

VARGUS



MINIPRO

Turning Tools for
Small Bores

Take a
closer **Look**

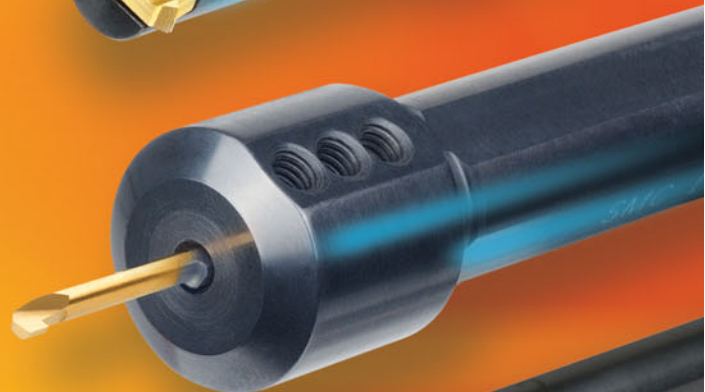
Metric



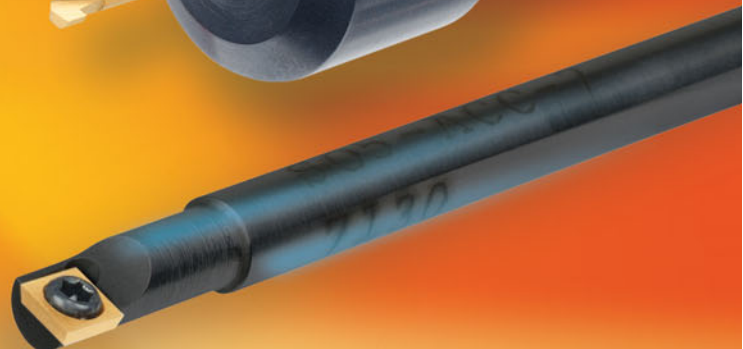
MINIPRO
Threading



MINIPRO
Grooving



MINIPRO
Boring





MINIPRO - Turning Tools for Small Bores

Mini Tools



Threading



Grooving

Indexable inserts for threading and grooving in bores as small as 6.1 mm diameter.



Micro Tools



Threading



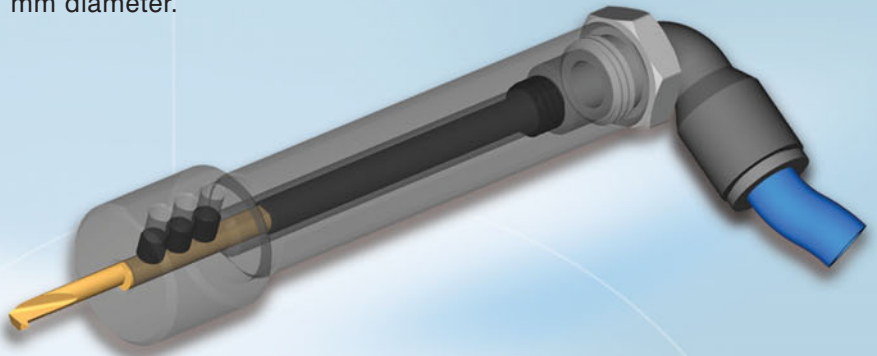
Grooving



Boring

Solid carbide tools for threading, grooving and boring in bores as small as 3.2 mm diameter.

The Micro range includes both double-ended and single-ended inserts and a selection of tool holders in various shank sizes.

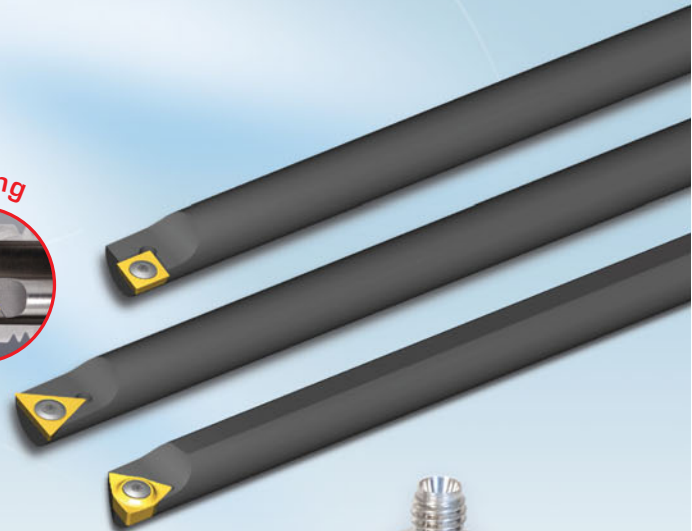


Powerbore Tools

Indexable inserts for precision boring of holes as small as 4.6 mm diameter.



Boring



MINIPRO Turning Tools for Small Bores



Index

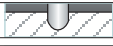
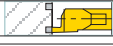
Threading Inserts

MINIPRO


Partial Profile 60°	7
Partial Profile 55°	8
ISO Metric	9-10
American UN (UNC, UNF, UNEF, UNS)	11-12
Whitworth for BSW, BSP	13
BSP	14
NPT	15
NPTF	16
Trapez	17
American ACME	18
Stub ACME	18
UNJ	19
PG	19
Technical Data	20-22

Grooving Inserts

MINIPRO


Square Grooving		25-27
Round Grooving		28
Face Grooving		29
Technical Data		30

Boring Inserts

MINIPRO

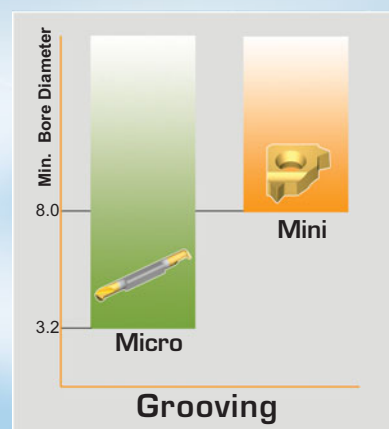
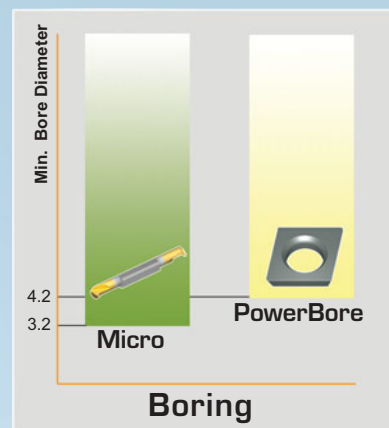
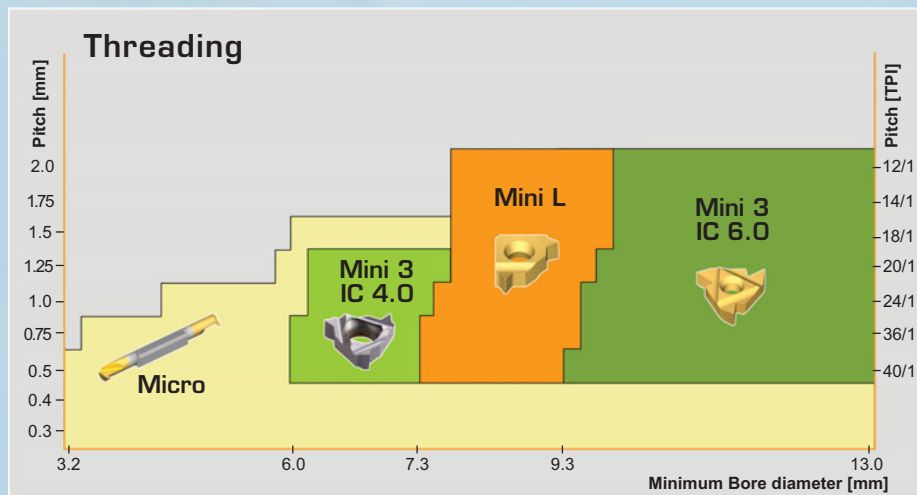

CDOW		37
TDOW		37
WCOW		38
Micro Boring		33
Micro Copy		34
Micro Copy Long		34
Micro Chamfer		35
Micro Back Edge		35
Micro Boredrill		36
Technical Data		39

Toolholders

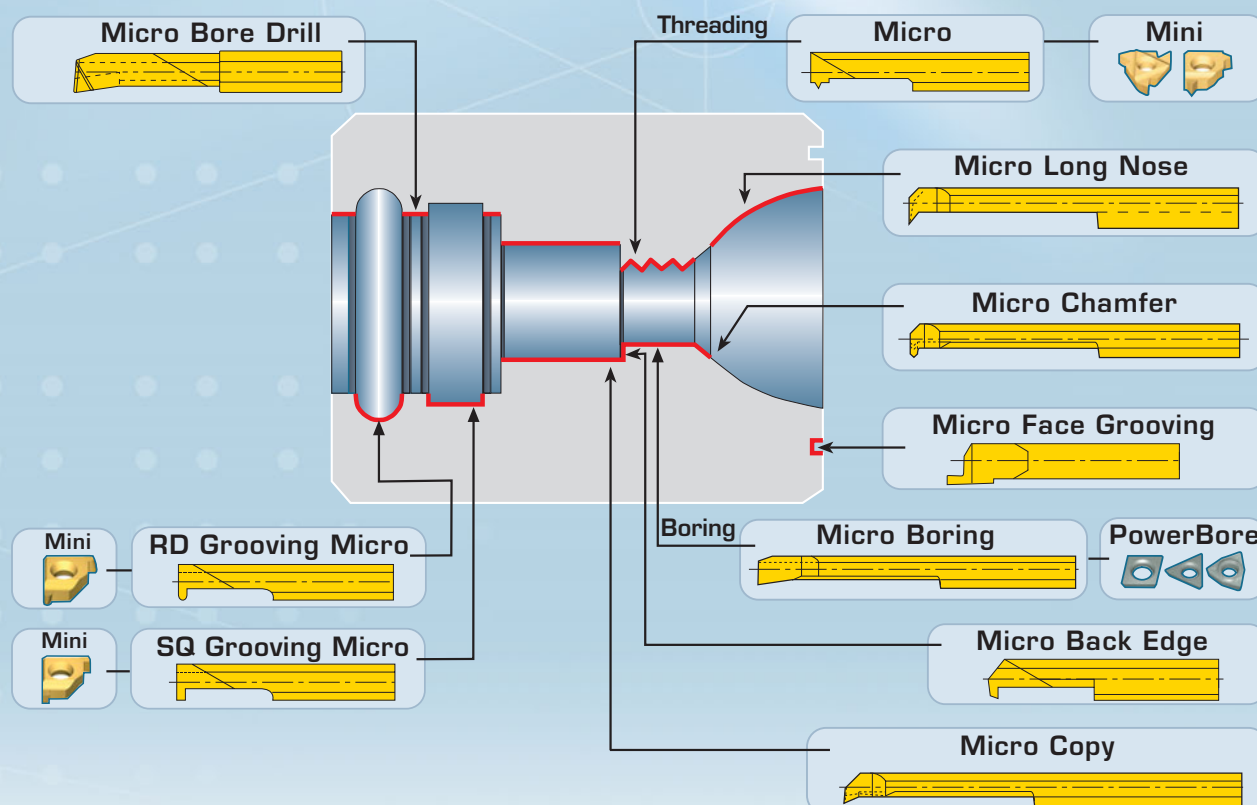
MINIPRO

Micro	43-44
Mini	45-46
PowerBore Boring Bars	47-50

The MiniPro Range by Diameter From Ø3.2



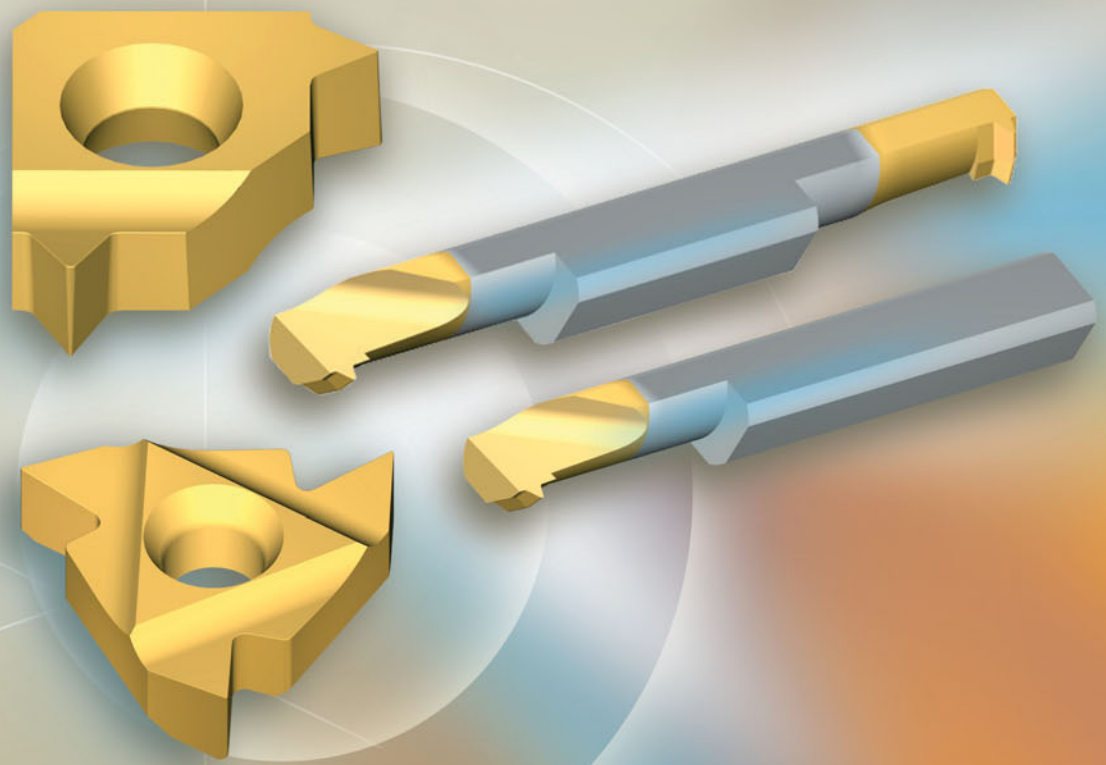
The MiniPro Range by Application



VARGUS 



Take a
closer Look



MINI PRO

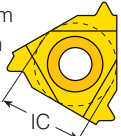
Threading





Vardex Ordering Code System Threading Inserts (not including Micro system)

4.0	K	I	R	0.5	ISO	VTX
1	2	3	4	5	6	7

1 - Insert size	2 - Insert style	3 - Type of Insert	4 - RH/LH Insert
4.0K - IC4.0 mm 5L - IC5.0L mm 6.0 - IC6.0 mm 	 	I - Internal	R - Right Hand Insert L - Left Hand Insert

5 - Pitch		
Full Profile - Pitch Range		
mm	tpi	
0.5-2.0	32-14	
Partial Profile - Pitch Range		
mm	tpi	
A 0.5 - 1.5	48 - 16	

6 - Standard	
60° - Partial Profile 60°	UNJ - UNJ
55° - Partial Profile 55°	PG - Pg DIN 40430
ISO - ISO Metric	
UN - American UN	
W - Whitworth for BSW, BSP	
BSPT - British Standard Pipe Thread	
NPT - NPT	
NPTF - NPTF	
TR - Trapez DIN 103	
ACME - ACME	
STACME - Stub ACME	

7 - Carbide Grade
VHX, VKP, VBX, VTX

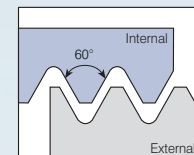
Micro Threading Inserts

3	S	I	R	0.5	ISO	VMX	1- SIDE
1	2	3	4	5	6	7	8

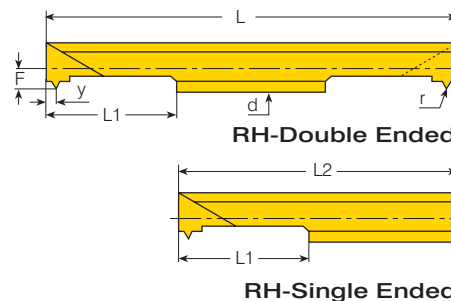
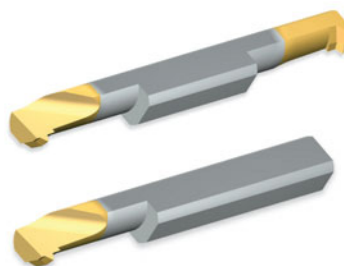
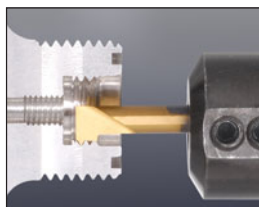
1 - Insert Dia.	2 - Insert style	3 - Type of Insert	4 - RH/LH Insert	5 - Pitch														
3.0 - 3.0 mm 4.0 - 4.0 mm 6.0 - 6.0 mm 8.0 - 8.0 mm 10.0 - 10.0 mm	S - Micro Insert 	I - Internal	R - Right Hand Insert L - Left Hand Insert	<table><tr><th colspan="2">Full Profile - Pitch Range</th></tr><tr><td>mm</td><td>tpi</td></tr><tr><td>0.30-1.5</td><td>40-16</td></tr><tr><th colspan="2">Partial Profile - Pitch Range</th></tr><tr><td>mm</td><td>tpi</td></tr><tr><td>A 0.5 - 1.5</td><td>48 - 16</td></tr><tr><td>F 0.25 - 1.0</td><td>72 - 24</td></tr></table>	Full Profile - Pitch Range		mm	tpi	0.30-1.5	40-16	Partial Profile - Pitch Range		mm	tpi	A 0.5 - 1.5	48 - 16	F 0.25 - 1.0	72 - 24
Full Profile - Pitch Range																		
mm	tpi																	
0.30-1.5	40-16																	
Partial Profile - Pitch Range																		
mm	tpi																	
A 0.5 - 1.5	48 - 16																	
F 0.25 - 1.0	72 - 24																	
	6 - Standard 55° - Partial Profile 55° 60° - Partial Profile 60° ISO - ISO Metric MJ - ISO 5855 NPT - NPT NPTF - NPTF UN - American UN W - British Standard Whitworth	7 - Carbide Grade VMX	8 - Micro Ended 1- SIDE - Single Ended None - Double Ended															



Partial Profile 60°



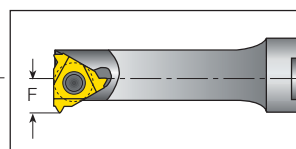
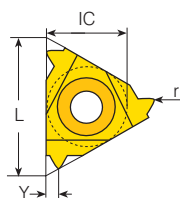
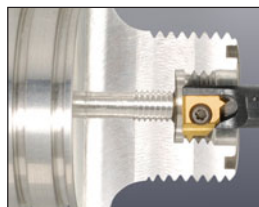
Internal



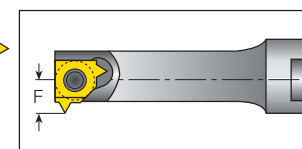
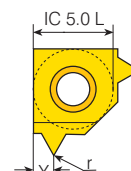
Micro

Insert dia.		Pitch	Ordering Code		Dimensions mm						Min. Bore dia.	Toolholder
d mm	mm	tpi	RH-Single Ended	RH-Double Ended	r	L1	L2	L	F	Y	mm	
3.0	0.5-1.0	48-24	3.0SIRF60...1-SIDE	3.0SIRF60...	0.05	16	43	50	1.46	0.9	3.3	SMC...-3.0
4.0	0.5-1.0	48-24	4.0SIRF60...1-SIDE	4.0SIRF60...	0.05	16	43	50	1.96	0.9	4.3	SMC...-4.0
6.0	0.5-1.5	48-16	6.0SIRA60...1-SIDE	6.0SIRA60...	0.05	16	43	50	2.50	0.9	6.0	SMC...-6.0

Internal



Mini-3



Mini-L

Mini-L



Insert Size		Pitch		Ordering Code		Dimensions mm		Min. Bore dia.
ICmm	mm	tpi	RH	r	Y	F	mm	Toolholder
5.0L	0.5-1.5	48-16	5LIRA60...	0.05	0.9	4.65	8.0	.NVR 10..5L

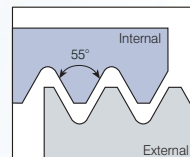
Mini-3



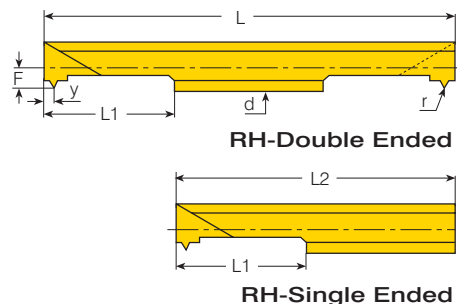
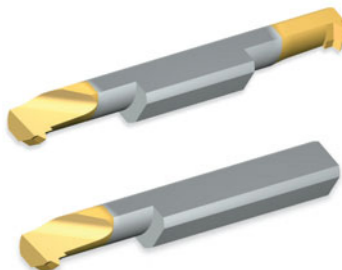
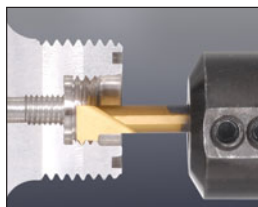
Insert Size		Pitch	Ordering Code		Dimensions mm			Min. Bore dia.	Toolholder
ICmm	L	mm	tpi	RH	r	Y	F	mm	
4.0	6	0.5-1.25	48-20	4.0KIRA60...	0.05	0.6	3.7	6.35	.NVR.5-4.0K
6.0	10	0.5-1.5	48-16	6.0IRA60...	0.05	0.9	5.3	10.0	.NVR 1..-6.0



Partial Profile 55°



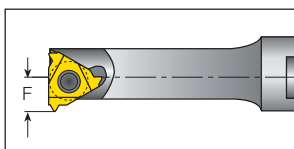
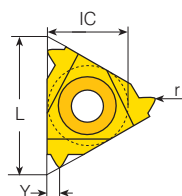
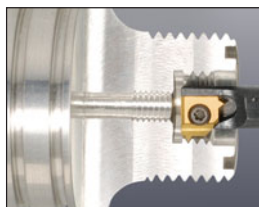
Internal



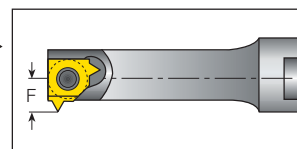
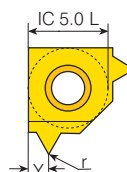
Micro

Insert dia.			Pitch		Ordering Code		Dimensions mm					Min. Bore dia.	
dmm	mm	tpi	RH-Single Ended	RH-Double Ended	r	L1	L2	L	F	Y	mm	Toolholder	
3.0	0.5-1.0	48-24	3.0SIRF55...1-SIDE	3.0SIRF55...	0.05	16	43	50	1.46	0.9	3.3	SMC...-3.0	
4.0	0.5-1.0	48-24	4.0SIRF55...1-SIDE	4.0SIRF55...	0.05	16	43	50	1.96	0.9	4.3	SMC...-4.0	
6.0	0.5-1.5	48-16	6.0SIRA55...1-SIDE	6.0SIRA55...	0.05	16	43	50	2.50	0.9	6.0	SMC...-6.0	

Internal



Mini-3



Mini-L

Mini-L



Insert Size		Pitch		Ordering Code		Dimensions mm		Min. Bore dia.
ICmm	mm	tpi	RH	r	Y	F	mm	Toolholder
5.0L	0.5-1.5	48-16	5LIRA55...	0.05	0.9	4.65	8.0	.NVR 10.-5L

Mini-3



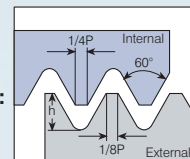
Insert Size		Pitch		Ordering Code		Dimensions mm		Min. Bore dia.	
ICmm	L	mm	tpi	RH	r	Y	F	mm	Toolholder
4.0	6	0.5-1.25	48-20	4.0KIRA55...	0.05	0.6	3.8	6.45	.NVR.5-4.0K
6.0	10	0.5-1.5	48-16	6.0IRA55...	0.05	0.9	5.3	10.0	.NVR 1...-6.0



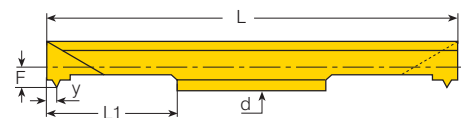
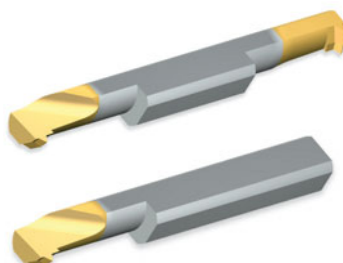
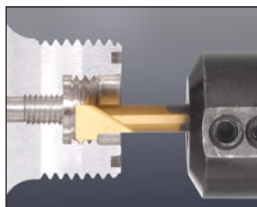
ISO Metric

Defined by:
R262 (DIN 13)

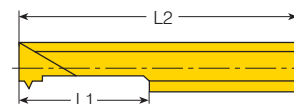
Tolerance class:
6g/6H



Internal



RH-Double Ended



RH-Single Ended

Micro

Insert dia.	Pitch	Ordering Code		Dimensions mm						Min. Bore dia.	
dmm	mm	RH-Single Ended	RH-Double Ended	L1	L2	L	F	Y	h _{min}	mm	Toolholder
3.0	0.3	3.0SIR0.3ISO...1-SIDE	3.0SIR0.3ISO...	16	43	50	1.31	0.20	0.10	3.2	SMC...3.0
	0.4	3.0SIR0.4ISO...1-SIDE	3.0SIR0.4ISO...	16	43	50	1.31	0.35	0.22	3.2	
	0.5	3.0SIR0.5ISO...1-SIDE	3.0SIR0.5ISO...	16	43	50	1.31	0.40	0.29	3.2	
	0.6	3.0SIR0.6ISO...1-SIDE	3.0SIR0.6ISO...	16	43	50	1.34	0.60	0.35	3.2	
	0.7	3.0SIR0.7ISO...1-SIDE	3.0SIR0.7ISO...	16	43	50	1.43	0.60	0.40	3.3	
	0.75	3.0SIR0.75ISO...1-SIDE	3.0SIR0.75ISO...	16	43	50	1.45	0.60	0.43	3.3	
4.0	0.8	3.0SIR0.8ISO...1-SIDE	3.0SIR0.8ISO...	16	43	50	1.46	0.60	0.46	3.3	SMC...4.0
	0.4	4.0SIR0.4ISO...1-SIDE	4.0SIR0.4ISO...	16	43	50	1.65	0.35	0.22	4.0	
	0.5	4.0SIR0.5ISO...1-SIDE	4.0SIR0.5ISO...	16	43	50	1.65	0.40	0.29	4.0	
	0.6	4.0SIR0.6ISO...1-SIDE	4.0SIR0.6ISO...	16	43	50	1.68	0.60	0.35	4.0	
	0.7	4.0SIR0.7ISO...1-SIDE	4.0SIR0.7ISO...	16	43	50	1.77	0.60	0.40	4.1	
	0.75	4.0SIR0.75ISO...1-SIDE	4.0SIR0.75ISO...	16	43	50	1.81	0.60	0.43	4.2	
6.0	0.8	4.0SIR0.8ISO...1-SIDE	4.0SIR0.8ISO...	16	43	50	1.80	0.60	0.46	4.2	SMC...6.0
	1.0	4.0SIR1.0ISO...1-SIDE	4.0SIR1.0ISO...	16	43	50	1.96	0.90	0.58	4.3	
	0.5	6.0SIR0.5ISO...1-SIDE	6.0SIR0.5ISO...	16	43	50	1.90	0.60	0.29	5.4	
	0.75	6.0SIR0.75ISO...1-SIDE	6.0SIR0.75ISO...	16	43	50	2.06	0.60	0.43	5.6	
	1.0	6.0SIR1.0ISO...1-SIDE	6.0SIR1.0ISO...	16	43	50	2.21	0.70	0.58	5.7	
	1.25	6.0SIR1.25ISO...1-SIDE	6.0SIR1.25ISO...	16	43	50	2.36	0.90	0.72	5.9	
	1.5	6.0SIR1.5ISO...1-SIDE	6.0SIR1.5ISO...	16	43	50	2.50	1.00	0.87	6.0	

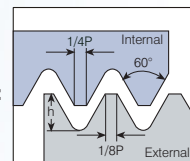
continued on next page ►



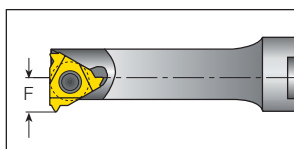
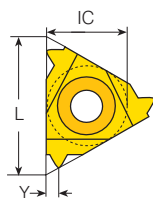
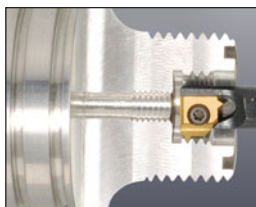
ISO Metric (con't)

Defined by:
R262 (DIN 13)

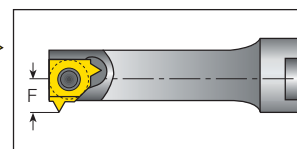
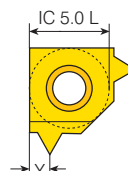
Tolerance class:
6g/6H



Internal



Mini-3



Mini-L

Mini-L



Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	Toolholder
ICmm	mm	RH	hmin	Y	F	mm	
5.0L	0.5	5LIR0.5ISO...	0.29	0.6	3.75	7.3	.NVR10.-5L
	0.75	5LIR0.75ISO...	0.43	0.6	3.91	7.5	
	1.0	5LIR1.0ISO...	0.58	0.7	4.06	7.7	
	1.25	5LIR1.25ISO...	0.72	0.9	4.21	7.8	
	1.5	5LIR1.5ISO...	0.87	1.0	4.35	7.9	
	1.75	5LIR1.75ISO...	1.01	1.05	4.51	8.0	
	2.0	5LIR2.0ISO...	1.15	1.05	4.65	8.0	

Mini-3



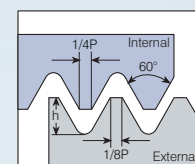
Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.		
ICmm	L	mm	RH	h _{min}	Y	F	mm	Toolholder
4.0	6	0.5	4.0KIR0.5ISO...	0.29	0.5	3.4	6.05	.NVR5.-4.0K
		0.75	4.0KIR0.75ISO...	0.43	0.5	3.5	6.15	
		1.0	4.0KIR1.0ISO...	0.58	0.6	3.6	6.25	
		1.25	4.0K1.25ISO...	0.72	0.6	3.7	6.35	
6.0	10	0.5	6.0IR0.5ISO...	0.29	0.6	4.4	9.3	.NVR1...-6.0
		0.75	6.0IR0.75ISO...	0.43	0.6	4.6	9.5	
		1.0	6.0IR1.0ISO...	0.58	0.7	4.7	9.6	
		1.25	6.0IR1.25ISO...	0.72	0.9	4.9	9.8	
		1.5	6.0IR1.5ISO...	0.87	1.0	5.0	9.9	
		1.75	6.0IR1.75ISO...	1.01	1.05	5.2	10.0	
		2.0	6.0IR2.0ISO...	1.15	1.05	5.3	10.0	



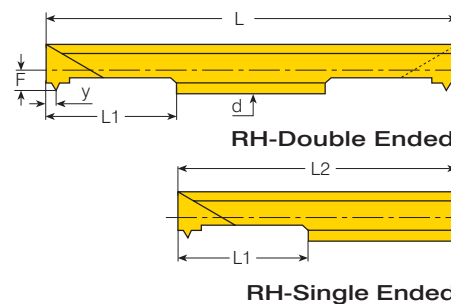
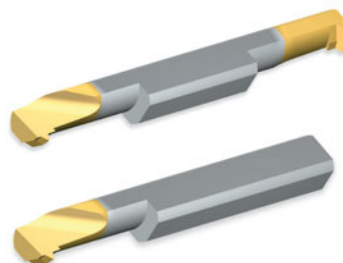
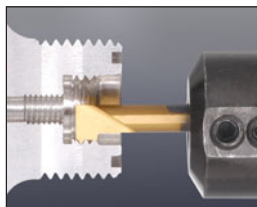
American UN

Defined by:
ANSI B1.1:74

Tolerance class:
2A/2B



Internal



Micro Thread

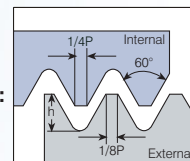
Insert dia.	Pitch	Ordering Code		Dimensions mm						Min. Bore dia.	
dmm	tpi	RH-Single Ended	RH-Double Ended	L1	L2	L	F	Y	h _{min}	mm	Toolholder
3.0	40	3.0SIR40UN...1-SIDE	3.0SIR40UN...	16	43	50	1.35	0.60	0.37	3.2	SMC...-3.0
	36	3.0SIR36UN...1-SIDE	3.0SIR36UN...	16	43	50	1.46	0.60	0.41	3.2	
	32	3.0SIR32UN...1-SIDE	3.0SIR32UN...	16	43	50	1.40	0.60	0.46	3.3	
4.0	40	4.0SIR40UN...1-SIDE	4.0SIR40UN...	16	43	50	1.65	0.60	0.37	4.0	SMC...-4.0
	36	4.0SIR36UN...1-SIDE	4.0SIR36UN...	16	43	50	1.70	0.60	0.41	4.1	
	32	4.0SIR32UN...1-SIDE	4.0SIR32UN...	16	43	50	1.76	0.60	0.46	4.1	
	28	4.0SIR28UN...1-SIDE	4.0SIR28UN...	16	43	50	1.83	0.65	0.52	4.2	
	27	4.0SIR27UN...1-SIDE	4.0SIR27UN...	16	43	50	1.85	0.75	0.54	4.2	
	24	4.0SIR24UN...1-SIDE	4.0SIR24UN...	16	43	50	1.93	0.75	0.61	4.3	
6.0	32	6.0SIR32UN...1-SIDE	6.0SIR32UN...	16	43	50	2.01	0.60	0.46	5.5	SMC...-6.0
	28	6.0SIR28UN...1-SIDE	6.0SIR28UN...	16	43	50	2.08	0.65	0.52	5.6	
	27	6.0SIR27UN...1-SIDE	6.0SIR27UN...	16	43	50	2.10	0.75	0.54	5.6	
	24	6.0SIR24UN...1-SIDE	6.0SIR24UN...	16	43	50	2.18	0.75	0.61	5.7	
	20	6.0SIR20UN...1-SIDE	6.0SIR20UN...	16	43	50	2.30	0.90	0.73	5.8	
	18	6.0SIR18UN...1-SIDE	6.0SIR18UN...	16	43	50	2.39	1.00	0.81	5.9	
	16	6.0SIR16UN...1-SIDE	6.0SIR16UN...	16	43	50	2.50	1.05	0.92	6.0	

continued on next page ▶



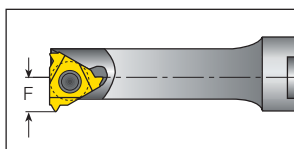
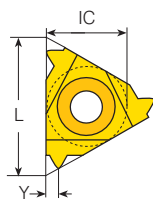
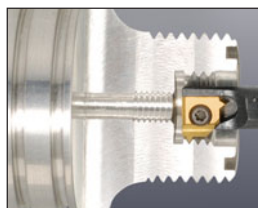
Defined by:
ANSI B1.1:74

Tolerance class:
2A/2B

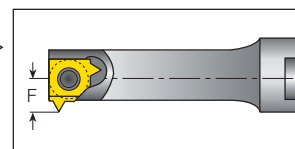
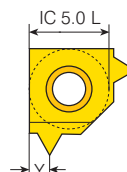


American UN (con't)

Internal



Mini-3



Mini-L

Mini-L



Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	Toolholder
ICmm	tpi	RH	h _{min}	Y	F	mm	
5.0L	32	5LIR32UN...	0.46	0.6	3.92	7.5	.NVR10.-5L
	28	5LIR28UN...	0.52	0.65	3.99	7.6	
	24	5LIR24UN...	0.61	0.75	4.09	7.7	
	20	5LIR20UN...	0.73	0.9	4.21	7.8	
	18	5LIR18UN...	0.81	1.0	4.30	7.9	
	16	5LIR16UN...	0.92	1.05	4.41	8.0	
	14	5LIR14UN...	1.05	1.05	4.54	8.0	

Mini-3

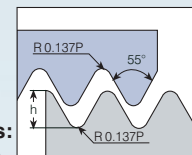


Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	Toolholder
ICmm	L	tpi	RH	h _{min}	Y	F	
4.0	6	32	4.0KIR32UN...	0.46	0.5	3.50	.NVR.5-4.0K
		28	4.0KIR28UN...	0.52	0.6	3.50	
		24	4.0KIR24UN...	0.61	0.6	3.60	
		20	4.0KIR20UN...	0.73	0.6	3.70	
		18	4.0KIR18UN...	0.81	0.7	3.70	
6.0	10	32	6.0IR32UN...	0.46	0.6	4.60	.NVR1...-6.0
		28	6.0IR28UN...	0.52	0.65	4.70	
		24	6.0IR24UN...	0.61	0.75	4.80	
		20	6.0IR20UN...	0.73	0.9	4.90	
		18	6.0IR18UN...	0.81	1.0	5.00	
		16	6.0IR16UN...	0.92	1.05	5.10	
		14	6.0IR14UN...	1.05	1.05	5.20	



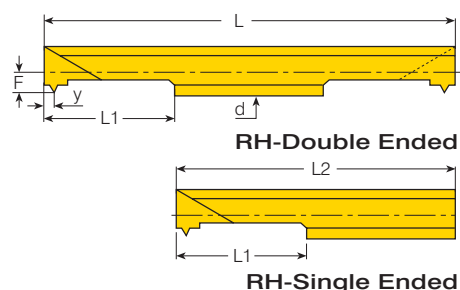
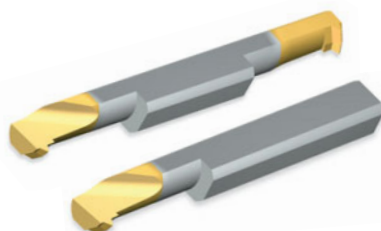
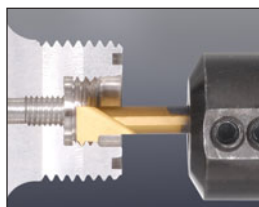
Defined by:
B.S.84:1956,
DIN 259,
ISO228/1:1982

Tolerance class:
Medium Class A



Whitworth for BSW, BSP

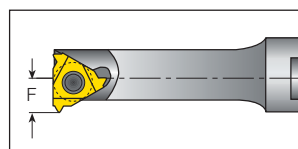
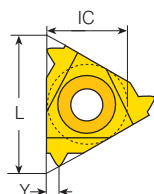
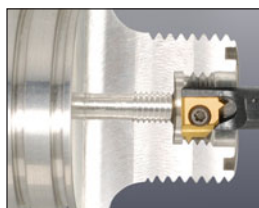
Internal



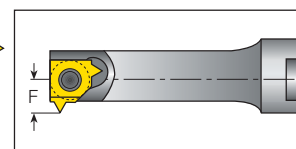
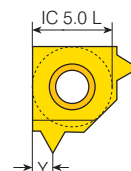
Micro

Insert dia.	Pitch	Ordering Code		Dimensions mm						Min. Bore dia.	Toolholder
dmm	tpi	RH-Single Ended	RH-Double Ended	L1	L2	L	F	Y	hmin	mm	
4.0	28	4.0SIR28W...1-SIDE	4.0SIR28W...	16	43	50	1.86	0.65	0.58	4.2	SMC...-4.0
	26	4.0SIR26W...1-SIDE	4.0SIR26W...	16	43	50	1.93	0.75	0.63	4.2	
	24	4.0SIR24W...1-SIDE	4.0SIR24W...	16	43	50	1.96	0.75	0.68	4.3	
6.0	28	6.0SIR28W...1-SIDE	6.0SIR28W...	16	43	50	2.50	0.65	0.58	6.0	SMC...-6.0
	26	6.0SIR26W...1-SIDE	6.0SIR26W...	16	43	50	2.50	0.75	0.63	6.0	
	24	6.0SIR24W...1-SIDE	6.0SIR24W...	16	43	50	2.50	0.75	0.68	6.0	
	22	6.0SIR22W...1-SIDE	6.0SIR22W...	16	43	50	2.50	0.90	0.74	6.0	
	20	6.0SIR20W...1-SIDE	6.0SIR20W...	16	43	50	2.50	0.90	0.81	6.0	
	19	6.0SIR19W...1-SIDE	6.0SIR19W...	16	43	50	2.50	0.95	0.86	6.0	

Internal



Mini-3



Mini-L

Mini-L



Insert Size	Pitch	Ordering Code	Dimensions mm				Min. Bore dia.	Toolholder
ICmm	tpi	RH	hmin	Y	F	mm		
5.0L	28	5LIR28W...	0.58	0.7	4.05	7.6		
	19	5LIR19W...	0.86	1.0	4.35	7.9		.NVR 10. -5L
	14	5LIR14W...	1.16	1.1	4.68	8.0		

Mini-3



Insert Size	Pitch	Ordering Code	Dimensions mm				Min. Bore dia.	Toolholder
ICmm	L	tpi	RH	hmin	Y	F	mm	
4.0	6	26	4.0KIR26W...	0.63	0.6	3.6	6.25	
		22	4.0KIR22W...	0.74	0.6	3.7	6.35	
		20	4.0KIR20W...	0.81	0.7	3.7	6.35	
		18	4.0KIR18W...	0.90	0.7	3.7	6.35	.NVR.5-4.0K
6.0	10	28	6.0IR28W...	0.58	0.7	4.7	9.6	
		19	6.0IR19W...	0.86	1.0	5.0	9.9	
		14	6.0IR14W...	1.16	1.1	5.3	10.0	.NVR1...-6.0

Mini and Micro Left Handed tools, supplied by request (Example: 6.0SIL19W...)



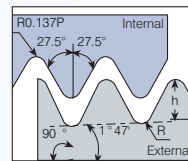
MINIPRO

THREADING

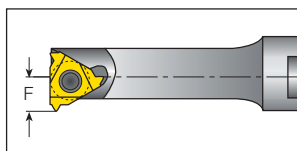
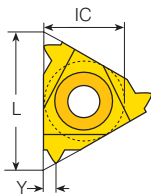
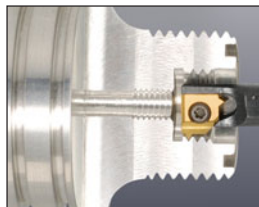
BSPT

Defined by:
B.S. 21:1985

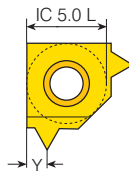
Tolerance class:
Standard BSPT



Internal



Mini-3



Mini-L

Mini-L



Insert Size	Pitch	Ordering Code	Dimensions mm		Min. Bore dia.		
ICmm	tpi	RH	h _{min}	Y	F	mm	Toolholder
5.0L	28	5LIR28BSPT...	0.58	0.6	4.05	7.6	.NVR 10. -5L
	19	5LIR19BSPT...	0.86	0.9	4.35	7.9	
	14	5LIR14BSPT...	1.16	1.2	4.68	8.0	

Mini-3



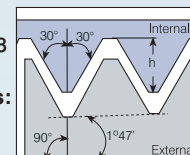
Insert Size		Pitch	Ordering Code	Dimensions mm		Min. Bore dia.		
ICmm	L	tpi	RH	h _{min}	Y	F	mm	Toolholder
4.0	6	28	4.0KIR28BSPT...	0.58	0.6	3.6	6.25	.NVR.5-4.0K
6.0	10	28	6.0IR28BSPT...	0.58	0.6	4.7	9.6	.NVR1..-6.0
		19	6.0IR19BSPT...	0.86	0.9	5.0	9.9	
		14	6.0IR14BSPT...	1.16	1.2	5.3	10.0	



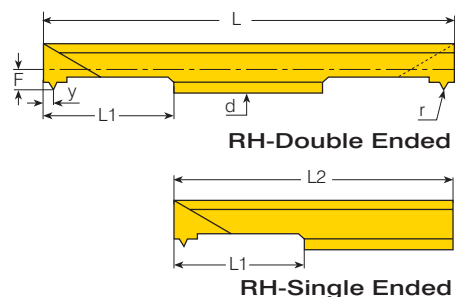
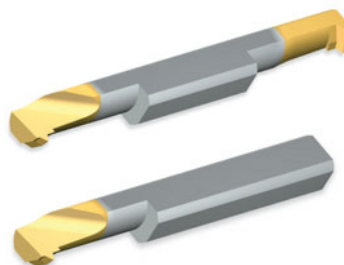
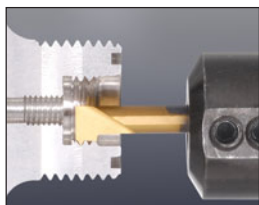
NPT

Defined by:
USAS B2.1:1968

Tolerance class:
Standard NPT



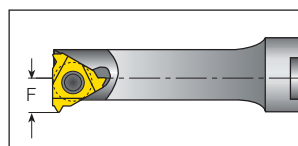
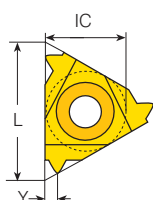
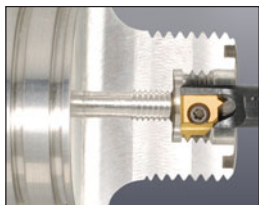
Internal



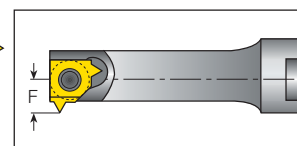
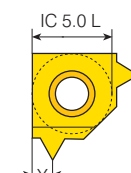
Micro

Insert dia.	Pitch	Ordering Code		Dimensions mm						Min. Bore dia.	Toolholder
dmm	tpi	RH-Single Ended	RH-Double Ended	L1	L2	L	F	Y	h min	mm	
6.0	27	6.0SIR27NPT...1-SIDE	6.0SIR27NPT...	16	43	50	2.50	1.00	0.66	6.0	SMC...-6.0
	18	6.0SIR18NPT...1-SIDE	6.0SIR18NPT...	16	43	50	2.50	0.80	1.01		

Internal



Mini-3



Mini-L

Mini-L



Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	Toolholder
ICmm	tpi	RH	h min	Y	F	mm	
5.0L	27	5LIR27NPT...	0.66	0.8	4.65	8.0	.NVR 10. -5L
	18	5LIR18NPT...	1.01	1.0	4.65		
	14	5LIR14NPT...	1.33	1.1	4.65		

Mini-3



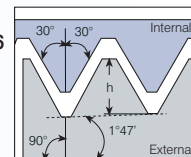
Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	Toolholder
ICmm	L	tpi	RH	h min	Y	F	mm
4.0	6	27	4.0KIR27NPT	0.66	0.6	3.7	6.35
		27	6.0IR27NPT...	0.66	0.8	5.3	
6.0	10	18	6.0IR18NPT...	1.01	1.0	5.3	10.0
		14	6.0IR14NPT...	1.33	1.1	5.3	



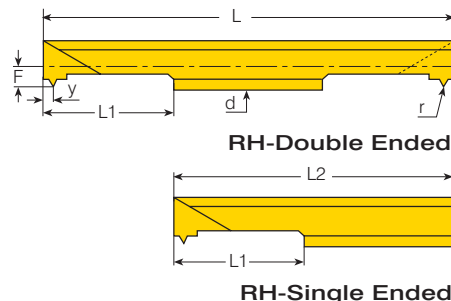
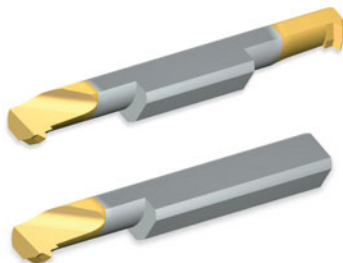
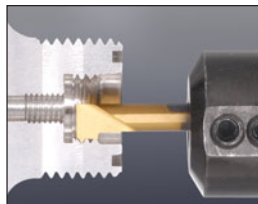
NPTF

Defined by:
ANSI B1.20.3-1976

Tolerance class:
Class 2



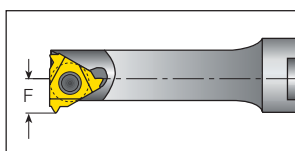
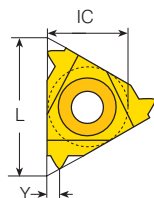
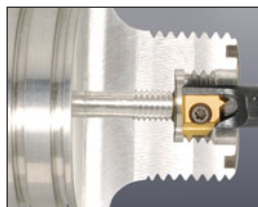
Internal



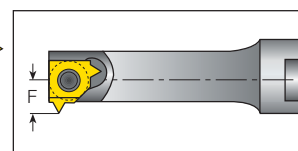
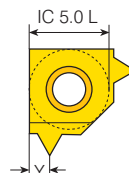
Micro

Insert dia.	Pitch	Ordering Code		Dimensions mm						Min. Bore dia.	
dmm	tpi	RH-Single Ended	RH-Double Ended	L1	L2	L	F	Y	h _{min}	mm	Toolholder
6.0	27	6.0SIR27NPTF...1-SIDE	6.0SIR27NPTF...	16	43	50	0.64	0.80	0.80	6.0	.NVR 10. -5L
	18	6.0SIR18NPTF...1-SIDE	6.0SIR18NPTF...	16	43	50	1.00	1.00	1.00		

Internal



Mini-3



Mini-L

Mini-L



Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
ICmm	tpi	RH	h _{min}	Y	F	mm	Toolholder
5.0L	27	5LIR27NPTF...	0.64	0.8	4.65	8.0	.NVR 10. -5L
	18	5LIR18NPTF...	1.00	1.0	4.65		
	14	5LIR14NPTF...	1.35	1.1	4.65		

Mini-3



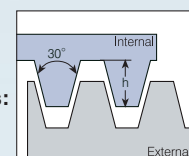
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
ICmm	L	tpi	RH	h _{min}	Y	F	mm	Toolholder
4.0	6	27	4.0KIR27NPTF...	0.64	0.6	3.6	6.25	.NVR.5-4.0K
6.0	10	27	6.0IR27NPTF...	0.64	0.8	5.3	10.0	.NVR1...-6.0
		18	6.0IR18NPTF...	1.00	1.0	5.3		
		14	6.0IR14NPTF...	1.35	1.1	5.3		



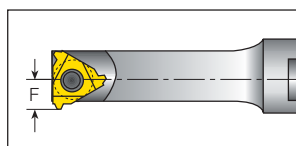
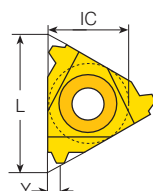
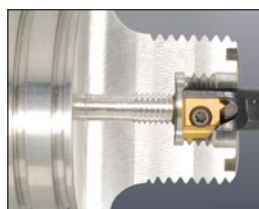
TRAPEZ

Defined by:
DIN 103

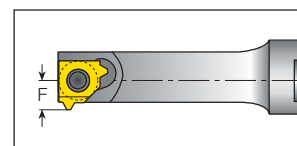
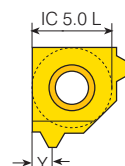
Tolerance class:
7e/7H



Internal



Mini-3



Mini-L

Mini-L



Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
ICmm	mm	RH	h _{min}	Y	F	mm	Toolholder
5.0L	1.5	5LIR1.5TR...	0.85	0.85	4.65	8.0	.NVR10.-5L
	2.0	5LIR2.0TR...	1.25	1.30	4.65		

Mini-3



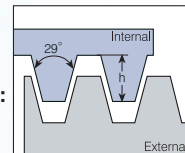
Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore dia.	
ICmm	L	mm	RH	h _{min}	Y	F	mm	Toolholder
6.0	10	1.5	6.0IR1.5TR...	0.85	0.85	5.3	10.0	.NVR1...-6.0
		2.0	6.0IR2.0TR...	1.25	1.30	5.3		



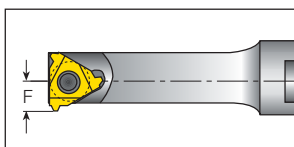
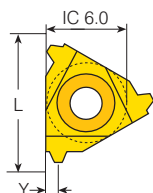
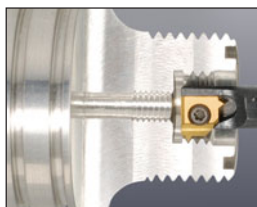
American ACME

Defined by:
ANSI B1.5:1988

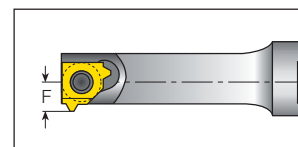
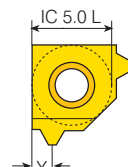
Tolerance class:
3G



Internal



Mini-3



Mini-L

Mini-L



Insert Size	Pitch	Ordering Code	Dimensions mm		Min. Bore dia.			Toolholder
ICmm	tpi	RH	h _{min}	Y	F	mm		
5.0L	12	5LIR12ACME...	1.19	1.10	4.42	8.0		.NVR 10. -5L

Mini-3

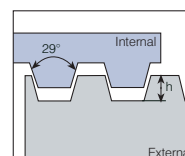


Insert Size	Pitch	Ordering Code	Dimensions mm		Min. Bore dia.			Toolholder
ICmm	L	tpi	RH	h _{min}	Y	F	mm	
6.0	10	12	6.0IR12ACME...	1.19	1.10	5.1	10.0	.NVR1...-6.0

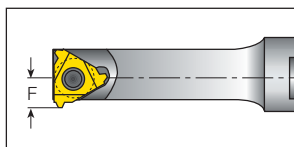
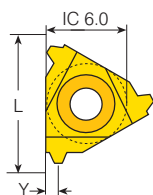
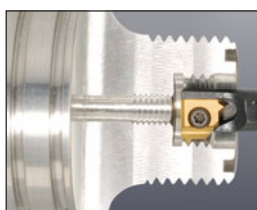
Stub ACME

Defined by:
ANSI B1.8:1988

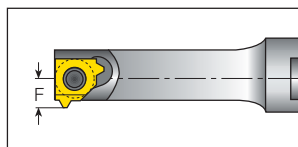
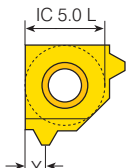
Tolerance class:
2G



Internal



Mini-3



Mini-L

Mini-L



Insert Size	Pitch	Ordering Code	Dimensions mm		Min. Bore dia.			Toolholder
ICmm	tpi	RH	h _{min}	Y	F	mm		
5.0L	12	5LIR12STACME...	0.76	1.2	4.42	8.0		.NVR 10. -5L

Mini-3



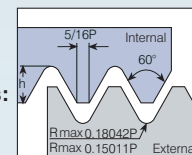
Insert Size	Pitch	Ordering Code	Dimensions mm		Min. Bore dia.			Toolholder
ICmm	L	tpi	RH	h _{min}	Y	F	mm	
6.0	10	12	6.0IR12STACME...	0.76	1.2	5.1	10.0	.NVR1...-6.0



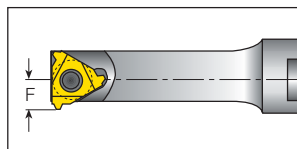
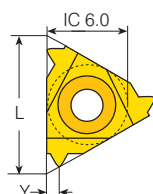
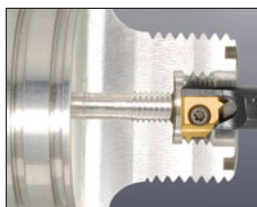
UNJ

Defined by:
MIL-S-8879C

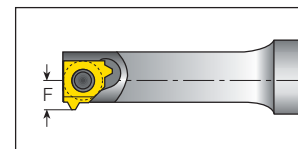
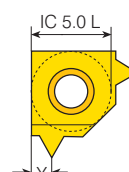
Tolerance class:
3A/3B



Internal



Mini-3



Mini-L

Mini-L



Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	Toolholder
ICmm	tpi	RH	h _{min}	Y	F	mm	
5.0L	20	5LIR20UNJ...	0.66	0.9	4.21	7.8	.NVR 10. -5L

Mini-3

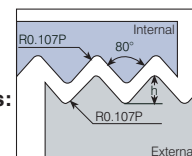


Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
ICmm	L	tpi	RH	h _{min}	Y	F	mm	Toolholder
6.0	10	20	6.0IR20UNJ...	0.66	0.9	4.9	9.8	.NVR1...-6.0

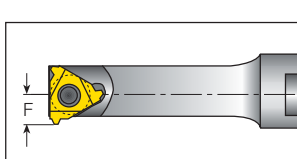
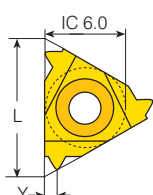
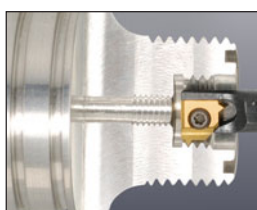
Pg

Defined by:
DIN 40430

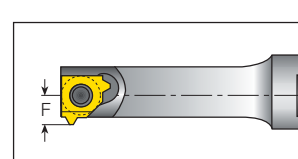
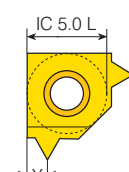
Tolerance class:
Standard



Internal



Mini-3



Mini-L

Mini-L



Insert Size	Pitch	Ordering Code	Ordering Code	Dimensions mm			Min. Bore dia.	Toolholder
ICmm	tpi		RH	h _{min}	Y	F	mm	
5.0L	20	Pg7	5LIR20PG...	0.61	0.8	4.65	8.0	.NVR10...-5L
	18	Pg9/11/13.5/16	5LIR18PG...	0.67	0.9	4.65		

Mini-3



Insert Size	Pitch	Ordering Code	Ordering Code	Dimensions mm			Min. Bore dia.	Toolholder
ICmm	L	tpi	RH	h _{min}	Y	F	mm	
6.0	10	20	Pg7	6.0IR20PG...	0.61	0.8	5.3	.NVR1...-6.0
		18	Pg9/11/13.5/16	6.0IR18PG...	0.67	0.9	5.3	



Thread Terminology

External Thread

A thread on the external surface of a cylinder screw or cone.

Depth of Thread

The distance between crest and root measured normal to the axis.

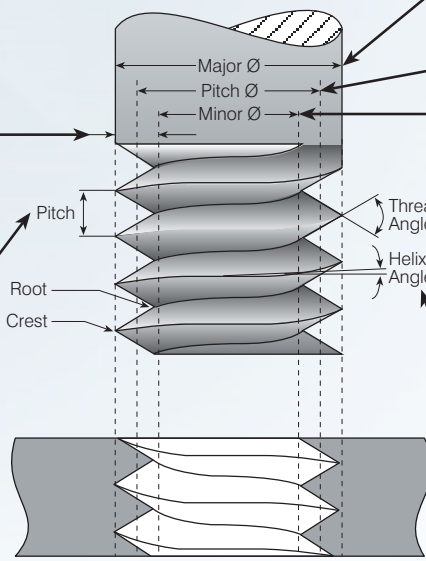
Pitch

The distance between corresponding points on adjacent thread forms measured parallel to the axis. This distance can be defined in millimeters or by the tpi (threads per inch), which is the reciprocal of the pitch.

Nominal Diameter

The diameter from which the diameter limits are derived by the application of deviation allowances and tolerances.

External Thread



Major Diameter

The largest diameter of a screw thread.

Pitch Diameter

On a straight thread, the diameter of an imaginary cylinder, the surface of which cuts the thread forms where the width of the thread and groove are equal.

Minor Diameter

The smallest diameter of a screw thread.

Helix Angle

For a straight thread, where the lead of the thread and the pitch diameter circle circumference form a right angled triangle, the helix angle is the angle opposite the lead.

Straight Thread

A thread formed on a cylinder.

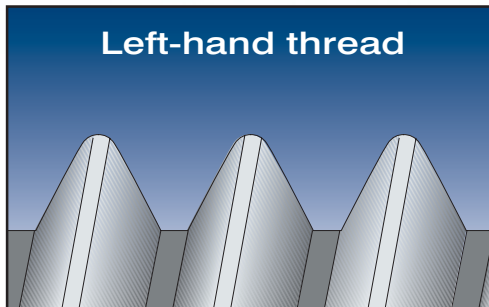
Taper Thread

A thread formed on a cone.

Internal Thread

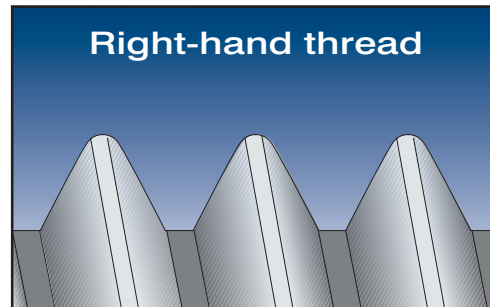
A thread on the internal surface of a cylinder or cone.

A thread which, when viewed axially, winds in a counterclockwise and receding direction. All left-hand threads are designated LH.



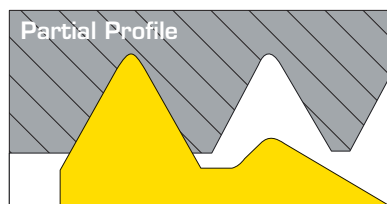
Left-hand thread

A thread which, when viewed axially, winds in a clockwise and receding direction. Threads are always right-hand unless otherwise specified.



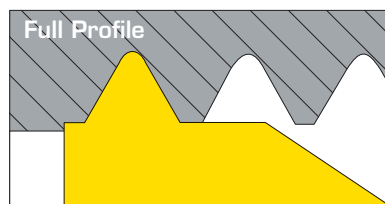
Right-hand thread

Insert Profile Styles



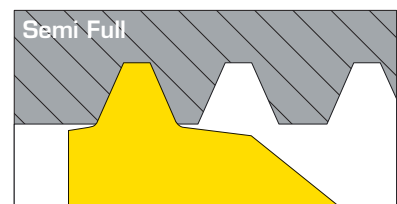
Partial Profile

The V partial profile insert cuts without topping the outer diameter of the thread. The same insert can be used for a range of different thread pitches which have a common thread angle.



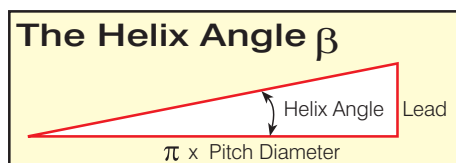
Full Profile

The full profile insert will form a complete thread profile including the crest. For every thread pitch and standard, a separate insert is required.



Semi Full

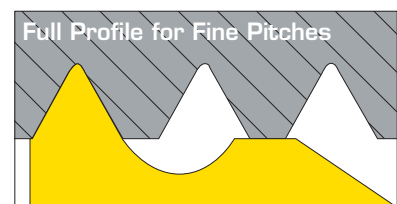
The semi profile insert will form a complete thread including crest radius, but without topping the outer diameter. Mainly used for trapezoidal profiles.



The Helix Angle β

Lead

The distance a threaded part moves axially, with respect to a fixed mating part, in one complete revolution. The lead is equal to the pitch multiplied by the number of thread starts.

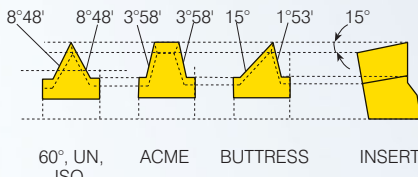


Full Profile for Fine Pitches

The full profile for fine pitches (0.25-0.45mm/80-52 TPI) will form a complete thread. The topping of the outer diameter is generated by second tooth.

Calculating the Helix Angle

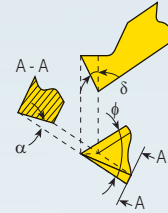
Flank Clearance Angle α



Vardex toolholders are designed to tilt the insert when seated in the toolholder (10° for external, 15° for internal tooling).

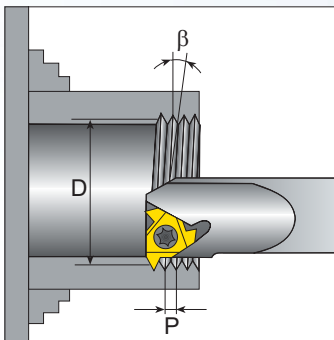
This results in the differing flank clearance angles, based on the geometry of insert.

To ensure that the side of the insert cutting edge will not rub on the workpiece, it is most important that the insert helix angle be correct - especially in profiles with small enclosed flank angles. This correction is provided by Vardex anvils.



$$\alpha = \arctan(\tan \phi / 2 \times \tan \delta)$$

Where: α - Flank clearance angle
 δ - Tilt angle
 ϕ - Enclosed flank angle



Calculating the Helix Angle β

The helix angle is calculated by the following formula:

$$\beta = \arctan \frac{P \times N}{\pi \times D}$$

β - Helix angle [°]

P - Pitch [mm]

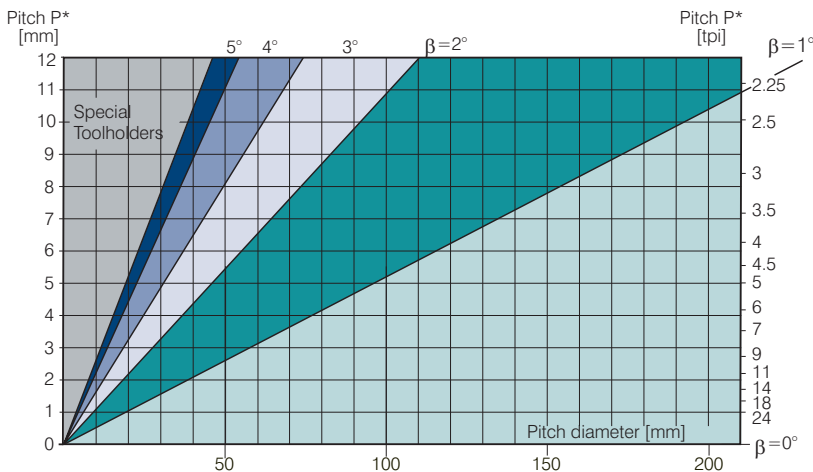
N - No. of starts

D - Pitch diameter [mm]

Lead = P x N

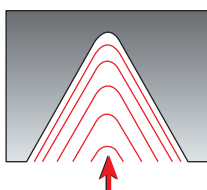
The helix angle can also be found from the diagram below.

Helix Angle Diagram



Thread Infeed Methods

Radial Infeed

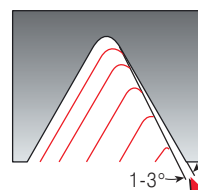


Radial infeed is the simplest and quickest method. The feed is perpendicular to the turning axis, and both flanks

of the insert perform the cutting operation. Radial infeed is recommended in 3 cases:

- when the pitch is smaller than 16 tpi
- for material with short chips
- for work with hardened material

Flank Infeed (modified)



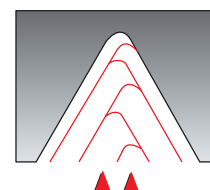
Flank infeed is recommended in the following cases:

- when the thread pitch is greater than 16 tpi., using the radial method,

the effective cutting edge length is too large, resulting in chatter.

- for TRAPEZ and ACME. The radial method result in three cutting edges, making chip flow very difficult.

Alternate Flank Infeed



Use of the alternate flank method is recommended especially in large pitches and for materials

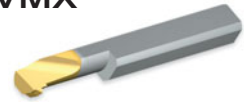
with long chips. This method divides the load equally on both flanks, resulting in equal wear along the cutting edges. Alternate flank infeed requires more complicated programming, and is not available on all lathes.

Recommended Grades and Cutting Speeds Vc [m/min] Mini and Micro

Material			Hardness Brinell HB	Vc[m/min]			
				Coated			
				VMX Micro Inserts	VKP/VBX Mini Inserts	VTX Mini Inserts	VHX Mini Inserts
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	50-120	140-200	150-200	20-50
		Medium carbon (C=0.25-0.55 %)	150	40-100	120-180	130-180	15-40
		High carbon (C=0.55-0.85 %)	170	30-80	110-180	120-180	15-30
	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	50-70	100-155	110-155	20-45
		Hardened	275	40-60	90-145	100-145	10-25
		Hardened	350	30-50	80-135	90-135	10-25
	High alloy steel (alloying elements > 5%)	Annealed	200	30-50	65-115	70-115	
		Hardened	325	25-40	50-100	60-100	
M	Cast steel	Low alloy (alloying elements <5%)	200	30-50	30-50	30-50	25-50
		High alloy (alloying elements >5%)	225	25-40	25-40	30-40	20-40
	Stainless steel Ferritic	Non hardened	200	60-100	80-120	90-120	
		Hardened	330	40-60	55-95	60-95	
	Stainless steel Austenitic	Austenitic	180	50-90	60-100	70-100	
		Super austenitic	200	40-60	50-90	60-90	
	Stainless steel Cast ferritic	Non hardened	200	40-60	60-80	70-80	
		Hardened	330	30-50	45-65	50-65	
	Stainless steel Cast austenitic	Austenitic	200	40-60	50-70	60-70	
		Hardened	330	30-50	40-60	40-60	
	High temperature alloys	Annealed (Iron based)	200	25-45	25-45	30-45	
		Aged (Iron based)	280	20-30	20-30	20-30	
		Annealed (Nickel or Cobalt based)	250	15-20	15-20	20-20	
		Aged (Nickel or Cobalt based)	350	10-15	10-15	10-15	
K	Titanium alloys	Pure 99.5 Ti	400Rm	60-100	60-100	70-100	
		α+β alloys	1050Rm	40-50	40-50	40-50	
	Extra hard steel	Hardened & tempered	55HRc	20-40	20-40	20-40	
	Malleable cast iron	Ferritic (short chips)	130	50-70	60-80	70-80	
		Pearlitic (long chips)	230	50-70	60-80	70-80	
	Grey cast iron	Low tensile strength	180	50-70	60-80	70-80	
		High tensile strength	260	40-60	40-70	40-70	
	Nodular SG iron	Ferritic	160	50-70	60-80	70-80	
		Pearlitic	260	60-80	70-90	80-90	
	Aluminium alloys Wrought	non aging	60	100-300	80-240	90-240	30-60
		Aged	100	100-150	100-170	110-170	25-50
	Aluminium alloys	Cast	75	100-150	100-150	110-150	25-50
		Cast & aged	90	60-100	60-100	70-100	20-40
	Aluminium alloys	Cast Si 13-22%	130	100-150	100-150	110-150	15-30
	Copper and copper alloys	Brass	90	60-100	80-200	90-200	15-35
		Bronze and non leaded copper	100	60-100	80-200	90-200	15-35

Grades and Applications

VMX



General use carbide grade for Micro inserts.
TiN coated.

VHX



General use HSS grade for Mini inserts.
For machining at low cutting speed.
TiN coated.

VKP



General use carbide grade for Mini inserts.
TiN coated.

VBX



Carbide grade for IC 4.0.
For machining steel and for general use.
TiCN coated.

VTX

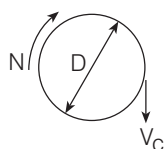


Carbide grade for IC 4.0.
For machining stainless steel. TiAlN coated.

Calculation of N [RPM]

$$N = \frac{1000 \times V_c}{\pi \times D}$$

$$V_c = \frac{N \times \pi \times D}{1000}$$



N - Revolution Per Minute [RPM]
V_c - Cutting Speed [m/min]
D - Workpiece Diameter [mm]

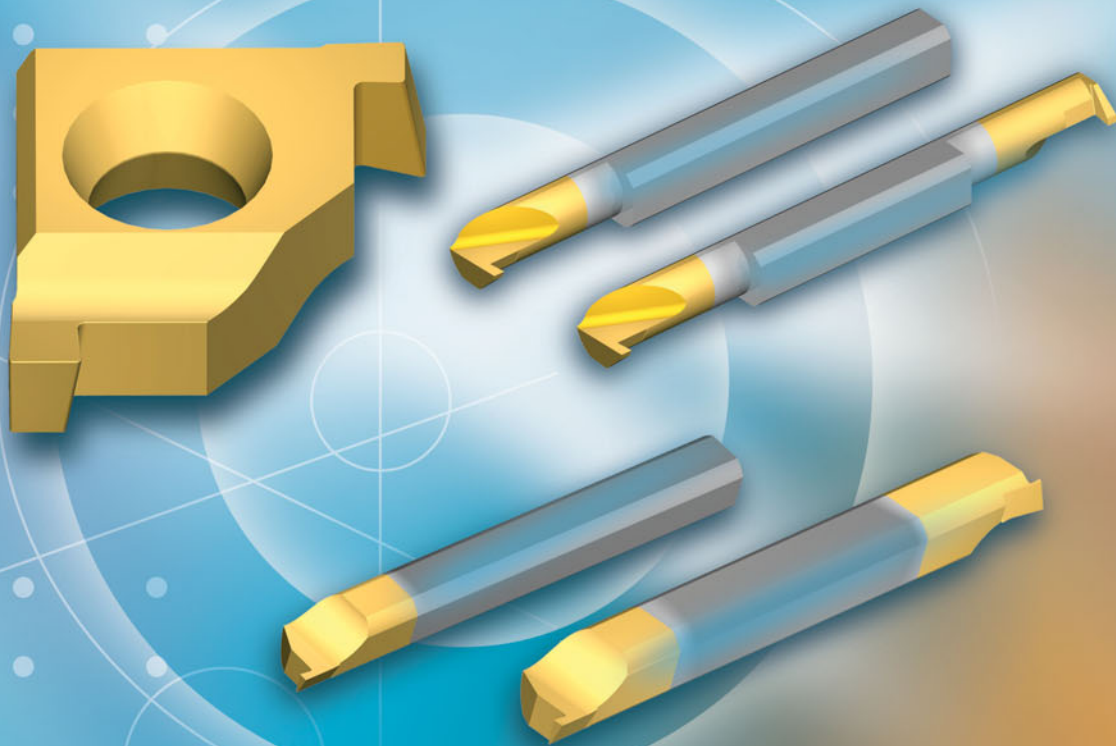
Number of Passes

Pitch	mm	0.50	0.75	1.00	1.25	1.50	1.75	2.00
	tpi	48	32	24	20	16	14	12
No. of passes (Micro&Mini)		6-9	6-11	6-12	8-14	9-15	11-18	11-18

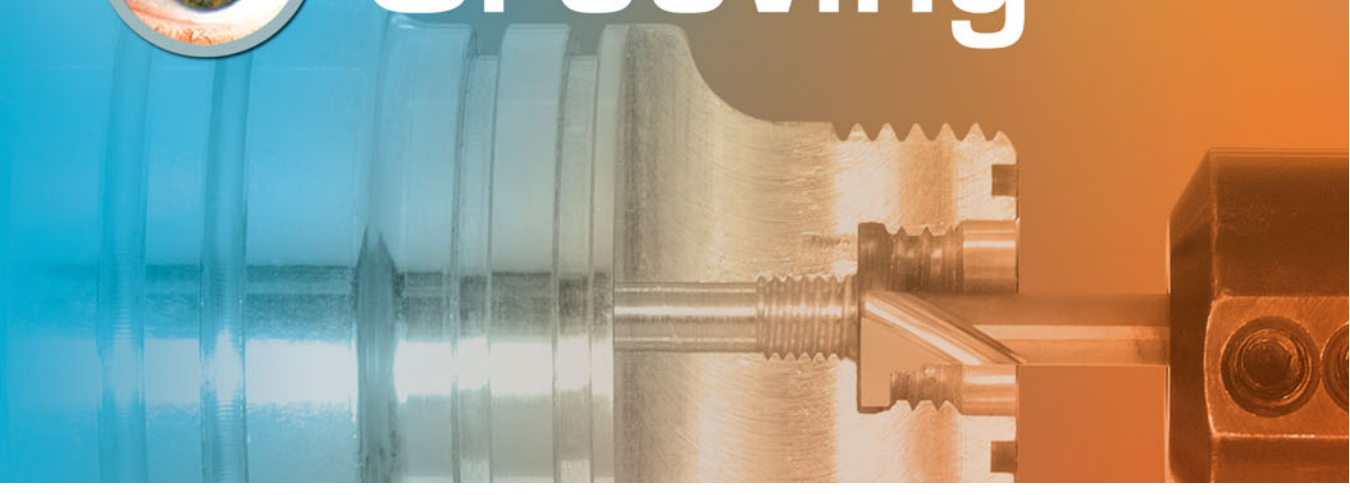
VARGUS 



Take a
closer Look...



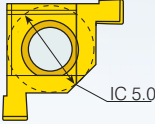
MINIPRO
Grooving





Vardex Ordering Code System Grooving Inserts

5	L	I	R	1.1	-	D472	-	1.3	VKP
1	2	3	4	5	6	7		8	9

1 - Insert Size 5.0 L - IC5.0L 	2 - Insert Style L 	3 - Type of Insert I - Internal	4 - RH / LH Insert R - Right Hand Insert L - Left Hand Insert
---	---	---	--

5 - Groove Std. Width 0.8 - 1.39 (mm)	6 - Profile Style C - Full profile	7 - Groove Standard DIN 472 Partial DIN 7993 Partial	8 - Groove Depth 0.7 - 1.5 (mm)	9 - Carbide Grade VKP (for Mini) VHX (for Mini)
---	--	---	---	--

Micro Grooving Inserts

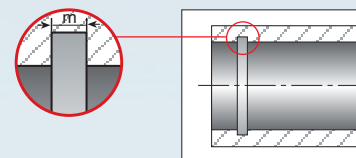
4.0	S	I	R	0.7	A	-	D471/D472	-	1.4	VMX	1-Side
1	2	3	4	5	6		7		8	9	10

1 - Insert Dia. 3.0 - 3.0 mm 4.0 - 4.0 mm 6.0 - 6.0 mm 8.0 - 8.0 mm 10.0 - 10.0 mm	2 - Insert Style S - Micro Insert 	3 - Type of Insert I - Internal	4 - RH / LH Insert R - Right Hand Insert	5 - Groove std. Width 0.9 - 2.15 (mm)
--	--	---	--	---

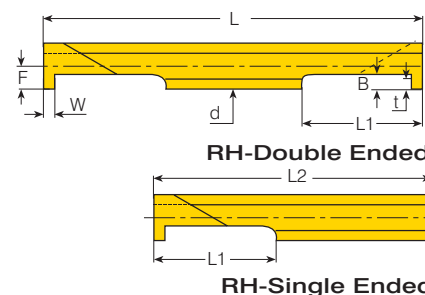
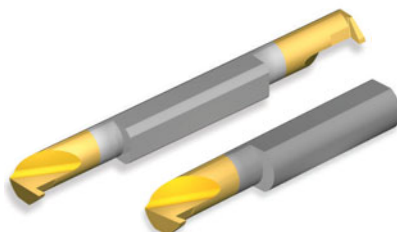
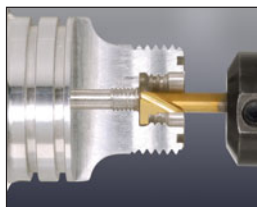
6 - Insert Length A - Axially S - Short M - Medium L - Long	7 - Groove Standard DIN 471 DIN 472 DIN 7993 DIN 76SH, DIN76ST DIN3770S, DIN3770S DIN 471/472- Face Grooving	8 - Groove Depth 0.5 - 1.5 (mm)	9 - Carbide Grade VMX	10 - Micro Ended 1- Side - Single Ended None - Double Ended
--	---	---	---------------------------------	--



Square Groove



Internal



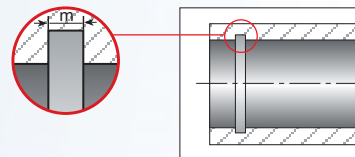
Micro DiN 472

Groove dimensions		Insert dia.	Ordering Code		Groove Std.	Dimensions mm					Holder	Min. Bore dia.
W	t	d mm	RH-Single Ended	RH-Double Ended	m (H13)	L1	L2	L	B	F		
1.0	0.5	3.0	3.0SIR0.90S-D472-0.5...1-SIDE	3.0SIR0.90S-D472-0.5...	0.90	9.0	36	36.0	0.8	1.40	SMC...-3.0	3.2
1.0			3.0SIR0.90M-D472-0.5...1-SIDE	3.0SIR0.90M-D472-0.5...	0.90	16.0	43	50.0				
1.2			3.0SIR1.10S-D472-0.5...1-SIDE	3.0SIR1.10S-D472-0.5...	1.10	9.0	36	36.0				
1.2			3.0SIR1.10M-D472-0.5...1-SIDE	3.0SIR1.10M-D472-0.5...	1.10	16.0	43	50.0				
1.0	1.1	4.0	4.0SIR0.90S-D472-1.1...1-SIDE	4.0SIR0.90S-D472-1.1...	0.90	9.0	36	36.0	1.4	1.90	SMC...-4.0	4.1
1.0			4.0SIR0.90M-D472-1.1...1-SIDE	4.0SIR0.90M-D472-1.1...	0.90	16.0	43	50.0				
1.0			4.0SIR0.90L-D472-1.1...1-SIDE	4.0SIR0.90L-D472-1.1...	0.90	21.0	50	60.0				
1.2			4.0SIR1.10S-D472-1.1...1-SIDE	4.0SIR1.10S-D472-1.1...	1.10	9.0	36	36.0				
1.2			4.0SIR1.10M-D472-1.1...1-SIDE	4.0SIR1.10M-D472-1.1...	1.10	16.0	43	50.0				
1.2			4.0SIR1.10L-D472-1.1...1-SIDE	4.0SIR1.10L-D472-1.1...	1.10	21.0	50	60.0				
1.4			4.0SIR1.30S-D472-1.1...1-SIDE	4.0SIR1.30S-D472-1.1...	1.30	9.0	36	36.0				
1.4			4.0SIR1.30M-D472-1.1...1-SIDE	4.0SIR1.30M-D472-1.1...	1.30	16.0	43	50.0				
1.4			4.0SIR1.30L-D472-1.1...1-SIDE	4.0SIR1.30L-D472-1.1...	1.30	21.0	50	60.0				
1.7			4.0SIR1.60S-D472-1.1...1-SIDE	4.0SIR1.60S-D472-1.1...	1.60	9.0	36	36.0				
1.7			4.0SIR1.60M-D472-1.1...1-SIDE	4.0SIR1.60M-D472-1.1...	1.60	16.0	43	50.0				
1.7			4.0SIR1.60L-D472-1.1...1-SIDE	4.0SIR1.60L-D472-1.1...	1.60	21.0	50	60.0				
1.0	1.5	6.0	6.0SIR0.90S-D472-1.5...1-SIDE	6.0SIR0.90S-D472-1.5...	0.90	9.0	36	36.0	1.8	2.90	SMC...-6.0	6.1
1.0			6.0SIR0.90M-D472-1.5...1-SIDE	6.0SIR0.90M-D472-1.5...	0.90	16.0	43	50.0				
1.0			6.0SIR0.90L-D472-1.5...1-SIDE	6.0SIR0.90L-D472-1.5...	0.90	21.0	50	60.0				
1.2			6.0SIR1.10S-D472-1.5...1-SIDE	6.0SIR1.10S-D472-1.5...	1.10	9.0	36	36.0				
1.2			6.0SIR1.10M-D472-1.5...1-SIDE	6.0SIR1.10M-D472-1.5...	1.10	16.0	43	50.0				
1.2			6.0SIR1.10L-D472-1.5...1-SIDE	6.0SIR1.10L-D472-1.5...	1.10	21.0	50	60.0				
1.4			6.0SIR1.30S-D472-1.5...1-SIDE	6.0SIR1.30S-D472-1.5...	1.30	9.0	36	36.0				
1.4			6.0SIR1.30M-D472-1.5...1-SIDE	6.0SIR1.30M-D472-1.5...	1.30	16.0	43	50.0				
1.4			6.0SIR1.30L-D472-1.5...1-SIDE	6.0SIR1.30L-D472-1.5...	1.30	21.0	50	60.0				
1.7			6.0SIR1.60S-D472-1.5...1-SIDE	6.0SIR1.60S-D472-1.5...	1.60	9.0	36	36.0				
1.7			6.0SIR1.60M-D472-1.5...1-SIDE	6.0SIR1.60M-D472-1.5...	1.60	16.0	43	50.0				
1.7			6.0SIR1.60L-D472-1.5...1-SIDE	6.0SIR1.60L-D472-1.5...	1.60	21.0	50	60.0				
1.95			6.0SIR1.85S-D472-1.5...1-SIDE	6.0SIR1.85S-D472-1.5...	1.85	9.0	36	36.0				
1.95			6.0SIR1.85M-D472-1.5...1-SIDE	6.0SIR1.85M-D472-1.5...	1.85	16.0	43	50.0				
1.95			6.0SIR1.85L-D472-1.5...1-SIDE	6.0SIR1.85L-D472-1.5...	1.85	21.0	50	60.0				
2.25			6.0SIR2.15S-D472-1.5...1-SIDE	6.0SIR2.15S-D472-1.5...	2.15	9.0	36	36.0				
2.25			6.0SIR2.15M-D472-1.5...1-SIDE	6.0SIR2.15M-D472-1.5...	2.15	16.0	43	50.0				
2.25			6.0SIR2.15L-D472-1.5...1-SIDE	6.0SIR2.15L-D472-1.5...	2.15	21.0	50	60.0				

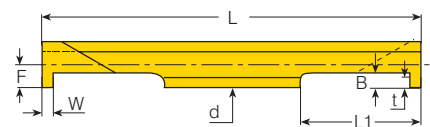
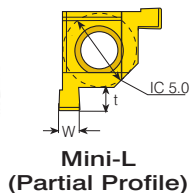
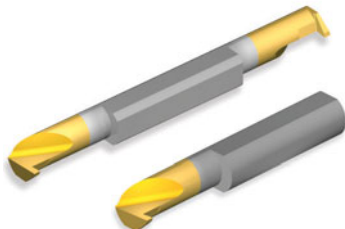
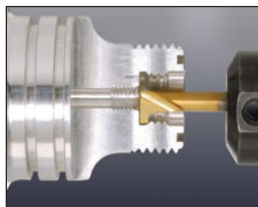
continued on next page ▶



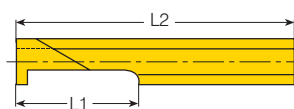
Square Groove (Cont')



Internal



RH-Double Ended



RH-Single Ended

Micro DIN 472 (con't)

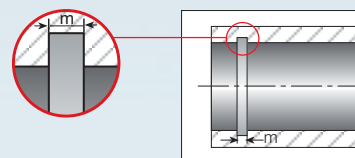
Groove dimensions		Insert dia.	Ordering Code		Groove Std.	Dimensions mm					Holder	Min. Bore dia.
W	t	d mm	RH-Single Ended	RH-Double Ended	m (H13)	L1	L2	L	B	F		
1.2	2.0	8.0	8.0SIR1.10M-D472-2.0...1-SIDE	8.0SIR1.10M-D472-2.0...	1.10	20	63	70	2.5	3.9	SMC...-8.0	8.4
1.4	2.0		8.0SIR1.30M-D472-2.0...1-SIDE	8.0SIR1.30M-D472-2.0...	1.30	20	63	70	2.5			
1.7	2.5		8.0SIR1.60M-D472-2.5...1-SIDE	8.0SIR1.60M-D472-2.5...	1.60	20	63	70	3.0			
0.95	2.5		8.0SIR1.85M-D472-2.5...1-SIDE	8.0SIR1.85M-D472-2.5...	1.85	20	63	70	3.0			
2.25	3.0		8.0SIR2.15M-D472-3.0...1-SIDE	8.0SIR2.15M-D472-3.0...	2.15	20	63	70	3.5			
2.75	3.5		8.0SIR2.65M-D472-3.5...1-SIDE	8.0SIR2.65M-D472-3.5...	2.65	20	63	70	4.0			
3.3	3.5		8.0SIR3.15M-D472-3.5...1-SIDE	8.0SIR3.15M-D472-3.5...	3.15	20	63	70	4.0			
1.4	3.5	10.0	10.0SIR1.30M-D472-3.5...1-SIDE	10.0SIR1.30M-D472-3.5...	1.30	25	71	80	4.0	4.9	SMC...-10.0	10.4
1.7			10.0SIR1.60M-D472-3.5...1-SIDE	10.0SIR1.60M-D472-3.5...	1.60	25	71	80				
1.95			10.0SIR1.85M-D472-3.5...1-SIDE	10.0SIR1.85M-D472-3.5...	1.85	25	71	80				
2.25			10.0SIR2.15M-D472-3.5...1-SIDE	10.0SIR2.15M-D472-3.5...	2.15	25	71	80				
2.75			10.0SIR2.65M-D472-3.5...1-SIDE	10.0SIR2.65M-D472-3.5...	2.65	25	71	80				
3.3			10.0SIR3.15M-D472-3.5...1-SIDE	10.0SIR3.15M-D472-3.5...	3.15	25	71	80				
4.3			10.0SIR4.15M-D472-3.5...1-SIDE	10.0SIR4.15M-D472-3.5...	4.15	25	71	80				
5.3			10.0SIR5.15M-D472-3.5...1-SIDE	10.0SIR5.15M-D472-3.5...	5.15	25	71	80				

Mini-L DIN 472 (Partial Profile)

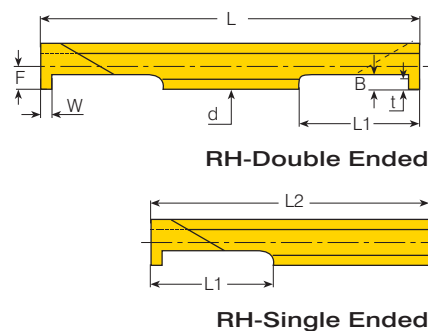
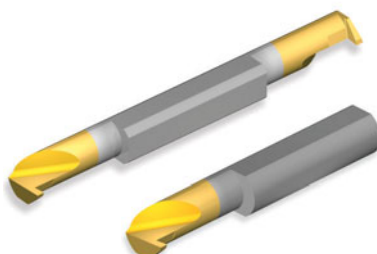
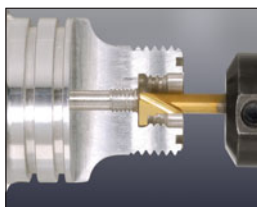
Groove dimensions		Insert size	Ordering Code	Groove Std.	Min. Bore dia. (mm)		Holder
W	t	IC	m (H13)				
1.0	0.7	5.0L	5LIR0.9-D472-0.7	0.9	8.0		.NVR10...-5L
1.2	1.0		5LIR1.1-D472-1.0	1.1			
1.4	1.5		5LIR1.3-D472-1.5	1.3			



Square Groove (Cont')



Internal

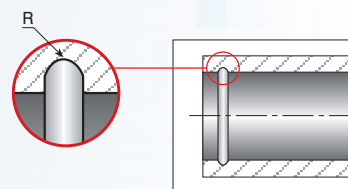


Micro DiN 3770

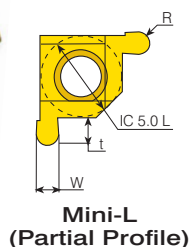
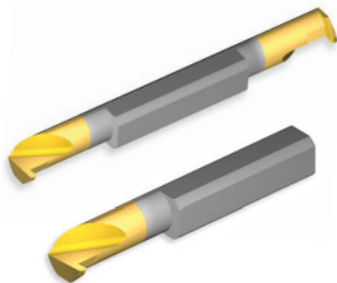
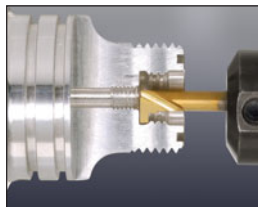
Groove dimensions		Insert dia.	Ordering Code		Groove Std.	Dimensions mm						Min. Bore dia.
W	t	d mm	RH-Single Ended	RH-Double Ended	m (H13)	L1	L2	L	B	F	Holder	
2.0	1.5	6.0	6.0SIR1.6S-D3770S-1.5...1-SIDE	6.0SIR1.6S-D3770S-1.5...	1.6	9.0	36.0	36.0	2.0	2.9	SMC...-6.0	6.1
2.0			6.0SIR1.6M-D3770S-1.5...1-SIDE	6.0SIR1.6M-D3770S-1.5...	1.6	16.0	43.0	50.0				
2.0			6.0SIR1.6L-D3770S-1.5...1-SIDE	6.0SIR1.6L-D3770S-1.5...	1.6	21.0	50.0	60.0				
2.4	1.8		6.0SIR2.0S-D3770D-1.8...1-SIDE	6.0SIR2.0S-D3770D-1.8...	2.0	9.0	36.0	36.0	2.0	2.9		
2.4			6.0SIR2.0M-D3770D-1.8...1-SIDE	6.0SIR2.0M-D3770D-1.8...	2.0	16.0	43.0	50.0				
2.4			6.0SIR2.0L-D3770D-1.8...1-SIDE	6.0SIR2.0L-D3770D-1.8...	2.0	21.0	50.0	60.0				



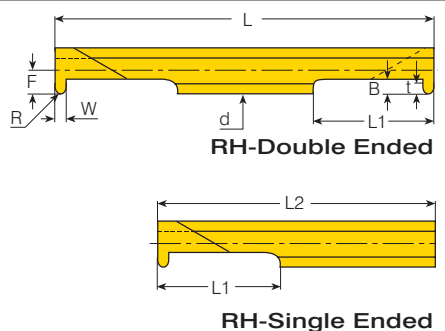
Round Groove



Internal



Mini-L
(Partial Profile)



Micro (Partial Profile) DiN 7993

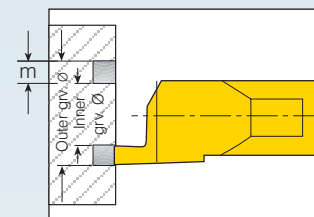
Groove dimensions		Insert dia.	Ordering Code		Groove Std.	Dimensions mm					Holder	Min. Bore dia.
W	t	d mm	RH-Single Ended	RH-Double Ended	R	L1	L2	L	B	F		
0.80	0.6	3.0	3.0SIR0.4S-D7993-0.6...1-SIDE	3.0SIR0.4S-D7993-0.6...	0.40	9.0	36	36.0	0.8	1.4	SMC...-3.0	3.2
0.80			3.0SIR0.4M-D7993-0.6...1-SIDE	3.0SIR0.4M-D7993-0.6...	0.40	16.0	43	50.0				
0.80	0.6		4.0SIR0.4S-D7993-0.6...1-SIDE	4.0SIR0.4S-D7993-0.6...	0.40	9.0	36	36.0	0.9			
0.80			4.0SIR0.4M-D7993-0.6...1-SIDE	4.0SIR0.4M-D7993-0.6...	0.40	16.0	43	50.0				
0.80			4.0SIR0.4L-D7993-0.8...1-SIDE	4.0SIR0.4L-D7993-0.8...	0.40	21.0	50	60.0				
1.20	0.8	4.0	4.0SIR0.6S-D7993-0.8...1-SIDE	4.0SIR0.6S-D7993-0.8...	0.60	9.0	36	36.0	1.1			
1.20			4.0SIR0.6M-D7993-0.8...1-SIDE	4.0SIR0.6M-D7993-0.8...	0.60	16.0	43	50.0		1.9	SMC...-4.0	4.1
1.20			4.0SIR0.6L-D7993-0.8...1-SIDE	4.0SIR0.6L-D7993-0.8...	0.60	21.0	50	60.0				
1.80			4.0SIR0.9S-D7993-1.1...1-SIDE	4.0SIR0.9S-D7993-1.1...	0.90	9.0	36	36.0				
1.80	1.1		4.0SIR0.9M-D7993-1.1...1-SIDE	4.0SIR0.9M-D7993-1.1...	0.90	16.0	43	50.0	1.4			
1.80			4.0SIR0.9L-D7993-1.1...1-SIDE	4.0SIR0.9L-D7993-1.1...	0.90	21.0	50	60.0				
1.80			6.0SIR0.9S-D7993-1.1...1-SIDE	6.0SIR0.9S-D7993-1.1...	0.90	9.0	36	36.0				
1.80	1.1		6.0SIR0.9M-D7993-1.1...1-SIDE	6.0SIR0.9M-D7993-1.1...	0.90	16.0	43	50.0	1.4			
1.80			6.0SIR0.9L-D7993-1.1...1-SIDE	6.0SIR0.9L-D7993-1.1...	0.90	21.0	50	60.0				
2.00			6.0SIR1.0S-D7993-1.2...1-SIDE	6.0SIR1.0S-D7993-1.2...	1.00	9.0	36	36.0				
2.00	1.2	6.0	6.0SIR1.0M-D7993-1.2...1-SIDE	6.0SIR1.0M-D7993-1.2...	1.00	16.0	43	50.0	1.5	2.9	SMC...-6.0	6.1
2.00			6.0SIR1.0L-D7993-1.2...1-SIDE	6.0SIR1.0L-D7993-1.2...	1.00	21.0	50	60.0				
2.20			6.0SIR1.1S-D7993-1.3...1-SIDE	6.0SIR1.1S-D7993-1.3...	1.10	9.0	36	36.0				
2.20	1.3		6.0SIR1.1M-D7993-1.3...1-SIDE	6.0SIR1.1M-D7993-1.3...	1.10	16.0	43	50.0	1.6			
2.20			6.0SIR1.1L-D7993-1.3...1-SIDE	6.0SIR1.1L-D7993-1.3...	1.10	21.0	50	60.0				
1.80			8.0SIR0.9M-D7993-2.0...1-SIDE	8.0SIR0.9M-D7993-2.0...	0.90	20.0	63	70.0				
2.20	2.0	8.0	8.0SIR1.1M-D7993-2.0...1-SIDE	8.0SIR1.1M-D7993-2.0...	1.10	20.0	63	70.0	2.5	3.9	SMC...-8.0	8.4
2.80			8.0SIR1.4M-D7993-2.0...1-SIDE	8.0SIR1.4M-D7993-2.0...	1.40	20.0	63	70.0				
2.80			10.0SIR1.4M-D7993-2.9...1-SIDE	10.0SIR1.4M-D7993-2.9...	1.40	25.0	71	80.0				
3.60	2.0	10.0	10.0SIR1.8M-D7993-2.9...1-SIDE	10.0SIR1.8M-D7993-2.9...	1.80	25.0	71	80.0	3.4	4.9	SMC...-10.0	10.4

Mini-L (Partial Profile for Bores) DiN 7993

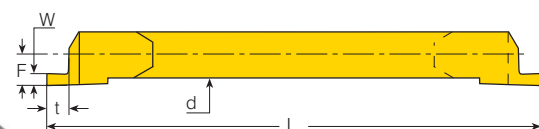
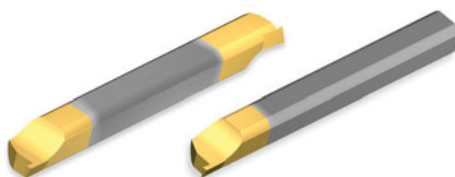
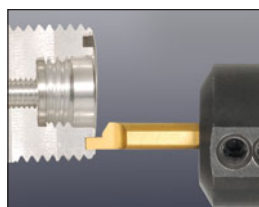
Groove dimensions		Insert size	Ordering Code	Dimensions mm	Minimum Bore dia (mm)	Holder
W	t	IC	RH	R		
0.8	0.8	5.0L	5LIR0.4-D7993-0.8	0.4	8.0	.NVR10...-5L
1.2	1.0		5LIR0.6-D7993-1.0	0.6		



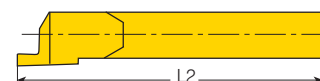
Face Groove



Internal



RH-Double Ended



RH-Single Ended

Micro (Partial Profile) DIN 471, DIN 472

Groove dimensions		Insert dia.	Ordering Code		Groove Std.	Dimensions mm			Inner Groove Ø		Outer Groove Ø
W	t	d mm	RH-Single Ended	RH-Double Ended	m (H13)	L	L2	F	Sleeve		
0.8	1.4	4.0	4.0SIR0.7A-D471/472-1.4...1-SIDE	4.0SIR0.7A-D471/472-1.4...	0.70	50	43	1.40	SMC...-4.0		3.50 5.00
0.9	1.5		4.0SIR0.8A-D471/472-1.5...1-SIDE	4.0SIR0.8A-D471/472-1.5...	0.80						3.40 5.20
1.0	1.6		4.0SIR0.9A-D471/472-1.6...1-SIDE	4.0SIR0.9A-D471/472-1.6...	0.90						3.30 5.30
1.2	1.8		4.0SIR1.1A-D471/472-1.8...1-SIDE	4.0SIR1.1A-D471/472-1.8...	1.10						3.10 5.50
1.4	2.0		4.0SIR1.3A-D471/472-2.0...1-SIDE	4.0SIR1.3A-D471/472-2.0...	1.30						2.90 5.70
1.7	2.3		4.0SIR1.6A-D471/472-2.3...1-SIDE	4.0SIR1.6A-D471/472-2.3...	1.60						2.60 6.00
0.8	1.4	6.0	6.0SIR0.7A-D471/472-1.4...1-SIDE	6.0SIR0.7A-D471/472-1.4...	0.70	50	43	1.90	SMC...-6.0		5.50 7.00
0.9	1.5		6.0SIR0.8A-D471/472-1.5...1-SIDE	6.0SIR0.8A-D471/472-1.5...	0.80						5.40 7.20
1.0	1.6		6.0SIR0.9A-D471/472-1.6...1-SIDE	6.0SIR0.9A-D471/472-1.6...	0.90						5.30 7.30
1.2	1.8		6.0SIR1.1A-D471/472-1.8...1-SIDE	6.0SIR1.1A-D471/472-1.8...	1.10						5.10 7.50
1.4	2.0		6.0SIR1.3A-D471/472-2.0...1-SIDE	6.0SIR1.3A-D471/472-2.0...	1.30						4.90 7.70
1.7	2.3		6.0SIR1.6A-D471/472-2.3...1-SIDE	6.0SIR1.6A-D471/472-2.3...	1.60						4.60 8.00
1.95	2.5	8.0	6.0SIR1.85A-D471/472-2.5...1-SIDE	6.0SIR1.85A-D471/472-2.5...	1.85	70	63	3.95	SMC...-8.0		4.40 8.20
2.25	2.8		6.0SIR2.15A-D471/472-2.8...1-SIDE	6.0SIR2.15A-D471/472-2.8...	2.15						4.10 8.50
1.2	1.8		8.0SIR1.1A-D471/472-1.8...1-SIDE	8.0SIR1.1A-D471/472-1.8...	1.10						8.06 10.44
1.4	2.0		8.0SIR1.3A-D471/472-2.0...1-SIDE	8.0SIR1.3A-D471/472-2.0...	1.30						7.66 10.44
1.7	2.3		8.0SIR1.6A-D471/472-2.3...1-SIDE	8.0SIR1.6A-D471/472-2.3...	1.60						7.06 10.44
1.95	2.5		8.0SIR1.85A-D471/472-2.5...1-SIDE	8.0SIR1.85A-D471/472-2.5...	1.85						6.56 10.44
2.25	2.8	10.0	8.0SIR2.15A-D471/472-2.8...1-SIDE	8.0SIR2.15A-D471/472-2.8...	2.15	80	71	4.95	SMC...-10.0		5.96 10.44
2.75	3.3		8.0SIR2.65A-D471/472-3.3...1-SIDE	8.0SIR2.65A-D471/472-3.3...	2.65						4.96 10.44
1.4	1.8		10.0SIR1.3A-D471/472-1.8...1-SIDE	10.0SIR1.3A-D471/472-1.8...	1.30						9.66 12.44
1.7	2.3		10.0SIR1.6A-D471/472-2.3...1-SIDE	10.0SIR1.6A-D471/472-2.3...	1.60						9.06 12.44
1.95	2.5		10.0SIR1.85A-D471/472-2.5...1-SIDE	10.0SIR1.85A-D471/472-2.5...	1.85						8.56 12.44
2.25	2.8		10.0SIR2.15A-D471/472-2.8...1-SIDE	10.0SIR2.15A-D471/472-2.8...	2.15						7.96 12.44
2.75	3.3	10.0	10.0SIR2.65A-D471/472-3.3...1-SIDE	10.0SIR2.65A-D471/472-3.3...	2.65						6.96 12.44
3.25	3.8		10.0SIR3.15A-D471/472-3.8...1-SIDE	10.0SIR3.15A-D471/472-3.8...	3.15						5.96 12.44
4.25	4.8		10.0SIR4.15A-D471/472-4.8...1-SIDE	10.0SIR4.15A-D471/472-4.8...	4.15						3.96 12.44

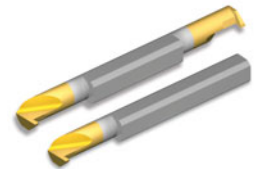


Recommended Grades, Cutting Speeds Vc [m/min] and Feed f [mm/rev]

Material			Hardness Brinell HB	Vc[m/min]			Feed f [mm/rev]	
				Coated			Laydown & Mini Grooving	Micro Grooving
				Micro Grooving VMX	Mini Grooving VKP	Mini Grooving VHX		
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	50-120	140-200	20-50	0.3	0.03
		Medium carbon (C=0.25-0.55 %)	150	40-100	120-180	15-40	0.15	0.02
		High carbon (C=0.55-0.85 %)	170	30-80	110-180	15-30	0.05	0.015
	Low alloy steel (alloying elements ≤5%)	Non hardened	180	50-70	100-155	20-45	0.25	0.02
		Hardened	275	40-60	90-145	10-25	0.1	0.015
		Hardened	350	30-50	80-135	10-25	0.05	0.01
	High alloy steel (alloying elements > 5%)	Annealed	200	30-50	65-115		0.2	0.02
		Hardened	325	25-40	50-100		0.05	0.01
	Cast steel	Low alloy (alloying elements <5%)	200	30-50	30-50	25-50	0.2	0.02
		High alloy (alloying elements >5%)	225	25-40	25-40	20-40	0.05	0.02
M	Stainless steel Ferritic	Non hardened	200	60-100	80-120		0.2	0.015
		Hardened	330	40-60	55-95		0.05	0.01
	Stainless steel Austenitic	Austenitic	180	50-90	60-100		0.2	0.015
		Super austenitic	200	40-60	50-90		0.05	0.015
	Stainless steel Cast ferritic	Non hardened	200	40-60	60-80		0.2	0.02
		Hardened	330	30-50	45-65		0.05	0.01
	Stainless steel Cast austenitic	Austenitic	200	40-60	50-70		0.2	0.02
		Hardened	330	30-50	40-60		0.05	0.01
	High temperature alloys	Annealed (Iron based)	200	25-45	25-45		0.2	0.015
		Aged (Iron based)	280	20-30	20-30		0.05	0.01
		Annealed (Nickel or Cobalt based)	250	15-20	15-20		0.05	0.015
		Aged (Nickel or Cobalt based)	350	10-15	10-15		0.05	0.01
	Titanium alloys	Pure 99.5 Ti	400Rm	60-100	60-100		0.1	0.02
		α + β alloys	1050Rm	40-50	40-50		0.05	0.02
	K	Extra hard steel	Hardened & tempered	55HRc	20-40	20-40		0.02
Malleable cast iron		Ferritic (short chips)	130	50-70	60-80		0.2	0.02
		Pearlitic (long chips)	230	50-71	60-80		0.15	0.01
Grey cast iron		Low tensile strength	180	50-72	60-80		0.2	0.02
		High tensile strength	260	40-60	40-70		0.1	0.015
Nodular SG iron		Ferritic	160	50-70	60-80		0.2	0.02
		Pearlitic	260	60-80	70-90		0.1	0.015
Aluminium alloys Wrought		non aging	60	100-300	80-240	30-60	0.4	0.03
		Aged	100	100-150	100-170	25-50	0.1	0.03
Aluminium alloys		Cast	75	100-150	100-150	25-50	0.25	0.03
		Cast & aged	90	60-100	60-100	20-40	0.15	0.03
Aluminium alloys		Cast Si 13-22%	130	100-150	100-150	15-30	0.15	0.02
Copper and copper alloys		Brass	90	60-100	80-200	15-35	0.2	0.03
	Bronze and non leaded copper	100	60-100	80-200	15-35	0.15	0.03	

Grades and Applications

VMX



General use carbide grade for Micro inserts. TiN coated.

VHX



General use HSS grade for Mini inserts. For machining at low cutting speed. TiN coated.

VKP

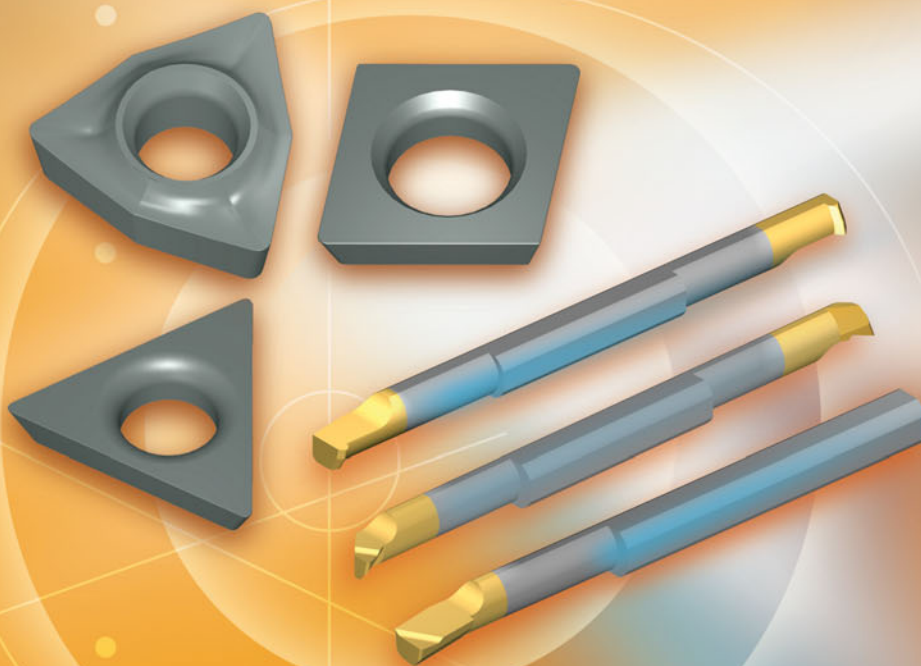


General use carbide grade for Mini inserts. TiN coated.

VARGUS 



Take a
closer Look...



MINIPRO
Boring





Vardex Ordering Code System

PowerBore Inserts

T	D	O	W	41	14	VTX
1	2	3	4	5	6	7

1 - Insert Shape

C - Diamond 80 deg.



T - Triangle



W - Trigon 80 deg.



2 - Clearance Angle

C - 7 deg.

D - 15 deg.

3 - Tolerance Class

0 - Special Tolerance Class

4 - Insert Type

W - Hole + Countersink

5 - Insert Dimension

40-IC 0.156" - Thickness 1.02mm

41-IC 0.160" - Thickness 1.19mm

42-IC 0.156" - Thickness 1.57mm

50-IC 0.187" - Thickness 2.44mm

6 - Corner Radius

11 - R 0.05

12 - R 0.18

13 - R 0.20

14 - R 0.38

7 - Carbide Grade

VTX

Micro Boring Inserts

6.0	S	I	R	0.2	M		Bore		1	VMX	1-Side
1	2	3	4	5	6		7		8	9	10

1 - Insert Dia.

3.0

4.0

6.0

8.0

10.0

2 - Tool Group

S - Solid Carbide



3 - Type of Insert

I - Internal

4 - Hand of Insert

R - Right Hand Insert

L - Left Hand Insert

5 - Corner Radius

0.2

6 - Tool Length

S - Short

M - Medium

L - Long

7 - Tool Application

Bore

Copy

Chamfer

Back

3527, 3537, 3547-Long Nose

BD-Bore Drill

8 - Front Relief

1 - With Relief

0 - Without Relief

9 - Carbide Grade

VMX

10 - Micro Ended

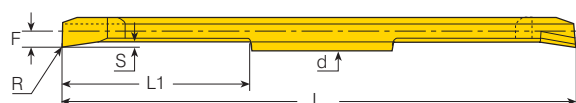
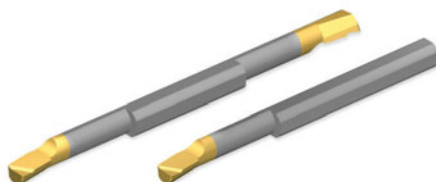
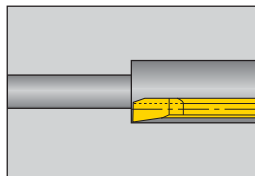
1-Side - Single Ended

None - Double Ended

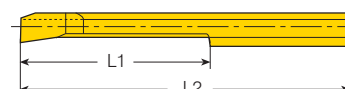


Boring

Internal



RH-Double Ended



RH-Single Ended

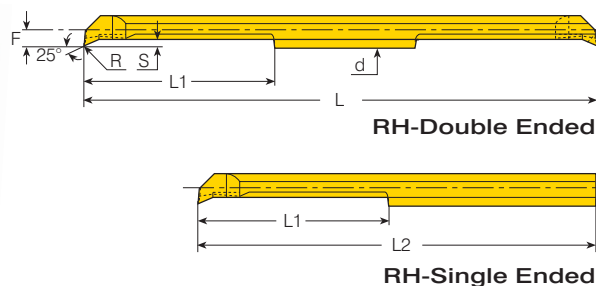
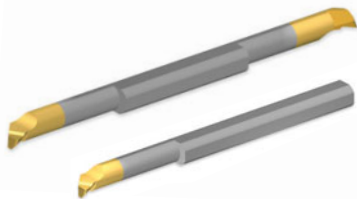
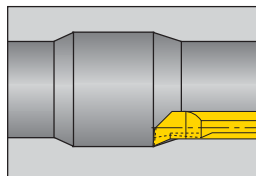
Micro

Insert dia.		Dimensions mm							Holder	Min. Bore dia.
d mm	RH-Single Ended	RH-Double Ended	R	L	L1	L2	F	S		
3.0	3.0SIR0.1USBore-1...1-SIDE	3.0SIR0.1USBore-1	0.1	36	6	36	1.22	0.40	SMC...-3.0	3.2
	3.0SIR0.1S-Bore-1...1-SIDE	3.0SIR0.1S-Bore-1	0.1	36	9	36	1.22	0.40		
	3.0SIR0.2S-Bore-1...1-SIDE	3.0SIR0.2S-Bore-1...	0.2	36	9	36	1.42	0.66		
	3.0SIR0.2M-Bore-1...1-SIDE	3.0SIR0.2M-Bore-1...	0.2	50	16	43	1.42	0.66		
4.0	4.0SIR0.2S-Bore-1...1-SIDE	4.0SIR0.2S-Bore-1...	0.2	36	9	36	1.92	0.66	SMC...-4.0	4.2
	4.0SIR0.2M-Bore-1...1-SIDE	4.0SIR0.2M-Bore-1...	0.2	50	16	43	1.92	0.66		
	4.0SIR0.2L-Bore-1...1-SIDE	4.0SIR0.2L-Bore-1...	0.2	60	21	50	1.92	0.66		
6.0	6.0SIR0.2S-Bore-1...1-SIDE	6.0SIR0.2S-Bore-1...	0.2	36	9	36	2.92	0.77	SMC...-6.0	6.2
	6.0SIR0.2M-Bore-1...1-SIDE	6.0SIR0.2M-Bore-1...	0.2	50	16	43	2.92	0.77		
	6.0SIR0.2L-Bore-1...1-SIDE	6.0SIR0.2L-Bore-1...	0.2	60	21	50	2.92	0.77		
8.0	8.0SIR0.2S-Bore-1...1-SIDE	8.0SIR0.2S-Bore-1...	0.2	54	12	54	3.92	0.82	SMC...-8.0	8.2
	8.0SIR0.2M-Bore-1...1-SIDE	8.0SIR0.2M-Bore-1...	0.2	70	20	63	3.92	0.82		
	8.0SIR0.2L-Bore-1...1-SIDE	8.0SIR0.2L-Bore-1...	0.2	86	28	70	3.92	0.82		
10.0	10.0SIR0.2S-Bore-1...1-SIDE	10.0SIR0.2S-Bore-1...	0.2	60	15	60	4.92	1.00	SMC...-10.0	10.2
	10.0SIR0.2M-Bore-1...1-SIDE	10.0SIR0.2M-Bore-1...	0.2	80	25	71	4.92	1.00		
	10.0SIR0.2L-Bore-1...1-SIDE	10.0SIR0.2L-Bore-1...	0.2	100	35	80	4.92	1.00		



Copy

Internal

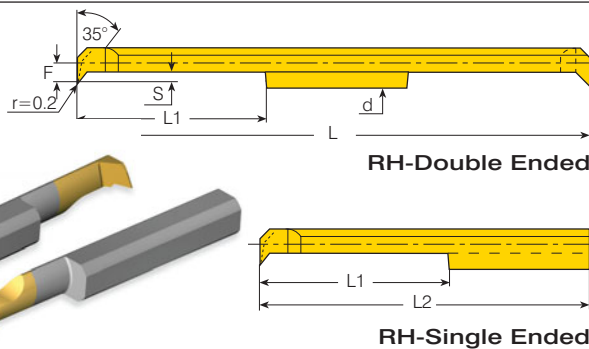
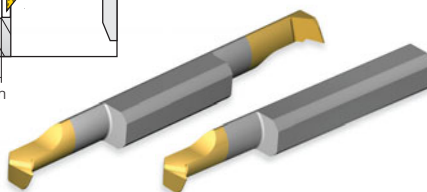
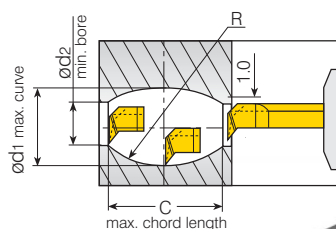
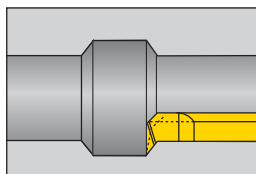


Micro

Insert dia.		Dimensions mm							Holder	Min. Bore dia.
d (mm)		RH-Single Ended	RH-Double Ended	R	L	L1	L2	F	S	
4.0	4.0SIR0.2S-Copy-1...1-SIDE	4.0SIR0.2S-Copy-1...	0.2	36	9	36	1.92	1.0	SMC...-4.0	4.2
	4.0SIR0.2M-Copy-1...1-SIDE	4.0SIR0.2M-Copy-1...	0.2	50	16	43	1.92	1.0		
	4.0SIR0.2L-Copy-1...1-SIDE	4.0SIR0.2L-Copy-1...	0.2	60	21	50	1.92	1.0		
6.0	6.0SIR0.2S-Copy-1...1-SIDE	6.0SIR0.2S-Copy-1...	0.2	36	9	36	2.92	1.3	SMC...-6.0	7.0
	6.0SIR0.2M-Copy-1...1-SIDE	6.0SIR0.2M-Copy-1...	0.2	50	16	43	2.92	1.3		
	6.0SIR0.2L-Copy-1...1-SIDE	6.0SIR0.2L-Copy-1...	0.2	60	21	50	2.92	1.3		

Copy (Long Nose)

Internal



Micro

Insert dia.	Ordering Code		Dimensions mm					Holder	Max. Curve	Min. Bore dia.
d (mm)	RH-Single Ended	RH-Double Ended	L	L1	L2	F	S		d1	d2
6.0	6.0SIR0.2S-3527-1...1-SIDE	6.0SIR0.2S-3527-1...	36	9	36	2.92	2.7	SMC...-6.0	12.3	6.9
	6.0SIR0.2M-3527-1...1-SIDE	6.0SIR0.2M-3527-1...	50	16	43	2.92	2.7			
	6.0SIR0.2L-3527-1...1-SIDE	6.0SIR0.2L-3527-1...	60	21	50	2.92	2.7			
8.0	8.0SIR0.2S-3537-1...1-SIDE	8.0SIR0.2S-3537-1...	54	12	54	3.92	3.7	SMC...-8.0	16.1	8.9
	8.0SIR0.2M-3537-1...1-SIDE	8.0SIR0.2M-3537-1...	70	20	63	3.92	3.7			
	8.0SIR0.2L-3537-1...1-SIDE	8.0SIR0.2L-3537-1...	86	28	70	3.92	3.7			
10.0	10.0SIR0.2S-3547-1...1-SIDE	10.0SIR0.2S-3547-1...	60	15	60	4.92	4.7	SMC...-10.0	20.2	10.8
	10.0SIR0.2M-3547-1...1-SIDE	10.0SIR0.2M-3547-1...	80	25	71	4.92	4.7			
	10.0SIR0.2L-3547-1...1-SIDE	10.0SIR0.2L-3547-1...	100	35	80	4.92	4.7			

Note:

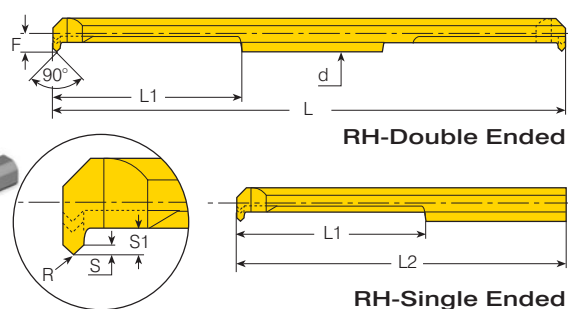
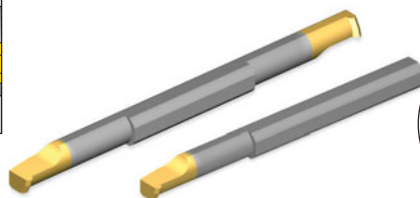
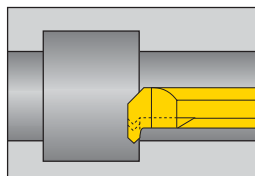
1. Radius R can be calculated using formula $R = (4S^2 + C^2) / 8S$

2. Chord length can be calculated using formula $C = 2\sqrt{2S^2 \times R - S^2}$



Chamfer

Internal

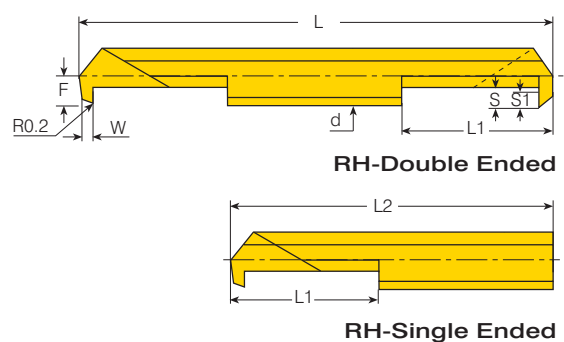
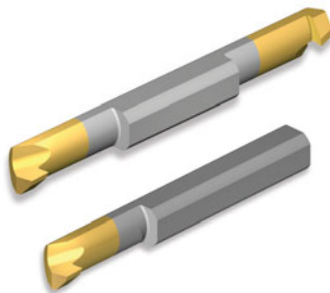
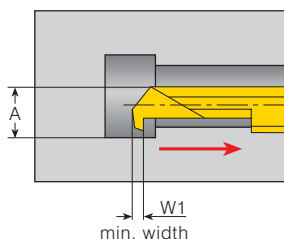


Micro

Insert dia.	Dimensions mm									Holder	Min. Bore dia.
d (mm)	RH-Single Ended	RH-Double Ended	R	L	L1	L2	F	S1	S		
4.0	4.0SIR0.2S-Chamfer-0...1-SIDE	4.0SIR0.2S-Chamfer-0...	0.2	36	9	36	1.92	1.0	0.40	SMC...-4.0	4.2
	4.0SIR0.2M-Chamfer-0...1-SIDE	4.0SIR0.2M-Chamfer-0...	0.2	50	16	43	1.92	1.0	0.40		
	4.0SIR0.2L-Chamfer-0...1-SIDE	4.0SIR0.2L-Chamfer-0...	0.2	60	21	50	1.92	1.0	0.40		
6.0	6.0SIR0.2S-Chamfer-0...1-SIDE	6.0SIR0.2S-Chamfer-0...	0.2	36	9	36	2.92	1.2	0.70	SMC...-6.0	7.0
	6.0SIR0.2M-Chamfer-0...1-SIDE	6.0SIR0.2M-Chamfer-0...	0.2	50	16	43	2.92	1.2	0.70		
	6.0SIR0.2L-Chamfer-0...1-SIDE	6.0SIR0.2L-Chamfer-0...	0.2	60	21	50	2.92	1.2	0.70		

Back Edge

Internal



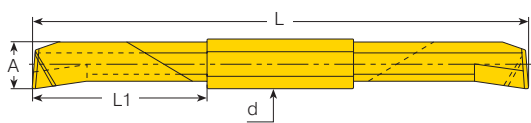
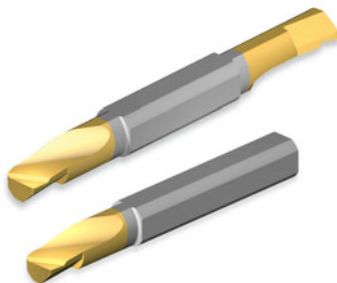
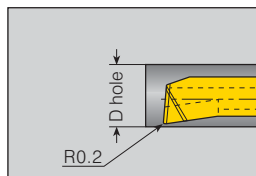
Micro

Insert dia.	Ordering Code		Dimensions mm									Holder
d (mm)	RH-Single Ended	RH-Double Ended	L	L1	L2	A	W	W1	F	S	S1	
3.0	3.0SIR0.2S-Back-1...1-SIDE	3.0SIR0.2S-Back-1...	36	9.0	36	3.42	1.5	1.81	1.42	0.8	0.6	SMC...-3.0
	3.0SIR0.2M-Back-1...1-SIDE	3.0SIR0.2M-Back-1...	50	16.0	43							
4.0	4.0SIR0.2S-Back-1...1-SIDE	4.0SIR0.2S-Back-1...	36	9.0	36	4.44	2.0	2.34	1.92	1.3	1.0	SMC...-4.0
	4.0SIR0.2M-Back-1...1-SIDE	4.0SIR0.2M-Back-1...	50	16.0	43							
	4.0SIR0.2L-Back-1...1-SIDE	4.0SIR0.2L-Back-1...	60	21.0	50							
6.0	6.0SIR0.2S-Back-1...1-SIDE	6.0SIR0.2S-Back-1...	36	9.0	36	6.44	2.0	2.46	2.92	1.9	1.6	SMC...-6.0
	6.0SIR0.2M-Back-1...1-SIDE	6.0SIR0.2M-Back-1...	50	16.0	43							
	6.0SIR0.2L-Back-1...1-SIDE	6.0SIR0.2L-Back-1...	60	21.0	50							

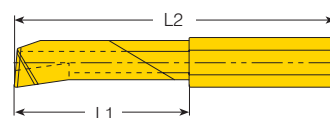


Bore-Drill

Internal



RH-Double Ended



RH-Single Ended

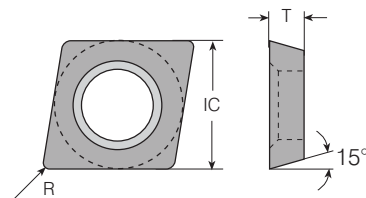
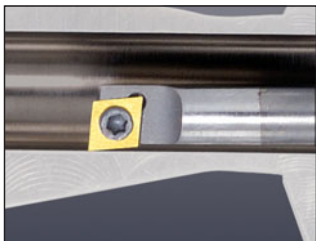
Micro

Insert dia.	Ordering Code		Dimensions mm				Min. Bore dia	Holder
d (mm)	RH-Single Ended	RH-Double Ended	L	L1	L2	A	D	
4.0	4.0SIR0.2M-BD-1...1-SIDE	4.0SIR0.2M-BD-1...	50	16	43	3.53	3.74	SMC...-4.0
6.0	6.0SIR0.2M-BD-1...1-SIDE	6.0SIR0.2M-BD-1...	50	16	43	5.20	5.80	SMC...-6.0
	6.0SIR0.2L-BD-1...1-SIDE	6.0SIR0.2L-BD-1...	60	21	50			
8.0	8.0SIR0.2S-BD-1...1-SIDE	8.0SIR0.2S-BD-1...	54	12	54	6.90	7.80	SMC...-8.0
	8.0SIR0.2M-BD-1...1-SIDE	8.0SIR0.2M-BD-1...	70	20	63			
	8.0SIR0.2L-BD-1...1-SIDE	8.0SIR0.2L-BD-1...	86	28	70			



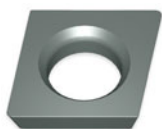
Boring Indexable inserts

Internal



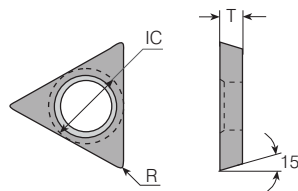
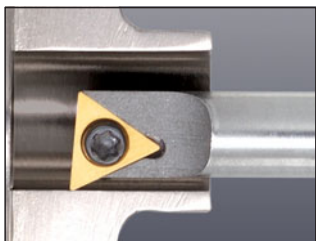
CD0W inserts for PowerBore boring bar

PowerBore CD0W Inserts



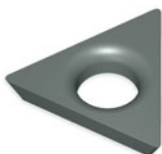
Insert Size	Ordering Code	Dimensions [mm]		Insert Screw 
IC		R	T	
.156"	CD0W4011...	0.05	1.02	VS01
	CD0W4012...	0.18	1.02	
	CD0W4014...	0.38	1.02	

Internal



TD0W inserts for PowerBore boring bar

PowerBore TD0W Inserts

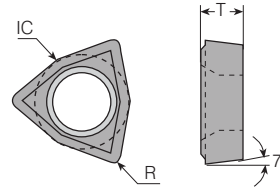
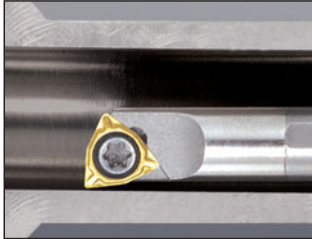


Insert Size	Ordering Code	Dimensions [mm]		Insert Screw 
IC		R	T	
.160"	TD0W4111...	0.05	1.19	VS01, VS40
	TD0W4112...	0.18	1.19	
	TD0W4114...	0.38	1.19	



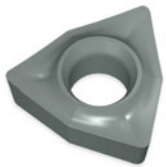
Boring Indexable inserts (Cont')

Internal



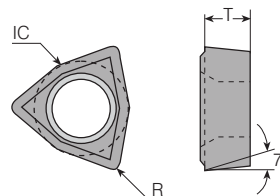
WC0W inserts for PowerBore boring bar

PowerBore WC0W Inserts



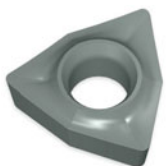
Insert Size	Ordering Code	Dimensions mm		Insert Screw 
IC		R	T	
.156"	WC0W4213...	0.20	1.57	VS40
	WC0W4214...	0.38	1.57	

Internal



WC0W inserts for PowerBore boring bar

PowerBore WC0W Inserts



Insert Size	Ordering Code	Dimensions mm		Insert Screw 
IC		R	T	
.187"	WC0W5013...	0.20	2.44	VS41
	WC0W5014...	0.38	2.44	



Recommended Grades, Cutting Speeds V_c [m/min], Feed f [mm/rev] and Max Depth [mm]

			Hardness Brinell HB	Vc[m/min]		Feed f [mm/rev]		Max. depth [mm]			
				Coated							
				PowerBore	Micro	PowerBore	Micro	PowerBore			Micro
								VTX	VMX	CD0W	
Material											
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	115-190	50-120	0.25	0.055	0.5	0.45	0.6	0.4
		Medium carbon (C=0.25-0.55 %)	150	100-175	40-100	0.2	0.04	0.5	0.45	0.6	0.4
		High carbon (C=0.55-0.85 %)	170	90-165	30-80	0.15	0.03	0.5	0.45	0.6	0.4
	Low alloy steel (alloying elements≤5%)	Non hardened	180	85-145	50-70	0.2	0.04	0.4	0.35	0.5	0.3
		Hardened	275	75-140	40-60	0.15	0.04	0.4	0.35	0.5	0.3
		Hardened	350	70-135	30-50	0.1	0.03	0.4	0.35	0.5	0.3
	High alloy steel (alloying elements > 5%)	Annealed	200	70-110	30-50	0.1	0.04	0.2	0.18	0.4	0.15
		Hardened	325	50-100	25-40	0.05	0.03	0.2	0.18	0.4	0.15
	Cast steel	Low alloy (alloying elements <5%)	200	75-140	30-50	0.25	0.04	0.2	0.18	0.4	0.15
		High alloy (alloying elements >5%)	225	60-120	25-40	0.1	0.04	0.2	0.18	0.4	0.15
M	Stainless steel Ferritic	Non hardened	200	70-130	60-100	0.2	0.04	0.25	0.22	0.5	0.2
		Hardened	330	60-115	40-60	0.08	0.03	0.2	0.18	0.4	0.15
	Stainless steel Austenitic	Austenitic	180	90-140	50-90	0.2	0.04	0.25	0.22	0.5	0.2
		Super austenitic	200	40-110	40-60	0.08	0.04	0.2	0.18	0.4	0.15
	Stainless steel Cast ferritic	Non hardened	200	90-120	40-60	0.2	0.04	0.25	0.22	0.5	0.2
		Hardened	330	65-110	30-50	0.08	0.03	0.2	0.18	0.4	0.15
	Stainless steel Cast austenitic	Austenitic	200	85-110	40-60	0.2	0.04	0.25	0.22	0.5	0.2
		Hardened	330	60-100	30-50	0.08	0.03	0.2	0.18	0.4	0.15
	High temperature alloys	Annealed (Iron based)	200	45-60	25-45	0.2	0.04	0.25	0.22	0.5	0.2
		Aged (Iron based)	280	30-50	20-30	0.08	0.03	0.2	0.18	0.4	0.15
		Annealed (Nickel or Cobalt based)	250	20-30	15-20	0.08	0.015	0.2	0.18	0.4	0.15
		Aged (Nickel or Cobalt based)	350	15-25	10-15	0.05	0.01	0.2	0.18	0.4	0.15
	Titanium alloys	Pure 99.5 Ti	400Rm	140-170	60-100	0.05	0.02	0.2	0.18	0.4	0.15
		α+β alloys	1050Rm	50-70	40-50	0.05	0.02	0.2	0.18	0.4	0.15
K	Extra hard steel	Hardened & tempered	55HRc	45-60	20-40	0.02	0.01	0.1	0.05	0.2	0.05
	Malleable cast iron	Ferritic (short chips)	130	70-160	50-70	0.15	0.02	0.3	0.3	0.4	0.25
		Pearlitic (long chips)	230	60-145	50-70	0.1	0.01	0.3	0.3	0.4	0.25
	Grey cast iron	Low tensile strength	180	70-130	50-72	0.15	0.02	0.5	0.45	0.6	0.4
		High tensile strength	260	60-115	40-60	0.1	0.015	0.5	0.45	0.6	0.4
	Nodular SG iron	Ferritic	160	125-160	50-70	0.15	0.02	0.5	0.45	0.6	0.4
		Pearlitic	260	90-120	60-80	0.1	0.015	0.5	0.45	0.6	0.4
	Aluminium alloys Wrought	Non aging	60	100-365	100-300	0.3	0.03	0.76	0.63	1.0	0.5
		Aged	100	80-220	100-150	0.2	0.03	0.76	0.63	1.0	0.5
	Aluminium alloys	Cast	75	200-400	100-150	0.3	0.03	0.76	0.63	1.0	0.5
		Cast & aged	90	200-280	60-100	0.2	0.03	0.76	0.63	1.0	0.5
	Aluminium alloys	Cast Si 13-22%	130	60-180	100-150	0.3	0.02	0.76	0.63	1.0	0.5
	Copper and copper alloys	Brass	90	80-225	60-100	0.3	0.03	0.76	0.63	1.0	0.5
		Bronze and non leaded copper	100	80-255	60-100	0.2	0.03	0.76	0.63	1.0	0.5

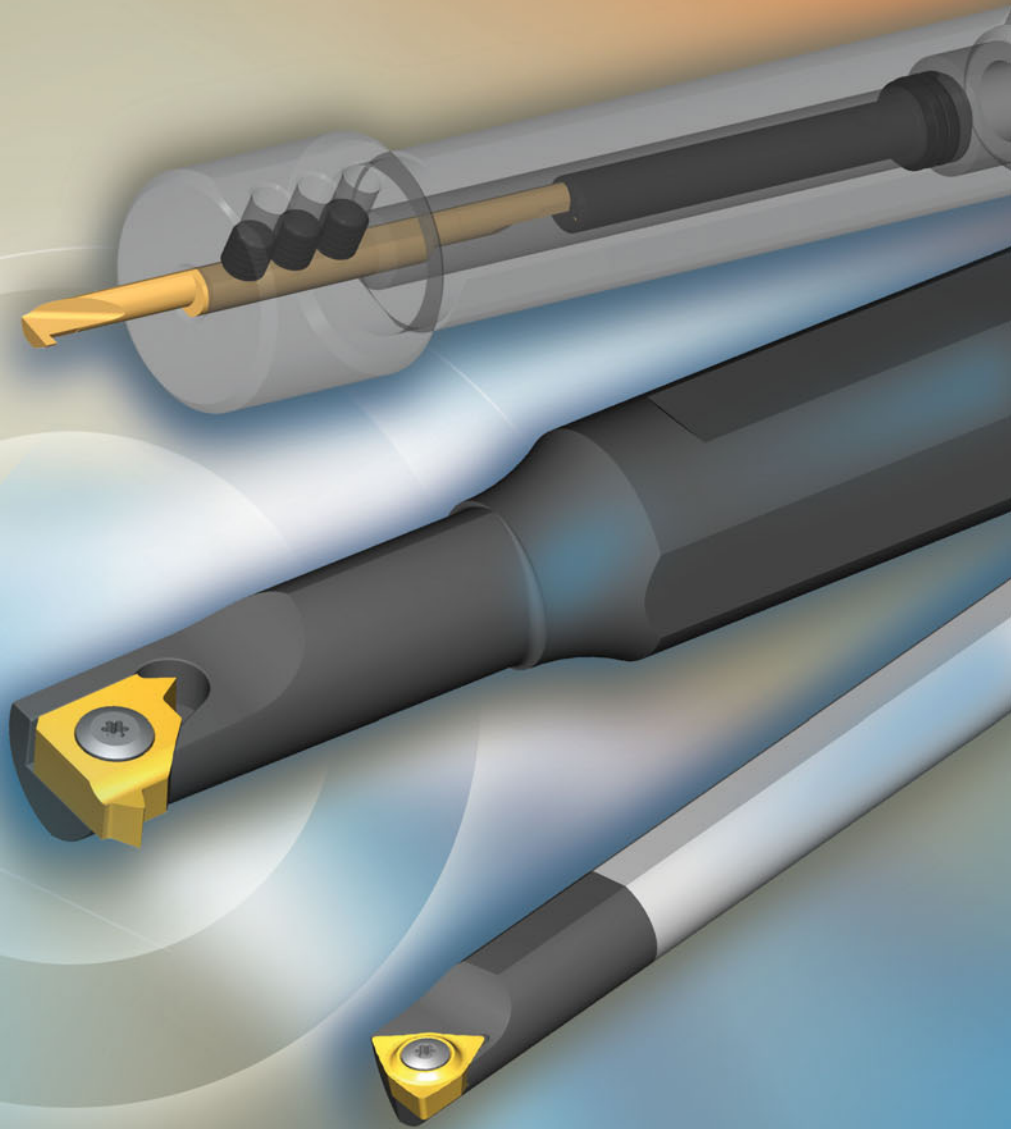
Grades and Applications

Grade	Application	Sample
VTX	General use carbide grade. A tough sub-micron substrate with TiAlN coating. Provides good fracture toughness and excellent wear resistance.	
VMX	General use carbide grade for Micro inserts. TiN coated	

VARGUS 



Take a
closer Look



MINI PRO
Toolholders



Vardex Ordering Code System

Micro & Adjustable Toolholders (Sleeves)

S	M	C	16	-	3
1	2	3	4		5

1 - Holder Shape	2 - Holder Type	3 - Cooling	4 - Holder Dia.	5 - Holder Bore Size
S - Sleeve	V - Adjustable Holders for Mini M - Micro	C - Coolant Channel	10, 12, 16, 20	Micro Size 3, 4, 6, 8, 10 Adjustable Holders (for Mini) 6.2 8

Mini Toolholders

B	N	VR		10	M	-	5.0	L	
1	2	3	4	5	6		7	8	9

1 - Shank Type	2 - Anvil	3 - Tool Type	5 - Shank Dia	6 - Holder Length
B - Anti Vibration System C - Carbide Shank S - Mini Holders	N - No Anvil required	VR - Internal Round Shank	10, 12 6.2 (Mini Adjust) 8.0 (Mini Adjust)	U - Ultra Short S - Short M - Medium L - Long T - Adjustable
7 - Insert Size	8 - Insert Style	9 - RH / LH Holder		
4.0 - IC4.0 5 - IC5.0L 6.0 - IC6.0	 K  L	None - Right Hand LH - Left Hand		
4 - Cooling				
C - Coolant Channel				

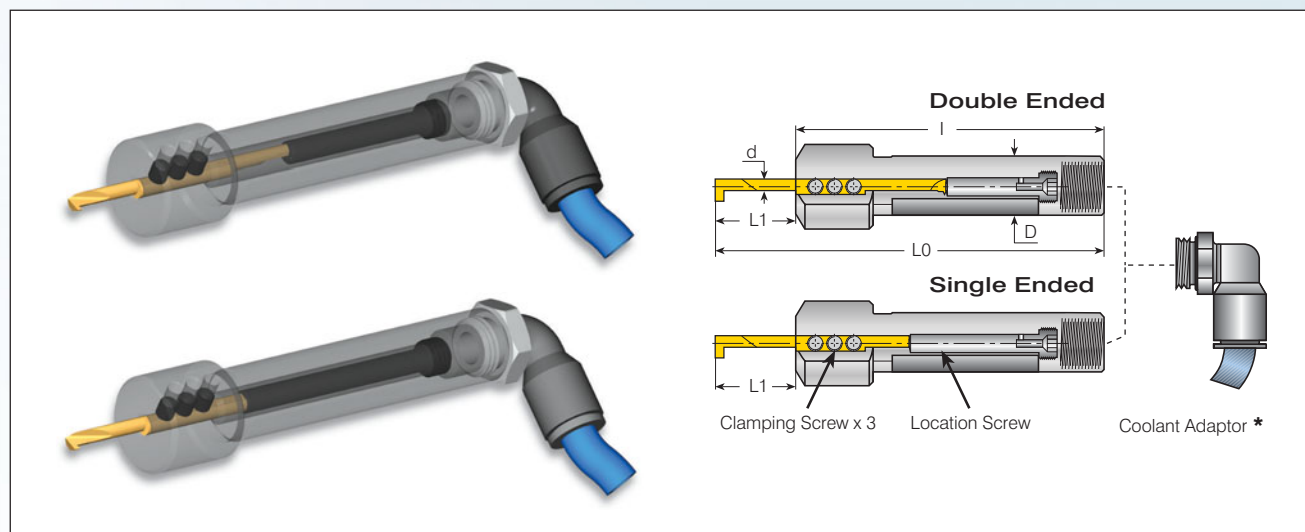
PowerBore Boring Bars

C	05	D	T	J		5
1	2	3	4	5		6

1 - Shank Style	2 - Shank Dia.	3 - Bar Dia. [D1]	4 - Insert Shape	5 - Holder Length [L2]
C - Carbide S - Steel	04 - 4.0 mm 05 - 5.0 mm 06 - 6.0 mm 08 - 8.0 mm 10 - 10.0 mm 12 - 12.0 mm	A - 4.2 B - 4.6 C - 4.8 D - 5.0 E - 5.2 F - 6.0 G - 6.4 H - 7.9 J - 8.0	C - Diamond 80 Deg.  T - Triangle  W - Trigon 80 Deg. 	A - 57 C - 64 D - 70 E - 76 G - 89 J - 102 P - 152
				6 - Front Relief Angle
				0, 5, 7



Internal Toolholders



Micro

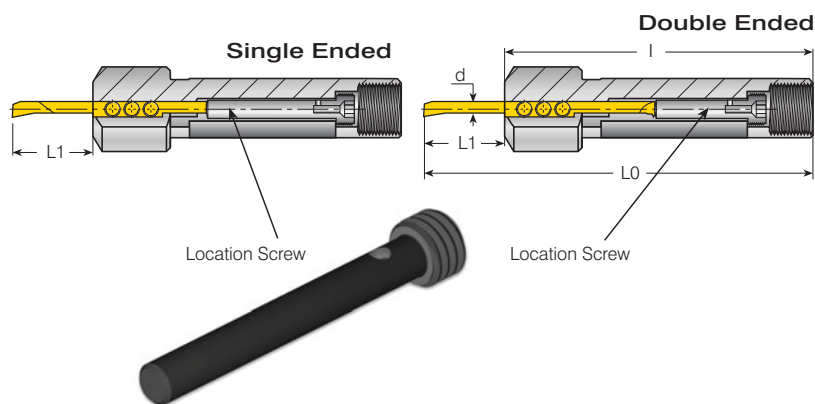
Micro				Spare Parts			
Micro Insert Dia.	Ordering Code	Dimensions		Coolant Adaptor	Location Screw		Clamping Screw x 3
d (mm)		D	I				 
3.0	SMC10-3.0	10	80	-	see next page	K 4.0	M4X0.7X4.0 K2.0
	SMC12-3.0	12		-			
	SMC16-3.0	16	95	G1/4A			
	SMC20-3.0	20		G1/4A			
4.0	SMC10-4.0	10	80	-	see next page	K 4.0	M4X0.7X4.0 K2.0
	SMC12-4.0	12		-			
	SMC16-4.0	16	95	G1/4A			
	SMC20-4.0	20		G1/4A			
6.0	SMC12-6.0	12	95	-	see next page	K 4.0	M4X0.7X4.0 K2.0
	SMC16-6.0	16		G1/4A			
	SMC20-6.0	20		G1/4A			
8.0	SMC16-8.0	16	95	G1/4A	see next page	K 4.0	M6X1.0X5.0 K3.0
	SMC20-8.0	20		G1/4A			
10.0	SMC16-10.0	16	95	G1/4A	see next page	K 4.0	M6X1.0X5.0 K3.0
	SMC20-10.0	20		G1/4A			

* Coolant Adaptor is optional

NOTE: All Micro holders can hold any single-ended or double-ended insert.



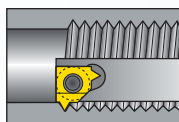
Internal Toolholders



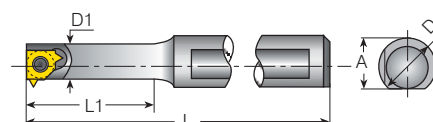
Micro Toolholders - Location Screws

Micro Insert Dia.	Toolholder	Dimensions mm			Location Screw			
d [mm]		I	L1	L0	Single Ended	M	Double Ended	M
3	SMC10-3.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
	SMC12-3.0	80	16 - Medium	96			4GISM8X21	21
	SMC16-3.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
	SMC20-3.0	95	16 - Medium	111			4GISM8X42	42
4	SMC10-4.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
	SMC12-4.0	80	16 - Medium	96			4GISM8X21	21
		80	21 - Long	101			4GISM8X16	16
	SMC16-4.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
	SMC20-4.0	95	16 - Medium	111			4GISM8X42	42
		95	21 - Long	116			4GISM8X37	37
6	SMC12-6.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
		80	16 - Medium	96			4GISM8X21	21
		80	21 - Long	101			4GISM8X16	16
	SMC16-6.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
	SMC20-6.0	95	16 - Medium	111			4GISM8X42	42
		95	21 - Long	116			4GISM8X37	37
8	SMC16-8.0	95	12 - Short	107	4GISM8X33	33	4GISM8X33	33
	SMC20-8.0	95	20 - Medium	115			4GISM8X25	25
		95	28 - Long	123			4GISM8X17	17
10	SMC16-10.0	95	15 - Short	110	4GISM8X30	30	4GISM8X30	30
	SMC20-10.0	95	25 - Medium	120			4GISM8X20	20
		95	35 - Long	130			4GISM8X10	10

* Every toolholder package contains the full range of location screws needed.

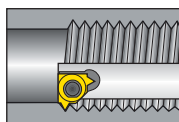


Internal Toolholders

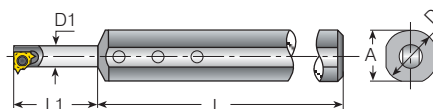
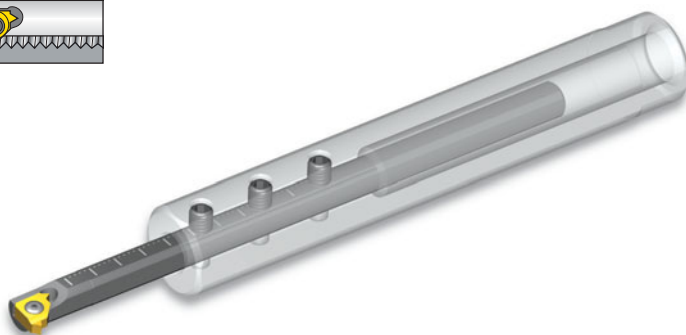


Mini-L

Spare Parts							
Insert Size	Ordering Code	Dimensions mm			Anti-Vibration System		
IC		A	L	L1	D	D1	
5.0L	SNVR 10U-5L	9.4	81	16	10	6.2	No
	BNVR 10S-5L	9.4	87	22	10	6.2	Yes
	BNVR 10M-5L	9.4	97	31	10	6.2	Yes
	BNVR 10L-5L	9.4	109	43	10	6.2	Yes
		Insert Screw		Torx Key			
		SN5LT		K5LT			

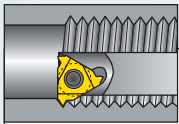


Internal Toolholders

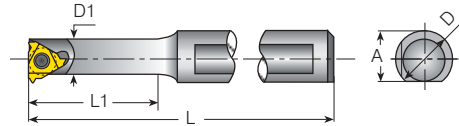
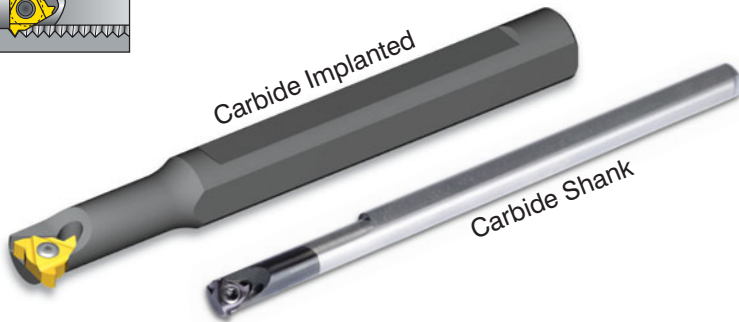


Mini-L-Adjustable

Spare Parts							
Insert Size	Ordering Code	Dimensions mm					
IC	Sleeve	Holder	A	L	L1	D	D1
5.0L	SV16-6.2	BNVR6.2T-5L	15.6	100	8-44	16	6.2
		Insert Screw		Torx Key for Insert Screw		Holder Screw x 3	
		SN5LT		K5LT		S4.0	
						Key for Holder Screw	
						K4.0	

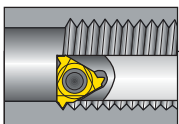


Internal Toolholders

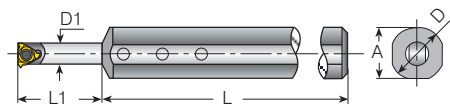


Mini-3

Insert Size		Ordering Code		Dimensions mm			Anti-Vibration System	Spare Parts	
IC		A	L	L1	D	D1		Insert Screw	Torx Key
4.0	CNVRC 5-4.0K	5.2	100	26	6	5.1	Carbide Shank	SN4MT	K6MT
	SNVR 5-4.0K	11.0	100	12	12	5.1	No		
6.0	SNVR 12U-6.0	11.4	82	16	12	8	No	SN6MT	K6MT
	BNVR 10S-6.0	9.4	89	22	10	8	Carbide Implanted		
	BNVR 10M-6.0	9.4	98	31	10	8	Carbide Implanted		
	BNVR 10L-6.0	9.4	110	43	10	8	Carbide Implanted		



Internal Toolholders

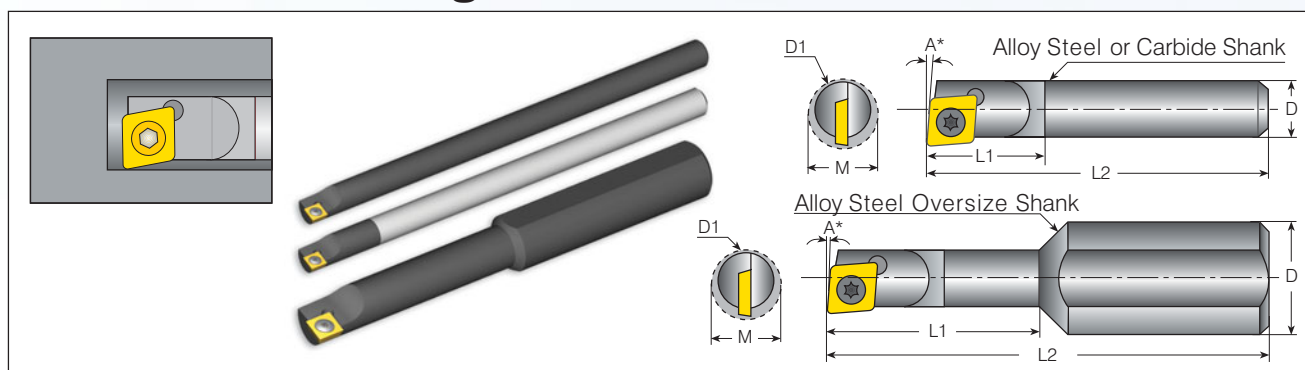


Mini-3-Adjustable

Insert Size		Ordering Code		Dimensions mm				Spare Parts			
IC	Sleeve	Holder	A	L	L1	D	D1	Insert Screw	Torx Key for Insert Screw	Holder Screw x 3	Key for Holder Screw
6.0	SV16-8.0	BNVR8.0T-6.0	15.6	100	8-56	16	8	SN6MT	K6MT	S4.0	K4.0



PowerBore Boring Bars for CDOW Inserts



Alloy Steel Shanks - Standard Size

Shank								Spare Parts		
Shank	Ordering Code	A	D	D1	M	L2	L1			
		angle	shank dia	bar dia	min.bore	overall length	bar length	Insert Type	Screw	Torx Key
5.0	S05-ACC--7	7°	5.0	4.2	4.6	64	12	CD0W	VS01	VT51
	S05-BCC--5	5°	5.0	4.6	5.3	64				
	S05-DCC--5	5°	5.0	5.0	6.1	64				
	S05-DCC--0	0°	5.0	5.0	6.4	64				
6.0	S06-FCE--5	5°	6.0	6.0	7.0	76	D1=D			
	S06-FCE--0	0°	6.0	6.0	7.3	76				

Solid Carbide Shank with Alloy Steel Head - Standard Size

Shank	Ordering Code	A	D	D1	M	L2	L1			
		angle	shank dia	bar dia	min.bore	overall length	bar length	Insert Type	Screw	Torx Key
4.0	C04-ACP--7	7°	4.0	4.2	4.6	152	12	CD0W	VS01	VT51
	C05-CCJ--5	5°	5.0	4.8	5.5	102				
5.0	C05-DCJ--5	5°	5.0	5.0	6.1	102	D1=D			
	C05-DCJ--0	0°	5.0	5.0	6.5	102				
6.0	C06-FCJ--5	5°	6.0	6.0	7.0	102				
	C06-FCJ--0	0°	6.0	6.0	7.3	102				

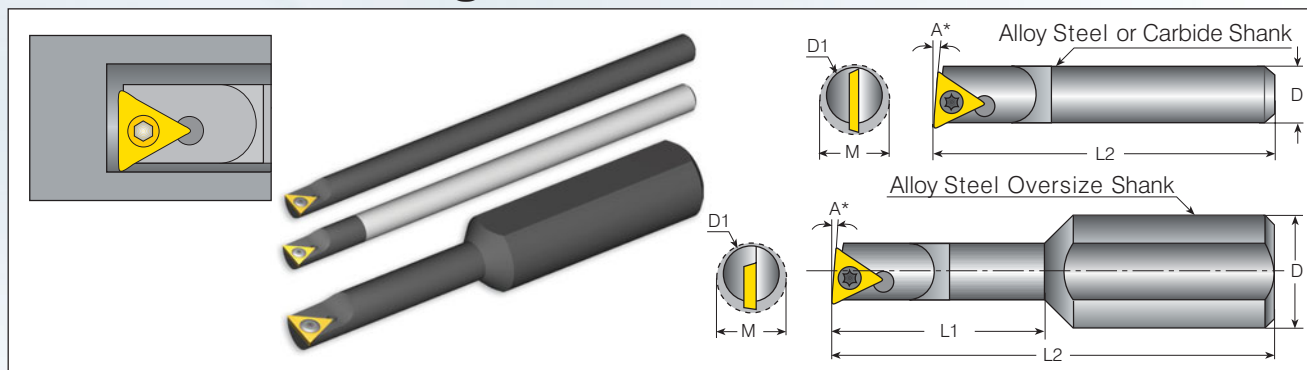
Alloy Steel Shanks - Oversize

								Spare Parts		
Shank	Ordering Code	A	D	D1	M	L2	L1			
		angle	shank dia	bar dia	min.bore	overall length	bar length	Insert Type	Screw	Torx Key
8.0	S08-BCA--5	5°	8.0	4.6	5.5	57	25	CD0W	VS01	VT51
	S08-ECA--5	5°	8.0	5.2	5.8	57				
	S08-ECA--0	0°	8.0	5.2	6.2	57				
	S08-GCC--5	5°	8.0	6.4	7.4	64	32			
	S08-GCC--0	0°	8.0	6.4	7.6	64				

* 5° angle for facing and through hole boring
 * 0° angle for through hole boring and boring to a shoulder



PowerBore Boring Bars for TDOW Inserts



Alloy Steel Shanks - Standard Size

						  		
Shank	Ordering Code	A	D = D1	M	L2	Insert Type	Screw	Torx Key
angle		bar dia	min.bore	overall length		TD0W	VS01	VT51
5.0	S05-DTG--5	5°	5.0	7.1	89			
	S05-DTG--0	0°	5.0	7.1	89			
6.0	S06-FTJ--5	5°	6.0	7.3	102		VS40	
	S06-FTJ--0	0°	6.0	7.3	102			
8.0	S08-JTJ--5	5°	8.0	9.2	102			
	S08-JTJ--0	0°	8.0	9.2	102			

Solid Carbide Shank with Alloy Steel Head - Standard Size

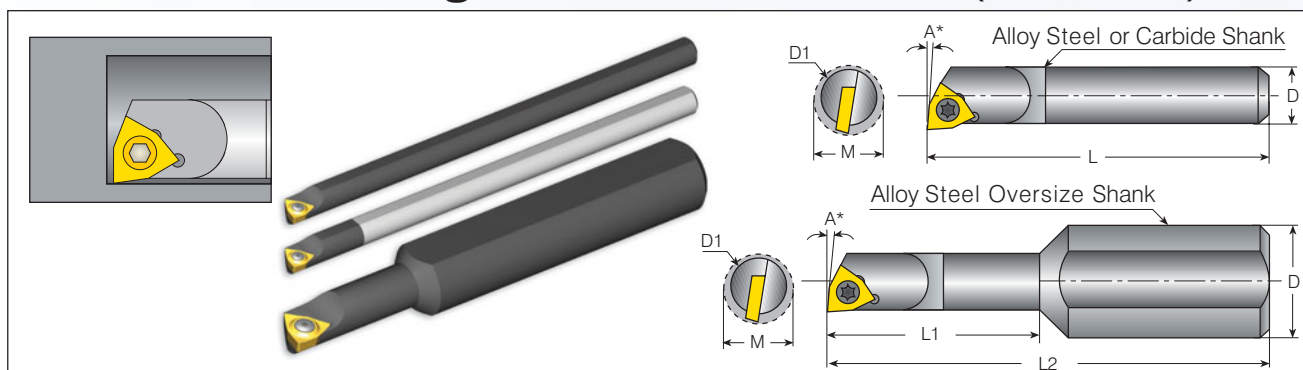
Shank	Ordering Code	A	D = D1	M	L2	  		
		angle	bar dia	min.bore	overall length	Insert Type	Screw	Torx Key
5.0	C05-DTJ--5	5°	5.0	7.1	102	TD0W	VS01	VT51
	C05-DTJ--0	0°	5.0	7.1	102			
6.0	C06-FTJ--5	5°	6.0	7.3	102		VS40	
	C06-FTJ--0	0°	6.0	7.3	102			
8.0	C08-JTJ--5	5°	8.0	9.2	102			
	C08-JTJ--0	0°	8.0	9.2	102			

Alloy Steel Shanks - Oversize

								  		
Shank	Ordering Code	A	D	D1	M	L2	L1	Insert Type	Screw	Torx Key
		angle	shank dia	bar dia	min.bore	overall length	bar length			
12.0	S12-ETC--5	5°	12.0	5.2	6.9	64	25	TD0W	VS01	VT51
	S12-ETC--0	0°	12.0	5.2	6.9	64				
	S12-GTD--5	5°	12.0	6.4	7.6	70	32			
	S12-GTD--0	0°	12.0	6.4	7.6	70				
	S12-HTE--5	5°	12.0	7.9	9.1	76	38			
	S12-HTE--0	0°	12.0	7.9	9.1	76				



PowerBore Boring Bars for WCOW Inserts (4213, 4214)



Alloy Steel Shanks - Standard Size

Shank	Ordering Code	A	D = D1	M	L	Spare Parts		
		angle	bar dia.	min.bore	bar length	Insert Type	Screw	Torx Key
5.0	S05-DWC--5	5°	5.0	6.1	64	WC0W4213 WC0W4214	VS40	VT51
	S05-DWC--0	0°	5.0	6.4	64			
6.0	S06-FWJ--5	5°	6.0	7.0	102			
	S06-FWJ--0	0°	6.0	7.3	102			

Solid Carbide Shank with Alloy Steel Head - Standard Size

Shank	Ordering Code	A	D = D1	M	L	Spare Parts		
		angle	bar dia.	min.bore	bar length	Insert Type	Screw	Torx Key
5.0	C05-DWJ--5	5°	5.0	6.1	102	WC0W4213 WC0W4214	VS40	VT51
	C05-DWJ--0	0°	5.0	6.4	102			
6.0	C06-FWJ--5	5°	6.0	7.0	102			
	C06-FWJ--0	0°	6.0	7.3	102			

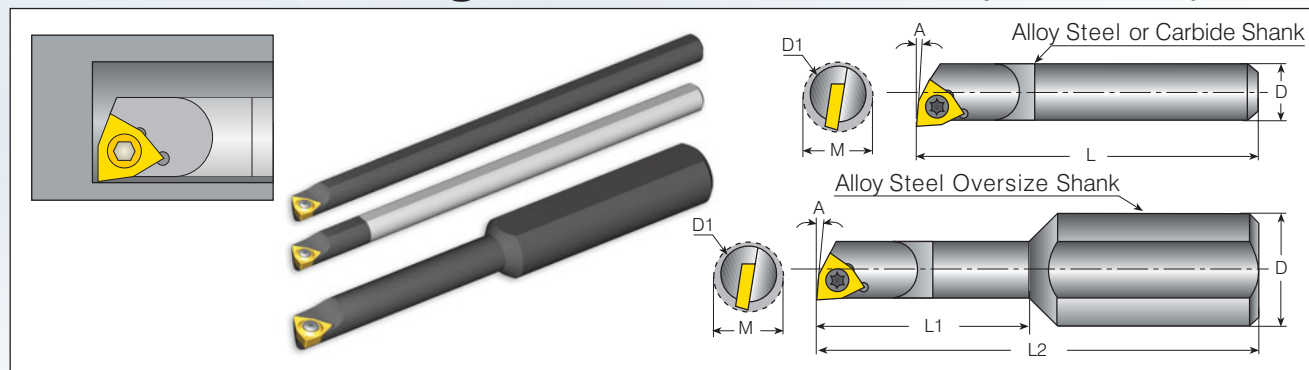
Alloy Steel Shanks - Oversize

								Spare Parts		
Shank	Ordering Code	A	D	D1	M	L2	L1			
		angle	shank dia	bar dia	min.bore	overall length	bar length	Insert Type	Screw	Torx Key
10.0	S10-EWA--5	5°	10.0	5.2	5.8	57	13	WC0W4213 WC0W4214	VS40	VT51
	S10-EWA--0	0°	10.0	5.2	6.2	57				
	S10-GWC--5	5°	10.0	6.4	7.4	64	19			
	S10-GWC--0	0°	10.0	6.4	7.6	64				

* 5° angle for facing and through hole boring
* 0° angle for through hole boring and boring to a shoulder



PowerBore Boring Bars for WCOW Inserts (5013, 5014)



Alloy Steel Shanks - Standard Size

Shank	Ordering Code	A	D=D1	M	L	Spare Parts		
		angle	bar dia	min.bore	bar length	Insert Type	Screw	Torx Key
8.0	S08-JWJ--5	5°	8.0	9.2	102	WCOW5013	VS41	VT51
	S08-JWJ--0	0°	8.0	9.2	102	WCOW5014		

Solid Carbide Shank with Alloy Steel Head - Standard Size

Shank	Ordering Code	A	D=D1	M	L	Spare Parts		
		angle	bar dia	min.bore	bar length	Insert Type	Screw	Torx Key
8.0	C08-JWJ--5	5°	8.0	9.2	102	WCOW5013	VS41	VT51
	C08-JWJ--0	0°	8.0	9.2	102	WCOW5014		

Alloy Steel Shanks - Oversize

Shank	Ordering Code	A	D	D1	M	L2	L1	Spare Parts		
		angle	shank dia	bar dia	min.bore	overall length	bar length	Insert Type	Screw	Torx Key
10.0	S10-HWE--5	5°	10.0	7.9	9.2	76	38	WCOW5013	VS41	VT51
	S10-HWE--0	0°	10.0	7.9	9.2	76	38	WCOW5014		



Thread Milling Tools for Small Bores

MilliPro

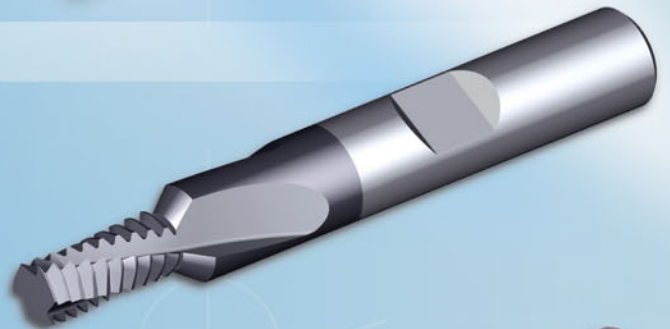
For very small bores.
Minimum: M2 x 0.4

New!



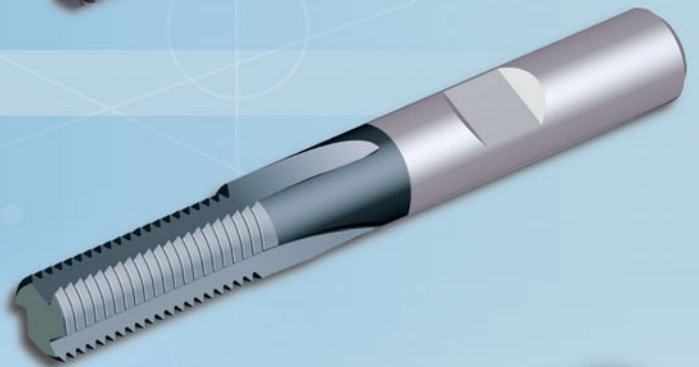
TM Solid Helical

For small bores. Heavy-duty use.
Minimum: M5 x 0.75



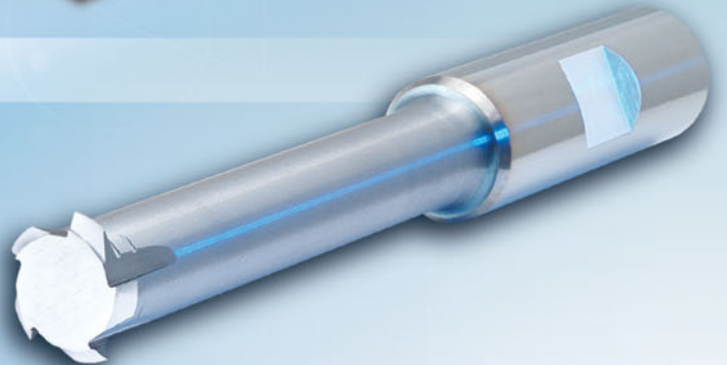
TM Solid Straight

Economical solution for small bores. Normal use.
Minimum: M4.5 x 0.75



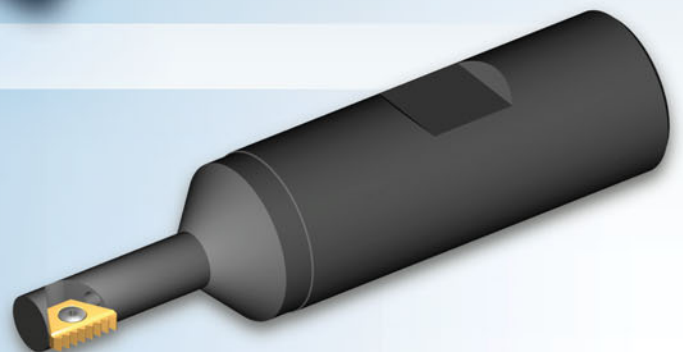
TM Solid Deep

For deep holes, up to 3 x D
Minimum: M6 x 1.0

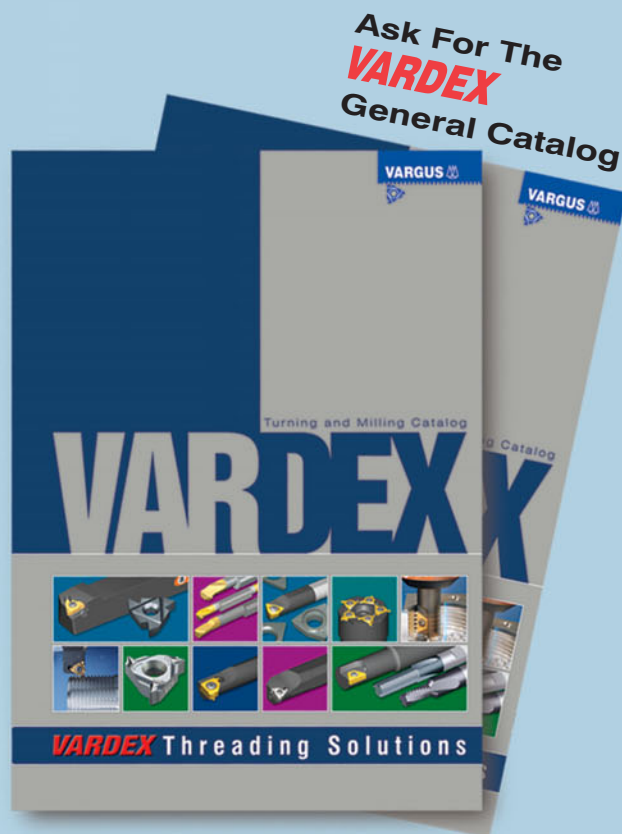


TM Mini

Indexable insert for small bores
Minimum: M10 x 0.75



MINIPRO
www.vargustools.com



MINIPRO

Turning Tools for
Small Bores

Vargus Ltd.
Head Office - Israel

1 Hayotsrim Street

Nahariya 22311

Tel: +972-4-9855-101

Fax: +972-4-9855-118

E-mail: mrktg@vargus.co.il

www.vargustools.com