



Mini-V

Mini Tools for Small and Medium Bores

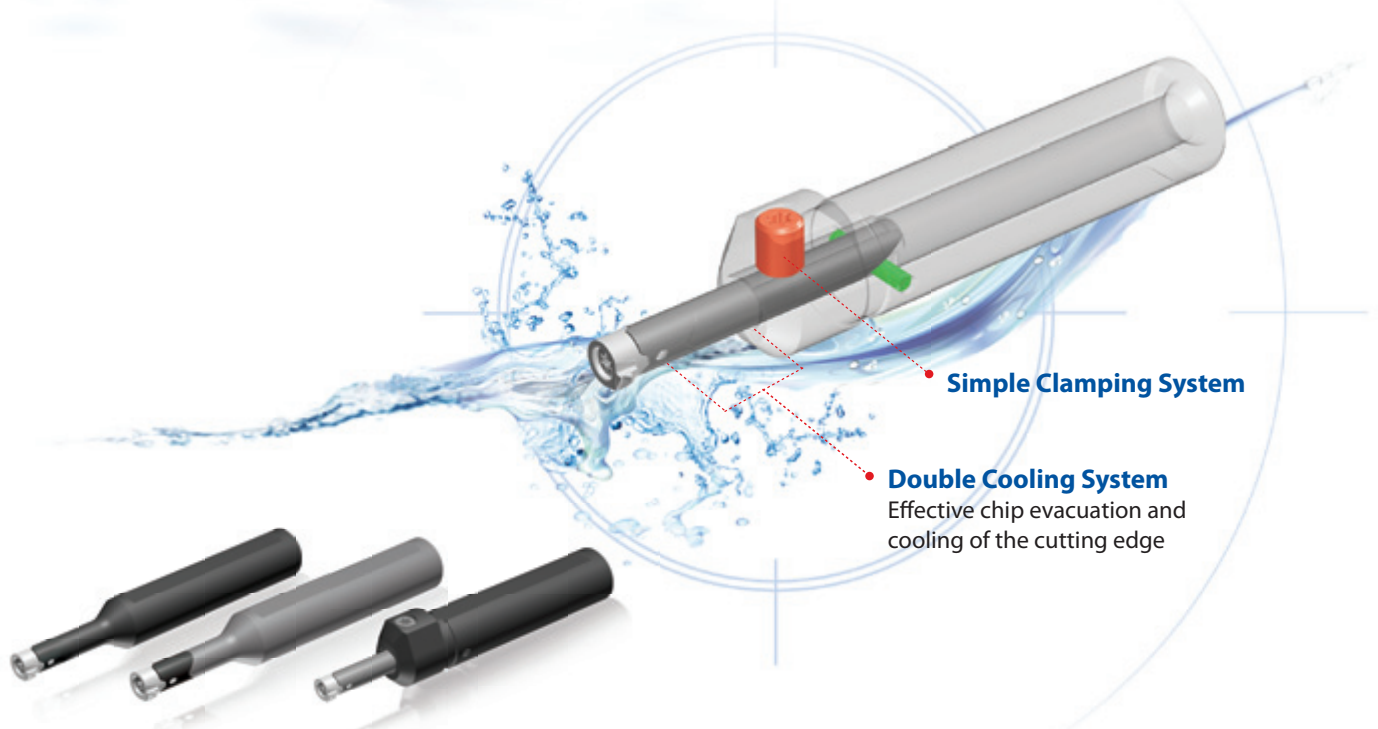


METRIC

Mini-V

New family of mini indexable inserts

The Mini-V line by **Groovex** offers new and improved solutions for mini grooving, boring and threading in bores starting from 8mm.

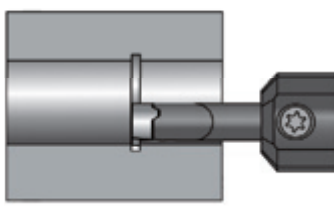


The Mini-V line offers two improved styles:

- * Sleeve
- * Integral Holder

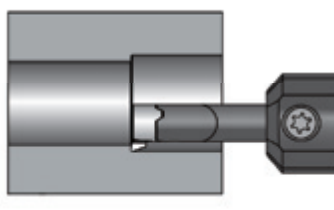
Applications

Grooving



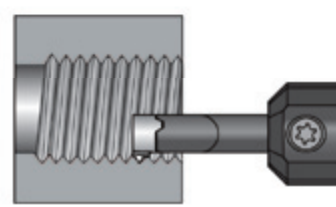
- Square
- DIN 472
- Grooving with R
- Round Partial DIN 7993

Boring



- Bore
- NC Profiling
- Copy Long Nose
- Back Boring
- Chamfering

Threading



- ISO
- UN
- Partial 60°
- Partial 55°
- Whitworth
- BSPT
- NPT
- NPTF
- TR

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Mini-V Ordering Code System

Mini-V Grooving Inserts

V	08	GS	W120	T 100	R	VBX
1	2	3	4	5	6	7

1 - Product Line V- Mini-V	2 - Insert Style 08, 11, 16	3 - Type of Application GS - Square Grooving D472 - DIN 472 Grooving Square Partial GSR - Grooving Square with R D7993 - D7993 Grooving Round Partial	4 - Groove Width W070 - 0.7 mm W080 - 0.8 mm W090 - 0.9 mm W100 - 1.0 mm W110 - 1.1 mm W120 - 1.2 mm W130 - 1.3 mm W150 - 1.5 mm W160 - 1.6 mm W180 - 1.8 mm W200 - 2.0 mm W250 - 2.5 mm W300 - 3.0 mm W350 - 3.5 mm W400 - 4.0 mm	5 - Groove Depth T 100 - 1.0 mm T230 - 2.3 mm T430 - 4.3mm	6 - RH or LH R - RH L - LH	7 - Carbide Grade VBX
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Mini-V Boring Inserts

V	08	CL	R	VBX
1	2	3	4	5

1 - Product Line V- Mini-V	2 - Insert Style 08, 11, 16	3 - Type of Application CL - Copy Long Nose BC - Boring BB - Back Boring CH45 - Chamfering 45°	4 - Other None - Boring 70 Deg 3 - Boring 60 Deg	5 - RH or LH R - RH L - LH	6 - Carbide Grade VBX
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Mini-V Threading Inserts

V	08	TH	0.5	ISO	R	VBX
1	2	3	4	5	6	7

1 - Product Line V- Mini-V	2 - Insert Style 08, 11, 16	3 - Type of Application TH - Threading	4 - Pitch (for Threading) Full Profile - Pitch Range mm tpi 0.5-2.0 32-12 Partial Profile - Pitch Range mm tpi H 0.5-0.75 H 48-32 I 1.0-1.25 I 24-20 J 1.5-1.75 J 16-14	5 - Threading Standard ISO - ISO Metric UN - American UN 60° - Partial Profile 60° 55° - Partial Profile 55° W - Whitworth for BSW, BSP BSPT - British Standard Pipe Thread NPT - NPT National Pipe Thread NPTF - NPTF National Seal Pipe Thread TR - Trapez Din 103
6 - RH or LH R - RH L - LH	7 - Carbide Grade VBX			

Mini-V Holders

C	V	08	-	12	21	-
1	2	3	4	5	6	7

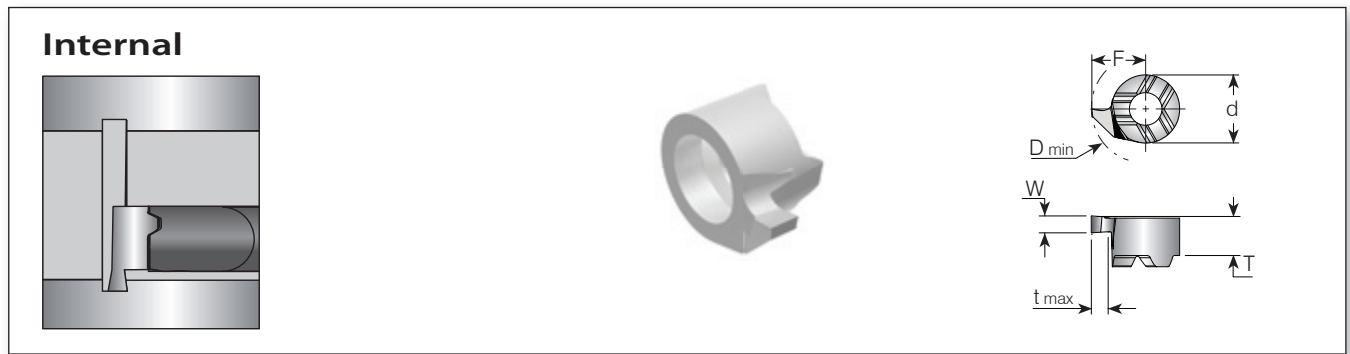
1 - Holder Type C - Carbide Shank None - Steel Shank	2 - Product Line V- Mini-V	3 - Insert Style 08, 11, 16	4 - -	5 - Shank Diameter 6, 8, 12, 16	6 - Tool Overhang 12, 21, 29, 30, 42, 50, 56, 64	7 - RH or LH None - RH L - LH
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Mini-V Sleeves

MH	C	16	-	6
1	2	3	4	5

1 - Holder Type MH - Microscope Holder	2 - Cooling C - Cooling Channels	3 - Shank Dia. 12, 16, 20	4 - -	5 - Sleeve Bore Dia. 6, 8
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Grooving



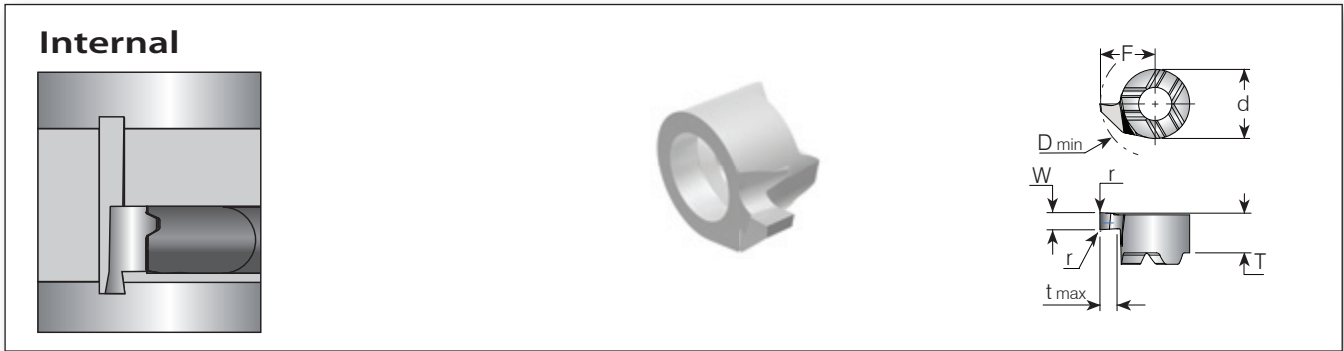
Insert Style	Ordering Code	Dimensions (mm)					Min. Bore dia.		Toolholder
	RH	d	W	t max	T	F	D min		
V08	V08GS W100T100 R...	6	1	1	3.6	4.80	8.0	.V08-...	
	V08GS W150T100 R...		1.5						
	V08GS W200T100 R...		2						
V11	V11GS W100T230 R...	8	1	2.3	3.95	6.70	11.0	.V11-...	
	V11GS W120T230 R...		1.2						
	V11GS W150T230 R...		1.5						
	V11GS W200T230 R...		2						
	V11GS W250T230 R...		2.5						
V16	V16GS W300T430 R...	11	3	4.3	5.6	10.2	16	.V16-...	
	V16GS W350T430 R...		3.5						
	V16GS W400T430 R...		4						

Grooving DIN 472



Insert Style	Ordering Code	Width of Circlip (mm)	Dimensions (mm)				Min. Bore dia.		Toolholder
	RH	m	W	d	t max	T	F	D min	
V08	V08D472 W070T100 R...	0.7	0.73	6	1	3.6	4.80	8.0	.V08-...
	V08D472 W080T100 R...	0.8	0.83						
	V08D472 W090T100 R...	0.9	0.93						
	V08D472 W110T100 R...	1.1	1.2						
	V08D472 W130T100 R...	1.3	1.4						
	V08D472 W160T100 R...	1.6	1.7						
V11	V11D472 W070T100 R...	0.7	0.73	8	1.2	3.95	6.70	11.0	.V11-...
	V11D472 W080T100 R...	0.8	0.83		1.3				
	V11D472 W090T100 R...	0.9	0.93		1.5				
	V11D472 W110T230 R...	1.1	1.2		2.3				
	V11D472 W130T230 R...	1.3	1.4		2.3				
	V11D472 W160T230 R...	1.6	1.7		2.3				

Grooving with R



Insert Style	Ordering Code	Dimensions (mm)						Min. Bore dia.		
		RH	d	W	t max	T	F	r	D min	Toolholder
V08	V08GSR W150T100 R...		6	1.5	1	3.6	4.80	0.2	8.0	.V08-...
V11	V11GSR W200T230 R...		8	2	2.3	3.95	6.70	0.2	11.0	.V11-...

Grooving DIN 7993 - Round Partial



Insert Style	Ordering Code	Dimensions (mm)						Min. Bore dia.		
		RH	d	W	t max	T	F	R	D min	Toolholder
V08	V08D7993 W120T100 R...		6	1.2	1	3.6	4.80	0.6	8.0	.V08-...
	V08D7993 W180T100 R...			1.8				0.9		
V11	V11D7993 W120T230 R...		8	1.2	2.3	3.95	6.70	0.6	11.0	.V11-...
	V11D7993 W180T230 R...			1.8				0.9		
	V11D7993 W200T230 R...			2				1.0		

Boring



Insert Style	Ordering Code	Dimensions mm						Min. Bore Dia. mm	Toolholder	
		RH	r	d	T	t max	AL1			F
V08	V08BC R...		0.2	6	3.6	1.3	70°	4.65	7.8	.V08-....
V11	V11BC R...		0.2	8	3.95	2.3	70°	6.70	11.0	.V11-....
V16	V16BC R		0.2	11	5.6	4.3	70°	9.7	15.5	.V16-....

NC Profiling (Boring)



Insert Style	Ordering Code	Dimensions mm						Min. Bore Dia. mm	Toolholder	
		RH	r	d	T	t max	AL1			F
V08	V08BC3 R...		0.2	6	3.6	1.3	60°	4.65	7.8	.V08-....
V11	V11BC3 R...		0.2	8	3.8	2.3	60°	6.70	11.0	.V11-....

Copy Long Nose



Insert Style	Ordering Code	Dimensions mm						Min. Bore Dia. mm	Toolholder	
		RH	r	d	T	t max	AL1			F
V08	V08CL R...		0.2	6	3.6	1.2	43°	4.65	7.8	.V08-....
V11	V11CL R...		0.2	8	3.95	2.3	43°	6.70	11.0	.V11-....
V16	V16CL R		0.2	11	5.6	4.3	60°	10.2	15.8	.V16-....

Back Boring



Insert Style	Ordering Code	Dimensions mm							Min. Bore Dia. mm	Toolholder
		RH	r	d	T	t max	AL1	F		
V08	V08BB R...		0.2	6	3.6	1.3	60°	4.65	7.8	.V08-...
V11	V11BB R...		0.2	8	3.95	2.3	60°	6.70	11.0	.V11-...

Chamfering

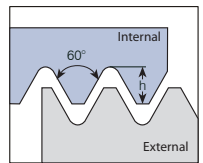


Insert Style	Ordering Code	Dimensions mm							Min. Bore Dia. mm	Toolholder	
		RH	r	d	W	T	t max	AL1			F
V08	V08CH45 R...		0.2	6	1.8	3.6	1.4	45°	4.65	8.0	.V08-...

Threading

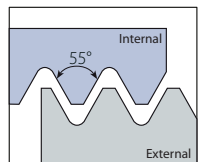


Partial Profile 60°



Insert Style	Pitch		Ordering Code	Dimensions mm							Helix	Toolholder
	mm	tpi		RH / LH	d	T	F	Y	r	h max		
V08	0.5-0.75	48-32	V08TH H60 R...	6	3.6	4.20	0.6	0.03	0.49	1.5	.V08-....	
	1.0-1.25	24-20	V08TH I60 R...			4.46	0.9	0.1	0.74	2.5		
	1.5-1.75	16-14	V08TH J60 R...			4.76	1.1	0.14	1.04	3		
V11	0.5-0.75	48-32	V11TH H60 R...	8	3.95	5.80	0.6	0.03	0.49	1.5	.V11-....	
	1.0-1.25	24-20	V11TH I60 R...			6.06	0.9	0.1	0.74	1.5		
	1.5-1.75	16-14	V11TH J60 R...			5.61	1.1	0.14	1.04	3		
V16	0.5-1.5	48-16	V16TH A60 R...	11	5.7	10.2	0.9	0.05	1.485	1.5	.V16-....	
	1.75-3.0	14-8	V16TH G60 R...				1.7	0.16	2.835			
	0.5-3.0	48-8	V16TH AG60 R...				1.7	0.05	2.835			

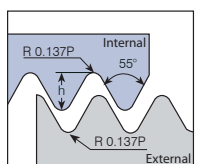
Partial Profile 55°



Insert Style	Pitch		Ordering Code	Dimensions mm							Helix	Toolholder
	mm	tpi		RH	d	T	F	Y	r	h max		
V16	0.5-1.5	48-16	V16TH A55 R...	11	5.7	10.2	0.9	0.07	1.71	1.5	.V16-....	
	1.75-3.0	14-8	V16TH G55 R...				1.7	0.25	3.236			
	0.5-3.0	48-8	V16TH AG55 R...				1.7	0.07	3.236			

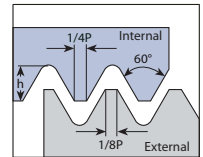
Whitworth - BSW, BSP, BSF, BSB

Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
Tolerance class: Medium Class A



Min Thread	Insert Style	Ordering Code	Dimensions mm							Helix	Toolholder
			tpi	RH	d	T	F	Y	h min		
1/2"x19W	V11	19	V11TH 19W R...	8	3.95	6.18	1	0.86	2	.V11-....	

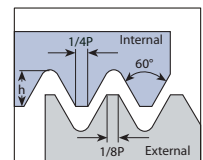
Threading



Defined by: R262 (DIN 13)
Tolerance class: 6g/6H

ISO Metric

Min Thread	Insert Style	Ordering Code	Dimensions mm							Helix	Toolholder
			mm	RH	d	T	F	Y	h min		
M8x0.5	V08	V08TH 0.50ISO R...	0.5		6	3.6	3.84	0.4	0.29	1	.V08-....
M8.5x0.75		V08TH 0.75ISO R...	0.75				4.19	0.6	0.43	1.5	
M9x1.0		V08TH 1.00ISO R...	1.0				4.29	0.7	0.58	2	
M10x1.25		V08TH 1.25ISO R...	1.25				4.44	0.9	0.72	2.5	
M10x1.5		V08TH 1.50ISO R...	1.5				4.58	1.0	0.87	3	
M12x1.75		V08TH 1.75ISO R...	1.75				4.80	1.2	1.01	3	
M14x2.0	V11	V11TH 2.00ISO R...	2.0		8	3.95	6.47	1.3	1.15	2.5	.V11-....



Defined by: ANSI B1.1:74
Tolerance class: 2A/2B

American UN

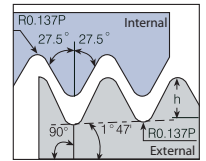
Min Thread	Insert Style	Ordering Code	Dimensions mm							Helix	Toolholder
			tpi	RH	d	T	F	Y	h min		
3/8"-32UNEF	V08	V08TH 32UN R...	32		6	3.6	4.21	0.6	0.46	1.5	.V08-....
3/8"-28UN		V08TH 28UN R...	28				4.28	0.7	0.52	2	
3/8"-24UNF		V08TH 24UN R...	24				4.32	0.8	0.61	2	
3/8"-20UN		V08TH 20UN R...	20				4.45	0.9	0.73	2.5	
3/8"-18UNS		V08TH 18UN R...	18				4.53	1.0	0.81	2.5	
3/8"-16UNC		V08TH 16UN R...	16				4.33	1.1	0.92	2.5	
7/16"-14UNC	V11	V08TH 14UN R...	14		8	3.95	4.78	1.2	1.05	3	.V11-....
9/16"-12UNC		V11TH 12UN R...	12				6.44	1.4	1.22	2.5	

Threading



BSPT

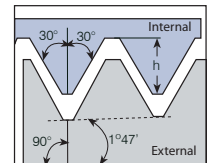
Defined by: B.S.21:1985
Tolerance class: Standard BSPT



Min Thread	Insert Style	Ordering Code	Dimensions mm				Helix	Toolholder		
	tpi	RH	d	T	F	Y	h min	Deg.		
1/4"-19BSPT	V11	19	V11TH 19BSPT R...	8	3.95	6.13	0.9	0.86	2.5	.V11-....

NPT

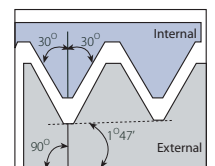
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



Min Thread	Insert Style	Ordering Code	Dimensions mm				Helix	Toolholder		
	tpi	RH	d	T	F	Y	h min	Deg.		
1/8"-27NPT	V08	27	V08TH 27NPT R...	6	3.6	4.35	0.8	0.64	2	.V08-....
1/4"-18NPT		18	V08TH 18NPT R...			4.47	1.0	1.0		

NPTF

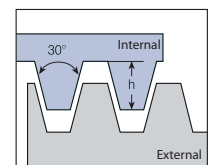
Defined by: ANSI 1.203-1976
Tolerance class: Standard NPTF



Min Thread	Insert Style	Ordering Code	Dimensions mm				Helix	Toolholder		
	tpi	RH	d	T	F	Y	h min	Deg.		
1/4"-18NPTF	V08	18	V08TH 18NPTF R...	6	3.6	4.64	1.0	1.0	2	.V08-....

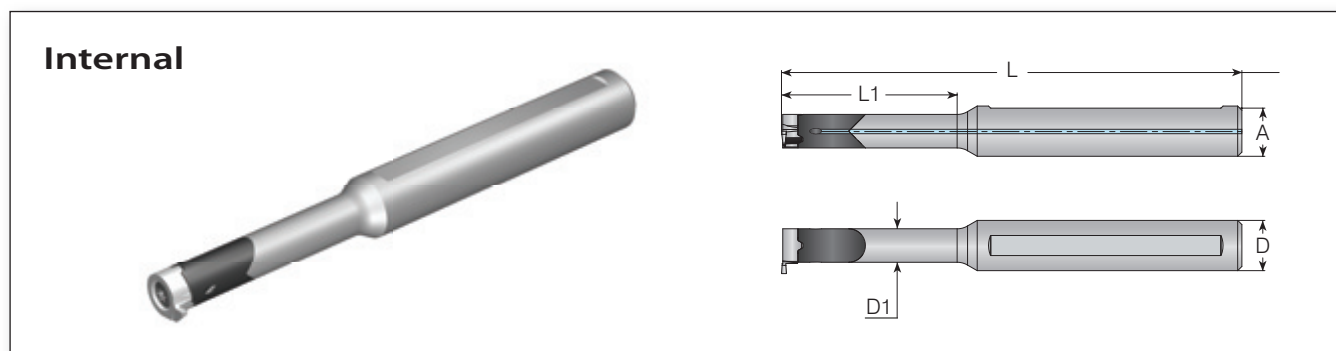
Trapez

Defined by: DIN 103
Tolerance class: 7e/7H



Min Thread	Insert Style	Ordering Code	Dimensions mm				Helix	Toolholder		
	mm	RH	d	T	F	Y	h min	Deg.		
TR10x2.0	V08	2.0	V08TH 2.0TR R...	6	3.6	4.80	1.3	1.25	3.5	.V08-....
TR11x3.0		3.0	V08TH 3.0TR R...			4.95	1.4	1.75		
TR16x4.0	V11	4.0	V11TH 4.0TR R...	8	3.95	6.35	1.9	2.25	4.5	.V11-....

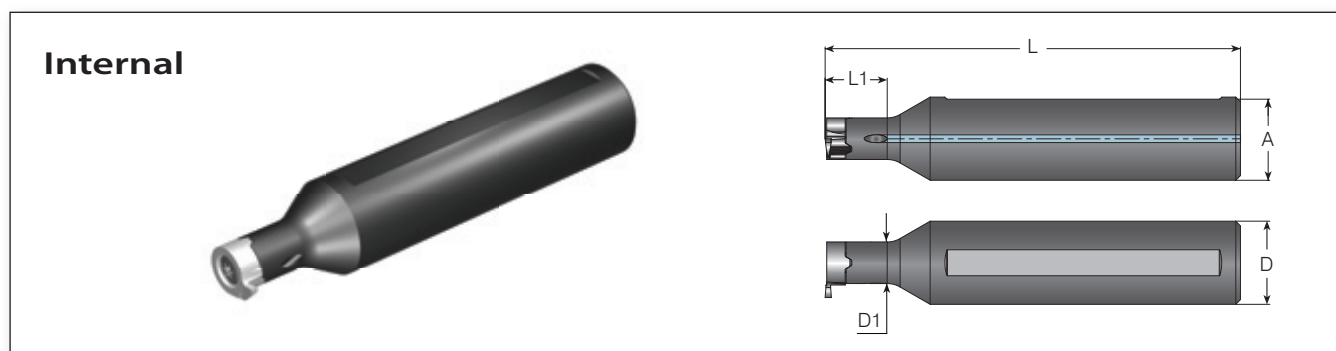
Mini-V Toolholders - Carbide Shank with Alloy Steel Head



Insert Style	Ordering Code		Dimensions mm					Spare Parts		
	Sleeve	Holder RH	A	L	L1	D	D1	Screw	Size	Key
V08	-	CV08-1221	11.5	80.5	21	12	6	SNV08	M2.6x0.45x8	K2T
	-	CV08-1230	11.5	90.5	30	12	6			
	-	* CV08-1242	11.5	100.5	42	12	6			
	-	* CV08-1250	11.5	115	50	12	6			
V11	-	CV11-1229	11.5	95	29	12	8	SNV11	M3.5x0.6x10	K3T
	-	CV11-1242	11.5	110	42	12	8			
	-	* CV11-1256	11.5	120	56	12	8			
	-	* CV11-1264	11.5	130	64	12	8			
V16	-	CV16-1240	11.0	130	40	12	11	SNV16	M5x0.8x12	K4T

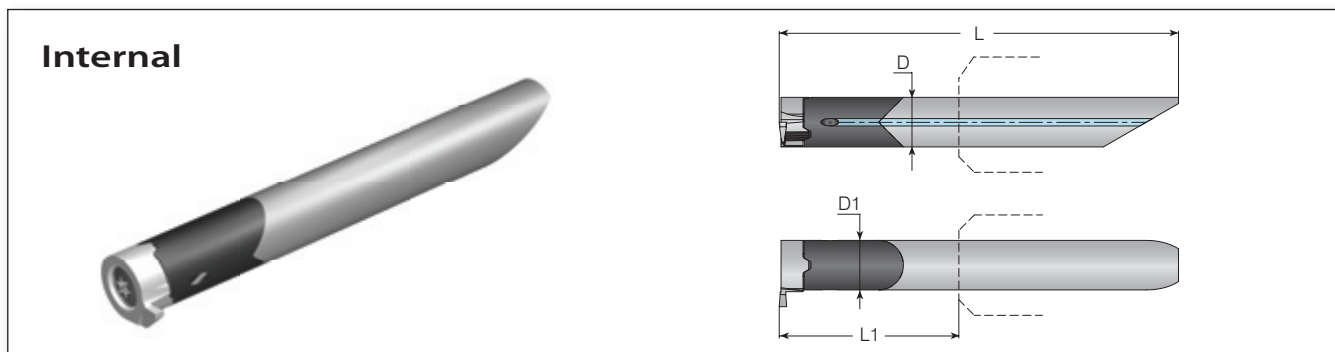
* For Boring and Chamfering only

Mini-V Toolholders - Alloy Steel Shank



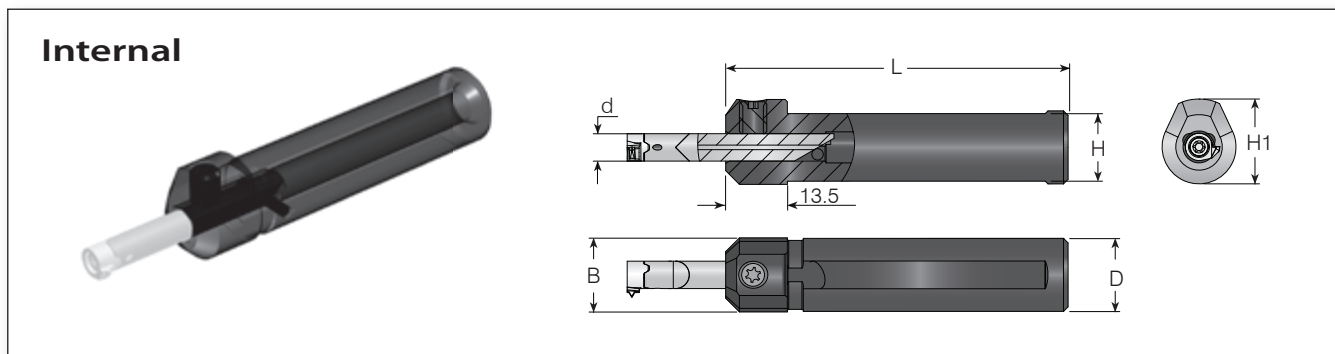
Insert Style	Ordering Code		Dimensions mm					Spare Parts		
	Sleeve	Holder RH	A	L	L1	D	D1	Screw	Size	Key
V08	-	V08-1612	15.6	80	12	16	6	SNV08	M2.6x0.45x8	K2T
V11	-	V11-1612	15.6	80	12	16	8	SNV11	M3.5x0.6x10	K3T
V16	-	V16-1622	15.6	100	22	16	11	SNV16	M5.0x0.8x12	K4T

Mini-V Toolholders - Sleeve Clamping



Insert Style	Ordering Code	Dimensions mm					Ordering Code	Spare Parts		
		A	L	L1	D	D1		Screw	Size	Key
V08	Holder RH	-	-	-	-	-	Sleeve			
	CV08-0621	-	45	21	6	6	MHC ...-6	SNV08	M2.6x0.45x8	K2T
V11	CV08-0630	-	54	30	6	6	MHC ...-6			
	CV11-0829	-	64.5	29	8	8	MHC ...-8	SNV11	M3.5x0.6x10	K3T
	CV11-0842	-	77.5	42	8	8	MHC ...-8			

Mini-V - Sleeves



d	Ordering Code	Dimensions mm				Screw	Key
		D=B	H1	H	L		
6	Sleeve	-	-	-	-		
	MHC 12-6	12	16	10.8	70	SL7DT max5	KT max5
	MHC 16-6	16	18.6	14.8	75		
MHC 20-6	20	22	18.8	84			
8	MHC 16-8	16	18.6	14.8	75		
	MHC 20-8	20	22	18.8	84		

Mini-V Technical Data

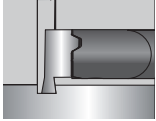
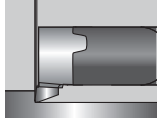
Recommended Grades, Cutting Speeds Vc[m/min],
Feed f[mm/rev] and Max. Depth [mm]

Material Group	Vargus No.	Material	Hardness Brinell HB	VBX		Max Depth on R[mm]	
				Vc [m/min.]			
				Threading Boring	Grooving	Boring	
P Steel	1	Unalloyed steel	Low carbon (C=0.1-0.25%)	125	40-210	40-180	0.30-0.50
	2		Medium carbon (C=0.25-0.55%)	150	40-180	40-170	0.30-0.50
	3		High Carbon (C=0.55-0.85%)	170	40-170	40-160	0.25-0.35
	4	Low alloy steel (alloying elements≤5%)	Non hardened	180	40-90	40-155	0.28-0.45
	5		Hardened	275	40-150	40-160	0.25-0.45
	6		Hardened	350	40-140	40-150	0.25-0.40
	7	High alloy steel (alloying elements>5%)	Annealed	200	40-130	40-115	0.20-0.30
	8		Hardened	325	40-110	40-100	0.18-0.30
	9	Cast steel	Low alloy (alloying elements <5%)	200	40-170	40-170	0.20-0.30
	10		High alloy (alloying elements >5%)	225	40-120	40-130	0.17-0.30
M Stainless Steel	11	Stainless steel Ferritic	Non hardened	200	40-170	40-180	0.22-0.34
	12		Hardened	330	40-170	40-180	0.21-0.32
	13	Stainless steel Austenitic	Austenitic	180	40-140	40-140	0.25-0.40
	14		Super Austenitic	200	40-140	40-140	0.17-0.26
	15	Stainless steel Cast Ferritic	Non hardened	200	40-140	40-140	0.25-0.37
	16		Hardened	330	40-140	40-140	0.17-0.26
	17	Stainless steel Cast austenitic	Austenitic	200	40-120	40-120	0.20-0.30
	18		Hardened	330	40-120	40-120	0.17-0.26
K Cast Iron	28	Malleable Cast iron	Ferritic (short chips)	130	40-130	40-120	0.25-0.37
	29		Pearlitic (long chips)	230	40-120	40-100	0.20-0.30
	30	Grey cast iron	Low tensile strength	180	40-130	40-100	0.22-0.34
	31		High tensile strength	260	40-100	40-100	0.20-0.30
	32	Nodular SG iron	Ferritic	160	40-125	40-100	0.15-0.25
	33		Pearlitic	260	40-90	40-90	0.20-0.30
N(K) Non-Ferrous Metals	34	Aluminium alloys Wrought	Non aging	60	40-250	40-400	0.60-1.00
	35		Aged	100	40-180	40-400	0.50-0.90
	36	Aluminium alloys	Cast	75	40-400	40-400	0.50-0.90
	37		Cast & aged	90	40-280	40-200	0.40-0.60
	38	Aluminium alloys	Cast Si 13-22%	130	40-150	40-200	0.50-0.90
	39	Copper and Copper alloys	Brass	90	40-210	40-200	0.60-1.00
	40		Bronze and non leaded copper	100	40-210	40-200	0.50-0.90
	S(M) Heat Resistant Material	19	High temperature alloys	Annealed (Iron based)	200	20-45	20-40
20		Aged (Iron based)		280	20-30	20-30	0.10-0.20
21		Annealed (Nickel or Cobalt based)		250	15-20	15-20	0.08-0.20
22		Aged (Nickel or Cobalt based)		350	10-15	10-15	0.08-0.20
23		Titanium alloys	Pure 99.5 Ti	400Rm	40-140	70-120	0.10-0.20
24	α+β alloys		1050Rm	20-50	20-50	0.10-0.20	
H(K) Hardened Material	25	Extra hard steel	Hardened & tempered	45-50HRc	15-45	15-45	0.05-0.18
	26			51-55HRc	15-40	15-40	0.05-0.18


Number of Passes for Threading

Pitch	mm	0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	3.5	4
	tpi	48	32	24	20	16	14	12	10	8	7	6
Number of Passes Mini-V		4-6	4-7	4-8	5-9	6-10	7-12	7-12	8-14	9-16	10-18	11-18

Feed Rate f mm/rev

Grooving	Boring
	
0.01 - 0.03	0.03 - 0.10

Grades

Grade	Application Type	Sample
VBX	General use carbide grade for Mini-V inserts. TiCN coated.	



Mini-V

Mini Tools for Small and Medium Bores

GROOVEX

Innovative Grooving Solutions

maxmark
METRIC