THREADING TOOLS & INSERTS

Member IMC Group

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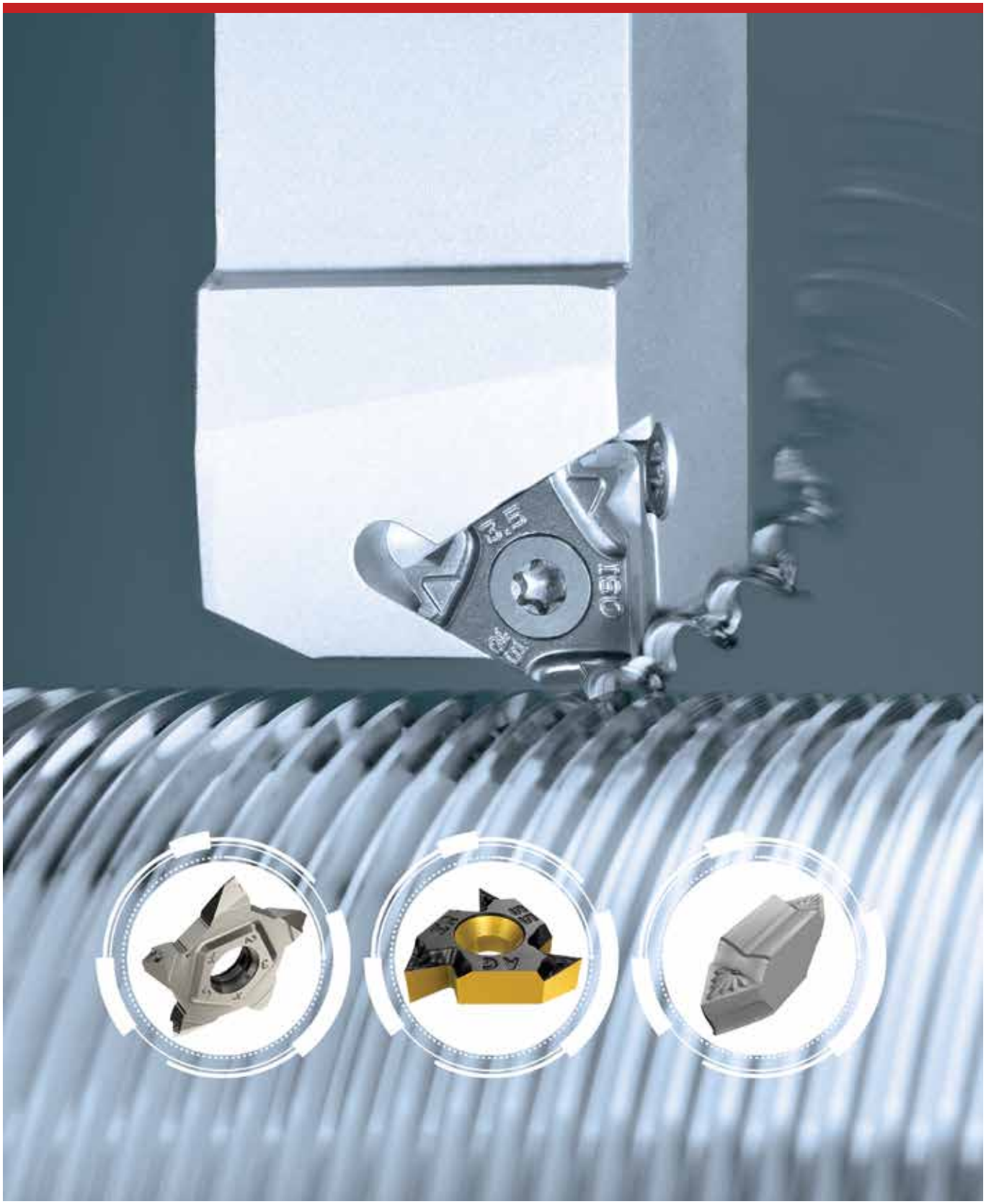
THREADING INSERTS



Main Types of Laydown Inserts

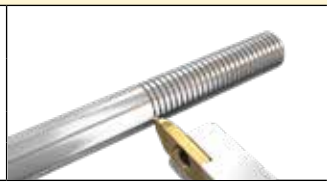
B/M-TYPE	U-TYPE	REGULAR TYPE	MULTI-TOOTH

Additional Threading Systems

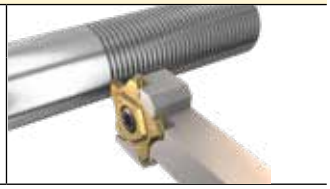
External

CUT-GRIP External

SWISSCUT External



PENTACUT External



Partial profile

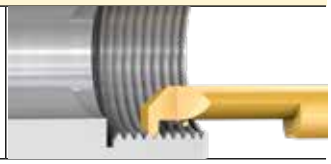
Full profile

Internal

MINICHAM Internal

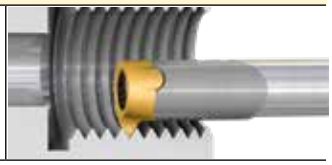
Minimum bore dia. .315″

PICCOCUT Mini-Bar



Minimum bore dia. .094″

CHAMGROOVE Internal



Minimum bore dia. .315″

CUT-GRIP Internal

Minimum bore dia. .492″

Minimum bore dia. 0.787″

Partial profile

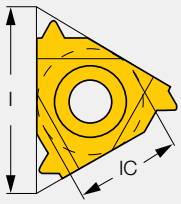
Full profile

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 60º
55	Partial Profile 55º
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

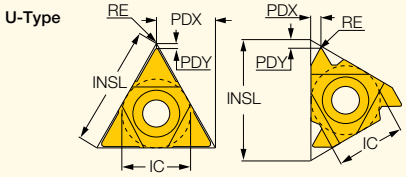
8. Grade

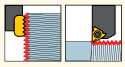
IC1007
IC908
IC808
IC508
IC250
IC228
IC50M
IC806

Partial Profle 55° (Whitworth)

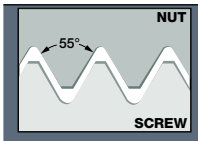
ISCARTHREAD

ER/L-55°
External Laydown Threading Inserts with a 55° Partial Profile for General Applications





External right-hand shown



Designation	Dimensions							Tough ↔ Hard					
	IC	TPIX(2)	TPIN(3)	INSL	RE	PDY	PDX	IC228	IC50M	IC250	IC808	IC908	IC1007
11ER A 55	.250	48.00	16.00	.433	.0020	.03	.04			•		•	
16EL A 55	.375	48.00	16.00	.649	.0020	.03	.04		•	•			
16ER A 55	.375	48.00	16.00	.649	.0020	.03	.04		•	•		•	
16EL AG 55	.375	48.00	8.00	.649	.0027	.05	.07			•		•	
16ER AG 55	.375	48.00	8.00	.649	.0027	.05	.07	•		•		•	•
16ERB AG 55 (1)	.375	48.00	8.00	.649	.0027	.05	.07					•	
16ERM AG 55 (1)	.375	48.00	8.00	.649	.0027	.05	.07		•	•	•	•	•
16EL G 55	.375	14.00	8.00	.649	.0091	.05	.07			•			
16ER G 55	.375	14.00	8.00	.649	.0091	.05	.07			•		•	
16ERB G 55 (1)	.375	14.00	8.00	.649	.0091	.05	.07					•	
16ERM G 55 (1)	.375	14.00	8.00	.649	.0091	.05	.07			•	•	•	•
22EL N 55	.500	7.00	5.00	.866	.0165	.07	.10			•			
22ER N 55	.500	7.00	5.00	.866	.0189	.07	.10			•		•	
22UEIRL U 55	.500	4.50	3.25	.866	.0236	.04	.43		•	•			
27ER Q 55	.625	4.50	4.00	1.083	.0236	.08	.11			•		•	
27UEIRL U 55	.625	4.00	2.75	1.083	.0319	.05	.54			•			

- For insert identification system, see pages 694-695 • For threading between walls use GRIP-type inserts TIP-WT, GEPI-WT, TIPI-WT
- For detailed cutting data, see page 781

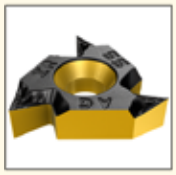
(1) With pressed chipformer
(2) Threads per inch maximum
(3) Threads per inch minimum

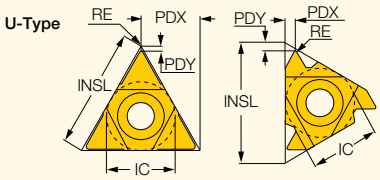
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

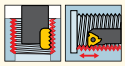
ISCARTHREAD

IR/L-55°

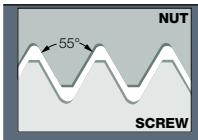
Internal Laydown Threading Inserts with a 55° Partial Profile for General Applications







Internal left-hand shown



Designation	Dimensions							Tough ↔ Hard							
	IC	TPIX(2)	TPIN(3)	INSL	RE	PDY	PDX	IC228	IC928	IC50M	IC250	IC508	IC808	IC908	IC1007
06IR/L A 55	.157	48.00	20.00	.271	.0031	.02	.02	●							
08IL A 55	.197	48.00	16.00	.324	.0031	.02	.03	●							
08IR A 55	.197	48.00	16.00	.324	.0031	.02	.03	●	●					●	
08UIRL U 55	.197	18.00	12.00	.324	.0039	.04	.16	●							
11IL A 55	.250	48.00	16.00	.433	.0020	.03	.04				●			●	
11IR A 55	.250	48.00	16.00	.433	.0020	.03	.04	●			●			●	●
16IR A 55	.375	48.00	16.00	.649	.0020	.03	.04			●				●	
16IL AG 55	.375	48.00	8.00	.649	.0027	.05	.07							●	
16IR AG 55	.375	48.00	8.00	.649	.0027	.05	.07				●			●	
16IRB AG 55 (1)	.375	48.00	8.00	.649	.0027	.05	.07							●	
16IRM AG 55 (1)	.375	48.00	8.00	.649	.0020	.05	.07				●		●	●	●
16IL G 55	.375	14.00	8.00	.649	.0079	.05	.07							●	
16IR G 55	.375	14.00	8.00	.649	.0091	.05	.07				●	●		●	
16IRB G 55 (1)	.375	14.00	8.00	.649	.0091	.05	.07							●	
16IRM G 55 (1)	.375	14.00	8.00	.649	.0079	.05	.07				●		●	●	●
22IR N 55	.500	7.00	5.00	.866	.0165	.07	.10			●	●			●	
27IR Q 55	.625	4.00	4.00	1.083	.0236	.08	.11							●	

- For insert identification system, see pages 694-695 • For threading between walls use GRIP-type inserts TIP-WT, GEPI-WT, TIPI-WT
- For detailed cutting data, see page 781

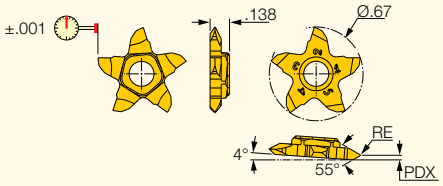
(1) With pressed chipformer
(2) Threads per inch maximum
(3) Threads per inch minimum

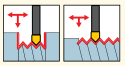
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

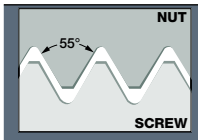
PENTACUT THREADING LINE

PENTA 17-WT-RS/LS

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







Designation	Dimensions				IC1008
	TPIX(1)	TPIN(2)	RE	PDX	
PENTA 17-WTL003LS	72.00	16.00	.0012	.0315	●
PENTA 17-WTR003RS	72.00	16.00	.0012	.0315	●
PENTA 17-WTL008LS	31.00	8.00	.0031	.0551	●
PENTA 17-WTR008RS	31.00	8.00	.0031	.0551	●

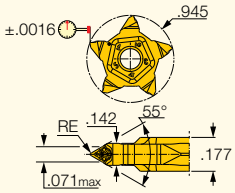
(1) Threads per inch maximum
(2) Threads per inch minimum

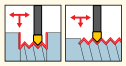
For tools, see pages: NQCH-PCHR/L-S-JHP (403) • PCADRS/LS-JHP (331) • PCHRS/LS-17 (319) • PCHRS/LS-17-JHP (319) • Y-PCHRS-17 (320) • Y-PCHRS-17-JHP (320)

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	.0059	●
PENTA 24A-WT-0.05 (1)	80.00	8.00	.0020	●

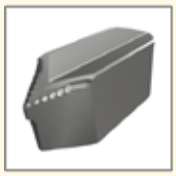
• TPIN=64/D(inch) D-nominal thread diameter (inch)
(1) Flat rake (without a chipformer)
(2) Threads per inch maximum
(3) Threads per inch minimum

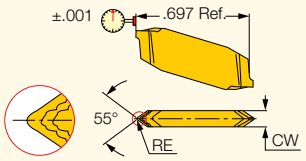
For tools, see pages: HMSDV PEN (530) • HSTBS-PEN (530) • PCAD RE/LE-JHP (553) • PCADR/L (330) • PCADR/L-JHP (330) • PCHBR/L (332) • PCHPR/L (329) • PCHR/L-24 (325) • PCHR/L-24-JHP (326)

ISCARTHREAD CUTGRIP

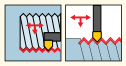
TIP-WT

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





TIP inserts are 063" 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)	.094	.002	.0012	54.00	12.00	●	●
TIP 4WT-0.15 (1)	.157	.006	.0012	19.00	7.00	●	●
TIP 5WT-0.25 (1)	.217	.010	.0012	12.00	6.00		●

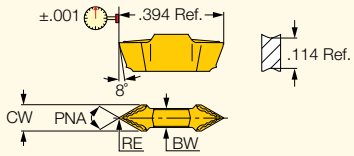
• Toolholder seat needs to be modified according to insert profile to ensure clearance • Pitch max 0187xD
(1) TPIN(thread per inch minimum) = D/64 • D-Diameter of thread (inch)
(2) Corner radius tolerance (+/-)
(3) Threads per inch maximum
(4) Threads per inch minimum

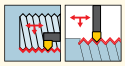
For tools, see pages: C#-GHDR/L (284) • CGHN 26-M (380) • CGHN 32-DGM (382) • CGHN 32-M (381) • CGHN-D (291) • CGHN-DG (292) • CGHN-S (291) • CGPAD (290) • CGPAD-JHP (290) • GHDR/L (short pocket) (285) • GHDR/L-JHP (short pocket) (286) • GHGR/L (287) • GHMPR/L (283) • GHMR/L (283) • GHSR/L (398) • GHSR/L-JHP-SL (399) • NQCH-GHSR/L-JHP (399)

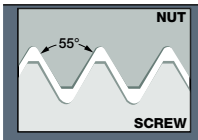
ISCARTHREAD
CUTGRIP

GEPI-WT

Precision Ground Double-Ended Threading Inserts with a 55° Partial Profile and a Chipformer for .453" Bore Diameter







Designation	Dimensions									Tough ↔ Hard	
	CW	RE	RETOL(1)	PNA	BW	TPN (mm)(2)	TPX (mm)(3)	TPIN(4)	TPIX(5)	IC08	IC908
GEPI 2.5-WT0.05	.098	.002	.0012	55.0	.071	.470	2.540	10.00	54.00	●	●

• Toolholder seat needs to be modified according to insert profile to ensure clearance • Pitch max 0167xD, TPI min D/60

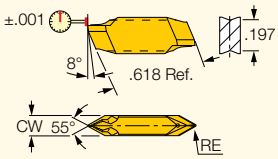
(1) Corner radius tolerance (+/-)
(2) Thread pitch minimum (mm)
(3) Thread pitch maximum (mm)
(4) Threads per inch minimum
(5) Threads per inch maximum

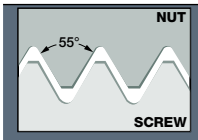
For tools, see pages: AVC-GEAIR/L (371) • E-GEHIR / E-GHIR (364) • GEAIR/L (364) • GEHIMR/L (361) • GEHIMR/L-SC (361) • GEHIR/L (362) • GEHIR/L-SC (363) • GEHSR (397) • GEHSR/L-SL (397)

ISCARTHREAD
CUTGRIP

TIPI-WT

Double-Ended Internal Threading Inserts with a 55° Partial Profile and a Chipformer for .787" Min. Bore Diameter





Designation	Dimensions						Tough ↔ Hard	
	CW	RE	RETOL(1)	TPN (mm)(2)	TPIX(3)	TPIN(4)	IC08	IC908
TIPI 3.4WT-0.10	.134	.004	.0012	.950	27.00	8.00	●	●
TIPI 5.4WT-0.20	.213	.008	.0012	1.670	15.00	5.00		●

• Toolholder seat needs to be modified according to insert profile to ensure clearance • Pitch max 0187xD, TPI min D/525 D=Diameter of thread (pitch max<=CW)

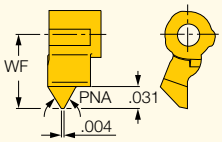
(1) Corner radius tolerance (+/-)
(2) Thread pitch minimum (mm)
(3) Threads per inch maximum
(4) Threads per inch minimum

For tools, see pages: AVC-GAIR/L (371) • GAIR/L (370) • GHIR-SC (W=079-138) (369)

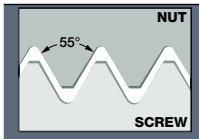
ISCARTHREAD
MINICHAM

UMGR-A55

Mini Indexable Inserts with Whitworth Partial Profile for Threading in .205" and Larger Holes



Right-hand shown



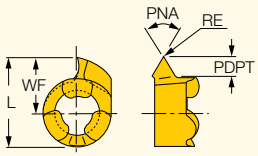
Designation	Dimensions							
	WF	PNA	TPIX(1)	TPIN(2)	TPN (mm)(3)	TPX (mm)(4)	DMIN	IC508
UMGR 4.0-A55	.106	55.0	40.00	24.00	.500	1.400	.205	●

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

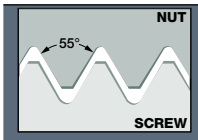
ISCARTHREAD CHAMGROOVE

GIQR/L-WT

Internal Inserts with Whitworth Partial Profile for Threading in .31" and Larger Holes



Left-hand shown



Designation	Dimensions								IC528
	L	RE	PNA	PDPT(1)	WF	DMIN	TPIN(2)	TPIX(3)	
GIQR/L 8-WT-0.05	.306	.002	55.0	.059	.189	.315	16.00	50.00	●
GIQR/L 11-WT-0.05	.420	.002	55.0	.079	.264	.433	11.00	50.00	●

• Can be used for thread milling by circular interpolation • TPI min D/59 • D-diameter of thread (pitch max<=W) • For cutting speed recommendations, see page 781

(1) Cutting depth maximum

(2) Threads per inch minimum

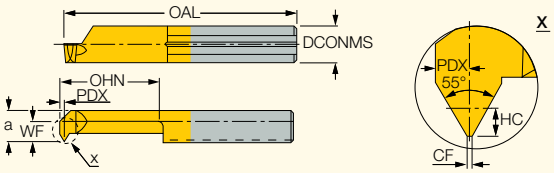
(3) Threads per inch maximum

For tools, see pages: MG (466) • MGCH (466)

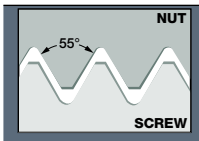
ISCARTHREAD PICCOCUT

PICCO-55°-Thread

Inserts for 55° Internal Thread Profile



Right-hand shown



Designation	Dimensions											IC228
	DCONMS	TPIX(1)	TPIN(2)	HC	CF	PDX	WF	a	OHN(3)	OAL	DMIN	
PICCO R 005.5548-15	.197	48.00	24.00	.016	.002	.02	.075	.173	.591	1.181	.189	●
PICCO R 006.5548-15	.236	48.00	24.00	.016	.002	.02	.091	.209	.591	1.181	.236	●
PICCO R 006.5524-15	.236	24.00	16.00	.032	.005	.03	.091	.209	.591	1.181	.236	●
PICCO R 007.5524-15	.276	24.00	16.00	.032	.005	.03	.110	.248	.591	1.181	.276	●

• All mini-bars have sharp corners • For detailed cutting data, see page 781

(1) Threads per inch maximum

(2) Threads per inch minimum

(3) Minimum overhang

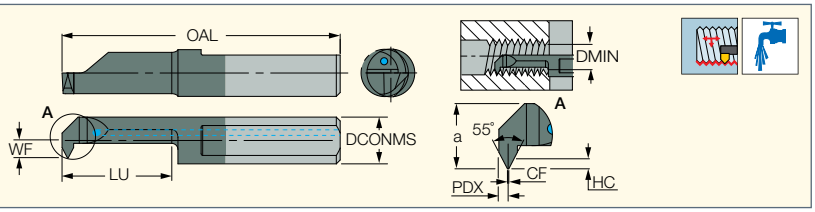
For holders, see pages: GHPCOR (459) • PICCO ACE (434) • PICCO/MG PCO (Holder) (435)

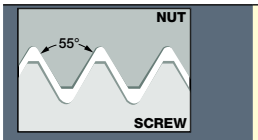
ISCARTHREAD

PICCOJET
COOLANT THROUGH

PICCO-55°-N (55° Threading)

Inserts with Internal Coolant Channel for 55° Internal Threading Profile





Designation	Dimensions											IC908
	DCONMS	TPIX(1)	TPIN(2)	HC	CF	PDX	WF	a	LU	OAL	DMIN	
PICCO R 006.5524-15N	.238	24.00	16.00	.032	.005	.03	.091	.209	.551	1.417	.236	●
PICCO R 007.5524-15N	.278	24.00	16.00	.032	.005	.03	.110	.248	.551	1.417	.276	●

• 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 781

(1) Threads per inch maximum

(2) Threads per inch minimum

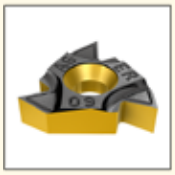
For holders, see pages: PICCO ACE-N (413) • PICCO-N (Holder) (415)

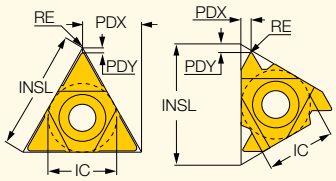
Partial Profle 60°

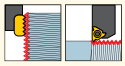
ISCARTHREAD

ER/L-60°

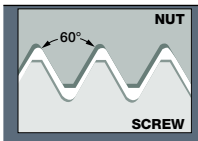
External Laydown Threading Inserts with a 60° Partial Profile for General Applications







External right-hand shown



Designation	Dimensions									Tough ↔ Hard							
	IC	TPN (mm)(2)	TPX (mm)(3)	TPIX(4)	TPIN(5)	INSL	RE	PDY	PDX	IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
11EL A 60	.250	.500	1.500	48.00	16.00	.433	.0020	.03	.04							•	
11ER A 60	.250	.500	1.500	48.00	16.00	.433	.0024	.03	.04							•	
16EL A 60	.375	.500	1.500	48.00	16.00	.649	.0031	.04	.04		•	•				•	
16ER A 60	.375	.500	1.500	48.00	16.00	.649	.0031	.04	.04	•		•	•			•	•
16ERB A 60 (1)	.375	.500	1.500	48.00	16.00	.649	.0031	.04	.03				•			•	
16ERM A 60 (1)	.375	.500	1.500	48.00	16.00	.649	.0020	.03	.04		•	•			•	•	•
16EL AG 60	.375	.500	3.000	48.00	8.00	.649	.0024	.05	.07		•	•				•	
16ER AG 60	.375	.500	3.000	48.00	8.00	.649	.0031	.05	.07	•	•	•	•	•		•	•
16ERB AG 60 (1)	.375	.500	3.000	48.00	8.00	.649	.0024	.05	.07							•	
16ERM AG 60 (1)	.375	.500	3.000	48.00	8.00	.649	.0031	.05	.07		•	•		•	•	•	•
16EL G 60	.375	1.750	3.000	14.00	8.00	.649	.0087	.05	.07			•				•	
16ER G 60	.375	1.750	3.000	14.00	8.00	.649	.0087	.05	.07	•		•	•			•	•
16ERB G 60 (1)	.375	1.750	3.000	14.00	8.00	.649	.0087	.05	.07							•	
16ERM G 60 (1)	.375	1.750	3.000	14.00	8.00	.649	.0098	.04	.06		•	•			•	•	•
22EL N 60	.500	3.500	5.000	7.00	5.00	.866	.0165	.07	.10		•					•	
22ER N 60	.500	3.500	5.000	7.00	5.00	.866	.0165	.07	.10	•	•	•	•			•	•
22ERM N 60 (1)	.500	3.500	5.000	7.00	5.00	.866	.0126	.07	.10		•	•			•	•	•
22UEIRL U 60	.500	5.500	8.000	4.50	3.25	.866	.0110	.02	.02			•				•	
27EL Q 60	.625	5.500	6.000	4.50	4.00	1.083	.0248	.08	.12	•							
27ER Q 60	.625	5.500	6.000	4.50	4.00	1.083	.0248	.08	.12		•	•				•	
27UEIRL U 60	.625	6.500	9.000	4.00	2.75	1.083	.0110	.04	.54		•	•					

- For Insert Identification System, see pages 694-695 • 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 781-797

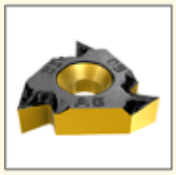
(1) With pressed chipformer
(2) Thread pitch minimum (mm)
(3) Thread pitch maximum (mm)
(4) Threads per inch maximum
(5) Threads per inch minimum

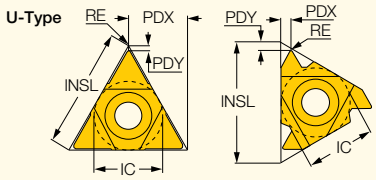
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

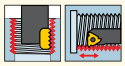
ISCARTHREAD

IR/L-60°

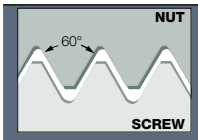
Internal Laydown Threading Inserts with a 60° Partial Profile for General Applications







Internal left-hand shown



Designation	Dimensions									Tough ↔ Hard								
	IC	TPN (mm)(2)	TPX (mm)(3)	TPIX(4)	TPIN(5)	INSL	RE	PDY	PDX	IC28	IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
06IL A 60	.157	.500	1.250	48.00	20.00	.271	.0020	.02	.02		•							
06IR A 60	.157	.500	1.250	48.00	20.00	.271	.0020	.02	.02	•	•						•	
06IRM A 60 (1)	.157	.500	1.250	48.00	20.00	.271	.0020	.02	.02		•							
08IL A 60	.197	.500	1.500	48.00	16.00	.324	.0020	.02	.03		•							
08IR A 60	.197	.500	1.500	48.00	16.00	.324	.0020	.02	.03	•	•			•			•	•
08IRM A 60 (1)	.197	.500	1.500	48.00	16.00	.324	.0016	.02	.03		•					•	•	•
08UIRL U 60	.197	1.250	2.000	18.00	12.00	.324	.0039	.03	.16		•							
11IL A 60	.250	.500	1.500	48.00	16.00	.433	.0020	.03	.04			•	•				•	
11IR A 60	.250	.500	.500	48.00	16.00	.433	.0020	.03	.04		•	•	•	•			•	•
11IRM A 60 (1)	.250	.500	1.500	48.00	16.00	.433	.0020	.03	.04				•			•	•	•
16IL A 60	.375	.500	1.500	48.00	16.00	.649	.0016	.03	.03				•				•	
16IR A 60	.375	.500	1.500	48.00	16.00	.649	.0016	.03	.04		•	•	•				•	•
16IRB A 60 (1)	.375	.500	1.500	48.00	16.00	.649	.0016	.03	.03								•	
16IRM A 60 (1)	.375	.500	1.500	48.00	16.00	.649	.0020	.03	.04				•			•	•	•
16IL AG 60	.375	.500	3.000	48.00	8.00	.649	.0016	.05	.07				•	•			•	•
16IR AG 60	.375	.500	3.000	48.00	8.00	.649	.0016	.05	.07		•	•	•		•		•	•
16IRB AG 60 (1)	.375	.500	3.000	48.00	8.00	.649	.0012	.05	.07								•	
16IRM AG 60 (1)	.375	.500	3.000	48.00	8.00	.649	.0020	.05	.07			•	•			•	•	•
16IL G 60	.375	1.750	3.000	14.00	8.00	.649	.0051	.05	.07								•	
16IR G 60	.375	1.750	3.000	14.00	8.00	.649	.0051	.05	.07		•	•	•	•			•	•
16IRB G 60 (1)	.375	1.750	3.000	14.00	8.00	.649	.0051	.05	.07								•	
16IRM G 60 (1)	.375	1.750	3.000	14.00	8.00	.649	.0039	.05	.07			•	•			•	•	•
22IL N 60	.500	3.500	5.000	7.00	5.00	.866	.0087	.07	.10								•	
22IR N 60	.500	3.500	5.000	7.00	5.00	.866	.0087	.07	.10				•	•			•	•
22IRM N 60 (1)	.500	3.500	5.000	7.00	5.00	.866	.0075	.07	.10			•	•			•	•	•
27IL Q 60	.625	5.500	6.000	4.50	4.00	1.083	.0157	.07	.09			•						
27IR Q 60	.625	5.500	6.000	4.50	4.00	1.083	.0157	.07	.09				•				•	

• For Insert Identification System, see pages 694-695 • For technical information and detailed cutting data, see pages 781-797

(1) With a pressed chipformer

(2) Thread pitch minimum (mm)

(3) Thread pitch maximum (mm)

(4) Threads per inch maximum

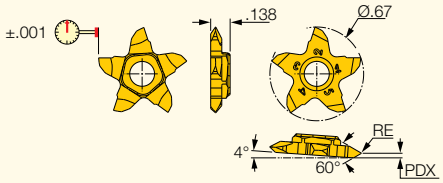
(5) Threads per inch minimum

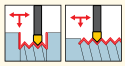
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

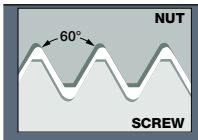
PENTACUT THREADING LINE

PENTA 17-MT-RS/LS

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







Designation	Dimensions						IC1008
	TPIN(1)	TPIX(2)	TPN (mm)(3)	TPX (mm)(4)	RE	PDX	
PENTA 17-MTL008LS	8.00	36.00	.700	3.000	.0031	.0551	●
PENTA 17-MTR008RS	8.00	36.00	.700	3.000	.0031	.0551	●
PENTA 17-MTL003LS	17.00	80.00	.300	1.500	.0012	.0315	●
PENTA 17-MTR003RS	17.00	80.00	.300	1.500	.0012	.0315	●

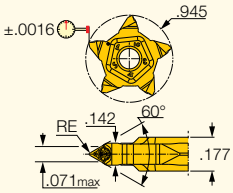
(1) Threads per inch minimum
(2) Threads per inch maximum
(3) Thread pitch minimum (mm)
(4) Thread pitch maximum (mm)

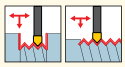
For tools, see pages: NQCH-PCHR/L-S-JHP (403) • PCADRS/LS-JHP (331) • PCHRS/LS-17 (319) • PCHRS/LS-17-JHP (319) • Y-PCHRS-17 (320) • Y-PCHRS-17-JHP (320)

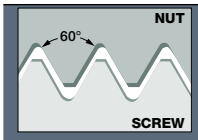
PENTACUT THREADING LINE

PENTA 24-MT

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







Designation	Dimensions			IC908
	TPN (mm)(2)	TPX (mm)(3)	RE	
PENTA 24A-MT-0.05 (1)	.250	3.000	.0020	●
PENTA 24-MT-0.05	.250	3.500	.0020	●
PENTA 24A-MT-0.15	.800	3.000	.0059	●

• TPX=0175xD
(1) Flat rake (without a chipformer)
(2) Thread pitch minimum (mm)
(3) Thread pitch maximum (mm)

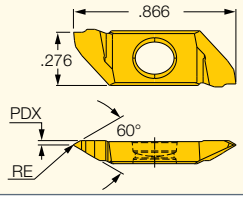
For tools, see pages: HMSDV PEN (530) • HSTBS-PEN (530) • PCAD RE/LE-JHP (553) • PCADR/L (330) • PCADR/L-JHP (330) • PCHBR/L (332) • PCHPR/L (329) • PCHR/L-24 (325) • PCHR/L-24-JHP (326)

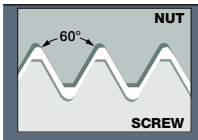
ISCARTHREAD

SWISSCUT INNOVAL LINE

SCIR/L-22-MTR/MTL

Threading Inserts with a 60° Partial Profile





Designation	Dimensions						Tough ↔ Hard		
	RE	PDX	TPN (mm)(1)	TPX (mm)(2)	TPIX(3)	TPIN(4)	IC1008	IC07	IC1007
SCIL 22-MTL003	.0012	.02	.300	.900	83.00	28.00	●	●	●
SCIR 22-MTR003	.0012	.02	.300	.900	83.00	28.00	●	●	●
SCIL 22-MTL007	.0027	.02	.700	1.100	36.00	23.00	●	●	●
SCIL 22-MTR007	.0027	.02	.700	1.100	36.00	23.00	●		
SCIR 22-MTL007	.0027	.02	.700	1.100	36.00	23.00	●		
SCIR 22-MTR007	.0027	.02	.700	1.100	36.00	23.00	●	●	●
SCIL 22-MTL010	.0039	.03	.900	1.700	28.00	15.00	●	●	●
SCIR 22-MTR010	.0039	.03	.900	1.700	28.00	15.00	●	●	●

• For detailed cutting data, see page 781

(1) Thread pitch minimum (mm)

(2) Thread pitch maximum (mm)

(3) Threads per inch maximum

(4) Threads per inch minimum

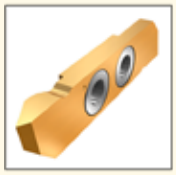
For tools, see pages: NQCH-SCHR/L-BF-JHP (388) • NQCH-Y-SCHR-BF-JHP (388) • SCHR/L-22BF (387) • SCHR/L-22BF-JHP (387) • Y-SCHR-22BF (387) • Y-SCHR-22BF-JHP (388)

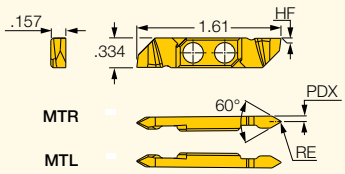
SWISSCUT EXTRA LONG

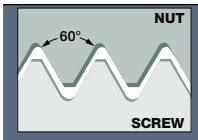
ISCARTHREAD

SCIR/L-41-MTR/MTL

Threading Inserts with a 60° Partial Profile







Designation	Dimensions							
	RE	PDX	TPN (mm)(1)	TPX (mm)(2)	TPIN(3)	TPIX(4)	HF(5)	IC1008
SCIL 41-MTL006	.0024	.0354	.400	1.500	17.00	64.00	.008	●
SCIR 41-MTR006	.0024	.0354	.400	1.500	17.00	64.00	.008	●
SCIL 41-MTL020	.0079	.0630	1.500	2.500	10.00	17.00	.008	●
SCIR 41-MTR020	.0079	.0630	1.500	2.500	10.00	17.00	.008	●

• For detailed cutting data, see page 781

(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

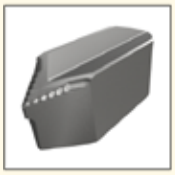
For tools, see pages: SCHR/L-41BF (394)

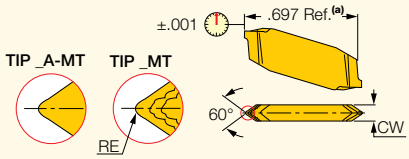
ISCARTHREAD

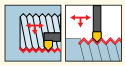
CUTGRIP

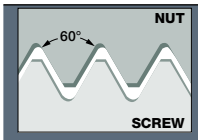
TIP-MT

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









Designation	Dimensions							Tough ↔ Hard	
	CW	RE	RETOL(2)	TPN (mm)(3)	TPIX(4)	TPIN(5)	TPX (mm)(6)	IC08	IC908
TIP 2A-MT-0.05 (1)	.094	.002	.0012	.450	56.00	12.00	2.120		●
TIP 2MT-0.05	.094	.002	.0012	.450	56.00	12.00	2.120	●	●
TIP 2MT-0.14	.094	.006	.0012	1.110	23.00	12.00	2.120	●	●
TIP 4A-MT-0.15 (1)	.157	.006	.0012	1.270	20.00	7.00	3.630		●
TIP 4MT-0.15	.157	.006	.0012	1.270	20.00	7.00	3.630		●
TIP 4MT-0.20	.157	.008	.0012	1.600	16.00	7.00	3.630	●	●
TIP 5MT-0.25	.217	.010	.0012	1.950	13.00	5.00	5.100	●	●

• (a) TIP inserts are 063" 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)

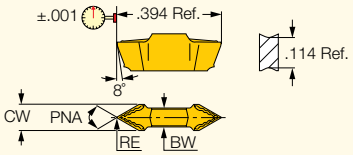
For tools, see pages: C#-GHDR/L (284) • CGHN 26-M (380) • CGHN 32-DGM (382) • CGHN 32-M (381) • CGHN-D (291) • CGHN-DG (292) • CGHN-S (291) • CGPAD (290) • CGPAD-JHP (290) • GHDR/L (short pocket) (285) • GHDR/L-JHP (short pocket) (286) • GHGR/L (287) • GHMPR/L (283) • GHMR/L (283) • GHSR/L (398) • GHSR/L-JHP-SL (399) • NQCH-GHSR/L-JHP (399)

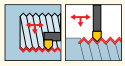
ISCARTHREAD

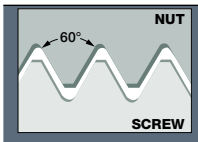
CUTGRIP

GEPI-MT

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







Designation	Dimensions									Tough ↔ Hard	
	CW	RE	RETOL(1)	PNA	BW	TPN (mm)(2)	TPX (mm)(3)	TPIN(4)	TPIX(5)	IC08	IC908
GEPI 2.5-MT0.05	.098	.002	.0012	60.0	.071	.910	2.540	10.00	28.00	●	●

• Toolholder seat needs to be modified according to insert profile to ensure clearance • Pitch max 0187xD, TPI min D/535

• 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

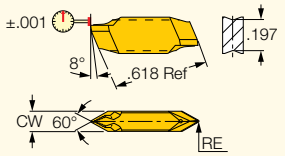
(5) Threads per inch maximum

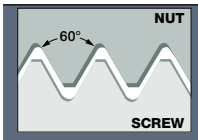
For tools, see pages: AVC-GEAIR/L (371) • E-GEHIR / E-GHIR (364) • GEAIR/L (364) • GEHIMR/L (361) • GEHIMR/L-SC (361) • GEHIR/L (362) • GEHIR/L-SC (363) • GEHSR (397) • GEHSR/L-SL (397)

ISCARTHREAD
CUTGRIP

TIPI-MT

Precision Ground Double-Ended Internal Threading Inserts with 60° Partial Profile and Chipformer for.787" Min. Bore Dia.





Designation	Dimensions							Tough ↔ Hard	
	CW	RE	RETOL(1)	TPN (mm)(2)	TPIX(3)	TPIN(4)	TPX (mm)(5)	IC08	IC908
TIPI 3.4MT-0.10	.134	.004	.0012	1.800	14.00	8.00	3.180	●	●
TIPI 5.4MT-0.20	.213	.008	.0012	3.190	8.00	5.00	5.100	●	●

- Toolholder seat needs to be modified according to insert profile to ensure clearance • Pitch max 0205xD, TPI min D/48
- D=Diameter of thread (pitch max<=CW) • TIPI inserts are 063" longer than GIPI in the same pocket

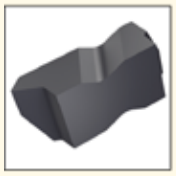
(1) Corner radius tolerance (+/-)
(2) Thread pitch minimum (mm)
(3) Threads per inch maximum
(4) Threads per inch minimum
(5) Thread pitch maximum (mm)

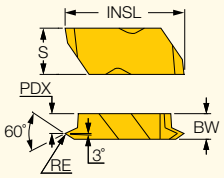
For tools, see pages: AVC-GAIR/L (371) • CGIN 26 (372) • GAIR/L (370) • GHIR-SC (W=079-138) (369) • GHIR/L (W=078-252) (368) • GHIR/L-C (W=157-252) (368)

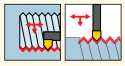
NOTCHGRIP GROOVE-TURN LINE
ISCARTHREAD

60° PARTIAL PROFILE THREADING FLTF

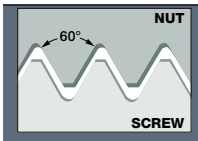
Double-Ended Precision Flat Top Threading Inserts







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	.0030	.1417	.195	.344	.890	2.500	1.750	●
FLTF-4R/L	9.00	24.00	10.00	44.00	.0030	.2008	.255	.453	1.120	2.500	1.750	●
FLTF-2R/L	12.00	24.00	14.00	44.00	.0030	.1102	.150	.219	.514	.600	1.750	●

- DMIN according to related boring bar • For 60° V-thread limits, see page 784-785

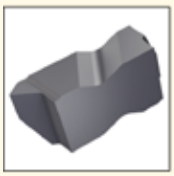
(1) TPI int min
(2) TPI int max
(3) TPI ext min
(4) TPI ext max

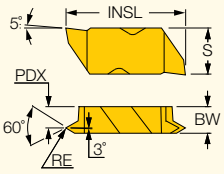
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

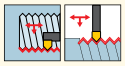
NOTCHGRIP GROOVE-TURN LINE
ISCARTHREAD

60° PARTIAL PROFILE THREADING FLTK

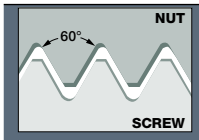
Double-Ended Precision Positive Rake Threading Inserts







Right-hand shown



Designation	Dimensions										
	TPIN(1)	TPIX(2)	TPIN_DF2(3)	TPIX_DF2(4)	RE	TTP	PDX	BW	S	INSL	IC908
FLTK-3R/L	9.00	24.00	10.00	44.00	.0030	BOTH	.1417	.195	.344	.890	●
FLTK-4R/L	9.00	24.00	10.00	44.00	.0030	BOTH	.2008	.255	.453	1.120	●
FLTK-2R/L	12.00	24.00	14.00	44.00	.0030	BOTH	.1102	.150	.219	.514	●

- DMIN according to related boring bar • For 60° V-thread limits, see page 784-785

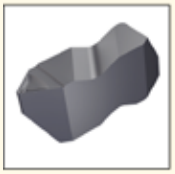
(1) TPI int min
(2) TPI int max
(3) TPI ext min
(4) TPI ext max

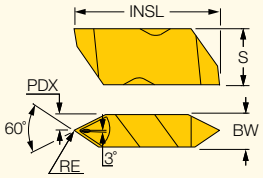
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

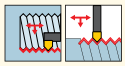
NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

60° PARTIAL PROFILE THREADING FLT-CB

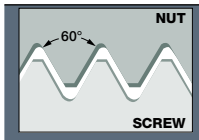
Double-Ended Precision Threading Inserts with Chipbreakers







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	.0065	.1299	.255	.453	1.120	●
FLT-3R/LC-HCB	5.00	6.00	6.00	11.00	.0135	.0984	.195	.344	.890	●
FLT-3R/L-HCB	5.00	12.00	6.00	20.00	.0065	.0984	.195	.344	.890	●
FLT-3R/L-FCB	7.00	20.00	8.00	36.00	.0040	.0984	.195	.344	.890	●
FLT-3R/L-CB	8.00	12.00	8.00	20.00	.0065	.0984	.195	.344	.890	●

• DMIN according to related boring bar • For 60° V-thread limits, see page 784-785

(1) TPI int min

(2) TPI int max

(3) TPI ext min

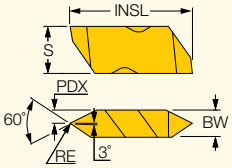
(4) TPI ext max

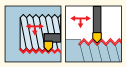
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

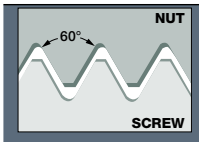
60° PARTIAL PROFILE THREADING FLT

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	.0065	.1299	.255	.453	1.120	●
FLT-3R/L	5.00	12.00	6.00	20.00	.0040	.0984	.195	.344	.890	●
FLT-3010R/L	5.00	12.00	6.00	18.00	.0100	.0984	.195	.344	.890	●
FLT-2R/L	7.00	20.00	8.00	36.00	.0040	.0748	.150	.219	.514	●

• DMIN according to related boring bar • For 60° V-thread limits, see page 784-785

(1) TPI int min

(2) TPI int max

(3) TPI ext min

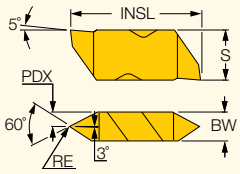
(4) TPI ext max

For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

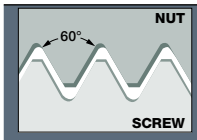
NOTCH GRIP
GROOVE-TURN LINE
ISCAR THREAD

60° PARTIAL PROFILE THREADING FLTP

Double-Ended Precision Positive Rake Threading Inserts



Right-hand shown



Designation	Dimensions									IC908
	TPIN(1)	TPIX(2)	TPIN_DF2(3)	TPIX_DF2(4)	RE	PDX	BW	S	INSL	
FLTP-4R/L	4.00	12.00	4.00	20.00	.0065	.1299	.256	.453	1.120	●
FLTP-3R/L	5.00	12.00	6.00	20.00	.0065	.0984	.197	.344	.890	●
FLTP-2R/L	7.00	20.00	8.00	36.00	.0040	.0748	.150	.219	.514	●

• DMIN according to related boring bar • For 60° V-thread limits, see page 784-785

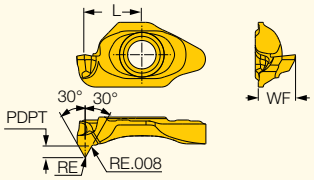
(1) TPI int min
(2) TPI int max
(3) TPI ext min
(4) TPI ext max

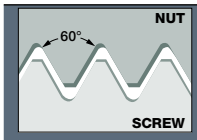
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

ISCAR THREAD
MIN CUT
MINI FACE LINE

MITR 8-MT

Internal ISO Metric Threading Inserts for Partial Profile





Designation	Dimensions							IC908
	PDPT(1)	RE	L	WF	DMIN(2)	TPN (mm)(3)	TPX (mm)(4)	
MITR 8-MT2-0.1	.046	.0039	.226	.150	.394	1.500	2.000	●
MITR 8-MT1-0.05	.048	.0020	.226	.150	.394	.750	1.250	●

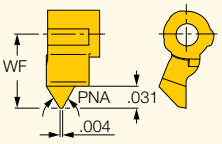
(1) Cutting depth maximum
(2) Minimum diameter
(3) Thread pitch minimum (mm)
(4) Thread pitch maximum (mm)

For tools, see pages: MIFHR (465)

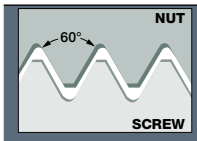
ISCAR THREAD
MINICHAM

UMGR-A60

Mini Indexable Inserts with a 60° Partial Profile for Threading in .205" and Larger Holes



Right-hand shown



Designation	Dimensions							IC508
	PNA	WF	DMIN	TPN (mm)(1)	TPX (mm)(2)	TPIN(3)	TPIX(4)	
UMGR 4.0-A60	60.0	.106	.205	.600	1.250	20.00	40.00	●

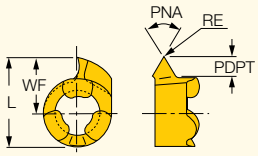
• For detailed cutting data, see page 781

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

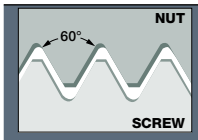
ISCARTHREAD CHAMGROOVE

GIQR/L-MT

Internal Threading Inserts with a 60° Partial Profile for Threading in .31" and Larger Holes



Left-hand shown



Designation	Dimensions										IC528
	L	RE	PNA	PDPT(1)	WF	DMIN(2)	TPN (mm)(3)	TPX (mm)(4)	TPIN(5)	TPIX(6)	
GIQR/L 8-MT-0.05	.306	.002	60.0	.059	.189	.315	.500	1.590	16.00	50.00	●
GIQR/L 11-MT-0.05	.420	.002	60.0	.079	.264	.433	.500	2.300	11.00	50.00	●

• Can be used for thread milling by circular interpolation • Pitch max 019xD • D-diameter of thread • For cutting speed recommendations, see page 781

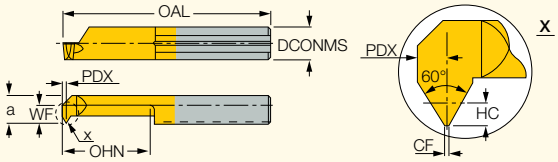
(1) Cutting depth maximum
(2) Minimum diameter
(3) Thread pitch minimum (mm)
(4) Thread pitch maximum (mm)
(5) Threads per inch minimum
(6) Threads per inch maximum

For tools, see pages: MG (466) • MGCH (466)

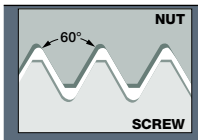
ISCARTHREAD PICCOCUT

PICCO R/L-60°-Thread

Inserts with a 60° Internal Thread Profile for .094" Min. Bore Diameter



Right-hand shown



Designation	Dimensions													Tough ↔ Hard	
	DCONMS	HC	CF	PDX	WF	a	OHN(1)	OAL	DMIN	TPN (mm)(2)	TPX (mm)(3)	TPIN(4)	TPIX(5)	IC228	IC908
PICCO R 003.0105-8	.157	.011	.002	.01	.012	.091	.315	.866	.094	.500	.700	36.00	48.00		●
PICCO R 004.0105-10	.157	.011	.004	.02	.039	.118	.394	.945	.126	.500	.750	36.00	48.00		●
PICCO R/L 004.0205-15	.157	.011	.002	.02	.059	.138	.591	1.181	.157	.500	.750	36.00	48.00	●	
PICCO R/L 005.0205-15	.197	.011	.002	.02	.075	.173	.591	1.181	.197	.500	.750	36.00	48.00	●	
PICCO L 005.0407-15	.197	.016	.004	.02	.075	.173	.591	1.181	.197	.750	1.000	24.00	36.00	●	
PICCO R 005.0407-15	.197	.016	.004	.02	.075	.173	.591	1.181	.197	.750	1.000	24.00	36.00	●	●
PICCO R 005.0407-20	.197	.016	.004	.02	.075	.173	.787	1.378	.197	.750	1.000	24.00	36.00		●
PICCO R/L 005.0510-15	.197	.022	.005	.02	.075	.173	.591	1.181	.189	1.000	1.250	20.00	24.00	●	
PICCO R 005.0510-20	.197	.022	.005	.02	.075	.173	.787	1.378	.189	1.000	1.250	20.00	24.00		●
PICCO R/L 006.0510-15	.236	.022	.005	.02	.091	.209	.591	1.181	.236	1.000	1.250	20.00	24.00	●	
PICCO R 006.0510-22	.236	.022	.005	.02	.091	.209	.866	1.457	.236	1.000	1.250	20.00	24.00		●
PICCO R/L 006.0612-15	.236	.027	.006	.03	.091	.209	.591	1.181	.236	1.250	1.500	16.00	20.00	●	
PICCO R 006.0612-22	.236	.027	.006	.03	.091	.209	.866	1.457	.236	1.250	1.500	16.00	20.00		●
PICCO R/L 006.0815-15	.236	.032	.007	.03	.091	.209	.591	1.181	.236	1.500	1.750	14.00	16.00	●	
PICCO R 006.0815-22	.236	.032	.007	.03	.091	.209	.866	1.457	.236	1.500	1.750	14.00	16.00		●
PICCO R/L 007.0815-15	.276	.032	.007	.03	.106	.248	.591	1.181	.276	1.500	1.750	14.00	16.00	●	

• For detailed cutting data, see page 781

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

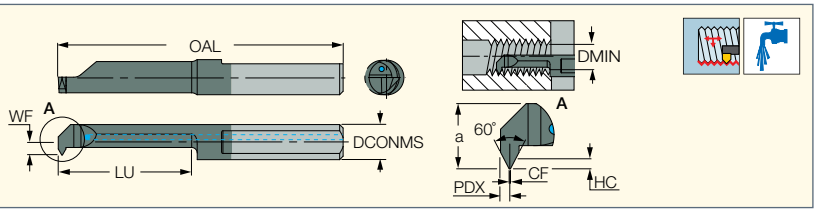
For holders, see pages: GHPCOR (459) • PICCO ACE (434) • PICCO/MG PCO (Holder) (435)

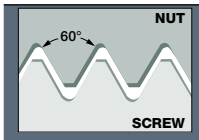
ISCARTHREAD

PICCOJET
COOLANT THROUGH

PICCO R/L-60°-N (60° Threading)

Inserts with a 60° Internal Thread Profile and Internal Coolant Channel for .094" Min. Bore Diameter





Designation	Dimensions													IC908
	DCONMS	HC	CF	PDX	WF	a	LU	OAL	DMIN	TPN (mm)(1)	TPX (mm)(2)	TPIN(3)	TPIX(4)	
PICCO R 003.0105-8N	.159	.011	.002	.01	.012	.091	.276	1.220	.094	.500	.700	36.00	48.00	•
PICCO R 004.0105-10N	.159	.011	.004	.02	.039	.118	.354	1.220	.126	.500	.750	36.00	48.00	•
PICCO R 004.0205-15N	.159	.011	.002	.02	.059	.138	.551	1.417	.157	.500	.750	36.00	48.00	•
PICCO R 005.0205-15N	.199	.011	.002	.02	.075	.173	.551	1.417	.197	.500	.750	36.00	48.00	•
PICCO R 005.0407-15N	.199	.016	.004	.02	.075	.173	.551	1.417	.197	.750	1.000	24.00	36.00	•
PICCO R/L 005.0510-15N	.199	.022	.005	.02	.075	.173	.551	1.417	.189	1.000	1.250	20.00	24.00	•
PICCO R 005.0510-20N	.199	.022	.005	.02	.075	.173	.748	1.614	.189	1.000	1.250	20.00	24.00	•
PICCO R 006.0510-15N	.238	.022	.005	.02	.091	.209	.551	1.417	.236	1.000	1.250	20.00	24.00	•
PICCO R 006.0510-22N	.238	.022	.005	.02	.091	.209	.827	1.693	.236	1.000	1.250	20.00	24.00	•
PICCO R 006.0612-15N	.238	.027	.006	.03	.091	.209	.551	1.417	.236	1.250	1.500	16.00	20.00	•
PICCO R 006.0815-15N	.238	.032	.007	.03	.091	.209	.551	1.417	.236	1.500	1.750	14.00	16.00	•
PICCO R/L 007.0815-15N	.278	.032	.007	.03	.106	.248	.551	1.417	.276	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 781

(1) Thread pitch minimum (mm)

(2) Thread pitch maximum (mm)

(3) Threads per inch minimum

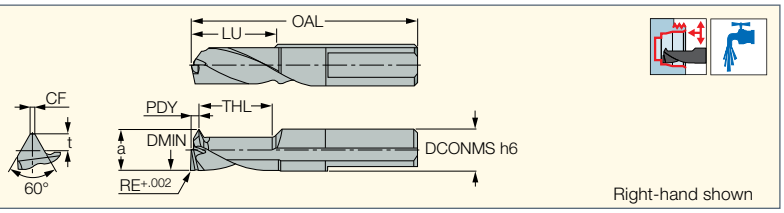
(4) Threads per inch maximum

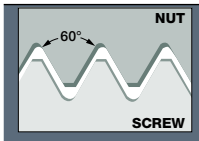
For holders, see pages: PICCO ACE-N (413) • PICCO-N (Holder) (415)

MULTIFUNCTION TOOLS

PICCO-MFT

Solid Carbide Tools for Drilling, Facing, Internal and External Turning and Threading on Swiss and Small CNC Machines





Designation	Dimensions												IC908
	DCONMS	DMIN	LU	TPN (mm)(2)	TPX (mm)(3)	t	a	CF	THL	OAL	PDY	RE	
PICCO R/L-MFT60 6-4 L08	.236	.157	.315	.500	.750	.018	.154	.002	.287	1.181	.05	.0039	•
PICCO R-MFT60 6-4 L12	.236	.157	.472	.500	.750	.018	.154	.002	.457	1.339	.05	.0079	•
PICCO R/L-MFT60 6-5 L10	.236	.197	.394	.500	1.000	.024	.193	.002	.354	1.260	.06	.0039	•
PICCO R/L-MFT60 6-5 L15 (1)	.236	.197	.591	.500	1.000	.024	.193	.002	.567	1.457	.06	.0118	•
PICCO R/L-MFT60 6-6 L18 (1)	.236	.236	.709	.500	1.000	.024	.232	.002	.681	1.693	.06	.0118	•
PICCO R-MFT60 6-6 L12	.236	.236	.472	.500	1.000	.024	.232	.002	.433	1.339	.06	.0039	•
PICCO R/L-MFT60 8-7 L14	.315	.276	.551	.750	1.250	.030	.272	.004	.512	1.614	.06	.0039	•
PICCO R-MFT60 8-7 L21	.315	.276	.827	.750	1.250	.030	.272	.004	.787	2.165	.06	.0118	•
PICCO R/L-MFT60 8-8 L16	.315	.315	.630	.900	1.500	.036	.311	.004	.591	1.693	.06	.0039	•
PICCO L-MFT60 8-8 L24 (1)	.315	.315	.945	.900	1.500	.036	.311	.004	.906	2.244	.06	.0118	•
PICCO R-MFT60 8-8 L24	.315	.315	.945	.900	1.500	.036	.311	.004	.906	2.008	.06	.0118	•

• 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)

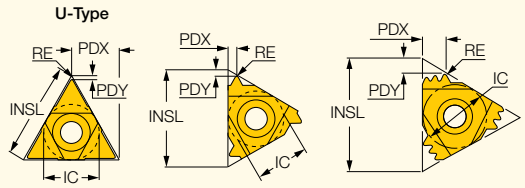
For holders, see pages: PICCO/MG PCO (Holder) (435)

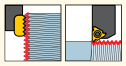
Full Profile ISO

ISCARTHREAD

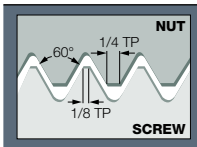
ER/L-ISO

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





External right-hand shown



Designation	Dimensions							Tough ↔ Hard							
	IC	TP mm[3]	RE	INSL	PDY	PDX	CICT[4]	IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
11EL 0.35 ISO	.250	.350	.0016	.433	.03	.02	1							•	
11ER 0.35 ISO	.250	.350	.0016	.433	.02	.02	1							•	
11ER 0.40 ISO	.250	.400	.0016	.433	.03	.02	1							•	
11ER 0.45 ISO	.250	.450	.0020	.433	.03	.02	1	•							
11EL 0.50 ISO	.250	.500	.0024	.433	.02	.02	1							•	
11ER 0.50 ISO	.250	.500	.0024	.433	.02	.02	1			•				•	
11ER 0.60 ISO	.250	.600	.0027	.433	.02	.02	1							•	
11ER 0.70 ISO	.250	.700	.0043	.433	.02	.02	1							•	
11EL 0.75 ISO	.250	.750	.0031	.433	.02	.02	1							•	
11ER 0.75 ISO	.250	.750	.0043	.433	.02	.02	1							•	
11ER 0.80 ISO	.250	.800	.0047	.433	.02	.02	1							•	
11EL 1.00 ISO	.250	1.000	.0059	.433	.03	.03	1			•					
11ER 1.00 ISO	.250	1.000	.0059	.433	.03	.03	1							•	
11ER 1.25 ISO	.250	1.250	.0063	.433	.03	.04	1							•	
11EL 1.50 ISO	.250	1.500	.0075	.433	.03	.04	1							•	
11ER 1.50 ISO	.250	1.500	.0075	.433	.04	.03	1			•				•	
11ER 1.75 ISO	.250	1.750	.0087	.433	.04	.03	1			•					
16ER/L 0.35 ISO	.375	.350	.0016	.649	.02	.02	1							•	
16EL 0.40 ISO	.375	.400	.0020	.649	.03	.02	1							•	
16ER 0.40 ISO	.375	.400	.0020	.649	.02	.02	1							•	
16ER 0.45 ISO	.375	.450	.0020	.649	.02	.02	1							•	
16EL 0.50 ISO	.375	.500	.0027	.649	.02	.02	1							•	
16ER 0.50 ISO	.375	.500	.0027	.649	.02	.02	1			•	•			•	•
16ERM 0.50 ISO	.375	.500	.0024	.649	.02	.02	1							•	
16ER 0.60 ISO	.375	.600	.0039	.649	.02	.02	1							•	
16EL 0.70 ISO	.375	.700	.0043	.649	.02	.02	1							•	
16ER 0.70 ISO	.375	.700	.0043	.649	.02	.02	1			•				•	•
16EL 0.75 ISO	.375	.750	.0043	.649	.02	.02	1							•	
16ER 0.75 ISO	.375	.750	.0043	.649	.02	.02	1			•	•			•	•
16ER 0.75 ISO 3M [1]	.375	.750	.0027	.649	.06	.07	3							•	
16ERM 0.75 ISO [2]	.375	.750	.0031	.649	.02	.02	1						•	•	•
16EL 0.80 ISO	.375	.800	.0047	.649	.02	.02	1			•					
16ER 0.80 ISO	.375	.800	.0047	.649	.02	.02	1			•				•	•
16ERB 0.80 ISO [2]	.375	.800	.0047	.649	.03	.03	1							•	
16EL 1.00 ISO	.375	1.000	.0059	.649	.03	.03	1			•	•			•	
16ER 1.00 ISO	.375	1.000	.0059	.649	.04	.03	1	•	•	•	•			•	•
16ER 1.00 ISO 3M [1]	.375	1.000	.0027	.649	.07	.10	3							•	
16ERB 1.00 ISO [2]	.375	1.000	.0059	.649	.03	.03	1							•	
16ERM 1.00 ISO [2]	.375	1.000	.0043	.649	.03	.03	1		•	•		•	•	•	•
16EL 1.25 ISO	.375	1.250	.0063	.649	.03	.04	1			•	•			•	
16ER 1.25 ISO	.375	1.250	.0063	.649	.03	.04	1			•	•			•	•
16ERB 1.25 ISO [2]	.375	1.250	.0063	.649	.03	.04	1							•	
16ERM 1.25 ISO [2]	.375	1.250	.0055	.649	.03	.04	1			•			•	•	•
16EL 1.50 ISO	.375	1.500	.0087	.649	.04	.05	1			•	•			•	•
16ER 1.50 ISO	.375	1.500	.0075	.649	.04	.05	1	•	•	•	•			•	•
16ER 1.50 ISO 2M [1]	.375	1.500	.0071	.649	.06	.09	2							•	
16ERB 1.50 ISO [2]	.375	1.500	.0075	.649	.03	.04	1							•	
16ERM 1.50 ISO [2]	.375	1.500	.0075	.649	.03	.04	1		•	•		•	•	•	•
16EL 1.75 ISO	.375	1.750	.0087	.649	.04	.05	1							•	

- For Insert Identification System, see pages 694-695
- For threading between walls use GRIP-type inserts TIP-ISO class: 6g
- For technical information and detailed cutting data, see pages 781-797 781-797

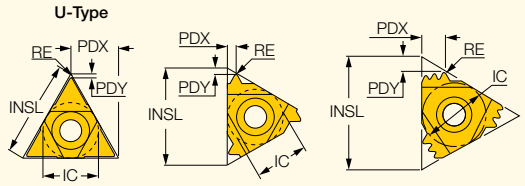
(1) Multi-tooth
(2) With pressed chipformer
(3) Thread pitch
(4) Number of teeth per corner

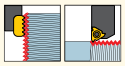
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

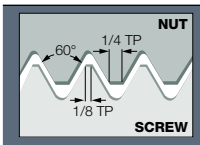
ER/L-ISO

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





External right-hand shown



Designation	Dimensions							Tough ↔ Hard							
	IC	TP mm(3)	RE	INSL	PDY	PDX	CICT(4)	IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
16ER 1.75 ISO	.375	1.750	.0087	.649	.04	.05	1	●		●	●			●	●
16ERB 1.75 ISO (2)	.375	1.750	.0087	.649	.04	.05	1							●	
16ERM 1.75 ISO (2)	.375	1.750	.0098	.649	.04	.05	1			●			●	●	●
16EL 2.00 ISO	.375	2.000	.0098	.649	.04	.05	1	●		●				●	
16ER 2.00 ISO	.375	2.000	.0102	.649	.04	.05	1	●	●	●	●			●	●
16ER 2.00 ISO 2M (1)	.375	2.000	.0035	.649	.07	.11	2							●	
16ERB 2.00 ISO (2)	.375	2.000	.0098	.649	.04	.05	1							●	
16ERM 2.00 ISO (2)	.375	2.000	.0094	.649	.04	.05	1			●		●	●	●	●
16EL 2.50 ISO	.375	2.500	.0126	.649	.04	.06	1							●	
16ER 2.50 ISO	.375	2.500	.0126	.649	.04	.06	1		●	●				●	●
16ERB 2.50 ISO	.375	2.500	.0126	.649	.04	.06	1							●	
16ERM 2.50 ISO (2)	.375	2.500	.0118	.649	.04	.06	1			●			●	●	●
16EL 3.00 ISO	.375	3.000	.0173	.649	.05	.06	1							●	
16ER 3.00 ISO	.375	3.000	.0173	.649	.05	.06	1	●	●	●		●		●	●
16ERB 3.00 ISO (2)	.375	3.000	.0173	.649	.05	.06	1							●	
16ERM 3.00 ISO (2)	.375	3.000	.0150	.649	.05	.06	1		●	●		●	●	●	●
16ERB 3.50 ISO	.375	3.500	.0201	.649	.05	.07	1							●	
22ER 1.50 ISO 3M (1)	.500	1.500	.0027	.866	.09	.15	3			●				●	
22ER 2.00 ISO 2M (1)	.500	2.000	.0098	.866	.08	.12	2							●	
22ER 2.00 ISO 3M (1)	.500	2.000	.0098	.866	.12	.20	3			●				●	
22EL 3.50 ISO	.500	3.500	.0181	.866	.06	.09	1	●		●					
22ER 3.50 ISO	.500	3.500	.0181	.866	.06	.09	1			●				●	
22ERM 3.50 ISO (2)	.500	3.500	.0189	.866	.06	.09	1						●	●	
22EL 4.00 ISO	.500	4.000	.0205	.866	.06	.09	1			●				●	
22ER 4.00 ISO	.500	4.000	.0205	.866	.06	.09	1		●	●				●	●
22ERM 4.00 ISO (2)	.500	4.000	.0205	.866	.06	.09	1						●	●	
22ER 4.50 ISO	.500	4.500	.0228	.866	.06	.09	1			●				●	
22EL 5.00 ISO	.500	5.000	.0260	.866	.07	.10	1			●					
22ER 5.00 ISO	.500	5.000	.0260	.866	.07	.10	1			●				●	
22UERL 5.50 ISO	.500	5.500	.0315	.866	.07	.43	1			●					
22ER/L 6.00 ISO	.500	6.000	.0343	.866	.07	.11	1			●					
22UERL 6.00 ISO	.500	6.000	.0307	.866	.10	.43	1	●		●					
27ER 3.00 ISO 2M (1)	.625	3.000	.0150	1.083	.11	.18	2							●	
27ER 5.50 ISO	.625	5.500	.0279	1.083	.08	.11	1							●	
27EL 6.00 ISO	.625	6.000	.0307	1.083	.08	.11	1							●	
27ER 6.00 ISO	.625	6.000	.0307	1.083	.08	.11	1	●		●				●	
27UERL 8.00 ISO	.625	8.000	.0425	1.083	.09	.54	1							●	

- For Insert Identification System, see pages 694-695
- For threading between walls use GRIP-type inserts TIP-ISO class: 6g
- For technical information and detailed cutting data, see pages 781-797 781-797

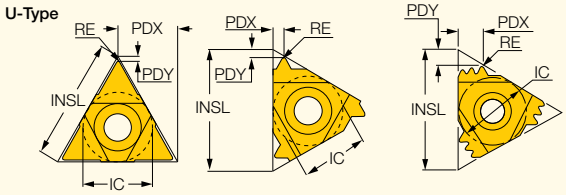
(1) Multi-tooth
(2) With pressed chipformer
(3) Thread pitch
(4) Number of teeth per corner

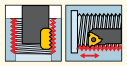
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

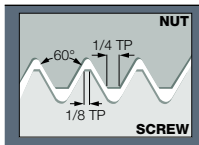
IR/L-ISO

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





Internal left-hand shown



Designation	Dimensions							Tough ⟷ Hard									
	IC	TP mm[3]	RE	INSL	PDY	PDX	CICT[4]	IC28	IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
06IL 0.50 ISO	.157	.500	.0016	.271	.02	.02	1		●								
06IR 0.50 ISO	.157	.500	.0016	.271	.02	.02	1		●	●						●	
06IL 0.75 ISO	.157	.750	.0024	.271	.02	.02	1		●								
06IR 0.75 ISO	.157	.750	.0024	.271	.02	.02	1		●	●						●	
06IL 1.00 ISO	.157	1.000	.0020	.271	.02	.02	1		●								
06IR 1.00 ISO	.157	1.000	.0020	.271	.02	.02	1		●	●						●	
06IL 1.25 ISO	.157	1.250	.0027	.271	.02	.02	1		●								
06IR 1.25 ISO	.157	1.250	.0027	.271	.02	.02	1		●	●						●	
08IL 0.50 ISO	.197	.500	.0016	.324	.02	.02	1		●								
08IR 0.50 ISO	.197	.500	.0016	.324	.02	.02	1		●	●						●	
08IR 0.75 ISO	.197	.750	.0020	.324	.02	.02	1		●	●						●	
08IL 1.00 ISO	.197	1.000	.0027	.324	.02	.02	1		●								
08IR 1.00 ISO	.197	1.000	.0027	.324	.02	.02	1		●	●						●	
08IL 1.25 ISO	.197	1.250	.0035	.324	.02	.03	1		●								
08IR 1.25 ISO	.197	1.250	.0035	.324	.02	.03	1		●	●						●	
08IL 1.50 ISO	.197	1.500	.0039	.324	.02	.03	1		●								
08IR 1.50 ISO	.197	1.500	.0039	.324	.02	.03	1	●	●	●						●	
08IL 1.75 ISO	.197	1.750	.0059	.324	.02	.04	1		●								
08IR 1.75 ISO	.197	1.750	.0059	.324	.02	.04	1		●	●						●	
08UIRL 2.00 ISO	.197	2.000	.0055	.324	.03	.17	1		●								
11IL 0.35 ISO	.250	.350	.0016	.433	.03	.01	1						●				
11IR 0.35 ISO	.250	.350	.0016	.433	.03	.01	1									●	
11IR 0.40 ISO	.250	.400	.0012	.433	.03	.02	1									●	
11IL 0.50 ISO	.250	.500	.0016	.433	.03	.02	1									●	
11IR 0.50 ISO	.250	.500	.0016	.433	.03	.02	1					●	●			●	
11IRB 0.50 ISO	.250	.500	.0016	.433	.03	.02	1									●	
11IRM 0.50 ISO	.250	.500	.0016	.433	.01	.02	1									●	
11IR 0.70 ISO	.250	.700	.0020	.433	.02	.02	1									●	
11IR/L 0.75 ISO	.250	.750	.0020	.433	.02	.02	1									●	
11IRB 0.75 ISO	.250	.750	.0020	.433	.00	.02	1									●	
11IRM 0.75 ISO	.250	.750	.0024	.433	.01	.02	1									●	
11IR 0.80 ISO	.250	.800	.0016	.433	.02	.02	1									●	
11IRB 0.80 ISO	.250	.800	.0016	.433	.02	.02	1									●	
11IL 1.00 ISO	.250	1.000	.0027	.433	.02	.03	1									●	
11IR 1.00 ISO	.250	1.000	.0027	.433	.02	.03	1		●		●	●	●			●	●
11IRB 1.00 ISO	.250	1.000	.0027	.433	.02	.02	1									●	
11IRM 1.00 ISO [1]	.250	1.000	.0020	.433	.02	.03	1								●	●	●
11IR/L 1.25 ISO	.250	1.250	.0035	.433	.03	.03	1									●	
11IRB 1.25 ISO	.250	1.250	.0035	.433	.03	.04	1									●	
11IL 1.50 ISO	.250	1.500	.0047	.433	.03	.04	1					●				●	
11IR 1.50 ISO	.250	1.500	.0047	.433	.03	.04	1		●		●	●	●			●	●
11IRB 1.50 ISO	.250	1.500	.0047	.433	.03	.04	1									●	
11IRM 1.50 ISO [1]	.250	1.500	.0031	.433	.03	.04	1					●				●	●
11IL 1.75 ISO	.250	1.750	.0047	.433	.03	.04	1				●					●	
11IR 1.75 ISO	.250	1.750	.0047	.433	.03	.04	1									●	
11IRB 1.75 ISO	.250	1.750	.0047	.433	.03	.04	1									●	
11IRM 1.75 ISO	.250	1.750	.0059	.433	.02	.04	1									●	
11IL 2.00 ISO	.250	2.000	.0059	.433	.03	.04	1									●	
11IR 2.00 ISO	.250	2.000	.0059	.433	.03	.04	1		●			●		●		●	●
11IRM 2.00 ISO	.250	2.000	.0063	.433	.02	.04	1									●	

• For Insert Identification System, see pages 694-695 • Tolerance: Class 6H • For technical information and detailed cutting data, see pages 781-797

(1) With pressed chipformer

(2) Multi-tooth

(3) Thread pitch

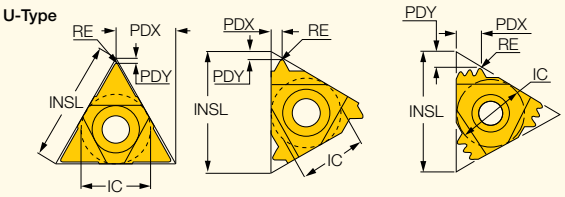
(4) Number of teeth per corner

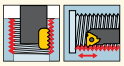
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

ISCARTHREAD

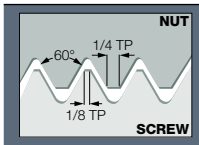
IR/L-ISO

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





Internal left-hand shown



Designation	Dimensions IC	TP mm(3)	RE	INSL	PDY	PDX	CICT(4)	Tough ↔ Hard IC28	IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
11IR 2.5 ISO	.250	2.500	.0071	.433	.03	.05	1									●	
16IR 0.35 ISO	.375	.350	.0008	.649	.02	.01	1									●	
16IR/L 0.40 ISO	.375	.400	.0012	.649	.02	.02	1									●	
16IL 0.45 ISO	.375	.450	.0008	.649	.03	.02	1									●	
16IL 0.50 ISO	.375	.500	.0016	.649	.02	.02	1									●	
16IR 0.50 ISO	.375	.500	.0016	.649	.02	.02	1					●	●			●	
16IR 0.60 ISO	.375	.600	.0016	.649	.02	.02	1									●	
16IR 0.70 ISO	.375	.700	.0020	.649	.02	.02	1					●				●	
16IL 0.75 ISO	.375	.750	.0020	.649	.02	.02	1									●	
16IR 0.75 ISO	.375	.750	.0020	.649	.02	.02	1						●			●	
16IL 0.80 ISO	.375	.800	.0020	.649	.02	.02	1				●						
16IR 0.80 ISO	.375	.800	.0020	.649	.02	.02	1					●					
16IL 1.00 ISO	.375	1.000	.0027	.649	.03	.03	1									●	
16IR 1.00 ISO	.375	1.000	.0027	.649	.03	.03	1				●	●	●			●	●
16IR 1.00 ISO 3M (2)	.375	1.000	.0027	.649	.06	.10	3									●	
16IRB 1.00 ISO (1)	.375	1.000	.0027	.649	.03	.03	1									●	
16IRM 1.00 ISO (1)	.375	1.000	.0020	.649	.02	.03	1				●	●		●	●	●	●
16IL 1.25 ISO	.375	1.250	.0035	.649	.03	.04	1				●		●			●	
16IR 1.25 ISO	.375	1.250	.0035	.649	.03	.04	1					●	●			●	
16IRB 1.25 ISO (1)	.375	1.250	.0035	.649	.03	.03	1									●	
16IRM 1.25 ISO (1)	.375	1.250	.0024	.649	.03	.04	1					●				●	●
16IL 1.50 ISO	.375	1.500	.0047	.649	.04	.05	1				●	●				●	●
16IR 1.50 ISO	.375	1.500	.0047	.649	.04	.04	1		●		●	●	●			●	●
16IR 1.50 ISO 2M (2)	.375	1.500	.0039	.649	.06	.09	2									●	
16IRB 1.50 ISO (1)	.375	1.500	.0047	.649	.04	.05	1									●	
16IRM 1.50 ISO (1)	.375	1.500	.0031	.649	.03	.04	1				●	●		●	●	●	●
16IL 1.75 ISO	.375	1.750	.0047	.649	.04	.05	1									●	
16IR 1.75 ISO	.375	1.750	.0047	.649	.04	.05	1					●	●			●	
16IRB 1.75 ISO (1)	.375	1.750	.0047	.649	.04	.05	1									●	
16IRM 1.75 ISO (1)	.375	1.750	.0039	.649	.04	.05	1					●			●	●	●
16IL 2.00 ISO	.375	2.000	.0063	.649	.04	.05	1					●				●	
16IR 2.00 ISO	.375	2.000	.0063	.649	.04	.05	1		●			●		●		●	●
16IR 2.00 ISO 2M (2)	.375	2.000	.0055	.649	.06	.11	2									●	
16IRB 2.00 ISO (1)	.375	2.000	.0055	.649	.04	.05	1									●	
16IRM 2.00 ISO (1)	.375	2.000	.0043	.649	.04	.05	1					●		●	●	●	●
16IL 2.50 ISO	.375	2.500	.0075	.649	.05	.06	1									●	
16IR 2.50 ISO	.375	2.500	.0075	.649	.05	.06	1		●			●				●	●
16IRB 2.50 ISO	.375	2.500	.0071	.649	.05	.06	1									●	
16IRM 2.50 ISO (1)	.375	2.500	.0055	.649	.04	.06	1					●			●	●	●
16IL 3.00 ISO	.375	3.000	.0083	.649	.04	.06	1									●	
16IR 3.00 ISO	.375	3.000	.0083	.649	.04	.06	1		●			●				●	●
16IRB 3.00 ISO (1)	.375	3.000	.0083	.649	.04	.06	1									●	
16IRM 3.00 ISO (1)	.375	3.000	.0087	.649	.04	.06	1					●		●	●	●	●
16IR 3.50 ISO	.375	3.500	.0102	.649	.06	.06	1										●
22IR 1.50 ISO 3M (2)	.500	1.500	.0043	.866	.09	.15	3					●				●	
22IR 2.00 ISO 2M (2)	.500	2.000	.0059	.866	.09	.12	2									●	
22IR 2.00 ISO 3M (2)	.500	2.000	.0051	.866	.12	.20	3									●	
22IL 3.00 ISO	.500	3.000	.0067	.866	.04	.06	1		●								
22IL 3.50 ISO	.500	3.500	.0091	.866	.06	.09	1					●					

• For Insert Identification System, see pages 694-695 • Tolerance: Class 6H • For technical information and detailed cutting data, see pages 781-797

(1) With pressed chipformer

(2) Multi-tooth

(3) Thread pitch

(4) Number of teeth per corner

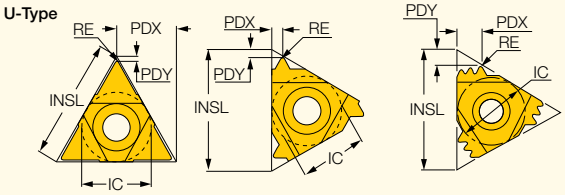
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

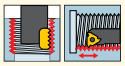
continued

ISCARTHREAD

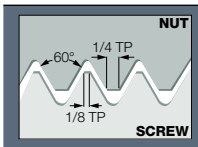
IR/L-ISO

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





Internal left-hand shown



Designation	Dimensions IC	TP mm[3]	RE	INSL	PDY	PDX	CICT[4]	Tough ↔ Hard IC28	IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
22IR 3.50 ISO	.500	3.500	.0091	.866	.06	.09	1					●				●	●
22IL 4.00 ISO	.500	4.000	.0106	.866	.06	.09	1									●	
22IR 4.00 ISO	.500	4.000	.0106	.866	.06	.09	1				●	●				●	
22IL 4.50 ISO	.500	4.500	.0122	.866	.06	.09	1					●					
22IR 4.50 ISO	.500	4.500	.0122	.866	.06	.09	1					●				●	
22IL 5.00 ISO	.500	5.000	.0126	.866	.07	.10	1				●					●	
22IR 5.00 ISO	.500	5.000	.0126	.866	.07	.10	1					●				●	
22UIRL 5.50 ISO	.500	5.500	.0142	.866	.09	.43	1					●					
22IR 6.00 ISO	.500	6.000	.0157	.866	.07	.10	1									●	
22UIRL 6.00 ISO	.500	6.000	.0157	.866	.08	.43	1					●					
27IR 3.00 ISO 2M [2]	.625	3.000	.0083	1.083	.12	.18	2									●	
27IR 5.50 ISO	.625	5.500	.0142	1.083	.07	.10	1					●				●	
27IR 6.00 ISO	.625	6.000	.0177	1.083	.07	.09	1					●				●	
27UIRL 8.00 ISO	.625	8.000	.0197	1.083	.10	.54	1									●	

• For Insert Identification System, see pages 694-695 • Tolerance: Class 6H • For technical information and detailed cutting data, see pages 781-797

[1] With pressed chipformer

[2] Multi-tooth

[3] Thread pitch

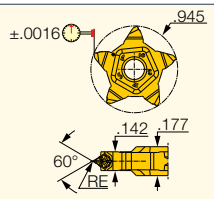
[4] Number of teeth per corner

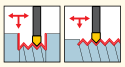
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

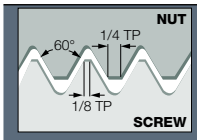
PENTACUT THREADING LINE

PENTA 24-ISO

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







Designation	Dimensions TP mm[1]	RE	IC908
PENTA 24-0.5-ISO	.500	.0031	●
PENTA 24-0.75-ISO	.750	.0043	●
PENTA 24-0.8-ISO	.800	.0047	●
PENTA 24-1.0-ISO	1.000	.0055	●
PENTA 24-1.25-ISO	1.250	.0071	●
PENTA 24-1.5-ISO	1.500	.0087	●
PENTA 24-1.75-ISO	1.750	.0098	●
PENTA 24-2.0-ISO	2.000	.0110	●

• DMIN(mm)=5435xTP

[1] Thread pitch

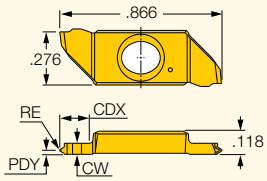
For tools, see pages: HMSDV PEN (530) • HSTBS-PEN (530) • PCAD RE/LE-JHP (553) • PCADR/L (330) • PCADR/L-JHP (330) • PCHBR/L (332) • PCHPR/L (329) • PCHR/L-24 (325) • PCHR/L-24-JHP (326)

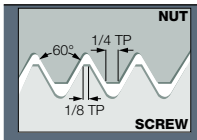
ISCARTHREAD

SWISSCUT
INNOVAL LINE

SCIR-22-MTR-ISO

Precision Ground ISO Metric Full Profile Threading Inserts





Designation	Dimensions					IC1008
	TP mm[1]	CW	CDX[2]	RE	PDY	
SCIR 22-MTR-0.3ISO	.300	.039	.118	.0012	.01	•
SCIR 22-MTR-0.4ISO	.400	.039	.118	.0016	.01	•
SCIR 22-MTR-0.5ISO	.500	.039	.118	.0024	.01	•
SCIR 22-MTR-0.75ISO	.750	.039	.118	.0039	.02	•
SCIR 22-MTR-1.0ISO	1.000	.059	.157	.0055	.02	•
SCIR 22-MTR-1.5ISO	1.500	.079	.157	.0079	.03	•

[1] Thread pitch
[2] Cutting depth maximum

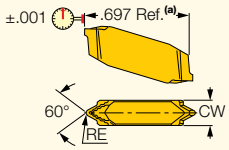
For tools, see pages: NQCH-SCHR/L-BF-JHP (388) • NQCH-Y-SCHR-BF-JHP (388) • SCHR/L-22BF (387) • SCHR/L-22BF-JHP (387) • Y-SCHR-22BF (387) • Y-SCHR-22BF-JHP (388)

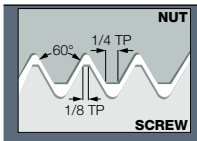
ISCARTHREAD

CUTGRIP

TIP-P-ISO

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





Designation	Dimensions				Tough ↔ Hard	
	TP mm[1]	CW	RE	RETOL[2]	IC08	IC908
TIP 2P0.5-ISO	.500	.094	.0031	.0012	•	•
TIP 2P0.75-ISO	.750	.094	.0043	.0012	•	•
TIP 2P0.8-ISO	.800	.094	.0047	.0012	•	•
TIP 2P1.0-ISO	1.000	.094	.0055	.0012	•	•
TIP 2P1.25-ISO	1.250	.094	.0071	.0012	•	•
TIP 2P1.5-ISO	1.500	.094	.0087	.0012	•	•
TIP 2P1.75-ISO	1.750	.094	.0098	.0012	•	•
TIP 4P2.0-ISO	2.000	.157	.0110	.0012	•	•
TIP 4P2.5-ISO	2.500	.157	.0138	.0020	•	•
TIP 4P3.0-ISO	3.000	.157	.0165	.0020		•
TIP 4P3.5-ISO	3.500	.157	.0189	.0020		•
TIP 5P4.0-ISO	4.000	.217	.0216	.0020		•
TIP 5P5.0-ISO	5.000	.217	.0268	.0020		•

• (a) TIP inserts are 063" longer than GIP in the same pocket • Toolholder seat needs to be modified according to insert profile to ensure clearance

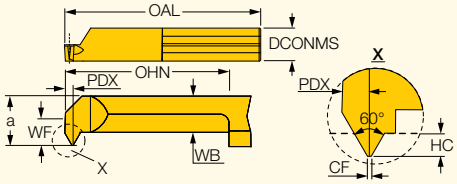
[1] Thread pitch
[2] Corner radius tolerance (+/-)

For tools, see pages: C#-GHDR/L (284) • CGHN-D (291) • CGHN-DG (292) • CGHN-S (291) • CGPAD (290) • CGPAD-JHP (290) • GHDR/L (short pocket) (285) • GHDR/L-JHP (short pocket) (286) • GHGR/L (287) • GHMPR/L (283) • GHMR/L (283) • GHSR/L (398) • GHSR/L-JHP-SL (399) • NQCH-GHSR/L-JHP (399)

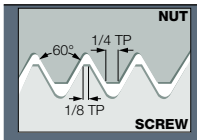
PICCOCUT

PICCO ISO Full Profile

ISO Standard Inserts for Full Profile Threads



Right-hand shown



Designation	Dimensions											IC908
	TP mm(1)	DCONMS	WF	a	OAL	OHN(2)	WB	PDX	HC	CF	DMIN	
PICCO R/L 105.0510-15	1.000	.197	.075	.173	1.181	.591	.130	.02	.021	.005	.189	●
PICCO R/L 106.0612-15	1.250	.236	.091	.209	1.181	.591	.134	.03	.026	.006	.236	●
PICCO R/L 106.0815-15	1.500	.236	.091	.209	1.181	.591	.134	.03	.032	.007	.236	●
PICCO R/L 107.0815-15	1.500	.276	.110	.248	1.181	.591	.150	.03	.032	.007	.276	●

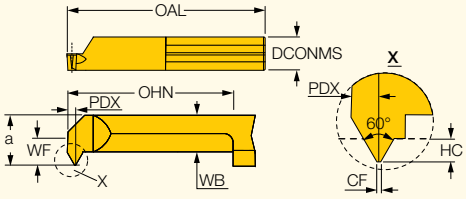
(1) Thread pitch
(2) Minimum overhang

For holders, see pages: GHPCOR (459) • PICCO ACE (434) • PICCO/MG PCO (Holder) (435)

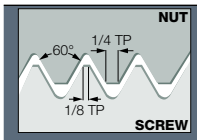
PICCOCUT

PICCO ISO Full Profile Fine

ISO Fine Pitch Inserts for Full Profile Threads



Right-hand shown



Designation	Dimensions											IC908
	TP mm(1)	DCONMS	WF	a	OAL	OHN(2)	WB	PDX	HC	CF	DMIN	
PICCO R/L 104.0205-15	.500	.197	.059	.138	1.181	.591	.094	.02	.011	.002	.157	●
PICCO R/L 105.0205-15	.500	.197	.075	.173	1.181	.591	.130	.02	.011	.002	.197	●
PICCO R/L 105.0407-15	.750	.197	.075	.173	1.181	.591	.130	.02	.016	.004	.197	●
PICCO R/L 106.0510-15	1.000	.236	.091	.209	1.181	.591	.134	.02	.021	.005	.236	●

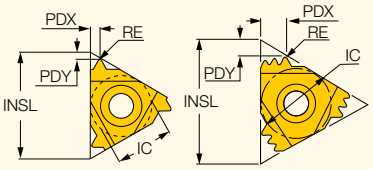
(1) Thread pitch
(2) Minimum overhang

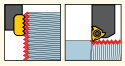
For holders, see pages: GHPCOR (459) • PICCO ACE (434) • PICCO/MG PCO (Holder) (435)

ISCARTHREAD

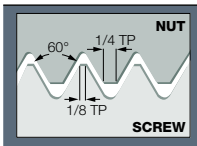
ER/L-UN

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





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 56 UN	.250	56.0	.0027	.433	.02	.02	1							●	
11ER 48 UN	.250	48.0	.0031	.433	.02	.02	1			●					
11ER 44 UN	.250	44.0	.0020	.433	.02	.02	1							●	
11EL 32 UN	.250	32.0	.0039	.433	.02	.02	1			●					
11ER 32 UN	.250	32.0	.0039	.433	.02	.02	1							●	
11ER 28 UN	.250	28.0	.0039	.433	.02	.03	1				●			●	
11ER 24 UN	.250	24.0	.0047	.433	.03	.03	1							●	
11EL 20 UN	.250	20.0	.0059	.433	.03	.04	1							●	
11ER 20 UN	.250	20.0	.0059	.433	.03	.04	1			●	●			●	
11ER 18 UN	.250	18.0	.0067	.433	.03	.04	1				●			●	
11ER 16 UN	.250	16.0	.0071	.433	.04	.04	1		●	●				●	
16ER 72 UN	.375	72.0	.0016	.649	.03	.02	1							●	
16ER 64 UN	.375	64.0	.0024	.649	.03	.02	1			●					
16ER 56 UN	.375	56.0	.0020	.649	.03	.02	1							●	
16ER 48 UN	.375	48.0	.0020	.649	.02	.02	1							●	
16EL 40 UN	.375	40.0	.0039	.649	.02	.02	1			●					
16ER 40 UN	.375	40.0	.0039	.649	.02	.02	1				●	●		●	
16EL 36 UN	.375	36.0	.0027	.649	.02	.02	1							●	
16ER 36 UN	.375	36.0	.0031	.649	.02	.02	1							●	
16EL 32 UN	.375	32.0	.0039	.649	.02	.02	1							●	
16ER 32 UN	.375	32.0	.0039	.649	.02	.02	1			●				●	●
16EL 28 UN	.375	28.0	.0043	.649	.02	.03	1							●	
16ER 28 UN	.375	28.0	.0043	.649	.02	.03	1			●	●			●	●
16ER 27 UN	.375	27.0	.0051	.649	.03	.03	1		●					●	
16EL 24 UN	.375	24.0	.0051	.649	.03	.03	1							●	
16ER 24 UN	.375	24.0	.0051	.649	.03	.03	1			●	●			●	●
16ER 24 UN 2M	.375	24.0	.0059	.649	.04	.07	2			●					
16ERB 24 UN (1)	.375	24.0	.0051	.649	.03	.03	1							●	
16ERM 24 UN (1)	.375	24.0	.0043	.649	.03	.03	1			●				●	●
16EL 20 UN	.375	20.0	.0063	.649	.03	.03	1			●	●			●	
16ER 20 UN	.375	20.0	.0063	.649	.03	.04	1			●	●			●	●
16ERB 20 UN (1)	.375	20.0	.0063	.649	.03	.04	1							●	
16ERM 20 UN (1)	.375	20.0	.0055	.649	.03	.04	1			●			●	●	●
16EL 18 UN	.375	18.0	.0067	.649	.03	.03	1				●			●	
16ER 18 UN	.375	18.0	.0067	.649	.03	.03	1		●	●				●	●
16ER 18 UN 2M	.375	18.0	.0079	.649	.06	.09	2							●	
16ERB 18 UN (1)	.375	18.0	.0071	.649	.03	.03	1							●	
16ERM 18 UN (1)	.375	18.0	.0059	.649	.03	.04	1			●			●	●	●
16EL 16 UN	.375	16.0	.0091	.649	.04	.05	1			●				●	
16ER 16 UN	.375	16.0	.0091	.649	.04	.05	1	●		●				●	●
16ER 16 UN 2M (2)	.375	16.0	.0035	.649	.06	.09	2							●	
16ERB 16 UN (1)	.375	16.0	.0091	.649	.04	.05	1							●	
16ERM 16 UN (1)	.375	16.0	.0075	.649	.04	.04	1			●			●	●	●
16EL 14 UN	.375	14.0	.0091	.649	.04	.05	1			●		●			
16ER 14 UN	.375	14.0	.0091	.649	.04	.05	1			●				●	●
16ER 14 UN 2M (2)	.375	14.0	.0035	.649	.06	.10	2							●	
16ERB 14 UN (1)	.375	14.0	.0091	.649	.04	.05	1							●	

- For Insert Identification System, see pages 694-695 • Tolerance: Class 2A • For threading between walls use GRIP-type insert TIP-UN
- For technical information and detailed cutting data, see pages 781-797

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

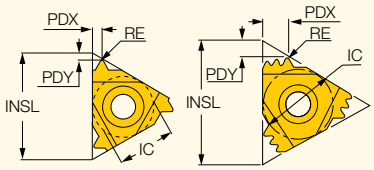
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

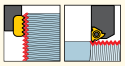
Continued

ISCARTHREAD

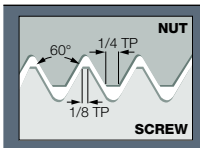
ER/L-UN

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





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
16ERM 14 UN [1]	.375	14.0	.0087	.649	.04	.05	1			●			●	●	●
16EL 13 UN	.375	13.0	.0094	.649	.04	.05	1			●				●	
16ER 13 UN	.375	13.0	.0094	.649	.04	.05	1			●	●			●	
16ERB 13 UN [1]	.375	13.0	.0098	.649	.04	.05	1							●	
16ERM 13 UN [1]	.375	13.0	.0094	.649	.04	.05	1							●	
16EL 12 UN	.375	12.0	.0106	.649	.04	.05	1			●				●	
16ER 12 UN	.375	12.0	.0118	.649	.04	.05	1			●	●			●	●
16ER 12 UN 2M [2]	.375	12.0	.0106	.649	.09	.13	2							●	
16ERB 12 UN [1]	.375	12.0	.0106	.649	.04	.05	1							●	
16ERM 12 UN [1]	.375	12.0	.0098	.649	.04	.06	1		●	●			●	●	●
16ER 11.5 UN	.375	11.5	.0106	.649	.05	.06	1			●				●	
16EL 11 UN	.375	11.0	.0110	.649	.04	.06	1							●	
16ER 11 UN	.375	11.0	.0114	.649	.04	.06	1			●				●	
16ERB 11 UN [1]	.375	11.0	.0114	.649	.04	.06	1							●	
16EL 10 UN	.375	10.0	.0126	.649	.04	.06	1			●				●	
16ER 10 UN	.375	10.0	.0126	.649	.04	.06	1			●	●			●	●
16ERB 10 UN [1]	.375	10.0	.0126	.649	.04	.06	1							●	
16ERM 10 UN	.375	10.0	.0126	.649	.04	.06	1							●	
16ER 9 UN	.375	9.0	.0138	.649	.05	.06	1							●	
16ERB 9 UN [1]	.375	9.0	.0138	.649	.05	.06	1							●	
16EL 8 UN	.375	8.0	.0157	.649	.05	.06	1			●				●	
16ER 8 UN	.375	8.0	.0157	.649	.05	.06	1			●				●	●
16ERB 8 UN [1]	.375	8.0	.0169	.649	.05	.06	1							●	
16ERM 8 UN [1]	.375	8.0	.0161	.649	.05	.06	1			●				●	
22ER 13 UN 3M	.500	13.0	.0110	.866	.12	.19	3			●					
22ER 12 UN 2M [2]	.500	12.0	.0106	.866	.09	.13	2							●	
22ER 12 UN 3M [2]	.500	12.0	.0106	.866	.13	.20	3		●	●				●	
22ER 7 UN	.500	7.0	.0185	.866	.06	.09	1			●				●	
22ER 6 UN	.500	6.0	.0220	.866	.06	.09	1				●			●	
22ER 5 UN	.500	5.0	.0264	.866	.07	.10	1		●	●				●	
27ER 8 UN 2M [2]	.625	8.0	.0161	1.083	.12	.19	2							●	
27ER 4.5 UN	.625	4.5	.0295	1.083	.07	.11	1							●	
27ER 4 UN	.625	4.0	.0335	1.083	.03	.03	1		●	●	●			●	

- For Insert Identification System, see pages 694-695 • Tolerance: Class 2A • For threading between walls use GRIP-type insert TIP-UN
- For technical information and detailed cutting data, see pages 781-797

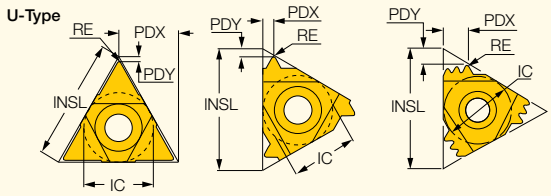
(1) With pressed chipformer
(2) Multi-tooth
(3) Threads per inch
(4) Number of teeth per corner

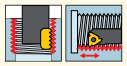
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

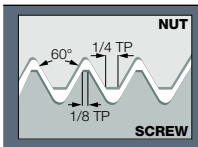
IR/L-UN

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





Internal left-hand shown



Designation	Dimensions							Tough ↔ Hard								
	IC	TPI[4]	RE	INSL	PDY	PDX	CICT[5]	IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
06IR 32 UN	.157	32.0	.0020	.271	.02	.02	1	●								
06IR 28 UN	.157	28.0	.0027	.271	.02	.02	1	●							●	
06IL 24 UN	.157	24.0	.0031	.271	.02	.02	1	●								
06IR 24 UN	.157	24.0	.0031	.271	.02	.02	1	●							●	
06IR 20 UN	.157	20.0	.0035	.271	.02	.02	1	●								
06IL 18 UN	.157	18.0	.0027	.271	.02	.03	1	●								
06IR 18 UN	.157	18.0	.0039	.271	.02	.03	1	●								
08IR 32 UN	.197	32.0	.0016	.324	.02	.02	1	●								
08IL 28 UN	.197	28.0	.0016	.324	.02	.02	1	●								
08IR 28 UN	.197	27.0	.0020	.324	.02	.02	1	●							●	
08IR 27 UN	.197	27.0	.0027	.324	.02	.02	1	●								
08IL 24 UN	.197	24.0	.0031	.324	.02	.02	1	●								
08IR 24 UN	.197	24.0	.0031	.324	.02	.02	1	●							●	
08IL 20 UN	.197	20.0	.0031	.324	.03	.03	1	●								
08IR 20 UN	.197	20.0	.0035	.324	.03	.03	1	●								
08IR 18 UN	.197	18.0	.0031	.324	.02	.03	1	●							●	
08IR 16 UN	.197	16.0	.0035	.324	.02	.03	1	●								
08IR 14 UN	.197	14.0	.0039	.324	.02	.03	1	●							●	
08IR 13 UN	.197	13.0	.0055	.324	.02	.03	1	●							●	
08UIRL 13 UN	.197	13.0	.0039	.324	.04	.16	1								●	
08UIRL 12 UN	.197	12.0	.0039	.324	.04	.16	1		●							
08UIRL 11 UN	.197	11.0	.0039	.324	.04	.16	1	●								
11IR 64 UN	.250	64.0	.0016	.433	.02	.02	1				●					
11IR 48 UN	.250	48.0	.0016	.433	.02	.02	1				●					
11IR 44 UN	.250	44.0	.0016	.433	.02	.02	1				●					
11IR 40 UN	.250	40.0	.0020	.433	.02	.02	1				●					
11IR 36 UN	.250	36.0	.0016	.433	.02	.02	1								●	
11IL 32 UN	.250	32.0	.0016	.433	.02	.02	1								●	
11IR 32 UN	.250	32.0	.0020	.433	.02	.02	1								●	
11IRB 32 UN	.250	32.0	.0016	.433	.02	.02	1								●	
11IL 28 UN	.250	28.0	.0016	.433	.02	.03	1								●	
11IR 28 UN	.250	28.0	.0020	.433	.02	.02	1								●	
11IRB 28 UN	.250	28.0	.0020	.433	.02	.02	1								●	
11IL 24 UN	.250	24.0	.0027	.433	.03	.03	1								●	
11IR 24 UN	.250	24.0	.0027	.433	.03	.03	1								●	●
11IRB 24 UN	.250	24.0	.0031	.433	.02	.02	1								●	
11IR/L 20 UN	.250	20.0	.0035	.433	.03	.04	1								●	
11IRB 20 UN	.250	20.0	.0035	.433	.03	.04	1								●	
11IL 18 UN	.250	18.0	.0039	.433	.04	.04	1								●	
11IR 18 UN	.250	18.0	.0027	.433	.03	.04	1				●				●	●
11IRB 18 UN	.250	18.0	.0039	.433	.04	.04	1								●	
11IL 16 UN	.250	16.0	.0043	.433	.04	.04	1								●	
11IR 16 UN	.250	16.0	.0035	.433	.04	.04	1				●				●	●
11IRB 16 UN	.250	16.0	.0043	.433	.04	.04	1								●	
11IL 14 UN	.250	14.0	.0039	.433	.04	.04	1				●				●	
11IR 14 UN	.250	14.0	.0039	.433	.04	.04	1			●	●				●	
11IRB 14 UN	.250	14.0	.0051	.433	.04	.04	1								●	
11IR 13 UN	.250	13.0	.0055	.433	.03	.04	1								●	
11IR 12 UN	.250	12.0	.0059	.433	.03	.04	1				●				●	

• For Insert Identification System, see pages 694-695 • Tolerance: class 2B,ANSI B1, 3M-1986 • For technical information and detailed cutting data, see pages 781-797

(1) With pressed chipformer
(2) Multi-tooth
(3) With pressed chipformer
(4) Threads per inch
(5) Number of teeth per corner

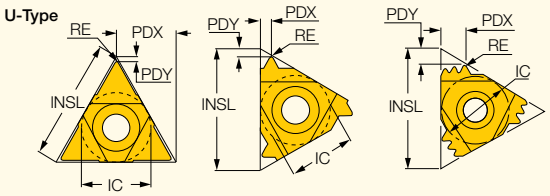
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

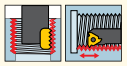
Continued

ISCARTHREAD

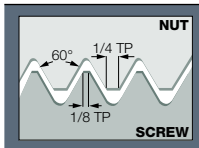
IR/L-UN

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





Internal left-hand shown



Designation	Dimensions							Tough ↔ Hard								
	IC	TPI[4]	RE	INSL	PDY	PDX	CICT[5]	IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
11IRB 12 UN	.250	12.0	.0051	.433	.04	.04	1								•	
11IR 11 UN	.250	11.0	.0055	.433	.03	.04	1				•				•	
11IR 10 UN	.250	10.0	.0071	.433	.03	.04	1								•	
16IR 64 UN	.375	64.0	.0012	.649	.03	.02	1				•					
16IR 40 UN	.375	40.0	.0020	.649	.02	.02	1								•	
16IR 36 UN	.375	36.0	.0020	.649	.02	.02	1								•	
16IR 32 UN	.375	32.0	.0016	.649	.02	.02	1				•				•	
16IL 28 UN	.375	28.0	.0016	.649	.02	.03	1								•	
16IR 28 UN	.375	28.0	.0020	.649	.02	.02	1								•	
16IL 24 UN 2M	.375	24.0	.0031	.649	.06	.06	2								•	
16IR 24 UN	.375	24.0	.0020	.649	.03	.03	1				•				•	
16IRB 24 UN [1]	.375	24.0	.0027	.649	.03	.03	1								•	
16IL 20 UN	.375	20.0	.0024	.649	.03	.04	1				•				•	
16IR 20 UN	.375	20.0	.0024	.649	.03	.04	1			•	•	•			•	•
16IR 20 UN 2M	.375	20.0	.0035	.649	.06	.08	2				•					
16IRB 20 UN [1]	.375	20.0	.0035	.649	.03	.03	1								•	
16IRM 20 UN [1]	.375	20.0	.0024	.649	.03	.04	1								•	•
16IL 18 UN	.375	18.0	.0031	.649	.03	.03	1								•	
16IR 18 UN	.375	18.0	.0031	.649	.03	.03	1				•				•	•
16IRB 18 UN [1]	.375	18.0	.0047	.649	.03	.03	1								•	
16IRM 18 UN [1]	.375	18.0	.0031	.649	.03	.04	1							•	•	
16IL 16 UN	.375	16.0	.0043	.649	.04	.05	1								•	
16IR 16 UN	.375	16.0	.0043	.649	.04	.05	1				•				•	
16IR 16 UN 2M [2]	.375	16.0	.0035	.649	.06	.09	2						•		•	
16IRB 16 UN [3]	.375	16.0	.0043	.649	.04	.05	1								•	
16IRM 16 UN [1]	.375	16.0	.0035	.649	.04	.04	1				•				•	•
16IL 14 UN	.375	14.0	.0039	.649	.04	.05	1				•				•	
16IR 14 UN	.375	14.0	.0051	.649	.04	.05	1				•				•	
16IRB 14 UN [1]	.375	14.0	.0051	.649	.04	.05	1								•	
16IRM 14 UN [1]	.375	14.0	.0043	.649	.04	.05	1				•			•	•	•
16IL 13 UN	.375	13.0	.0055	.649	.06	.04	1				•					
16IR 13 UN	.375	13.0	.0055	.649	.06	.04	1								•	
16IL 12 UN	.375	12.0	.0059	.649	.04	.04	1				•				•	
16IR 12 UN	.375	12.0	.0059	.649	.04	.04	1				•	•			•	•
16IRB 12 UN [1]	.375	12.0	.0051	.649	.04	.05	1								•	
16IRM 12 UN [1]	.375	12.0	.0047	.649	.04	.06	1				•			•	•	•
16IR 11.5 UN	.375	11.5	.0055	.649	.04	.04	1								•	
16IL 11 UN	.375	11.0	.0067	.649	.03	.04	1								•	
16IR 11 UN	.375	11.0	.0055	.649	.04	.04	1								•	
16IR/L 10 UN	.375	10.0	.0059	.649	.04	.06	1				•				•	
16IRB 10 UN [1]	.375	10.0	.0059	.649	.04	.06	1								•	
16IR 9 UN	.375	9.0	.0067	.649	.05	.07	1								•	
16IL 8 UN	.375	8.0	.0091	.649	.04	.06	1				•	•			•	
16IR 8 UN	.375	8.0	.0091	.649	.04	.06	1				•	•			•	•
16IRB 8 UN [1]	.375	8.0	.0091	.649	.04	.06	1								•	
16IRM 8 UN [1]	.375	8.0	.0079	.649	.04	.06	1				•			•	•	•
22IR 16 UN 3M [2]	.500	16.0	.0027	.866	.10	.16	3								•	
22IR 12 UN 2M [2]	.500	12.0	.0035	.866	.09	.13	2								•	
22IR 12 UN 3M [2]	.500	12.0	.0051	.866	.13	.20	3								•	

• For Insert Identification System, see pages 694-695 • Tolerance: class 2B,ANSI B1, 3M-1986 • For technical information and detailed cutting data, see pages 781-797

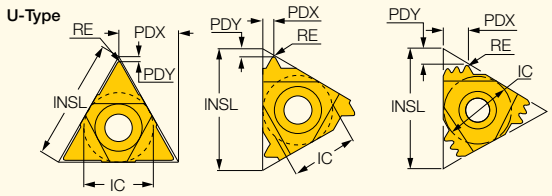
[1] With pressed chipformer
[2] Multi-tooth
[3] With pressed chipformer
[4] Threads per inch
[5] Number of teeth per corner

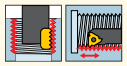
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

ISCARTHREAD

IR/L-UN

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





Internal left-hand shown

Designation	IC	TPI[4]	RE	INSL	PDY	PDX	CICT[5]	IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
	Dimensions							Tough ↔ Hard								
22IL 7 UN	.500	7.0	.0087	.866	.06	.09	1								●	
22IR 7 UN	.500	7.0	.0087	.866	.06	.09	1	●			●				●	
22IL 6 UN	.500	6.0	.0118	.866	.06	.09	1				●				●	
22IR 6 UN	.500	6.0	.0102	.866	.06	.09	1				●				●	
22IR 5 UN	.500	5.0	.0150	.866	.07	.07	1				●				●	
22UIRL 4.5 UN	.500	4.5	.0142	.866	.09	.43	1				●					
27IR 8 UN 2M [2]	.625	8.0	.0075	1.083	.12	.19	2								●	
27IR 4.5 UN	.625	4.5	.0142	1.083	.07	.09	1				●				●	
27IR 4 UN	.625	4.0	.0185	1.083	.07	.10	1				●				●	

• For Insert Identification System, see pages 694-695 • Tolerance: class 2B,ANSI B1, 3M-1986 • For technical information and detailed cutting data, see pages 781-797

(1) With pressed chipformer

(2) Multi-tooth

(3) With pressed chipformer

(4) Threads per inch

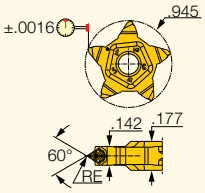
(5) Number of teeth per corner

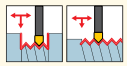
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

PENTACUT THREADING LINE

PENTA 24-UN

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





Designation	TPI[1]	RE	IC908
	Dimensions		
PENTA 24-24-UN	24.0	.0051	●
PENTA 24-20-UN	20.0	.0063	●
PENTA 24-18-UN	18.0	.0071	●
PENTA 24-16-UN	16.0	.0083	●
PENTA 24-14-UN	14.0	.0091	●

• DMIN(inch)=5435/TPI • Tolerance: Class 2A

(1) Threads per inch

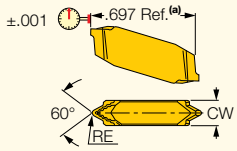
For tools, see pages: HMSDV PEN (530) • HSTBS-PEN (530) • PCAD RE/LE-JHP (553) • PCADR/L (330) • PCADR/L-JHP (330) • PCHBR/L (332) • PCHPR/L (329) • PCHR/L-24 (325) • PCHR/L-24-JHP (326)

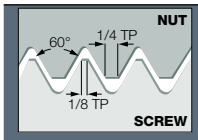
ISCARTHREAD

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	.094	.0039	.0012	32.0	●		●
TIP 2P28-UN	.094	.0043	.0012	28.0	●		●
TIP 2P24-UN	.094	.0051	.0012	24.0	●		●
TIP 2P20-UN	.094	.0063	.0012	20.0	●		●
TIP 2P18-UN	.094	.0071	.0012	18.0	●		●
TIP 2P16-UN	.094	.0079	.0012	16.0	●		●
TIP 2P14-UN	.094	.0091	.0012	14.0	●		●
TIP 2P13-UN	.094	.0098	.0012	13.0	●		●
TIP 2P12-UN	.094	.0106	.0012	12.0	●		●
TIP 4P11-UN	.157	.0118	.0012	11.0			●
TIP 4P10-UN	.157	.0130	.0020	10.0		●	●
TIP 4P08-UN	.157	.0161	.0020	8.0			●

• (a) TIP inserts are 063" longer than GIP in the same pocket • Toolholder seat needs to be modified according to insert profile to ensure clearance

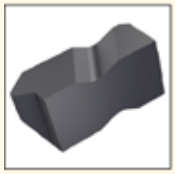
(1) Corner radius tolerance (+/-)

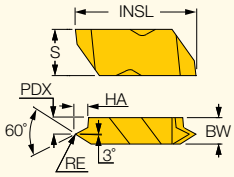
(2) Threads per inch

For tools, see pages: C#-GHDR/L (284) • CGHN-D (291) • CGHN-DG (292) • CGHN-S (291) • CGPAD (290) • CGPAD-JHP (290) • GHDR/L (short pocket) (285) • GHDR/L-JHP (short pocket) (286) • GHGR/L (287) • GHMPR/L (283) • GHMR/L (283) • GHSR/L (398) • GHSR/L-JHP-SL (399) • NQCH-GHSR/L-JHP (399)

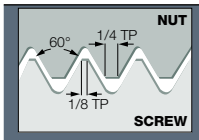
NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

UN THREADING FLTC-E
Double-Ended, Precision, Flat
Top Full Profile Threading Inserts





Right-hand shown



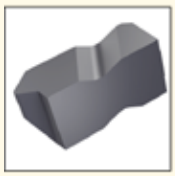
Designation	Dimensions							IC908
	TPI[1]	RE	HA	PDX	BW	S	INSL	
FLTC-3R/L7E	7.0	.0169	.108	.1063	.195	.344	.890	•
FLTC-3R/L8E	8.0	.0150	.094	.1063	.195	.344	.890	•
FLTC-3R/L9E	9.0	.0130	.084	.1063	.195	.344	.890	•
FLTC-3R/L10E	10.0	.0118	.076	.1063	.195	.344	.890	•
FLTC-3R/L11E	11.0	.0110	.069	.1063	.195	.344	.890	•
FLTC-3R/L12E	12.0	.0098	.051	.1496	.195	.344	.890	•
FLTC-3R/L14E	14.0	.0091	.054	.1496	.195	.344	.890	•
FLTC-3R/L16E	16.0	.0079	.046	.1496	.195	.344	.890	•
FLTC-3R/L18E	18.0	.0071	.041	.1496	.195	.344	.890	•
FLTC-3R/L20E	20.0	.0059	.037	.1496	.195	.344	.890	•
FLTC-3R/L24E	24.0	.0051	.031	.1496	.195	.344	.890	•
FLTC-3R/L28E	28.0	.0031	.023	.1496	.195	.344	.890	•
FLTC-3R/L32E	32.0	.0031	.021	.1496	.195	.344	.890	•

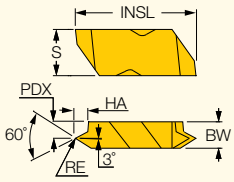
(1) Threads per inch

For tools, see pages: FLASR/L (348) • FLSR/L (347)

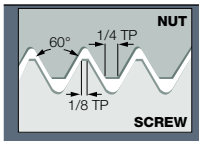
NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

UN THREADING FLTC-I
Double-Ended, Precision, Flat
Top Full Profile Threading Inserts





Right-hand shown



Designation	Dimensions							IC908
	TPI[1]	RE	HA	PDX	BW	S	INSL	
FLTC-3R/L7I	7.0	.0091	.092	.1063	.195	.344	.890	•
FLTC-3R/L8I	8.0	.0071	.081	.1063	.195	.344	.890	•
FLTC-3R/L9I	9.0	.0059	.072	.1063	.195	.344	.890	•
FLTC-3R/L10I	10.0	.0051	.065	.1063	.195	.344	.890	•
FLTC-3R/L11I	11.0	.0051	.059	.1063	.195	.344	.890	•
FLTC-3R/L12I	12.0	.0039	.048	.1496	.195	.344	.890	•
FLTC-3R/L14I	14.0	.0031	.044	.1480	.195	.344	.890	•
FLTC-3R/L16I	16.0	.0031	.040	.1480	.195	.344	.890	•
FLTC-3R/L18I	18.0	.0031	.036	.1480	.195	.344	.890	•
FLTC-3R/L20I	20.0	.0031	.031	.1480	.195	.344	.890	•
FLTC-3R/L24I	24.0	.0031	.026	.1480	.195	.344	.890	•
FLTC-3R/L28I	28.0	.0031	.023	.1480	.195	.344	.890	•

(1) Threads per inch

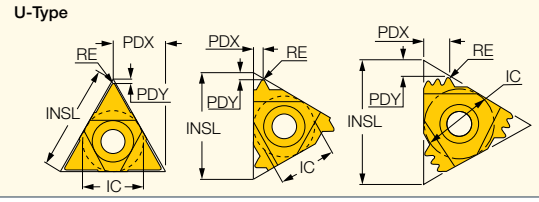
- For internal thread limits, see page 784-785

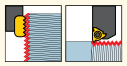
For tools, see pages: A-FLER/L (349) • H-FLER (349)

Full Profile W (Whitworth BSW, BSF, BSP)

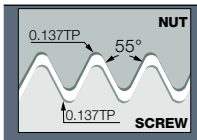
ISCARTHREAD

ER/L-W
External Whitworth
(BSW, BSF, BSP)
B.S.84-1956 DIN 259
Medium Class Full Profile
Laydown Threading Inserts





External right-hand shown



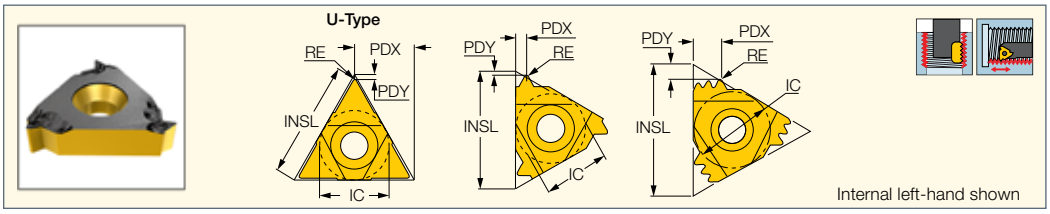
Designation	Dimensions							Tough ↔ Hard							
	IC	TPI(3)	RE	INSL	PDY	PDX	CICT(4)	IC228	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
11ER/L 19 W	.250	19.0	.0059	.433	.03	.04	1							•	
11ER 14 W	.250	14.0	.0083	.433	.04	.04	1							•	
16ER 32 W	.375	32.0	.0035	.649	.02	.02	1		•						
16ER 28 W	.375	28.0	.0043	.649	.02	.03	1			•				•	•
16ER 26 W	.375	26.0	.0047	.649	.03	.03	1							•	
16ER 24 W	.375	24.0	.0055	.649	.03	.03	1							•	
16ER 22 W	.375	22.0	.0051	.649	.03	.04	1							•	
16ER 20 W	.375	20.0	.0063	.649	.03	.03	1							•	
16EL 19 W	.375	19.0	.0067	.649	.03	.03	1							•	
16ER 19 W	.375	19.0	.0067	.649	.03	.03	1	•		•				•	•
16ERB 19 W (1)	.375	19.0	.0067	.649	.03	.03	1							•	
16ERM 19 W (1)	.375	19.0	.0063	.649	.03	.04	1		•	•			•	•	•
16EL 18 W	.375	18.0	.0075	.649	.04	.05	1							•	
16ER 18 W	.375	18.0	.0075	.649	.04	.05	1		•					•	
16ER 16 W	.375	16.0	.0079	.649	.04	.05	1							•	
16ERB 16 W (1)	.375	16.0	.0079	.649	.04	.05	1							•	
16ERM 16 W (1)	.375	16.0	.0079	.649	.04	.04	1			•			•	•	•
16EL 14 W	.375	14.0	.0091	.649	.04	.05	1							•	
16ER 14 W	.375	14.0	.0091	.649	.04	.05	1	•		•				•	
16ER 14 W 2M (2)	.375	14.0	.0083	.649	.07	.11	2							•	
16ERB 14 W (1)	.375	14.0	.0091	.649	.04	.05	1							•	
16ERM 14 W (1)	.375	14.0	.0094	.649	.04	.05	1		•	•			•	•	•
16ER/L 12 W	.375	12.0	.0106	.649	.05	.06	1							•	
16EL 11 W	.375	11.0	.0114	.649	.04	.06	1			•				•	
16ER 11 W	.375	11.0	.0114	.649	.04	.06	1	•	•	•	•	•		•	•
16ERB 11 W (1)	.375	11.0	.0114	.649	.04	.06	1							•	
16ERM 11 W (1)	.375	11.0	.0106	.649	.04	.06	1			•		•	•	•	•
16ER 10 W	.375	10.0	.0126	.649	.04	.06	1			•				•	
16ERB 10 W (1)	.375	10.0	.0126	.649	.04	.06	1							•	
16ER 9 W	.375	9.0	.0134	.649	.05	.07	1			•					
16EL 8 W	.375	8.0	.0154	.649	.05	.06	1							•	
16ER 8 W	.375	8.0	.0161	.649	.05	.06	1							•	
22ER 14 W 3M (2)	.500	14.0	.0083	.866	.11	.18	3							•	
22ER 11 W 2M (2)	.500	11.0	.0035	.866	.09	.13	2							•	
22ER 7 W	.500	7.0	.0177	.866	.06	.09	1							•	
22ER 6 W	.500	6.0	.0205	.866	.06	.09	1							•	
22ER 5 W	.500	5.0	.0256	.866	.07	.09	1			•					
27ER 4 W	.625	4.0	.0335	1.083	.08	.11	1							•	
27UEIRL 3.5 W	.625	3.5	.0374	1.083	.08	.54	1							•	

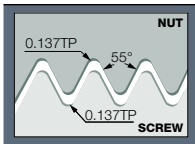
• For Insert Identification System, see pages 694-695 • For threading between walls use GRIP-type insert TIP-BSW • Tolerance: medium class
• For technical information and detailed cutting data, see pages 781-797
(1) With pressed chipformer
(2) Multi-tooth
(3) Threads per inch
(4) Number of teeth per corner
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

IR/L-W

Internal Whitworth
(BSW, BSF, BSP)
B.S.84-1956 DIN 259
Medium Class Full Profile
Laydown Threading Inserts





Designation	IC	TPI(3)	RE	INSL	PDY	PDX	CICT(4)	IC228	IC928	IC50M	IC250	IC08	IC508	IC808	IC908	IC1007
	Dimensions							Tough ↔ Hard								
06IR 26 W	.157	26.0	.0039	.271	.03	.02	1	●								
08IR 28 W	.197	28.0	.0047	.324	.02	.02	1	●								
08IR 19 W	.197	19.0	.0063	.324	.02	.03	1	●	●						●	
08IR 18 W	.197	18.0	.0063	.324	.02	.03	1	●								
08IR 16 W	.197	16.0	.0071	.324	.02	.03	1	●								
11IR 36 W	.250	36.0	.0027	.433	.02	.02	1					●				
11IR 28 W	.250	28.0	.0049	.433	.02	.02	1				●					
11IRB 28 W	.250	28.0	.0039	.433	.02	.02	1								●	
11IR 26 W	.250	26.0	.0047	.433	.02	.02	1	●								
11IR/L 24 W	.250	24.0	.0059	.433	.03	.03	1								●	
11IRB 24 W	.250	24.0	.0043	.433	.02	.02	1								●	
11IR 20 W	.250	20.0	.0055	.433	.03	.04	1				●				●	
11IRB 20 W	.250	20.0	.0055	.433	.03	.04	1								●	
11IR 19 W	.250	19.0	.0071	.433	.03	.04	1				●				●	●
11IRB 19 W	.250	19.0	.0067	.433	.03	.04	1								●	
11IL 18 W	.250	18.0	.0063	.433	.03	.04	1								●	
11IR 18 W	.250	18.0	.0071	.433	.03	.04	1								●	
11IRB 18 W	.250	18.0	.0071	.433	.04	.04	1								●	
11IR 16 W	.250	16.0	.0071	.433	.04	.04	1								●	
11IRB 16 W	.250	16.0	.0071	.433	.03	.04	1								●	
11IL 14 W	.250	14.0	.0091	.433	.04	.04	1								●	
11IR 14 W	.250	14.0	.0091	.433	.04	.04	1	●			●	●			●	●
11IRB 14 W	.250	14.0	.0091	.433	.04	.04	1								●	
16IR 32 W	.375	32.0	.0035	.649	.02	.02	1			●						
16IR 28 W	.375	28.0	.0035	.649	.02	.03	1				●					
16IR 26 W	.375	26.0	.0047	.649	.03	.03	1								●	
16IR 24 W	.375	24.0	.0043	.649	.03	.03	1								●	
16IR 22 W	.375	22.0	.0051	.649	.03	.04	1								●	
16IL 20 W	.375	20.0	.0055	.649	.03	.04	1				●				●	
16IR 20 W	.375	20.0	.0055	.649	.03	.03	1				●				●	
16IRM 20 W (1)	.375	20.0	.0055	.649	.03	.04	1								●	
16IR 19 W	.375	19.0	.0067	.649	.03	.03	1				●				●	
16IRB 19 W (1)	.375	19.0	.0067	.649	.03	.03	1								●	
16IRM 19 W (1)	.375	19.0	.0059	.649	.03	.04	1				●					
16IR/L 18 W	.375	18.0	.0071	.649	.03	.03	1								●	
16IR 16 W	.375	16.0	.0079	.649	.04	.04	1								●	
16IRB 16 W (1)	.375	16.0	.0079	.649	.04	.05	1								●	
16IRM 16 W (1)	.375	16.0	.0071	.649	.04	.04	1								●	
16IL 14 W	.375	14.0	.0091	.649	.04	.05	1								●	
16IR 14 W	.375	14.0	.0091	.649	.04	.05	1	●			●	●			●	●
16IR 14 W 2M (2)	.375	14.0	.0075	.649	.07	.10	2								●	●
16IRB 14 W (1)	.375	14.0	.0091	.649	.04	.05	1								●	
16IRM 14 W (1)	.375	14.0	.0083	.649	.04	.05	1				●			●	●	●
16IR 12 W	.375	12.0	.0106	.649	.05	.06	1								●	
16IL 11 W	.375	11.0	.0114	.649	.04	.06	1								●	
16IR 11 W	.375	11.0	.0114	.649	.04	.06	1	●		●	●	●			●	●
16IRB 11 W (1)	.375	11.0	.0110	.649	.04	.06	1								●	
16IRM 11 W (1)	.375	11.0	.0106	.649	.04	.06	1				●		●	●	●	●
16IR 10 W	.375	10.0	.0126	.649	.04	.04	1								●	
16IRB 10 W (1)	.375	10.0	.0122	.649	.04	.06	1								●	
16IR 9 W	.375	9.0	.0134	.649	.05	.07	1				●					

• For Insert Identification System, see pages 694-695 • Tolerance: medium class • For technical information and detailed cutting data, see pages 781-797

(1) With pressed chipformer

(2) Multi-tooth

(3) Threads per inch

(4) Number of teeth per corner

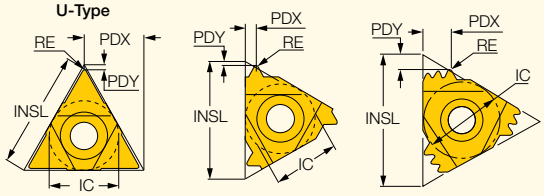
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

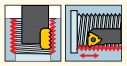
Continued

ISCARTHREAD

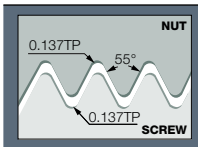
IR/L-W

Internal Whitworth
(BSW, BSF, BSP)
B.S.84-1956 DIN 259
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
16IL 8 W	.375	8.0	.0161	.649	.04	.04	1			●					●	
16IR 8 W	.375	8.0	.0161	.649	.04	.04	1								●	
22IR 14 W 3M [2]	.500	14.0	.0083	.866	.11	.18	3								●	
22IR 11 W 2M [2]	.500	11.0	.0035	.866	.09	.13	2								●	
22IR 7 W	.500	7.0	.0177	.866	.06	.09	1								●	
22IR 6 W	.500	6.0	.0205	.866	.06	.09	1				●					
22IR 5 W	.500	5.0	.0256	.866	.07	.09	1				●					
27IR 4.5 W	.625	4.5	.0287	1.083	.07	.10	1				●					
27IR 4 W	.625	4.0	.0323	1.083	.08	.11	1								●	

• For Insert Identification System, see pages 694-695 • Tolerance: medium class • For technical information and detailed cutting data, see pages 781-797

(1) With pressed chipformer

(2) Multi-tooth

(3) Threads per inch

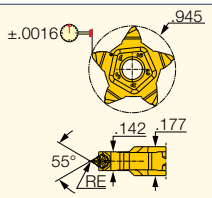
(4) Number of teeth per corner

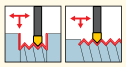
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

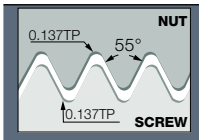
PENTACUT THREADING LINE

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]	RE	IC908
PENTA 24-28-W	28.0	.0035	●
PENTA 24-19-W	19.0	.0059	●
PENTA 24-14-W	14.0	.0083	●

• DMIN(inch)=5435/TPI

(1) Threads per inch

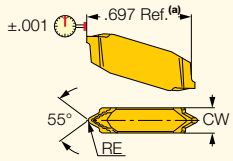
For tools, see pages: HMSDV PEN (530) • HSTBS-PEN (530) • PCAD RE/LE-JHP (553) • PCADR/L (330) • PCADR/L-JHP (330) • PCHBR/L (332) • PCHPR/L (329) • PCHR/L-24 (325) • PCHR/L-24-JHP (326)

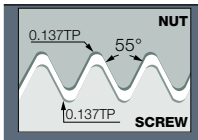
ISCARTHREAD

CUTGRIP

TIP-P-BSW

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





Designation	Dimensions CW	RE	TPI(1)	Tough ↔ Hard IC08	IC908
TIP 2P28-BSW	.094	.0043	28.0	●	●
TIP 2P26-BSW	.094	.0047	26.0	●	●
TIP 2P24-BSW	.094	.0047	24.0	●	●
TIP 2P20-BSW	.094	.0063	20.0	●	●
TIP 2P19-BSW	.094	.0063	19.0	●	●
TIP 2P18-BSW	.094	.0067	18.0	●	●
TIP 2P16-BSW	.094	.0075	16.0	●	●
TIP 2P14-BSW	.094	.0087	14.0	●	●
TIP 4P12-BSW	.157	.0098	12.0		●
TIP 4P11-BSW	.157	.0110	11.0	●	●
TIP 4P10-BSW	.157	.0122	10.0		●

• (a) TIP inserts are 063" longer than GIP in the same pocket • Toolholder seat needs to be modified according to insert profile to ensure clearance

(1) Threads per inch

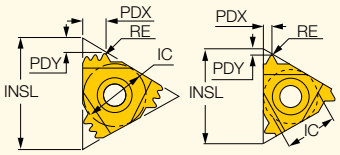
For tools, see pages: C#-GHDR/L (284) • CGHN-D (291) • CGHN-DG (292) • CGHN-S (291) • CGPAD (290) • CGPAD-JHP (290) • GHDR/L (short pocket) (285) • GHDR/L-JHP (short pocket) (286) • GHGR/L (287) • GHMPR/L (283) • GHMR/L (283) • GHSR/L (398) • GHSR/L-JHP-SL (399) • NQCH-GHSR/L-JHP (399)

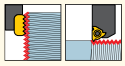
NPT

ISCARTHREAD

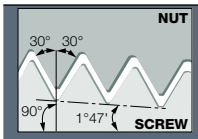
ER/L-NPT

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





External right-hand shown



Designation	Dimensions							Tough ↔ Hard					
	IC	TPI[3]	RE	INSL	PDY	PDX	CICT[4]	IC228	IC50M	IC250	IC808	IC908	IC1007
16ER 27 NPT	.375	27.0	.0016	.649	.03	.03	1			●		●	
16ER 18 NPT	.375	18.0	.0024	.649	.03	.04	1	●		●		●	●
16ERB 18 NPT [1]	.375	18.0	.0024	.649	.04	.04	1					●	
16ERM 18 NPT [1]	.375	18.0	.0020	.649	.03	.04	1				●	●	●
16EL 14 NPT	.375	14.0	.0027	.649	.04	.05	1					●	
16ER 14 NPT	.375	14.0	.0027	.649	.04	.05	1	●		●		●	●
16ERB 14 NPT [1]	.375	14.0	.0027	.649	.04	.05	1					●	
16ERM 14 NPT [1]	.375	14.0	.0020	.649	.04	.05	1		●	●	●	●	●
16EL 11.5 NPT	.375	11.5	.0035	.649	.04	.06	1					●	
16ER 11.5 NPT	.375	11.5	.0035	.649	.04	.06	1		●	●		●	●
16ERB 11.5 NPT [1]	.375	11.5	.0035	.649	.04	.06	1					●	
16ERM 11.5 NPT [1]	.375	11.5	.0035	.649	.04	.06	1			●	●	●	●
16ER 8 NPT	.375	8.0	.0043	.649	.06	.06	1		●	●		●	
16ERB 8 NPT [1]	.375	8.0	.0043	.649	.06	.07	1					●	
16ERM 8 NPT [1]	.375	8.0	.0047	.649	.05	.07	1			●	●	●	●
22ER 11.5 NPT 2M [2]	.500	11.5	.0035	.866	.09	.14	2					●	
27ER 11.5 NPT 3M [2]	.625	11.5	.0035	1.083	.13	.22	3					●	
27ER 8 NPT 2M [2]	.625	8.0	.0035	1.083	.13	.20	2					●	

- For Insert Identification System, see pages 694-695 • For threading between walls use GRIP-type insert TIP-NPT • National Pipe Threads ANSI/ASME B1201-1983
- For technical information and detailed cutting data, see pages 781-797

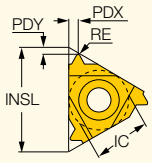
[1] With pressed chipformer
[2] Multi-tooth
[3] Threads per inch
[4] Number of teeth per corner

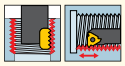
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

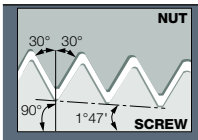
IR/L-NPT

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	.157	27.0	.0016	.271	.02	.02	1	●							
08IR 18 NPT	.197	18.0	.0024	.324	.02	.03	1	●						●	
11IL 18 NPT	.250	18.0	.0024	.433	.03	.04	1							●	
11IR 18 NPT	.250	18.0	.0024	.433	.03	.04	1			●				●	
11IRB 18 NPT	.250	18.0	.0024	.433	.03	.04	1							●	
11IL 14 NPT	.250	14.0	.0027	.433	.03	.04	1			●					
11IR 14 NPT	.250	14.0	.0027	.433	.03	.04	1			●				●	●
16IL 27 NPT	.375	27.0	.0018	.649	.03	.03	1			●					
16IR 27 NPT	.375	27.0	.0018	.649	.03	.03	1							●	
16IR 18 NPT	.375	18.0	.0024	.649	.03	.04	1							●	
16IRM 14 NPT [1]	.375	14.0	.0020	.649	.04	.05	1						●	●	●
16IRM 14 NPT IC250* [1]	.375	14.0	.0020	.649	.04	.05	1			●					
16IRB 14 NPT [1]	.375	14.0	.0027	.649	.04	.05	1							●	
16IL 14 NPT	.375	14.0	.0032	.649	.04	.05	1							●	
16IR 14 NPT	.375	14.0	.0032	.649	.04	.05	1	●		●				●	●
16IRB 11.5 NPT [1]	.375	11.5	.0035	.649	.04	.06	1							●	
16IRM 11.5 NPT [1]	.375	11.5	.0035	.649	.04	.06	1					●	●	●	●
16IL 11.5 NPT	.375	11.5	.0035	.649	.04	.06	1			●				●	
16IR 11.5 NPT	.375	11.5	.0035	.649	.04	.06	1		●					●	●
16IRM 8 NPT [1]	.375	8.0	.0047	.649	.05	.07	1						●	●	●
16IRB 8 NPT [1]	.375	8.0	.0043	.649	.05	.07	1							●	
16IL 8 NPT	.375	8.0	.0043	.649	.05	.07	1			●				●	
16IR 8 NPT	.375	8.0	.0043	.649	.05	.07	1			●	●			●	
22IR 11.5 NPT 2M [2]	.500	11.5	.0035	.866	.09	.14	2							●	
27IR 11.5 NPT 3M [2]	.625	11.5	.0035	1.083	.13	.22	3							●	
27IR 8 NPT 2M [2]	.625	8.0	.0047	1.083	.12	.20	2							●	

- For Insert Identification System, see pages 694-695 • National Pipe Threads ANSI/ASME B1201-1983
- For technical information and detailed cutting data, see pages 781-797

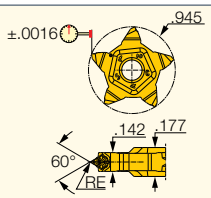
[1] With pressed chipformer
[2] Multi-tooth
[3] Threads per inch
[4] Number of teeth per corner

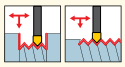
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

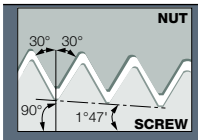
PENTACUT THREADING LINE

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	.0027	●
PENTA 24-14-NPT	14.0	.0035	●

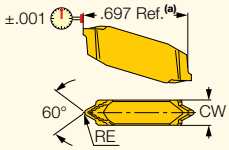
[1] Threads per inch

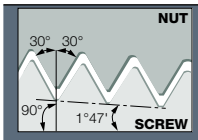
For tools, see pages: HMSDV PEN (530) • HSTBS-PEN (530) • PCAD RE/LE-JHP (553) • PCADR/L (330) • PCADR/L-JHP (330) • PCHBR/L (332) • PCHPR/L (329) • PCHR/L-24 (325) • PCHR/L-24-JHP (326)

ISCARTHREAD
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	.094	.002	.0012	27.0	●	●
TIP 2P18-NPT	.094	.003	.0012	18.0	●	●
TIP 2P14-NPT	.094	.004	.0012	14.0		●
TIP 4P11.5-NPT	.157	.004	.0012	11.5	●	●
TIP 4P8-NPT	.157	.005	.0012	8.0	●	●

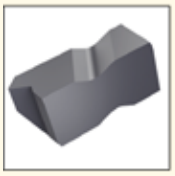
• (a) TIP inserts are 063" longer than GIP in the same pocket • Toolholder seat needs to be modified according to insert profile to ensure clearance
(1) Corner radius tolerance (+/-)
(2) Threads per inch

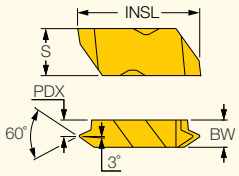
For tools, see pages: C#-GHDR/L (284) • CGHN-D (291) • CGHN-DG (292) • CGHN-S (291) • CGPAD (290) • CGPAD-JHP (290) • GHDR/L (short pocket) (285) • GHDR/L-JHP (short pocket) (286) • GHGR/L (287) • GHMPR/L (283) • GHMR/L (283) • GHSR/L (398) • GHSR/L-JHP-SL (399) • NQCH-GHSR/L-JHP (399)

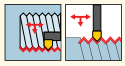
NOTCHGRIP
GROOVE-TURN LINE
ISCARTHREAD

NPT THREADING FLDC-V-75

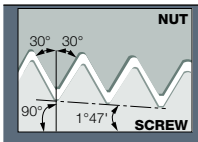
Double-Ended, Precision,
Flat Top Threading Inserts







Right-hand shown



Designation	Dimensions TPI(1)	IPF	PDX	BW	S	INSL	IC908
FLDC-3-8VR/L75	8.0	3/4	.0984	.195	.344	.890	●
FLDC-3-115VR/L75	11.5	3/4	.1457	.195	.344	.890	●
FLDC-3-14VR/L-75	14.0	3/4	.1496	.195	.344	.890	●
FLDC-3-18VR/L-75	18.0	3/4	.1535	.195	.344	.890	●
FLDC-3-27VR/L-75	27.0	3/4	.1614	.195	.344	.890	●

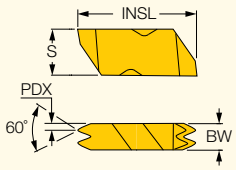
• DMIN according to related boring bar
(1) Threads per inch

For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

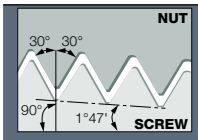
NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

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	.0590	.250	.344	.890	●
FLDC-3-11.5NPT-2E	11.5	3/4	.0472	.250	.344	.890	●

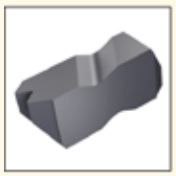
[1] Threads per inch

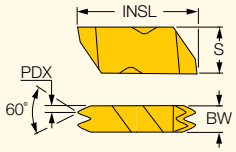
For tools, see pages: A-FLER/L (349) • H-FLER (349)

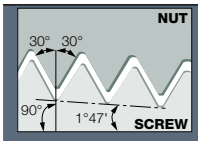
NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

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	.0590	.250	.344	.890	●
FLDC-3-11.5NPT-2I	11.5	3/4	.0472	.250	.344	.890	●

[1] Threads per inch

- For internal thread limits, see page 784-785

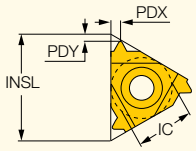
For tools, see pages: A-FLER/L (349) • H-FLER (349)

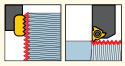
Full Profile NPTF

ISCARTHREAD

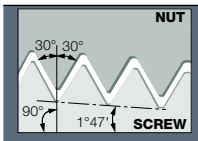
ER-NPTF

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	.250	14.0	.433	.03	.04		●
16ER 27 NPTF	.375	27.0	.649	.03	.03		●
16ER 18 NPTF	.375	18.0	.649	.03	.04		●
16ER 14 NPTF	.375	14.0	.649	.04	.05	●	●
16ER 11.5 NPTF	.375	11.5	.649	.04	.06		●

- For Insert Identification System, see pages 694-695 • (National Pipe Threads-Dry Seal) ANSI/ASME B1201-1976 full profile
- For technical information and detailed cutting data, see pages 781-797

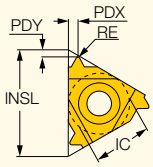
(1) Threads per inch

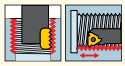
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

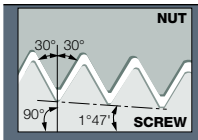
IR/L-NPTF

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	.157	27.0	.0016	.271	.03	.02	●		
08IR 27 NPTF	.197	27.0	.0016	.324	.02	.02	●		
08IL 18 NPTF	.197	18.0	.0024	.324	.02	.03	●		
08IR 18 NPTF	.197	18.0	.0016	.324	.02	.03	●		
11IR 18 NPTF	.250	18.0	.0016	.433	.03	.04			●
11IRB 18 NPTF	.250	18.0	.0016	.433	.03	.04			●
11IR 14 NPTF	.250	14.0	.0016	.649	.03	.04			●
16IR 18 NPTF	.375	18.0	.0024	.649	.03	.04			●
16IL 14 NPTF	.375	14.0	.0027	.649	.04	.05			●
16IR 14 NPTF	.375	14.0	.0016	.649	.04	.05		●	●
16IR 11.5 NPTF	.375	11.5	.0016	.649	.04	.06		●	●

- For Insert Identification System, see pages 694-695 • (National Pipe Threads-Dry seal) ANSI/ASME B1201-1976
- For technical information and detailed cutting data, see pages 781-797

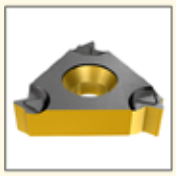
(1) Threads per inch

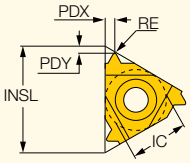
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

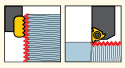
ISCARTHREAD

ER/L-BSPT

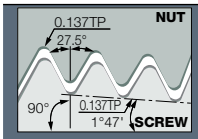
External BSPT
(British Standard Pipe)
B.S.21-1957 Full Profile
Laydown Threading Inserts







External right-hand shown



Designation	IC	INSL	TPI(2)	RE	PDY	PDX	IC250	IC808	IC908	IC1007
	Dimensions						Tough ↔ Hard			
16ER 28 BSPT	.375	.649	28.0	.0043	.02	.02			●	
16EL 19 BSPT	.375	.649	19.0	.0063	.03	.03			●	
16ER 19 BSPT	.375	.649	19.0	.0063	.03	.03	●		●	●
16EL 14 BSPT	.375	.649	14.0	.0098	.04	.05			●	
16ER 14 BSPT	.375	.649	14.0	.0098	.04	.05	●		●	●
16ERB 14 BSPT (1)	.375	.649	14.0	.0091	.04	.05			●	
16ERM 14 BSPT (1)	.375	.649	14.0	.0094	.04	.05		●	●	●
16EL 11 BSPT	.375	.649	11.0	.0126	.04	.06			●	
16ER 11 BSPT	.375	.649	11.0	.0126	.04	.06	●		●	
16ERB 11 BSPT (1)	.375	.649	11.0	.0114	.04	.06			●	
16ERM 11 BSPT (1)	.375	.649	11.0	.0122	.04	.06			●	●

- For Insert Identification System, see pages 694-695
- For threading between walls use insert TIP-BSPT
- For technical information and detailed cutting data, see pages 781-797

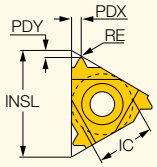
(1) With pressed chipformer
(2) Threads per inch

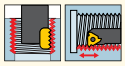
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

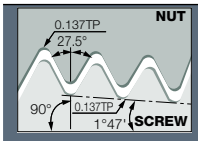
IR/L-BSPT

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





Internal left-hand shown



Designation	IC	INSL	TPI(2)	RE	PDY	PDX	IC228	IC250	IC808	IC908	IC1007
	Dimensions						Tough ↔ Hard				
06IR 28 BSPT	.157	.271	28.0	.0043	.03	.02	●				
08IR 28 BSPT	.197	.324	28.0	.0051	.02	.02	●				
08IR 19 BSPT	.197	.324	19.0	.0071	.02	.03	●				
11IR 19 BSPT	.250	.433	19.0	.0063	.03	.04		●		●	●
11IR/L 14 BSPT	.250	.433	14.0	.0091	.04	.04				●	
11IRB 19 BSPT	.250	.433	19.0	.0063	.04	.04				●	
16IR 28 BSPT	.375	.649	28.0	.0043	.02	.02				●	
16IR 19 BSPT	.375	.649	19.0	.0063	.03	.04		●			
16IL 14 BSPT	.375	.649	14.0	.0083	.04	.05				●	
16IR 14 BSPT	.375	.649	14.0	.0091	.04	.05				●	
16IRB 14 BSPT (1)	.375	.649	14.0	.0091	.04	.05				●	
16IRM 14 BSPT (1)	.375	.649	14.0	.0083	.04	.05			●	●	●
16IL 11 BSPT	.375	.649	11.0	.0114	.04	.06				●	
16IR 11 BSPT	.375	.649	11.0	.0114	.04	.06	●	●		●	
16IRB 11 BSPT (1)	.375	.649	11.0	.0114	.04	.06				●	
16IRM 11 BSPT (1)	.375	.649	11.0	.0110	.04	.06			●	●	●

- For Insert Identification System, see pages 694-695
- For technical information and detailed cutting data, see pages 781-797

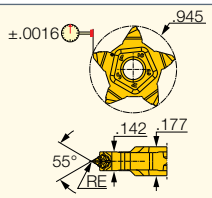
(1) With pressed chipformer
(2) Threads per inch

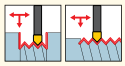
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • MGSIR/L (111) • PICIN-MGSIR/L (412) • SIR/L (769)

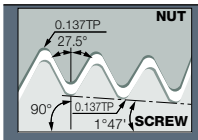
PENTACUT THREADING LINE

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	.0063	●
PENTA 24-14-BSPT	14.0	.0087	●

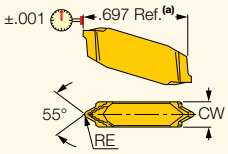
• DMIN(inch)=5435/TPI
[1] Threads per inch

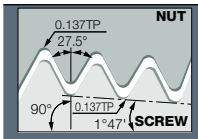
For tools, see pages: HMSDV PEN (530) • HSTBS-PEN (530) • PCAD RE/LE-JHP (553) • PCADR/L (330) • PCADR/L-JHP (330) • PCHBR/L (332) • PCHPR/L (329) • PCHR/L-24 (325) • PCHR/L-24-JHP (326)

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	.094	.004	.0012	28.0	●	●
TIP 2P19-BSPT	.094	.006	.0012	19.0	●	●
TIP 2P14-BSPT	.094	.009	.0012	14.0	●	●
TIP 4P11-BSPT	.157	.011	.0012	11.0	●	●

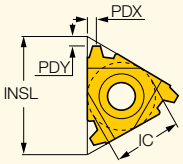
• (a) TIP inserts are 063" longer than GIP in the same pocket • Toolholder seat needs to be modified according to insert profile to ensure clearance
[1] Corner radius tolerance (+/-)
[2] Threads per inch

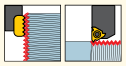
For tools, see pages: C#-GHDR/L (284) • CGHN-D (291) • CGHN-DG (292) • CGHN-S (291) • CGPAD (290) • CGPAD-JHP (290) • GHDR/L (short pocket) (285) • GHDR/L-JHP (short pocket) (286) • GHGR/L (287) • GHMPR/L (283) • GHMR/L (283) • GHSR/L (398) • GHSR/L-JHP-SL (399) • NQCH-GHSR/L-JHP (399)

ISCARTHREAD

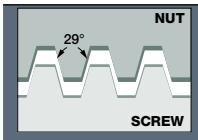
ER/L-STACME

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	.375	.649	16.0	.04	.04		●	
16ER 16 STACME	.375	.649	16.0	.04	.04			●
16ER 14 STACME	.375	.649	14.0	.04	.04		●	
16EL 12 STACME	.375	.649	12.0	.05	.05			●
16ER 12 STACME	.375	.649	12.0	.05	.05		●	●
16EL 10 STACME	.375	.649	10.0	.05	.05	●		
16ER 10 STACME	.375	.649	10.0	.05	.05			●
16EL 8 STACME	.375	.649	8.0	.06	.06			●
16ER 8 STACME	.375	.649	8.0	.06	.06	●	●	●
16EL 6 STACME	.375	.649	6.0	.07	.07			●
16ER 6 STACME	.375	.649	6.0	.07	.07		●	●
22EL 5 STACME	.500	.866	5.0	.08	.09	●		
22ER 5 STACME	.500	.866	5.0	.08	.09			●
22ER 4 STACME	.500	.866	4.0	.09	.09			●
27EL 4 STACME	.625	1.083	4.0	.09	.09	●		
27ER 4 STACME	.625	1.083	4.0	.09	.09			●
27EL 3 STACME	.625	1.083	3.0	.11	.11			●
27ER 3 STACME	.625	1.083	3.0	.11	.11		●	

- For Insert Identification System, see pages 694-695 • STUB ACME ASME/ANSI B18-1988 Class 2G
- For technical information and detailed cutting data, see pages 781-797

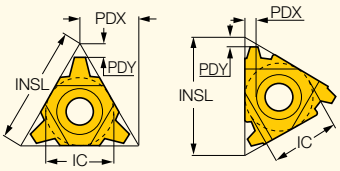
[1] Threads per inch

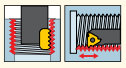
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

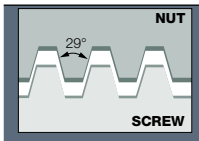
IR/L-STACME

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
16IR 16 STACME	.375	.649	16.0	.04	.04	●		●
16IR 12 STACME	.375	.649	12.0	.05	.05			●
16IR 10 STACME	.375	.649	10.0	.05	.05	●		●
16IL 8 STACME	.375	.649	8.0	.06	.06			●
16IR 8 STACME	.375	.649	8.0	.06	.06	●		●
16IR 6 STACME	.375	.649	6.0	.06	.07		●	●
22IR/L 5 STACME	.500	.866	5.0	.08	.09	●		
22IR 4 STACME	.500	.866	4.0	.09	.09			●
22UIRL 3 STACME	.500	.866	3.0	.13	.43		●	
27IL 4 STACME	.625	1.083	4.0	.09	.09	●		
27IR 4 STACME	.625	1.083	4.0	.09	.09			●
27IR/L 3 STACME	.625	1.083	3.0	.11	.11		●	

- For Insert Identification System, see pages 694-695 • Tolerance: Class 2G • For technical information and detailed cutting data, see pages 781-797

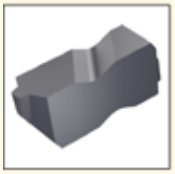
[1] Threads per inch

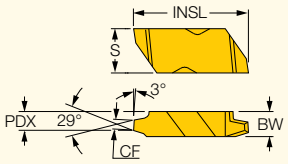
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

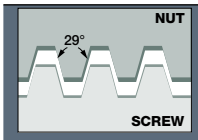
STUB ACME THREADING FLAS-PT-I

Double-Ended, Precision, Flat Top on Internal Threading Inserts





Right-hand shown



Designation	Dimensions TPI[1]	CF	PDX	BW	S	INSL	IC908
FLAS-6L2-PT-I	2.0	.206	.2835	.383	.453	1.120	•
FLAS-4L3-PT-I	3.0	.135	.2008	.255	.453	1.120	•
FLAS-3L4-PT-I	4.0	.100	.1496	.195	.344	.890	•
FLAS-3L5-PT-I	5.0	.079	.1496	.195	.344	.890	•
FLAS-3L6-PT-I	6.0	.065	.1496	.195	.344	.890	•
FLAS-3L8-PT-I	8.0	.048	.1496	.195	.344	.890	•
FLAS-3L10-PT-I	10.0	.037	.1496	.195	.344	.890	•
FLAS-3L12-PT-I	12.0	.033	.1496	.195	.344	.890	•
FLAS-3L14-PT-I	14.0	.028	.1496	.195	.344	.890	•
FLAS-3L16-PT-I	16.0	.024	.1496	.195	.344	.890	•

(1) Threads per inch

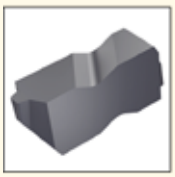
- For internal thread limits, see page 784-785

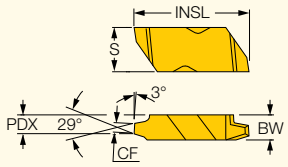
For tools, see pages: A-FLER/L (349) • H-FLER (349)

NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

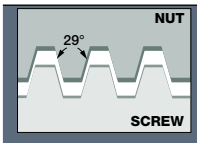
STUB ACME THREADING FLAS-PT-E

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	.100	.1496	.195	.344	.890	•
FLAS-3R5-PT-E	5.0	.079	.1496	.195	.344	.890	•
FLAS-3R6-PT-E	6.0	.065	.1496	.195	.344	.890	•
FLAS-3R8-PT-E	8.0	.048	.1496	.195	.344	.890	•
FLAS-3R10-PT-E	10.0	.037	.1496	.195	.344	.890	•
FLAS-3R12-PT-E	12.0	.033	.1496	.195	.344	.890	•
FLAS-3R14-PT-E	14.0	.028	.1496	.195	.344	.890	•
FLAS-3R16-PT-E	16.0	.024	.1496	.195	.344	.890	•
FLAS-4R3-PT-E	3.0	.136	.2008	.255	.453	1.120	•
FLAS-6R2-PT-E	2.0	.206	.2835	.383	.453	1.120	•

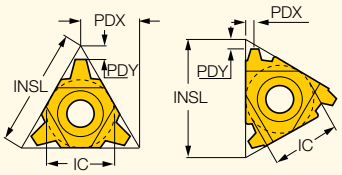
(1) Threads per inch

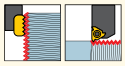
For tools, see pages: FLASR/L (348) • FLSR/L (347)

ISCARTHREAD

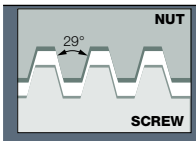
ER/L-ACME

External ACME Profile
Laydown Threading Inserts
for Feed Screws





External right-hand shown



Designation	Dimensions					Tough ↔ Hard				
	IC	INSL	TPI[1]	PDY	PDX	IC50M	IC250	IC08	IC908	IC1007
11ER 16 ACME	.250	.433	16.0	.04	.04				•	
16ER 16 ACME	.375	.649	16.0	.04	.04		•		•	
16ER 14 ACME	.375	.649	14.0	.04	.04		•			
16ER 12 ACME	.375	.649	12.0	.04	.04				•	
16ER 10 ACME	.375	.649	10.0	.06	.05		•		•	
16ER/L 8 ACME	.375	.649	8.0	.05	.06		•		•	
16EL 6 ACME	.375	.649	6.0	.06	.06		•			
16ER 6 ACME	.375	.649	6.0	.06	.06		•		•	•
22EL 6 ACME	.500	.866	6.0	.07	.08				•	
22ER 6 ACME	.500	.866	6.0	.07	.08	•			•	
22EL 5 ACME	.500	.866	5.0	.08	.09				•	
22ER 5 ACME	.500	.866	5.0	.08	.09		•		•	
22ER/L 4 ACME	.500	.866	4.0	.08	.09				•	
22UERL 4 ACME	.500	.866	4.0	.09	.43	•			•	
27EL 4 ACME	.625	1.083	4.0	.09	.11				•	
27ER 4 ACME	.625	1.083	4.0	.09	.10		•	•	•	
27UERL 3 ACME	.625	1.083	3.0	.11	.54		•		•	

• For Insert Identification System, see pages 694-695 • ACME ASME/ANSI B15-1988 Class 3G • For technical information and detailed cutting data, see pages 781-797

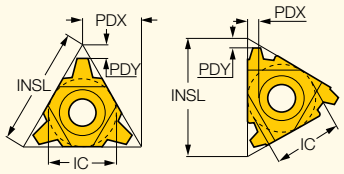
[1] Threads per inch

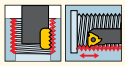
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

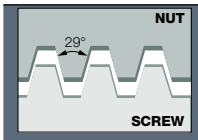
IR/L-ACME

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	IC1007
16IL 16 ACME	.375	.649	16.0	.04	.04	●					
16IR 16 ACME	.375	.649	16.0	.04	.04	●	●				
16IL 14 ACME	.375	.649	14.0	.04	.05	●					
16IL 12 ACME	.375	.649	12.0	.04	.05	●					
16IR 12 ACME	.375	.649	12.0	.04	.05		●	●		●	
16IL 10 ACME	.375	.649	10.0	.05	.05	●					
16IR 10 ACME	.375	.649	10.0	.05	.06		●				
16IL 8 ACME	.375	.649	8.0	.06	.06					●	
16IR 8 ACME	.375	.649	8.0	.05	.06		●			●	
16IR 6 ACME	.375	.649	6.0	.07	.07		●			●	●
22IL 6 ACME	.500	.866	6.0	.07	.08	●	●				
22IR 6 ACME	.500	.866	6.0	.07	.08	●	●			●	
22IL 5 ACME	.500	.866	5.0	.08	.08	●			●	●	
22IR 5 ACME	.500	.866	5.0	.08	.08		●			●	
22IL 4 ACME	.500	.866	4.0	.09	.08		●				
22IR 4 ACME	.500	.866	4.0	.08	.08					●	
22UIRL 4 ACME	.500	.866	4.0	.09	.43			●		●	
27IL 4 ACME	.625	1.083	4.0	.09	.10					●	
27IR 4 ACME	.625	1.083	4.0	.09	.10		●			●	
27UIRL 3 ACME	.625	1.083	3.0	.11	.54					●	

• For Insert Identification System, see pages 694-695 • ACME ASME/ANSI B15-1988 Class 3G • For technical information and detailed cutting data, see pages 781-797

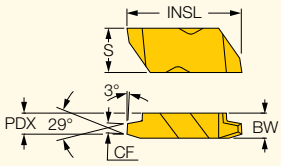
[1] Threads per inch

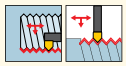
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

ISCARTHREAD

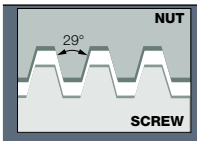
ACME THREADING FLA

Double-Ended, Precision,
Flat Top Threading Inserts





Right-hand shown



Designation	Dimensions TPI[1]	CF	PDX	BW	S	INSL	IC908
FLA-6R/L2	2.0	.180	.2835	.383	.453	1.120	●
FLA-6R/L2.5	2.5	.143	.2835	.383	.453	1.120	●
FLA-6R/L3	3.0	.118	.2835	.383	.453	1.120	●
FLA-3R/L4	4.0	.087	.1339	.195	.344	.890	●
FLA-4R/L4	4.0	.087	.2008	.255	.453	1.120	●
FLA-3R/L5	5.0	.069	.1496	.195	.344	.890	●
FLA-4R/L5	5.0	.069	.2008	.255	.453	1.120	●
FLA-3R/L6	6.0	.057	.1496	.195	.344	.890	●
FLA-4R/L6	6.0	.057	.2008	.255	.453	1.120	●
FLA-3R/L8	8.0	.041	.1496	.195	.344	.890	●
FLA-4R/L8	8.0	.041	.2008	.255	.453	1.120	●
FLA-3R/L10	10.0	.032	.1496	.195	.344	.890	●
FLA-3R/L12	12.0	.028	.1496	.195	.344	.890	●
FLA-3R/L14	14.0	.024	.1496	.195	.344	.890	●
FLA-3R/L16	16.0	.020	.1496	.195	.344	.890	●

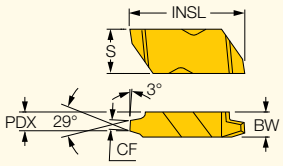
• DMIN according to related boring bar • For ACME thread limits, see page 784-785

[1] Threads per inch

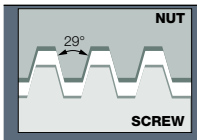
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

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



Right-hand shown



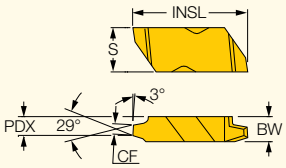
Designation	TPI[1]	CF	PDX	BW	S	INSL	IC908
	Dimensions						
FLA-3R4-PT-E	4.0	.087	.1339	.195	.344	.890	•
FLA-3R5-PT-E	5.0	.069	.1496	.195	.344	.890	•
FLA-3R6-PT-E	6.0	.057	.1496	.195	.344	.890	•
FLA-3R8-PT-E	8.0	.041	.1496	.195	.344	.890	•
FLA-3R10-PT-E	10.0	.032	.1496	.195	.344	.890	•
FLA-3R12-PT-E	12.0	.028	.1496	.195	.344	.890	•
FLA-3R14-PT-E	14.0	.024	.1496	.195	.344	.890	•
FLA-3R16-PT-E	16.0	.020	.1496	.195	.344	.890	•
FLA-4R4-PT-E	4.0	.087	.2008	.255	.453	1.120	•
FLA-4R5-PT-E	5.0	.069	.2008	.255	.453	1.120	•
FLA-4R6-PT-E	6.0	.057	.2008	.255	.453	1.120	•
FLA-4R8-PT-E	8.0	.041	.2008	.255	.453	1.120	•
FLA-6R2-T-E	2.0	.180	.2835	.383	.453	1.120	•
FLA-6R2.5-PT-E	2.5	.143	.2835	.383	.453	1.120	•
FLA-6R3-PT-E	3.0	.118	.2835	.383	.453	1.120	•

[1] Threads per inch

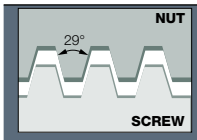
For tools, see pages: FLASR/L (348) • FLSR/L (347)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

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



Right-hand shown



Designation	TPI[1]	CF	PDX	BW	S	INSL	IC908
	Dimensions						
FLA-3L16-PT-I	16.0	.020	.1496	.195	.344	.890	•
FLA-3L14-PT-I	14.0	.024	.1496	.195	.344	.890	•
FLA-3L12-PT-I	12.0	.028	.1496	.195	.344	.890	•
FLA-3L10-PT-I	10.0	.032	.1496	.195	.344	.890	•
FLA-3L8-PT-I	8.0	.041	.1496	.195	.344	.890	•
FLA-3L6-PT-I	6.0	.057	.1496	.195	.344	.890	•
FLA-3L5-PT-I	5.0	.069	.1496	.195	.344	.890	•
FLA-3L4-PT-I	4.0	.087	.1339	.195	.344	.890	•
FLA-4L8-PT-I	8.0	.041	.2008	.255	.453	1.120	•
FLA-4L6-PT-I	6.0	.057	.2008	.255	.453	1.120	•
FLA-4L5-PT-I	5.0	.069	.2008	.255	.453	1.120	•
FLA-4L4-PT-I	4.0	.087	.2008	.255	.453	1.120	•
FLA-6L3-PT-I	3.0	.118	.2835	.383	.453	1.120	•
FLA-6L2.5-PT-I	2.5	.143	.2835	.383	.453	1.120	•
FLA-6L2-PT-I	2.0	.180	.2835	.383	.453	1.120	•

[1] Threads per inch

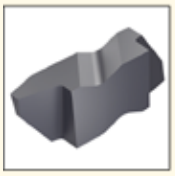
- For internal thread limits, see page 784-785

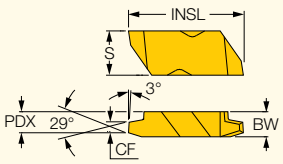
For tools, see pages: A-FLER/L (349) • H-FLER (349)

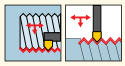
NOTCH-GRIP
GROOVE-TURN LINE
ISCARTHREAD

ACME THREADING FLAS

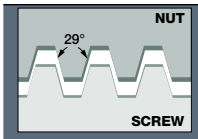
Double-Ended, Precision,
Flat Top Threading Inserts







Right-hand shown



Designation	Dimensions						IC908
	TPI[1]	CF	PDX	BW	S	INSL	
FLAS-6R/L2	2.0	.206	.2835	.383	.453	1.120	•
FLAS-4R/L3	3.0	.135	.2008	.255	.453	1.120	•
FLAS-3L4	4.0	.100	.1496	.195	.344	.890	•
FLAS-3R/L5	5.0	.079	.1496	.195	.344	.890	•
FLAS-3R/L6	6.0	.065	.1496	.195	.344	.890	•
FLAS-3R/L8	8.0	.048	.1496	.195	.344	.890	•
FLAS-3R/L10	10.0	.037	.1496	.195	.344	.890	•
FLAS-3R/L12	12.0	.033	.1496	.195	.344	.890	•
FLAS-3R/L14	14.0	.028	.1496	.195	.344	.890	•
FLAS-3R/L16	16.0	.024	.1496	.195	.344	.890	•

• DMIN according to related boring bar

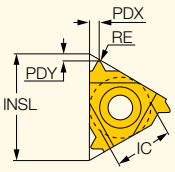
[1] Threads per inch

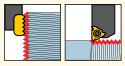
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

ISCARTHREAD

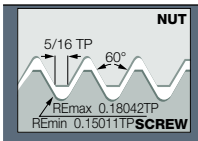
ER/L-UNJ

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





External right-hand shown

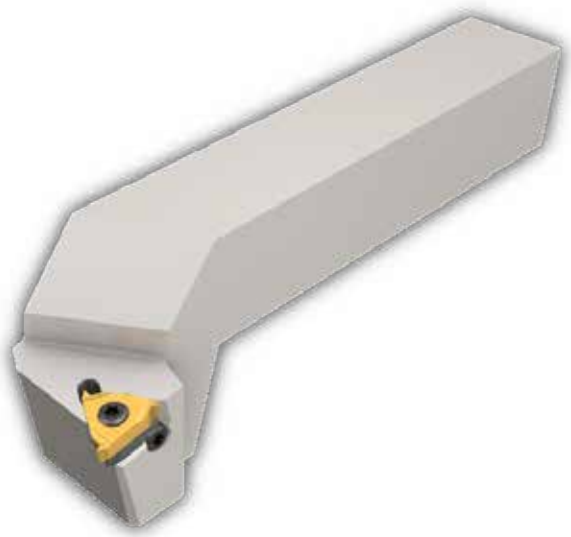


Designation	IC	TPI[1]	RE	INSL	PDY	PDX	IC50M	IC250	IC08	IC908	IC806	IC1007
	Dimensions						Tough ↔ Hard					
11ER 28 UNJ	.250	28.0	.0055	.433	.02	.02				●		
11ER 24 UNJ	.250	24.0	.0063	.433	.03	.03				●		
11ER 20 UNJ	.250	20.0	.0075	.433	.03	.04				●		
11ER 18 UNJ	.250	18.0	.0091	.433	.03	.04				●		
16ER 40 UNJ	.375	40.0	.0039	.649	.02	.02				●		
16ER 36 UNJ	.375	36.0	.0043	.649	.02	.02				●		
16ER 32 UNJ	.375	32.0	.0051	.649	.02	.02				●	●	
16EL 28 UNJ	.375	28.0	.0059	.649	.02	.02				●		
16ER 28 UNJ	.375	28.0	.0059	.649	.02	.02				●	●	
16EL 24 UNJ	.375	24.0	.0063	.649	.03	.03		●				
16ER 24 UNJ	.375	24.0	.0071	.649	.03	.03				●	●	
16EL 20 UNJ	.375	20.0	.0083	.649	.03	.04				●		
16ER 20 UNJ	.375	20.0	.0083	.649	.03	.04		●		●	●	●
16EL 18 UNJ	.375	18.0	.0091	.649	.03	.03			●			
16ER 18 UNJ	.375	18.0	.0091	.649	.03	.03				●	●	●
16EL 16 UNJ	.375	16.0	.0102	.649	.04	.05				●		
16ER 16 UNJ	.375	16.0	.0102	.649	.04	.05	●			●	●	●
16EL 14 UNJ	.375	14.0	.0118	.649	.04	.05				●		
16ER 14 UNJ	.375	14.0	.0118	.649	.04	.05		●		●	●	
16ER 13 UNJ	.375	13.0	.0114	.649	.04	.05				●		
16EL 12 UNJ	.375	12.0	.0138	.649	.04	.05				●		
16ER 12 UNJ	.375	12.0	.0138	.649	.04	.05				●	●	
16ER 11 UNJ	.375	11.0	.0150	.649	.05	.06				●		
16ER 10 UNJ	.375	10.0	.0150	.649	.04	.06				●	●	
16ER 9 UNJ	.375	9.0	.0181	.649	.05	.06		●				
16EL 8 UNJ	.375	8.0	.0189	.649	.05	.06		●				
16ER 8 UNJ	.375	8.0	.0189	.649	.05	.06				●		

• 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 694-695 • For technical information and detailed cutting data, see pages 781-797

[1] Threads per inch

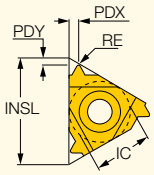
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

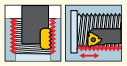


ISCARTHREAD

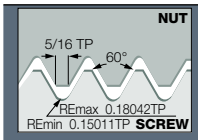
IR/L-UNJ

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





Internal left-hand shown



Designation	Dimensions						Tough ↔ Hard					
	IC	TPI[1]	RE	INSL	PDY	PDX	IC228	IC50M	IC250	IC08	IC908	IC806
08IR 20 UNJ	.197	20.0	.0035	.324	.02	.03	●					
08IR 18 UNJ	.197	18.0	.0039	.324	.02	.03	●					
11IR 40 UNJ	.250	40.0	.0020	.433	.02	.02			●			
11IR 32 UNJ	.250	32.0	.0016	.433	.02	.02					●	
11IRB 32 UNJ	.250	32.0	.0016	.433	.02	.02					●	
11IR 28 UNJ	.250	28.0	.0020	.433	.02	.02					●	
11IRB 28 UNJ	.250	28.0	.0020	.433	.02	.02					●	
11IR 24 UNJ	.250	24.0	.0020	.433	.03	.03				●	●	
11IRB 24 UNJ	.250	24.0	.0020	.433	.02	.02					●	
11IR 20 UNJ	.250	20.0	.0027	.433	.03	.04					●	
11IRB 20 UNJ	.250	20.0	.0027	.433	.03	.04					●	
11IR 18 UNJ	.250	18.0	.0031	.433	.03	.04					●	●
11IRB 18 UNJ	.250	18.0	.0031	.433	.04	.04					●	
11IR 16 UNJ	.250	16.0	.0035	.433	.03	.04					●	●
11IRB 16 UNJ	.250	16.0	.0035	.433	.03	.04					●	
11IRB 14 UNJ	.250	14.0	.0039	.433	.03	.04					●	
16IR 32 UNJ	.375	32.0	.0016	.649	.02	.02					●	
16IR 24 UNJ	.375	24.0	.0020	.649	.03	.03		●			●	
16IR 20 UNJ	.375	20.0	.0027	.649	.03	.03					●	
16IR 18 UNJ	.375	18.0	.0027	.649	.03	.03					●	●
16IL 16 UNJ	.375	16.0	.0035	.649	.04	.05					●	
16IR 16 UNJ	.375	16.0	.0035	.649	.04	.05			●		●	●
16IR 14 UNJ	.375	14.0	.0039	.649	.04	.04					●	●
16IL 12 UNJ	.375	12.0	.0047	.649	.04	.04					●	
16IR 12 UNJ	.375	12.0	.0047	.649	.04	.04					●	●
16IR 10 UNJ	.375	10.0	.0055	.649	.04	.06					●	
16IR/L 8 UNJ	.375	8.0	.0075	.649	.05	.06					●	

- Thread milling application available only for inserts size 06, 08, 11
- For Insert Identification System, see pages 694-695
- For technical information and detailed cutting data, see pages 781-797

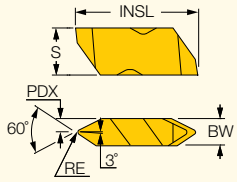
[1] Threads per inch

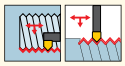
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

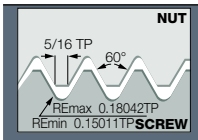
NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

UNJ THREADING FLJ

Double-Ended, Precision, Flat Top Threading Inserts







Designation	Dimensions						IC908
	TPI[1]	RE	PDX	BW	S	INSL	
FLJ-3020R/L8	8.0	.0189	.0980	.195	.344	.890	•
FLJ-3014R/L12	12.0	.0126	.0980	.195	.344	.890	•
FLJ-3010R/L16	16.0	.0094	.0980	.195	.344	.890	•

• DMIN according to related boring bar

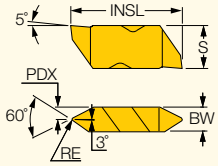
[1] Threads per inch

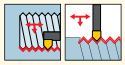
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

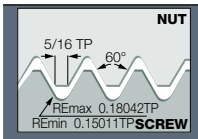
UNJ THREADING FLJP

Double-Ended, Precision Threading Inserts with a Positive Rake





Right-hand shown



Designation	Dimensions						IC908
	TPI[1]	RE	PDX	BW	S	INSL	
FLJP-3020R/L8	8.0	.0189	.0984	.195	.344	.890	•
FLJP-3014R/L12	12.0	.0126	.0984	.195	.344	.890	•
FLJP-3010R/L16	16.0	.0094	.0984	.195	.344	.890	•

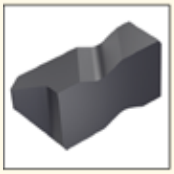
• DMIN according to related boring bar

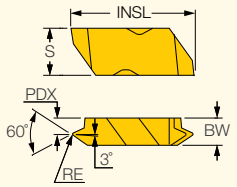
[1] Threads per inch

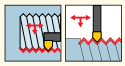
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

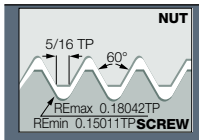
UNJ THREADING FLJF
Double-Ended, Precision
Flat Top Threading Inserts







Right-hand shown

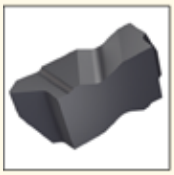


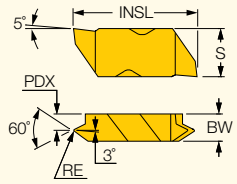
Designation	Dimensions TPI[1]	RE	PDX	BW	S	INSL	IC908
FLJF-3012R/L14	14.0	.0106	.1409	.195	.344	.890	•
FLJF-3010R/L16	16.0	.0094	.1417	.195	.344	.890	•
FLJF-3009R/L18	18.0	.0083	.1417	.195	.344	.890	•
FLJF-3008R/L20	20.0	.0075	.1417	.195	.344	.890	•
FLJF-3007R/L24	24.0	.0063	.1417	.195	.344	.890	•
FLJF-3006R/L28	28.0	.0055	.1417	.195	.344	.890	•
FLJF-3005R/L32	32.0	.0047	.1417	.195	.344	.890	•

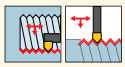
• DMIN according to related boring bar
[1] Threads per inch
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

NOTCH GRIP GROOVE-TURN LINE
ISCAR THREAD

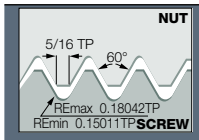
UNJ THREADING FLJK
Double-Ended, Precision
Threading Inserts with
a Positive Rake







Right-hand shown



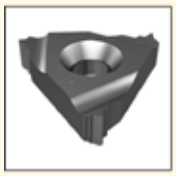
Designation	Dimensions TPI[1]	RE	PDX	BW	S	INSL	IC908
FLJK-3012R/L14	14.0	.0106	.1409	.195	.344	.890	•
FLJK-3010R/L16	16.0	.0094	.1417	.195	.344	.890	•
FLJK-3009R/L18	18.0	.0083	.1417	.195	.344	.890	•
FLJK-3008R/L20	20.0	.0075	.1417	.195	.344	.890	•
FLJK-3007R/L24	24.0	.0063	.1417	.195	.344	.890	•
FLJK-3006R/L28	28.0	.0055	.1417	.195	.344	.890	•
FLJK-3005R/L32	32.0	.0047	.1417	.195	.344	.890	•

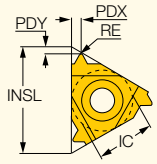
• DMIN according to related boring bar
[1] Threads per inch
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

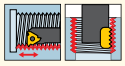
ISCARTHREAD

IR-MJ

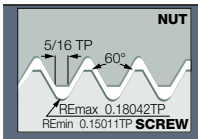
Internal MJ ISO 5855 Metric Full Profile Laydown Threading Inserts for the Aviation and Aerospace Industries







Internal left-hand shown



Designation	IC	TP mm[1]	INSL	RE	PDY	PDX	Tough ↔ Hard IC908	IC806
11IR 1.00 MJ	.250	1.000	.433	.0020	.02	.02	●	●
11IRB 1.00 MJ	.250	1.000	.433	.0020	.02	.02	●	
11IR 1.25 MJ	.250	1.250	.433	.0027	.03	.04	●	●
11IR 1.50 MJ	.250	1.500	.433	.0031	.03	.04	●	●
11IRB 1.50 MJ	.250	1.500	.433	.0031	.03	.04	●	
11IR 2.00 MJ	.250	2.000	.433	.0047	.04	.04	●	●
16IR 1.00 MJ	.375	1.000	.649	.0020	.03	.03	●	●
16IR 1.25 MJ	.375	1.250	.649	.0027	.03	.04	●	●
16IR 1.50 MJ	.375	1.500	.649	.0031	.04	.05	●	●

- Thread milling application available only for inserts size 06, 08, 11 • For Insert Identification System, see pages 694-695
- For technical information and detailed cutting data, see pages 781-797

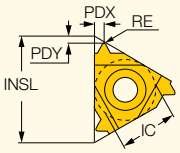
[1] Thread pitch

For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

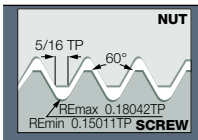
ISCARTHREAD

ER-MJ

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



External right-hand shown



Designation	IC	TP mm[1]	INSL	RE	PDY	PDX	Tough ↔ Hard IC250	IC908	IC806
16ER 1.00 MJ	.375	1.000	.649	.0067	.03	.03		●	●
16ER 1.25 MJ	.375	1.250	.649	.0083	.03	.03		●	●
16ER 1.50 MJ	.375	1.500	.649	.0098	.04	.05	●	●	●
16ER 2.00 MJ	.375	2.000	.649	.0130	.04	.05		●	●

- For Insert Identification System, see pages 694-695 • For technical information and detailed cutting data, see pages 781-797

[1] Thread pitch

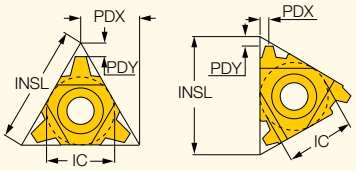
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

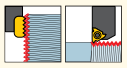
TR Trapez

ISCARTHREAD

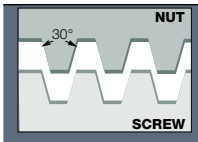
ER/L-TR

External Trapezoid Shaped
DIN 103 Laydown Threading
Inserts for Feed Screws





External right-hand shown



Designation	Dimensions IC	TP mm[2]	INSL	PDY	PDX	Tough ↔ Hard IC228	IC50M	IC250	IC908	IC1007
16EL 1.5 TR	.375	1.500	.649	.04	.04			●		
16ER 1.5 TR	.375	1.500	.649	.04	.04			●	●	
16EL 2 TR	.375	2.000	.649	.04	.04			●		
16ER 2 TR	.375	2.000	.649	.04	.04			●	●	
16EL 3 TR	.375	3.000	.649	.06	.06				●	
16ER 3 TR	.375	3.000	.649	.06	.06	●		●	●	●
16ER 4 TR	.375	4.000	.649	.07	.07			●	●	
22EL 4 TR	.500	4.000	.866	.07	.07				●	
22ER 4 TR	.500	4.000	.866	.07	.07			●	●	
22EL 5 TR	.500	5.000	.866	.08	.09			●	●	
22ER 5 TR	.500	5.000	.866	.08	.09		●	●	●	
22ER/L 6 TR	.500	6.000	.866	.08	.09				●	
22UERL 6 TR	.500	6.000	.866	.08	.43		●	●	●	
22UERL 7 TR	.500	7.000	.866	.09	.43			●		
22UERL 8 TR	.500	8.000	.866	.10	.43			●		
27EL 6 TR	.625	6.000	1.083	.09	.10				●	
27ER 6 TR	.625	6.000	1.083	.09	.10			●	●	
27EL 7 TR	.625	7.000	1.083	.09	.10			●		
27ER 7 TR	.625	7.000	1.083	.09	.10			●	●	
27UERL 8 TR	.625	8.000	1.083	.10	.11			●	●	
27UERL 9 TR	.625	9.000	1.083	.12	.54			●	●	
27UERL 10 TR [1]	.625	10.000	1.083	.13	.54			●	●	

• For Insert Identification System, see pages 694-695 • DIN 103 04/1977,1502901/1977 Class 7e • For technical information and detailed cutting data, see pages 781-797

[1] One cutting edge only

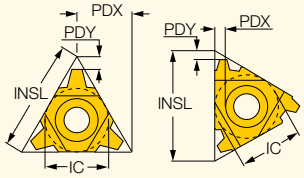
[2] Thread pitch

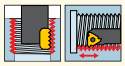
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

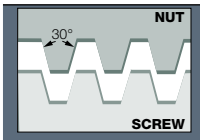
IR/L-TR

Internal Trapezoid Shaped
DIN 103 Laydown Threading
Inserts for Feed Screws





Internal left-hand shown



Designation	Dimensions IC	TP mm[2]	INSL	PDY	PDX	Tough ↔ Hard IC228	IC50M	IC250	IC908
08IR 1.5 TR [1]	.197	1.500	.324	.0236	.02	●			
08UIRL 2 TR	.197	2.000	.324	.0354	.16	●			
16IR 1.5 TR	.375	1.500	.649	.0394	.04			●	●
16IL 2 TR	.375	2.000	.649	.0394	.05			●	●
16IR 2 TR	.375	2.000	.649	.0394	.04			●	●
16IL 3 TR	.375	3.000	.649	.0512	.06				●
16IR 3 TR	.375	3.000	.649	.0512	.06	●			●
22IL 4 TR	.500	4.000	.866	.0748	.08				●
22IR 4 TR	.500	4.000	.866	.0748	.08			●	●
22IL 5 TR	.500	5.000	.866	.0787	.09				●
22IR 5 TR	.500	5.000	.866	.0787	.09			●	●
22IL 6 TR	.500	6.000	.866	.0787	.09				●
22IR 6 TR	.500	6.000	.866	.0787	.09		●	●	●
22UIRL 6 TR	.500	6.000	.866	.0787	.43			●	●
22UIRL 7 TR	.500	7.000	.866	.0906	.43			●	
27IL 6 TR	.625	6.000	1.083	.0906	.11				●
27IR 6 TR	.625	6.000	1.083	.0906	.10			●	●
27IR 7 TR	.625	7.000	1.083	.0866	.10			●	
27UIRL 8 TR	.625	8.000	1.083	.0984	.10	●		●	●
27UIRL 9 TR	.625	9.000	1.083	.1181	.54			●	●
27UIRL 10 TR [1]	.625	10.000	1.083	.1260	.10				●

• For Insert Identification System, see pages 694-695 • Tolerance: Class 7H • For technical information and detailed cutting data, see pages 781-797

[1] A single threading corner

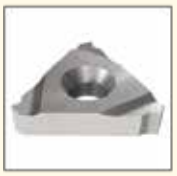
[2] Thread pitch

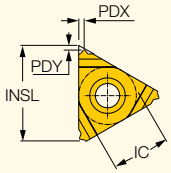
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

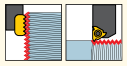
PG (Panzergewinde)

ISCARTHREAD

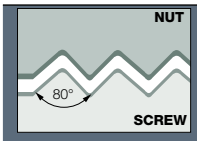
ER-PG
External Threading Inserts
for the Electric Industry







External right-hand shown



Designation	Dimensions						Tough ↔ Hard	
	IC	TPI[1]	INSL	PDY	PDX	RE	IC08	IC908
16ER 20 PG	.375	20.0	.649	.03	.03	.0051		•
16ER 18 PG	.375	18.0	.649	.03	.04	.0059	•	•
16ER 16 PG	.375	16.0	.649	.03	.04	.0067		•

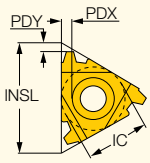
• For Insert Identification System, see pages 694-695

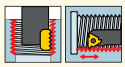
[1] Threads per inch

For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

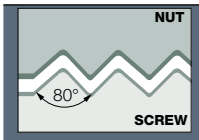
ISCARTHREAD

IR/L-PG
Internal Thread Profile Inserts
for the Electric Industry





Internal left-hand shown



Designation	Dimensions						Tough ↔ Hard	
	IC	TPI[1]	RE	INSL	PDY	PDX	IC228	IC908
08IR 20 PG	.197	20.0	.0055	.324	.02	.03	•	
11IR 18 PG	.250	18.0	.0059	.433	.03	.04		•
16IR 18 PG	.375	18.0	.0059	.649	.03	.04		•
16IR 16 PG	.375	16.0	.0067	.649	.03	.04		•

• For Insert Identification System, see pages 694-695

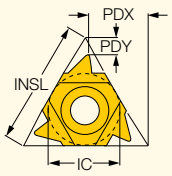
[1] Threads per inch

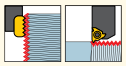
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

ISCARTHREAD

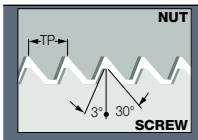
ER/L-SAGE

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





External right-hand shown



Designation	Dimensions IC	INSL	TP mm(2)	PDY	PDX	Tough ↔ Hard IC250	IC908
16ER/L 2 SAGE	.375	.649	2.000	.04	.06		•
22ER 3 SAGE	.500	.866	3.000	.06	.09		•
22EL 4 SAGE	.500	.866	4.000	.07	.12		•
22ER 4 SAGE	.500	.866	4.000	.07	.12	•	
22UER 5 SAGE (1)	.500	.866	5.000	.05	.46		•
22UER/L 6 SAGE (1)	.500	.866	6.000	.05	.46		•

• For Insert Identification System, see pages 694-695 • For technical information and detailed cutting data, see pages 781-797

(1) Requires special anvil

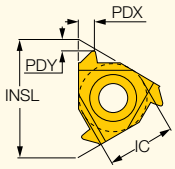
(2) Thread pitch

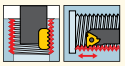
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

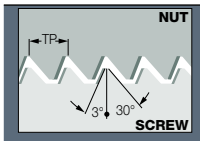
IR/L-SAGE

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





Internal left-hand shown



Designation	Dimensions IC	TP mm(2)	INSL	PDY	PDX	IC908
16IR/L 2 SAGE	.375	2.000	.649	.05	.07	•
22IR 3 SAGE	.500	3.000	.866	.07	.11	•
22IR 4 SAGE	.500	4.000	.866	.09	.13	•
22UIR 5 SAGE	.500	5.000	.866	.07	.46	•
22UIR 6 SAGE (1)	.500	6.000	.866	.08	.47	•

• For Insert Identification System, see pages 694-695 • For technical information and detailed cutting data, see pages 781-797

(1) Requires special anvil

(2) Thread pitch

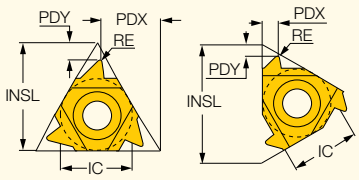
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

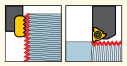
ABUT (American Buttress)

ISCARTHREAD

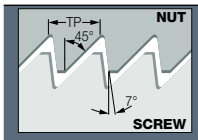
ER/L-ABUT

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





External right-hand shown



Designation	Dimensions						Tough ↔ Hard	
	IC	TPI[1]	RE	INSL	PDY	PDX	IC250	IC908
16ER 20 ABUT	.375	20.0	.0027	.649	.04	.05		•
16EL 16 ABUT	.375	16.0	.0035	.649	.04	.06		•
16ER 16 ABUT	.375	16.0	.0035	.649	.04	.06	•	•
16EL 12 ABUT	.375	12.0	.0047	.649	.06	.08		•
16ER 12 ABUT	.375	12.0	.0047	.649	.06	.08	•	•
16ER/L 10 ABUT	.375	10.0	.0059	.649	.06	.09		•
22ER 8 ABUT	.500	8.0	.0071	.866	.08	.13	•	•
22ER 6 ABUT	.500	6.0	.0098	.866	.08	.13		•
22UER 4 ABUT	.500	4.0	.0161	.866	.09	.37	•	•
27UEL 3 ABUT	.625	3.0	.0177	1.083	.10	.48		•
27UER 3 ABUT	.625	3.0	.0177	1.083	.10	.48	•	•

• For Insert Identification System, see pages 694-695 • ANSI B19-1973 Class 2 • For technical information and detailed cutting data, see pages 781-797

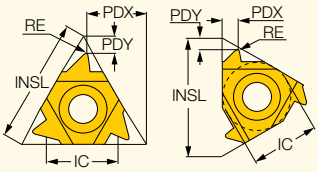
[1] Threads per inch

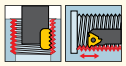
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

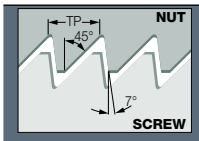
IR/L-ABUT

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





Internal left-hand shown



Designation	Dimensions						Tough ↔ Hard		
	IC	TPI[1]	RE	INSL	PDY	PDX	IC50M	IC250	IC908
11IR 20 ABUT	.250	20.0	.0027	.433	.04	.05			•
11IL 16 ABUT	.250	16.0	.0035	.433	.04	.06		•	
11IR 16 ABUT	.250	16.0	.0035	.433	.04	.06			•
16IR 20 ABUT	.375	20.0	.0027	.649	.04	.05		•	•
16IR/L 16 ABUT	.375	16.0	.0035	.649	.04	.06			•
16IL 12 ABUT	.375	12.0	.0047	.649	.06	.08			•
16IR 12 ABUT	.375	12.0	.0047	.649	.06	.08		•	•
16IL 10 ABUT	.375	10.0	.0059	.649	.06	.09			•
16IR 10 ABUT	.375	10.0	.0059	.649	.06	.09		•	•
22IR 8 ABUT	.500	8.0	.0071	.866	.09	.13			•
22IR 6 ABUT	.500	6.0	.0098	.866	.09	.13			•
22UIR 4 ABUT	.500	4.0	.0161	.866	.09	.37	•	•	•
27UIR 3 ABUT	.625	3.0	.0236	1.083	.12	.46			•

• For Insert Identification System, see pages 694-695 • ANSI B19-1973 Class 2 • For technical information and detailed cutting data, see pages 781-797

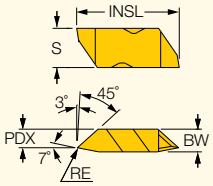
[1] Threads per inch

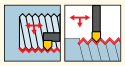
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

NOTCH GRIP
GROOVE-TURN LINE
ISCAR THREAD

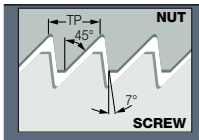
AMERICAN STANDARD BUTTRESS THREADING FLTB-A

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





Right-hand shown



Designation	Dimensions							IC908
	TPIN(1)	TPIX(2)	RE	PDX	BW	S	INSL	
FLTB-4R/LA	4.00	6.00	.0080	.2047	.255	.453	1.120	•
FLTB-3R/LA	8.00	16.00	.0050	.1654	.195	.344	.890	•
FLTB-2R/LA	16.00	20.00	.0020	.1260	.150	.219	.514	•

• For user guide, see pages 781-797 • DMIN according to related boring bar

(1) TPI min

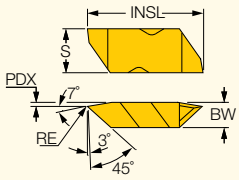
(2) TPI max

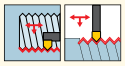
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

NOTCH GRIP
GROOVE-TURN LINE
ISCAR THREAD

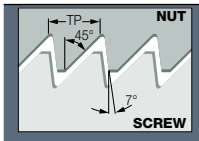
AMERICAN STANDARD BUTTRESS THREADING FLTB-B

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





Left-hand shown



Designation	Dimensions							IC908
	TPIN(1)	TPIX(2)	RE	PDX	BW	S	INSL	
FLTB-4R/LB	4.00	6.00	.0080	.0157	.255	.453	1.120	•
FLTB-3R/LB	8.00	16.00	.0050	.0118	.195	.344	.890	•
FLTB-2R/LB	16.00	20.00	.0020	.0118	.150	.219	.514	•

• For user guide, see pages 781-797 • DMIN according to related boring bar

(1) TPI min

(2) TPI max

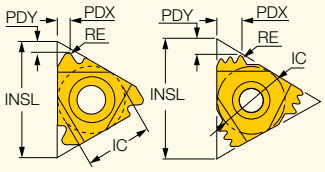
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

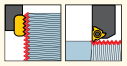
API RD (API ROUND)

ISCARTHREAD

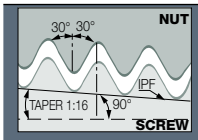
ER/L-API RD

External API - Oil Thread Round Profile Laydown Threading Inserts





External right-hand shown



Designation	Dimensions								Tough ↔ Hard	
	IC	TPI(2)	RE	INSL	IPF	PDY	PDX	CICT(3)	IC250	IC908
16ER 10 API RD	.375	10.0	.0142	.649	0.75	.05	.06	1	●	●
16EL 8 API RD	.375	8.0	.0169	.649	0.75	.06	.06	1		●
16ER 8 API RD	.375	8.0	.0169	.649	0.75	.06	.06	1	●	●
22ER 10 API RD 2M (1)	.500	10.0	.0142	.866	0.75	.09	.15	2		●
27ER 8 API RD 2M (1)	.625	8.0	.0169	1.083	0.75	.12	.18	2		●

• For Insert Identification System, see pages 694-695 • API Spec 5B8-1996 • For technical information and detailed cutting data, see pages 781-797

(1) Multi-tooth

(2) Threads per inch

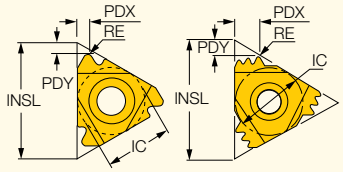
(3) Number of teeth per corner

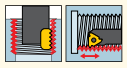
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

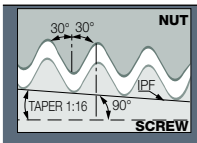
IR/L-API RD

Internal API - Oil Thread Round Profile Laydown Threading Inserts





Internal left-hand shown



Designation	Dimensions								Tough ↔ Hard	
	IC	TPI(2)	RE	INSL	IPF	PDY	PDX	CICT(3)	IC250	IC908
16IL 10 API RD	.375	10.0	.0142	.649	0.75	.05	.06	1		●
16IR 10 API RD	.375	10.0	.0142	.649	0.75	.05	.06	1	●	●
16IL 8 API RD	.375	8.0	.0169	.649	0.75	.04	.06	1	●	
16IR 8 API RD	.375	8.0	.0169	.649	0.75	.04	.06	1	●	●
22IR 10 API RD 2M (1)	.500	10.0	.0146	.866	0.75	.09	.15	2		●
27IR 8 API RD 2M (1)	.625	8.0	.0169	1.083	0.75	.12	.18	2		●

• For Insert Identification System, see pages 694-695 • API Spec 5B8-1996 • For technical information and detailed cutting data, see pages 781-797

(1) Multi-tooth

(2) Threads per inch

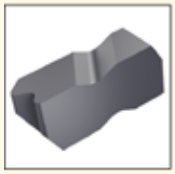
(3) Number of teeth per corner

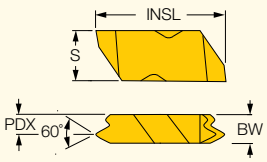
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

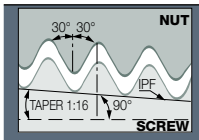
API ROUND THREADING FLDC-RD-75

Double-Ended, Precision, Flat Top Threading Inserts





Right-hand shown



Designation	Dimensions						IC908
	TPI[1]	IPF	PDX	BW	S	INSL	
FLDC-3-8RDR/L75	8.0	3/4	.1969	.125	.344	.890	•
FLDC-3-10RDR/L75	10.0	3/4	.1969	.125	.344	.890	•

• DMIN according to related boring bar

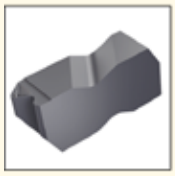
[1] Threads per inch

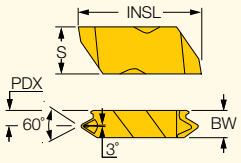
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

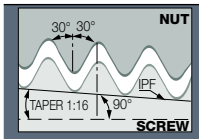
API ROUND THREADING FLDC-RD-75-CB

Double-Ended, Precision, Threading Inserts with a Chipbreaker





Right-hand shown



Designation	Dimensions						IC908
	TPI[1]	IPF	PDX	BW	S	INSL	
FLDC-3-8RDR/L75-CB	8.0	3/4	.1950	.125	.344	.990	•

• DMIN according to related boring bar

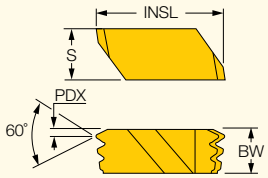
[1] Threads per inch

For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

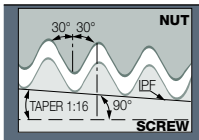
NOTCH-GRIP GROOVE-TURN LINE
ISCARTHREAD

API ROUND THREADING FLDC-RD-75M

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



Left-hand shown



Designation	Dimensions						IC908
	TPI[1]	IPF	PDX	BW	S	INSL	
FLDC-6-8RDR75	8.0	3/4	.0709	.383	.453	1.120	•
FLDC-6-10RDR75	10.0	3/4	.1339	.383	.453	1.120	•

• DMIN according to related boring bar

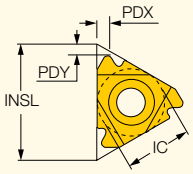
[1] Threads per inch

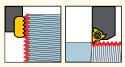
For tools, see pages: FLSR/L (347)

ISCARTHREAD

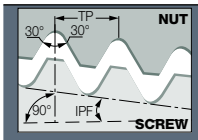
ER/L-API

External API - Oil Thread Profile
Laydown Threading Inserts





External right-hand shown



Designation	Dimensions								Tough ↔ Hard	
	IC	RE	INSL	TPI[4]	IPF	PDX	PDY	Size[5]	IC250	IC908
22ER 5 API 403 [1]	.500	.0193	.866	5.0	3	.07	.10	2.375"-4.5"REG	●	●
27ER 5 API 403	.625	.0193	1.083	5.0	3	.10	.07	2.375"-4.5"REG		●
27ER 4 API 503 [2]	.625	.0252	1.083	2.0	3	.12	.08	5-1/2,7-5/8,8-5/8REG		●
27EL 4 API 502 [2]	.625	.0252	1.083	4.0	2	.12	.08	6-5/8" REG	●	
27ER 4 API 502 [2]	.625	.0252	1.083	4.0	2	.12	.08	6-5/8" REG	●	●
27ER 4 API 382 [3]	.625	.0382	1.083	4.0	2	.11	.09	NC23-NC50	●	●
27ER 4 API 383 [3]	.625	.0382	1.083	4.0	3	.11	.09	NC56-NC77		●

• For Insert Identification System, see pages 694-695 • For technical information and detailed cutting data, see pages 781-797

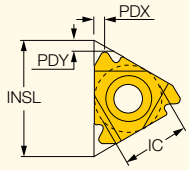
[1] V-0040
[2] V-0050
[3] V-0038R
[4] Threads per inch
[5] Connection no or size

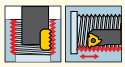
For tools, see pages: C#-SER/L (768) • SER/L (767)

ISCARTHREAD

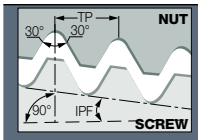
IR/L-API

Internal API - Oil Thread Profile
Laydown Threading Inserts





Internal left-hand shown



Designation	Dimensions							Tough ↔ Hard	
	IC	INSL	TPI[1]	RE	PDY	PDX	Size[2]	IC250	IC908
22IR 5 API 403	.500	.866	5.0	.0201	.07	.09	2.375"-4.5"REG	●	●
27IR 5 API 403	.625	1.083	5.0	.0201	.07	.09	2.375"-4.5"REG		●
27IR 4 API 503	.625	1.083	4.0	.0252	.08	.12	5-1/2,7-5/8,8-5/8REG	●	
27IR/L 4 API 502	.625	1.083	4.0	.0252	.08	.12	6-5/8" REG	●	
27IR 4 API 383	.625	1.083	4.0	.0382	.08	.11	NC56-NC77		●
27IR 4 API 382	.625	1.083	4.0	.0382	.08	.12	NC23-NC50	●	●

• For Insert Identification System, see pages 694-695 • 0050, API Spec 74-1994 • For technical information and detailed cutting data, see pages 781-797

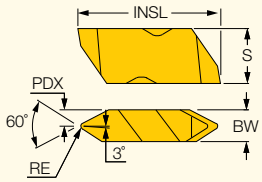
[1] Threads per inch
[2] Connection no or size

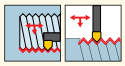
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

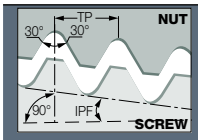
NOTCH GRIP GROOVE-TURN LINE
ISCARTHREAD

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	.0201	.1280	.255	.453	1.120	•
FLD-3038R/L	4.0	.0331	.0819	.195	.344	.890	•
FLD-4038R/L	4.0	.0331	.1280	.255	.453	1.120	•
FLD-3040R/L	5.0	.0150	.0819	.195	.344	.890	•
FLD-4040R/L	5.0	.0150	.1280	.255	.453	1.120	•

• DMIN according to related boring bar

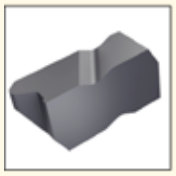
(1) Threads per inch

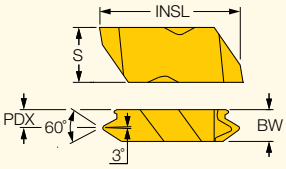
For tools, see pages: A-FLER/L (349) • FLASR/L (348) • FLSR/L (347) • H-FLER (349)

NOTCH GRIP GROOVE-TURN LINE
ISCARTHREAD

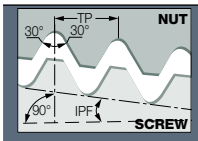
API THREADING FLDC-E

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	.1831	.312	.453	1.120	•
FLDC-4-428E	4.0	2	.1831	.312	.453	1.120	•
FLDC-4-435E	4.0	3	.1831	.312	.453	1.120	•
FLDC-4-438E	4.0	3	.1831	.312	.453	1.120	•
FLDC-3-530E	5.0	3	.1469	.250	.344	.890	•

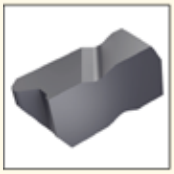
(1) Threads per inch

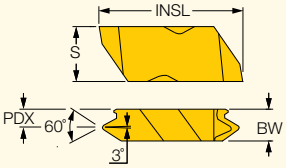
For tools, see pages: A-FLER/L (349) • H-FLER (349)

NOTCH GRIP GROOVE-TURN LINE
ISCARTHREAD

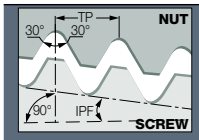
API THREADING FLDC-I

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	.1831	.312	.453	1.120	•
FLDC-4-428I	4.0	2	.1831	.312	.453	1.120	•
FLDC-4-435I	4.0	3	.1831	.312	.453	1.120	•
FLDC-4-438I	4.0	3	.1831	.312	.453	1.120	•
FLDC-3-530I	5.0	3	.1469	.250	.344	.890	•

(1) Threads per inch

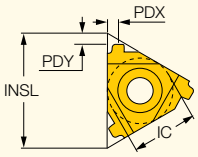
For tools, see pages: A-FLER/L (349) • H-FLER (349)

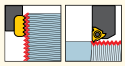
BUT (API BUTRESS CASING)

ISCARTHREAD

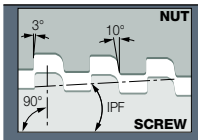
ER-BUT

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





External right-hand shown



Designation	IC	TPI[1]	INSL	IPF	PDY	PDX	Size[2]	Tough ↔ Hard IC250	IC908
22ER 5 BUT 0.75	.500	5.0	.866	0.75	.09	.09	4-1/2" - 13-3/8"	●	●
22ER 5 BUT-1.00	.500	5.0	.866	1.0	.09	.09	16" - 20"	●	

• For Insert Identification System, see pages 694-695 • API STD5B • For technical information and detailed cutting data, see pages 781-797

(1) Threads per inch

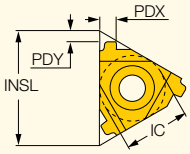
(2) Connection no or size

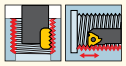
For tools, see pages: C#-SER/L (768) • SER/L (767)

ISCARTHREAD

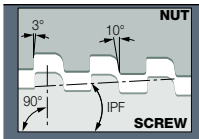
IR-BUT

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





Internal left-hand shown



Designation	IC	TPI[1]	INSL	IPF	PDY	PDX	Size[2]	Tough ↔ Hard IC250	IC908
22IR 5 BUT 0.75	.500	5.0	.866	0.75	.09	.09	4-1/2" - 13-3/8"		●
22IR 5 BUT 1.00	.500	5.0	.866	1.00	.09	.14	16" - 20"	●	

• For Insert Identification System, see pages 694-695 • API STD5B • For technical information and detailed cutting data, see pages 781-797

(1) Threads per inch

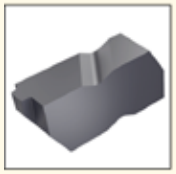
(2) Connection no or size

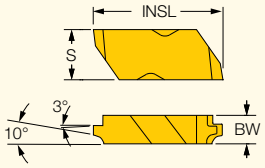
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

NOTCH-GRIP
GROOVE-TURN LINE
ISCARTHREAD

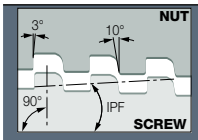
API BUTTRESS THREADING FLDC-B-E

Double-Ended, Precision, Flat Top Threading Inserts





Right-hand shown



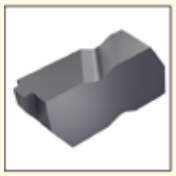
Designation	Dimensions					IC908
	TPI[1]	IPF[2]	BW	S	INSL	
FLDC-3-5B1E	5.0	1	.250	.344	.890	●
FLDC-4-5B1E	5.0	1	.255	.453	1.120	●
FLDC-3-5B75E	5.0	3/4	.250	.344	.890	●
FLDC-4-5B75E	5.0	3/4	.255	.453	1.120	●

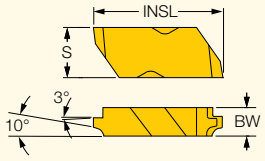
[1] Threads per inch
[2] Taper Per Foot (TPF) or Inch Per Foot (IPF)
For tools, see pages: A-FLER/L (349)

NOTCH-GRIP
GROOVE-TURN LINE
ISCARTHREAD

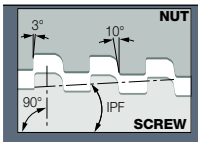
API BUTTRESS THREADING FLDC-B-I

Double-Ended, Precision, Flat Top Threading Inserts





Right-hand shown



Designation	Dimensions					IC908
	TPI[1]	IPF[2]	BW	S	INSL	
FLDC-3-5B1I	5.0	1	.250	.344	.890	●
FLDC-4-5B1I	5.0	1	.255	.453	1.120	●
FLDC-3-5B75I	5.0	3/4	.250	.344	.890	●
FLDC-4-5B75I	5.0	3/4	.255	.453	1.120	●

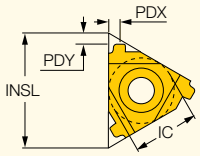
[1] Threads per inch
[2] Taper Per Foot (TPF) or Inch Per Foot (IPF)
For tools, see pages: A-FLER/L (349) • H-FLER (349)

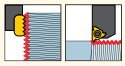
Extreme Line Casing

ISCARTHREAD

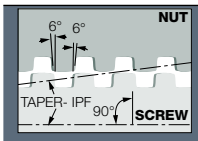
ER-EL

External EL - Extreme Line
Oil Thread Profile Laydown
Threading Inserts





External right-hand shown



Designation	IC	TPI[1]	INSL	IPF	PDY	PDX	Size[2]	IC250	IC908
	Dimensions							Tough ↔ Hard	
22ER 6 EL 1.5	.500	6.0	.866	1.5	.09	.07	5" - 7-5/8"	●	●
22ER 5 EL 1.25	.500	5.0	.866	1.25	.08	.08	8-5/8" - 10-3/4"		●

• For Insert Identification System, see pages 694-695 • ANSI B191973 Class 2

(1) Threads per inch

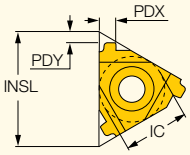
(2) Connection no or size

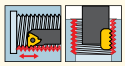
For tools, see pages: C#-SER/L (768) • SER/L (767)

ISCARTHREAD

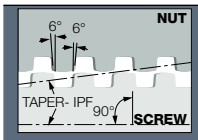
IR-EL

Internal EL - Extreme Line
Oil Thread Profile Laydown
Threading Inserts





Internal left-hand shown



Designation	IC	TPI[1]	INSL	IPF	PDY	PDX	Size[2]	IC908
	Dimensions							
22IR 6 EL 1.5	.500	6.0	.866	1.5	.07	.07	5" - 7-5/8"	●

• For Insert Identification System, see pages 694-695 • ANSI B191973 Class 2

(1) Threads per inch

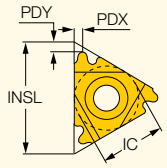
(2) Connection no or size

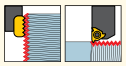
For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

ISCARTHREAD

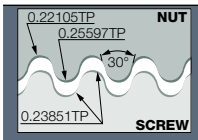
ER/L-RND

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 6 RND	.375	6.0	.0398	.649	.06	.07		•		
16ER 6 RND	.375	6.0	.0398	.649	.06	.06		•		•
16ERM 6 RND [1]	.375	6.0	.0398	.649	.06	.07			•	•
16ER/L 8 RND	.375	8.0	.0299	.649	.06	.05		•		•
16ERM 8 RND [1]	.375	8.0	.0295	.649	.06	.05				•
16EL 10 RND	.375	10.0	.0240	.649	.04	.05				•
16ER 10 RND	.375	10.0	.0240	.649	.04	.05		•		•
22EL 4 RND	.500	4.0	.0594	.866	.09	.09				•
22ER 4 RND	.500	4.0	.0594	.866	.09	.09		•		•
22EL 6 RND	.500	6.0	.0398	.866	.06	.07		•		
22ER 6 RND	.500	6.0	.0398	.866	.06	.07	•			•
27ER 4 RND	.625	4.0	.0594	1.083	.09	.09		•		

• For Insert Identification System, see pages 694-695 • Tolerance: Class 7H • For technical information and detailed cutting data, see pages 781-797

[1] With pressed chipformer

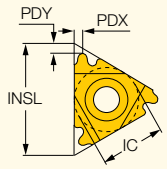
[2] Threads per inch

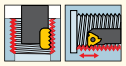
For tools, see pages: C#-SER/L (768) • SER/L (767) • SER/L-JHP (768)

ISCARTHREAD

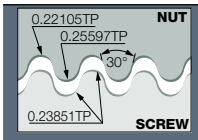
IR/L-RND

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	.375	10.0	.0142	.649	.04	.05		•
16IR/L 8 RND	.375	8.0	.0276	.649	.06	.06		•
16IL 6 RND	.375	6.0	.0370	.649	.06	.06		•
16IR 6 RND	.375	6.0	.0370	.649	.06	.06	•	•
16IRM 6 RND [1]	.375	6.0	.0370	.649	.06	.06		•
22IR 6 RND	.500	6.0	.0370	.866	.06	.07		•
22IR 4 RND	.500	4.0	.0551	.866	.09	.09		•
27IR 4 RND	.625	4.0	.0551	1.083	.09	.09	•	

• For Insert Identification System, see pages 694-695 • Tolerance: Class 7H • For technical information and detailed cutting data, see pages 781-797

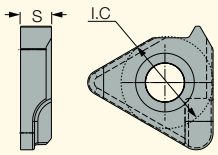
[1] With pressed chipformer

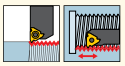
[2] Threads per inch

For tools, see pages: AVC-D-SIR/L (773) • C#-SIR/L (771) • SIR/L (769)

Anvils

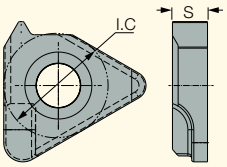
Thread anvils EL/IR
Thread Anvils for External
Left & Internal Right

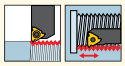




Designation	IC	a°	S
AI16 -0	.375	0	.126
AI16M-0	.375	0	.126
AI16 -0.50	.375	-0.5	.126
AI16 +0.5	.375	0.5	.126
AI16M+0.5	.375	0.5	.126
AI16 -1.50	.375	-1.5	.126
AI16	.375	1.5	.126
AI16M	.375	1,5	.126
AI16 +2.5	.375	2.5	.126
AI16M+2.5	.375	2.5	.126
AI16 +3.5	.375	3,5	.126
AI16 +4.5	.375	4,5	.126
AI22-0	.500	0	.157
AI22M-0	.500	0	.157
AI22U-0	.500	0	.157
AI22 -0.5	.500	-0.5	.157
AI22U -0.5	.500	-0.5	.157
AI22 +0.50	.500	0.5	.157
AI22M+0.5	.500	0.5	.157
AI22 -1.50	.500	-1.5	.157
AI22U -1.5	.500	-1,5	.157
AI22	.500	1.5	.157
AI22M	.500	1,5	.157
AI22U	.500	1.5	.157
AI22 +2.5	.500	2.5	.157
AI22M+2.5	.500	2.5	.157
AI22U +2.50	.500	2,5	.157
AI22 +3.5	.500	3.5	.157
AI22U +3.5	.500	3,5	.157
AI22 +4.5	.500	4,5	.157
AI22U +4.5	.500	4,5	.157
AI27-0	.625	0	.217
AI27M-0	.625	0	.217
AI27U-0	.625	0	.217
AI27 -0.5	.625	-0,5	.126
AI27U-0.50	.625	-0,5	.217
AI27 +0.5-P	.625	0,5	.217
AI27M+0.5	.625	0.5	.157
AI27U +0.50	.625	0,5	.217
AI27 -1.5	.625	-1,5	.217
AI27U -1.5	.625	-1,5	.217
AI27	.625	1.5	.217
AI27M	.625	1,5	.217
AI27U	.625	1.5	.217
AI27 +2.5	.625	2,5	.217
AI27U +2.5	.625	+2.5	.217
AI27U +2.5TR	.625	2.5	.217
AI27 +3.5	.625	3,5	.217
AI27U +3.5	.625	3,5	.217
AI27U +3.5TR	.625	3.5	.217
AI27 +4.5	.625	4,5	.217
AI27U +4.5	.625	4,5	.217
AI27U +4.5TR	.625	4.5	.217

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





Designation	IC	a°	S
AE16 -0	.375	0	.126
AE16M -0	.375	0	.126
AE16 -0.5	.375	-0.5	.126
AE16M -0.5	.375	-0.5	.126
AE16 +0.5	.375	0.5	.126
AE16M +0.5	.375	0.5	.126
AE16 -1.5	.375	-1.5	.126
AE16M -1.5	.375	-1.5	.126
AE16	.375	1.5	.126
AE16M	.375	1.5	.126
AE16 +2.5	.375	2.5	.126
AE16M +2.5	.375	2.5	.126
AE16 +3.5	.375	3.5	.126
AE16 +4.5	.375	4.5	.126
AE22 -0	.500	0	.157
AE22M -0	.500	0	.157
AE22U -0	.500	0	.157
AE22 -0.5	.500	-0.5	.157
AE22M -0.5	.500	-0.5	.157
AE22U -0.5	.500	-0.5	.157
AE22 +0.5	.500	0.5	.157
AE22M +0.5	.500	0.5	.157
AE22U +0.5	.500	0.5	.157
AE22 -1.5	.500	-1.5	.157
AE22U -1.5	.500	-1.5	.157
AE22	.500	1.5	.157
AE22M	.500	1.5	.157
AE22U	.500	1.5	.157
AE22 +2.5	.500	2.5	.157
AE22M +2.5	.500	2.5	.157
AE22U +2.5	.500	2.5	.157
AE22 +3.5	.500	3.5	.157
AE22U +3.5	.500	3.5	.157
AE22 +4.5	.500	4.5	.157
AE22U +4.5	.500	4.5	.157
AE27 -0	.625	0	.217
AE27M -0	.625	0	.217
AE27U -0	.625	0	.217
AE27 -0.5	.625	-0.5	.217
AE27U -0.5	.625	-0.5	.217
AE27 +0.5	.625	0.5	.217
AE27M +0.5	.625	0.5	.217
AE27U +0.5	.625	0.5	.217
AE27 -1.5	.625	-1.5	.217
AE27U -1.5	.625	-1.5	.217
AE27	.625	1.5	.217
AE27M	.625	1.5	.217
AE27U	.625	1.5	.217
AE27 +2.5	.625	2.5	.217
AE27U +2.5	.625	2.5	.217
AE27U +2.5TR	.625	2.5	.217
AE27 +3.5	.625	3.5	.217
AE27U +3.5	.625	3.5	.217
AE27U +3.5TR	.625	3.5	.217
AE27 +4.5	.625	4.5	.217
AE27U +4.5	.625	4.5	.217
AE27U +4.5TR	.625	4.5	.217

THREADING TOOLS

Toolholder Identification System

HSK...	S	E	R	0750	K	16	□
*	1	2	3	4	5	6	7

1 Clamping System

S	Screw Clamping

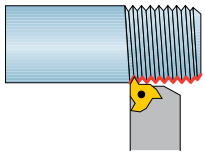
2 Application

E	External
I	Internal

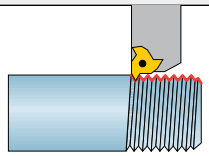
3 Hand of Tool

R	Right-hand
L	Left-hand

SER



SEL



4 Type

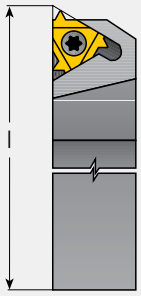
External Toolholders
Shank: hxb
0750 - .75″ x .75″

*** Optional Prefix**

C HSK KM	Exchangeable Adaptation System

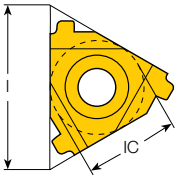
5 Tool Length

	inch
D	2.5
F	3.25
H	4.0
K	5.0
L	5.5
M	6.0
P	7.0
R	8.0
S	10.0
T	12.0
U	14.0
V	16.0



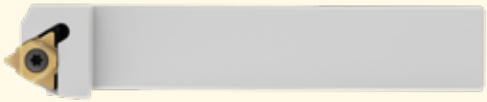
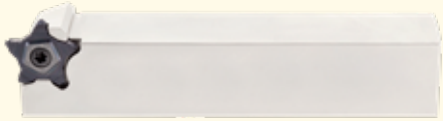
6 Insert Size

l (mm)	d
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

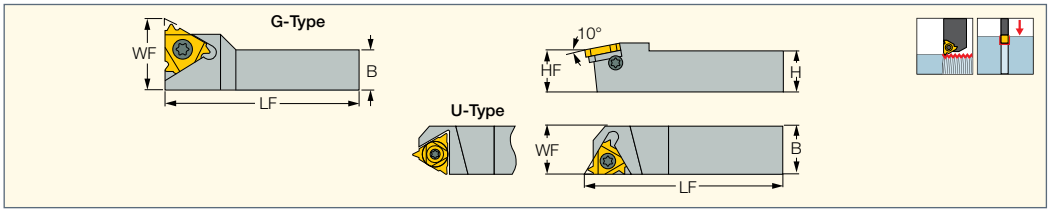
U	For U-type inserts
B	Bore for coolant
C	Carbide shank
O	Offset style
D	Drop head
G	Gang tool
SP	Special

Tool Types	
C#-SER/L HSK-SEL	Standard U-Type 
ISCAR GROOVE-TURN TOOLS	
Five cornered Pentacut inserts. For tool related information refer to the GrooveTurn chapter.	

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

ISCARTHREAD

SER/L
External Threading Toolholders



Designation	H	HF	B	LF	WF	Insert(2)
SER/L 0310 H11 (1)	.310	.310	.310	4.000	.430	11 ER/L..
SER/L 0375 H11 (1)	.380	.380	.380	4.000	.430	11 ER/L..
SER/L 0375 D16	.380	.380	.380	2.500	.630	16 ER/L..
SER/L 0500 F16	.500	.500	.500	3.250	.630	16 ER/L..
SER/L 0625 H16	.625	.625	.625	4.000	.625	16 ER/L..
SER/L 0750 K16	.750	.750	.750	5.000	.750	16 ER/L..
SER/L 1000 M16	1.000	1.000	1.000	6.000	1.000	16 ER/L..
SER/L 1250 P16	1.250	1.250	1.250	7.000	1.250	16 ER/L..
SER/L 1000 M22	1.000	1.000	1.000	6.000	1.000	22 ER/L..
SER 1250 P22	1.250	1.250	1.250	7.000	1.250	22 ER/L
SER/L 1500 R22	1.500	1.500	1.500	8.000	1.500	22 ER/L..
SER/L 1000 M22U	1.000	1.000	1.000	6.000	1.000	22 UEIRL..
SER/L 1250 P22U	1.250	1.250	1.250	7.000	1.250	22 UEIRL..
SER 1500 R22U	1.500	1.500	1.500	8.000	1.500	22 UEIRL..
SER/L 1000 M27	1.000	1.000	1.000	6.000	1.000	27 ER/L..
SER/L 1250 P27	1.250	1.250	1.250	7.000	1.250	27 ER/L..
SER/L 1500 R27	1.500	1.500	1.500	8.000	1.500	27 ER/L..
SER 1000 M27U	1.000	1.000	1.000	6.000	1.000	27 UEIRL..
SER/L 1250 P27U	1.250	1.250	1.250	7.000	1.250	27 UEIRL..
SER 1500 R27U	1.500	1.500	1.500	8.000	1.500	27 UEIRL..

- All tools are made for 15 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)

For inserts, see pages: ER-BUT (758) • ER-EL (760) • ER-MJ (747) • ER-NPTF (734) • ER-PG (750) • ER/L-55° (696) • ER/L-60° (702) • ER/L-ABUT (752) • ER/L-ACME (739) • ER/L-API (756) • ER/L-API RD (754) • ER/L-BSPT (735) • ER/L-ISO (712) • ER/L-NPT (730) • ER/L-RND (761) • ER/L-SAGE (751) • ER/L-STACME (737) • ER/L-TR (748) • ER/L-UN (719) • ER/L-UNJ (743) • ER/L-W (726) • GTGA (340) • GTMA (341)

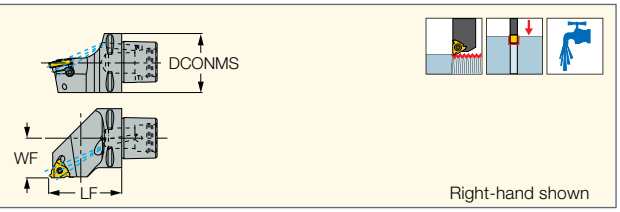
Spare Parts

Designation					
SER/L 0310 H11				SR M2.6-L6.7-S11	T-8/5
SER/L 0375 H11				SR M2.6-L6.7-S11	T-8/5
SEL 0375 D16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SER 0375 D16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SEL 0500 F16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SER 0500 F16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SEL 0625 H16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SER 0625 H16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SEL 0750 K16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SER 0750 K16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SEL 1000 M16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SER 1000 M16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SEL 1250 P16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SER 1250 P16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5
SEL 1000 M22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
SER 1000 M22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
SER 1250 P22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
SEL 1500 R22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
SER 1500 R22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
SEL 1000 M22U	AI22U		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
SER 1000 M22U		AE22U	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
SEL 1250 P22U	AI22U		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
SER 1250 P22U		AE22U	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
SER 1500 R22U		AE22U	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5
SEL 1000 M27	AI27		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3
SER 1000 M27		AE27	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3
SEL 1250 P27	AI27		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3
SER 1250 P27		AE27	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3
SEL 1500 R27	AI27		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3
SER 1500 R27		AE27	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3
SER 1000 M27U		AE27U	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3
SEL 1250 P27U	AI27U		SR M5-L5.8-A27	SR M5-L22-S40	
SER 1250 P27U		AE27U	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3
SER 1500 R27U		AE27U	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3

ISCARTHREAD

CAMFIX

C#-SER/L
External Threading Tools with CAMFIX Exchangeable Shanks



Designation	DCONMS	WF	LF	Insert(1)	CP(2)	CDI(3)
C4 SER/L-27050-16	1.575	1.063	1.968	16ER	2900	1
C5 SEL-35060-16	1.968	1.378	2.362	16EL	2900	1
C5 SER-35060-16	1.968	1.378	2.362	16ER	2900	1
C6 SER/L-45065-16	2.480	1.772	2.559	16ER	2900	1
C4 SER/L-27050-22	1.575	1.063	1.968	22ER	2900	1
C5 SER/L-35060-22	1.968	1.378	2.362	22ER	2900	1
C6 SER/L-45065-22	2.480	1.772	2.559	22ER	2900	1
C8 SER/L-55080-22	3.150	2.165	3.150	22ER	2900	1

(1) Right-hand inserts for right-hand tools and vice versa
(2) Coolant pressure (PSI)
(3) 1 - Hole for data chip, 0 - Without hole for data chip

For inserts, see pages: ER-BUT (758) • ER-EL (760) • ER-MJ (747) • ER-NPTF (734) • ER-PG (750) • ER/L-55° (696) • ER/L-60° (702) • ER/L-ABUT (752) • ER/L-ACME (739) • ER/L-API (756) • ER/L-API RD (754) • ER/L-BSPT (735) • ER/L-ISO (712) • ER/L-NPT (730) • ER/L-RND (761) • ER/L-SAGE (751) • ER/L-STACME (737) • ER/L-TR (748) • ER/L-UN (719) • ER/L-UNJ (743) • ER/L-W (726) • GTGA (340) • GTMA (341)

For holders, see pages: HSK-C# (804)

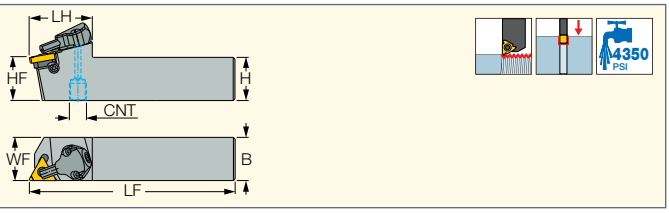
Spare Parts

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
SER 0750 K16-JHP	.750	.750	.750	5.000	1.453	.750	G1/8-28	16 ER/L..
SER/L 1000 M16-JHP	1.000	1.000	1.000	6.000	1.453	1.000	G1/8-28	16 ER/L..

- All tools are made for 15 helix angle • For multi-tooth inserts use anvils AE16M / AI16M; AE22M / AI22M; AE27M / AI27M
- For GTGA inserts, use anvil AE 16-0

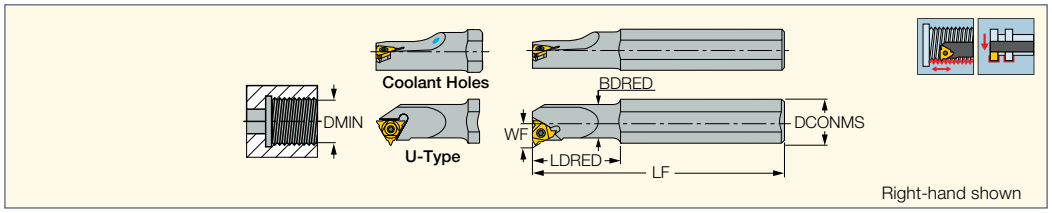
For inserts, see pages: ER-MJ (747) • ER-NPTF (734) • ER-PG (750) • ER/L-55° (696) • ER/L-60° (702) • ER/L-ABUT (752) • ER/L-ACME (739) • ER/L-API RD (754) • ER/L-BSPT (735) • ER/L-ISO (712) • ER/L-NPT (730) • ER/L-RND (761) • ER/L-SAGE (751) • ER/L-STACME (737) • ER/L-TR (748) • ER/L-UN (719) • ER/L-UNJ (743) • ER/L-W (726) • GTGA (340) • GTMA (341)

Spare Parts

Designation						
SER 0750 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 1000 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 1000 M16-JHP	SR 5-40-L12.2-S16	AE16	T-8/5	SR 5-40-L6.8-A16	T-10/5	CU-V-JHP

ISCARTHREAD

SIR/L
Internal Threading Bars



Designation	DCONMS	BDRED	LF	LDRED	DMIN	WF	CSP(4)	BMC(5)	Insert(6)
SIL 0205 H06 (1)	.500	.200	4.000	.500	.250	.170	0	S	06 IL..
SIR 0205 H06CB (2)	.250	.200	4.000	1.000	.240	.170	1	H	06 IR..
SIR 0205 H06-W (1)	.500	.200	4.000	.500	.250	.170	0	S	06 IR/IL..
SIR/L 0265 K08 (1)	.625	.260	5.000	.710	.354	.210	0	S	08 IR/IL..
SIR 0265 K08CB (2)	.315	.260	5.000	1.200	.355	.210	1	H	08 IR..
SIR/L 0310 K08U (1)	.625	.290	5.000	.710	.315	.210	0	S	08 UIRL..
SIR 0310 K08UCB (2)	.315	.290	5.000	1.400	.355	.250	1	H	08 UIRL..
SIR/L 0375 H11 (1)	.380	.380	4.000	-	.470	.290	0	S	11 IR/IL..
SIR/L 0375 K11 (1)	.620	.380	5.000	1.000	.470	.260	0	S	11 IR/IL..
SIR/L 0375 K11B (1)	.625	.380	5.000	.980	.470	.280	1	S	11 IR/IL..
SIR 0375 M11CB (2)	.380	.380	6.000	-	.500	.290	1	H	11 IR..
SIR/L 0500 L11 (1)	.625	.500	5.500	1.250	.630	.320	0	S	11 IR/IL..
SIR 0500 P11CB (2)	.500	.500	7.000	-	.600	.330	1	H	11 IR..
SIR/L 0500 M16 (1)	.625	.500	6.000	1.250	.640	.390	0	S	16 IR/IL..
SIR/L 0500 M16B (1)	.625	.500	6.000	1.260	.640	.390	1	S	16 IR/IL..
SIR/L 0625 P16 (1)	.750	.625	7.000	1.500	.750	.450	0	S	16 IR/IL..
SIR/L 0625 P16B (1)	.750	.625	7.000	1.570	.750	.450	1	S	16 IR/IL..
SIR 0625 R16CB (2)	.625	.625	8.000	-	.750	.460	1	H	16 IR..
SIL 0750 P16	.750	.750	7.000	-	1.000	.510	0	S	16 IR/IL..
SIR 0750 P16	.750	.750	7.000	-	.900	.510	0	S	16 IR/IL..
SIR 0750 P16B	.750	.750	7.000	-	.900	.510	1	S	16 IR..
SIR/L 1000 R16	1.000	1.000	8.000	-	1.200	.650	0	S	16 IR/IL..
SIR 1000 R16B	1.000	1.000	8.000	-	1.160	.650	1	S	16 IR..
SIR/L 1250 S16	1.250	1.250	10.000	-	1.420	.770	0	S	16 IR/IL..
SIR/L 1500 T16	1.500	1.500	12.000	-	1.650	.900	0	S	16 IR/IL..
SIR/L 0750 P22	.750	.750	7.000	-	.950	.510	0	S	22 IR/IL..
SIR/L 1000 R22	1.000	1.000	8.000	-	1.200	.710	0	S	22 IR/IL..
SIR 1000 R22B	1.000	1.000	8.000	-	1.160	.710	1	S	22 IR..
SIR/L 1250 S22	1.250	1.250	10.000	-	1.500	.850	0	S	22 IR/IL..
SIR 1500 T22	1.500	1.500	12.000	-	1.750	.980	0	S	22 IR/IL..
SIR 1250 S22U	1.250	1.250	10.000	-	1.500	1.010	0	S	22 UIRL..
SIR 1500 T22U	1.500	1.500	12.000	-	1.850	1.120	0	S	22 UIRL..
SIR/L 1250 S27	1.250	1.250	10.000	-	1.560	.880	0	S	27 IR/IL..
SIR/L 1500 T27	1.500	1.500	12.000	-	1.800	1.000	0	S	27 IR/IL..
SIR 2000 U27	2.000	2.000	14.000	-	2.300	1.250	0	S	27 IR/IL..
SIL 2500 V27	2.500	2.500	12.600	-	2.700	1.500	0	S	27 IR/IL..
SIR/L 1250 S27U (3)	1.250	1.250	10.000	-	1.560	.980	0	S	27 UIRL..
SIL 1500 T27U (3)	1.500	1.500	12.000	-	1.850	1.130	0	S	27 UIRL..
SIR/L 2000 U27U (3)	2.000	2.000	14.000	-	2.300	1.370	0	S	27 UIRL..

- B-steel shank with coolant hole, C-carbide shank without coolant hole, CB-carbide shank with coolant hole
- All toolholders are made for 15 helix angle
- For GTGA inserts, use anvil AL 16-0

(1) Toolholder without anvil
(2) Carbide shank 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) H-carbide,S-steel
(6) Right-hand inserts (IR) for right-hand tools (SIR)

For inserts, see pages: GTGA (340) • GTMA (341) • IR-BUT (758) • IR-EL (760) • IR-MJ (747) • IR/L-55° (697) • IR/L-60° (703) • IR/L-ABUT (752) • IR/L-ACME (740) • IR/L-API (756) • IR/L-API RD (754) • IR/L-BSPT (735) • IR/L-ISO (714) • IR/L-NPT (731) • IR/L-NPTF (734) • IR/L-PG (750) • IR/L-RND (761) • IR/L-SAGE (751) • IR/L-STACME (737) • IR/L-TR (749) • IR/L-UN (721) • IR/L-UNJ (744) • IR/L-W (727)

SIR/L Spare parts

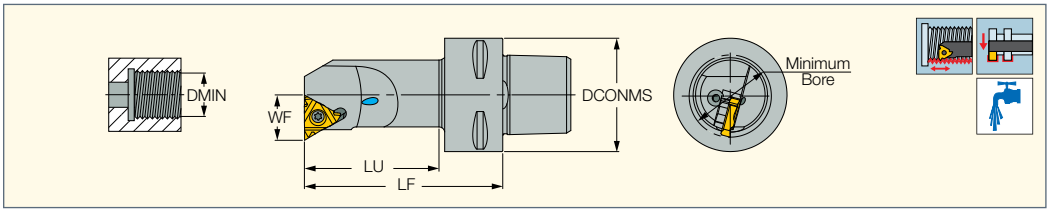
Designation						
SIL 0205 H06				SR 14-552	T-6/5	
SIR 0205 H06CB				SR 14-552	T-6/5	
SIR 0205 H06-W				SR 14-552	T-6/5	
SIR/L 0265 K08				SR 14-558	T-6/5	
SIR 0265 K08CB				SR 14-558	T-6/5	
SIR/L 0310 K08U				SR 14-558	T-6/5	
SIR 0310 K08UCB				SR 14-558	T-6/5	
SIR/L 0375 H11				SR M2.6-L6.7-S11	T-8/5	
SIR/L 0375 K11				SR M2.6-L6.7-S11	T-8/5	
SIR/L 0375 K11B				SR M2.6-L6.7-S11	T-8/5	PL 062
SIR 0375 M11CB				SR M2.6-L6.7-S11	T-8/5	
SIR/L 0500 L11				SR M2.6-L6.7-S11	T-8/5	
SIR 0500 P11CB				SR M2.6-L6.7-S11	T-8/5	
SIR/L 0500 M16				SR 5-40-L9.7-S16S	T-10/5	
SIR/L 0500 M16B				SR 5-40-L9.7-S16S	T-10/5	PL 062
SIR/L 0625 P16				SR 5-40-L9.7-S16S	T-10/5	
SIR/L 0625 P16B				SR 5-40-L9.7-S16S	T-10/5	PL 075
SIR 0625 R16CB				SR 5-40-L9.7-S16S	T-10/5	
SIL 0750 P16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 0750 P16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 0750 P16B	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	PL 075
SIL 1000 R16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 1000 R16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 1000 R16B	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	PL 100
SIL 1250 S16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 1250 S16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIL 1500 T16		AE16	SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR 1500 T16	AI16		SR 5-40-L6.8-A16	SR 5-40-L12.2-S16	T-10/5	
SIR/L 0750 P22				SR 8-32-L12-S22S	T-20/5	
SIL 1000 R22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 1000 R22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 1000 R22B	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	PL 100
SIL 1250 S22		AE22	SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 1250 S22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 1500 T22	AI22		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 1250 S22U	AI22U		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIR 1500 T22U	AI22U		SR 8-32-L5.8-A22	SR 8-32-L15-S22	T-20/5	
SIL 1250 S27		AE27	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 1250 S27	AI27		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIL 1500 T27		AE27	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 1500 T27	AI27		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 2000 U27	AI27		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIL 2500 V27		AE27	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIL 1250 S27U		AE27U	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 1250 S27U	AI27U		SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIL 1500 T27U		AE27U	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIL 2000 U27U		AE27U	SR M5-L5.8-A27	SR M5-L22-S40	T-25/3	
SIR 2000 U27U	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	1.575	.787	.461	1.457	2.362	16 IR/L..	2900	1
C4 SIR/L-14060-16	1.575	.984	.531	1.496	2.362	16 IR/L..	2900	1
C4 SIR-15065-22	1.575	.984	.606	1.654	2.559	22 IR/L..	2900	1
C4 SIR/L-17070-16	1.575	1.142	.630	1.890	2.756	16 IR/L..	2900	1
C4 SIR/L-19070-22	1.575	1.142	.705	1.890	2.756	22 IR/L..	2900	1
C4 SIR/L-22090-16	1.575	1.417	.768	2.717	3.543	16 IR/L..	2900	1
C4 SIR/L-22090-22	1.575	1.496	.843	2.717	3.543	22 IR/L..	2900	1
C4 SIR/L-27080-16	1.575	1.732	.925	2.362	3.150	16 IR/L..	2900	1
C4 SIR/L-27080-22	1.575	1.811	1.000	2.362	3.150	22 IR/L..	2900	1
C5 SIR/L-12060-16	1.968	.787	.461	1.378	2.362	16 IR/L..	2900	1
C5 SIR/L-14060-16	1.968	.984	.531	1.417	2.362	16 IR/L..	2900	1
C5 SIR/L-15065-22	1.968	.984	.606	1.614	2.559	22 IR/L..	2900	1
C5 SIR/L-17070-16	1.968	1.142	.630	1.850	2.756	16 IR/L..	2900	1
C5 SIR/L-19070-22	1.968	1.142	.705	1.850	2.756	22 IR/L..	2900	1
C5 SIR/L-22090-16	1.968	1.417	.768	2.677	3.543	16 IR/L..	2900	1
C5 SIR/L-22090-22	1.968	1.496	.843	2.677	3.543	22 IR/L..	2900	1
C5 SIR/L-27105-16	1.968	1.732	.925	3.307	4.134	16 IR/L..	2900	1
C5 SIR/L-27105-22	1.968	1.811	1.000	3.307	4.134	22 IR/L..	2900	1
C6 SIR/L-14070-16	2.480	.984	.531	1.654	2.756	16 IR/L..	2900	1
C6 SIR/L-17075-16	2.480	1.142	.630	1.890	2.953	16 IR/L..	2900	1
C6 SIR/L-19075-22	2.480	1.142	.705	1.890	2.953	22 IR/L..	2900	1
C6 SIR/L-22090-16	2.480	1.417	.768	2.520	3.543	16 IR/L..	2900	1
C6 SIR/L-22090-22	2.480	1.496	.843	2.520	3.543	22 IR/L..	2900	1
C6 SIR/L-27105-16	2.480	1.732	.925	3.150	4.134	16 IR/L..	2900	1
C6 SIR/L-27105-22	2.480	1.811	1.000	3.150	4.134	22 IR/L..	2900	1

(1) Coolant pressure (PSI)

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

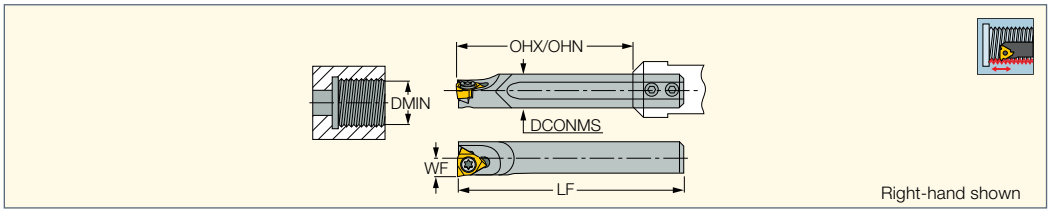
For inserts, see pages: GTMA (341) • IR-BUT (758) • IR-EL (760) • IR-MJ (747) • IR/L-55° (697) • IR/L-60° (703) • IR/L-ABUT (752) • IR/L-ACME (740) • IR/L-API (756) • IR/L-API RD (754) • IR/L-BSPT (735) • IR/L-ISO (714) • IR/L-NPT (731) • IR/L-NPTF (734) • IR/L-PG (750) • IR/L-RND (761) • IR/L-SAGE (751) • IR/L-STACME (737) • IR/L-TR (749) • IR/L-UN (721) • IR/L-UNJ (744) • IR/L-W (727) • GTGA (340)

C#-SIR/L 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
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	.236	2.323	.63	1.654	.154	.276	SR 14-552	T-6/5
MGSIR/L 08-06	.315	2.835	.79	2.205	.197	.362	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

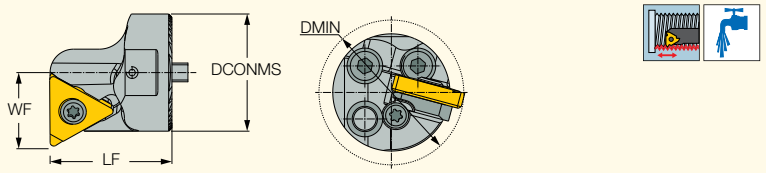
For inserts, see pages: IR/L-55° (697) • IR/L-60° (703) • IR/L-BSPT (735) • IR/L-ISO (714) • IR/L-NPT (731) • IR/L-NPTF (734) • IR/L-UN (721) • IR/L-W (727)

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	.638	.984	1.142	1.024	1
AVC-D32-SIR/L-16	.776	1.260	1.417	1.063	1
AVC-D40-SIR/L-16 (1)	.933	1.575	1.732	1.181	1
AVC-D32-SIR/L-22	.850	1.260	1.496	1.260	1
AVC-D40-SIR/L-22 (1)	1.008	1.575	1.811	1.496	1

(1) DMIN of 1968" shank is DMIN of requested head + 0394" • DMIN of 2362" shanks is DMIN of requested head + 0787"

(2) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: GTGA (340) • GTMA (341) • IR-BUT (758) • IR-EL (760) • IR-MJ (747) • IR/L-55° (697) • IR/L-60° (703) • IR/L-ABUT (752) • IR/L-ACME (740) • IR/L-API (756) • IR/L-API RD (754) • IR/L-BSPT (735) • IR/L-ISO (714) • IR/L-NPT (731) • IR/L-NPTF (734) • IR/L-PG (750) • IR/L-RND (761) • IR/L-SAGE (751) • IR/L-STACME (737) • IR/L-TR (749) • IR/L-UN (721) • IR/L-UNJ (744) • IR/L-W (727)

For holders, see pages: AV-D (90) • C#-SH-E-JHP (685) • C#-SH-JHP (685) • SH-D (89)

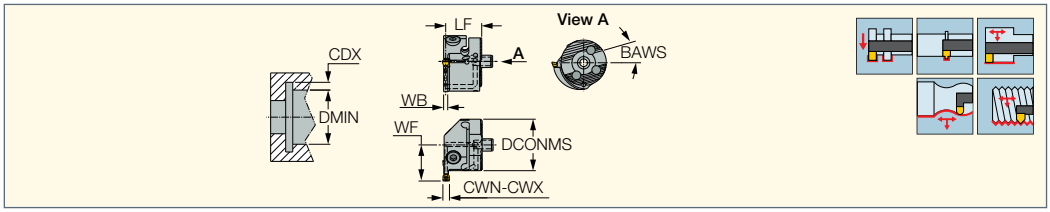
Spare Parts

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	.827	.075	.094	.630	.118	.472	.571	.063	45	GEPI 2.00-0.10
AVC-D16-GEAIR/L-3	.827	.094	.106	.630	.118	.472	.571	.079	45	GEPI 3.00-0.20
AVC-D20-GEAIR/L-2	1.024	.075	.094	.787	.118	.579	.531	.063	15	GEPI 2.00-0.10
AVC-D20-GEAIR/L-3	1.024	.094	.125	.787	.118	.579	.531	.079	15	GEPI 3.00-0.20
AVC-D25-GEAIR/L-2	1.220	.075	.094	.984	.157	.689	.689	.063	15	GEPI 2.00-0.10
AVC-D25-GEAIR/L-3	1.220	.094	.125	.984	.157	.689	.689	.079	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 765-766

(1) Minimum cutting width
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Master insert identification

For inserts, see pages: GEMI (364) • GEMI (full radius) (365) • GEPI (366) • GEPI (full radius) (366) • GEPI-MT (706) • GEPI-WT (699)
For holders, see pages: C#-SH-E-JHP (685) • C#-SH-JHP (685) • SH-D (89) • SH-S#-N-AVC (87)

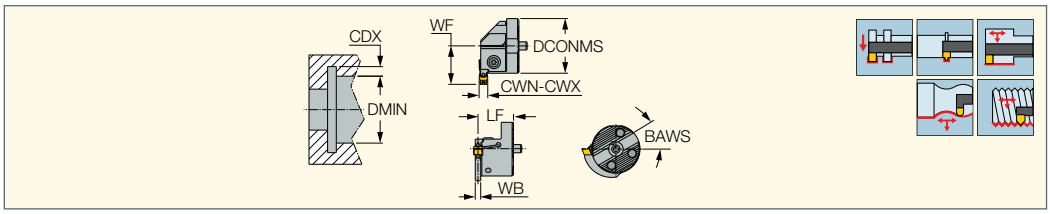
Spare Parts

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			

CUTGRIP

AVC-GAIR/L

Internal Grooving Turning and Threading Adapters



Designation	DMIN	CWN(2)	CWX(3)	DCONMS	CDX(4)	WF	LF	WB	BAWS
AVC-D32-GAIR/L-2	1.457	.059	.083	1.260	.118	.787	.906	.047	30
AVC-D32-GAIR/L-3	1.457	.083	.118	1.260	.118	.787	.906	.071	30
AVC-D32-GAIR/L-4	1.535	.118	.177	1.260	.197	.866	.906	.098	30
AVC-D32-GAIR/L-5	1.535	.177	.252	1.260	.197	.866	1.024	.157	30
AVC-D40-GAIR/L-2 (1)	1.772	.059	.083	1.575	.118	.945	.906	.047	30
AVC-D40-GAIR/L-3 (1)	1.811	.083	.118	1.575	.157	.984	.906	.071	30
AVC-D40-GAIR/L-4	1.929	.118	.177	1.575	.276	1.102	.906	.098	30
AVC-D40-GAIR/L-5	1.929	.177	.252	1.575	.276	1.102	1.024	.157	30

- When using TIPI inserts, toolholder seat needs to be modified according to insert profile to ensure clearance • 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 765-766

(1) DMIN of 1968" shank is DMIN of requested head + 0394" • DMIN of 2362" shanks is DMIN of requested head + 0787"
(2) Minimum cutting width
(3) Maximum cutting width
(4) Cutting depth maximum

For inserts, see pages: GIFI (376) • GIFI-E (373) • GIFI-E (full radius) (374) • GINI-E (374) • GIPI (375) • GIPI (full radius W<M) (375) • GIPI (full radius) (376) • GIPI (W<M) (374) • GIPI-E (373) • GIPI-RX/LX (377) • TIPI-MT (707) • TIPI-WT (699)
For holders, see pages: AV-D (90) • C#-SH-E-JHP (685) • C#-SH-JHP (685) • SH-D (89) • SH-S#-N-AVC (87)

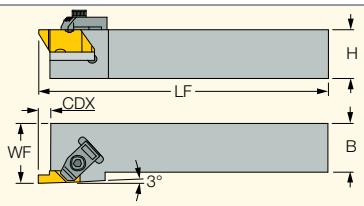
Spare Parts

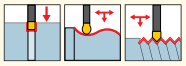
Designation			
AVC-GAIR/L	SR 76-1021	T-20/5	SR M3X3DIN913

NOTCH-GRIP GROOVE-TURN LINE

FLSR/L

Tools for External Grooving and Threading Inserts





Right-hand shown

Designation	SSC(1)	H	B	CDX	WF	LF	Insert
FLSL-62	2.0	.375	.375	.140	.560	2.500	FL/IN_-2L
FLSR-62	2.0	.375	.375	.140	.560	2.500	FL/IN_-2R
FLSL-82V	2.0	.500	.500	.140	.750	3.500	FL/IN_-2L
FLSR-82V	2.0	.500	.500	.140	.750	3.500	FL/IN_-2R
FLSR-102B	2.0	.625	.625	.140	1.000	4.500	FL/IN_-2R
FLSL-122B	2.0	.750	.750	.140	1.000	4.500	FL/IN_-2L
FLSR-122B	2.0	.750	.750	.140	1.000	4.500	FL/IN_-2R
FLSL-162C	2.0	1.000	1.000	.140	1.250	5.000	FL/IN_-2L
FLSR-162C	2.0	1.000	1.000	.140	1.250	5.000	FL/IN_-2R
FLSL-123B	3.0	.750	.750	.210	1.000	4.500	FL/IN_-3L
FLSR-123B	3.0	.750	.750	.210	1.000	4.500	FL/IN_-3R
FLSL-163C	3.0	1.000	1.000	.210	1.250	5.000	FL/IN_-3L
FLSR-163C	3.0	1.000	1.000	.210	1.250	5.000	FL/IN_-3R
FLSL-163D	3.0	1.000	1.000	.210	1.250	6.000	FL/IN_-3L
FLSL-203D	3.0	1.250	1.250	.210	1.500	6.000	FL/IN_-3L
FLSR-203D	3.0	1.250	1.250	.210	1.500	6.000	FL/IN_-3R
FLSL-164D	4.0	1.000	1.000	.290	1.250	6.000	FL/IN_-4L
FLSR-164D	4.0	1.000	1.000	.290	1.250	6.000	FL/IN_-4R
FLSL-204D	4.0	1.250	1.250	.290	1.500	6.000	FL/IN_-4L
FLSR-204D	4.0	1.250	1.250	.290	1.500	6.000	FL/IN_-4R
FLSL-205D	5.0	1.250	1.250	.400	1.500	6.000	FL/IN_-5L
FLSR-205D	5.0	1.250	1.250	.400	1.500	6.000	FL/IN_-5R
FLSL-206D	6.0	1.250	1.250	.290	1.500	6.000	FL/IN_-6L
FLSR-206D	6.0	1.250	1.250	.290	1.500	6.000	FL/IN_-6R

(1) Seat size code

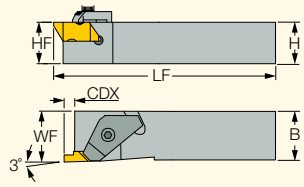
For inserts, see pages: 60° PARTIAL PROFILE THREADING FLT (708) • 60° PARTIAL PROFILE THREADING FLT-CB (708) • 60° PARTIAL PROFILE THREADING FLTF (707) • 60° PARTIAL PROFILE THREADING FLTK (707) • 60° PARTIAL PROFILE THREADING FLTP (709) • ACME THREADING FLA (740) • ACME THREADING FLA-PT-E (741) • ACME THREADING FLAS (742) • AMERICAN STANDARD BUTTRESS THREADING FLTB-A (753) • AMERICAN STANDARD BUTTRESS THREADING FLTB-B (753) • API PARTIAL PROFILE THREADING FLD (757) • API ROUND THREADING FLDC-RD-75 (755) • API ROUND THREADING FLDC-RD-75-CB (755) • API ROUND THREADING FLDC-RD-75M (755) • INF-RCB/LCB (345) • INFD-RCB/LCB (345) • INFD-RCB/LCB-I (346) • ING-RCB/LCB (341) • ING/INGP-R/L (342) • INGD-R/L (344) • INGD-RCB/LCB (344) • INR-RCB/LCB (343) • INR/INRP-R/L (343) • INRD-R/L (344) • NPT THREADING FLDC-V-75 (732) • STUB ACME THREADING FLAS-PT-E (738) • UN THREADING FLTC-E (725) • UNJ THREADING FLJ (745) • UNJ THREADING FLJF (746) • UNJ THREADING FLJK (746) • UNJ THREADING FLJP (745)

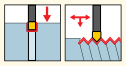
NOTCH-GRIP GROOVE-TURN LINE

ISCARTHREAD

FLASR/L

External Tools for Grooving and Threading intended for Swiss-Type Machines





Designation	SSC(1)	H	HF	B	CDX	WF	LF	Insert
FLASR/L-062D	2.0	.375	.375	.375	.138	.380	6.000	FL/IN_-2
FLASR/L-082D	2.0	.500	.500	.500	.138	.500	6.000	FL/IN_-2
FLASR-102B	2.0	.625	.625	.625	.138	.630	4.500	FL/IN_-2
FLASR/L-103B	3.0	.625	.625	.625	.210	.630	4.500	FL/IN_-3

(1) Seat size code

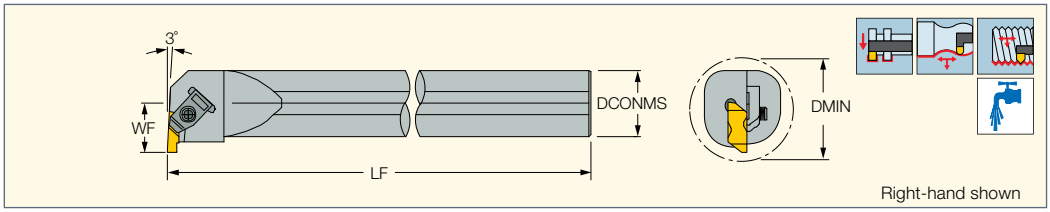
For inserts, see pages: 60° PARTIAL PROFILE THREADING FLT (708) • 60° PARTIAL PROFILE THREADING FLT-CB (708) • 60° PARTIAL PROFILE THREADING FLTF (707) • 60° PARTIAL PROFILE THREADING FLTK (707) • 60° PARTIAL PROFILE THREADING FLTP (709) • ACME THREADING FLA (740) • ACME THREADING FLA-PT-E (741) • ACME THREADING FLAS (742) • AMERICAN STANDARD BUTTRESS THREADING FLTB-A (753) • AMERICAN STANDARD BUTTRESS THREADING FLTB-B (753) • API PARTIAL PROFILE THREADING FLD (757) • API ROUND THREADING FLDC-RD-75 (755) • API ROUND THREADING FLDC-RD-75-CB (755) • INF-RCB/LCB (345) • INFD-RCB/LCB (345) • INFD-RCB/LCB-I (346) • ING-RCB/LCB (341) • ING/INGP-R/L (342) • INGD-R/L (344) • INGD-RCB/LCB (344) • INR-RCB/LCB (343) • INR/INRP-R/L (343) • INRD-R/L (344) • NPT THREADING FLDC-V-75 (732) • STUB ACME THREADING FLAS-PT-E (738) • UN THREADING FLTC-E (725) • UNJ THREADING FLJ (745) • UNJ THREADING FLJF (746) • UNJ THREADING FLJK (746) • UNJ THREADING FLJP (745)

NOTCH-GRIP GROOVE-TURN LINE

ISCARTHREAD

A-FLER/L

Internal Grooving and Threading Bars with Coolant Channels



Designation	SSC(1)	DCONMS	DMIN	WF	LF	Insert
A08-FLER/L2	2.0	.500	.730	.440	8.000	FL/IN-2
A16-FLER3	3.0	1.000	1.380	.690	12.000	FL/IN-3
A16-FLEL3	3.0	1.000	1.375	.690	12.000	FL/IN-3
A10-FLER2	2.0	.625	1.000	.500	10.000	FL/IN-2
A20-FLER/L3	3.0	1.250	1.750	.880	14.000	FL/IN-3
A12-FLER/L2	2.0	.750	1.130	.560	10.000	FL/IN-2
A24-FLER/L3	3.0	1.500	2.000	1.000	14.000	FL/IN-3
A16-FLER/L2	2.0	1.000	1.375	.690	12.000	FL/IN-2
A28-FLER3	3.0	1.750	2.250	1.130	14.000	FL/IN-3
A32-FLER/L3	3.0	2.000	2.500	1.250	16.000	FL/IN-3
A28-FLER/L4	4.0	1.750	2.250	1.250	16.000	FL/IN-4
A32-FLER/L4	4.0	2.000	2.750	1.300	16.000	FL/IN-4
A32-FLER5	5.0	2.000	2.820	1.410	16.000	FL/IN-5
A32-FLER6	6.0	2.000	2.750	1.380	16.000	FL/IN-6

- Use left-hand inserts on right-hand tools and vice versa

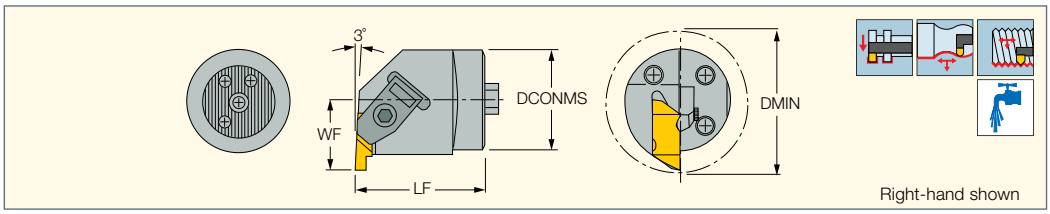
(1) Seat size code

For inserts, see pages: 60° PARTIAL PROFILE THREADING FLT (708) • 60° PARTIAL PROFILE THREADING FLT-CB (708) • 60° PARTIAL PROFILE THREADING FLTF (707) • 60° PARTIAL PROFILE THREADING FLTK (707) • 60° PARTIAL PROFILE THREADING FLTP (709) • ACME THREADING FLA (740) • ACME THREADING FLA-PT-I (741) • ACME THREADING FLAS (742) • AMERICAN STANDARD BUTTRESS THREADING FLTB-A (753) • AMERICAN STANDARD BUTTRESS THREADING FLTB-B (753) • API BUTTRESS THREADING FLDC-B-E (759) • API BUTTRESS THREADING FLDC-B-I (759) • API PARTIAL PROFILE THREADING FLD (757) • API ROUND THREADING FLDC-RD-75 (755) • API ROUND THREADING FLDC-RD-75-CB (755) • API THREADING FLDC-E (757) • API THREADING FLDC-I (757) • INF-RCB/LCB (345) • INFD-RCB/LCB (345) • INFD-RCB/LCB-I (346) • ING-RCB/LCB (341) • ING/INGP-R/L (342) • INGD-R/L (344) • INGD-RCB/LCB (344) • INR-RCB/LCB (343) • INR/INRP-R/L (343) • INRD-R/L (344) • NPT THREADING FLDC-NPT-E (733) • NPT THREADING FLDC-NPT-I (733) • NPT THREADING FLDC-V-75 (732) • STUB ACME THREADING FLAS-PT-I (738) • UN THREADING FLTC-I (725) • UNJ THREADING FLJ (745) • UNJ THREADING FLJF (746) • UNJ THREADING FLJK (746) • UNJ THREADING FLJP (745)

NOTCH-GRIP GROOVE-TURN LINE

HS-FLER

Grooving and Threading Interchangeable Heads (HS-Type)



Designation	SSC(1)	DCONMS	DMIN	WF	LF	Insert
HS32-FLER3W	.0	1.250	1.730	.870	1.340	FL/IN-3L
HS40-FLER3W	.0	1.570	2.210	1.100	1.580	FL/IN-3L
HS50-FLER3W	.0	1.970	2.760	1.380	1.650	FL/IN-3L
HS50-FLER4W	.0	1.970	2.760	1.380	1.650	FL/IN-4L
HS60-FLER4W	.0	2.360	3.480	1.740	1.750	FL/IN-4L

- Lefthand heads on request • Use left-hand inserts on right-hand tools and vice versa • Compatible with standard market adaptation

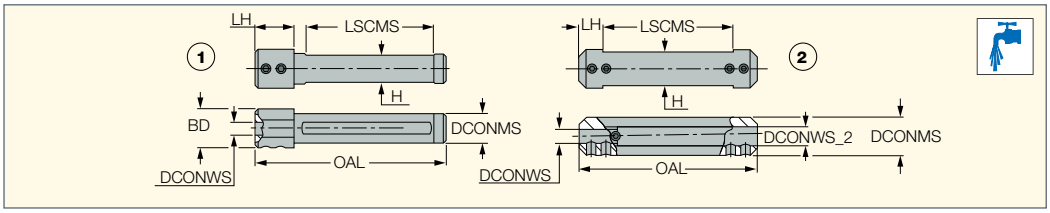
(1) Seat size code

For holders, see pages: S-570 (350)

PASSCUT
PICCOCUT HOLDER

PICCO/MG PCO (Holder)

Holders for PICCO-CUT Inserts and Small Diameter Boring Bars

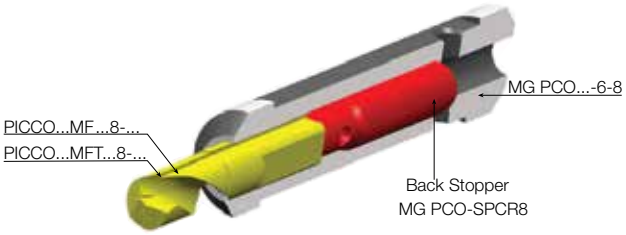


Designation	DCONMS	DCONWS	DCONWS_2	OAL	LH	LSCMS	H	BD	Fig.				
PICCO 12.7-4-5	.500	.157	.197	2.950	.394	2.170	.410	-	2	SR M5X4-PF	HW 2.5		
PICCO 15.9-4-5	.625	.157	.197	2.950	.394	2.170	.550	-	2	SR M5X6-PF	HW 2.5		
PICCO 19-4-5	.750	.157	.197	3.540	.394	2.760	.710	-	2	SR M5X6-PF	HW 2.5		
PICCO 25.4-4-5 (1)	1.000	.157	.197	3.543	.394	2.756	.921	-	2	SR M5X6-PF	HW 2.5		
PICCO 15.9-6-7	.625	.236	.276	2.950	.394	2.170	.550	-	2	SR M5X6-PF	HW 2.5		
PICCO 19-6-7	.750	.236	.276	3.540	.394	2.760	.710	-	2	SR M5X6-PF	HW 2.5		
PICCO 25.4-6-7 (1)	1.000	.236	.276	3.543	.394	2.756	.921	-	2	SR M5X6-PF	HW 2.5		
MG PCO-12.7-6	.500	.236	-	3.000	.590	2.090	.460	.709	1	SR M5X6-PF	HW 2.5		
MG PCO-15.9-6-8	.625	.236	.315	3.000	.390	2.170	.551	-	2	SR M5X6-PF	HW 2.5		MG PCO-SPCR8
MG PCO-19-6-8	.750	.236	.315	3.500	.390	2.760	.709	-	2	SR M5X6-PF	HW 2.5		MG PCO-SPCR8
MG PCO-25.4-6-8 (1)	1.000	.236	.315	3.543	.394	2.756	.921	-	2	SR M5X6-PF	HW 2.5		MG PCO-SPCR8
MG PCO-16-9	.630	.354	-	2.953	.591	2.087	.591	.787	1	SR M5X6-PF	HW 2.5	PL 16	

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

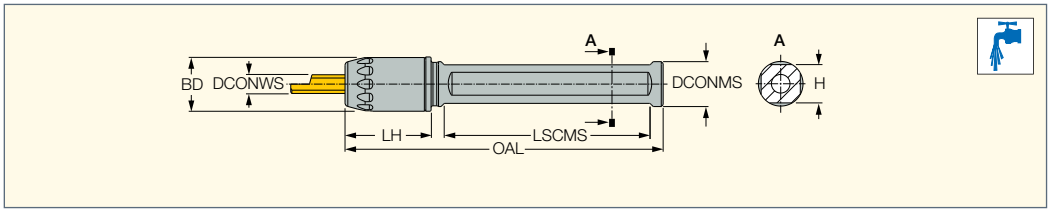
(1) Tools for Swiss-type CNC

For tools, see pages: PICIN-MGSIR/L (412) • PICIN-SCLCR/L (412) • PICIN-SWUBR/L (412)



ACECUT
PICCOCUT HOLDER

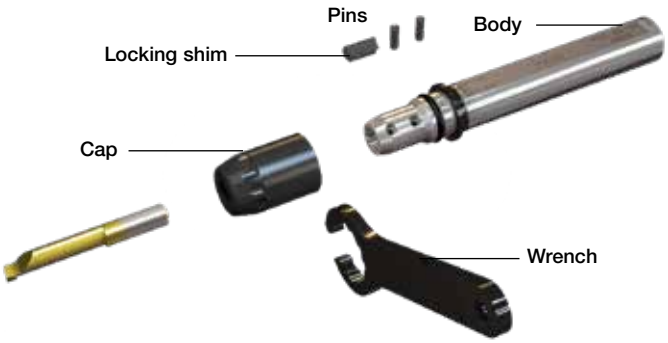
PICCO ACE
Holders for PICCO-CUT Inserts

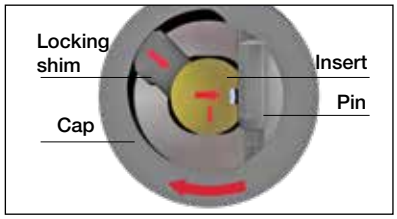


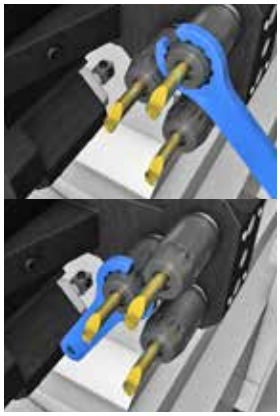
Designation	DCONMS	DCONWS	BD	OAL	LH	LSCMS	H		
PICCO ACE 12.7-4	.500	.157	.571	3.346	.906	2.087	.457	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 12.7-5	.500	.197	.571	3.346	.906	2.087	.457	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 15.9-4	.625	.157	.571	3.346	.846	2.087	.551	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 15.9-5	.625	.197	.571	3.346	.846	2.087	.551	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 15.9-6	.625	.236	.783	3.346	.906	2.087	.551	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 15.9-7	.625	.276	.783	3.346	.906	2.087	.551	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 19-4	.750	.157	.571	5.906	.846	4.646	.677	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 19-5	.750	.197	.571	5.906	.846	4.646	.677	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 19-6	.750	.236	.783	5.906	.906	4.646	.677	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 19-7	.750	.276	.783	5.906	.906	4.646	.677	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 25.4-4	1.000	.157	.571	5.906	.846	4.646	.905	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 25.4-5	1.000	.197	.571	5.906	.846	4.646	.905	PL 16 M6-D5	WRENCH ACE 4-5
PICCO ACE 25.4-6	1.000	.236	.783	5.906	.846	4.646	.905	PL 16 M6-D5	WRENCH ACE 6-7
PICCO ACE 25.4-7	1.000	.276	.783	5.906	.846	4.646	.905	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 (412) • PICIN-SCLCR/L (412) • PICIN-SWUBR/L (412)



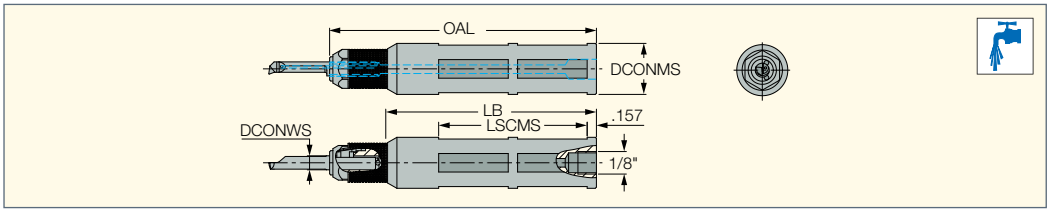




ACEJET
JETPICCO HOLDER

PICCO ACE-N

Holders for PICCO-JET Inserts with Internal Coolant Channels



Designation	DCONMS	DCONWS	OAL	LSCMS	LB
PICCO ACE 15.9-7N	.625	.278	4.528	2.520	3.543
PICCO ACE 19-4N	.750	.159	4.528	2.520	3.543
PICCO ACE 19-5N	.750	.199	4.528	2.520	3.543
PICCO ACE 19-6N	.750	.238	4.528	2.520	3.543
PICCO ACE 19-7N	.750	.278	4.528	2.520	3.543
PICCO ACE 25.4-6N	1.000	.238	4.528	2.520	3.543
PICCO ACE 25.4-7N	1.000	.278	4.528	2.520	3.543

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

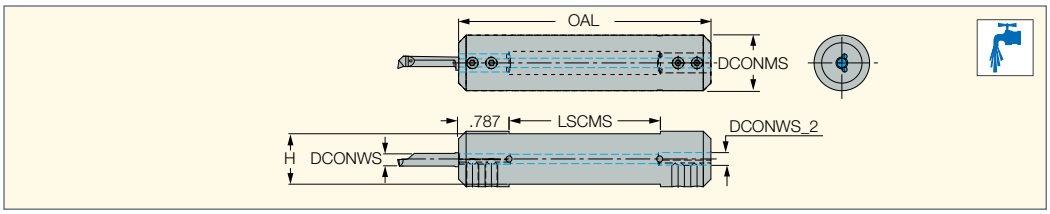
Spare Parts

Designation			
PICCO ACE 15.9-7N	UM600H.K	UM600H.M7	ZAD 2X12 DIN 6325 m6
PICCO ACE 19-4N	UM600H.K	UM600H.M4	PIN 2X10 DIN6325
PICCO ACE 19-5N	UM600H.K	UM600H.M5	PIN 2X10 DIN6325
PICCO ACE 19-6N	UM600H.K	UM600H.M6	ZAD 2X12 DIN 6325 m6
PICCO ACE 19-7N	UM600H.K	UM600H.M7	ZAD 2X12 DIN 6325 m6
PICCO ACE 25.4-6N	UM600H.K	UM600H.M6	ZAD 2X12 DIN 6325 m6
PICCO ACE 25.4-7N	UM600H.K	UM600H.M7	ZAD 2X12 DIN 6325 m6

PASSJET
JETPICCO HOLDER

PICCO-N (Holder)

Holders for PICCO-JET Inserts with Internal Coolant Channels



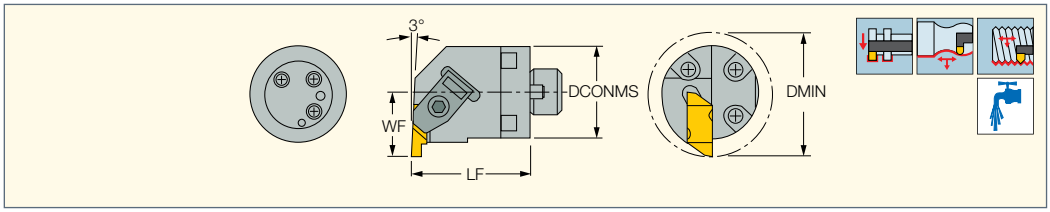
Designation	DCONMS	DCONWS	DCONWS_2	OAL	LSCMS	H	
PICCO 19-4-5N	.750	.159	.199	3.937	2.362	.677	SR M5X0.5X6 T10
PICCO 25.4-4-5N	1.000	.159	.199	4.134	2.559	.921	SR M5X0.5X10 T10
PICCO 16-6-8N	.630	.238	.315	3.346	1.772	.551	SR M5X0.5X6 T10
PICCO 19-6-7N	.750	.238	.278	3.937	2.362	.677	SR M5X0.5X6 T10
PICCO 20-6-8N	.787	.238	.315	3.937	2.362	.709	SR M5X0.5X8 T10
PICCO 25.4-6-7N	1.000	.238	.278	4.134	2.559	.921	SR M5X0.5X10 T10

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

NOTCH-GRIP
GROOVE-TURN LINE

H-FLER

Grooving and Threading
Interchangeable Heads (H-Type)



Designation	SSC[1]	DCONMS	DMIN	WF	LF	Insert
H20-FLER3W	3.0	1.250	1.750	.880	1.625	FL/IN-3L
H24-FLER3W	3.0	1.500	2.000	1.000	1.625	FL/IN-3L
H28-FLER3W	3.0	1.750	2.250	1.130	1.625	FL/IN-3L
H32-FLER3W	3.0	2.000	2.500	1.250	1.625	FL/IN-3L
H40-FLER3W	3.0	2.500	3.000	1.500	1.625	FL/IN-3L
H28-FLER4W	4.0	1.750	2.500	1.250	1.625	FL/IN-4L
H32-FLER4W	4.0	2.000	2.750	1.380	1.625	FL/IN-4L
H36-FLER4W	4.0	2.250	3.000	1.500	1.625	FL/IN-4L
H40-FLER4W	4.0	2.500	3.250	1.630	1.625	FL/IN-4L
H28-FLER6W	6.0	1.750	2.500	1.250	1.625	FL/IN-6L
H32-FLER6W	6.0	2.000	2.750	1.380	1.625	FL/IN-6L
H40-FLER6W	6.0	2.500	3.250	1.630	1.625	FL/IN-6L

• Use left-hand inserts on right-hand tools and vice versa • Compatible with standard market adaptation

[1] Seat size code

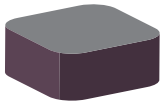
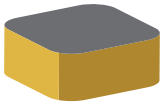
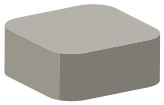
For inserts, see pages: 60° PARTIAL PROFILE THREADING FLT (708) • 60° PARTIAL PROFILE THREADING FLT-CB (708) • 60° PARTIAL PROFILE THREADING FLTF (707) • 60° PARTIAL PROFILE THREADING FLTK (707) • 60° PARTIAL PROFILE THREADING FLTP (709) • ACME THREADING FLA (740) • ACME THREADING FLA-PT-I (741) • ACME THREADING FLAS (742) • AMERICAN STANDARD BUTTRESS THREADING FLTB-A (753) • AMERICAN STANDARD BUTTRESS THREADING FLTB-B (753) • API BUTTRESS THREADING FLDC-B-I (759) • API PARTIAL PROFILE THREADING FLD (757) • API ROUND THREADING FLDC-RD-75 (755) • API ROUND THREADING FLDC-RD-75-CB (755) • API THREADING FLDC-E (757) • API THREADING FLDC-I (757) • INF-RCB/LCB (345) • INFD-RCB/LCB (345) • INFD-RCB/LCB-I (346) • ING-RCB/LCB (341) • ING/INGP-R/L (342) • INGD-R/L (344) • INGD-RCB/LCB (344) • INR-RCB/LCB (343) • INR/INRP-R/L (343) • INRD-R/L (344) • NPT THREADING FLDC-NPT-E (733) • NPT THREADING FLDC-NPT-I (733) • NPT THREADING FLDC-V-75 (732) • STUB ACME THREADING FLAS-PT-I (738) • UN THREADING FLTC-I (725) • UNJ THREADING FLJ (745) • UNJ THREADING FLJF (746) • UNJ THREADING FLJK (746) • UNJ THREADING FLJP (745)

For holders, see pages: S-4400W (350)

Machining Data for Threading

ISO	Material		Condition	Tensile Strength [ksi]	Hardness HB	Material Group No.	Coated			
							IC228	IC908	IC808	IC1007
							Cutting Speed (SFM)			
P	Non-alloy steel and cast steel, free cutting steel	<0.25% C	Annealed	61	125	1	200 - 330	380 - 620	410 - 670	440 - 750
		≥0.25% C	Annealed	94	190	2	200 - 310	360 - 590	390 - 640	430 - 720
		<0.55% C	Quenched and tempered	123	250	3	160 - 300	330 - 570	340 - 610	390 - 690
		≥0.55% C	Annealed	109	220	4	150 - 280	300 - 540	310 - 570	360 - 660
			Quenched and tempered	145	300	5	150 - 280	300 - 540	310 - 570	360 - 660
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	87	200	6	160 - 310	330 - 590	340 - 640	390 - 710
			Quenched and tempered	135	275	7	130 - 250	250 - 460	260 - 490	300 - 560
				145	300	8	110 - 230	230 - 440	250 - 480	280 - 520
				174	350	9	110 - 230	230 - 440	250 - 480	280 - 520
	High alloyed steel, cast steel and tool steel		Annealed	99	200	10	130 - 210	260 - 390	280 - 430	310 - 480
			Quenched and tempered	160	325	11	80 - 160	160 - 330	180 - 340	200 - 390
	Stainless steel and cast steel		Ferritic/martensitic	99	200	12	110 - 230	230 - 430	250 - 460	280 - 510
			Martensitic	119	240	13	150 - 200	280 - 360	300 - 390	330 - 430
M	Stainless steel and cast steel		Austenitic, duplex	87	180	14	150 - 250	300 - 460	310 - 490	360 - 560
K	Gray cast iron (GG)		Ferritic / pearlitic		180	15	210 - 280	410 - 520	440 - 560	490 - 620
			Pearlitic / martensitic		260	16	150 - 210	300 - 390	310 - 430	360 - 480
	Nodular cast iron (GGG)		Ferritic		160	17	110 - 230	230 - 430	250 - 460	280 - 510
			Pearlitic		250	18	100 - 200	200 - 380	210 - 410	230 - 460
	Malleable cast iron		Ferritic		130	19	100 - 110	200 - 230	210 - 250	230 - 280
			Pearlitic		230	20	100 - 250	200 - 480	210 - 510	230 - 570
N	Aluminum-wrought alloys		Not hardenable		60	21	160 - 640	330 - 1200	340 - 1280	390 - 1440
			Hardenable		100	22	130 - 380	260 - 720	280 - 770	310 - 870
	Aluminum-cast alloys	≤12% Si	Not hardenable		75	23	340 - 710	660 - 1310	710 - 1410	790 - 1570
			Hardenable		90	24	340 - 490	660 - 920	710 - 980	790 - 1100
		>12% Si	High temperature		130	25	340 - 490	660 - 920	710 - 980	790 - 1100
	Copper alloys	>1% Pb	Free cutting		110	26	130 - 440	260 - 840	280 - 900	310 - 1000
			Brass		90	27	130 - 440	260 - 840	280 - 900	310 - 1000
			Electrolytic copper		100	28	130 - 440	260 - 840	280 - 900	310 - 1000
	Non metallic		Duroplastics, fiber plastics			29	130 - 430	260 - 820	280 - 870	310 - 980
			Hard rubber			30	130 - 430	260 - 820	280 - 870	310 - 980
S	High temperature alloys	Fe based	Annealed		200	31	80 - 100	150 - 200	160 - 210	180 - 230
			Hardened		280	32	50 - 80	110 - 160	110 - 180	130 - 200
		Ni or Co based	Annealed		250	33	30 - 50	70 - 100	70 - 100	80 - 110
			Hardened		350	34	20 - 30	50 - 80	50 - 80	60 - 100
			Cast		320	35	20 - 30	50 - 80	50 - 80	60 - 100
	Titanium alloys		Pure	58	190	36	250 - 300	460 - 560	490 - 590	560 - 670
			Alpha+Beta alloys, hardened	152	310	37	80 - 110	160 - 230	180 - 250	200 - 280
H	Hardened steel		Hardened		55 HRC	38	80 - 100	150 - 200	160 - 210	180 - 230
			Hardened		60 HRC	39	80 - 100	150 - 200	160 - 210	180 - 230
	Chilled cast iron		Cast		400	40	80 - 100	150 - 200	160 - 210	180 - 230
	Cast iron		Hardened		55 HRC	41	80 - 100	150 - 200	160 - 210	180 - 230

ISCAR Threading Grades Chart

	Grade	ISO	Grade Description	Coating Layers	Coating Color*
PVD COATED	IC228	P30-P45 M25-M40	A very tough 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 a PVD coating and 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 a PVD coating and 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 a PVD coating, recommended for general use for diverse operations on materials such as steels, alloy steels, austenitic stainless steel and high temperature alloys at a wide range of 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

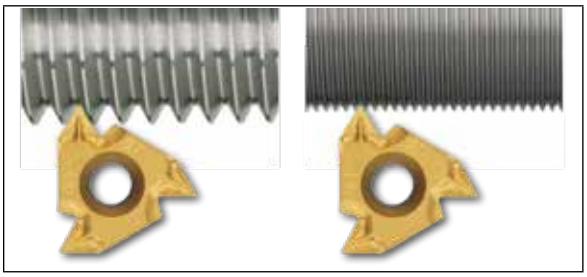
	Grade	ISO	Grade Description	Coating Layers	Uncoated
Uncoated	IC08	M15-M30 N10-N25 S20-S30	A tough uncoated submicron carbide grade, suitable for steels, stainless steel and high temperature alloys at low cutting speeds. Good choice for non-ferrous materials.	Base	

User Guide and Cutting Data

Types and Profiles of Threading Inserts

Partial Profile

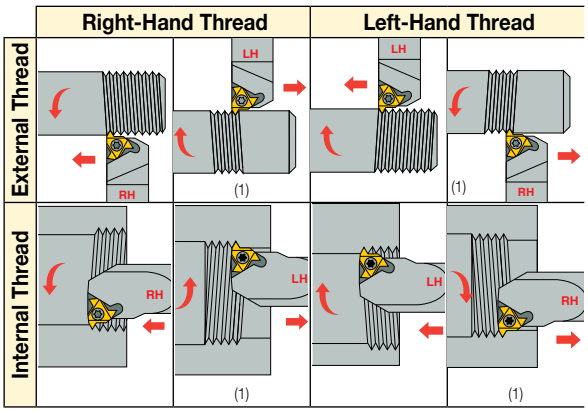
- Performs different thread standards and is suitable for a wide range of pitches that have a common angle (60º or 55º)
- Inserts with a small root-corner radius suitable for the smallest pitch of the range
- Additional operations to complete the outer/internal diameter are necessary
- Not recommended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

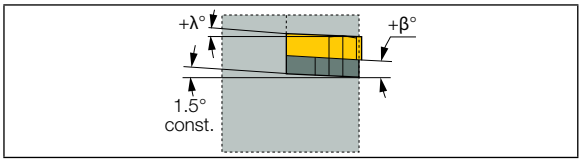
Thread Turning Methods



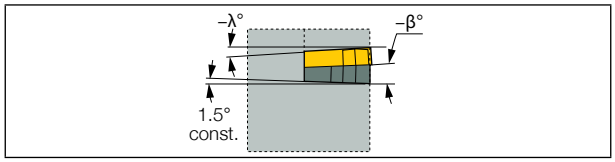
(1) Change anvil to negative

Anvil Selection According to Thread Helix Angle λ

		Standard						
Thread Helix Angle λ		>4º	3º-4º	2º-3º	1º-2º	0º-1º	Negative Anvils	
	Inclination Angle β	4.5º	3.5º	2.5º	1.5º	0.5º	-0.5º	-1.5º
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.

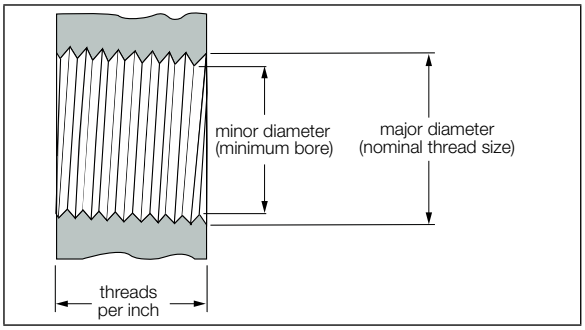
Threading Limits With Standard NOTCH-GRIP Inserts

The following charts list the largest pitch that can be applied on internal applications for Acme and V-Threading **NOTCH-GRIP** inserts in sizes 2,3, 4 and 6.

60˚ V-Threading Limits

FLT-2 Inserts	Internal Threading Limitations		
Threads per Inch	Nominal Thread Size	Minimum Minor Diameter	
		Inch	MM
6	1-7/8	1.695	43.05
7	1-3/4	1.595	40.51
8	1-5/8	1.490	37.85
9	1-9/16	1.442	36.63
10	1-1/2	1.392	35.36
11	1-7/16	1.339	34.01
12	1-3/8	1.285	32.64
13	1-5/16	1.229	31.22
14	1-1/4	1.173	29.79
16	1-1/4	1.182	30.02
18	1-1/8	1.065	27.05
20	1-1/8	1.071	27.20
24	1-1/16	1.017	25.83

* 24 TPI and finer can be cut with a #2 series insert provided that the minor diameter is 1.000 or larger.



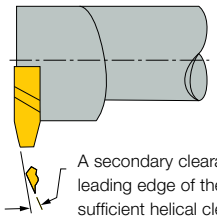
FLT-3 & 4 Inserts	Internal Threading Limitations		
Threads per Inch	Nominal Thread Size	Minimum Minor Diameter	
		Inch	MM
4**	3	2.729	69.32
4-1/2**	2-7/8	2.634	66.90
5	2-3/4	2.534	64.36
6	2-1/2	2.320	58.93
7	2-1/4	2.095	53.21
8	2	1.865	47.37
9	1-15/16	1.817	46.15
10	1-7/8	1.767	44.88
11	1-13/16	1.714	43.54
12	1-3/4	1.660	42.16
13	1-5/8	1.542	39.17
14	1-9/16	1.485	37.72
16*	1-7/16	1.370	34.80

* 16 pitch acme threads and finer can be cut provided the minor diameter is 1.370 or larger.
** FLT-4 only.

Acme Threading Limits

FLA-2	Internal Threading Limitations		
Threads per Inch	Nominal Thread Size	Minimum Minor Diameter	
		Inch	MM
6	2-1/2	2.333	59.26
8	2-1/4	2.125	53.98
10	2	1.900	48.26
12	1-3/4	1.667	42.34
14	1-5/8	1.554	39.47
16*	1-1/2	1.438	36.53

* 16 pitch acme threads and finer can be cut provided the minor diameter is 1.438 or larger.



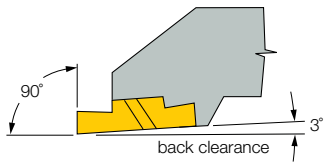
A secondary clearance can be ground on the leading edge of the form of the insert to provide sufficient helical clear ance for machining courser threads and multiple start threads

Modified standard inserts may be produced for special threads or ones not listed on the charts shown. Quoted upon request.

FLA-3, 4 & 6	Internal Threading Limitations		
Threads per Inch	Nominal Thread Size	Minimum Minor Diameter	
		Inch	MM
2*	5	4.500	114.30
2-1/2**	4-1/2	4.100	104.14
3**	4	3.665	93.09
4	3-1/2	3.250	82.55
5	3	2.800	71.12
6	2-1/2	2.333	59.26
8	2-1/4	2.125	23.98
10	2	1.900	48.26
12	1-3/4	1.667	42.34
14	1-5/8	1.554	39.47
16*	1-1/2	1.438	36.53

* 16 pitch acme threads and finer can be cut provided the minor diameter is 1.438 or larger.
** FLA-6 only.

NOTE: Positive rake ACME inserts are recommended for stainless steels and high-temp alloy appl cations.
Quoted upon request.



NOTE: Tool holders are designed to locate the insert at a 3˚ angle to provide back clearance down the side.

FLTB-2A & 2B	Internal Threading Limitations		
Threads per Inch	Nominal Thread Size	Minimum Minor Diameter	
		Inch	MM
8	1-3/4	1.600	40.64
10	1-5/8	1.505	38.23
12	1-1/2	1.400	35.56
16	1-1/4	1.175	29.85
20	1-1/16	1.002	25.45

FLTB-3A & 4A	Internal Threading Limitations		
Threads per Inch	Nominal Thread Size	Minimum Minor Diameter	
		Inch	MM
4*	2-1/2	2.200	55.88
5	2-1/4	2.010	51.05
6	2	1.800	45.72
8	1-3/4	1.600	40.64
10	1-5/8	1.505	38.23
12**	1-1/2	1.400	35.56

* FLTB-4A insert only

** 16 or 20 threads per inch can be cut providing minor diameter is 1.375 or larger.

FLTB-3B & 4B	Internal Threading Limitations		
Threads per Inch	Nominal Thread Size	Minimum Minor Diameter	
		Inch	MM
4	*2-7/8	2.575	65.41
5	2-3/4	2.510	63.75
6	2-3/8	1.175	29.85
8	2-1/8	1.975	50.17
10	1-7/8	1.755	44.58
12	1-5/8	1.525	38.74
16	1-1/2	1.407	35.74
20	1-7/16	1.378	35.00

* FLTB-4B insert only

American Standard Buttress Thread Designations

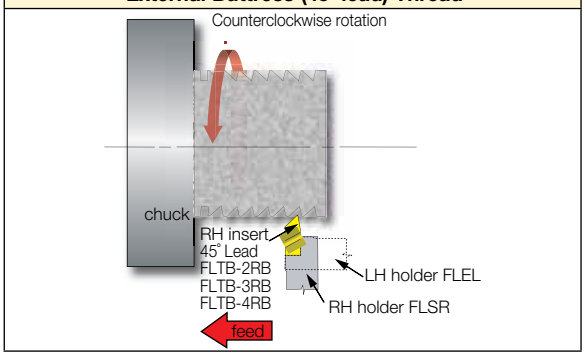
When only the designation BUTT is used, the thread is a "pull" type buttress (external thread pulls) with the clearance flank (45˚) leading and the pressure flank (7˚) following.

When the designation PUSH-BUTT is used, the thread is a push type buttress (external thread pushes) with the load flank (7˚) leading and the 45˚ clearance flank following.

Whenever possible this description should be confirmed by a simplified view showing thread angles on the drawing of the product that has the buttress thread.

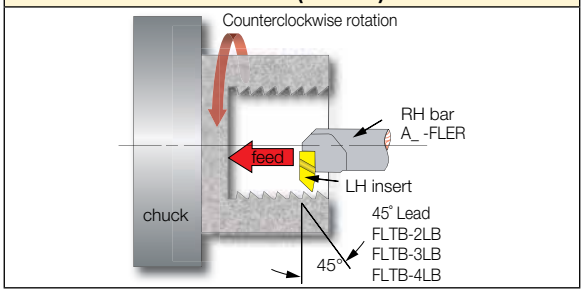
Always remember that the position of your holder and direction of your feed will determine the lead angle on the insert.

External Buttress (45˚ lead) Thread



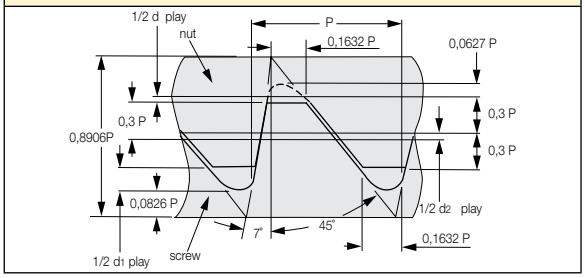
45˚ clearance angle of this buttress thread becomes the leading angle in this application.

Internal Buttress (45˚ lead) Thread



45˚ clearance flank of this buttress thread becomes the leading angle in this application.

American Standard Buttress

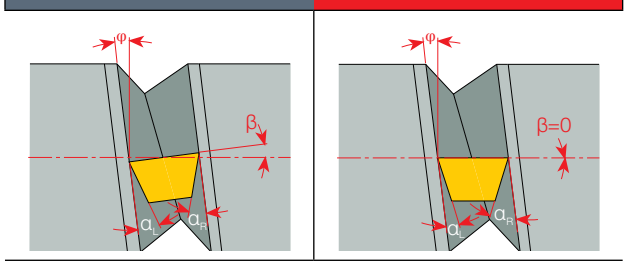


Use: fittings and pipe couplings

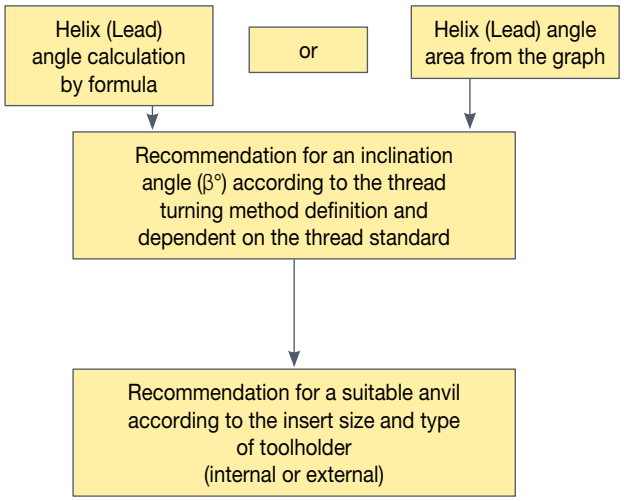
Anvils for Laydown Inserts

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



The anvil should be selected from the table according to the thread ing 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 (φ_L) for the multi-start threading.
The helix angle (φ) and the lead angle (φ_L) 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 (ϕL) Calculation by Using the Single-Start Threading Formula
$\varphi=\arctan\left(\frac{P}{\pi\times Dpitch}\right)$	$\varphi_L=\arctan\left(\frac{Lead}{\pi\times Dpitch}\right)$ Lead= n×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

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

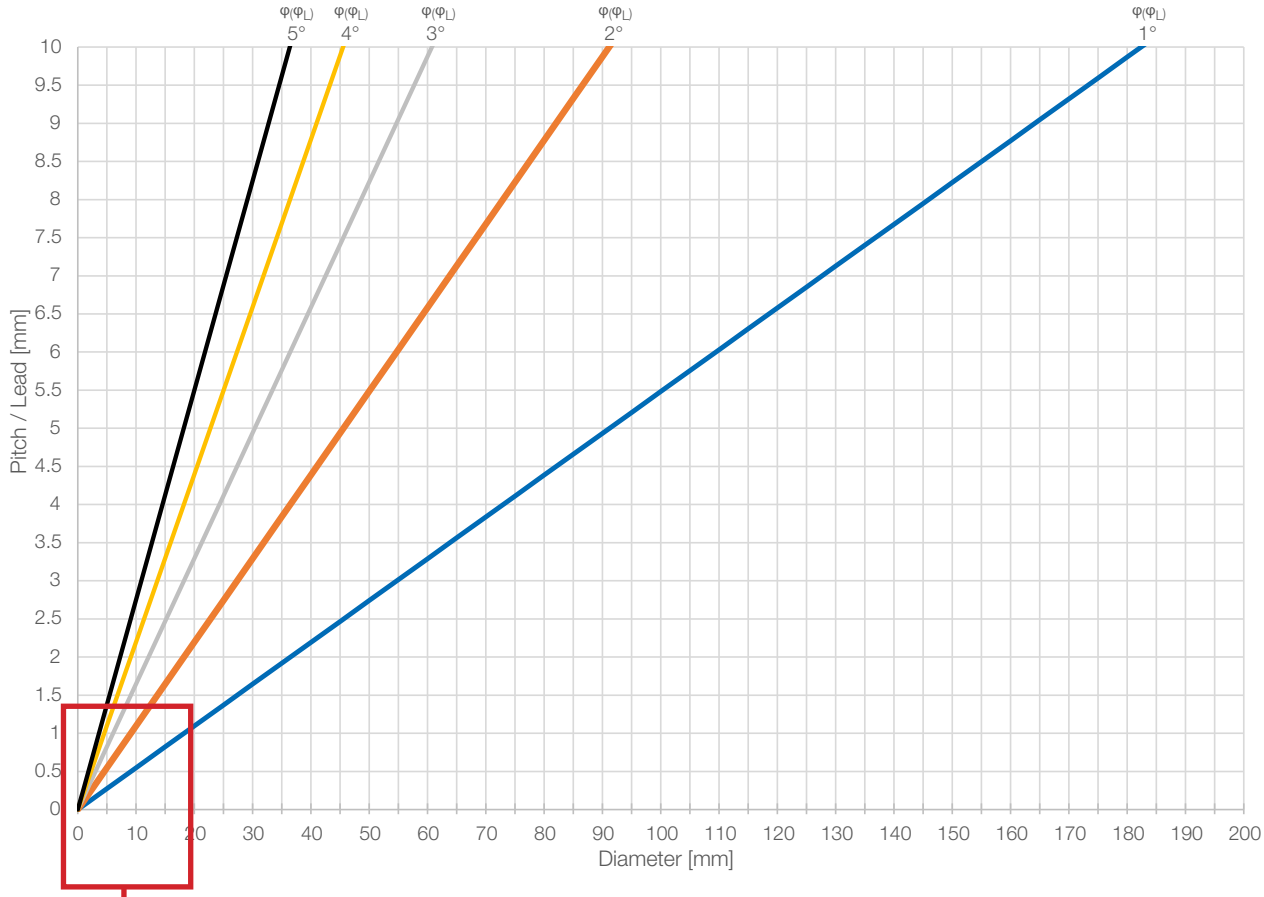
TPI = No. of threading per inch

1 inch = 25.4 mm

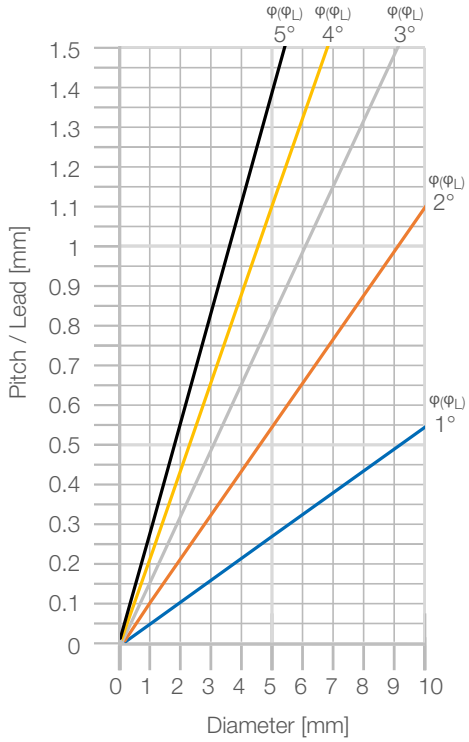
$$\text{Pitch (mm)}=\frac{25.4}{\text{TPI}}$$

Helix (Lead) Angle Area by Using Graph

Helix angle evaluation

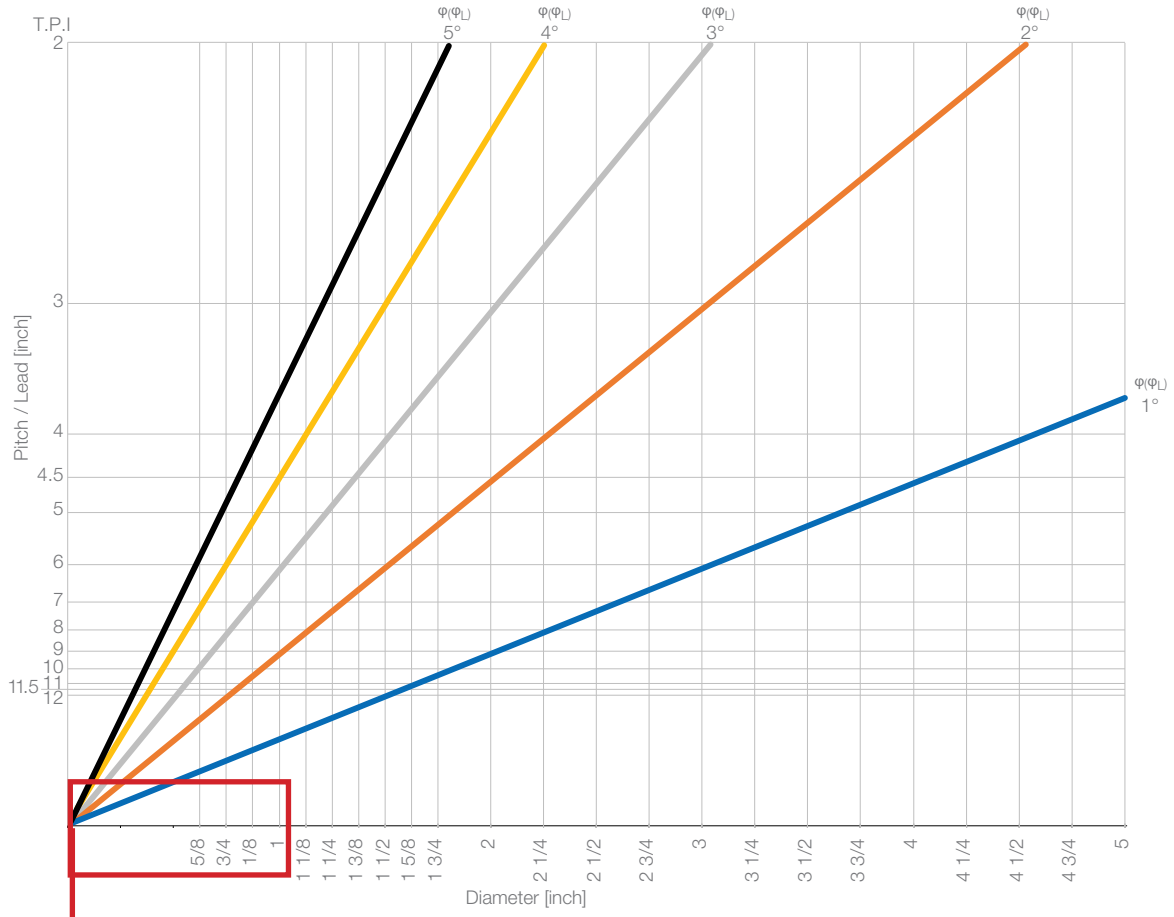


Detailed view for small pitch/diameter

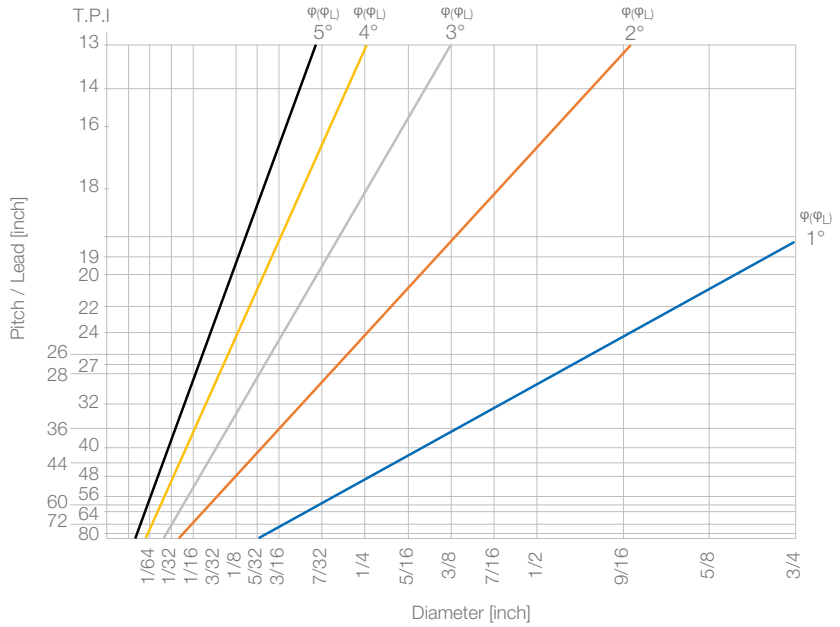


Helix (Lead) Angle Area by Using Graph

Helix angle evaluation



Detailed view for small pitch/diameter



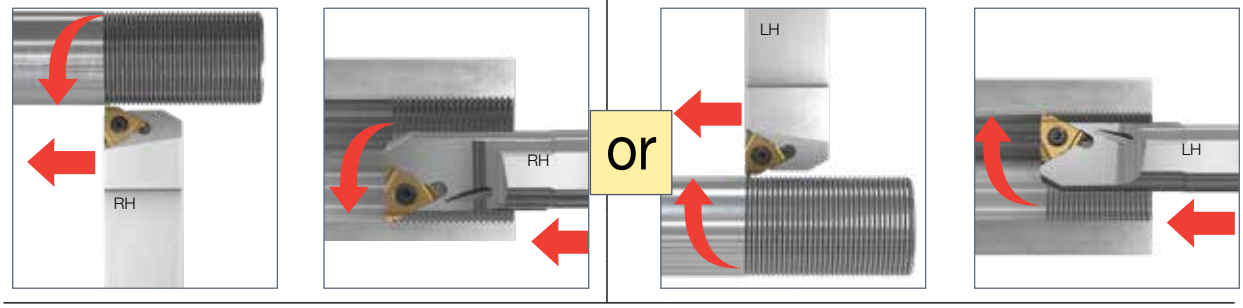
Anvil Selection for Symmetric Threading Profiles

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 (φ_L) for multi-start threading, depending on the threading turning method for m achining 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

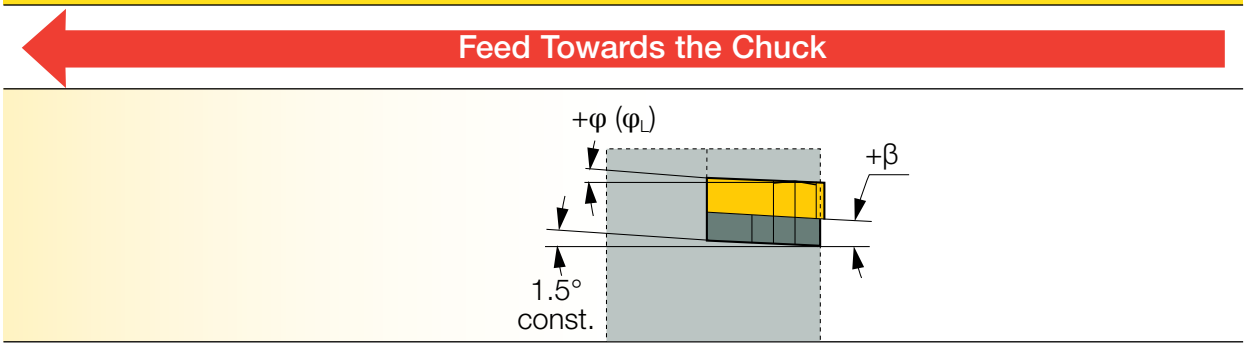


Anvil Selection

			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

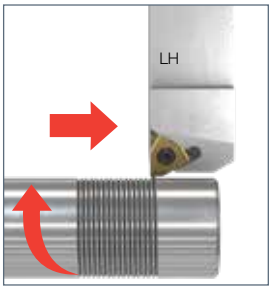
* Standard anvil supplied with tool

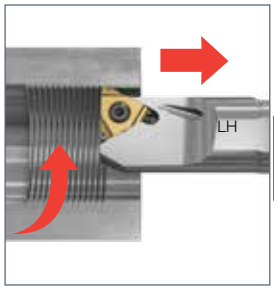
Positive Anvils



Thread Turning Method

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

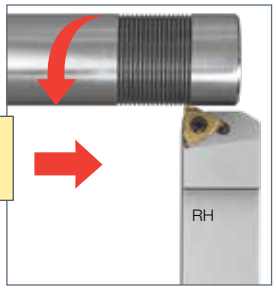


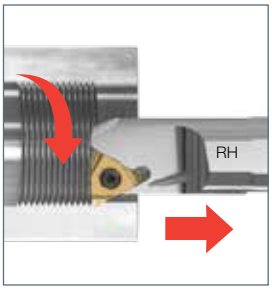


* Change anvil to negative

or

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





* Change anvil to negative

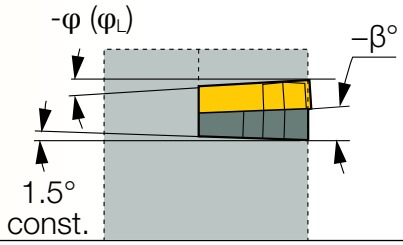
Anvil Selection

		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°**	
LC	**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

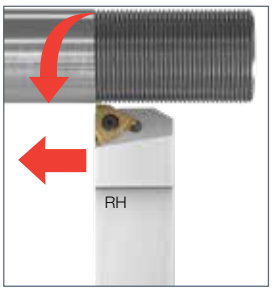


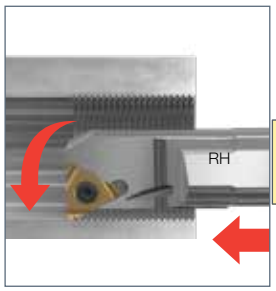
Anvil Selection for ABUT Threading Standard Only

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 (φ_L) for multi-start threading, depending on the threading turning method for machining asymmetric threading profile according to ABUT threading standard only.

Threading Turning Method

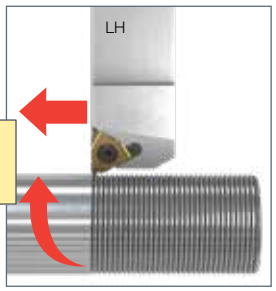
Production of right-hand threading with right-hand holder

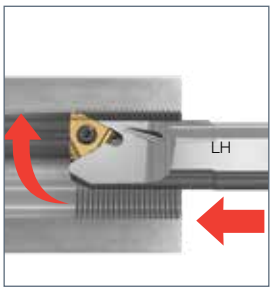




or

Production of left-hand threading with left-hand holder





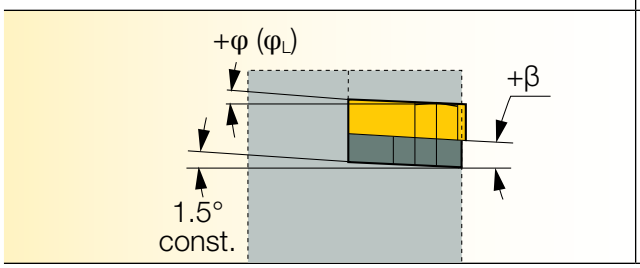
Anvil Selection

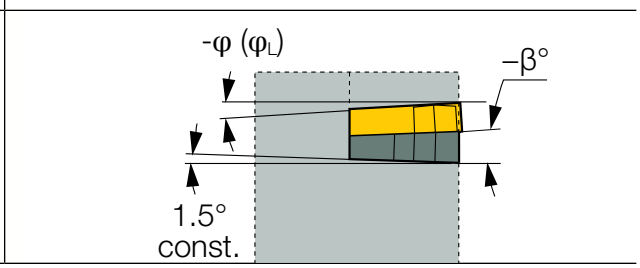
			Positive Anvils		Negative Anvils	
Threading Helix (lead) Angle ϕ (ϕL)		**Φ (ϕL)>3.5°**	**3°<ϕ (ϕL)≤3.5°**	**2°<ϕ (ϕL)≤3°**	**1°<ϕ (ϕL)≤2°**	**0°<ϕ (ϕL)≤1°**
Inclination Angle β			**1.5° (std)**	**0.5**	**-0.5°**	**-1.5°**
LC	**Toolholder**	**Anvil Designation**				
16 (3/8)	EX RH OR IN LH EX LH OR IN 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	Negative Anvils
Feed Towards the Chuck	Feed Towards the Tailstock



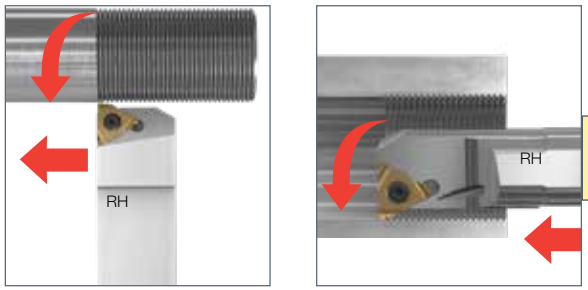


Anvil Selection for SAGE Threading Standard Only

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 (φ_L) for multi-start threading, depending on the thread turning method for machining asymmetric threading profile according to SAGE thread standard only.

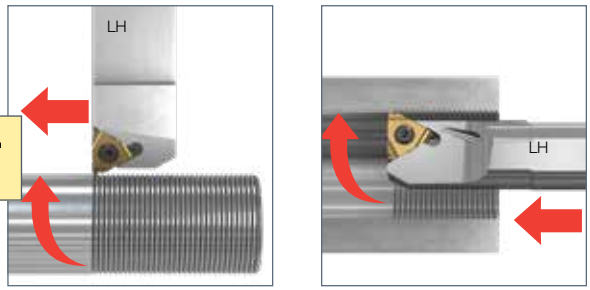
Thread Turning Method

Production of right-hand threading with right-hand holder



or

Production of left-hand threading with left-hand holder



Anvil Selection

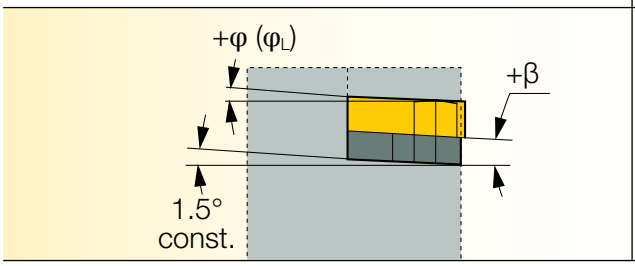
			Positive Anvils			Negative Anvils	
Threading Helix (lead) Angle ϕ (ϕL)		**Φ (ϕL)>5.6°**	**5°<ϕ (ϕL)≤5.6°**	**3°<ϕ (ϕL)≤5°**	**2°<ϕ (ϕL)≤3°**	**1°<ϕ (ϕL)≤2°**	**0°<ϕ (ϕL)≤1°**
Inclination Angle β			**2.5°**	**1.5°(std)**	**0.5°**	**-0.5°**	**-1.5°**
LC	**Toolholder**	**Anvil Designation**					
16 (3/8)	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

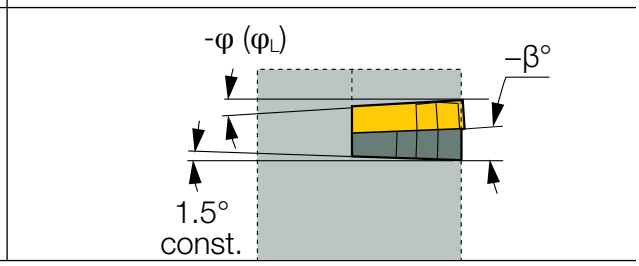
Positive Anvils

Feed Towards the Chuck



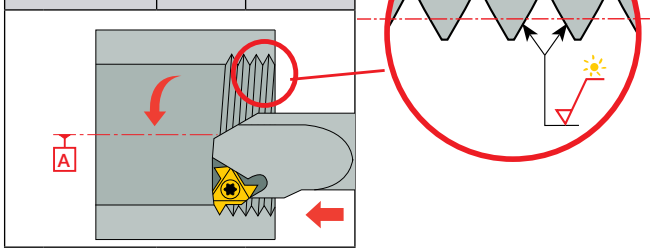
Negative Anvils

Feed Towards the Tailstock



Mini-Tool Features

(1)	øD M8; 5/16″-UN; 1/16″-NPT		
(2)	4H÷8H/1B÷3B		
(3)		A	0.00

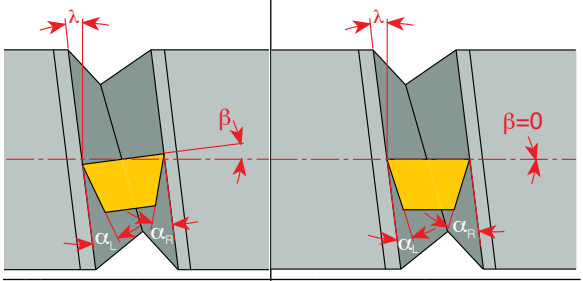


(1) Smallest possible thread
(2) All tolerances
(3) Minimum runout
(4) High surface quality

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.

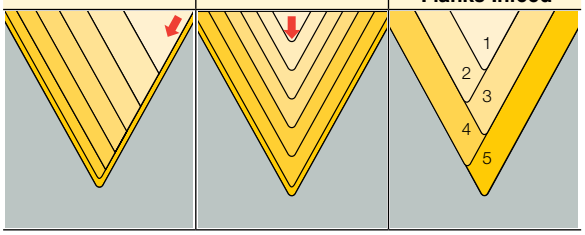
Al=αr	Incorrect Al<αr



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

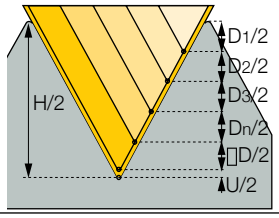
Infeed Methods for Threading Operations

Flank Infeed	Radial Infeed	Alternating Flanks Infeed



Flank Equal

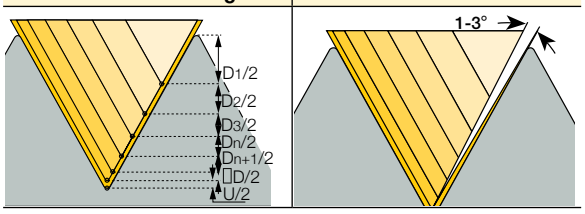
Equal Depth of Cut for Each Pass



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

Diminished Depth of Cut for Each Pass

Flank Diminishing	Modified Flank Infeed



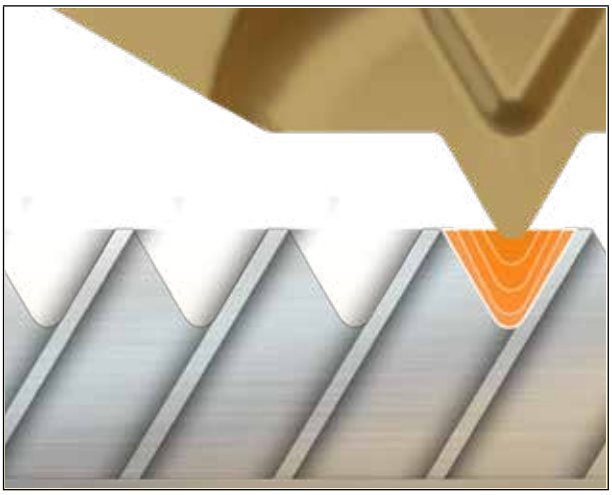
$$\frac{D_1}{2} > \frac{D_2}{2} > \frac{D_3}{2} > \frac{D_n}{2} > \frac{D_{n+1}}{2}$$

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 ($i = 1 \ldots n_a$)

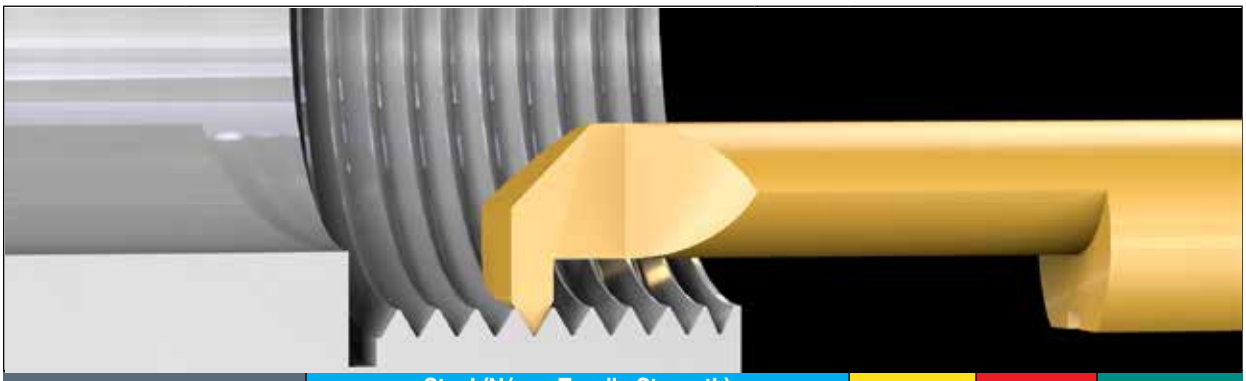
i — Pass

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
		65	87	112	145	>167			
Cutting Speed Vc SFM	IC228	525	460	395	295	230	295	330	985
	IC908	610	525	460	340	260	340	380	1150
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

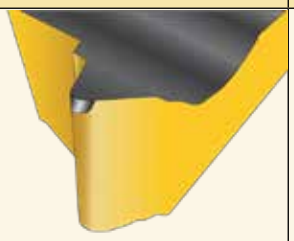
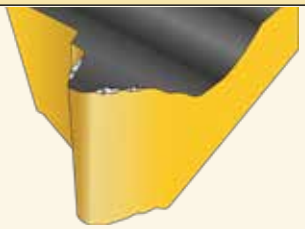
Material Groups		ISO P		ISO M	ISO K	ISO N	ISO S	ISO H
		1-11	12-13	14	15-20	21-28	31-37	38-41
		Steel	Stainless Steel Ferritic & Martensitic	Stainless Steel Austenitic & Duplex (Ferritic-Austenitic)	Cast Iron	Non-ferrous	High Temperature Alloys	Hard Steel & Cast Iron
THREADING	Harder	IC1007	IC1007	IC1007	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		

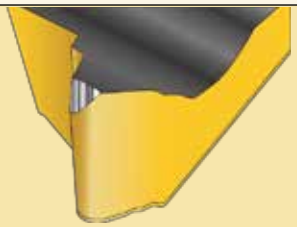
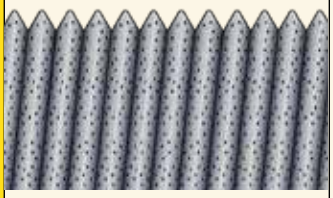
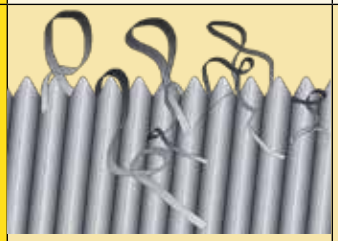
First choice

60˚ V-Threading Limits

FLT-2 Inserts	Internal Threading Limitaions	
Threads Per Inch	Nominal Thread Size	Minimum Minor Diameter
6	1-7/8	1.695
7	1-3/4	1.595
8	1-5/8	1.490
9	1-9/16	1.442
10	1-1/2	1.392
11	1-7/16	1.339
12	1-3/8	1.285
13	1-5/16	1.229
14	1-1/4	1.173
16	1-1/4	1.182
18	1-1/8	1.065
20	1-1/8	1.071
24	1-1/16	1.017

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 Thread Turning Form

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 _____

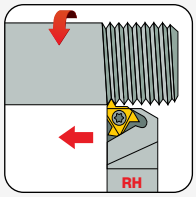
Threading Depth _____ ☐ Through Hole ☐ Blind Hole _____

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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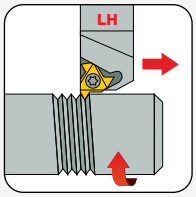

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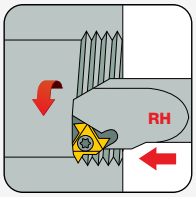

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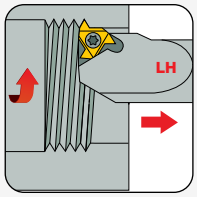
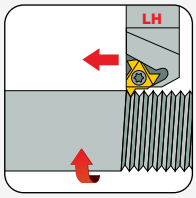


☐

LH
Left-hand
Threading



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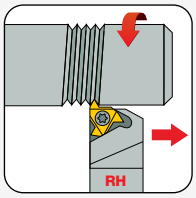

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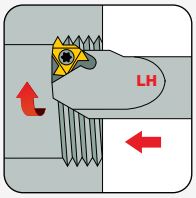

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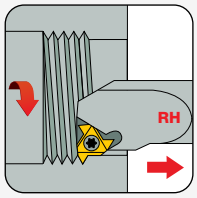
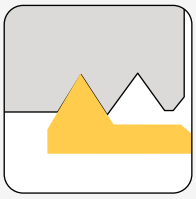
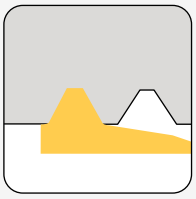


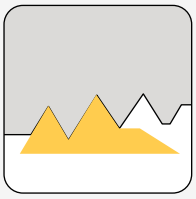
☐

Insert Profile:

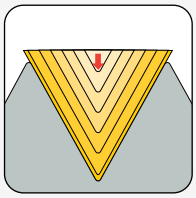
☐ Full

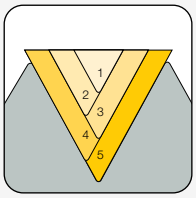

☐ Partial


☐ Semi-Partial

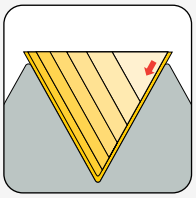

☐ Multi-Point

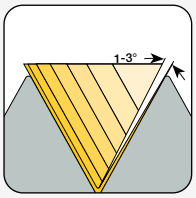
Infeed:


☐ 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

CONTENTS

Toolholders for Square and Round Shank Tools

CAMFIX Shanks 801
HSK Shanks 803
Cylindrical Shanks 806

Modular-Grip Adaptations 812

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Intermediate Holders for Square Type Adapters (TGAQ/DGAQ) 845

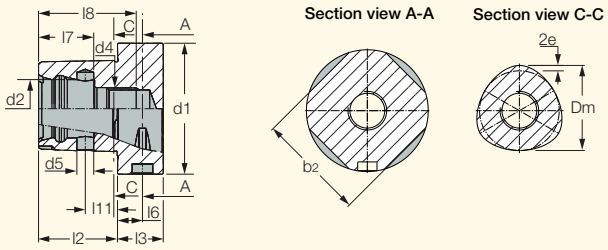
Tool Blocks for Parting Blades 671

Exchangeable Head Holders for Grooving and Parting 675

CAMFIX

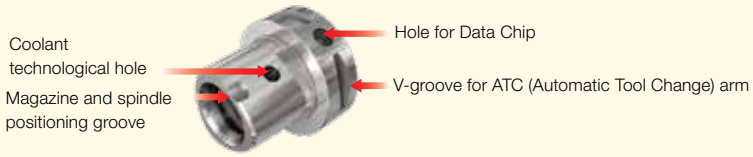
CAMFIX ISO 26623-1

Toolholder Standard



	M E T R I C													
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	8
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	M20x2	12	72	2.8	3	60	36	16	40	70	26.5

CAMFIX - ISO 26623-1 Standard Quick Change Shanks



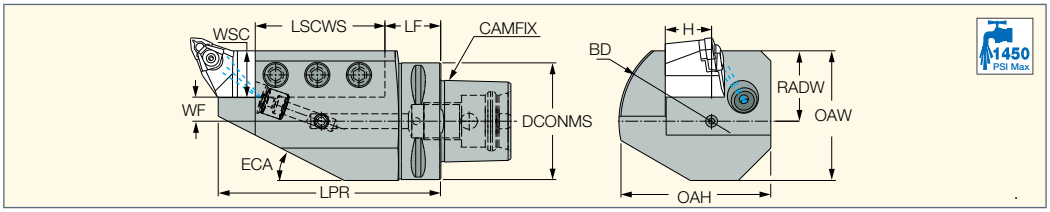
Features

- **Symmetrical design:** Due to the symmetrical design, the torque load is distributed on the polygon, providing a self-centering effect.
- **Rigidity:** The **CAMFIX** clamping mechanism is extremely rigid to counter bending forces.
- **Accuracy:** The taper and face contact ensure high repeatability within 2 microns, when operated with an automatic tool changer.

CAMFIX

C#-ASHR/L

Holders with CAMFIX Exchangeable Shanks for External Square-Shank Tools



Designation	DCONMS	LPR	LSCWS	LF	WF	H	WSC	OAH	RADW	OAW	ECA	BD	CDI[1]
C6 ASHR/L 3/4X1	2.480	3.937	2.500	1.040	.431	.750	.750	3.070	1.181	2.323	30.0	3.543	1
C6 ASHR/L 1X1	2.480	4.724	2.756	1.181	.496	1.000	1.000	3.230	1.496	2.756	27.0	3.937	1
C8 ASHR 1 1/4 1	3.150	5.512	3.740	1.378	.325	1.250	1.250	3.430	1.575	3.150	27.0	4.331	1

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

Spare Parts

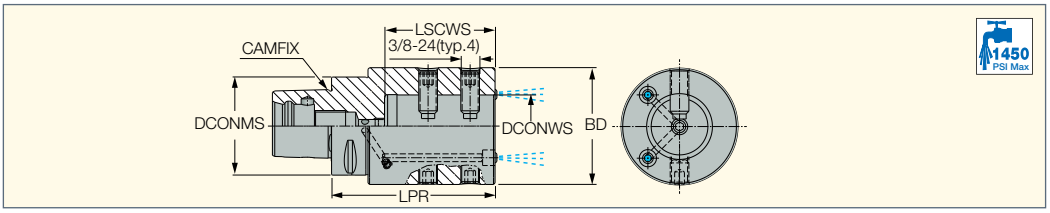
Designation					
C6 ASHL 3/4X1	SR M8X6 DIN913	SATZ-M12X1-M6	COOLING TUBE C6*	WRENCH COOL TUBE C6*	HSSS 3/8-24X0.250 CUP.P
C6 ASHR 3/4X1	SR M8X6 DIN913	SATZ-M12X1-M6	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 ASHR/L 1X1	SR M8X6 DIN913	SATZ-M12X1-M6	COOLING TUBE C6*	WRENCH COOL TUBE C6*	HSSS 1/2-20X1.25 1/2DOG P
C8 ASHR 1 1/4 1	SR M8X6 DIN913	SATZ-M12X1-M6	COOLING TUBE C8*	WRENCH COOL TUBE C8*	HSSS 1/2-20X1.25 1/2DOG P

* Optional, should be ordered separately

CAMFIX

C#-ABB

Adapters with CAMFIX Exchangeable Shanks for Boring Bars with Reduction Sleeves



Designation	DCONMS	DCONWS	LPR	BD	LSCWS	CDI[1]
C6 ABB 1X2.36	2.480	1.000	3.937	2.480	2.362	1
C6 ABB 1 1/2X2.75	2.480	1.500	4.134	2.953	2.756	1

• For SC reduction sleeves, see page 805

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

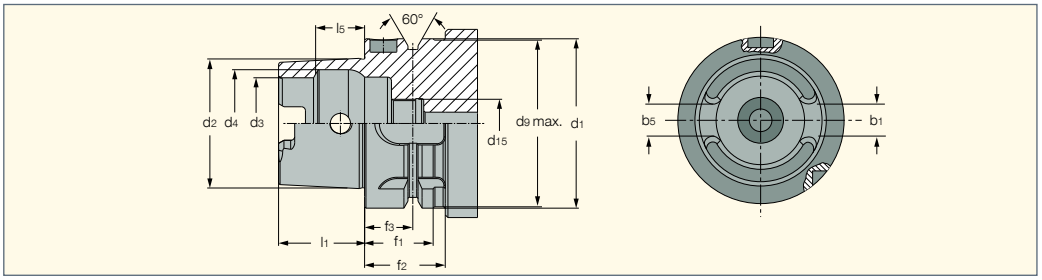
Spare Parts

Designation						
C6 ABB 1X2.36	SCREW 3/8-24X.4375 EM	SATZ-M12X1-M6	COOLING TUBE C6*	WRENCH COOL TUBE C6*		HSSS 3/8-24X0.250 CUP.P
C6 ABB 1 1/2X2.75	SCREW 1/2-20X.500 EM[a]	SATZ-M12X1-M6	COOLING TUBE C6*	WRENCH COOL TUBE C6*	HSSS 1/2-20X1.25 1/2DOG P	HSSS 3/8-24X0.250 CUP.P

* Optional, should be ordered separately

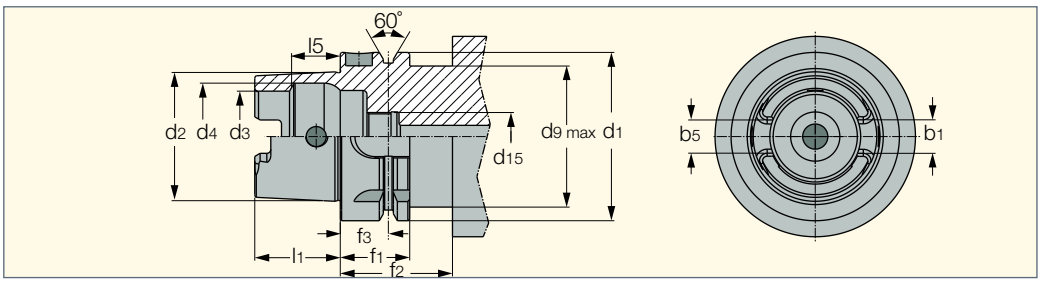
(a) Used on B-type sleeves

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



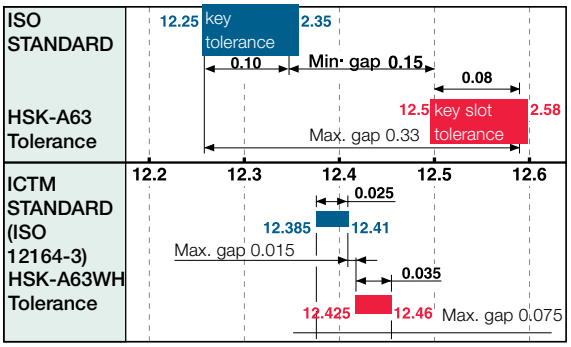
M E T R I C													
HSK-A WH	d1 h10	d2	d3 H10	d4 H11	d9 max	d15	l1-0.2	l5 Js10	b1±0.04	b5±0.035	f1 -0.1	f2 min	f3 ±0.1
63	63	48	34	40	62	M18X1	32	18.13	12.54	12.425	26	30	18
100	100	75	53	63	99	M24X1.5	50	28.56	20.02	19.91	29	34	20

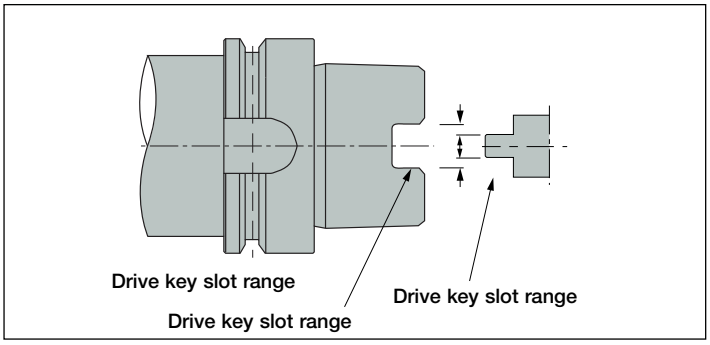
HSK A TM Suitable for all Multi-Tasking Machine Models



M E T R I C													
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

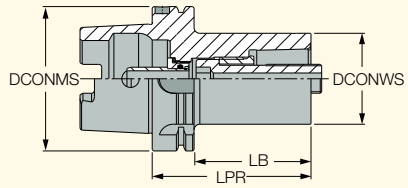




HSK CAMFIX

HSK-C#

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



Designation	DCONMS	DCONWS	LPR	LB	CDI(1)	Lbs
C4 AD HSK A63WHX080	2.480	1.5748	3.150	2.126	1	2.43
C5 AD HSK A63WHX90	2.480	1.9685	3.543	2.520	1	3.18
C5 AD HSK A100WHX100	3.937	1.9685	3.937	2.795	1	6.39
C6 AD HSK A100WHX110	3.937	2.4803	4.331	3.189	1	7.96
C8 AD HSK A100WHX120	3.937	3.1496	4.724	3.583	1	10.56
C6 AD HSK A100-110	3.937	2.4803	4.331	3.189	1	8.82

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

(1) DIN69893-A

Spare Parts

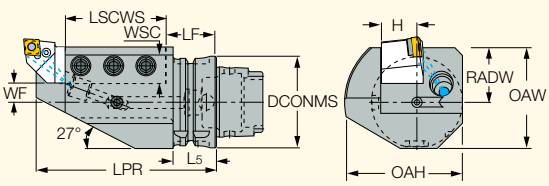
Designation						
C4 AD HSK A63WHX080	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4	COOLING TUBE HSK A63 C5	WRENCH COOL TUBE HSK63*	WRENCH C4 DRW NUT*
C5 AD HSK A63WHX90	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	COOLING TUBE HSK A63 C5	WRENCH COOL TUBE HSK63*	WRENCH C5 DRW NUT*
C5 AD HSK A100WHX100	SR M16X70 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-ASHR/L-1

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



Designation	DCONMS	WSC	H	OAH	RADW	OAW	WF	LPR	LSCWS	LF	L5	CDI(1)
HSK A63WH-ASHR/L-1.000-1	2.480	1.000	1.000	3.230	1.496	2.756	.512	4.920	2.756	1.378	1.181	1

- Complies with ICTM standard (ISO 12164-3) • A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)
- The .750 x .750 square shanks may be locked with spacer

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

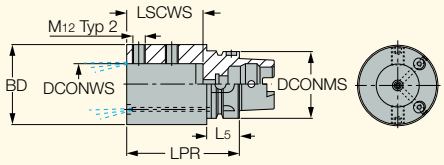
Spare Parts

Designation			
HSK A63WH-ASHR/L-1.000-1	SATZ-M12X1-M6	SR M8X6 DIN913	HSSS 1/2-20X1.25 1/2DOG P

HSK

HSK A63WH ABB

Adapters with HSK Exchangeable Shanks for Boring Bars with Reduction Sleeves



1450 PSI Max

Designation	DCONMS	DCONWS	BD	LPR	LSCWS	L5	CDI[2]
HSK A63WH-ABB 1-1/2 [1]	2.480	1.500	2.953	4.134	2.750	1.181	1

- Complies with ICTM standard (ISO 12164-3)
- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)
- For SC reduction sleeves, see page 805

(1) Regular tools should be shortened according to recommended LSCWS

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

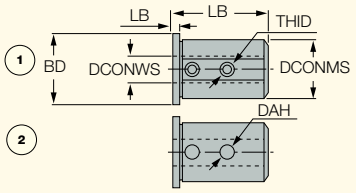
Spare Parts

Designation				
HSK A63WH-ABB 1-1/2	SATZ-M12X1-M6	HSSS 1/2-20X1.25 1/2DOG P	SCREW 1/2-20X.500 EM	HSSS 3/8-24X0.250 CUP.P

Accessories

SC-T (sleeves)

Reduction Sleeves for Holders with Exchangeable Adaptation

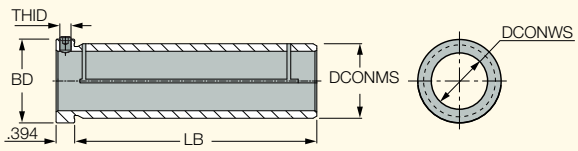


Designation	DCONMS	DCONWS	LB	OAL	BD	THID	DAH	Fig.	
SC 1-1/2T.250A	1.500	.250	.236	2.598	1.811	M6	-	1.	SCREW 1/4-28X.313 EM
SC 1-1/2T.312A	1.500	.312	.236	2.598	1.811	M6	-	1.	SCREW 1/4-28X.313 EM
SC 1-1/2T.375A	1.500	.375	.236	2.598	1.811	M8	-	1.	SCREW 3/8-24X.4375 EM
SC 1-1/2T.500A	1.500	.500	.236	2.598	1.811	M9	-	1.	SCREW 3/8-24X.4375 EM
SC 1-1/2T.625B	1.500	.625	.236	2.598	1.811	-	.591	2.	
SC 1-1/2T.750B	1.500	.750	.236	2.598	1.811	-	.591	2.	
SC 1-1/2T1.000B	1.500	1.000	.236	2.598	1.811	-	.591	2.	
SC 1-1/2T1.250B	1.500	1.250	.236	2.598	1.811	-	.591	2.	

WHISPERLINE ANTI-VIBRATION

AV FLEX-SLEEVE

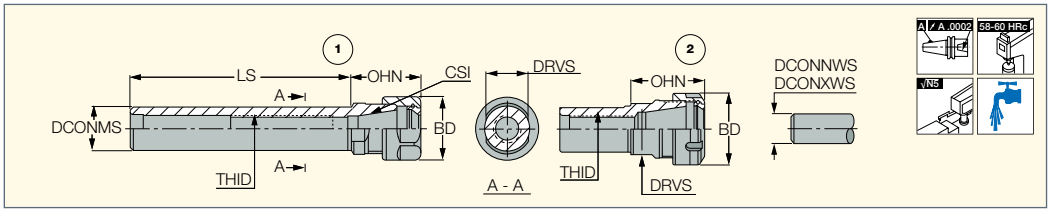
Reduction Sleeves for Tool Blocks and VDI Holders



Designation	DCONMS	DCONWS	BD	LB	THID
RED PU1S-AV-3225	1.260	.9842	1.4567	4.528	M6
RED PU1S-AV-4032	1.575	1.2598	1.7716	5.000	M6
RED PU1S-AV-5040	1.968	1.5748	2.1654	5.000	M6
RED PU1S-AV-6050	2.362	1.9685	2.5591	6.063	M6

Straight Shank

ST-ER
DIN 6499 ER Collet Chucks
with Straight Shanks



Designation	DCONMS	LS	CSI	DCONNWS(1)	DCONXWS(2)	OHN(3)	THID	BD	DRVS(4)	Fig.	Lbs
ST5/8X2.500 ER11 F	.625	2.500	ER11	.022	.278	.734	M8	.748	.512	1.	.22
ST3/4X2.000 ER25 F	.750	2.000	ER25	.041	.632	1.732	M12	1.654	1.102	2.	.42
ST3/4X2.500 ER11 F	.750	2.500	ER11	.022	.278	.734	M10	.748	.669	1.	.26
ST3/4X2.500 ER16 F	.750	2.500	ER16	.022	.278	1.187	M12	1.102	.748	1.	.27
ST3/4X2.500 ER20 F	.750	2.500	ER20	.041	.514	1.656	M12	1.339	.866	1.	.66
ST3/4X4.000 ER11	.750	4.000	ER11	.022	.278	.734	M8	.748	.669	1.	.37
ST3/4X4.000 ER20	.750	4.000	ER20	.041	.514	1.656	M12	1.339	.866	1.	.66
ST3/4X4.000 ER25	.750	4.000	ER25	.041	.632	1.810	M12	1.656	1.102	2.	1.10
ST3/4X6.000 ER11	.750	6.000	ER11	.022	.278	.734	M8	.748	.669	1.	.66
ST3/4X6.000 ER20	.750	6.000	ER20	.041	.514	1.190	M12	1.339	.866	1.	.68
ST1X1.969 ER20 F	1.000	1.969	ER20	.041	.514	1.437	M16	1.339	.969	2.	.46
ST1 X2.000 ER32 F	1.000	2.000	ER32	.080	.789	2.087	M16	1.968	1.417	2.	.75
ST1X2.370 ER40 F	1.000	2.370	ER40	.120	1.025	2.362	M16	2.480	1.772	2.	1.19
ST1-1/4X2.370 ER40	1.250	2.370	ER40	.120	1.025	2.362	M18	2.480	1.772	2.	.88
ST1-1/4X2.375 ER32 F	1.250	2.375	ER32	.080	.789	2.087	M18	1.968	1.417	2.	1.01
ST1-1/4X6.000 ER32	1.250	6.000	ER32	.080	.789	2.047	M18	1.968	1.417	2.	1.94

(1) Minimum diameter
(2) Maximum diameter
(3) Minimum overhang
(4) Torque key size

Spare Parts

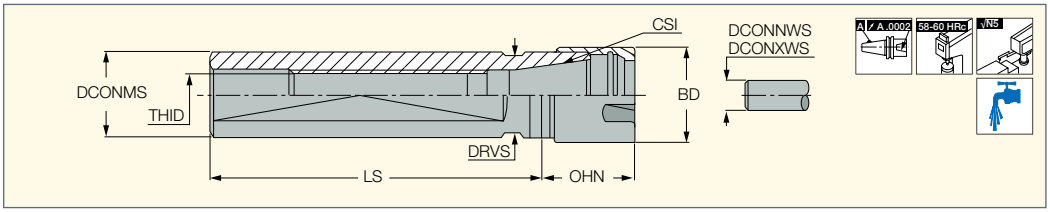
Designation				
ST5/8X2.500 ER11 F	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 8X1.25*	
ST3/4X2.000 ER25 F	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST3/4X2.500 ER11 F	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST3/4X2.500 ER16 F	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST3/4X2.500 ER20 F	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST3/4X4.000 ER11	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST3/4X4.000 ER20	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST3/4X4.000 ER25	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST3/4X6.000 ER11	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST3/4X6.000 ER20	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST1X1.969 ER20 F	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST1 X2.000 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST1X2.370 ER40 F	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST1-1/4X2.370 ER40	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST1-1/4X2.375 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST1-1/4X6.000 ER32	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*

* 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(3)	DCONXWS(4)	OHN(5)	THID	BD	DRVS(6)	Lbs
ST.6248X3.000 ER11 MF	.625	ER11	3.000	.022	.278	.734	M8	.630	.512	.62
ST5/8X2.500 ER11 MF	.625	ER11	2.500	.022	.278	.734	M8	.630	.512	.15
ST5/8X1.250 ER16 MF	.625	ER16	1.250	.022	.396	1.378	M10	.866	.669	.26
ST3/4 X2.500 ER16 MF	.750	ER16	2.500	.022	.396	1.000	M12	.866	.630	.44
ST3/4X1.496 ER16 MF (1)	.750	ER16	1.496	.022	.396	1.024	M12X1	.866	.669	.15
ST3/4X1.969 ER16 MF (1)	.750	ER16	1.969	.022	.396	1.024	M12X1	.866	.669	.20
ST3/4X2.756 ER16 MF (1)	.750	ER16	2.756	.022	.396	1.024	M12X1	.866	.669	.33
ST3/4X4.724 ER16 MF (1)	.750	ER16	4.724	.022	.396	1.024	M12X1	.866	.669	.37
ST3/4X5.512 ER16 MF (1)	.750	ER16	5.512	.022	.396	1.024	M12X1	.866	.669	.66
ST3/4X2.500 ER20 MF	.750	ER20	2.500	.041	.514	1.562	M12X1	1.102	.827	.35
ST1 X2.559 ER16 MF (2)	1.000	ER16	2.559	.022	.396	1.102	M12X1	.866	.866	.66
ST1 X2.953 ER16 MF (1)	1.000	ER16	2.953	.022	.396	1.102	M12X1	.866	.866	.56
ST1 X3.937 ER16 MF	1.000	ER16	3.937	.022	.396	1.102	M12X1	.866	.866	.73
ST1 X3.937 ER20 MF	1.000	ER20	3.937	.041	.514	1.102	M14X1	1.102	.866	.66
ST1 X5.512 ER20 MF (1)	1.000	ER20	5.512	.041	.514	1.102	M14X1	1.102	.866	.86

(1) For Citizen machines
(2) For Manurhin machines
(3) Minimum diameter
(4) Maximum diameter
(5) Minimum overhang
(6) Torque key size

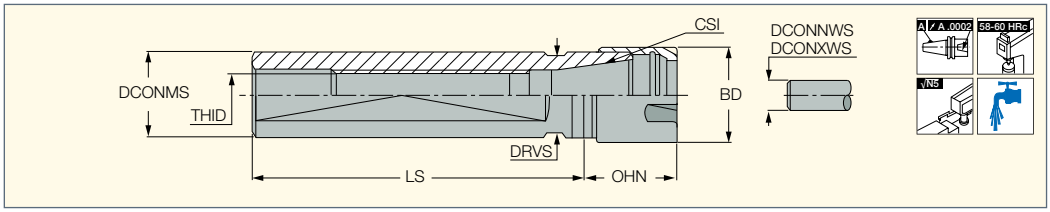
Spare Parts

Designation				
ST.6248X3.000 ER11 MF	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1.25*	
ST5/8X2.500 ER11 MF	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1.25*	
ST5/8X1.250 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 10X1.5*	
ST3/4 X2.500 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST3/4X1.496 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*	
ST3/4X1.969 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*	
ST3/4X2.756 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*	
ST3/4X4.724 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*	
ST3/4X5.512 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*	
ST3/4X2.500 ER20 MF	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST1 X2.559 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*	
ST1 X2.953 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*	
ST1 X3.937 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*	
ST1 X3.937 ER20 MF	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 14X1*	
ST1 X5.512 ER20 MF	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 14X1*	

* 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



M E T R I C										
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

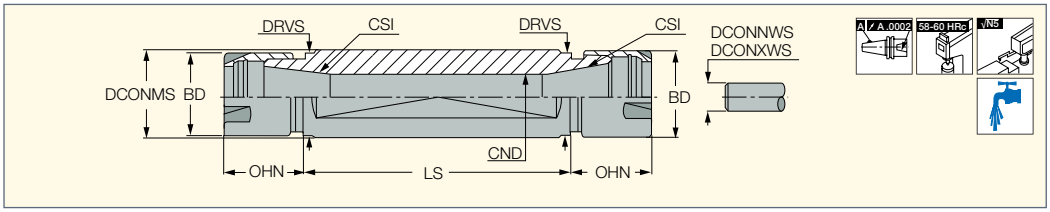
Spare Parts

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	CSI	DCONMS	DCONNWS(1)	DCONXWS(2)	LS	OHN(3)	BD	CND(4)	DRVS(5)	Lbs
ST3/4X2.756 ER11 MF D	ER11	.750	.022	.278	2.756	.787	.630	.295	.669	.33
ST3/4X2.165 ER16 MF D	ER16	.750	.022	.396	2.165	1.024	.866	.413	.669	.26
ST1 X2.441 ER16 MF D	ER16	1.000	.022	.396	2.441	1.102	.866	.413	.866	.55

(1) Minimum diameter
(2) Maximum diameter
(3) Minimum overhang
(4) Coolant entry diameter
(5) Torque key size

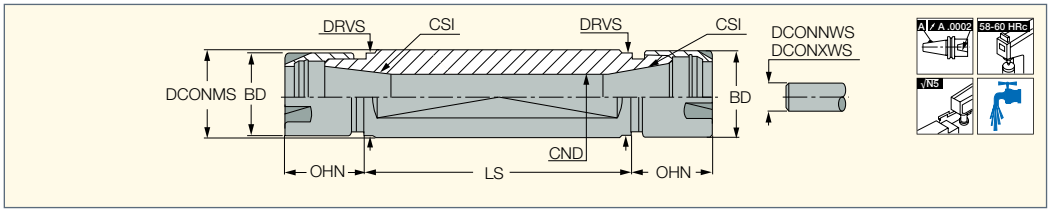
Spare Parts

Designation		
ST3/4X2.756 ER11 MF D	NUT ER11 MINI	WRENCH ER11 MINI*
ST3/4X2.165 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*
ST1 X2.441 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*

* Optional, should be ordered separately

Straight Shank

ST-ER-MF-D (double-ended)
Double-Ended Mini Collets with Cylindrical Shanks and a Clamping Flat



M E T R I C										
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) Coolant entry diameter
(6) Minimum overhang

Spare Parts

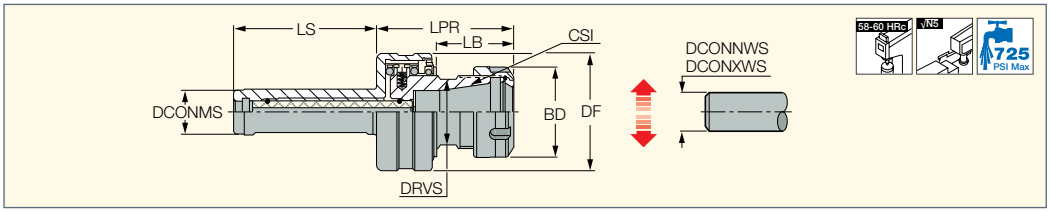
Designation		
ST 16X 50 ER11 MF D	NUT ER11 MINI	WRENCH ER11 MINI*
ST 20X 30 ER11 MF D	NUT ER11 MINI	WRENCH ER11 MINI*
ST 20X 50 ER11 MF D	NUT ER11 MINI	WRENCH ER11 MINI*
ST 20X 55 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*
ST 22X 55 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*
ST 22X 75 ER16 MF D	NUT ER16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



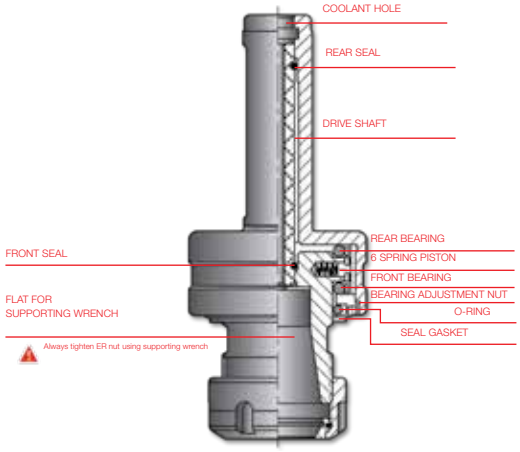
Designation	DCONMS	CSI	DCONNWS(2)	DCONXWS(3)	LB	LPR	LS	BD	DF	RFI	DRVS(4)	Lbs	
GFI ST 3/4 ER20 (1)	.750	ER20	.041	.514	1.358	2.185	2.559	1.339	1.969	.020	.866	1.20	NUT ER20 TOP
GFI ST 1 ER32 (1)	1.000	ER32	.080	.789	1.807	3.028	3.150	1.968	2.559	.030	1.417	2.87	NUT ER32 TOP

- Maximum 2000 RPM!

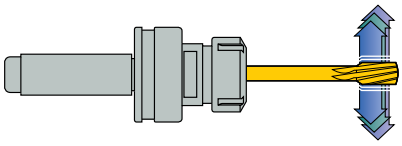
(1) Radial float from center
(2) Minimum diameter
(3) Maximum diameter
(4) Torque key size

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 in reaming operations carried out on vertical and horizontal machine tools.

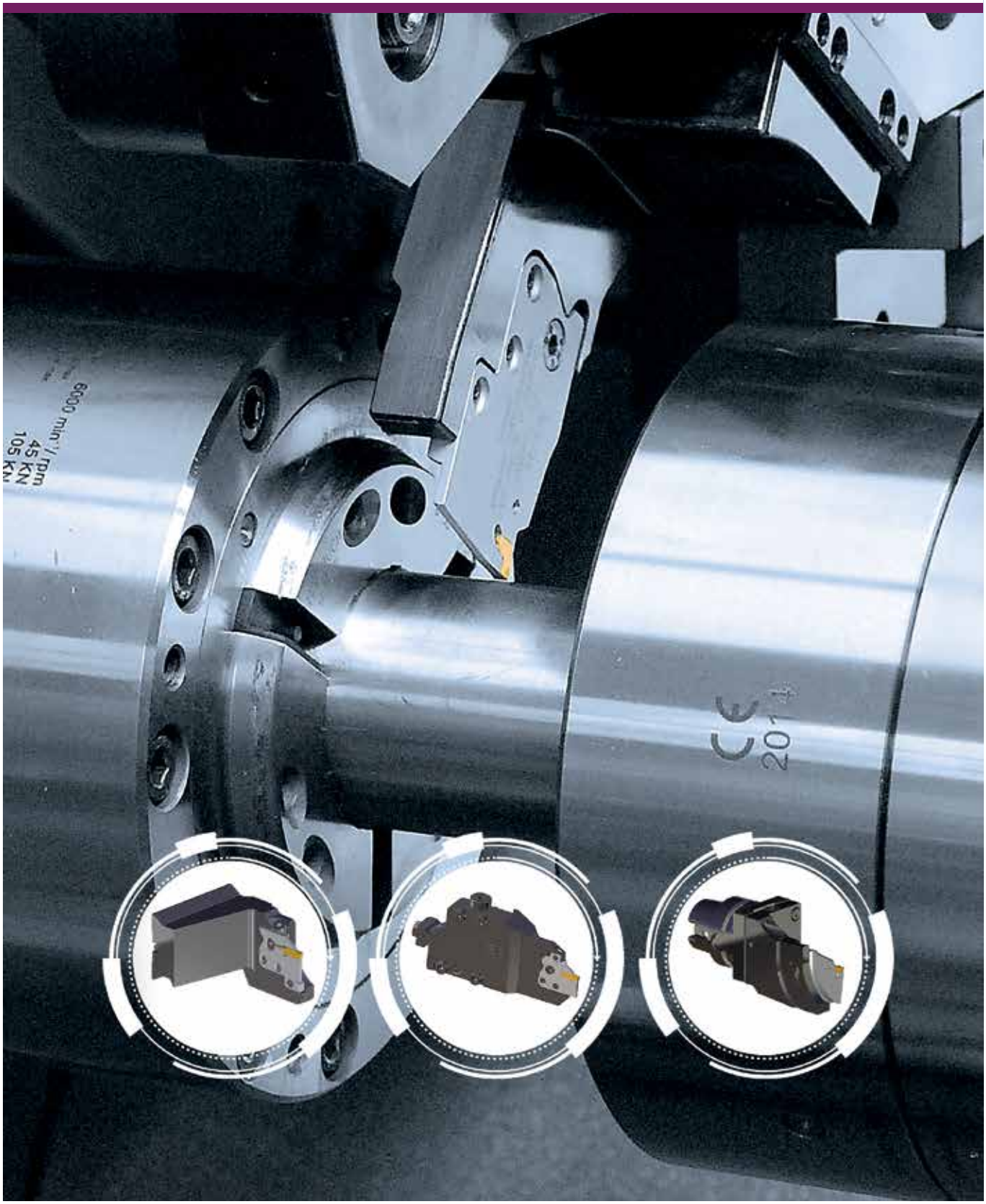


Features:
Radial self-floating mechanism that compensates for misalignment between the reamer and workpiece to ensure the same tolerance as the reamer itself.
The special self-centering mechanism eliminates tapered and oversized bores.

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.

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

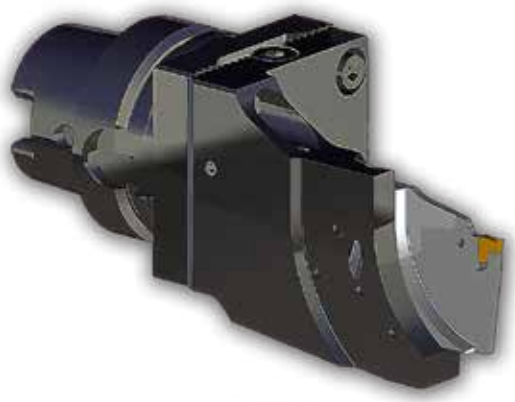
- The unique combination of a rigid tool and efficient coolant improves the insert's tool life, surface finish and part straightness
- Designed for high-pressure coolant up to 2170 PSI and also very efficient when using low coolant pressure of 100-140 PSI
- No coolant tubes involved, which means no obstruction 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

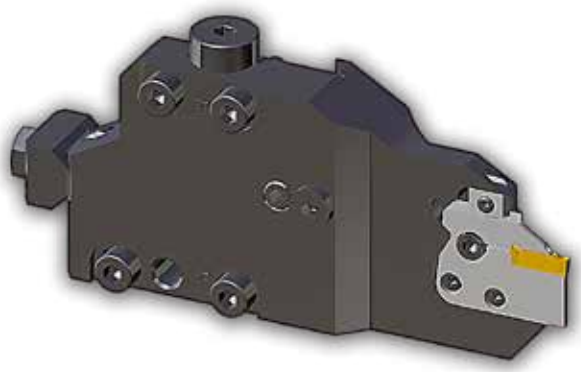
Available adapters for the following specific machines:

- 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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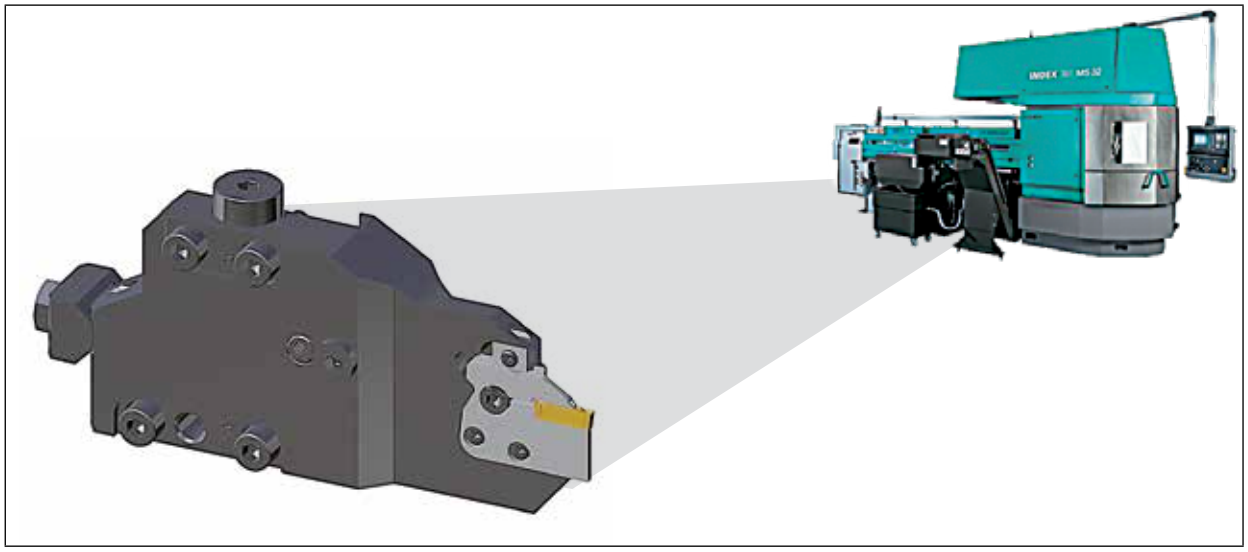
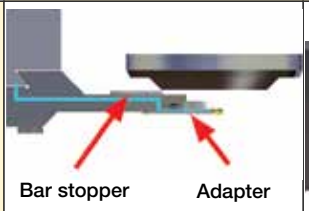
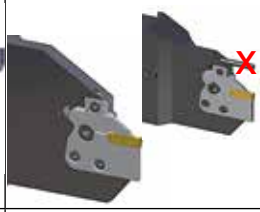
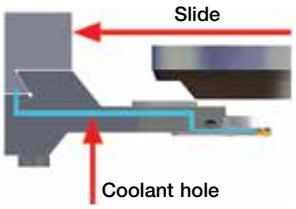
ISCAR Modular System for Multi-Spindle Machines

MODULAR-GRIP . JET-CUT

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

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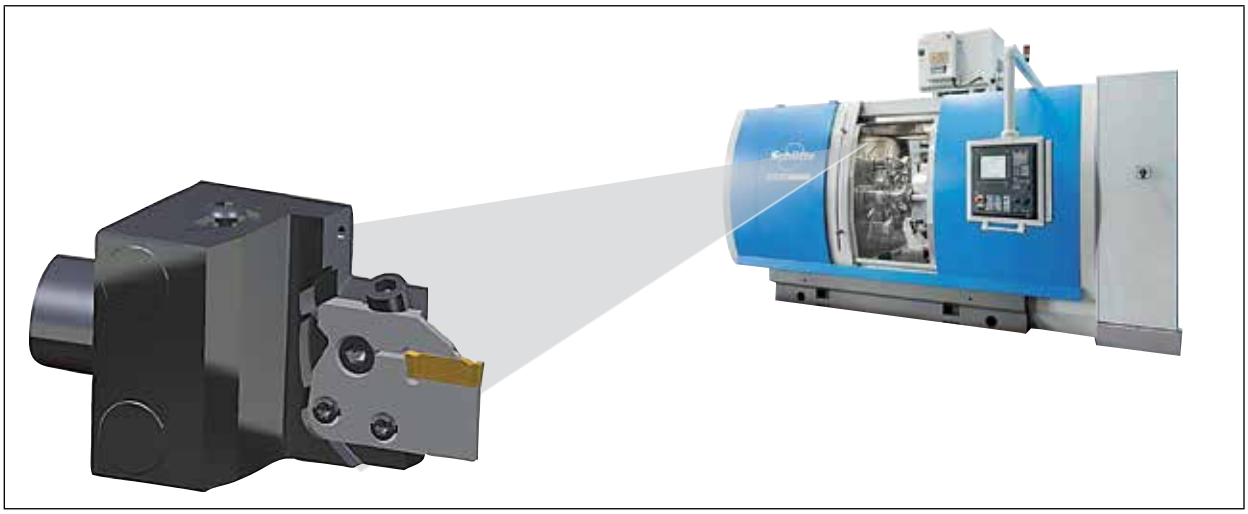
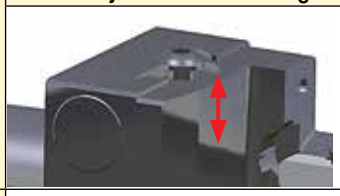
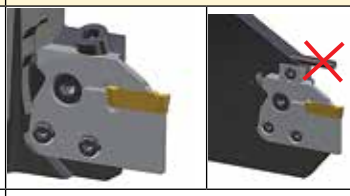
ISCAR Modular System for Multi-Spindle Machines

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

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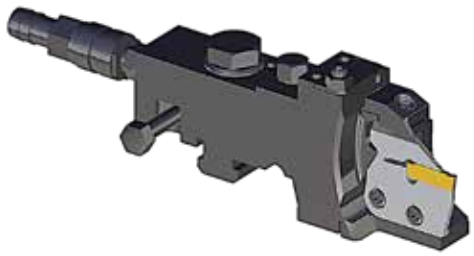
ISCAR Modular System for Multi-Spindle Machines

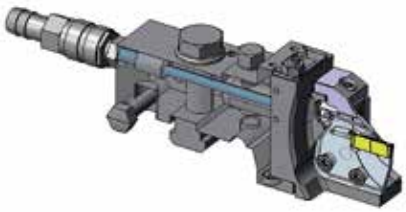
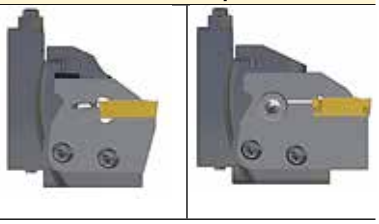
Toolholder Systems for Göltenbodt GWS Multi-Spindle Machines with MODULAR-GRIP Adaptation and Directed Internal Coolant



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

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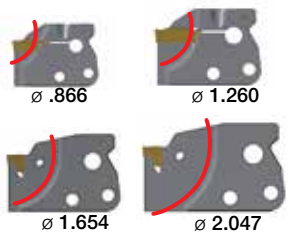
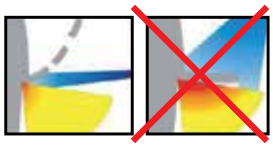
Adapters With Internal Coolant

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 groove-turn operations can be performed with the same holder • Extremely flexible

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Tool Selection for INDEX CNC Multi-Spindle Machines

Machine	Toolholder	Width	Adapter DGPAD	Adapter TAGPAD	Insert TAG	Insert DGN	Geometry / Feed	Tough ↔ Hard IC830	IC5400	IC808
Index MS16	MS16- JHP	.059″	DGFH MS16-1.5D16-JHP		DGN 150..J		LF, MF, C (low → high)	•	•	•
		.079″	DGFH MS16-1.5D16-JHP		DGN 2002					
Index MS18	MS18- 22-MG- JHP	.079″	DGPAD 2L-D22-JHP		DGN 2002		LF, MF, C (low → high)	•	•	•
Index MS22	MS18- 22-MG- JHP	.079″	DGPAD 2L-D22-JHP		DGN 2002		LF, MF, C (low → high)	•	•	•
Index MS32	MS32- 40-MG- JHP	.079″	DGPAD 2L-D32-JHP		DGN 2002		LF, MF, C (low → high)	•	•	•
		.122″	DGPAD 3L-D32-JHP		DGN 3102					
Index MS40	MS32- 40-MG- JHP	.079″	TAGPAD 2L-D42-JHP		TAG N2		LF, MF, C (low → high)	•	•	•
		.118″	TAGPAD 3L-D42-JHP		TAG N3					
Index MS52	MS32- 40-MG-JHP oder MS52-MG-JHP	.079″	TAGPAD 2L-D52-JHP		TAG N2		LF, MF, C (low → high)	•	•	•
		.118″	TAGPAD 3L-D52-JHP		TAG N3					

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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	.079″	DGPAD 2L-D32-JHP		DGN 2002		LF, MF, C (low → high)	•	•	•
	C4 DT30/2-L23		.122″	DGPAD 3L-D32-JHP		DGN 3102					
SCX-46	C3 DT30/2-L23	DT30/2 MAHDR-SCX-D80-JHP	.079″	TAGPAD 2L-D52-JHP		TAG N2		LF, MF, C (low → high)	•	•	•
	C4 DT30/2-L23		.118″	TAGPAD 3L-D52-JHP		TAG N3					

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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	IC830	IC5400	IC808
GWS02	.787″	.079″	2.008″	MS-ES02012-GWS-MG-JHP		DGPAD 2R/ L-D20-GWS-JHP*			DGN 2002	LF low	•	•	•
			2.323″	MS-ES02013-GWS-MG-JHP									
	1.260″	.079″	2.343″	MS-ES02012-GWS-MG-JHP		DGPAD 2R/ L-D32-JHP*				MF			
			2.657″	MS-ES02013-GWS-MG-JHP									
		.122″	2.343″	MS-ES02012-GWS-MG-JHP		DGPAD 3R/ L-D32-JHP*			DGN 3102	C high			
			2.657″	MS-ES02013-GWS-MG-JHP									
GWS09	.787″	.079″	2.402″	MS-ES09003-GWS-MG-JHP		DGPAD 2R/ L-D20-GWS-JHP*			DGN 2002	LF low	•	•	•
	1.260″	.079″	2.343″	MS-ES09003-GWS-MG-JHP		DGPAD 2R/ L-D32-JHP*							
		.122″	2.343″	MS-ES09003-GWS-MG-JHP		DGPAD 3R/ L-D32-JHP*			DGN 3102				
	1.654″	.079″	2.465″	MS-ES09003-GWS-MG-JHP		TAGPAD 2R/ L-D42-JHP*		TAG N2		MF			
		.118″	2.457″	MS-ES09003-GWS-MG-JHP		TAGPAD 3R/ L-D42-JHP*		TAG N3					
	2.047″	.079″	2.661″	MS-ES09003-GWS-MG-JHP		TAGPAD 2R/ L-D52-JHP*		TAG N2		C high			
		.118″	2.654″	MS-ES09003-GWS-MG-JHP		TAGPAD 3R/ L-D52-JHP*		TAG N3					
GWS41	.787″	.079″	2.323″	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	DGPAD 2R/ L-D20-GWS-JHP*			DGN 2002	LF low	•	•	•
	1.260″	.079″	2.657″	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	DGPAD 2R/ L-D32-JHP*							
		.122″	2.657″	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	DGPAD 3R/ L-D32-JHP*			DGN 3102				
	1.654″	.079″	2.780″	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	TAGPAD 2R/ L-D42-JHP*		TAG N2		MF			
		.118″	2.772″	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	TAGPAD 3R/ L-D42-JHP*		TAG N3					
	2.047″	.079″	2.976″	MS-ES41008-GWS-MG-JHP	MS-ES41009-GWS-MG-JHP	TAGPAD 2R/ L-D52-JHP*		TAG N2		C high			
		.118″	2.968″	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 825

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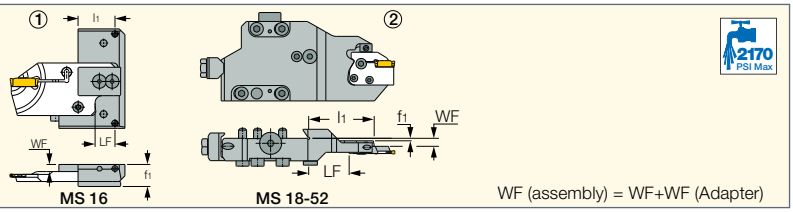
INDEX JETCUT

MODULARGRIP

MS##-##-MG-JHP

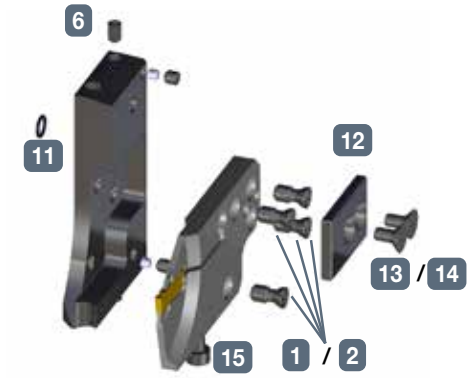
Toolholders for INDEX CNC Multi-Spindle Machines with Internal Coolant Supply for MODULAR-GRIP Adapters



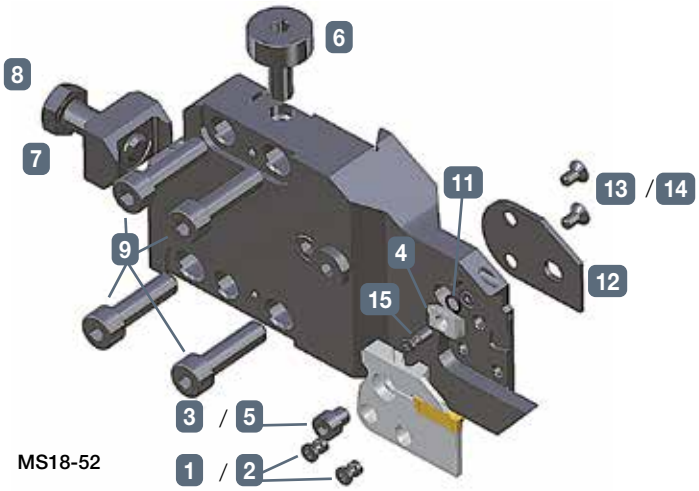
Designation	LF	l1	WF	f1	Fig.	Adapter	Adapter2
MS 16-JHP	.551	1.024	.197	.610	1	DGFH MS16-1.5D16-JHP	-
MS 18/22-MG-JHP	1.819	2.638	.535	.319	2	DGPAD 2L-D22-JHP	-
MS 18/22-MG-JHP L-69.7	.953	1.890	.535	.315	2	DGPAD 2L-D22-JHP	-
MS 32/40-MG-JHP	1.772	2.748	.531	.315	2	DGPAD 2/3L-D32-JHP	TAGPAD 2/3-D42-JHP
MS 32/40-MG-JHP-5.1	1.772	2.748	.531	.315	2	DGPAD 2/3L-D32-JHP	TAGPAD 2/3-D42-JHP
MS 32C-HUBVERL-MG-JHP	2.933	3.909	.531	.315	2	DGPAD 2/3L-D32-JHP	TAGPAD 2/3L-D32-JHP
MS 40-6/8-MG-JHP	2.165	3.142	.531	.315	2	TAGPAD 2/3L-D42-JHP	DGPAD 2/3L-D42-JHP
MS 40-6/8-MG-JHP-7.1	2.165	3.142	.531	.315	2	TAGPAD 2/3L-D42-JHP	DGPAD 2/3L-D42-JHP
MS 52-MG-JHP	1.835	-	.177	-	2	TAGPAD 2/3-D52-JHP	-

• For user guide, see pages 815-821 • All trademarks and logos are the property of their respective companies

For tools, see pages: CGPAD-JHP (290) • DGPAD-JHP (532) • HGPAD-JHP (274) • PCADR/L-JHP (330) • PCADRS/LS-JHP (331) • TAGPAD-JHP (554) • TGPAD-JHP (280)



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.

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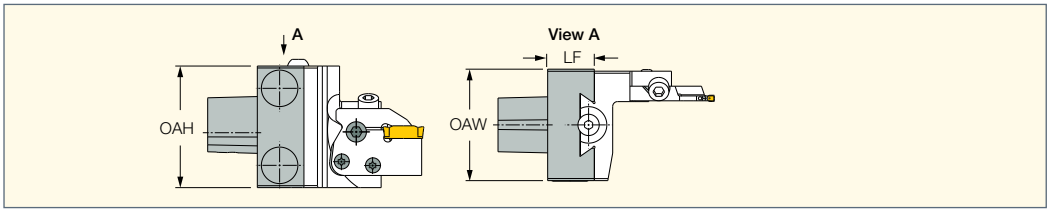
Schütte CAMFIX

MODULAR-GRIP

C#-DT##/2-L23

Toolholder with CAMFIX Adaptation on DT for SCHUTTE Machine Tools



Designation	OAH	OAW	LF
C3 DT20/2-L23	2.244	1.772	.925
C3 DT30/2-L23	2.362	2.165	.925
C4 DT30/2-L23	2.362	2.165	.925

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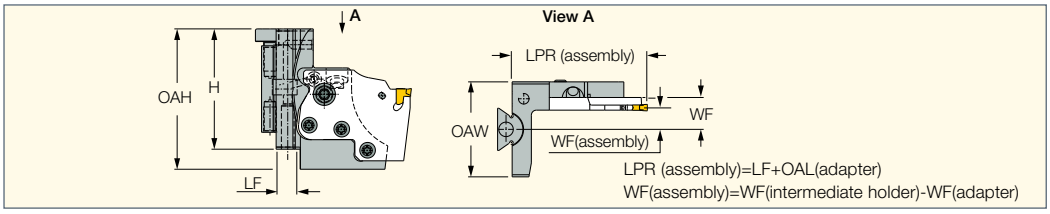
Schütte

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	2.244	1.772	.358	.177	2.618
DT20/2 MAHDN-L-XL-JHP	2.244	1.772	.358	.256	2.618
DT20/2 MAHDR-L-XL-JHP	2.244	1.772	.358	.594	2.618
DT30/2 MAHDR-L-XL-JHP *	2.244	2.165	.358	.791	2.593
DT30/2 MAHDR-R-XL-JHP*	2.244	2.165	.358	.846	2.593

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For tools, see pages: DGPAD-JHP (532) • PCADRS/LS-JHP (331) • TAGPAD-JHP (554)

Spare Parts

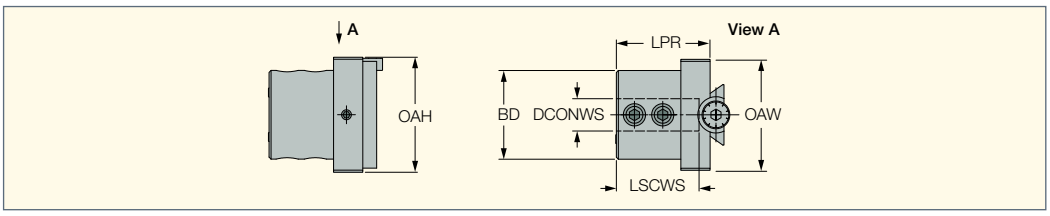
Designation							
DT##/2 MAHD#-#-XL-JHP	SUPPORT MG-XL-5113377	T-20/5	SR M5-04451	HW 5.0	SR M5X5 DIN913 TL360	OR 5X1N	HW 2.5

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	2.244	2.165	.6299	1.7323	1.831	1.6142
DT30/2 20L70WN	2.244	2.165	.7874	1.8898	1.831	1.6142

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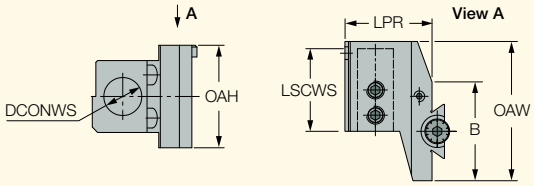
MODULARGRIP

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	2.244	2.559	.7874	1.791	2.165	1.6142
DT30/2 ADR-Z0-20-55	2.244	3.051	.7874	1.909	2.165	1.8110

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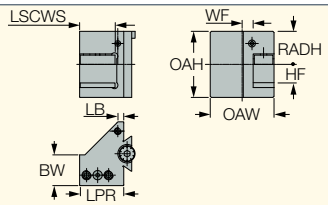
MODULARGRIP

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	.630	.374	1.496	2.244	.197	1.122	1.043	2.165	1.2598

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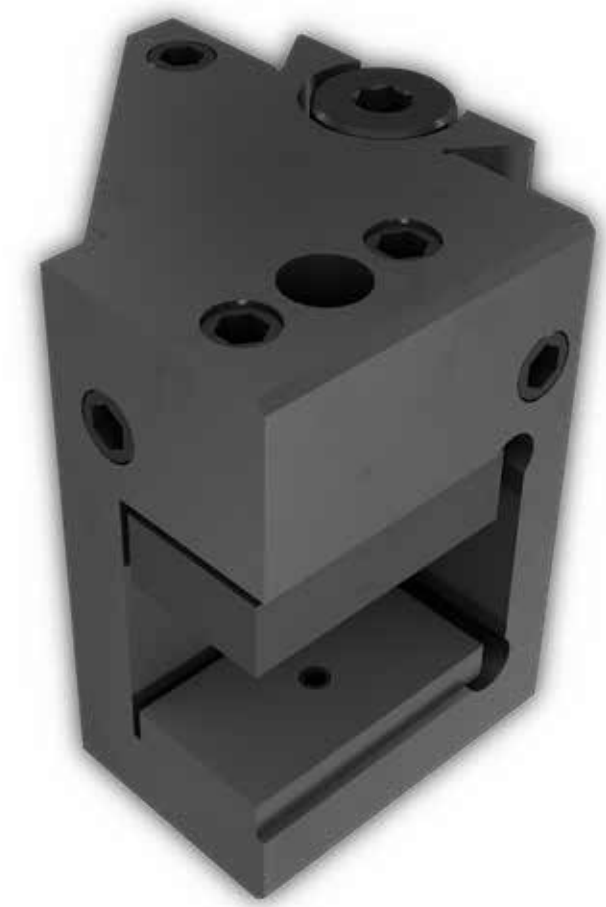

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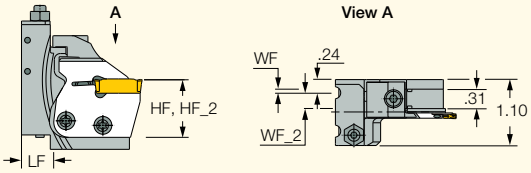
Gültenbodt Innovation and Precision.

MODULAR-GRIP

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

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



2170 PSI Max

OAL (assembly) = LF+OAL (adapter) • WF (assembly) = WF+WF (adapter)

Designation	LF	WF	WF_2	HF[1]	HF_2[2]
MS-ES02012-GWS-MG-JHP	.551	.079	.236	.945	1.063
MS-ES02013-GWS-MG-JHP	.866	.079	.236	.945	1.063
MS-ES09003-GWS-MG-JHP	.551	.079	.236	.945	1.181
MS-ES41008-GWS-MG-JHP	.866	.079	.236	.945	1.063
MS-ES41009-GWS-MG-JHP	.866	.079	.236	.945	1.063

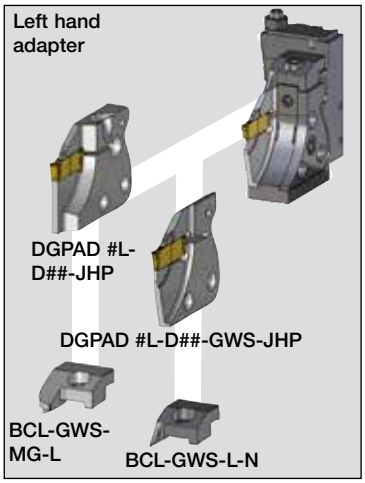
• For user guide, see pages 815-821 • All trademarks and logos are the property of their respective companies

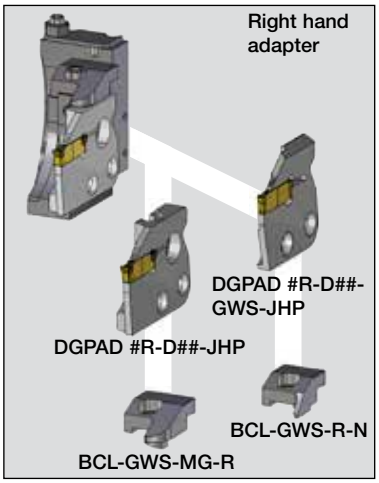
(1) Center height adjustment for GWS43

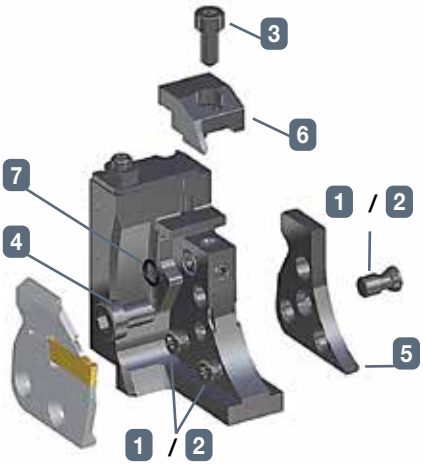
(2) Center height adjustment for GWS60

For tools, see pages: CGPAD-JHP (290) • DGPAD-JHP (532) • HGPAD-JHP (274) • PCADR/L-JHP (330) • PCADRS/LS-JHP (331) • TAGPAD-JHP (554) • TGPAD-JHP (280)

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

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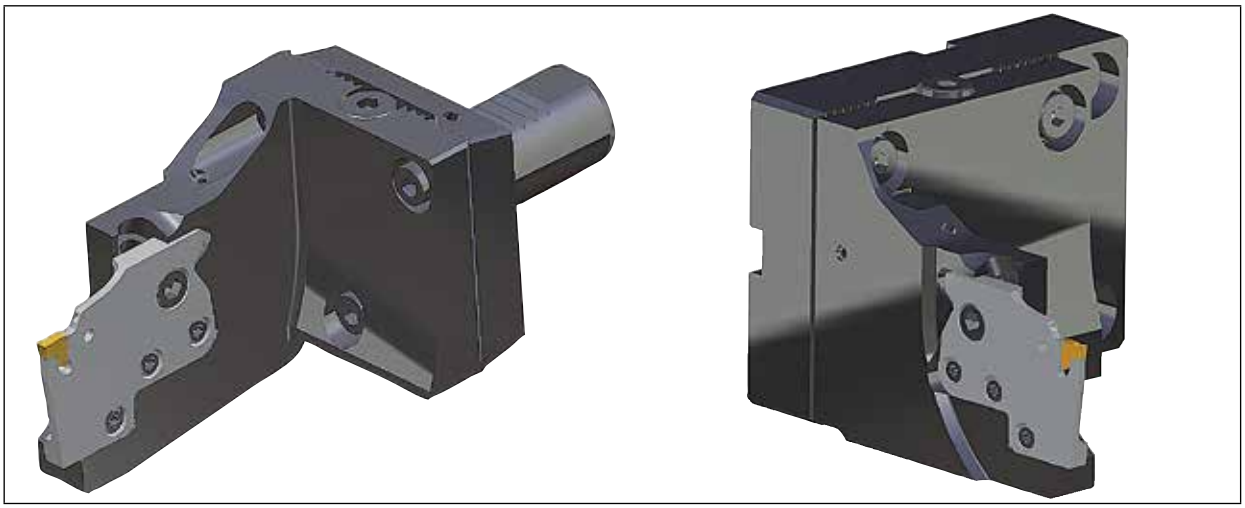
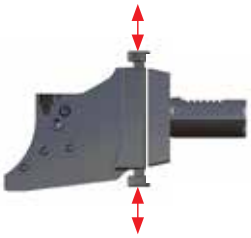
ISCAR Modular System for Turning Lathes

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)

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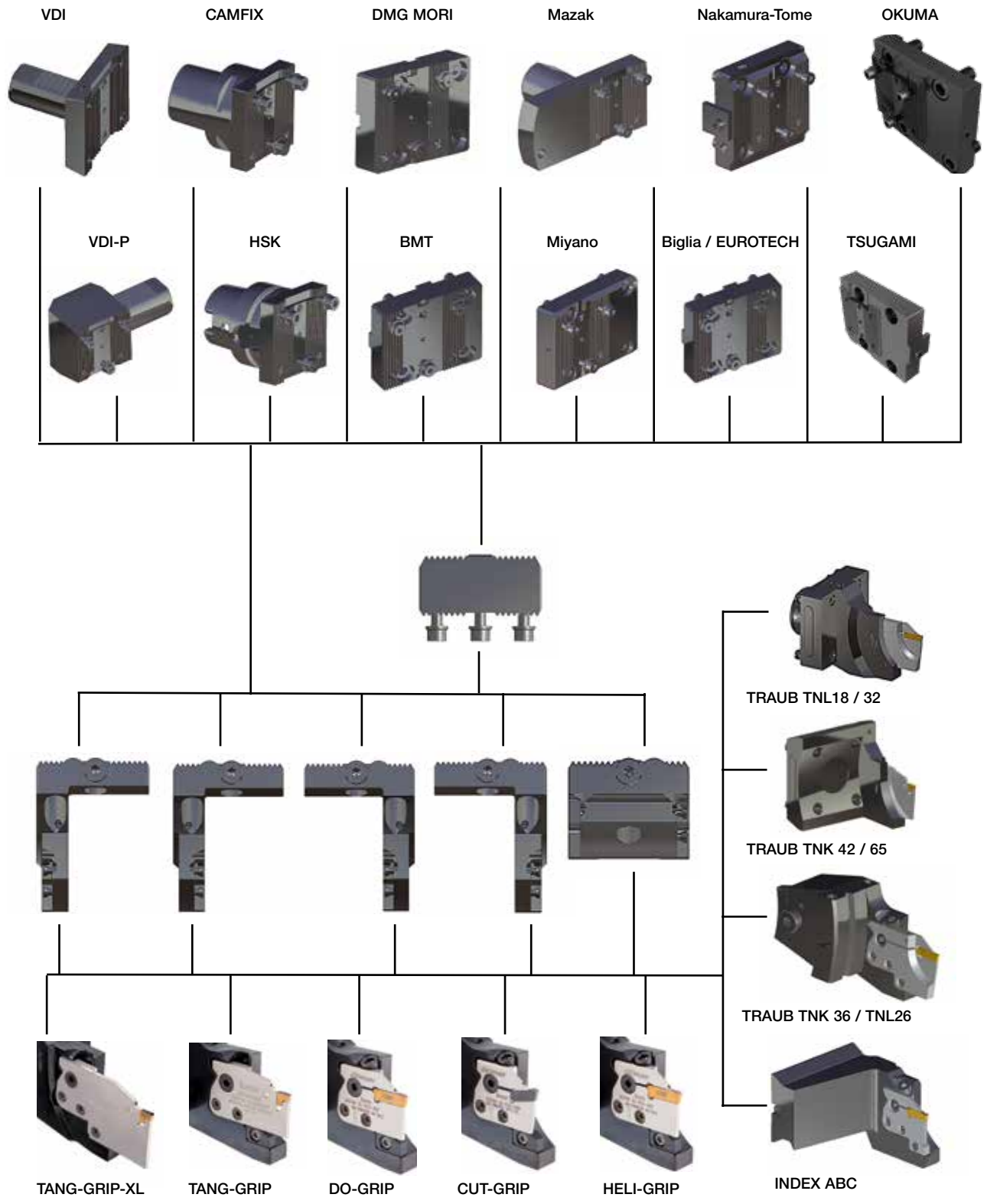
ISCAR Modular System for Turning Lathes

System Overview



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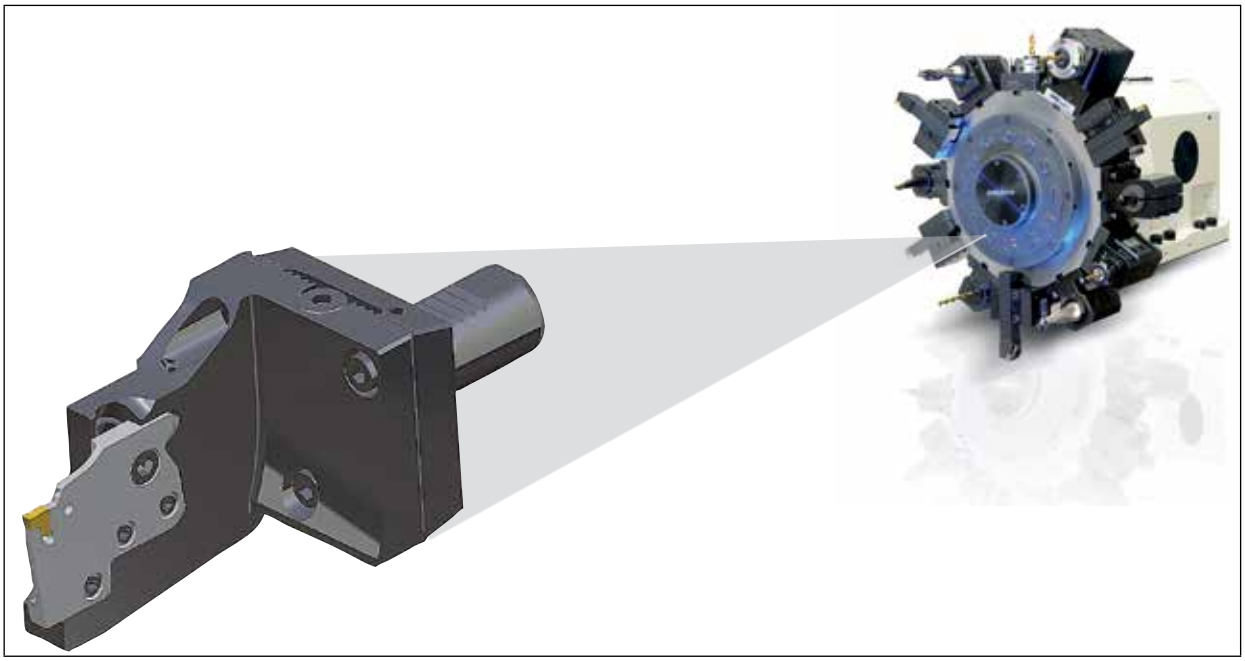
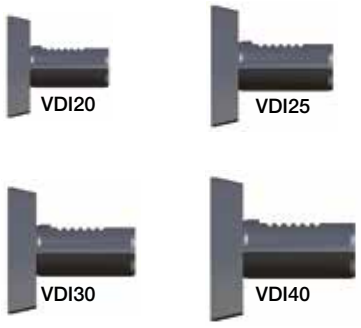
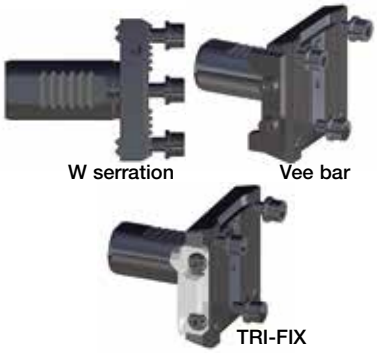
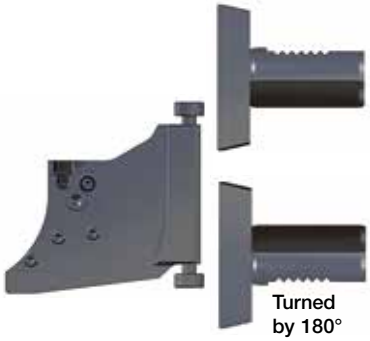
ISCAR Modular System for Turning Lathes

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

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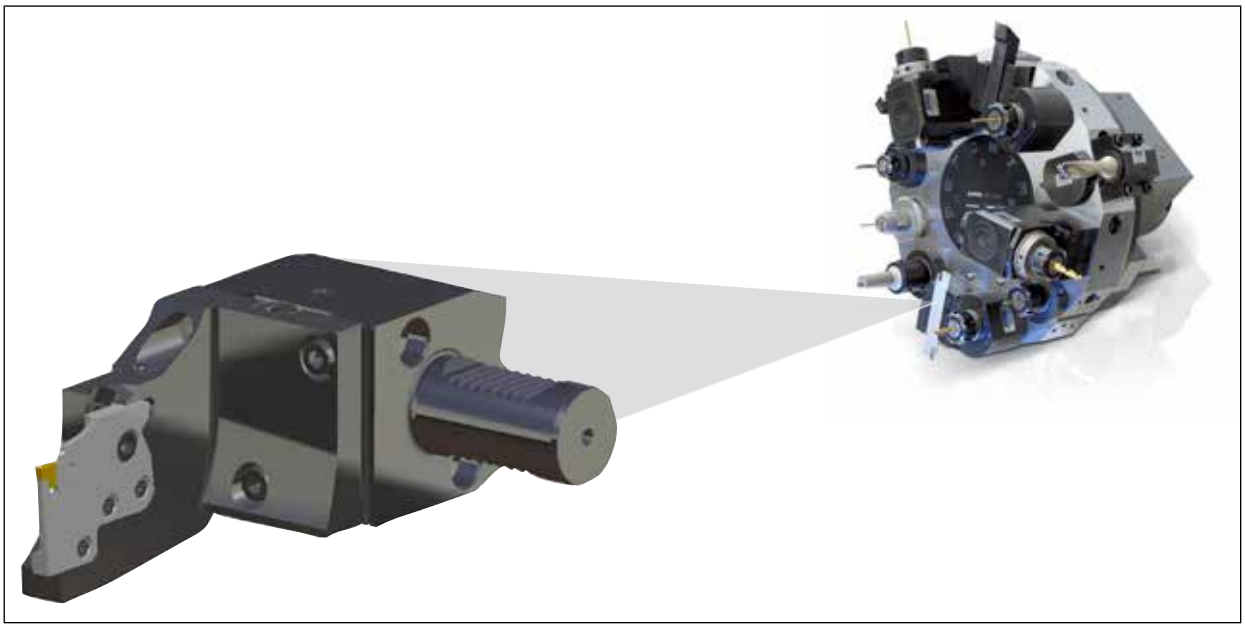
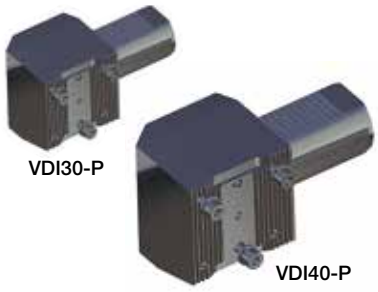
ISCAR Modular System for Turning Lathes

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)

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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)

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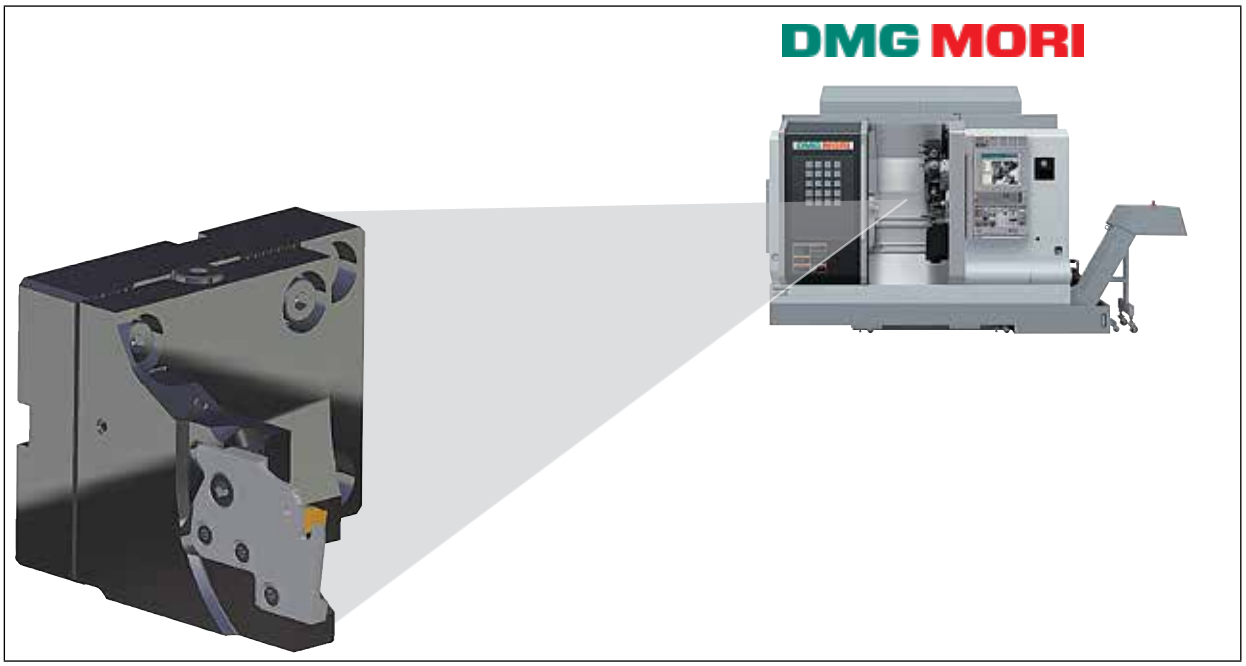
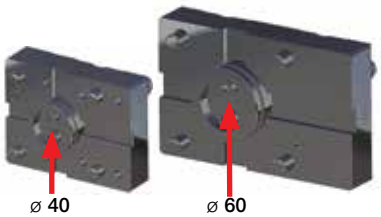
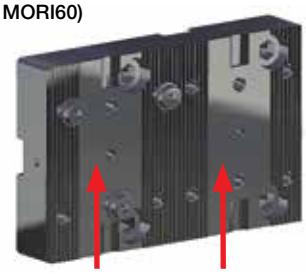
ISCAR Modular System for Turning Lathes

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)

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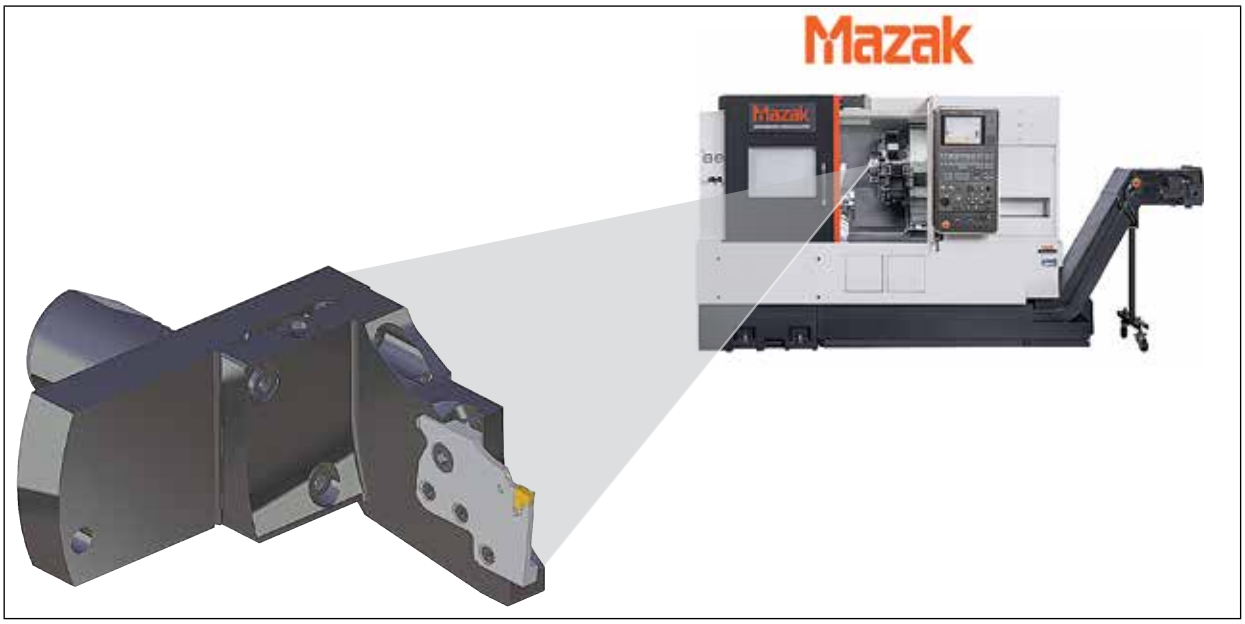
ISCAR Modular System for Turning Lathes

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)

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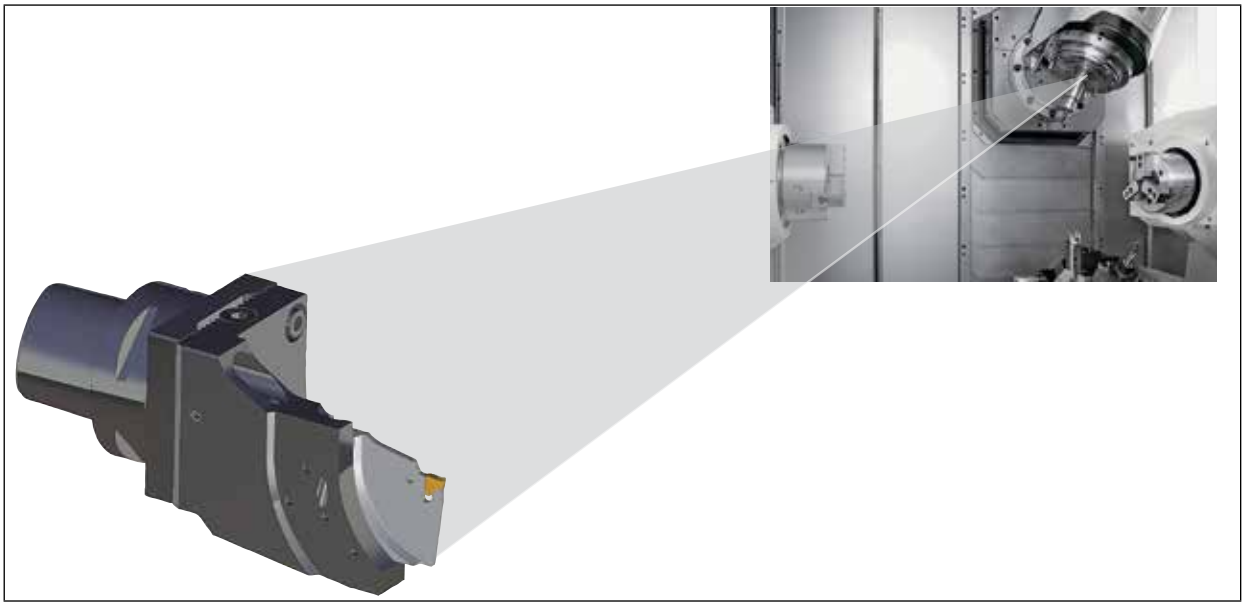
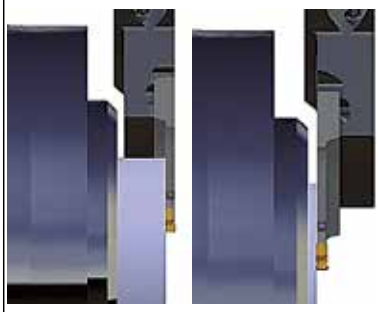
ISCAR Modular System for Turning Lathes

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)

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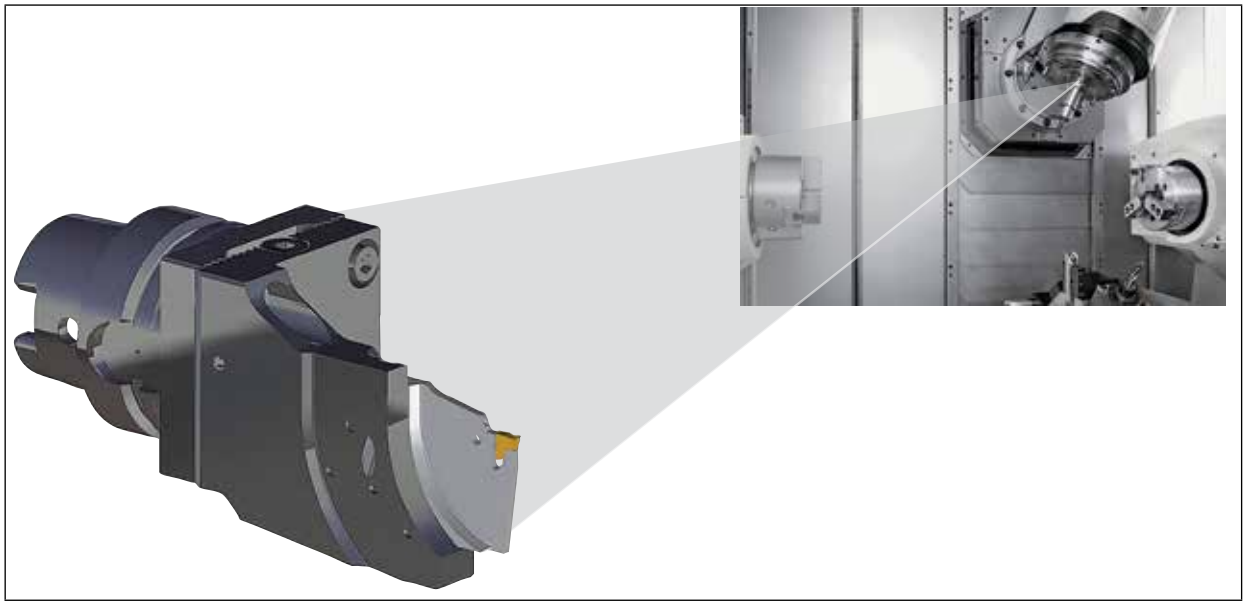
ISCAR Modular System for Turning Lathes

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:			
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)

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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)

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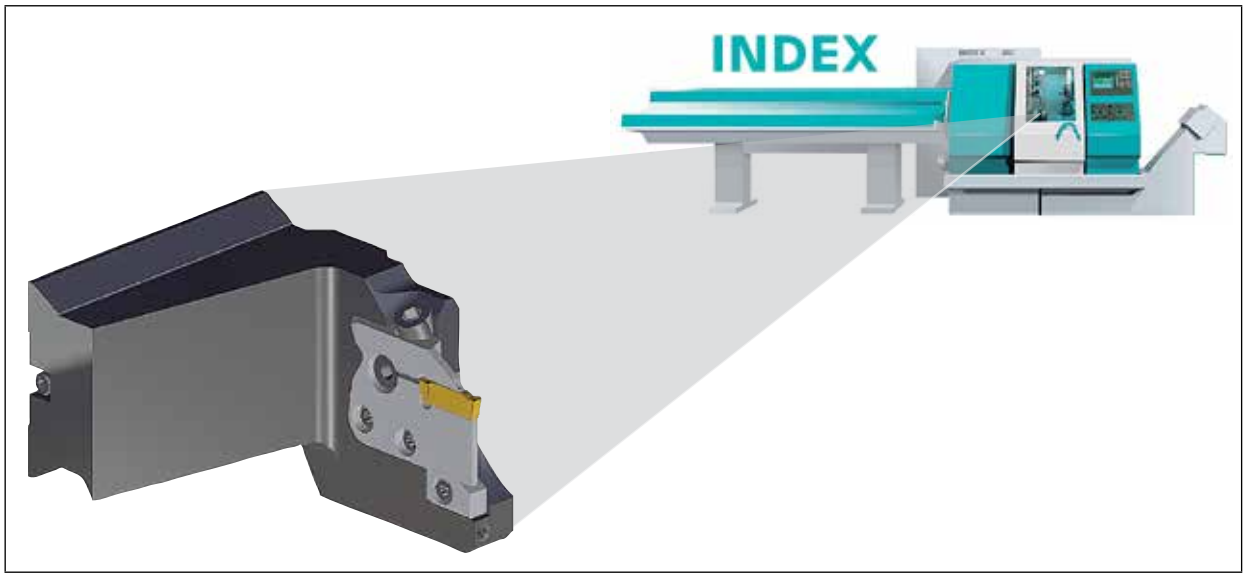
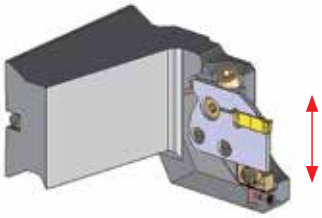
ISCAR Modular System for Turning Lathes

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 +.008″	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)

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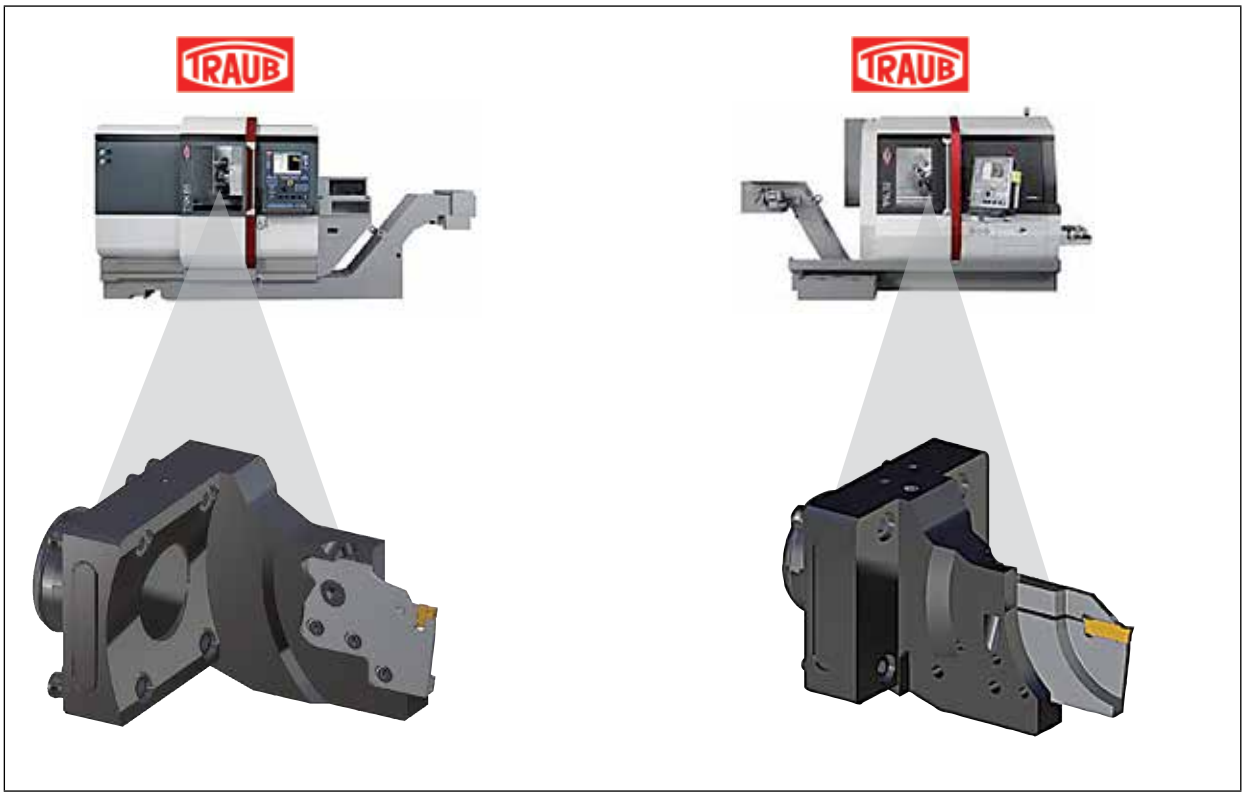
ISCAR Modular System for Turning Lathes

Toolholder System for **Integral Shank 45** with
MODULAR-G**RIP-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

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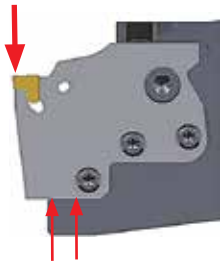
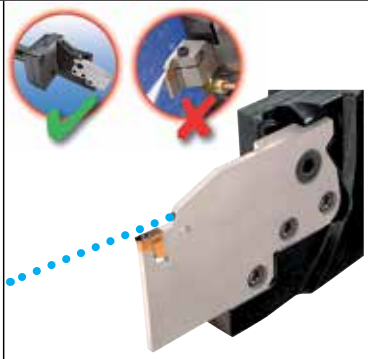
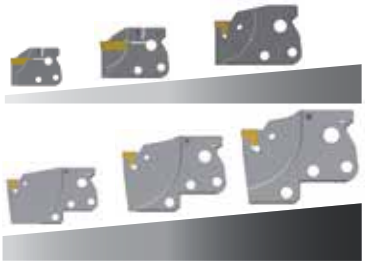
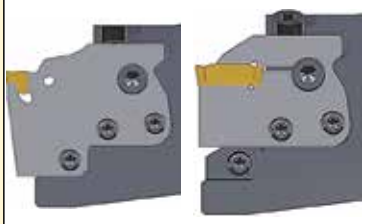
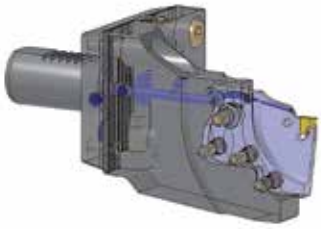
Adapters With Internal Coolant

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 to 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

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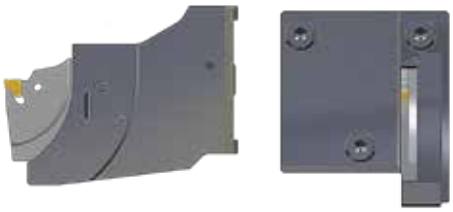
ISCAR Modular System for Turning Lathes

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

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ISCAR Modular System for Turning Lathes

Tool Selection

Example:

VDI30MAHDR-LXL-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 841).

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

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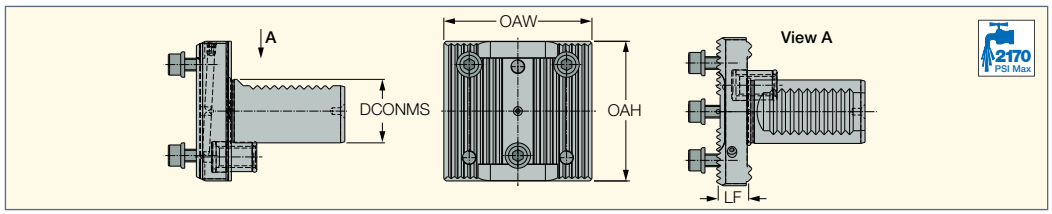
VDI MODULAR-GRIP

VDI#### V##-JHP

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



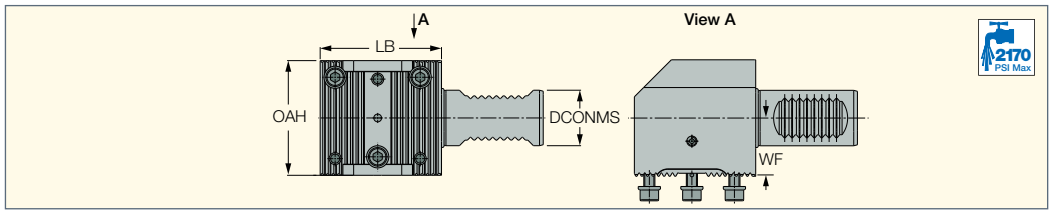
Designation	DCONMS	OAW	OAH	LF	Align.
VDI20 V60-JHP	.787	2.362	2.205	.531	-
VDI25 V60-JHP	.984	2.362	2.409	.502	-
VDI25TF V60-JHP	.984	2.362	2.409	.502	TriFix
VDI25V V60-JHP	.984	2.362	2.409	.502	V-Bar
VDI25W V60-JHP	.984	2.362	2.409	.528	W-toothing
VDI30 V60-JHP	1.181	2.756	2.598	.541	-
VDI30TF V60-JHP	1.181	2.756	2.598	.541	TriFix
VDI30V V60-JHP	1.181	2.756	2.598	.541	V-Bar
VDI30W V60-JHP	1.181	2.756	2.598	.567	W-toothing
VDI40 V85-JHP	1.575	3.346	3.228	.620	-
VDI40TF V85-JHP	1.575	3.346	3.228	.620	TriFix
VDI40V V85-JHP	1.575	3.346	3.228	.620	V-Bar
VDI40W V85-JHP	1.575	3.346	3.228	.644	W-toothing

- For user guide, see pages 826-840

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	1.181	2.583	2.441	1.211	2.480
VDI40-P V60-JHP	1.575	2.583	3.150	1.368	2.776

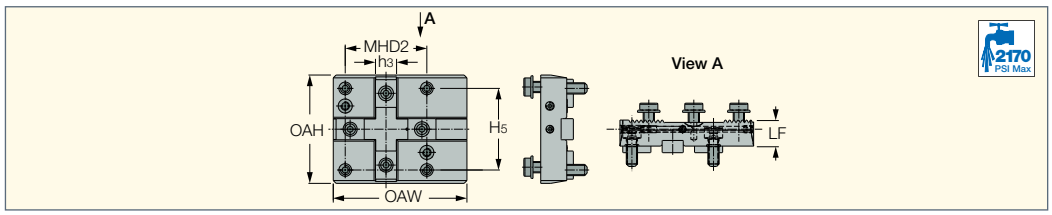
- For user guide, see pages 826-840

DOOSAN HAAS

MODULAR-GRIP

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	3.740	3.031	.687	2.283	2.28	.591
BMT55 V85-JHP	4.075	3.307	.817	2.520	2.52	.591
BMT65 V85-JHP	4.508	3.858	1.014	2.874	2.76	.709
BMT75 V85-JHP	4.724	4.409	1.152	3.543	3.54	.984

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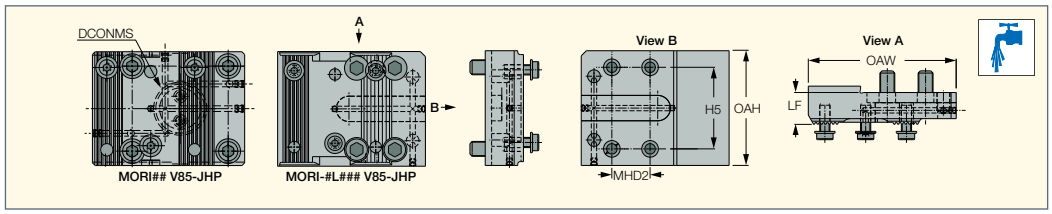
- For user guide, see pages 826-840

DMG MORI

MODULAR-GRIP

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	4.567	3.543	.955	2.520	1.18	-
MORI-SL200 V85-JHP	4.961	3.937	.955	2.992	1.38	-
MORI40 V85-JHP	4.370	3.268	1.014	2.441	2.76	1.571
MORI60 V85-JHP	6.772	4.303	1.152	3.307	3.70	2.358

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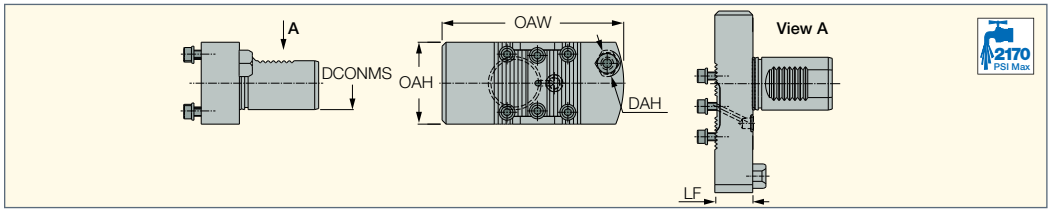
Mazak

MODULAR-GRIP

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	1.575	.630	5.217	2.441	1.108
MA4020T V60-JHP	1.575	.787	5.413	2.441	1.108
MA4016E V60-JHP	1.575	.630	6.398	2.441	1.152
MA4020E V60-JHP	1.575	.787	6.693	2.441	1.152
MA5020E V85-JHP	1.968	.787	6.634	3.937	1.801

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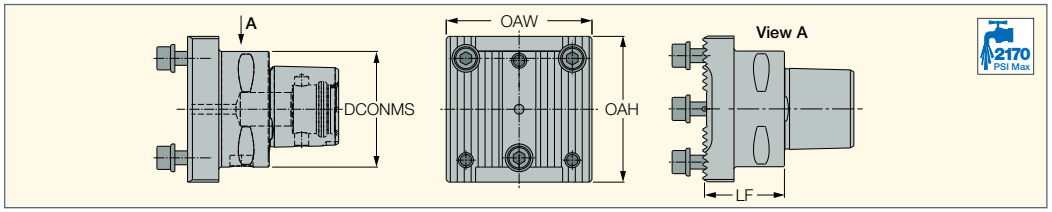
MODULAR-GRIP

CAMFIX

C#-V60-JHP
Toolholders for CAMFIX Adaptations with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



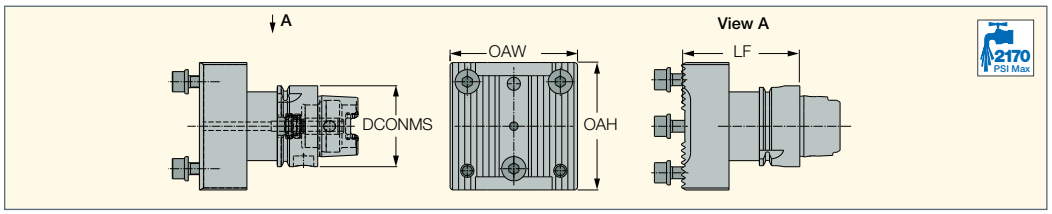
Designation	DCONMS	OAW	OAH	LF
C4 V60-JHP	1.575	2.480	2.480	1.360
C5 V60-JHP	1.968	2.480	2.480	1.360
C6 V60-JHP	2.480	2.480	2.480	1.439

- For user guide, see pages 826-840

MODULAR-GRIP

HSK

HSK T ## V60-JHP
Toolholders for HSK-T Adaptations with Internal Coolant Supply for MODULAR-GRIP-XL Adapters



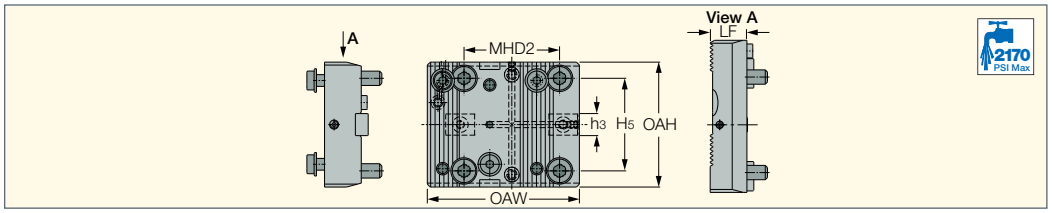
Designation	DCONMS	OAW	OAH	LF
HSK T 40 V60-JHP	1.575	2.480	2.480	2.274
HSK T 63 V60-JHP	2.480	2.480	2.480	2.274

- For user guide, see pages 826-840

Biglia EUROTECH

MODULAR-GRIP

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	3.268	2.756	.817	1.968	1.97	.472
BI55 V85-JHP	4.075	3.346	.955	2.480	2.56	.591

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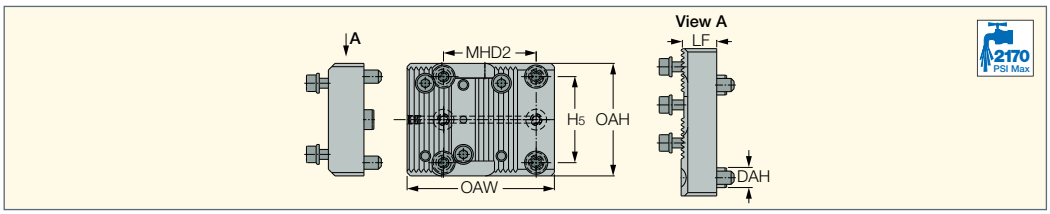
- For user guide, see pages 826-840

Miyano

MODULAR-GRIP

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	3.504	2.677	.817	2.047	2.20	.472
MI45 V60-JHP	4.016	2.835	.549	2.205	2.68	.472
MI55 V60-JHP	4.094	3.583	.600	2.953	2.36	.472

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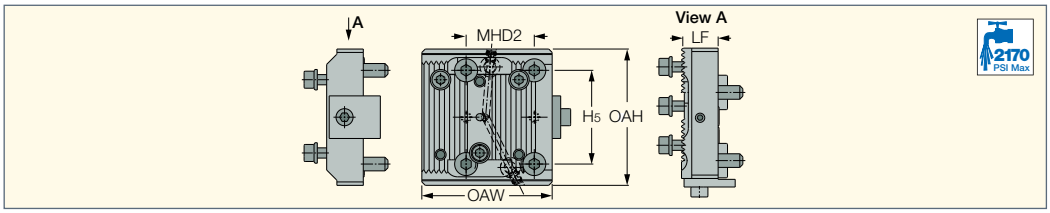
- For user guide, see pages 826-840

Nakamura-Tome

MODULAR-GRIP

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	3.012	3.150	.817	2.165	1.57
NT55 V60-JHP (1)	3.445	3.386	.817	2.362	1.97
NT65 V60-JHP	3.917	3.937	.817	2.795	2.72

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- For user guide, see pages 826-840

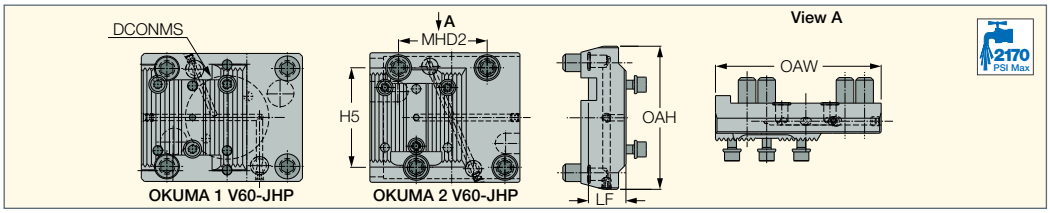
(1) Suitable for CMZ machines

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	4.213	3.346	.758	2.559	3.15	2.181
OKUMA 2 V60-JHP	4.331	3.740	.955	2.874	2.56	-

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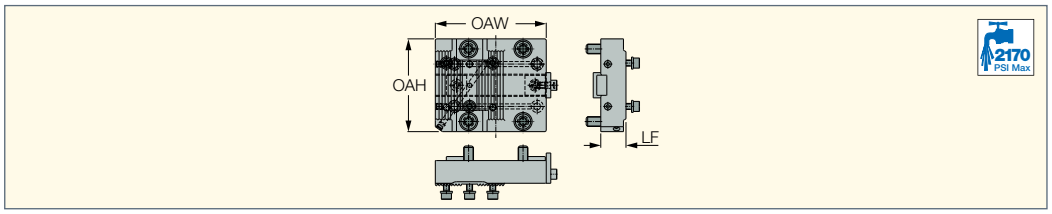
- For user guide, see pages 826-840
- For intermediate holder spare parts see page 844

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	4.331	3.622	.984

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- For user guide, see pages 826-840

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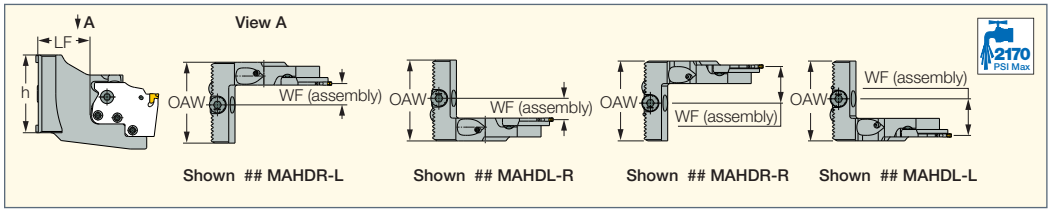
MODULAR-GRIP
JETCUT

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

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

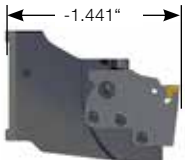


Designation	CSI	H	OAW	LF	WF
V60 MAHDL-L-XL-JHP	V60	2.441	2.539	1.679	1.165
V60 MAHDL-L-XL-SH-JHP	V60	2.441	2.539	.734	1.291
V85 MAHDL-L-XL-JHP	V85	3.268	3.346	1.718	1.500
V85 MAHDL-L-XL-LH-JHP	V85	3.268	3.346	2.722	1.500
V60 MAHDL-R-XL-JHP	V60	2.441	2.539	1.679	.669
V60 MAHDL-R-XL-LH-JHP	V60	2.441	2.539	2.722	.669
V60 MAHDL-R-XL-SH-JHP	V60	2.441	2.539	.734	.795
V85 MAHDL-R-XL-JHP	V85	3.268	3.346	1.718	1.004
V85 MAHDL-R-XL-LH-JHP	V85	3.268	3.346	2.722	1.004
V85 MAHDL-R-XL-SH-JHP	V85	3.268	3.346	1.049	1.004
V60 MAHDR-L-XL-JHP	V60	2.441	2.539	1.679	.669
V60 MAHDR-L-XL-LH-JHP	V60	2.441	2.539	2.722	.669
V60 MAHDR-L-XL-SH-JHP	V60	2.441	2.539	.734	.795
V85 MAHDR-L-XL-JHP	V85	3.268	3.346	1.718	1.004
V85 MAHDR-L-XL-LH-JHP	V85	3.268	3.346	2.722	1.004
V85 MAHDR-L-XL-SH-JHP	V85	3.268	3.346	1.049	1.004
V60 MAHDR-R-XL-JHP	V60	2.441	2.539	1.679	1.165
V60 MAHDR-R-XL-LH-JHP	V60	2.441	2.539	2.722	1.165
V60 MAHDR-R-XL-SH-JHP	V60	2.441	2.539	.734	1.291
V85 MAHDR-R-XL-JHP	V85	3.268	3.346	1.718	1.500
V85 MAHDR-R-XL-LH-JHP	V85	3.268	3.346	2.722	1.500
V85 MAHDR-R-XL-SH-JHP	V85	3.268	3.346	1.049	1.626

- For user guide, see pages 826-840

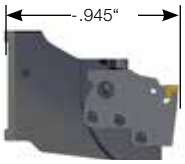
For tools, see pages: CGPAD-JHP (290) • DGPAD-JHP (532) • DGPAD-XL-JHP (532) • HGPAD-JHP (274) • PCADR/L-JHP (330) • PCADRS/LS-JHP (331) • TAGPAD-JHP (554) • TAGPAD-XL-JHP (555) • TGPAD-JHP (280)

Short Design MAHD-XL-JHP



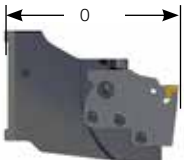
For machines without sub-spindle

Short Version ...-XL-SH-JHP

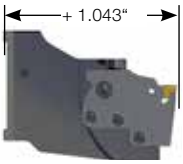


For machines with a small turret swing diameter

Standard Version ...-XL-JHP



Long Version XL-LH-JHP

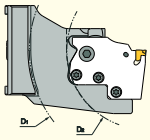


For machines with big sub-spindle diameter

Intermediate holder spare parts

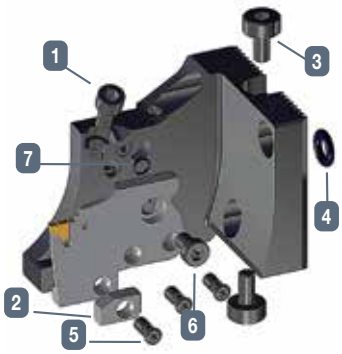
Designation	(1) Clamping Screw	(2) Dummy	(3) Height Adjustment Screw	(4) O-Ring	(5) Screw	(6) Screw	(7) O-Ring
V## MAHD#-#-XL-##-JHP	SR M6x16DIN912 12.9	Dummy-MG-XL-5113377	SR 14-0194-5113373	O RING 8x3 NBR 70	SR M5-04451	SR M6x10DIN6912	OR 5x1N

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	3.898	1.811	5.787	3.701	7.874	5.787
DGPAD ...-D32-JHP	3.898	1.811	5.787	3.701	7.874	5.787
TAGPAD ...-D42-JHP	4.094	2.047	5.984	3.937	8.071	6.024
TAGPAD ...-D52-JHP	4.488	2.441	6.378	4.331	8.465	6.417
TAGPAD-XL ...-D52-JHP	4.488	2.441	6.378	4.331	8.465	6.417
TAGPAD-XL ...-D65-JHP	5.000	2.756	6.890	4.646	8.976	6.732
TAGPAD-XL ...-D82-JHP	5.748	3.386	7.638	5.276	9.724	7.362
TAGPAD-XL ...-D102-JHP	6.693	4.213	8.583	6.102	10.669	8.189



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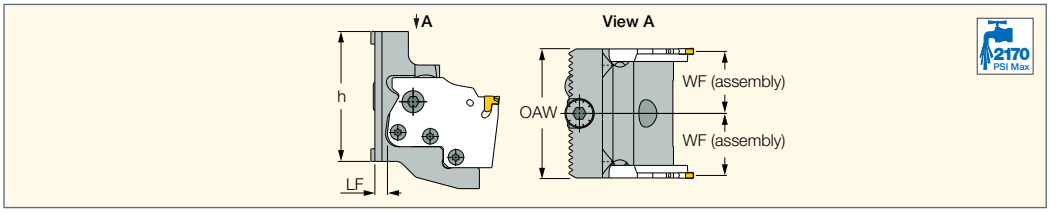
MODULAR-GRIP JETCUT

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	2.441	2.425	.238	1.161
V85 MAHD-XL-JHP	V85	3.346	3.346	.238	1.626

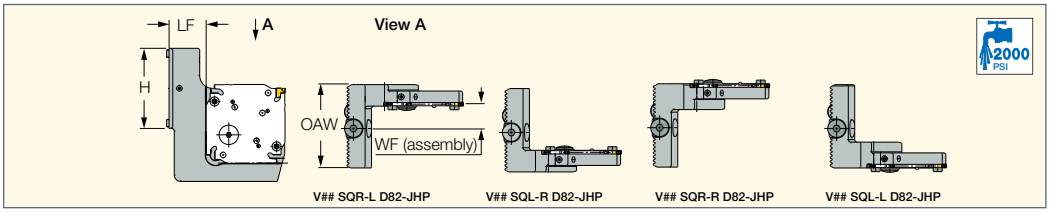
- For user guide, see pages 826-840

For tools, see pages: CGPAD-JHP (290) • DGPAD-JHP (532) • HGPAD-JHP (274) • PCADR/L-JHP (330) • PCADRS/LS-JHP (331) • TAGPAD-JHP (554) • TAGPAD-XL-JHP (555) • TGPAD-JHP (280)

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



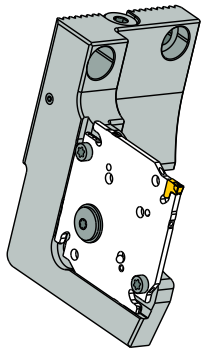
Designation	H	LF	OAW	WF[1]
V60 SQL-L-D82-JHP	2.441	1.366	2.539	1.140
V60 SQL-R-D82-JHP	2.441	1.366	2.539	.604
V60 SQR-L-D82-JHP	2.441	1.366	2.539	.742
V60 SQR-R-D82-JHP	2.441	1.366	2.539	1.278
V85 SQL-L-D82-JHP	3.268	1.366	3.346	1.612
V85 SQL-R-D82-JHP	3.268	1.366	3.346	1.077
V85 SQR-L-D82-JHP	3.268	1.366	3.346	1.077
V85 SQR-R-D82-JHP	3.268	1.366	3.346	1.612

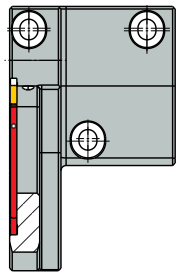
[1] When .118" width insert is used.

For tools, see pages: DGAQ (571) • DGAQ-JHP (571) • TGAQ (570) • TGAQ-JHP (569)

Identification Key

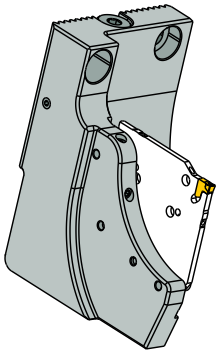
V60 SQL-L-D82-JHP

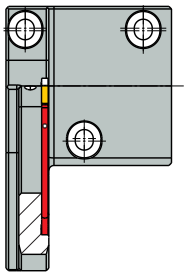




L- Holder (prism) orientation
L- Pocket side

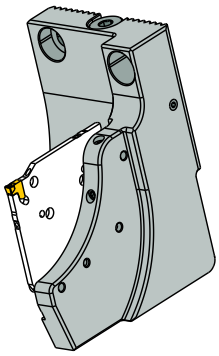
V60 SQL-R-D82-JHP

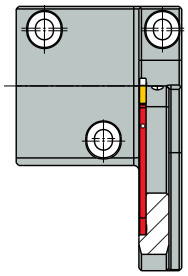




L- Holder (prism) orientation
R- Pocket side

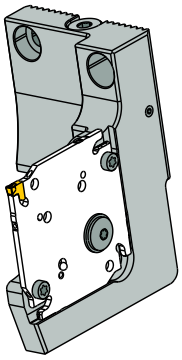
V60 SQR-L-D82-JHP

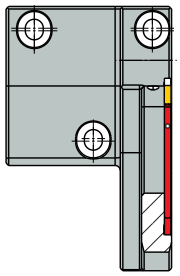




R- Holder (prism) orientation
L- Pocket side

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

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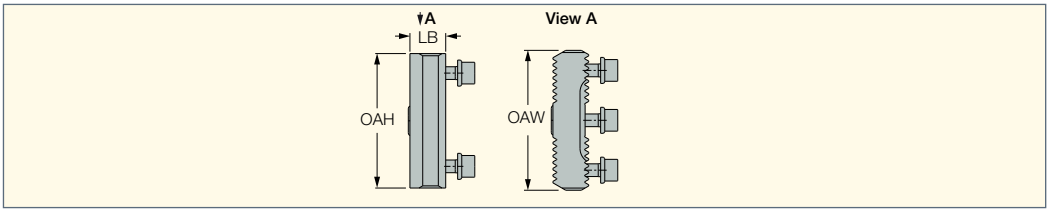
MODULAR-GRIP

V## V##-L##
Spacer for ISCAR
Modular System



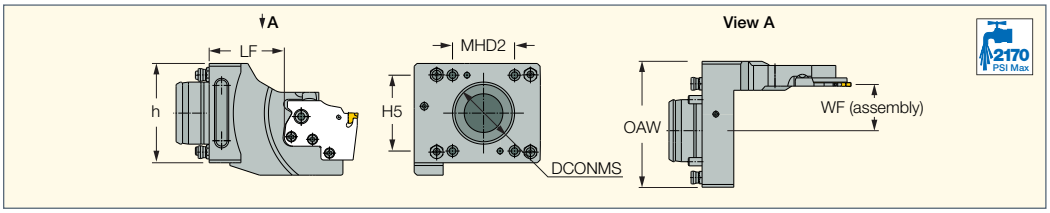
Designation	CSI	OAH	OAW	LB
V60 V60-L15	V60	2.441	2.539	.591
V60 V60-L30	V60	2.441	2.539	1.181
V85 V85-L30	V85	3.268	3.346	1.181

- For user guide, see pages 826-840

TRAUB

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	2.835	3.602	2.165	1.77	1.772	2.142	1.319

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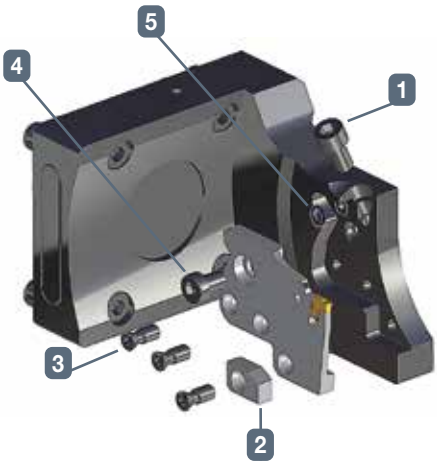
- For user guide, see pages 826-840

For tools, see pages: CGPAD-JHP (290) • DGPAD-JHP (532) • HGPAD-JHP (274) • PCADR/L-JHP (330) • PCADRS/LS-JHP (331) • TAGPAD-JHP (554) • TAGPAD-XL-JHP (555) • TGPAD-JHP (280)

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



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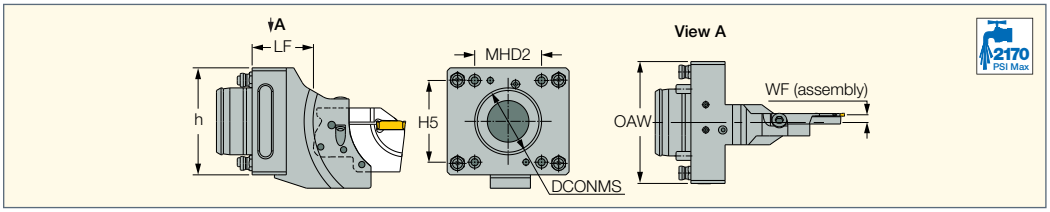
TRAUB MODULAR-GRIP

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	2.835	3.228	2.165	1.77	1.772	1.626	.236

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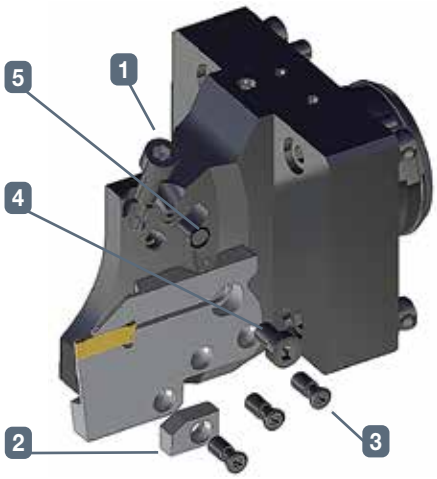
For tools, see pages: CGPAD-JHP (290) • DGPAD-XL-JHP (532) • HGPAD-JHP (274) • PCADR/L-JHP (330) • PCADRS/LS-JHP (331) • TAGPAD-XL-JHP (555) • TGPAD-JHP (280)

Spare Parts

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

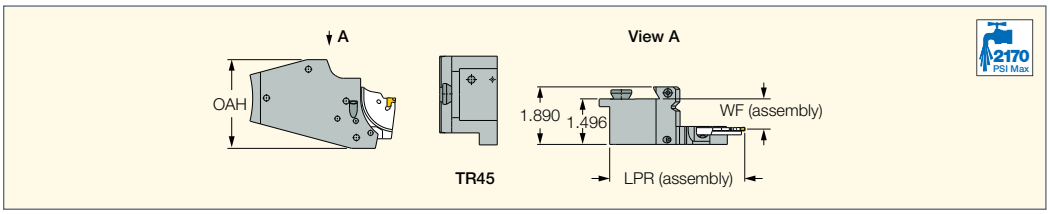
(3) Screw	(4) Screw	(5) O-Ring
SR M5-04451	SR M6x10DIN6912	OR 5x1N



TRAUB 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	2.913	3.602	.965

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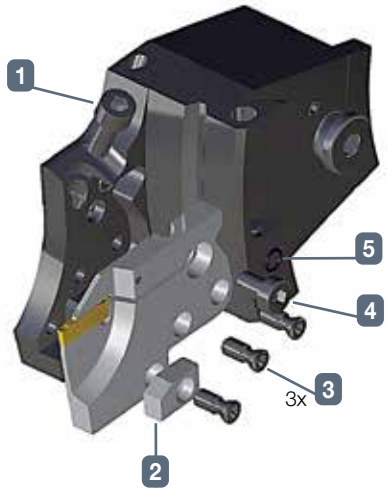
For tools, see pages: CGPAD-JHP (290) • DGPAD-XL-JHP (532) • HGPAD-JHP (274) • PCADR/L-JHP (330) • PCADRS/LS-JHP (331) • TAGPAD-XL-JHP (555) • TGPAD-JHP (280)

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



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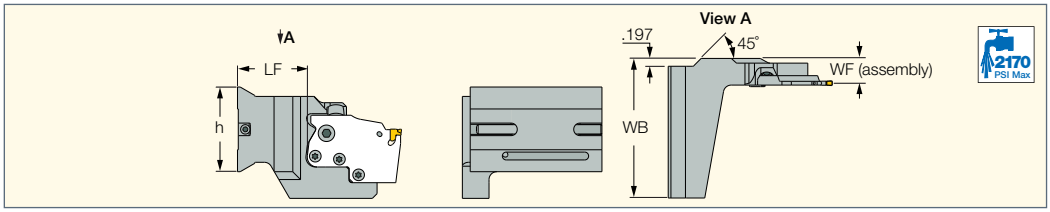
INDEX JETCUT

MODULARGRIP

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	2.205	3.602	1.754	.669

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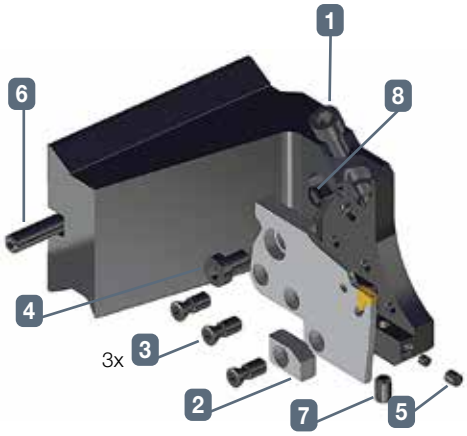
For tools, see pages: CGPAD-JHP (290) • DGPAD-JHP (532) • DGPAD-XL-JHP (532) • HGPAD-JHP (274) • PCADR/L-JHP (330) • PCADRS/LS-JHP (331) • TAGPAD-JHP (554) • TAGPAD-XL-JHP (555) • TGPAD-JHP (280)

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



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MATERIALS

Member IMC Group

MATERIAL GROUPS

Based on ISO 513 and VDI 3323 Standards

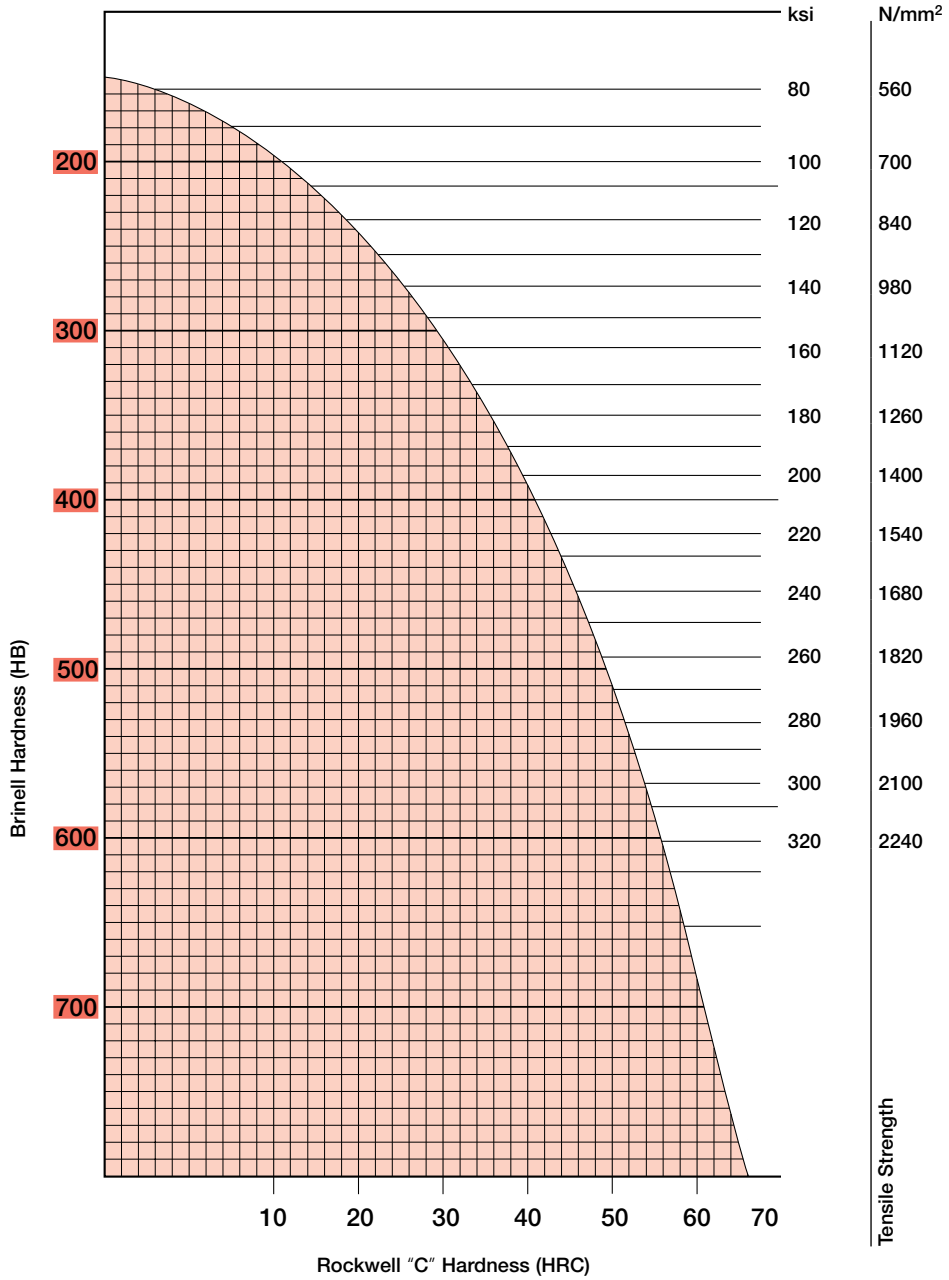
ISO	Material		Condition	Tensile Strength [ksi]	Kc1[1] [ksi]	Mc[2]	Hardness HB	Material Group No.
P	Non-alloy steel and cast steel, free cutting steel	<0.25% C	Annealed	61	196	0.21	125	1
		≥0.25% C	Annealed	94	218	0.22	190	2
		<0.55% C	Quenched and tempered	123	243	0.24	250	3
		≥0.55% C	Annealed	109	247	0.24	220	4
			Quenched and tempered	145	276	0.24	300	5
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	87	257	0.24	200	6
			Quenched and tempered	135	243	0.24	275	7
				145	250	0.24	300	8
				174	261	0.24	350	9
	High alloyed steel, cast steel and tool steel		Annealed	99	355	0.23	200	10
			Quenched and tempered	160	363	0.23	325	11
	Stainless steel and cast steel		Ferritic/martensitic	99	272	0.21	200	12
			Martensitic	119	272	0.21	240	13
M	Stainless steel and cast steel		Austenitic, duplex	87	312	0.20	180	14
K	Gray cast iron (GG)		Ferritic / pearlitic		167	0.20	180	15
			Pearlitic / martensitic		196	0.28	260	16
	Nodular cast iron (GGG)		Ferritic		178	0.25	160	17
			Pearlitic		196	0.28	250	18
	Malleable cast iron		Ferritic		178	0.25	130	19
			Pearlitic		206	0.3	230	20
N	Aluminum-wrought alloys		Not hardenable		102	0.25	60	21
			Hardenable		116	0.25	100	22
	Aluminum-cast alloys	≤12% Si	Not hardenable		102	0.25	75	23
			Hardenable		102	0.25	90	24
		>12% Si	High temperature		109	0.25	130	25
	Copper alloys	>1% Pb	Free cutting		102	0.27	110	26
			Brass		102	0.27	90	27
			Electrolytic copper		102	0.27	100	28
	Non metallic		Duroplastics, fiber plastics					29
			Hard rubber					30
S	High temperature alloys	Fe based	Annealed		377	0.24	200	31
			Hardened		450	0.24	280	32
		Ni or Co based	Annealed		479	0.24	250	33
			Hardened		479	0.24	350	34
			Cast		479	0.24	320	35
	Titanium alloys		Pure	58	247	0.24	190	36
			Alpha+Beta alloys, hardened	152	306	0.24	310	37
H	Hardened steel		Hardened		667		55 HRC	38
			Hardened		682		60 HRC	39
	Chilled cast iron		Cast		667		400	40
	Cast iron		Hardened		653		55 HRC	41

- Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous Metals
- Superalloys and Titanium
- Hard Materials

(1) Specific cutting force for .0016 in^2 chip section.
(2) Chip thickness factor.

MATERIAL GROUPS

Hardness Conversion Table



ISCAR MATERIAL GROUPS

Based on 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

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 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)
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

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 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
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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

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	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
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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

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
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
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

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
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
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	

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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

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
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	
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
8	4140 H; 4140 RH; 4140 HT		42CrMo4+QT								
8		1.8705	21MnCr6-5								
8											
9		1.6659	31NiCrMo13-4	830 M 31		2534		F.270			
9		1.5864	35NiCr18								
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
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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			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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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	
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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	

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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

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	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
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				

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	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
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

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
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
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
22	AA2024; A92024; 2024	3.1355; 3.1354	AlCuMg2	2024; 2L97	A-U4G1		9002/4; 3583	L-3140	A2024	D16	AlCu4Mg1; 2024

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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

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	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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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		
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

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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
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								

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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								
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			

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
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	
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		1.8721	26MnCr6-3								26MnCr6-3
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

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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	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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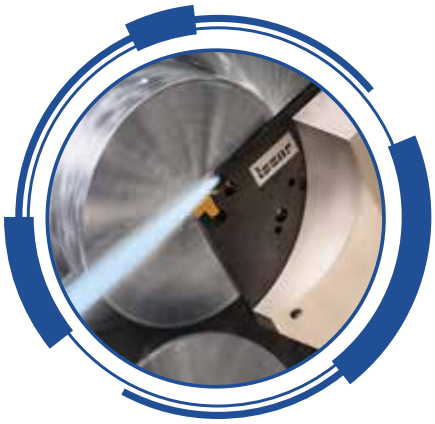

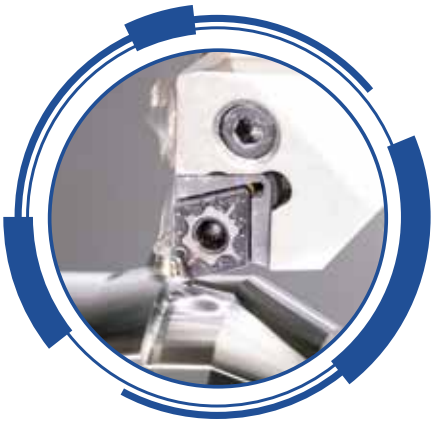

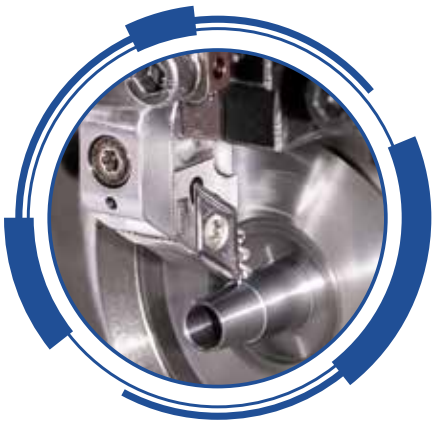

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