



GROOVING INSERTS

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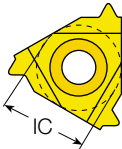




Vardex Ordering Code System

Grooving Insert

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 - IC1/4" 3 - IC3/8" 4 - IC1/2" 5 - IC5/8" 	2 - Insert Style L 	3 - Type of Insert E - External I - Internal	4 - RH / LH Insert R - Right Hand Insert L - Left Hand Insert	
5 - Groove Std. Width 0.8 - 2.15 (mm)	6 - Profile Style C - Full profile	7 - Groove Standard DIN 472 Partial DIN 472 DIN 7993 Partial DIN 7993 DIN 76 ST, DIN 76 SH	8 - Groove Depth 0.33 - 2.0 (mm)	9 - Carbide Grade VTX VKP (for Mini) VHX (for Mini)

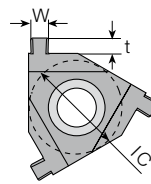
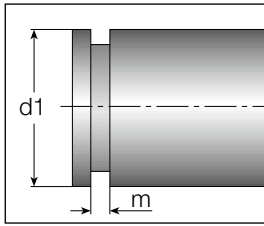
Grooving Micro Insert

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

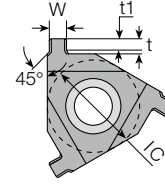
1 - Insert Dia.	2 - Insert Style	3 - Type of Insert	4 - RH / LH Insert	5 - Groove std. Width
3.0 - 3.0 mm 4.0 - 4.0 mm 6.0 - 6.0 mm 8.0 - 8.0 mm 10.0 - 10.0 mm	S - Micro Insert	I - Internal	R - Right Hand Insert	0.9 - 2.15 (mm)
6 - Insert Length	7 - Groove Standard	8 - Groove Depth	9 - Carbide Grade	10 - Micro Ended
A - Axially S - Short M - Medium L - Long	DIN 471 DIN 472 DIN 7993 DIN 76SH, DIN76ST DIN3770S, DIN3770S DIN 471/472- Face Grooving	0.5 - 1.5 (mm)	VMX	1-Side Single Ended None - Double Ended

DIN 471 Retaining Ring Grooves for Shafts

External



**Standard
(Partial Profile)**



**Standard
(Full Profile)**

Standard (Partial Profile)



Insert Size	Ordering Code	Groove Std.	Dimensions mm			Anvil	Holder
IC	RH	m (H13)	W	t			
3/8"	3ER1.10-D471-1.30...	1.10	1.19	1.3		YE3M-1.5N	AL...-3
	3ER1.30-D471-1.50...	1.30	1.39	1.5			
	3ER1.60-D471-1.85...	1.60	1.69	1.8			
	3ER1.85-D471-2.00...	1.85	1.94	2.0			

Range of profiles also available on IC 1/4", 1/2" and 5/8", inserts on request.

Standard (Full Profile)



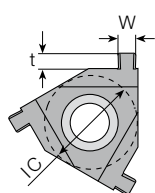
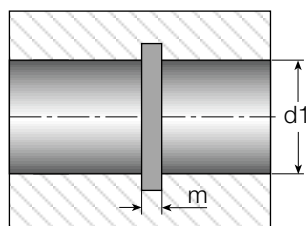
Insert Size	Ordering Code	Groove Std.	Dimensions mm				Anvil	Holder
IC	RH	m (H13)	d1	W	t1	t		
3/8"	3ER1.10C-D471-0.35...	1.10	15	1.19	0.33	0.35	YE3M-1.5N	AL...-3
	3ER1.10C-D471-0.40...	1.10	16-17	1.19	0.36	0.40		
	3ER1.30C-D471-0.50...	1.30	18-22	1.39	0.44	0.50		
	3ER1.30C-D471-0.55...	1.30	24-26	1.39	0.45	0.55		
	3ER1.60C-D471-0.70...	1.60	28-30	1.69	0.60	0.70		
	3ER1.60C-D471-0.85...	1.60	32-34	1.69	0.75	0.85		
	3ER1.60C-D471-1.00...	1.60	35	1.69	0.85	1.00		
	3ER1.85C-D471-1.00...	1.85	36-38	1.94	0.85	1.00		
	3ER1.85C-D471-1.25...	1.85	40-48	1.94	1.10	1.25		
	3ER2.15C-D471-1.50...	2.15	50-63	2.24	1.35	1.50		

Range of profiles also available on IC 1/4", 1/2" and 5/8", inserts on request.

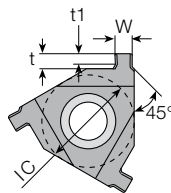


DIN 472 Retaining Ring Grooves for Bores

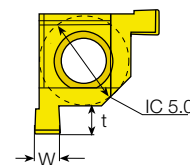
Internal



**Standard
(Partial Profile)**



**Standard
(Full Profile)**



**Mini-L
(Partial Profile)**

Standard (Partial Profile)



Insert Size	Ordering Code	Groove Std.	Dimensions mm			Anvil	Holder
IC		m (H13)	W	t			
3/8"	3IR1.10-D472-1.30...	1.10	1.19	1.30	Y13M-1.5N	AVR...-3	
	3IR1.30-D472-1.50...	1.30	1.39	1.50			
	3IR1.60-D472-1.80...	1.60	1.69	1.80			
	3IR1.85-D472-2.00...	1.85	1.94	2.00			

Range of profiles also available on IC 1/4", 1/2" and 5/8", inserts on request.
For minimum bore diameters, refer to page 149.

Standard (Full Profile)



Insert Size	Ordering Code	Groove Std.	Dimensions mm				Anvil	Holder
IC		m (H13)	d1	W	t1	t		
3/8"	3IR1.10C-D472-0.50	1.10	18-22	1.19	0.44	0.50	Y13M-1.5N	AVR...-3
	3IR1.30C-D472-0.60	1.30	24-26	1.39	0.50	0.60		
	3IR1.30C-D472-0.70	1.30	28-30	1.39	0.60	0.70		
	3IR1.30C-D472-0.85	1.30	31-34	1.39	0.75	0.85		
	3IR1.60C-D472-0.85	1.60	34	1.69	0.75	0.85		
	3IR1.60C-D472-1.00	1.60	35-38	1.69	0.85	1.00		
	3IR1.85C-D472-1.25	1.85	40-48	1.94	1.10	1.25		
	3IR2.15C-D472-1.50	2.15	50-63	2.24	1.35	1.50		

Range of profiles also available on IC 1/4", 1/2" and 5/8", inserts on request.
For minimum bore diameters, refer to page 149.

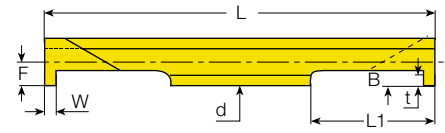
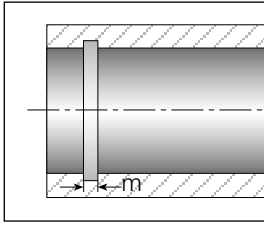
Mini-L (Partial Profile)



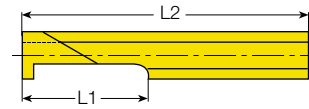
Insert Size	Ordering Code	Groove Std.	Dimensions mm		Minimum Bore dia (mm)	Holder
IC		m (H13)	W	t		
5.0L	5LIR0.9-D472-0.7	0.9	0.99	0.7	8.0	.NVR10...-5L
	5LIR1.1-D472-1.0	1.1	1.19	1.0		
	5LIR1.3-D472-1.5	1.3	1.39	1.5		

DIN 472 Retaining Ring Grooves for Bores

Internal



RH-Double Ended



RH-Single Ended

Micro

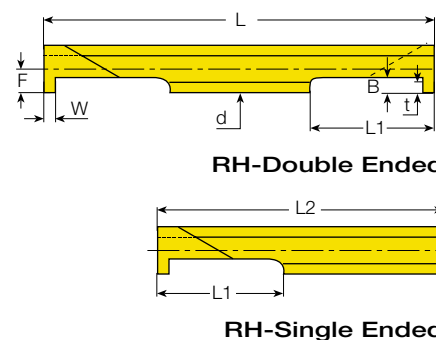
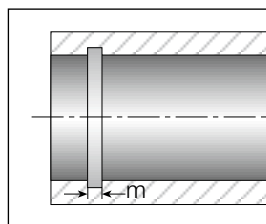
Insert dia.		Groove Std.		Dimensions mm								Min. Bore dia.
d mm	RH-Single Ended	RH-Double Ended	m (H13)	W	L1	L2	L	B	t	F	Holder	
3.0	3.0SIR0.90S-D472-0.5...1-SIDE	3.0SIR0.90S-D472-0.5...	0.90	0.99	9.0	36	36.0	0.8	0.5	1.40	SMC...-3.0	3.2
	3.0SIR0.90M-D472-0.5...1-SIDE	3.0SIR0.90M-D472-0.5...	0.90	0.99	16.0	43	50.0					
	3.0SIR1.10S-D472-0.5...1-SIDE	3.0SIR1.10S-D472-0.5...	1.10	1.19	9.0	36	36.0					
	3.0SIR1.10M-D472-0.5...1-SIDE	3.0SIR1.10M-D472-0.5...	1.10	1.19	16.0	43	50.0					
4.0	4.0SIR0.90S-D472-1.1...1-SIDE	4.0SIR0.90S-D472-1.1...	0.90	0.99	9.0	36	36.0	1.4	1.1	1.90	SMC...-4.0	4.1
	4.0SIR0.90M-D472-1.1...1-SIDE	4.0SIR0.90M-D472-1.1...	0.90	0.99	16.0	43	50.0					
	4.0SIR0.90L-D472-1.1...1-SIDE	4.0SIR0.90L-D472-1.1...	0.90	0.99	21.0	50	60.0					
	4.0SIR1.10S-D472-1.1...1-SIDE	4.0SIR1.10S-D472-1.1...	1.10	1.19	9.0	36	36.0					
	4.0SIR1.10M-D472-1.1...1-SIDE	4.0SIR1.10M-D472-1.1...	1.10	1.19	16.0	43	50.0					
	4.0SIR1.10L-D472-1.1...1-SIDE	4.0SIR1.10L-D472-1.1...	1.10	1.19	21.0	50	60.0					
	4.0SIR1.30S-D472-1.1...1-SIDE	4.0SIR1.30S-D472-1.1...	1.30	1.39	9.0	36	36.0					
	4.0SIR1.30M-D472-1.1...1-SIDE	4.0SIR1.30M-D472-1.1...	1.30	1.39	16.0	43	50.0					
	4.0SIR1.30L-D472-1.1...1-SIDE	4.0SIR1.30L-D472-1.1...	1.30	1.39	21.0	50	60.0					
	4.0SIR1.60S-D472-1.1...1-SIDE	4.0SIR1.60S-D472-1.1...	1.60	1.69	9.0	36	36.0					
	4.0SIR1.60M-D472-1.1...1-SIDE	4.0SIR1.60M-D472-1.1...	1.60	1.69	16.0	43	50.0					
	4.0SIR1.60L-D472-1.1...1-SIDE	4.0SIR1.60L-D472-1.1...	1.60	1.69	21.0	50	60.0					
6.0	6.0SIR0.90S-D472-1.5...1-SIDE	6.0SIR0.90S-D472-1.5...	0.90	0.99	9.0	36	36.0	2.0	1.5	2.90	SMC...-6.0	6.1
	6.0SIR0.90M-D472-1.5...1-SIDE	6.0SIR0.90M-D472-1.5...	0.90	0.99	16.0	43	50.0					
	6.0SIR0.90L-D472-1.5...1-SIDE	6.0SIR0.90L-D472-1.5...	0.90	0.99	21.0	50	60.0					
	6.0SIR1.10S-D472-1.5...1-SIDE	6.0SIR1.10S-D472-1.5...	1.10	1.19	9.0	36	36.0					
	6.0SIR1.10M-D472-1.5...1-SIDE	6.0SIR1.10M-D472-1.5...	1.10	1.19	16.0	43	50.0					
	6.0SIR1.10L-D472-1.5...1-SIDE	6.0SIR1.10L-D472-1.5...	1.10	1.19	21.0	50	60.0					
	6.0SIR1.30S-D472-1.5...1-SIDE	6.0SIR1.30S-D472-1.5...	1.30	1.39	9.0	36	36.0					
	6.0SIR1.30M-D472-1.5...1-SIDE	6.0SIR1.30M-D472-1.5...	1.30	1.39	16.0	43	50.0					
	6.0SIR1.30L-D472-1.5...1-SIDE	6.0SIR1.30L-D472-1.5...	1.30	1.39	21.0	50	60.0					
	6.0SIR1.60S-D472-1.5...1-SIDE	6.0SIR1.60S-D472-1.5...	1.60	1.69	9.0	36	36.0					
	6.0SIR1.60M-D472-1.5...1-SIDE	6.0SIR1.60M-D472-1.5...	1.60	1.69	16.0	43	50.0					
	6.0SIR1.60L-D472-1.5...1-SIDE	6.0SIR1.60L-D472-1.5...	1.60	1.69	21.0	50	60.0					
	6.0SIR1.85S-D472-1.5...1-SIDE	6.0SIR1.85S-D472-1.5...	1.85	1.94	9.0	36	36.0					
	6.0SIR1.85M-D472-1.5...1-SIDE	6.0SIR1.85M-D472-1.5...	1.85	1.94	16.0	43	50.0					
	6.0SIR1.85L-D472-1.5...1-SIDE	6.0SIR1.85L-D472-1.5...	1.85	1.94	21.0	50	60.0					
	6.0SIR2.15S-D472-1.5...1-SIDE	6.0SIR2.15S-D472-1.5...	2.15	2.24	9.0	36	36.0					
	6.0SIR2.15M-D472-1.5...1-SIDE	6.0SIR2.15M-D472-1.5...	2.15	2.24	16.0	43	50.0					
	6.0SIR2.15L-D472-1.5...1-SIDE	6.0SIR2.15L-D472-1.5...	2.15	2.24	21.0	50	60.0					

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DIN 472 Retaining Rings Grooves for Bores (con't)

Internal

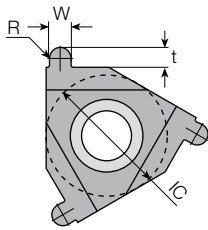
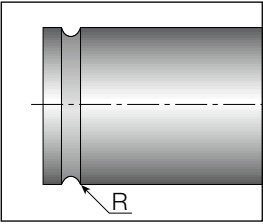


Micro (con't)

Insert dia.			Groove Std.		Dimensions mm							Min. Bore dia.	
d mm	RH-Single Ended	RH-Double Ended	m (H13)	W	L1	L2	L	B	t	F	Holder		
8.0	8.0SIR1.10M-D472-2.0...1-SIDE	8.0SIR1.10M-D472-2.0...	1.10	1.19	20	63	70	2.5	2.0	3.9	SMC..-8.0	8.4	
	8.0SIR1.30M-D472-2.0...1-SIDE	8.0SIR1.30M-D472-2.0...	1.30	1.39	20	63	70	2.5	2.0				
	8.0SIR1.60M-D472-2.5...1-SIDE	8.0SIR1.60M-D472-2.5...	1.60	1.69	20	63	70	3.0	2.5				
	8.0SIR1.85M-D472-2.5...1-SIDE	8.0SIR1.85M-D472-2.5...	1.85	0.94	20	63	70	3.0	2.5				
	8.0SIR2.15M-D472-3.0...1-SIDE	8.0SIR2.15M-D472-3.0...	2.15	2.24	20	63	70	3.5	3.0				
	8.0SIR2.65M-D472-3.5...1-SIDE	8.0SIR2.65M-D472-3.5...	2.65	2.74	20	63	70	4.0	3.5				
10.0	8.0SIR3.15M-D472-3.5...1-SIDE	8.0SIR3.15M-D472-3.5...	3.15	3.28	20	63	70	4.0	3.5	4.9	SMC..-10.0	10.4	
	10.0SIR1.30M-D472-3.5...1-SIDE	10.0SIR1.30M-D472-3.5...	1.30	1.39	25	71	80	4.0	3.5				
	10.0SIR1.60M-D472-3.5...1-SIDE	10.0SIR1.60M-D472-3.5...	1.60	1.69	25	71	80						
	10.0SIR1.85M-D472-3.5...1-SIDE	10.0SIR1.85M-D472-3.5...	1.85	1.94	25	71	80						
	10.0SIR2.15M-D472-3.5...1-SIDE	10.0SIR2.15M-D472-3.5...	2.15	2.24	25	71	80						
	10.0SIR2.65M-D472-3.5...1-SIDE	10.0SIR2.65M-D472-3.5...	2.65	2.74	25	71	80						
	10.0SIR3.15M-D472-3.5...1-SIDE	10.0SIR3.15M-D472-3.5...	3.15	3.28	25	71	80						
	10.0SIR4.15M-D472-3.5...1-SIDE	10.0SIR4.15M-D472-3.5...	4.15	4.28	25	71	80						
	10.0SIR5.15M-D472-3.5...1-SIDE	10.0SIR5.15M-D472-3.5...	5.15	5.28	25	71	80						

DIN 7993 Snap Ring Grooves

External



Standard
(Partial Profile)

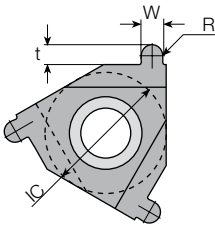
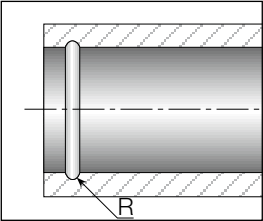
Standard (Partial Profile for Shafts)



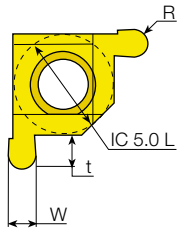
Insert Size	Ordering Code	Dimensions mm			Anvil	Holder
IC	RH	R	W	t		
3/8"	3ER0.40-D7993-0.60	0.40	0.80	0.60	YE3M-1.5N	AL...-3
	3ER0.60-D7993-0.80	0.60	1.20	0.80		
	3ER0.90-D7993-1.10	0.90	1.80	1.10		
	3ER1.00-D7993-1.20	1.00	2.00	1.20		

Range of profiles also available on IC 1/4", 1/2" and 5/8", inserts on request.

Internal



Standard
(Partial Profile)



Mini-L
(Partial Profile)

Standard (Partial Profile for Bores)



Insert Size	Ordering Code	Dimensions mm			Anvil	Holder
IC	RH	R	W	t		
3/8"	3IR0.60-D7993-0.80	0.60	1.20	0.80	YI3M-1.5N	AVR...-3
	3IR0.90-D7993-1.10	0.90	1.80	1.10		
	3IR1.00-D7993-1.20	1.00	2.00	1.20		

Range of profiles also available on IC 1/4", 1/2" and 5/8", inserts on request
For minimum bore diameters, refer to page 149.

Mini-L (Partial Profile for Bores)

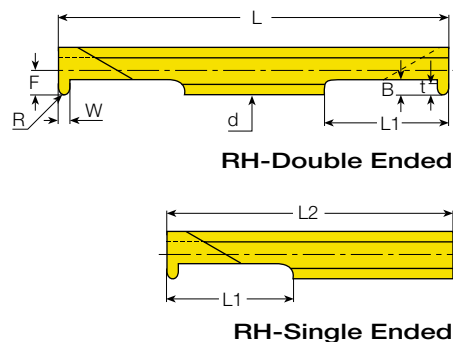
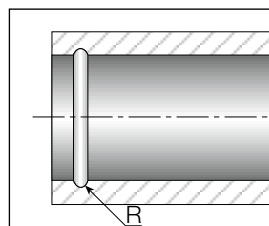


Insert Size	Ordering Code	Dimensions mm			Minimum Bore dia (mm)	Holder
IC	RH	R	W	t		
5.0L	5LIR0.4-D7993-0.8	0.4	0.8	0.8	8.0	.NVR10.-5L
	5LIR0.6-D7993-1.0	0.6	1.2	1.0		



DIN 7993 Snap Ring Grooves

Internal

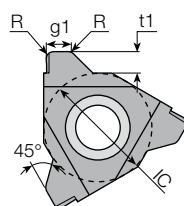
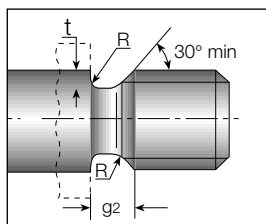


Micro (Partial Profile)

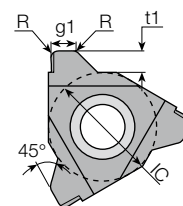
Insert Dia.		Groove Std.			Dimensions mm						Min. Bore dia.	
d mm	RH-Single Ended	RH-Double Ended	R	W	L1	L2	L	B	t	F	Holder	
3.0	3.0SIR0.4S-D7993-0.6...1-SIDE	3.0SIR0.4S-D7993-0.6...	0.40	0.80	9.0	36	36.0	0.8	0.6	1.40	SMC...-3.0	3.2
	3.0SIR0.4M-D7993-0.6...1-SIDE	3.0SIR0.4M-D7993-0.6...	0.40	0.80	16.0	43	50.0					
	4.0SIR0.4S-D7993-0.6...1-SIDE	4.0SIR0.4S-D7993-0.6...	0.40	0.80	9.0	36	36.0					
4.0	4.0SIR0.4M-D7993-0.6...1-SIDE	4.0SIR0.4M-D7993-0.6...	0.40	0.80	16.0	43	50.0	1.4	1.1	1.90	SMC...-4.0	4.1
	4.0SIR0.4L-D7993-0.8...1-SIDE	4.0SIR0.4L-D7993-0.8...	0.40	0.80	21.0	50	60.0					
	4.0SIR0.6S-D7993-0.8...1-SIDE	4.0SIR0.6S-D7993-0.8...	0.60	1.20	9.0	36	36.0					
	4.0SIR0.6M-D7993-0.8...1-SIDE	4.0SIR0.6M-D7993-0.8...	0.60	1.20	16.0	43	50.0					
	4.0SIR0.6L-D7993-0.8...1-SIDE	4.0SIR0.6L-D7993-0.8...	0.60	1.20	21.0	50	60.0					
	4.0SIR0.9S-D7993-1.1...1-SIDE	4.0SIR0.9S-D7993-1.1...	0.90	1.80	9.0	36	36.0					
	4.0SIR0.9M-D7993-1.1...1-SIDE	4.0SIR0.9M-D7993-1.1...	0.90	1.80	16.0	43	50.0					
	4.0SIR0.9L-D7993-1.1...1-SIDE	4.0SIR0.9L-D7993-1.1...	0.90	1.80	21.0	50	60.0					
6.0	6.0SIR0.9S-D7993-1.1...1-SIDE	6.0SIR0.9S-D7993-1.1...	0.90	1.80	9.0	36	36.0	2.0	1.5	2.90	SMC...-6.0	6.1
	6.0SIR0.9M-D7993-1.1...1-SIDE	6.0SIR0.9M-D7993-1.1...	0.90	1.80	16.0	43	50.0					
	6.0SIR0.9L-D7993-1.1...1-SIDE	6.0SIR0.9L-D7993-1.1...	0.90	1.80	21.0	50	60.0					
	6.0SIR1.0S-D7993-1.2...1-SIDE	6.0SIR1.0S-D7993-1.2...	1.00	2.00	9.0	36	36.0					
	6.0SIR1.0M-D7993-1.2...1-SIDE	6.0SIR1.0M-D7993-1.2...	1.00	2.00	16.0	43	50.0					
	6.0SIR1.0L-D7993-1.2...1-SIDE	6.0SIR1.0L-D7993-1.2...	1.00	2.00	21.0	50	60.0					
	6.0SIR1.1S-D7993-1.3...1-SIDE	6.0SIR1.1S-D7993-1.3...	1.10	2.20	9.0	36	36.0					
	6.0SIR1.1M-D7993-1.3...1-SIDE	6.0SIR1.1M-D7993-1.3...	1.10	2.20	16.0	43	50.0					
8.0	6.0SIR1.1L-D7993-1.3...1-SIDE	6.0SIR1.1L-D7993-1.3...	1.10	2.20	21.0	50	60.0	2.5	2.0	3.90	SMC...-8.0	8.4
	8.0SIR0.9M-D7993-2.0...1-SIDE	8.0SIR0.9M-D7993-2.0...	0.90	1.80	20.0	63	70.0					
	8.0SIR1.1M-D7993-2.0...1-SIDE	8.0SIR1.1M-D7993-2.0...	1.10	2.20	20.0	63	70.0					
10.0	8.0SIR1.4M-D7993-2.0...1-SIDE	8.0SIR1.4M-D7993-2.0...	1.40	2.80	20.0	63	70.0	3.4	2.9	4.90	SMC...-10.0	10.4
	10.0SIR1.4M-D7993-2.9...1-SIDE	10.0SIR1.4M-D7993-2.9...	1.40	2.80	25.0	71	80.0					
	10.0SIR1.8M-D7993-2.9...1-SIDE	10.0SIR1.8M-D7993-2.9...	1.80	3.60	25.0	71	80.0					

DIN 76 Thread Undercuts (For ISO Metric Threads in Accordance with DIN 13)

External



Normal - Type A



Short - Type B

Standard (Normal - Type A)

Insert Size	Ordering Code	Pitch	Dimensions mm					Anvil	Holder
IC	RH	mm	R	g1	g2	t	t1		
3/8"	3ER0.50-D76ST-0.40	0.50	0.2	1.10	1.50	0.40	2.50	YE3M-1.5N	AL..-3
	3ER0.60-D76ST-0.50	0.60	0.4	1.30	1.80	0.50	2.40		
	3ER0.70-D76ST-0.55	0.70	0.4	1.55	2.10	0.55	2.20		
	3ER0.80-D76ST-0.65	0.80	0.4	1.75	2.40	0.65	2.10		
	3ER1.00-D76ST-0.80	1.00	0.6	2.20	3.00	0.80	1.90		
5/8"	5ER1.25-D76ST-1.00	1.25	0.6	2.80	3.80	1.00	3.60	YE5M-1.5N	AL..-5
	5ER1.50-D76ST-1.15	1.50	0.8	3.35	4.50	1.15	3.30		
	5ER1.75-D76ST-1.30	1.75	1.0	4.00	5.30	1.30	3.00		
	5ER2.00-D76ST-1.50	2.00	1.0	4.50	6.00	1.50	2.70		

Standard (Short - Type B)

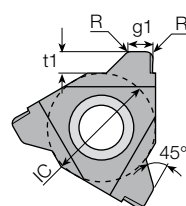
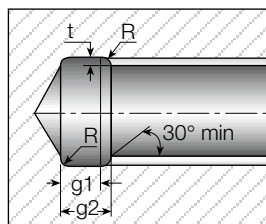
Insert Size	Ordering Code	Pitch	Dimensions mm					Anvil	Holder
IC	RH	mm	R	g1	g2	t	t1		
3/8"	3ER1.00-D76SH-0.80	1.00	0.6	1.20	2.00	0.80	2.50	YE3M-1.5N	AL..-3
	3ER1.25-D76SH-1.00	1.25	0.6	1.50	2.50	1.00	2.30		
	3ER1.50-D76SH-1.15	1.50	0.8	1.85	3.00	1.15	2.10		
	3ER1.75-D76SH-1.30	1.75	1.0	2.20	3.50	1.30	1.90		
5/8"	5ER2.00-D76SH-1.50	2.00	1.0	2.50	4.00	1.50	3.80	YE5M-1.5N	AL..-5
	5ER2.50-D76SH-1.80	2.50	1.2	3.20	5.00	1.80	3.50		
	5ER3.00-D76SH-2.20	3.00	1.6	3.80	6.00	2.20	3.10		

Range of profiles also available on IC 1/4" and 1/2" inserts on request.

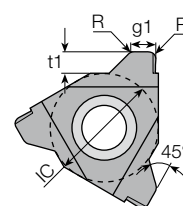


DIN 76 Thread Undercuts (For ISO Metric Threads in Accordance with DIN 13)

Internal



Normal - Type C



Short - Type D

Standard (Normal - Type C)



Insert Size	Ordering Code	Pitch	Dimensions mm					Anvil	Holder
IC		mm	R	g1	g2	t	t1		
3/8"	3IR0.50-D76ST-0.40	0.50	0.2	1.10	1.50	0.40	2.50	YI3M-1.5N	AVR...-3
	3IR0.60-D76ST-0.50	0.60	0.4	1.30	1.80	0.50	2.40		
	3IR0.70-D76ST-0.55	0.70	0.4	1.55	2.10	0.55	2.20		
	3IR0.80-D76ST-0.65	0.80	0.4	1.75	2.40	0.65	2.10		
	3IR1.00-D76ST-0.80	1.00	0.6	2.20	3.00	0.80	1.90		

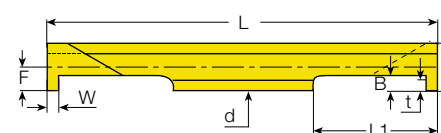
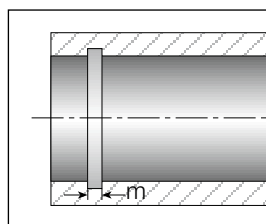
Standard (Short - Type D)



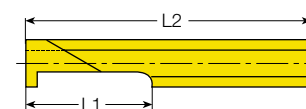
Insert Size	Ordering Code	Pitch	Dimensions mm					Anvil	Holder
IC		mm	R	g1	g2	t	t1		
3/8"	3IR1.00-D76SH-0.80	1.00	0.6	1.20	2.00	0.80	2.50	YI3M-1.5N	AVR...-3
	3IR1.25-D76SH-1.00	1.25	0.6	1.50	2.50	1.00	2.30		
	3IR1.50-D76SH-1.15	1.50	0.8	1.85	3.00	1.15	2.10		
	3IR1.75-D76SH-1.30	1.75	1.0	2.20	3.50	1.30	1.90		

DIN 3770 - Grooves

Internal



RH-Double Ended

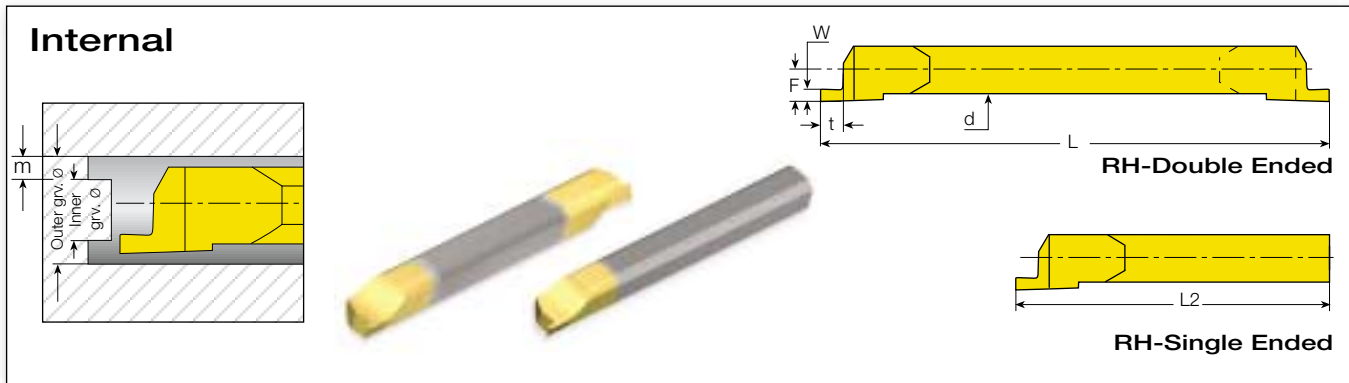


RH-Single Ended

Micro

Insert dia.			Groove Std.		Dimensions mm						Min. Bore dia.	
d mm	RH-Single Ended	RH-Double Ended	m (H13)	W	L1	L2	L	B	t	F	Holder	
6.0	6.0SIR1.6S-D3770S-1.5...1-SIDE	6.0SIR1.6S-D3770S-1.5...	1.6	1.98	9.0	36.0	36.0	2.0	1.5	2.9	SMC..-6.0	6.1
	6.0SIR1.6M-D3770S-1.5...1-SIDE	6.0SIR1.6M-D3770S-1.5...	1.6	1.98	16.0	43.0	50.0					
	6.0SIR1.6L-D3770S-1.5...1-SIDE	6.0SIR1.6L-D3770S-1.5...	1.6	1.98	21.0	50.0	60.0					
	6.0SIR2.0S-D3770D-1.8...1-SIDE	6.0SIR2.0S-D3770D-1.8...	2.0	2.38	9.0	36.0	36.0	2.0	1.8	2.9		
	6.0SIR2.0M-D3770D-1.8...1-SIDE	6.0SIR2.0M-D3770D-1.8...	2.0	2.38	16.0	43.0	50.0					
	6.0SIR2.0L-D3770D-1.8...1-SIDE	6.0SIR2.0L-D3770D-1.8...	2.0	2.38	21.0	50.0	60.0					

DIN 471 DIN 472 - Face Grooves



Micro (Partial Profile)

Insert Dia.		Groove Std.		Dimensions mm						Inner Groove Ø	Outer Groove Ø
d (mm)	RH-Single Ended	RH-Double Ended	m (H13)	W	t	L	L2	F	Sleeve		
4.0	4.0SIR0.7A-D471/472-1.4...1-SIDE	4.0SIR0.7A-D471/472-1.4...	0.70	0.77	1.4	50	43	1.40	SMC...-4.0	3.50	5.00
	4.0SIR0.8A-D471/472-1.5...1-SIDE	4.0SIR0.8A-D471/472-1.5...	0.80	0.87	1.5					3.40	5.20
	4.0SIR0.9A-D471/472-1.6...1-SIDE	4.0SIR0.9A-D471/472-1.6...	0.90	0.97	1.6					3.30	5.30
	4.0SIR1.1A-D471/472-1.8...1-SIDE	4.0SIR1.1A-D471/472-1.8...	1.10	1.19	1.8					3.10	5.50
	4.0SIR1.3A-D471/472-2.0...1-SIDE	4.0SIR1.3A-D471/472-2.0...	1.30	1.39	2.0					2.90	5.70
	4.0SIR1.6A-D471/472-2.3...1-SIDE	4.0SIR1.6A-D471/472-2.3...	1.60	1.69	2.3					2.60	6.00
6.0	6.0SIR0.7A-D471/472-1.4...1-SIDE	6.0SIR0.7A-D471/472-1.4...	0.70	0.77	1.4	50	43	1.90	SMC...-6.0	5.50	7.00
	6.0SIR0.8A-D471/472-1.5...1-SIDE	6.0SIR0.8A-D471/472-1.5...	0.80	0.87	1.5					5.40	7.20
	6.0SIR0.9A-D471/472-1.6...1-SIDE	6.0SIR0.9A-D471/472-1.6...	0.90	0.97	1.6					5.30	7.30
	6.0SIR1.1A-D471/472-1.8...1-SIDE	6.0SIR1.1A-D471/472-1.8...	1.10	1.19	1.8					5.10	7.50
	6.0SIR1.3A-D471/472-2.0...1-SIDE	6.0SIR1.3A-D471/472-2.0...	1.30	1.39	2.0					4.90	7.70
	6.0SIR1.6A-D471/472-2.3...1-SIDE	6.0SIR1.6A-D471/472-2.3...	1.60	1.69	2.3					4.60	8.00
	6.0SIR1.85A-D471/472-2.5...1-SIDE	6.0SIR1.85A-D471/472-2.5...	1.85	1.94	2.5					4.40	8.20
8.0	6.0SIR2.15A-D471/472-2.8...1-SIDE	6.0SIR2.15A-D471/472-2.8...	2.15	2.24	2.8	70	63	3.95	SMC...-8.0	4.10	8.50
	8.0SIR1.1A-D471/472-1.8...1-SIDE	8.0SIR1.1A-D471/472-1.8...	1.10	1.19	1.8					8.06	10.44
	8.0SIR1.3A-D471/472-2.0...1-SIDE	8.0SIR1.3A-D471/472-2.0...	1.30	1.39	2.0					7.66	10.44
	8.0SIR1.6A-D471/472-2.3...1-SIDE	8.0SIR1.6A-D471/472-2.3...	1.60	1.69	2.3					7.06	10.44
	8.0SIR1.85A-D471/472-2.5...1-SIDE	8.0SIR1.85A-D471/472-2.5...	1.85	1.94	2.5					6.56	10.44
	8.0SIR2.15A-D471/472-2.8...1-SIDE	8.0SIR2.15A-D471/472-2.8...	2.15	2.24	2.8					5.96	10.44
	8.0SIR2.65A-D471/472-3.3...1-SIDE	8.0SIR2.65A-D471/472-3.3...	2.65	2.74	3.3					4.96	10.44
10.0	10.0SIR1.1A-D471/472-1.8...1-SIDE	10.0SIR1.1A-D471/472-1.8...	1.30	1.39	1.8	80	71	4.95	SMC...-10.0	9.66	12.44
	10.0SIR1.6A-D471/472-2.3...1-SIDE	10.0SIR1.6A-D471/472-2.3...	1.60	1.69	2.3					9.06	12.44
	10.0SIR1.85A-D471/472-2.5...1-SIDE	10.0SIR1.85A-D471/472-2.5...	1.85	1.94	2.5					8.56	12.44
	10.0SIR2.15A-D471/472-2.8...1-SIDE	10.0SIR2.15A-D471/472-2.8...	2.15	2.24	2.8					7.96	12.44
	10.0SIR2.65A-D471/472-3.3...1-SIDE	10.0SIR2.65A-D471/472-3.3...	2.65	2.74	3.3					6.96	12.44
	10.0SIR3.15A-D471/472-3.8...1-SIDE	10.0SIR3.15A-D471/472-3.8...	3.15	3.24	3.8					5.96	12.44
	10.0SIR4.15A-D471/472-4.8...1-SIDE	10.0SIR4.15A-D471/472-4.8...	4.15	4.24	4.8					3.96	12.44

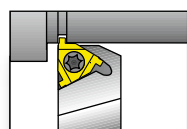


GROOVING TOOLHOLDERS

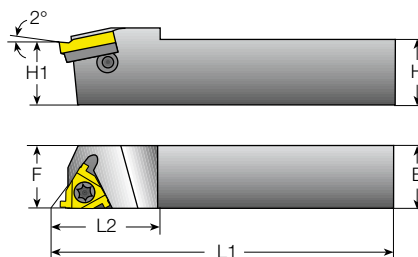
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External Toolholders



Standard

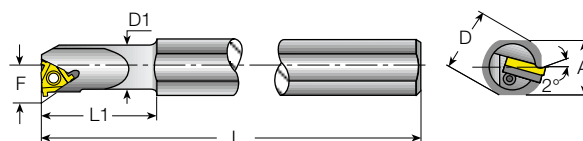
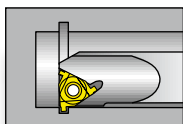
Standard						Spare Parts			
Insert Size	Ordering Code	Dimensions mm							 *
IC		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH
1/4"	NL8-2	8	11	136.4	17.5	SN2T	-	K2T	-
	NL10-2	10	11	70.0	17.5				
	NL12-2	12	12	80.0	17.5				
3/8"	NL12-3	12	16	83.2	22.0	SA3T	SY3T	K3T	YE3M-1.5N
	AL3/8-3	9.52	16	63.6	20.5				
	AL12-3	12	16	100.0	22.0				
	AL16-3	16	16	82.3	20.5				
	AL20-3	20	20	128.6	30.0				
	AL25-3	25	25	153.6	30.0				
	AL32-3	32	32	173.6	30.0				
1/2"	AL25-4	25	25	155.7	36.0	SA4T	SY4T	K4T	YE4M-1.5N
	AL32-4	32	32	175.7	36.0				
	AL40-4	40	40	205.7	36.0				
5/8"	AL25-5	25	32	151.6	35.0	SA5T	SY5T	K5T	YE5M-1.5N
	AL32-5	32	32	176.6	40.0				
	AL40-5	40	40	206.6	40.0				
	AL50-5	50	50	256.6	40.0				

* The toolholders are supplied with standard anvils. For Grooving, please use the anvils indicated in the table above.





Internal Toolholders



Standard

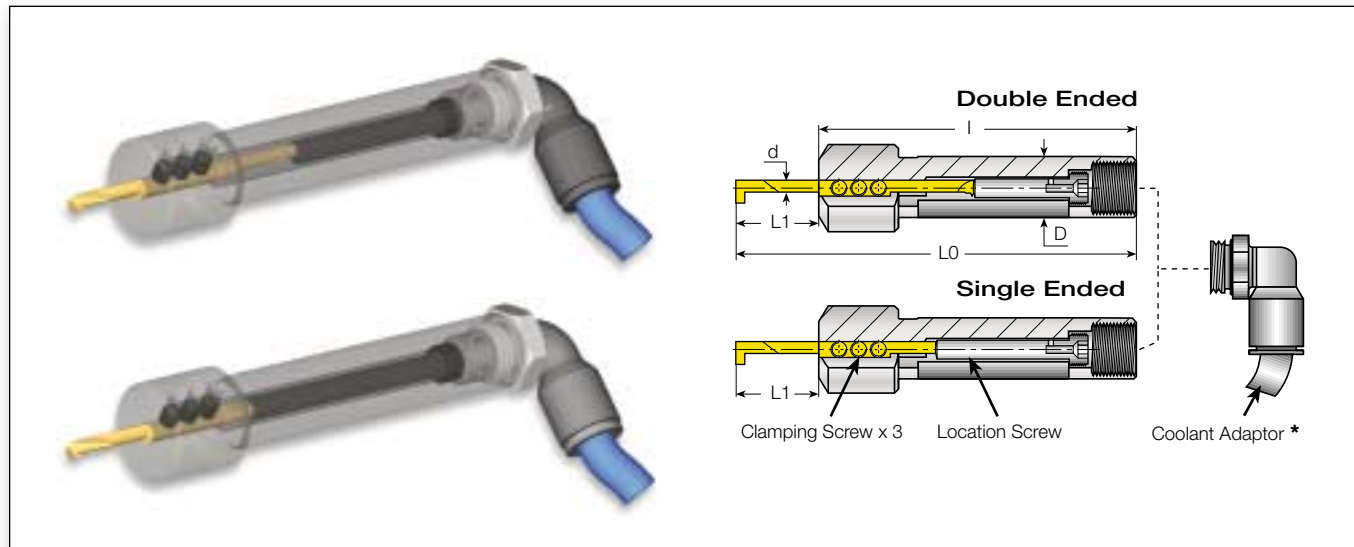
Spare Parts

Insert Size	Ordering Code	Dimensions mm						Min. Bore dia.				*
IC	A	L	L1	D	D1	F	mm		Insert Screw	Anvil Screw	Torx Key	Anvil RH
1/4"	NVR10D-2	100		10	10.0	7.3	13		SN2T	-	K2T	-
	NVR10-2	18.0	180	25	20	10.0	7.3	13				
	NVR13-2	18.0	180	32	20	13.0	8.9	16				
3/8"	NVR13-3	18.0	180	32	20	12.7	10.3	17	SN3T	-	K3T	-
	NVR16-3	18.0	180	40	20	16.0	11.5	20				
	NVR16D-3	15.2	150	32	16	16.0	11.3	20				
	AVR20-3	18.0	180	40	20	20.0	13.4	24	SA3T	SY3T	K3T	YI3M-1.5N
	AVR25-3	29.0	250	60	32	25.0	16.3	29				
	AVR25D-3	22.6	200	45	25	24.6	16.1	29				
	AVR32-3	29.0	250	60	32	32.0	19.6	36				
1/2"	AVR40-3	36.0	300	60	40	40.0	23.8	44	SN4T	-	K4T	-
	NVR20-4	18.0	180	50	20	20.0	15.6	27				
	AVR25-4	29.0	250	60	32	25.0	17.4	32	SA4T	SY4T	K4T	YI4M-1.5N
	AVR25D-4	22.6	200	45	25	24.6	17.2	32				
	AVR32-4	29.0	250	60	32	32.0	21.5	39				
5/8"	AVR40-4	36.0	300	60	40	40.0	25.8	47	SA5T	SY5T	K5T	YI5M-1.5N
	AVR32-5	29.0	250	60	32	32.0	22.4	40				
	AVR40-5	36.0	300	60	40	40.0	26.4	48				
	AVR50-5	45.0	350	75	50	50.0	31.4	58				
	AVR60-5	54.0	400	75	60	60.0	36.4	69				

*The toolholders are supplied with standard anvils. For Grooving, please use the anvils indicated in the table above.

Holders with coolant channel available as standard. For ordering code see page 95.

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 on next page	K4.0	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 on next page	K4.0	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	80	-	see on next page	K4.0	M4X0.7X4.0 K2.0
	SMC16-6.0	16		G1/4A			
	SMC20-6.0	20	95	G1/4A			
8.0	SMC16-8.0	16	95	G1/4A	see on next page	K4.0	M6X1.0X5.0 K3.0
	SMC20-8.0	20		G1/4A			
10.0	SMC16-10.0	16	95	G1/4A	see on next page	K4.0	M6X1.0X5.0 K3.0
	SMC20-10.0	20		G1/4A			

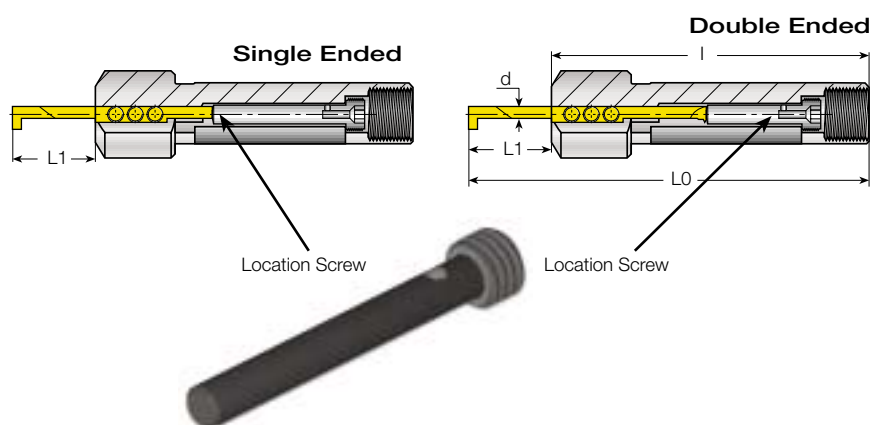
* Coolant Adaptor is optional

continued on next page ▶

NOTE: All Holders can be used for all single ended and double ended.



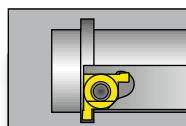
Internal Toolholders (con't)



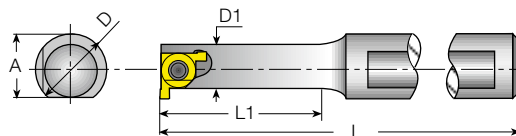
Spare Parts - Location Screws for Micro Toolholders*

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

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

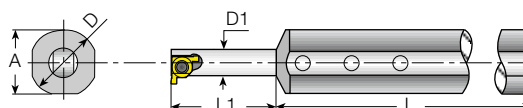
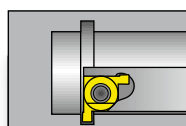


Internal Toolholders



Mini-L

Insert Size		Ordering Code		Dimensions mm			Anti-Vibration System		Spare Parts	
IC		A	L	L1	D	D1			Insert Screw	Torx Key
5.0L	SNVR 10U-5L	9.4	81	16	10	6.2	N		SN5LT	K5LT
	BNVR 10S-5L	9.4	87	22	10	6.2	Y			
	BNVR 10M-5L	9.4	97	31	10	6.2	Y			
	BNVR 10L-5L	9.4	109	43	10	6.2	Y			



Mini-L-Adjustable

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

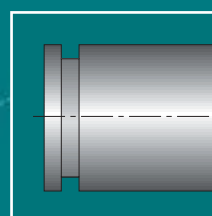
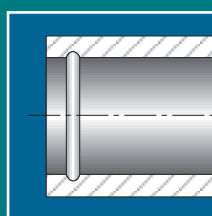
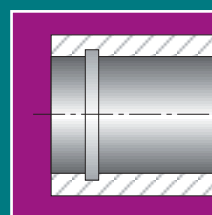
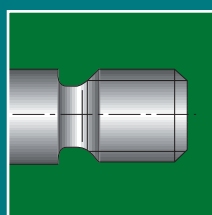


GROOVING TECHNICAL DATA

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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
				Laydown Grooving VTX	Micro Grooving VMX	Mini Grooving VKP	Mini Grooving VHX		
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	140-200	50-120	140-200	20-50	0.3	0.03
		Medium carbon (C=0.25-0.55 %)	150	120-180	40-100	120-180	15-40	0.15	0.02
		High carbon (C=0.55-0.85 %)	170	110-180	30-80	110-180	15-30	0.05	0.015
	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	100-155	50-70	100-155	20-45	0.25	0.02
		Hardened	275	90-145	40-60	90-145	10-25	0.1	0.015
		Hardened	350	80-135	30-50	80-135	10-25	0.05	0.01
	High alloy steel (alloying elements > 5%)	Annealed	200	70-115	30-50	65-115		0.2	0.02
		Hardened	325	50-100	25-40	50-100		0.05	0.01
	Cast steel	Low alloy (alloying elements <5%)	200	30-50	30-50	30-50	25-50	0.2	0.02
		High alloy (alloying elements >5%)	225	20-40	25-40	25-40	20-40	0.05	0.02
M	Stainless steel Ferritic	Non hardened	200	70-120	60-100	80-120		0.2	0.015
		Hardened	330	60-95	40-60	55-95		0.05	0.01
	Stainless steel Austenitic	Austenitic	180	70-100	50-90	60-100		0.2	0.015
		Super austenitic	200	40-90	40-60	50-90		0.05	0.015
	Stainless steel Cast ferritic	Non hardened	200	80-110	40-60	60-80		0.2	0.02
		Hardened	330	65-110	30-50	45-65		0.05	0.01
	Stainless steel Cast austenitic	Austenitic	200	85-100	40-60	50-70		0.2	0.02
		Hardened	330	60-100	30-50	40-60		0.05	0.01
	High temperature alloys	Annealed (Iron based)	200	45-60	25-45	25-45		0.2	0.015
		Aged (Iron based)	280	30-50	20-30	20-30		0.05	0.01
		Annealed (Nickel or Cobalt based)	250	20-30	15-20	15-20		0.05	0.015
		Aged (Nickel or Cobalt based)	350	15-25	10-15	10-15		0.05	0.01
	Titanium alloys	Pure 99.5 Ti	400Rm	140-170	60-100	60-100		0.1	0.02
		a+b alloys	1050Rm	50-70	40-50	40-50		0.05	0.02
K	Extra hard steel	Hardened & tempered	55HRc	45-60	20-40	20-40		0.02	0.01
	Malleable cast iron	Ferritic (short chips)	130	70-120	50-70	60-80		0.2	0.02
		Pearlitic (long chips)	230	70-120	50-71	60-80		0.15	0.01
	Grey cast iron	Low tensile strength	180	70-120	50-72	60-80		0.2	0.02
		High tensile strength	260	60-100	40-60	40-70		0.1	0.015
	Nodular SG iron	Ferritic	160	50-80	50-70	60-80		0.2	0.02
		Pearlitic	260	60-90	60-80	70-90		0.1	0.015
	Aluminium alloys Wrought	non aging	60	100-240	100-300	80-240	30-60	0.4	0.03
		Aged	100	80-170	100-150	100-170	25-50	0.1	0.03
	Aluminium alloys	Cast	75	100-150	100-150	100-150	25-50	0.25	0.03
		Cast & aged	90	80-120	60-100	60-100	20-40	0.15	0.03
	Aluminium alloys	Cast Si 13-22%	130	100-150	100-150	100-150	15-30	0.15	0.02
	Copper and copper alloys	Brass	90	80-200	60-100	80-200	15-35	0.2	0.03
Bronze and non leaded copper		100	80-200	60-100	80-200	15-35	0.15	0.03	

Grades and Their Application

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