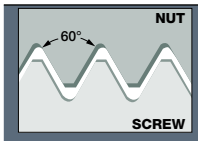
ISCARTHREAD

PICCOCUT

PICCO R/L60°-N (60° Threading)

Inserts with a 60° Internal Thread Profile and Internal Coolant Channel for 2.4 mm Min. Bore Diameter





Designation	Dimensions													IC908
	DCONMS	HC	CF	PDX	WF	a	LU	OAL	DMIN	TPN(1)	TPX(2)	TPIN(3)	TPIX(4)	
PICCO R 003.0105-8N	4.05	0.27	0.04	0.3	0.30	2.30	7.0	31.00	2.40	0.500	0.700	36.00	48.00	●
PICCO R 004.0105-10N	4.05	0.27	0.09	0.4	1.00	3.00	9.0	31.00	3.20	0.500	0.750	36.00	48.00	●
PICCO R 004.0205-15N	4.05	0.27	0.06	0.4	1.50	3.50	14.0	36.00	4.00	0.500	0.750	36.00	48.00	●
PICCO R 005.0205-15N	5.05	0.27	0.06	0.4	1.90	4.40	14.0	36.00	5.00	0.500	0.750	36.00	48.00	●
PICCO R 005.0407-15N	5.05	0.40	0.09	0.5	1.90	4.40	14.0	36.00	5.00	0.750	1.000	24.00	36.00	●
PICCO R/L 005.0510-15N	5.05	0.55	0.12	0.6	1.90	4.40	14.0	36.00	4.80	1.000	1.250	20.00	24.00	●
PICCO R 005.0510-20N	5.05	0.55	0.12	0.6	1.90	4.40	19.0	41.00	4.80	1.000	1.250	20.00	24.00	●
PICCO R 006.0510-15N	6.05	0.55	0.12	0.6	2.30	5.30	14.0	36.00	6.00	1.000	1.250	20.00	24.00	●
PICCO R 006.0510-22N	6.05	0.55	0.12	0.6	2.30	5.30	21.0	43.00	6.00	1.000	1.250	20.00	24.00	●
PICCO R 006.0612-15N	6.05	0.68	0.15	0.7	2.30	5.30	14.0	36.00	6.00	1.250	1.500	16.00	20.00	●
PICCO R 006.0815-15N	6.05	0.81	0.18	0.8	2.30	5.30	14.0	36.00	6.00	1.500	1.750	14.00	16.00	●
PICCO R/L 007.0815-15N	7.05	0.81	0.18	0.8	2.70	6.30	14.0	36.00	7.00	1.500	1.750	14.00	16.00	●

• Solid tools are suitable for PICCO-N / PICCO ACE-N type holders only • For detailed cutting data, see page 711

(1) Thread pitch minimum (mm)

(2) Thread pitch maximum (mm)

(3) Threads per inch minimum

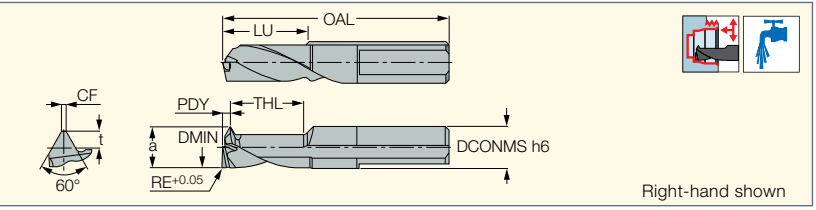
(4) Threads per inch maximum

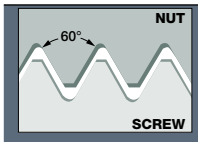
For holders, see pages: PICCO ACE-N (710) • PICCO-N (holder) (710)

MULTIFUNCTION TOOLS

PICCO-MFT

Solid Carbide Tools for Drilling, Facing, Int. and Ext. Turning and Threading on Swiss and Small CNC Machines





Designation	Dimensions											IC908
	DCONMS	DMIN	LU	TPN(2)	TPX(3)	t	a	CF	THL	OAL	PDY	RE	
PICCO R/L-MFT60 6-4 L08	6.00	4.00	8.0	0.500	0.750	0.46	3.90	0.06	7.3	30.00	1.3	0.10	●
PICCO R-MFT60 6-4 L12	6.00	4.00	12.0	0.500	0.750	0.46	3.90	0.06	11.6	34.00	1.2	0.20	●
PICCO R/L-MFT60 6-5 L10	6.00	5.00	10.0	0.500	1.000	0.61	4.90	0.06	9.0	32.00	1.4	0.10	●
PICCO R/L-MFT60 6-5 L15 (1)	6.00	5.00	15.0	0.500	1.000	0.61	4.90	0.06	14.4	37.00	1.4	0.30	●
PICCO R/L-MFT60 6-6 L18 (1)	6.00	6.00	18.0	0.500	1.000	0.61	5.90	0.06	17.3	43.00	1.4	0.30	●
PICCO R-MFT60 6-6 L12	6.00	6.00	12.0	0.500	1.000	0.61	5.90	0.06	11.0	34.00	1.4	0.10	●
PICCO R/L-MFT60 8-7 L14	8.00	7.00	14.0	0.750	1.250	0.76	6.90	0.09	13.0	41.00	1.5	0.10	●
PICCO R-MFT60 8-7 L21	8.00	7.00	21.0	0.750	1.250	0.76	6.90	0.09	20.0	55.00	1.5	0.30	●
PICCO R/L-MFT60 8-8 L16	8.00	8.00	16.0	0.900	1.500	0.92	7.90	0.11	15.0	43.00	1.5	0.10	●
PICCO L-MFT60 8-8 L24 (1)	8.00	8.00	24.0	0.900	1.500	0.92	7.90	0.11	23.0	57.00	1.5	0.30	●
PICCO R-MFT60 8-8 L24	8.00	8.00	24.0	0.900	1.500	0.92	7.90	0.11	23.0	51.00	1.5	0.30	●

• Applications: Drilling; face turning; internal chamfering; internal turning/boring; internal profiling; external chamfering; external turning; internal and external 60° threading (right- and left-hand)

(1) Available on request

(2) Thread pitch minimum (mm)

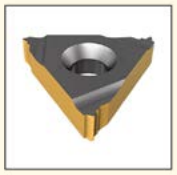
(3) Thread pitch maximum (mm)

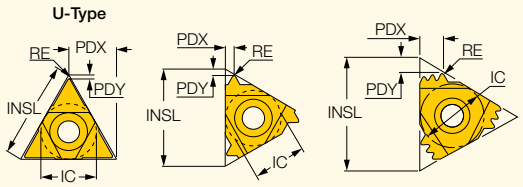
For holders, see pages: PICCO/MG PCO (holder) (360)

ISCARTHREAD

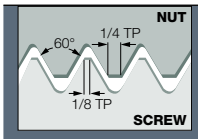
ER/L-ISO

External ISO Metric
(DIN13 12-1986 class: 6g)
Laydown Threading Inserts
for General Industry





External right-hand shown



Designation	Dimensions							Tough ↔ Hard							
	IC	TP[3]	RE	INSL	PDY	PDX	CICT[4]	IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
11EL 0.35 ISO	6.35	0.350	0.04	11.00	0.8	0.4	1							•	
11ER 0.35 ISO	6.35	0.350	0.04	11.00	0.6	0.4	1							•	
11ER 0.40 ISO	6.35	0.400	0.04	11.00	0.7	0.4	1							•	
11ER 0.45 ISO	6.35	0.450	0.05	11.00	0.7	0.4	1	•							
11EL 0.50 ISO	6.35	0.500	0.06	11.00	0.6	0.6	1							•	
11ER 0.50 ISO	6.35	0.500	0.06	11.00	0.6	0.6	1			•				•	
11ER 0.60 ISO	6.35	0.600	0.07	11.00	0.6	0.6	1							•	
11ER 0.70 ISO	6.35	0.700	0.11	11.00	0.6	0.6	1							•	
11EL 0.75 ISO	6.35	0.750	0.08	11.00	0.6	0.6	1							•	
11ER 0.75 ISO	6.35	0.750	0.11	11.00	0.6	0.6	1							•	
11ER 0.80 ISO	6.35	0.800	0.12	11.00	0.6	0.6	1							•	
11EL 1.00 ISO	6.35	1.000	0.13	11.00	0.7	0.7	1			•					
11ER 1.00 ISO	6.35	1.000	0.13	11.00	0.7	0.7	1							•	
11ER 1.25 ISO	6.35	1.250	0.16	11.00	0.8	0.9	1							•	
11EL 1.50 ISO	6.35	1.500	0.19	11.00	0.8	0.9	1							•	
11ER 1.50 ISO	6.35	1.500	0.19	11.00	1.0	0.8	1			•				•	
11ER 1.75 ISO	6.35	1.750	0.22	11.00	1.1	0.8	1			•					
16ER/L 0.35 ISO	9.52	0.350	0.04	16.49	0.6	0.4	1							•	
16EL 0.40 ISO	9.52	0.400	0.05	16.49	0.7	0.4	1							•	
16ER 0.40 ISO	9.52	0.400	0.05	16.49	0.6	0.4	1							•	
16ER 0.45 ISO	9.52	0.450	0.05	16.49	0.6	0.4	1							•	
16EL 0.50 ISO	9.52	0.500	0.06	16.49	0.6	0.6	1							•	
16ER 0.50 ISO	9.52	0.500	0.06	16.49	0.6	0.6	1			•	•			•	•
16ERM 0.50 ISO	9.52	0.500	0.06	16.49	0.6	0.6	1							•	
16ER 0.60 ISO	9.52	0.600	0.10	16.49	0.6	0.6	1							•	
16EL 0.70 ISO	9.52	0.700	0.11	16.49	0.6	0.6	1							•	
16ER 0.70 ISO	9.52	0.700	0.11	16.49	0.6	0.6	1			•				•	•
16EL 0.75 ISO	9.52	0.750	0.11	16.49	0.6	0.6	1							•	
16ER 0.75 ISO	9.52	0.750	0.11	16.49	0.6	0.6	1			•	•			•	•
16ER 0.75 ISO 3M [1]	9.52	0.750	0.07	16.49	1.4	1.9	3							•	
16ERM 0.75 ISO [2]	9.52	0.750	0.08	16.49	0.6	0.6	1						•	•	•
16EL 0.80 ISO	9.52	0.800	0.12	16.49	0.6	0.6	1			•					
16ER 0.80 ISO	9.52	0.800	0.12	16.49	0.6	0.6	1			•				•	•
16ERB 0.80 ISO [2]	9.52	0.800	0.12	16.49	0.7	0.7	1							•	
16EL 1.00 ISO	9.52	1.000	0.13	16.49	0.7	0.7	1			•	•			•	
16ER 1.00 ISO	9.52	1.000	0.13	16.49	0.7	0.7	1	•	•	•	•			•	•
16ER 1.00 ISO 3M [1]	9.52	1.000	0.07	16.49	1.7	2.5	3							•	
16ERB 1.00 ISO [2]	9.52	1.000	0.13	16.49	0.7	0.7	1							•	
16ERM 1.00 ISO [2]	9.52	1.000	0.11	16.49	0.7	0.7	1		•	•		•	•	•	•
16EL 1.25 ISO	9.52	1.250	0.16	16.49	0.8	0.9	1			•	•			•	
16ER 1.25 ISO	9.52	1.250	0.16	16.49	0.8	0.9	1			•	•			•	•
16ERB 1.25 ISO [2]	9.52	1.250	0.16	16.49	0.8	0.9	1							•	
16ERM 1.25 ISO [2]	9.52	1.250	0.14	16.49	0.8	0.9	1			•			•	•	•
16EL 1.50 ISO	9.52	1.500	0.19	16.49	0.9	1.2	1			•	•			•	•
16ER 1.50 ISO	9.52	1.500	0.19	16.49	0.9	1.2	1	•	•	•	•			•	•
16ER 1.50 ISO 2M [1]	9.52	1.500	0.18	16.49	1.5	2.3	2							•	
16ERB 1.50 ISO [2]	9.52	1.500	0.19	16.49	0.8	1.0	1							•	
16ERM 1.50 ISO [2]	9.52	1.500	0.19	16.49	0.8	1.0	1		•	•		•	•	•	•
16EL 1.75 ISO	9.52	1.750	0.22	16.49	0.9	1.2	1							•	
16ER 1.75 ISO	9.52	1.750	0.22	16.49	0.9	1.2	1	•		•	•			•	•
16ERB 1.75 ISO [2]	9.52	1.750	0.22	16.49	0.9	1.2	1							•	
16ERM 1.75 ISO [2]	9.52	1.750	0.20	16.49	0.9	1.2	1			•			•	•	•

- For Insert Identification System, see pages 638-639 • For threading between walls use GRIP-type inserts TIP-ISO class: 6g
- For technical information and detailed cutting data, see pages 711-727

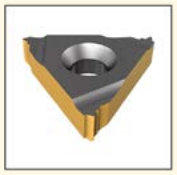
[1] Multi-tooth
[2] With pressed chipformer
[3] Thread pitch
[4] Number of teeth per corner

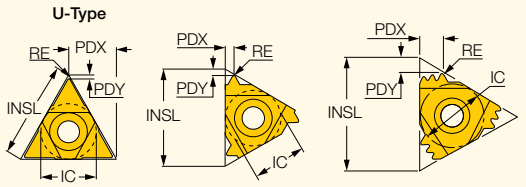
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700) • SER/L-JHP (701) • SER/L-JHP-MC (702)

ISCARTHREAD

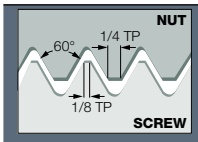
ER/L-ISO (Continued)

External ISO Metric
(DIN13 12-1986 class: 6g)
Laydown Threading Inserts
for General Industry





External right-hand shown



Designation	Dimensions IC	TP[3]	RE	INSL	PDY	PDX	CICT[4]	Tough ↔ Hard IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
16EL 2.00 ISO	9.52	2.000	0.25	16.49	1.0	1.3	1	●		●				●	
16ER 2.00 ISO	9.52	2.000	0.25	16.49	1.0	1.3	1	●	●	●	●			●	●
16ER 2.00 ISO 2M [1]	9.52	2.000	0.09	16.49	1.8	2.9	2							●	
16ERB 2.00 ISO [2]	9.52	2.000	0.25	16.49	0.9	1.2	1							●	
16ERM 2.00 ISO [2]	9.52	2.000	0.24	16.49	1.0	1.3	1			●		●	●	●	●
16EL 2.50 ISO	9.52	2.500	0.32	16.49	1.1	1.5	1							●	
16ER 2.50 ISO	9.52	2.500	0.32	16.49	1.1	1.5	1		●	●				●	●
16ERB 2.50 ISO	9.52	2.500	0.32	16.49	1.1	1.5	1							●	
16ERM 2.50 ISO [2]	9.52	2.500	0.30	16.49	1.1	1.5	1			●			●	●	●
16EL 3.00 ISO	9.52	3.000	0.38	16.49	1.2	1.6	1							●	
16ER 3.00 ISO	9.52	3.000	0.38	16.49	1.2	1.6	1	●	●	●		●		●	●
16ERB 3.00 ISO [2]	9.52	3.000	0.38	16.49	1.2	1.6	1							●	
16ERM 3.00 ISO [2]	9.52	3.000	0.38	16.49	1.2	1.6	1		●	●		●	●	●	●
22ER 1.50 ISO 3M [1]	12.70	1.500	0.07	22.00	2.3	3.7	3			●				●	
22ER 2.00 ISO 2M [1]	12.70	2.000	0.25	22.00	2.0	3.0	2							●	
22ER 2.00 ISO 3M [1]	12.70	2.000	0.25	22.00	3.1	5.0	3			●				●	
22EL 3.50 ISO	12.70	3.500	0.46	22.00	1.6	2.3	1	●		●					
22ER 3.50 ISO	12.70	3.500	0.46	22.00	1.6	2.3	1			●				●	
22ERM 3.50 ISO [2]	12.70	3.500	0.48	22.00	1.6	2.3	1						●	●	
22EL 4.00 ISO	12.70	4.000	0.52	22.00	1.6	2.3	1			●				●	
22ER 4.00 ISO	12.70	4.000	0.52	22.00	1.6	2.3	1		●	●				●	●
22ERM 4.00 ISO [2]	12.70	4.000	0.52	22.00	1.6	2.3	1						●	●	
22ER 4.50 ISO	12.70	4.500	0.58	22.00	1.6	2.3	1			●				●	
22EL 5.00 ISO	12.70	5.000	0.66	22.00	1.7	2.5	1			●					
22ER 5.00 ISO	12.70	5.000	0.66	22.00	1.7	2.5	1			●				●	
22ER 6.00 ISO	12.70	6.000	0.79	22.00	1.9	2.7	1			●					
22UERL 5.50 ISO	12.70	5.500	0.70	22.00	2.3	11.0	1			●					
22EL 6.00 ISO	12.70	6.000	0.78	22.00	2.0	2.7	1			●					
22UERL 6.00 ISO	12.70	6.000	0.78	22.00	2.6	11.0	1	●		●					
27ER 3.00 ISO 2M [1]	15.88	3.000	0.38	27.50	2.9	4.6	2							●	
27ER 5.50 ISO	15.88	5.500	0.71	27.50	2.0	2.9	1							●	
27EL 6.00 ISO	15.88	6.000	0.78	27.50	2.0	2.9	1							●	
27ER 6.00 ISO	15.88	6.000	0.78	27.50	2.0	2.9	1	●		●				●	
27UERL 8.00 ISO	15.88	8.000	1.08	27.50	2.4	13.7	1							●	

- For Insert Identification System, see pages 638-639
- For threading between walls use GRIP-type inserts TIP-ISO class: 6g
- For technical information and detailed cutting data, see pages 711-727

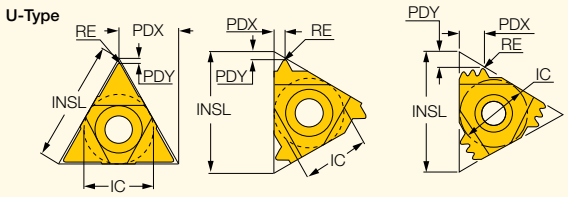
[1] Multi-tooth
[2] With pressed chipformer
[3] Thread pitch
[4] Number of teeth per corner

For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700) • SER/L-JHP (701) • SER/L-JHP-MC (702)

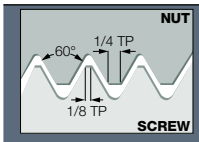
ISCARTHREAD

IR/L-ISO

Internal ISO Metric
(DIN13 12-1986 class 6H)
Laydown Threading Inserts
for General Industry



Internal left-hand shown



Designation	Dimensions IC	TP[3]	RE	INSL	PDY	PDX	CICT[4]	Tough ↔ Hard IC28	IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
06IL 0.50 ISO	4.00	0.500	0.04	6.88	0.6	0.4	1		•								
06IR 0.50 ISO	4.00	0.500	0.04	6.88	0.6	0.4	1		•	•						•	
06IL 0.75 ISO	4.00	0.750	0.06	6.88	0.6	0.5	1		•								
06IR 0.75 ISO	4.00	0.750	0.06	6.88	0.6	0.5	1		•	•						•	
06IL 1.00 ISO	4.00	1.000	0.05	6.88	0.6	0.6	1		•								
06IR 1.00 ISO	4.00	1.000	0.05	6.88	0.6	0.6	1		•	•						•	
06IL 1.25 ISO	4.00	1.250	0.07	6.88	0.6	0.6	1		•								
06IR 1.25 ISO	4.00	1.250	0.07	6.88	0.6	0.6	1		•	•						•	
08IL 0.50 ISO	5.00	0.500	0.04	8.24	0.6	0.4	1		•								
08IR 0.50 ISO	5.00	0.500	0.04	8.24	0.6	0.4	1		•	•						•	
08IR 0.75 ISO	5.00	0.750	0.05	8.24	0.6	0.5	1		•	•						•	
08IL 1.00 ISO	5.00	1.000	0.07	8.24	0.6	0.6	1		•								
08IR 1.00 ISO	5.00	1.000	0.07	8.24	0.6	0.6	1		•	•						•	
08IL 1.25 ISO	5.00	1.250	0.09	8.24	0.6	0.7	1		•								
08IR 1.25 ISO	5.00	1.250	0.09	8.24	0.6	0.7	1		•	•						•	
08IL 1.50 ISO	5.00	1.500	0.10	8.24	0.6	0.7	1		•								
08IR 1.50 ISO	5.00	1.500	0.10	8.24	0.6	0.7	1	•	•	•						•	
08IL 1.75 ISO	5.00	1.750	0.15	8.24	0.6	0.9	1		•								
08IR 1.75 ISO	5.00	1.750	0.15	8.24	0.6	0.8	1		•	•						•	
08UIRL 2.00 ISO	5.00	2.000	0.14	8.24	0.8	4.3	1		•								
11IL 0.35 ISO	6.35	0.350	0.04	11.00	0.8	0.3	1						•				
11IR 0.35 ISO	6.35	0.350	0.04	11.00	0.8	0.3	1									•	
11IR 0.40 ISO	6.35	0.400	0.03	11.00	0.8	0.4	1									•	
11IL 0.50 ISO	6.35	0.500	0.04	11.00	0.8	0.6	1									•	
11IR 0.50 ISO	6.35	0.500	0.04	11.00	0.8	0.6	1					•	•			•	
11IRB 0.50 ISO	6.35	0.500	0.04	11.00	0.8	0.6	1									•	
11IRM 0.50 ISO	6.35	0.500	0.04	11.00	0.3	0.4	1									•	
11IR 0.70 ISO	6.35	0.700	0.05	11.00	0.6	0.6	1									•	
11IR/L 0.75 ISO	6.35	0.750	0.05	11.00	0.6	0.6	1									•	
11IRB 0.75 ISO	6.35	0.750	0.05	11.00	0.1	0.6	1									•	
11IRM 0.75 ISO	6.35	0.750	0.06	11.00	0.3	0.5	1									•	
11IR 0.80 ISO	6.35	0.800	0.04	11.00	0.6	0.6	1									•	
11IRB 0.80 ISO	6.35	0.800	0.04	11.00	0.6	0.6	1									•	
11IL 1.00 ISO	6.35	1.000	0.07	11.00	0.6	0.7	1									•	
11IR 1.00 ISO	6.35	1.000	0.07	11.00	0.6	0.7	1		•		•	•	•			•	•
11IRB 1.00 ISO	6.35	1.000	0.07	11.00	0.6	0.6	1									•	
11IRM 1.00 ISO [1]	6.35	1.000	0.05	11.00	0.6	0.7	1								•	•	•
11IR/L 1.25 ISO	6.35	1.250	0.09	11.00	0.8	0.8	1									•	
11IRB 1.25 ISO	6.35	1.250	0.09	11.00	0.8	0.9	1									•	
11IL 1.50 ISO	6.35	1.500	0.12	11.00	0.8	1.0	1					•				•	
11IR 1.50 ISO	6.35	1.500	0.12	11.00	0.8	1.0	1		•		•	•	•			•	•
11IRB 1.50 ISO	6.35	1.500	0.12	11.00	0.8	1.0	1									•	
11IRM 1.50 ISO [1]	6.35	1.500	0.08	11.00	0.8	1.0	1					•				•	•
11IL 1.75 ISO	6.35	1.750	0.12	11.00	0.8	1.0	1				•					•	
11IR 1.75 ISO	6.35	1.750	0.12	11.00	0.8	1.0	1									•	
11IRB 1.75 ISO	6.35	1.750	0.12	11.00	0.8	1.0	1									•	
11IRM 1.75 ISO	6.35	1.750	0.15	11.00	0.6	0.9	1									•	
11IL 2.00 ISO	6.35	2.000	0.14	11.00	0.8	0.9	1									•	
11IR 2.00 ISO	6.35	2.000	0.14	11.00	0.8	0.9	1		•			•		•		•	•
11IRM 2.00 ISO	6.35	2.000	0.16	11.00	0.6	1.0	1									•	
16IR 0.35 ISO	9.52	0.350	0.02	16.49	0.6	0.3	1									•	
16IR/L 0.40 ISO	9.52	0.400	0.03	16.49	0.6	0.4	1									•	

• For Insert Identification System, see pages 638-639 • Tolerance: Class 6H. • For technical information and detailed cutting data, see pages 711-727

[1] With pressed chipformer

[2] Multi-tooth

[3] Thread pitch

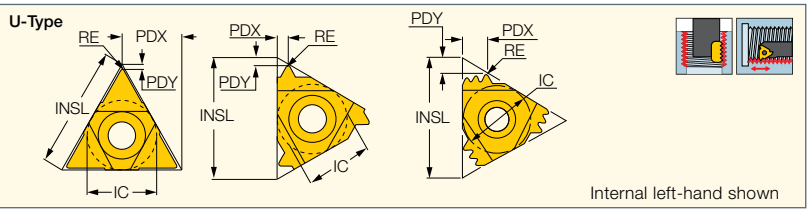
[4] Number of teeth per corner

For tools, see pages: AVC-D-SIR/L (707) • MGSIR/L (118) • PICIN-MGSIR/L (386) • SIR/L (703)

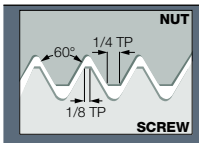
ISCARTHREAD

IR/L-ISO (Continued)

Internal ISO Metric
(DIN13 12-1986 class 6H)
Laydown Threading Inserts
for General Industry



Internal left-hand shown



Designation	Dimensions IC	TP[3]	RE	INSL	PDY	PDX	CICT[4]	Tough ↔ Hard IC28	IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
16IL 0.45 ISO	9.52	0.450	0.02	16.49	0.8	0.4	1									•	
16IL 0.50 ISO	9.52	0.500	0.04	16.49	0.6	0.6	1									•	
16IR 0.50 ISO	9.52	0.500	0.04	16.49	0.6	0.6	1					•	•			•	
16IR 0.60 ISO	9.52	0.600	0.04	16.49	0.6	0.6	1									•	
16IR 0.70 ISO	9.52	0.700	0.05	16.49	0.6	0.6	1					•				•	
16IL 0.75 ISO	9.52	0.750	0.05	16.49	0.6	0.6	1									•	
16IR 0.75 ISO	9.52	0.750	0.05	16.49	0.6	0.6	1						•			•	
16IL 0.80 ISO	9.52	0.800	0.05	16.49	0.6	0.6	1				•						
16IR 0.80 ISO	9.52	0.800	0.05	16.49	0.6	0.6	1					•					
16IL 1.00 ISO	9.52	1.000	0.07	16.49	0.7	0.8	1									•	
16IR 1.00 ISO	9.52	1.000	0.07	16.49	0.7	0.8	1				•	•	•			•	•
16IR 1.00 ISO 3M [2]	9.52	1.000	0.07	16.49	1.5	2.5	3									•	
16IRB 1.00 ISO [1]	9.52	1.000	0.07	16.49	0.7	0.8	1									•	
16IRM 1.00 ISO [1]	9.52	1.000	0.05	16.49	0.6	0.7	1				•	•		•	•	•	•
16IL 1.25 ISO	9.52	1.250	0.09	16.49	0.8	0.9	1				•		•			•	
16IR 1.25 ISO	9.52	1.250	0.09	16.49	0.8	0.9	1					•	•			•	
16IRB 1.25 ISO [1]	9.52	1.250	0.09	16.49	0.7	0.8	1									•	
16IRM 1.25 ISO [1]	9.52	1.250	0.06	16.49	0.8	0.9	1					•				•	•
16IL 1.50 ISO	9.52	1.500	0.12	16.49	0.9	1.0	1				•	•				•	•
16IR 1.50 ISO	9.52	1.500	0.12	16.49	0.9	1.0	1		•		•	•	•			•	•
16IR 1.50 ISO 2M [2]	9.52	1.500	0.10	16.49	1.5	2.3	2									•	
16IRB 1.50 ISO [1]	9.52	1.500	0.12	16.49	0.1	1.2	1									•	
16IRM 1.50 ISO [1]	9.52	1.500	0.08	16.49	0.8	1.0	1				•	•		•	•	•	•
16IL 1.75 ISO	9.52	1.750	0.12	16.49	0.9	1.2	1									•	
16IR 1.75 ISO	9.52	1.750	0.12	16.49	0.9	1.2	1					•	•			•	
16IRB 1.75 ISO [1]	9.52	1.750	0.12	16.49	0.9	1.2	1									•	
16IRM 1.75 ISO [1]	9.52	1.750	0.10	16.49	0.9	1.2	1					•			•	•	•
16IL 2.00 ISO	9.52	2.000	0.16	16.49	0.9	1.2	1					•				•	
16IR 2.00 ISO	9.52	2.000	0.16	16.49	0.9	1.2	1		•			•		•		•	•
16IR 2.00 ISO 2M [2]	9.52	2.000	0.14	16.49	1.6	2.7	2									•	
16IRB 2.00 ISO [1]	9.52	2.000	0.14	16.49	1.0	1.2	1									•	
16IRM 2.00 ISO [1]	9.52	2.000	0.11	16.49	1.0	1.3	1					•		•	•	•	•
16IL 2.50 ISO	9.52	2.500	0.18	16.49	1.1	1.5	1									•	
16IR 2.50 ISO	9.52	2.500	0.18	16.49	1.1	1.5	1		•			•				•	•
16IRB 2.50 ISO	9.52	2.500	0.18	16.49	1.2	1.5	1									•	
16IRM 2.50 ISO [1]	9.52	2.500	0.14	16.49	1.1	1.5	1					•			•	•	•
16IL 3.00 ISO	9.52	3.000	0.21	16.49	1.1	1.5	1									•	
16IR 3.00 ISO	9.52	3.000	0.21	16.49	1.1	1.5	1		•			•				•	•
16IRB 3.00 ISO [1]	9.52	3.000	0.21	16.49	1.1	1.5	1									•	
16IRM 3.00 ISO [1]	9.52	3.000	0.22	16.49	1.1	1.5	1					•		•	•	•	•
22IR 1.50 ISO 3M [2]	12.70	1.500	0.11	22.00	2.3	3.7	3					•				•	
22IR 2.00 ISO 2M [2]	12.70	2.000	0.15	22.00	2.3	3.0	2									•	
22IR 2.00 ISO 3M [2]	12.70	2.000	0.13	22.00	3.1	5.0	3									•	
22IL 3.00 ISO	12.70	3.000	0.17	22.00	1.1	1.5	1		•								
22IL 3.50 ISO	12.70	3.500	0.23	22.00	1.6	2.3	1					•					
22IR 3.50 ISO	12.70	3.500	0.23	22.00	1.6	2.3	1					•				•	•
22IL 4.00 ISO	12.70	4.000	0.27	22.00	1.6	2.3	1									•	
22IR 4.00 ISO	12.70	4.000	0.27	22.00	1.6	2.3	1				•	•				•	
22IL 4.50 ISO	12.70	4.500	0.31	22.00	1.6	2.3	1					•					
22IR 4.50 ISO	12.70	4.500	0.31	22.00	1.6	2.3	1					•				•	
22IL 5.00 ISO	12.70	5.000	0.32	22.00	1.7	2.5	1				•					•	
22IR 5.00 ISO	12.70	5.000	0.32	22.00	1.7	2.5	1					•				•	

• For Insert Identification System, see pages 638-639 • Tolerance: Class 6H. • For technical information and detailed cutting data, see pages 711-727

[1] With pressed chipformer

[2] Multi-tooth

[3] Thread pitch

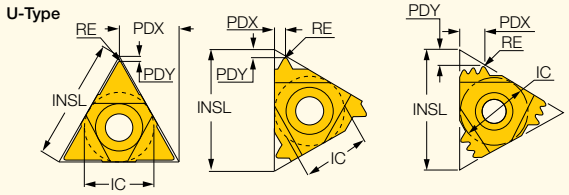
[4] Number of teeth per corner

For tools, see pages: AVC-D-SIR/L (707) • MGSIR/L (118) • PICIN-MGSIR/L (386) • SIR/L (703)

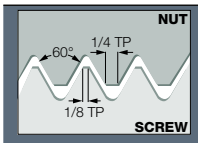
ISCARTHREAD

IR/L-ISO (Continued)

Internal ISO Metric
(DIN13 12-1986 class 6H)
Laydown Threading Inserts
for General Industry



Internal left-hand shown



Designation	Dimensions IC	TP(3)	RE	INSL	PDY	PDX	CICT(4)	Tough ↔ Hard IC28	IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
22IR 6.00 ISO	12.70	6.000	0.40	22.00	1.7	2.5	1									●	
22UIRL 5.50 ISO	12.70	5.500	0.36	22.00	2.3	11.0	1					●					
22UIRL 6.00 ISO	12.70	6.000	0.40	22.00	2.1	11.0	1					●					
27IR 3.00 ISO 2M (2)	15.88	3.000	0.21	27.50	3.1	4.6	2									●	
27IR 5.50 ISO	15.88	5.500	0.36	27.50	1.8	2.5	1					●				●	
27IR 6.00 ISO	15.88	6.000	0.40	27.50	1.8	2.5	1					●				●	
27UIRL 8.00 ISO	15.88	8.000	0.50	27.50	2.5	13.8	1									●	

• For Insert Identification System, see pages 638-639 • Tolerance: Class 6H. • For technical information and detailed cutting data, see pages 711-727

(1) With pressed chipformer

(2) Multi-tooth

(3) Thread pitch

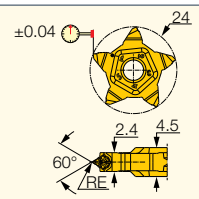
(4) Number of teeth per corner

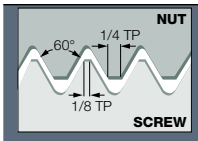
For tools, see pages: AVC-D-SIR/L (707) • MGSIR/L (118) • MTET Single Point () • PICIN-MGSIR/L (386) • SIR/L (703)

PENTACUT THREADING LINE

PENTA 24-ISO

Precision Ground ISO Metric
Full Profile Pentagonal
External Threading Inserts
with a Chipformer





Designation	Dimensions TP(1)	RE	IC908
PENTA 24-0.5-ISO	0.500	0.08	●
PENTA 24-0.75-ISO	0.750	0.11	●
PENTA 24-0.8-ISO	0.800	0.12	●
PENTA 24-1.0-ISO	1.000	0.14	●
PENTA 24-1.25-ISO	1.250	0.18	●
PENTA 24-1.5-ISO	1.500	0.22	●
PENTA 24-1.75-ISO	1.750	0.25	●
PENTA 24-2.0-ISO	2.000	0.28	●

• DMIN(mm)=5.435xTP

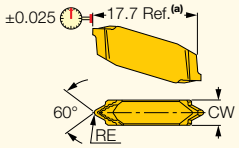
(1) Thread pitch

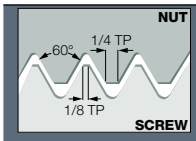
For tools, see pages: PCAD RE/LE-JHP (499) • PCADR/L (316) • PCADR/L-JHP (317) • PCHBR/L (318) • PCHPR/L (316) • PCHR/L-24 (312) • PCHR/L-24-JHP (313) • PCHR/L-24-JHP-MC (313)

ISCARTHREAD
CUTGRIP

TIP-P-ISO

Precision Ground ISO Metric Full Profile Double-Ended External Threading Inserts with a Chipformer





Designation	Dimensions TP(1)	CW	RE	RETOL(2)	Tough ↔ Hard IC08	IC908
TIP 2P0.5-ISO	0.500	2.40	0.08	0.030	●	●
TIP 2P0.75-ISO	0.750	2.40	0.11	0.030	●	●
TIP 2P0.8-ISO	0.800	2.40	0.12	0.030	●	●
TIP 2P1.0-ISO	1.000	2.40	0.14	0.030	●	●
TIP 2P1.25-ISO	1.250	2.40	0.18	0.030	●	●
TIP 2P1.5-ISO	1.500	2.40	0.22	0.030	●	●
TIP 2P1.75-ISO	1.750	2.40	0.25	0.030	●	●
TIP 4P2.0-ISO	2.000	4.00	0.28	0.030	●	●
TIP 4P2.5-ISO	2.500	4.00	0.35	0.050	●	●
TIP 4P3.0-ISO	3.000	4.00	0.42	0.050		●
TIP 4P3.5-ISO	3.500	4.00	0.48	0.050		●
TIP 5P4.0-ISO	4.000	5.50	0.55	0.050		●
TIP 5P5.0-ISO	5.000	5.50	0.68	0.050		●

• (a) TIP inserts are 1.6 mm longer than GIP in the same pocket • Toolholder seat needs to be modified according to insert profile to ensure clearance

(1) Thread pitch

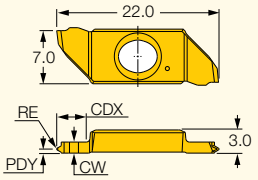
(2) Corner radius tolerance (+/-)

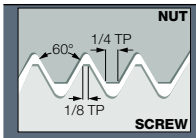
For tools, see pages: C#-GHDR/L (274) • CGHN-D (283) • CGHN-DG (283) • CGHN-S (282) • CGPAD (281) • CGPAD-JHP (282) • GHDR/L (short pocket) (275) • GHDR/L-JHP (short pocket) (276) • GHDR/L-JHP-MC (short pocket) (277) • GHGR/L (278) • GHMPR/L (273) • GHMR/L (273) • GHSR/L (373) • GHSR/L-JHP-SL (374) • NQCH-GHSR/L-JHP (374)

ISCARTHREAD
SWISSCUT INNOVAL LINE

SCIR-22-MTR-ISO

Precision Ground ISO Metric Full Profile Threading Inserts





Designation	Dimensions TP(1)	CW	CDX(2)	RE	PDY	IC1008
SCIR 22-MTR-0.3ISO	0.300	1.00	3.00	0.03	0.2	●
SCIR 22-MTR-0.4ISO	0.400	1.00	3.00	0.04	0.2	●
SCIR 22-MTR-0.5ISO	0.500	1.00	3.00	0.06	0.3	●
SCIR 22-MTR-0.75ISO	0.750	1.00	3.00	0.10	0.4	●
SCIR 22-MTR-1.0ISO	1.000	1.50	4.00	0.14	0.6	●
SCIR 22-MTR-1.5ISO	1.500	2.00	4.00	0.20	0.8	●

(1) Thread pitch

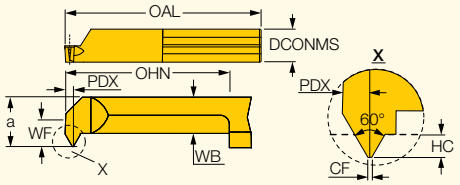
(2) Cutting depth maximum

For tools, see pages: NQCH-SCHR/L-BF-JHP (364) • NQCH-Y-SCHR-BF-JHP (364) • SCHR/L-22BF (363) • SCHR/L-22BF-JHP (363) • Y-SCHR-22BF (363) • Y-SCHR-22BF-JHP (364)

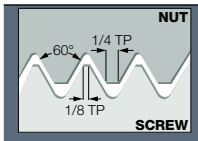
PICCOCUT

PICCO ISO Full Profile

Inserts for ISO Standard
Full Profile Thread



Right-hand shown



Designation	Dimensions											IC908
	TP[1]	DCONMS	WF	a	OAL	OHN[2]	WB	PDX	HC	CF	DMIN	
PICCO R/L 105.0510-15	1.000	5.00	1.90	4.40	30.00	15.0	3.30	0.6	0.54	0.12	4.80	●
PICCO R/L 106.0612-15	1.250	6.00	2.30	5.30	30.00	15.0	3.40	0.7	0.67	0.15	6.00	●
PICCO R/L 106.0815-15	1.500	6.00	2.30	5.30	30.00	15.0	3.40	0.8	0.81	0.18	6.00	●
PICCO R/L 107.0815-15	1.500	7.00	2.80	6.30	30.00	15.0	3.80	0.8	0.81	0.18	7.00	●

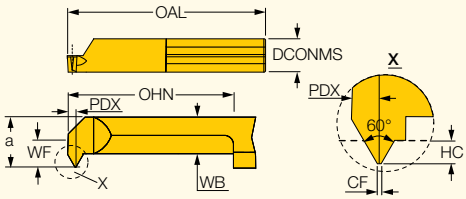
[1] Thread pitch
[2] Minimum overhang

For holders, see pages: GHPCOR (361) • PICCO ACE (359) • PICCO/MG PCO (holder) (360)

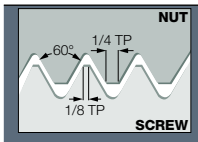
PICCOCUT

PICCO ISO Full Profile Fine

Inserts for ISO Fine Pitch
Full Profile Thread



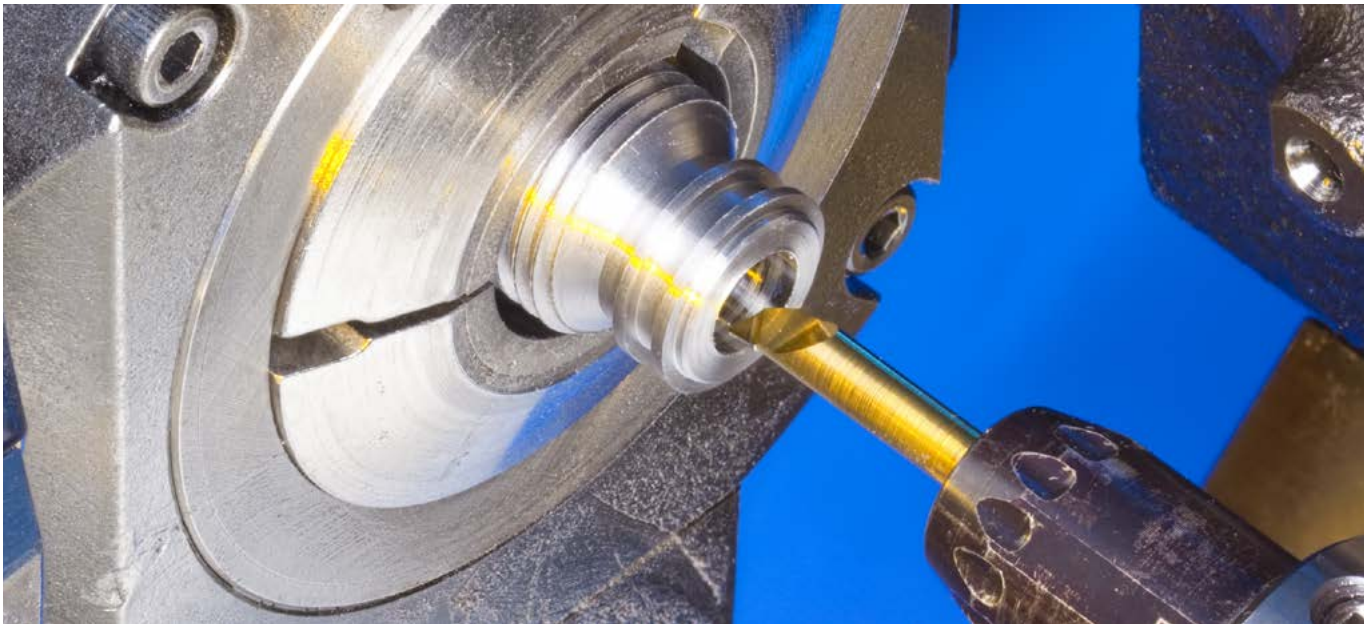
Right-hand shown



Designation	Dimensions											IC908
	TP[1]	DCONMS	WF	a	OAL	OHN[2]	WB	PDX	HC	CF	DMIN	
PICCO R/L 104.0205-15	0.500	5.00	1.50	3.50	30.00	15.0	2.40	0.4	0.27	0.06	4.00	●
PICCO R/L 105.0205-15	0.500	5.00	1.90	4.40	30.00	15.0	3.30	0.4	0.27	0.06	5.00	●
PICCO R/L 105.0407-15	0.750	5.00	1.90	4.40	30.00	15.0	3.30	0.5	0.40	0.09	5.00	●
PICCO R/L 106.0510-15	1.000	6.00	2.30	5.30	30.00	15.0	3.40	0.6	0.54	0.12	6.00	●

[1] Thread pitch
[2] Minimum overhang

For holders, see pages: GHPCOR (361) • PICCO ACE (359) • PICCO/MG PCO (holder) (360)

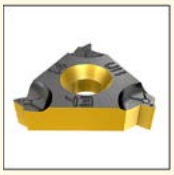


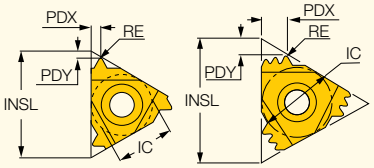
Full Profile UN

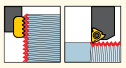
ISCARTHREAD

ER/L-UN

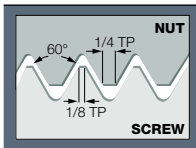
External American UN
Full Profile (UN, UNC, UNF, UNEF)
Laydown Threading Inserts for
General Industry







External right-hand shown



Designation	Dimensions							Tough ↔ Hard							
	IC	TPI[3]	RE	INSL	PDY	PDX	CICT[4]	IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
11ER 44 UN	6.35	44.0	0.05	11.00	0.6	0.6	1							●	
11ER 32 UN	6.35	32.0	0.10	11.00	0.6	0.6	1							●	
11ER 28 UN	6.35	28.0	0.10	11.00	0.6	0.7	1				●			●	
11ER 24 UN	6.35	24.0	0.12	11.00	0.7	0.8	1							●	
11EL 20 UN	6.35	20.0	0.15	11.00	0.8	0.9	1							●	
11ER 20 UN	6.35	20.0	0.15	11.00	0.8	0.9	1			●	●			●	
11ER 18 UN	6.35	18.0	0.17	11.00	0.8	1.0	1				●			●	
11ER 16 UN	6.35	16.0	0.18	11.00	0.9	1.1	1		●	●				●	
16ER 72 UN	9.52	72.0	0.04	16.49	0.8	0.4	1							●	
16ER 56 UN	9.52	56.0	0.06	16.49	0.7	0.4	1							●	
16ER 48 UN	9.52	48.0	0.05	16.49	0.6	0.6	1							●	
16ER 40 UN	9.52	40.0	0.06	16.49	0.6	0.6	1				●	●		●	
16EL 36 UN	9.52	36.0	0.07	16.49	0.6	0.6	1							●	
16ER 36 UN	9.52	36.0	0.08	16.49	0.6	0.6	1							●	
16EL 32 UN	9.52	32.0	0.10	16.49	0.6	0.6	1							●	
16ER 32 UN	9.52	32.0	0.10	16.49	0.6	0.6	1			●				●	●
16EL 28 UN	9.52	28.0	0.11	16.49	0.6	0.7	1							●	
16ER 28 UN	9.52	28.0	0.11	16.49	0.6	0.7	1			●	●			●	●
16ER 27 UN	9.52	27.0	0.10	16.49	0.7	0.8	1		●						
16EL 24 UN	9.52	24.0	0.13	16.49	0.7	0.8	1							●	
16ER 24 UN	9.52	24.0	0.13	16.49	0.7	0.8	1			●	●			●	●
16ERB 24 UN [1]	9.52	24.0	0.13	16.49	0.7	0.8	1							●	
16ERM 24 UN [1]	9.52	24.0	0.11	16.49	0.7	0.8	1			●				●	●
16EL 20 UN	9.52	20.0	0.16	16.49	0.8	0.8	1			●	●			●	
16ER 20 UN	9.52	20.0	0.16	16.49	0.8	0.9	1			●	●			●	●
16ERB 20 UN [1]	9.52	20.0	0.16	16.49	0.8	0.9	1							●	
16ERM 20 UN [1]	9.52	20.0	0.14	16.49	0.8	0.9	1			●			●	●	●
16EL 18 UN	9.52	18.0	0.17	16.49	0.7	0.8	1				●			●	
16ER 18 UN	9.52	18.0	0.17	16.49	0.7	0.8	1		●	●				●	●
16ERB 18 UN [1]	9.52	18.0	0.18	16.49	0.7	0.8	1							●	
16ERM 18 UN [1]	9.52	18.0	0.15	16.49	0.8	1.0	1			●			●	●	●
16EL 16 UN	9.52	16.0	0.18	16.49	0.9	1.1	1			●				●	
16ER 16 UN	9.52	16.0	0.20	16.49	1.0	1.2	1	●		●				●	●
16ER 16 UN 2M [2]	9.52	16.0	0.09	16.49	1.5	2.3	2							●	
16ERB 16 UN [1]	9.52	16.0	0.20	16.49	1.0	1.2	1							●	
16ERM 16 UN [1]	9.52	16.0	0.19	16.49	0.9	1.1	1			●			●	●	●
16EL 14 UN	9.52	14.0	0.22	16.49	1.0	1.2	1			●		●			
16ER 14 UN	9.52	14.0	0.23	16.49	1.0	1.2	1			●				●	●
16ER 14 UN 2M [2]	9.52	14.0	0.09	16.49	1.6	2.6	2							●	
16ERB 14 UN [1]	9.52	14.0	0.23	16.49	1.0	1.2	1							●	
16ERM 14 UN [1]	9.52	14.0	0.22	16.49	1.0	1.2	1			●			●	●	●
16EL 13 UN	9.52	13.0	0.24	16.49	1.0	1.2	1			●				●	
16ER 13 UN	9.52	13.0	0.24	16.49	1.0	1.2	1			●	●			●	
16ERB 13 UN [1]	9.52	13.0	0.25	16.49	0.9	1.2	1							●	
16ERM 13 UN [1]	9.52	13.0	0.24	16.49	1.0	1.3	1							●	
16EL 12 UN	9.52	12.0	0.27	16.49	1.1	1.2	1			●				●	
16ER 12 UN	9.52	12.0	0.27	16.49	1.1	1.2	1			●	●			●	●
16ER 12 UN 2M [2]	9.52	12.0	0.27	16.49	2.2	3.4	2							●	
16ERB 12 UN [1]	9.52	12.0	0.27	16.49	0.9	1.2	1							●	
16ERM 12 UN [1]	9.52	12.0	0.25	16.49	1.1	1.4	1		●	●			●	●	●
16ER 11.5 UN	9.52	11.5	0.27	16.49	1.2	1.5	1			●				●	
16EL 11 UN	9.52	11.0	0.28	16.49	1.1	1.5	1							●	
16ER 11 UN	9.52	11.0	0.29	16.49	1.1	1.5	1			●				●	

- For Insert Identification System, see pages 638-639 • Tolerance: Class 2A • For threading between walls use GRIP-type insert TIP-UN
- For technical information and detailed cutting data, see pages 711-727

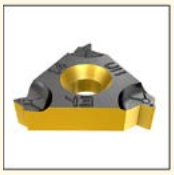
[1] With pressed chipformer.
[2] Multi-tooth
[3] Threads per inch
[4] Number of teeth per corner

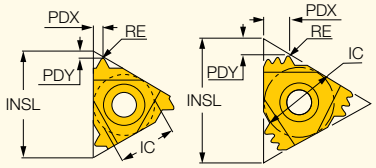
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700) • SER/L-JHP (701) • SER/L-JHP-MC (702)

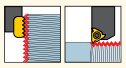
ISCARTHREAD

ER/L-UN (continued)

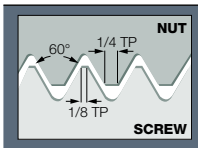
External American UN
Full Profile (UN, UNC, UNF, UNEF)
Laydown Threading Inserts for
General Industry







External right-hand shown



Designation	Dimensions							Tough ↔ Hard							
	IC	TPI[3]	RE	INSL	PDY	PDX	CICT[4]	IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
16ERB 11 UN [1]	9.52	11.0	0.29	16.49	1.1	1.5	1							●	
16EL 10 UN	9.52	10.0	0.32	16.49	1.1	1.5	1			●				●	
16ER 10 UN	9.52	10.0	0.32	16.49	1.1	1.5	1			●	●			●	●
16ERB 10 UN [1]	9.52	10.0	0.32	16.49	1.1	1.5	1							●	
16ERM 10 UN	9.52	10.0	0.32	16.49	1.1	1.5	1							●	
16ER 9 UN	9.52	9.0	0.35	16.49	1.3	1.6	1							●	
16ERB 9 UN [1]	9.52	9.0	0.35	16.49	1.3	1.6	1							●	
16EL 8 UN	9.52	8.0	0.40	16.49	1.2	1.6	1			●				●	
16ER 8 UN	9.52	8.0	0.40	16.49	1.2	1.6	1			●				●	●
16ERB 8 UN [1]	9.52	8.0	0.40	16.49	1.2	1.6	1							●	
16ERM 8 UN [1]	9.52	8.0	0.41	16.49	1.2	1.6	1			●				●	
22ER 12 UN 2M [2]	12.70	12.0	0.27	22.00	2.2	3.4	2							●	
22ER 12 UN 3M [2]	12.70	12.0	0.27	22.00	3.2	5.2	3		●					●	
22ER 7 UN	12.70	7.0	0.47	22.00	1.6	2.3	1			●				●	
22ER 6 UN	12.70	6.0	0.56	22.00	1.6	2.3	1				●			●	
22ER 5 UN	12.70	5.0	0.67	22.00	1.7	2.5	1		●	●				●	
27ER 8 UN 2M [2]	15.88	8.0	0.41	27.50	3.1	4.9	2							●	
27ER 4.5 UN	15.88	4.5	0.75	27.50	1.9	2.7	1							●	
27ER 4 UN	15.88	4.0	0.85	27.50	0.7	0.8	1		●	●	●			●	

- For Insert Identification System, see pages 638-639 • Tolerance: Class 2A • For threading between walls use GRIP-type insert TIP-UN
- For technical information and detailed cutting data, see pages 711-727

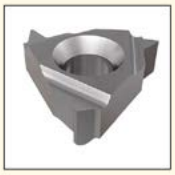
[1] With pressed chipformer.
[2] Multi-tooth
[3] Threads per inch
[4] Number of teeth per corner

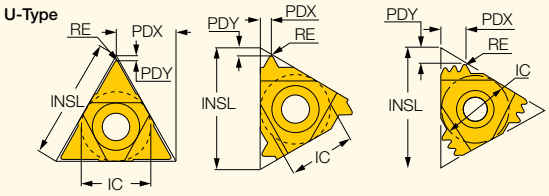
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700) • SER/L-JHP (701) • SER/L-JHP-MC (702)

ISCARTHREAD

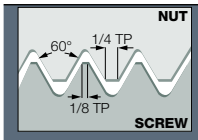
IR/L-UN

Internal American UN Full Profile (UN, UNC, UNF, UNEF) Laydown Threading Inserts for General Industry





Internal left-hand shown



Designation	Dimensions IC	TPI[4]	RE	INSL	PDY	PDX	CICT[5]	Tough ↔ Hard IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
06IR 32 UN	4.00	32.0	0.05	6.88	0.6	0.5	1	●								
06IL 24 UN	4.00	24.0	0.07	6.88	0.6	0.6	1	●								
06IR 24 UN	4.00	24.0	0.08	6.88	0.6	0.6	1	●								
06IR 20 UN	4.00	20.0	0.09	6.88	0.6	0.6	1	●								
06IL 18 UN	4.00	18.0	0.07	6.88	0.6	0.7	1	●								
06IR 18 UN	4.00	18.0	0.10	6.88	0.6	0.7	1	●								
08IR 32 UN	5.00	32.0	0.04	8.24	0.6	0.5	1	●								
08IL 28 UN	5.00	28.0	0.04	8.24	0.6	0.6	1	●								
08IR 28 UN	5.00	27.0	0.05	8.24	0.5	0.6	1	●								
08IL 24 UN	5.00	24.0	0.08	8.24	0.6	0.6	1	●								
08IR 24 UN	5.00	24.0	0.08	8.24	0.6	0.6	1	●								
08IR/L 20 UN	5.00	20.0	0.08	8.24	0.7	0.7	1	●								
08IR 18 UN	5.00	18.0	0.08	8.24	0.6	0.7	1	●								
08IR 16 UN	5.00	16.0	0.09	8.24	0.6	0.7	1	●								
08IR 14 UN	5.00	14.0	0.10	8.24	0.6	0.8	1	●							●	
08UIRL 13 UN	5.00	13.0	0.10	8.24	1.0	4.0	1								●	
08UIRL 12 UN	5.00	12.0	0.10	8.24	0.9	4.0	1		●							
08UIRL 11 UN	5.00	11.0	0.10	8.24	0.9	4.0	1	●								
11IR 36 UN	6.35	36.0	0.04	11.00	0.6	0.6	1								●	
11IL 32 UN	6.35	32.0	0.04	11.00	0.6	0.6	1								●	
11IR 32 UN	6.35	32.0	0.05	11.00	0.6	0.6	1								●	
11IRB 32 UN	6.35	32.0	0.04	11.00	0.6	0.6	1								●	
11IL 28 UN	6.35	28.0	0.04	11.00	0.6	0.7	1								●	
11IR 28 UN	6.35	28.0	0.05	11.00	0.6	0.6	1								●	
11IRB 28 UN	6.35	28.0	0.05	11.00	0.6	0.6	1								●	
11IR/L 24 UN	6.35	24.0	0.07	11.00	0.8	0.8	1								●	
11IRB 24 UN	6.35	24.0	0.08	11.00	0.6	0.6	1								●	
11IR/L 20 UN	6.35	20.0	0.09	11.00	0.8	0.9	1								●	
11IRB 20 UN	6.35	20.0	0.09	11.00	0.8	0.9	1								●	
11IL 18 UN	6.35	18.0	0.10	11.00	0.9	1.0	1								●	
11IR 18 UN	6.35	18.0	0.07	11.00	0.8	1.0	1				●				●	●
11IRB 18 UN	6.35	18.0	0.10	11.00	0.9	1.0	1								●	
11IL 16 UN	6.35	16.0	0.11	11.00	0.9	1.0	1								●	
11IR 16 UN	6.35	16.0	0.09	11.00	0.9	1.0	1				●				●	●
11IRB 16 UN	6.35	16.0	0.11	11.00	0.9	1.0	1								●	
11IL 14 UN	6.35	14.0	0.10	11.00	0.9	1.1	1				●				●	
11IR 14 UN	6.35	14.0	0.10	11.00	0.9	1.0	1			●	●				●	
11IRB 14 UN	6.35	14.0	0.13	11.00	0.9	1.0	1								●	
11IR 12 UN	6.35	12.0	0.12	11.00	0.9	1.1	1				●				●	
11IRB 12 UN	6.35	12.0	0.13	11.00	0.9	1.0	1								●	
11IR 11 UN	6.35	11.0	0.14	11.00	0.8	1.0	1				●				●	
16IR 32 UN	9.52	32.0	0.04	16.49	0.6	0.6	1				●				●	
16IL 28 UN	9.52	28.0	0.04	16.49	0.6	0.7	1								●	
16IR 28 UN	9.52	28.0	0.05	16.49	0.6	0.6	1								●	
16IR 24 UN	9.52	24.0	0.05	16.49	0.7	0.8	1				●				●	
16IRB 24 UN [1]	9.52	24.0	0.07	16.49	0.7	0.8	1								●	
16IL 20 UN	9.52	20.0	0.06	16.49	0.8	0.9	1				●				●	
16IR 20 UN	9.52	20.0	0.06	16.49	0.8	0.9	1			●	●	●			●	●
16IRB 20 UN [1]	9.52	20.0	0.09	16.49	0.8	0.8	1								●	
16IRM 20 UN [1]	9.52	20.0	0.06	16.49	0.8	0.9	1								●	●
16IL 18 UN	9.52	18.0	0.08	16.49	0.7	0.8	1								●	

• For Insert Identification System, see pages 638-639 • Tolerance: class 2B,ANSI B1, 3M-1986. • For technical information and detailed cutting data, see pages 711-727

[1] With pressed chipformer

[2] Multi-tooth

[3] With pressed chipformer.

[4] Threads per inch

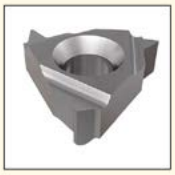
[5] Number of teeth per corner

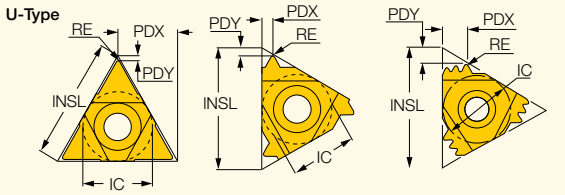
For tools, see pages: AVC-D-SIR/L (707) • MGSIR/L (118) • PICIN-MGSIR/L (386) • SIR/L (703)

ISCARTHREAD

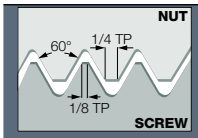
IR/L-UN (Continued)

Internal American UN Full Profile (UN, UNC, UNF, UNEF) Laydown Threading Inserts for General Industry





Internal left-hand shown



Designation	Dimensions IC	TPI[4]	RE	INSL	PDY	PDX	CICT[5]	Tough ↔ Hard IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
16IR 18 UN	9.52	18.0	0.08	16.49	0.7	0.8	1				•				•	
16IRB 18 UN [1]	9.52	18.0	0.08	16.49	0.7	0.8	1								•	
16IRM 18 UN [1]	9.52	18.0	0.08	16.49	0.8	1.0	1							•	•	
16IL 16 UN	9.52	16.0	0.11	16.49	1.0	1.1	1								•	
16IR 16 UN	9.52	16.0	0.11	16.49	0.9	1.1	1				•				•	
16IR 16 UN-2M [2]	9.52	16.0	0.09	16.49	1.5	2.3	2						•		•	
16IRB 16 UN [3]	9.52	16.0	0.11	16.49	0.9	1.1	1								•	
16IRM 16 UN [1]	9.52	16.0	0.09	16.49	0.9	1.1	1				•				•	•
16IL 14 UN	9.52	14.0	0.10	16.49	0.9	1.1	1				•				•	
16IR 14 UN	9.52	14.0	0.13	16.49	0.9	1.1	1				•				•	
16IRB 14 UN [1]	9.52	14.0	0.13	16.49	0.9	1.1	1								•	
16IRM 14 UN [1]	9.52	14.0	0.11	16.49	0.9	1.2	1				•			•	•	•
16IL 12 UN	9.52	12.0	0.12	16.49	1.0	1.1	1				•				•	
16IR 12 UN	9.52	12.0	0.13	16.49	1.0	1.1	1				•	•			•	•
16IRB 12 UN [1]	9.52	12.0	0.13	16.49	1.0	1.1	1								•	
16IRM 12 UN [1]	9.52	12.0	0.12	16.49	1.1	1.4	1				•			•	•	•
16IR 11.5 UN	9.52	11.5	0.14	16.49	1.0	1.1	1								•	
16IR 11 UN	9.52	11.0	0.14	16.49	1.0	1.1	1								•	
16IR/L 10 UN	9.52	10.0	0.15	16.49	1.1	1.5	1				•				•	
16IRB 10 UN [1]	9.52	10.0	0.15	16.49	1.1	1.5	1								•	
16IR 9 UN	9.52	9.0	0.17	16.49	1.2	1.7	1								•	
16IL 8 UN	9.52	8.0	0.23	16.49	1.1	1.5	1				•	•			•	
16IR 8 UN	9.52	8.0	0.23	16.49	1.1	1.5	1				•	•			•	•
16IRB 8 UN [1]	9.52	8.0	0.23	16.49	1.1	1.5	1								•	
16IRM 8 UN [1]	9.52	8.0	0.20	16.49	1.1	1.5	1				•			•	•	•
22IR 16 UN 3M [2]	12.70	16.0	0.07	22.00	2.5	4.0	3								•	
22IR 12 UN 2M [2]	12.70	12.0	0.09	22.00	2.3	3.4	2								•	
22IR 12 UN 3M [2]	12.70	12.0	0.13	22.00	3.2	5.2	3								•	
22IL 7 UN	12.70	7.0	0.22	22.00	1.6	2.3	1								•	
22IR 7 UN	12.70	7.0	0.22	22.00	1.6	2.3	1	•			•				•	
22IR 6 UN	12.70	6.0	0.26	22.00	1.6	2.3	1				•				•	
22IR 5 UN	12.70	5.0	0.32	22.00	1.6	2.3	1				•				•	
22UIRL 4.5 UN	12.70	4.5	0.36	22.00	2.4	11.0	1				•					
27IR 8 UN 2M [2]	15.88	8.0	0.19	27.50	3.1	4.9	2								•	
27IR 4.5 UN	15.88	4.5	0.36	27.50	1.7	2.4	1				•				•	
27IR 4 UN	15.88	4.0	0.41	27.50	1.8	2.5	1				•				•	

• For Insert Identification System, see pages 638-639 • Tolerance: class 2B,ANSI B1, 3M-1986. • For technical information and detailed cutting data, see pages 711-727

[1] With pressed chipformer

[2] Multi-tooth

[3] With pressed chipformer.

[4] Threads per inch

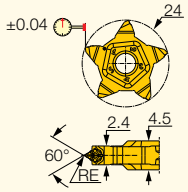
[5] Number of teeth per corner

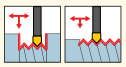
For tools, see pages: AVC-D-SIR/L (707) • MGSIR/L (118) • PICIN-MGSIR/L (386) • SIR/L (703)

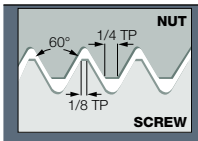
PENTACUT THREADING LINE

PENTA 24-UN

American UN (UNC, UNF, UNEF)
Precision Ground Full Profile
Pentagonal External Inserts
with a Chipformer







Designation	Dimensions TPI[1]	Dimensions RE	IC908
PENTA 24-24-UN	24.0	0.13	●
PENTA 24-20-UN	20.0	0.16	●
PENTA 24-18-UN	18.0	0.18	●
PENTA 24-16-UN	16.0	0.21	●
PENTA 24-14-UN	14.0	0.23	●

• DMIN(inch)=5.435/TPI • Tolerance: Class 2A

(1) Threads per inch

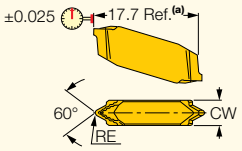
For tools, see pages: PCAD RE/LE-JHP (499) • PCADR/L (316) • PCADR/L-JHP (317) • PCHBR/L (318) • PCHPR/L (316) • PCHR/L-24 (312) • PCHR/L-24-JHP (313) • PCHR/L-24-JHP-MC (313)

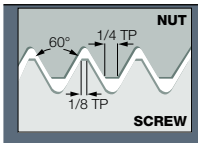
ISCARTHREAD

CUTGRIP

TIP-P-UN

American UN (UNC,UNF,UNEF)
Precision Ground External
Double-Ended Full Profile Threading
Inserts with a Chipformer





Designation	Dimensions CW	RE	RETOL[1]	TPI[2]	Tough ↔ Hard IC08	IC808	IC908
TIP 2P32-UN	2.40	0.10	0.030	32.0	●		●
TIP 2P28-UN	2.40	0.11	0.030	28.0	●		●
TIP 2P24-UN	2.40	0.13	0.030	24.0	●		●
TIP 2P20-UN	2.40	0.16	0.030	20.0	●		●
TIP 2P18-UN	2.40	0.18	0.030	18.0	●		●
TIP 2P16-UN	2.40	0.20	0.030	16.0	●		●
TIP 2P14-UN	2.40	0.23	0.030	14.0	●		●
TIP 2P13-UN	2.40	0.25	0.030	13.0	●		●
TIP 2P12-UN	2.40	0.27	0.030	12.0	●		●
TIP 4P11-UN	4.00	0.30	0.030	11.0			●
TIP 4P10-UN	4.00	0.33	0.050	10.0		●	●
TIP 4P08-UN	4.00	0.41	0.050	8.0			●

• (a) TIP inserts are 1.6 mm longer than GIP in the same pocket • Toolholder seat needs to be modified according to insert profile to ensure clearance

(1) Corner radius tolerance (+/-)

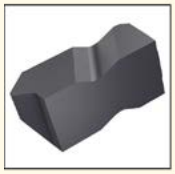
(2) Threads per inch

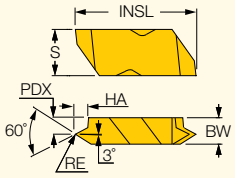
For tools, see pages: C#-GHDR/L (274) • CGHN-D (283) • CGHN-DG (283) • CGHN-S (282) • CGPAD (281) • CGPAD-JHP (282) • GHDR/L (short pocket) (275) • GHDR/L-JHP (short pocket) (276) • GHDR/L-JHP-MC (short pocket) (277) • GHGR/L (278) • GHMPR/L (273) • GHMR/L (273) • GHSR/L (373) • GHSR/L-JHP-SL (374) • NQCH-GHSR/L-JHP (374)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

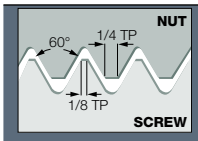
UN THREADING FLTC-E

Double-Ended, Precision, Flat
Top Full Profile Threading Inserts





Right-hand shown



Designation	Dimensions TPI[1]	RE	HA	PDX	BW	S	INSL	IC908
FLTC-3R/L7E	7.0	0.43	2.74	2.70	4.95	8.74	22.60	●
FLTC-3R/L8E	8.0	0.38	2.39	2.70	4.95	8.74	22.60	●
FLTC-3R/L9E	9.0	0.33	2.13	2.70	4.95	8.74	22.60	●
FLTC-3R/L10E	10.0	0.30	1.93	2.70	4.95	8.74	22.60	●
FLTC-3R/L11E	11.0	0.28	1.75	2.70	4.95	8.74	22.60	●
FLTC-3R/L12E	12.0	0.25	1.30	3.80	4.95	8.74	22.60	●
FLTC-3R/L14E	14.0	0.23	1.37	3.80	4.95	8.74	22.60	●
FLTC-3R/L16E	16.0	0.20	1.17	3.80	4.95	8.74	22.60	●
FLTC-3R/L18E	18.0	0.18	1.04	3.80	4.95	8.74	22.60	●
FLTC-3R/L20E	20.0	0.15	0.94	3.80	4.95	8.74	22.60	●
FLTC-3R/L24E	24.0	0.13	0.79	3.80	4.95	8.74	22.60	●
FLTC-3R/L28E	28.0	0.08	0.58	3.80	4.95	8.74	22.60	●
FLTC-3R/L32E	32.0	0.08	0.53	3.80	4.95	8.74	22.60	●

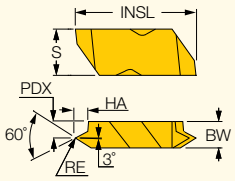
(1) Threads per inch

For tools, see pages: FLASR/L (708) • FLSR/L (708)

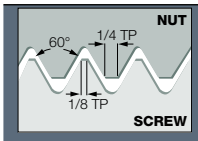
NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

UN THREADING FLTC-I

Double-Ended, Precision, Flat
Top Full Profile Threading Inserts



Right-hand shown



Designation	Dimensions TPI[1]	RE	HA	PDX	BW	S	INSL	IC908
FLTC-3R/L7I	7.0	0.23	2.34	2.70	4.95	8.74	22.60	●
FLTC-3R/L8I	8.0	0.18	2.06	2.70	4.95	8.74	22.60	●
FLTC-3R/L9I	9.0	0.15	1.83	2.70	4.95	8.74	22.60	●
FLTC-3R/L10I	10.0	0.13	1.65	2.70	4.95	8.74	22.60	●
FLTC-3R/L11I	11.0	0.13	1.50	2.70	4.95	8.74	22.60	●
FLTC-3R/L12I	12.0	0.10	1.22	3.80	4.95	8.74	22.60	●
FLTC-3R/L14I	14.0	0.08	1.12	3.76	4.95	8.74	22.60	●
FLTC-3R/L16I	16.0	0.08	1.02	3.76	4.95	8.74	22.60	●
FLTC-3R/L18I	18.0	0.08	0.91	3.76	4.95	8.74	22.60	●
FLTC-3R/L20I	20.0	0.08	0.79	3.76	4.95	8.74	22.60	●
FLTC-3R/L24I	24.0	0.08	0.66	3.76	4.95	8.74	22.60	●
FLTC-3R/L28I	28.0	0.08	0.58	3.76	4.95	8.74	22.60	●

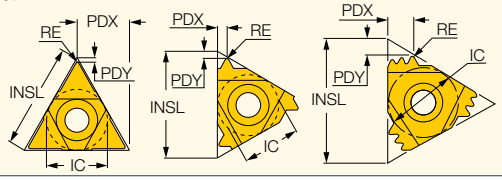
(1) Threads per inch

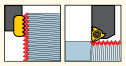
Full Profile W (Whitworth BSW, BSF, BSP)

ISCARTHREAD

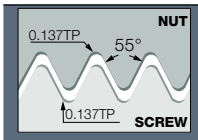
ER/L-W
External Whitworth
(BSW, BSF, BSP)
B.S.84-1956 DIN259
Medium Class Full Profile
Laydown Threading Inserts

U-Type





External right-hand shown



Designation	Dimensions IC	TPI[3]	RE	INSL	PDY	PDX	CICT[4]	Tough ↔ Hard IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
11ER/L 19 W	6.35	19.0	0.15	11.00	0.8	1.0	1							•	
11ER 14 W	6.35	14.0	0.21	11.00	0.9	1.1	1							•	
16ER 32 W	9.52	32.0	0.09	16.49	0.6	0.6	1		•						
16ER 28 W	9.52	28.0	0.11	16.49	0.6	0.7	1			•				•	•
16ER 26 W	9.52	26.0	0.12	16.49	0.7	0.7	1							•	
16ER 24 W	9.52	24.0	0.14	16.49	0.7	0.8	1							•	
16ER 22 W	9.52	22.0	0.13	16.49	0.8	0.9	1							•	
16ER 20 W	9.52	20.0	0.16	16.49	0.7	0.8	1							•	
16EL 19 W	9.52	19.0	0.17	16.49	0.7	0.8	1							•	
16ER 19 W	9.52	19.0	0.17	16.49	0.7	0.8	1	•		•				•	•
16ERB 19 W [1]	9.52	19.0	0.17	16.49	0.7	0.8	1							•	
16ERM 19 W [1]	9.52	19.0	0.16	16.49	0.8	1.0	1		•	•			•	•	•
16EL 18 W	9.52	18.0	0.17	16.49	0.9	1.2	1							•	
16ER 18 W	9.52	18.0	0.17	16.49	0.9	1.2	1		•					•	
16ER 16 W	9.52	16.0	0.20	16.49	0.9	1.2	1							•	
16ERB 16 W [1]	9.52	16.0	0.20	16.49	0.9	1.2	1							•	
16ERM 16 W [1]	9.52	16.0	0.20	16.49	0.9	1.1	1			•			•	•	•
16EL 14 W	9.52	14.0	0.23	16.49	1.0	1.2	1							•	
16ER 14 W	9.52	14.0	0.23	16.49	1.0	1.2	1	•		•				•	
16ER 14 W 2M [2]	9.52	14.0	0.21	16.49	1.7	2.7	2							•	
16ERB 14 W [1]	9.52	14.0	0.23	16.49	1.0	1.2	1							•	
16ERM 14 W [1]	9.52	14.0	0.24	16.49	1.0	1.2	1		•	•			•	•	•
16ER/L 12 W	9.52	12.0	0.27	16.49	1.2	1.4	1							•	
16EL 11 W	9.52	11.0	0.29	16.49	1.1	1.5	1			•				•	
16ER 11 W	9.52	11.0	0.29	16.49	1.1	1.5	1	•	•	•	•	•		•	•
16ERB 11 W [1]	9.52	11.0	0.29	16.49	1.1	1.5	1							•	
16ERM 11 W [1]	9.52	11.0	0.27	16.49	1.1	1.5	1			•		•	•	•	•
16ER 10 W	9.52	10.0	0.32	16.49	1.1	1.5	1			•				•	
16ERB 10 W [1]	9.52	10.0	0.32	16.49	1.1	1.5	1							•	
16ER 9 W	9.52	9.0	0.34	16.49	1.2	1.7	1			•					
16EL 8 W	9.52	8.0	0.39	16.49	1.2	1.5	1							•	
16ER 8 W	9.52	8.0	0.41	16.49	1.2	1.6	1							•	
22ER 14 W 3M [2]	12.70	14.0	0.21	22.00	2.8	4.5	3							•	
22ER 11 W 2M [2]	12.70	11.0	0.09	22.00	2.2	3.4	2							•	
22ER 7 W	12.70	7.0	0.45	22.00	1.6	2.3	1							•	
22ER 6 W	12.70	6.0	0.52	22.00	1.6	2.3	1							•	
22ER 5 W	12.70	5.0	0.65	22.00	1.7	2.4	1			•					
27ER 4 W	15.88	4.0	0.85	27.50	2.0	2.9	1							•	
27UEIRL 3.5 W	15.88	3.5	0.95	27.50	2.1	13.7	1							•	

• For Insert Identification System, see pages 638-639 • For threading between walls use GRIP-type insert TIP-BSW • Tolerance: medium class
• For technical information and detailed cutting data, see pages 711-727

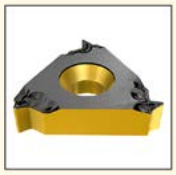
[1] With pressed chipformer
[2] Multi-tooth
[3] Threads per inch
[4] Number of teeth per corner

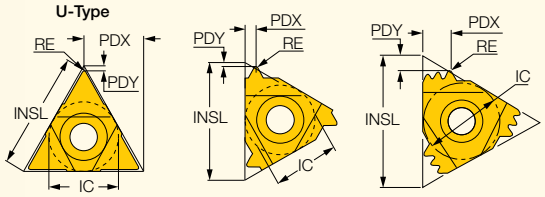
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700) • SER/L-JHP (701) • SER/L-JHP-MC (702)

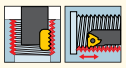
ISCARTHREAD

IR/L-W

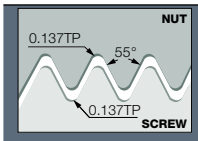
Internal Whitworth
(BSW, BSF, BSP)
B.S.84-1956 DIN259
Medium Class Full Profile
Laydown Threading Inserts







Internal left-hand shown



Designation	Dimensions IC	TPI[3]	RE	INSL	PDY	PDX	CICT[4]	Tough ↔ Hard IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
06IR 26 W	4.00	26.0	0.10	6.88	0.7	0.6	1	●								
08IR 28 W	5.00	28.0	0.11	8.24	0.5	0.6	1	●								
08IR 19 W	5.00	19.0	0.15	8.24	0.6	0.6	1	●	●						●	
08IR 18 W	5.00	18.0	0.16	8.24	0.6	0.7	1	●								
08IR 16 W	5.00	16.0	0.18	8.24	0.6	0.7	1	●								
11IR 36 W	6.35	36.0	0.07	11.00	0.6	0.6	1					●				
11IR 28 W	6.35	28.0	0.10	11.00	0.6	0.7	1				●					
11IRB 28 W	6.35	28.0	0.10	11.00	0.6	0.6	1								●	
11IR 26 W	6.35	26.0	0.10	11.00	0.7	0.7	1	●								
11IR/L 24 W	6.35	24.0	0.11	11.00	0.7	0.8	1								●	
11IRB 24 W	6.35	24.0	0.11	11.00	0.6	0.6	1								●	
11IR 20 W	6.35	20.0	0.14	11.00	0.8	0.9	1				●				●	
11IRB 20 W	6.35	20.0	0.14	11.00	0.8	0.9	1								●	
11IR 19 W	6.35	19.0	0.15	11.00	0.8	1.0	1				●				●	●
11IRB 19 W	6.35	19.0	0.17	11.00	0.7	0.9	1								●	
11IL 18 W	6.35	18.0	0.16	11.00	0.8	1.0	1								●	
11IR 18 W	6.35	18.0	0.18	11.00	0.8	0.9	1								●	
11IRB 18 W	6.35	18.0	0.18	11.00	0.9	0.9	1								●	
11IR 16 W	6.35	16.0	0.18	11.00	0.9	1.1	1								●	
11IRB 16 W	6.35	16.0	0.18	11.00	0.8	0.9	1								●	
11IL 14 W	6.35	14.0	0.23	11.00	0.9	1.1	1								●	
11IR 14 W	6.35	14.0	0.23	11.00	0.9	1.1	1	●			●	●			●	●
11IRB 14 W	6.35	14.0	0.23	11.00	0.9	1.0	1								●	
16IR 32 W	9.52	32.0	0.09	16.49	0.6	0.6	1			●						
16IR 28 W	9.52	28.0	0.09	16.49	0.6	0.7	1				●					
16IR 26 W	9.52	26.0	0.12	16.49	0.8	0.8	1								●	
16IR 24 W	9.52	24.0	0.11	16.49	0.7	0.8	1								●	
16IR 22 W	9.52	22.0	0.13	16.49	0.8	0.9	1								●	
16IL 20 W	9.52	20.0	0.14	16.49	0.8	0.9	1				●				●	
16IR 20 W	9.52	20.0	0.14	16.49	0.7	0.8	1				●				●	
16IRM 20 W [1]	9.52	20.0	0.14	16.49	0.8	0.9	1								●	
16IR 19 W	9.52	19.0	0.17	16.49	0.7	0.8	1				●				●	
16IRB 19 W [1]	9.52	19.0	0.17	16.49	0.7	0.8	1								●	
16IRM 19 W [1]	9.52	19.0	0.15	16.49	0.8	1.0	1				●					
16IR/L 18 W	9.52	18.0	0.18	16.49	0.8	0.8	1								●	
16IR 16 W	9.52	16.0	0.20	16.49	1.0	1.0	1								●	
16IRB 16 W [1]	9.52	16.0	0.20	16.49	1.0	1.2	1								●	
16IRM 16 W [1]	9.52	16.0	0.18	16.49	0.9	1.1	1								●	
16IL 14 W	9.52	14.0	0.23	16.49	1.0	1.2	1								●	
16IR 14 W	9.52	14.0	0.23	16.49	1.0	1.2	1	●			●	●			●	●
16IR 14 W 2M [2]	9.52	14.0	0.19	16.49	1.7	2.6	2								●	●
16IRB 14 W [1]	9.52	14.0	0.23	16.49	1.0	1.2	1								●	
16IRM 14 W [1]	9.52	14.0	0.21	16.49	1.0	1.2	1				●			●	●	●
16IR 12 W	9.52	12.0	0.27	16.49	1.2	1.5	1								●	
16IL 11 W	9.52	11.0	0.29	16.49	1.1	1.5	1								●	
16IR 11 W	9.52	11.0	0.29	16.49	1.1	1.5	1	●		●	●	●			●	●
16IRB 11 W [1]	9.52	11.0	0.28	16.49	1.1	1.5	1								●	
16IRM 11 W [1]	9.52	11.0	0.27	16.49	1.1	1.5	1				●		●	●	●	●
16IR 10 W	9.52	10.0	0.32	16.49	1.1	1.1	1								●	
16IRB 10 W [1]	9.52	10.0	0.31	16.49	1.1	1.5	1								●	
16IR 9 W	9.52	9.0	0.34	16.49	1.2	1.7	1				●					
16IL 8 W	9.52	8.0	0.41	16.49	1.1	1.1	1			●					●	
16IR 8 W	9.52	8.0	0.41	16.49	1.1	1.1	1								●	
22IR 14 W 3M [2]	12.70	14.0	0.21	22.00	2.8	4.5	3								●	
22IR 11 W 2M [2]	12.70	11.0	0.09	22.00	2.3	3.4	2								●	
22IR 7 W	12.70	7.0	0.45	22.00	1.6	2.3	1								●	
22IR 6 W	12.70	6.0	0.52	22.00	1.6	2.3	1				●					
22IR 5 W	12.70	5.0	0.65	22.00	1.7	2.4	1				●					
27IR 4.5 W	15.88	4.5	0.73	27.50	1.8	2.6	1				●					
27IR 4 W	15.88	4.0	0.82	27.50	2.0	2.9	1								●	

• For Insert Identification System, see pages 638-639 • Tolerance: medium class • For technical information and detailed cutting data, see pages 711-727

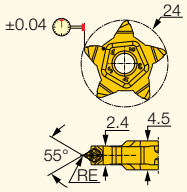
[1] With pressed chipformer [2] Multi-tooth [3] Threads per inch [4] Number of teeth per corner

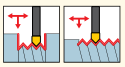
For tools, see pages: AVC-D-SIR/L (707) • MGSIR/L (118) • PICIN-MGSIR/L (386) • SIR/L (703)

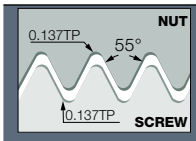
PENTACUT THREADING LINE

PENTA 24-W

Whitworth (BSW, BSF, BSP)
B.S.84-1956 DIN 259 Pentagonal
Full Profile External Threading
Inserts with a Chipformer







Designation	Dimensions TPI(1)	Dimensions RE	IC908
PENTA 24-28-W	28.0	0.09	●
PENTA 24-19-W	19.0	0.15	●
PENTA 24-14-W	14.0	0.21	●

• DMIN(inch)=5.435/TPI
(1) Threads per inch

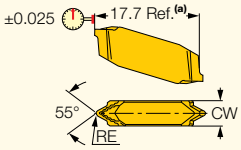
For tools, see pages: PCAD RE/LE-JHP (499) • PCADR/L (316) • PCADR/L-JHP (317) • PCHBR/L (318) • PCHPR/L (316) • PCHR/L-24 (312)
• PCHR/L-24-JHP (313) • PCHR/L-24-JHP-MC (313)

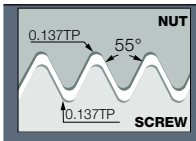
ISCARTHREAD

CUTGRIP

TIP-P-BSW

American (BSW, BSF, BSP)
Precision Ground External
Double-Ended Full Profile Threading
Inserts with a Chipformer





Designation	Dimensions CW	Dimensions RE	Dimensions TPI(1)	Tough ↔ Hard IC08	Tough ↔ Hard IC908
TIP 2P28-BSW	2.40	0.11	28.0	●	●
TIP 2P26-BSW	2.40	0.12	26.0	●	●
TIP 2P24-BSW	2.40	0.12	24.0	●	●
TIP 2P20-BSW	2.40	0.16	20.0	●	●
TIP 2P19-BSW	2.40	0.16	19.0	●	●
TIP 2P18-BSW	2.40	0.17	18.0	●	●
TIP 2P16-BSW	2.40	0.19	16.0	●	●
TIP 2P14-BSW	2.40	0.22	14.0	●	●
TIP 4P12-BSW	4.00	0.25	12.0		●
TIP 4P11-BSW	4.00	0.28	11.0	●	●
TIP 4P10-BSW	4.00	0.31	10.0		●

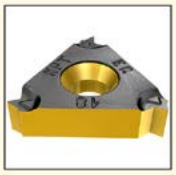
• (a) TIP inserts are 1.6 mm longer than GIP in the same pocket • Toolholder seat needs to be modified according to insert profile to ensure clearance
(1) Threads per inch

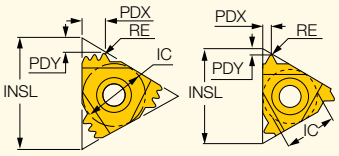
For tools, see pages: C#-GHDR/L (274) • CGHN-D (283) • CGHN-DG (283) • CGHN-S (282) • CGPAD (281) • CGPAD-JHP (282) • GHDR/L (short pocket) (275)
• GHDR/L-JHP (short pocket) (276) • GHDR/L-JHP-MC (short pocket) (277) • GHGR/L (278) • GHMPR/L (273) • GHMR/L (273) • GHSR/L (373)
• GHSR/L-JHP-SL (374) • NQCH-GHSR/L-JHP (374)

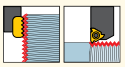
ISCARTHREAD

ER/L-NPT

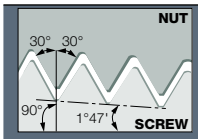
External NPT
(National Pipe Threads)
Full Profile Laydown
Threading Inserts for Steam,
Gas and Water Pipes







External right-hand shown

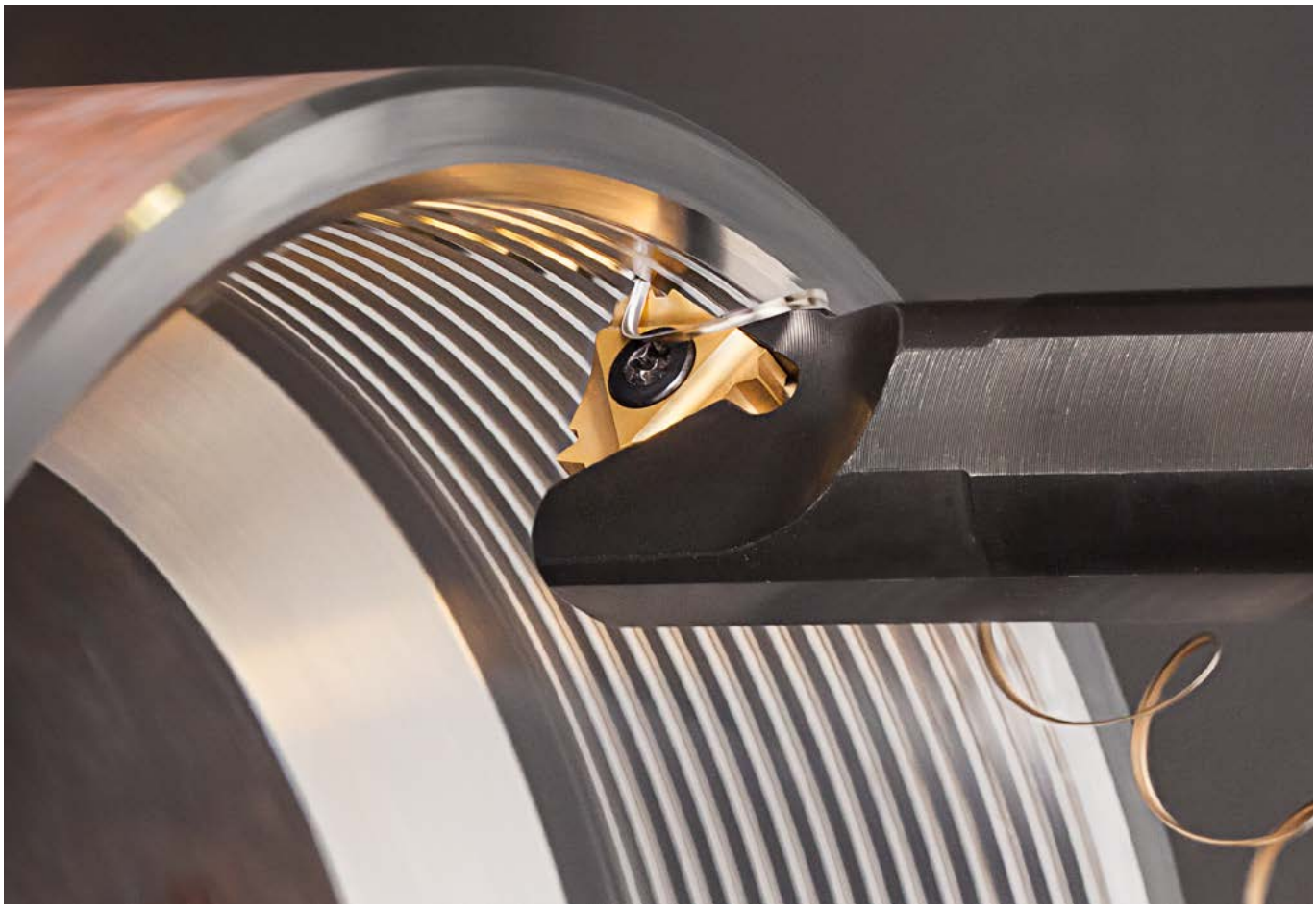


Designation	Dimensions IC	TPI[3]	RE	INSL	PDY	PDX	CICT[4]	Tough ↔ Hard IC228	IC50M	IC250	IC808	IC908	IC1007
16ER 27 NPT	9.52	27.0	0.04	16.49	0.7	0.8	1			●		●	
16ER 18 NPT	9.52	18.0	0.06	16.49	0.8	1.0	1	●		●		●	●
16ERB 18 NPT [1]	9.52	18.0	0.06	16.49	0.9	1.1	1					●	
16ERM 18 NPT [1]	9.52	18.0	0.05	16.49	0.8	1.0	1				●	●	●
16EL 14 NPT	9.52	14.0	0.07	16.49	0.9	1.2	1					●	
16ER 14 NPT	9.52	14.0	0.07	16.49	0.9	1.2	1	●		●		●	●
16ERB 14 NPT [1]	9.52	14.0	0.07	16.49	0.9	1.2	1					●	
16ERM 14 NPT [1]	9.52	14.0	0.05	16.49	0.9	1.2	1		●	●	●	●	●
16EL 11.5 NPT	9.52	11.5	0.09	16.49	1.1	1.5	1					●	
16ER 11.5 NPT	9.52	11.5	0.09	16.49	1.1	1.5	1		●	●		●	●
16ERB 11.5 NPT [1]	9.52	11.5	0.09	16.49	1.1	1.5	1					●	
16ERM 11.5 NPT [1]	9.52	11.5	0.09	16.49	1.1	1.5	1			●	●	●	●
16ER 8 NPT	9.52	8.0	0.11	16.49	1.4	1.6	1		●	●		●	
16ERB 8 NPT [1]	9.52	8.0	0.11	16.49	1.4	1.7	1					●	
16ERM 8 NPT [1]	9.52	8.0	0.12	16.49	1.3	1.8	1			●	●	●	●
22ER 11.5 NPT 2M [2]	12.70	11.5	0.09	22.00	2.3	3.5	2					●	
27ER 11.5 NPT 3M [2]	15.88	11.5	0.09	27.50	3.3	5.5	3					●	
27ER 8 NPT 2M [2]	15.88	8.0	0.09	27.50	3.3	5.0	2					●	

- For Insert Identification System, see pages 638-639 • For threading between walls use GRIP-type insert TIP-NPT. • National Pipe Threads ANSI/ASME B1.20.1-1983
- For technical information and detailed cutting data, see pages 711-727

[1] With pressed chipformer
[2] Multi-tooth
[3] Threads per inch
[4] Number of teeth per corner

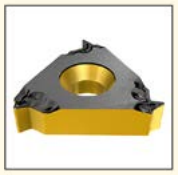
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

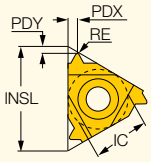


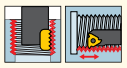
ISCARTHREAD

IR/L-NPT

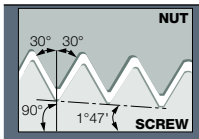
Internal NPT
(National Pipe Threads)
Full Profile Laydown
Threading Inserts for Steam,
Gas and Water Pipes







Internal left-hand shown



Designation	Dimensions IC	TPI[3]	RE	INSL	PDY	PDX	CICT[4]	Tough ↔ Hard IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
06IR 27 NPT	4.00	27.0	0.04	6.88	0.6	0.6	1	•							
08IR 18 NPT	5.00	18.0	0.06	8.24	0.6	0.8	1	•						•	
11IL 18 NPT	6.35	18.0	0.06	11.00	0.8	1.0	1							•	
11IR 18 NPT	6.35	18.0	0.06	11.00	0.8	1.0	1			•				•	
11IRB 18 NPT	6.35	18.0	0.06	11.00	0.8	1.0	1							•	
11IL 14 NPT	6.35	14.0	0.07	11.00	0.8	1.0	1			•					
11IR 14 NPT	6.35	14.0	0.07	11.00	0.8	1.0	1			•				•	•
16IR 27 NPT	9.52	27.0	0.04	16.49	0.7	0.8	1							•	
16IR 18 NPT	9.52	18.0	0.06	16.49	0.8	1.0	1							•	
16IRM 14 NPT [1]	9.52	14.0	0.05	16.49	0.9	1.2	1			•			•	•	•
16IRB 14 NPT [1]	9.52	14.0	0.07	16.49	0.9	1.2	1							•	
16IL 14 NPT	9.52	14.0	0.07	16.49	0.9	1.2	1							•	
16IR 14 NPT	9.52	14.0	0.07	16.49	0.9	1.2	1	•		•				•	•
16IRM 11.5 NPT [1]	9.52	11.5	0.09	16.49	1.1	1.5	1					•	•	•	•
16IRB 11.5 NPT [1]	9.52	11.5	0.09	16.49	1.1	1.5	1							•	
16IL 11.5 NPT	9.52	11.5	0.09	16.49	1.1	1.5	1			•				•	
16IR 11.5 NPT	9.52	11.5	0.09	16.49	1.1	1.5	1		•					•	•
16IRM 8 NPT [1]	9.52	8.0	0.12	16.49	1.3	1.8	1						•	•	•
16IRB 8 NPT [1]	9.52	8.0	0.11	16.49	1.2	1.7	1							•	
16IL 8 NPT	9.52	8.0	0.11	16.49	1.3	1.8	1			•				•	
16IR 8 NPT	9.52	8.0	0.11	16.49	1.2	1.7	1			•	•			•	
22IR 11.5 NPT 2M [2]	12.70	11.5	0.09	22.00	2.3	3.5	2							•	
27IR 11.5 NPT 3M [2]	15.88	11.5	0.09	27.50	3.3	5.5	3							•	
27IR 8 NPT 2M [2]	15.88	8.0	0.12	27.50	3.1	5.0	2							•	

- For Insert Identification System, see pages 638-639 • National Pipe Threads ANSI/ASME B1.20.1-1983
- For technical information and detailed cutting data, see pages 711-727

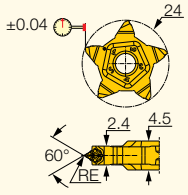
[1] With pressed chipformer
[2] Multi-tooth
[3] Threads per inch
[4] Number of teeth per corner

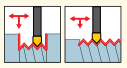
For tools, see pages: AVC-D-SIR/L (707) • MGSIR/L (118) • PICIN-MGSIR/L (386) • SIR/L (703)

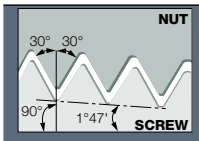
PENTACUT THREADING LINE

PENTA 24-NPT

NPT (National Pipe Threads)
Precision Ground Pentagonal
External Full Profile Threading
Inserts with a Chipformer







Designation	Dimensions TPI[1]	RE	IC908
PENTA 24-18-NPT	18.0	0.07	•
PENTA 24-14-NPT	14.0	0.09	•

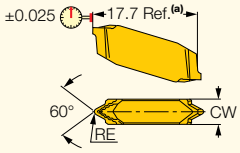
[1] Threads per inch

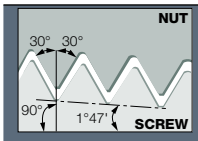
For tools, see pages: PCAD RE/LE-JHP (499) • PCADR/L (316) • PCADR/L-JHP (317) • PCHBR/L (318) • PCHPR/L (316) • PCHR/L-24 (312) • PCHR/L-24-JHP (313) • PCHR/L-24-JHP-MC (313)

ISCAR THREAD
CUTGRIP

TIP-P-NPT

NPT (National Pipe Threads)
Precision Ground Double-Ended
External Full Profile Threading
Inserts with a Chipformer





Designation	Dimensions CW	RE	RETOL(1)	TPI(2)	Tough ↔ Hard IC08	IC908
TIP 2P27-NPT	2.40	0.05	0.030	27.0	●	●
TIP 2P18-NPT	2.40	0.07	0.030	18.0	●	●
TIP 2P14-NPT	2.40	0.09	0.030	14.0		●
TIP 4P11.5-NPT	4.00	0.10	0.030	11.5	●	●
TIP 4P8-NPT	4.00	0.13	0.030	8.0	●	●

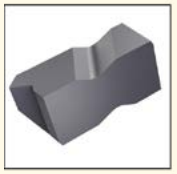
• (a) TIP inserts are 1.6 mm longer than GIP in the same pocket • Toolholder seat needs to be modified according to insert profile to ensure clearance
(1) Corner radius tolerance (+/-)
(2) Threads per inch

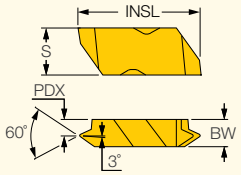
For tools, see pages: C#-GHDR/L (274) • CGHN-D (283) • CGHN-DG (283) • CGHN-S (282) • CGPAD (281) • CGPAD-JHP (282) • GHDR/L (short pocket) (275) • GHDR/L-JHP (short pocket) (276) • GHDR/L-JHP-MC (short pocket) (277) • GHGR/L (278) • GHMPR/L (273) • GHMR/L (273) • GHSR/L (373) • GHSR/L-JHP-SL (374) • NQCH-GHSR/L-JHP (374)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

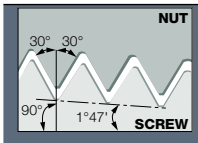
NPT THREADING
FLDC-V-75

Double-Ended, Precision,
Flat Top Threading Inserts





Right-hand shown



Designation	Dimensions TPI(1)	IPF	PDX	BW	S	INSL	IC908
FLDC-3-8VR/L75	8.0	3/4	2.50	4.95	8.74	22.60	●
FLDC-3-115VR/L75	11.5	3/4	3.70	4.95	8.74	22.60	●
FLDC-3-14VR/L-75	14.0	3/4	3.80	4.95	8.74	22.60	●
FLDC-3-18VR/L-75	18.0	3/4	3.90	4.95	8.74	22.60	●
FLDC-3-27VR/L-75	27.0	3/4	4.10	4.95	8.74	22.60	●

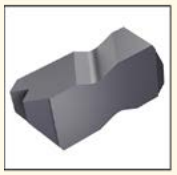
• DMIN according to related boring bar
(1) Threads per inch

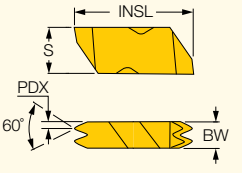
For tools, see pages: FLASR/L (708) • FLSR/L (708)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

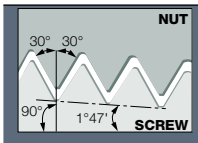
NPT THREADING
FLDC-NPT-E

Double-Ended, Precision, Flat Top
Multi-Tooth Threading Inserts





Right-hand shown



Designation	Dimensions TPI(1)	IPF	PDX	BW	S	INSL	IC908
FLDC-3-8NPT 2E	8.0	3/4	1.50	6.35	8.74	22.60	●
FLDC-3-11.5NPT-2E	11.5	3/4	1.20	6.35	8.74	22.60	●

(1) Threads per inch

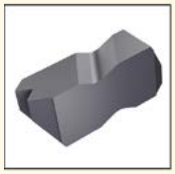
NOTCH-GRIP GROOVE-TURN LINE

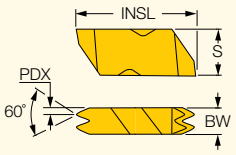
ISCARTHREAD

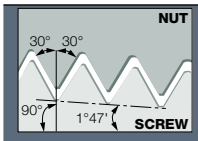
NPT THREADING

FLDC-NPT-I

Double-Ended, Precision, Flat Top Multi-Tooth Threading Inserts







Designation	Dimensions TPI(1)	IPF	PDX	BW	S	INSL	IC908
FLDC-3-8NPT 2I	8.0	3/4	1.50	6.35	8.74	22.60	●
FLDC-3-11.5NPT-2I	11.5	3/4	1.20	6.35	8.74	22.60	●

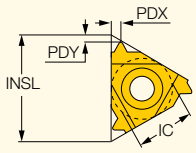
(1) Threads per inch

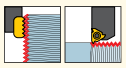
Full Profile NPTF

ISCARTHREAD

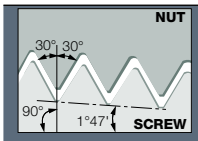
ER-NPTF

External NPTF (National Pipe Threads) Full Profile Laydown Threading Inserts for Steam, Gas and Water Pipes





External right-hand shown



Designation	Dimensions IC	TPI(1)	INSL	PDY	PDX	Tough ↔ Hard IC250	IC908
11ER 14 NPTF	6.35	14.0	11.00	0.8	1.0		●
16ER 27 NPTF	9.52	27.0	16.49	0.7	0.8		●
16ER 18 NPTF	9.52	18.0	16.49	0.8	0.9		●
16ER 14 NPTF	9.52	14.0	16.49	0.9	1.1	●	●
16ER 11.5 NPTF	9.52	11.5	16.49	1.1	1.5		●

- For Insert Identification System, see pages 638-639 • (National Pipe Threads-Dry Seal) ANSI/ASME B1.20.1-1976 full profile
- For technical information and detailed cutting data, see pages 711-727

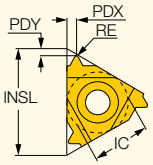
(1) Threads per inch

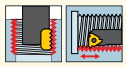
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

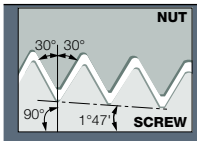
IR/L-NPTF

Internal NPTF (National Pipe Threads) Full Profile Laydown Threading Inserts for Steam, Gas and Water Pipes





Internal left-hand shown



Designation	Dimensions IC	TPI(1)	RE	INSL	PDY	PDX	Tough ↔ Hard IC228	IC250	IC908
06IR 27 NPTF	4.00	27.0	0.04	6.88	0.7	0.6	●		
08IR 27 NPTF	5.00	27.0	0.04	8.24	0.6	0.6	●		
08IL 18 NPTF	5.00	18.0	0.06	8.24	0.6	0.8	●		
08IR 18 NPTF	5.00	18.0	0.04	8.24	0.6	0.8	●		
11IR 18 NPTF	6.35	18.0	0.04	11.00	0.8	1.0			●
11IRB 18 NPTF	6.35	18.0	0.04	11.00	0.8	1.0			●
11IR 14 NPTF	6.35	14.0	0.04	16.49	0.8	1.1			●
16IR 18 NPTF	9.52	18.0	0.06	16.49	0.8	1.0			●
16IL 14 NPTF	9.52	14.0	0.07	16.49	0.9	1.2			●
16IR 14 NPTF	9.52	14.0	0.04	16.49	0.9	1.2		●	●
16IR 11.5 NPTF	9.52	11.5	0.04	16.49	1.1	1.5		●	●

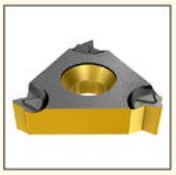
- For Insert Identification System, see pages 638-639 • (National Pipe Threads-Dry seal) ANSI/ASME B1.20.1-1976
- For technical information and detailed cutting data, see pages711-727

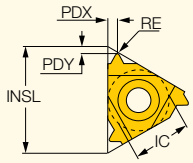
(1) Threads per inch

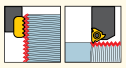
For tools, see pages: AVC-D-SIR/L (707) • MGSIR/L (118) • PICIN-MGSIR/L (386) • SIR/L (703)

ISCARTHREAD

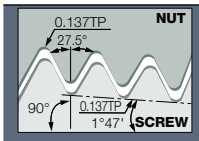
ER/L-BSPT
External BSPT
(British Standard Pipe)
B.S.21-1957 Full Profile
Laydown Threading Inserts







External right-hand shown



Designation	Dimensions IC	INSL	TPI[2]	RE	PDY	PDX	Tough ↔ Hard IC250	IC808	IC908	IC1007
16ER 28 BSPT	9.52	16.49	28.0	0.11	0.6	0.6			•	
16EL 19 BSPT	9.52	16.49	19.0	0.16	0.7	0.8			•	
16ER 19 BSPT	9.52	16.49	19.0	0.16	0.7	0.8	•		•	•
16EL 14 BSPT	9.52	16.49	14.0	0.23	1.0	1.1			•	
16ER 14 BSPT	9.52	16.49	14.0	0.23	1.0	1.1	•		•	•
16ERB 14 BSPT [1]	9.52	16.49	14.0	0.23	1.0	1.1			•	
16ERM 14 BSPT [1]	9.52	16.49	14.0	0.24	1.0	1.2		•	•	•
16EL 11 BSPT	9.52	16.49	11.0	0.29	1.1	1.5			•	
16ER 11 BSPT	9.52	16.49	11.0	0.29	1.1	1.5	•		•	
16ERB 11 BSPT [1]	9.52	16.49	11.0	0.29	1.1	1.5			•	
16ERM 11 BSPT [1]	9.52	16.49	11.0	0.31	1.1	1.5			•	•

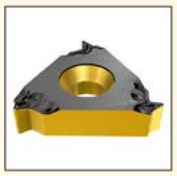
- For Insert Identification System, see pages 638-639 • For threading between walls use insert TIP-BSPT
- For technical information and detailed cutting data, see pages 711-727

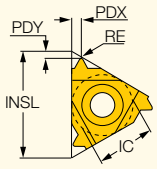
[1] With pressed chipformer
[2] Threads per inch

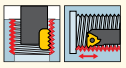
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

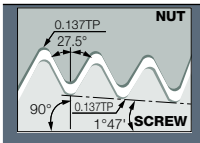
IR/L-BSPT
Internal BSPT
(British Standard Pipe)
B.S.21-1957 Full Profile
Laydown Threading Inserts







Internal left-hand shown



Designation	Dimensions IC	INSL	TPI[2]	RE	PDY	PDX	Tough ↔ Hard IC228	IC250	IC808	IC908	IC1007
06IR 28 BSPT	4.00	6.88	28.0	0.11	0.7	0.6	•				
08IR 28 BSPT	5.00	8.24	28.0	0.11	0.6	0.6	•				
08IR 19 BSPT	5.00	8.24	19.0	0.16	0.6	0.7	•				
11IR 19 BSPT	6.35	11.00	19.0	0.16	0.8	0.9		•		•	•
11IRB 19 BSPT	6.35	11.00	19.0	0.16	0.8	0.9				•	
11IR/L 14 BSPT	6.35	11.00	14.0	0.23	0.9	1.0				•	
16IR 28 BSPT	9.52	16.49	28.0	0.11	0.6	0.6				•	
16IR 19 BSPT	9.52	16.49	19.0	0.16	0.8	0.9		•			
16IRB 14 BSPT [1]	9.52	16.49	14.0	0.23	1.0	1.1				•	
16IRM 14 BSPT [1]	9.52	16.49	14.0	0.21	1.0	1.2			•	•	•
16IL 14 BSPT	9.52	16.49	14.0	0.21	1.0	1.2				•	
16IR 14 BSPT	9.52	16.49	14.0	0.23	1.0	1.1				•	
16IRM 11 BSPT [1]	9.52	16.49	11.0	0.28	1.1	1.5			•	•	•
16IRB 11 BSPT [1]	9.52	16.49	11.0	0.29	1.1	1.5				•	
16IL 11 BSPT	9.52	16.49	11.0	0.29	1.1	1.5				•	
16IR 11 BSPT	9.52	16.49	11.0	0.29	1.1	1.5	•	•		•	

- For Insert Identification System, see pages 638-639 • For technical information and detailed cutting data, see pages 711-727

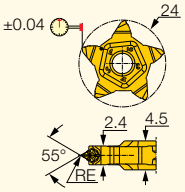
[1] With pressed chipformer
[2] Threads per inch

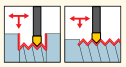
For tools, see pages: AVC-D-SIR/L (707) • MGSIR/L (118) • PICIN-MGSIR/L (386) • SIR/L (703)

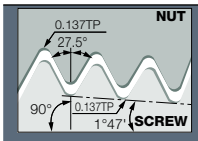
PENTACUT THREADING LINE

PENTA 24-BSPT

BSPT (British Standard Pipe) Precision Ground External Pentagonal Full Profile Threading Inserts with a Chipformer







Designation	Dimensions TPI[1]	RE	IC908
PENTA 24-19-BSPT	19.0	0.16	●
PENTA 24-14-BSPT	14.0	0.22	●

• DMIN(inch)=5.435/TPI

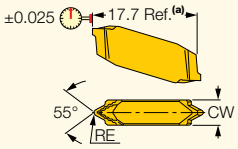
[1] Threads per inch

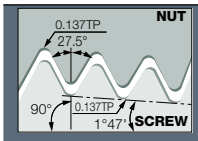
For tools, see pages: PCAD RE/LE-JHP (499) • PCADR/L (316) • PCADR/L-JHP (317) • PCHBR/L (318) • PCHPR/L (316) • PCHR/L-24 (312) • PCHR/L-24-JHP (313) • PCHR/L-24-JHP-MC (313)

ISCARTHREAD CUTGRIP

TIP-P-BSPT

Precision Ground BSPT (British Standard Pipe) External Double-Ended Full Profile Threading Inserts with a Chipformer





Designation	Dimensions CW	RE	RETOL[1]	TPI[2]	Tough ↔ Hard IC08	IC908
TIP 2P28-BSPT	2.40	0.11	0.030	28.0	●	●
TIP 2P19-BSPT	2.40	0.16	0.030	19.0	●	●
TIP 2P14-BSPT	2.40	0.22	0.030	14.0	●	●
TIP 4P11-BSPT	4.00	0.28	0.030	11.0	●	●

• (a) TIP inserts are 1.6 mm longer than GIP in the same pocket • Toolholder seat needs to be modified according to insert profile to ensure clearance

[1] Corner radius tolerance (+/-)

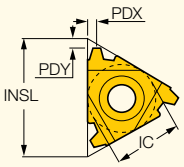
[2] Threads per inch

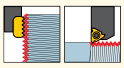
For tools, see pages: C#-GHDR/L (274) • CGHN-D (283) • CGHN-DG (283) • CGHN-S (282) • CGPAD (281) • CGPAD-JHP (282) • GHDR/L (short pocket) (275) • GHDR/L-JHP (short pocket) (276) • GHDR/L-JHP-MC (short pocket) (277) • GHGR/L (278) • GHMPR/L (273) • GHMR/L (273) • GHSR/L (373) • GHSR/L-JHP-SL (374) • NQCH-GHSR/L-JHP (374)

ISCARTHREAD

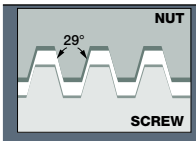
ER/L-STACME

External STUB ACME Laydown Threading Inserts with a Shallow ACME Profile for Control Valves





External right-hand shown



Designation	Dimensions IC	INSL	TPI(1)	PDY	PDX	Tough ↔ Hard IC50M	IC250	IC908
16EL 16 STACME	9.52	16.49	16.0	1.0	1.0		●	
16ER 16 STACME	9.52	16.49	16.0	1.0	1.0			●
16ER 14 STACME	9.52	16.49	14.0	1.1	1.1		●	
16EL 12 STACME	9.52	16.49	12.0	1.2	1.2			●
16ER 12 STACME	9.52	16.49	12.0	1.2	1.2		●	●
16EL 10 STACME	9.52	16.49	10.0	1.3	1.3	●		
16ER 10 STACME	9.52	16.49	10.0	1.3	1.2			●
16EL 8 STACME	9.52	16.49	8.0	1.5	1.5			●
16ER 8 STACME	9.52	16.49	8.0	1.5	1.5	●	●	●
16EL 6 STACME	9.52	16.49	6.0	1.8	1.8			●
16ER 6 STACME	9.52	16.49	6.0	1.7	1.7		●	●
22EL 5 STACME	12.70	22.00	5.0	2.0	2.3	●		
22ER 5 STACME	12.70	22.00	5.0	2.0	2.3			●
27EL 4 STACME	15.88	27.50	4.0	2.3	2.4	●		
27ER 4 STACME	15.88	27.50	4.0	2.3	2.4			●
27EL 3 STACME	15.88	27.50	3.0	2.8	2.9			●
27ER 3 STACME	15.88	27.50	3.0	2.8	2.9		●	

- For Insert Identification System, see pages 638-639 • STUB ACME ASME/ANSI B1.8-1988 Class 2G
- For technical information and detailed cutting data, see pages 711-727

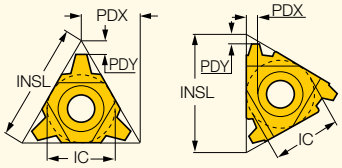
(1) Threads per inch

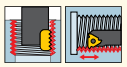
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

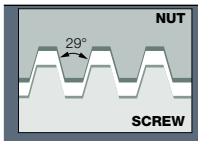
IR/L-STACME

Internal STUB ACME Laydown Threading Inserts with a Shallow ACME Profile for Control Valves





Internal left-hand shown



Designation	Dimensions IC	INSL	TPI(1)	PDY	PDX	Tough ↔ Hard IC50M	IC250	IC908
16IL 16 STACME	9.52	16.49	16.0	1.0	1.0	●		
16IR 16 STACME	9.52	16.49	16.0	1.0	1.0	●		●
16IR 12 STACME	9.52	16.49	12.0	1.2	1.2			●
16IR 10 STACME	9.52	16.49	10.0	1.2	1.2	●		●
16IL 8 STACME	9.52	16.49	8.0	1.5	1.5			●
16IR 8 STACME	9.52	16.49	8.0	1.5	1.5	●		●
16IR 6 STACME	9.52	16.49	6.0	1.6	1.7		●	●
22IR/L 5 STACME	12.70	22.00	5.0	2.0	2.3	●		
22UIR 3 STACME	12.70	22.00	3.0	3.3	11.0		●	
27IL 4 STACME	15.88	27.50	4.0	2.3	2.4	●		
27IR 4 STACME	15.88	27.50	4.0	2.3	2.4			●
27IR/L 3 STACME	15.88	27.50	3.0	2.8	2.9		●	

- For Insert Identification System, see pages 638-639 • Tolerance: Class 2G. • For technical information and detailed cutting data, see pages 711-727

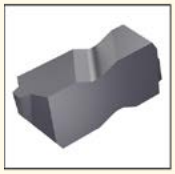
(1) Threads per inch

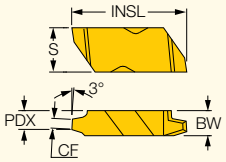
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

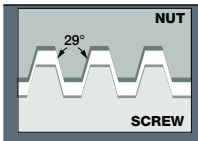
STUB ACME THREADING
FLAS-PT-I

Double-Ended, Precision, Flat Top on Internal Threading Ins erts





Right-hand shown



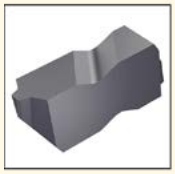
Designation	Dimensions TPI[1]	CF	PDX	BW	S	INSL	IC908
FLAS-6L2-PT-I	2.0	5.23	7.20	9.73	11.51	28.45	●
FLAS-4L3-PT-I	3.0	3.44	5.10	6.48	11.51	28.45	●
FLAS-3L4-PT-I	4.0	2.55	3.80	4.95	8.74	22.60	●
FLAS-3L5-PT-I	5.0	2.01	3.80	4.95	8.74	22.60	●
FLAS-3L6-PT-I	6.0	1.66	3.80	4.95	8.74	22.60	●
FLAS-3L8-PT-I	8.0	1.21	3.80	4.95	8.74	22.60	●
FLAS-3L10-PT-I	10.0	0.94	3.80	4.95	8.74	22.60	●
FLAS-3L12-PT-I	12.0	0.83	3.80	4.95	8.74	22.60	●
FLAS-3L14-PT-I	14.0	0.70	3.80	4.95	8.74	22.60	●
FLAS-3L16-PT-I	16.0	0.60	3.80	4.95	8.74	22.60	●

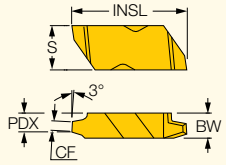
[1] Threads per inch

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

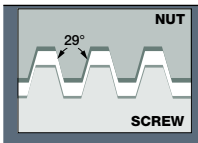
STUB ACME THREADING
FLAS-PT-E

Double-Ended, Precision, Flat Top External Threading Inserts





Right-hand shown



Designation	Dimensions TPI[1]	CF	PDX	BW	S	INSL	IC908
FLAS-3R4-PT-E	4.0	2.55	3.80	4.95	8.74	22.60	●
FLAS-3R5-PT-E	5.0	2.01	3.80	4.95	8.74	22.60	●
FLAS-3R6-PT-E	6.0	1.66	3.80	4.95	8.74	22.60	●
FLAS-3R8-PT-E	8.0	1.21	3.80	4.95	8.74	22.60	●
FLAS-3R10-PT-E	10.0	0.94	3.80	4.95	8.74	22.60	●
FLAS-3R12-PT-E	12.0	0.83	3.80	4.95	8.74	22.60	●
FLAS-3R14-PT-E	14.0	0.70	3.80	4.95	8.74	22.60	●
FLAS-3R16-PT-E	16.0	0.60	3.80	4.95	8.74	22.60	●
FLAS-4R3-PT-E	3.0	3.44	5.10	6.48	11.51	28.45	●
FLAS-6R2-PT-E	2.0	5.23	7.20	9.73	11.51	28.45	●

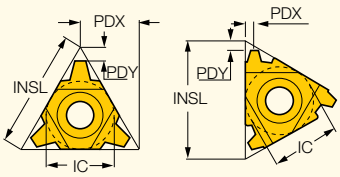
[1] Threads per inch

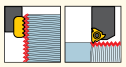
For tools, see pages: FLASR/L (708) • FLSR/L (708)

ISCARTHREAD

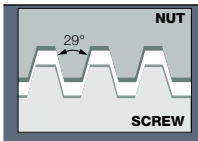
ER/L-ACME

External ACME Profile Laydown Threading Inserts for Feed Screws





External right-hand shown



Designation	Dimensions IC	INSL	TPI(1)	PDY	PDX	Tough ↔ Hard IC50M	IC250	IC08	IC908	IC1007
11ER 16 ACME	6.35	11.00	16.0	0.9	1.0				•	
16ER 16 ACME	9.52	16.49	16.0	1.0	1.0		•		•	
16ER 12 ACME	9.52	16.49	12.0	1.0	1.0				•	
16ER 10 ACME	9.52	16.49	10.0	1.4	1.3		•		•	
16ER/L 8 ACME	9.52	16.49	8.0	1.3	1.5		•		•	
22EL 6 ACME	12.70	22.00	6.0	1.8	2.1				•	
22ER 6 ACME	12.70	22.00	6.0	1.8	2.1	•			•	
22EL 5 ACME	12.70	22.00	5.0	2.0	2.4				•	
22ER 5 ACME	12.70	22.00	5.0	2.0	2.4		•		•	
22ER/L 4 ACME	12.70	22.00	4.0	2.1	2.3				•	
22UERL 4 ACME	12.70	22.00	4.0	2.3	11.0	•			•	
27EL 4 ACME	15.88	27.50	4.0	2.3	2.7				•	
27ER 4 ACME	15.88	27.50	4.0	2.3	2.6		•	•	•	
27UERL 3 ACME	15.88	27.50	3.0	2.8	13.7		•		•	
16EL 6 ACME	9.52	16.49	6.0	1.4	1.6		•			
16ER 14 ACME	9.52	16.49	14.0	1.0	1.0		•			
16ER 6 ACME	9.52	16.49	6.0	1.4	1.6		•			•

• For Insert Identification System, see pages 638-639 • ACME ASME/ANSI B1.5-1988 Class 3G • For technical information and detailed cutting data, see pages 711-727

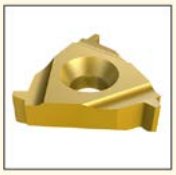
(1) Threads per inch

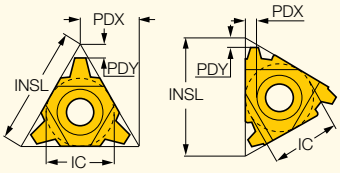
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

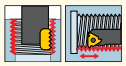
ISCARTHREAD

IR/L-ACME

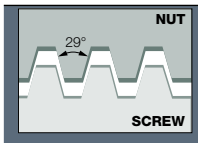
Internal ACME Profile Laydown Threading Inserts for Feed Screws







Internal left-hand shown



Designation	Dimensions IC	INSL	TPI(1)	PDY	PDX	Tough ↔ Hard IC50M	IC250	IC08	IC508	IC908
16IL 16 ACME	9.52	16.49	16.0	0.9	1.0	•				
16IR 16 ACME	9.52	16.49	16.0	0.9	1.0	•	•			
16IL 14 ACME	9.52	16.49	14.0	1.0	1.2	•				
16IL 12 ACME	9.52	16.49	12.0	1.1	1.2	•				
16IR 12 ACME	9.52	16.49	12.0	1.1	1.2		•	•		•
16IL 10 ACME	9.52	16.49	10.0	1.3	1.3	•				
16IR 10 ACME	9.52	16.49	10.0	1.3	1.4		•			
16IL 8 ACME	9.52	16.49	8.0	1.5	1.5					•
16IR 8 ACME	9.52	16.49	8.0	1.3	1.5		•			•
22IL 6 ACME	12.70	22.00	6.0	1.9	2.1	•	•			
22IR 6 ACME	12.70	22.00	6.0	1.9	2.1	•	•			•
22IL 5 ACME	12.70	22.00	5.0	2.0	2.1	•			•	•
22IR 5 ACME	12.70	22.00	5.0	2.0	2.1		•			•
22IR 4 ACME	12.70	22.00	4.0	2.1	2.1					•
22UIRL 4 ACME	12.70	22.00	4.0	2.3	11.0			•		
27IL 4 ACME	15.88	27.50	4.0	2.3	2.6					•
27IR 4 ACME	15.88	27.50	4.0	2.3	2.6		•			•
27UIRL 3 ACME	15.88	27.50	3.0	2.8	13.7					•

• For Insert Identification System, see pages 638-639 • ACME ASME/ANSI B1.5-1988 Class 3G • For technical information and detailed cutting data, see pages 711-727

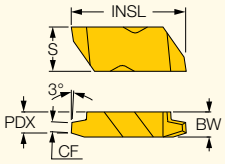
(1) Threads per inch

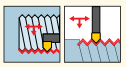
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

ISCARTHREAD

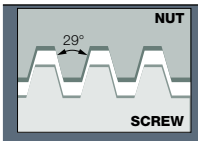
ACME THREADING FLA

Double-Ended, Precision,
Flat Top Threading Inserts





Right-hand shown



Designation	Dimensions						IC908
	TPI[1]	CF	PDX	BW	S	INSL	
FLA-6R/L2	2.0	4.58	7.20	9.73	11.51	28.45	●
FLA-6R/L2.5	2.5	3.63	7.20	9.73	11.51	28.45	●
FLA-6R/L3	3.0	3.01	7.20	9.73	11.51	28.45	●
FLA-3R/L4	4.0	2.22	3.40	4.95	8.74	22.60	●
FLA-4R/L4	4.0	2.22	5.10	6.48	11.51	28.45	●
FLA-3R/L5	5.0	1.75	3.80	4.95	8.74	22.60	●
FLA-4R/L5	5.0	1.75	5.10	6.48	11.51	28.45	●
FLA-3R/L6	6.0	1.44	3.80	4.95	8.74	22.60	●
FLA-4R/L6	6.0	1.44	5.10	6.48	11.51	28.45	●
FLA-3R/L8	8.0	1.04	3.80	4.95	8.74	22.60	●
FLA-4R/L8	8.0	1.04	5.10	6.48	11.51	28.45	●
FLA-3R/L10	10.0	0.81	3.80	4.95	8.74	22.60	●
FLA-3R/L12	12.0	0.72	3.80	4.95	8.74	22.60	●
FLA-3R/L14	14.0	0.61	3.80	4.95	8.74	22.60	●
FLA-3R/L16	16.0	0.52	3.80	4.95	8.74	22.60	●

• For ACME thread limits, see page • DMIN according to related boring bar

[1] Threads per inch

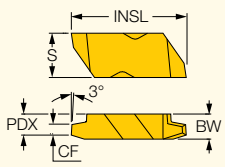
For tools, see pages: FLASR/L (708) • FLSR/L (708)

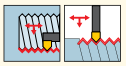
NOTCH-GRIP GROOVE-TURN LINE

ISCARTHREAD

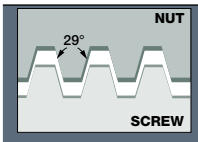
ACME THREADING FLAS

Double-Ended, Precision,
Flat Top Threading Inserts





Right-hand shown



Designation	Dimensions						IC908
	TPI[1]	CF	PDX	BW	S	INSL	
FLAS-6R/L2	2.0	5.23	7.20	9.73	11.51	28.45	●
FLAS-4R/L3	3.0	3.44	5.10	6.48	11.51	28.45	●
FLAS-3L4	4.0	2.55	3.80	4.95	8.74	22.60	●
FLAS-3R/L5	5.0	2.01	3.80	4.95	8.74	22.60	●
FLAS-3R/L6	6.0	1.66	3.80	4.95	8.74	22.60	●
FLAS-3R/L8	8.0	1.21	3.80	4.95	8.74	22.60	●
FLAS-3R/L10	10.0	0.94	3.80	4.95	8.74	22.60	●
FLAS-3R/L12	12.0	0.83	3.80	4.95	8.74	22.60	●
FLAS-3R/L14	14.0	0.70	3.80	4.95	8.74	22.60	●
FLAS-3R/L16	16.0	0.60	3.80	4.95	8.74	22.60	●

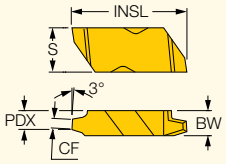
• DMIN according to related boring bar

[1] Threads per inch

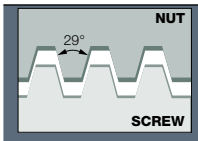
For tools, see pages: FLASR/L (708) • FLSR/L (708)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

ACME THREADING
FLA-PT-E
Double-Ended, Precision, Flat Top External Threading Inserts



Right-hand shown



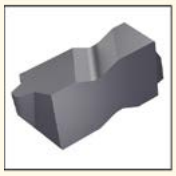
Designation	Dimensions TPI[1]	CF	PDX	BW	S	INSL	IC908
FLA-3R4-PT-E	4.0	2.22	3.40	4.95	8.74	28.45	●
FLA-3R5-PT-E	5.0	1.75	3.80	4.95	8.74	28.45	●
FLA-3R6-PT-E	6.0	1.44	3.80	4.95	8.74	22.60	●
FLA-3R8-PT-E	8.0	1.04	3.80	4.95	8.74	28.45	●
FLA-3R10-PT-E	10.0	0.81	3.80	4.95	8.74	22.60	●
FLA-3R12-PT-E	12.0	0.72	3.80	4.95	8.74	22.60	●
FLA-3R14-PT-E	14.0	0.61	3.80	4.95	8.74	22.60	●
FLA-3R16-PT-E	16.0	0.52	3.80	4.95	8.74	22.60	●
FLA-4R4-PT-E	4.0	2.22	5.10	6.48	11.51	28.45	●
FLA-4R5-PT-E	5.0	1.75	5.10	6.48	11.51	22.60	●
FLA-4R6-PT-E	6.0	1.44	5.10	6.48	11.51	28.45	●
FLA-4R8-PT-E	8.0	1.04	5.10	6.48	11.51	22.60	●
FLA-6R2-PT-E	2.0	4.58	7.20	9.73	11.51	28.45	●
FLA-6R2.5-PT-E	2.5	3.63	7.20	9.73	11.51	28.45	●
FLA-6R3-PT-E	3.0	3.01	7.20	9.73	11.51	28.45	●

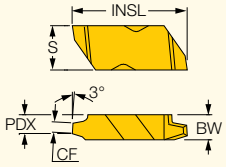
[1] Threads per inch

For tools, see pages: FLASR/L (708) • FLSR/L (708)

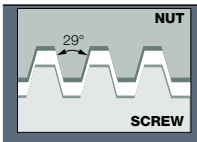
NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

ACME THREADING
FLA-PT-I
Double-Ended, Precision, Flat Top Internal Threading Inserts





Right-hand shown



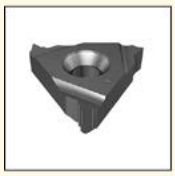
Designation	Dimensions TPI[1]	CF	PDX	BW	S	INSL	IC908
FLA-3L16-PT-I	16.0	0.52	3.80	4.95	8.74	22.60	●
FLA-3L14-PT-I	14.0	0.61	3.80	4.95	8.74	22.60	●
FLA-3L12-PT-I	12.0	0.72	3.80	4.95	8.74	22.60	●
FLA-3L10-PT-I	10.0	0.81	3.80	4.95	8.74	22.60	●
FLA-3L8-PT-I	8.0	1.04	3.80	4.95	8.74	22.60	●
FLA-3L6-PT-I	6.0	1.44	3.80	4.95	8.74	22.60	●
FLA-3L5-PT-I	5.0	1.75	3.80	4.95	8.74	22.60	●
FLA-3L4-PT-I	4.0	2.22	3.40	4.95	8.74	22.60	●
FLA-4L8-PT-I	8.0	1.04	5.10	6.48	11.51	28.45	●
FLA-4L6-PT-I	6.0	1.44	5.10	6.48	11.51	28.45	●
FLA-4L5-PT-I	5.0	1.75	5.10	6.48	11.51	28.45	●
FLA-4L4-PT-I	4.0	2.22	5.10	6.48	11.51	28.45	●
FLA-6L3-PT-I	3.0	3.01	7.20	9.73	11.51	28.45	●
FLA-6L2.5-PT-I	2.5	3.63	7.20	9.73	11.51	28.45	●
FLA-6L2-PT-I	2.0	4.58	7.20	9.73	11.51	28.45	●

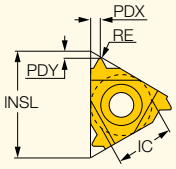
[1] Threads per inch

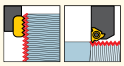
ISCARTHREAD

ER/L-UNJ

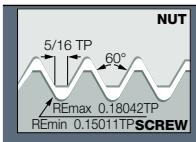
External UNJ Profile Laydown Threading Inserts for the Aviation and Aerospace Industries







External right-hand shown

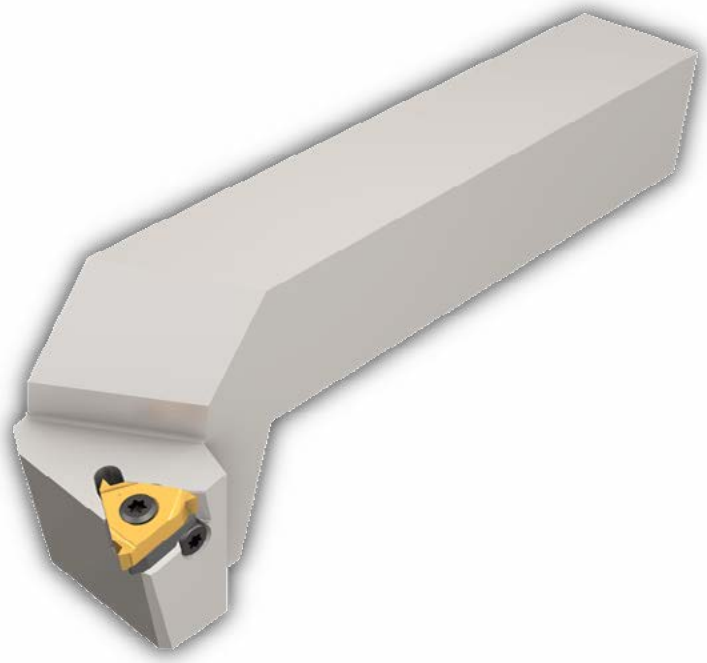


Designation	Dimensions						Tough ↔ Hard					
	IC	TPI(1)	RE	INSL	PDY	PDX	IC50M	IC250	IC08	IC908	IC806	IC1007
11ER 28 UNJ	6.35	28.0	0.14	11.00	0.6	0.6				●		
11ER 24 UNJ	6.35	24.0	0.16	11.00	0.7	0.8				●		
11ER 20 UNJ	6.35	20.0	0.19	11.00	0.8	0.9				●		
16ER 40 UNJ	9.52	40.0	0.10	16.49	0.6	0.6				●		
16ER 36 UNJ	9.52	36.0	0.11	16.49	0.6	0.6				●		
16ER 32 UNJ	9.52	32.0	0.13	16.49	0.6	0.6				●	●	
16EL 28 UNJ	9.52	28.0	0.15	16.49	0.6	0.6				●		
16ER 28 UNJ	9.52	28.0	0.15	16.49	0.6	0.6				●	●	
16EL 24 UNJ	9.52	24.0	0.16	16.49	0.7	0.8		●				
16ER 24 UNJ	9.52	24.0	0.18	16.49	0.7	0.8				●	●	
16EL 20 UNJ	9.52	20.0	0.21	16.49	0.8	0.9				●		
16ER 20 UNJ	9.52	20.0	0.21	16.49	0.8	0.9		●		●	●	●
16EL 18 UNJ	9.52	18.0	0.23	16.49	0.7	0.8			●			
16ER 18 UNJ	9.52	18.0	0.23	16.49	0.7	0.8				●	●	●
16EL 16 UNJ	9.52	16.0	0.26	16.49	0.9	1.2				●		
16ER 16 UNJ	9.52	16.0	0.26	16.49	0.9	1.2	●			●	●	●
16EL 14 UNJ	9.52	14.0	0.30	16.49	1.1	1.2				●		
16ER 14 UNJ	9.52	14.0	0.30	16.49	1.0	1.2		●		●	●	
16ER 13 UNJ	9.52	13.0	0.29	16.49	1.1	1.3				●		
16EL 12 UNJ	9.52	12.0	0.35	16.49	1.1	1.2				●		
16ER 12 UNJ	9.52	12.0	0.35	16.49	1.0	1.2				●	●	
16ER 11 UNJ	9.52	11.0	0.32	16.49	1.1	1.5				●		
16ER 10 UNJ	9.52	10.0	0.38	16.49	1.1	1.5				●	●	
16EL 8 UNJ	9.52	8.0	0.48	16.49	1.2	1.6		●				
16ER 8 UNJ	9.52	8.0	0.48	16.49	1.2	1.6				●		

• UNJ MIL-S-8879C 9-1992 Class 3A • Only right-hand inserts are available in grade IC806 and IC1007 • Thread milling application available only for inserts size 06, 08, 11
• For Insert Identification System, see pages 638-639 • For technical information and detailed cutting data, see pages 711-727

(1) Threads per inch

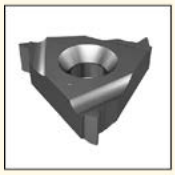
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700) • SER/L-JHP (701) • SER/L-JHP-MC (702)

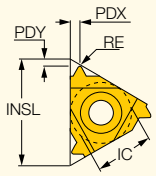


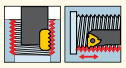
ISCARTHREAD

IR/L-UNJ

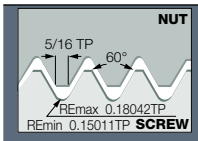
Internal UNJ Profile Laydown Threading Inserts for the Aviation and Aerospace Industries







Internal left-hand shown



Designation	Dimensions IC	TPI[1]	RE	INSL	PDY	PDX	Tough ↔ Hard IC228	IC50M	IC250	IC08	IC908	IC806
08IR 20 UNJ	5.00	20.0	0.09	8.24	0.6	0.7	●					
08IR 18 UNJ	5.00	18.0	0.10	8.24	0.6	0.7	●					
11IR 32 UNJ	6.35	32.0	0.04	11.00	0.6	0.6					●	
11IRB 32 UNJ	6.35	32.0	0.04	11.00	0.6	0.6					●	
11IR 28 UNJ	6.35	28.0	0.05	11.00	0.6	0.6					●	
11IRB 28 UNJ	6.35	28.0	0.05	11.00	0.6	0.6					●	
11IR 24 UNJ	6.35	24.0	0.05	11.00	0.7	0.8				●	●	
11IRB 24 UNJ	6.35	24.0	0.05	11.00	0.6	0.6					●	
11IR 20 UNJ	6.35	20.0	0.07	11.00	0.8	0.9					●	
11IRB 20 UNJ	6.35	20.0	0.07	11.00	0.8	0.9					●	
11IR 18 UNJ	6.35	18.0	0.08	11.00	0.8	0.9					●	●
11IRB 18 UNJ	6.35	18.0	0.08	11.00	0.9	1.0					●	
11IR 16 UNJ	6.35	16.0	0.09	11.00	0.8	0.9					●	●
11IRB 16 UNJ	6.35	16.0	0.09	11.00	0.8	0.9					●	
11IRB 14 UNJ	6.35	14.0	0.10	11.00	0.8	0.9					●	
16IR 32 UNJ	9.52	32.0	0.04	16.49	0.6	0.6					●	
16IR 24 UNJ	9.52	24.0	0.05	16.49	0.7	0.8		●			●	
16IR 20 UNJ	9.52	20.0	0.07	16.49	0.8	0.8					●	
16IR 18 UNJ	9.52	18.0	0.07	16.49	0.7	0.8					●	●
16IL 16 UNJ	9.52	16.0	0.09	16.49	1.0	1.2					●	
16IR 16 UNJ	9.52	16.0	0.09	16.49	1.0	1.2			●		●	●
16IR 14 UNJ	9.52	14.0	0.10	16.49	1.0	1.1					●	●
16IL 12 UNJ	9.52	12.0	0.12	16.49	1.1	1.0					●	
16IR 12 UNJ	9.52	12.0	0.12	16.49	1.1	1.0					●	●
16IR 10 UNJ	9.52	10.0	0.14	16.49	1.1	1.5					●	
16IR/L 8 UNJ	9.52	8.0	0.19	16.49	1.2	1.6					●	

- Thread milling application available only for inserts size 06, 08, 11
- For Insert Identification System, see pages 638-639
- For technical information and detailed cutting data, see pages 711-727

[1] Threads per inch

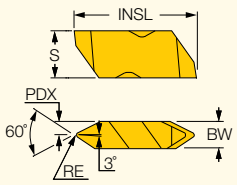
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

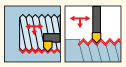
NOTCH-GRIP GROOVE-TURN LINE

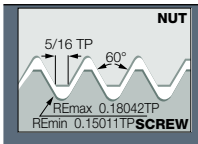
ISCARTHREAD

UNJ THREADING FLJ

Double-Ended, Precision, Flat Top Threading Inserts







Designation	Dimensions TPI[1]	RE	PDX	BW	S	INSL	IC908
FLJ-3020R/L8	8.0	0.48	2.49	4.95	8.74	22.60	●
FLJ-3014R/L12	12.0	0.32	2.49	4.95	8.74	22.60	●
FLJ-3010R/L16	16.0	0.24	2.49	4.95	8.74	22.60	●

- DMIN according to related boring bar

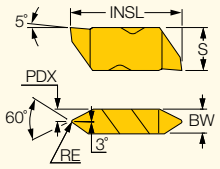
[1] Threads per inch

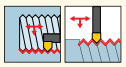
For tools, see pages: FLASR/L (708) • FLSR/L (708)

NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

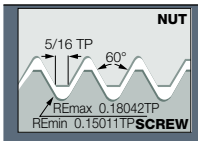
UNJ THREADING FLJP

Double-Ended, Precision Threading Inserts with a Positive Rake





Right-hand shown



Designation	Dimensions TPI[1]	RE	PDX	BW	S	INSL	IC908
FLJP-3020R/L8	8.0	0.48	2.50	4.95	8.74	22.60	•
FLJP-3014R/L12	12.0	0.32	2.50	4.95	8.74	22.60	•
FLJP-3010R/L16	16.0	0.24	2.50	4.95	8.74	22.60	•

• DMIN according to related boring bar

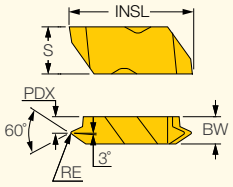
[1] Threads per inch

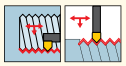
For tools, see pages: FLASR/L (708) • FLSR/L (708)

NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

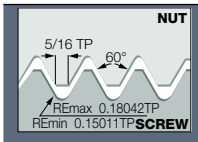
UNJ THREADING FLJF

Double-Ended, Precision Flat Top Threading Inserts





Right-hand shown



Designation	Dimensions TPI[1]	RE	PDX	BW	S	INSL	IC908
FLJF-3012R/L14	14.0	0.27	3.58	4.95	8.74	22.60	•
FLJF-3010R/L16	16.0	0.24	3.60	4.95	8.74	22.60	•
FLJF-3009R/L18	18.0	0.21	3.60	4.95	8.74	22.60	•
FLJF-3008R/L20	20.0	0.19	3.60	4.95	8.74	22.60	•
FLJF-3007R/L24	24.0	0.16	3.60	4.95	8.74	22.60	•
FLJF-3006R/L28	28.0	0.14	3.60	4.95	8.74	22.60	•
FLJF-3005R/L32	32.0	0.12	3.60	4.95	8.74	22.60	•

• DMIN according to related boring bar

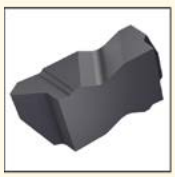
[1] Threads per inch

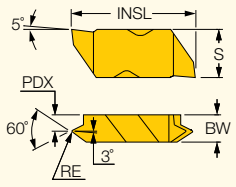
For tools, see pages: FLASR/L (708) • FLSR/L (708)

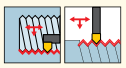
NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

UNJ THREADING FLJK

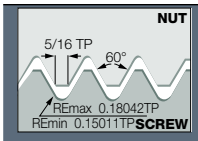
Double-Ended, Precision Threading Inserts with a Positive Rake







Right-hand shown



Designation	Dimensions TPI[1]	RE	PDX	BW	S	INSL	IC908
FLJK-3012R/L14	14.0	0.27	3.58	4.95	8.74	22.60	•
FLJK-3010R/L16	16.0	0.24	3.60	4.95	8.74	22.60	•
FLJK-3009R/L18	18.0	0.21	3.60	4.95	8.74	22.60	•
FLJK-3008R/L20	20.0	0.19	3.60	4.95	8.74	22.60	•
FLJK-3007R/L24	24.0	0.16	3.60	4.95	8.74	22.60	•
FLJK-3006R/L28	28.0	0.14	3.60	4.95	8.74	22.60	•
FLJK-3005R/L32	32.0	0.12	3.60	4.95	8.74	22.60	•

• DMIN according to related boring bar

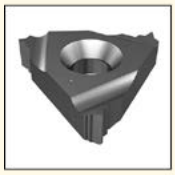
[1] Threads per inch

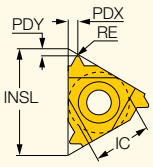
For tools, see pages: FLASR/L (708) • FLSR/L (708)

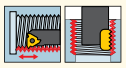
ISCARTHREAD

IR-MJ

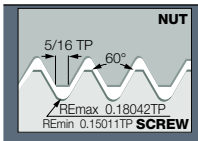
Internal MJ ISO 5855 Metric Full Profile Laydown Threading Inserts for the Aviation and Aerospace Industries







Internal left-hand shown



Designation	Dimensions IC	TP(1)	INSL	RE	PDY	PDX	Tough ↔ Hard IC908	IC806
11IR 1.00 MJ	6.35	1.000	11.00	0.05	0.6	0.6	●	●
11IRB 1.00 MJ	6.35	1.000	11.00	0.05	0.6	0.6	●	
11IR 1.25 MJ	6.35	1.250	11.00	0.07	0.8	0.9	●	●
11IR 1.50 MJ	6.35	1.500	11.00	0.08	0.8	1.0	●	●
11IRB 1.50 MJ	6.35	1.500	11.00	0.08	0.8	0.9	●	
11IR 2.00 MJ	6.35	2.000	11.00	0.12	0.9	1.0	●	●
16IR 1.00 MJ	9.52	1.000	16.49	0.05	0.7	0.8	●	●
16IR 1.25 MJ	9.52	1.250	16.49	0.07	0.8	0.9	●	●
16IR 1.50 MJ	9.52	1.500	16.49	0.08	1.1	1.1	●	●

- Thread milling application available only for inserts size 06, 08, 11
- For Insert Identification System, see pages 638-639
- For technical information and detailed cutting data, see pages 711-727

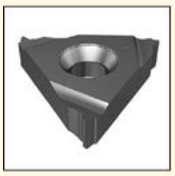
(1) Thread pitch

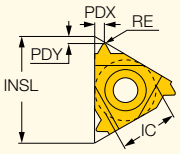
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

ISCARTHREAD

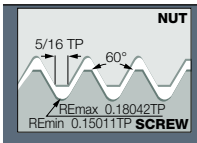
ER-MJ

External MJ ISO 5855 Metric Full Profile Laydown Threading Inserts for the Aviation and Aerospace Industries





External right-hand shown



Designation	Dimensions IC	TP(1)	INSL	RE	PDY	PDX	Tough ↔ Hard IC250	IC908	IC806
16ER 1.00 MJ	9.52	1.000	16.49	0.17	0.7	0.8		●	●
16ER 1.25 MJ	9.52	1.250	16.49	0.21	0.8	0.8		●	●
16ER 1.50 MJ	9.52	1.500	16.49	0.25	0.9	1.1	●	●	●
16ER 2.00 MJ	9.52	2.000	16.49	0.33	1.0	1.1		●	●

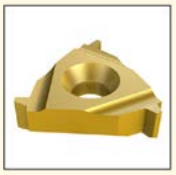
- For Insert Identification System, see pages 638-639
- For technical information and detailed cutting data, see pages 711-727

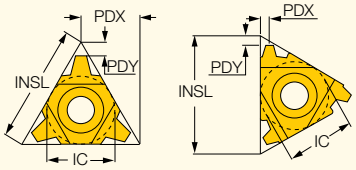
(1) Thread pitch

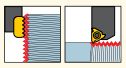
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

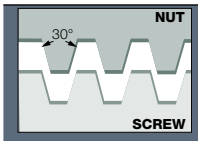
ER/L-TR
External Trapeze Shaped
DIN 103 Laydown Threading
Inserts for Feed Screws







External right-hand shown



Designation	Dimensions IC	TP[2]	INSL	PDY	PDX	Tough ↔ Hard IC228	IC50M	IC250	IC908	IC1007
16EL 1.5 TR	9.52	1.500	16.49	1.0	1.0			●		
16ER 1.5 TR	9.52	1.500	16.49	1.0	1.0			●	●	
16EL 2 TR	9.52	2.000	16.49	1.0	1.0			●		
16ER 2 TR	9.52	2.000	16.49	1.0	1.0			●	●	
16EL 3 TR	9.52	3.000	16.49	1.4	1.6				●	
16ER 3 TR	9.52	3.000	16.49	1.4	1.6	●		●	●	●
16ER 4 TR	9.52	4.000	16.49	1.8	1.9			●	●	
22EL 4 TR	12.70	4.000	22.00	1.8	1.9				●	
22ER 4 TR	12.70	4.000	22.00	1.8	1.9			●	●	
22EL 5 TR	12.70	5.000	22.00	2.0	2.4			●	●	
22ER 5 TR	12.70	5.000	22.00	2.0	2.4		●	●	●	
22ER/L 6 TR	12.70	6.000	22.00	2.0	2.4				●	
22UERL 6 TR	12.70	6.000	22.00	2.0	11.0		●	●	●	
22UERL 7 TR	12.70	7.000	22.00	2.3	11.0			●		
22UERL 8 TR	12.70	8.000	22.00	2.5	11.0			●		
27EL 6 TR	15.88	6.000	27.50	2.3	2.6				●	
27ER 6 TR	15.88	6.000	27.50	2.3	2.6			●	●	
27EL 7 TR	15.88	7.000	27.50	2.2	2.6			●		
27ER 7 TR	15.88	7.000	27.50	2.3	2.6			●	●	
27UERL 8 TR	15.88	8.000	27.50	2.5	13.7			●	●	
27UERL 9 TR	15.88	9.000	27.50	3.0	13.7			●	●	
27UERL 10 TR [1]	15.88	10.000	27.50	3.2	13.7			●	●	

• For Insert Identification System, see pages 638-639 • DIN 103 04/1977,1502901/1977 Class 7e • For technical information and detailed cutting data, see pages 711-727

[1] One cutting edge only

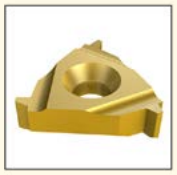
[2] Thread pitch

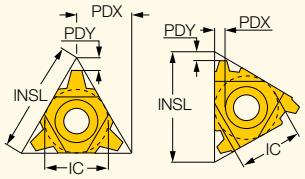
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

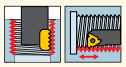
ISCARTHREAD

IR/L-TR

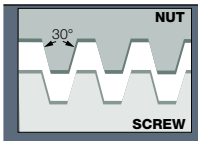
Internal Trapeze Shaped
DIN 103 Laydown Threading
Inserts for Feed Screws







Internal left-hand shown



Designation	Dimensions IC	TP[2]	INSL	PDY	PDX	Tough ↔ Hard IC228	IC50M	IC250	IC908
08IR 1.5 TR [1]	5.00	1.500	8.24	0.60	0.6	●			
08UIRL 2 TR	5.00	2.000	8.24	0.90	4.0	●			
16IR 1.5 TR	9.52	1.500	16.49	1.00	1.0			●	●
16IL 2 TR	9.52	2.000	16.49	1.00	1.3			●	●
16IR 2 TR	9.52	2.000	16.49	1.00	1.1			●	●
16IL 3 TR	9.52	3.000	16.49	1.30	1.5				●
16IR 3 TR	9.52	3.000	16.49	1.30	1.5	●			●
22IL 4 TR	12.70	4.000	22.00	1.90	2.0				●
22IR 4 TR	12.70	4.000	22.00	1.90	2.0			●	●
22IL 5 TR	12.70	5.000	22.00	2.00	2.3				●
22IR 5 TR	12.70	5.000	22.00	2.00	2.3			●	●
22IL 6 TR	12.70	6.000	22.00	2.00	2.3				●
22IR 6 TR	12.70	6.000	22.00	2.00	2.2		●	●	●
22UIRL 6 TR	12.70	6.000	22.00	2.00	11.0			●	●
22UIRL 7 TR	12.70	7.000	22.00	2.30	11.0			●	
27IL 6 TR	15.88	6.000	27.50	2.30	2.7				●
27IR 6 TR	15.88	6.000	27.50	2.30	2.6			●	●
27IR 7 TR	15.88	7.000	27.50	2.20	2.6			●	
27UIRL 8 TR	15.88	8.000	27.50	2.50	13.7	●		●	●
27UIRL 9 TR	15.88	9.000	27.50	3.00	13.7			●	●
27UIRL 10 TR [1]	15.88	10.000	27.50	3.20	2.5				●

• For Insert Identification System, see pages 638-639 • Tolerance: Class 7H • For technical information and detailed cutting data, see pages 711-727

[1] A single threading corner

[2] Thread pitch

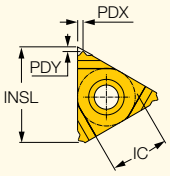
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

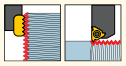
PG (Panzergewinde)

ISCARTHREAD

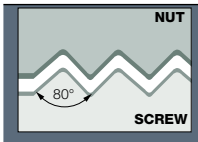
ER-PG

External Threading Inserts
for the Electrical Industry





External right-hand shown



Designation	Dimensions IC	TPI[1]	INSL	PDY	PDX	RE	Tough ↔ Hard IC08	IC908
16ER 16 PG	9.52	16.0	16.49	0.8	1.0	0.17		●
16ER 18 PG	9.52	18.0	16.49	0.8	0.9	0.15	●	●
16ER 20 PG	9.52	20.0	16.49	0.7	0.8	0.13		●

• For Insert Identification System, see pages 638-639

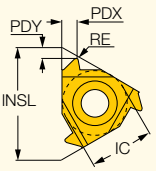
[1] Threads per inch

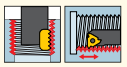
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

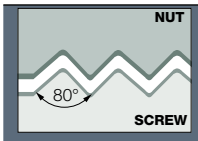
IR/L-PG

Internal Thread Profile Inserts for the Electrical Industry





Internal left-hand shown



Designation	Dimensions IC	TPI(1)	RE	INSL	PDY	PDX	IC908
11IR 18 PG	6.35	18.0	0.15	11.00	0.8	0.9	●
16IR 18 PG	9.52	18.0	0.15	16.49	0.8	0.9	●
16IR 16 PG	9.52	16.0	0.17	16.49	0.7	0.9	●

• For Insert Identification System, see pages 638-639

(1) Threads per inch

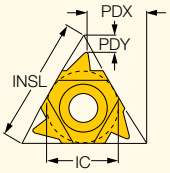
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

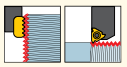
SAGE (Sagengenwide) Metric Buttress DIN 513

ISCARTHREAD

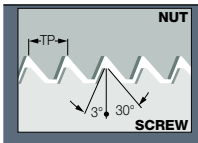
ER/L-SAGE

External Buttress Thread (DIN 513) for High Force in One Direction Applications





External right-hand shown



Designation	Dimensions IC	INSL	TP(2)	PDY	PDX	Tough ↔ Hard IC250	IC908
16ER/L 2 SAGE	9.52	16.49	2.000	1.1	1.6		●
22ER 3 SAGE	12.70	22.00	3.000	1.5	2.4		●
22EL 4 SAGE	12.70	22.00	4.000	1.9	3.1		●
22ER 4 SAGE	12.70	22.00	4.000	1.9	3.1	●	
22UER 5 SAGE (1)	12.70	22.00	5.000	1.2	11.6		●
22UER/L 6 SAGE (1)	12.70	22.00	6.000	1.2	11.7		●

• For Insert Identification System, see pages 638-639 • For technical information and detailed cutting data, see pages 711-727

(1) Requires special anvil

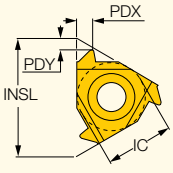
(2) Thread pitch

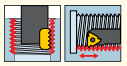
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

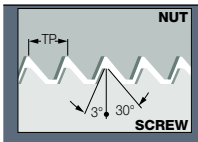
IR/L-SAGE

Internal Sagengenwinde (DIN 513) Thread Application for High Force in One Direction





Internal left-hand shown



Designation	Dimensions IC	TP(2)	INSL	PDY	PDX	IC908
16IR/L 2 SAGE	9.52	2.000	16.49	1.2	1.7	●
22IR 3 SAGE	12.70	3.000	22.00	1.9	2.9	●
22IR 4 SAGE	12.70	4.000	22.00	2.2	3.3	●
22UIR 5 SAGE	12.70	5.000	22.00	1.9	11.7	●
22UIR 6 SAGE (1)	12.70	6.000	22.00	2.1	11.9	●

• For Insert Identification System, see pages 638-639 • For technical information and detailed cutting data, see pages 711-727

(1) Requires special anvil

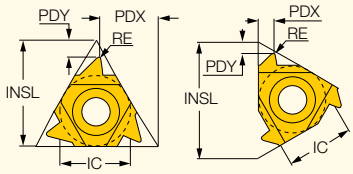
(2) Thread pitch

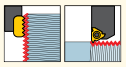
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

ISCARTHREAD

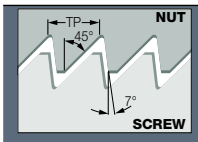
ER/L-ABUT

External American Buttress Laydown Threading Inserts for High Force Transmission in One Direction





External right-hand shown



Designation	Dimensions IC	TPI[1]	RE	INSL	PDY	PDX	Tough ↔ Hard IC250	IC908
16ER 20 ABUT	9.52	20.0	0.07	16.49	1.0	1.3		●
16EL 16 ABUT	9.52	16.0	0.09	16.49	1.1	1.5		●
16ER 16 ABUT	9.52	16.0	0.09	16.49	1.1	1.5	●	●
16EL 12 ABUT	9.52	12.0	0.12	16.49	1.4	2.0		●
16ER 12 ABUT	9.52	12.0	0.12	16.49	1.4	2.0	●	●
16ER/L 10 ABUT	9.52	10.0	0.15	16.49	1.5	2.3		●
22ER 8 ABUT	12.70	8.0	0.18	22.00	2.1	3.3	●	●
22ER 6 ABUT	12.70	6.0	0.25	22.00	2.1	3.4		●
22UER 4 ABUT	12.70	4.0	0.41	22.00	2.3	9.5	●	●
27UEL 3 ABUT	15.88	3.0	0.56	27.50	3.1	11.7		●
27UER 3 ABUT	15.88	3.0	-	27.50	3.1	11.7	●	●

• For Insert Identification System, see pages 638-639 • ANSI B1.9-1973 Class 2 • For technical information and detailed cutting data, see pages 711-727

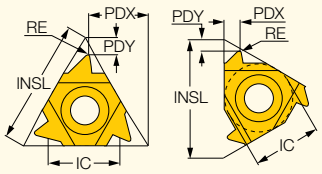
[1] Threads per inch

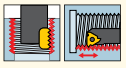
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

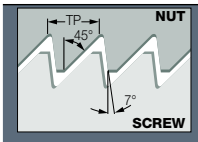
IR/L-ABUT

Internal American Buttress Laydown Threading Inserts for High Force Transmission in One Direction





Internal left-hand shown



Designation	Dimensions IC	TPI[1]	RE	INSL	PDY	PDX	Tough ↔ Hard IC50M	IC250	IC908
11IR 20 ABUT	6.35	20.0	0.07	11.00	1.0	1.3			●
11IL 16 ABUT	6.35	16.0	0.09	11.00	1.0	1.5		●	
11IR 16 ABUT	6.35	16.0	0.09	11.00	1.0	1.5			●
16IR 20 ABUT	9.52	20.0	0.07	16.49	1.0	1.3		●	●
16IR/L 16 ABUT	9.52	16.0	0.09	16.49	1.0	1.5			●
16IL 12 ABUT	9.52	12.0	0.12	16.49	1.4	2.0			●
16IR 12 ABUT	9.52	12.0	0.12	16.49	1.4	2.0		●	●
16IL 10 ABUT	9.52	10.0	0.15	16.49	1.5	2.3			●
16IR 10 ABUT	9.52	10.0	0.15	16.49	1.5	2.3		●	●
22IR 8 ABUT	12.70	8.0	0.18	22.00	2.2	3.3			●
22IR 6 ABUT	12.70	6.0	0.25	22.00	2.2	3.4			●
22UIR 4 ABUT	12.70	4.0	0.41	22.00	2.3	9.5	●	●	
27UIR 3 ABUT	15.88	3.0	0.60	27.50	3.1	11.7			●

• For Insert Identification System, see pages 638-639 • ANSI B1.9-1973 Class 2 • For technical information and detailed cutting data, see pages 711-727

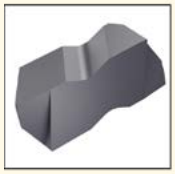
[1] Threads per inch

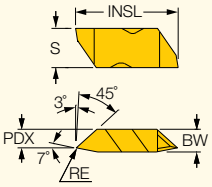
For tools, see pages: SIR/L (703)

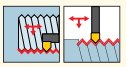
NOTCH GRIP GROOVE-TURN LINE
ISCARTHREAD

AMERICAN STANDARD BUTTRESS THREADING FLTB-A

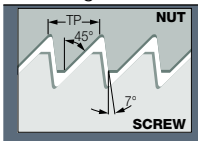
Double-Ended, Precision, Flat Top Threading Inserts for 7° Lead







Right-hand shown



Designation	Dimensions TPIN(1)	TPIX(2)	RE	PDX	BW	S	INSL	IC908
FLTB-4R/LA	4.00	6.00	0.20	5.20	6.48	11.51	28.45	●
FLTB-3R/LA	8.00	16.00	0.13	4.20	4.95	8.74	22.60	●
FLTB-2R/LA	16.00	20.00	0.05	3.20	3.81	5.56	12.95	●

- DMIN according to related boring bar

(1) TPI min.

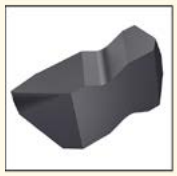
(2) TPI max.

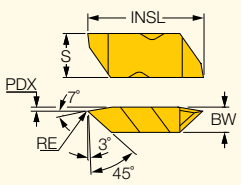
For tools, see pages: FLASR/L (708) • FLSR/L (708)

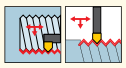
NOTCH GRIP GROOVE-TURN LINE
ISCARTHREAD

AMERICAN STANDARD BUTTRESS THREADING FLTB-B

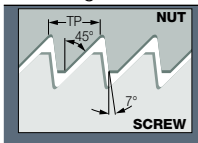
Double-Ended, Precision, Flat Top Threading Inserts for 45° Lead







Left-hand shown



Designation	Dimensions TPIN(1)	TPIX(2)	RE	PDX	BW	S	INSL	IC908
FLTB-4R/LB	4.00	6.00	0.20	0.40	6.48	11.51	28.45	●
FLTB-3R/LB	8.00	16.00	0.13	0.30	4.95	8.74	22.60	●
FLTB-2R/LB	16.00	20.00	0.05	0.30	3.81	5.56	12.95	●

- DMIN according to related boring bar

(1) TPI min.

(2) TPI max.

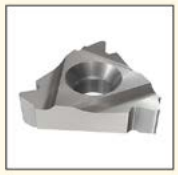
For tools, see pages: FLASR/L (708) • FLSR/L (708)

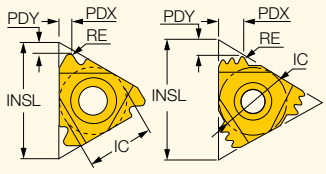
API RD (API ROUND)

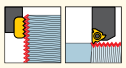
ISCARTHREAD

ER/L-API RD

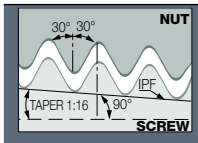
External API - Oil Thread Round Profile Laydown Threading Inserts







External right-hand shown



Designation	Dimensions IC	TPI(2)	RE	INSL	IPF	PDY	PDX	CICT(3)	Tough ↔ Hard IC250	IC908
16ER 10 API RD	9.52	10.0	0.36	16.49	0.75	1.2	1.5	1	●	●
16EL 8 API RD	9.52	8.0	0.43	16.49	0.75	1.3	1.6	1		●
16ER 8 API RD	9.52	8.0	0.43	16.49	0.75	1.3	1.6	1	●	●
22ER 10 API RD 2M (1)	12.70	10.0	0.36	22.00	0.75	2.4	3.7	2		●
27ER 8 API RD 2M (1)	15.88	8.0	0.43	27.50	0.75	3.0	4.5	2		●

- For Insert Identification System, see pages 638-639 • API Spec 5B8-1996. • For technical information and detailed cutting data, see pages 711-727
- For recommended number of passes for multi-tooth inserts, see page

(1) Multi-tooth

(2) Threads per inch

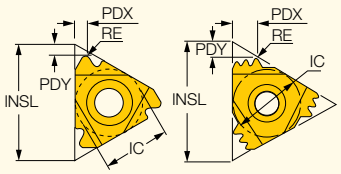
(3) Number of teeth per corner

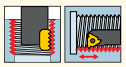
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

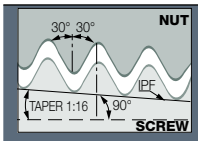
IR/L-API RD

Internal API - Oil Thread Round Profile Laydown Threading Inserts





Internal left-hand shown



Designation	Dimensions IC	TPI(2)	RE	INSL	IPF	PDY	PDX	CICT(3)	Tough ↔ Hard IC250	IC908
16IL 10 API RD	9.52	10.0	0.36	16.49	0.75	1.5	1.4	1		●
16IR 10 API RD	9.52	10.0	0.36	16.49	0.75	1.3	1.5	1	●	●
16IL 8 API RD	9.52	8.0	0.43	16.49	0.75	1.3	1.6	1	●	
16IR 8 API RD	9.52	8.0	0.43	16.49	0.75	1.1	1.5	1	●	●
22IR 10 API RD 2M (1)	12.70	10.0	0.36	22.00	0.75	2.4	3.7	2		●
27IR 8 API RD 2M (1)	15.88	8.0	0.43	27.50	0.75	3.0	4.5	2		●

- For Insert Identification System, see pages 638-639 • API Spec 5B8-1996 • For technical information and detailed cutting data, see pages 711-727
- For recommended number of passes for multi-tooth inserts see page

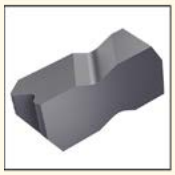
(1) Multi-tooth
(2) Threads per inch
(3) Number of teeth per corner

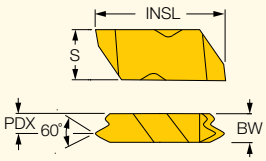
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

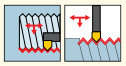
NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

API ROUND THREADING FLDC-RD-75

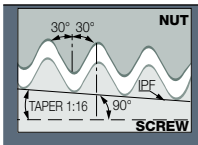
Double-Ended, Precision, Flat Top Threading Inserts







Right-hand shown



Designation	Dimensions TPI(1)	IPF	PDX	BW	S	INSL	IC908
FLDC-3-8RDR/L75	8.0	3/4	5.00	3.18	8.74	22.60	●
FLDC-3-10RDR/L75	10.0	3/4	5.00	3.18	8.74	22.60	●

- DMIN according to related boring bar

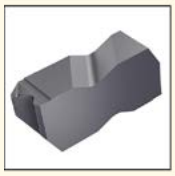
(1) Threads per inch

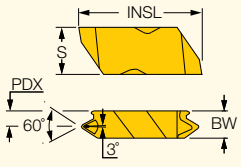
For tools, see pages: FLASR/L (708) • FLSR/L (708)

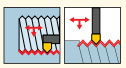
NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

API ROUND THREADING FLDC-RD-75-CB

Double-Ended, Precision, Threading Inserts with a Chipbreaker







Right-hand shown

Designation	Dimensions TPI(1)	IPF	PDX	BW	S	INSL	IC908
FLDC-3-8RDR/L75-CB	8.0	3/4	4.95	3.18	8.74	25.15	●

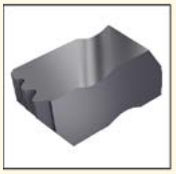
- DMIN according to related boring bar

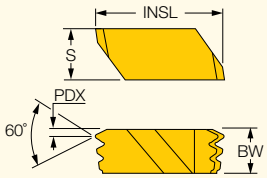
(1) Threads per inch

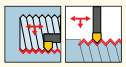
For tools, see pages: FLASR/L (708) • FLSR/L (708)

NOTCH-GRIP
GROOVE-TURN LINE
ISCARTHREAD

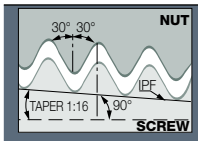
API ROUND THREADING
FLDC-RD-75M
Double-Ended Precision, Flat Top Multi-Tooth Threading Inserts







Left-hand shown



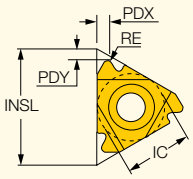
Designation	Dimensions TPI[1]	IPF	PDX	BW	S	INSL	IC908
FLDC-6-8RDR75	8.0	3/4	1.80	9.73	11.51	28.45	●
FLDC-6-10RDR75	10.0	3/4	3.40	9.73	11.51	28.45	●

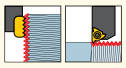
• DMIN according to related boring bar
[1] Threads per inch

API

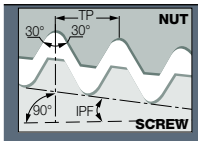
ISCARTHREAD

ER/L-API
External API - Oil Thread Profile Laydown Threading Inserts





External right-hand shown

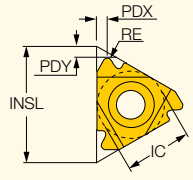


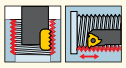
Designation	Dimensions IC	RE	INSL	TPI[4]	IPF	PDX	PDY	Size[5]	Tough ↔ Hard IC250	IC908
22ER 5 API 403 [1]	12.70	0.49	22.00	5.0	3	1.8	2.5	2.375"-4.5"REG	●	●
27ER 4 API 382 [2]	15.88	0.96	27.50	4.0	2	2.1	2.8	NC23-NC50	●	●
27ER 4 API 383 [2]	15.88	0.96	27.50	4.0	3	2.1	2.8	NC56-NC77		●
27EL 4 API 502 [3]	15.88	0.64	27.50	4.0	2	2.0	3.0	6-5/8" REG	●	
27ER 4 API 502 [3]	15.88	0.64	27.50	4.0	2	2.0	3.0	6-5/8" REG	●	●
27ER 4 API 503 [3]	15.88	0.64	27.50	4.0	3	2.0	3.0	5-1/2,7-5/8,8-5/8REG		●

• For Insert Identification System, see pages 638-639 • For technical information and detailed cutting data, see pages 711-727
[1] V-0.040
[2] V-0.050
[3] V-0.038R
[4] Threads per inch
[5] Connection no. or size
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

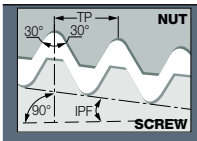
ISCARTHREAD

IR/L-API
Internal API - Oil Thread Profile Laydown Threading Inserts





Internal left-hand shown



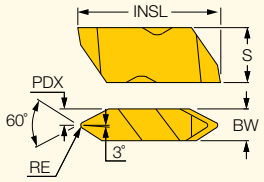
Designation	Dimensions IC	INSL	TPI[4]	RE	PDY	PDX	Size[5]	Tough ↔ Hard IC250	IC908
22IR 5 API 403 [1]	12.70	22.00	5.0	0.51	1.8	2.5	2.375"-4.5"REG	●	●
27IR 4 API 382 [2]	15.88	27.50	4.0	0.96	2.1	2.8	NC23-NC50	●	●
27IR 4 API 383 [2]	15.88	27.50	4.0	0.96	2.1	2.8	NC56-NC77		●
27IR/L 4 API 502 [3]	15.88	27.50	4.0	0.64	2.0	3.0	6-5/8" REG	●	
27IR 4 API 503 [3]	15.88	27.50	4.0	0.64	2.0	3.0	5-1/2,7-5/8,8-5/8REG	●	

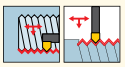
• For Insert Identification System, see pages 638-639 • 0.050, API Spec 74-1994 • For technical information and detailed cutting data, see pages 711-727
[1] V-0.040
[2] V-0.050
[3] V-0.038R
[4] Threads per inch
[5] Connection no. or size
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

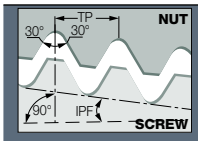
NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

API PARTIAL PROFILE THREADING FLD

Double-Ended, Precision, Flat Top Partial Profile Threading Inserts







Designation	Dimensions TPI[1]	RE	PDX	BW	S	INSL	IC908
FLD-4050R/L	4.0	0.51	3.25	6.48	11.51	28.45	●
FLD-3038R/L	4.0	0.84	2.08	4.95	8.74	22.60	●
FLD-4038R/L	4.0	0.84	3.25	6.48	11.51	28.45	●
FLD-3040R/L	5.0	0.38	2.08	4.95	8.74	22.60	●
FLD-4040R/L	5.0	0.38	3.25	6.48	11.51	28.45	●

• DMIN according to related boring bar

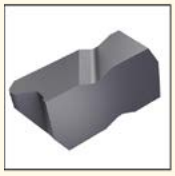
[1] Threads per inch

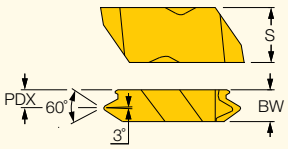
For tools, see pages: FLASR/L (708) • FLSR/L (708)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

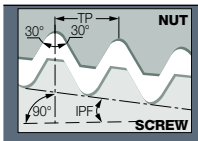
API THREADING FLDC-E

Double-Ended, Precision, Flat Top Threading Inserts





Right-hand shown



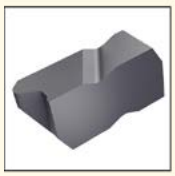
Designation	Dimensions TPI[1]	IPF	PDX	BW	S	INSL	IC908
FLDC-4-425E	4.0	2	4.65	7.92	11.51	28.45	●
FLDC-4-428E	4.0	2	4.65	7.92	11.51	28.45	●
FLDC-4-435E	4.0	3	4.65	7.92	11.51	28.45	●
FLDC-4-438E	4.0	3	4.65	7.92	11.51	28.45	●
FLDC-3-530E	5.0	3	3.73	6.35	8.74	22.60	●

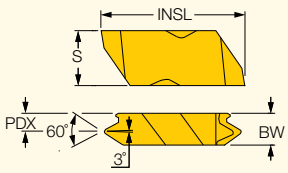
[1] Threads per inch

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

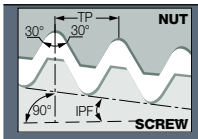
API THREADING FLDC-I

Double-Ended, Precision, Flat Top Threading Inserts





Right-hand shown



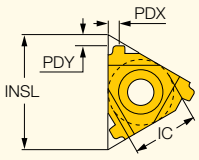
Designation	Dimensions TPI[1]	IPF	PDX	BW	S	INSL	IC908
FLDC-4-425I	4.0	2	4.65	7.92	11.51	28.45	●
FLDC-4-428I	4.0	2	4.65	7.92	11.51	28.45	●
FLDC-4-435I	4.0	3	4.65	7.92	11.51	28.45	●
FLDC-4-438I	4.0	3	4.65	7.92	11.51	28.45	●
FLDC-3-530I	5.0	3	3.73	6.35	8.74	22.60	●

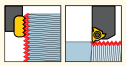
[1] Threads per inch

BUT (API BUTRESS CASING)

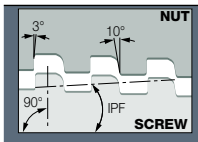
ISCARTHREAD

ER-BUT
External BUT - Oil Thread
Profile Laydown Threading
Inserts for Buttress Casing





External right-hand shown



Designation	Dimensions IC	TPI(1)	INSL	IPF	PDY	PDX	Size(2)	Tough ↔ Hard IC250	IC908
22ER 5 BUT 0.75	12.70	5.0	22.00	0.75	2.2	2.4	4-1/2" - 13-3/8"	●	●
22ER 5 BUT-1.00	12.70	5.0	22.00	1.0	2.3	2.4	16" - 20"	●	

• For Insert Identification System, see pages 638-639 • API STD.5B • For technical information and detailed cutting data, see pages 711-727

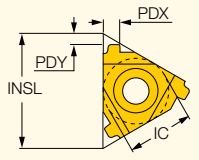
(1) Threads per inch

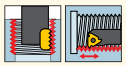
(2) Connection no. or size

For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

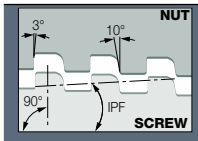
ISCARTHREAD

IR-BUT
Internal BUT - Oil Thread
Profile Laydown Threading
Inserts for Buttress Casing





Internal left-hand shown



Designation	Dimensions IC	TPI(1)	INSL	IPF	PDY	PDX	Size(2)	Tough ↔ Hard IC250	IC908
22IR 5 BUT 0.75	12.70	5.0	22.00	0.75	2.2	2.4	4-1/2" - 13-3/8"		●
22IR 5 BUT 1.00	12.70	5.0	22.00	1.00	2.3	2.4	16" - 20"	●	

• For Insert Identification System, see pages 638-639 • API STD.5B • For technical information and detailed cutting data, see pages 711-727

(1) Threads per inch

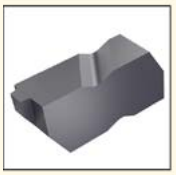
(2) Connection no. or size

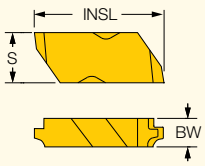
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

NOTCH-GRIP GROOVE-TURN LINE

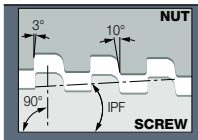
ISCARTHREAD

API BUTTRESS THREADING FLDC-B-E
Double-Ended, Precision,
Flat Top Threading Inserts





Right-hand shown



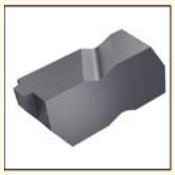
Designation	Dimensions TPI(1)	IPF	BW	S	INSL	IC908
FLDC-3-5B1E	5.0	1	6.35	8.74	22.60	●
FLDC-4-5B1E	5.0	1	6.48	11.51	28.45	●
FLDC-3-5B75E	5.0	3/4	6.35	8.74	22.60	●
FLDC-4-5B75E	5.0	3/4	6.48	11.51	28.45	●

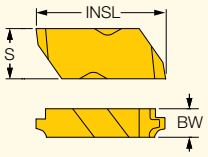
(1) Threads per inch

NOTCH GRIP
GROOVE-TURN LINE
ISCARTHREAD

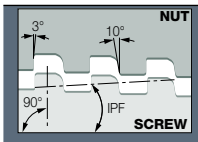
API BUTTRESS THREADING FLDC-B-I

Double-Ended, Precision, Flat Top Threading Inserts





Right-hand shown



Designation	Dimensions TPI[1]	IPF	BW	PDX	S	INSL	IC908
FLDC-3-5B1I	5.0	1	6.35	10.22	8.74	22.60	●
FLDC-4-5B1I	5.0	1	6.48	16.05	11.51	28.45	●
FLDC-3-5B75I	5.0	3/4	6.35	10.22	8.74	22.60	●
FLDC-4-5B75I	5.0	3/4	6.48	16.05	11.51	28.45	●

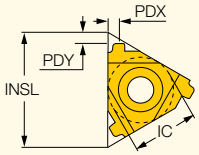
(1) Threads per inch

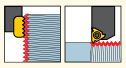
Extreme Line Casing

ISCARTHREAD

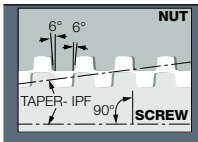
ER-EL

External EL - Extreme Line Oil Thread Profile Laydown Threading Inserts





External right-hand shown



Designation	Dimensions IC	TPI[1]	INSL	IPF	PDY	PDX	Size[2]	Tough ↔ Hard IC250	IC908
22ER 6 EL 1.5	12.70	6.0	22.00	1.5	1.9	1.9	5" - 7-5/8"	●	●
22ER 5 EL 1.25	12.70	5.0	22.00	1.25	2.1	2.0	8-5/8" - 10-3/4"		●

• For Insert Identification System, see pages 638-639 • ANSI B1.9.1973 Class 2

(1) Threads per inch

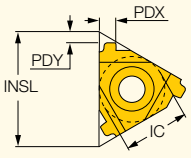
(2) Connection no. or size

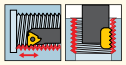
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

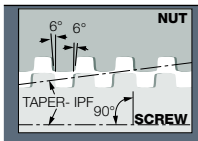
IR-EL

Internal EL - Extreme Line Oil Thread Profile Laydown Threading Inserts





Internal left-hand shown



Designation	Dimensions IC	TPI[1]	INSL	IPF	PDY	PDX	Size[2]	IC908
22IR 6 EL 1.5	12.70	6.0	22.00	1.5	1.9	1.9	5" - 7-5/8"	●

• For Insert Identification System, see pages 638-639 • ANSI B1.9.1973 Class 2

(1) Threads per inch

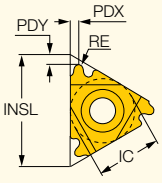
(2) Connection no. or size

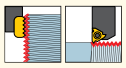
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

ISCARTHREAD

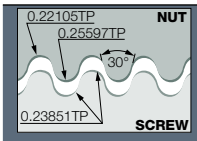
ER/L-RND

External DIN 405 Round Laydown Threading Inserts for Fire Fighting and Food Industry Pipe Couplings





External right-hand shown



Designation	Dimensions IC	TPI[2]	RE	INSL	PDY	PDX	Tough ↔ Hard IC228	IC250	IC508	IC908
16EL 10 RND	9.52	10.0	0.61	16.49	1.1	1.2				●
16ER 10 RND	9.52	10.0	0.61	16.49	1.1	1.2		●		●
16ER/L 8 RND	9.52	8.0	0.76	16.49	1.4	1.3		●		●
16ERM 8 RND [1]	9.52	8.0	0.75	16.49	1.4	1.3				●
16EL 6 RND	9.52	6.0	1.01	16.49	1.5	1.7		●		
16ER 6 RND	9.52	6.0	1.01	16.49	1.5	1.6		●		●
16ERM 6 RND [1]	9.52	6.0	1.01	16.49	1.5	1.7			●	●
22EL 6 RND	12.70	6.0	1.01	22.00	1.5	1.7		●		
22ER 6 RND	12.70	6.0	1.01	22.00	1.5	1.7	●			●
22EL 4 RND	12.70	4.0	1.51	22.00	2.2	2.3				●
22ER 4 RND	12.70	4.0	1.51	22.00	2.2	2.3		●		●
27ER 4 RND	15.88	4.0	1.51	27.50	2.2	2.3		●		

• For Insert Identification System, see pages 638-639 • Tolerance: Class 7H • For technical information and detailed cutting data, see pages 711-727

[1] With pressed chipformer

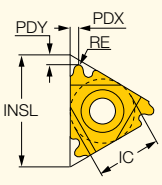
[2] Threads per inch

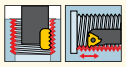
For tools, see pages: C#-SER/L (701) • SER-D (702) • SER/L (700)

ISCARTHREAD

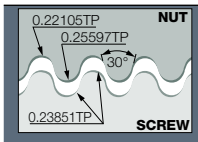
IR/L-RND

Internal DIN 405 Round Laydown Threading Inserts for Fire Fighting and Food Industry Pipe Couplings





Internal left-hand shown



Designation	Dimensions IC	TPI[2]	RE	INSL	PDY	PDX	Tough ↔ Hard IC250	IC908
16IR 10 RND	9.52	10.0	0.36	16.49	1.1	1.2		●
16IR/L 8 RND	9.52	8.0	0.70	16.49	1.4	1.4		●
16IL 6 RND	9.52	6.0	0.94	16.49	1.4	1.5		●
16IR 6 RND	9.52	6.0	0.94	16.49	1.4	1.4	●	●
16IRM 6 RND [1]	9.52	6.0	0.94	16.49	1.4	1.5		●
22IR 6 RND	12.70	6.0	0.94	22.00	1.5	1.7		●
22IR 4 RND	12.70	4.0	1.40	22.00	2.2	2.3		●
27IR 4 RND	15.88	4.0	1.40	27.50	2.2	2.3	●	

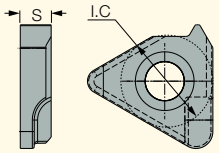
• For Insert Identification System, see pages 638-639 • Tolerance: Class 7H • For technical information and detailed cutting data, see pages 711-727

[1] With pressed chipformer

[2] Threads per inch

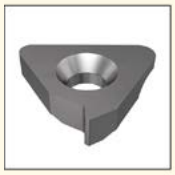
For tools, see pages: AVC-D-SIR/L (707) • SIR/L (703)

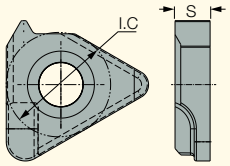
Thread anvils EL/IR
Thread Anvils for External
Left & Internal Right



Designation	IC	a°	S
AI16 -0	9.52	0	3.20
AI16M-0	9.52	0	3.20
AI16 -0.50	9.52	-0.5	3.20
AI16 +0.5	9.52	0.5	3.20
AI16M+0.5	9.52	0.5	3.20
AI16 -1.50	9.52	-1.5	3.20
AI16	9.52	1.5	3.20
AI16M	9.52	1.5	3.20
AI16 +2.5	9.52	2.5	3.20
AI16M+2.5	9.52	2.5	3.20
AI16 +3.5	9.52	3.5	3.20
AI16 +4.5	9.52	4.5	3.20
AI22-0	12.70	0	4.00
AI22M-0	12.70	0	4.00
AI22U-0	12.70	0	4.00
AI22 -0.5	12.70	-0.5	4.00
AI22U -0.5	12.70	-0.5	4.00
AI22 +0.50	12.70	0.5	4.00
AI22M+0.5	12.70	0.5	4.00
AI22 -1.50	12.70	-1.5	4.00
AI22U -1.5	12.70	-1.5	4.00
AI22	12.70	1.5	4.00
AI22M	12.70	1.5	4.00
AI22U	12.70	1.5	4.00
AI22 +2.5	12.70	2.5	4.00
AI22M+2.5	12.70	2.5	4.00
AI22U +2.50	12.70	2.5	4.00
AI22 +3.5	12.70	3.5	4.00
AI22U +3.5	12.70	3.5	4.00
AI22 +4.5	12.70	4.5	4.00
AI22U +4.5	12.70	4.5	4.00
AI27-0	15.88	0	5.50
AI27M-0	15.88	0	5.50
AI27U-0	15.88	0	5.50
AI27 -0.5	15.88	-0.5	3.20
AI27U-0.50	15.88	-0.5	5.50
AI27 +0.5-P	15.88	0.5	5.50
AI27M+0.5	15.88	0.5	4.00
AI27U +0.50	15.88	0.5	5.50
AI27 -1.5	15.88	-1.5	5.50
AI27U -1.5	15.88	-1.5	5.50
AI27	15.88	1.5	5.50
AI27M	15.88	1.5	5.50
AI27U	15.88	1.5	5.50
AI27 +2.5	15.88	2.5	5.50
AI27U +2.5	15.88	2.5	5.50
AI27U +2.5TR	15.88	2.5	5.50
AI27 +3.5	15.88	3.5	5.50
AI27U +3.5	15.88	3.5	5.50
AI27U +3.5TR	15.88	3.5	5.50
AI27 +4.5	15.88	4.5	5.50
AI27U +4.5	15.88	4.5	5.50
AI27U +4.5TR	15.88	4.5	5.50

Thread anvils ER/IL
Thread Anvils for External
Right & Internal Left





Designation	IC	a°	S
AE16 -0	9.52	0	3.20
AE16M -0	9.52	0	3.20
AE16 -0.5	9.52	-0.5	3.20
AE16M -0.5	9.52	-0.5	3.20
AE16 +0.5	9.52	0.5	3.20
AE16M +0.5	9.52	0.5	3.20
AE16 -1.5	9.52	-1.5	3.20
AE16M -1.5	9.52	-1.5	3.20
AE16	9.52	1.5	3.20
AE16M	9.52	1.5	3.20
AE16 +2.5	9.52	2.5	3.20
AE16M +2.5	9.52	2.5	3.20
AE16 +3.5	9.52	3.5	3.20
AE16 +4.5	9.52	4.5	3.20
AE22 -0	12.70	0	4.00
AE22M -0	12.70	0	4.00
AE22U -0	12.70	0	4.00
AE22 -0.5	12.70	-0.5	4.00
AE22M -0.5	12.70	-0.5	4.00
AE22U -0.5	12.70	-0.5	4.00
AE22 +0.5	12.70	0.5	4.00
AE22M +0.5	12.70	0.5	4.00
AE22U +0.5	12.70	0.5	4.00
AE22 -1.5	12.70	-1.5	4.00
AE22U -1.5	12.70	-1.5	4.00
AE22	12.70	1.5	4.00
AE22M	12.70	1.5	4.00
AE22U	12.70	1.5	4.00
AE22 +2.5	12.70	2.5	4.00
AE22M +2.5	12.70	2.5	4.00
AE22U +2.5	12.70	2.5	4.00
AE22 +3.5	12.70	3.5	4.00
AE22U +3.5	12.70	3.5	4.00
AE22 +4.5	12.70	4.5	4.00
AE22U +4.5	12.70	4.5	4.00
AE27 -0	15.88	0	5.50
AE27M -0	15.88	0	5.50
AE27U -0	15.88	0	5.50
AE27 -0.5	15.88	-0.5	5.50
AE27U -0.5	15.88	-0.5	5.50
AE27 +0.5	15.88	0.5	5.50
AE27M +0.5	15.88	0.5	5.50
AE27U +0.5	15.88	0.5	5.50
AE27 -1.5	15.88	-1.5	5.50
AE27U -1.5	15.88	-1.5	5.50
AE27	15.88	1.5	5.50
AE27M	15.88	1.5	5.50
AE27U	15.88	1.5	5.50
AE27 +2.5	15.88	2.5	5.50
AE27U +2.5	15.88	2.5	5.50
AE27U +2.5TR	15.88	2.5	5.50
AE27 +3.5	15.88	3.5	5.50
AE27U +3.5	15.88	3.5	5.50
AE27U +3.5TR	15.88	3.5	5.50
AE27 +4.5	15.88	4.5	5.50
AE27U +4.5	15.88	4.5	5.50
AE27U +4.5TR	15.88	4.5	5.50

THREADING TOOLS

Toolholder Identification System

S	E	R	2020	K	16	□
1	2	3	4	5	6	7

1 Clamping System

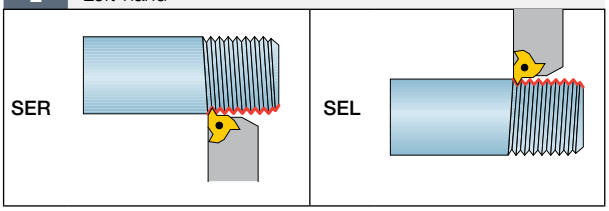
S	Screw Clamping

2 Application

E	External
I	Internal

3 Hand of Tool

R	Right-hand
L	Left-hand



4 Type

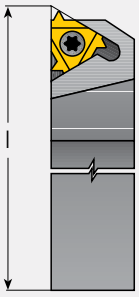
External Toolholders
Shank: hxb
2020-20x20 mm

*** Optional Prefix**

C HSK KM	Exchangeable Adaptation System

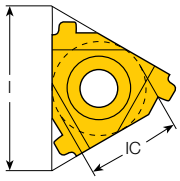
5 Tool Length

	mm
D	60
F	80
H	100
K	125
L	140
M	150
P	170
R	200
S	250
T	300
U	350
V	400



6 Insert Size

l (mm)	IC
06	5/32"
08	3/16"
08U	3/16"
11	1/4"
16	3/8"
22	1/2"
22U	1/2"
27	5/8"
27U	5/8"



7 Optional Specifications

U	For U-type inserts
B	Bore for coolant
C	Carbide shank
O	Offset style
D	Drop head
G	Gang tool
SP	Special

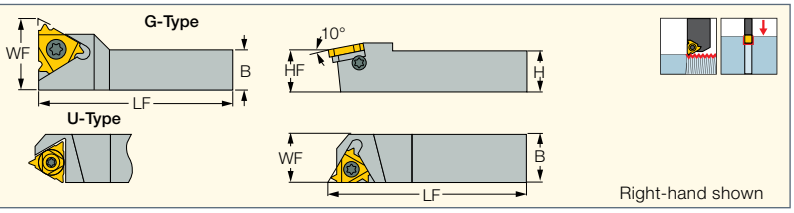
Tool Types		
C#-SER/L HSK-SEL		Standard  U-Type 
ISCAR GROOVE-TURN TOOLS		
PENTACUT Carrying Inserts with 5 Threading Corners. For tool information, refer to the section on GROOVE-TURN.		

Boring Bars		
E-SIR-HEAD		Standard  U-Type 
GROOVE-TURN Boring Bars		
CHAMGROOVE Holder and Carbide Bar		
CHAMGROOVE Integral		
PICCOCUT Holders and Carbide Bars		

External Threading Toolholders

ISCARTHREAD

SER/L
External Threading Toolholders



Designation	H	HF	B	LF	WF	Insert(2)
SER 0808 H11 (1)	8.0	8.0	8.0	100.00	11.00	11 ER..
SER/L 1010 H11 (1)	10.0	10.0	10.0	100.00	11.00	11 ER/L..
SER/L 1212 F16	12.0	12.0	12.0	80.00	12.00	16 ER/L..
SER 1212 X16	12.0	12.0	12.0	120.00	12.00	16 ER/L..
SER/L 1616 H16	16.0	16.0	16.0	100.00	16.00	16 ER/L..
SER 1616 K16G	16.0	16.0	16.0	125.00	21.70	16 ER..
SER/L 2020-16-AD	20.0	20.0	20.0	67.00	20.00	16 ER/L..
SER/L 2020 K16	20.0	20.0	20.0	125.00	20.00	16 ER/L..
SER/L 2525 M16	25.0	25.0	25.0	150.00	25.00	16 ER/L..
SER/L 3232 P16	32.0	32.0	32.0	170.00	32.00	16 ER/L..
SER/L 2525 M22	25.0	25.0	25.0	150.00	25.00	22 ER/L..
SER/L 3232 P22	32.0	32.0	32.0	170.00	32.00	22 ER/L..
SER 4040 R22	40.0	40.0	40.0	200.00	40.00	22 ER/L..
SER/L 2525 M22U	25.0	25.0	25.0	150.00	28.00	22 UER/L..
SER/L 3232 P22U	32.0	32.0	32.0	170.00	32.00	22 UER/L..
SEL 4040 R22U	40.0	40.0	40.0	200.00	40.00	22 UER/L..
SER/L 2525 M27	25.0	25.0	25.0	150.00	25.00	27 ER/L..
SER/L 3232 P27	32.0	32.0	32.0	170.00	32.00	27 ER/L..
SER 4040 R27	40.0	40.0	40.0	200.00	40.00	27 ER/L..
SER/L 2525 M27U	25.0	25.0	25.0	150.00	32.00	27 UER/L..
SER/L 3232 P27U	32.0	32.0	32.0	170.00	32.00	27 UER/L..
SER/L 4040 R27U	40.0	40.0	40.0	200.00	40.00	27 UER/L..

- All tools are made for 1.5 helix angle
- For multi-tooth inserts use anvils AE16M / AI16M; AE22M / AI22M; AE27M / AI27M
- For GTGA inserts, use anvil AE 16-0

(1) Toolholder without anvil (2) Right-hand inserts (ER) for right-hand tools (SER)

Spare Parts

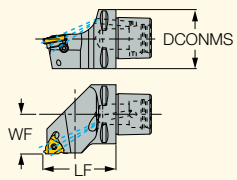
Designation					
SER 0808 H11	SR M2.6-L6.7-S11				T-8/5
SER/L 1010 H11	SR M2.6-L6.7-S11				T-8/5
SEL 1212 F16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16		AI16	T-10/5
SER 1212 F16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	AE16		T-10/5
SER 1212 X16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	AE16		T-10/5
SEL 1616 H16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16		AI16	T-10/5
SER 1616 H16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	AE16		T-10/5
SER 1616 K16G	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	AE16		T-10/5
SEL 2020-16-AD	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16		AI16	T-10/5
SER 2020-16-AD	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	AE16		T-10/5
SEL 2020 K16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16		AI16	T-10/5
SER 2020 K16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	AE16		T-10/5
SEL 2525 M16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16		AI16	T-10/5
SER 2525 M16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	AE16		T-10/5
SEL 3232 P16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16		AI16	T-10/5
SER 3232 P16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	AE16		T-10/5
SEL 2525 M22	SR 8-32-L15-S22	SR 8-32-L5.8-A22		AI22	T-20/5
SER 2525 M22	SR 8-32-L15-S22	SR 8-32-L5.8-A22	AE22		T-20/5
SEL 3232 P22	SR 8-32-L15-S22	SR 8-32-L5.8-A22		AI22	T-20/5
SER 3232 P22	SR 8-32-L15-S22	SR 8-32-L5.8-A22	AE22		T-20/5
SER 4040 R22	SR 8-32-L15-S22	SR 8-32-L5.8-A22	AE22		T-20/5
SEL 2525 M22U	SR 8-32-L15-S22	SR 8-32-L5.8-A22		AI22U	T-20/5
SER 2525 M22U	SR 8-32-L15-S22	SR 8-32-L5.8-A22	AE22U		T-20/5
SEL 3232 P22U	SR 8-32-L15-S22	SR 8-32-L5.8-A22		AI22U	T-20/5
SER 3232 P22U	SR 8-32-L15-S22	SR 8-32-L5.8-A22	AE22U		T-20/5
SEL 4040 R22U	SR 8-32-L15-S22	SR 8-32-L5.8-A22		AI22U	T-20/5
SEL 2525 M27	SR M5-L22-S40	SR M5-L5.8-A27		AI27	T-25/3
SER 2525 M27	SR M5-L22-S40	SR M5-L5.8-A27	AE27		T-25/3
SEL 3232 P27	SR M5-L22-S40	SR M5-L5.8-A27		AI27	T-25/3
SER 3232 P27	SR M5-L22-S40	SR M5-L5.8-A27	AE27		T-25/3
SER 4040 R27	SR M5-L22-S40	SR M5-L5.8-A27	AE27		T-25/3
SEL 2525 M27U	SR M5-L22-S40	SR M5-L5.8-A27		AI27U	T-25/3
SER 2525 M27U	SR M5-L22-S40	SR M5-L5.8-A27	AE27U		T-25/3
SEL 3232 P27U	SR M5-L22-S40	SR M5-L5.8-A27		AI27U	T-25/3
SER 3232 P27U	SR M5-L22-S40	SR M5-L5.8-A27	AE27U		T-25/3
SEL 4040 R27U	SR M5-L22-S40	SR M5-L5.8-A27		AI27U	T-25/3
SER 4040 R27U	SR M5-L22-S40	SR M5-L5.8-A27	AE27U		T-25/3

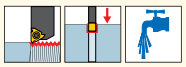
ISCARTHREAD

CAMFIX

C#-SER/L

External Threading Tools with CAMFIX Exchangeable Shanks





Right-hand shown

Designation	DCONMS	WF	LF	Insert(1)	CP(2)	CDI(3)
C4 SEL-27050-16	40.00	27.00	50.00	16ER/L...	200	1
C4 SER-27050-16	40.00	27.00	50.00	16ER/L...	0	1
C5 SEL-35060-16	50.00	35.00	60.00	16ER/L...	200	1
C5 SER-35060-16	50.00	35.00	60.00	16ER/L...	0	1
C6 SEL-45065-16	63.00	45.00	65.00	16ER/L...	200	1
C6 SER-45065-16	63.00	45.00	65.00	16ER/L...	0	1
C4 SER/L-27050-22	40.00	27.00	50.00	22ER/L...	200	1
C5 SER/L-35060-22	50.00	35.00	60.00	22ER/L...	200	1
C6 SER/L-45065-22	63.00	45.00	65.00	22ER/L...	200	1
C8 SER/L-55080-22	80.00	55.00	80.00	22ER/L...	200	1

(1) Right-hand inserts for right-hand tools and vice versa

(2) Coolant pressure (Bar)

(3) 1 - Hole for data chip, 0 - Without hole for data chip

For inserts, see pages: ER-BUT (692) • ER-EL (693) • ER-MJ (683) • ER-NPTF (672) • ER-PG (685) • ER/L-55° (640) • ER/L-60° (644) • ER/L-ABUT (687) • ER/L-ACME (677) • ER/L-API (690) • ER/L-API RD (688) • ER/L-BSPT (673) • ER/L-ISO (653) • ER/L-NPT (669) • ER/L-RND (694) • ER/L-SAGE (686) • ER/L-STACME (675) • ER/L-TR (684) • ER/L-UN (660) • ER/L-UNJ (680) • ER/L-W (666) • GTGA (325) • GTMA (326)

For holders, see pages: HSK-C# (735)

Spare Parts

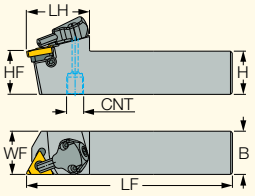
Designation					
C4 SEL-27050-16	AI16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
C4 SER-27050-16	AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	EZ 83
C5 SEL-35060-16	AI16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	EZ 104
C5 SER-35060-16	AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	EZ 104
C6 SEL-45065-16	AI16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
C6 SER-45065-16	AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
C4 SEL-27050-22	AI22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
C4 SER-27050-22	AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
C5 SEL-35060-22	AI22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
C5 SER-35060-22	AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
C6 SEL-45065-22	AI22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
C6 SER-45065-22	AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
C8 SEL-55080-22	AI22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
C8 SER-55080-22	AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	

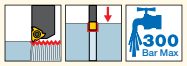
ISCARTHREAD

JETCUT

SER/L-JHP

External Threading Tools with Coolant Channels





Designation	H	B	HF	LF	LH	WF	CNT	Insert(1)
SER/L 2020 K16-JHP	20.0	20.0	20.0	125.00	37.0	20.00	G1/8-28	16 ER/L..
SER/L 2525 M16-JHP	25.0	25.0	25.0	150.00	37.0	25.00	G1/8-28	16 ER/L..
SER/L 3232 P16-JHP	32.0	32.0	32.0	170.00	37.0	32.00	G1/8-28	16 ER/L..

- All tools are made for 1.5 helix angle
- For multi-tooth inserts use anvils AE16M / AI16M; AE22M / AI22M; AE27M / AI27M
- For GTGA inserts, use anvil AE 16-0

(1) Right-hand inserts (ER) for right-hand tools (SER)

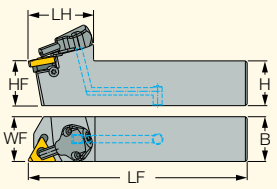
For inserts, see pages: ER-MJ (683) • ER-NPTF (672) • ER-PG (685) • ER/L-55° (640) • ER/L-60° (644) • ER/L-ABUT (687) • ER/L-ACME (677) • ER/L-API RD (688) • ER/L-BSPT (673) • ER/L-ISO (653) • ER/L-NPT (669) • ER/L-RND (694) • ER/L-SAGE (686) • ER/L-STACME (675) • ER/L-TR (684) • ER/L-UN (660) • ER/L-UNJ (680) • ER/L-W (666) • GTGA (325) • GTMA (326)

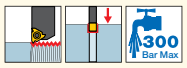
Spare Parts

Designation						
SEL 2020 K16-JHP	SR 5-40-L12.2-S16	AI16	T-8/5	SR 5-40-L6.8-A16	T-10/5	CU-V-JHP
SER 2020 K16-JHP	SR 5-40-L12.2-S16	AE16	T-8/5	SR 5-40-L6.8-A16	T-10/5	CU-V-JHP
SEL 2525 M16-JHP	SR 5-40-L12.2-S16	AI16	T-8/5	SR 5-40-L6.8-A16	T-10/5	CU-V-JHP
SER 2525 M16-JHP	SR 5-40-L12.2-S16	AE16	T-8/5	SR 5-40-L6.8-A16	T-10/5	CU-V-JHP
SEL 3232 P16-JHP	SR 5-40-L12.2-S16	AI16	T-8/5	SR 5-40-L6.8-A16	T-10/5	CU-V-JHP
SER 3232 P16-JHP	SR 5-40-L12.2-S16	AE16	T-8/5	SR 5-40-L6.8-A16	T-10/5	CU-V-JHP

ISCARTHREAD
JETCUT

SER/L-JHP-MC
External Threading Tools with
Bottom Inlet Coolant Channels





Designation	H	HF	B	LF	LH	WF	Insert[1]
SER/L 2020X16 JHP-MC	20.0	20.0	20.0	107.00	36.2	20.00	16 ER/L..
SER/L 2525X16 JHP-MC	25.0	25.0	25.0	122.00	36.2	25.00	16 ER/L..

• All tools are made for 1.5 helix angle • For multi-tooth inserts use anvils AE16M / AI16M; AE22M / AI22M; AE27M / AI27M
• For GTGA inserts, use anvil AE 16-0
[1] Right-hand inserts (ER) for right-hand tools (SER)

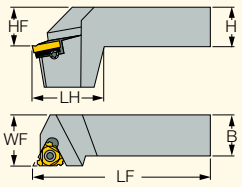
For inserts, see pages: ER-MJ (683) • ER-NPTF (672) • ER-PG (685) • ER/L-55° (640) • ER/L-60° (644) • ER/L-ABUT (687) • ER/L-ACME (677)
• ER/L-API RD (688) • ER/L-BSPT (673) • ER/L-ISO (653) • ER/L-NPT (669) • ER/L-RND (694) • ER/L-SAGE (686) • ER/L-STACME (675)
• ER/L-TR (684) • ER/L-UN (660) • ER/L-UNJ (680) • ER/L-W (666) • GTGA (325) • GTMA (326)

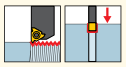
Spare Parts

Designation						
SEL 2020X16 JHP-MC	SR 5-40-L12.2-S16	AI16	T-8/5	SR 5-40-L6.8-A16	T-10/5	CU-V-JHP
SER 2020X16 JHP-MC	SR 5-40-L12.2-S16	AE16	T-8/5	SR 5-40-L6.8-A16	T-10/5	CU-V-JHP
SEL 2525X16 JHP-MC	SR 5-40-L12.2-S16	AI16	T-8/5	SR 5-40-L6.8-A16	T-10/5	CU-V-JHP
SER 2525X16 JHP-MC	SR 5-40-L12.2-S16	AE16	T-8/5	SR 5-40-L6.8-A16	T-10/5	CU-V-JHP

ISCARTHREAD

SER-D
External Threading
Drophead Toolholders





Right-hand shown

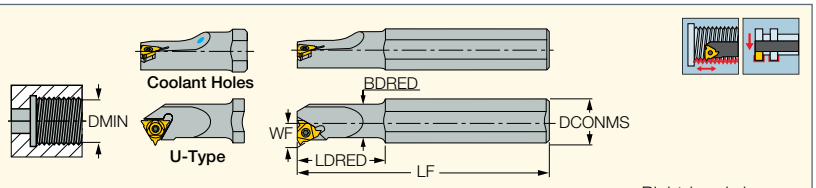
Designation	H	HF	B	LF	WF	LH	Insert				
SER 2525 M16D	25.0	25.0	25.0	150.00	32.00	38.0	16 ER..	SR 5-40-L12.2-S16	T-10/5	AE16	SR 5-40-L6.8-A16
SER 2525 M22D	25.0	25.0	25.0	150.00	32.00	38.0	22 ER..	SR 8-32-L15-S22	T-20/5	AE22	SR 8-32-L5.8-A22

• All toolholders are made for 1.5 helix angle. • For GTGA inserts, use anvil AE 16-0

For inserts, see pages: GTMA (326)

ISCARTHREAD

SIR/L
Internal Threading Bars



Right-hand shown

Designation	DMIN	DCONMS	BDRED	LF	LDRED	WF	CSP(4)	Shank m.(5)	Insert(6)
SIR/L 0005 H06CB (1)	6.40	6.00	5.10	100.00	25.0	4.30	1	C	06 IR/IL..
SIR/L 0005 H06 (2)	6.40	12.00	5.10	100.00	12.0	4.30	0	S	06 IR/IL..
SIR 0005 H06-W (2)	6.40	12.00	5.10	100.00	12.0	4.30	0	S	06 IR/IL..
SIR/L 0007 K08CB (1)	9.00	8.00	6.60	125.00	30.0	5.30	1	C	08 IR/IL..
SIR/L 0008 K08UCB	9.00	8.00	7.30	125.00	35.0	6.40	1	C	08 UIRL..
SIR/L 0007 K08 (2)	9.00	16.00	6.60	125.00	18.0	5.30	0	S	08 IR/IL..
SIR/L 0008 K08U (2)	9.00	16.00	7.30	125.00	21.0	6.60	0	S	08 UIRL..
SIR/L 0010 H11 (2)	12.00	10.00	10.00	100.00	-	7.40	0	S	11 IR/IL..
SIR/L 0010 M11CB (1)	12.00	10.00	10.00	150.00	-	7.40	1	C	11 IR/IL..
SIR 0010 H11B (2)	12.00	10.00	10.00	100.00	-	7.40	1	S	11 IR/IL..
SIR/L 0010 K11 (2)	12.00	16.00	10.00	125.00	25.0	6.50	0	S	11 IR/IL..
SIR/L 0010 K11B (2)	12.00	16.00	10.00	125.00	25.0	7.40	1	S	11 IR/IL..
SIR/L 0012 P11CB (1)	15.00	12.00	12.00	170.00	-	8.40	1	C	11 IR/IL..
SIL 0013 L11 (2)	15.00	16.00	13.00	140.00	32.0	8.90	0	S	11 IR/IL..
SIR 0013 L11 (2)	15.00	16.00	13.00	140.00	32.0	8.90	0	S	11 IR/L..
SIR/L 0013 M16 (2)	16.00	16.00	13.00	150.00	32.0	10.00	0	S	16 IR/L..
SIL 0013 M16B (2)	16.00	16.00	13.00	150.00	32.0	10.20	1	S	16 IR/L..
SIR 0013 M16B (2)	16.00	16.00	13.00	150.00	32.0	10.00	1	S	16 IR/L..
SIR 0016 R16CB (1)	19.00	16.00	16.00	200.00	-	11.70	1	C	16 IR/IL..
SIR/L 0016 P16 (2)	19.00	20.00	16.00	170.00	40.0	11.40	0	S	16 IR/L..
SIR/L 0016 P16B (2)	19.00	20.00	16.00	170.00	40.0	11.70	1	S	16 IR/L..
SIR/L 0020 P16	24.00	20.00	20.00	170.00	-	13.70	0	S	16 IR/L..
SIR/L 0020 P16B	24.00	20.00	20.00	170.00	-	13.70	1	S	16 IR/L..
SIR/L 0020 P22 (2)	24.00	20.00	20.00	170.00	-	15.60	0	S	22 IR/L..
SIR/L 0020-16-AD	24.00	20.00	20.00	80.00	-	13.70	0	S	16 IR/L..
SIR 0020 S16CB	24.00	20.00	20.00	250.00	-	13.70	1	C	16 IR/L..
SIR 0025 S16CB	28.00	25.00	25.00	250.00	-	16.20	1	C	16 IR/L..
SIR/L 0025 R16	29.00	25.00	25.00	200.00	-	16.30	0	S	16 IR/L..
SIL 0025 R16B	29.00	25.00	25.00	200.00	-	16.20	1	S	16 IR/L..
SIR/L 0025 R22	29.00	25.00	25.00	200.00	-	17.20	0	S	22 IR/L..
SIR/L 0025 R22B	29.00	25.00	25.00	200.00	-	18.10	1	S	22 IR/L..
SIL 0025-16-AD	29.00	25.00	25.00	100.00	-	16.30	0	S	16 IR/L..
SIR 0025 R16B	29.00	25.00	25.00	200.00	-	16.30	1	S	16 IR/L..
SIR 0025-16-AD	29.00	25.00	25.00	100.00	-	16.20	0	S	16 IR/L..
SIR/L 0032 S16	36.00	32.00	32.00	250.00	-	19.70	0	S	16 IR/L..
SIR/L 0032 S22	38.00	32.00	32.00	250.00	-	21.50	0	S	22 IR/L..
SIR/L 0032 S22U	38.00	32.00	32.00	250.00	-	25.50	0	S	22 UIRL..
SIL 0032 S27	40.00	32.00	32.00	250.00	-	22.40	0	S	27 IR/L
SIR/L 0032 S27U (3)	40.00	32.00	32.00	250.00	-	24.70	0	S	27 UIRL..
SIR 0032 S27	40.00	32.00	32.00	250.00	-	22.40	0	S	27 IR/L..
SIR/L 0040 T16	44.00	40.00	40.00	300.00	-	23.70	0	S	16 IR/L..
SIR/L 0040 T22	46.00	40.00	40.00	300.00	-	25.80	0	S	22 IR/L..
SIR 0040 T22U	46.00	40.00	40.00	300.00	-	29.50	0	S	22 UIRL..
SIR/L 0040 T27	48.00	40.00	40.00	300.00	-	26.60	0	S	27 IR/L..
SIR 0040 T27U (3)	48.00	40.00	40.00	300.00	-	29.40	0	S	27 UIRL..
SIR/L 0050 U16	54.00	50.00	50.00	350.00	-	28.70	0	S	16 IR/L..
SIR/L 0050 U22	56.00	50.00	50.00	350.00	-	30.60	0	S	22 IR/L..
SIR/L 0050 U27	58.00	50.00	50.00	350.00	-	31.60	0	S	27 IR/L..
SIR 0050 U27U (3)	58.00	50.00	50.00	350.00	-	34.30	0	S	27 UIRL..
SIR/L 0060 V27	68.00	60.00	60.00	400.00	-	36.60	0	S	27 IR/L..
SIR/L 0060 V27U (3)	68.00	60.00	60.00	400.00	-	39.30	0	S	27 UIRL..

- B-steel shank with coolant hole, CB-carbide shank with coolant hole
- All toolholders provide 1.5 helix angle, either via the pocket or the anvil supplied
- For GTGA inserts, use anvil AL 16-0

(1) Carbide shank without anvil
(2) Toolholder without anvil
(3) For ACME, STUB ACME, TRAPEZ (DIN 103) and ROUND (DIN 405) thread profiles check in user guide for anvil information
(4) 0 - Without coolant supply, 1 - With coolant supply
(5) C-carbide,S-steel
(6) Right-hand inserts (IR) for right-hand tools (SIR)

For holders, see pages: DT30/2 ##L70WN (758) • DT30/2 ADR-##-20-55 (758)

Spare Parts

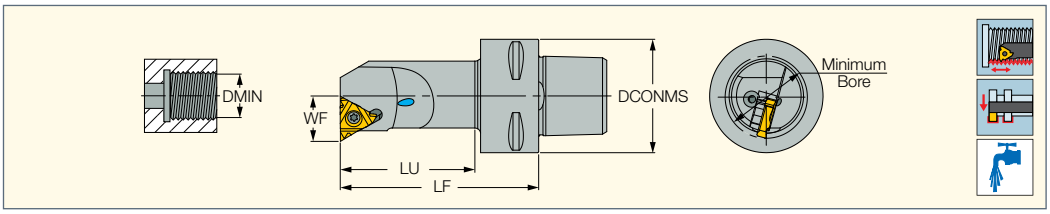
Designation						
SIR/L 0005 H06CB				SR 14-552	T-6/5	
SIR/L 0005 H06				SR 14-552	T-6/5	
SIR 0005 H06-W				SR 14-552	T-6/5	
SIR/L 0007 K08CB				SR 14-558	T-6/5	
SIR/L 0008 K08UCB				SR 14-558	T-6/5	
SIR/L 0007 K08				SR 14-558	T-6/5	
SIR/L 0008 K08U				SR 14-558	T-6/5	
SIR/L 0010 H11				SR M2.6-L6.7-S11	T-8/5	
SIR/L 0010 M11CB				SR M2.6-L6.7-S11	T-8/5	
SIR 0010 H11B				SR M2.6-L6.7-S11	T-8/5	
SIR/L 0010 K11				SR M2.6-L6.7-S11	T-8/5	
SIR/L 0010 K11B				SR M2.6-L6.7-S11	T-8/5	PL 16
SIR/L 0012 P11CB				SR M2.6-L6.7-S11	T-8/5	
SIR/L 0013 L11				SR M2.6-L6.7-S11	T-8/5	
SIR/L 0013 M16				SR 5-40-L9.7-S16S	T-10/5	
SIR/L 0013 M16B				SR 5-40-L9.7-S16S	T-10/5	PL 16
SIR 0016 R16CB				SR 5-40-L9.7-S16S	T-10/5	
SIR/L 0016 P16				SR 5-40-L9.7-S16S	T-10/5	
SIR/L 0016 P16B				SR 5-40-L9.7-S16S	T-10/5	PL 20
SIL 0020 P16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIL 0020 P16B		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	PL 20
SIR/L 0020 P22				SR 8-32-L12-S22S	T-20/5	
SIL 0020-16-AD		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 0020 P16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 0020 P16B	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	PL 20
SIR 0020 S16CB	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 0020-16-AD	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 0025 S16CB	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIL 0025 R16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 0025 R16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIL 0025 R16B		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	PL 25
SIR 0025 R16B	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	PL 25
SIL 0025 R22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 0025 R22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIL 0025 R22B		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	PL 25
SIR 0025 R22B	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	PL 25
SIL 0025-16-AD		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 0025-16-AD	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIL 0032 S16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 0032 S16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIL 0032 S22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIL 0032 S22U		AE22U	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 0032 S22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 0032 S22U	AI22U		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIL 0032 S27		AE27	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIL 0032 S27U		AE27U	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 0032 S27	AI27		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 0032 S27U	AI27U		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIL 0040 T16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 0040 T16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIL 0040 T22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 0040 T22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 0040 T22U	AI22U		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIL 0040 T27		AE27	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 0040 T27	AI27		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 0040 T27U	AI27U		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIL 0050 U16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 0050 U16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIL 0050 U22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 0050 U22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIL 0050 U27		AE27	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 0050 U27	AI27		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 0050 U27U	AI27U		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIL 0060 V27		AE27	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIL 0060 V27U		AE27U	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 0060 V27	AI27		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 0060 V27U	AI27U		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	

ISCARTHREAD

CAMFIX

C#-SIR/L

Internal Threading Bars with CAMFIX Exchangeable Shanks



Designation	DCONMS	DMIN	WF	LU	LF	Insert	CP[1]	CDI[2]
C4 SIR/L-12060-16	40.00	20.00	11.70	37.0	60.00	16 IR/L..	300	1
C4 SIR/L-14060-16	40.00	25.00	13.50	38.0	60.00	16 IR/L..	300	1
C4 SIR-15065-22	40.00	25.00	15.40	42.0	65.00	22 IR/L..	300	1
C4 SIL-17070-16	40.00	29.00	16.00	48.0	70.00	16 IR/L..	300	1
C4 SIL-19070-22	40.00	29.00	17.90	48.0	70.00	22 IR/L..	300	1
C4 SIR-17070-16	40.00	29.00	16.00	48.0	70.00	16 IR/L..	300	1
C4 SIR-19070-22	40.00	29.00	17.90	48.0	70.00	22 IR/L..	300	1
C4 SIR/L-22090-16	40.00	36.00	19.50	69.0	90.00	16 IR/L..	300	1
C4 SIR/L-22090-22	40.00	38.00	21.40	69.0	90.00	22 IR/L..	300	1
C4 SIR/L-27080-16	40.00	44.00	23.50	60.0	80.00	16 IR/L..	300	1
C4 SIR/L-27080-22	40.00	46.00	25.40	60.0	80.00	22 IR/L..	300	1
C5 SIR/L-12060-16	50.00	20.00	11.70	35.0	60.00	16 IR/L..	300	1
C5 SIR/L-14060-16	50.00	25.00	13.50	36.0	60.00	16 IR/L..	300	1
C5 SIR/L-15065-22	50.00	25.00	15.40	41.0	65.00	22 IR/L..	300	1
C5 SIR/L-17070-16	50.00	29.00	16.00	47.0	70.00	16 IR/L..	300	1
C5 SIR/L-19070-22	50.00	29.00	17.90	47.0	70.00	22 IR/L..	300	1
C5 SIR/L-22090-16	50.00	36.00	19.50	68.0	90.00	16 IR/L..	300	1
C5 SIR/L-22090-22	50.00	38.00	21.40	68.0	90.00	22 IR/L..	300	1
C5 SIR/L-27105-16	50.00	44.00	23.50	84.0	105.00	16 IR/L..	300	1
C5 SIR/L-27105-22	50.00	46.00	25.40	84.0	105.00	22 IR/L..	300	1
C6 SIR/L-14070-16	63.00	25.00	13.50	42.0	70.00	16 IR/L..	300	1
C6 SIR/L-17075-16	63.00	29.00	16.00	48.0	75.00	16 IR/L..	300	1
C6 SIR/L-19075-22	63.00	29.00	17.90	48.0	75.00	22 IR/L..	300	1
C6 SIR/L-22090-16	63.00	36.00	19.50	64.0	90.00	16 IR/L..	300	1
C6 SIR/L-22090-22	63.00	38.00	21.40	64.0	90.00	22 IR/L..	300	1
C6 SIR/L-27105-16	63.00	44.00	23.50	80.0	105.00	16 IR/L..	300	1
C6 SIL-27105-22	63.00	46.00	25.40	80.0	105.00	22 IR/L..	300	1
C6 SIR-27105-22	63.00	46.00	25.40	8.0	105.00	22 IR/L..	300	1

[1] Coolant pressure (Bar)

[2] 1 - Hole for data chip, 0 - Without hole for data chip

For inserts, see pages: GTMA (326) • IR-BUT (692) • IR-EL (693) • IR-MJ (683) • IR/L-55° (640) • IR/L-60° (645) • IR/L-ACME (677) • IR/L-API (690) • IR/L-API RD (689) • IR/L-BSPT (673) • IR/L-ISO (655) • IR/L-NPT (670) • IR/L-NPTF (672) • IR/L-PG (686) • IR/L-RND (694) • IR/L-SAGE (686) • IR/L-STACME (675) • IR/L-TR (685) • IR/L-UN (662) • IR/L-UNJ (681) • IR/L-W (667) • GTGA (325)

Spare Parts

Designation					
C4 SIL-12060-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C4 SIR-12060-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C4 SIL-14060-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C4 SIR-14060-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C4 SIR-15065-22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C4 SIL-17070-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C4 SIL-19070-22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C4 SIR-17070-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C4 SIR-19070-22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C4 SIL-22090-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C4 SIR-22090-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C4 SIL-22090-22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C4 SIR-22090-22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C4 SIL-27080-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C4 SIR-27080-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C4 SIL-27080-22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C4 SIR-27080-22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C5 SIL-12060-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C5 SIR-12060-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C5 SIL-14060-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C5 SIL-15065-22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C5 SIR-14060-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C5 SIR-15065-22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C5 SIL-17070-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C5 SIL-19070-22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C5 SIR-17070-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C5 SIR-19070-22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C5 SIL-22090-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C5 SIR-22090-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C5 SIL-22090-22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5

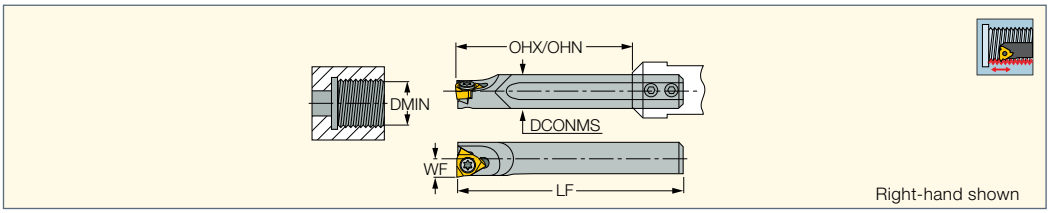
Spare Parts

C5 SIR-22090-22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C5 SIL-27105-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C5 SIR-27105-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C5 SIL-27105-22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C5 SIR-27105-22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C6 SIL-14070-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C6 SIR-14070-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C6 SIL-17075-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C6 SIL-19075-22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C6 SIR-17075-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C6 SIR-19075-22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C6 SIL-22090-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C6 SIR-22090-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C6 SIL-22090-22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C6 SIR-22090-22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C6 SIL-27105-16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C6 SIR-27105-16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
C6 SIL-27105-22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
C6 SIR-27105-22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5

ISCARTHREAD

MGSIR/L

Solid Carbide Bars for Internal Turning and Threading



Designation	DCONMS	LF	OHN(1)	OHX(2)	WF	DMIN		
MGSIR/L 06-06	6.00	59.00	16.0	42.0	3.90	7.00	SR 14-552	T-6/5
MGSIR/L 08-06	8.00	72.00	20.0	56.0	5.00	9.20	SR 14-552	T-6/5

- In order to maintain high machining reliability, we strongly recommend replacing the clamping screw every 10 insert indexes

(1) Minimum overhang in adjustment range

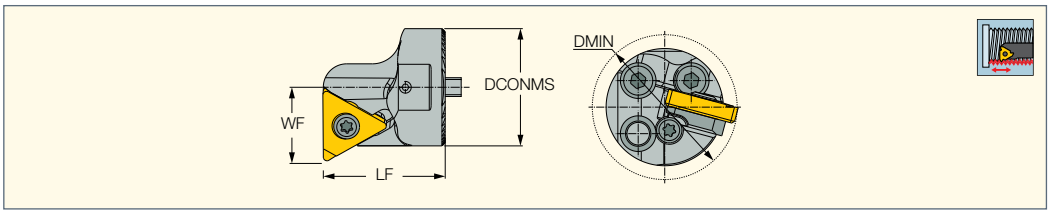
(2) Maximum overhang in adjustment range

For inserts, see pages: IR/L-55° (640) • IR/L-60° (645) • IR/L-BSPT (673) • IR/L-ISO (655) • IR/L-NPT (670) • IR/L-NPTF (672) • IR/L-UN (662) • IR/L-W (667)

For holders, see pages: SBB (106)

FLASHTURN ECO LINE
WHISPERLINE ANTI-VIBRATION

AVC-D-SIR/L
Interchangeable Boring Heads for Threading Inserts



Designation	WF	DCONMS	DMIN	LF	CSP(2)
AVC-D25-SIR/L-16	16.20	25.00	29.00	26.00	1
AVC-D32-SIR/L-16	19.70	32.00	36.00	27.00	1
AVC-D40-SIR/L-16 (1)	23.70	40.00	44.00	30.00	1
AVC-D32-SIR/L-22	21.60	32.00	38.00	32.00	1
AVC-D40-SIR/L-22 (1)	25.60	40.00	46.00	38.00	1

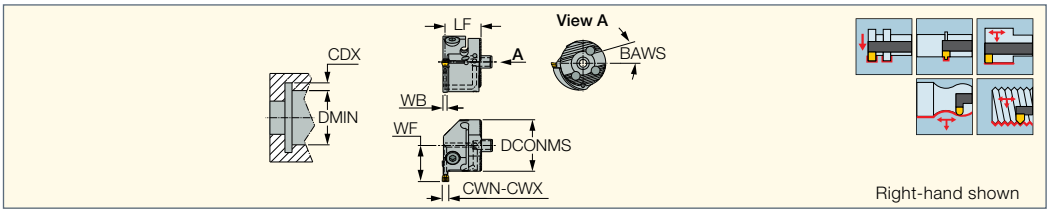
(1) DMIN of 50mm shank is DMIN of requested head + 10mm • DMIN of 60mm shanks is DMIN of requested head + 20mm
(2) 0 - Without coolant supply, 1 - With coolant supply
For inserts, see pages: GTGA (325) • GTMA (326) • IR-BUT (692) • IR-EL (693) • IR-MJ (683) • IR/L-55° (640) • IR/L-60° (645) • IR/L-ACME (677) • IR/L-API (690) • IR/L-API RD (689) • IR/L-BSPT (673) • IR/L-ISO (655) • IR/L-NPT (670) • IR/L-NPTF (672) • IR/L-PG (686) • IR/L-RND (694) • IR/L-SAGE (686) • IR/L-STACME (675) • IR/L-TR (685) • IR/L-UN (662) • IR/L-UNJ (681) • IR/L-W (667)
For holders, see pages: AV-D (93) • C#-SH-E-JHP (630) • C#-SH-JHP (630) • SH-D (92)

Spare Parts

Designation				
AVC-D25-SIL-16	AE16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	T-10/5
AVC-D25-SIR-16	AI16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	T-10/5
AVC-D32-SIL-16	AE16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	T-10/5
AVC-D32-SIR-16	AI16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	T-10/5
AVC-D40-SIL-16	AE16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	T-10/5
AVC-D40-SIR-16	AI16	SR 5-40-L12.2-S16	SR 5-40-L6.8-A16	T-10/5
AVC-D32-SIL-22	AE22	SR 8-32-L15-S22	SR 8-32-L5.8-A22	T-20/5
AVC-D32-SIR-22	AI22	SR 8-32-L15-S22	SR 8-32-L5.8-A22	T-20/5
AVC-D40-SIL-22	AE22	SR 8-32-L15-S22	SR 8-32-L5.8-A22	T-20/5
AVC-D40-SIR-22	AI22	SR 8-32-L15-S22	SR 8-32-L5.8-A22	T-20/5

CUTGRIP

AVC-GEAIR/L
Internal Grooving Turning and Threading Adapters



Designation	DMIN	CWN(1)	CWX(2)	DCONMS	CDX(3)	WF	LF	WB	BAWS	MIID(4)
AVC-D16-GEAIR/L-2	21.00	1.90	2.40	16.00	3.00	12.00	14.50	1.60	45	GEPI 2.00-0.10
AVC-D16-GEAIR/L-3	21.00	2.40	2.70	16.00	3.00	12.00	14.50	2.00	45	GEPI 3.00-0.20
AVC-D20-GEAIR/L-2	26.00	1.90	2.40	20.00	3.00	14.70	13.50	1.60	15	GEPI 2.00-0.10
AVC-D20-GEAIR/L-3	26.00	2.40	3.18	20.00	3.00	14.70	13.50	2.00	15	GEPI 3.00-0.20
AVC-D25-GEAIR/L-2	31.00	1.90	2.40	25.00	4.00	17.50	17.50	1.60	15	GEPI 2.00-0.10
AVC-D25-GEAIR/L-3	31.00	2.40	3.18	25.00	4.00	17.50	17.50	2.00	15	GEPI 3.00-0.20

- Using the adapters with CAMFIX holders is only possible in case the machine has an option for rotating the CAMFIX Axis.
- For user guide, see pages 711-727

(1) Minimum cutting width
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Master insert identification
For inserts, see pages: GEMI (341) • GEMI (full radius) (341) • GEPI (342) • GEPI (full radius) (342) • GEPI-MT (648) • GEPI-WT (642)
For holders, see pages: AV-D (93) • C#-SH-E-JHP (630) • C#-SH-JHP (630) • SH-D (92) • SH-S#-N-AVC (90)

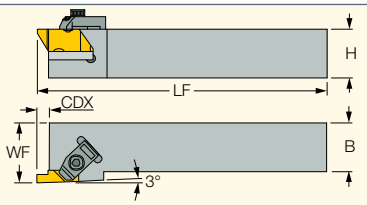
Spare Parts

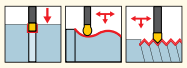
Designation					
AVC-D16-GEAIR/L-2	SR 14-551				T-9/5
AVC-D16-GEAIR/L-3	SR 14-551				T-9/5
AVC-D20-GEAIR/L-2	SR 34-510		SW6-SD	BLD T15/M7	
AVC-D20-GEAIR/L-3	SR 34-510		SW6-SD	BLD T15/M7	
AVC-D25-GEAIR/L-2	SR M4X14 DIN912	HW 3.0			
AVC-D25-GEAIR/L-3	SR M4X14 DIN912	HW 3.0			

NOTCH GRIP
GROOVE-TURN LINE

FLSR/L

Tools for External Grooving and Threading Inserts





Right-hand shown

Designation	SSC(1)	B	CDX	WF	LF	Insert
FLSR/L-2020M2	2.0	20.0	3.00	25.00	125.00	FL/IN_-2
FLSR/L-2020M3	3.0	20.0	5.00	25.00	125.00	FL/IN_-3
FLSR/L-2525M2	2.0	25.0	3.00	32.00	150.00	FL/IN_-2
FLSR/L-2525M3	3.0	25.0	5.00	32.00	150.00	FL/IN_-3

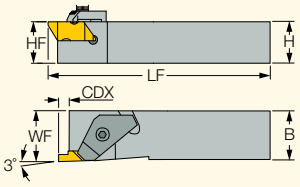
(1) Seat size code

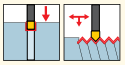
For inserts, see pages: 60° PARTIAL PROFILE THREADING FLT (649) • 60° PARTIAL PROFILE THREADING FLT-CB (649) • 60° PARTIAL PROFILE THREADING FLTF (648) • 60° PARTIAL PROFILE THREADING FLTK (649) • 60° PARTIAL PROFILE THREADING FLTP (650) • ACME THREADING FLA (678) • ACME THREADING FLA-PT-E (679) • ACME THREADING FLAS (678) • AMERICAN STANDARD BUTTRESS THREADING FLTB-A (688) • AMERICAN STANDARD BUTTRESS THREADING FLTB-B (688) • API PARTIAL PROFILE THREADING FLD (691) • API ROUND THREADING FLDC-RD-75 (689) • API ROUND THREADING FLDC-RD-75-CB (689) • NPT THREADING FLDC-V-75 (671) • STUB ACME THREADING FLAS-PT-E (676) • UN THREADING FLTC-E (665) • UNJ THREADING FLJ (681) • UNJ THREADING FLJF (682) • UNJ THREADING FLJK (682) • UNJ THREADING FLJP (682)

NOTCH GRIP
GROOVE-TURN LINE
ISCARTHREAD

FLASR/L

External Tools for Grooving and Threading for Swiss-type Machines

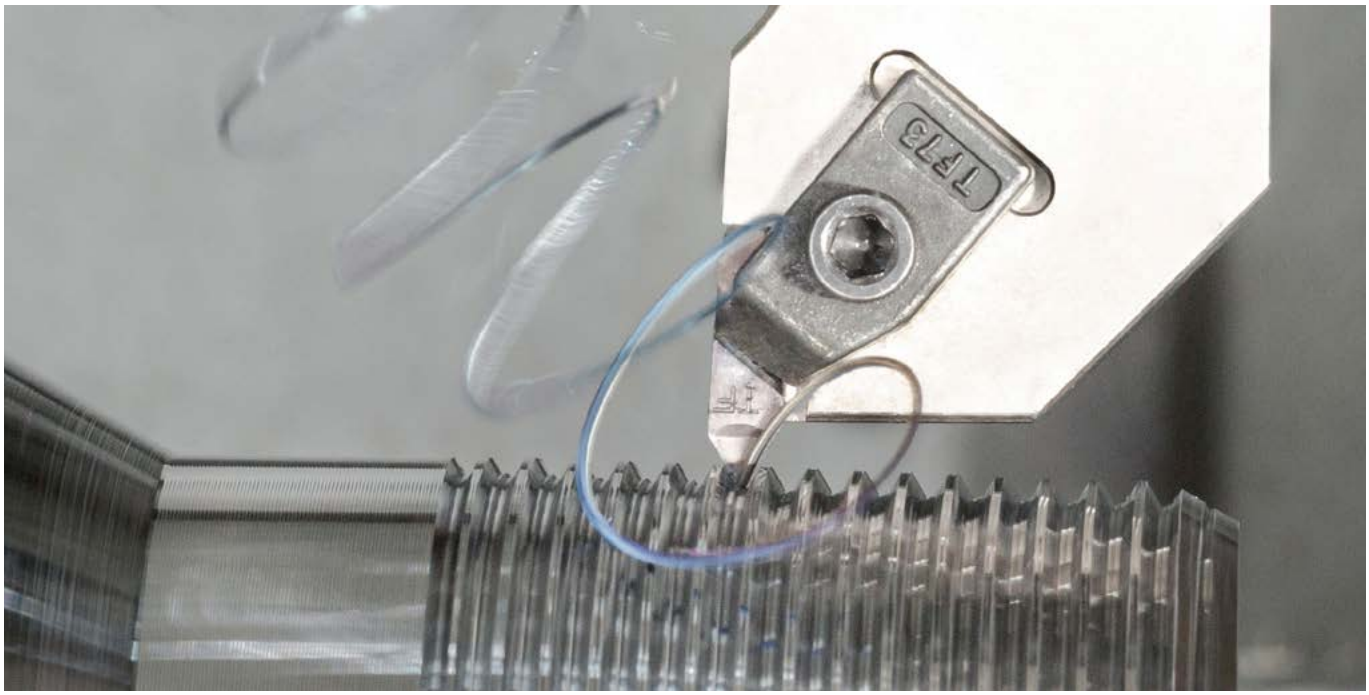




Designation	SSC(1)	H	HF	B	CDX	WF	LF	Insert
FLASR/L-1010M2	2.0	10.0	10.0	10.0	3.51	10.00	150.00	FL/IN_-2
FLASR/L-1212M2	2.0	12.0	12.0	12.0	3.51	12.00	150.00	FL/IN_-2
FLASR-1616M2	2.0	16.0	16.0	16.0	3.51	16.00	150.00	FL/IN_-2
FLASR/L-1616M3	3.0	16.0	16.0	16.0	5.31	16.00	125.00	FL/IN_-3

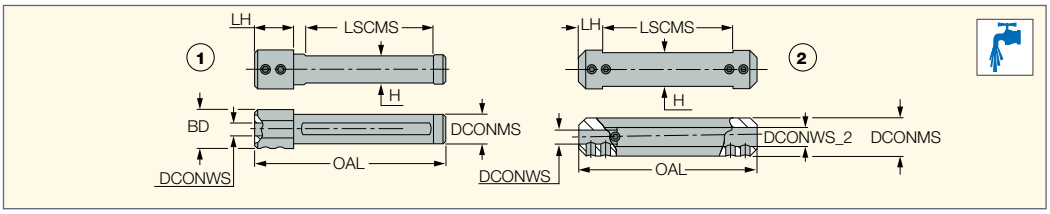
(1) Seat size code

For inserts, see pages: 60° PARTIAL PROFILE THREADING FLT (649) • 60° PARTIAL PROFILE THREADING FLT-CB (649) • 60° PARTIAL PROFILE THREADING FLTF (648) • 60° PARTIAL PROFILE THREADING FLTK (649) • 60° PARTIAL PROFILE THREADING FLTP (650) • ACME THREADING FLA (678) • ACME THREADING FLA-PT-E (679) • ACME THREADING FLAS (678) • AMERICAN STANDARD BUTTRESS THREADING FLTB-A (688) • AMERICAN STANDARD BUTTRESS THREADING FLTB-B (688) • API PARTIAL PROFILE THREADING FLD (691) • API ROUND THREADING FLDC-RD-75 (689) • API ROUND THREADING FLDC-RD-75-CB (689) • NPT THREADING FLDC-V-75 (671) • STUB ACME THREADING FLAS-PT-E (676) • UN THREADING FLTC-E (665) • UNJ THREADING FLJ (681) • UNJ THREADING FLJF (682) • UNJ THREADING FLJK (682) • UNJ THREADING FLJP (682)



PICCOCUT

PICCO/MG PCO (holder)
Holders for PICCO Inserts and Small Diameter Boring Bars

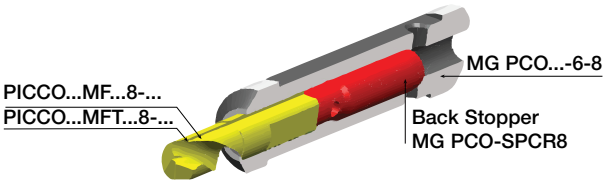


Designation	DCONMS	DCONWS	DCONWS_2	OAL	LH	LSCMS	H	BD	Fig.				
PICCO 12-4-5	12.00	4.00	5.00	75.00	10.00	55.00	10.3	-	2	SR M5X4-PF	HW 2.5		
PICCO 16-4-5	16.00	4.00	5.00	75.00	10.00	55.00	14.0	-	2	SR M5X6-PF	HW 2.5		
PICCO 20-4-5	20.00	4.00	5.00	90.00	10.00	70.00	18.0	-	2	SR M5X6-PF	HW 2.5		
PICCO 22-4-5 (1)	22.00	4.00	5.00	90.00	10.00	70.00	20.0	-	2	SR M5X6-PF	HW 2.5		
PICCO 16-6-7	16.00	6.00	7.00	75.00	10.00	55.00	14.0	-	2	SR M5X6-PF	HW 2.5		
PICCO 20-6-7	20.00	6.00	7.00	90.00	10.00	70.00	18.0	-	2	SR M5X6-PF	HW 2.5		
PICCO 22-6-7 (1)	22.00	6.00	7.00	90.00	10.00	70.00	20.0	-	2	SR M5X6-PF	HW 2.5		
MG PCO-12-6	12.00	6.00	-	75.00	15.00	50.80	11.0	18.00	1	SR M5X6-PF	HW 2.5		
MG PCO-16-6-8	16.00	6.00	8.00	75.00	10.00	55.00	14.0	-	2	SR M5X6-PF	HW 2.5		MG PCO-SPCR8
MG PCO-20-6-8	20.00	6.00	8.00	90.00	10.00	70.00	18.0	-	2	SR M5X6-PF	HW 2.5		MG PCO-SPCR8
MG PCO-22-6-8 (1)	22.00	6.00	8.00	90.00	10.00	70.00	20.0	-	2	SR M5X6-PF	HW 2.5		MG PCO-SPCR8
MG PCO-25-6-8	25.00	6.00	8.00	90.00	10.00	70.00	23.0	-	2	SR M5X6-PF	HW 2.5		MG PCO-SPCR8
MG PCO-16-9	16.00	9.00	-	75.00	15.00	53.00	15.0	20.00	1	SR M5X6-PF	HW 2.5	PL 16	

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

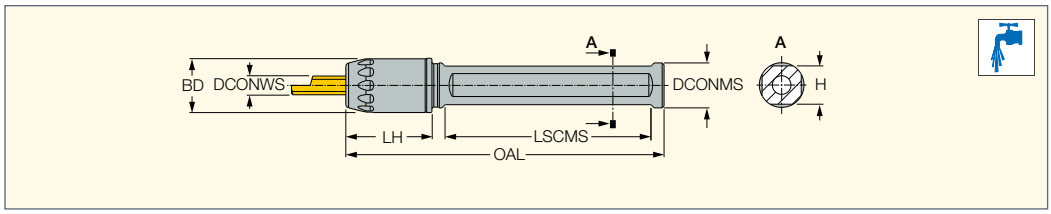
(1) Tools for Swiss-type CNC

For tools, see pages: PICIN-MGSIR/L (386) • PICIN-SCLCR/L (386) • PICIN-SWUBR/L (386)



PICCOACE

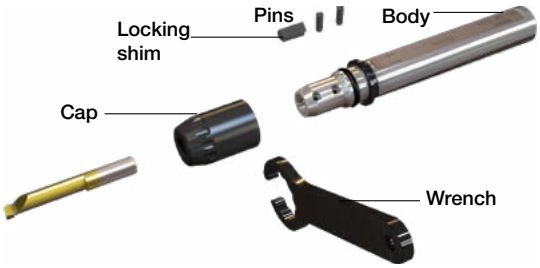
PICCO ACE
Holders for PICCOCUT Inserts

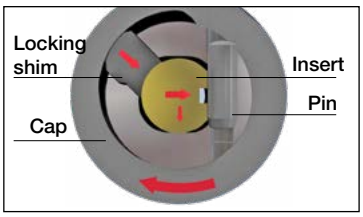


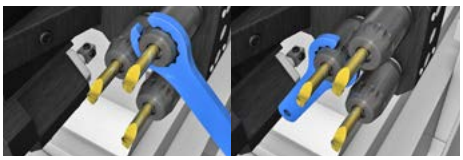
Designation	DCONMS	DCONWS	BD	OAL	LH	LSCMS	H		
PICCO ACE 12-4	12.00	4.00	14.50	85.00	23.00	53.00	10.3	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 12-5	12.00	5.00	14.50	85.00	23.00	53.00	10.3	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 16-4	16.00	4.00	14.50	85.00	21.50	53.50	14.0	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 16-5	16.00	5.00	14.50	85.00	21.50	53.00	14.0	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 16-6	16.00	6.00	19.90	85.00	23.00	53.50	14.0	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 16-7	16.00	7.00	19.90	85.00	23.00	53.50	14.0	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 20-4	20.00	4.00	14.50	150.00	21.50	118.00	18.0	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 20-5	20.00	5.00	14.50	150.00	21.50	118.00	18.0	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 20-6	20.00	6.00	19.90	150.00	21.50	118.00	18.0	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 20-7	20.00	7.00	19.90	150.00	21.50	118.00	18.0	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 22-4	22.00	4.00	14.50	150.00	21.50	118.00	20.0	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 22-5	22.00	5.00	14.50	150.00	21.50	118.00	20.0	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 22-6	22.00	6.00	19.90	150.00	21.50	118.00	20.0	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 22-7	22.00	7.00	19.90	150.00	21.50	118.00	20.0	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 25-4	25.00	4.00	14.50	150.00	21.50	118.00	20.0	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 25-5	25.00	5.00	14.50	150.00	21.50	118.00	20.0	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 25-6	25.00	6.00	19.90	150.00	21.50	118.00	20.0	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 25-7	25.00	7.00	19.90	150.00	21.50	118.00	20.0	PL 16 M6-D5	WRENCH ACE 6-7

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

For tools, see pages: PICIN-MGSIR/L (386) • PICIN-SCLCR/L (386) • PICIN-SWUBR/L (386)



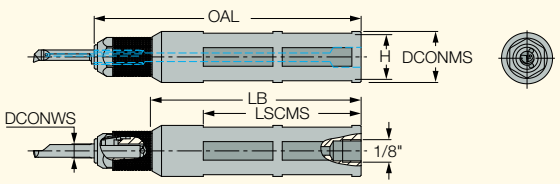




PICCOACE JETCUT

PICCO ACE-N

Holders for PICCO-JETCUT Inserts with Internal Coolant Channels



Designation	DCONMS	DCONWS	OAL	LSCMS	LB	H
PICCO ACE 16-4N	16.00	4.05	115.00	68.00	90.00	14.0
PICCO ACE 16-5N	16.00	5.05	115.00	68.00	90.00	14.0
PICCO ACE 16-6N	16.00	6.05	115.00	68.00	90.00	14.0
PICCO ACE 16-7N	16.00	7.05	115.00	68.00	90.00	14.0
PICCO ACE 20-4N	20.00	4.05	115.00	68.00	90.00	18.0
PICCO ACE 20-5N	20.00	5.05	115.00	68.00	90.00	18.0
PICCO ACE 20-6N	20.00	6.05	115.00	68.00	90.00	18.0
PICCO ACE 20-7N	20.00	7.05	115.00	68.00	90.00	18.0
PICCO ACE 22-4N	22.00	4.05	115.00	68.00	90.00	20.0
PICCO ACE 22-6N	22.00	6.05	115.00	68.00	90.00	20.0
PICCO ACE 25-4N	25.00	4.05	115.00	68.00	90.00	23.0
PICCO ACE 25-5N	25.00	5.05	115.00	68.00	90.00	23.0
PICCO ACE 25-6N	25.00	6.05	115.00	68.00	90.00	23.0
PICCO ACE 25-7N	25.00	7.05	115.00	68.00	90.00	23.0

- Holders are suitable for right and left-hand PICCO...-N type solid tools only

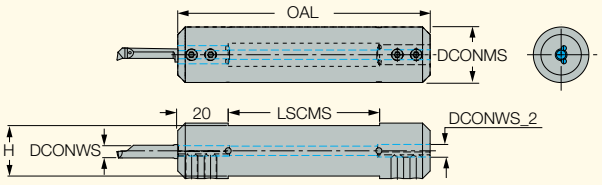
Spare Parts

Designation			
PICCO ACE 16-4N	UM600H.K	UM600H.M4	PIN 2X10 DIN6325
PICCO ACE 16-5N	UM600H.K	UM600H.M5	PIN 2X10 DIN6325
PICCO ACE 16-6N	UM600H.K	UM600H.M6	ZAD 2X12 DIN 6325 m6
PICCO ACE 16-7N	UM600H.K	UM600H.M7	ZAD 2X12 DIN 6325 m6
PICCO ACE 20-4N	UM600H.K	UM600H.M4	PIN 2X10 DIN6325
PICCO ACE 20-5N	UM600H.K	UM600H.M5	PIN 2X10 DIN6325
PICCO ACE 20-6N	UM600H.K	UM600H.M6	ZAD 2X12 DIN 6325 m6
PICCO ACE 20-7N	UM600H.K	UM600H.M7	ZAD 2X12 DIN 6325 m6
PICCO ACE 22-4N	UM600H.K	UM600H.M4	PIN 2X10 DIN6325
PICCO ACE 22-6N	UM600H.K	UM600H.M6	ZAD 2X12 DIN 6325 m6
PICCO ACE 25-4N	UM600H.K	UM600H.M4	PIN 2X10 DIN6325
PICCO ACE 25-5N	UM600H.K	UM600H.M5	PIN 2X10 DIN6325
PICCO ACE 25-6N	UM600H.K	UM600H.M6	ZAD 2X12 DIN 6325 m6
PICCO ACE 25-7N	UM600H.K	UM600H.M7	ZAD 2X12 DIN 6325 m6

JETCUT PICCOCUT

PICCO-N (holder)

Holders for PICCO-JETCUT Inserts with Internal Coolant Channels



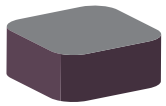
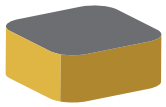
Designation	DCONMS	DCONWS	DCONWS_2	OAL	LSCMS	H	
PICCO 16-4-5N	16.00	4.05	5.05	85.00	45.00	14.0	SR M5X0.5X6 T10
PICCO 20-4-5N	20.00	4.05	5.05	100.00	60.00	18.0	SR M5X0.5X8 T10
PICCO 22-4-5N	22.00	4.05	5.05	100.00	60.00	20.0	SR M5X0.5X8 T10
PICCO 16-6-7N	16.00	6.05	7.05	85.00	45.00	14.0	SR M5X0.5X6 T10
PICCO 16-6-8N	16.00	6.05	8.00	85.00	45.00	14.0	SR M5X0.5X6 T10
PICCO 20-6-7N	20.00	6.05	7.05	100.00	60.00	18.0	SR M5X0.5X8 T10
PICCO 20-6-8N	20.00	6.05	8.00	100.00	60.00	18.0	SR M5X0.5X8 T10
PICCO 22-6-7N	22.00	6.05	7.05	100.00	60.00	20.0	SR M5X0.5X8 T10

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

Machining Data for Threading

ISO	Material		Condition	Tensile Strength (N/mm^2)	Hardness HB	Material Group No.	Coated			
							IC228	IC908	IC808	IC1007
							Cutting Speed (m/min)			
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	60-100	115-190	125-205	135-230
		>= 0.25 %C	Annealed	650	190	2	60-95	110-180	120-195	130-220
		< 0.55 %C	Quenched and tempered	850	250	3	50-90	100-175	105-185	120-210
		>= 0.55 %C	Annealed	750	220	4	45-85	90-165	95-175	110-200
			Quenched and tempered	1000	300	5	45-85	90-165	95-175	110-200
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	50-95	100-180	105-195	120-215
			Quenched and tempered	930	275	7	40-75	75-140	80-150	90-170
				1000	300	8	35-70	70-135	75-145	85-160
				1200	350	9	35-70	70-135	75-145	85-160
	High alloyed steel, cast steel, and tool steel		Annealed	680	200	10	40-65	80-120	85-130	95-145
			Quenched and tempered	1100	325	11	25-50	50-100	55-105	60-120
	Stainless steel and cast steel		Ferritic/martensitic	680	200	12	35-70	70-130	75-140	85-155
			Martensitic	820	240	13	45-60	85-110	90-120	100-130
M	Stainless steel and cast steel		Austenitic, duplex	600	180	14	45-75	90-140	95-150	110-170
K	Gray cast iron (GG)		Ferritic/pearlitic		180	15	65-85	125-160	135-170	150-190
			Pearlitic /martensitic		260	16	45-65	90-120	95-130	110-145
	Nodular cast iron (GGG)		Ferritic		160	17	35-70	70-130	75-140	85-155
			Pearlitic		250	18	30-60	60-115	65-125	70-140
	Malleable cast iron		Ferritic		130	19	30-35	60-70	65-75	70-85
			Pearlitic		230	20	30-75	60-145	65-155	70-175
N	Aluminum-wrought alloys		Not hardenable		60	21	50-195	100-365	105-390	120-440
			Hardenable		100	22	40-115	80-220	85-235	95-265
	Aluminum-cast alloys	<=12% Si	Not hardenable		75	23	105-215	200-400	215-430	240-480
			Hardenable		90	24	105-150	200-280	215-300	240-335
		>12% Si	High temperature		130	25	105-150	200-280	215-300	240-335
	Copper alloys	>1% Pb	Free cutting		110	26	40-135	80-255	85-275	95-305
			Brass		90	27	40-135	80-255	85-275	95-305
			Electrolytic copper		100	28	40-130	80-255	85-275	95-305
	Non metallic		Duroplastics, fiber plastics			29	40-130	80-250	85-265	95-300
			Hard rubber			30	40-130	80-250	85-265	95-300
S	High temperature alloys	Fe based	Annealed		200	31	25-30	45-60	50-65	55-70
			Hardened		280	32	15-25	35-50	35-55	40-60
		Ni or Co based	Annealed		250	33	10-15	20-30	20-30	25-35
			Hardened		350	34	5-10	15-25	15-25	18-30
			Cast		320	35	5-10	15-25	15-25	18-30
	Titanium alloys		Pure	400		36	75-90	140-170	150-180	170-205
			Alpha+beta alloys hardened	1050		37	25-35	50-70	55-75	60-85
H	Hardened steel		Hardened		55 HRC	38	25-30	45-60	50-65	55-70
			Hardened		60 HRC	39	25-30	45-60	50-65	55-70
	Chilled cast iron		Cast		400	40	25-30	45-60	50-65	55-70
	Cast iron		Hardened		55 HRC	41	25-30	45-60	50-65	55-70

ISCAR Threading Grades Chart

	Grade	ISO	Grade Description	Coating Layers	Coating Color*
PVD COATED	IC228	P30-P45 M25-M40	A very substrate with PVD coating, suitable for machining steels and stainless steel at low to medium cutting speeds.	TiN TICN Base	
	IC250	P15-P35 M20-M40	A tough substrate with PVD coating. Suitable for machining steels and alloy steels at low to medium cutting speeds.	TiN TICN Base	
	IC806	M05-M15 S10-S20	A hard submicron grain size substrate with PVD coating and a special SUMOTEC surface treatment. Excellent for machining high temperature alloys and Titanium alloys, at moderate to relatively high cutting speeds. Features high wear resistance and plastic deformation durability.	TiAlN AlTiN Base	
	IC808	P15-P30 M20-M30 K20-K40 S15-S30 H20-H30	A tough submicron grain size substrate with PVD coating and a special SUMOTEC surface treatment. Recommended for general use for a large variety of applications and materials such as steels, alloy steels, austenitic stainless steel and high temperature alloys at moderate cutting speeds and feeds. Features high wear resistance and chipping durability.	TiN TiAlN Base	
	IC908	P15-P30 M20-M30 K20-K40 S15-S30 H20-H30	A tough submicron grain size substrate with PVD coating, recommended for general use in a large variety of operations and materials such as steels, alloy steels, austenitic stainless steel and high temperature alloys at moderate cutting speeds. Features high wear resistance and chipping durability.	TiAlN Base	
	IC1007	P10-P20 M05-M15 K15-K30 S10-S20 H05-H15	A hard submicron grain size substrate with PVD coating, suitable for a wide range of materials such as steels, alloy steels, hard steels, austenitic stainless steel and heat resistant alloys at moderate to high speeds under stable conditions. Features high wear resistance and plastic deformation durability. Good choice for non-ferrous materials and cast iron.	TiN TiAlN Base	

* For coated grades

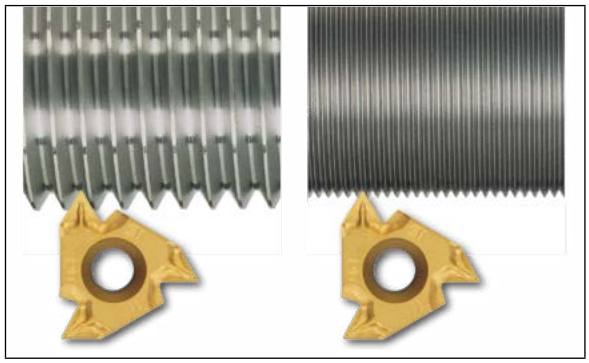
	Grade	ISO	Grade Description	Coating Layers	Uncoated
UNCOATED	IC08	M15-M30 N10-N25 S20-S30	A tough uncoated submicron carbide grade, suitable for steels, stainless steel and high temperature alloys at low cutting speeds. Good choice for non-ferrous materials.	Base	

User Guide and Cutting Data

Types and Profiles of Threading Inserts

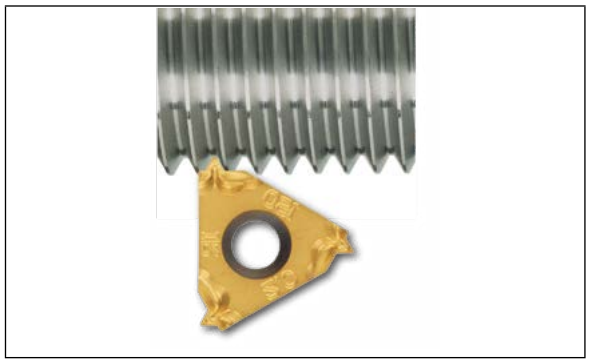
Partial Profile

- Performs different thread standards and is suitable for a wide range of pitches that have a common angle (60º or 55º)
- Inserts with a small root-corner radius suitable for the smallest pitch of the range
- Additional operations to complete the outer/internal diameter are necessary
- Not recommended for mass production
- Eliminates the need for different inserts

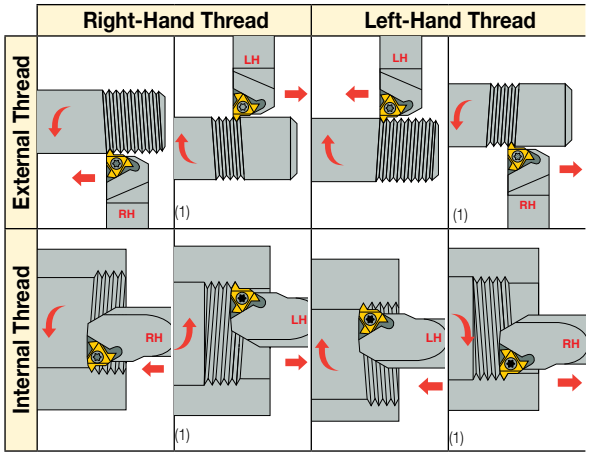


Full Profile

- Performs a complete thread profile
- Root corner radius is only suitable for the relevant pitch
- Recommended for mass production
- Suitable for one profile only



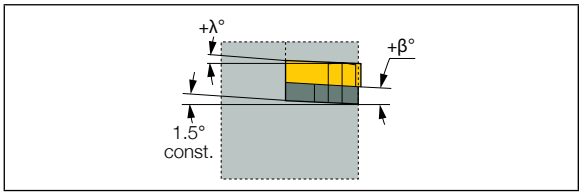
Thread Turning Methods



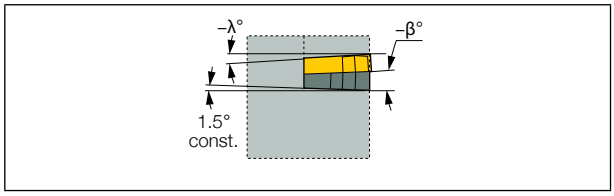
(1) Change anvil to negative

Anvil Selection According to Thread Helix Angle λ

		Standard						
Thread Helix Angle λ		>4°	3°-4°	2°-3°	1°-2°	0°-1°	Negative Anvils	
	Inclination Angle β	4.5°	3.5°	2.5°	1.5°	0.5°	-0.5°	-1.5°
I (d)	Toolholder	Anvil Designation						
16	EX RH OR IN LH	AE16+4.5	AE16+3.5	AE16+2.5	AE16	AE16+0.5	AE16-0.5	AE16-1.5
(3/8)	EX LH OR IN RH	AI16+4.5	AI16+3.5	AI16+2.5	AI16	AI16+0.5	AI16-0.5	AI16-1.5
22	EX RH OR IN LH	AE22+4.5	AE22+3.5	AE22+2.5	AE22	AE22+0.5	AE22-0.5	AE22-1.5
(1/2)	EX LH OR IN RH	AI22+4.5	AI22+3.5	AI22+2.5	AI22	AI22+0.5	AI22-0.5	AI22-1.5
27	EX RH OR IN LH	AE27+4.5	AE27+3.5	AE27+2.5	AE27	AE27+0.5	AE27-0.5	AE27-1.5
(5/8)	EX LH OR IN RH	AI27+4.5	AI27+3.5	AI27+2.5	AI27	AI27+0.5	AI27-0.5	AI27-1.5
22U	EX RH OR IN LH	AE22U+4.5	AE22U+3.5	AE22U+2.5	AE22U	AE22U+0.5	AE22U-0.5	AE22U-1.5
(1/2U)	EX LH OR IN RH	AI22U+4.5	AI22U+3.5	AI22U+2.5	AI22U	AI22U+0.5	AI22U-0.5	AI22U-1.5
27U	EX RH OR IN LH	AE27U+4.5	AE27U+3.5	AE27U+2.5	AE27U	AE27U+0.5	AE27U-0.5	AE27U-1.5
(5/8U)	EX LH OR IN RH	AI27U+4.5	AI27U+3.5	AI27U+2.5	AI27U	AI27U+0.5	AI27U-0.5	AI27U-1.5



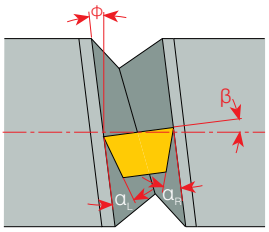
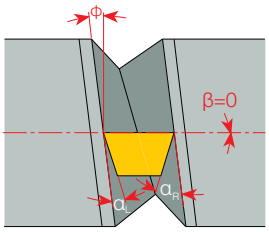
Anvils for positive inclination angle applicable when turning RH thread with RH holders or LH thread with LH toolholders.



Anvils for negative inclination used when turning RH thread with LH holder or LH thread with RH toolholder.

Anvils for Laydown Inserts

The parameter for tilting the threading insert relative to the helix angle of threading is of great importance when threading is produced. This parameter ensures proper operation of the insert during threading production in terms of equal load distribution applied to the insert, equal distribution of forces operating on the insert, development of uniform wear on both sides of the cutting edge, and avoiding friction of the insert with the side of the threading profile. If the side clearance insert angles (α) are not equal in relation to the helix angle (φ), the insert must be tilted. This is performed by using anvils.

Recommended	Less Recommended
$\alpha_L=\alpha_R$	$\alpha_L\neq\alpha_R$
	

Quick and easy way to select a correct anvil

Helix (Lead) angle calculation by formula

or

Helix (Lead) angle area from the graph

↓

Recommendation for an inclination angle (β°) according to the thread turning method definition and dependent on the thread standard

↓

Recommendation for a suitable anvil according to the insert size and type of toolholder (internal or external)

The anvil should be selected from the table according to the threading standard. The correct anvil depends on the right inclination angle (β) and insert size. The inclination angle (β) is obtained by selecting the thread turning method and finding the helix angle (ϕ) for single-start threading, or lead angle (ϕL) for the multi-start threading.
The helix angle (ϕ) and the lead angle (ϕL) are determined as exact values by using the formula below or as a graph area (see below: Helix (Lead) angle area by using graph, depending on the threading diameter and lead.

Helix angle (ϕ) calculation by using the Single-Start Threading Formula	**Lead angle (ϕ_L) calculation by using the Single-Start Threading Formula**
$\phi=\arctan\left(\frac{P}{\pi \times Dpitch}\right)$	$\phi_L=\arctan\left(\frac{Lead}{\pi \times Dpitch}\right)$ $Lead= n \times P$
When: ϕ = Helix angle Dpitch = Pitch diameter* * effective diameter of threading P = Threading pitch π ≈ 3.142	When: ϕ_L = Lead angle Dpitch = Pitch diameter* * effective diameter of threading P = Threading pitch n = number of threading starts π ≈ 3.142

Usable formulas

$$\text{Lead (inch)} = \frac{1 \text{ inch}}{\text{TPI}} \times \text{No. of starts}$$

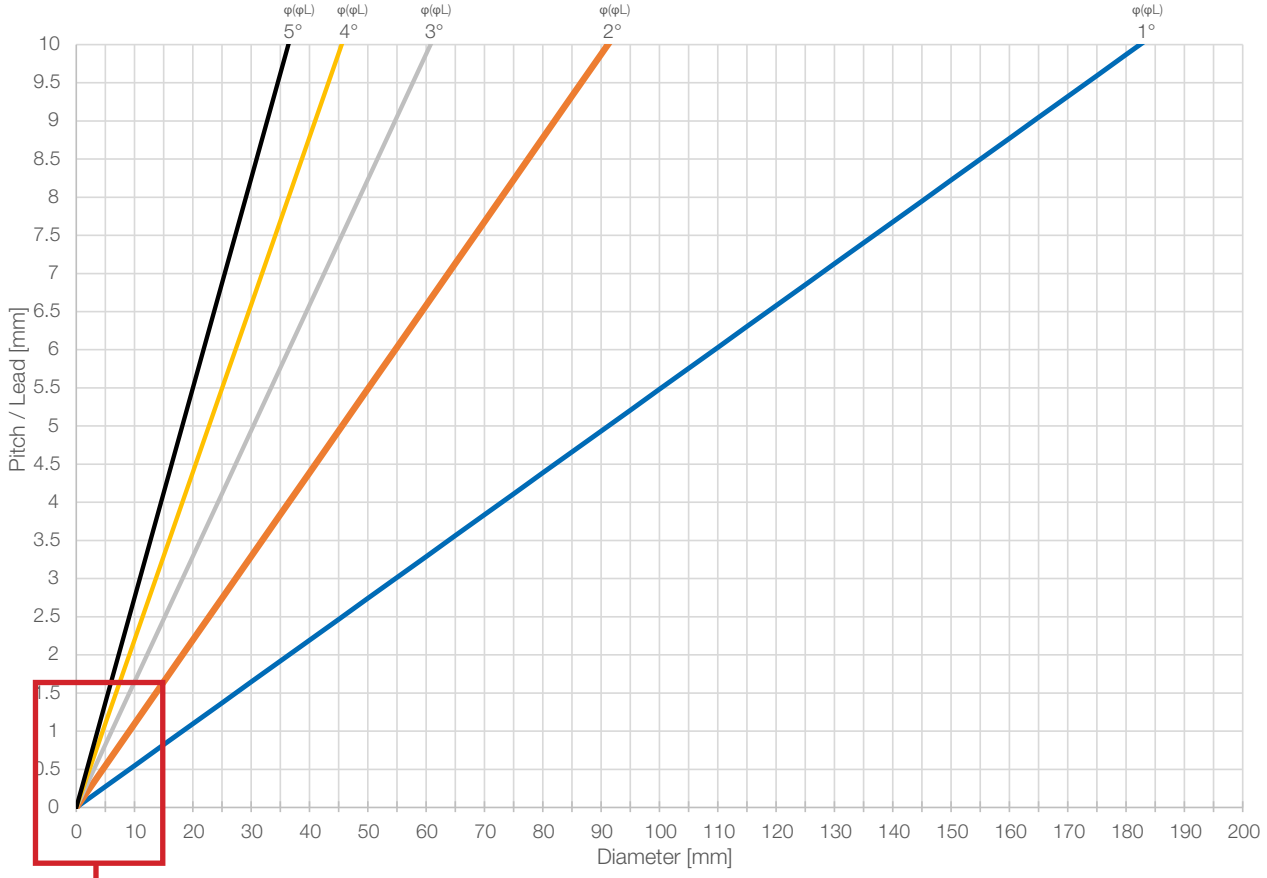
TPI = No. of threading per inch

1 inch = 25.4 mm

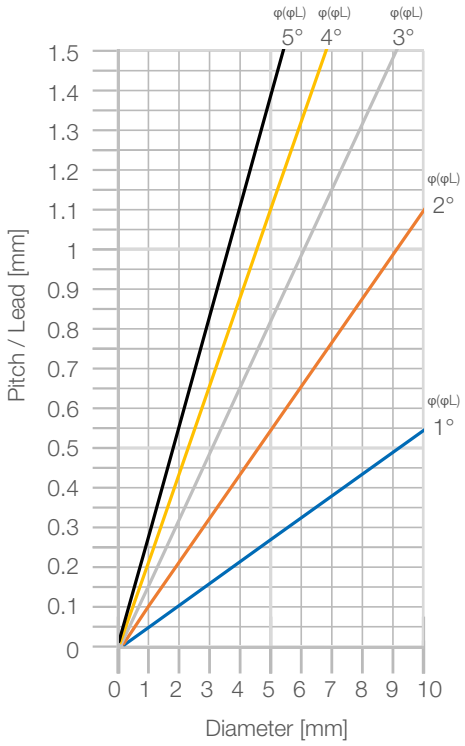
$$\text{Pitch (mm)} = \frac{25.4}{\text{TPI}}$$

Helix (Lead) angle area by using graph

Helix angle evaluation

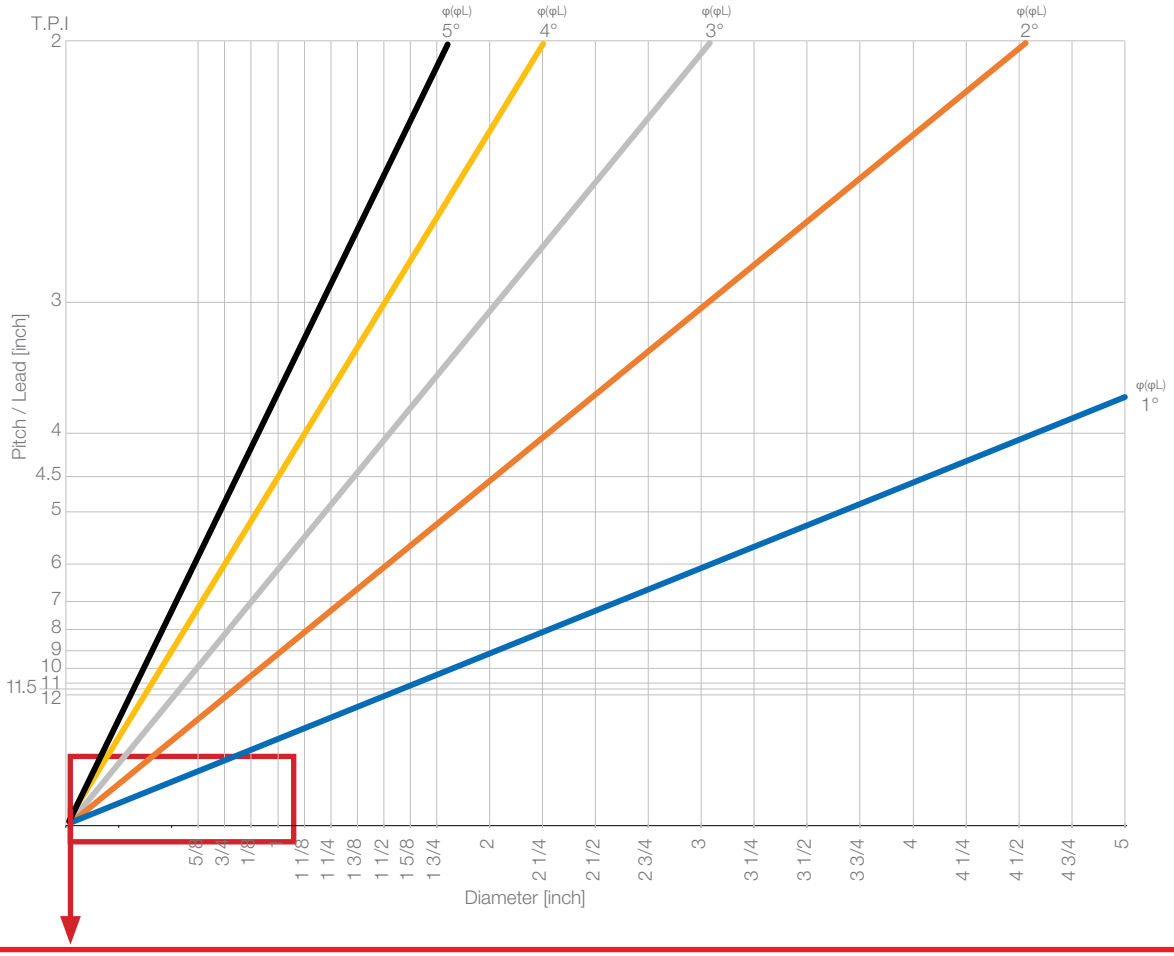


Detailed view for small pitch/diameter

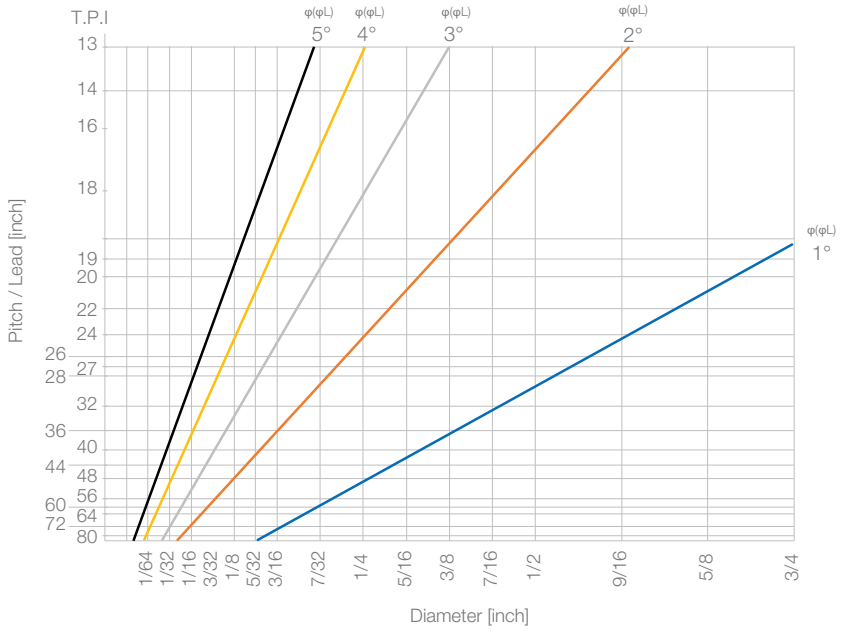


Helix (Lead) angle area by using graph

Helix angle evaluation



Detailed view for small pitch/diameter



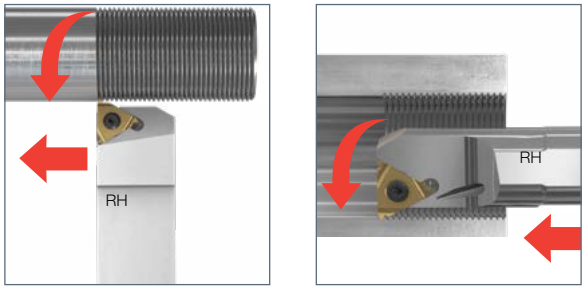
Anvil selection for symmetric threading profiles

The table below defines the recommended insert inclination angle (β) and anvil selection according to the helix angle (ϕ) for single-start threading and the lead angle (ϕL) for multi-start threading, depending on the threading turning method for machining the following symmetric threading profiles:

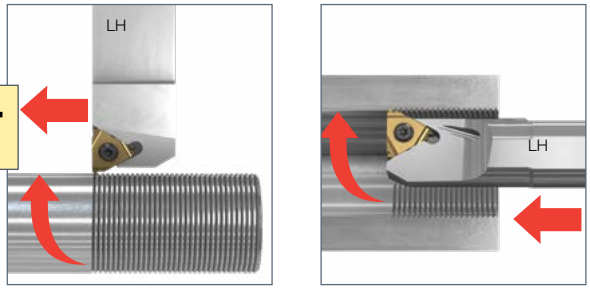
- partial profile threading with an angle profile of 60°, 55° only
- full profile threading according to ISO, UN, Whitworth, NPT, BSPT, Trapeze, ACME, RD standards only

Thread turning method

Production of right-hand threading with right-hand holder



Production of left-hand threading with left-hand holder



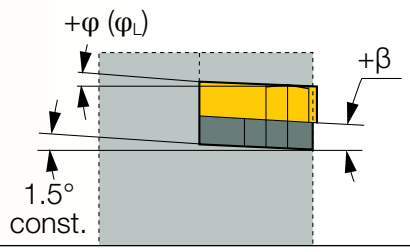
Anvil selection

			Positive Anvils				
Threading helix (lead) angle ϕ (ϕL)		**ϕ (ϕL)≥ 5°**	**4°≤ϕ (ϕL)<5°**	**3°<ϕ (ϕL)≤4°**	**2°<ϕ (ϕL)≤3°**	**1°<ϕ (ϕL)≤2°**	**0°<ϕ (ϕL)≤1°**
Inclination Angle β			**4.5°**	**3.5°**	**2.5°**	**1.5° (std)**	**0.5°**
IC	**Toolholder**	**Anvil Designation**					
16 (3/8)	EX RH OR IN LH EX RH OR IN LH	special solution	AE 16+4.5 AI 16+4.5	AE 16+3.5 AI 16-3.5	AE 16+2.5 AI 16+2.5	* AE 16+1.5 * AI 16+1.5	AE 16+0.5 AI 16+0.5
22 (1/2)	EX RH OR IN LH EX RH OR IN LH		AE 22+4.5 AI 22+4.5	AE 22+3.5 AI 22+3.5	AE 22+2.5 AI 22+2.5	* AE 22+1.5 * AI 22+1.5	AE 22+0.5 AI 22+0.5
27 (5/8)	EX RH OR IN LH EX RH OR IN LH		AE 27-4.5 AI 27+4.5	AE 27+3.5 AI 27+3.5	AE 27+2.5 AI 27+2.5	* AE 27+1.5 * AI 27+1.5	AE 27+0.5 AI 27+0.5
22U (1/2U)	EX RH OR IN LH EX RH OR IN LH		AE 22U+4.5 AI 22U+4.5	AE 22U+3.5 AI 22U+3.5	AE 22U+2.5 AI 22U+2.5	* AE 22U+1.5 * AI 22U+1.5	AE 22U+0.5 AI 22U+0.5
27U (5/8U)	EX RH OR IN LH EX RH OR IN LH		AE 27U+4.5 AI 27U+4.5	AE 27U+3.5 AI 27U+3.5	AE 27U+2.5 AI 27U+2.5	* AE 27U+1.5 * AI 27U+1.5	AE 27U+0.5 AI 27U+0.5

* Standard anvil supplied with tool

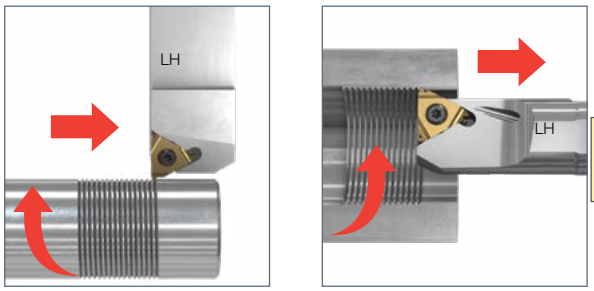
Positive Anvils

Feed Towards the Chuck



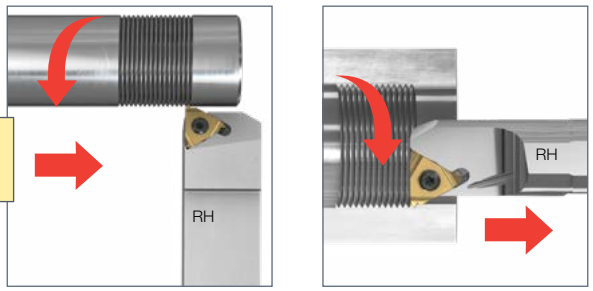
Thread turning method

Production of right-hand threading with left-hand holder*



* Change anvil to negative

Production of left-had threading with right-hand holder*



* Change anvil to negative

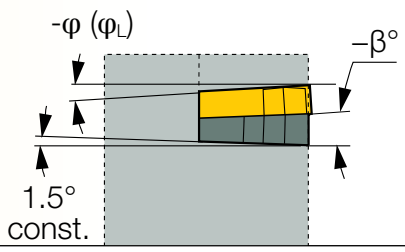
Anvil selection

		Negative Anvils		
Threading helix (lead) angle ϕ (ϕL)		**0°<ϕ (ϕL)≤1°**	**1°<ϕ (ϕL)≤2°**	**ϕ (ϕL)≥2°**
Inclination Angle β		**-0.5°**	**-1.5°**	
IC	**Toolholder**	**Anvil Designation**		
16 (3/8)	EX RH OR IN LH EX RH OR IN LH	AE 16-0.5 AI 16-0.5	AE 16-1.5 AI 16-1.5	special solution
22 (1/2)	EX RH OR IN LH EX RH OR IN LH	AE 22-0.5 AI 22-0.5	AE 22-1.5 AI 22-1.5	
27 (5/8)	EX RH OR IN LH EX RH OR IN LH	AE 27-0.5 AI 27-0.5	AE 27-1.5 AI 27-1.5	
22U (1/2U)	EX RH OR IN LH EX RH OR IN LH	AE 22U-0.5 AI 22U-0.5	AE22U-1.5 AI 22U-1.5	
27U (5/8U)	EX RH OR IN LH EX RH OR IN LH	AE 27U-0.5 AI 27U-0.5	AE 27U-1.5 AI 27U-1.5	

- EX - Anvil for external threading
- IN - Anvil for internal threading

Negative Anvils

Feed Towards the Tailstock

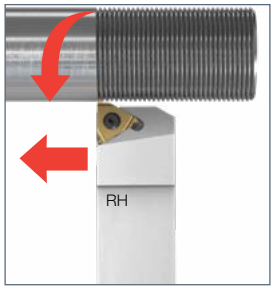


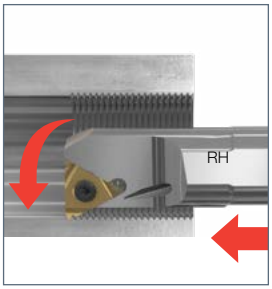
Anvil selection for ABUT threading standard only

The table below defines the recommended insert inclination angle (β) and anvil selection according to helix angle (ϕ) for single-start threading and according to lead angle (ϕL) for multi-start threading, depending on the threading turning method for machining asymmetric threading profile according to ABUT threading standard only.

Threading turning method

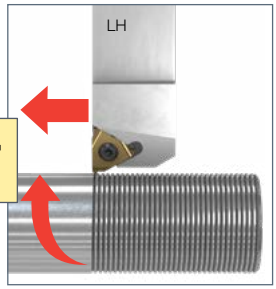
Production of right-hand threading with right-hand holder

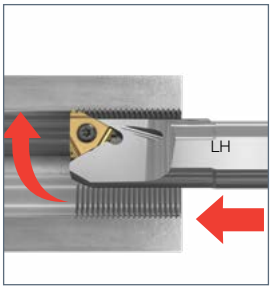




or

Production of left-hand threading with left-hand holder





Anvil selection

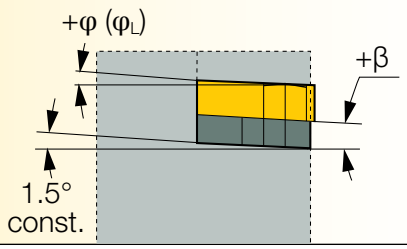
			Positive Anvils		Negative Anvils	
Threading helix (lead) angle ϕ (ϕL)		**ϕ (ϕL)>3.5°**	**3°<ϕ (ϕL)≤3.5°**	**2°<ϕ (ϕL)≤3°**	**1°<ϕ (ϕL)≤2°**	**0°<ϕ (ϕL)≤1°**
Inclination angle β			**1.5° (std)**	**0.5**	**-0.5°**	**-1.5°**
IC	**Toolholder**	**Anvil designation**				
16 (3/8)	EX RH OR IN LH EX LH OR IN RH	special solution	* AE 16 +1.5 * AI16 +1.5	AE 16 +0.5 AI16 +0.5	AE 16 -0.5 AI 16 -0.5	AE 16 -1.5 AI 16 -1.5
22 (1/2)	EX RH OR IN LH EX LH OR IN RH		* AE 22 +1.5 * AI 22 +1.5	AE 22 +0.5 AI 22 +0.5	AE 22 -0.5 AI 22 -0.5	AE 22 -1.5 AI 22 -1.5
27 (5/8)	EX RH OR IN LH EX LH OR IN RH		* AE 27 +1.5 * AI 27 +1.5	AE 27 +0.5 AI 27 +0.5	AE 27 -0.5 AI 27 -0.5	AE 27 -1.5 AI 27 -1.5
22U (1/2U)	EX RH OR IN LH EX LH OR IN RH		* AE 22U +1.5 * AI 22U +1.5	AE 22U +0.5 AI 22U +0.5	AE 22U -0.5 AI 22U -0.5	AE 22U -1.5 AI 22U -1.5
27U (5/8U)	EX RH OR IN LH EX LH OR IN RH		* AE 27U +1.5 * AI 27U +1.5	AE 27U +0.5 AI 27U +0.5	AE 27U -0.5 AI 27U -0.5	AE 27U -1.5 AI 27U -1.5

* Standard anvil supplied with tool

- EX - Anvil for external threading
- IN - Anvil for internal threading

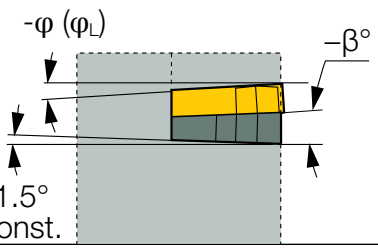
Positive Anvils

Feed Towards the Chuck



Negative Anvils

Feed Towards the Tailstock

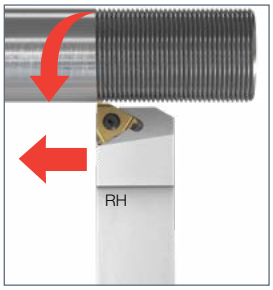


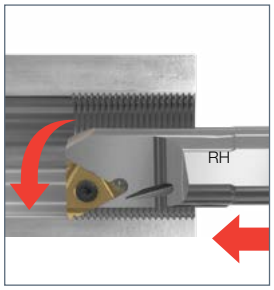
Anvil selection for SAGE threading standard only

The table below defines the recommended insert inclination angle (β) and anvil selection according to helix angle (ϕ) for single-start threading and according to lead angle (ϕL) for multi-start threading, depending on the thread turning method for machining asymmetric threading profile according to SAGE thread standard only.

thread turning method

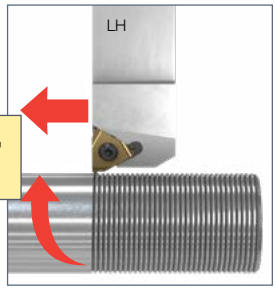
Production of right-hand threading with right-hand holder

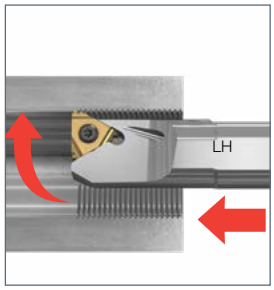




or

Production of left-hand threading with left-hand holder



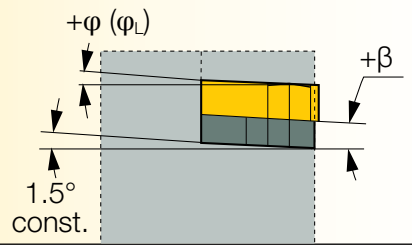
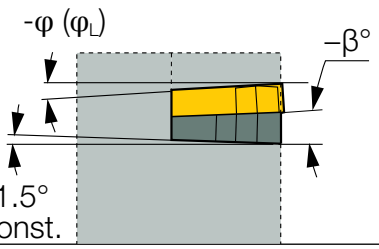


Anvil selection

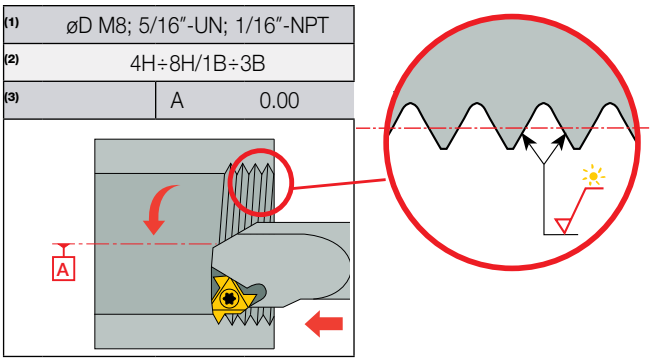
			Positive Anvils			Negative Anvils	
Threading helix (lead) angle ϕ (ϕL)		**ϕ (ϕL)>5.6°**	**5°<ϕ (ϕL)≤5.6°**	**3°<ϕ (ϕL)≤5°**	**2°<ϕ (ϕL)≤3°**	**1°<ϕ (ϕL)≤2°**	**0°<ϕ (ϕL)≤1°**
Inclination angle β			**2.5°**	**1.5°(std)**	**0.5°**	**-0.5°**	**-1.5°**
IC	**Toolholder**	**Anvil designation**					
16 (3/8)	EX RH OR IN LH EX RH OR IN LH	special solution	AE 16 +2.5 AI 16 +2.5	* AE 16 +1.5 * AI 16 +1.5	AE 16 +0.5 AI16 +0.5	AE 16 -0.5 AI 16 -0.5	AE 16 -1.5 AI 16 -1.5
22 (1/2)	EX RH OR IN LH EX RH OR IN LH		AE 22 +2.5 AI 22 +2.5	* AE 22 +1.5 * AI 22 +1.5	AE 22 +0.5 AI 22 +0.5	AE 22 -0.5 AI 22 -0.5	AE 22 -1.5 AI 22 -1.5
27 (5/8)	EX RH OR IN LH EX RH OR IN LH		AE 27 +2.5 AI 27 +2.5	* AE 27 +1.5 * AI 27 +1.5	AE 27 +0.5 AI 27 +0.5	AE 27 -0.5 AI 27 -0.5	AE 27 -1.5 AI 27 -1.5
22U (1/2U)	EX RH OR IN LH EX RH OR IN LH		AE 22U +2.5 AI 22U +2.5	* AE 22U +1.5 * AI 22U +1.5	AE 22U +0.5 AI 22U +0.5	AE 22U -0.5 AI 22U -0.5	AE 22U -1.5 AI 22U -1.5
27U (5/8U)	EX RH OR IN LH EX RH OR IN LH		AE 27U +2.5 AI 27U +2.5	* AE 27U +1.5 * AI 27U +1.5	AE 27U +0.5 AI 27U +0.5	AE 27U -0.5 AI 27U -0.5	AE 27U -1.5 AI 27U -1.5

* Standard anvil supplied with tool

- EX - Anvil for external threading
- IN - Anvil for internal threading

Positive Anvils	Negative Anvils
Feed Towards the Chuck	Feed Towards the Tailstock
	

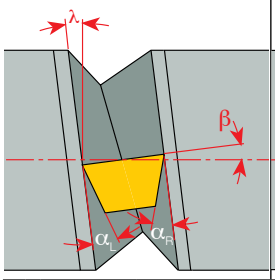
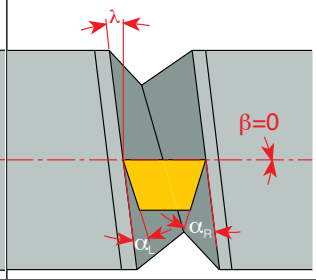
Mini-Tool Features



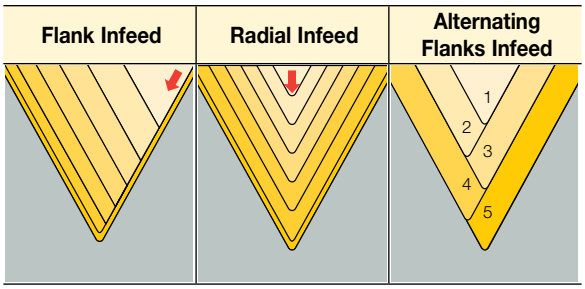
(1) Smallest possible thread
(2) All tolerances
(3) Minimum runout
(4) High surface quality

Flank Clearance and Effective Inclination Angle

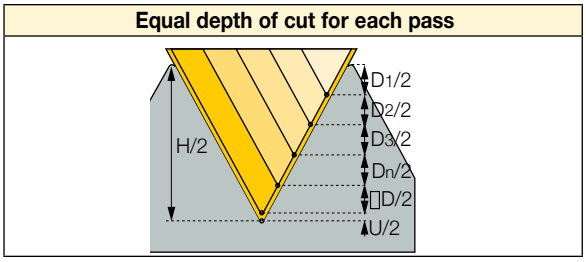
Inclination angle β of the cutting edges corresponds to a specific thread helix angle l and ensures an equal clearance angle on both sides of the insert.

αl=αr ✔	Incorrect αl<αr ✘
	
α - Flank clearance angle **λ** - Helix angle **β** - Effective inclination angle is achieved by selecting the suitable anvil	**H** - Depth of thread profile (on ø) **D** - Depth of pass (on ø) **U** - Depth of finishing pass (on ø)

Infeed Methods for Threading Operations

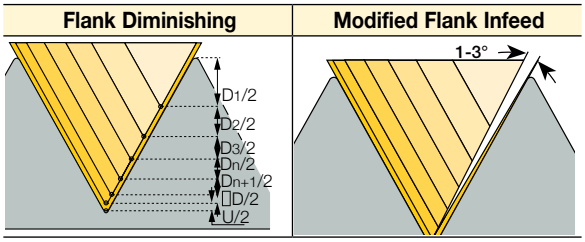


Flank Equal



$$\frac{D_1}{2} = \frac{D_2}{2} = \frac{D_3}{2} = \frac{D_n}{2}$$

Diminished depth of cut for each pass



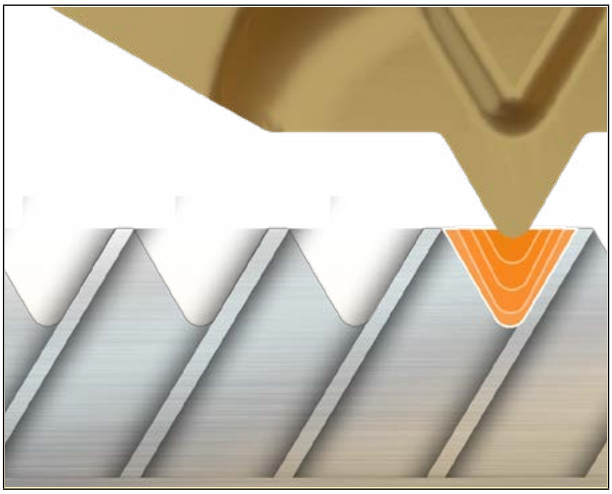
$$\frac{D_1}{2} > \frac{D_2}{2} > \frac{D_3}{2} > \frac{D_n}{2} > \frac{D_{n+1}}{2}$$

Depth per Pass and Number of Passes

In order to produce threads, the cutting tool needs to make several numbers of cuts along the workpiece surface. The parameters of depth per pass and number of passes have a very important role in threading production. These parameters have a direct effect on cutting edge wear, tool life, threading surface quality, and threading production stability.
The two methods most common in determining the depth per pass and the number of passes are constant chip area by decreasing depth per pass or constant depth per pass. The choice of method does not depend on the selected infeed methods (radial infeed, flank infeed, modified flank infeed, alternating flank infeed), which are described in chapter 2.12.
The depth per pass and number of passes parameters depend on the type of equipment, tool overhang, machine stability, workpiece material, cutter geometry and the threading depth required.

Constant chip area by decreasing depth per pass (recommended)

This is the most common method and is generally recommended, as in most cases it ensures high productivity. The principle of this method is that the initial cutting depth at the first pass is the largest, and then gradually decreases at each pass to ensure material removal within a constant chip area.
The calculation of passes is designed so that the last pass, which is destined to be a finish pass, will be 0.05 - 0.1 mm (0.0019 - 0.0039 inches). Using this method ensures constant loads on cutting edge and uniform wear, which increases tool life.



Formula for calculation of depth per pass

$$\Delta a_{p(i)} = \frac{a_p}{\sqrt{n_a - 1}} \times \sqrt{C}$$

When:

$\Delta a_{p(i)}$ — Depth of cut i pass ($i = 1...n_a$)

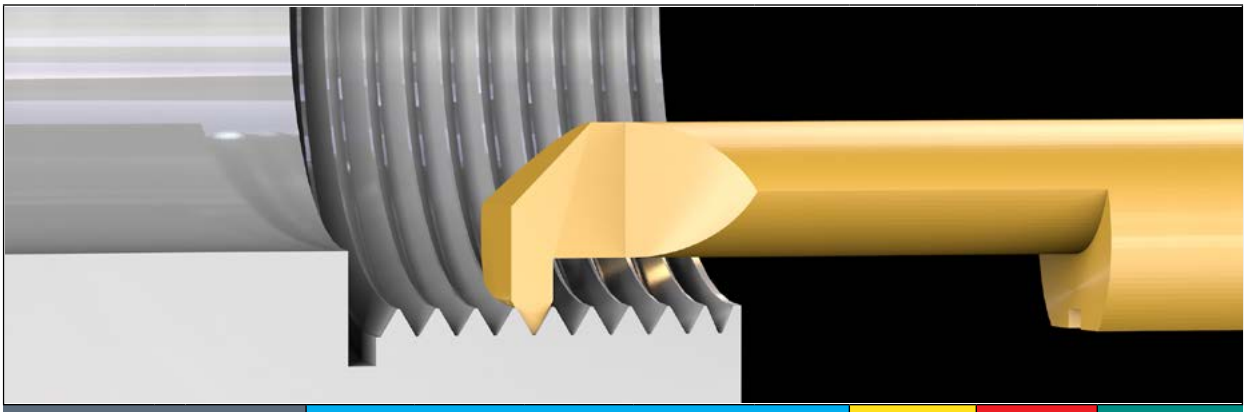
i — Pass

a_p — Total depth of cut

n_a — Number of passes

C — Constant value:
For 1st pass: C=0.3; For 2nd pass: C=1; For 3rd pass and higher: C = i – 1

Cutting Data



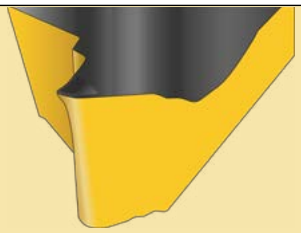
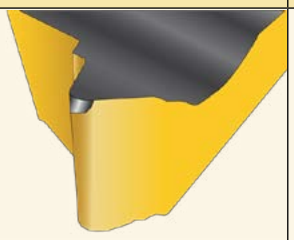
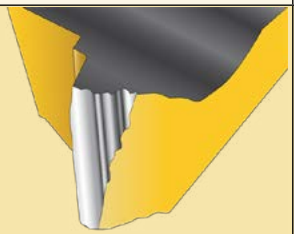
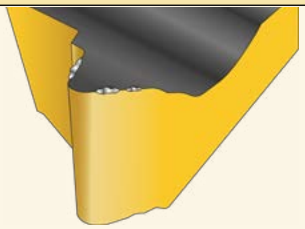
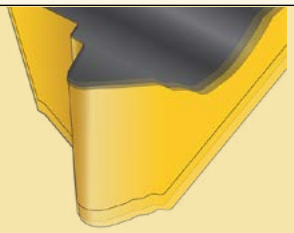
Carbide Grade		Steel (N/mm Tensile Strength)					Stainless Steel	Cast Iron	Non-ferrous
		400-500	500-700	700-850	850-1150	>1150			
Cutting Speed V_c (m/min)	IC228	160	140	120	90	70	90	100	300
	IC908	185	160	140	105	80	105	115	350
Pitch (p) mm	**TPI**	**No. of Passes**							
0.5	48	6	6	7	7	8	8	7	6
0.75	32	8	8	9	9	10	10	9	8
1.0	24	10	10	12	12	12	12	12	10
1.25	20-19	12	12	14	14	15	15	14	12
1.5	16	15	15	17	17	18	18	17	15

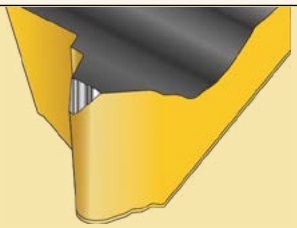
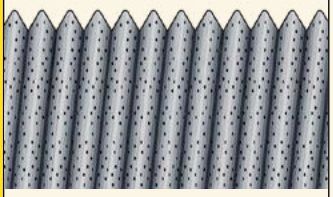
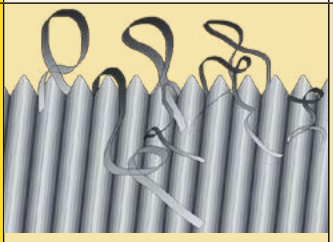
For internal threading of small diameters, the PVD coated grade IC228 is recommended.

Material groups		ISO P		ISO M	ISO K	ISO N	ISO S	ISO H
		1-11	12-13	14	15-20	21-28	31-37	38-41
		Steel	Stainless Steel Ferritic & Martensitic	Stainless Steel Austenitic & Duplex (Ferritic-Austenitic)	Cast Iron	Non-ferrous	High Temperature Alloys	Hard Steel & Cast Iron
THREADING	Harder	**IC1007**	IC1007	IC1007	**IC1007**	IC08	**IC806**	**IC1007**
		IC808 (IC908)			IC808 (IC908)		IC1007	
		IC250 (IC950)	**IC808 (IC908)**	**IC808 (IC908)**	IC250 (IC950)	**IC228**	IC808 (IC908)	IC808 (IC908)
	Tougher	IC228	IC228	IC228	IC228	IC28		

First choice

Troubleshooting

		Cause	Solution
Plastic Deformation		• Excessive heat in cutting zone • Wrong carbide grade • Inadequate coolant supply • Depth of cut too large • Cutting speed too high • Nose radius too small	• Reduce RPM / Reduce depth of cut / Check turned dia. • Use coated grade / Use harder grade • Apply coolant • Reduce depth of cut / Increase no. of passes • Reduce cutting speed • If possible use insert with larger radius
Premature Wear		• Cutting speed too high • Infeed depth too small • Highly abrasive material • Inadequate coolant supply • Wrong inclination anvil • Wrong turned dia. prior to threading • Insert is above center line	• Reduce RPM • Modify flank infeed / Increase depth of cut • Use coated grade • Apply coolant • Reselect anvil • Check turned dia. • Check center height
Insert Breakage		• Wrong turned dia. prior to threading • Wrong grade • Poor chip control • Incorrect center height	• Check turned dia. • Use tougher grade • Change to M-Type / B-Type inserts and use modified flank infeed • Check center height
Build Up Edge		• Cutting edge too cold • Wrong grade • Inadequate coolant supply • Incorrect cutting speed	• Increase RPM / Increase depth of cut • Use coated grade • Apply coolant • Increase cutting speed
Vibration		• Incorrect workpiece clamping • Incorrect tool setup • Incorrect cutting speed • Incorrect center height	• Use soft jaws • Check tool overhang / Use anti-vibration bars • Increase cutting speed • Check center height

		Cause	Solution
Incorrect Thread Profile		• Unsuitable threading profile • Incorrect center height • Incorrect pitch in the program	• Adjust to correct tool, anvil, and insert • Adjust center height • Change the program
Broken Nose During 1st Pass		• Cutting edge too cold • Depth of cut too large • Wrong grade • Wrong turned dia. prior to threading • Incorrect center height • Infeed depth too shallow • Wrong inclination anvil • Tool overhang tool long	• Reduce RPM • Reduce depth of cut/Increase number of infeed passes • Use tougher grade • Check turned dia. • Adjust center height • Change depth of cut • Reselect anvil • Reduce tool overhang / Use Anti-vibration bar
Poor Surface Finish		• Wrong cutting speed • Excessive heat in cutting zone • Poor chip control • Inadequate coolant supply • Wrong inclination anvil • Tool overhang too long • Incorrect center height	• Increase/reduce RPM • Reduce depth of cut • Modify flank infeed • Apply coolant • Reselect anvil • Reduce tool overhang • Check center height
Poor Chip Control		• Excessive heat in cutting zone • Wrong grade • Inadequate coolant supply • Wrong turned dia. prior to threading • Incorrect method of infeed	• Reduce RPM /change depth of cut /check turned dia. • Use coated grade /check turned dia./use M/B-Type inserts • Apply coolant • Check turned dia. • Modify flank infeed 3-5°

Special Request Form Thread Turning

Project Information

Customer _____ Industry _____ Country _____

Customer Goal (Productivity, Economy, etc.):

Proposal for: ☐ Finish Insert ☐ Rough Insert ☐ Holder ☐ Machining Concept

ISCAR Representative: Email: _____ Tel: _____

Competitors: _____ Target Price: _____ Annual Consumption: _____

Threading

Designation _____ Pitch _____ Standard _____ Tolerance Clas _____

Major Dia. _____ Minor Dia. _____ Pitch Dia. _____ Number of Starts _____

Threading Depth _____ ☐ Through Hole ☐ Blind Hole

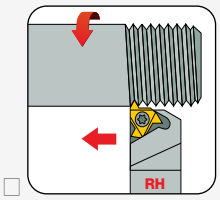
Special Form _____

For non-standard profiles, detailed information must be supplied (drawing, dimensions & tolerances)

Application

Part _____ Material _____ Hardness _____

RH Right-hand Threading



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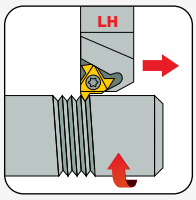

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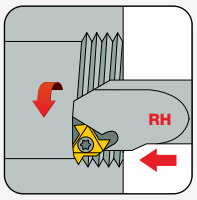

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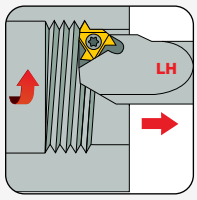

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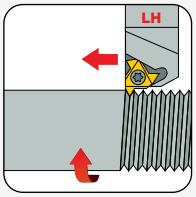
LH Left-hand Threading



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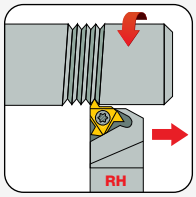

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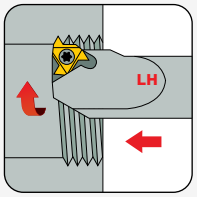

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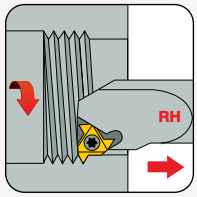

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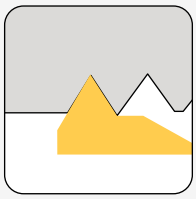
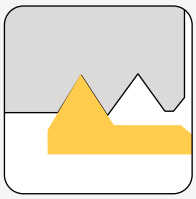
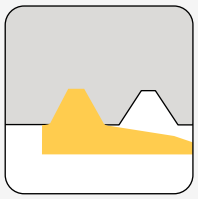
Insert Profile:



☐ Full



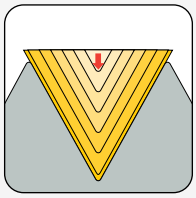
☐ Partial



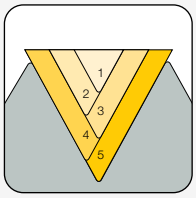
☐ Semi-Partial

☐ Multi-Point

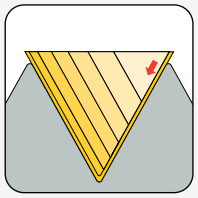
Infeed:



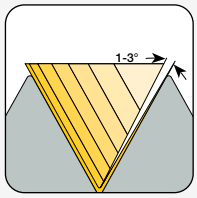
☐ Radial



☐ Incremental



☐ Flank



☐ Modified Flank

Attachments ☐ Drawing ☐ Model ☐ Sketch ☐ Photo

Machine Model _____ Shank Type/Size _____

Coolant: ☐ Internal ☐ External ☐ None Type: _____

Remarks: _____

NON-ROTATING TOOL HOLDERS

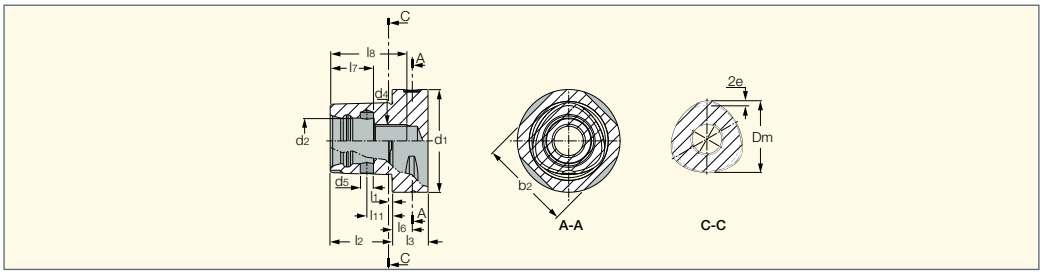
Member IMC Group

ISCAR

TABLE OF CONTENTS

CAMFIX (ISO 26623-1)

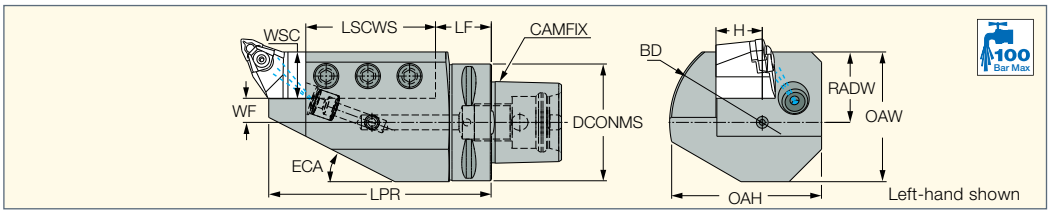
Toolholder Standard



CAMFIX	b2	d1 ±0.1	d2	d4	d5 ±0.1	Dm	e	l1	l2 ±0.1	l3 min	l6 ±0.15	l7 ±0.15	l8 min	l11 ±0.1
C3	28,3	32	15	M12x1.5	3,6	22	0,7	2,5	19	15	6	13	25	8
C4	35,3	40	18	M14x1.5	4,6	28	0,9	2,5	24	20	8	15	30	11,5
C5	44,4	50	21	M16x1.5	6,1	35	1,12	3	30	20	10	20	37	14
C6	55,8	63	28	M20x2	8,1	44	1,4	3	38	22	12	27	47	15,5
C8	71,1	80	32	M20x2	9,1	55	2	3	48	30	12	28	48	25
C8X	88,7	100	32	M20x2	9,1	55	2	3	48	32	16	28	48	25
C10	88,3	100	43	M24x2	12	72	2,8	3	60	36	16	40	70	26,5

C#-ASHR/L

Holders with CAMFIX Exchangeable Shanks for External Square Shank Tools



Designation	DCONMS	H	WSC	WF	LPR	LSCWS	LF	OAH	RADW	OAW	ECA	BD	CDI(2)
C4 ASHR/L 16-1	40.00	16.0	16.0	7.00	104.00	70.00	34.00	50.00	23.0	43.50	30.0	60.00	1
C5 ASHR/L 20-1	50.00	20.0	20.0	10.00	98.00	63.50	24.50	78.00	30.0	59.00	30.0	90.00	1
C6 ASHR/L 20-1	63.00	20.0	20.0	10.00	100.00	63.50	26.50	78.00	30.0	59.00	30.0	90.00	1
C6 ASHR/L 25-1	63.00	25.0	25.0	13.00	120.00	70.00	30.00	82.00	38.0	70.00	27.0	100.00	1
C6 ASHR 25 1-J (1)	63.00	25.0	25.0	4.50	120.00	999.00	82.00	86.50	29.5	61.00	4.1	90.00	1
C8 ASHR/L 32-1	80.00	32.0	32.0	8.00	140.00	90.00	40.00	87.00	40.0	80.00	27.0	110.00	1

(1) Recommended for Mazak INTEGREX! No interference problem on machine magazine

(2) 1 - Hole for data chip, 0 - Without hole for data chip

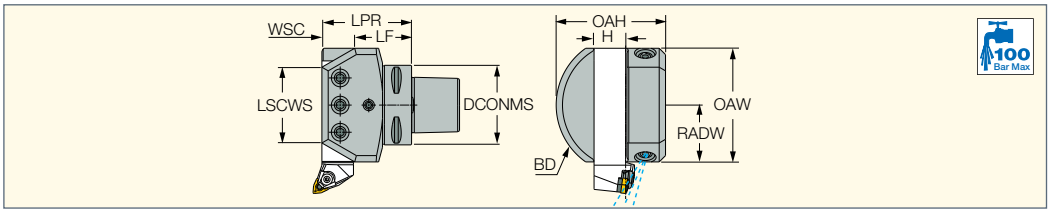
Spare Parts

Designation						
C4 ASHR/L 16-1	SR M8X16 DIN915	HW 5.0*	SATZ-M10X1-M5	COOLING TUBE C4*	WRENCH NOZZLE HP M10*	WRENCH COOL TUBE C4*
C5 ASHR/L 20-1	SR M10X25 DIN915	HW 5.0*	SATZ-M10X1-M5	COOLING TUBE C5*	WRENCH NOZZLE HP M10*	WRENCH COOL TUBE C5*
C6 ASHR/L 20-1	SR M10X25 DIN915	HW 5.0*	SATZ-M10X1-M5	COOLING TUBE C6*	WRENCH NOZZLE HP M10*	WRENCH COOL TUBE C6*
C6 ASHR/L 25-1	SR M12X30 DIN915	HW 6.0*	SATZ-M12X1-M6	COOLING TUBE C6*	WRENCH NOZZLE HP M12*	WRENCH COOL TUBE C6*
C8 ASHR/L 32-1	SR M12X30 DIN915	HW 6.0*	SATZ-M12X1-M6	COOLING TUBE C8*	WRENCH NOZZLE HP M12*	WRENCH COOL TUBE C8*

* Optional, should be ordered separately

C#-ASHA

Perpendicular Holders with CAMFIX Shanks for External Square Shank Tools



Designation	DCONMS	H	WSC	LPR	LSCWS	LF	RADW	OAW	OAH	BD	CDI(1)
C5 ASHA 20	50.00	20.0	20.0	58.00	46.00	38.00	38.0	76.00	76.5	90.00	1
C6 ASHA 20	63.00	20.0	20.0	60.00	46.00	40.00	38.0	76.00	76.5	90.00	1
C6 ASHA 25	63.00	25.0	25.0	71.00	61.00	46.00	45.0	90.00	86.6	110.00	1
C8 ASHA 32	80.00	32.0	32.0	85.00	80.00	53.00	55.0	110.00	95.0	142.00	1

(1) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

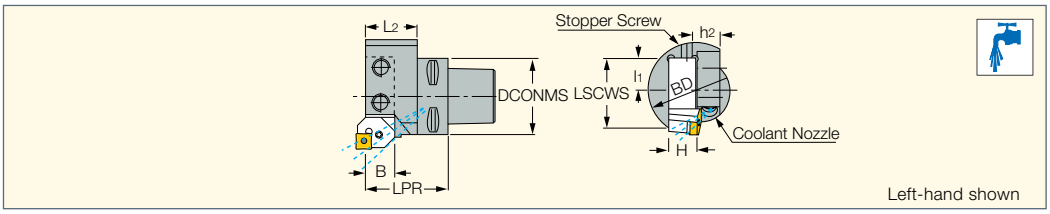
Designation						
C5 ASHA 20	SR M10X25 DIN915	HW 5.0*	SATZ-M10X1-M5	WRENCH NOZZLE HP M10*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 ASHA 20	SR M10X25 DIN915	HW 5.0*	SATZ-M10X1-M5	WRENCH NOZZLE HP M10*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ASHA 25	SR M12X30 DIN915	HW 6.0*	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C8 ASHA 32	SR M12X30 DIN915	HW 6.0*	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	COOLING TUBE C8*	WRENCH COOL TUBE C8*

* Optional, should be ordered separately

CAMFIX

C#-ADE

Holders with CAMFIX Exchangeable Shanks for External Square Shank Tools



Designation	DCONMS	LPR	L2	B	BD	LSCWS	l1	H	h2	CP(1)	CDI(2)
C3 ADE 16R/L	32.00	45.00	28.10	16.0	65.00	45.0	20.00	16.0	20.0	100	0
C4 ADE-20L	40.00	49.20	29.10	20.0	87.00	57.0	32.00	20.0	26.0	100	1
C4 ADE-20R	40.00	49.20	27.30	20.0	87.00	57.0	32.00	20.0	26.0	100	1
C5 ADE-20R/L	50.00	55.20	35.10	20.0	87.00	57.0	32.00	20.0	26.0	100	1

• Use the tools with AD suffix • Regular tools should be shortened

(1) Coolant pressure (Bar)

(2) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

Designation							
C3 ADE 16R/L	SR M10X20 DIN915	HW 3.0*	SR M6X8 DIN916(a)	HW 5.0*	COOLING TUBE C3*	WRENCH COOL TUBE C3*	SATZ-M8X1-M3
C4 ADE-20L	SR M10X16DIN912	HW 4.0	SR M8X10 DIN913(a)	HW 8.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	SATZ-M10X1-M5
C4 ADE-20R	SR M10X16DIN912		SR M8X10 DIN913(a)	HW 8.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	SATZ-M10X1-M5
C5 ADE-20L	SR M10X16	HW 4.0	SR M8X10 DIN916(a)	HW 8.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	EZ 125
C5 ADE-20R	SR M10X16	HW 4.0	SR M8X10 DIN916(a)		COOLING TUBE C5*	WRENCH COOL TUBE C5*	EZ 125

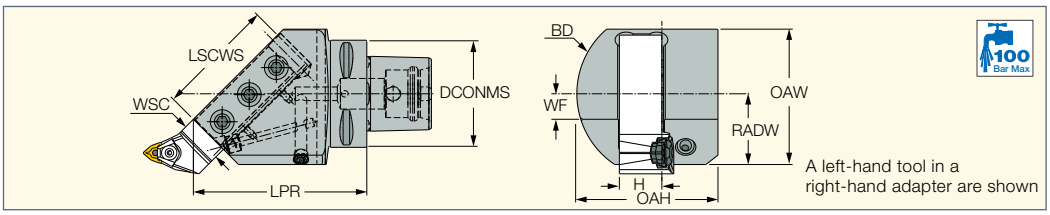
* Optional, should be ordered separately

(a) Stopper screw

CAMFIX

C#-ASHR/L-45

Holders with CAMFIX Exchangeable Shanks Carrying Square Shank Tools for 45° Mounting on Turn-Mill Machines



Designation	DCONMS	H	WSC	WF	LPR	LSCWS	OAH	RADW	OAW	BD	CDI(1)
C5 ASHR/L 20-45	50.00	20.0	20.0	15.00	96.30	-	62.00	36.0	67.50	72.00	1
C6 ASHR/L 20-45	63.00	20.0	20.0	15.00	98.30	-	62.00	36.0	67.50	72.00	1
C6 ASHR/L 25-45	63.00	25.0	25.0	15.00	102.00	70.00	83.00	41.6	79.60	100.00	1
C8 ASHR/L 32-45	80.00	32.0	32.0	17.00	140.00	100.00	110.00	50.0	110.00	140.00	1

(1) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

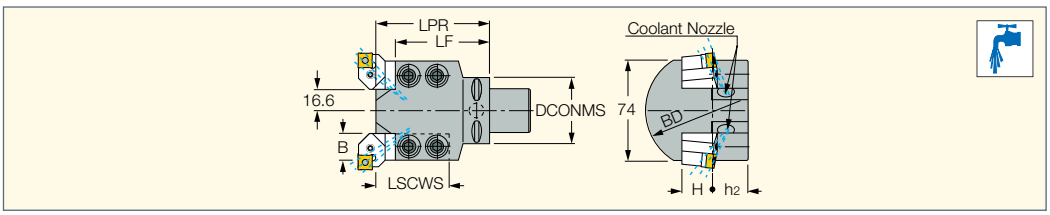
Designation						
C5 ASHR/L 20-45	SR M10X25 DIN915	HW 5.0*	SATZ-M10X1-M5	WRENCH NOZZLE HP M10*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 ASHR/L 20-45	SR M10X25 DIN915	HW 5.0*	SATZ-M10X1-M5	WRENCH NOZZLE HP M10*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ASHR/L 25-45	SR M12X30 DIN915	HW 6.0*	SATZ-M10X1-M5	WRENCH NOZZLE HP M10*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C8 ASHR/L 32-45	SR M12X30 DIN915	HW 6.0*	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	COOLING TUBE C8*	WRENCH COOL TUBE C8*

* Optional, should be ordered separately

CAMFIX

C#-ADES

Holders with CAMFIX Exchangeable Shanks for External Square Shank Tools



Designation	DCONMS	LPR	LSCWS	LF	B	BD	H	h2	CDI(1)
C4 ADES-20	40.00	85.00	54.00	71.00	20.0	90.00	20.0	26.0	1
C5 ADES-20	50.00	85.00	54.00	71.00	20.0	90.00	20.0	26.0	1

• Use the tools with AD suffix. Regular tools should be shortened.

(1) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

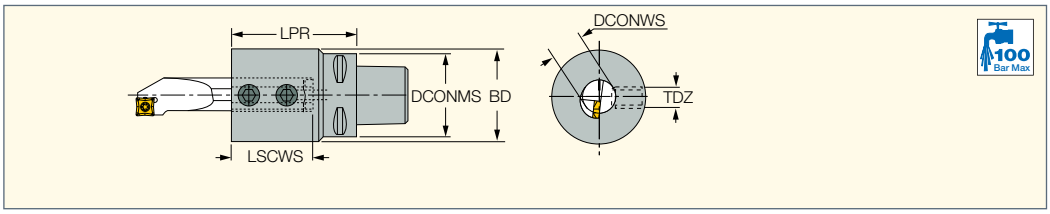
Designation					
C4 ADES-20	SR M10X16	SR M8X6 DIN913	SATZ-M10X1-M5	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C5 ADES-20	SR M10X16	SR M8X6 DIN913	SATZ-M10X1-M5	COOLING TUBE C5*	WRENCH COOL TUBE C5*

* Optional, should be ordered separately

CAMFIX

C#-ADI

Holders with CAMFIX Exchangeable Shanks for Boring Bars



Designation	DCONMS	LPR	LSCWS	DCONWS	BD	TDZ	kg	CDI(1)				
C3 ADI 10	32.00	50.00	20.0	10.00	36.00	M6	0.30	0	SR M6X10 DIN1835B	HW 3.0*	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C3 ADI 12	32.00	50.00	21.5	12.00	36.00	M8	0.30	0	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C3 ADI 16	32.00	50.00	29.5	16.00	36.00	M8	0.30	0	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C4 ADI 10	40.00	50.00	20.0	10.00	36.00	M6	0.47	1	SR M6X10 DIN1835B	HW 3.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 ADI 12	40.00	50.00	24.0	12.00	36.00	M8	0.46	1	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 ADI 16	40.00	50.00	32.0	16.00	36.00	M8	0.43	1	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 ADI 20	40.00	60.00	40.0	20.00	36.00	M10	0.47	1	SR M10X12 DIN1835-B	HW 5.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 ADI 25	40.00	70.00	45.0	25.00	54.00	M12	0.97	1	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C5 ADI 10	50.00	60.00	26.0	10.00	36.00	M6	0.73	1	SR M6X10 DIN1835B	HW 3.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ADI 12	50.00	60.00	26.0	12.00	36.00	M8	0.72	1	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ADI 16	50.00	60.00	32.0	16.00	36.00	M8	0.69	1	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ADI 20	50.00	60.00	40.0	20.00	36.00	M10	0.69	1	SR M10X12 DIN1835-B	HW 5.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ADI 25	50.00	70.00	50.0	25.00	54.00	M12	1.11	1	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ADI 32	50.00	100.00	76.0	32.00	68.00	M12	2.15	1	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 ADI 12	63.00	65.00	36.0	12.00	36.00	M8	1.07	1	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ADI 16	63.00	65.00	36.0	16.00	36.00	M8	1.05	1	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ADI 20	63.00	65.00	40.0	20.00	36.00	M10	1.00	1	SR M10X12 DIN1835-B	HW 5.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ADI 25	63.00	76.00	51.0	25.00	54.00	M12	0.80	1	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ADI 32	63.00	100.00	76.0	32.00	68.00	M12	2.44	1	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ADI 40	63.00	100.00	76.0	40.00	98.00	M12	4.47	1	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ADI 50	63.00	115.00	76.0	50.00	98.00	M12	4.80	1	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C8 ADI 12	80.00	70.00	36.0	12.00	36.00	M8	2.05	1	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 ADI 16	80.00	70.00	36.0	16.00	36.00	M8	2.00	1	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 ADI 20	80.00	70.00	40.0	20.00	36.00	M10	1.98	1	SR M10X12 DIN1835-B	HW 5.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 ADI 25	80.00	80.00	51.0	25.00	54.00	M12	2.43	1	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 ADI 32	80.00	110.00	86.0	32.00	68.00	M12	3.44	1	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 ADI 40	80.00	115.00	86.0	40.00	98.00	M12	5.81	1	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 ADI 50	80.00	115.00	86.0	50.00	98.00	M12	5.36	1	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*

• Use the tools with "AD" suffix • Regular tools should be shortened

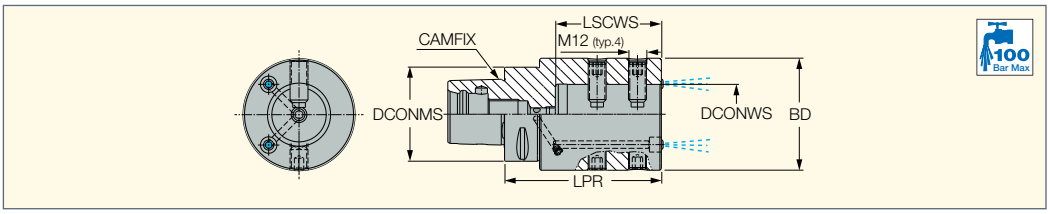
(1) 1 - Hole for data chip, 0 - Without hole for data chip

* Optional, should be ordered separately

CAMFIX

C#-ABB

Adapters with CAMFIX Exchangeable Shanks for Boring Bars with Reduction Sleeves



Designation	DCONMS	DCONWS	BD	LPR	LSCWS	CDI(2)
C4 ABB 25-60	40.00	25.00	63.00	100.00	60.0	1
C5 ABB-25-60	50.00	25.00	63.00	100.00	60.0	1
C6 ABB-25-60	63.00	25.00	63.00	100.00	60.0	1
C6 ABB-40-70	63.00	40.00	75.00	105.00	71.0	1
C6ABB-25-60C (1)	63.00	25.00	63.00	95.00	60.0	1
C6ABB-40-70C (1)	63.00	40.00	75.00	105.00	71.0	1
C8 ABB 25-60	80.00	25.00	63.00	100.00	60.0	1
C8 ABB 40-72	80.00	40.00	75.00	105.00	71.0	1

• For SC reduction sleeves, see page 739

(1) Different coolant outlet position and number of screws

(2) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

Designation								
C4 ABB 25-60	SR M10X12 DIN1835-B(a)	SR M10X20 DIN915(b)	SR M10X6DIN913(c)	HW 5.0*	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C5 ABB-25-60	SR M10X12 DIN1835-B(a)	SR M10X20 DIN915(b)	SR M10X6DIN913(c)	HW 5.0*	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 ABB-25-60	SR M10X12 DIN1835-B(a)	SR M10X20 DIN915(b)	SR M10X6DIN913(c)	HW 5.0*	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ABB-40-70	SR M12X16 DIN1835-B(a)	SR M12X30 DIN915(b)	SR M10X6DIN913(c)	HW 6.0*	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*		
C8 ABB 25-60	SR M10X12 DIN1835-B(a)	SR M10X20 DIN915(b)	SR M10X6DIN913(c)	HW 5.0*	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 ABB 40-72	SR M12X16 DIN1835-B(a)	SR M12X30 DIN915(b)	SR M10X6DIN913(c)	HW 6.0*	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	COOLING TUBE C8*	WRENCH COOL TUBE C8*

* Optional, should be ordered separately

(a) Used on A-type sleeves

(b) Used on B-type sleeves

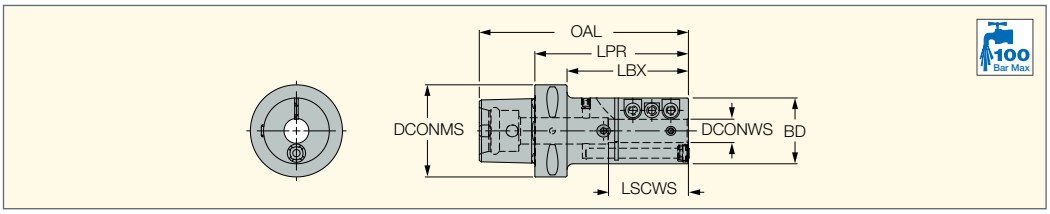
(c) Rear stopper screw

CAMFIX

WHISPERLINE ANTI-VIBRATION

C#-AV-JHP

CAMFIX Holders for Anti-Vibration Tools

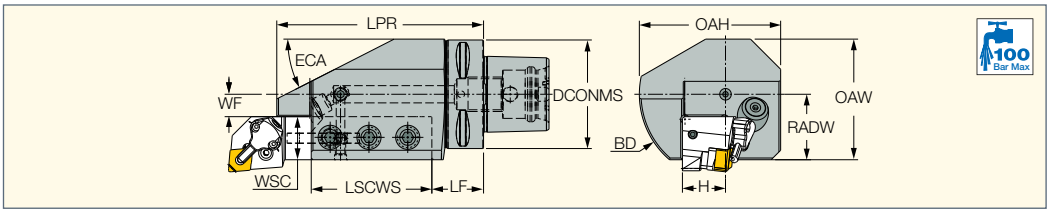


Designation	DCONMS	DCONWS	OAL	BD	LPR	LSCWS	LBX	kg
C6 AV-D16-JHP	63.00	16.00	143.00	45.00	105.00	55.00	83.00	1.57
C6 AV-D20-JHP	63.00	20.00	143.00	55.00	105.00	80.00	83.00	2.00
C6 AV-D25-JHP	63.00	25.00	143.00	55.00	105.00	80.00	83.00	1.89
C6 AV-D32-JHP	63.00	32.00	143.00	65.00	105.00	85.00	66.60	2.23
C6 AV-D40-JHP	63.00	40.00	143.00	75.00	105.00	85.00	64.00	2.49

CAMFIX

C#-ASHR/L-HPMC

Holders with CAMFIX Exchangeable Shanks for External Square Shank Tools with High-Pressure Multi-Connection



Designation	DCONMS	LPR	LSCWS	LF	WF	H	WSC	OAH	RADW	OAW	BD	ECA	CDI[1]
C6 ASHR/L 25-1 HPMC	63.00	120.00	70.00	30.00	13.00	25.0	25.0	82.00	38.00	70.00	100.00	27.0	1

[1] 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

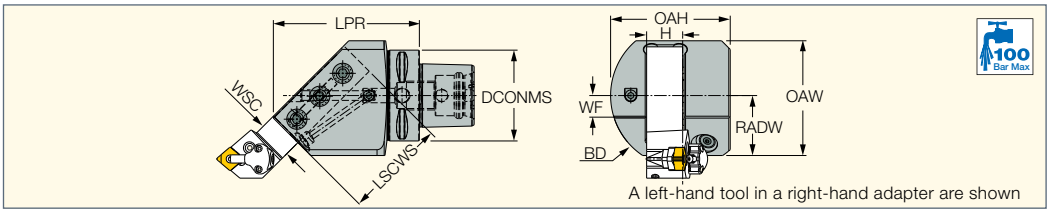
Designation								
C6 ASHR/L 25-1 HPMC	SATZ-M12X1-M6	SR M12X30 DIN915	SR M8X6 DIN913	SR M6X6 DIN913	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH NOZZLE HP M12*

* Optional, should be ordered separately

CAMFIX

C#-ASHR/L-45-HPMC

Holders with CAMFIX Exchangeable Shanks Carrying Square Shank Tools for 45° Mounting on Turn-Mill Machines with HPMC



Designation	DCONMS	H	WSC	LSCWS	LPR	OAH	RADW	OAW	WF	BD	CDI[1]
C6 ASHR/L 25-45 HPMC	63.00	25.0	25.0	70.00	101.30	83.00	38.00	79.60	15.00	100.00	1

[1] 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

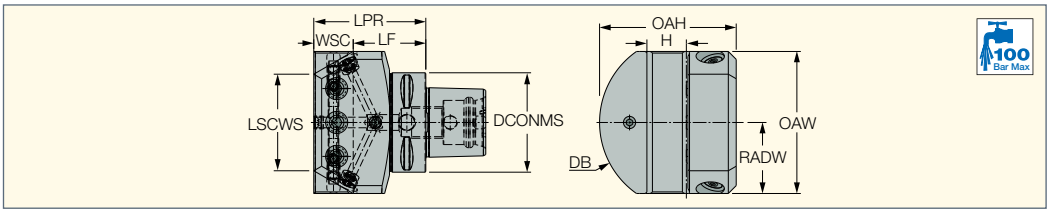
Designation								
C6 ASHR/L 25-45 HPMC	SATZ-M10X1-M5	SR M12X30 DIN915	SR M8X6 DIN913	SR M6X6 DIN913	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH NOZZLE HP M10*

* Optional, should be ordered separately

CAMFIX

C#-ASHA-HPMC

Perpendicular Holders with CAMFIX Shanks for External Square Shank Tools with High-Pressure Multi-Connection



Designation	DCONMS	H	WSC	LPR	LSCWS	LF	RADW	OAW	OAH	BD	CDI[1]
C6 ASHA 25 HPMC	63.00	25.0	25.0	71.00	61.20	46.00	45.00	90.00	86.50	110.00	1

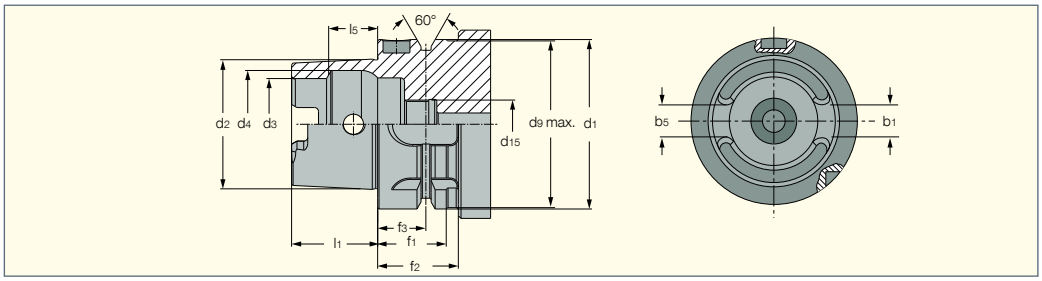
[1] 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

Designation									
C6 ASHA 25 HPMC	SATZ-M12X1-M6	SR M12X30 DIN915	SR M8X6 DIN913	SR M8X10 DIN913	SR M6X6 DIN913	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH NOZZLE HP M12*

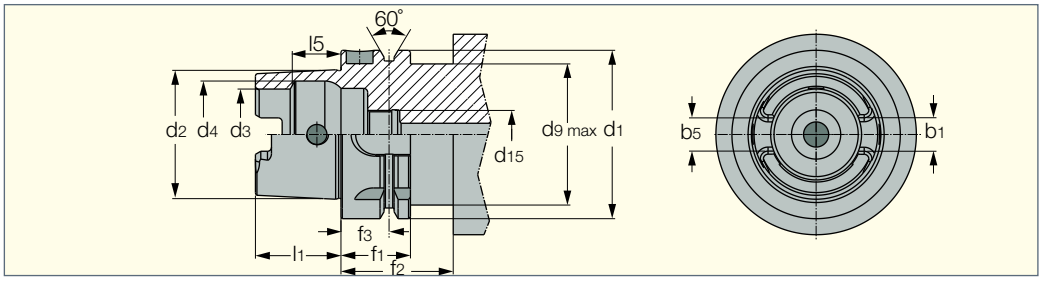
* Optional, should be ordered separately

HSK A WH Complies with ICTM Standards (ISO 12164-3)



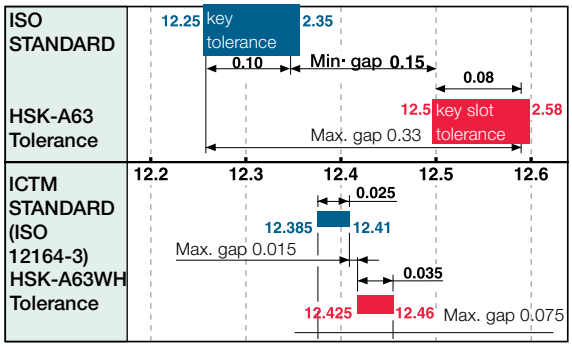
HSK-A WH	d1 h10	d2	d3 H10	d4 H11	d9 max	d15	l1-0.2	l5 Js10	b1±0.04	b5±0.035	f1 -0.1	f2 min	f3 ±0.1
63	63	48	34	40	62	M18X1	32	18.13	12.54	12.425	26	30	18
100	100	75	53	63	99	M24X1.5	50	28.56	20.02	19.91	29	34	20

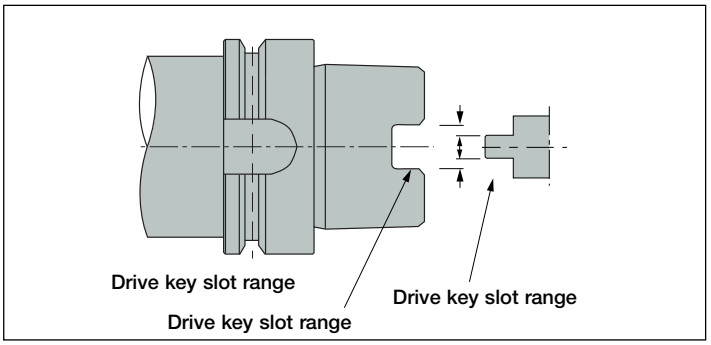
HSK A TM Suitable for all Multi-Tasking Machine Models



HSK A-TM	d1 h10	d2	d3 H10	d4 H11	d9 max	d15	l1-0.2	l5 JS10	b1±0.04	b5±0.035	f1-0.1	f2 min	f3±0.1
63	63	48	34	40	52.8	M18x1	32	18.13	12.54	12.425	26	42	18

HSK A vs. HSK A...WH Tolerance

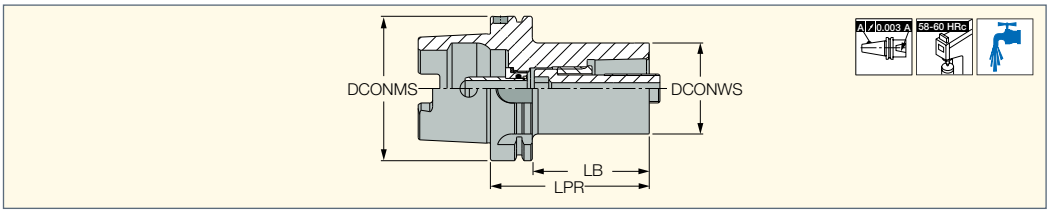




HSK CAMFIX

HSK-C#

CAMFIX (ISO 26623-1)
Holders with HSK DIN 69893
Form A Tapered Shanks



Designation	DCONMS	DCONWS	LPR	LB	kg
C4 AD HSK A63WHX080	63.00	40.00	80.00	54.00	1.10
C5 AD HSK A63WHX90	63.00	50.00	90.00	64.00	1.44
C5 AD HSK A100WHX100	100.00	50.00	100.00	71.00	2.90
C6 AD HSK A100-110	100.00	63.00	110.00	81.00	4.00
C6 AD HSK A100WHX110	100.00	63.00	110.00	81.00	3.61
C8 AD HSK A100WHX120	100.00	80.00	120.00	91.00	4.79

- Note: To enable clamping the part to be attached, first remove the cooling tube

Spare Parts

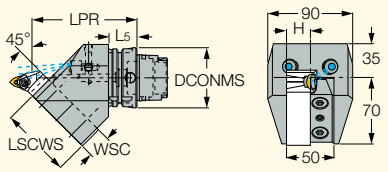
Designation						
C4 AD HSK A63WHX080	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4	COOLING TUBE HSK A63 C5	WRENCH COOL TUBE HSK63*	WRENCH C4 DRW NUT*
C5 AD HSK A63WHX90	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	COOLING TUBE HSK A63 C5	WRENCH COOL TUBE HSK63*	WRENCH C5 DRW NUT*
C5 AD HSK A100WHX100	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	COOLING TUBE HSK A100	WRENCH COOL TUBE HSK100*	WRENCH C5 DRW NUT*
C6 AD HSK A100WHX110	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	COOLING TUBE HSK A100C6/8	WRENCH COOL TUBE HSK100*	WRENCH C6-8 DRW NUT*
C8 AD HSK A100WHX120	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	COOLING TUBE HSK A100C6/8	WRENCH COOL TUBE HSK100*	WRENCH C6-8 DRW NUT*

* Optional, should be ordered separately

HSK

HSK A63WH-ASHN-45

Square Shank Tool Adapters with HSK Exchangeable Shanks for 45° Mounting on Turn-Mill Machines



Right-hand shown

Designation	DCONMS	H	WSC	LPR	LSCWS	L5	CDI[2]				
HSK A63WH ASHN 25 45 [1]	63.00	25.0	25.0	121.00	72.00	42.00	1	SR M10X25 DIN912	SR M8X20 DIN916	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*

- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)
- For using left-hand toolholder, the position of the clamping spacer must be changed
- Complies with ICTM standard (ISO 12164-3)

[1] Not suitable for ATC (automatic tool changer) on some multi-tasking machine models, please consult your MTB

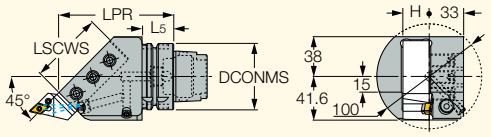
[2] 1 - Hole for data chip, 0 - Without hole for data chip

* Optional, should be ordered separately

HSK

HSK A63WH-ASHR/L-45

Square Shank Tool Adapters with HSK-T Exchangeable Shanks for 45° Mounting on Turn-Mill Machines



A left-hand tool in a right-hand adapter are shown

Designation	DCONMS	H	LPR	LSCWS	L5	CDI[2]			
HSK A63WH ASHR/L 25 45 [1]	63.00	25.0	110.00	70.00	30.00	1	SR M12X30 DIN915	SATZ-M10X1-M5	WRENCH NOZZLE HP M10*

- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)
- Complies with ICTM standard (ISO 12164-3)

[1] Not suitable for ATC (automatic tool changer) on some multi-tasking machine models, please consult your MTB

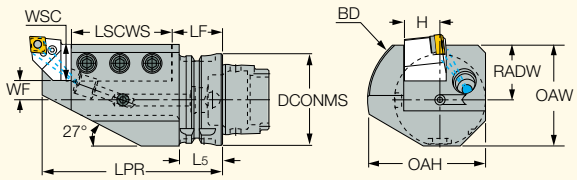
[2] 1 - Hole for data chip, 0 - Without hole for data chip

* Optional, should be ordered separately

HSK

HSK A-WH-ASHR/L-1

Square Shank Tool Adapters with HSK Exchangeable Shanks for Turn-Mill Machines



Left-hand shown

Designation	DCONMS	H	WSC	WF	LPR	LSCWS	LF	L5	OAH	RADW	OAW	BD	CDI[1]
HSK A63WH ASHR/L 25 1	63.00	25.0	25.0	13.00	125.00	70.00	35.00	30.00	82.00	38.0	70.00	100.00	1
HSK A100WH ASHR/L 32 1	100.00	32.0	32.0	8.00	145.00	90.00	45.00	38.00	85.00	40.0	84.00	100.00	1

- Complies with ICTM standard (ISO 12164-3)
- Not suitable for ATC (automatic tool changer) on some multi-tasking machine models, please consult your MTB
- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

[1] 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

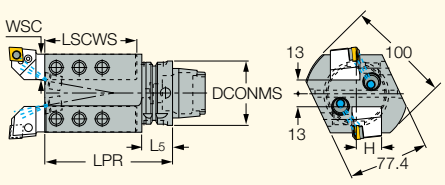
Designation				
HSK A-WH-ASHR/L-1	SR M12X30 DIN915	HW 6.0*	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*

* Optional, should be ordered separately

HSK

HSK A63WH-ASHR/L-2

Twin Square Shank Tool Adapters with HSK Exchangeable Shanks for Turn-Mill Machines



Left-hand shown

Designation	DCONMS	H	WSC	LPR	LSCWS	L5	CDI[2]			
HSK A63WH ASHR/L 25 2 [1]	63.00	25.0	25.0	125.00	95.00	30.00	1	SR M12X30 DIN915	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*

- Complies with ICTM standard (ISO 12164-3)
- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

[1] Not suitable for ATC (automatic tool changer) on some multi-tasking machine models, please consult your MTB

[2] 1 - Hole for data chip, 0 - Without hole for data chip

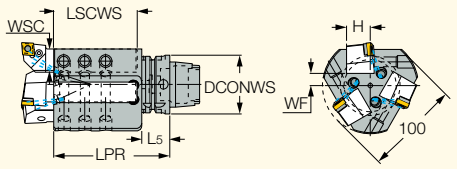
* Optional, should be ordered separately

For tools, see pages: PCLXR/L-JHP (52) • SER/L-JHP (701)

HSK

HSK A63WH-ASHR/L-3

Triple Square Shank Tool Adapters with HSK Exchangeable Shanks for Mounting on Turn-Mill Machines



Left-hand shown

Designation	DCONMS	H	WSC	WF	LPR	LSCWS	L5	CDI(2)		
HSK A63WH ASHR/L 25 3 (1)	63.00	25.0	25.0	13.00	125.00	90.00	30.00	1	SR M12X30 DIN915	SATZ-M8X1-M3

- Complies with ICTM standard (ISO 12164-3)
- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

(1) Not suitable for ATC (automatic tool changer) on some multi-tasking machine models, please consult your MTB

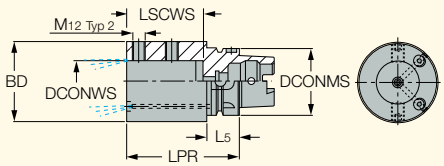
(2) 1 - Hole for data chip, 0 - Without hole for data chip

For tools, see pages: SER/L-JHP (701)

HSK

HSK A-WH ABB

Adapters with HSK Exchangeable Shanks for Boring Bars with Reduction Sleeves



Designation	DCONMS	BD	DCONWS	LPR	LSCWS	L5	CDI(1)
HSK A63WH ABB 40	63.00	75.00	40.00	105.00	71.0	30.00	1
HSK A100WH ABB 40	100.00	82.00	40.00	115.00	71.0	29.00	1
HSK A100WH ABB 50	100.00	92.00	50.00	125.00	83.0	29.00	1

- Complies with ICTM standard (ISO 12164-3)
- Not suitable for ATC (automatic tool changer) on some multi-tasking machine models, please consult your MTB
- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

(1) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

Designation						
HSK A-WH ABB	SR M12X16 DIN1835-B(a)	SR M12X30 DIN915(b)	SR M10X6DIN913(c)	HW 6.0*	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*

* Optional, should be ordered separately

(a) Used on A-type sleeves

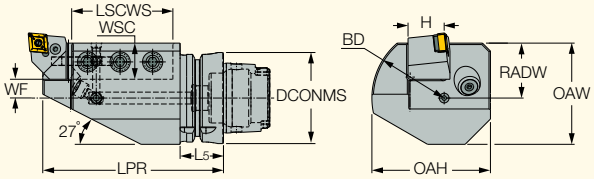
(b) Used on B type sleeves

(c) Rear stopper screw

HSK

HSK A63WH-ASHR/L-HPMC

Holders with HSK Exchangeable Shanks for External Square Shank Tools with High-Pressure Multi-Connection



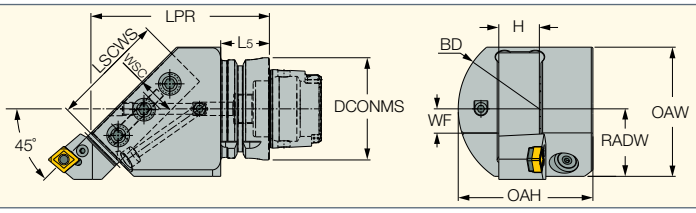
Designation	DCONMS	LPR	LSCWS	L5	WF	H	WSC	OAH	RADW	OAW	BD	CDI(1)
HSK A63WH ASHR/L25-1 HPMC	63.00	125.00	70.00	30.00	13.00	25.0	25.0	82.00	38.00	70.00	100.00	1

(1) 1 - Hole for data chip, 0 - Without hole for data chip

HSK

HSK A63WH-ASHR/L-45-HPMC

Holders with HSK Exchangeable Shanks Carrying Square Shank Tools for 45° Mounting on Turn-Mill Machines with HPMC



Designation	DCONMS	H	WSC	LSCWS	LPR	L5	OAH	RADW	OAW	WF	BD	CDI(1)
HSK A63WH ASHR/L25-45 HPMC	63.00	25.0	25.0	70.00	110.00	30.00	83.00	41.60	79.60	15.00	100.00	1

(1) 1 - Hole for data chip, 0 - Without hole for data chip

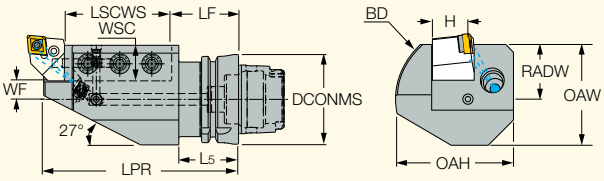
Spare Parts

Designation		
HSK A63WH ASHL25-45 HPMC	SR M6X6 DIN913	SR M12X30 DIN915
HSK A63WH ASHR25-45 HPMC	SR M6X6 DIN913	SR M8X6 DIN913

HSK

HSK A-TM-ASHR/L-1-HPMC

Square Shank Tool Adapters with HSK Exchangeable Shanks for Multi-Tasking Machines with High-Pressure Coolant Channels



Left-hand tool shown

Designation	DCONMS	H	WSC	WF	LPR	LSCWS	LF	L5	OAH	RADW	OAW	BD	CDI[1]
HSK A63TM ASHR/L 25 1 HPMC	63.00	25.0	25.0	13.00	137.00	70.00	47.00	42.00	82.00	38.0	70.00	100.00	1

- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

(1) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

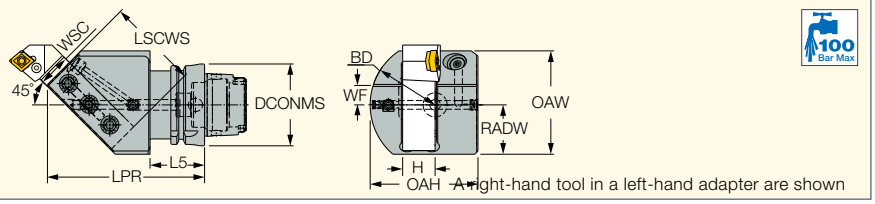
Designation					
HSK A63TM ASHR/L 25 1 HPMC	SR M12X30 DIN915	SR M8X6 DIN913	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	SR M6X6 DIN913

* Optional, should be ordered separately

HSK

HSK A63TM-ASHR/L-45-HPMC

Square Shank Tool Adapters with HSK-T Exchangeable Shanks for 45° Mounting on Multi-Tasking Machines



A right-hand tool in a left-hand adapter are shown

Designation	DCONMS	H	WSC	WF	LPR	LSCWS	L5	OAH	RADW	OAW	BD	CDI[1]
HSK A63TM ASHR/L 25 45 HPMC	63.00	25.0	25.0	15.00	121.00	70.00	42.00	58.00	38.00	79.60	100.00	1

- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

(1) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

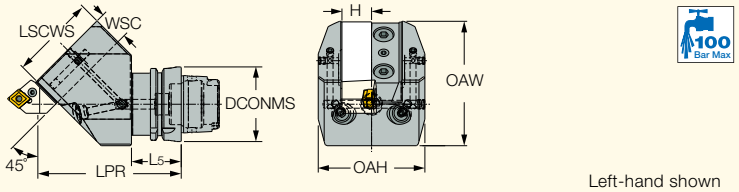
Designation					
HSK A63TM ASHR/L 25 45 HPMC	SR M12X30 DIN915	SR M8X6 DIN913	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	SR M6X6 DIN913

* Optional, should be ordered separately

HSK

HSK A63TM-ASHN-45-HPMC

Square Shank Tool Adapters with HSK Exchangeable Shanks for 45° Mounting on Multi-Tasking Machines



Left-hand shown

Designation	DCONMS	H	WSC	LPR	LSCWS	L5	OAH	OAW	CDI[1]
HSK A63TM ASHN 25 45 HPMC	63.00	25.0	25.0	121.00	72.00	42.00	90.00	105.00	1

- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)
- For using left-hand toolholder, the position of the clamping spacer must be changed

(1) 1 - Hole for data chip, 0 - Without hole for data chip

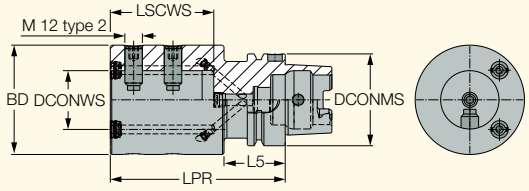
Spare Parts

Designation							
HSK A63TM ASHN 25 45 HPMC	SR M10X25 DIN912	SR M8X20 DIN916	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	SPRING PIN DIN 1481 3X5	SR M8X6 DIN913	SR M6X6 DIN913

* Optional, should be ordered separately

HSK

HSK A63TM ABB
Adapters with HSK Exchangeable Shanks for Boring Bars with Reduction Sleeves



Designation	DCONMS	DCONWS	BD	LPR	LSCWS	L5	CDI(1)
HSK A63TM ABB 40	63.00	40.00	100.00	120.00	71.0	42.00	1

• A cooling tube must be used with all coolant through HSK spindles (should be ordered separately) • For SC reduction sleeves, see page 739

(1) 1 - Hole for data chip, 0 - Without hole for data chip

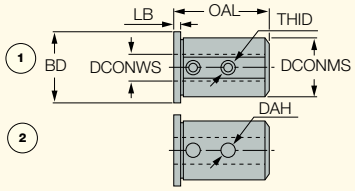
Spare Parts

Designation						
HSK A63TM ABB 40	SR M12X30 DIN915	SR M12X16 DIN1835-B	SATZ-M12X1-M6	WRENCH NOZZLE HP M12*	SR M10X6DIN913	SR M5X4 DIN913

* Optional, should be ordered separately

Accessories

SC-T (sleeves)
Reduction Sleeves for Holders with Exchangeable Adaptation



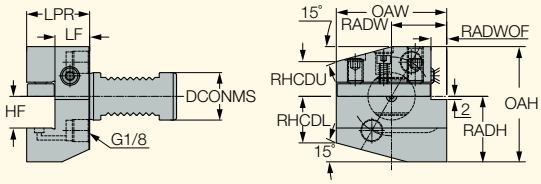
Designation	DCONMS	DCONWS	BD	OAL	LB	THID	DAH	Fig.		
SC 32T10A	32.00	10.00	39.00	70.00	8.00	M6	-	1		
SC 32T12A	32.00	12.00	39.00	70.00	8.00	M6	-	1		
SC 32T16A	32.00	16.00	39.00	70.00	8.00	M6	-	1		
SC 32T20A	32.00	20.00	39.00	70.00	8.00	M6	-	1		
SC 32T25B	32.00	25.00	39.00	80.00	15.00	M8	-	1		
SC 25T10A	25.00	10.00	31.00	62.00	6.00	M8	-	1	SR M8X6 DIN916	HW 4.0*
SC 25T12A	25.00	12.00	31.00	62.00	6.00	M8	-	1	SR M8X6 DIN916	HW 4.0*
SC 25T16B	25.00	16.00	31.00	62.00	6.00	-	12.00	2		
SC 25T20B	25.00	20.00	31.00	62.00	6.00	-	12.00	2		
SC 25T6A	25.00	6.00	31.00	62.00	6.00	M6	-	1	SR M6X6 DIN916	HW 3.0*
SC 25T8A	25.00	8.00	31.00	62.00	6.00	M8	-	1	SR M8X6 DIN916	HW 4.0*
SC 40T10A	40.00	10.00	46.00	66.00	6.00	M8	-	1	SR M8X10 DIN1835-B	HW 4.0*
SC 40T12A	40.00	12.00	46.00	66.00	6.00	M8	-	1	SR M8X10 DIN1835-B	HW 4.0*
SC 40T16B	40.00	16.00	46.00	66.00	6.00	-	15.00	2		
SC 40T20B	40.00	20.00	46.00	66.00	6.00	-	15.00	2		
SC 40T25B	40.00	25.00	46.00	66.00	6.00	-	15.00	2		
SC 40T32B	40.00	32.00	46.00	66.00	6.00	-	15.00	2		
SC 40T6A	40.00	6.00	46.00	66.00	6.00	M6	-	1	SR M6X10 DIN1835B	HW 3.0*
SC 40T8A	40.00	8.00	46.00	66.00	6.00	M6	-	1	SR M8X10 DIN1835-B	HW 4.0*
SC 50 T40B	50.00	40.00	56.00	86.00	6.00	-	15.00	2		
SC 50T10A	50.00	10.00	56.00	76.00	6.00	M8	-	1	SR M8X6 DIN916	HW 4.0*
SC 50T12A	50.00	12.00	56.00	76.00	6.00	M8	-	1	SR M8X6 DIN916	HW 4.0*
SC 50T16B	50.00	16.00	56.00	86.00	6.00	-	15.00	2		
SC 50T20B	50.00	20.00	56.00	86.00	6.00	-	15.00	2		
SC 50T25B	50.00	25.00	56.00	86.00	6.00	-	15.00	2		
SC 50T32B	50.00	32.00	56.00	86.00	6.00	-	15.00	2		
SC 50T6A	50.00	6.00	56.00	76.00	6.00	M6	-	1	SR M6X6 DIN916	HW 3.0*
SC 50T8A	50.00	8.00	56.00	76.00	6.00	M8	-	1	SR M8X6 DIN916	HW 4.0*

* Optional, should be ordered separately

TOOL BLOCKS

VDI-B1/B4A-JHPMC

Radially Oriented, Short, Right-Hand Holders with VDI DIN69880 Shanks for Square Shank Tools



Designation	DCONMS	HF	LPR	OAW	RADW	RADWOF	RHCDL	RHCDU	RADH	OAH	CDI(1)
VDI16 B1A-161234-JHPMC	16.00	12.0	34.00	42.00	23.00	5.00	16.00	15.00	22.00	42.00	0
VDI16 B4A-161234-JHPMC	16.00	12.0	34.00	42.00	23.00	5.00	16.00	15.00	22.00	42.00	0
VDI20 B1A-201640-JHPMC	20.00	16.0	40.00	55.00	30.00	7.00	19.00	19.00	30.00	55.00	0
VDI20 B4A-201640-JHPMC	20.00	16.0	40.00	55.00	30.00	7.00	19.00	19.00	30.00	55.00	0
VDI25 B1A-252040-JHPMC	25.00	20.0	40.00	70.00	35.00	10.00	29.50	22.00	38.50	70.00	0
VDI30 B1B4A-302040-JHPMC	30.00	20.0	40.00	70.00	35.00	10.00	29.50	22.00	41.50	73.00	0
VDI40 B1B4A-402544-JHPMC	40.00	25.0	44.00	85.00	42.50	12.50	35.00	30.00	48.00	86.00	0
VDI50 B1B4A-502544-JHPMC	50.00	25.0	44.00	85.00	42.50	12.50	43.00	30.00	48.00	91.00	0

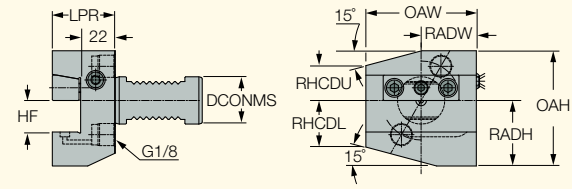
- Form B1 radial R.H. short, form B4 radial overhead L.H. short.

(1) 1 - Hole for data chip, 0 - Without hole for data chip

TOOL BLOCKS

VDI-B1/B4AK-JHPMC

Radially Oriented, Short, Right-Hand, Wedge Clamping Holders with VDI DIN69880 Shanks for Square Shank Tools



Designation	DCONMS	HF	LPR	OAW	RADW	RHCDL	RHCDU	RADH	OAH	CDI(1)
VDI30 B1B4AK-302040-JHPMC	30.00	20.0	40.00	70.00	35.00	29.50	22.00	41.50	73.00	0
VDI40 B1B4AK-402544-JHPMC	40.00	25.0	44.00	85.00	42.50	35.00	30.00	48.00	86.00	0
VDI50 B1B4AK-502544-JHPMC	50.00	25.0	44.00	85.00	42.50	43.00	30.00	48.00	91.00	0

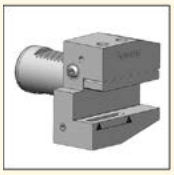
- Form B1 radial R.H. short, form B4 radial overhead L.H. short.

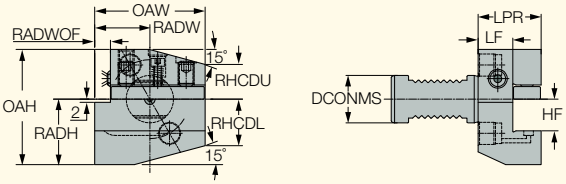
(1) 1 - Hole for data chip, 0 - Without hole for data chip

TOOL BLOCKS

VDI-B2/B3A-JHPMC

Radially Oriented, Short, Left-Hand Holders with VDI DIN69880 Shanks for Square Shank Tools





Designation	DCONMS	HF	LPR	OAW	RADW	RADWOF	RHCDL	RHCDU	RADH	OAH	CDI(1)
VDI16 B2A-161234-JHPMC	16.00	12.0	34.00	42.00	23.00	5.00	16.00	15.00	22.00	42.00	0
VDI16 B3A-161234-JHPMC	16.00	12.0	34.00	42.00	23.00	5.00	16.00	15.00	22.00	42.00	0
VDI20 B2A-201640-JHPMC	20.00	16.0	40.00	55.00	30.00	7.00	19.00	19.00	30.00	55.00	0
VDI20 B3A-201640-JHPMC	20.00	16.0	40.00	55.00	30.00	7.00	19.00	19.00	30.00	55.00	0
VDI25 B2A-252040-JHPMC	25.00	20.0	40.00	70.00	35.00	10.00	29.50	22.00	38.50	70.00	0
VDI30 B2B3A-302040-JHPMC	30.00	20.0	40.00	70.00	35.00	10.00	29.50	27.00	41.50	73.00	0
VDI40 B2B3A-402544-JHPMC	40.00	25.0	44.00	85.00	42.50	12.50	35.00	30.00	48.00	86.00	0
VDI50 B2B3A-502544-JHPMC	50.00	25.0	44.00	85.00	42.50	12.50	43.00	38.00	48.00	91.00	0

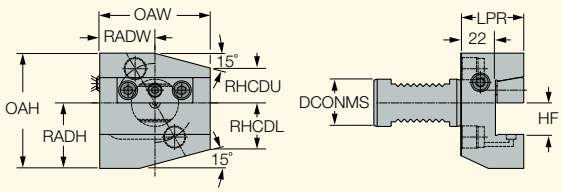
- Form B2 radial L.H. short, form B3 radial overhead R.H. short.

(1) 1 - Hole for data chip, 0 - Without hole for data chip

TOOL BLOCKS

VDI-B2/B3AK-JHPMC

Radially Oriented, Short, Left-Hand, Wedge Clamping Holders with VDI DIN69880 Shanks for Square Shank Tools



Designation	DCONMS	HF	LPR	OAW	RADW	RHCDL	RHCDU	RADH	OAH	CDI(1)
VDI30 B2B3AK-302040-JHPMC	30.00	20.0	40.00	70.00	35.00	29.50	27.00	41.50	73.00	0
VDI40 B2B3AK-402544-JHPMC	40.00	25.0	44.00	85.00	42.50	35.00	30.00	48.00	86.00	0
VDI50 B2B3AK-502544-JHPMC	50.00	25.0	44.00	85.00	42.50	35.00	38.00	48.00	91.00	0

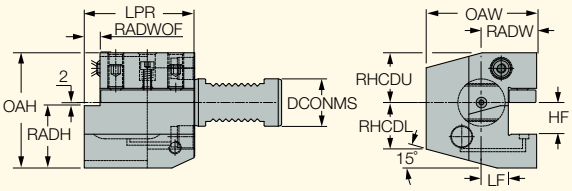
- Form B2 radial L.H. short, form B3 radial overhead R.H. short.

(1) 1 - Hole for data chip, 0 - Without hole for data chip

TOOL BLOCKS

VDI-C1/C4A-JHPMC

Axially Oriented, Short, Right-Hand Holders with VDI DIN69880 Shanks for Square Shank Tools



Designation	DCONMS	HF	LPR	OAW	RADW	LF	RADWOF	RHCDL	RHCDU	RADH	OAH	CDI[1]
VDI16 C1C4A-161244-JHPMC	16.00	12.0	44.00	43.00	5.00	13.00	5.00	15.00	15.00	23.00	45.00	0
VDI20 C1C4A-201655-JHPMC	20.00	16.0	55.00	52.00	7.00	13.00	7.00	19.00	19.00	23.00	55.00	0
VDI25 C1C4A-252055-JHPMC	25.00	20.0	55.00	58.00	33.00	13.00	7.00	26.00	28.00	36.00	66.00	0
VDI30 C1C4A-302070-JHPMC	30.00	20.0	70.00	70.00	35.00	17.00	10.00	26.00	22.00	38.00	70.00	0
VDI40 C1C4A-402585-JHPMC	40.00	25.0	85.00	85.00	42.50	21.00	12.50	35.00	30.00	48.00	86.00	0
VDI50 C1C4A-502585-JHPMC	50.00	25.0	85.00	90.50	48.00	26.00	12.50	42.00	35.00	48.00	92.00	0

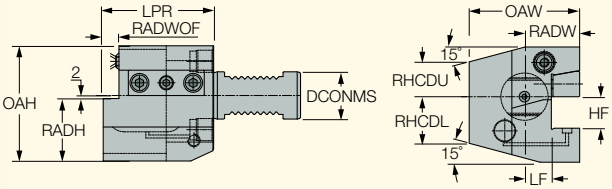
- Form C1 axial R.H., form C4 axial overhead L.H. short.

(1) 1 - Hole for data chip, 0 - Without hole for data chip

TOOL BLOCKS

VDI-C1/C4AK-JHPMC

Axially Oriented, Short, Right-Hand, Wedge Clamping Holders with VDI DIN69880 Shanks for Square Shank Tools



Designation	DCONMS	HF	LPR	OAW	RADW	LF	RADWOF	RHCDL	RHCDU	RADH	OAH	CDI[1]
VDI30 C1C4AK-302070-JHPMC	30.00	20.0	70.00	70.00	35.00	17.00	10.00	26.00	22.00	38.00	70.00	0
VDI40 C1C4AK-402585-JHPMC	40.00	25.0	85.00	85.00	42.50	21.00	12.50	35.00	30.00	48.00	86.00	0
VDI50 C1C4AK-502585-JHPMC	50.00	25.0	85.00	90.50	48.00	26.00	12.50	42.00	35.00	48.00	92.00	0

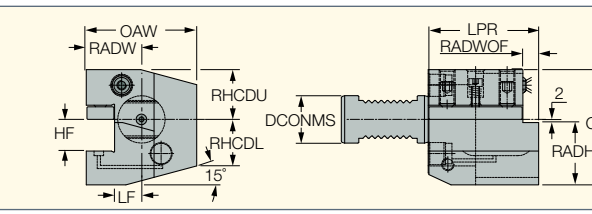
- Form C1 axial R.H., form C4 axial overhead L.H. short.

(1) 1 - Hole for data chip, 0 - Without hole for data chip

TOOL BLOCKS

VDI-C2/C3A-JHPMC

Axially Oriented, Short, Left-Hand Holders with VDI DIN69880 Shanks for Square Shank Tools



Designation	DCONMS	HF	LPR	OAW	RADW	LF	RADWOF	RHCDL	RHCDU	RADH	OAH	CDI[1]
VDI16 C2C3A-161244-JHPMC	16.00	12.0	44.00	43.00	24.00	13.00	5.00	15.00	15.00	23.00	45.00	0
VDI20 C2C3A-201655-JHPMC	20.00	16.0	55.00	58.00	33.00	19.00	7.00	19.00	19.00	28.00	55.00	0
VDI25 C2C3A-252055-JHPMC	25.00	20.0	55.00	52.00	37.00	15.00	7.00	38.00	38.00	36.00	66.00	0
VDI30 C2C3A-302070-JHPMC	30.00	20.0	70.00	76.00	41.00	17.00	10.00	26.00	26.00	38.00	70.00	0
VDI40 C2C3A-402585-JHPMC	40.00	25.0	85.00	90.00	47.50	21.00	12.50	35.00	30.00	48.00	86.00	0
VDI50 C2C3A-502585-JHPMC	50.00	25.0	85.00	95.00	52.50	26.00	12.50	42.00	37.00	48.00	92.00	0

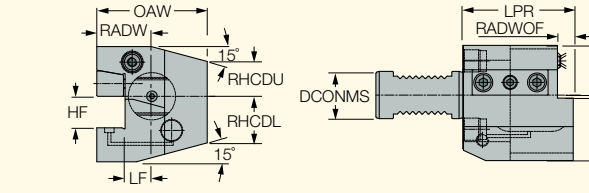
- Form C2 axial L.H., form C3 axial overhead R.H. short.

(1) 1 - Hole for data chip, 0 - Without hole for data chip

TOOL BLOCKS

VDI-C2/C3AK-JHPMC

Axially Oriented, Short, Left-Hand, Wedge Clamping Holders with VDI DIN69880 Shanks for Square Shank Tools



Designation	DCONMS	HF	LPR	OAW	RADW	LF	RADWOF	RHCDL	RHCDU	RADH	OAH	CDI[1]
VDI30 C2C3AK-302070-JHPMC	30.00	20.0	70.00	76.00	41.00	17.00	10.00	26.00	22.00	38.00	70.00	0
VDI40 C2C3AK-402585-JHPMC	40.00	25.0	85.00	90.00	47.50	21.00	12.50	35.00	30.00	48.00	86.00	0
VDI50 C2C3AK-502585-JHPMC	50.00	25.0	85.00	65.00	52.50	26.00	12.50	42.00	35.00	48.00	92.00	0

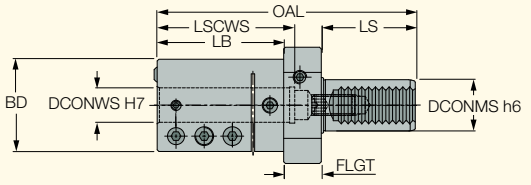
- Form C2 axial L.H., form C3 axial overhead R.H. short.

(1) 1 - Hole for data chip, 0 - Without hole for data chip

WHISPERLINE ANTI-VIBRATION

VDI AV-JHP

VDI Holders For
Anti-Vibration Tools

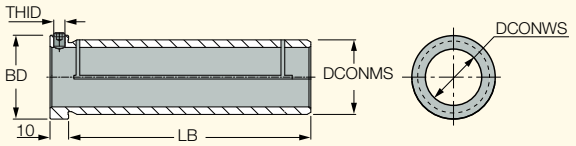


Designation	DCONMS	DCONWS	OAL	LS	BD	DF	LSCWS	LB	FLGT	OAH
VDI30 AV-D16-JHP	30.00	16.00	143.00	55.0	50.00	68.00	70.00	66.0	22.00	56.00
VDI30 AV-D20-JHP	30.00	20.00	151.00	55.0	54.00	68.00	80.00	74.0	22.00	56.00
VDI30 AV-D25-JHP	30.00	25.00	167.00	55.0	58.00	68.00	100.00	90.0	22.00	56.00
VDI30 AV-D32-JHP	30.00	32.00	197.00	55.0	63.00	68.00	128.00	120.0	22.00	56.00
VDI40 AV-D16-JHP	40.00	16.00	151.00	63.0	50.00	83.00	70.00	66.0	22.00	65.00
VDI40 AV-D20-JHP	40.00	20.00	159.00	63.0	54.00	83.00	80.00	74.0	22.00	65.00
VDI40 AV-D25-JHP	40.00	25.00	175.00	63.0	58.00	83.00	100.00	90.0	22.00	65.00
VDI40 AV-D32-JHP	40.00	32.00	205.00	63.0	63.00	83.00	128.00	120.0	22.00	65.00
VDI40 AV-D40-JHP	40.00	40.00	237.00	63.0	73.00	83.00	150.00	152.0	22.00	65.00
VDI50 AV-D16-JHP	50.00	16.00	181.00	78.0	50.00	98.00	85.00	81.0	22.00	70.00
VDI50 AV-D20-JHP	50.00	20.00	181.00	78.0	54.00	98.00	89.00	73.0	30.00	70.00
VDI50 AV-D25-JHP	50.00	25.00	198.00	78.0	59.00	98.00	106.00	90.0	30.00	70.00
VDI50 AV-D32-JHP	50.00	32.00	228.00	78.0	65.00	98.00	128.00	120.0	30.00	70.00
VDI50 AV-D40-JHP	50.00	40.00	260.00	78.0	73.00	98.00	160.00	152.0	30.00	70.00
VDI50 AV-D50-JHP	50.00	50.00	260.00	78.0	83.00	98.00	160.00	152.0	30.00	70.00
VDI60 AV-D25-JHP	60.00	25.00	214.00	94.0	59.00	123.00	106.00	90.0	30.00	85.00
VDI60 AV-D32-JHP	60.00	32.00	244.00	94.0	65.00	123.00	128.00	120.0	30.00	85.00
VDI60 AV-D40-JHP	60.00	40.00	276.00	94.0	73.00	123.00	160.00	152.0	30.00	85.00
VDI60 AV-D50-JHP	60.00	50.00	296.00	94.0	83.00	123.00	180.00	172.0	30.00	85.00
VDI60 AV-D60-JHP	60.00	60.00	296.00	94.0	102.00	123.00	180.00	172.0	30.00	85.00

WHISPERLINE ANTI-VIBRATION

AV FLEX-SLEEVE

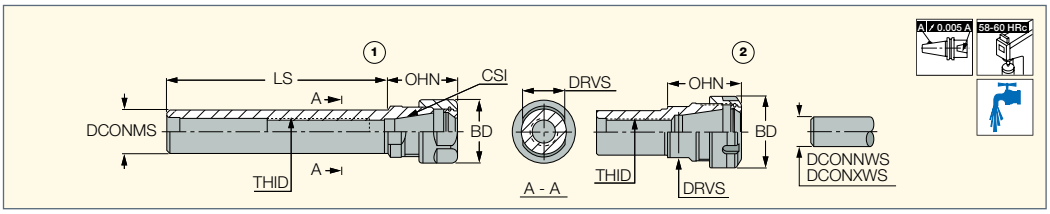
Reduction Sleeves for Tool
Blocks and VDI Holders



Designation	DCONMS	DCONWS	BD	LB	THID
RED PU1S-AV-3225	32.00	25.00	37.00	115.00	M6
RED PU1S-AV-4032	40.00	32.00	45.00	127.00	M6
RED PU1S-AV-5040	50.00	40.00	55.00	127.00	M6
RED PU1S-AV-6050	60.00	50.00	65.00	154.00	M6

Straight Shank

ST-ER
DIN 6499 ER Collet Chucks
with Straight Shanks



Designation	DCONMS	CSI	DCONNWS[1]	DCONXWS[2]	LS	OHN[3]	THID	BD	DRVS[4]	Fig.	kg
ST 16X 50 ER11 F	16.00	ER11	0.5	7.0	50.00	18.50	M8	19.00	13.0	1.	0.06
ST 20X 50 ER11 F	20.00	ER11	0.5	7.0	50.00	18.50	M10	19.00	17.0	1.	0.10
ST 20X100 ER11	20.00	ER11	0.5	7.0	100.00	18.50	M10	19.00	17.0	1.	0.20
ST 20X150 ER11	20.00	ER11	0.5	7.0	150.00	18.50	M10	19.00	17.0	1.	0.25
ST 20X 50 ER16 F	20.00	ER16	0.5	10.0	50.00	32.30	M12	28.00	19.0	1.	0.07
ST 20X100 ER16	20.00	ER16	0.5	10.0	100.00	30.00	M12	28.00	19.0	1.	0.20
ST 20X100 ER16 F	20.00	ER16	0.5	10.0	100.00	30.00	M12	28.00	19.0	1.	0.25
ST 20X150 ER16	20.00	ER16	0.5	10.0	150.00	30.00	M12	28.00	19.0	1.	0.28
ST 20X 50 ER20 F	20.00	ER20	1.0	13.0	50.00	42.50	M12	34.00	22.0	1.	0.15
ST 25X100 ER20	25.00	ER20	1.0	13.0	100.00	36.00	M16	34.00	22.0	1.	0.30
ST 25X150 ER20	25.00	ER20	1.0	13.0	150.00	36.00	M16	34.00	22.0	1.	0.39
ST 20X 50 ER25 F	20.00	ER25	1.0	16.0	50.00	46.00	M12	42.00	28.0	2.	0.34
ST 20X100 ER25	20.00	ER25	1.0	16.0	100.00	46.00	M12	42.00	28.0	2.	0.29
ST 20X100 ER25 F	20.00	ER25	1.0	16.0	100.00	46.00	M12	42.00	28.0	2.	0.09
ST 25X 50 ER25 F	25.00	ER25	1.0	16.0	50.00	46.00	M16	42.00	28.0	2.	0.22
ST 25X100 ER25	25.00	ER25	1.0	16.0	100.00	46.00	M16	42.00	28.0	2.	0.36
ST 20X 50 ER32 F	20.00	ER32	2.0	20.0	50.00	54.00	M12	50.00	36.0	2.	0.30
ST 20X100 ER32	20.00	ER32	2.0	20.0	100.00	54.00	M12	50.00	36.0	2.	0.40
ST 25X 50 ER32 F	25.00	ER32	2.0	20.0	50.00	52.00	M16X2	50.00	36.0	2.	0.32
ST 30X 50 ER32 F	30.00	ER32	2.0	20.0	50.00	52.00	M18X1.5	50.00	36.0	2.	0.39
ST 32X 50 ER32 F	32.00	ER32	2.0	20.0	50.00	52.00	M18X1.5	50.00	36.0	2.	0.42
ST 32X150 ER32	32.00	ER32	2.0	20.0	150.00	52.00	M18X1.5	50.00	36.0	2.	0.88
ST 40X 75 ER32 F	40.00	ER32	2.0	20.0	75.00	46.00	M22X1.5	50.00	44.0	2.	0.72
ST 25X 50 ER40 F	25.00	ER40	3.0	26.0	50.00	60.00	M16X2	63.00	45.0	2.	0.52
ST 30X 50 ER40 F	30.00	ER40	3.0	26.0	50.00	60.00	M18X1.5	63.00	45.0	2.	0.57
ST 32X 50 ER40 F	32.00	ER40	3.0	26.0	50.00	60.00	M18X1.5	63.00	45.0	2.	0.80
ST 40X 75 ER40 F	40.00	ER40	3.0	26.0	75.00	55.00	M22X1.5	63.00	45.0	2.	0.94
ST 50X 80 ER40 F	50.00	ER40	3.0	26.0	80.00	60.00	M28X1.5	63.00	54.0	2.	1.30
ST 50X 80 ER50 F	50.00	ER50	10.0	34.0	80.00	77.00	M36X1.5	78.00	58.0	2.	1.32

[1] Minimum diameter [2] Maximum diameter [3] Minimum overhang [4] Torque key size

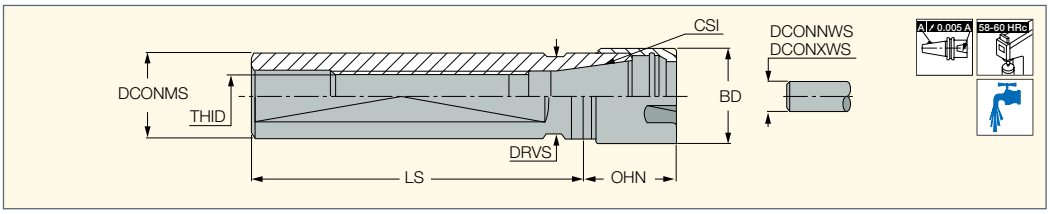
Spare Parts

Designation				
ST 16X 50 ER11 F	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 8X1.25*	
ST 20X 50 ER11 F	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST 20X100 ER11	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST 20X150 ER11	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST 20X 50 ER16 F	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X100 ER16	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X100 ER16 F	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X150 ER16	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X 50 ER20 F	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 25X100 ER20	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 25X150 ER20	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 20X 50 ER25 F	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X100 ER25	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X100 ER25 F	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 25X 50 ER25 F	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 25X100 ER25	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 20X 50 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X100 ER32	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 25X 50 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 30X 50 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST 32X 50 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST 32X150 ER32	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST 40X 75 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
ST 25X 50 ER40 F	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 30X 50 ER40 F	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST 32X 50 ER40 F	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST 40X 75 ER40 F	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
ST 50X 80 ER40 F	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	
ST 50X 80 ER50 F	NUT ER50 UM	WRENCH ER50*		

* Optional, should be ordered separately

Straight Shank

ST-ER-MF (mini flat)
DIN 6499 ER Mini Collet Chucks with Cylindrical Shanks and a Clamping Flat for Swiss-Type CNC Lathes



Designation	DCONMS	CSI	LS	DCONNWS[6]	DCONXWS[7]	OHN[8]	THID	BD	DRVS[9]	kg
ST 16X 38 ER11 MF [1]	16.00	ER11	38.00	0.5	7.0	18.50	M8X1	16.00	14.0	0.05
ST 16X 50 ER11 MF	16.00	ER11	50.00	0.5	7.0	18.50	M8X1	16.00	13.0	0.07
ST 16X140 ER11 MF	16.00	ER11	140.00	0.5	7.0	18.50	M8X1	16.00	14.0	0.18
ST 16X 35 ER16 MF [1]	16.00	ER16	35.00	0.5	10.0	36.00	M8X1	22.00	17.0	0.12
ST 20X 50 ER16 MF [2]	20.00	ER16	50.00	0.5	10.0	26.00	M12X1	22.00	17.0	0.10
ST 20X 70 ER16 MF [2]	20.00	ER16	70.00	0.5	10.0	26.00	M12X1	22.00	17.0	0.17
ST 20X120 ER16 MF [2]	20.00	ER16	120.00	0.5	10.0	26.00	M12X1	22.00	17.0	0.19
ST 20X140 ER16 MF [2]	20.00	ER16	140.00	0.5	10.0	26.00	M12X1	22.00	17.0	0.40
ST 22X 38 ER16 MF [1]	22.00	ER16	38.00	0.5	10.0	26.00	M12X1	22.00	19.0	0.10
ST 22X 70 ER16 MF [1]	22.00	ER16	70.00	0.5	10.0	26.00	M12X1	22.00	19.0	0.16
ST 22X100 ER16 MF [1]	22.00	ER16	100.00	0.5	10.0	28.00	M12X1	22.00	19.0	0.27
ST 22X 80 ER20 MF [1]	22.00	ER20	80.00	1.0	13.0	39.00	M12X1	28.00	21.0	0.21
ST 22X 70 ER25 MF [1]	22.00	ER25	70.00	1.0	16.0	47.00	M12X1	35.00	27.0	0.25
ST 25X 65 ER16 MF	25.00	ER16	65.00	0.5	10.0	28.00	M12X1	22.00	22.0	0.22
ST 25X100 ER20 MF [3]	25.00	ER20	100.00	1.0	13.0	28.00	M14X1	28.00	22.0	0.15
ST 25X154 ER20 MF [3]	25.00	ER20	154.00	1.0	13.0	28.00	M14X1	28.00	22.0	0.40
ST 25X 75 ER25 MF [4]	25.00	ER25	75.00	1.0	16.0	48.00	M14X1	35.00	27.0	0.36
ST 25X145 ER25 MF [3]	25.00	ER25	145.00	1.0	16.0	36.00	M14X1	35.00	27.0	0.08
ST 32X 70 ER25 MF [5]	32.00	ER25	70.00	1.0	16.0	30.00	M18X1	35.00	27.0	0.35

[1] For Star machines
[2] For Citizen machines
[3] For Tornos-Bechler machines
[4] For Manurhin machines
[5] For Schutte machines
[6] Minimum diameter
[7] Maximum diameter
[8] Minimum overhang
[9] Torque key size

Spare Parts

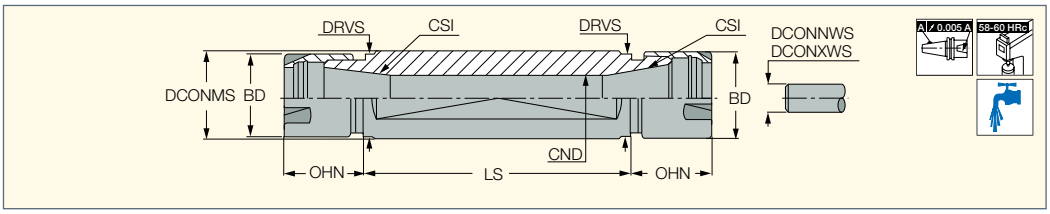
Designation			
ST 16X 38 ER11 MF	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1*
ST 16X 50 ER11 MF	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1*
ST 16X140 ER11 MF	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1*
ST 16X 35 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 8X1*
ST 20X 50 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 20X 70 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 20X120 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 20X140 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 22X 38 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 22X 70 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 22X100 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 22X 80 ER20 MF	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 12X1*
ST 22X 70 ER25 MF	NUT ER25 MINI	WRENCH ER25 MINI*	PRESET ER-JET 12X1*
ST 25X 65 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 25X100 ER20 MF	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 14X1*
ST 25X154 ER20 MF	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 14X1*
ST 25X 75 ER25 MF	NUT ER25 MINI	WRENCH ER25 MINI*	PRESET ER-JET 14X1*
ST 25X145 ER25 MF	NUT ER25 MINI	WRENCH ER25 MINI*	PRESET ER-JET 14X1*
ST 32X 70 ER25 MF	NUT ER25 MINI	WRENCH ER25 MINI*	PRESET ER-JET 18X1*

* Optional, should be ordered separately

Straight Shank

ST-ER-MF-D (double-ended)

Double-Ended Mini Collets with Cylindrical Shanks and a Clamping Flat



Designation	DCONMS	LS	CSI	DCONNWS[3]	DCONXWS[4]	BD	CND	OHN[5]	DRVS[6]	kg
ST 16X 50 ER11 MF D	16.00	50.00	ER11	0.5	7.0	16.00	7.5	18.50	14.0	0.07
ST 20X 30 ER11 MF D [1]	20.00	30.00	ER11	0.5	7.0	16.00	7.5	18.50	17.0	0.09
ST 20X 50 ER11 MF D [1]	20.00	50.00	ER11	0.5	7.0	16.00	7.5	18.50	17.0	0.13
ST 20X 55 ER16 MF D [1]	20.00	55.00	ER16	0.5	10.0	22.00	10.5	25.00	17.0	0.12
ST 22X 55 ER16 MF D [2]	22.00	55.00	ER16	0.5	10.0	22.00	10.5	28.00	19.0	0.17
ST 22X 75 ER16 MF D [2]	22.00	75.00	ER16	0.5	10.0	22.00	10.5	28.00	19.0	0.21
ST 25X 62 ER16 MF D	25.00	62.00	ER16	0.5	10.0	22.00	10.5	28.00	22.0	0.23
ST 32X 55 ER20 MF D [2]	32.00	55.00	ER20	1.0	13.0	28.00	13.5	28.00	27.0	0.34
ST 32X 75 ER20 MF D [2]	32.00	75.00	ER20	1.0	13.0	28.00	13.5	28.00	27.0	0.44

[1] For Citizen machines
[2] For Star machines
[3] Minimum diameter
[4] Maximum diameter
[5] Minimum overhang
[6] Torque key size

Spare Parts

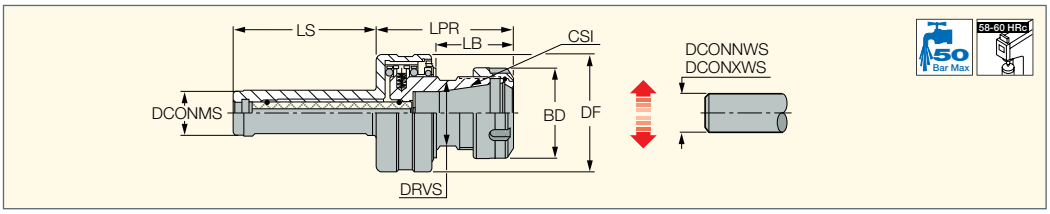
Designation		
ST 16X 50 ER11 MF D	NUT ER11 MINI	WRENCH ER11 MINI*
ST 20X 30 ER11 MF D	NUT ER11 MINI	WRENCH ER11 MINI*
ST 20X 50 ER11 MF D	NUT ER11 MINI	WRENCH ER11 MINI*
ST 20X 55 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*
ST 22X 55 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*
ST 22X 75 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*
ST 25X 62 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*
ST 32X 55 ER20 MF D	NUT ER20 MINI	WRENCH ER20 MINI*
ST 32X 75 ER20 MF D	NUT ER20 MINI	WRENCH ER20 MINI*

* Optional, should be ordered separately

Straight Shank GFI

GFI ST-ER

Floating Reamer DIN 6499
Collet Chucks with Cylindrical Shanks with a Clamping Flat



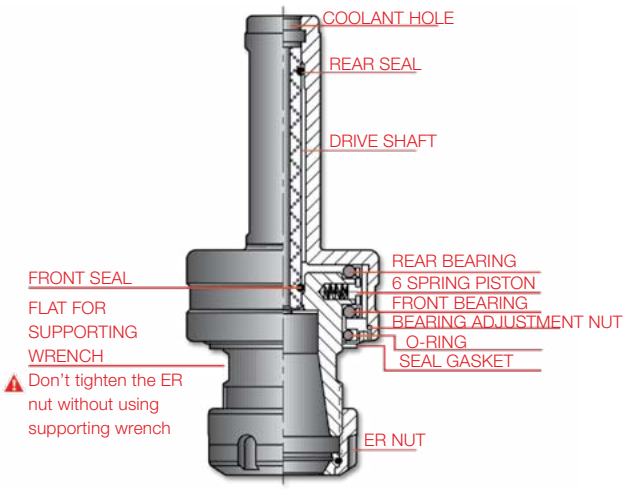
Designation	DCONMS	CSI	DCONNWS(3)	DCONXWS(4)	LS	LPR	LB	BD	DF	RFI	DRVS(5)	kg
GFI ST20 ER20 (1)	20.00	ER20	1.0	13.0	65.00	55.50	31.0	34.00	50.00	1.00	22.0	0.56
GFI ST25 ER32 (2)	25.00	ER32	2.0	20.0	80.00	76.90	45.9	50.00	65.00	1.60	36.0	1.20

- Maximum 2000 RPM!

(1) Radial float from center
(2) Minimum diameter
(3) Maximum diameter
(4) Torque key size
(5) Torque key size

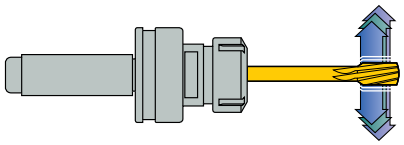
GFI ER - Floating Reamer Collet Chuck

Floating chuck - adjusts the misalignment between the reamer and workpiece hole to ensure the same accuracy as the reamer itself.



Application:

The **GFI** floating chuck is a unique holder that compensates for the radial misalignment existing in reaming operations carried out on vertical and horizontal machine tools.



Features:

Radial self-floating mechanism compensates for misalignment between the reamer and workpiece to ensure the same tolerance as the reamer itself. The special self-centering mechanism eliminates tapered and oversized bores.

Advantages:

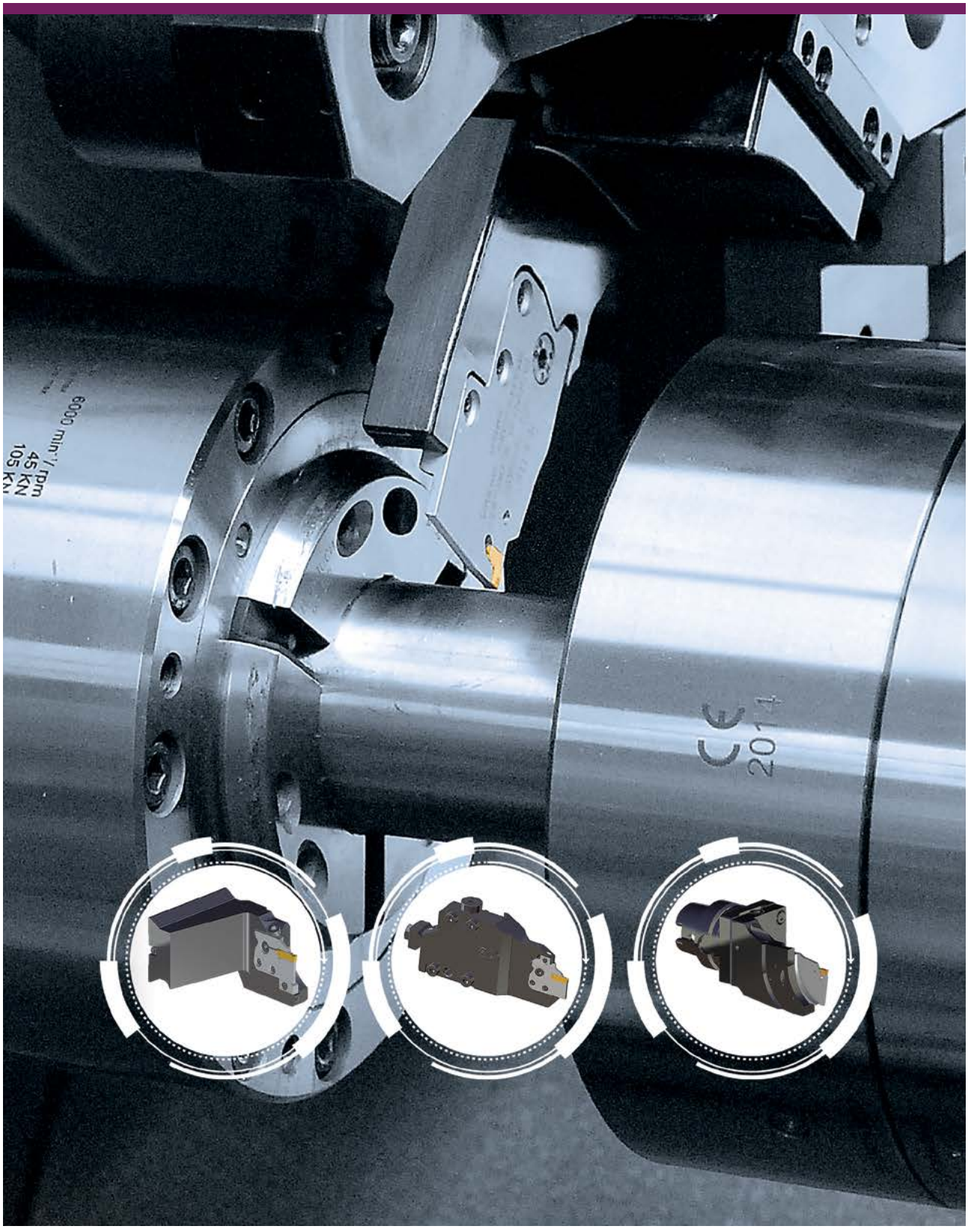
Unique ball bearing and axle drive shaft structure enables vertical and horizontal machining.
Precise and efficient clamping with ER spring collets or ER Coolit collets.

Spare Parts

Designation		
GFI ST20 ER20	NUT ER20 TOP	WRENCH ER20*
GFI ST25 ER32	NUT ER32 TOP	WRENCH ER32*

* Optional, should be ordered separately

MODULAR-GRIP ADAPTATIONS



Modular-Grip Adaptations

Modular Adaptation Systems for **Turning Lathes** and **Multi-Spindle** Machine Tools Carrying ISCAR's MODULAR-GRIP Adapters Featuring Directed Internal Coolant Channels

Product Features

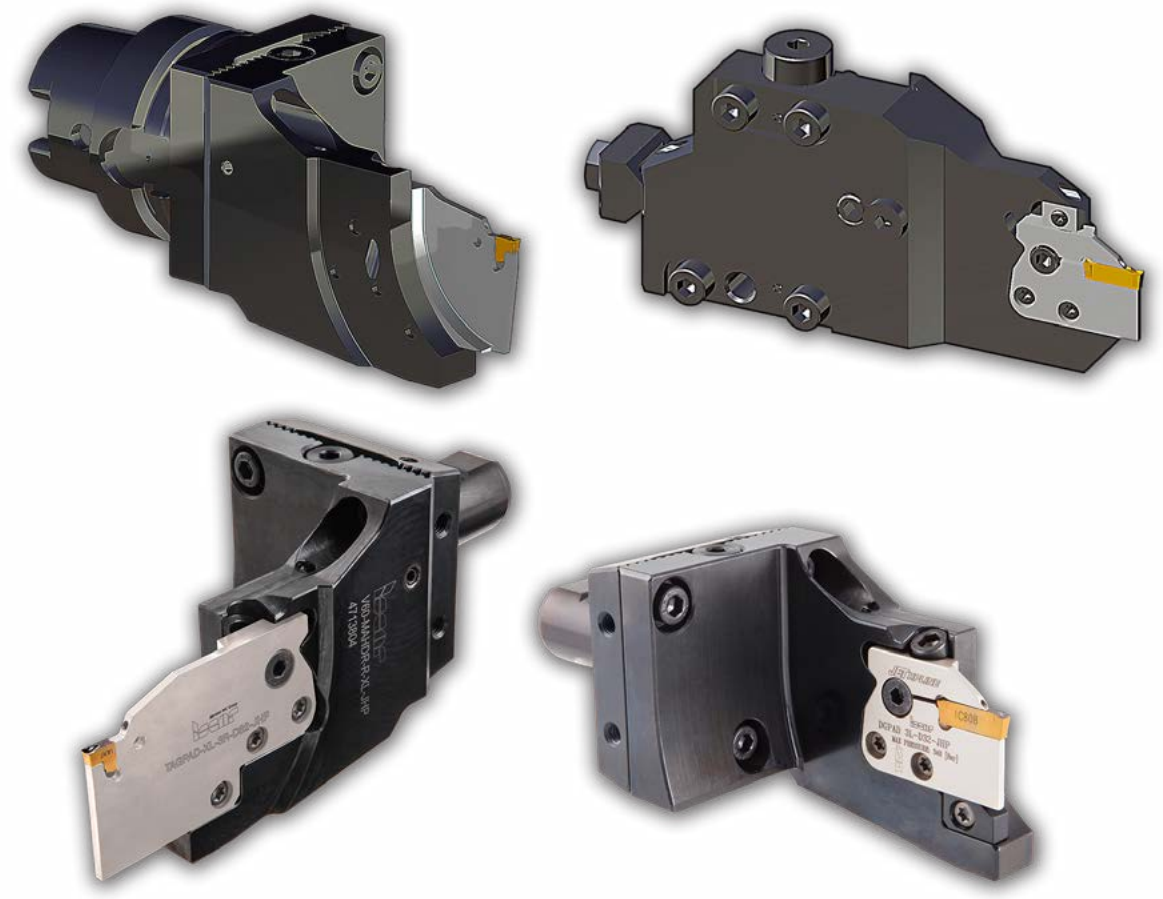
- The unique combination of a rigid tool and efficient coolant improves the insert's tool life, surface finish and part straightness
- Designed for high-pressure coolant up to 150 Bar and also very efficient when using low coolant pressure of 7-10 Bar
- No coolant tubes involved, which means no obstruction for chip evacuation
- Each adapter can carry several types of MODULAR-GRIP blades
- Excellent tool location repeatability after blade replacement for fast setup
- Easy and user-friendly mounting

Available adapters for the following specific machines:

- STAR
- DOOSAN / HAAS
- MAZAK
- DMG MORI
- BIGLIA / EUROTECH
- MIYANO
- NAKAMURA-TOME
- INDEX ABC
- TRAUB
- OKUMA
- TSUGAMI

Multi-Spindle machine tools

- INDEX CNC
- Schütte
- Göltenbodt



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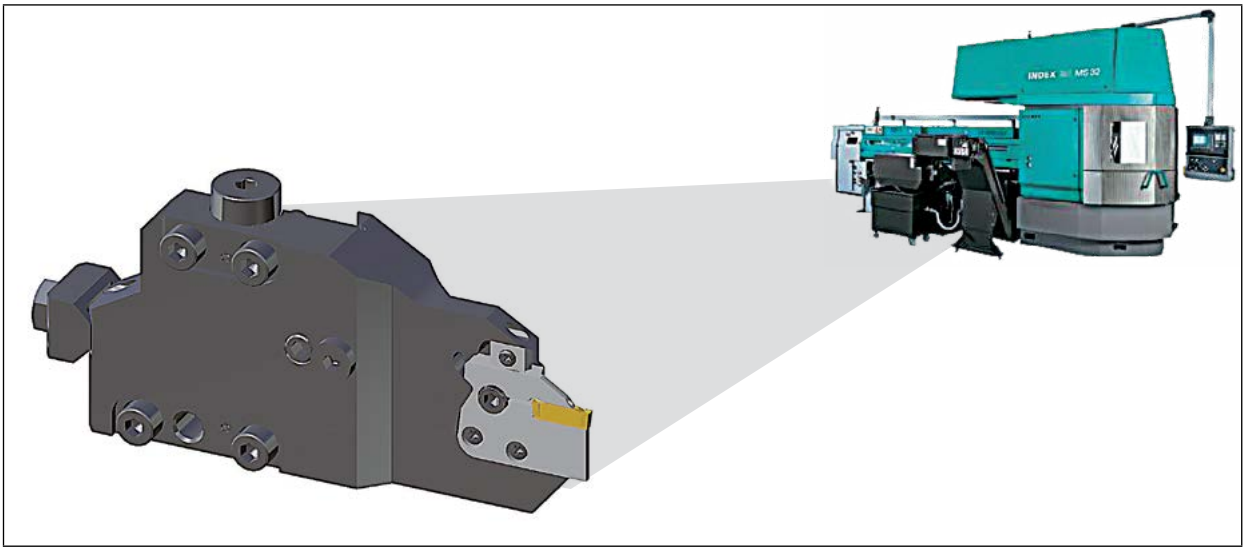
User Guide

Technical Information

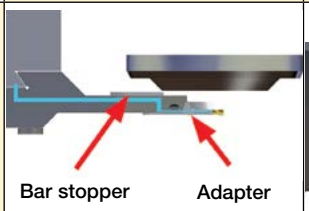
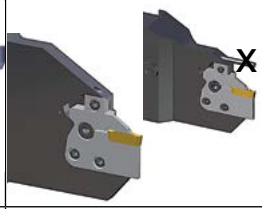
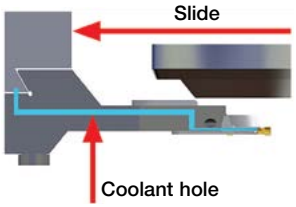
ISCAR Modular System for Multi-Spindle Machines

MODULAR-GRIP . JETCUT

Toolholder Systems for INDEX CNC Multi-Spindle Machines with MODULAR-GRIP Adaptation and Directed Internal Coolant

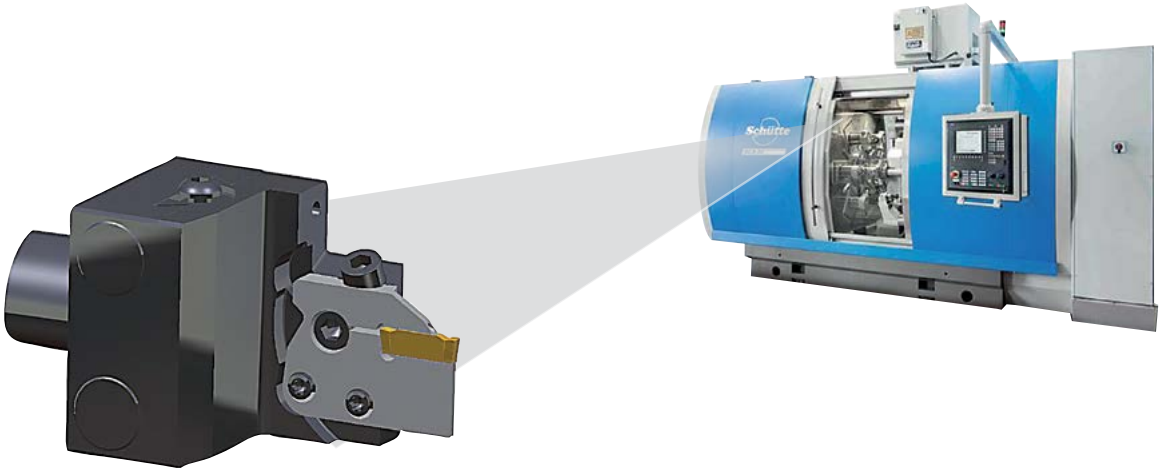


Features and Benefits of Directed Internal Coolant

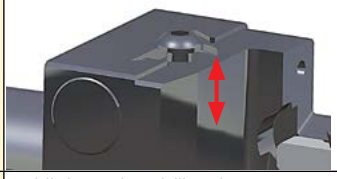
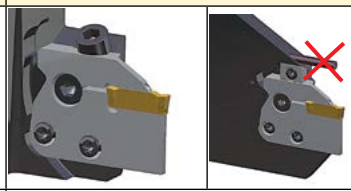
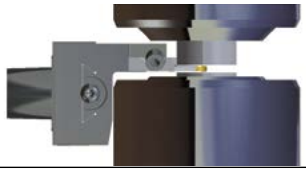
	Customized to the Work Space	No Coolant Tube	Coolant Connection through the Slide	Easy Indexing
Features:				
Benefits:	• High-end stability due to optimized holder design • No interfering contour with the sub-spindle • Reduced setup time due to fixed adapter length • Exchangeable bar stopper	• Chips do not accumulate in the work space (no coolant tube/ hose required) • Reliable coolant supply due to fixed flow orientation (no adjustable coolant nozzle)	• No tube/hose in the work space • Reduced setup time as there are no tube/ hoses to be installed	• Easy handling due to clamping screw accessible from the side • Stable screw clamping

ISCAR Modular System for Multi-Spindle Machines

Toolholder Systems for Schütte CNC Multi-Spindle Machines with MODULAR-GRIP Adaptation and Directed Internal Coolant

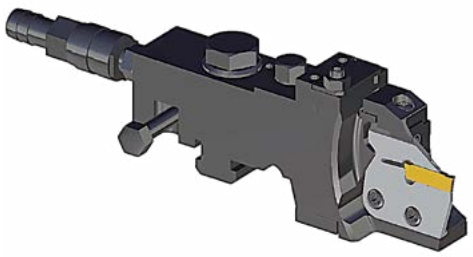


Features and Benefits of Directed Internal Coolant

	Adjustable Center Height	No Coolant Tube	Optimized Holder Design
Features			
Benefits	• High-end stability due to optimized holder design • No interfering contour with the sub-spindle • Reduced setup time due to fixed adapter length • Exchangeable bar stopper	• Chips do not accumulate in the work space (no coolant tube/hoses required) • Reliable coolant supply due to fixed flow orientation (no free coolant nozzle)	• Low risk of collision • Customized for outer diameter of the sub-spindle • Slim design • Short bar overhang

ISCAR Modular System for Multi-Spindle Machines

Toolholder Systems for Göltenbodt GWS Multi-Spindle Machines with MODULAR-GRIP Adaptation and Directed Internal Coolant

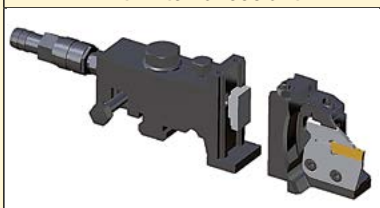
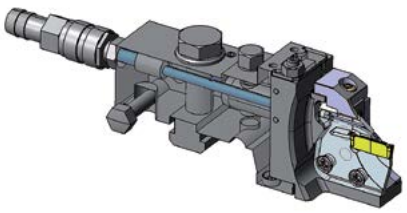
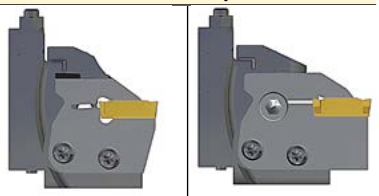


GWS

For various common multi-spindle machines such as:

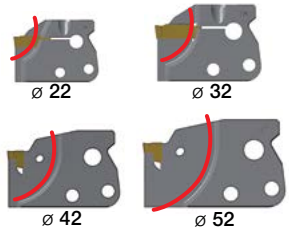
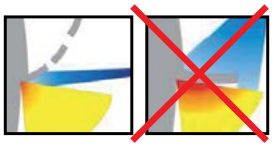
Gildemeister	MORI-SAY.	INDEX	TORNOS and others
			

Features and Benefits of Directed Internal Coolant

	Matches intermediate holders with internal coolant	Coolant connection directly from the intermediate holder	Flexible system due to different adapters
Features			
Benefits	• Low investment • Easy switching to toolholders with internal coolant	• Chips do not accumulate in the work space (no coolant tube/hose required) • Reliable coolant supply due to fixed flow orientation (no adjustable coolant nozzle) • Uninterrupted work space	• Variable tool length due to different adapters • Tool length can be adjusted to the travel slide

Adapters with Internal Coolant

Modular-Grip Adapters with Directed Internal Coolant

	Extremely Stable	Coolant Connection from the Holder into the Adapter	Coolant / lubrication in the cutting zone	Vario System
Features				
Benefits	• Adapters designed for common bar diameters • Reduced vibration due to strong adapter body • Strong clamping force by screw clamping	• Chips do not accumulate in the work space (no coolant tube/hose required) • No tube/hoses to be removed in case of tool breakage • Free work space	• Increased tool life • Improved process safety • Better chip control	• Different cutting systems can be used. Grooving and turn-groove operations can be performed with the same holder • Extremely flexible

Tool Selection for INDEX CNC Multi-Spindle Machines

Machine	Toolholder	Width	Adapter		Insert		Geometry / Feed	Tough ↔ Hard		
			DGPAD	TAGPAD	TAG	DGN		IC830	IC5400	IC808
 Index MS16	MS16- JHP	1,5 mm	DGFH MS16-1.5D16-JHP		DGN 150..J		LF / MF / C — low / high	•	•	•
		2 mm	DGFH MS16-1.5D16-JHP		DGN 2002					
 Index MS18	MS18- 22-MG- JHP	2 mm	DGPAD 2L-D22-JHP		DGN 2002		LF / MF / C — low / high	•	•	•
 Index MS22	MS18- 22-MG- JHP	2 mm	DGPAD 2L-D22-JHP		DGN 2002		LF / MF / C — low / high	•	•	•
 Index MS32	MS32- 40-MG- JHP	2 mm	DGPAD 2L-D32-JHP		DGN 2002		LF / MF / C — low / high	•	•	•
		3,1 mm	DGPAD 3L-D32-JHP		DGN 3102					
 Index MS40	MS32- 40-MG- JHP	2 mm		TAGPAD 2L-D42-JHP		TAG N2	LF / MF / C — low / high	•	•	•
		3 mm		TAGPAD 3L-D42-JHP		TAG N3				
 Index MS52	MS32- 40-MG- JHP oder MS52-MG-JHP	2 mm		TAGPAD 2L-D52-JHP		TAG N2	LF / MF / C — low / high	•	•	•
		3 mm		TAGPAD 3L-D52-JHP		TAG N3				

Tool Selection for Schütte CNC Multi-Spindle Machines SCX

System Size	Toolholder	Intermediate holder	Width	Adapter		Insert		Geometry / Feed	Tough ↔ Hard		
				DGPAD	TAGPAD	TAG	DGN		IC830	IC5400	IC808
											
 SCX-32	C3 DT30/2-L23	DT30/2 MAHDR-SCX-D80-JHP	2 mm	DGPAD 2L-D32-JHP		DGN 2002		LF  MF  C  low high	•	•	•
	C4 DT30/2-L23		3,1 mm	DGPAD 3L-D32-JHP		DGN 3102					
 SCX-46	C3 DT30/2-L23	DT30/2 MAHDR-SCX-D80-JHP	2 mm	TAGPAD 2L-D52-JHP		TAG N2		LF  MF  C  low high	•	•	•
	C4 DT30/2-L23		3 mm	TAGPAD 3L-D52-JHP		TAG N3					

Tool Selection for Göltenbodt GWS Systems

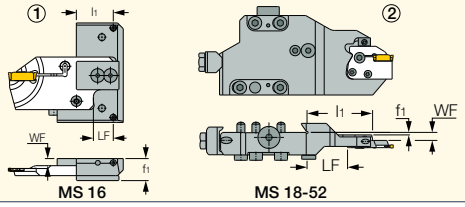
System Size	Max. Diameter	Width of Cut (W)	Length L	Toolholder Right Hand	Toolholder Left Hand	Adapter DGPAD	Adapter TAGPAD	Insert TAG	Insert DGN	Geometry / Feed	Tough ↔ Hard IC830	IC5400	IC808
 GWS02	20 mm	2 mm	51 mm	MS-ES02012-GWS-MG-JHP		DGPAD 2R/ L-D20-GWS-JHP*		DGN 2002		LF, MF, C; low → high	•	•	•
			59 mm	MS-ES02013-GWS-MG-JHP									
	32 mm	2 mm	59,5 mm	MS-ES02012-GWS-MG-JHP		DGPAD 2R/ L-D32-JHP*							
			67,5 mm	MS-ES02013-GWS-MG-JHP									
		3,1 mm	59,5 mm	MS-ES02012-GWS-MG-JHP		DGPAD 3R/ L-D32-JHP*		DGN 3102					
			67,5 mm	MS-ES02013-GWS-MG-JHP									
 GWS09	20 mm	2 mm	61 mm	MS-ES09003-GWS-MG-JHP		DGPAD 2R/ L-D20-GWS-JHP*		DGN 2002		LF, MF, C; low → high	•	•	•
	32 mm	2 mm	59,5 mm	MS-ES09003-GWS-MG-JHP		DGPAD 2R/ L-D32-JHP*							
		3,1 mm	59,5 mm	MS-ES09003-GWS-MG-JHP		DGPAD 3R/ L-D32-JHP*		DGN 3102					
	42 mm	2 mm	62,6 mm	MS-ES09003-GWS-MG-JHP		TAGPAD 2R/ L-D42-JHP*		TAG N2					
		3 mm	62,4 mm	MS-ES09003-GWS-MG-JHP		TAGPAD 3R/ L-D42-JHP*		TAG N3					
	52 mm	2 mm	67,6 mm	MS-ES09003-GWS-MG-JHP		TAGPAD 2R/ L-D52-JHP*		TAG N2					
		3 mm	67,4 mm	MS-ES09003-GWS-MG-JHP		TAGPAD 3R/ L-D52-JHP*		TAG N3					
 GWS41	20 mm	2 mm	59 mm	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	DGPAD 2R/ L-D20-GWS-JHP*		DGN 2002		LF, MF, C; low → high	•	•	•
	32 mm	2 mm	67,5 mm	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	DGPAD 2R/ L-D32-JHP*							
		3,1 mm	67,5 mm	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	DGPAD 3R/ L-D32-JHP*		DGN 3102					
	42 mm	2 mm	70,6 mm	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	TAGPAD 2R/ L-D42-JHP*		TAG N2					
		3 mm	70,4 mm	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	TAGPAD 3R/ L-D42-JHP*		TAG N3					
	52 mm	2 mm	75,6 mm	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	TAGPAD 2R/ L-D52-JHP*		TAG N2					
		3 mm	75,4 mm	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	TAGPAD 3R/ L-D52-JHP*		TAG N3					

*Selection of right hand or left hand adapter see page 759

INDEX JETCUT
MODULAR GRIP

MS##-##-MG-JHP

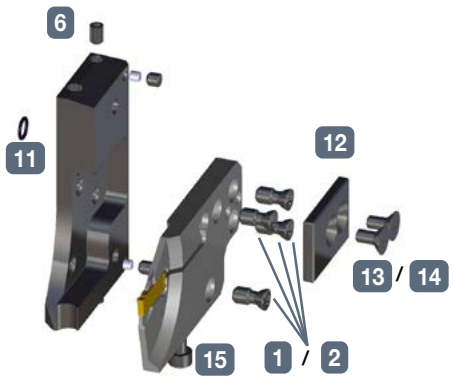
Toolholders for INDEX CNC Multi-Spindle Machines with Internal Coolant Supply for MODULAR-GRIP Adapters



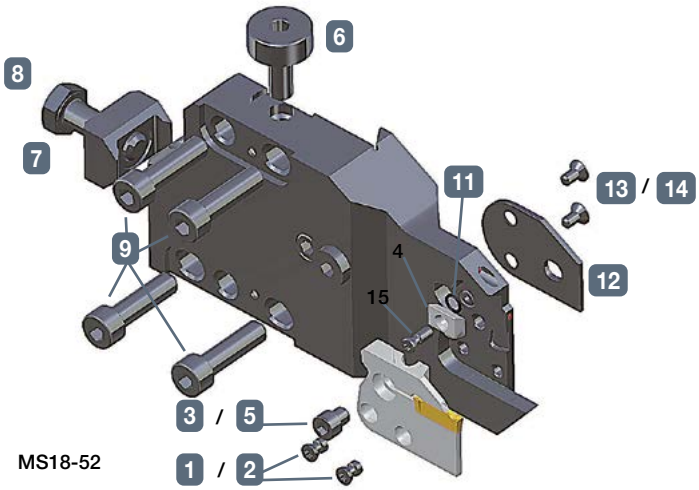
Designation	LF	l1	WF	f1	Fig.	Adapter	Adapter2
MS 16-JHP	14.00	26.00	5.00	15.5	1	DGFH MS16-1.5D16-JHP	-
MS 18/22-MG-JHP	46.20	67.00	13.60	8.1	2	DGPAD 2L-D22-JHP	-
MS 18/22-MG-JHP L-69.7	24.20	48.00	13.60	8.0	2	DGPAD 2L-D22-JHP	-
MS 32/40-MG-JHP	45.00	69.80	13.50	8.0	2	DGPAD 2/3L-D32-JHP	TAGPAD 2/3-D42-JHP
MS 32/40-MG-JHP-5.1	45.00	69.80	13.50	8.0	2	DGPAD 2/3L-D32-JHP	TAGPAD 2/3-D42-JHP
MS 32C-HUBVERL-MG-JHP	74.50	99.30	13.50	8.0	2	DGPAD 2/3L-D32-JHP	TAGPAD 2/3L-D32-JHP
MS 40-6/8-MG-JHP	55.00	79.80	13.50	8.0	2	TAGPAD 2/3L-D42-JHP	DGPAD 2/3L-D42-JHP
MS 40-6/8-MG-JHP-7.1	55.00	79.80	13.50	8.0	2	TAGPAD 2/3L-D42-JHP	DGPAD 2/3L-D42-JHP
MS 52-MG-JHP	46.60	-	4.50	-	2	TAGPAD 2/3-D52-JHP	-

• For user guide, see pages 750-756 • All trademarks and logos are the property of their respective companies

For tools, see pages: CGPAD-JHP (282) • DGPAD-JHP (480) • HGPAD-JHP (267) • PCADR/L-JHP (317) • PCADRS/LS-JHP (317) • TAGPAD-JHP (500) • TGPAD-JHP (271)



MS16



MS18-52

Spare Parts MS##-##-MG-JHP

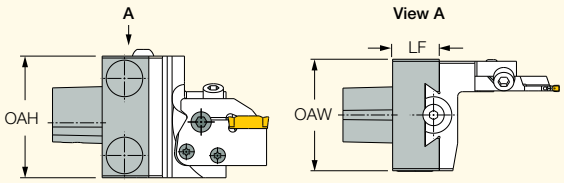
No.	Designation	MS16-JHP	MS18/22-MG-JHP	MS32/40-MG-JHP
1	Screw	SR M5-04451-L10.5	SR 16-212-L7.5	SR 16-212-L7.5
2	Key	T-20/5	T-20/5	T-20/5
3	Screw		SR M6X6DIN6912-5112367	SR M6X6DIN6912-5112367
4	Wedge		KEIL 12X30DEG-5112247	KEIL 12X30DEG-5112247
5	Key		HW 5.0	HW 5.0
6	Screw	SR M4x6 DIN913 45H	WN99-08.0010.0	WN99-08.0010.0
7	Wedge		WN-11.0012.0	W00014.0017
8	ZI screw		ISO 4017-DIN 933 M8X30	ISO 4017-DIN 933 M10X30
9	Screw		SR M6X20DIN912 12.9	SR M8X30DIN912
10	Coolant Tube*		ROHR M4X1-40	ROHR M4X1-40
11	O-Ring	OR 5X1N	OR 5X1N	OR 5X1N
12	Bar stopper	W00019.0064	PLATTE-MS18-22-5112868	PLATTE-MS18-22-5112868
13	Screw	DIN7991-M4X8-8.8	DIN7991-M4X8-8.8	DIN7991-M4X8-8.8
14	Key	HW 2.5	HW 2.5	HW 2.5
15	Screw	SR M4x30DIN912	SR 34-535	SR 34-535

No.	Designation	MS32/40-MG-JHP-5.1	MS52-MG-JHP
1	Screw	SR 16-212-L7.5	SR 16-212-L7.5
2	Key	T-20/5	T-20/5
3	Screw	SR M6X6DIN6912-5112367	SR M6X6DIN6912-5112367
4	Wedge	KEIL 12X30DEG-5112247	KEIL 12X30DEG-5112247
5	Key	HW 5.0	HW 5.0
6	Screw	WN99-08.0010.0	WN99-08.0010.0
7	Wedge	W00014.0017	WN-11.0014.0
8	ZI screw	ISO 4017-DIN 933 M10X30	ISO 4017-DIN 933 M10X30
9	Screw	SR M8X30DIN912	
10	Coolant Tube*	ROHR M4X1-40	ROHR M4X1-40
11	O-Ring	OR 5X1N	OR 5X1N
12	Bar stopper	PLATTE-MS18-22-5112868	PLATTE-MS18-22-5112868*
13	Screw	DIN7991-M4X8-8.8	DIN7991-M4X8-8.8*
14	Key	HW 2.5	HW 2.5
15	Screw	SR 34-535	SR 34-535

* Optional, please order separately.

Schütte CAMFIX
MODULAR-GRIP

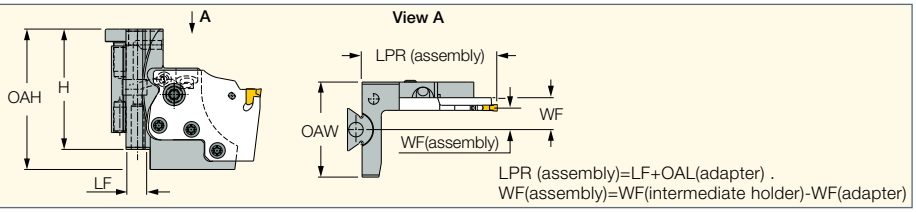
C#-DT##/2-L23
Toolholder with CAMFIX Adaptation on DT for SCHUTTE Machine Tools



Designation	OAH	OAW	LF
C3 DT20/2-L23*	57.00	45.00	23.50
C3 DT30/2-L23	60.00	55.00	23.50
C4 DT30/2-L23	60.00	55.00	23.50

Schütte MODULAR-GRIP

DT##/2 MAHD#-#-XL-JHP
Intermediate Holder with DT Adaptation for MODULAR-GRIP Adapters on SCHUTTE Machine Tools



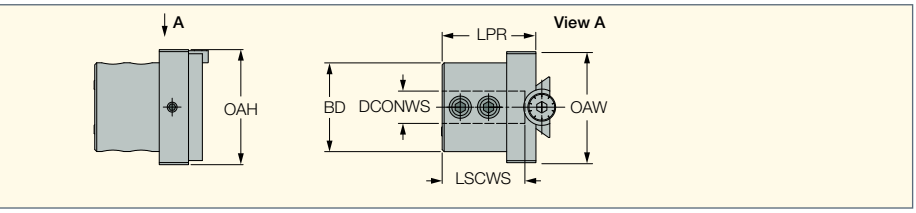
Designation	H	OAW	LF	WF	OAH
DT20/2 MAHDL-L-XL-JHP	57.0	45.00	9.10	4.50	66.50
DT20/2 MAHDN-L-XL-JHP	57.0	45.00	9.10	6.50	66.50
DT20/2 MAHDR-L-XL-JHP	57.0	45.00	9.10	15.10	66.50
DT30/2 MAHDR-L-XL-JHP	57.0	55.00	9.10	20.10	65.85
DT30/2 MAHDR-R-XL-JHP	57.0	55.00	9.10	21.50	65.85

Spare Parts

Designation							
DT##/2 MAHD#-#-XL-JHP	SUPPORT MG-XL-5113377	T-20/5	SR M5-04451	HW 5.0	SR M5X5 DIN913 TL360	OR 5X1N	HW 2.5

Schütte
MODULAR-GRIP

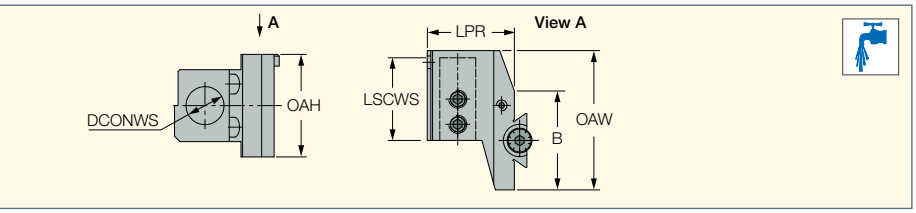
DT30/2 ##L70WN
Intermediate Holder with DT30 Adaptation for Boring Bars on SCHUTTE Machine Tools



Designation	OAH	OAW	DCONWS	BD	LPR	LSCWS
DT30/2 16L70WN	57.00	55.00	16.00	44.00	46.50	41.00
DT30/2 20L70WN	57.00	55.00	20.00	48.00	46.50	41.00

Schütte
MODULAR-GRIP

DT30/2 ADR-##-20-55
Intermediate Holder with DT30 Adaptation for Boring Bars on SCHUTTE Machine Tools

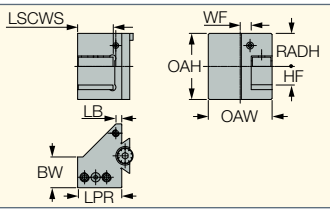


Designation	OAH	OAW	DCONWS	LPR	B	LSCWS
DT30/2 ADR-20-55	57.00	65.00	20.00	45.50	55.0	41.00
DT30/2 ADR-Z0-20-55	57.00	77.50	20.00	48.50	55.0	46.00

Schütte MODULAR-GRIP

DT30/2 ASH# 16/20-1-35080

Intermediate Holder with DT30 Adaptation for Square Shank Tools on SCHUTTE Machine Tools



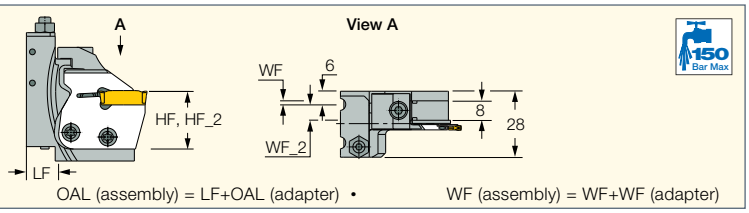
Designation	HF	WF	LPR	OAH	LB	RADH	BW	OAW	LSCWS
DT30/2 ASHR/L 16/20-1-35080	16.0	9.50	38.00	57.00	5.00	28.50	26.50	55.00	32.00

Göltenbodt Innovation and Precision.

MODULAR-GRIP

MS-ES#####-GWS-MG-JHP

Toolholders for Goltenbodt GWS Systems with Internal Coolant Supply for MODULAR-GRIP Adapters



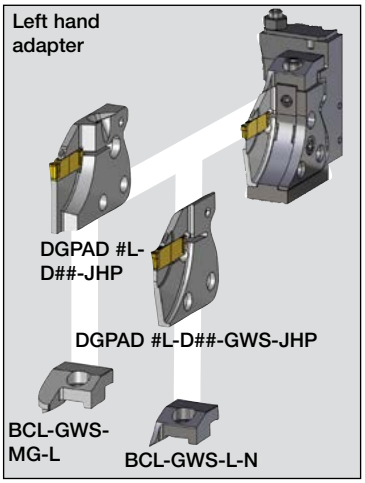
Designation	LF	WF	WF_2	HF[1]	HF_2[2]
MS-ES02012-GWS-MG-JHP	14.00	2.00	6.00	24.0	27.0
MS-ES02013-GWS-MG-JHP	22.00	2.00	6.00	24.0	27.0
MS-ES09003-GWS-MG-JHP	14.00	2.00	6.00	24.0	30.0
MS-ES41008-GWS-MG-JHP	22.00	2.00	6.00	24.0	27.0
MS-ES41009-GWS-MG-JHP	22.00	2.00	6.00	24.0	27.0

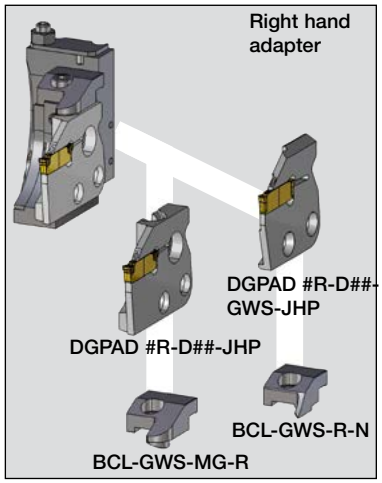
[1] Center height adjustment for GWS43

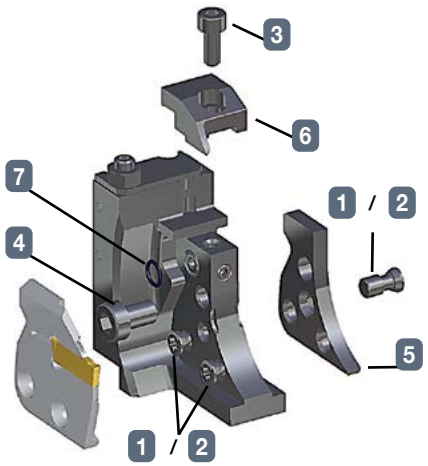
[2] Center height adjustment for GWS60

For tools, see pages: CGPAD-JHP (282) • DGPAD-JHP (480) • HGPAD-JHP (267) • PCADR/L-JHP (317) • PCADRS/LS-JHP (317) • TAGPAD-JHP (500) • TGPAD-JHP (271)

Wedge Selection Guide (must be ordered separately)







Spare Parts MS-ES#####-GWS-MG-JHP

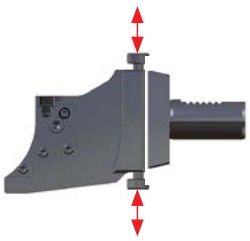
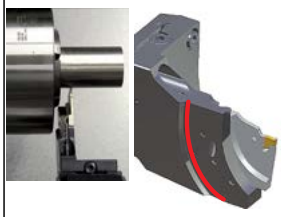
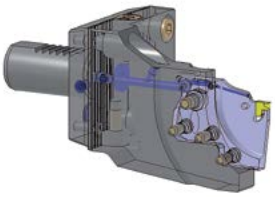
No.	Designation	MS-ES02012-GWS-MG-JHP	MS-ES02013-GWS-MG-JHP	MS-ES09003-GWS-MG-JHP	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP
1	Screw	SR 16-212-L9.5	SR 16-212-L9.5	SR 16-212-L9.5	SR 16-212-L9.5	SR 16-212-L9.5
2	Key	T-20/5	T-20/5	T-20/5	T-20/5	T-20/5
3	Screw	DIN912-M4X10-12.9	DIN912-M4X10-12.9	DIN912-M4X10-12.9	DIN912-M4X10-12.9	DIN912-M4X10-12.9
4	Screw	SR M6X6-DIN6912-10.9	SR M6X6-DIN6912-10.9	SR M6X6-DIN6912-10.9	SR M6X6-DIN6912-10.9	SR M6X6-DIN6912-10.9
5	Dummy	GWS Dummy	GWS Dummy	GWS Dummy	GWS Dummy	GWS Dummy
6	Wedges*					
7	O-Ring	OR 5X1N	OR 5X1N	OR 5X1N	OR 5X1N	OR 5X1N

* Should be ordered separately

ISCAR Modular System for Turning Lathes

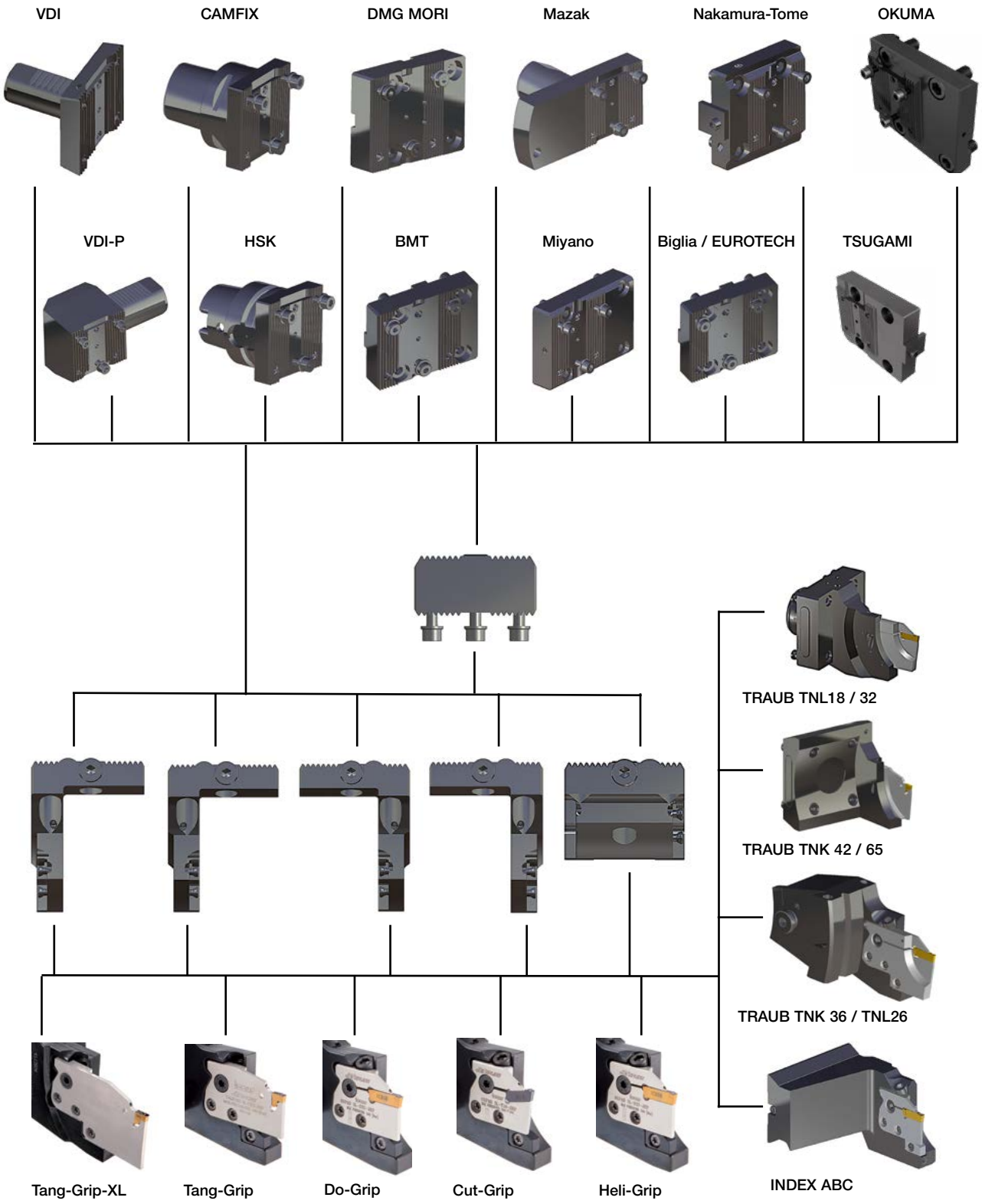
Toolholder System with Machine-Specific Adaptations for Turning Lathes

Features and Benefits of Machine-Specific Toolholder Systems

	Flexible Vario System	Adjustable Center Height	Optimized Holder Design	No Coolant Tubes / Hoses
Features:				
Benefits:	• Uniform intermediate holders and adapters on different machine adaptations • Low tool stock • Modular design	• Optimal tool life due to adjustable center height • Reliable tool life • Turret malpositions can be balanced	• Long tool life due to reduced bar overhang, less vibrations • Slim design • Low risk of collision • Suitable for any machine-specific clamping interface	• Chips do not accumulate in the work space (no coolant tube / hose required) • Reliable coolant supply due to fixed flow orientation (no adjustable coolant nozzle)

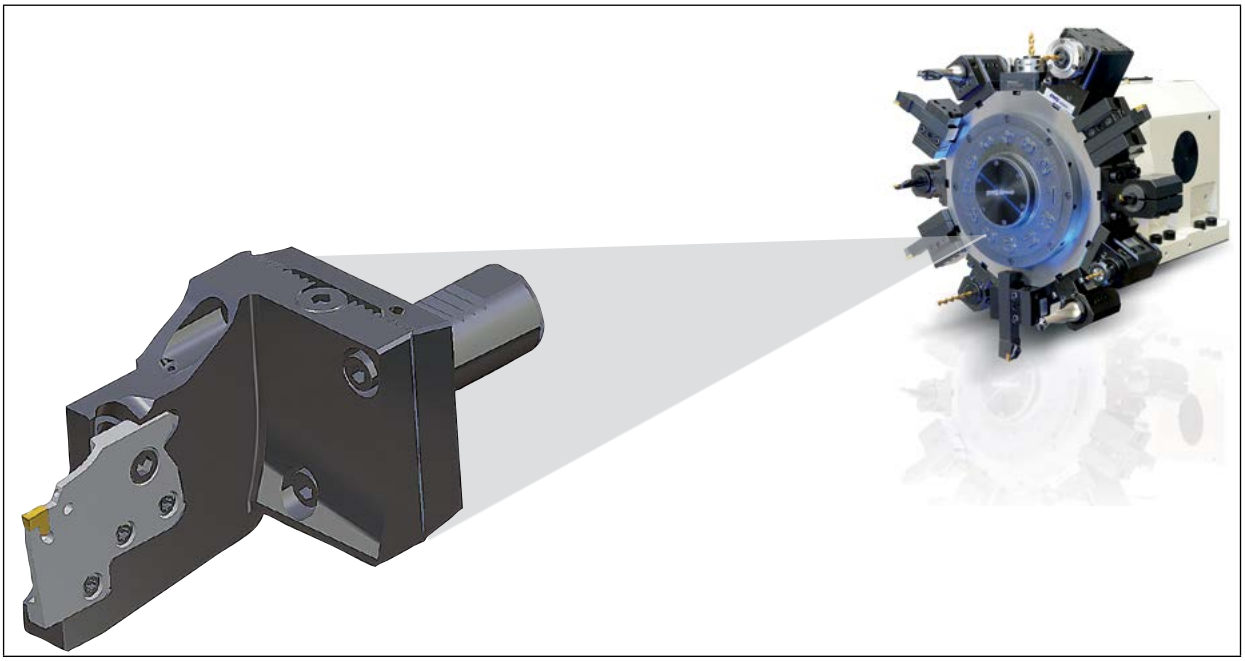
ISCAR Modular System for Turning Lathes

System Overview

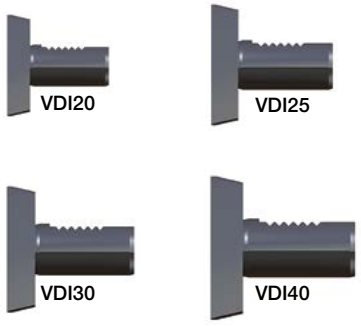
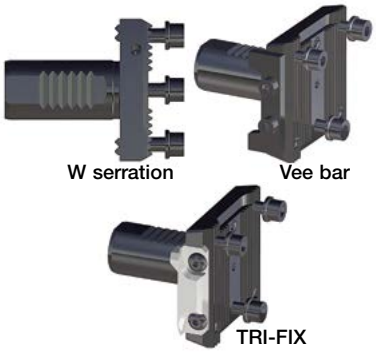
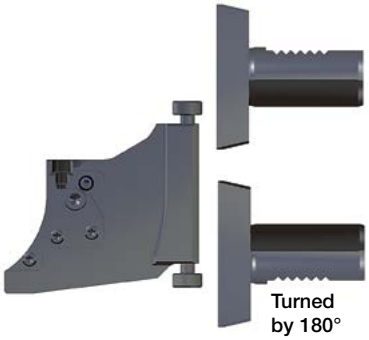


ISCAR Modular System for Turning Lathes

Toolholder System for Star Turrets with VDI and MODULAR-GRIP-XL Adaptations and Directed Internal Coolant

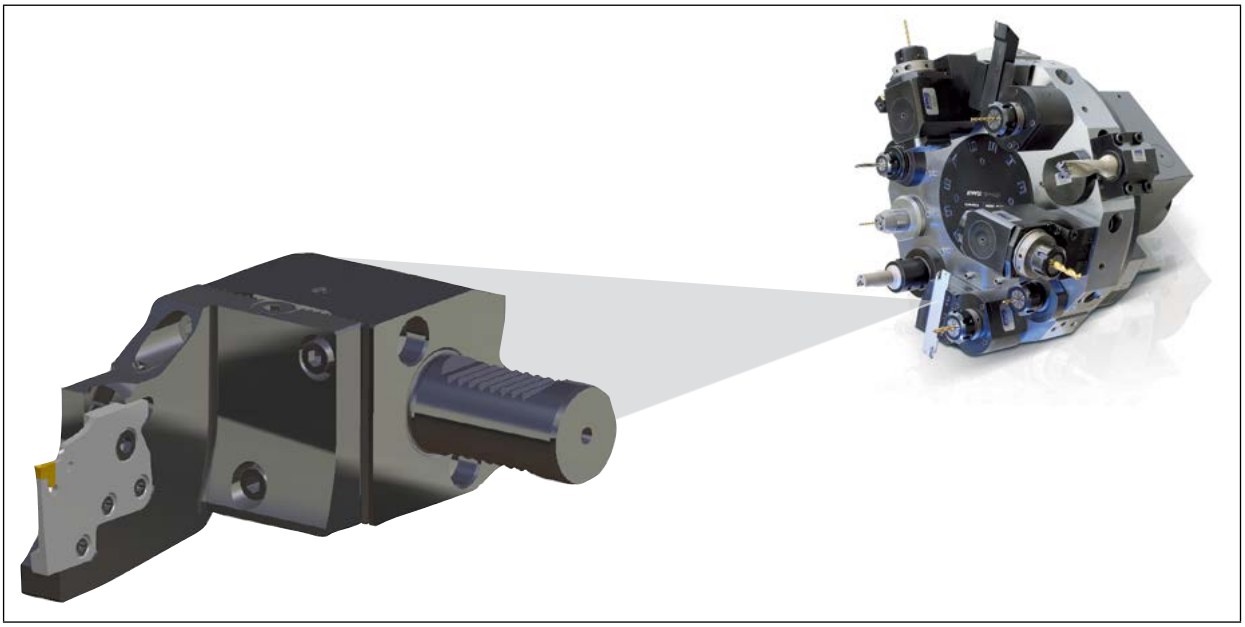


Features and Benefits of Machine-Specific Toolholder Systems

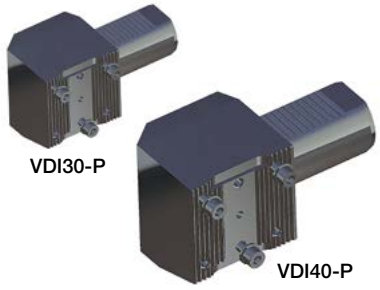
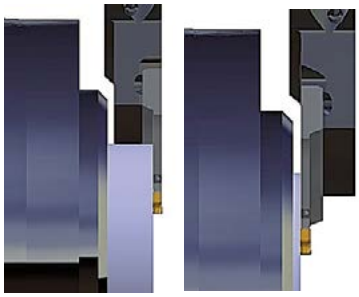
	Adaptation Sizes	Alignment Systems	VDI shank can be rotated by 180°
Features:			
Benefits:	• DIN69880 (ISO 10889-1) • VDI20 • VDI25 • VDI30 • VDI40	• Extremely stable, torsion resistant and high-end precision	• The serration can be mounted at the top or bottom • Double-serration is not necessary

ISCAR Modular System for Turning Lathes

Toolholder System for Disc-Type Turrets with VDI and MODULAR-GRIP-XL Adaptations and Directed Internal Coolant

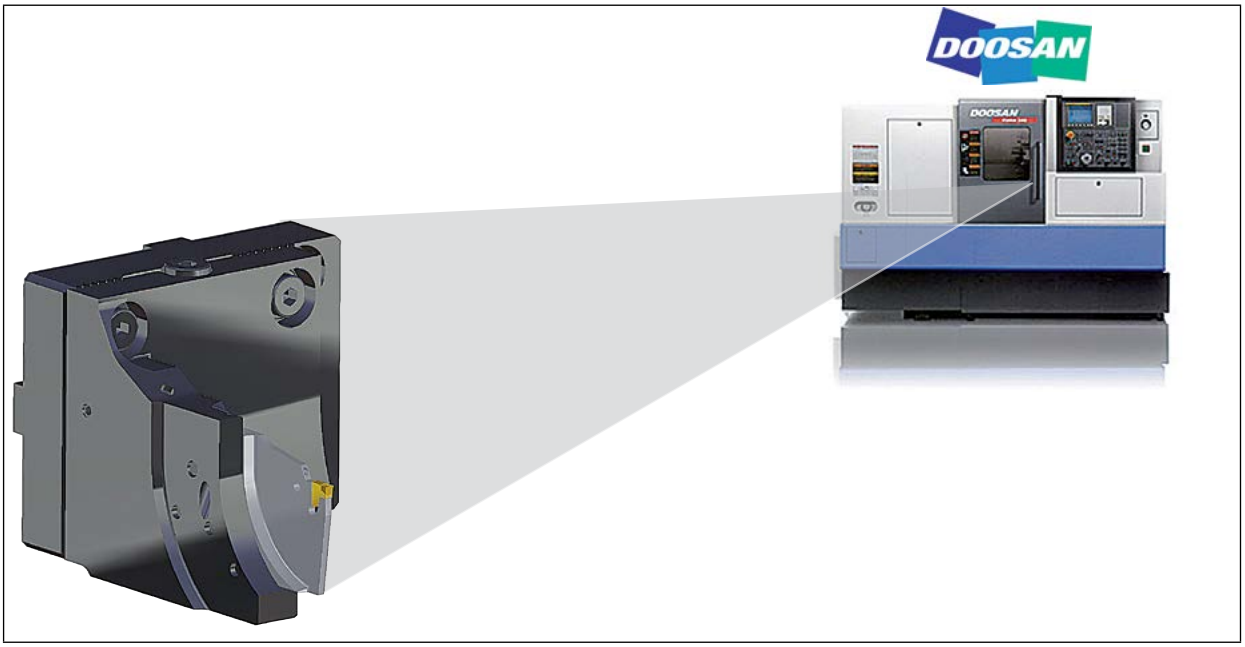


Features and Benefits of Machine-Specific Toolholder Systems

	Adaptation Sizes	Parting Next to Main Spindle or Sub-Spindle	Reliable Processes
Features:			
Benefits:	• DIN69880 (ISO 10889-1) • VDI30-P • VDI40-P	• Low risk of collision due to optimized tool design • Parting next to main spindle or sub-spindle depending on component length	• Chips do not accumulate in the work space (no coolant tube / hose required) • Reliable coolant supply due to fixed flow orientation (no adjustable coolant nozzle)

ISCAR Modular System for Turning Lathes

Toolholder System for DOOSAN / HAAS Machines with BMT and MODULAR-GRIP-XL Adaptations and Directed Internal Coolant

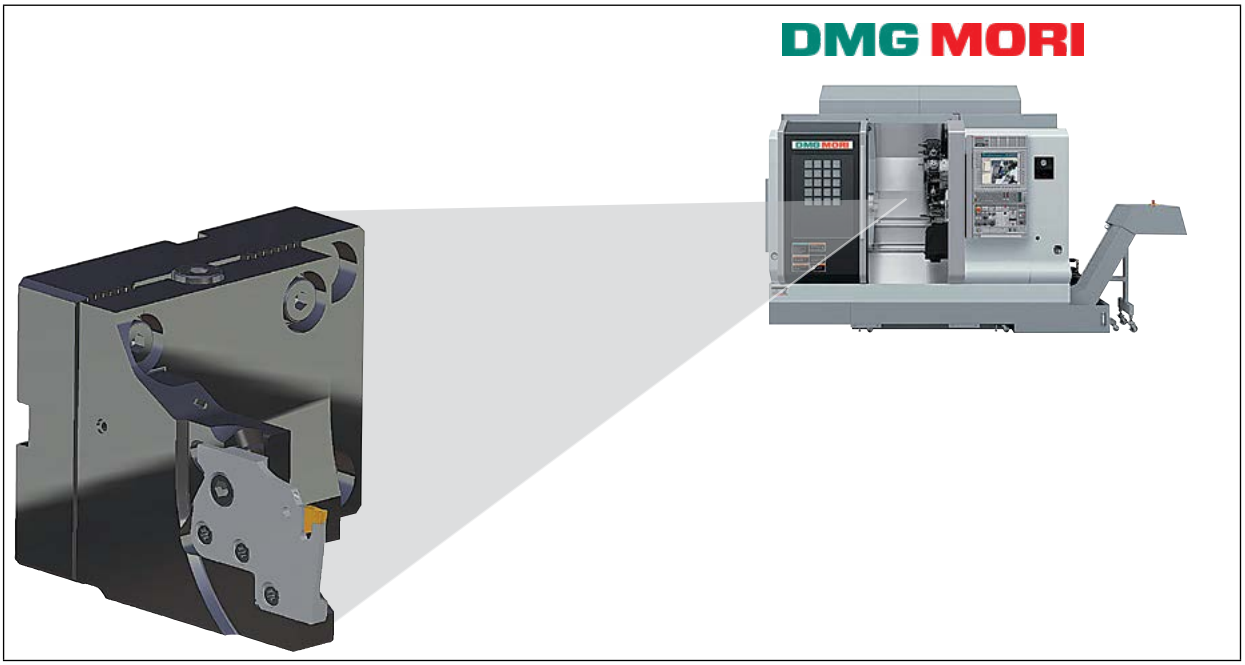


Features and Benefits of Machine-Specific Toolholder Systems

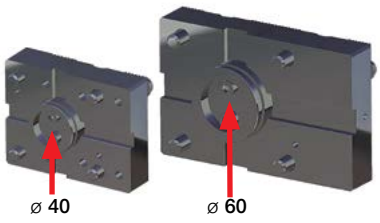
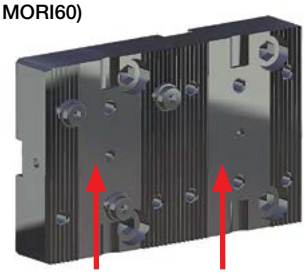
	Adaptation Sizes	Holder Turning Ability 180°	Reliable Processes
Features:			
Benefits:	• BMT (Base Mounted Turret) • BMT45 • BMT55 • BMT65	• Tool can be mounted on the left or right of the turret • Extremely flexible due to few elements	• Chips do not accumulate in the work space (no coolant tube / hose required) • Reliable coolant supply due to fixed flow orientation (no adjustable coolant nozzle)

ISCAR Modular System for Turning Lathes

Toolholder System for **DMG MORI** Machines with MODULAR-GRIP-XL
Adaptation and Directed Internal Coolant

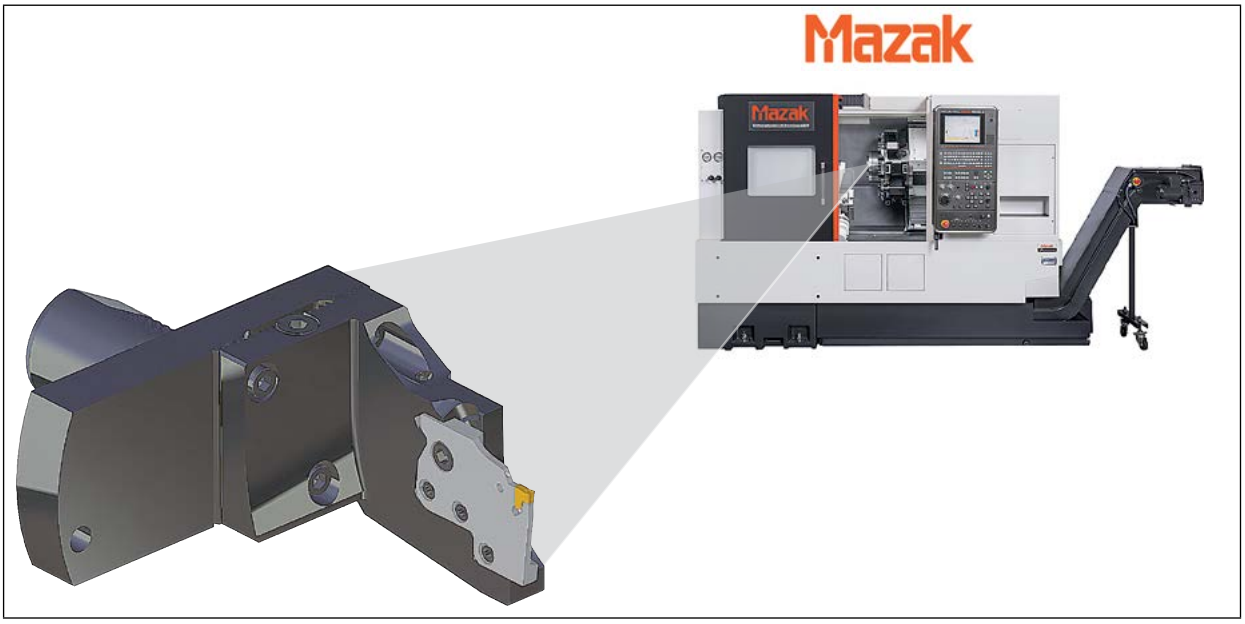


Features and Benefits of Machine-Specific Toolholder Systems

	Adaptation Sizes	Two Pockets for Intermediate Holders	Reliable Processes
Features:	MORI40 MORI60  ø 40 ø 60	(For MORI60)  1. pocket next to (main) spindle 2. pocket next to (sub-) spindle	
Benefits:	• DMG MORI turrets for NZ machines • MORI40 • For NL machines • MORI60	• Intermediate holder can be mounted on the left or right side of the turret • Modular flexibility due to few elements	• Chips do not accumulate in the work space (no coolant tube/hose required) • Reliable coolant supply due to fixed flow orientation (no adjustable coolant nozzle)

ISCAR Modular System for Turning Lathes

Toolholder System for MAZAK Machines with MODULAR-GRIP-XL Adaptation and Directed Internal Coolant

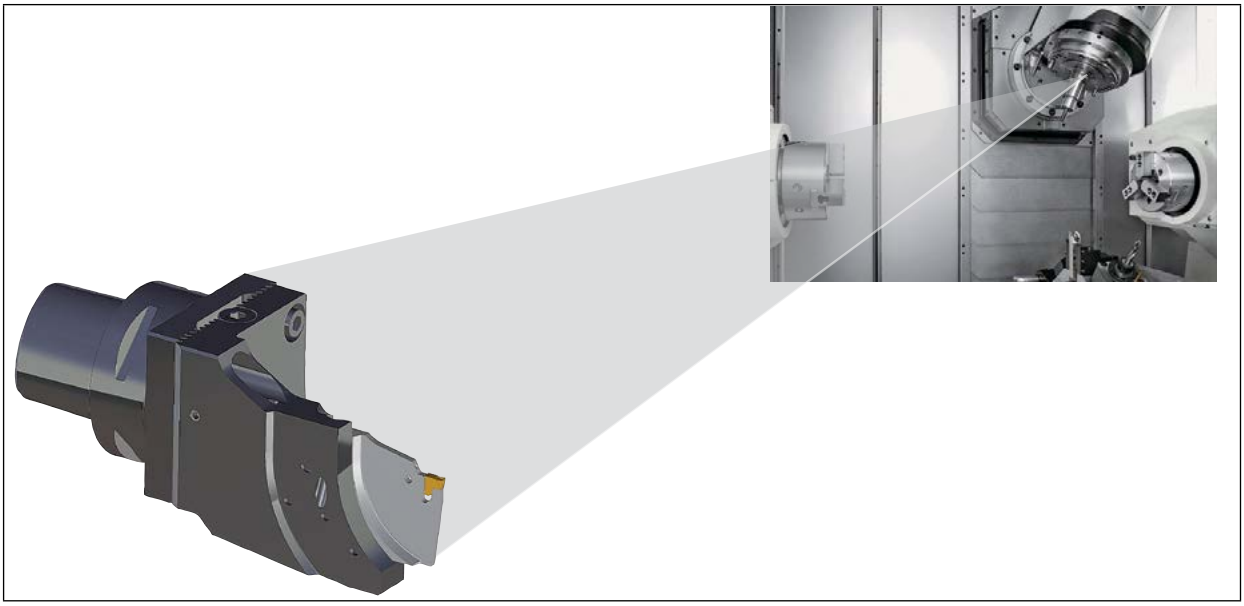


Features and Benefits of Machine-Specific Toolholder Systems

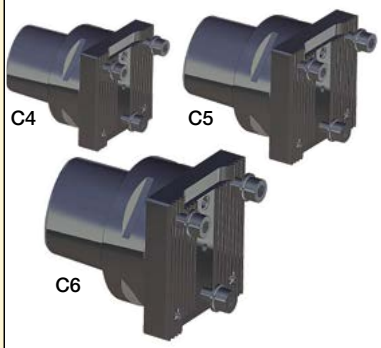
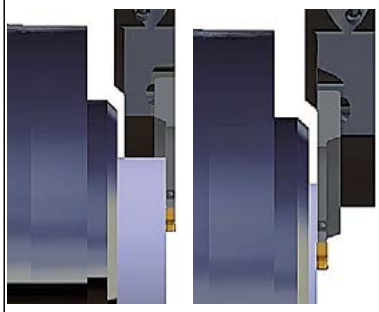
	Adaptation Sizes	Adaptation Features	Reliable Processes
Features:	 MA4016E MA4020E MA4020T MA5020E MA4016T	 MA####E MA####T	
Benefits:	• For Mazak Quick Turn, Hyper Quardrex and Multiplex machines • MA4016E • MA4020E • MA5020E • MA4016T • MA4020T	• Suitable for any common Mazak adaptations	• Chips do not accumulate in the work space (no coolant tube / hose required) • Reliable coolant supply due to fixed flow orientation (no adjustable coolant nozzle)

ISCAR Modular System for Turning Lathes

Toolholder System for Machines with CAMFIX MODULAR-GRIP-XL
Adaptations and Directed Internal Coolant

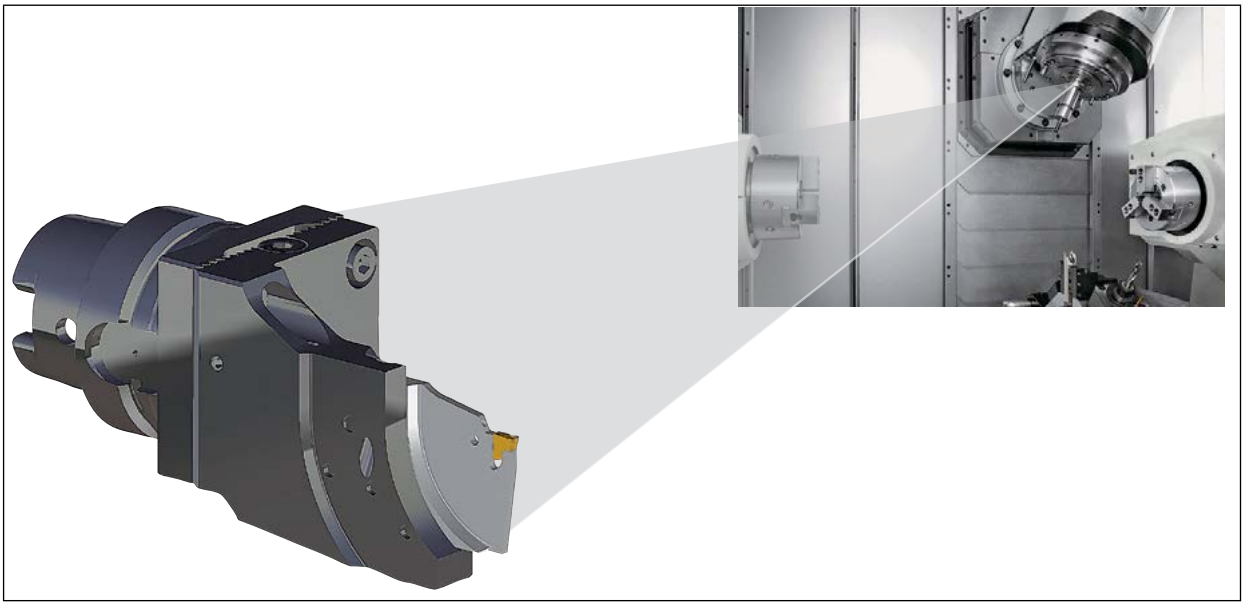


Features and Benefits of Machine-Specific Toolholder Systems

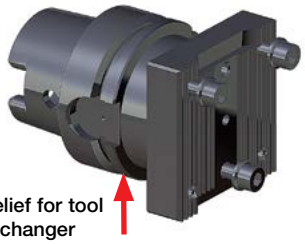
	Adaptation Sizes	Parting Next to Main Spindle and Sub-Spindle	Reliable Processes
Features:			
Benefits:	• For CAMFIX turrets and for turn-mill centers with a CAMFIX ISO26623-1 milling spindle • C4 • C5 • C6	• Low risk of collision due to optimized tool design • Parting next to main spindle or sub-spindle depending on the component length	• Chips do not accumulate in the work space (no coolant tube / hose required) • Reliable coolant supply due to fixed flow orientation (no adjustable coolant nozzle)

ISCAR Modular System for Turning Lathes

Toolholder Systems for Turn-Mill Centers with HSK Shank and MODULAR-GRIP-XL Adaptation and Directed Internal Coolant



Features and Benefits of Machine-Specific Toolholder Systems

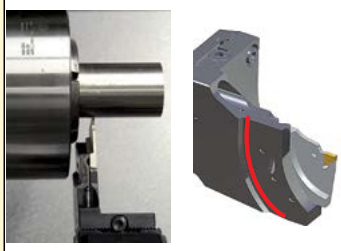
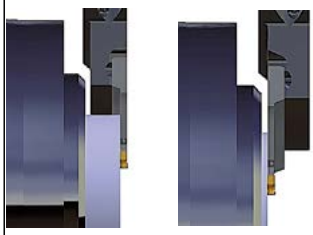
	Adaptation Sizes	Relief for Automatic Tool Changers	Reliable Processes
Features:	 HSK T 40 HSK T 63	 Relief for tool exchanger	
Benefits:	• For HSK T turrets and for turn-mill centers with HSK T milling spindles • HSK T 40 • HSK T 63	• Tools can be used on machines with an automatic tool exchanger	• Chips do not accumulate in the work space (no coolant tube / hose required) • Reliable coolant supply due to fixed flow orientation (no flexible coolant nozzle)

ISCAR Modular System for Turning Lathes

Toolholder Systems for Biglia / EUROTECH, MIYANO and NAKAMURA TOME with MODULAR-GRIP-XL Adaptation and Directed internal Coolant

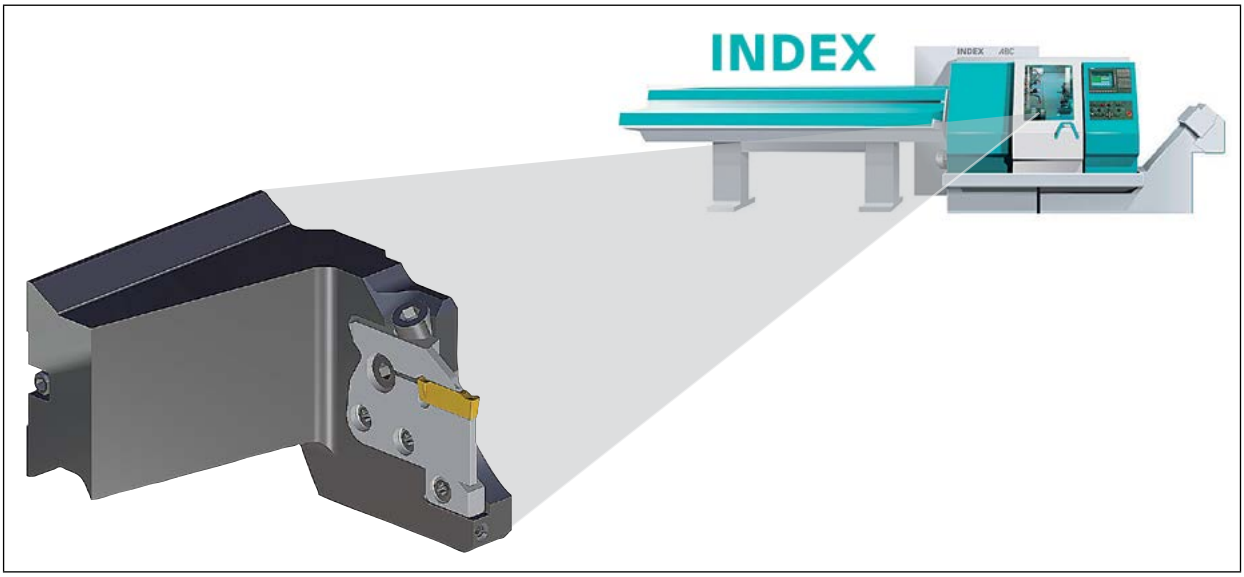
Toolholder Systems for Biglia / EUROTECH, Miyano and Nakamura Tome		
Biglia / EUROTECH	Miyano	Nakamura-Tome
		
• Holder for Biglia / EUROTECH turrets • BI40 • BI55	• Holder for MIYANO turrets • MI40 • MI45 • MI55	• Holder for NAKAMURA-TOME turrets • NT55 • NT65

Features and Benefits of Machine-Specific Toolholder Systems

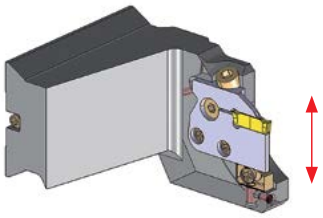
	Optimized Holder Design	Parting Next to Main Spindle and Sub-Spindle	Reliable Processes
Features:			
Benefits:	• Long tool life due to small bar overhang and less vibrations • Slim design • Low risk of collision • Suitable for any machine-specific clamping device	• Low risk of collision due to optimized tool design • Parting next to main spindle or sub-spindle depending on the correspondent length	• Chips do not accumulate in the work space (no coolant tube / hose required) • Reliable coolant supply due to fixed flow orientation (no adjustable coolant nozzle)

ISCAR Modular System for Turning Lathes

Toolholder System for **INDEX ABC** Machines with MODULAR-**GRIP-XL**
Adaptation and Directed Internal Coolant

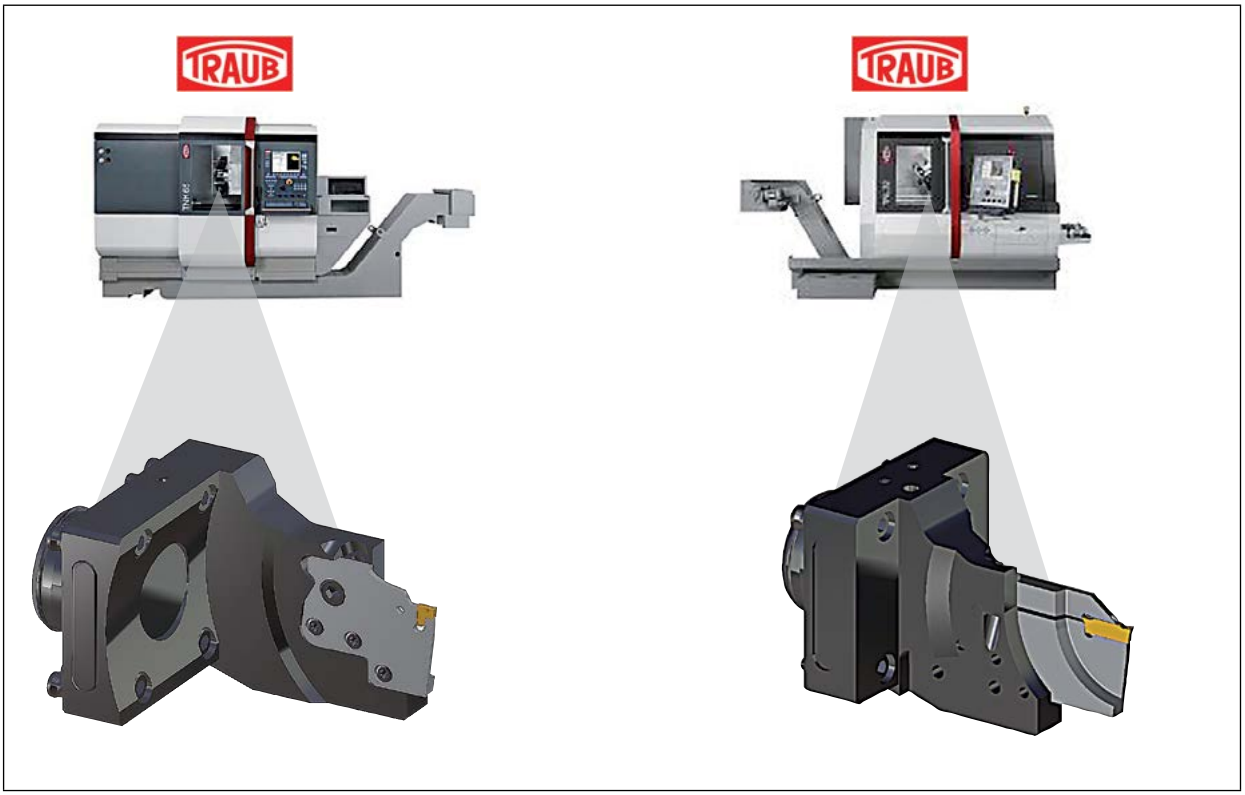


Features and Benefits of Machine-Specific Toolholder Systems

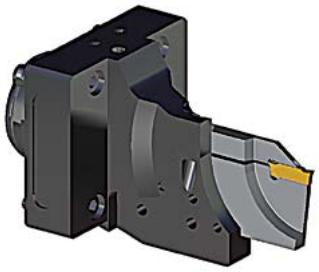
	Adaptation Sizes	Height Adjustment +0.2 mm	Machine Optimized Tool Design
Features:			
Benefits:	• For Index ABC machines turret 2 • Prismatic adaptation	• Mismatch of turrets can be adjusted • Extremely long tool life due to exact center height	• Extremely long tool life due to very stable tool design • Reduced vibrations due to reduced bar overhang • Reliable coolant supply due to fixed flow orientation (no adjustable coolant nozzle)

ISCAR Modular System for Turning Lathes

Toolholder System for **Integral Shank 45** with MODULAR-GRIP-XL
Adaptation and Directed Internal Coolant

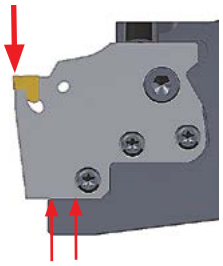
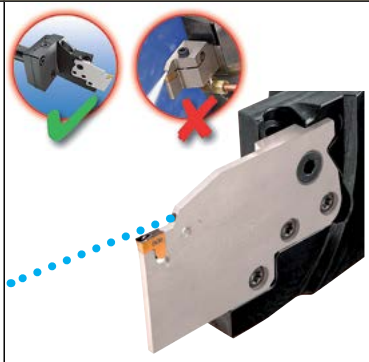
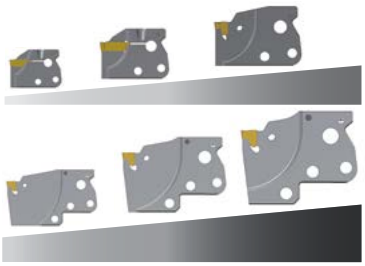


Features and Benefits of Machine-Specific Toolholder Systems

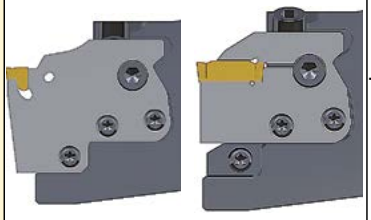
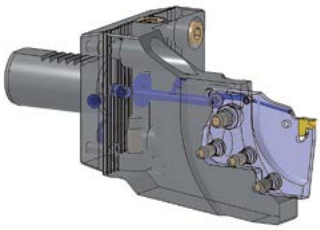
	TNK 36 / TNL 26	TNL 18 / TNL 32	TNK 42 / TNK 65
Features:			
Benefits:	• Dovetail connection for Traub TNK36 and TNL26 Machines • Tools are suitable for parting and grooving applications • Suitable for any machine-specific clamping device	• Integral shank 45 for Traub TNL18 and TNL32 • Tools are suitable for parting and grooving applications • Suitable for any grooving systems with directed internal coolant	• Low risk of collision due to machine-specific tool design • Tool is suitable for parting and grooving applications • Suitable for any machine-specific clamping device

Adapters with internal coolant

Features and Benefits of Machine-Specific Toolholder Systems

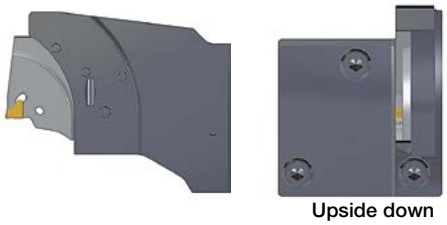
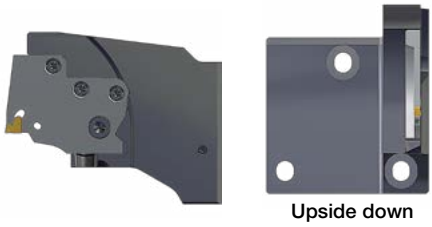
	Extremely Stable	Coolant Directly to the Cutting Zone	Additional External Diameters
Features:			
Benefits:	• Very long tool life as the cutting forces are directly transmitted to the intermediate holder • Very rigid due to additional clamping screw in the Modular-Grip-XL adapters pocket • Less vibrations due to rigid tool design	• Reliable tool life due to fixed flow orientation (no adjustable coolant nozzle) • Chips do not accumulate in the work space (no coolant tube / hose required) • Very efficient due to small distance between coolant exit and cutting zone	• Long tool life due to reduced vibrations by reinforced tool body • Suitable for all popular bar diameters

Features and Benefits of Machine-Specific Toolholder Systems

	MODULAR-GRIP/ MODULAR-GRIP-XL	Vario System	Coolant Connection from the Turret into the Cutting Zone
Features:		 TAGPAD-JHP TAGPAD-XL-JHP HGPAD-JHP DGPAD-JHP CGPAD-JHP	
Benefits:	• Very flexible due to compatibility with existing adapter systems • Modular-Grip and Modular-Grip-XL adapters can be mounted • High rigidity using Modular-Grip adapters by additional support	• Very flexible • Suitable for any JHP grooving systems • Direct cooling for grooving and turn-groove operations • A variety of options with a single holder	• Fast setup, less downtime • Chips do not accumulate in the work space • Easy handling, low risk of error

ISCAR Modular System for Turning Lathes

Tool Design Overview

L-R	#### MAHDL-R-XL-JHP 	 Upside down
R-L	#### MAHDR-L-XL-JHP  Upside down	
R-R	#### MAHDR-R-XL-JHP  Upside down	
L-L	#### MAHDL-L-XL-JHP 	 Upside down

ISCAR Modular System for Turning Lathes

Tool Selection

Example:

VDI30 M A H D R - L XL - JHP

- **VDI30** — Machine interface
- **R** — Turning direction at the main spindle
- **L** — Position of the adapter pocket

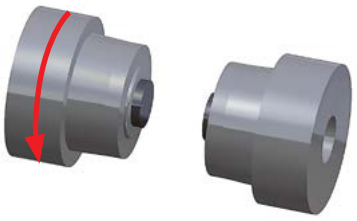
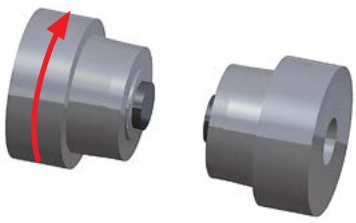
1 Defined Machine Adaptations

Type	VDI	VDI with W-serration	VDI with Vee-bar	VDI for disc type turret	BMT	DMG MORI	MAZAK	CAMFIX	HSK T	Biglia / EUROTECH	Miyano	Nakamura-Tome
Size	VDI20	VDI25W	VDI25V	VDI30-P	BMT45	MORI40	MA4016E	C4	HSK T 40	BI40	MI40	NT45
	VDI25	VDI30W	VDI30V	VDI40-P	BMT55	MORI60	MA4020E	C5	HSK T 63	BI55	MI45	NT55
	VDI30	VDI40W	VDI40V		BMT65		MA5020E	C6			MI55	NT65
	VDI40						MA4016T					
							MA4020T					

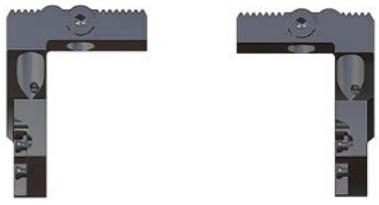
For details on adaptation please see technical information (starting at page 775).

2 Defined Turning Direction at the Main Spindle

View through the spindle into the work space

Right-Turn Direction M3 in CNC program	Left-Turn Direction M4 in CNC program
	

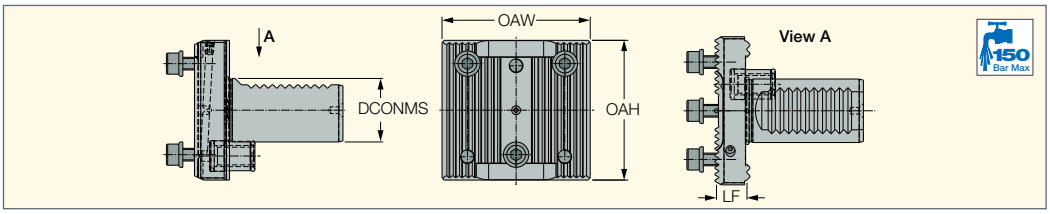
3 Position of the Adapter Pocket

Adapter on the Right	Adapter on the Left
	

VDI MODULAR-GRIP

VDI#### V##-JHP

Toolholders for Star Turrets with VDI Adaptation and Internal Coolant Supply for MODULAR-GRIP-XL Adapters



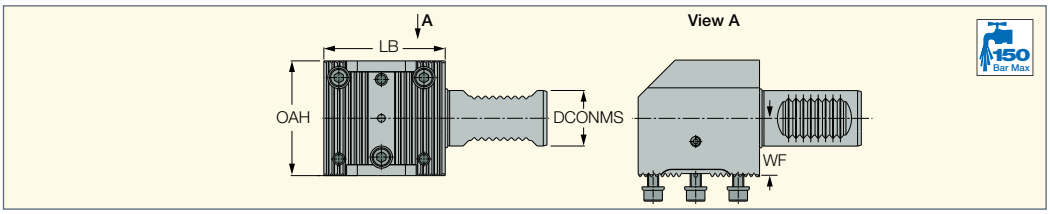
Designation	DCONMS	OAW	OAH	LF	Align.
VDI20 V60-JHP	20.00	60.00	56.00	28.75	-
VDI25 V60-JHP	25.00	60.00	61.20	12.75	-
VDI25TF V60-JHP	25.00	60.00	61.20	12.75	TriFix
VDI25V V60-JHP	25.00	60.00	61.20	12.75	V-Bar
VDI25W V60-JHP	25.00	60.00	61.20	13.40	W-toothing
VDI30 V60-JHP	30.00	70.00	66.00	13.75	-
VDI30TF V60-JHP	30.00	70.00	66.00	13.75	TriFix
VDI30V V60-JHP	30.00	70.00	66.00	13.75	V-Bar
VDI30W V60-JHP	30.00	70.00	66.00	14.40	W-toothing
VDI40 V85-JHP	40.00	85.00	82.00	15.75	-
VDI40TF V85-JHP	40.00	85.00	82.00	15.75	TriFix
VDI40V V85-JHP	40.00	85.00	82.00	15.75	V-Bar
VDI40W V85-JHP	40.00	85.00	82.00	16.35	W-toothing

• For user guide, see pages 760-774

VDI MODULAR-GRIP

VDI##-P V60-JHP

Toolholders for Disc - Type Turrets with VDI Adaptation and Internal Coolant Supply for MODULAR-GRIP-XL Adapters



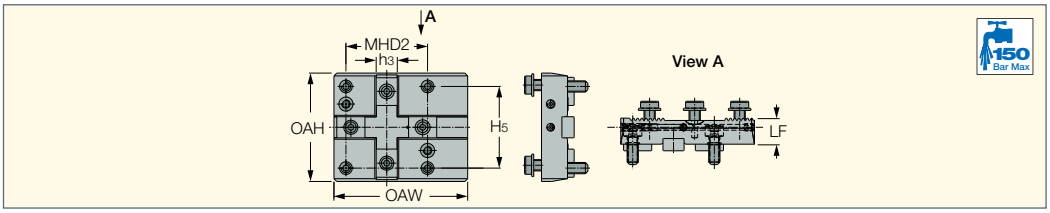
Designation	DCONMS	LB	OAH	WF	WB
VDI30-P V60-JHP	30.00	65.60	62.00	30.75	63.00
VDI40-P V60-JHP	40.00	65.60	80.00	34.75	70.50

• For user guide, see pages 760-774

DOOSAN HAAS JETCUT

BMT## V85-JHP

Toolholders for BMT Turrets with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



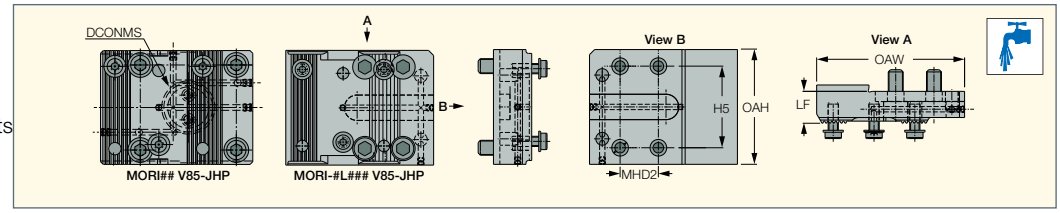
Designation	OAW	OAH	LF	H5	MHD2	h3
BMT45 V85-JHP	95.00	77.00	17.45	58.00	58.0	15.0
BMT55 V85-JHP	103.50	84.00	20.75	64.00	64.0	15.0
BMT65 V85-JHP	114.50	98.00	25.75	73.00	70.0	18.0
BMT75 V85-JHP	120.00	112.00	29.25	90.00	90.0	25.0

 • For user guide, see pages 760-774

DMG MORI JETCUT

MORI## V85-JHP

Toolholders for DMG MORI Turrets with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



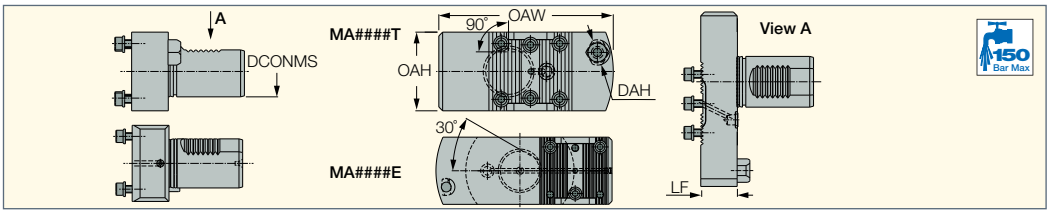
Designation	OAW	OAH	LF	H5	MHD2	DCONMS
MORI-DL151 V85-JHP	116.00	90.00	24.25	64.00	30.0	-
MORI-SL200 V85-JHP	126.00	100.00	24.25	76.00	35.0	-
MORI40 V85-JHP	111.00	83.00	25.75	62.00	70.0	39.90
MORI60 V85-JHP	172.00	109.30	29.25	84.00	94.0	59.90

 • For user guide, see pages 760-774

Mazak JETCUT

MA##### V##-JHP

Toolholders for Mazak Turrets with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



Designation	DCONMS	DAH	OAW	OAH	LF
MA4016T V60-JHP	40.00	16.00	132.50	62.00	28.15
MA4020T V60-JHP	40.00	20.00	137.50	62.00	28.15
MA4016E V60-JHP	40.00	16.00	162.50	62.00	29.25
MA4020E V60-JHP	40.00	20.00	170.00	62.00	29.25
MA5020E V85-JHP	50.00	20.00	168.50	100.00	45.75

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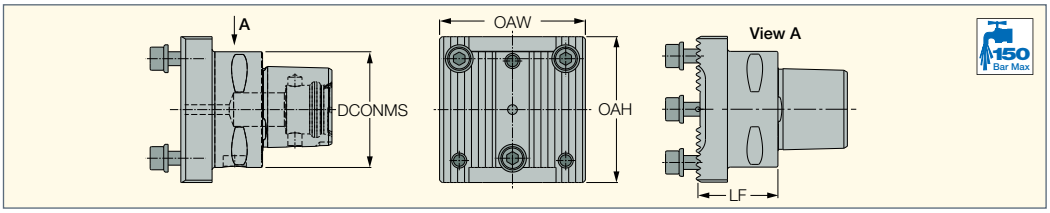
- For user guide, see pages 760-774

MODULAR-GRIP CAMFIX

C#-V60-JHP

Toolholders for CAMFIX Adaptations with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



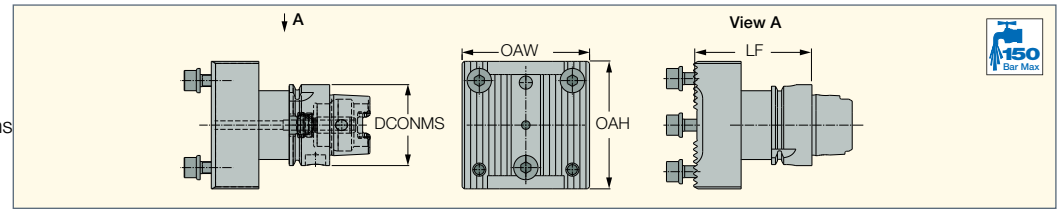
Designation	DCONMS	OAW	OAH	LF
C4 V60-JHP	40.00	63.00	63.00	34.55
C5 V60-JHP	50.00	63.00	63.00	34.55
C6 V60-JHP	63.00	63.00	63.00	36.55

- For user guide, see pages 760-774

MODULAR-GRIP HSK

HSK T ## V60-JHP

Toolholders for HSK-T Adaptations with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



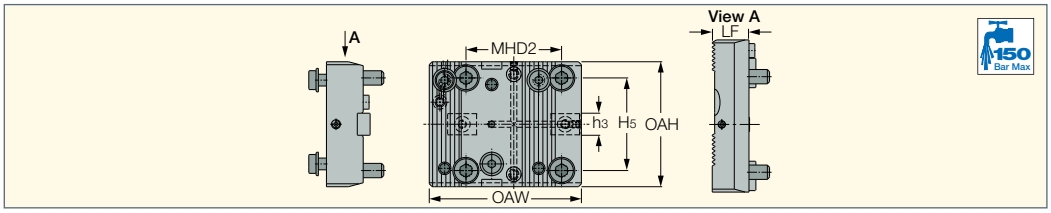
Designation	DCONMS	OAW	OAH	LF
HSK T 40 V60-JHP	40.00	63.00	63.00	57.75
HSK T 63 V60-JHP	63.00	63.00	63.00	57.75

- For user guide, see pages 760-774

Biglia EUROTECH JETCUT

BI## V##-JHP

Toolholders for Biglia / EUROTECH Adaptation with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



Designation	OAW	OAH	LF	H5	MHD2	h3
BI40 V60-JHP	83.00	70.00	20.75	50.00	50.0	12.0
BI55 V85-JHP	103.50	85.00	24.25	63.00	65.0	15.0

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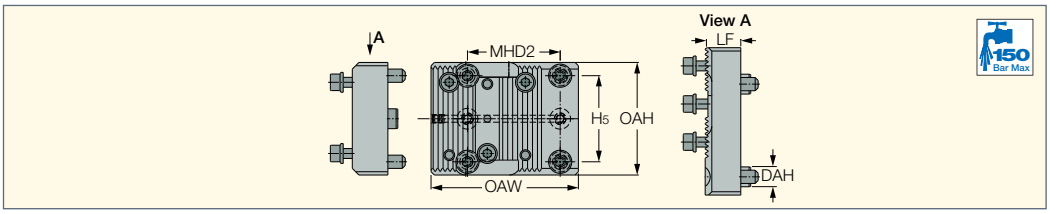
- For user guide, see pages 760-774

Miyano JETCUT

MI## V60-JHP

Toolholders for Miyano Adaptation with Directed Internal Coolant for MODULAR-GRIP-XL Adapters



Designation	OAW	OAH	LF	H5	MHD2	DAH
MI40 V60-JHP	89.00	68.00	20.75	52.00	56.0	12.00
MI45 V60-JHP	102.00	72.00	13.95	56.00	68.0	12.00
MI55 V60-JHP	104.00	91.00	15.25	75.00	60.0	12.00

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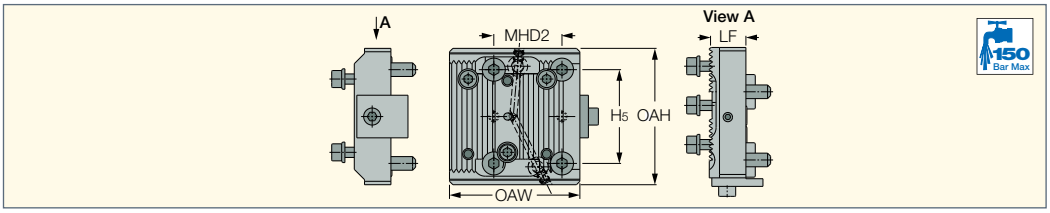
- For user guide, see pages 760-774

Nakamura-Tome

JETCUT

NT## V60-JHP

Toolholders for Nakamura-Tome Adaptation with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



Designation	OAW	OAH	LF	H5	MHD2
NT45 V60-JHP	76.50	80.00	20.75	55.00	40.0
NT55 V60-JHP (1)	87.50	86.00	20.75	60.00	50.0
NT65 V60-JHP	99.50	100.00	20.75	71.00	69.0

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- For user guide, see pages 760-774

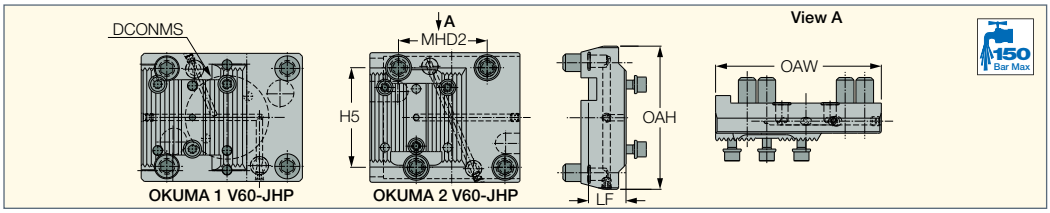
(1) Suitable for CMZ machines

OKUMA

MODULAR-GRIP

OKUMA # V60-JHP

Toolholders for OKUMA Adaptation with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



Designation	OAW	OAH	LF	H5	MHD2	DCONMS
OKUMA 1 V60-JHP	107.00	85.00	19.25	65.00	80.0	55.40
OKUMA 2 V60-JHP	110.00 (1)	95.00	24.25	73.00	65.0	-

- All trademarks and logos are the property of their respective companies

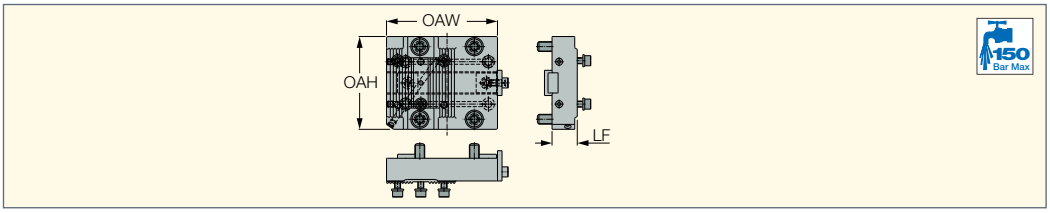
(1) also available in 100.00 mm

TSUGAMI Rem Sales, LLC

MODULAR-GRIP

TSU-M08 V60-JHP

Base Holders for TSUGAMI Adaptation with Internal Coolant for MODULAR-GRIP-XL Adapters



Designation	OAW	OAH	LF
TSU-M08-SY V60-JHP	110.00	92.00	25.00

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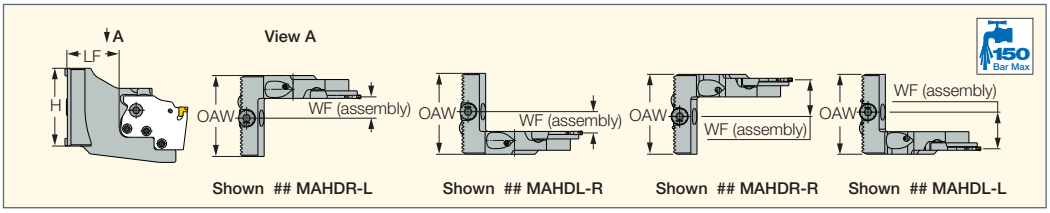
- For user guide, see pages 760-774

MODULAR-GRIP JETCUT

V## MAHD#-#-XL-##-JHP

Intermediate Holders for ISCAR Modular System Holders with Directed Internal Coolant for MODULAR-GRIP-XL Adapters

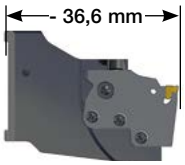


Designation	CSI	H	OAW	LF	WF
V60 MAHDL-L-XL-JHP	V60	62.0	64.50	42.65	29.60
V60 MAHDL-L-XL-SH-JHP	V60	62.0	64.50	18.65	32.80
V85 MAHDL-L-XL-JHP	V85	83.0	85.00	43.65	38.10
V85 MAHDL-L-XL-LH-JHP	V85	83.0	85.00	69.15	38.10
V60 MAHDL-R-XL-JHP	V60	62.0	64.50	42.65	17.00
V60 MAHDL-R-XL-LH-JHP	V60	62.0	64.50	69.15	17.00
V60 MAHDL-R-XL-SH-JHP	V60	62.0	64.50	18.65	20.20
V85 MAHDL-R-XL-JHP	V85	83.0	85.00	43.65	25.50
V85 MAHDL-R-XL-LH-JHP	V85	83.0	85.00	69.15	25.50
V85 MAHDL-R-XL-SH-JHP	V85	83.0	85.00	26.65	25.50
V60 MAHDR-L-XL-JHP	V60	62.0	64.50	42.65	17.00
V60 MAHDR-L-XL-LH-JHP	V60	62.0	64.50	69.15	17.00
V60 MAHDR-L-XL-SH-JHP	V60	62.0	64.50	18.65	20.20
V85 MAHDR-L-XL-JHP	V85	83.0	85.00	43.65	25.50
V85 MAHDR-L-XL-LH-JHP	V85	83.0	85.00	69.15	25.50
V85 MAHDR-L-XL-SH-JHP	V85	83.0	85.00	26.65	25.50
V60 MAHDR-R-XL-JHP	V60	62.0	64.50	42.65	29.60
V60 MAHDR-R-XL-LH-JHP	V60	62.0	64.50	69.15	29.60
V60 MAHDR-R-XL-SH-JHP	V60	62.0	64.50	18.65	32.80
V85 MAHDR-R-XL-JHP	V85	83.0	85.00	43.65	38.10
V85 MAHDR-R-XL-LH-JHP	V85	83.0	85.00	69.15	38.10
V85 MAHDR-R-XL-SH-JHP	V85	83.0	85.00	26.65	41.30

- For user guide, see pages 760-774

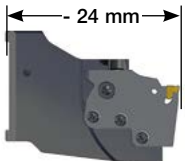
For tools, see pages: CGPAD-JHP (282) • DGPAD-JHP (480) • DGPAD-XL-JHP (480) • HGPAD-JHP (267) • PCADR/L-JHP (317) • PCADRS/LS-JHP (317) • TAGPAD-JHP (500) • TAGPAD-XL-JHP (500) • TAGPAD-Y-JHP (519) • TGPAD-JHP (271) • TNFPAD-XL-JHP (569)

Short Design MAHD-XL-JHP



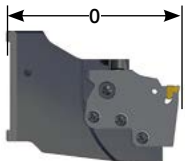
For machines without sub-spindle

Short Version ...-XL-SH-JHP

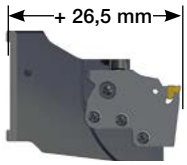


For machines with a small turret swing diameter

Standard Version ...-XL-JHP



Long Version XL-LH-JHP

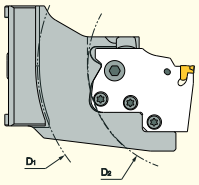


For machines with big sub-spindle diameter

Intermediate holder spare parts

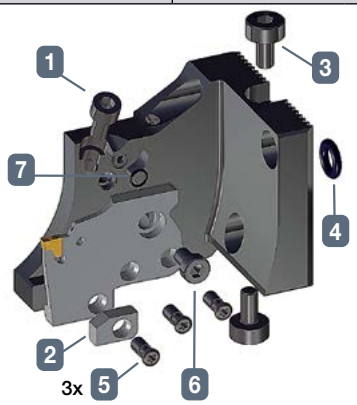
Designation	(1) Clamping Screw	(2) Dummy	(3) Height Adjustment Screw	(4) O-Ring	(5) Screw	(6) Screw	(7) O-Ring
V## MAHD#-#-XL-##-JHP	SR M6x16DIN912 12.9	Dummy-MG-XL-5113377	SR 14-0194-56113373	O RING 8x3 NBR 70	SR M5-04451	SR M6x10DIN6912	OR 5x1N

Tool dimensions with Adapter



L = Total tool length
D1= max. diameter of sub-spindle

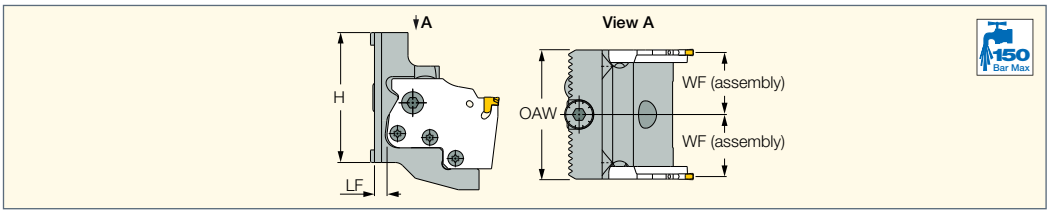
Adapter	V## MAHD#-#- XL-SH-JHP		V## MAHD#-#- XL-JHP		V## MAHD#-#- XL-LH-JHP	
	D1	D2	D1	D2	D1	D2
DGPAD ...-D22-JHP	99	46	147	94	200	147
DGPAD ...-D32-JHP	99	46	147	94	200	147
TAGPAD ...-D42-JHP	104	52	152	100	205	153
TAGPAD ...-D52-JHP	114	62	162	110	215	163
TAGPAD-XL ...-D52-JHP	114	62	162	110	215	163
TAGPAD-XL ...-D65-JHP	127	70	175	118	228	171
TAGPAD-XL ...-D82-JHP	146	86	194	134	247	187
TAGPAD-XL ...-D102-JHP	170	107	218	155	271	208



MODULAR-GRIP
JETCUT

V## MAHD-XL-JHP

Intermediate Holders for ISCAR Modular System Holders with Directed Internal Coolant for MODULAR-GRIP-XL Adapters



Designation	CSI	H	OAW	LF	WF
V60 MAHD-XL-JHP	V60	62.0	61.60	6.05	29.50
V85 MAHD-XL-JHP	V85	85.0	85.00	6.05	41.30

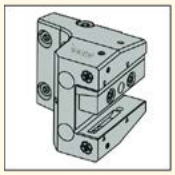
• For user guide, see pages 760-774

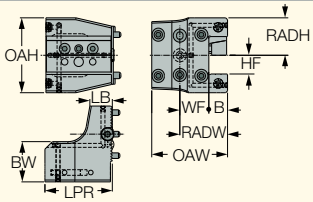
For tools, see pages: CGPAD-JHP (282) • DGPAD-JHP (480) • HGPAD-JHP (267) • PCADR/L-JHP (317) • PCADRS/LS-JHP (317) • TAGPAD-JHP (500) • TAGPAD-XL-JHP (500) • TAGPAD-Y-JHP (519) • TGPAD-JHP (271) • TNFPAD-XL-JHP (569)

TOOL BLOCKS

V-ASH-MC

Axially Oriented, Short, Right-Hand, Wedge Clamping Holders for Square Shank Tools



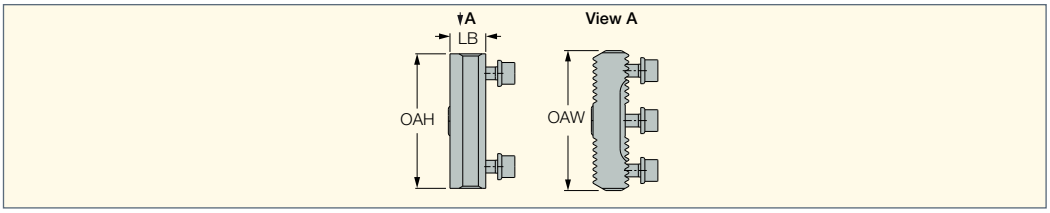


Designation	HF	WF	LPR	OAH	RADW	B	LB	RADH	BW	OAW
V60 ASH 20-MC	20.0	31.00	72.00	80.00	51.00	20.0	24.00	40.00	43.00	81.00
V60 ASH 25-MC	25.0	32.00	87.00	90.00	57.00	25.0	24.00	45.00	48.00	87.00
V85 ASH 25-MC	25.0	43.00	87.00	100.00	68.00	25.0	26.00	50.00	55.00	110.50
V85 ASHD 25-MC	25.0	43.00	87.00	100.00	68.00	25.0	26.00	50.00	55.00	110.50

MODULAR-GRIP

V## V##-L##

Spacer for ISCAR Modular System



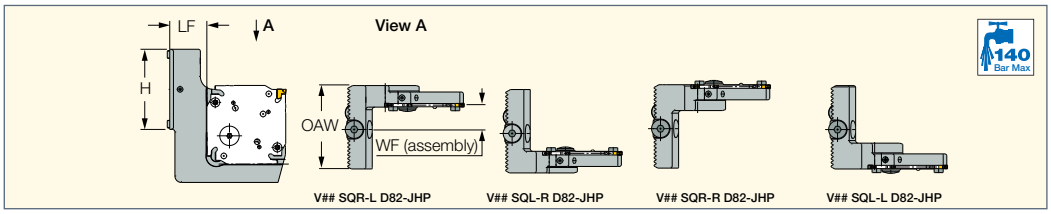
Designation	CSI	OAH	OAW	LB
V60 V60-L15	V60	62.00	64.50	15.00
V60 V60-L30	V60	62.00	64.50	30.00
V85 V85-L30	V85	83.00	85.00	30.00

• For user guide, see pages 760-774

LOGIQ F GRIP HIGH FEED GRIP HOLDER

V## SQ#-#-D82-JHP

Intermediate Holders for TANG-F-GRIP and DO-F-GRIP Square Type D82 Adapters Designed for Modular Tooling Systems



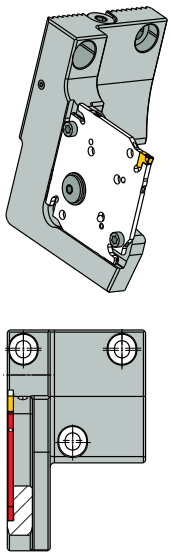
Designation	H	LF	OAW	WF[1]
V60 SQL-L-D82-JHP	62.0	34.70	64.50	28.95
V60 SQL-R-D82-JHP	62.0	34.70	64.50	15.35
V60 SQR-L-D82-JHP	62.0	34.70	64.50	18.85
V60 SQR-R-D82-JHP	62.0	34.70	64.50	32.45
V85 SQL-L-D82-JHP	83.0	34.70	85.00	40.95
V85 SQL-R-D82-JHP	83.0	34.70	85.00	27.35
V85 SQR-L-D82-JHP	83.0	34.70	85.00	27.35
V85 SQR-R-D82-JHP	83.0	34.70	85.00	40.95

(1) When 3mm width insert is used.

For tools, see pages: DGAQ (515) • DGAQ-JHP (515) • TGAQ (514) • TGAQ-JHP (513)

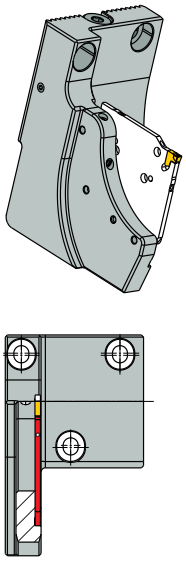
Identification Key

V60 SQL-L-D82-JHP



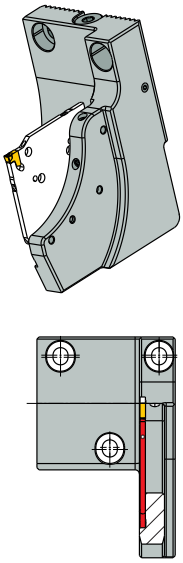
L- Holder (prism) orientation
L- Pocket side

V60 SQL-R-D82-JHP



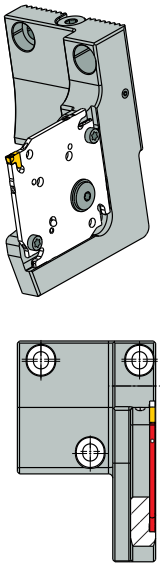
L- Holder (prism) orientation
R- Pocket side

V60 SQR-L-D82-JHP



R- Holder (prism) orientation
L- Pocket side

V60 SQR-R-D82-JHP



R- Holder (prism) orientation
R- Pocket side

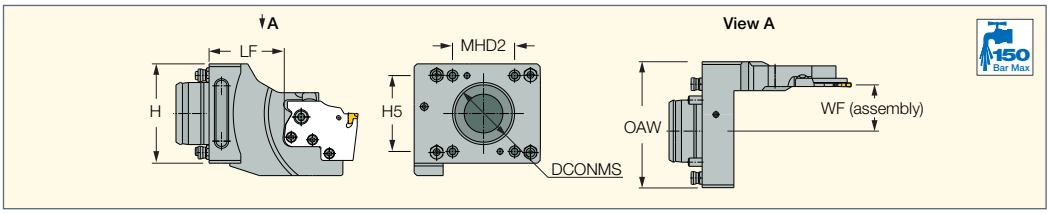
Spare Parts

Designation					
V## SQ#-#-D82-JHP	SR M4X9-SEAL-JHP	JHP COPPER SEAL 1/8"	O-RING 10X2 NBR	SIDE THRUST PIN 3mm	SR ISO 14580 M4X10

TRAUB JETCUT MODULAR-GRIP

TR45 MAHDR-#-XL-JHP

Toolholders for TRAUB TNK45 / TNK 65 Machines with Directed Internal Coolant for MODULAR-GRIP-XL Adapters



Designation	H	OAW	H5	MHD2	DCONMS	LF	WF
TR45 MAHDR-L-XL-JHP	72.0	91.50	55.00	45.0	45.00	54.40	33.50

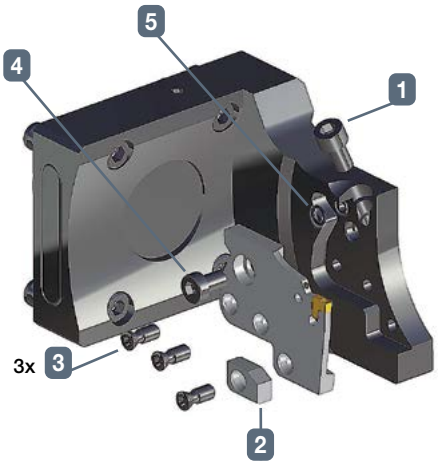
• All trademarks and logos are the property of their respective companies • For user guide, see pages 760-774

For tools, see pages: CGPAD-JHP (282) • DGPAD-JHP (480) • HGPAD-JHP (267) • PCADR/L-JHP (317) • PCADRS/LS-JHP (317) • TAGPAD-JHP (500) • TAGPAD-XL-JHP (500) • TAGPAD-Y-JHP (519) • TGPAD-JHP (271)

Spare Parts

Designation	(1) Clamping Screw	(2) Dummy
TR45 MAHDR-L-XL-JHP	SR M6x16DIN912 12.9	Dummy-MG-XL-5113377

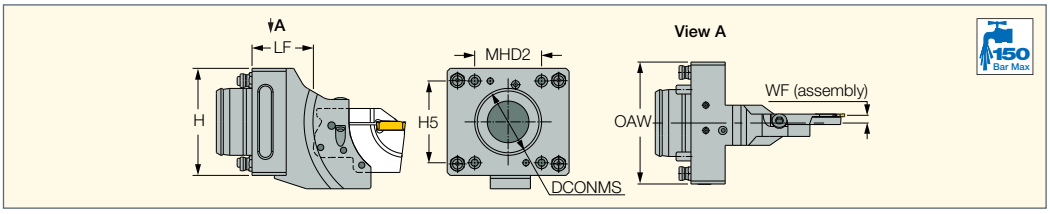
(3) Screw	(4) Screw	(5) O-Ring
SR M5-04451	SR M6x10DIN6912	OR 5x1N



TRAUB JETCUT MODULAR-GRIP

TR45TNL MAHDN-R-XL-JHP

Toolholders for TRAUB TNL16 to TNL18 / TNL32 Machines with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



Designation	H	OAW	H5	MHD2	DCONMS	LF	WF
TR45TNL MAHDN-R-XL-JHP	72.0	82.00	55.00	45.0	45.00	41.30	6.00

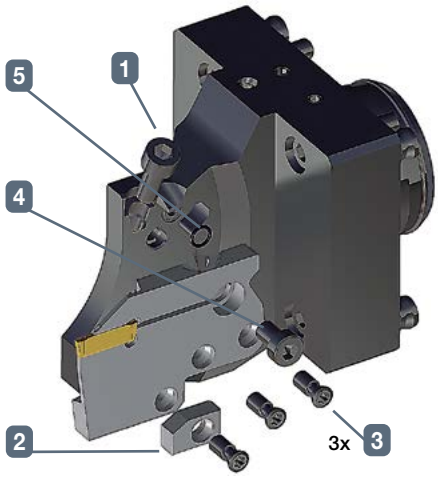
• All trademarks and logos are the property of their respective companies • For user guide, see pages 760-774

For tools, see pages: CGPAD-JHP (282) • DGPAD-XL-JHP (480) • HGPAD-JHP (267) • PCADR/L-JHP (317) • PCADRS/LS-JHP (317) • TAGPAD-XL-JHP (500) • TGPAD-JHP (271)

Spare Parts

Designation	(1) Clamping Screw	(2) Dummy
TR45TNL MAHDN-R-XL-JHP	SR M6x16DIN912 12.9	Dummy-MG-XL-5113377

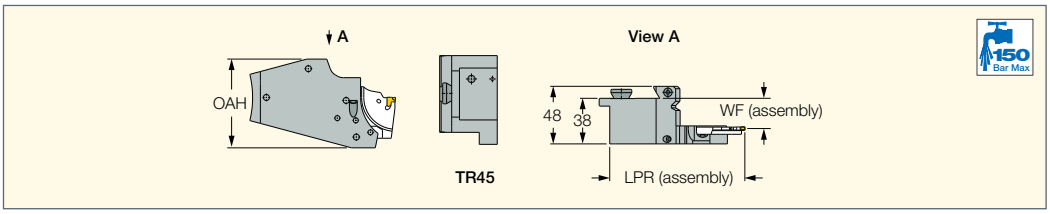
(3) Screw	(4) Screw	(5) O-Ring
SR M5-04451	SR M6x10DIN6912	OR 5x1N



TRAUB JETCUT MODULAR-GRIP

TR TNK36 MAHDL-R-XL-JHP

Toolholders for TRAUB TNK36 / TNL26 Machines with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



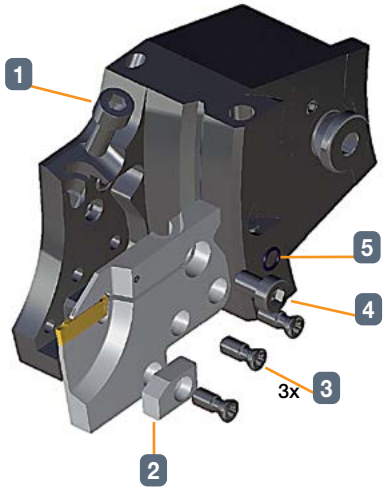
Designation	OAH	LPR	WF
TR TNK36 MAHDL-R-XL-JHP	74.00	91.50	24.50

 • For user guide, see pages 760-774

For tools, see pages: CGPAD-JHP (282) • DGPAD-XL-JHP (480) • HGPAD-JHP (267) • PCADR/L-JHP (317) • PCADRS/LS-JHP (317) • TAGPAD-XL-JHP (500) • TGPAD-JHP (271)

Spare Parts

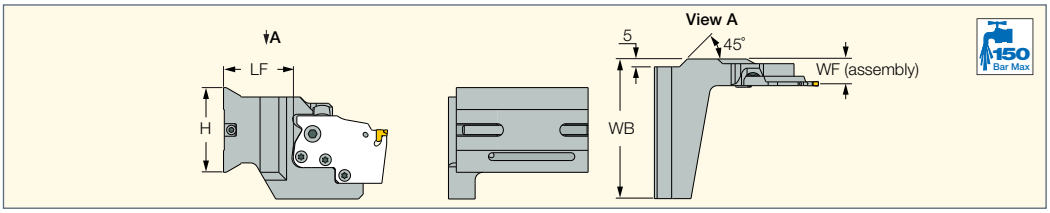
Designation	(1) Clamping Screw	(2) Dummy	(3) Screw	(4) Screw	(5) O-Ring
TR TNK36 MAHDL-R-XL-JHP	SR M6x16DIN912 12.9	Dummy-MG-XL-5113377	SR M5-04451	SR M6x10DIN6912	OR 5x1N



INDEX JETCUT MODULAR-GRIP

ABC MAHDR-#-XL-JHP

Toolholders for Index ABC Speedline with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



Designation	H	WB	LF	WF
ABC MAHDR-L-XL-JHP	56.0	91.50	44.55	17.00

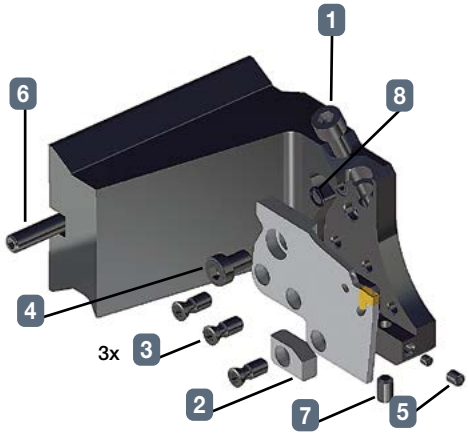
 • For user guide, see pages 760-774

For tools, see pages: CGPAD-JHP (282) • DGPAD-JHP (480) • DGPAD-XL-JHP (480) • HGPAD-JHP (267) • PCADR/L-JHP (317) • PCADRS/LS-JHP (317) • TAGPAD-JHP (500) • TAGPAD-XL-JHP (500) • TAGPAD-Y-JHP (519) • TGPAD-JHP (271) • TNFPAD-XL-JHP (569)

Spare Parts

Designation	(1) Clamping Screw	(2) Dummy	(3) Screw	(4) Screw	(5) Pin
ABC MAHDR-#-XL-JHP	SR M6x16DIN912 12.9	Dummy-MG-XL-5113377	SR M5-04451	SR M6x10DIN6912	SR M4x5DIN913 45H

Designation	(6) Stopper Screw	(7) Height Adjustment Screw	(8) O-Ring
ABC MAHDR-#-XL-JHP	DIN913-M6x80-45H	SR M5x8DIN913 45H	OR 5x1N



MATERIALS

Member IMC Group

MATERIAL GROUPS

Based on ISO 513 and VDI 3323 standards

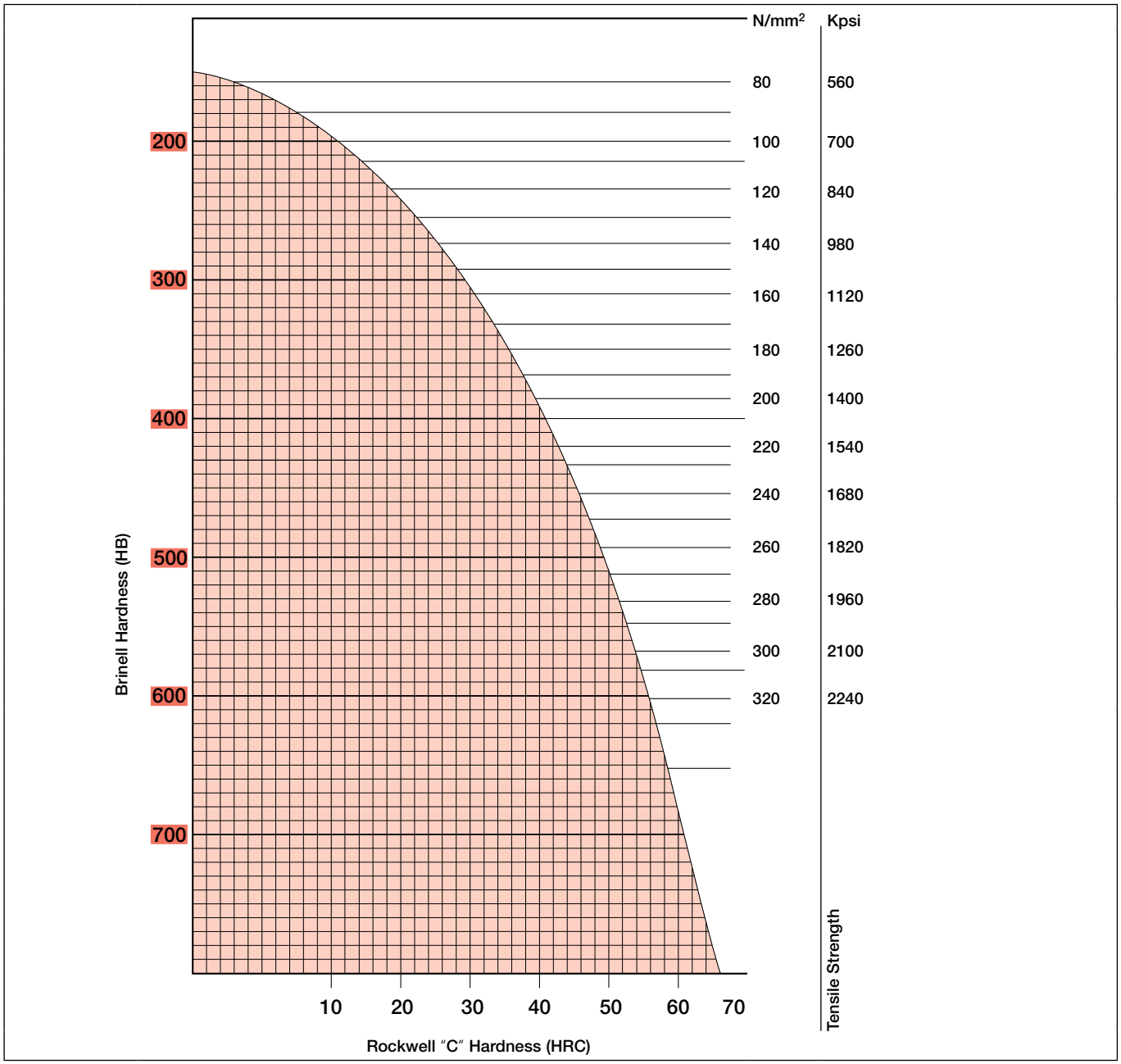
ISO	Material		Condition	Tensile Strength [N/mm²]	Kc1(1) [N/mm²]	mc(2)	Hardness HB	Material Group No.
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	1350	0.21	125	1
		≥ 0.25 %C	Annealed	650	1500	0.22	190	2
		< 0.55 %C	Quenched and tempered	850	1675	0.24	250	3
		≥ 0.55 %C	Annealed	750	1700	0.24	220	4
			Quenched and tempered	1000	1900	0.24	300	5
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	1775	0.24	200	6
			Quenched and tempered	930	1675	0.24	275	7
				1000	1725	0.24	300	8
				1200	1800	0.24	350	9
	High alloyed steel, cast steel and tool steel		Annealed	680	2450	0.23	200	10
			Quenched and tempered	1100	2500	0.23	325	11
	Stainless steel and cast steel		Ferritic/martensitic	680	1875	0.21	200	12
			Martensitic	820	1875	0.21	240	13
M	Stainless steel and cast steel		Austenitic, duplex	600	2150	0.20	180	14
K	Gray cast iron (GG)		Ferritic / pearlitic		1150	0.20	180	15
			Pearlitic / martensitic		1350	0.28	260	16
	Nodular cast iron (GGG)		Ferritic		1225	0.25	160	17
			Pearlitic		1350	0.28	250	18
	Malleable cast iron		Ferritic		1225	0.25	130	19
			Pearlitic		1420	0.3	230	20
N	Aluminum-wrought alloys		Not hardenable		700	0.25	60	21
			Hardenable		800	0.25	100	22
	Aluminum-cast alloys	≤12% Si	Not hardenable		700	0.25	75	23
			Hardenable		700	0.25	90	24
		>12% Si	High temperature		750	0.25	130	25
	Copper alloys	>1% Pb	Free cutting		700	0.27	110	26
			Brass		700	0.27	90	27
			Electrolytic copper		700	0.27	100	28
	Non metallic		Duroplastics, fiber plastics					29
			Hard rubber					30
S	High temperature alloys	Fe based	Annealed		2600	0.24	200	31
			Hardened		3100	0.24	280	32
		Ni or Co based	Annealed		3300	0.24	250	33
			Hardened		3300	0.24	350	34
			Cast		3300	0.24	320	35
	Titanium alloys		Pure	400	1160	0.24		36
			Alpha+beta alloys, hardened	1050	1245	0.24		37
H	Hardened steel		Hardened		4600		55 HRC	38
			Hardened		4700		60 HRC	39
	Chilled cast iron		Cast		4600		400	40
	Cast iron		Hardened		4500		55 HRC	41

Steel
Stainless Steel
Cast Iron
Non-ferrous
High Temp. and Titanium Alloys
Hardened Steel and Cast Iron

(1) Specific cutting force for 1 mm² chip section.
(2) Chip thickness factor.

MATERIAL GROUPS

Hardness Conversion Table



According to VDI 3323 Standard

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
1	1020; G10200; K02301; K02595; K02596; K02597; K02598; K02599; K02702; K0300	1.0044	S275JR; St 44-2; Fe 430 B	EN 43 B; Fe 430 B FN; 43/25 HR; 43/25HS; 43 B; HFW4; HFS4; ERW 3	E 28-2	1411; 1412	Fe 430 B FN; Fe 430 B	AE 275 B; Fe 430 B FN	SN 400 B; SN 400 C; SN 490 B; SN 490 C; SS 400; STK 400; STKM 19 C; STKR 400; 19 C; SS 41; STK 41	St4ps; St4sp	S275JR
1		1.0050	E295; St 50-2; Fe 490-2; ST 50-2 G (E295+CR)	Fe 490-2 FN; 50 B	A 50-2	1550; 2172	Fe 490	A 490-2; Fe 490-2 FN	SS 490; SS 50	St5ps; St5sp	
1	K02404; K02702	1.0045	S355JR; Fe 510 B	50 B; 4360-50 B	E 36-2		Fe 510 B FN	AE 355 B	SN 400 B; SN 400 C; SN 490 B; SN 490 C; SS 490; SS 50		S355JR
1	K02702	1.0143	S275J0; St 44-3 U; Fe 430 C	43C; 4360-43C	E 28-3	1414-01	Fe 430 C FN	AE 275 D			S275J0
1		1.0130	P265S; SPH 265	164-400B LT 20	SPH 265; A 42 AP			SPH 265			P265S
1	A 619	1.0333	DC03G1; USt 3; USt 13	2 CR; 3 CR	E		FeP 02	AP 02	SPCD		DC03G1
1	K02601; K03000; A 573 Gr. 70; A 611 Gr.D	1.0144	S275J2G3 (S275J2); St 44-3 (Fe 430 D 1)	Fe 430 D1 FF; 4360-43 C; 4360-43 D	E 28-3; E 28-4	1411; 1412; 1414	Fe 430 B; Fe 430 C (FN); Fe 430 D (FF)	AE 275 D; Fe 430 D1 FF	SM 400 A; SM 400 B; SM 400 C; SS 400; STK 400; STKR 400; SM 41 A; SM 41 B; SM 41 C	St4kp; St4ps; St4sp	
1	1008; G10080; A 621	1.0330	DC01; DC 01; St 2; St 12	CR 4; CS 4	C; TC	1142	FeP 01; FeP 00	AP 11; FeP 01; AP 00	SPCC; CR 1		DC01 (FeP 05)
1	1015; G10150; K02401	1.0037	S235JR (Fe 360 B); St 37-2	Fe 360 B; 4360-40 B; ERW 3; CEW 3; 37/23 HR; 37/23 HS; 37/23 CR; 37/23 CS	E 24-2	1311	Fe 360 B; 1449 37/23 HR	AE 235 B; Fe 360 B	STKM 12 A; STKM 12 AC		
1		1.0035	S185 (Fe 310-0); St 33	Fe 310-0; 15 HR; 15 HS; 1449 15 HR; 1449 15 HS	A 33	1300	Fe 320	Fe 310-0; A 310-0	SGP; SS 330; SS 34	St0	S185
1	K02502	1.0034	E195; RSt 34-2	CEW 2; 34/20 HR; 34/20 HS; 34/20 CR; 1449 34/20CS	A 34-2 NE		Fe 330 BFN			St2ps; St2sp	E195
1		1.0334	DD12G1; UStW 23		2 C		FeP 12	AP 12	SPHD	10kp	
1	1006; G10060	1.0335	DD13; StW 24	1 CR; 1 CS; 1 HR; 2 HR; 2 HS; 2 CR; 2 CS	3 C		FeP 13	AP13	SPHE	08kp	DD13
1	A 620	1.0338	DC04; St 4; St 14	CR 1; CR 2	ES	1147	FeP 04	AP 04; FeP 04	SPCE; HR 4	08JuA	DC04 (FeP 04)

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
1	K01700; K02001; K02200; K02201; K02203; K02503; K02601; K02801	1.0345	P235GH; HI; H I	141-360; 151-360; 154-360; 161-360; 164-360	A 37 CP	1330; 1331	FeE 235; Fe 360 1 KW; Fe 360 1 KG; Fe 360 2 KW; Fe 360 2 KG	A 37 Grado RA II; A 37 Grado RC I	SGV 410; SGV 450; SGV 480; SPV 235; SPV 450; SPV 490; SGV 42; SGV 46; SGV 49; SPV 24; SPV 46; SPV 50		P235GH
1	1010; G10100	1.0301	C10; C 10	040 A 10; 045 M 10; En 2 A; En 2 A/1; En 2 B; En 32 A; 10 CS	C10RR; XC 10; C 10; AF 34 C 10		1 C 10; C 10	F.151; F.151.A	S 10C	10	C10
1		1.0149	S275JOH; St 44-3 U; RoSt 44-2	43 C; 4360-43C	E 28-3	1412-04	Fe 430 C	Fe 430 C; AE 275 C			S275JOH
1		1.0226	DX51D; St 02 Z	Z2	GC	1151 10	FeP 02 G	FeP 02 G	SGC C		
1	A 1011 (SS Grade 36 (230) Type 2); A1011 (SS Grade 36 (250) Type 1)	1.0114	S235JO; St 37-3 U; Fe 360 C	40 C; 4360-40C	E 24-3		Fe 360 C FN	AE 235 C	SS 330; SS 34		S235JO
1	A572-60	1.8900	S380N; StE 380	4360 55 E		2145	FeE 390 KG		S 25 C		S380N
1	A 572 Gr. 65	1.0060	E335; St 60-2 (Fe 590-2 B)	En 55 C; Fe 590-2-FN; 55 E; 4360-55 E	A 60-2	1650	Fe 590; Fe 60-2	A 590; Fe 590-2 FN	SM 570; SM 58	St6ps; St6sp	E335
1		1.0028	S250G1T; USt 34-2		A 34-2		Fe 330; Fe 330 B FU		SS 330; SS 34		
1	K01700; K02200; K02801	1.0112	P235S; SPH 235	164-360B LT20; 1501-164-360B LT20	A 37 AP; SPH 235		Fe 360 C	AE 235 C			P235S
1		1.0722	10SPb20; 10 SPb 20		10 PbF 2		CF 10 SPb 20	10 SPb 20; F.2122			10SPb20
1	1108; 1109; 1111; B1111; B 1111; G11080; G11090	1.0721	10S20; 10 S 20		10 F 2		CF 10 S 20	10 S 20; F. 2121			10S20
1	12L13; 12L14; 12 L 13; 12 L 14; G12134; G12144	1.0718	11SMnPb30; 9 SMnPb 28	230 M 07 Pb; En 1A Pb	S 250 Pb	1914	CF 9 SMnPb 28	F.210.C; F.210.M; 11 SMnPb 28; F.2112	SUM 22 L; SUM 23 L; SUM 24 L		11SMnPb30
1	1213; 1215; G12130; G12150	1.0715	11SMn30; 9 SMn 28	230 M 07; En 1 A	S 250	1912	CF 9 S 22	F.210.A; F.210.L; 11 SMn 28; F.2111	SUM 22		11SMn30
1	1020; 1023; G10200; G10230	1.1151	C22E; Ck 22	055 M 15; 070 M 20; En 3 A; En 3 C; En 2	XC 25; XC 18; 2 C 22	1450	C 20; C 25	F.1120; C 25 K	S 20 C; S 20 CK; S 22 C	20	C22E
1	A 1008 (HSLAS-F Grade 80 [550]); A 1011 (HLAS-F Grade 80 [550])	1.0986	S500MC; QStE 500 TM	60F55 HR; 60F55 HS; 60F55 CS	E 560 D; S 560 MC		FeE 560 TM				S500MC

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
1	A 1008 (HSLAS-F Grade 70 [480]); A 1008 (HSLAS Grade 70 [480] Class 1)	1.0984	S500MC; QStE 500 TM		E 490 D; S 490 MC	2662	FeE 490 TM				S500MC
1	A 1008 (HSLAS Grade 65 [450] Class 1); A 1008 (HSLAS Grade 65 [450] Class 2)	1.0982	S460MC; QStE 460 TM	1501-50F45; 50F45 HR; 50F45 HS; 50F45 CS							S460MC
1	A 1008 (HSLAS Grade 50 [340] Class 1); A 1008 (HSLAS Grade 50 [340] Class 2)	1.0976	S355MC; QStE 360 TM	46F40 HR; 46F40 HS; 46F40 CS	E 355 D	2642	FeE 355 TM				S355MC
1	A 1008 (HSLAS Grade 50 [340]); A 1008 (HSLAS Grade45 [310] Class 2); A 1011 (HSLAS-F Grade 50 [340])	1.0972	S315MC; QStE 300 TM	1501-40F30; 43F35 HR; 43F35 HS; 43F35 CS	E 315 D						
1	K01600; K02007; K02700; K02701; K02803; K02900; K03009; K03300; K11803; K12000; K12001; K12037	1.0562	P355N; StE 355	225-490A	FeE 355 KG N; E 355 R/FP; A 510 AP	2106	FeE 355; FeE 355 KG; FeE 355 KW	AE 355 KG; AE 355 DD	SM 490 A; SM 490 B; SM 490 C; SM 490 YA; SM 490YB STK 490 YB; STK 490; STK 500; SM 50 A; SM 50 B	15GF	P355N
1	1024; K03011; K03014; K12037; K12709	1.0570	S355J2G3 (S355J2); St 52-3 N (Fe 510 D1)			2132; 2134	fE 510	AE 355 D; Fe 510 D1 FF	SM 490 A; SM 490 B; SM 490 C; SM 490 YA; SM 490 YB; SM 520 B; SM 520 C; STK 490; STK 500; STKM 16 C	17GS; 17G1S	S355J2G3
1	K01600; K02302; K02700; K02701; K02803; K03301; K11803; K12037; K12609; A 299 (A); A 299 (B)	1.0566	P355NL1; TStE 355	225-490 A	A 510 FP	2107	Fe E 355 KT		SLA 365; STK 490; STK 500; SLA 37; STK 50; STK 51		P355NL1
1	K01600; K02007; K02701; K02803; K117803; K12001; K12037; K12609	1.0565	P355NH; WStE 355	225/490; 225-490 A; 500 Nb	A 510 AP	2106	FeE 355-2; FeE 355 KW				P355NH
1	K12037	1.0549	S355 NLH; TStE 355	50 EE		2135	Fe 510 D	FeE 355 KTM			S355 NLH

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
1	K12000	1.0553	S355JO; St 52-3 U; Fe 510 C	50 C; 4360-50C	E 36-3		Fe 510 C FN	AE 355 C	SCC 3		S355JO
1	A 252 (1); A 252 (2); A 252 (3)	1.0547	S355JOH; St 52-3 U	50 C; 4360-50C	TSE 355-3; E 36-3		Fe 510 C	AE 355 C; Fe 510 C			S355JOH
1	K02502	1.0036	S235JRG1; S235JR; Fe 360 B; USt 37-2	Fe 360 B FU; Fe 360 B FN		1311; 1312	Fe 360 B; Fe 360 C; Fe 360 D	AE 235 B; Fe 360 B		16D; St3Kp	
1	1020; 1022; 1023; G10200; G10220; G10230	1.0402	C22	055 M 15; 070 M 20; En 3 A; En 3 B; En 3 C; En 2; 22 HS; 22 CS	AF 42 C 20; XC 25; 1 C 22	1450	C 20; C 21	F.112; 1 C 22	S 20 C; S 22 C	20	C22; 2C/2D
1	K01701; K02505; K02704; K02801	1.0425	P265GH; H II	151-400; 154-400; 161-400; 164-400	A 42 CP; A 42 AP	1431; 1430; 1432	Fe 410 1 KW; Fe 410 1 KG; Fe 410 1 KT; Fe 410 2 KW; Fe 410 2 KG	A 42 Grado RC I; A 42 Grado RC II; F.6306; F.6307	SG 295; SGV 410; SGV 450; SGV 480; SPV 315; SPV 355; SG 30; SGV 42; SGV 46; SGV 49; SPV 32; SPV 36	16K; 20K	P265GH
1	A27 65-35	1.0443	HX300PD; H300PD; H 300 PD		E 23-45 M	1305					HX300PD
1	K12000; K12037	1.0546	S355NL; TStE 355	50 EE; 4360-50EE	E 355 FP	2135; 2135-01	FeE 355 KT	AE 355 Grado KT			
1	K12709	1.0545	S355N; StE 355	50 E; 4360-50E	E 355 R	2134	FeE 355 KG	AE 355 Grado KG	SM 490 A; SM 490 B; SM 490 C; SM 490 YA; SM 490 YB; SM 50 A; SM 50 B; SM 50 C; SM 50 YA; SM 50 YB		S355N
1	K02705; K02305; K12709	1.0539	S355NH; StE 335 N	S355NH	S355NH; TSE 355-4	2134-04	Fe 510 B	Fe 355 KGN			S355NH
1	1213; 1215; G12130; G12150	1.0715	11SMn30; 9 SMn 28	230 M 07; 220 M 07	S 250	1912	CF 9 S 22	F.210.A; F.210.L; 11 SMn 28; F.2111	SUM 22		11SMn30
1		1.0722	10SPb20; 10 SPb 20		10 PbF 2		CF 10 SPb 20	10 SPb 20; F.2122			10SPb20
1	1215; G12150; A 29 (1215); A 108 (1215); A 510 (1215); A 510 (1215); A 519 (1215); A 521 (1215)	1.0736	11SMn37; 9 SMn 36		S 300		CF 9 Mn 36	12 SMn 35; F.2113	SUM 25		11SMn37
1	12L14; 12 L 14; G12144	1.0737	11SMnPb37; 9 SMnPb 36		S 300 Pb	1926	CF 9 SMnPb 36	12 SMnPb 35; F.2114			11SMnPb37
1	1010; G10100	1.1121	C10E; Ck 10	040 A 10; 045 M 10; En 2 A; En 2 A/1; En 2 B; En 32 A	C10RR; XC 10	1265	2 C 10; 2 C 15; 1 C 10; C 10	C 10 k; F.1510	S 09 CK; S 10 C	08; 10	C10E

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
1	1015; 1017; G10150; G10170	1.1141	C15E; Ck 15	080 A 15; 080 M 15; En 32 C	XC 12; XC 15; XC 18	1370	1 C 15; C 15	C 16 k; F.1511; F.1110; C 15 k	S 15 C; S 15 CK	15	C15E
1	1020; G10200; K02301; K02595; K02596; K02597; K02598; K02599; K02702; K03000	1.0044	S275JR; St 44-2; Fe 430 B	En 43 B; Fe 430 B; 43/25 HR; 43/25 HS; 43 B; HFW 4; HFS 4; ERW 3; CEW 4; SAW 4	E 28 A; NFA 35-501 E 28	1411; 1412	Fe 430 B FN	AE 275 B; Fe 430 B FN	SN 400 B; SN 400 C; SN 490 B; SN 490 C; SS 400; STK 400; STKM 19 C; STKR 400; 19 C; SS 41; STK 41	St4ps; St4sp	S275JR
1		1.0250	S320GD; StE 320-3 Z		S 320 GD				SGC 440; SZAC 440; SZAH 440; SGLH 440		S320GD
1		1.0453	P265NL; P 265 NL								P265NL
1		1.0338	DC04; St 4; St 14	CR 1; CS 2	ES	1147	FeP 04	AP 04; FeP 04	SPCE; HR 4	08JuA	DC04
1											
1	K02001; K02601; K02701	1.0116	S235J2G3 (S235J2); St 37-3 N; Fe 360 D 1	Fe 360 D1 FF; 37/23 CR; 37/23 CS; 37/23 HR; 37/23 HS; 40 D; HFW 4; HFS 4	E 24-3; E 24-4; E 24-U	1312; 1313	Fe 360 C; D; Fe 360 C FN; Fe 360 D FF; Fe 37-2		SS 330; SS 34	16D; St3sp	S235J2G3
1	1015; 1017; G10150; G10170	1.0401	C15; C 15	080 A 15; 080 M 15; En32 C; 17 CS; 17 HS	C18RR; XC 18; C 18; AF 37 C 12	1350	1 C 15; C15; C16	F.111	S 15 C		C15
1		1.0347	DC03; RRSt; RRSt 13	CR2; CR3; CS3; 1449 3 CR; 1449 2 CR	E	1146	FeP 02; FeP 03	AP 02; AP02; FeP03	SPCD; CR 3	08Ju	DC03
1	K01500; K01702; K02401; K02502; K03000; A570.36	1.0038	S235JR; S235JRG2; RSt 37-2; Fe 360 B	Fe 360 B FU; 37/23 CR; 37/23 CS; 37/23 HR; 37/23 HS; HFW 3; HFS 3; 40 B	E 24-2 NE	1312	Fe 360 B FN	AE 235 B FN; AE 235 B FU; Fe 360 B FN; Fe 360 B FU	SS 330; SS 34	St3ps; St3sp	S235JR
1	J03001	1.0446	GE240; GS-45	A 1					230-450; 230-450 W	25L-3	GE240
2	1035; G10350	1.0501	C35G; C 35 G	080 M 30; En 5; 080 M 36	C 35; AF 55; 1 C 35; XC 38	1572; 1550	C 35; 1 C 35	F.113	S 35 C; S 35 CM		C35G
2	1035; G10350	1.1183	C35G; C 35 G; Cf 35	080 A 35	XC 38 TS	1572	C 36; C 38	F.1130; C 35 k	S 35 C; S 35 CM	35	C35G
2	1039; G10390	1.1157	40Mn4; 40 Mn 4		35 M 5					40G	
2	1040; G10400	1.0511	C40; C 40	En 8; 080 M 40	AF 60; C 40; 1 C 40		C 40; 1 C 40	F.114.A			C40
2	1045; 1045 H; 1042; G10450; H10450; G10420	1.1191	C45E; Ck 45	080 H 46; 080 M 46	C45RR; XC 45; XC 48 H-1	1672	C 45	F.1140; F.1142; C 45 k; C48 k	S 45 C; S 45 CM; S 48 C	45	C45E

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
2	1025; G10250	1.1158	C25E; Ck 25	070 M 26	2 C 25; XC 25		C 25	F.1120; C 25 k	S 25 C; S 28 C	25	C25E
2	1043; 1045; G10430; G10450	1.0503	C45; C 45	080 M 46	C 45; AF 65; C 45; 1 C 45	1650	C 45; 1 C 45	F.114	S 45 C; S 45 CM	45	C45
2	1050; 1055; G10500; G10550	1.1213	C53G; C53E; Cf 53		XC 48 TS		C 53		S 50 C; S 50 CM	50	
2	1140; G11400	1.0726	35S20; 35 S 20	212 M 36	35 MF 4	1957		F.210.G; 35 MnS 6; F.2131			35S20; 8M
2	1139; 1146; G11390; G11460	1.0727	46S20; 45 S 20		45 MF 4						46S20
2	K12000	1.0553	S355J0; St 52-3 U; Fe 510-C	50 C	E 36-3		Fe 510 C FN	AE 355 C	SCC 3		S355J0
2		1.0551	S355JRC								S355JRC
2	K02700; K02803; K03103; K03300; K12437	1.0473	P355GH; 19 Mn 6		A 52 CP	2101; 2102	Fe E 355-2	A 52 RC I, RA II	SGV 410; SGV 450; SGV 480		P355GH
2		1.0416	C18D; GS-38		20-400 M	1306					C18D
2	K12447	1.0577	S355J2; S355J2G4; Fe 510 D2		A 52 FP	2107		A 52 RB II; AE 355 D			
2	1049; 1050; G10490; G10500	1.1206	C50E; Ck 50	080 M 50	XC 50; 2 C 50	1674	C 50			50	C50E
2	1330; 1527; G13300; G15270	1.1170	28Mn6	150 M 19; En 14 A; En 14 B	20 M 5		C 28 Mn		SCMn 1	30G	28Mn6
2	1034; 1035; 1038; G10340; G10350; G10380; C 1034	1.1181	C35E; Ck 35	080 M 30; En 5; 080 M 36	XC35RR; XC32; XC 35; XC 38 H 2; XC 38 H 1; 2 C 35	1572	C 35	F.1130; C 35 k	S 35 C; S 35 CM; S 38 C	35	C35E
2		1.1180	C35R; Cm 35	080 A 35	XC 38 H 1 u; Cm 35		C 35	F.1135; C 35 k-1			C35R
2	1030; G10300	1.1178	C30E; Ck 30	080 M 30; En 5	XC 32		C 30	2 C 30	S 30 C; S 30 CM		C30E
2	1049; 1050; G10490; G10500	1.0540	C50	En 43 A; 080 M 50	C50	1674	C 50	1 C 50	S 50 C		C50
2	1536; G15360	1.1166	34Mn5					TO.B	SMn 433 H; SMn 433 HRCH; SMn 433 RCH; SMn 1 H		
2	1025; G10250	1.0406	C25	070 M 26	1 C 25		C 25; 1 C 25				
2		1.0723	15S22; 15 S 20	210 A 15; 210 M 15		1922		F.210F; F.210.F	SUM 32		
2		1.1730	C45U; C45W; C 45 U; C 45 U								C45U
3	1045; 1049; G10450; G10490	1.1201	C45R; Cm 45	080 M 46	3 C 45; XC 42 H 1; XC 48 H 1 u	1660	C 45	F.1145; F.1147; C 45 k-1; C 48 k-1	S 45 C; S 45 CM	45	C45R
3	1040; G10400	1.1186	C40E; Ck 40	080 M 40; En 8	2 C 40; XC 42 H 1		C 40		S 40 C	40	C40E

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
3	1074; 1075; G10740; G10750	1.0614	C76D; C 76 D; D 75-2		XC 75		3 CD 75			75	C76D
3	1095; G10950	1.0618	C92D; C 92 D; D 95-2	95 HS; 95 CS	XC 90		3 CD 95				C92D
3	1086; G10860	1.0616	C86D; C 86 D; D 85-2	80 HS; 80 CS	XC 80		C 85; 3 CD 85				C86D
3		1.1165	G28Mn6; GS-30 Mn 5	A 5; A 6				30 Mn 5; AM 30 Mn 5; F.120.D; F.8211; F.8311	SCMn 2	27ChGSNMDTL; 30GSL	G28Mn6
3	K01700; K02001; K02200; K02201; A 516 Gr.70; A 515 Gr. 70; A 414 Gr.F; A 414 Gr.G	1.0481	P295GH; 17Mn4; 17 Mn 4	224-469 B	A 48 CP; A 48 AP	2102	Fe 295	A 47 RC I; RA II	SG 365; SGV 410; SGV 450; SGV 480; SPV 315; SG 37; SGV 42; SGV 46; SGV 49; SPV 32	14G2	P295GH
3	1043; 1045; G10430; G10450	1.0503	C45; C 45	080 M 46	C 45; AF 65; C 45; 1 C 45	1650	C 45; 1 C 45	F.114	S 45 C; S 45 CM		C45
3	1335; 1335 H; 1541; 1541 H; G13350; G15410; H13350; H15410	1.1167	36Mn5; 36 Mn 5	150 M 36	40 M 5; 35 Mn 5	2120		F. 1203-36 Mn 6; F. 8212-36 Mn 5	SMn 438; SMn 438H; SCMn 3	35G2; 35GL	36Mn5
3	1045; 1045 H; 1042; G10450; H10450; G10420	1.1191	C45E; Ck 45	089 H 46; 080 M 46	C45RR; XC 45; XC 48 H 1	1672	C 45	F.1140; F.1142; C 45 k; C 48 k	S 45 C; S 45 CM; S 48 C	45	C45E
3		1.1303	38MnVS6; 38 MnVS 6								38MnVS6
4	1055; G10550	1.0535	C55	070 M 55; En 9	C54; 1 C 55; AF 70; C 55	1655	C 55; 1 C 55	F.115	S 55 C; S 55 C-CSP; S 55 CM	55	C55
4	1055; G10550	1.1203	C55E; Ck 55	070 M 55; En 9	C50RR; XC 54; XC 50; 2 C 55; XC 55 H 1	1655	C 55	F.1150; C 55 K	S 55 C; S 55 C-CSP; S 55 CM	55	C55E
4	1060; G10600	1.0601	C60	060 A 62; En 43 D	C60; 1 C 60		C 60; 1 C 60		S 58 C; S 60-C-CSP; S 60 CM; S 65 C-CSP; S 65 CM	60; 60G	C60; 43D
4	1070; G10700	1.1231	C67S; Ck 67	060 A 67; 080 A 67; En 43 E	C68RR; XC 68	1770	C 67		S 70 C-CSP; S 70 CM	65GA; 68GA	C67S
4	1074; 1075; 1078; G10700; G10750; G10780	1.1248	C75S; Ck 75	060 A 78; 80	C75RR; XC 75	1774	C 75		S 75 CM	75A	C75S
4	1095; G10950	1.1274	C100S; Ck 101	95	C100RR; XC 100	1870	C 100		SK 95 -CSP		C100S
4	W112; W1; T72301	1.1563	C125U; C 125 W		Y2 120; C120E3U		C 120 KU	F.5123; C 120	SK 120; SK 120 M; SK 2; SK 2 M; TC 120	U12-1	C125U

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
4	1086; G10860	1.1269	C80S; Ck 85; C 85 E		C90RR; XC 90		C 85		SK 85-CP	85A	C80S
4	1055; G10550	1.1209	C55R; Cm 55	070 M 55; En 9	3 C 55; XC 55 H 1		C 55	F.1155; C 55 k-1			C55R
4	1074; 1075; G10740; G10750	1.0605	C75	060 A 78	C 75		C 75			75	
4	1070; G10700	1.0603	C67	060 A 67; 080 A 67; En 43 E; 1449 70 HS	C68; XC 65		C 67		S 70 C-CSP; S 70 CM		C67
4		1.1219	C56E2; Cf 54						C56E2; S55C		C56E2
5	1055; G10550	1.1220	C56D2; C 56 D 2		C 56 D 2						C56D2
5		1.1217	C90S; C 90 S	CS95	C90RR; XC 90; XC90; C90E2U				SK 95		C90S
5	1060; 1064; G10600; G10640	1.1221	C60E; Ck 60	060 A 62; 070 M 60; En 43 D	C60RR; XC 60; X 65; 2 C 60	1678	C 60		S 58 C; S 60 C-CSP; S 60 CM; C 65 C-CSP; C 60 CM	60GA	C60E
5	1055; G10550	1.1203	C55E; Ck 55	070 M 55; En 9	C50RR; XC 54; XC 50; XC 55 H 1; 2 C 55	1655	C 55	F.1150; C 55 k	S 55 C; S 55 C-CSP; S 55 CM	55	C55E
6	9260; G92600	1.5028	65Si7; 65 Si 7		60 S 7				50 P 7; SUP 6; SUP 6 M; SUP 7; SWOSM	60S2G	
6	9260 H; H92600; 9260; G92600	1.5027	60Si7	251 A 60; 251 H 60	60 S 7		60 Si 7	F.144.B; F.1441		60S2	
6	9255; G92550	1.5026	56Si7; 56 Si 7; 55Si7; 55 Si 7	251 A 58; En 45 A	55 S 7	2085; 2090	55 Si 7	F.144; F.144.A; 56 Si 7; F.1440		55S2; 60S2	565Si7; 55Si7
6	9255; G22550	1.5025	51Si7; 51 S 7		50S7; 51 Si 7		48 Si 7; 50 Si 7	F.145.B			51Si7
6		1.5024	46Si7		45 S 7; Y 46 S 7; 46 SI 7			F.1451			46Si7
6	G50986; ASTM Grade E50100; ASTM Grade G15116; SAE E50100	1.3501	100Cr2; 100 Cr 2	GCr6; B00040; GCr4	100C2					SchCh4	
6	K21390; K21590; ASTM A 182 F22	1.7380	10CrMo9-10; 10 CrMo 9 10	622; 622-490; 622/515; 622/690	12 CD 9-10; 10 CD 9.10	2218	12 CrMo 9 10	TU.H	SCMQ4E; SCMV 4; SFVA F 22.A; SFVA F 22.B; SFVCM F22B; STBA 24; STFA 24; STPA 24	12Ch8	10CrMo9-10
6	O2; T31502	1.2842	90MnCrV8; 90 MnCrV 8	BO 2; BO2	90 MnV 8; 90 MV 8		90 MnVCr 8 KU	90 MnCrV 8; F.5229			90MnCrV8
6		1.2550	60WCrV7; 60 WCrV 7	BS1; BS 1	55 WC 20	2710	55 WCrV 8 KU; 58 WCr 9 KU	60 WCrSiV 8; F.5242			60WCrV7
6		1.2241	51CrMnV4; 51 CrV 4; 50 CrV 4								
6	L2; T61202	1.2210	115CrV3; 115 CrV 3		100 C 3		107 CrV 3 KU	F.520.L; F.5125			115CrV3

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
6		1.2419	105WCr6; 105 WCr 6	105WC 13	105 WCr 5; 105 WC 13	2140	107 WCr 5 KU	F.5233; 105 WCr 5	SKS 2; SKS 2 M; SKS 3; SKS 31	ChW1G; ChWG	105WCr6
6	4820; 5120; 5120H; G48200; G51200; H51200	1.7147	20MnCr5; 20 MnCr 5	150 M 19	20 MC 5	2172	20 MnCr 5; Fe52	F.150.D	SMnC 420 H; SMnC 420 RCH; SMnC 21 H	18ChG	20MnCr5
6	9255; G92550	1.0904	55Si7; 55 Si 7	250A53	55 S 7	2085	55 Si 8	56 Si 7			
6	9254; G92550	1.0904	55Si7; 55 Si 7	250 A 53	55 S 7	2090					
6	9262; G95620	1.0961	HDT 450 F; S340 MGC		60 SC 6		60 SiCr 8	60 SiCr 8; F.1442		60S2; 55S2; 50ChFA	
6	4135; 4137; 4135H; 4137H; G41350; G41370; H41350; H41370	1.7220	34CrMo4; GS34 CrMo 4; G34 CrMo 4	708 A 30	34 CD 4; 34CrMo4RR; 35 CD 4;	2234	34 CrMo 4 KB; 35 CrMo 4	35 CrMo 4 DF; F.125.A; F.125.B; F.1254; F.1250	SCM 435 H; SCM 435 HRCH; SCM 435 M; SCM 435 RCH; SCM 435TK; SCM 3 H; STKS 3	35ChM; AS38ChGM	34CrMo4
6		1.5120	38MnSi4; 38 MnSi 4								
6	L3; T61203	1.2067	102Cr6; 102 Cr 6; 100Cr6	BL 3; BL3	100Cr6RR; 100 C 6; 100Cr6; Y 100 C 6		102 Cr 6 KU	F.5230; 100 Cr 6	SUJ 2	Ch	102Cr6
6	L1	1.2108	90CrSi5; 90 CrSi 5			2092	105 WCr 5				90CrSi5
6	P20; T51620	1.2330	35CrMo4; 35 CrMo 4	708 A 37	34 CD 4	2234	35 CrMo 4				35CrMo4
6	O1; T31501	1.2510	100MnCrW4; 100 MnCrW 4	BO1; BO0; BO 1; BO 0	90MnWCrV5; 90 MWCV 5; 8 MO 8	2140	95 MnWCr 5 KU; 10 WCr 6	F.522.A; F.5220; 95 MnCrW5; 105 WCr 5	SKS 31		100MnCrW4
6	S1; T41901	1.2542	45WCrV7; 45 WCrV 7	BS1; BS 1	45 WCrV 8; 45 WCrV 20	2710	45 WCrV 8 KU	F.524; F.5241; 45 WCrSi 8		5ChW25F	45WCrV7
6	L6; T61206	1.2713	55NiCrMoV6; 56NiCrMoV6; 55 NiCrMoV 6; 56 NiCrMoV 6	BH 224; BH 225	55 NCDV 7			F.520.S	SKT 4	5ChNM	55NiCrMoV6
6		1.2721	50NiCr13		55 NCV 6	2550		F.528			
6	E52100; G52986	1.3505	100Cr6; 100 Cr 6	2 S.135; 535 A 99	100Cr6RR; 100 C 6; 100Cr6	2258	100 Cr 6	F.131; 100 Cr 6; F.1310	SUJ 2; SUJ 4	SchCh 15	100Cr6
6	K11820; K12020; K12320; A204 Grade A; A182 Grade F1	1.5415	16Mo3; 15 Mo 3	1503-243 B	15 D 3	2912; 16Mo3	16 Mo 3 KG; 16 Mo 3 KW; 16 Mo 5 KG; 16 Mo 5 KW	F. 2601; 16 Mo 3	STBA 12; STFA 12; STPA 12		
6	4422; G44220; J12522	1.5419	G20Mo5; 20Mo4; GS-22 Mo 4	245; B 1; B1					SCPH 11		G20Mo5
6	A 350-LF 5; K13050; K21703; K22103	1.5622	14Ni6; 14 Ni 6		16 N 6		14 Ni 6 KG; 14 Ni 6 KT	F.2641; 15 Ni 6			14Ni6
6	3415	1.5732	14NiCr10; 14 NiCr 10		14 NC 11		16 NiCr 11	15 NiCr 11	SNC 415; SNC 415 H; SNC 415 M	12ChN3A	14NiCr10

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6	3310; 3310 RH; 3312; 3316; 9315; E 3310; E 3316; E9315; G33106	1.5752	15NiCr13; 14NiCr14; 15 NiCr 13; 14NiCr14	655 M 13; 655 H 13; En 36 A	10 NC 12; 12 NC 15; 14 NC 12; 16 NC 12; 16 NCD 13			15 NiCr 11; F.1540	SNC 815 H; SNC 815 HRCH; SNC 815 RCH; SNC 22 H		15NiCr13
6		1.7262	15CrMo5; 15 CrMo 5		12 CD 4			12 CrMo 4; F.150.J; F155; F.1551	SCM 415 H; SCM 415 HRCH; SCM 415 M; SCM 415 RCH; SCM 415 TK; SCM 21 H		15CrMo5
6		1.6587	17CrNiMo6; 17 CrNiMo 6	820A16	18 NCD 6			14 NiCrMo 13			
6	9310; 9310H; 9310 RH; E 9310 H; G93106; H93100; H93106	1.6657	14NiCrMo13-4; 14 NiCrMo 13 4	832 H 13; 832 M 13; S.157; En 36 C	16 NCD 13		15 NiCrMo 13; 16 NiCrMo 12	14 NiCrMo 13; 14 NiCrMo 13-1; F.1560; F.1569			
6	5015; G50150	1.7015	15Cr3; 15 Cr 3	523 M 15	12 C 3; 15Cr2RR; 15 C 2				SCr 415; SCr 415 H; SCr 415 HRCH; SCr 415 RCH; SCr 21 H	15Ch	15Cr3
6	5132; 5132 H; G51320; H51320	1.7033	34Cr4; 34 Cr 4	530 A 32; 530 H 32; 530 M 32	32 C 4		34 Cr 4; 34 Cr KB	35 Cr 4; F.8221	SCr 430; SCr 430 H; SCr 430 HRCH; SCr 430 RCH; SCr 2 H	35Ch	34Cr4
6	5140; 5140 H; 5140 RH; G51400; H51400	1.7035	41Cr4; 41 Cr 4	530 A 40; 530 M 40; 530 H 40; En 18	42 C 4		41 Cr 4; 41 Cr 4 KB	41 Cr 4 DF; F.1211; F.1202	SCr 440; SCr 440 H	40Ch	41Cr4
6	5140; G51400	1.7045	42Cr4; 42 Cr 4	530 A 40	42 C 4 TS	2245	41 Cr 4	42 Cr 4	SCr 440		
6	5115; 5117; G51150; G51170	1.7131	16MnCr5; 16 MnCr 5	527 M 17; 590 H 17; 590 M 17	16MnCr5RR; 16 MC 5	2173	16 MnCr 5	F.1516		18ChG	16MnCrS5
6		1.7139	16MnCrS5; 16 MnCrS 5		BGH 7139; BOHLER E 411; VW 4221; OPEL QS1916; PROCONS 7139; E411; SES	2127					16MnCrS5
6	5155; 5155 H; 5150; G51550; H51550; G51600	1.7176	55Cr3; 55 Cr 3	525 A 58; 525 A 60; En 48	55 C 3; 55Cr3	2253	55 Cr 3	F.1431	SUP 9; SUP 9 A; SUP 9 M	50ChGA	55Cr3
6	4142; G41420	1.7223	41CrMo4; 41 CrMo 4		MOC 2; V320		41 CrMo 4	42 CrMo 4	SNB 22-1	40ChFA	
6	4140; 4140 H; 4140 RH; 4142; 4142 H; 4145; G41400; H41400; G41420; H41420; K14248; K14047	1.7225; 1.7227	42CrMo4; 42CrMo4V; 42 CrMo 4; 42 CrMo 4 V	708 M 40; 709 M 40; En 19; En 19 A	42 CD 4; 40 CD 4; 42CrMo4RR	2244; 42CrMo4	42 CrMo 4; 38 CrMo 4 KB; 41 CrMo 4	TO.D; TU.L	SCM 440 H; SCM 440 HRCH; SCM 440 M; SCM 440 RCH; SCM 440 TK; SNB 7 Class 2; SCM 4 H; SNB 22-1	40ChFA	42CrMo4

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
6	4147; 4147 H; 4150; 4150 H; 8650; 8650 H; G41470; G41500; G86500; H41470; H41500; H86500	1.7228	50CrMo4; 50 CrMo 4	708 M 40; 708 A 47		2512	653 M 31		SCM 445 H; SCM 445 HRCH; SCM 445 RCH; SCM 5 H		50CrMo4
6	8620; G86200	1.7321	20MoCr4; 20 MoCr 4			2625				BGH 7321; E320; SIQUAL 7321	20MoCr4
6	K11547; K11562; K11564; K11757; K11789; K12052; ASTM A182 F12	1.7335	13CrMo4-5; 13 CrMo4 4	620; 620-440; 620-470; 620-540; 621	15 CD 4-05	2216	14 CrMo 3; 14CrMo4 5	TU.E; TU.F; F.2631; 14 CrMo 4 5	SCMV 2; SFVA 12; STBA 22; STFA 22; STPA 20; STPA 22	12ChM; 15ChM	13CrMo4-5
6	K21390; K21590; ASTM A182 F22	1.7380	10CrMo9-10; 10 CrMo 9 10; GS-12CrMo9-10; GS-12 CrMo 9 10; G 12 CrMo9-12	622; 622-490; 622/515; 622/690; 1502-622	12 CD 9-10; 10 CD 9.10	2218	12 CrMo 9; 12 CrMo 10	TU.H	SCMQ 4 E; SCMV 4; SFVA F 22 A; SFVA F 22 B; SFVCM F 22 B; STBA 24; STFA 24; STPA 24	12Ch8	10CrMo9-10
6		1.7715	14MoV6-3; 14 MoV 6 3	1503-660-440				13 MoCrV 6			
6	E71400; K24065; K24728; A355 Class A	1.8509	41CrAlMo7-10; 41CrAlMo7; 41 CrAlMo 7	905 M 39; En 41 B	40 CAD 6.12	2940	41 CrAlMo 7	F.174; 41 CrAlMo 7; F1740	SACM 645; SACM 1	38Ch2MJuA	41B
6		1.6566	17NiCrMo6-4								17NiCrMo6-4
6	P20+S	1.2312	40CrMnMoS8-6		40 CMD 8 S						
6		1.7149	20MnCrS5; 20 MnCrS 5								20MnCrS5
6	P20+Ni	1.2738	40CrMnNiMo8-6-4; 40 CrMnNiMo 8 6 4		40 CMND 8					40Ch2GNM	40CrMnNiMo8-6-4
6		1.2311	40CrMnMo7; 40 CrMnMo 7		40 CMD 8		35 CrMo 8 KU	F.5302			40CrMnMo7
6		1.7238	49CrMo4; 49 CrMo 4								
6	4150; G41500	1.7701	52CrMoV4; 51CrMoV4; 51 CrMoV 4		51 CDV 4; 51CrMoV4		51 CrMoV 4				51CrMoV4
6		1.7337	16CrMo4-4; 16 CrMo 4 4				A 18 CrMo 45 KW		SCM 415 M; SCM 415; STBA 22; SFVA F12		
6		1.7242	16CrMo4; 16 CrMo 4		15 CD 3.5		18 CrMo 4	F.1550; 18 CrMo 4	SCM 418 H; SCM 418 HRCH; SCM 418 RCH; SCM 418 TK		16CrMo4
6	4419; 4419 H; 4520; G44190; H44190; G45200; K11522; K11820; K12020; K12023; K12320; K12821	1.5423	16Mo5				16 Mo 5 KG; 16 Mo 5 KW	TU.D; F.2602	SB 450 M; SB 480 M; SB 46 M SB 49 M		
6										30ChGSA	

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
6	HY-80; HY 80; HY80; K31820; MIL-S-21952										
6				605 M 36; En 16; En 16T							
7	4130; 4130 H; 4130 RH; G41300; H41300	1.7218	25CrMo4; 25 CrMo 4; GS-25 CrMo 4; G 25 CrMo 4	708 A 25	25 CD 4	2225	25 CrMo 4; 25 CrMo KB	F.222; F.1256	SCM 420 TK; SCM 430 M; SCM 430 RCH; SCM 430 TK; STKS 1	20ChM; 30ChM	25CrMo4
7		1.8070	21CrMoV5-11; 21 CrMoV 5 11				35 NiCr 9				
7		1.7755	GS-35 CrMoV 10 4; G35 CrMoV 10-4								
7		1.7733	24CrMoV5-5		20 CDV 6		21 CrMoV 5 11				
7	4340; 4340 H; 9850; G43400; G98500; H43400; K23028	1.6565	40NiCrMo6; 40 NiCrMo 6	817 M 40; En 24				F.1275; 40 NiCrMo 7	SNB 24-1; SNB 24-2; SNB 24-3; SNB 24-4; SNB 24-5; SNCM 439 RCH	40Ch2N2MA	40NiCrMo6
7	8640; 8640 H; 8740; 8740 H; 8742; G86400; G87400; G87420; H86400; H87400; K11640	1.6546	40NiCrMo2-2; 40 NiCrMo 2 2		40 NCD 2; 40 NCD TS		40 NiCrMo 2; 40 NiCrMo 2 KB	40 NiCrMo 2 DF; F.1205; F.1204; TO.E	SNCM 240; SNCM 240 RCH	38ChGNM	
7	8617; 8617 H; 8620; 8620 H; 8620 RH; 8617; G86170; G86200; H86170; H86200; K12147	1.6523	20NiCrMo2-2; 21NiCrMo2; 21 NiCrMo 2	805 H 20; 805 M 20; 806 M 20; En 362	20 NCD 2	2506	20 NiCrMo 2	20 NiCrMo 2; 20 NiCrMo 3-1; F.1522; F.1534	SNCM 220; SNCM 220 H; SNCM 220 HRCH; SNCM 220 M; SNCM 220 RCH; SNCM 21 H	20ChGNM	20NiCrMo2-2
7		1.5755	31NiCr14; 31 NiCr 14	653 M 31	18 NC 13						
7	3135	1.5710	36NiCr6; 36 NiCr 6	640 A 35	35 NC 6				SNC 236		36NiCr6
7	4340; G43400; 4337; G43370	1.6582	34CrNiMo6; 34 CrNiMo 6	816 M 6; 817 M 40	34 CrNiMo 8; 35 NCD 6	2541	35 NiCrMo 6 KB	F.1272		38Ch2N2MA	34CrNiMo6
7		1.8519	31CrMoV9; 31 CrMoV 9							30Ch3MF	31CrMoV9
7	8630	1.6545	30NiCrMo2-2; 30 NiCrMo 2 2		30 NCD 2		30 NiCrMo 2 KB				
7	4340; G43400	1.6580	30CrNiMo8	823 M 30	30 CND 8; 30 NCD 8			30 CrNi Mo 8	SNCM 431		
7	K01907	1.5217	20MnV6; 20 MnV 6 N	55 C; GR 55; Grade 55	20MV6; TS E 455 4; TU E 455 4						20MnV6; S460
7	300M; 4340M; K44220	1.6928	41SiNiCrMoV7-6	S 155							
8		1.8523	40CrMoV13-9; 39CrMoV13-9; 39 CrMoV 13 9	897 M 39			36 CrMoV 12				40CrMoV13-9
8		1.8515	31CrMo12; 31 CrMo 12	722 M 24	30 CD 12	2240	32 CrMo 12	F.1712; F.124.A			31CrMo12; 40B

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
8		1.8161	58CrV4; 58 CrV 4								
8		1.7361	32CrMo12; 32 CrMo 12	722 M 24	30 CD 12	2240	30 CrMo 12	F.124.A			32CrMo12
8	9840; G98400	1.6511	36CrNiMo4; 36 CrNiMo 4	817 M 37; 816 M 40	40 NCD 3; 35 NCD 5		39 NiCrMo 4; 39 NiCrMo 4 KB	F.128; F.1280; 35 NiCrMo 4	SUP 10	40ChGNM; 40ChN2MA	36CrNiMo4
8	6145; 6150; 6150 H; G61500; H61500	1.8159	51CrV4; 50CrV4; 50 CrV 4	735 A 50; 735 A 51; 735 H 51; 735 M 50; En 47	50CrV4RR; 50 CV 4; 51 CV 4	2230	50 CrV 4	F.143; F.143.A; 51 CrV 4; F.1430	SUP 10; SUP 10-CSP; SUP 10 M	50ChFA; 50ChGFA	51CrV4
8	3435	1.5736	36NiCr10; 36 NiCr 10		30 NC 11				SNC 631; SNC 631 H; SNC 631 M		
8	A128 Grade A; J91109; J91129; J91139; J91149	1.3401; 1.3403	X120Mn12; X 120 Mn 12; G-X120 Mn 12	BW 10	Z 120 M 12	2183	GX 120 Mn 12	F.240.A; F.240.A1; AM-X 120 Mn 12; F.8251	SCMnH 1; SCMnH 11	110G13L	
8	4142; G41420	1.2332	47CrMo4	708 M 40	42 CD 4	2244	42 CrMo 4	42 CrMo 4	SCM; SCM 440		47CrMo4
8	4140 H; 4140 RH; 4140 HT		42CrMo4+QT								
8											
8											
8		1.8705	21MnCr6-5								
8											
9		1.6659	31NiCrMo13-4	830 M 31		2534		F.270			
9		1.5864	35NiCr18								
9											
9											
9											
9		1.8715	17MnCr5-3								17MnCr5-3
10	K71340; K81340	1.5662	X8Ni9	1501-509; 1501-510; 502-650; 509-690	9 Ni; Z 8 N 09		X 10 Ni 9; X 12 Ni 09	F.2645; XBNi 09	SL9N520; SL9N590; STBL 690; STPL 690; SL9N53; SL9N60; STBL 70; STPL 70		X8Ni9
10	2515; A2515; 2517; E2517; K41583	1.5680	X12Ni5; 12Ni19;		Z 18 N 5; Z 10 N 05; 5 Ni				SL5N590; SL5N60		X12Ni5
10	D4; T30404; D6; T30406	1.2436	X210CrW12; X 210 CrW 12	BD6	Z 200 CD 12; Z 210 CW 12-01; X210CrW12-1	2312	X 215 CrW 12 1 KU	F.5213; X210 CrW 12	SKD 2		X210CrW12
10	H13; T20813	1.2344	X40CrMoV5-1; X40 CrMoV 5 1	BH 13	X 40 CrMoV 5; Z 40 CDV 5	2242	X 40 CrMoV 5 1 1 KU	F.5318; X 40 CrMoSiV 5	SKD 61	4Ch5MF1S	X40CrMoV5-1
10	A2; T30102	1.2363	X100CrMoV5; X100CrMoV5-1; X 100 CrMoV 5 1	BA 2	X 100 CrMoV 5; Z 100 CDW 5	2260	X 100 CrMoV 5 1 KU	F.536; F.5227; X 100 CrMoV 5	SKD 12		X100CrMoV5
10	H21; T20821	1.2581	X30WCrV9-3; X30WCrV9 3	BH 21	Z 30 WCV 9		X 30 WCrV 9 3 KU	F.5323; X 30 WCrV 9	SKD 5	3Ch2W8F	X30WCrV9-3; X30WCrV9 3
10		1.2601	X165CrMoV12; X 165 CrMoV 12			2310	X165CrMoW 12KU				X165CrMoV12
10		1.2316	X36CrMo17; X38CrMo16								X38CrMo16
10	M2; T11302	1.3343	HS6-5-2; HS 6-5-2; S 6-5-2	BM 2; BM2	Z 85 WDCV 06-05-04-02; 6-5-2; HS6-5-2	2722		F.550.A; F.5604	SKH 51	R6M5	HS6-5-2

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
10	H11; T20811	1.2343	X37CrMoV5-1; X38CrMoV5-1	BH 11	Z 38 CDV 5; X38CrMoV		X 37 CrMoV 5 1 KU	F.520.G; F.5137; X 37 CrMoSiV 5	SKD 6	4Ch5MFS	X37CrMoV5-1
10	H12; T20812	1.2606; 1.2605	X37CrMoW5-1; X 37 CrMoW 5 1; X35CrWMoV5; X 35 CrWMoV 5	BH 12	Z 35 CWDV 5; X35CrWMoV5		X 35 CrMoW 05 KU	F.537	SKD 62	5ChNM	X37CrMoW5-1; X35CrWMoV5
10	D2; T30402	1.2379	X153CrMoV12; X155CrVMo12-1; X155 CrVMo 12 1	BD 2	X 160 CrMoV 12; Z 160 CDV 12	2310	X 155 CrVMo 12 1 KU	F.520.A	SKD 10; SKD 11		X153CrMoV12
10		1.2085	X33CrS16; X 33 CrS 16		Z 35 V CD 17.S						X33CrS16
10		1.2162	21MnCr5; 21 MnCr 5		20 MC 5						21MnCr5
10		1.2767	X45NiCrMo4; 45NiCrMo16; X 45 NiCrMo 4		45 NCD 16		40 NiCrMoV 8 KU				X45NiCrMo4
10		1.2764	X19NiCrMo4; X 19 NiCrMo 4; GX19NiCrMo4								X19NiCrMo4
10	D3; T30403	1.2080	X210Cr12; X 210 Cr 12	BD 3	X200Cr12; Z 200 C 12		X 205 Cr 12 KU	F.521; F.5212; X 210 Cr 12	SKD 1	Ch12	X210Cr12
10		1.2367	X38CrMoV5-3; X 38 CrMoV 5 3								X38CrMoV5-3
10		1.6957	27NiCrMoV15-6; 26NiCrMoV14-5; 26 NiCrMoV 14 5								
10	501; 502; S50100; S50200; K41545	1.7362	X12CrMo5; X 11 CrMo 5; 12CrMo19-5; 12 CrMo 19 5					F.240.B; TU.J	SCMV 6; SFVA F 5 A; SFVA F 5 B; SFVA F 5 C; SFVA 5 D; SNB 5 Class 1; STBA 29; STFA 25; STPA 25		X12CrMo5
11	M33; T11333; M34; T11334	1.3249	HS2-9-2-8; S 2-9-2-8	BM 34				2-9-2-8; F.5611			
11	M41; T11341	1.3246	HS7-4-2-5; S 7-4-2-5		Z 110 WKCDV 07-05-04-04-02			F.5615; HS 7-4-2-5			HS7-4-2-5
11	M42; T11342	1.3247	HS2-10-1-8; S 2-10-1-8	BM 42	Z 110 DKCWV 09-08-04-02-01; 2-9-1-8; HS2-9-1-8	2716	HS 2-9-1-8	F.5617; HS 2-10-1-8	SKH 59		HS2-10-1-8
11		1.3207	HS10-4-3-10; S 10-4-3-10	BT 42	Z 130 WKCDV 10-10-04-04-03; 10-4-3-10; HS10-4-3-10		HS 10-4-3-10	F.550.B; F.5553; HS 10-4-3-10	SKH 57	R12F3K10M3-SCh	HS10-4-3-10
11	T15; T12015	1.3202	HS12-1-4-5; S 12-1-4-5	BT 15	HS12-1-4-5		HS 12-1-5-5	F.5563; HS 12-1-5-5		R13F4K5	
11		1.3243	HS6-5-2-5; S 6-5-2-5	BM 35	6-5-2-5; 6-5-2-5 HC; HS6-5-2-5; HS6-5-2-5HC; Z 85 WDKCV 06-05-05-04-02; Z 90 WDKCV 06-05-05-04-02	2723	HS 6-5-2-5	F.550.C; F.5613; HS 6-5-2-5	SKH 55	R6M5K5	HS6-5-2-5
11	M7; T11307	1.3348	HS2-9-2; S 2-9-2		Z 100 DCWV 09-04-02-02; 2-9-2; HS2-9-2	2782	HS 2 9 2	F.5607; HS 2-9-2	SKH 58		HS2-9-2
11	T4; T12004	1.3255	HS18-1-2-5; S 18-1-2-5	BT 4	Z 80 WKCV 19-05-04-01; HS 18-1-1-5		HS 18-1-1-5	F.5530; HS 18-1-1-5	SKH 3		HS18-1-2-5

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
11	T1; T12001	1.3355	HS18-0-1; S 18-0-1	BT 1	18-0-1; HS 18-0-1; Z 80 WCV 18-04-01	2750	HS 18-0-1	F.5520; HS 18-0-1	SKH 2	R18	HS18-0-1
11											
11											
11											
11											
11											
11											
11			X10NiMoCrV6								
12	430 F; S43020	1.4104	X12CrMoS17; X 12 CrMoS 17		Z 13 CF 17	2383	X 10 CrS 17	F.3413	SUS 430 F		X12CrMoS17
12	S31500	1.4417	GX2CrNiMoN25-7-3			2376					GX2CrNiMoN 25-7-3
12		1.4742	X10CrAlSi18; X10CrAl18		Z 12 CAS 18			F.3113; X 10 CrAl 18	SUS 21	15Ch18SJu	X10CrAlSi18
12		1.4724	X10CrAlSi13; X10CrAl13; X 10 CrAl 13				X 10 CrAl 12	F.3152; X 10 CrAl 13		10Ch13SJu	X10CrAlSi13
12	434; S43400	1.4113	X6CrMo17-1; X 6 CrMo 17 1	434 S 17	Z 8 CD 17-01	2325		F.3116	SUS 434		X6CrMo17-1
12	HNV-6; HNV6; S65006	1.4747	X80CrNiSi20; X 80 CrNiSi 20	443 S 65	Z 80 CSN 20-02		X 80 CrSiNi 20	F.320B	SUH 4		
12	446; S44600	1.4762	X10CrAlSi25; X10CrAl24; X 10 CrAl 24		Z 10 CAS 24	2322		F.3154	SUH 446		X10CrAlSi25
12	EV 8; S63008	1.4871	X53CrMnNiN21-9; X 53 CrMnNiN 21 9	349 S 52	Z 52 CMN 21-9 Az		X 53 CrMnNiN 21 9	F.3217	SUH 35, SUH 36	55Ch20G9AN4	X53CrMnNiN21-9
12		1.4001	X7Cr14; X 7 Cr 14; G-X 7 Cr 13		Z 8 C 13 FF				SUS 4105		X7Cr14
12	440 B; S44003	1.4112	X90CrMoV18		X 89 CrMoV 18-1			SUS 440B			X90CrMoV18
12	410 S; 403; S41008; S40300	1.4000	X6Cr13; X 6 Cr 13	403 S 17	Z 8 C 12	2301	X 6 Cr 13	F.3110	SUS 403; SUS 403 FB; SUS 410 S	08Ch13	X6Cr13
12	410; S41000; S41001; CA-15	1.4006	X12Cr13; GX12Cr13; X 12 Cr 13; X 10 Cr 13	410 S 21; ANC 1 grade A; En 56 A	Z 10 C 13; Z 13 C 13	2302	X 12 Cr 13 KG; X 12 Cr 13 KW	F.3401	SUS 410; SUS 410 FB; SUS 410 TB; SUS 410 TKA; SUS 410 TKC; SUS F 410-A; SUS F 410-B; SUS F 410-C	12Ch13; 15Ch13L	X13Cr13
12	405; S40500	1.4002	X6CrAl13; X 6 CrAl 13	405 S 17	Z 8 CA 12		X 6 CrAl 13	F.3111	SUS 405; SUS 405 TB; SUS 405 TP		X6CrAl13
12	416; S41600	1.4005	X12CrS13; X 12 CrS 13	416 S 21; En 56 AM	Z 11 CF 13	2380	X12 CrS 13	F.3411	SUS 416		X12CrS13
12		1.4015	X8Cr17								
12	430; S43000	1.4016	X6Cr17; X 6 Cr 17	430 S 17; 430 S 15; 430 S 18	Z 8 C 17	2320	X 8 Cr 17	F.310.D; F.3113	SUS 430; SUS 430 TB; SUS 430 TKA; SUS 430 TKC; SUS 430 TP	12Ch17	X6Cr17
12		1.4027	GX20Cr14	ANC 1 grade B; ANC 1 grade C; 420 C 24; 420 C 29	Z 20 C 13 M				SCS 2	20Ch13L	

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12	420 F; S42020	1.4028	X30Cr13; X 30 Cr 13	420 S 37; 420 S 45; En 56 C; En 56 D	Z 33 C 13 Cl; Z 33 C 13; Z 30 C 13	2304	X 30 Cr 13	F.3403	SUS 420 F; SUS 420 J 2; SUS 420 J 2-CSP; SUS 420 J 2 FB; SUS 420 J 2 TKA	30Ch13	X30Cr13
12		1.4086	GX120Cr29; G-X 120 Cr 29	452 C 11							
12		1.4340	GX40CrNi27-4; G-X 40 CrNi 27 4								
12		1.4720	X20CrMo13; X 20 CrMo 13								
12	439; 430 Ti; S43035; S43036; XM 8	1.4510	X3CrTi17; X 6 CrTi 17		Z 4 CT 17		X 6 CrTi 17	F.3115; X 5 CrTi 17	SUS 430 LX; SUS 430 LXTB; SUS XM8TB	08Ch17T	X3CrTi17
12	446-1	1.4749	X18CrN28		Z 12 C 25						X18CrN28
12		1.4511	X3CrNb17; X 6 CrNb 17		Z 4 CNb 17		X 6 CrNb 17	F.3122; X 5 CrNb 17	SUS 430 LX; SUS 430 LXTB		X3CrNb17
12	409; S40900	1.4512	X2CrTi12; X 6 CrTi 12	LW 19; 409 S 19	Z 3 CT 12		X 6 CrTi 12	F.3121	SUH 409 L; SUS 409 LTB; SUS 409 TB		X2CrTi12
12		1.4418	X4CrNiMo16-5-1; X 4 CrNiMo 16 5		Z 6 CND 16-04-01	2387					X4CrNiMo16-5-1
12	420; S42000	1.4021	X20Cr13; X 20 Cr 13	420 S 37; 420 S 29; En 56 C	Z 20 C 13 Cl; Z 20 C 13	2303	X 20 Cr 13	F.310.J; F.3402	SUS 420 J 1; SUS 420 J 1 FB; SUS 420 J 1 TKA	20Ch13	X20Cr13
13	420; S42000; S42080	1.4031	X39Cr13; X 38 Cr 13		Z 40 C 14 Cl; Z 40 C 14	2304	X 40 Cr 14	F.3404; X40 Cr 13	SUS 420 J 2	40Ch13	X39Cr13
13		1.4922	X20CrMoV11-1; X20CrMoV12-1; X 20 CrMoV 12 1	BS 762		2317	X 20 CrMoNi 12 01				X20CrMoV11-1; X20CrMoV12-1
13		1.4923	X22CrMoV12-1; X21CrMoNiV12-1; X 22 CrMoV 12 1								X22CrMoV12-1; X21CrMoNiV12-1
13	420; S42000	1.4021	X20Cr13; X 20 Cr 13	420 S 37; 420 S 29; En 56 C	Z 20 C 13 Cl; Z 20 C 13	2303	X 20 Cr 13	F.310.J; F.3402; X 20 Cr 13	SUS 420 J 1; SUS 420 J 1 FB; SUS 420 J 1 TKA	20Ch13	X20Cr13
13	420; S42000	1.4034	X46Cr13; X 46 Cr 13		Z 44 C 14 Cl; Z 44 C 14; Z 38 C 13 M		X 40 Cr 14	F.3405; X 40 Cr 13		40Ch13	X46Cr13
13	431; S43100	1.4057	X17CrNi16-2; X 20 CrNi 17 2; X 22 CrNi 17	431 S 29; En 57	Z 15 CN 16.02 Cl; Z 15 CN 16-02	2321	X16 CrNi 16	F.313; F.3427; X 19 CrNi 17 2	SUS 431; SUS 431 FB	14Ch17N2; 20Ch17N2	X17CrNi16-2
13	CA 6-NM; S41500; J91540	1.4313	X3CrNiMo13-4; X 4 CrNi 13 4		Z 6 CN 13-04; Z 6 CN 13-4; Z 4 CND 13.4 M	2384					X3CrNiMo13-4
13		1.4122	X39CrMo17-1; X 35 CrMo 17				X 39 CrMo 17-1				X39CrMo17-1
13	422; S42200	1.4935	X20CrMoWV12-1; X 20 CrMoWV 12 1								X20CrMoWV12-1
13	HNV 3; S65007	1.4718	X45CrSi9-3; X 45 CrS 9 3; G-X 45 CrNi 9 3	401 S 45; En 52	Z 45 CS 9		X 45 CrSi 8	F.322; F.3220	SUH 1	40Ch9S2; 4Ch9S2	X45CrSi9-3
13		1.2083; 1.2083 ESR	X40Cr14; X 42 Cr 13		X40Cr14; Z 40 C 14	2314	X 41 Cr 13 KU	F.5263; X 40 Cr 13	SUS 420 J 2		X40Cr14
13	CA 6-NM; J91540	1.4317	GX4CrNi13-4; G-X 5 CrNi 13 4	425 C 11; 425 C 12	Z 4 CND 13 4 M		GX 6 CrNi 13 04		SCS 6; SCS 6X		GX4CrNi13-4
13	S13800; XM-13	1.4534	X3CrNiMoAl 13-8-2; X 3 CrNiMoAl 13 8 2	FE-PM1503							X3CrNiMoAl 13-8-2

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
14	15-5PH; 15-5 PH; XM-12; S15500; J92110	1.4545; 1.4545.9	X5CrNiCuNb15-5		Z 7 CNU 15-05						X5CrNiCu15-3
14	329; S31260; S32900	1.4460	X3CrNiMo27-5-2; X 4 CrNiMo 27 5 2		Z 3 CND 25-07 Az; Z 5 CND 27-05 Az	2324		F.3552; F.3309; X 8 CrNiMo 27-05; X 8 CrNiMo 26 6	SUS 329 J 1; SUS 329 J 1 FB; SUS 329 J 1 TB; SUS 329 J 1 TP	10Ch26N5M	X3CrNiMo27-5-2
14	321; S32100	1.4541	X6CrNiTi18-10	321 S 31; LW 18; LW 24; LWCF 18; LWCF 24; 321 S 12; 321 S 50; 321 S 51; 321 S 50-490; 1010; 1115	Z 6 CNT 18-10	2337	X 6 CrNiTi 18 11; X 6 CrNiTi 18 11 KG; X 6 CrNiTi 18 11 KW; X 6 CrNiTi 18 11 KT	F.332; F.3523; X 6 CrNiTi 18 10	SUS 321	06Ch18N10T; 08Ch18N10T; 09Ch18N10T; 12Ch18N10T	X6CrNiTi18-10
14		1.4425	X2CrNiMo18-13-3								
14	316; 316H; 316 H; S31600; S31609	1.4401	X5CrNiMo17-12-2; X 5 CrNiMo 18 10	316 S 31; 316 S 33; 316 S 17; 316 S 19; 316 S 40; 316 S 41; 845	Z 6 CND 17-11; Z 6 CND 17-11-02-FF; Z 7 CND 17-11-02; Z 7 CND 17-12-02	2347	X 5 CrNiMo 17 12; X 5 CrNiMo 17 12 KG; X 5 CrNiMo 17 12 KW	F.310.A; F.3534; X 5 CrNiMo 17 12 2	SUS 316; SUS 316 A; SUS 316 FB; SUS 316 HFB; SUS 316 HTB; SUS 316 HTP; SUS 316 TB; SUS 316 TBS	08Ch16N11M3	X5CrNiMo17-12-2
14		1.4821	X20CrNiSi25-4		Z20CNS25.04						X20CrNiSi25-4
14	J92701	1.4312	GX10CrNi18-8	ANC 3 grade A; ANC 3 A; 302 C 25	Z 10 CN 18.9 M				SCS 12; SCS 13A	10Ch18N9L	
14	J92605; J93005	1.4823	GX40CrNiSi27-4; G-X 40 CrNiSi 27 4						SCH 11 X		GX40CrNiSi27-4
14		1.4585	GX7CrNiMoCuNb18-18; G-X 7 CrNiMoCuNb 18 18				X 6 CrNiMoTi 17 12				
14	347; J92640; J82710	1.4552	GX5CrNiNb19-11; G-X 5 CrNiNb 18 9	347 C 17; 821 grade Nb	Z 4 CNNb 19.10 M; Z 6 CNNb 18.10 M			AM-X 7 CrNiNb 20 10; F.8413	SCS 21; SCS 21 X		GX5CrNiNb19-11
14		1.4500	GX7NiCrMoCuNb25-20; G-X 7 NiCrMoCuNb 25-20		23 NCDU 25.20 M						
14	304; S30400	1.4301	X5CrNi18-10; X 5 CrNi 18 9	304 S 15; 304 S 31; LW 13; LW 15; LW 21; LWCF 13; LWCF 15; 302 S 17; 304 S 16; 304 S 17; 304 S 40	Z 4 CN 19-10 FF; Z 5 CN 17-08; Z 6 CN 18-09; Z 7 CN 18-09	2333; 2332	X 5 CrNi 18 10; X 5 CrNi 18 10 KG; X 5 CrNi 18 10 KW; X 5 CrNi 18 10 KT	F.3504; X 5 CrNi 18 10	SUS 304; SUS 304 A; SUS 304-CSP; SUS 304 FB; SUS 304 TB; SUS 304 TBS; SUS 304 TKA; SUS 304 TKC	08Ch18N10	X5CrNi18-10
14	304L; 304 L; S30403; J92500; J92600	1.4306; 1.4309	X2CrNi19-11; GXCrNi19-11	304 S 11; LW 20; LWCF 20; S.536; T.74; 304 C 12; 305 S 11	Z 1 CN 18-12; Z 2 CN 18-10; Z 3 CN 19.10 M; Z 3 CN 18-10; Z 3 CN 19-11; Z 3 CN 19-11 FF	2352	X 3 CrNi 18 11; X 2 CrNi 18 11; GX 2 CrNi 19 10	F.310.G; F.3503; X 2 CrNi 19 10; AM-X 2 CrNi 19 10; F.8412	SCS19	03Ch18N11	X2CrNi19-11; GXCrNi19-11
14	304H; 304 H; CF-8; J92590; J92600; J92650; J92710	1.4308	GX5CrNi19-10; G-X 6 CrNi 18 9	304 C 15	Z 6 CN 18.10 M; Z 6 CN 19.9 M			AM-X 7 CrNi 20 10; F.8411	SCS 13; SCS 13 A; SCS 13 X	07Ch18N9L	GX5CrNi19-10; 58E

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
14	J92701	1.4312	GX10CrNi18-8; G-X 10 CrNi 18 8	ANC 3 grade A; ANC 3 A; 3025 S 25	Z 10 CND 18.9 M				SCS 12	10Ch18N9L	GX10CrNi18-8
14	S32304	1.4362	X2CrNiN23-4; X 2 CrNiN 23 4		Z 3 CN 23-04 Az	2327					X2CrNiN23-4
14	201; S20100	1.4372	X12CrMnNiN17-7-5		Z 12 CMN 17-07 Az				SUS 201		X12CrMnNiN 17-7-5
14	316; S31600	1.4436	X3CrNiMo17-13-3; X 5 CrNiMo 17 13 3	316 S 31; 316 S 33; LW 23; LWCF 23; 316 S 19; 316 S 40; 316 S 41; 1.4436	Z 6 CND 18-12-03; Z6 CND 18-13; Z 7 CND 18-12-03	2343	X 5 CrNiMo 17 13; X 8 CrNiMo 17 13	F.3538; X 5 CrNiMo 17 13 3	SUS 316; SUS 316 A; SUS 316 FB; SUS 316 TB; SUS 316 TBS; SUS 316 TKA; SUS 316 TKC; SUS 316 TP		X3CrNiMo17-13-3
14	316L; 316 L; S31603; J92700; J92800	1.4404	X2CrNiMo17-12-2; X2CrNiMo17-13-2; X 2 CrNiMo 17 12 2; X 2 CrNiMo 17 13 2	316 S 11; 316 S 13; 316 S 14; 316 S 30; S.161; S.537; T.75	Z 2 CND 17-12; Z 3 CND 17-11-02; Z 3 CND 17-12-02; Z 3 CND 17-12-02 FF; Z 3 CND 18-12-03	2348	X 2 CrNiMo 17 12	F.310.K; F.3533; F.3537	SUS 316 L; SUS 316 LFB; SUS 316 LTBS; SUS 316 LTP; SUS 316 F 316 L		X2CrNiMo17-13-2
14	316LN; 316 LN; S31653	1.4406	X2CrNiMoN17-11-2; X2CrNiMoN17-12-2; X 2 CrNiMoN 17 12 2	316 S 61; 316 S 63	Z 2 CND 17-11 Az		X 2 CrNiMoN 17 12	F.3542; X 2 CrNiMoN 17 12 2	SUS 316 LN; SUS F 316 LN		X2CrNiMoN 17-11-2
14	CF-8M; J92900	1.4408	GX5CrNiMo 19-11-2; G-X 6 CrNiMo 18 10	ANC 4 grade B; ANC 4 B; 316 C 16; 845 grade B				AM-X 7 CrNiMo 20 10; F.8414	SCS 14; SCS 14 A; SCS 14 X	07Ch18N10G2S2M2L	GX5CrNiMo 19-11-2
14	S32750	1.4410	X2CrNiMoN25-7-4; X 10 CrNiMo 18 9		Z 5 CND 25-06 Az	2328					X2CrNiMoN 25-7-4
14	316LN; 316 LN; S31563	1.4429	X2CrNiMoN17-13-3; X 2 CrNiMoN 17 13 3	316 S 63; 1.4429	Z 3 CND 17-12 Az	2375	X 2 CrNiMoN 17 13	F.3543; X 2 CrNiMoN 17 13 3	SUS 316 LN; SUS F 316 LN		X2CrNiMoN 17-13-3
14	316L; 316 L; S31603; J92800	1.4435	X2CrNiMo18-4-3; X 2 CrNiMo18 14 3	316 S 13; 316 S 11; 316 S 14; 316 S 31; LW 22; LWCF 22; 845 B	Z 3 CND 17-12-03; Z 3 CND 18-14-03	2353	X 2 CrNiMoN 17 13; X 2 CrNiMoN 17 13 KG; X 2 CrNiMoN 17 13 KW	F.3533-X2 CrNiMo 17 13 2	SUS 316 L; SUS 316 LFB; SUS 316 LTBS; SUS 316 LTP; SUS F 316 L	O3Ch17N14M3	X2CrNiMo18-4-3
14	S31726	1.4439	X2CrNiMoN17-13-5; X 2 CrNiMoN 17 13 5		Z 3 CND 18-14-05 Az			F.3544; X 2 CrNiMoN 17 13 5			X2CrNiMoN 17-13-5
14	317; S31700	1.4449	X3CrNiMo18-12-3	317 S 16			X 5 CrNiMo 18 15		SUS 317; SUS 317 TB; SUS 317 TP; SUS F 317		X3CrNiMo18-12-3
14	329; S31260; S32900	1.4460	X3CrNiMoN27-5-2; X 4 CrNiMoN 27 5 2		Z 5 CND 27-05 Az; Z 3 CND 25-07 Az	2324		F.3552; F.3309; X 8 CrNiMo 27-05; X 8 CrNiMo 26 6	SUS 329 J 1; SUS 329 J 1 FB; SUS 329 J 1 TB; SUS 329 J 1 TP	10Ch26N5M	X3CrNiMoN27-5-2
14	S31803; S31260; S32900	1.4462	X2CrNiMoN22-5-3; X 2 CrNiMoN 22 5 3	318 S 13; 1.4462	Z 2 CND 24-08 Az; Z 3 CND 25-06-03 Az; Z 3 CND 25 -05 Az	2377			SUS 329 J 3 L; SUS 329 J 3 LTB; SUS 329 J 3 LTP		X2CrNiMoN22-5-3
14	631; 17-7PH; 17-7 PH; S17700	1.4568; 1.4564; 1.4504	X7CrNiAl17-7; X 7 CrNiAl 17 7	301 S 81	Z 9 CNA 17-07; Z 8 CNA 17-07	2388		X 2 CrNiMo 17 12	SUS 631; SUS 631 J 1; SUS 631-CSP	09Ch17N7Ju1	X7CrNiAl17-7
14	443; 444; S44300; S44400	1.4521	X2CrMoTi18-2; X 2 CrMoTi 18 2		Z 3 CDT 18-02; Z 3 CDT 18-2	2326		F.3123; X 2 CrMoTiNb 18 2	SUS 444; SUS 444 TB; SUS 444 TP		X2CrMoTi18-2
14	904L; 904 L; N08904	1.4539	X1NiCrMoCu25-20-5; X 1 NiCrMoCuN 25 20 5	904 S 13	Z 2 NCDU 25-20	2562					X1NiCrMoCu 25-20-5

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
14	630; 17-4PH; 17-4 PH; S17400	1.4542	X5CrNiCuNb16-4; X 5 CrNiChNb 17 4		Z 7 CNU 15-05; Z 7 CNU 16-04; Z 7 CNU 17-04				SUS 630; SUS 630 FB; SUS F 630		X5CrNiCuNb16-4
14	S31254	1.4547	X1CrNiMoN20-18-7			2378					X1CrNiMoN 20-18-7
14	631; 17-7PH; 17-7 PH; S17700	1.4568	X7CrNiAl17-7; X 7 CrNiAl 17 7	301 S 81	Z 9 CNA 17-07; Z 8 CNA 17-07	2388		X 2 CrNiMo 17 12	SUS 631; SUS 631 J 1; SUS 631-CSP	09Ch17N7Ju1	X7CrNiAl17-7
14	316 Ti; S31635	1.4571	X6CrNiMoTi17-12-2; X 6 CrNiMoTi 17 12 2	320 S 31; 320 S 18	Z 6 CNDT 17-12	2350	X 6 CrNiMoTi 17 12; X 6 CrNiMoTi 17 12 KG; X 6 CrNiMoTi 17 12 KW	F.310.B; F.3535; X 6 CrNiMoTi 17 12 2	SUS 316 Ti; SUS 316 TiTB; SUS 316 TiTP	08Ch16N11M3T; 08Ch17N13M2T; 10Ch17N13M2T	X6CrNiMoTi 17-12-2
14	309S; 309 S; 309; S30908; S30900	1.4833	X12CrNi23-13; X 7 CrNi 23 14	309 S 24	Z 15 CN 23-13; Z 15 CN 24-13		X 6 CrNi 23 14		SUS 309 S; SUS 309 S TB; SUS 309 S TP		X12CrNi23-13
14	S30415	1.4891	X4CrNiSiN18-10; X 4 CrNiSiN 18 10			2372					X4CrNiSiN 18-10
14	S30815	1.4893	X9CrNiSiNCe21-11-2; X 8 CrNiSiN 21 11			2368					X9CrNiSiNCe 21-11-2
14	304H; 304 H; S30409; S30480	1.4948	X6CrNi18-10; X6CrNi18-11; X 6 CrNi 18 11;	304 S 50; 304 S 51; 801 grade A	Z 5 CN 18-09				SUS 302		X6CrNi18-10
14		1.4581	GX5CrNiMoNb19-11-2; G X 5 CrNiMoNb 18 10	ANC 4 grade C; ANC 4 C; 318 C 17; 845 grade Nb	Z 4 CNDNb 18.12 M		GX 6 CrNiMoNb 20 11		SCS 22		GX5CrNiMoNb 19-11-2
14	303; S30300	1.4305	X8CrNiS18-9; X 10 CrNiS 18 9	303 S 31	Z 8 CNF 18-09	2346	X 10 CrNiS 18 09	F.310.C; F.3508; X 10 CrNiS 18-09	SUS 303	30Ch18N11	X8CrNiS18-9; 58M
14	304L; 304 L; S30403	1.4306	X2CrNi19-11; X 2 CrNi 19 11	304 S 11; LW14; LW 20; LWCF 14; LWCF 20; S.536; T.74; 304 C 12; 304 S 11	Z 1 CN 18-12; Z 3 CN 18-10; Z 3 CN 19-11; Z 3 CN 19-11 FF	2352	X 2 CrNi 18 11; X 3 CrNi 18 11	F.310.G; F.3503; X 2 CrNi 18 10	SUS 304 L; SUS 304 LFP; SUS 304 LTB; SUS 304 LTBS; SUS 304 LTP; SUS F 304 L	03Ch18N11	X2CrNi19-11
14	301; J 230; S30100; S30200	1.4310	X10CrNi18-8; X 12 CrNi 17 7	301 S 21; 301 S 22	Z 11 CN 17-08; Z 11 CN 18-08; Z 12 18-09	2331	X 12 CrNi 17 07	F.3517; X 2 CrNiN 18 10	SUS 301; SUS 301-CSP; SUS 302; SUS 302 FB	12Ch18N9	X10CrNi18-8
14	304LN; 304 LN; S30453	1.4311	X2CrNiN18-10; X 2 CrNiN 18 10	304 S 61	Z 3 CN 18-10 Az; Z 3 CN 18-07 Az	2371	X 2 CrNiN 18 11	F.3541; X 2 CrNiN 18 10	SUS 304 LN; SUS F 304 LN		X2CrNiN18-10
14	304B1; 304B2; 304B3; 304 B1; 304 B2; 304 B3; S30461; S30462; S30463	1.4350	X5CrNi18-9	304 S 31	Z 6 CN 18.09	2332; 2333	X 5 CrNi 18 10	F.3551			58E
14	317L; 317 L; S31703	1.4438	X2CrNiMo18-15-4; X2 CrNiMo 18 16 4	317 S 12	Z 2 CND 19-15-04; Z 3 CND 19-15-04	2367	X 2 CrNiMo 18 16	F.3539; X2 CrNiMo 18 16 4	SUS 317 L; SUS 317 LFB; SUS 317 LTB; SUS 317 LTP; SUS F 317 L; SUS Y 317 L		X2CrNiMo18-15-4

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
14	321H; 321 H; S32109	1.4878	X12CrNiTi18-10; X 12 CrNiTi 18-9	321 S 31	Z 6 CNT 18-10	2337	X 6 CrNiTi 18.11	F.3553	SUS 321; SUS 321 HFB; SUS 321 HTB; SUS 321 HTP; SUS 321 TKA; SUS 321 TP; SUS F 321; SUS Y 321		X12CrNiTi18-10; 58B
14	347; 348; S34700; S34800	1.4550	X6CrNiNb18-10; X 6 CrNiNb 18 10	347 S 31; ANC 3 grade B; ANC 3 B; 347 S 20; 347 S 40; 347 S 50; 347 S 51	Z 6 CNNb 18-10	2338	X 6 CrNiNb 18 11; X 6 CrNiNb 18 11 KG; X 6 CrNiNb 18 11 KW; X 6 CrNiNb 18 11 KT	F.3524; X 6 CrNiNb 18 10	SUS 347; SUS 347 FB; SUS 347 HTB; SUS 347 TB; SUS 347 TKA; SUS 347 TP; SUS F 347	08Ch18N12B	X6CrNiNb18-10; 58F;
14	318; S31803	1.4583	X10CrNiMoNb18-12; X 10CrNiMoNb 18 12		Z 6 CNDNb 18-12		X 6 CrNiMoNb 20 11				
14	310H; 310 H; 310S; 310 S; S31008; S31009	1.4845	X8CrNi25-21; X 12 CrNi 25 21	310 S 16; 310 S 24; 310 S 25; 310 S 31	Z 8 CN 25-20; Z 12 CN 25-20; Z 12 CN 26-21	2361	X 6 CrNi 25 20 (X 6 CrNi 25 20)	F.331	SUS 310 S; SUS 310 FB; SUS 310 STG; SUS 310 STP; SUS310 TB; SYS Y 310 S	10Ch23N18; 20Ch23N18	X12CrNi25-21
14		1.4465; 1.4466	X1CrNiMoN25-22-2; X 2 CrNiMoN 25 22 7								X1CrNiMoN 25-22-2
14	309; S30900	1.4828	X15CrNiSi20-12; X 15 CrNiSi 20 12	309 S 24	Z 9 CN 24-13; Z 17 CNS 20-12		X 16 CrNi 23 14	F.3312; X 15 CrNiSi 20-12	SUH 309; SUS 309 TB; SUS 309 TP	20Ch20N14S2	58C; X15CrNiSi20-12
14	HK; J94203; J94204; J94224	1.4848	GX40CrNiSi25-20; G-X 40 CrNiSi 25 20	310 C 40; 310 C 45			G X 40 CrNi 26 20	AM-X 40 CrNi 25 20; F.8452	SCH 21; SCH 22; SCH 22 X		GX40CrNiSi25-20
14	HK 30; J93503; J94003; J94013; HH	1.4837; 1.4848+Nb	GX40CrNiSi25-12; G-X 40 CrNiSi 25 12	309 C 30			G X 35 CrNi 25 12		SCH 13; SCH 13 A; SCH 13 X; SCH 17; SCS 17	40Ch24N12SL	GX40CrNiSi25-12
14	310; 314; S3100; S31400; S31500	1.4841	X15CrNiSi25-21; X 15 CrNiSi 25 20	314 S 25	Z 15 CNS 25-20		X 16 CrNiSi 25 20	F.3310; X 15 CrNiSi 25-20	SUH 310; SUS 310 TB; SUS Y 310	20Ch25N20S2	X15CrNiSi25-21
14		1.4849	GX40NiCrSiNb38-19; G-X 40 NiCrSi 38 18								GX40NiCrSiNb 38-19
14	S32760; SA351/995; 25Cr-7Ni-Mo-N	1.4501	X2CrNiMoCuWN25-7-4	1.4501	Z 3 CNDU 25-06 Az						X2CrNiMoCuWN 25-7-4
14	348; S34800	1.4546	X5CrNiNb18-10	2 S.130; 2 S.143; 3 S.144; 3 S.145; S.525; S.527							
14		1.4544; 1.4544.9		S.524; S.526; 2 S 129	Z 10 CNT 18-11; 9160/C 63; 9160C201		X 6 CrNiTi 18 11			08Ch18N12T	FE-PA 13
14		1.6900	X12CrNi18-9; X 12 CrNi 18 9								
14		1.4829	X12CrNi22-12; X 12 CrNi 22 12								
14		1.4882	X50CrMnNiNbN21-9		Z 50 CMNNb 21.09						X50CrMnNiNbN 21-9
14	316N; 316 N; J92804	1.4409	GX2CrNiMo19-11-2; G-X 2 CrNiMo 19 11 2		Z 3 CND 19.10 M		GX2 CrNiMo 19 11	AM-X 2 CrNiMo 19 11; F.8415	SCS 16 A; SCS 16 AX SCS 16 AXN		GX2CrNiMo 19-11-2
14	304L; 304 L J92500; J92620	1.4309	GX2CrNi19-11	304 C 12	Z 3 CN 19.10 M		GX 2 CrNi 19 10	AM-X 2 CrNi 19 10; F.8412	SCS 19; SCS 19 A		GX2CrNi19-11

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
15	A48 25 B; Class 25; No 25 B	0.6015	EN-GJL-150; GG 15; EN-JL 1020	Grade 150	Ft 15 D; R 15 D	01 15-00	G 14; G 15	FG 15	FC 15; FC 150	SCh 15	EN-GJL-150; EN-JL 1020
15	A48-30 B; Class 30, No.30 B	0.6020	EN-GJL-200; GG 20; EN-JL 1030	Grade 220	Ft 20 D	01 20-00	G 20; Gh 190	FG 20	FC 20; FC 200	SCh 20	EN-GJL-200; EN-JL 1030
15	A48-20 B; Class 20; No 20 B	0.6010	EN-GJL-100; GG 10; EN-JL 1010		Ft 10 D	01 10-00	G 10	FG 10	FC 10; FC 100	SCh10	EN-GJL-100; EN-JL 1010
16	A48-45 B; Class 45; No 45 B	0.6030	EN-GJL-300; GG 30; EN-JL 1050	Grade 300	Ft 30 D	01 30-00	G 30	FG 30	FC 30; FC 300	SCh 30	EN-GJL-300; EN-JL 1050
16	A48-50 B; Class 50; No 50 B	0.6035	EN-GJL-350; GG 35; EN-JL 1060	Grade 350	Ft 35 D	01 35-00	G 35	FG 35	FC 35; FC350	SCh 35	EN-GJL-350; GG 35; EN-JL 1060
16	A48-60 B; Class 60; No 60 B	0.6040	EN-JLZ; GG 40	Grade 400	Ft 40 D	01 40-00				SCh 40	EN-JLZ
16	A48-40 B; Class 40; No 40 B	0.6025	EN-GJL-250; GG 25; EN-JL 140	Grade260	Ft 25 D	01 25-00	G 25	FG 25	FC 25	SCh 25	EN-GJL-250; EN-JL 140
17		0.7033	EN-GJS-350-22-LT; GGG 35.3	350/22 L 40	FGS 370-/17	0717-15	GS 370-17	FNG 38-17	FCD 350-22L	VCh42-12	EN-GJS-350-22-LT
17	60-40-18; A536 60-40-18	0.7043	EN-GJS-400-18; EN-GJS-400-18-LT; GGG-40.3; EN-GJS-400-18A-LT	370/7; SNG 370/17	FGS 370-17	0717-15	GSO 400-12			VCh 42-2	EN-GJS-400-18; EN-GJS-400-18-LT; EN-GJS-400-18A-LT
17	60-40-18; A536 60-40-18	0.7040	EN-GJS-400-15; EN-JS 1030; GGG-40	420/12; SNG 420/12	FCS 400-12	0717-02	GS 400-12	FGE 38-17	FCD 40	VCh 42-12	EN-GJS-400-15; EN-JS 1030
17	65-45-12; A536 65-45-12	5.3107	EN-GJS-450-10	450/10; SNG 450/10	FGS 450-10		GS 400-12	FGE 42-12	FCD450	VCh 45	EN-GJS-450-10
18	65-45-12; A536 65-45-12	0.7050	EN-GJS-500-7; EN-GJS-500-7A; EN-JS 1050; GGG-50	500/7	FGS 500-7	0727-02	GS 500/7	FGE 50-7	FCD 50; FCD 500; FCD 500-7	VCh 50-2	EN-GJS-500-7; EN-GJS-500-7A; EN-JS 1050
18	80-55-06; A536 80-55-06	0.7060	EN-GJS-600-3; EN-GJS-600-3A; EN-JS 1060; GGG-60	600/3	FGS 600-3	0732-03	GS 600/3	FGE 60-2	FCD 60; FCD 600; FCD 600-3		
18		0.7652	GGG-NiMn 13 7	S-NiMn 13 7	S-NM 13 7	07 32-03	GGG 60	GGG 60			
18	100-70-03; A536 100-70-03	0.7070	EN-GJS-700-2; EN-JS 1070; GGG-70	700/2; SNG700/2	FGS 700-2	0737-01	GS 700-2	FGE 70-2	FCD 70; FCD 700; FCD 700-2	VCh 70-2	EN-GJS-700-2; EN-JS 1070
18	A439 Type D-2	0.7660	GGG-NiCr 20 2	S-NiCr 20 2	S-NC 20-2						
18	A439 Type D-2 B	0.7661	GGG-NiCr 20 3	S-NiCr 20 3	S-NC 20 3						
19	A47-32510; A47 Class 32510; A47 Grade 32510; 32510	0.8135	EN-GJMB-350-10; EN-JM 1130; GTS-35-10; GTS-35	B 340/12; 310 B340/12	MN 35-10; A32-702 MN 350-10	0810	B 35-10	GTS 35; 36114 Type A	FCMB 340; G5703 FCMB 340	KCh 35-10	EN-GJMB-350-10; EN-JM 1130
19	A47-35018, A47 Class 35018; A47 Grade 35018				MN 380-18; A32-702 MN 380-18					KCh 37-12	
19	A47-22010; A47 Class 22010; A47 Grade 22010; UNS F22200			B 32-10; 6681 B 32-10					FCMB 310	KCh 33-8	
20	A220-50005; A220 Class 50005; A220 Grade 50005	0.8155	EN-GJMB-550-4; EN-JM1160; GTS-55-04	P 55-04; P 510/4	MP 60-3; A32-703 MP 60-3; Mn 550-4	0856-00	P 55-04	Type C; 36116 Type C	FCMP 540	KCh 55-4; KCh60-3	EN-GJMB-550-4; EN-JM1160

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
20	A220-70003; A220 Class 70003; A220 Grade 70003	0.8165	EN-GJMB-650-2; EN-JM1180; GTS-65-02	P 65-02; 6681 P 65-02; P 570/3	Mn 650-3	0862-030	GMN 65		FCMP 590	KCh 63-3	EN-GJMB-650-2; EN-JM1180
20	A220-70003; A220 Class 70003; A220 Grade 70003	0.8170	EN-GJMB-700-2; EN-JM1190; GTS-70-02	P 70-2; 6681 P 70-2; P 690/2	MP 70-2; A 32-703 MP 70-2; Mn 700-2	0862-03	P 70-2; GMN 70	36116 Type A	FCMP 690	KCh 70-2	EN-GJMB-700-2; EN-JM1190
20	A220-45006; A220 Class 45006; A220 Grade 45006 A220-45008; A220 Class 45008; A220 Grade 45008	0.8145	EN-GJMD-450-6; EN-JM1140; GTS-45-06; GTS-45	P 45-06; 6681 P 45-06	MP 50-5; A32-703 MP 50-5	0854-00	P 45-06	Type E; 36116 Type E		KCh 45-7	EN-GJMD-450-6; EN-JM1140
20	A220-80002; A220 Class 80002; A220 Grade 80002			P 70-2	MN 700-2	854			FCMP 70; FCMP 700	KCh 80-1.5	
20	A220-90001; A220 Class 90001; A220 Grade 90001										
20	A220-60004; A220 Class 60004; A220 Grade 60004										
20	A220-40010; A220 Class 40010; A220 Grade 40010					0852-00					
20		0.8040	EN-GJMW-400-5; GTW-40-05	W 40-05	MB 400-5		W 40-05	36113 Type A	FCMW 370		EN-GJMW-400-5; EN-JM1030
20		0.8035	EN-GJMW-350-4; GTW-35-04	W 35-04	MB 35-7		W 35-04	36113 Type B	FCMW 330		EN-GJMW-350-4; EN-JM1010
21	AA5005; AA5006; A95005; A95006; 5005; 5005A; 5006	3.3315	AlMg1; AlMg1C	N41	A G0-6	144106	L3350		A5005	1510; AMg1	AlMg1C; 5005A
21	AA1050; A91050; 1050; 1050A	3.0255	Al99,5; Al99.5	1B	A5	14407	9001/2	L-3051		AD0	Al99.5; Al99,5; 1050A
21	AA1200; A91200 ; 1200; 1200A	3.0205	Al99,0; Al99.0; Al99	1C	A4	144010	Al99.0	L-3001	A1200	A0	Al99.0; AL99,0; 1200
22	AA2017; A92017; 2017; 2017A	3.1325; 3.1124	AlCu2,5Si(A); AlCu2.5Si(A); AlCuMg1		A-U4G			L-3120		V65	AlCu2,5Si(A); AlCu2.,5Si(A); 2017A
22		3.2315	AlMgSi1	H30	A-SGM0.7	144312	9006/4	L-3453		AD35	AlSiMgMn; 6082
22		3.4345	AlZnMgCuO,5; AlZnMgCuO.5								AlZnMgCu0.5; AlZnMgCu0,5; 7022
22		3.1655	AlCu6BiPb; AlCuBiPb	FC1	A-U5PbBi	144355	9002/5	L-3192	A2011		AlCu6BiPb; 2011
22	AA7075; A97075; 7075	3.4365; 3.4364	AlZn5,5MgCu; AlZn5.5MgCu; AlZnMgCu1,5; AlZnMgCu1.5	7075; L95; L96	A-Z5GU		9007/2	L-3710	A7075	B95	AlZn5.5MgCu; AlZn5,.5MgCu; AW-7075; 7075

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
22	AA2024; A92024; 2024	3.1355; 3.1354	AlCuMg2	2024; 2L97	A-U4G1		9002/4; 3583	L-3140	A2024	D16	AlCu4Mg1; 2024
22		3.4335	AlZn4,5Mg1; AlZn4.5Mg1	H17	A-Z5G	144425	9007/1	L-3741			AlZn4.5Mg1; AlZn4,5Mg1; 7020
22	AA6061; A96061; 6061	3.3211; 3.3214	AlMg1SiCu	H20	A-GSUC		9006/2	L-3420	A6061	AD33	EN AW-6061; EN AW-AlMg1SiCu; AlMg1SiCu
23		3.3261	G-AlMg5Si; GK-AlMg5Si; AlMg5Si; VDS 245	LM5		144163				AL13	EN AC-51400; EN AC-AlMg5Si; G-AlMg5Si; AlMg5Si
23		3.2982	GD-AlSi12(Cu); G-AlSi12(Cu); AlSi12(Cu); VDS 231 D		A-S12U		3048				EN AC-47100; EN AC-AlSi12C; G-AlSi12Cu; AlSi12Cu; AlSi12Cu1(Fe)
23	520.0; AA 520.0; A05200				A-G10S		3056	L-2310	AC7B	A18	
23	222.0; AA 222.0; A02220			LM12			3041	L-2110			
23	518.0; AA 518.0; A05180	3.3292	G-AlMg9; GD-AlMg9; AlMg9; VDS 349								EN AC-51200; EN AC-AlMg9; G-AlMg9; AlMg9
23	203.0; AA 203.0; A02030	3.1754	G-AlCu5Ni1,5; G-AlCu5Ni1.5		AU5NKZr						
23	ER4047; A94047	3.2585	SG-AlSi12	4047A; NG2		144262					SG-AlSi12; EL-AlSi12
23	712.0; AA 712.0; A07120		G-AlZn10Si8Mg; GK-AlZn10Si8Mg; AlZn10Si8Mg; VDS 108		A-Z5GF		3602				EN AC-71100; EN AC-AlZn10Si8Mg; G-AlZn10Si8Mg; AlZn10Si8Mg
23	514.0; 514.1; AA 514.0; AA 514.1; A05140; A05141	3.3561	G-AlMg5; GK-AlMg5; AlMg5; EN AC-51300; VDS 244		A-G6		3058	L-2331		AL28; AMg5Mz;	EN AC-51300; EN AC-AlMg5; G-AlMg5; AlMg5
23	B413.0; AA B413.0; A24130; B213.0; AA 213.0; A22130	3.2581; 3,2582	G-AlSi12; GK-AlSi12; GD-AlSi12; AlSi12	LM6	A-S13	144261	4514	L-2520	AC3		EN AC-44200; EN AC-AlSi12; G-AlSi12; GD-AlSi12; AlSi12
23		3.2211	G-AlSi11; GK-AlSi11; AlSi11								EN AC-44000; EN AC-AlSi11; G-AlSi11
23	A444.0; AA A444.0; A14440									AK7	
23		3.3541	G-AlMg3; GK-AlMg3; GF-AlMg3; AlMg3; VDC 244	H20	A-G3T	144224	3059	L-2341	ADC6		EN AC-51100; EN AC-AlMg3; G-AlMg3; AlMg3
24	515.0; AA 515.0; A05150	3.3241	G-AlMg3Si; GK-AlMg3Si; GF-AlMg3Si; AlMg3Si; AlMg3Si1								G-AlMg3Si1; AlMg3Si
24		3.2373	G-AlSi9Mg; GK-AlSi9Mg; AlSi9Mg		A-S9G		3051		AC4A	AK9	G-AlSi9Mg; AlSi9Mg

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
24	A356.0; AA A356.0; A13560; A356.2; AA A356.2; A13562	3.2371	G-AlSi7Mg; GK-AlSi7Mg; GF-AlSi7Mg; AlSi7Mg	2L99	A-S7G03			L-2651	AC4CH	AL9	G-AlSi7Mg; AlSi7Mg
24	204.0; AA 204.0; A02040	3.1371	G-AlCu4TiMg; GK-AlCu4TiMg; GF-AlCu4TiMg; AlCu4TiMg		AU5GT			L-2140	AC1B		EN AC-21000; EN AC-AlCu4TiMg; G-AlCu4TiMg
24	A333.0; AA A333.0; A13330	3.2161	G-AlSi8Cu3; GK-AlSi8Cu3			144163				AL13	EN AC-AlSi8Cu3; EN AC-AlSi8Cu3; G-AlSi8Cu3
24	380.0; AA 380.0; A03800	3.2163	G-AlSi9Cu3; GD-AlSi9Cu3; AlSi9Cu3; VDS 226	LM24	A-S9U3	144252	3610	L-2630	AC4B	AK8M3; AK8	EN AC-46200; EN AC-AlSi8Cu3; G-AlSi9Cu3; AlSi8Cu3
24	365.0; AA 365.0; A03650		G-AlSi10MnMg								EN AC-43500; EN AC-AlSi10MnMg; G-AlSi10MnMg
24	319.0; AA 319.0; A03190	3.2151	G-AlSi6Cu4; GK-AlSi6Cu4; AlSi6Cu4; VDS 225	LM21	A-S5UZ	144230	7369/4	L-2620	AC2B	AK5M	EN AC-45000; EN AC-AlSi6Cu4; G-AlSi6Cu4; AlSi6Cu4
24		3.2383	G-AlSi10MgCu; GK-AlSi10MgCu; G-AlSi10Mg(Cu); GK-AlSi10Mg(Cu); AlSi10MgCu; AlSi10Mg(Cu)		A-S10UG						
24		3.2381; 3.2385	G-AlSi10Mg; GK-AlSi10Mg; GD-AlSi10Mg; AlSi10Mg; VDS 239		A-S10G	144253					EN AC-43000; EN AC-AlSi10Mg; G-AlSi10Mg; AlSi10Mg
24		3.1841	G-AlCu4Ti; AlCu4Ti							AL19	EN AC-21100; EN AC-AlCu4Ti; G-AlCu4Ti; AlCu4Ti
25	390.0; AA 390.0; A03900		G-AlSi17Cu4Mg	LM30		4282					EN AB-48100; EN AC-48100; G-AlSi17Cu4Mg; AlSi17Cu4Mg
25	393.0; AA 393.0; A03930		G-AlSi20CuMgNi; AlSi20CuMgNi	LM29						AK21M2N2	
25			G-AlSi18Cu1MgNi; AlSi18Cu1MgNi	LM28							
26	C36000	2.0375	CuZn36Pb3	CZ124	CuZn36Pb3		12167		C3600; C3601; C3602		CuZn36Pb3; CW603N
26	C83810	2.1098	CuSn3Zn8Pb5-C; G-CuSn2ZnPb	LG1							CuSn3Zn8Pb5-C
26	C83600	2.1096; 2.1096.01	CuSn5Zn5Pb5-C; G-CuSn5ZnPb; Rg 5	LG2	CuPb5Sn5Zn5; UE5; U-E 5 Pb 5 Z 5	5204-15			H5111; H2203	BrO5Ts5S5	CuSn5Zn5Pb5-C
26	C93200	2.1090	CuSn7Zn4Pb7-C; G-CuSn7ZnPb; GC-CuSn7ZnPb; GZ-CuSn7ZnPb; Rg 7	GC 493K	CuSn7Pb6Zn4; UE7; U-E 7 Z 5 Pb 4						CuSn7Zn4Pb7-C
26	C93800	2.1182	CuSn7Pb15-C; G-CuPb15Sn; GC-CuPb15Sn; GZ-CuPb15Sn	LB1	U-Pb15E8; U-Pb 15 E8			C-3300			CuSn7Pb15-C; CC496K
26	C93700	2.1176	CuSn10Pb10-C; G-CuPb10Sn; GC-CuPb10Sn; GZ-CuPb10Sn	LB2	U-Pb10						CuSn10Pb10-C
27	C22000	2.0230	CuZn10; Ms90	CZ101	U-Z10; CuZn10		P-CuZn10; P-OT90		C2200	L90	CuZn10; CW501L

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
27	C86200; SAE 430A	2.0596	CuZn34Mn3Al2Fe1-C; G-CuZn34Al2; GK-CuZn34Al2; GZ-CuZn34Al2	HTB 1	U-Z36N3; CuZn19Al6Y20				HBSC4; H5102/class 3; H5102/class 4	LTs23A; LTs23A6Zh3MTs2	CuZn34Mn3Al2 Fe1-C; CC764S
27	C27200	2.0335	CuZn36; Ms64	CZ108	U-Z36; CuZn 36		C 2700			L63	CuZn36; CW507L
27	C27400	2.0321	CuZn37; Ms63	CZ108			P-CuZn37; P-OT63		C2720	L63	CuZn37; CW508L
27	C86400	2.0592	CuZn35Mn2Al1Fe1-C; G-CuZn35Al1; GK-CuZn35Al1; GZ-CuZn35Al1; G-Ms60	HTB 1					HBSC1; CAC301		CuZn35Mn2Al1 Fe1-C; CC765S
27	C46400	2.0530	CuZn38Sn1As; CuZn38Sn1	CZ112			P-CuZn39Sn1		C4640	LO60-1	CuZn38Sn1As; CW717R
27	C23000; 85Cu-15Zn	2.0240	CuZn15 ; CuZn 15	CZ102	U-Z15; CuZn15	5112-02; 5112-04; 5112-05			C2300		CuZn15; CW502L
27	C24000; 80Cu-20Zn	2.0250	CuZn20; CuZn 20; Ms80	CZ103	CuZn20	5114-02; 5114-04; 5114-05			C2400		CuZn20; CW503L
27	C26000; CA260	2.0265	CuZn30; CuZn 30	CZ106	CuZn30				C2600		CuZn30; CW505L
28	C63000	2.0966	CuAl10Ni5Fe4; CuAl 10 Ni 5 Fe 4	CA 104	U-A10N; CuAl9Ni5Fe3		P-CuAl10Ni5Fe5		C6301	BrAD; BrAZhN10-4-4; N10-4-4	CuAl10Ni5Fe4; CW307G
28	C90700	2.1050	CuSn10-C; G-CuSn 10; SnBz10	CT1	CuSn8						CuSn10-C; CC480K
28	C90800; C91700	2.1052; 2.1052.01; 2.1052.04; 2.1052.03	CuSn12-C; G-CuSn12; GZ-CuSn12; SnBz12, Gbz12	PB2	UE12P				CAC502C; PBC2C		CuSn12-C; CC483K
28	C95800; C95810	2.0975	G-CuAl10Fe5Ni5-C; G-CuAl 10 Ni; NiAlBz-F60		CuAl10Fe5Ni5 Y70				CAC703C		CC333G
28	C11000	2.0060	Cu-ETP; E-Cu57; E Cu 57	C101	Cu-B		Cu-DHP	C11020	C1100	M1	Cu-ETP; E-Cu57; CW004A
28	C81500	2.1292	G-CuCrF 35	CC1-FF	U-Cr0.8Zr						
28	C10300	2.0070	Cu-HCP; Cu-PHC; SE-Cu						C103	LS60-2	Cu-HCP; CW020A; Cu-PHC; CW021A
28	C10100; C10200	2.0040	Cu-OF; OF-Cu	C103; C110	Ci-c1; Cu-c2			C-1120	C1011; C1020	M0b	Cu-OF; CW008A
28	C86550	2.0590	G-CuZn40Fe; G-SoMsF30								G-CuZn40Fe
28	C18100; C18150	2.1293	CuCr1Zr; CuCrZr	CC102	U-C1Z; U-Cr0.8Zr						CuCr1Zr; CW106C
28	C11000; C12200	2.0090	Cu-DHP; E-Cu58; E Cu 58 SF-Cu	C106	Cu-B				C1100; C1220	M1f	Cu-DHP; E-Cu58; CW024A
28	C95500	2.0971	CuAl9Ni3Fe2		UA9					BrA10Zh4N4L	
28	C61000	2.0920	CuAl8; Cu Al 8		CuAl8					BrA7	CuAl8
29											
29											
30											
30											
31	330; N08330	1.4864	X12NiCrSi35-16; X12NiCrSi36-16; X12 NiCrSi 36 16	NA 17; INCOLOY alloy DS	Z 20 NCS 33-16; Z 12 NCS 37-18; Z 12 NCS 35-16			F.3313	SUH 330		

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
31	N08002; N08004; N08005; N08030	1.4865	GX40NiCrSi38-19 GX40NiCrSi38-18; G-X40 NiCrSi38 18	330 C 11; 330 C 40; 331 C 40			GX 50 NiCr 39 19		SCH 15; SCH 16		GX40NiCrSi38-18
31		1.4558	X2NiCrAlTi32-20; X2 NiCrAlTi 32 20	NA 15					NCF 800		X2NiCrAlTi32-20
31	N08031	1.4562	X1NiCrMoCu32-28-7; X1 NiCrMoCu 32 28 7								X1NiCrMoCu 32-28-7
31		1.4958	X5NiCrAlTi31-20; X5 NiCrAlTi 31 20	NA 15					NCF 800 H; NCF 718		X5NiCrAlTi31-20
31	N08811	1.4959	X8NiCrAlTi32-21; X8 NiCrAlTi 32 21	NA 15; NA 15 H	Z 8 NC 33-21; Z 10 NC 32-21						X8NiCrAlTi32-21
31	N08028	1.4563	X1NiCrMoCu31-27-4; X1 NiCrMoCu 31 27 4		Z 2 NCDU 31-27; Z 1 NCDU 31-27-03	2584				EK77; ChN30MDB	X1NiCrMoCu 31-27-4
31	B 163; N08800; N08810; N08332; N08811	1.4876	X10NiCrAlTi32-21; X10NiCrAlTi32-20; X10 NiCrAlTi 32 20	NA 15; NA 15 H	Z 10 NC 32-21; Z 8 NC 33-21			F.3314; F.3545	NCF 800; NCF 800 TB; NCF 800 TP		X10NiCrAlTi32-21
32	S590; J 467	1.4977	X40CoCrNi20-20; X40 CoCrNi 20 20		Z 42 CNKDWNb						
32	660; S66286	1.4980	X6NiCrTiMoVB25-15-2; X5NiCrTi26-15 X6 NiCrTiMoVB 25 15 2; X5 NiCrTi 26 15	HR 51; HR 52	Z 3 NCT 25; Z 6 NCTDV 25.15 B						X6NiCrTiMoVB 25-15-2; X5NiCrTi26-15
32		1.4943; 1.4944	X4NiCrTi25-15; X5NiCrTi26-15	HR 51	Z 6 NCTDV 25-15 B	2570					X4NiCrTi25-15; X5NiCrTi26-15
32	661; R30155	1.4971	X12CrCoNi21-20; X12 CrCoNi 21 20								X12CrCoNi21-20
32	Haynes 556; R30556										
33	Incoloy 825; N08825;	2.4858	NiCr21Mo	NA 16	NC 21 Fe DU					ChN38VT	
33	Hastelloy C-4; N06455	2.4610	NiMo16Cr16Ti								
33	Nimonic 75; N06075; AMS 5715	2.4630; 2.4951	NiCr20Ti	HR 5; HR 203-4	NC 20 T						
33	Inconel 625; N06625; AMS 5666	2.4856	NiCr22Mo9Nb	NA 21	NC 22 FeDNb						
33	Inconel 690; N06690	2.4642	NiC29Fe		NC 30 Fe						
33	Monel 400; N04400	2.4360; 2.4361	NiCu30Fe	NA 13	NU 30						
33	Hastelloy X; N06002; 5390A; AMS 5754; AMS 5536	2.4603; 2.4665	NiCr30FeMo; NiCr22Fe18Mo; NiCr21Fe18Mo9	HR 6	NC 22 FeD						
33	Inconel 617; N06617; AMS 5887	2.4663a	NiCr23Co12Mo		NC 14 K 9 T 5 DWA						
33	Nimonic 90; N07090; AMS 5829	2.4632; 2.4969	NiCr20Co18Ti; NiCr 20 Co 18 Ti	HR 2; HR202; HR 402; HR 501; HR 502; HR 503	Z 8 NCDT 42						NiCr20Co18Ti
33	Haynes 214; NO7214	2.4646	NiCr16Al								
33	Rene 41; N07041; AMS 5712; AMS 5713	2.4973	NiCr19Co11MoTi; NiCr 19 CoMo		NC 19 KDT						
33	Hastelloy B2; N10665	2.4617; 2.4616; 2.4615	NiMo28; EL-NiM29; SG(UP)-NiMo27						YNiMo-7		NiMo28

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33	Udimet L-605; R30605	2.4964	CoCr20W15Ni								
33	Monel R-405; N04405	2.4360; 2.4361	NiCu30Fe	NA 13	NU 30						
33	Inconel 600; N06600; AMS 5665	2.4816	NiCr15Fe8; NiCr 15 Fe	NA 14	NC 16 FeT					ChN78T	NiCr15Fe8
33	Inconel 601; N06601	2.4851	NiCr23Fe15A; NiCr 23 Fe		N C 23 FeA					ChN60Yu	NiCr23Fe15A
33	Nimonic 263; N07263; AMS 5872; AMS 5886	2.4650	NiCo20Cr20MoTi; NiCo 20 Cr 20 MoTi MoTi	HR 10; HR 206; HR 404	NCK 20 D						NiCo20Cr20MoTi
34	Haynes 188; Jetalloy 209; R30188; AMS 5772	2.4964	CoCr22W14Ni		KC22WN						
34	Monel K-500; N05500	2.4375	NiCu30Al3Ti; NiCu 30 Al	NA 18	NU 30 AT						NiCu30Al3Ti
34	Inconel 718; N07718; AMS 5596; AMS 5589	2.4668	NiCr19Nb5Mo3; NiCr 19 NbMo; NiCr19Fe19Nb5Mo3	HR 8	NC 19 Fe Nb						NiCr19Nb5Mo3
34		2.4955	NiFe25Cr20NbTi; NiFe 25 Cr 20 NbTi		NiFe25Cr20NbTi						NiFe25Cr20NbTi
34	Incoloy 925; N09925	2.4670									
34	Nimonic 901; N09901; AMS 5660; AMS 5661	2.4662	NiFe35Cr14MoTi; NiCr13Mo6Ti3; NiCr 13 Mo 6 Ti 3		Z8 NCDT 42						
34	Udimet 500; N07500; AISI 684	2.4983	NiCr18Co18MoAlTi		NCK 19 DAT						NiCr18Co18MoAlTi
34	Nimonic 80A; N07080	2.4631; 2.4952	NiCr20TiAl; NiCr 20 TiAl	HR 401; HR 601	NC 20 TA				NCF 80 A	ChN77TYuR; ChN56VMTYu	NiCr20TiAl
34	Jetalloy 209; AMS 5772		CoCr22W14Ni		KC 22 WN						
34	Altemp S-816	2.4989	CoCr20Ni20W							Altemp S-816	
34	MAR-M 246	2.4675	NiCr23Mo16Cu; NiCr 23 Mo 16 Cu								NiCr23Mo16Cu
34	Inconel 722; N07722; AMS 5411										
34	Waspaloy; N07001; AISI 685; AMS 5704; AMS 5706; AMS 5708; AMS 5544	2.4654	NiCr20Co13Mo4Ti3AL; NiCr 19 Co 14 Mo 4 Ti		NC 20 K 14						NiCr20Co 13Mo4Ti3AL
34	Rene 80				NC14 K9 T5 DWA						
35	5388C; N30002; CW-12MW;	2.4883	G-NiM16CrW								
35	N7M; N-7M; N30007	2.4685	G-NiMo28		ND 30 M						
35	N12MV; N-12MV; N30012	2.4882; 9.4810; 2.4810/9.4810	G-NiMo30								
35	Nimocast PK24; N13100; AMS 5397	2.4674	G-NiCo15Cr10AlTiMo	HC 204	NK 15 CAT						
35	Jethete M-252; N07252; AMS 5551	2.4916	G-NiCr19Co; G-NICR 19 Co								

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35	Nimocast 713; N07713; AMS 5391; Inconel 713LC	2.4670	G-NiCr13Al6MoNb	HC 203	NC 13 AD						
35	M-35-1; N214135	2.4365; 2.4365/9.4365	G-NiCu40Nb						NiCuC		
36	Titanium Grade 1; R50250; ASTM GR. 1	3.7024; 3.7025	Ti 1; Ti 99.8	TA1	T-35		Ti1-Type 1	Ti-PO1	Class 2; Gr-1	VT1-00	Ti 99.8
36	Titanium Grade 2; R50400; AMS 4902; AMS 4941; AST M Gr. 2	3.7034; 3.7035; 3.7036	Ti 2; Ti 99.7	TA2; TA3; TA4; TA5	T-40		Ti1-Type 2	Ti-PO2	Class 2; Gr-2	VT1-0	Ti 99.7
36	Titanium Grade 3; R50500; ASTM Gr. 3	3.7055; 3.7056	Ti 3; Ti 99.6	DTD 5023, DTD 5273	T-50		Ti1-Type 3		Class 3; Gr-3		Ti 99.6
36	Titanium Grade 4; R50700; ASTM Gr. 4	3.7064; 3.7065; 3.7066	Ti 4; Ti 99.5	TA7; TA8; TA9	T-60		Ti1-Type 4		Class 4; Gr-4		Ti 99.5
36	Titanium Grade 7; R52400; Ti-0.15Pd	3.7235					Ti2Pd-Type 7		Class 13; Gr-13		
37	Titanium Grade 5; R56400; Ti-6Al-4V	3.7165; 3.7164	Ti6Al4V	TA10; TA11; TA12; TA13; TA 28; TA56; Ti-Al-V	TA6V; T-A 6 V; Ti-P.63		TiAl6V4-Type 5	Ti-P63	Class 6 0; Gr 6 0; SAT-64	VT6	Ti6Al4V
37	Titanium Grade 6Al-2Sn-4Zr-2Mo; R54620; 6Al-2Sn-4Zr-2Mo	3.7145; 3.7144	TiAl6Sn2Zr4Mo2							VT25	TiAl6Sn2Zr4Mo2
37		3.7175; 3.7174	TiAl6V6Sn2								
37	Titanium Grade 9; R56320; Ti-3Al-2.5V	3.7195; 3.7194	Ti6Al2.5V				TiAl3V2.5-Type 9		Class 6 1; Gr 6 1	PT-3V	Ti6Al2.5V
37		3.7124	TiCu2	TA 21; TA22; TA23; TA24	T-U2			Ti-P11			
37		3.7185; 3.7184	Ti4Al4Mo2Sn; TiAl4Mo4Sn4Si0.5	TA45; TA46; TA47; TA48; TA49; TA50; TA57	T-A4DE			Ti-P68			
37	Titanium Grade 6; R54520; Ti-5Al-2.5Sn	3.7115.1; 3.7115	TiAl5Sn2.5; TiAl 5 Sn 22	TA14; TA17	T-A5E; Ti-P.65				SAT-525	VT5-1	TiAl5Sn2.5
37	R56410; Ti-10V-2Fe-3Al										
37	Titanium grade 23; R56401; Ti-6Al-4V-ELI		Ti6Al4V ELI	TA11			TiAl6V4ELI-Type 5.1		Class 6 1; Gr 6 1		
37										VST 5553	Ti5Al5V5Mo3Cr; Ti-5Al-5V-5Mo-3Cr
37	Ti-4Al-3Mo-1V				T-A4D3V					VT14	
37										VT22	

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38		1.2762	75CrMoNiW6-7; 75 CrMoNiW 6 7								75CrMoNiW6-7
38	W1; T72301	1.1625	C80W2; C 80 W2	BW 18				F.520.U; F.5107; C 80	SK 75; SK 85; SK 85 M; SK 5; SK 5 M; SK 6	U8-1	C80W2
38	W110; T72301	1.1545	C105U; C 105 W 1; C 105 U		C 105 E 2 U; Y1 105; C105E2U	1880	C 100 KU	F.515; F.516	SK 105; SK 3; TC 105	U10A-1; U10A-2; U11-1	C105U
38		1.6746	32NiCrMo14-5; 32 NiCrMo 14-5	832 M 31	35 NCD 14			F.1262-32 NiCrMo 12			32NiCrMo14-5
38	W210; T72302	1.2833	100V1; 100 V 1	BW 2	C 105 E 2 UV 1; Y1 105 V; 100 V 2		102 V 2 KU		SKS 43		100V1
38	6145; 6150; 6150 H; G61500; H61500	1.8159	51CrV4; 50CrV4; 50 CrV 4	735 A 50; 735 A 51; 735 H 51; 735 M 50; En 47	50CrV4RR; 50 CV 4; 51 CV 4	2230	50 CrV 4	F.143; F.143.A; 51 CrV 4; F.1430	SUP 10; SUP 10-CSP; SUP 10 M	50ChFA; 50ChGFA	51CrV4
38	P20; T51620	1.2330	35CrMo4; 35 CrMo 4	708 A 37	34 CD 4	2234	35 CrMo 4				35CrMo4
38											
38											
38											
38											
38		1.8721	26MnCr6-3								26MnCr6-3
38											
38											
38											
38		1.2083; 1.2083 ESR	X40Cr14; X 42 Cr 13		X40Cr14; Z 40 C 14	2314	X 41 Cr 13 KU	F.5263; X 40 Cr 13	SUS 420 J 2		X40Cr14
38	300M; 4340M; K44220	1.6928	41SiNiCrMoV7-6								S 155
38										30ChGSA	
39	A2; T30102	1.2363	X100CrMoV5; X100CrMoV5-1; X 100 CrMoV 5 1	BA 2	X 100 CrMoV 5; Z 100 CDW 5	2260	X 100 CrMoV 5 1 KU	F.536; F.5227; X 100 CrMoV 5	SKD 12		X100CrMoV5
39	D2; T30402	1.2379	X153CrMoV12; X155CrVMo12-1; X155 CrVMo 12 1	BD 2	X 160 CrMoV 12; Z 160 CDV 12	2310	X 155 CrVMo 12 1 KU	F.520.A	SKD 10; SKD 11		X153CrMoV12
39	D3; T30403	1.2080	X210Cr12; X 210 Cr 12	BD 3	X200Cr12; Z 200 C 12		X 205 Cr 12 KU	F.521; F.5212; X 210 Cr 12	SKD 1	Ch12	X210Cr12
39	L3; T61203	1.2067	102Cr6; 102 Cr 6; 100 Cr 6	BL 3; BL3	100Cr6RR; 100 C 6; 100Cr6; Y 100 C 6		102 Cr 6 KU	F.5230; 100 Cr 6	SUJ 2	Ch	102Cr6
39	M1; H41; T11301; T20841	1.3346	HS2-9-1; S 2-9-1	BM 1	HS 2-8-1; Z 85 DCWV 08-04-02-01						HS2-9-1
39	T1; T12001	1.3355	HS18-0-1; S 18-0-1	BT 1	18-0-1; HS 18-0-1; Z 80 WCV 18-04-01	2750	HS 18-0-1	F.5520; HS 18-0-1	SKH 2	R18	HS18-0-1
39	O2; T31502	1.2842	90MnCrV8; 90 MnCrV 8	BO 2; BO2	90 MnV 8; 90 MV 8		90 MoVCr 8 KU	90 MnCrV 8; F.5229			90MnCrV8
39	H13; T20813	1.2344	X40CrMoV5-1; X40 CrMoV 5 1	BH 13	X 40 CrMoV 5; Z 40 CDV 5	2242	X 40 CrMoV 5 1 1 KU	F.5318; X 40 CrMoSiV 5	SKD 61	4Ch5MF1S	X40CrMoV5-1
39											
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39	440C; S44004; S44025	1.4125	X105CrMo17; X105 CrMo 17		Z 100 CD 17 Cl; Z 100 CD 17				SUS 440 C	95Ch18; 110Ch18M-SChD	X105CrMo17
40	A 532 III A 25% Cr	0.9650	G-X 260 Cr 27	Grade 3 D		0466-00				ChWG	
40	Ni-Hard 4	0.9630	G-X 300 CrNiSi 9 5 2								
40	Ni-Hard 1	0.9625	G-X 330 NiCr 4 2	Grade 2 B		0513-00					
40	A 532 III A 25% Cr	0.9655	G-X 300 CrMo 27 1	Grade 3 E						20Ch25N20S2	
40	Ni-Hard 2	0.9620	G-X 260 NiCr 4 2	Grade 2 A		0512-00					
41	A532 IID20%CrMo-LC	0.9645; 5.5609	G-X 260 CrMoNi 20 2 1	Grade 3C							EN-GJN-HV600(XCr23)
41	A532 IIC15%CrMo-HC	0.9635; 0.9640	G-X 300 CrMo 15 3; G-X 300 CrMoNi 15 2 1	Grade 3A; Grade 3B							EN-GJN-HV600(XCr14)

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ISCAR LTD.
Israel
Headquarters
Tel +972 (0)4 997 0311
Fax+972 (0)4 987 3741
www.iscar.com
headquarter@iscar.co.il

Argentina
ISCAR TOOLS ARGENTINA SA
Tel +54 114 912 2200
Fax+54 114 912 4411
admin@iscararg.com.ar
www.iscararg.com.ar

Australia
ISCAR AUSTRALIA PTY. LTD
Tel +61 (0) 2 8848 3500
Fax+61 (0) 2 8848 3511
iscaraus@iscar.com.au
www.iscar.com.au

Austria
ISCAR AUSTRIA GmbH
Tel +43 7252 71200-0
Fax+43 7252 71200-999
office@iscar.at
www.iscar.at

Belarus
JV ALC "TWING-M"
Tel +375 17 506-32-38
+375 17 506-33-31/65
Tel/Fax +375 17 506-32-37
info@twing.by
www.twing.by, www.iscar.by

Belgium
n.v. ISCAR BENELUX s.a.
Tel +32 (0) 2 464 2020
Fax+32 (0) 2 522 5121
info@iscar.be
www.iscar.be

Bosnia
(Representative Office)
Tel +387 32 201 100
Fax+387 32 201 101
info@iscar.ba

Brazil
ISCAR DO BRASIL COML. LTDA.
Tel +55 19 3826-7100
Fax+55 19 3826-7171
DDG 0800 701 8877
iscar@iscarbrasil.com.br
www.iscar.com.br

Bulgaria
ISCAR BULGARIA
Tel/Fax +359 431 62557
aa_iscar@infotel.bg
www.iscar.bg

Canada
ISCAR TOOLS INC.
Tel +1 905 829 9000
Fax+1 905 829 9100
admin@iscar.ca
www.iscar.ca

Chile
J&A INTERNATIONAL
Tel +56 2 2232 5838
amedina@jya.cl
www.jya.cl

China
ISCAR CHINA
Tel +86 21 8024 8888
iscar@iscar.com.cn
www.iscar.com.cn

Colombia
ISCAR Andina
Tel +57 310 380 9932
Tel/fax +57 1 896 65 78
iscar@iscar.com.co
www.iscar.com.co

Croatia
ISCAR ALATI d.o.o.
Tel +385 (0) 1 33 23 301
Fax+385 (0) 1 33 76 145
iscar@zg.t-com.hr
www.iscar.hr

Cyprus
WAMET (Demetriades) Ltd.
Tel +357 (0) 2 336660/5498
Fax+357 (0) 2 333386
wamet@cytanet.com.cy

Czech Republic
ISCAR CR s.r.o.
Tel +420 377 420 625
Fax+420 377 420 630
iscar@iscar.cz
www.iscar.cz

Denmark
KJ VAERKTOEJ AS/ISCAR DENMARK
Tel +45 70 11 22 44
Fax+45 46 98 67 10
kj@kj.dk
www.iscar.dk

Ecuador
ISCAR Andina
Tel/fax +57 1 821 93 38
iscar@iscar.com.co
atencioncliente@iscar.com.co
www.iscar.com.co

Estonia
KATOMSK AS
Tel +372 6775 671
Fax+372 6720 266
aleksei@katomsk.ee

Finland
ISCAR FINLAND OY
Tel +358-(0)9-439 1420
Fax+358-(0)9-466 328
info@iscar.fi
www.iscar.fi

France
ISCAR FRANCE SAS
Tel +33 (0)1 30 12 92 92
Fax+33 (0)1 30 12 95 82
info@iscar.fr
www.iscar.fr

Germany
ISCAR Germany GmbH
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Fax+49 (0) 72 43 9908-93
gmbh@iscar.de
www.iscar.de

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INTERNATIONAL TOOLS
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Tel +30 210 346 0133
Fax+30 210 342 5621
info@internationaltools.gr

VIMA
V. Mazloumian & Sons
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Fax+30 2310 529-107
vimaco@otenet.gr
http://www.vimaco.gr

Hong Kong
MTC TOOLING SYSTEMS LTD
Tel +85-2-23054838
Fax+85-2-27988789
yoongkamsing@hotmail.com

Hungary
ISCAR HUNGARY KFT.
Tel +36 28 887 700
Fax+36 28 887 710
iscar@iscar.hu
www.iscar.hu

India
ISCAR India Ltd.
Tel +91 77009 63707
sales@iscar.in
www.iscar.in

Indonesia
CV MULTI TEKNIK
Tel +62-21-29206242/44/45/59
Fax+62-21-29206243
contact@multi-teknik.co.id

Ireland
HARD METAL MACHINE TOOLS
Tel +353 (0) 1 286 2466
Fax+353 (0) 1 286 1514
phannigan@hardmetal.ie
www.hardmetal.ie

Italy
ISCAR ITALIA srl
Tel +39 02 93 528 1
Fax+39 02 93 528 213
marketing@iscaritalia.it
www.iscaritalia.it

Japan
ISCAR JAPAN LTD.
Tel +81 6 6835 5471
Fax+81 6 6835 5472
iscar@iscar.co.jp
www.iscar.co.jp

Latvia
MECHA, UAB
Tel +370 37 407 230
Fax+370 37 407 231
info@mecha.lt

Lithuania
MECHA, UAB
Tel +370 37 407 230
Fax+370 37 407 231
sigitas@mecha.lt

Mexico
ISCAR DE MÉXICO
Tel +52 (442) 214 5505
Fax+52 (442) 214 5510
iscarmex@iscar.com.mx
www.iscar.com.mx

The Netherlands
ISCAR NEDERLAND B.V.
Tel +31 (0) 182 535523
Fax+31 (0) 182 572777
info@iscar.nl
www.iscar.nl

New Zealand
ISCAR PACIFIC LTD.
Tel +64 (0) 9 573 1280
Fax+64 (0) 9 573 0781
iscar@iscarpac.co.nz

North Macedonia
(Representative Office)
Tel +389 2 309 02 52
Fax+389 2 309 02 54
info@iscar.com.mk

Norway
SVEA MASKINER AS
Tel +47 32277750
Fax+47 32277751
per.martin.bakken@svea.no

Peru
HARTMETALL SAC
Tel: (511) 6612699
otorres@hartmetallgroup.com

Philippines
MESCO
Tel +63 2631 1775
Fax+63 2635 0276
mesco@mesco.com.ph

Poland
ISCAR POLAND Sp. z o.o.
Tel +48 32 735 7700
Fax+48 32 735 7701
iscar@iscar.pl
www.iscar.pl

Portugal
ISCAR Portugal, SA
Tel +351 256 579950
Fax+351 256 586764
info@iscarportugal.pt
www.iscarportugal.pt

Romania
ISCAR Tools SRL
Tel +40 (0)312 286 614
Fax+40 (0)312 286 615
iscar-romania@iscar.com

Russia
Moscow
ISCAR LLC
Tel/fax +7 495 660 91 25/31
iscar@iscar.ru
www.iscar.ru

Serbia
ISCAR TOOLS d.o.o.
Tel +381 11 314 90 38
Fax+381 11 314 91 47
info@iscartools.rs

Singapore
SINO TOOLING SYSTEM
Tel +65 6566 7668
Fax+65 6567 7336
sinotool@singnet.com.sg

Slovakia
ISCAR SR, s.r.o.
Tel +421 (0) 41 5074301
Fax+421 (0) 41 5074311
info@iscar.sk
www.iscar.sk

Slovenia
ISCAR SLOVENIJA d.o.o.
Tel +386 1 580 92 30
Fax+386 1 562 21 84
info@iscar.si
www.iscar.si

South Africa
ISCAR SOUTH AFRICA (PTY) LTD.
ShareCall 08600-47227
Tel +27 11 997 2700
Fax+27 11 388 9750
iscar@iscarsa.co.za
www.iscar.co.za

South Korea
ISCAR KOREA
Tel +82 53 760 7594
Fax+82 53 760 7500
leeyj@taegutec.co.kr
www.iscarkorea.co.kr

Spain
ISCAR IBERICA SA
Tel +34 93 594 6484
Fax+34 93 582 4458
iscar@iscarib.es
www.iscarib.es

Sweden
ISCAR SVERIGE AB
Tel +46 (0) 18 66 90 60
Fax+46 (0) 18 122 920
info@iscar.se
www.iscar.se

Switzerland
ISCAR HARTMETALL AG
Tel +41 (0) 52 728 0850
Fax+41 (0) 52 728 0855
office@iscar.ch
www.iscar.ch

Taiwan
ISCAR Taiwan Ltd.
Tel +886 (0)4-24731573
Fax+886 (0)4-24731530
iscar.taiwan@msa.hinet.net
www.iscar.org.tw

Thailand
ISCAR Thailand Ltd.
Tel +66 (2) 7136633-8
Fax+66 (2) 7136632
iscar@iscarthailand.com
www.iscarthailand.com

Turkey
ISCAR Kesici Takim
TIC. VE. IML. LTD
Tel +90 (262) 751 04 84 (Pbx)
Fax+90 (262) 751 04 85
iscar@iscar.com.tr
www.iscar.com.tr

Ukraine
ISCAR UKRAINE LLC
Tel +38 (050) 440 23 91
info@iscar.com.ua
www.iscar.com.ua

United Arab Emirates
SVRS General Trading LLC
Tel +971 4 342 6699
www.svrs-mena.com

United Kingdom
ISCAR TOOLS LTD.
Tel +44 (0) 121 422 8585
Fax+44 (0) 121 423 2789
sales@iscar.co.uk
www.iscar.co.uk

United States
ISCAR METALS INC.
Tel +1 817 258 3200
Tech Tel 1-877-BY-ISCAR
Fax+1 817 258 3221
info@iscarmetals.com
www.iscarmetals.com

Venezuela
FERREINDUSTRIAL ISO-DIN C.A.
Tel +58 2 632 8211/633 4657
Fax+58 2 632 5277
iso-din@cantv.net

Vietnam
ISCAR VIETNAM
(Representative Office)
Tel +84 8 38 123 519/20
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