hales

Suppliers to the Tooling & Plastic Industry

Plastic Tooling Components

2nd Edition

Ejector Pins 1

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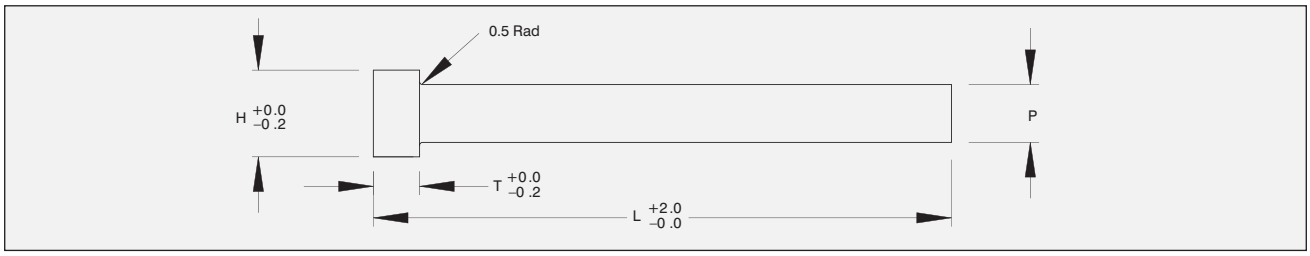
Nitrided Ejector Pins Metric JIS - Straight

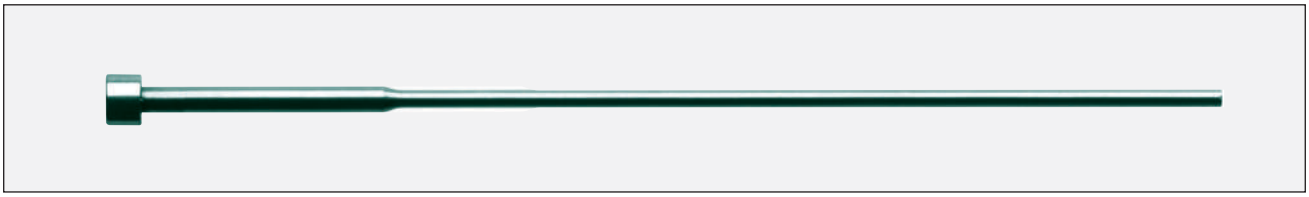


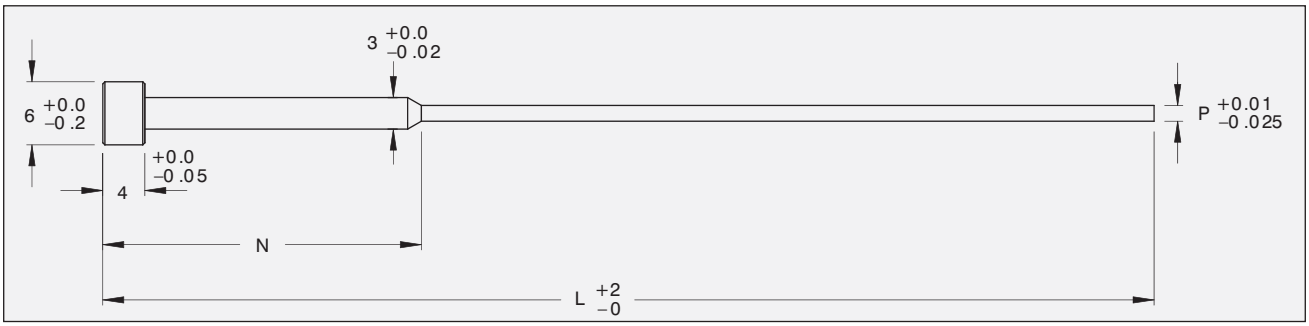
Material H13													
Core Hardness 40-45RC													
Surface Hardness 70-72C													
Part Number Prefix	P	H	T	L									
	PD	HD	HT	100	150	200	250	300	350	400	450	650	800
MP01	1.0	6	4	◆	◆								
MP012	1.2	6			◆								
MP015	1.5	6	4	◆	◆		◆						
MP020	2.0	6	4	◆	◆		◆						
MP025	2.5	6	4	◆	◆	◆	◆						
MP03	3.0	6	4	◆	◆	◆	◆	◆	◆	◆	◆		
MP035	3.5	7	4	◆	◆	◆	◆						
MP04	4.0	8	6	◆	◆	◆	◆	◆	◆	◆	◆		
MP045	4.5	8	6	◆	◆		◆						
MP05	5.0	9	6	◆	◆	◆	◆	◆	◆	◆	◆		
MP055	5.5	10	6		◆		◆						
MP06	6.0	10	6	◆	◆	◆	◆	◆	◆	◆	◆	◆	
MP065	6.5	10	6	◆	◆		◆	◆	◆	◆	◆		
MP07	7.0	11	6	◆	◆	◆	◆	◆	◆	◆	◆	◆	
MP075	7.5	13	8			◆							
MP08	8.0	13	8	◆	◆	◆	◆	◆	◆	◆	◆	◆	
MP085	8.5	14	8		◆			◆					
MP10	10.0	15	8	◆	◆	◆	◆	◆	◆	◆	◆	◆	
MP12	12.0	17	8	◆	◆	◆	◆	◆	◆	◆	◆	◆	
MP14	14.0	19	8	◆	◆		◆	◆	◆	◆	◆	◆	
MP15	15.0	20	8	◆	◆		◆				◆		
MP16	16.0	21	8	◆	◆	◆	◆	◆	◆	◆	◆	◆	
MP18	18.0	23	8	◆	◆		◆		◆		◆	◆	
MP20	20.0	25	8	◆	◆		◆		◆		◆	◆	◆
MP25	25.0	30	8		◆		◆		◆		◆	◆	◆

Part Number Example: MP02100-12 = 2x100x12 Straight Pin

Specials to Order

P Tolerance			
1-2mm	-.01 -.03	6.0-12 & 15mm	-.020 -.030
2-3mm	-.01 -.03	14, 16 & 20 mm	-.020 -.040
3.1-5.9mm	-.010 -.020	18 & 25mm	-.007 -.020

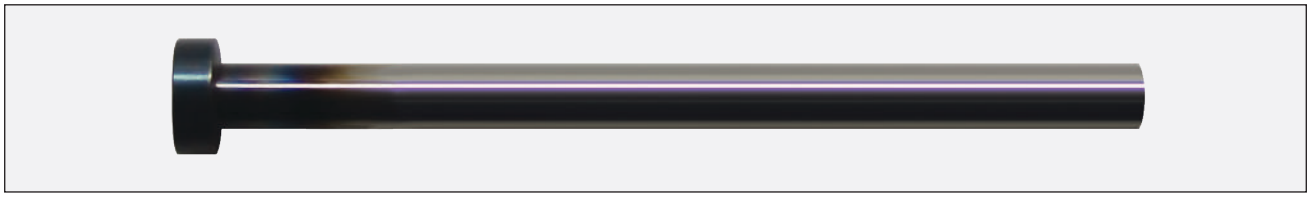


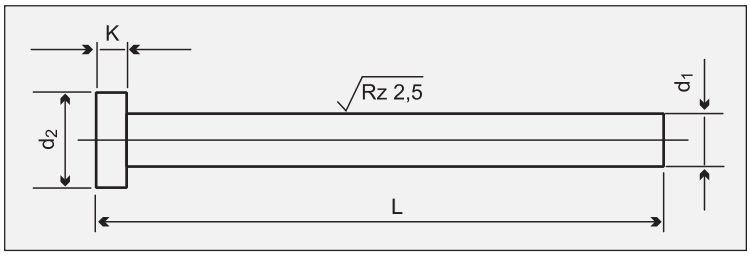


Material H13						
Core Hardness 40-44RC						
Surface Hardness 70-72C						
Part Number Prefix	P	N				
			100	125	150	250
MP01	1.0	10		◆		
MP012	1.2	10		◆		
MP015	1.5	10	◆	◆		
MP02	2.0	10		◆		
MP025	2.5	10		◆		
MP01	1.0	12	◆		◆	
MP012	1.2	12				
MP015	1.5	12	◆		◆	
MP02	2.0	12	◆		◆	
MP025	2.5	12	◆			
MP01	1.0	25	◆		◆	
MP012	1.2	25	◆		◆	
MP015	1.5	25	◆	◆	◆	
MP02	2.0	25	◆		◆	
MP025	2.5	25	◆		◆	
MP01	1.0	50	◆		◆	◆
MP012	1.2	50			◆	◆
MP015	1.5	50			◆	◆
MP02	2.0	50			◆	◆
MP025	2.5	50			◆	◆

Part Number Example: MP02100-12 = 2x100x12 Stepped Pin

Straight Ejector Pins - DIN Nitrided (EP)





Material: WAS 1.2344 Hotwork Die Steel

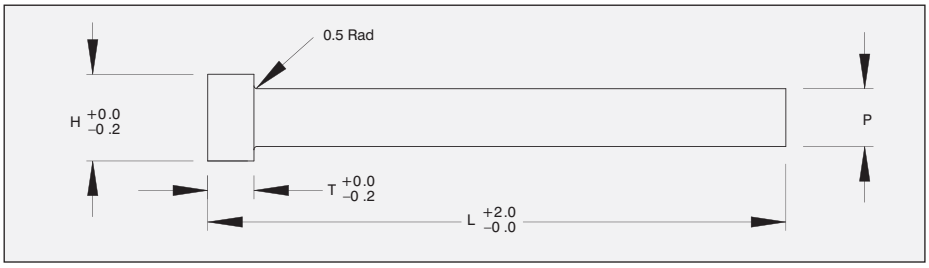
Standard: DIN 1530-A/ISO 6751

Hardness:
Surface: Nitrided to ≥ HV 950° and Bright polished
Core: Hardened throughout to ≥ 1400N/mm²

Code	$D_{1\ g6}$	$D_{2\ 0/-0.2}$	$K_{\ 0/-0.05}$	r	L + 2										
					100	125	160	200	250	315	400	500	630	800	1000
	1.5	3	1.5	0.2	◆	◆	◆	◆	◆						
	2.0	4	2	0.2	◆	◆	◆	◆							
	2.2	4	2	0.2	◆	◆	◆	◆	◆	◆					
	2.5	5	2	0.3	◆	◆	◆	◆							
	2.7	5	2	0.3	◆	◆	◆	◆							
	3.0	6	3	0.3	◆	◆	◆	◆	◆	◆	◆	◆			
	3.2	6	3	0.3	◆	◆	◆	◆	◆	◆	◆				
	3.5	7	3	0.3	◆	◆	◆	◆	◆	◆	◆				
	3.7	7	3	0.3	◆	◆	◆	◆	◆	◆	◆				
	4.0	8	3	0.3	◆	◆	◆	◆	◆	◆	◆	◆			
	4.2	8	3	0.3	◆	◆	◆	◆	◆	◆	◆				
	4.5	8	3	0.3	◆	◆	◆	◆	◆	◆	◆				
	5.0	10	3	0.3	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	5.2	10	3	0.3	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	5.5	10	3	0.3	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	6.0	12	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	6.2	12	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆			
Z95	6.5	12	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆			
	7.0	12	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆			
	7.5	12	5	0.5											
	8.0	14	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	8.2	14	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	8.5	14	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	9.0	14	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	10.0	16	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	10.2	16	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	10.5	16	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	11.0	16	5	0.5	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	12.0	18/20	7	0.8	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	12.2	18/20	7	0.8	◆	◆	◆	◆	◆	◆	◆				
	12.5	18/20	7	0.8	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	14.0	22	7	0.8	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	16.0	22	7	0.8	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	18.0	24	7	0.8				◆	◆	◆	◆	◆	◆		
	20.0	26	8	1.0					◆	◆	◆	◆	◆	◆	◆
	25.0	32	10	1.0					◆	◆	◆	◆	◆	◆	◆
	32.0	40	10	1.0					◆	◆	◆	◆	◆	◆	◆

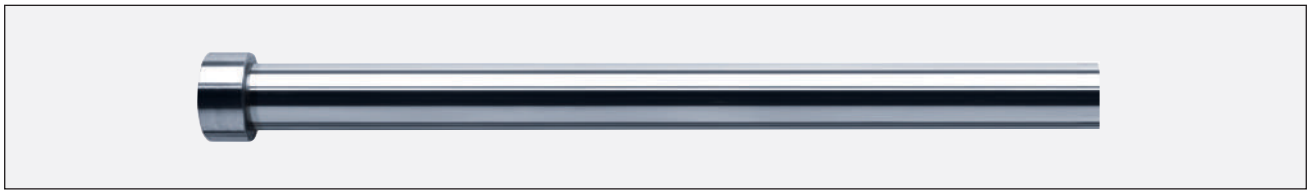
Order: Z95 - d1 - L

Nitrided Oversize Ejector Pins Metric JIS

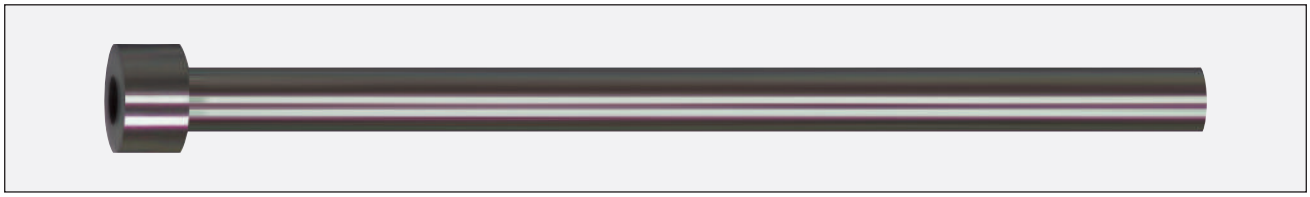


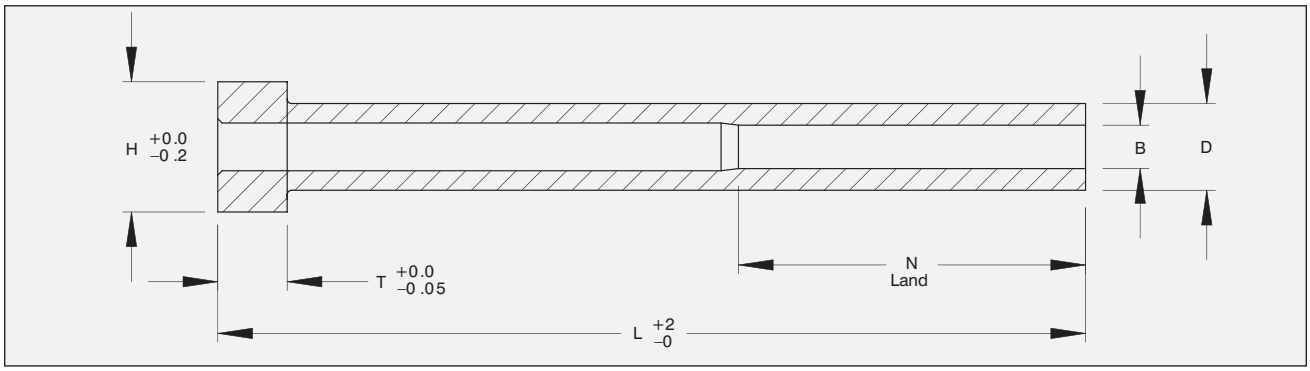
Material H13					
Core Hardness 40-4-45RC					
Surface Hardness 70-72C					
Part Number Prefix	P	H	T	L	
	PD	HD	HT	150	250
MP021	2.1	6	6	◆	
MP031	3.1	6	4		◆
MP041	4.1	8	6	◆	◆
MP051	5.1	9	6		◆
MP061	6.1	10	6		◆
MP081	8.1	13	8		◆
MP101	10.1	15	8		◆
MP121	12.1	17	8		◆

Core Pins Metric (Soft Ejector JIS)



Material H13					
Core Hardness 40-4-45RC					
Part Number Prefix	P	H	T	L	
	PD	HD	HT	150	250
MS03	3	6	4	◆	◆
MS04	4	8	6	◆	◆
MS05	5	9	6	◆	◆
MS06	6	10	6	◆	◆
MS07	7	11	6	◆	◆
MS08	8	13	8	◆	◆
MS10	10	15	8	◆	◆
MS12	12	17	8	◆	◆
MS14	14	19	8		◆
MS15	15	20	8	◆	◆
MS16	16	21	8		◆
MS18	18	23	8		◆
MS20	20	25	8		◆





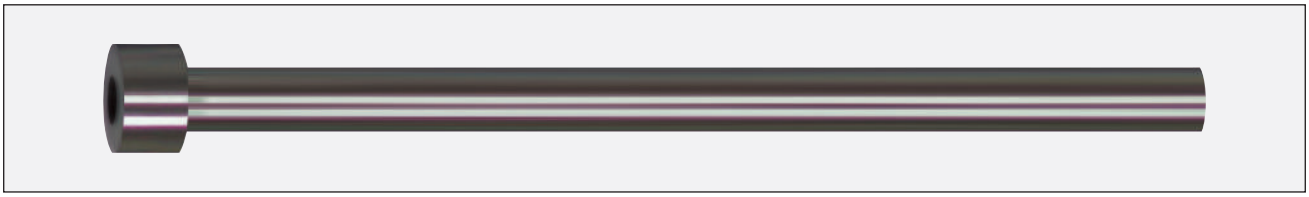
Material H13
Core Hardness 40RC
Surface Hardness 70RC

Part Number Prefix	B ID	D OD	H	T	L								
					100	125	150	175	200	225	250	275	300
					N=40		N=50		N=60		N=70		
	2.0	4	8	6	◆	◆	◆						
	2.0	5	9	6	◆	◆	◆	◆	◆				
	2.0	6	10	6	◆	◆	◆	◆	◆				
	2.5	5	9	6	◆	◆	◆	◆	◆	◆			
	2.5	6	10	6	◆	◆	◆	◆	◆	◆	◆		
	3.0	5	9	6	◆	◆	◆	◆	◆				
	3.0	6	10	6	◆	◆	◆	◆	◆				
	3.0	7	11	6	◆	◆	◆	◆	◆	◆	◆		
	3.5	6	10	6	◆	◆	◆	◆	◆	◆	◆		
	3.5	7	11	6	◆	◆	◆	◆	◆	◆	◆		
	4.0	6	10	6	◆	◆	◆	◆	◆				
MS	4.0	7	11	6	◆	◆	◆	◆	◆	◆	◆	◆	◆
	4.0	8	13	8	◆	◆	◆	◆	◆	◆	◆	◆	◆
	4.5	7	11	6	◆	◆	◆	◆	◆	◆	◆		
	4.5	8	13	8	◆	◆	◆	◆	◆	◆	◆		
	5.0	8	13	8	◆	◆	◆	◆	◆	◆	◆	◆	◆
	5.0	10	15	8	◆	◆	◆	◆	◆				
	5.5	8	13	8	◆	◆							
	6.0	10	15	8	◆	◆	◆	◆	◆	◆	◆	◆	◆
	6.5	10	15	8	◆	◆	◆	◆	◆	◆	◆		
	6.5	12	17	8	◆		◆		◆		◆		
	8.0	12	17	8	◆	◆	◆	◆	◆	◆	◆		◆
	10	15	20	8	◆	◆	◆		◆		◆		

Order: Part Number + B + D

Specials to Order

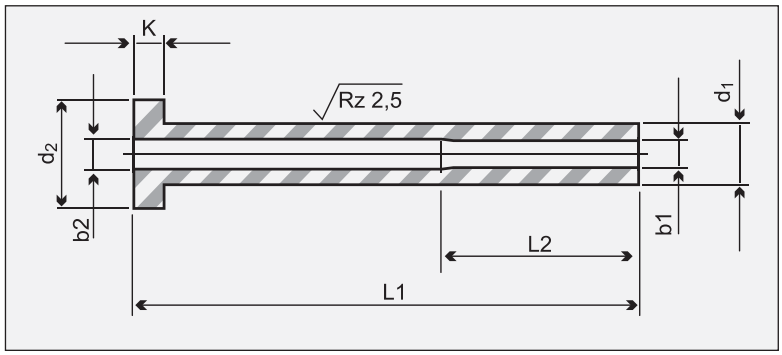
Tolerances			
ID 1.5-3mm	-0 +.010	OD 4-5mm	-.010 -.020
ID 3.5-5mm	+0 -.012	OD 6-8mm	-.015 -.025
ID 5.5-10mm	+0 -.015	OD 10-15mm	-.020 -.030



Material: WAS 1.2344 Hotwork Die Steel

Standard: DIN 16756/ISO 8405

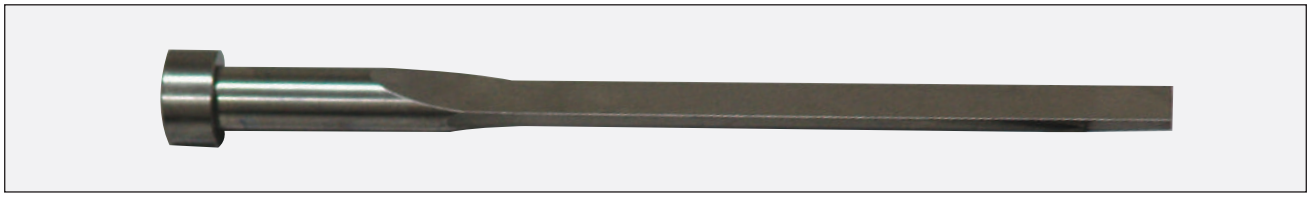
Hardness: I.D. & O.D. Nitrided to ≥ HV 950 HV

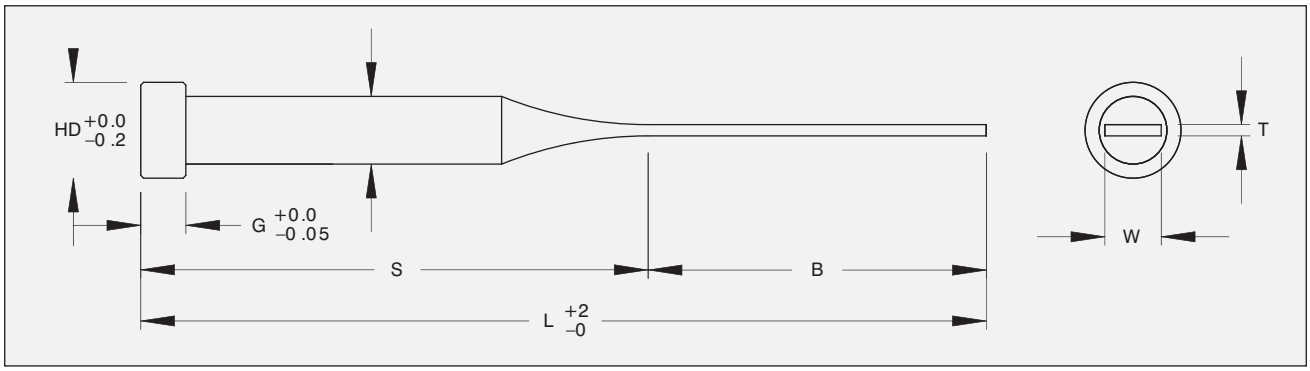


Part Number Prefix	d1 g6	b1 H5	d2 0/-0.2	K 0/-0.05	b2	L2	r	L1+2 60	75	100	125	150	175	200	225	250	275	300
	3	1.5	6	3	1.8	25	0.3											
	3	1.6	6	3	2.0	25	0.3											
	4	2.0	8	3	2.4	35	0.3											
	4	2.2	8	3	2.5	35	0.3											
	5	2.5	10	3	3.0	35	0.3											
	5	2.7	10	3	3.0	45	0.3											
	5	3.0	10	3	3.5	45	0.3											
	5	3.2	10	3	3.5	45	0.3											
	6	3.5	12	5	4	45	0.5											
	6	3.7	12	5	4	45	0.5											
Z103	6	4.0	12	5	4.5	45	0.5											
	8	4.2	14	5	5.0	45	0.5											
	8	5.0	14	5	5.5	45	0.5											
	8	5.2	14	5	5.5	45	0.5											
	10	6.0	16	5	6.5	45	0.5											
	10	6.2	16	5	6.5	45	0.5											
	12	8.0	20	7	8.5	45	0.8											
	12	8.2	20	7	8.5	45	0.8											
	14	10.0	22	7	10.5	50	0.8											
	16	12.0	22	7	12.5	50	0.8											

Order: Part Number + d1 + b1 + L

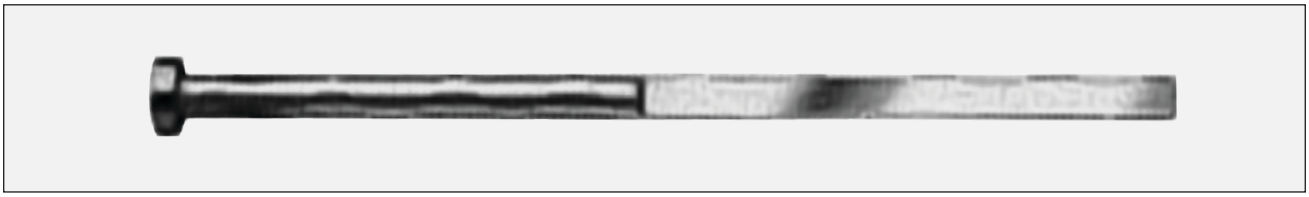
Ejector Blades Metric JIS

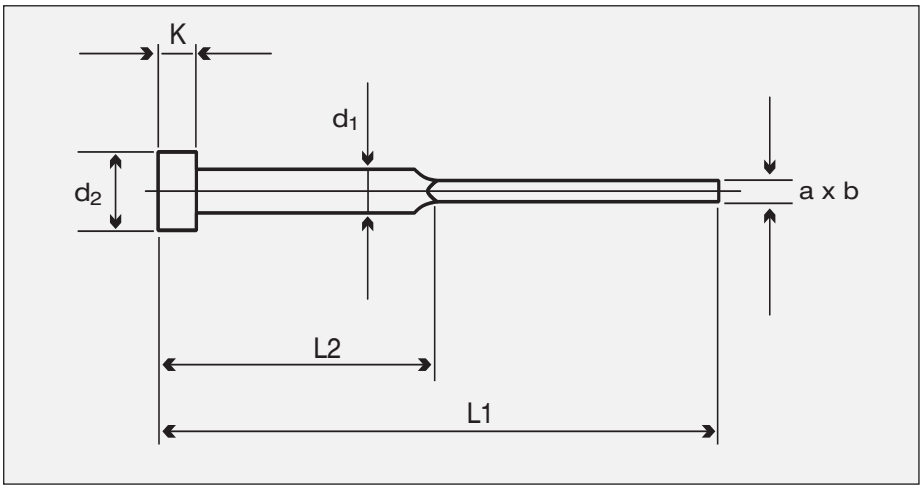


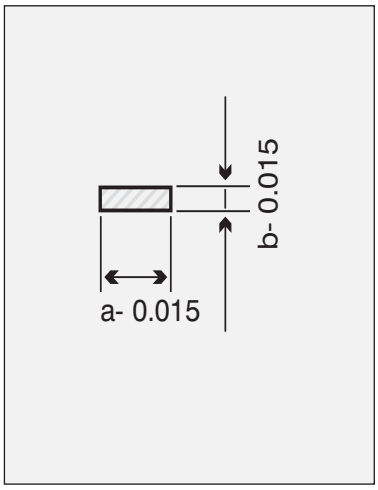


Material SK HSI Nitrided									
Part no.	T	W	D	L		S	B	G	H
MEB	1	4	5	100		40	60	6	9
MEB	1	4	5	125		50	75	6	9
MEB	1	4	5	150		60	90	6	9
MEB	1	4	5	175		70	105	6	9
MEB	1.2	5	6	125		50	75	6	10
MEB	1.2	5	6	200		80	120	6	10
MEB	1.2	6	7	125		50	75	6	11
MEB	1.2	6	7	150		60	90	6	11
MEB	1.2	8	10	125		50	75	8	15
MEB	1.2	8	10	150		60	90	8	15
MEB	1.5	5	6	125		50	75	6	10
MEB	1.5	5	6	150		60	90	6	10
MEB	1.5	5	6	200		80	170	6	10
MEB	1.5	6	7	125		50	75	6	11
MEB	1.5	6	7	175		70	105	6	11
MEB	1.5	8	10	125		50	75	8	15
MEB	1.5	8	10	150		60	90	8	15
MEB	1.5	8	10	175		70	105	8	15
MEB	1.5	8	10	200		80	120	8	15
MEB	2	6	7	150		60	90	6	11
MEB	2	8	10	150		60	90	8	15
MEB	2	10	12	150		60	90	8	17
MEB	2	10	12	200		80	120	8	17
MEB	2	8	10	125		50	75	8	15

Order: Part Number + W + T + L







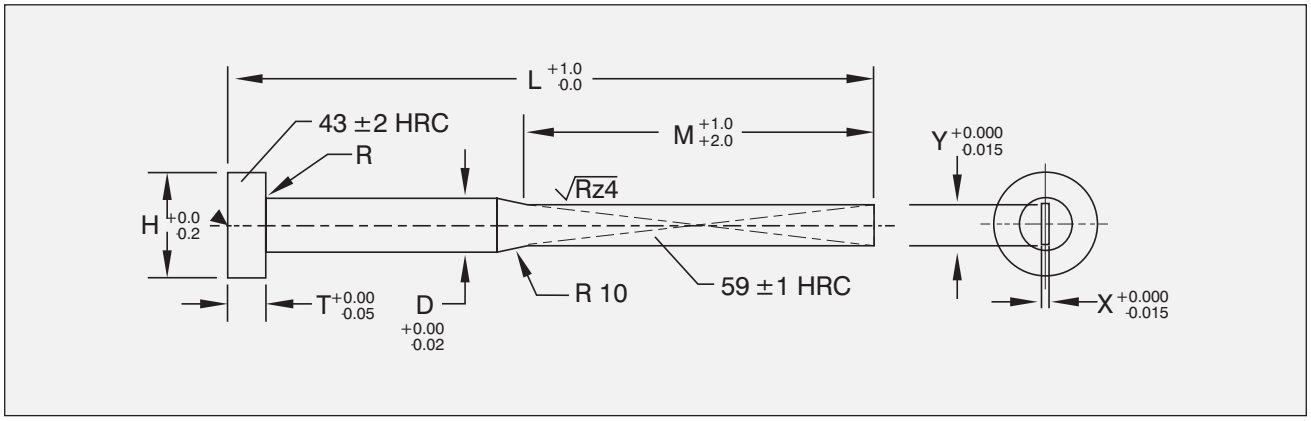
Material: WAS 1.2344 Hotwork Die Steel

Standard: DIN 1530-F/ISO 8693

Hardness:
Surface: Nitrided to ≥ HV 950°
Core: Hardened throughout to ≥ 1400N/mm²

Part Number Prefix	a 0/-0.05	b 0/-0.05	d1 0/-0.1	d2 0/-0.2	k 0/-0.05	r	L1+2 60/30	80/40	100/50	125/60	160/80	200/100	250/125	315/160	400/200
	3.8	0.8 1.0 1.2	4.2	8	3	0.3									
	4.5	1.0 1.2 1.5	5	10	3	0.3									
Z88	5.5	1.0 1.2 1.5 2.0	6	12	5	0.5									
	7.5	1.2 1.5 2.0	8	14	5	0.5									
	9.5	1.5 2.0	10	16	5	0.5									
	11.5	2 2.5	12	20	7	0.8									
	15.5	2 2.5	16	22	7	0.8									

Custom Ejector Blade



Note: Photocopy form, fill out and then fax to Hales

D	L	M	H	T	R	Y	X

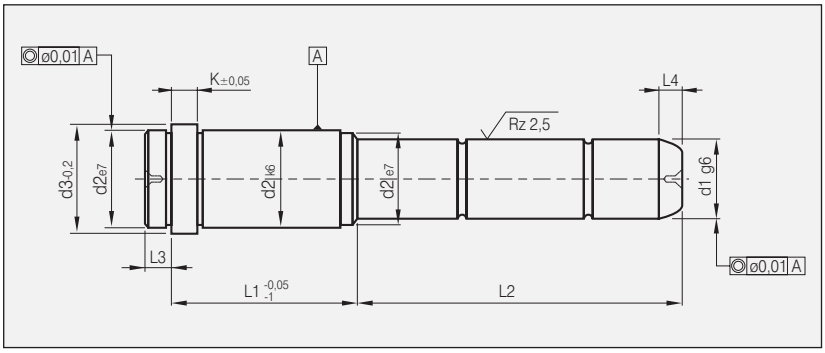
Contact: .....

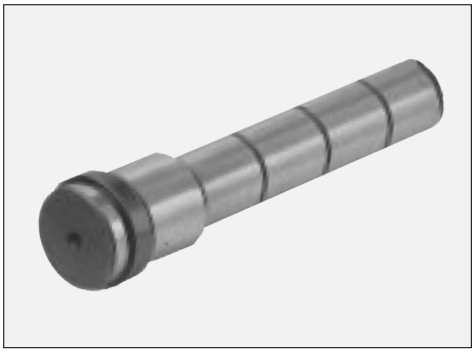
Reference No.: .....

Company Name: .....

Account No.: .....

Phone: ..... Fax:.....





Mat. -Nr. 1.7131/60±2HRC

d1	L1	L2	d2	d3	K	L3	L4	
9/10	12	25	14	16	3	3	4	
		45						
		65						
	17	20						
		30						
		50						
		70						
	22	25						
		35						
		55						
		75						
		95						
	27	20						
		30						
		50						
		70						
		90						
	36	25						
		45						
		65						
		85						
	46	30						
		45						
		70						
	56	35						
		60						
	66	45						
14/15	17	35	20	25	6	9	7	
		55						
		75						
		95						
	22	30						
		50						
		70						
		90						
		110						
		125						
		150						

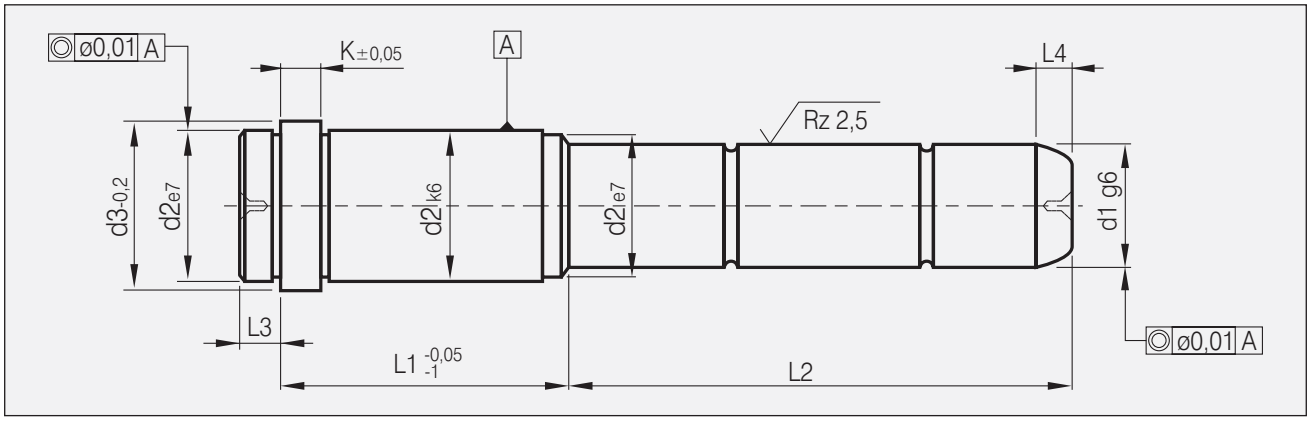
d1	L1	L2	d2	d3	K	L3	L4	
14/15	27	30	20	25	6	9	7	
		45						
		65						
		85						
		105						
		125						
		145						
		165						
	36	35						
		55						
		75						
		95						
		125						
		155						
	46	35						
		45						
		65						
		85						
		105						
		125						
		145						
	56	35						
		55						
		75						
		95						
		135						
	66	55						
		65						
		95						
		125						
	76	55						
		95						
	86	55						
		95						
	96	55						
		95						
	116	75						

Order: STW20 - d1 - L1 - L2

d1	L1	L2	d2	d3	K	L3	L4	
18/20	17	35	26	31	6	9	7	
		55						
		75						
		120						
	22	35						
		45						
		65						
		85						
		115						
	27	35						
		45						
		65						
		85						
		105						
		125						
		165						
		225						
		245						
	36	35						
		55						
		75						
		95						
		115						
		135						
		165						
		225						
		225						
	46	35						
		45						
		65						
		85						
		105						
		135						
		165						
		245						
	56	35						
		55						
		75						
		95						
		155						
	66	35						
		55						
		75						
		95						
		145						
	76	55						
		75						
		95						
		135						
	86	55						
		75						
		95						
		125						
	96	55						
		95						
	116	75						
		115						
	136	135						

d1	L1	L2	d2	d3	K	L3	L4	
22/24	17	35	30	35	6	9	7	
		55						
		75						
	22	35						
		55						
		75						
		105						
		130						
	27	35						
		45						
		65						
		85						
		105						
		125						
		165						
		205						
		245						
		285						
	36	35						
		55						
		75						
		95						
		115						
		135						
		165						
		205						
		245						
		285						
	46	35						
		45						
		65						
		85						
		105						
		125						
		165						
		205						
	56	35						
		55						
		75						
		95						
		115						
		165						
		205						
	66	35						
		55						
		75						
		95						
		155						
	76	55						
		75						
		95						
		115						
		145						
	86	55						
		75						
		95						
		135						
	96	55						
		75						

Order: STW20 - d1 - L1 - L2



Mat. -Nr. 1.7131/60±2HRC

d1	L1	L2	d2	d3	K	L3	L4	
22/24	96	95	30	35	6	9	7	
		125						
	116	75						
		115						
		155						
	136	95						
		135						
	156	155						
30/32	27	45	42	47	6	9	7	
		65						
		105						
		165						
		185						
		245						
		285						
	36	55						
		75						
		95						
		115						
		155						
		245						
		285						
	46	45						
		65						
		85						
		105						
		125						
		165						
		245						
		285						
	56	55						
		75						
		95						
		115						
		135						
		175						
		245						
		295						

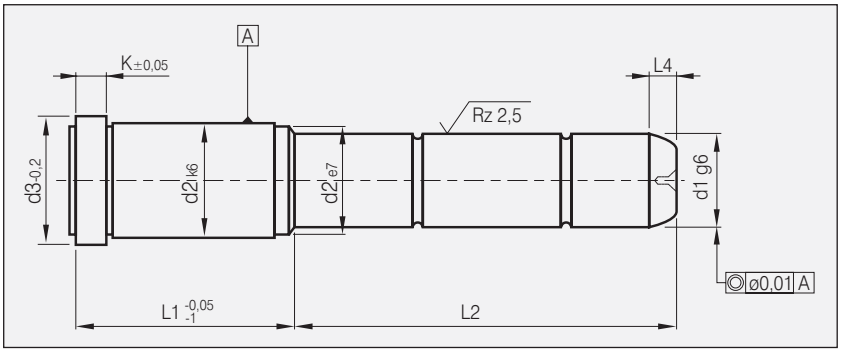
d1	L1	L2	d2	d3	K	L3	L4	
30/32	66	55	42	47	6	9	7	
		75						
		95						
		115						
		135						
		175						
		245						
		295						
	76	55						
		75						
		95						
		115						
		155						
		225						
	86	55						
		75						
		95						
		115						
		155						
		225						
	96	55						
		75						
		95						
		115						
		155						
		205						
	116	75						
		115						
		155						
	136	95						
		115						
		155						
	156	115						
		155						
	196	155						
		195						
40/42	46	95	54	60	10	12	7	
		165						

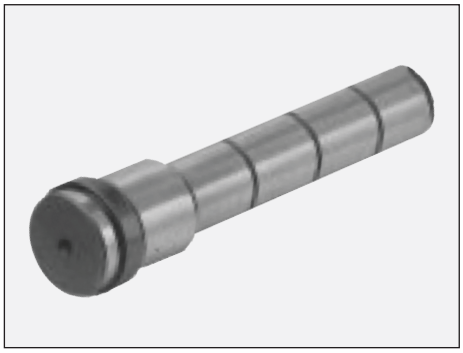
Order: STW20 - d1 - L1 - L2

d1	L1	L2	d2	d3	K	L3	L4	
40/42	56	75	54	60	10	12	7	
		115						
		155						
		195						
	66	75						
		135						
	76	75						
		115						
		175						
	86	75						
		135						
	96	75						
		115						
		155						

d1	L1	L2	d2	d3	K	L3	L4	
40/42	116	95	54	60	10	12	7	
		135						
		195						
	136	95						
		135						
		215						
	156	115						
		155						
		215						
	196	155						
		195						
		235						
	246	165						
		245						

Order: STW20 - d1 - L1 - L2





Mat.-Nr. 1.7131/60±2HRC

d1	L1	L2	d2	d3	K	L4	
9/10	17	20	14	16	3	4	
		30					
	22	25					
		35					
		55					
	27	30					
		50					
	36	25					
		45					
	46	30					
		45					
14/15	22	20	20	25	6	7	
		35					
		40					
		45					
		50					
		55					
		65					
		70					
		90					
		110					
	27	20					
		35					
		40					
		45					
		55					
		65					
		85					
		105					
	36	20					
		35					
		40					
		45					
		55					
		65					
		75					
		95					
	46	20					

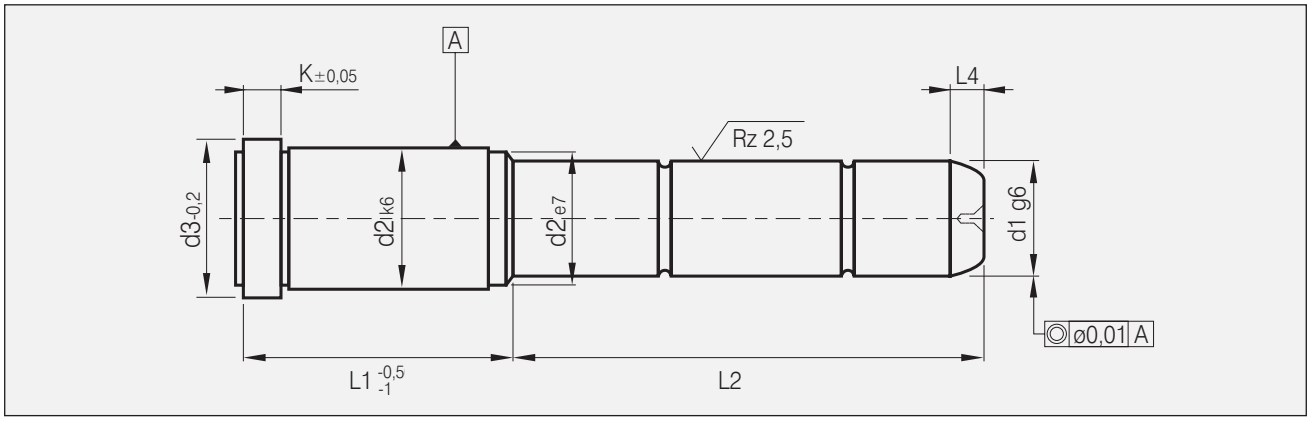
d1	L1	L2	d2	d3	K	L4	
14/15	46	35	20	25	6	7	
		45					
		65					
		85					
		105					
	56	20					
		35					
		55					
		75					
		95					
	66	55					
		65					
		95					
	76	55					
		95					
	86	55					
		95					
18/20	22	20	26	31	6	7	
		35					
		40					
		45					
		50					
		55					
		60					
		65					
		70					
		80					
		85					
		115					
	27	20					
		35					
		40					
		45					
		50					
		55					
		60					
		65					
		70					

Order: STW21 - d1 - L1 - L2

d1	L1	L2	d2	d3	K	L4	
18/20	27	80	26	31	6	7	
		85					
		105					
		125					
	36	20					
		35					
		40					
		45					
		50					
		55					
		60					
		65					
		70					
		75					
		80					
		95					
		115					
		135					
	46	20					
		45					
		65					
		85					
		105					
		135					
		165					
	56	20					
		35					
		55					
		75					
		95					
	66	55					
		75					
		95					
	76	55					
		75					
		95					
	86	55					
		75					
		95					
	96	55					
		95					
	116	115					
22/24	27	25	30	35	6	7	
		45					
		50					
		60					
		65					
		70					
		80					
		85					
		105					
		125					
		165					
	36	25					
		45					
		50					
		55					
		60					
		70					

d1	L1	L2	d2	d3	K	L4	
22/24	36	75	30	35	6	7	
		80					
		95					
		115					
		135					
		165					
	46	25					
		45					
		50					
		60					
		65					
		70					
		80					
		85					
		105					
		125					
		165					
	56	25					
		45					
		55					
		75					
		95					
		115					
		165					
	66	55					
		75					
		95					
	76	25					
		45					
		55					
		75					
		95					
		115					
	86	55					
		75					
		95					
	96	55					
		75					
		95					
	116	75					
		115					
		155					
	136	135					
30/32	27	45	42	47	6	7	
		65					
		105					
		165					
	36	55					
		75					
		95					
		115					
		155					
	46	45					
		65					
		85					
		105					
		125					
		165					
	56	55					

Order: STW21 - d1 - L1 - L2

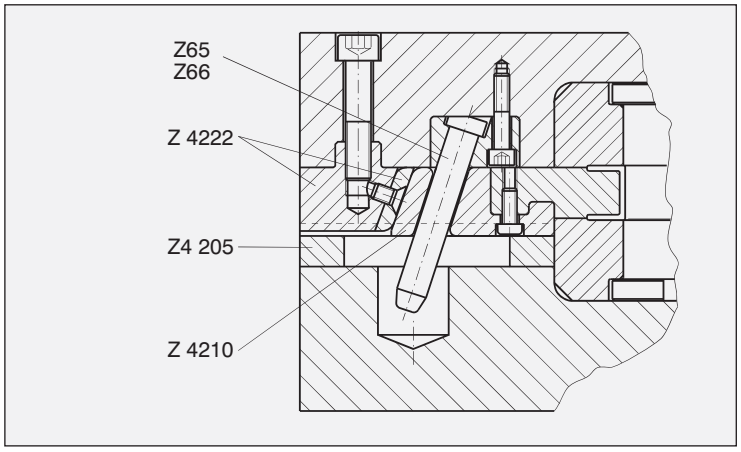


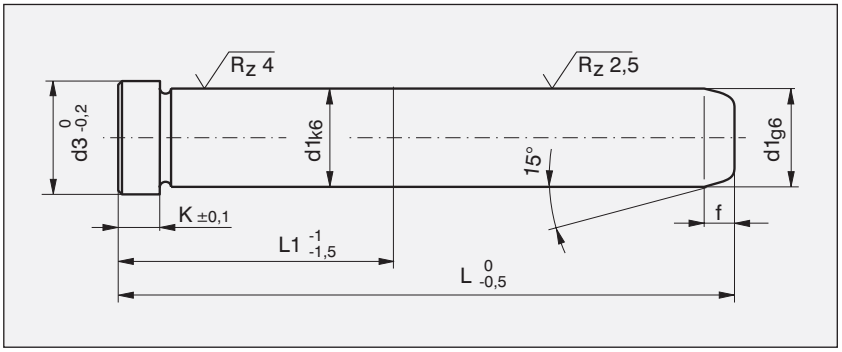
Mat. -Nr. 1.7131/60±2HRC

d1	L1	L2	d2	d3	K	L4	
30/32	56	75	42	47	6	7	
		95					
		115					
		135					
		155					
		175					
	66	55					
		75					
		95					
		115					
		135					
		175					
	76	55					
		75					
		95					
		115					
		155					
	86	55					
		75					
		95					
		115					
		155					
	96	55					
		75					
		95					
		115					
		155					
	116	75					
		115					
		155					
	136	95					
		115					
		155					
	156	115					
		155					
	196	155					
		195					

d1	L1	L2	d2	d3	K	L4	
40/42	56	75	54	60	10	7	
		115					
		155					
		195					
	66	75					
		135					
	76	75					
		115					
		175					
	86	75					
		135					
	96	75					
		115					
		155					
	116	95					
		135					
		195					
	136	95					
		135					
		215					
	156	115					
		155					
		215					
	196	155					
		195					
		235					
50	96	115	66	72	10	10	
	116	135					
	136	135					
	156	155					
	196	175					
60	96	115	80	86	20	10	
	116	135					
	136	135					
	156	155					
	196	175					
	246	195					

Order: STW21 - d1 - L1 - L2



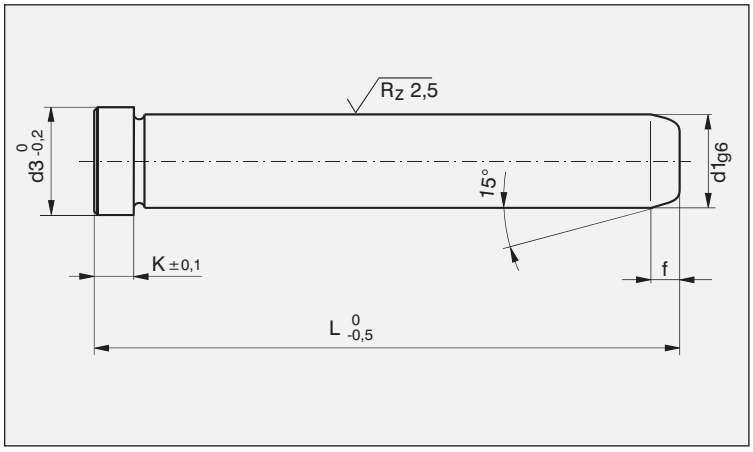


Mat. -Nr. 1.7160/58±2HRC

d1	L	L1	d3	K	f	
8	40	16	1	3	2,5	
	50	16				
	63	16				
	80	20				
	100	25				
10	50	16	14	4	3,5	
	63	16				
	80	20				
	100	25				
12	50	20	16	6	3,5	
	63	20				
	80	25				
	100	25				
	125	32				
16	63	25	20	8	4,0	
	80	25				
	100	25				
	125	32				
	160	32				
	200	40				
20	63	25	25	10	5,0	
	80	25				
	100	25				
	125	32				
	160	32				
	200	40				
	250	50				

d1	L	L1	d3	K	f	
25	80	25	32	12,5	5,0	
	100	25				
	125	32				
	160	32				
	200	40				
	250	50				
32	100	40	40	12,5	5,0	
	125	40				
	160	50				
	200	50				
	250	50				
40	160	50	48	16	8,0	
	200	50				
	250	63				
	315	63				
	400	80				
50	160	63	58	16	10,0	
	200	63				
	250	80				
	315	80				
	400	100				
63	200	63	70	16	12,5	
	250	80				
	315	80				
	400	100				

Order: STZ66 - d1 - L

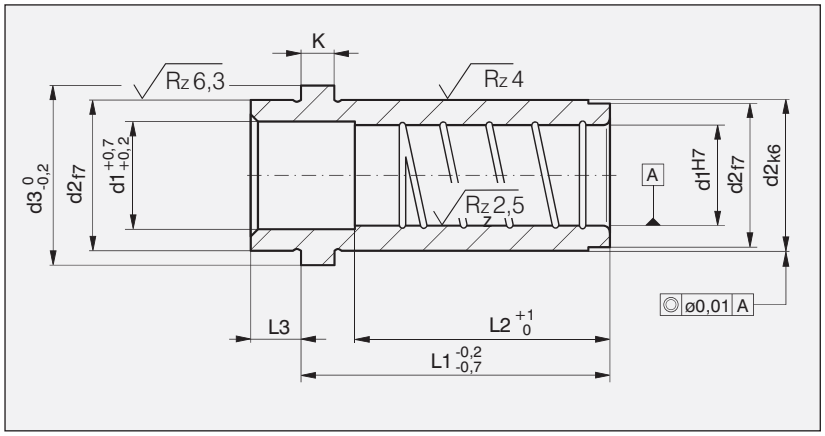


Mat. -Nr. 1.7160/58±2HRC

d1	L	d3	K	f	
10	60	12	6	3,5	
	80				
	90				
12	60	16	6	3,5	
	80				
	90				
	100				
	120				
	140				
14	60	18	8	4,0	
	80				
	100				
	120				
	140				
	160				
	180				
16	60	20	8	4,0	
	80				
	100				
	120				
	140				
	160				
	180				
18	60	22	8	4,0	
	80				
	100				
	120				
	140				
	160				
	180				

d1	L	d3	K	f	
20	80	24	8	5,0	
	100				
	120				
	140				
	160				
	180				
	200				
	220				
24	100	28	15	5,0	
	120				
	140				
	160				
	180				
	200				
	220				
	240				
	280				
28	100	32	15	5,0	
	120				
	140				
	160				
	180				
	200				
	220				
	240				
	280				
32	160	36	15	6,0	
	200				
	250				
	300				

Order: STZ65 - d1 - L

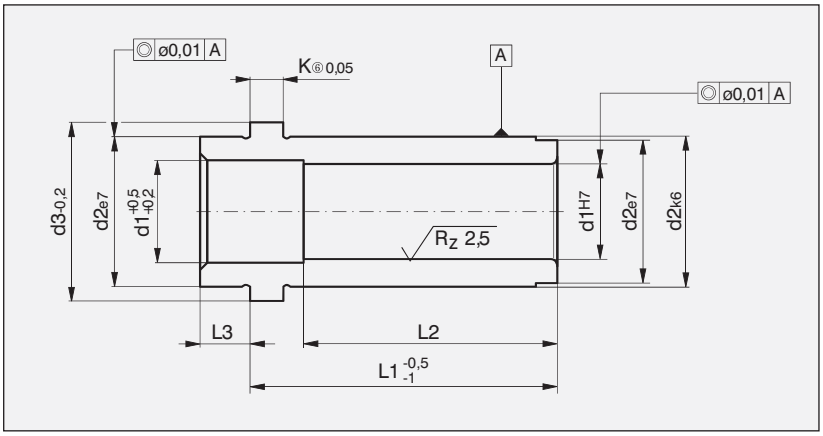


Mat.-Nr. 1.2162/60±2HRC
Mat. 17% Cr on Request

d1	L1	L2	d2	d3	K	L3	
9*/10*	16	L1	14	17	4	5	
	21						
	26						
	36						
	46						
	56	50					
11/12	16	L1	18	22	4	5	
	21						
	26						
	36						
	46						
	56	51					
	66						
15/16	16	L1	24	28	6	6	
	21						
	26						
	36						
	46						
	56						
	66						
	76						
	86						
	96	96					
19/20	16	L1	28	32	6	8	
	21						
	26						
	36						
	46						
	56						
	66						
	76						
	86						
	96	96					
25/26	21	L1	34	38	8	8	
	26						
	36						

d1	L1	L2	d2	d3	K	L3	
25/26	46	L1	34	38	8	8	
	56						
	66						
	76						
	86						
	96						
	116	106					
30/32	36	L1	42	46	8	8	
	46						
	56						
	66						
	76						
	86						
	96						
	116						
	136	120					
	156	150					
	176	150					
38/40	46	L1	50	54	8	10	
	56						
	66						
	76						
	96						
	116						
	136	130					
	156	150					
	176	150					
48/50	56	L1	63	70	10	10	
	66						
	76						
	96						
	116						
	136						
	156	150					
	176	150					

*Without lubrication grooves
Order: STZ75 - d1 - L1



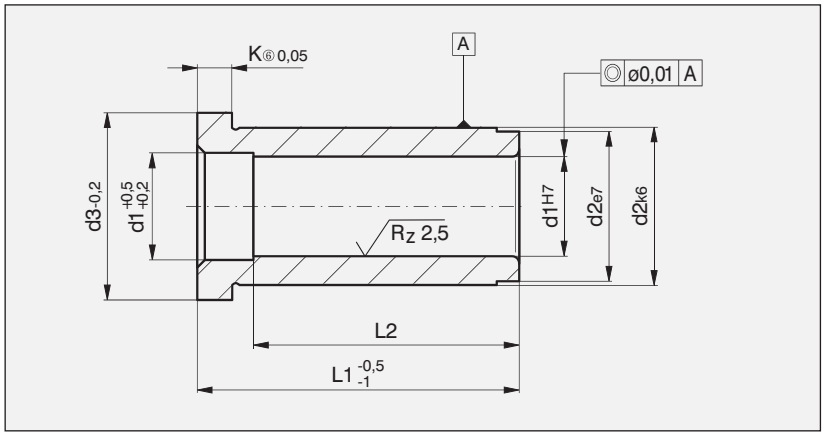
Mat.-Nr. 1.0401/60±2HRC

d1	L1	L2	d2	d3	K	L3	
9/10	12	15	14	16	3	3	
	17	20					
	22	25					
	27	30					
	36	39					
	46	46					
	56						
	66						
14/15	17	26	20	25	6	9	
	22	31					
	27	36					
	36	45					
	46	55					
	56	56					
	66						
	76						
	86						
	96						
	116						
18/20	17	26	26	31	6	9	
	22	31					
	27	36					
	36	45					
	46	55					
	56	65					
	66	75					
	76	76					
	86						
	96						
	116						
	136						
22/24	17	26	30	35	6	9	
	22	31					
	27	36					

d1	L1	L2	d2	d3	K	L3	
22/24	36	45	30	35	6	9	
	46	55					
	56	65					
	66	75					
	76	85					
	86	95					
	96	105					
	116	96					
	136						
	156						
30/32	27	36	42	47	6	9	
	36	45					
	46	55					
	56	65					
	66	75					
	76	85					
	86	95					
	96	105					
	116	125					
	136	116					
	156						
	196						
40/42	46	58	54	60	10	12	
	56	68					
	66	78					
	76	88					
	86	98					
	96	108					
	116	128					
	136	136					
	156						
	196						
	246						

Order: STW31 - d1 - L1

Guide Bushes - STW32

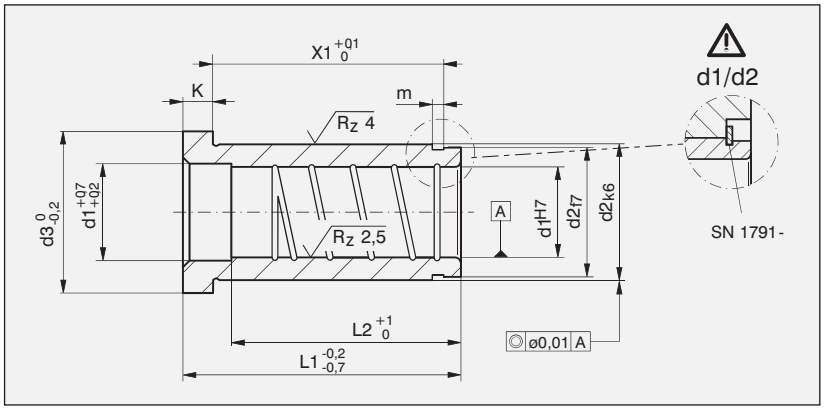


Mat.-Nr. 1.0401/60±2HRC

d1	L1	L2	d2	d3	K	
9/10	9	9	14	16	3	
	12	12				
	17	17				
	22	22				
	27	27				
	36	36				
	46	46				
	56					
	66					
12	17	17	18	23	6	
	22	22				
	27	27				
	36	36				
	46	46				
	56	56				
14/15	12	12	20	25	6	
	17	17				
	22	22				
	27	27				
	36	36				
	46	46				
	56	56				
	66					
	76					
	86					
	96					
16	17	17	22	27	6	
	22	22				
	27	27				
	36	36				
	46	46				
	56	56				
18/20	17	17	26	31	6	
	22	22				
	27	27				
	36	36				
	46	46				
	56	56				
	66	66				

d1	L1	L2	d2	d3	K	
18/20	76	76	26	31	6	
	86					
	96					
	116					
22/24	17	17	30	35	6	
	22	22				
	27	27				
	36	36				
	46	46				
	56	56				
	66	66				
	76	76				
	86	86				
	96	96				
	116					
	136					
30/32	27	27	42	47	6	
	36	36				
	46	46				
	56	56				
	66	66				
	76	76				
	86	86				
	96	96				
	116	116				
	136					
	156					
40/42	46	46	54	60	10	
	56	56				
	66	66				
	76	76				
	86	86				
	96	96				
	116	116				
	136	136				
	156					
	196					
	246					

Order: STW32 - d1 - L1

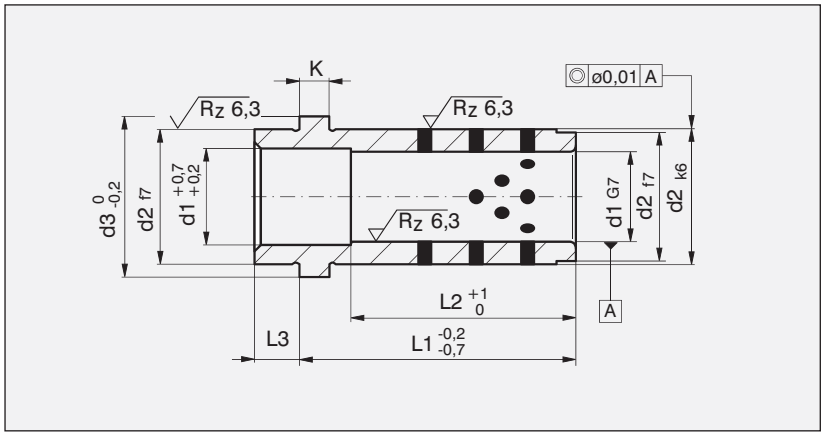


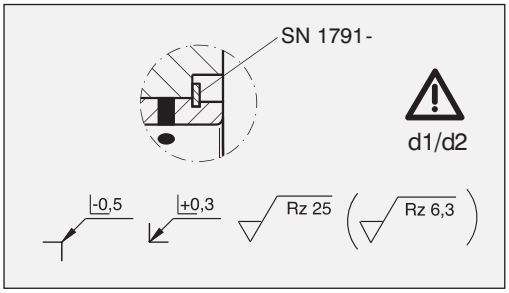
Mat.-Nr. 1.2162/60±2HRC
Mat. 17% Cr on Request

d1	L1	L2	d2	d3	K	X1	m
9*/10*	16	L1	14	17	4	9,2	1,1
	21					14,2	
	26					19,2	
	36					29,2	
	46					39,2	
	56	50				49,2	
11/12	16	L1	18	22	4	8,6	1,3
	21					13,6	
	26					18,6	
	36					28,6	
	46					38,6	
	56	51				48,6	
	66					58,6	
15/16	16	L1	24	28	6	6,4	1,3
	21					11,4	
	26					16,4	
	36					26,4	
	46					36,4	
	56					46,4	
	66					56,4	
	76					66,4	
	86					76,4	
	96					86,4	
19/20	16	L1	28	32	6	6,0	1,6
	21					11,0	
	26					16,0	
	36					26,0	
	46					36,0	
	56					46,0	
	66					56,0	
	76					66,0	
	86					76,0	
	96					86,0	
25/26	21	L1	34	38	8	8,5	1,6
	26					13,5	
	36					23,5	
	46					33,5	
	56					43,5	
	66					53,5	

d1	L1	L2	d2	d3	K	X1	m
25/26	76	L1	34	38	8	63,5	1,6
	86					73,5	
	96					83,5	
	116	106				103,5	
30/32	36	L1	42	46	8	22,3	1,85
	46					32,3	
	56					42,3	
	66					52,3	
	76					62,3	
	86					72,3	
	96					82,3	
	116					102,3	
	136	120				122,3	
	156	150				142,3	
	176	150				162,3	
38/40	46	L1	50	54	8	31,6	2,15
	56					41,6	
	66					51,6	
	76					61,6	
	96					81,6	
	116					101,6	
	136	130				121,6	
	156	150				141,6	
	176	150				161,6	
48/50	56	L1	63	70	10	39,6	2,15
	66					49,6	
	76					59,6	
	86					69,6	
	96					79,6	
	116					99,6	
	136					119,6	
	156	150				139,6	
	176	150				159,6	
63	96	L1	80	88	12,5	76,3	2,65
	116					96,3	
	136					116,3	
	156	150				136,3	
	176	150				156,3	
	196	150				176,3	

Order: STZ76 - d1 - L1

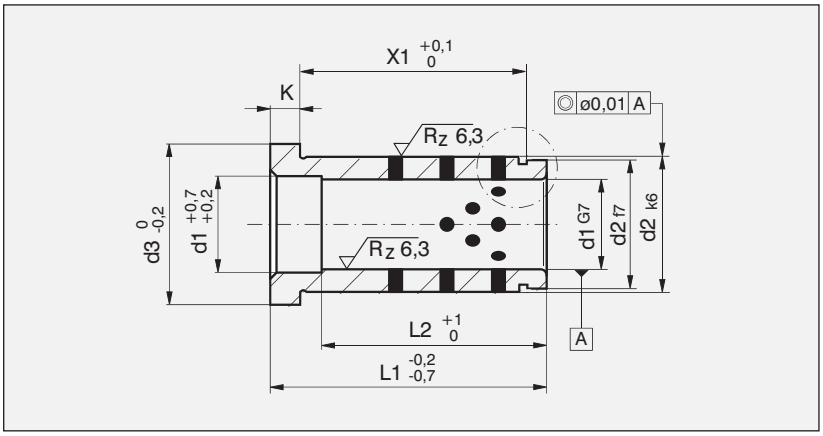


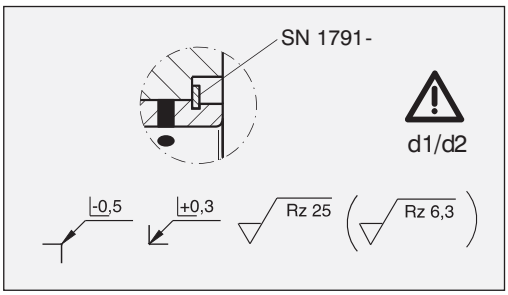


Mat.: Bronze
190-220 HB S10/3000

d1	L1	d2	d3	K	L2	L3	X1	
11/12	16	18	22	4	>3 x d1	5	9,6	
	21						14,6	
	27						20,6	
	36						29,6	
15/16	21	24	28	6	>3 x d1	6	12,4	
	26						17,4	
	36						27,4	
	46						37,4	
	56						47,4	
19/20	21	28	32	6	>3 x d1	8	12,0	
	26						17,0	
	36						27,0	
	46						37,0	
	56						47,0	
	66						57,0	
25/26	21	34	38	8	>3 x d1	8	9,5	
	26						14,5	
	36						24,5	
	46						34,5	
	56						44,5	
	66						54,5	
	76						64,5	
	96						84,5	

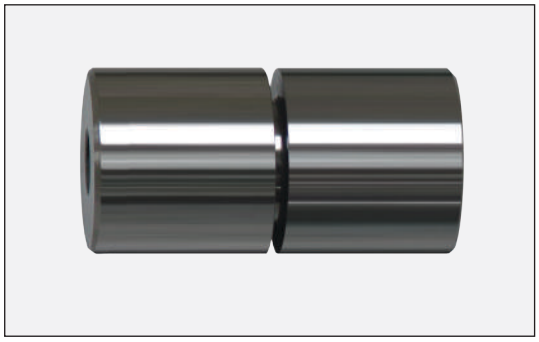
Order: STZ4077 - d1 - L1

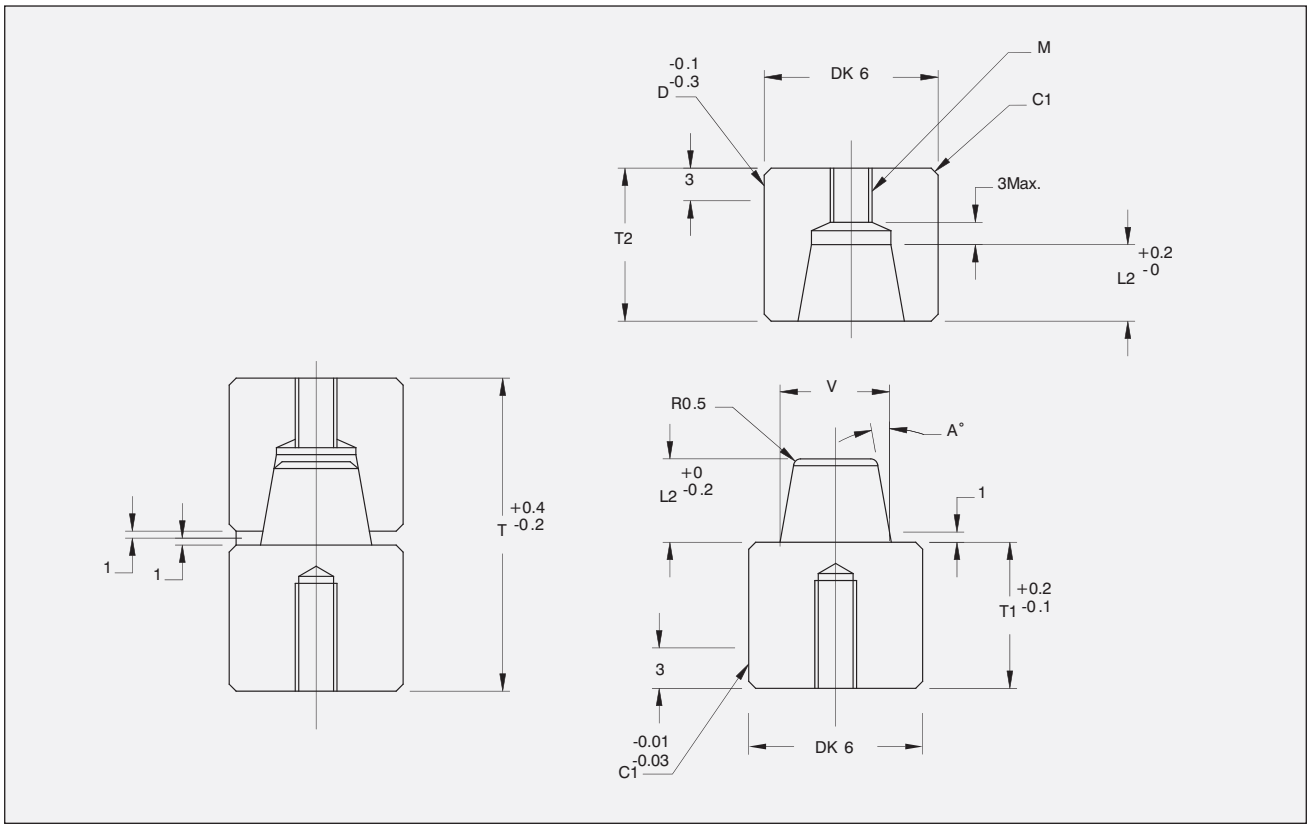




Mat.: Bronze
190-220 HB S10/3000

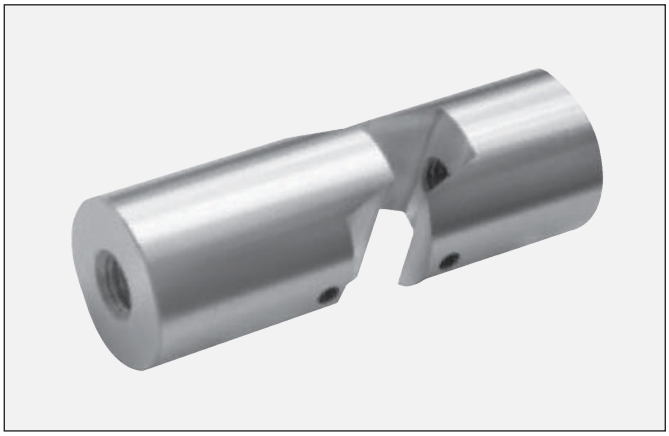
d1	L1	d2	d3	K	L2	L3	X1	
11/12	16	18	22	4	>3 x d1	5	9,6	
	21						14,6	
	27						20,6	
	36						29,6	
15/16	21	24	28	6	>3 x d1	6	12,4	
	26						17,4	
	36						27,4	
	46						37,4	
	56						47,4	
19/20	21	28	32	6	>3 x d1	8	12,0	
	26						17,0	
	36						27,0	
	46						37,0	
	56						47,0	
	66						57,0	
25/26	21	34	38	8	>3 x d1	8	9,5	
	26						14,5	
	36						24,5	
	46						34,5	
	56						44,5	
	66						54,5	
	76						64,5	
	96						84,5	

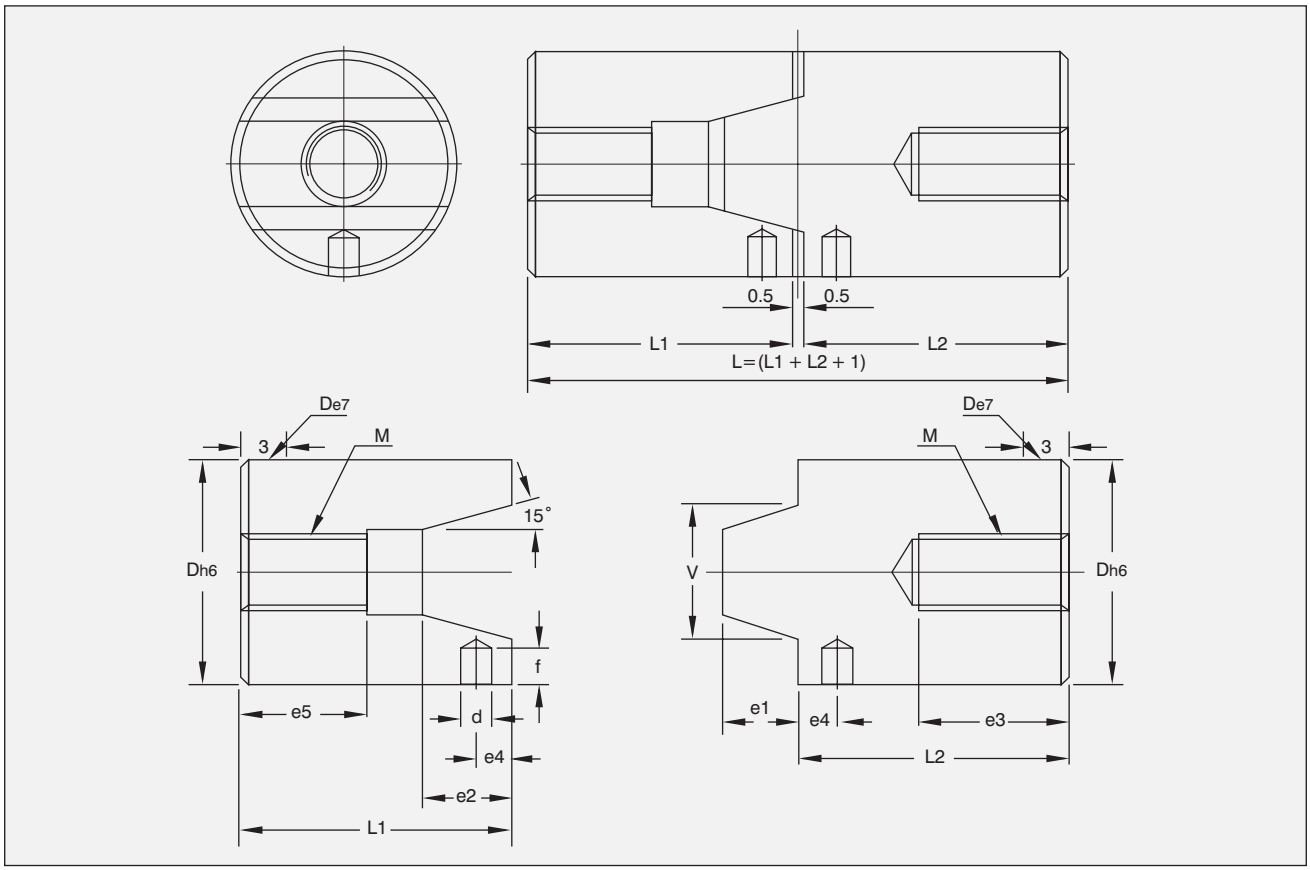




Material SUJ2									
HRC 55-60									
Code	D k6		T	T1.T2	MXL	A	V	L1	L2
TLP-16	16	+0.012 +0.001	30	14	M5X10		10	5	6
TLP-20	20	+0.015 +0.002	40	19	M6X12		13	8	9
TLP-25	25	+0.015 +0.002	50	24	M8X16	5 o	16	11	12
TLP-30	30	+0.015 +0.002	60	29	M10X20		20	14	15
TLP-32	32	+0.018 +0.002	60	29	M10X20		20	14	15

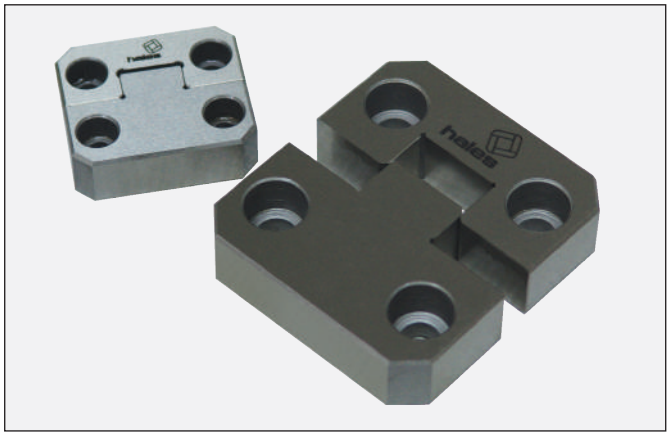
Hales Tapered Interlocks offer an easy solution to ensuring the alignment of die plates. Tapered interlocks are made and sold in pairs.

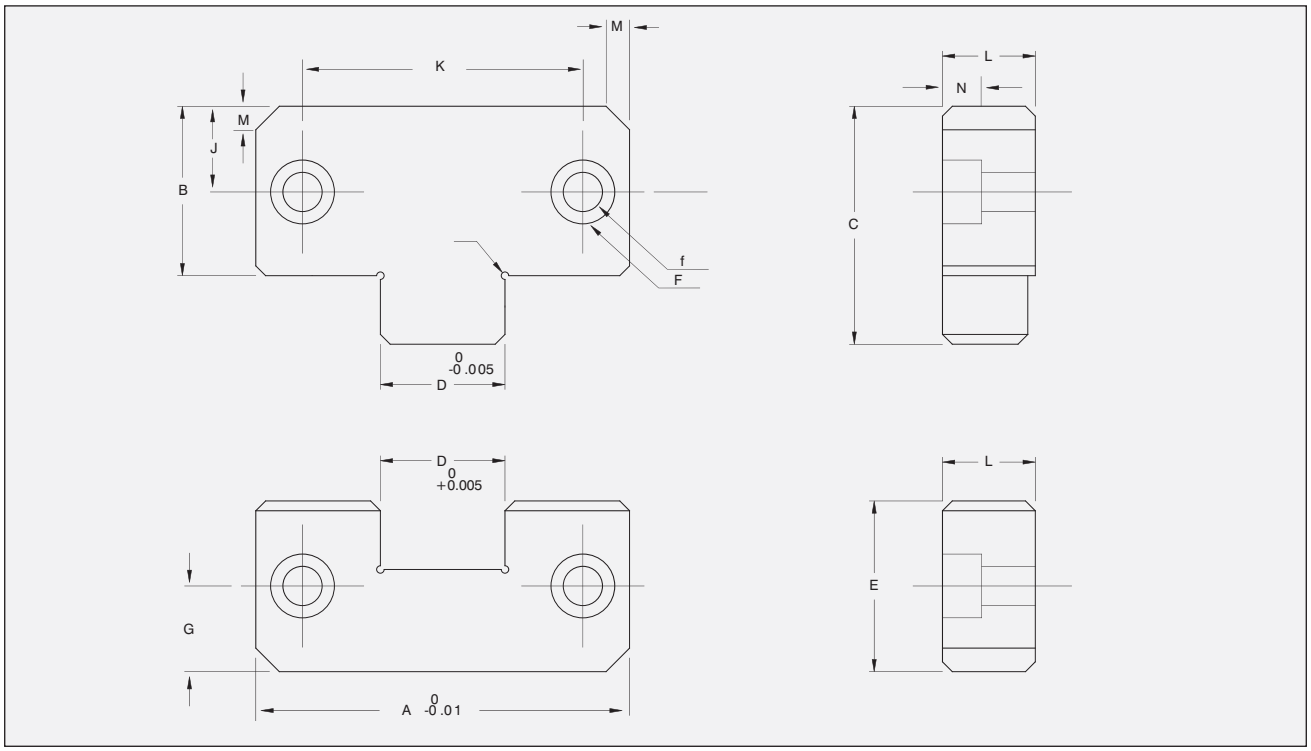




Type No.	D h6	L	d H7	V	L1	L2	e1	e2	e3	e4	e5	f	M
GTP30072	30	72	4	18	35.5	35.5	10.5	11.5	20	4.5	16.5	5	M10
GTP42092	42	92	5	23	45.5	45.5	14.5	15.5	20	5.5	18.5	7	M10
GTP54112	54	112	6	30	55.5	55.5	17.5	18.5	25	7.5	20.5	8	M12
GTP80152	80	152	8	42	75.5	75.5	27.5	28.5	30	7.5	25.5	11	M16

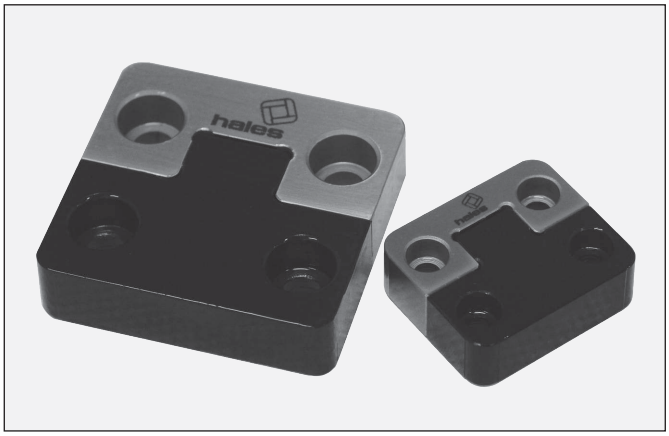
Economy Side Locks

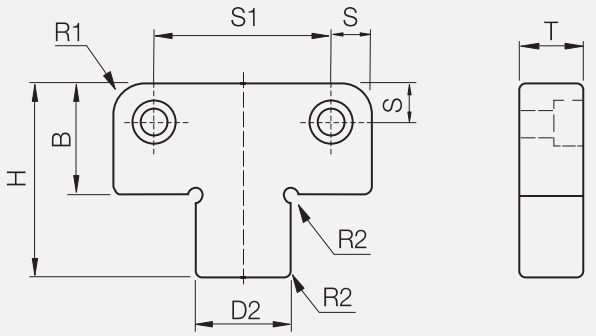




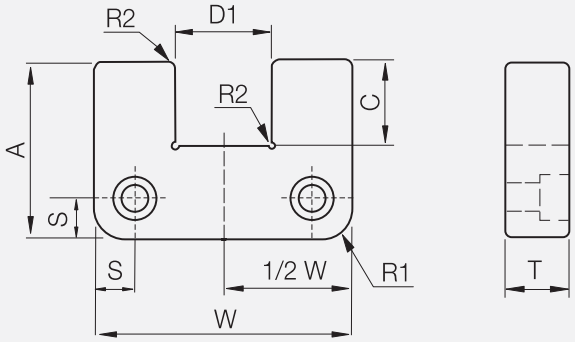
Part No	A	B	C	D	E	F	f	G	J	K	L	M	N
HESL38	38	22	30	12	22	10.5	6.5	7	7	22	13	5	8
HESL50	50	21.5	30	17	21.5	10.5	6.5	11	11	34	16	5	8
HESL75	75	36	50	25	36	16.5	10.5	18	18	50	19	8	12
HESL100	100	45	65	35	45	16.5	10.5	22	22	70	19	10	12
HESL125	125	45	65	45	45	16.5	10.5	22	22	84	25	10	12

Part No	A	B	C	D	E	F	f	G	J	K	L	M	N
HESL1.5	1.500	0.870	1.180	0.500	0.87	0.433	0.276	0.281	0.437	0.938	0.620	0.190	0.3
HESL2.0	2.000	0.870	1.180	0.680	0.87	0.433	0.276	0.375	0.437	1.250	0.620	0.190	0.3
HESL3.0	3.000	1.360	1.910	1.000	1.37	0.590	0.413	0.688	0.688	2.250	0.745	0.380	0.45
HESL4.0	4.000	1.870	2.640	1.375	1.87	0.590	0.413	0.875	0.875	2.750	0.745	0.500	0.45
HESL5.0	5.000	1.870	2.640	1.750	1.87	0.788	0.555	0.875	0.875	3.500	1.120	0.500	0.6





MALE: YK30
54˜56HRC
Black Oxide Finish

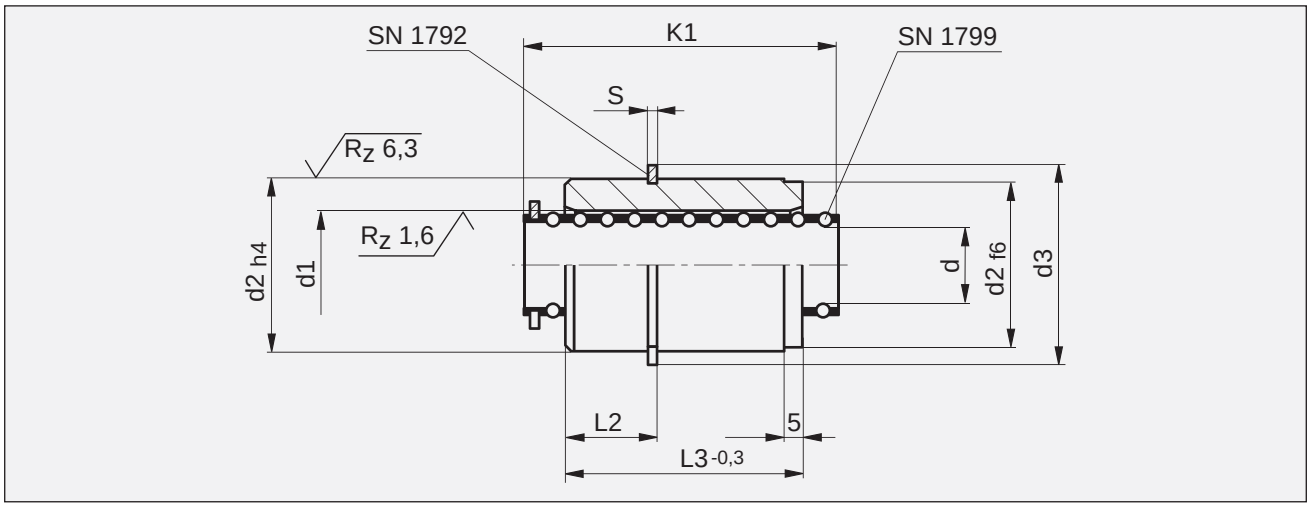


FEMALE: SKD11(D2)
58˜62HRC
Titanium Nitride Coated

Type No.	W 0 -.0005	T ±.001	A ±.001	B ±.001	C	D1 ±.0003 0	D2 0 -.0003	H	R1	Pocket Radius	R2	S ±.010	S1 ±.010	SHCS
HCSL37	1.0000	0.375	1.125	0.875	0.53	0.5000	0.4999	1.37	0.22	3/16	0.06	0.250	0.500	#10-32x1/2”
HCSL49	1.2500	0.490	1.125	0.875	0.66	0.5000	0.4999	1.50	0.22	3/16	0.06	0.250	0.750	#8-32x5/8”
HCSL50C	1.5000	0.500	0.875	0.875	0.56	0.5630	0.5629	1.40	0.22	3/16	0.06	0.250	1.000	#8-32x5/8”
HCSL50	2.0000	0.500	1.375	0.875	0.66	0.7500	0.7499	1.50	0.28	3/16	0.06	0.312	1.376	#10-32x5/8”
HCSL75	3.0000	0.750	1.875	0.750	1.13	1.2500	1.2499	1.96	0.53	1/4	0.12	0.375	2.250	1/4-20x3/4”
HCSL100	4.0000	1.000	2.375	1.375	1.25	1.5000	1.4999	2.59	0.53	1/2	0.12	0.500	3.000	3/8-16x1”
HCSL125	5.0000	1.250	2.875	1.375	1.63	2.0000	1.9999	2.96	0.53	1/2	0.12	0.625	3.750	1/2-13x1 1/4”
HCSL150	6.0000	1.500	2.875	1.375	1.75	2.5000	2.4999	3.09	0.53	1/2	0.12	0.625	4.750	1/2-13x1/2”

Metric Standard

Catalogue Number	T +.00 -.05	W +.00 -.01	A +.00 -.05	B +.00 -.05	C	D .002/.005 Clearance Per Side	H +0.0 -0.1	R Pocket Radius	S1 ±.25	S2 ±.25	SHCS
HCSLM50	16	50	21.5	21.5	12	17	43	5	8	11	M6-1.0x18
HCSLM75	19	75	36	36	17	25	72	5	12.5	18	M10-1.5x20
HCSLM100	19	100	45	45	23	35	90	5	15	22	M10-1.5x20
HCSLM125	25	125	45	45	23	35	90	5	20.5	22	M10-1.5x25

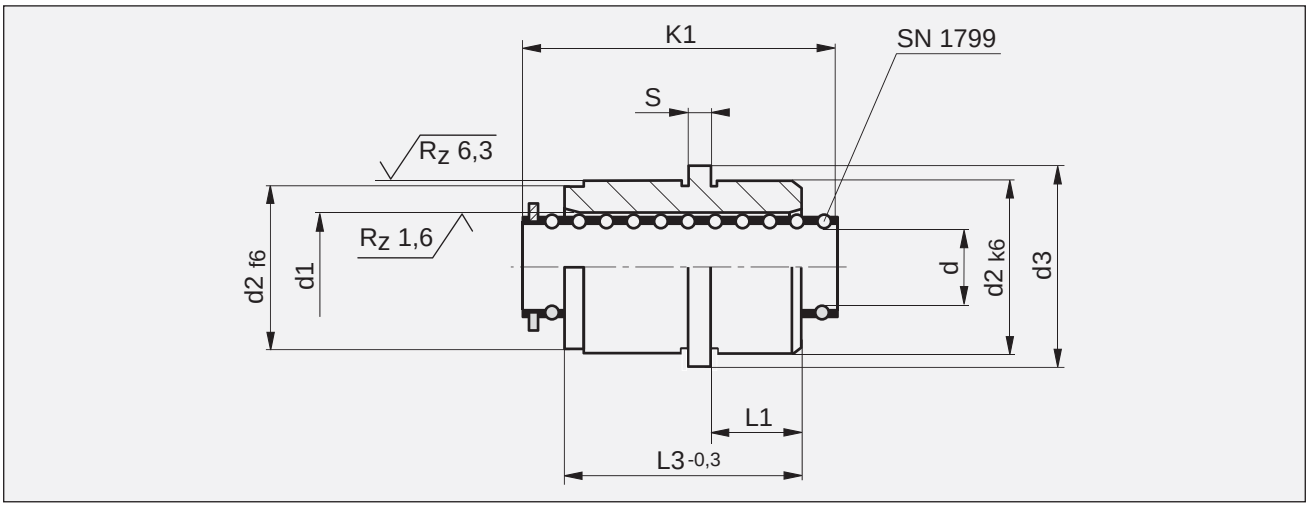


Mat.-Nr 1.3505/63 ±2HRC+CuZn40

d	K1	L3	L2	d1	d2	d3	S	SN 1792-
12	30	25	14,0	17	24	29,5	1,2	24-1,4
	41							
16	45	30	15,0	22	28	34,4	1,5	28-1,2
	54							
	70	45						
20	45	35	19,5	26	35	41,4	1,5	35-1,5
	54							
	70	50						
25	45	35	23,0	31	40	47,5	1,75	40-1,75
	58							

d	K1	L3	L2	d1	d2	d3	S	SN 1792-
25	70	45	23,0	31	40	47,5	1,75	40-1,75
	78							
	95	50						
32	68	55	25,0	40	50	58,4	2,0	50-2,0
	80							
	95							
40	63	55	25,0	48	60	68,6	2,0	60-2,0
	73							
	90							
	112	75	32,0					

Order: SN1777SR - d - K1



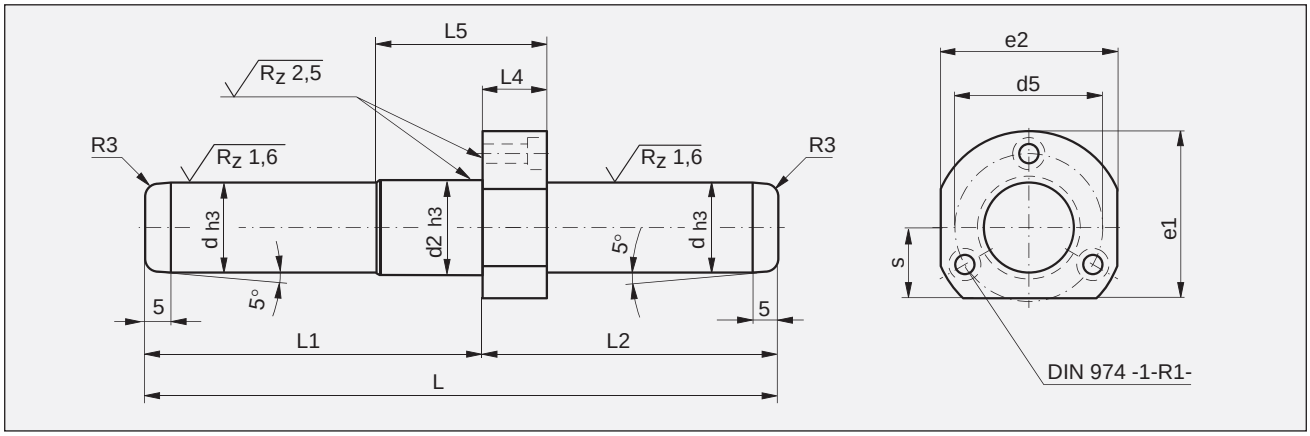
Mat.-Nr 1.3505/63 ±2HRC

d	K1	L1	L3	d1	d2	d3	S	
12	40	6	24	17	22	26	6	
	56							
18	45	11	34	24	30	35	6	
	56							

d	K1	L1	L3	d1	d2	d3	S	
30	56	21	54	38	46	52	6	
	75							
	95							

Order: SN1776SR - d - K1

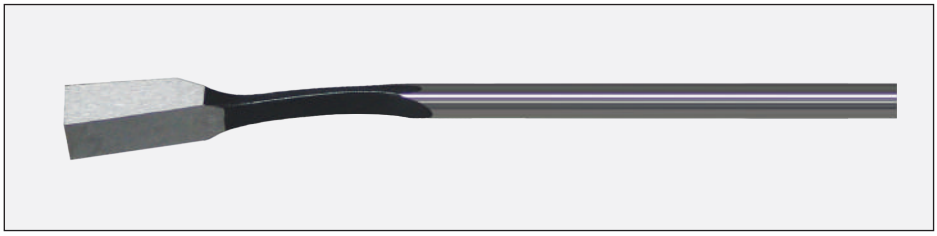
Guide Pillars with Centre Collar - SN1705

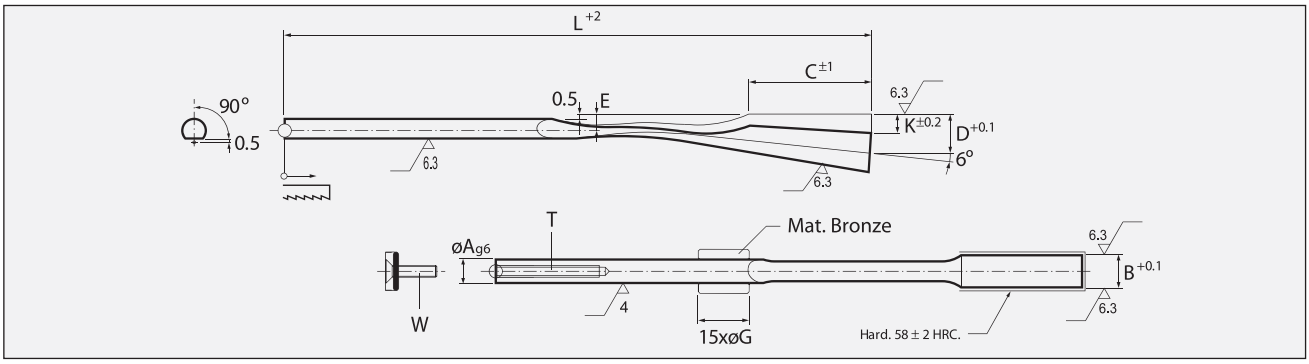


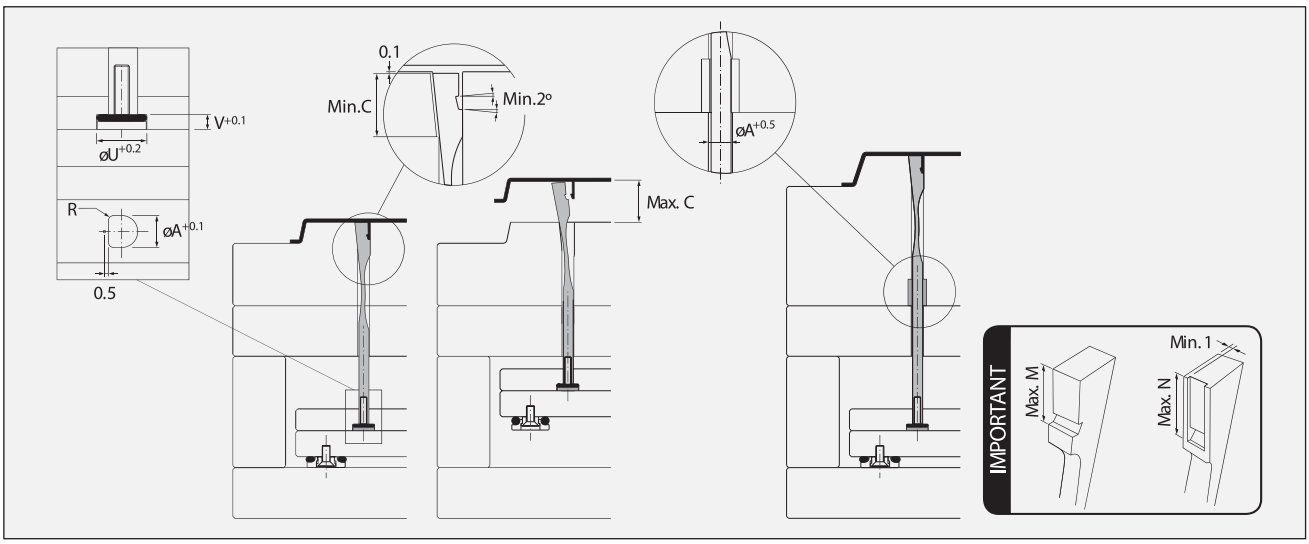
Mat.-Nr 1.1213/63 ±2HRC

D	L	L1	L2	L4	L5	d2	d5	e1	e2	s	DIN974	
16	160	85	75	10	37	16,05	27	31,5	35,5	12,5	4	
	170	95										
	170	85	85									
	180	95										
	180	85	95									
	190	95										
19	150	85	65	12	39	19,05	30	32,5	35,5	12,5	4	
	160	85	75									
	170	95										
	170	85	85									
	180	95										
	180	85	95									
	190	95										
25	160	85	75	16	43	25,05	38	42,5	45,0	17,5	5	
	170	95										
	170	85	85									
	180	95										
	190	105										
	180	85	95									
	190	95										
	200	105										
	200	95	105									
	210	105										
32	180	95	85	16	43	32,05	44	49,5	56	21,5	5	
	190	105										
	190	95	95									
	200	105										
	200	95	105									
	210	105										
40	180	95	85	20	57	40,05	55	63,0	64,0	28,0	6	
	190	105										
	190	95	95									
	200	105										
	200	95	105									
	210	105										
	220	105										

Order: SN1705 - d - L - L1



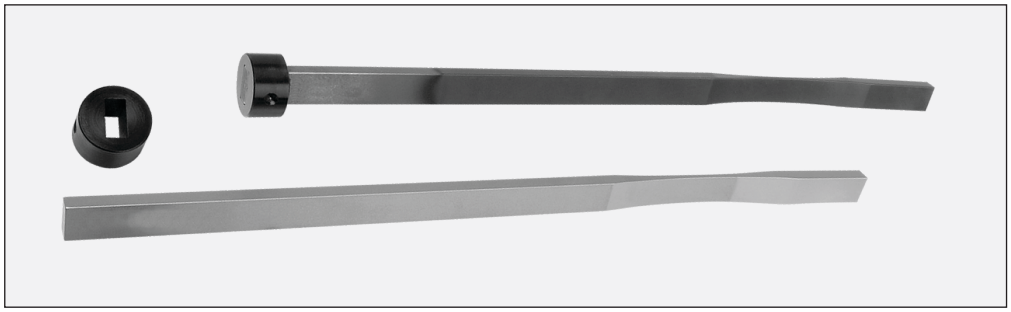


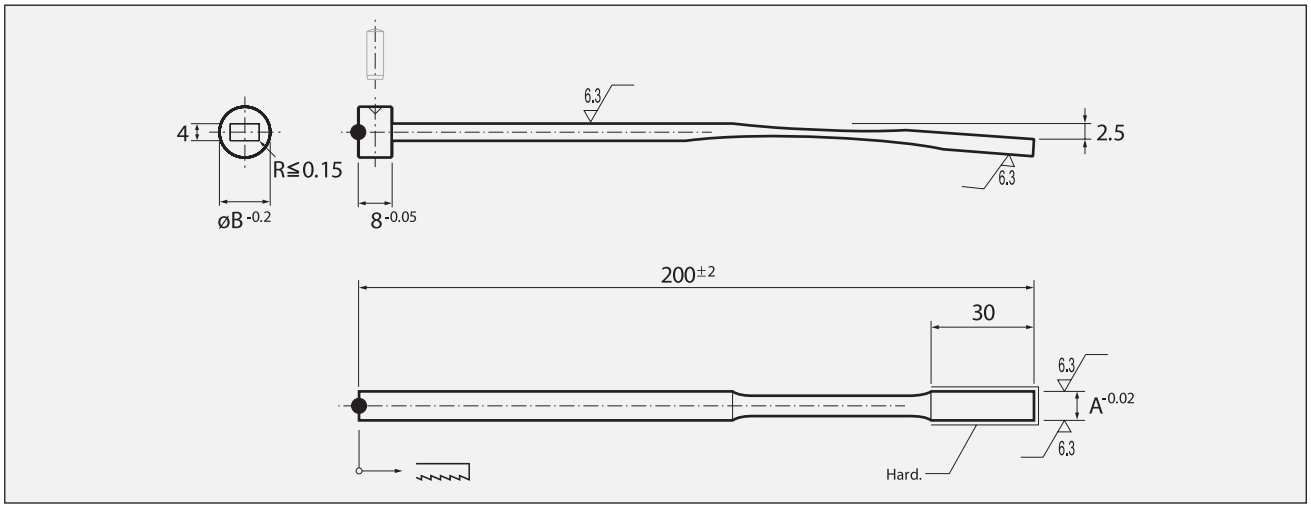


Ref	A	B	C	D	E	G	K	L	M	N	R	T	U	V	W	CS
CPW.060622	6	6.2	22	9	3.5	-	3.5	125	16	18	1.25	M4x36	12	5	M4x16 (DIN7991)	-
CPW.060630	6	6.2	30	10	3.5	12	4.5	175	20	26	1.25	M4x36	12	5	M4x16 (DIN7991)	•
CPW.060822	6	8.2	22	9	3.5	-	3.5	125	16	18	1.25	M4x36	12	5	M4x16 (DIN7991)	-
CPW.060830	6	8.2	30	10	3.5	12	4.5	175	20	26	1.25	M4x36	12	5	M4x16 (DIN7991)	•
CPW.080825	8	8.2	25	11.5	4.5	-	4.5	140	18	21	2	M5x36	14	6	M5x16 (DIN7984)	-
CPW.081025	8	10.2	25	11.5	4.5	-	4.5	140	18	21	2	M5x36	14	6	M5x16 (DIN7984)	-
CPW.081030	8	10.2	30	11.2	4.5	12	4.5	175	20	26	2	M5x36	14	6	M5x16 (DIN7984)	•
CPW.081225	8	12.2	25	11.5	4.5	-	4.5	140	18	21	2	M5x36	14	6	M5x16 (DIN7984)	-
CPW.081230	8	12.2	30	11.2	4.5	12	4.5	175	20	26	2	M5x36	14	6	M5x16 (DIN7984)	•
CPW.101430	10	14.2	30	13.6	5.5	16	5.5	175	20	26	2.5	M6x36	18	8	M6x16 (DIN7984)	•
CPW.101630	10	16.2	30	13.6	5.5	16	5.5	175	20	26	2.5	M6x36	18	8	M6x16 (DIN7984)	•
CPW.101830	10	18.2	30	13.6	5.5	16	5.5	175	20	26	2.5	M6x36	18	8	M6x16 (DIN7984)	•

Mat.:1.8159
Hardened 45 ± 3HRC
Patented System

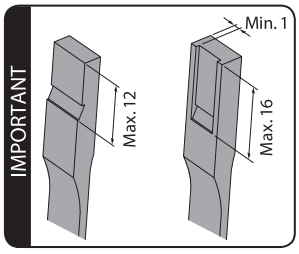
Minimum space required for installation, only needs the space of an ejector. No milling, grinding or hardening other than the machining of detail needed. All machining is made 90° to the parting line. No need for complex mechanical systems.

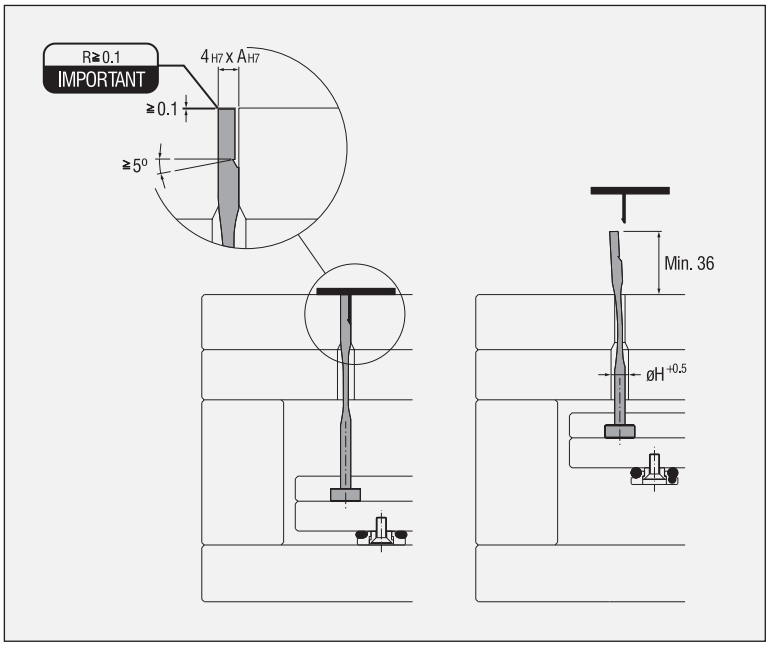




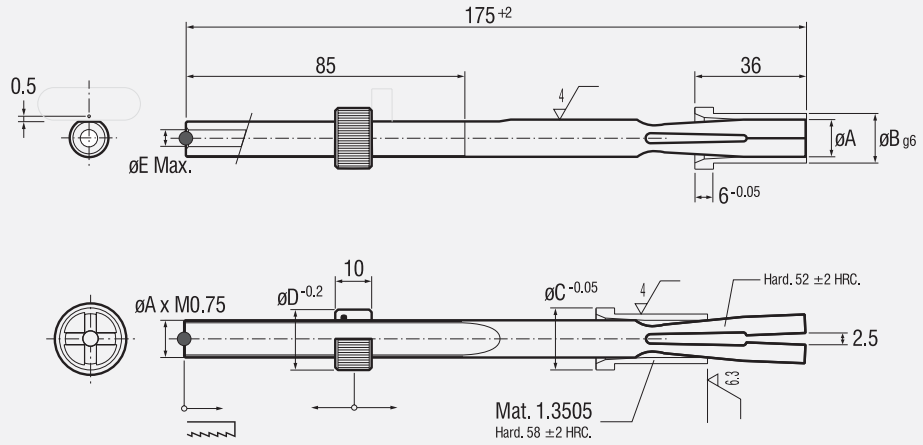
Mat.:1.2101
Hardened 45 ± 3HRC
Patented System

Minimum space required for installation, only needs the space of an ejector. No milling, grinding or hardening other than the machining of detail needed. All drilling is 90° to the parting line. Available with and without Ballinit C® coating.





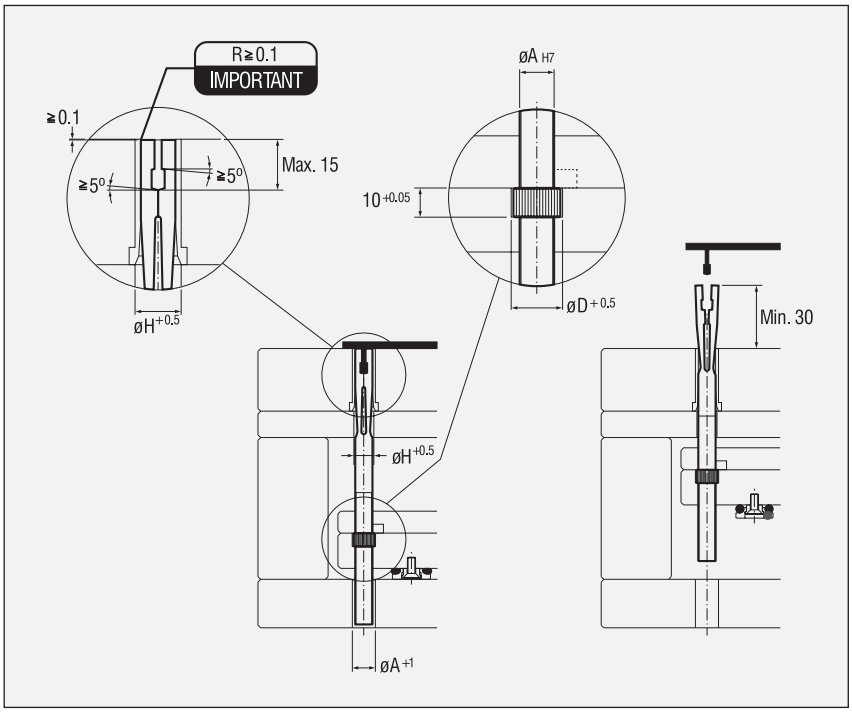
Ref	A	B	H	Balinit C®	Hardness
CPF.064200	6	12	7	•	52 ± 2 HRC.
CPF.0642WB	6	12	7	-	58 ± 2 HRC.
CPF.084200	8	14	9	•	52 ± 2 HRC.
CPF.0842WB	8	14	9	-	58 ± 2 HRC.
CPF.104200	10	16	11	•	52 ± 2 HRC.
CPF.1042WB	10	16	11	-	58 ± 2 HRC.
CPF.124200	12	18	13	•	52 ± 2 HRC.
CPF.1242WB	12	18	13	-	58 ± 2 HRC.



Mat.: 1.2101
Hardened 45 ± 3 HRC.
Patented System

Four separate movements in one component. Minimum space required for installation, only needs the space of an ejector. No milling, grinding or hardening other than the machining of detail needed. Cilindrical machining and made 90°regarding the parting line.

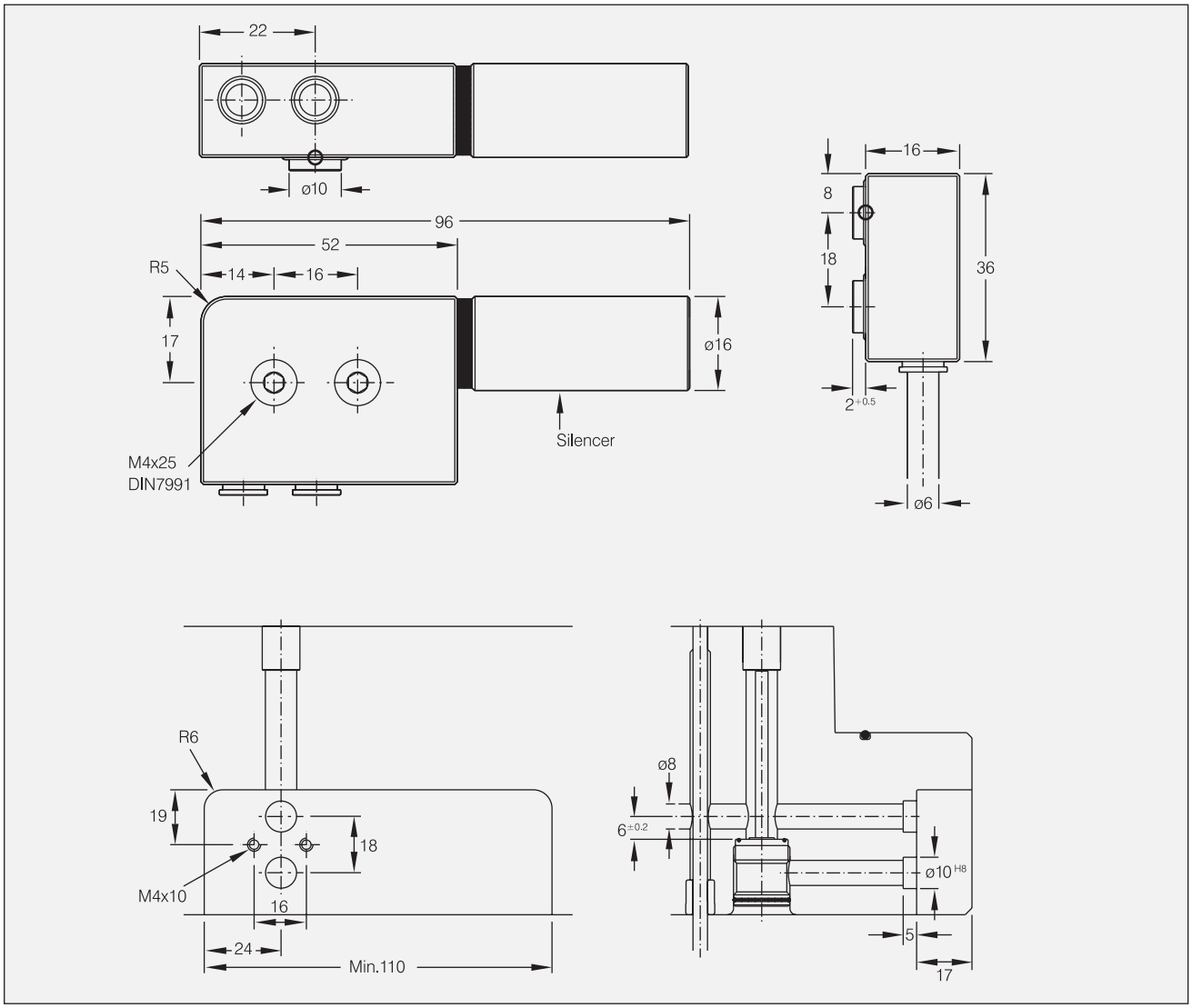
Important: Special lengths of 250 and 325mm upon request



Ref	A	B	C	D	E	H
EE.060175	6	10	12	12	-	9
EE.082175	8	12	14	14	2	11
EE.103175	10	14	16	16	3	13
EE.124175	12	16	18	18	4	15

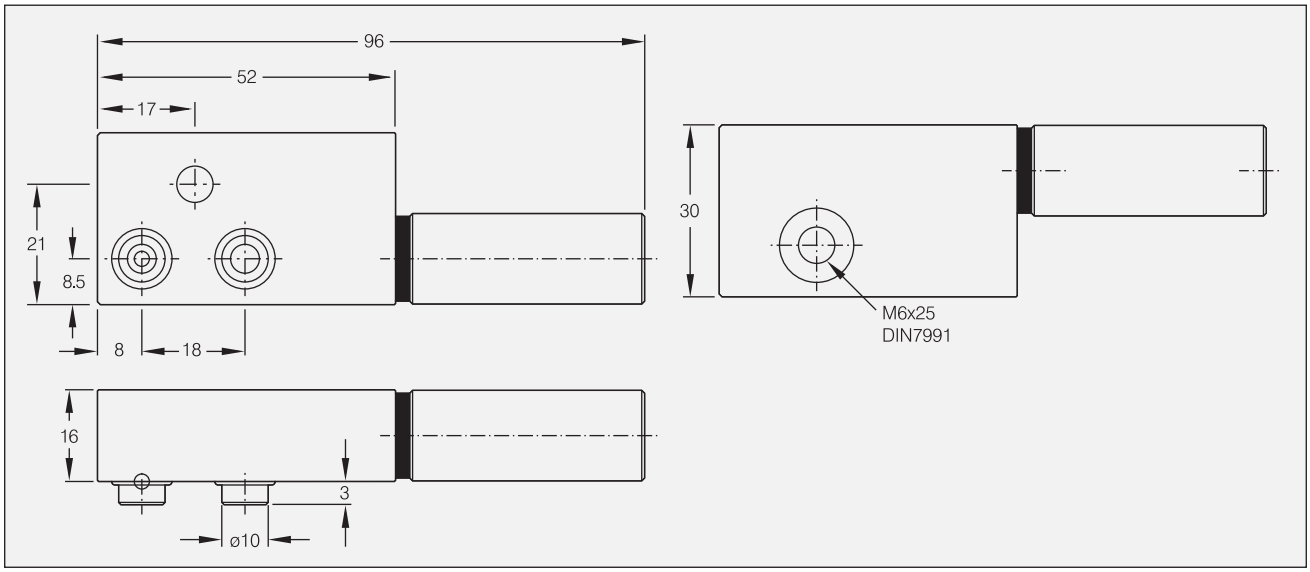
Vacuumjet Unit

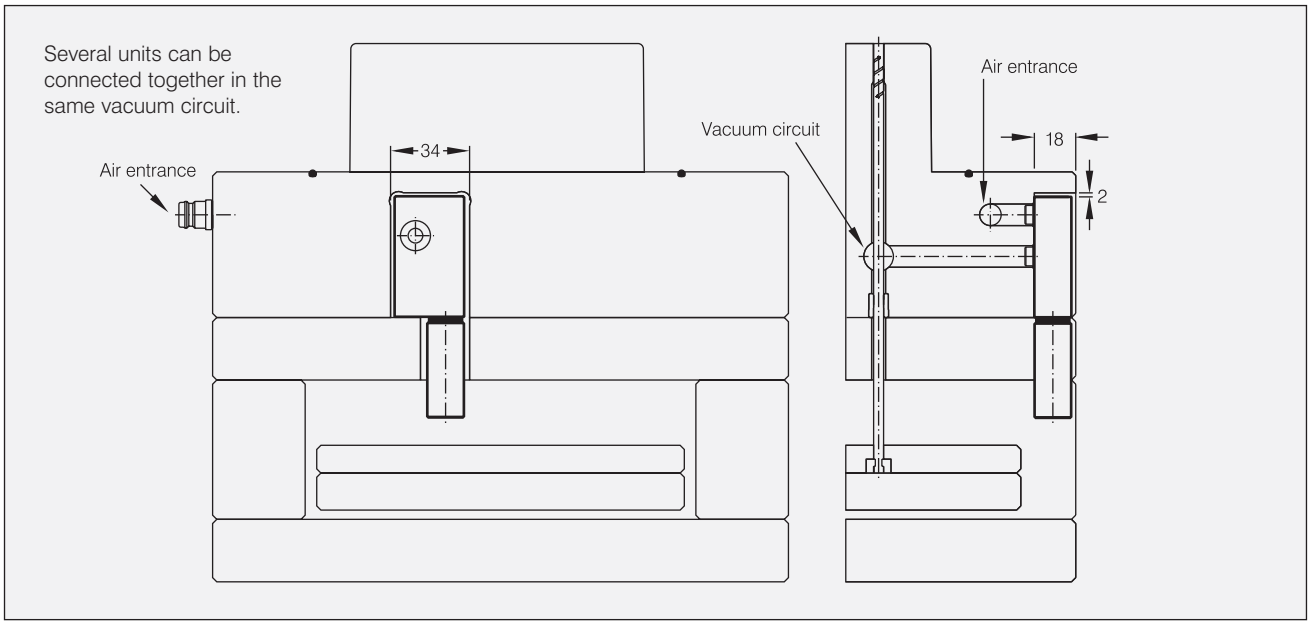
Material: Aluminium
Maxumum working temperature: 80°C
Patented System



Product Code	Name	Supply Pressure	Max. Vacuum	Max. Flow	Consumption	Recom. W
VJ.200000	Vacuumjet 20L	5-6 Bar	-900 mbar	30nl./Min.	20nl./Min.	W.086414
VJ.400000	Vacuumjet 40L	5-6 Bar	-900 mbar	50nl./Min.	40nl./Min.	W.121014
VJ.600000	Vacuumjet 60L	5-6 Bar	-900 mbar	75nl./Min.	60nl./Min.	W.161416

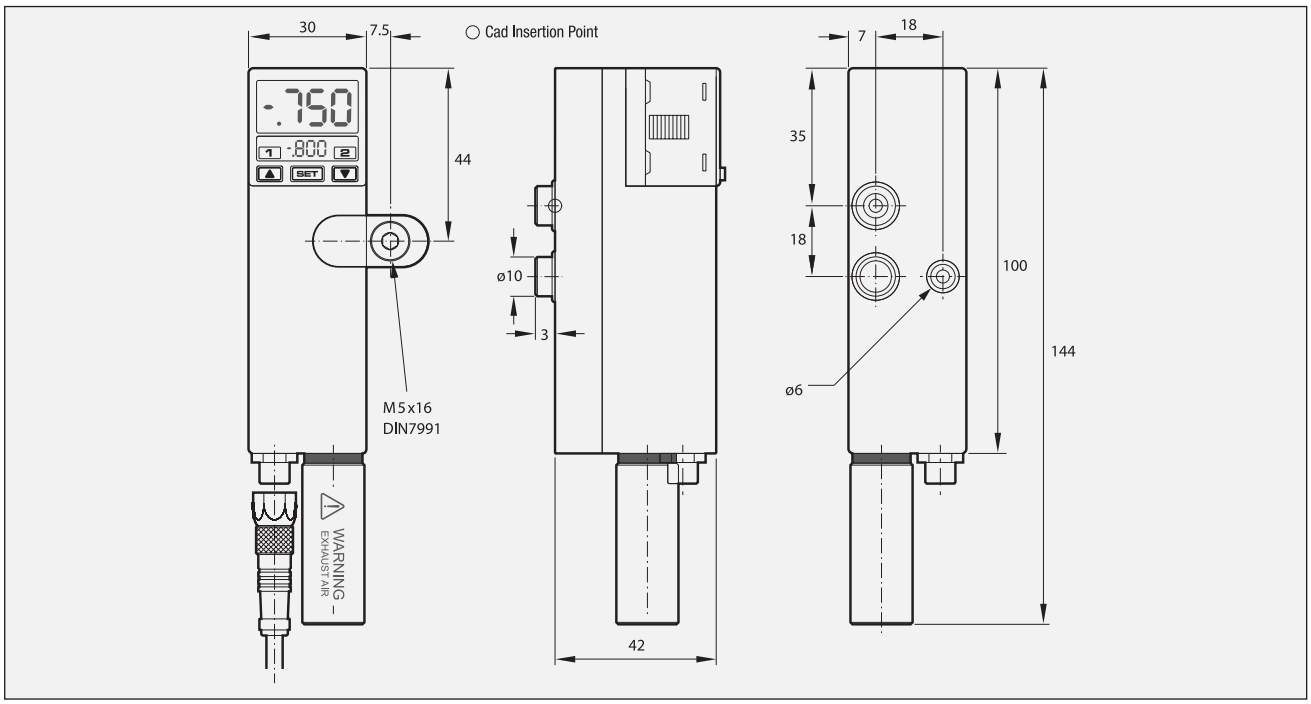
Material: Aluminium
Max. working temperature: 80°C
Patented System

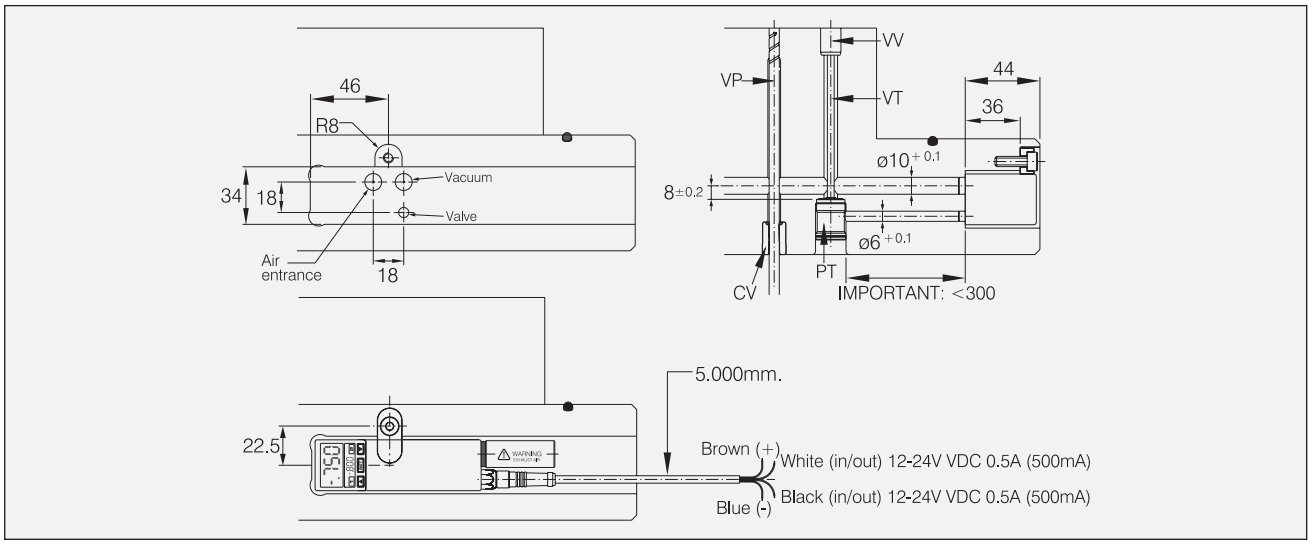




Product Code	Type
VG523016	60L

Mat.: Aluminium
Maximum working temperature 80°C
Patented System.

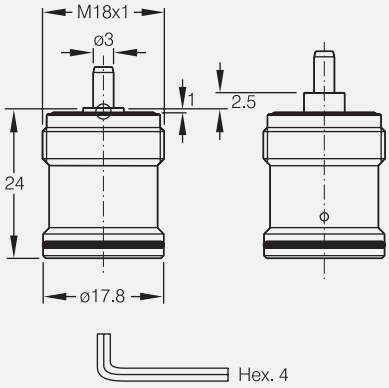


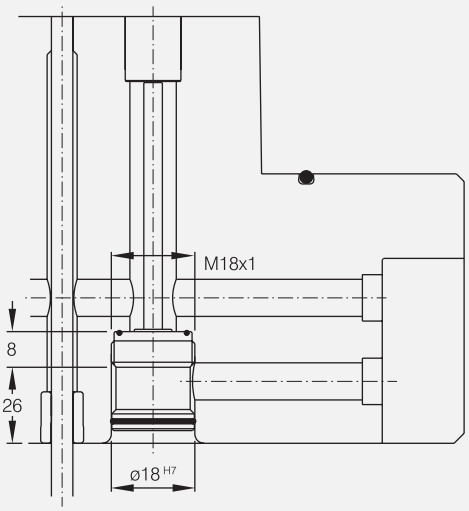


Product Code	Name	Supply Pressure	Max. Vacuum	Max. Flow	Consumption	Recom. VV
VK.203042	VACUUMJET 20L	5-6 Bar	-900 mbar	30nl./Min.	20nl./Min.	VV.086414
VK.403042	VACUUMJET 40L	5-6 Bar	-900 mbar	50nl./Min.	40nl./Min.	VV.121014
VK.603042	VACUUMJET 60L	5-6 Bar	-900 mbar	75nl./Min.	60nl./Min.	VV.161416

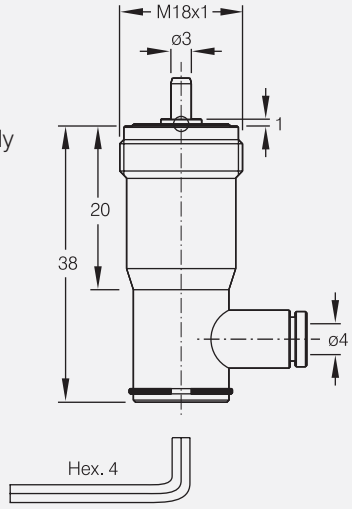
Material: Brass
Maxumum working temperature: 150°C
Patented System

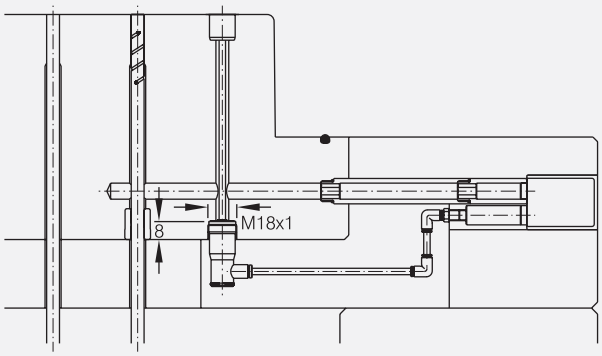
PT1
Directly connected to the Vacuumjet unit through a circuit in the plate.





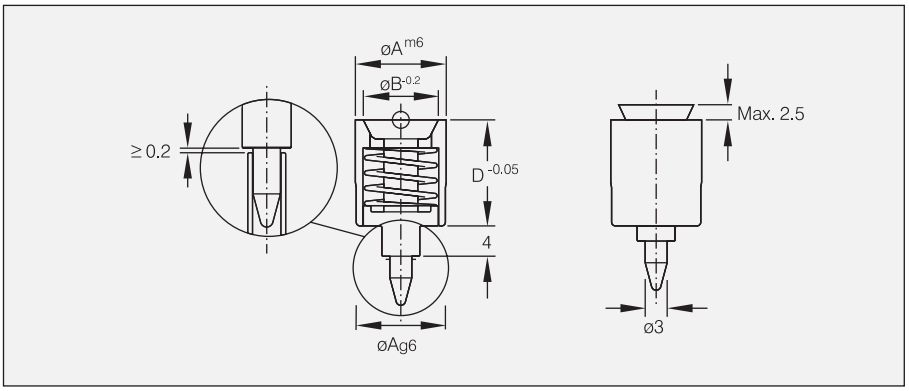
PT2
Can be connected through flexible tubes to the Vacuumjet unit, simplifying the assembly in difficult places.





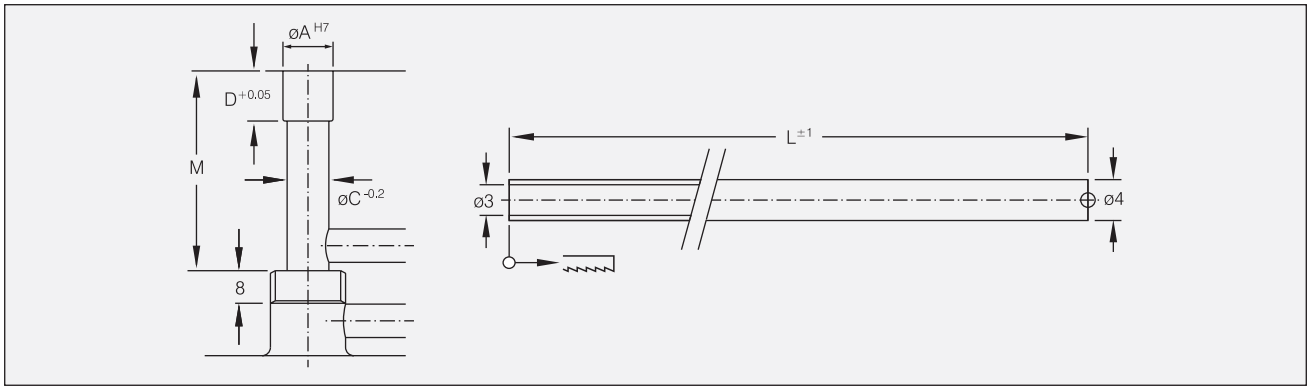
Product Code	Type
PT.182403	PT1
PT.183803	PT2

Vacuumjet Valves



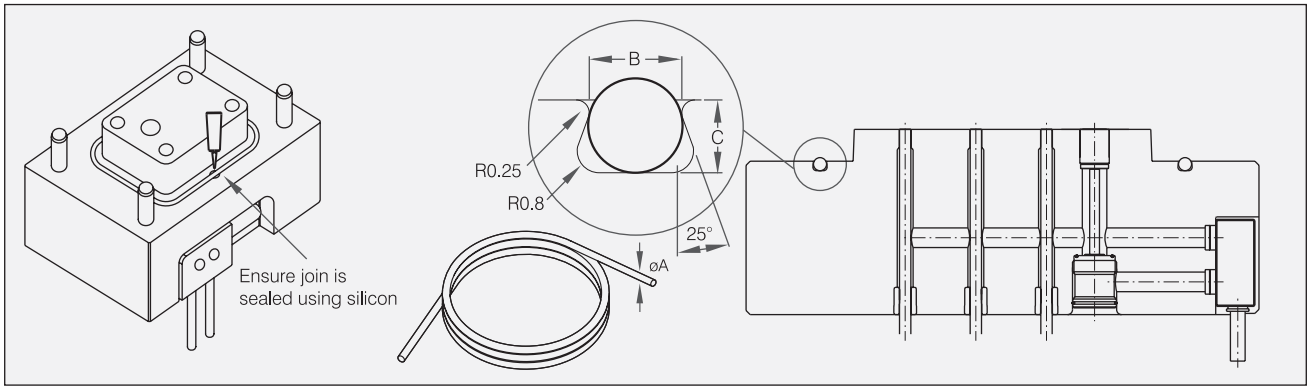
Product Code	A	B	C	D
VV.086414	8	6.7	7.5	14
VV.121014	12	9.8	10	14
VV.161416	16	14	10	16

Vacuumjet Valve Tubes

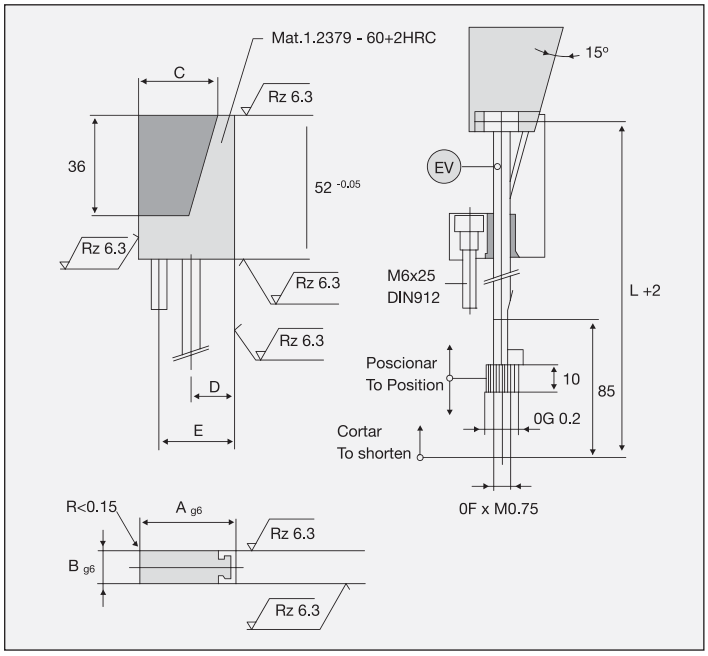


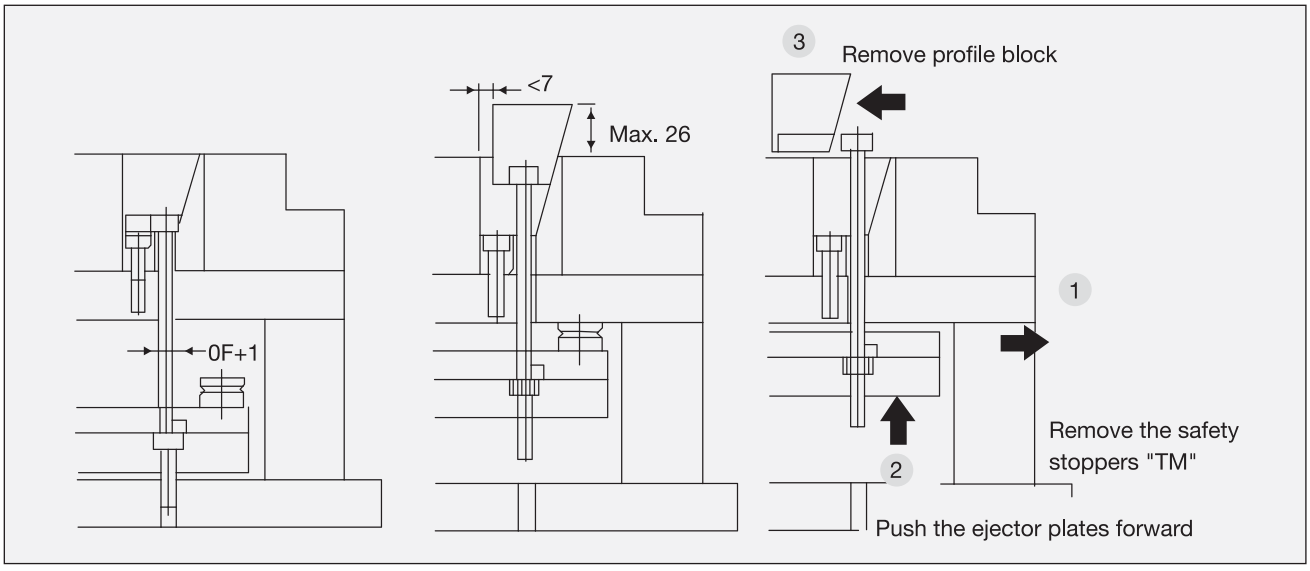
Product Code	L	M
VT.043134	134	150
VT.043209	209	225
VT.043284	284	300

Vacuumjet Valve Seals



Product Code	A	B	C	mm
JV.030200	3	2.7	2.7	2.000
JV.050200	5	4.6	4.2	2.000





Mat. 1.2344 – Hardened 52-54 HRC
Patented System

Vertical Lifter Block
The Main characteristics of this item are its perpendicular movement with respect to the ejector plates and the ease of adjustment Important.

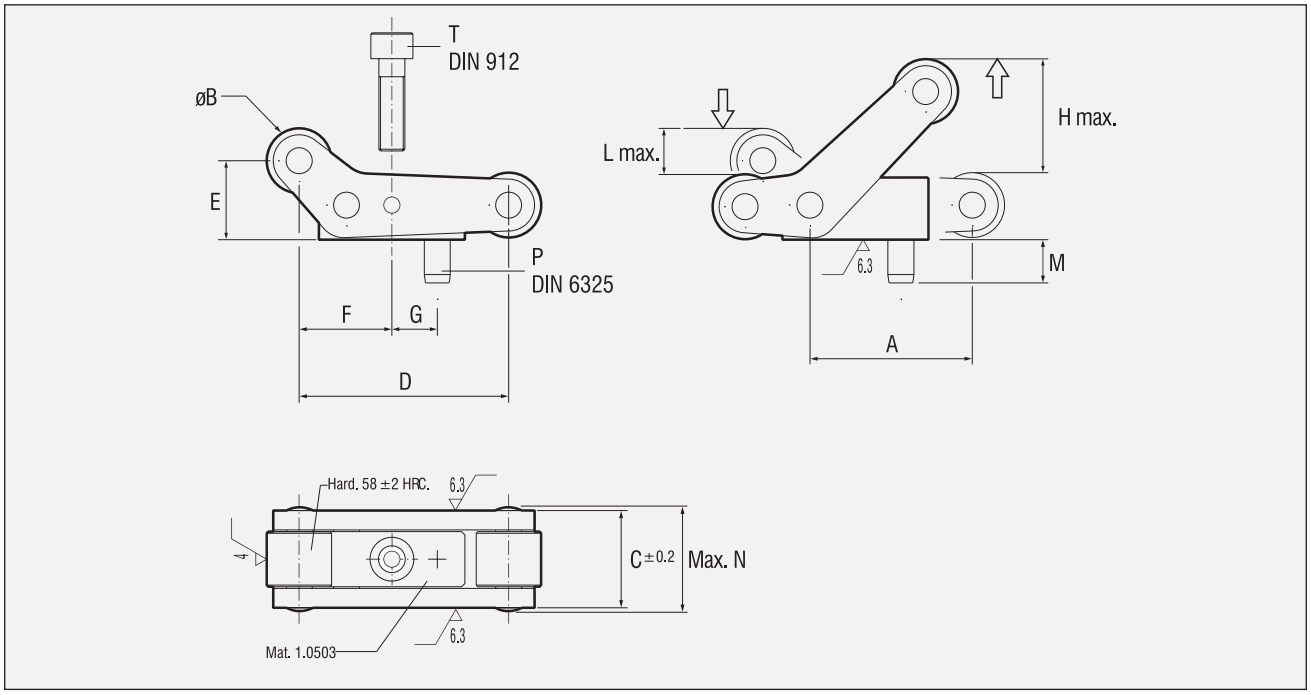
Ref	A	B	C	D	E
CPV.341252	34	12	28	15.5	27
CPV.361652	36	16	30	16.5	29
CPV.382052	38	20	32	17.5	31
CPV.402452	40	24	34	18.5	33

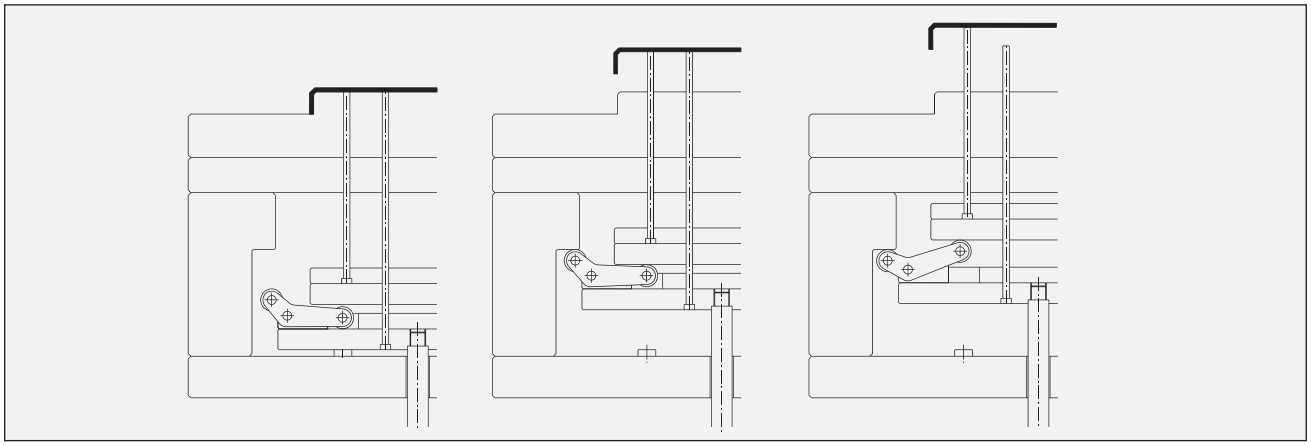
The EV reference must be ordered separately.

Ref	F	G	L	
CEV.006…	6	12	150	225
CEV.008…	8	14	150	225
CEV.010…	10	16	150	225
CEV.012…	12	18	150	225

Indicate the desired L dimension after the reference

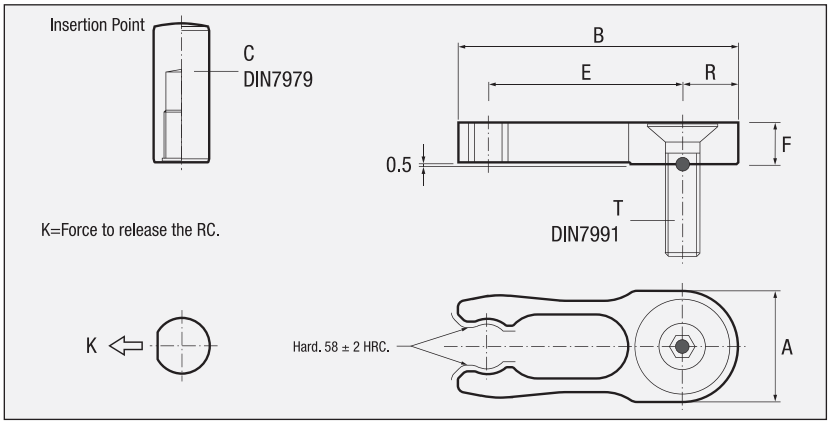
Plate Accelerator





Ref. A	B	C	D	E	F	G	H max.	L max.	M	N	P	T	Max.	Force
CEP.200813	20	8	13.2	25.8	9.4	11.4	6	13.6	5.5	5	15	Ø2.5x10	M3x12	75kg
CEP.251016	25	10	16	32.3	11.8	14.3	7	17	6.8	6	18.5	Ø3x12	M4x16	125Kg
CEP.371522	37.5	15	22	48.5	17.7	21.5	10.5	25.5	10.2	8	25	Ø4x16	M6x25	250Kg
CEP.502030	50	20	30	64.6	23.6	28.6	14	34	13.6	10	34	Ø5x20	M8x30	500Kg

Simple mechanical double ejection system. Minimum space required for installation. Avoids complex systems like others currently available in the market. Offers a standard solution to the moulder.

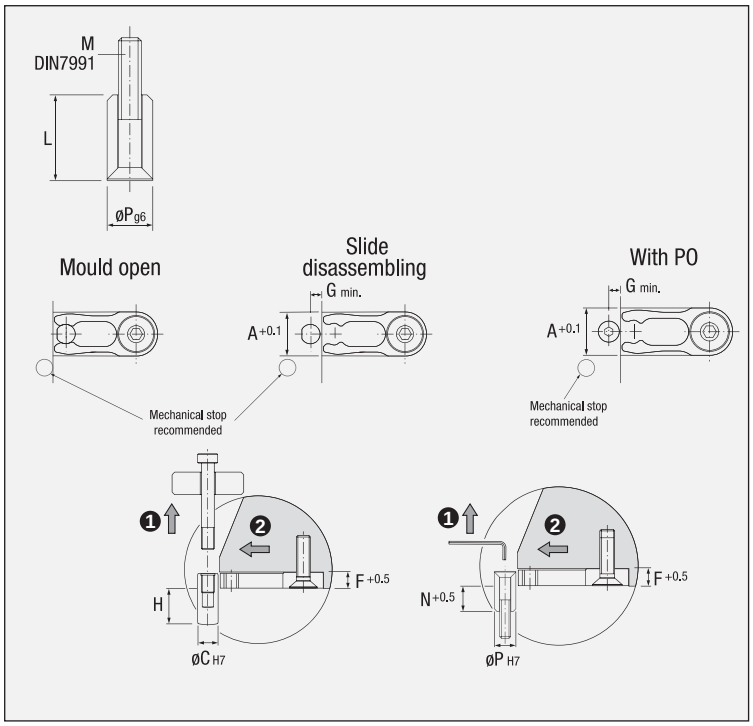


Ref.	A	B	C	E	F	G	H	K	R	T
CRC.123006	12	30	6x20	21	5	4	16	5 Kg	6	M5x16
CRC.164008	16	40	8x20	28	6	5	15	7 Kg	8	M6x25
CRC.205010	20	50	10x24	34	8	6	17	14 Kg	10	M8x30
CRC.246012	24	60	12x32	42	10	7	23	21 Kg	12	M10x40
CRC.328012	32	80	16x40	56	12	9	27	28 Kg	16	M12x50
CRC.328016	32	80	16x40	56	16	9	25	38 Kg	16	M12x50

Mat. 1.8159
Hardened 45 ± 3 HRC Patented System

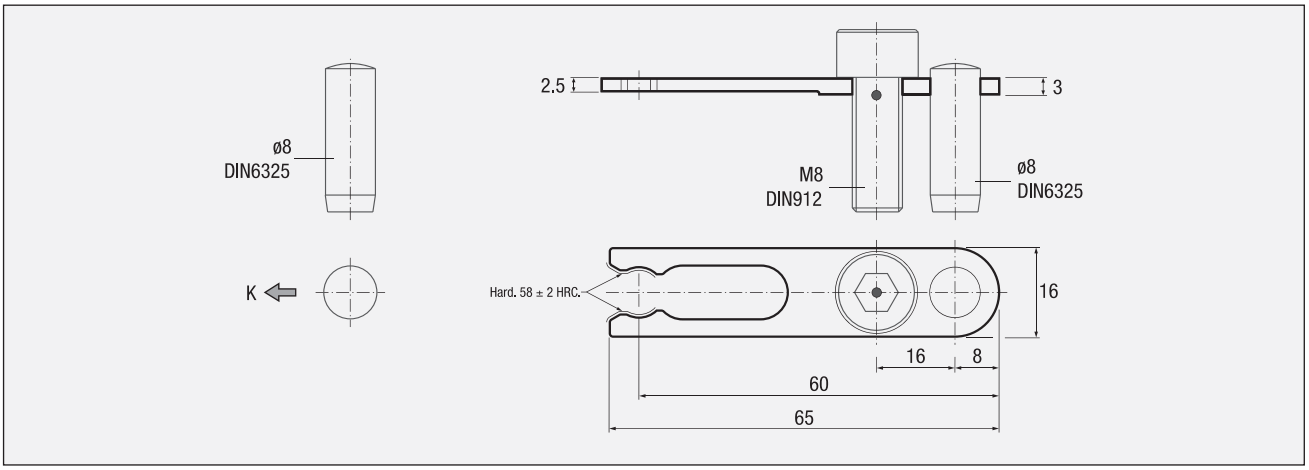
Less machining for installation compared to similar products on the market. Minimum space required for installation. Reduces costs in tool downtime. Offers a standard solution to the moulder.

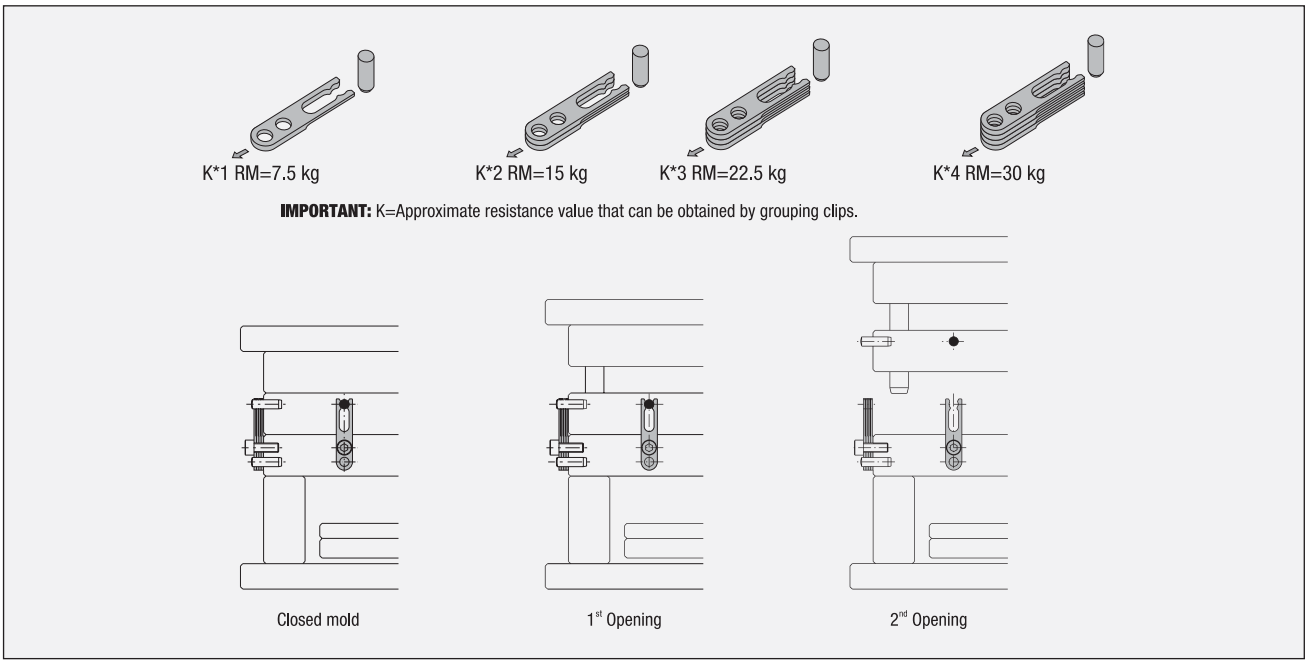
Optional Dowel Pin



Mat.: 1.3505
Hardened 60 ± 2 HRC

Ref	L	M	N	P
CPO.120320	12	M3x20	7.5	6
CPO.150425	15	M4x25	10	8
CPO.200530	20	M5x30	13	10
CPO.250635	25	M6x35	16	12
CPO.340850	34	M8x50	23	16

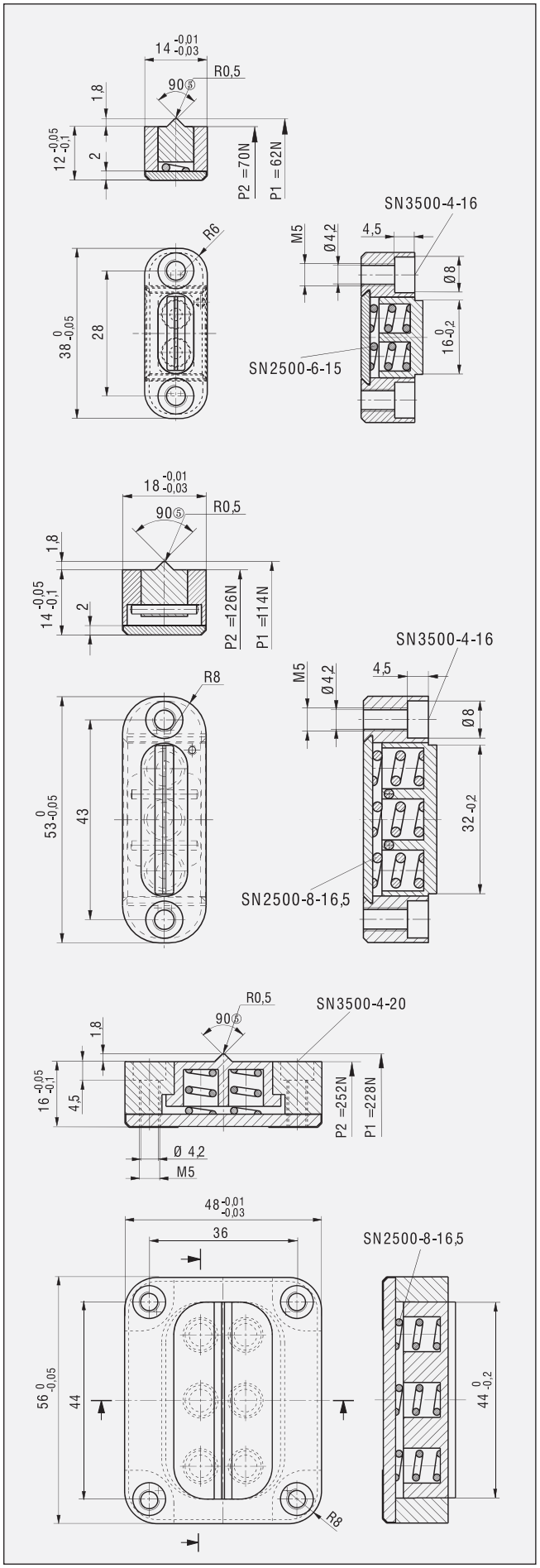




Mat. 1.8159
Hardened 45 ± 3 HRC. Patented System

No pocket machining required as needed with other similar products on the market. Minimum space required for installation. Reduces costs compared to conventional mechanisms. Offers a standard solution to the moulder.

Ref	K
CRM.651608	7.5kg



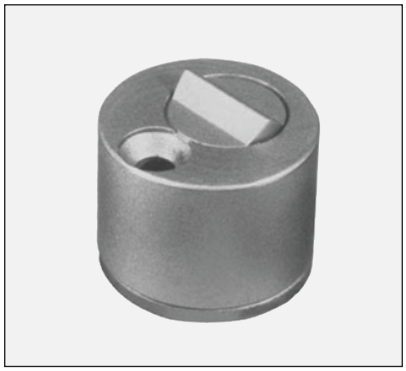
max. 100 C

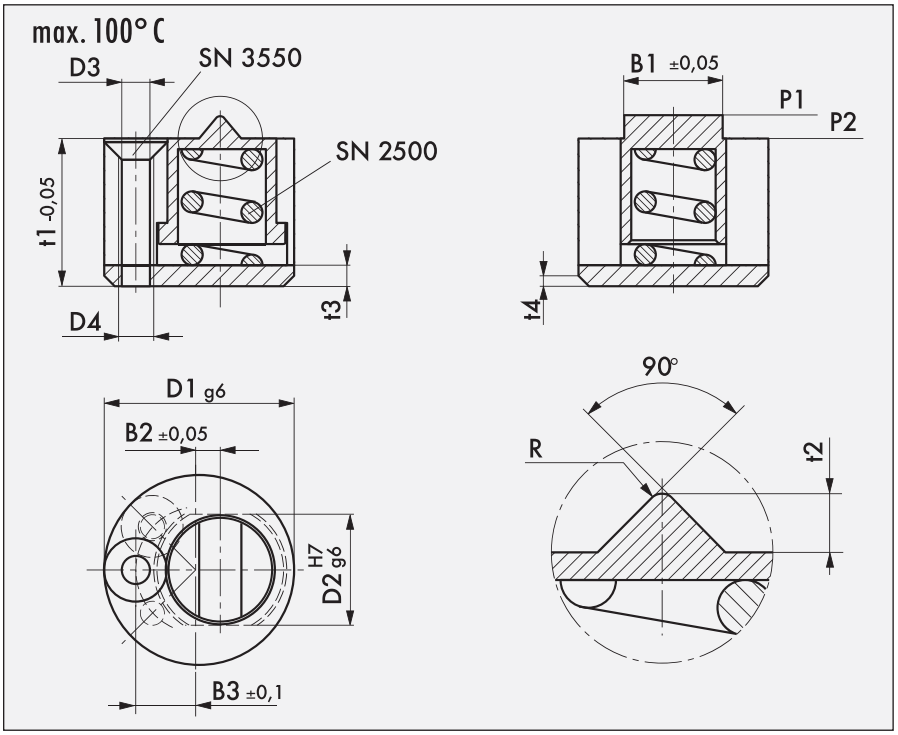
max. 100 C

max. 100 C

Type	
0	
1	
2	

Slide Holding Devices - STZ5130

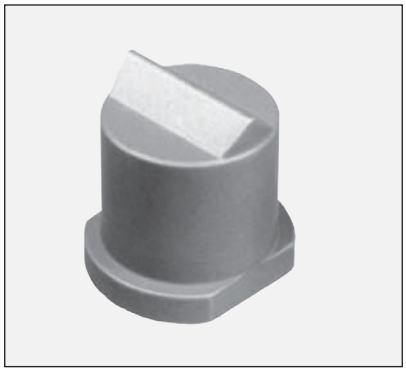


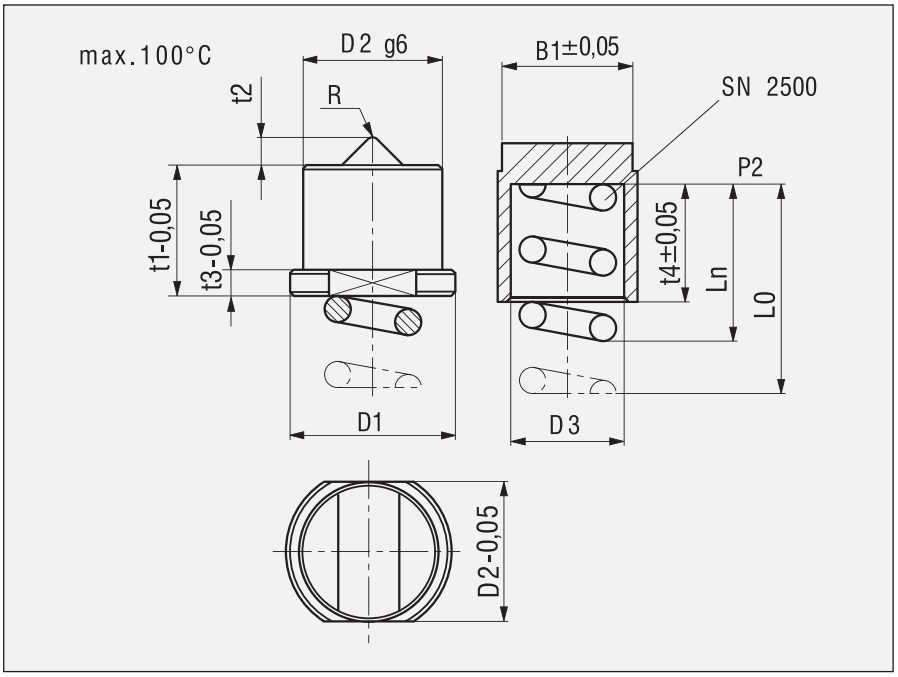


Mat. -Nr. 1.2842/58 + 2HRC
Order: STZ5130 - D1

D1	B1	B2	B3	t1	t2	t3	t4	D2	D3	D4	R	P1(N)	P2(N)	SN 2500	SN3550
13	6,6	1,4	4,3	10	1,0	1,6	0,35	7	2,2	M3	0,35	28	34	5-12	M2-16
18	9,6	2,0	6,0	14	1,8	2,0	0,50	10	3,2	M4	0,5	38	42	8-16,5	M3-20
27	14,4	3,0	9,0	21	2,8	3,0	0,50	15	4,3	M5	0,75	38	92	11,6-18,5	M4-25

Slide Holding Devices - STZ5134

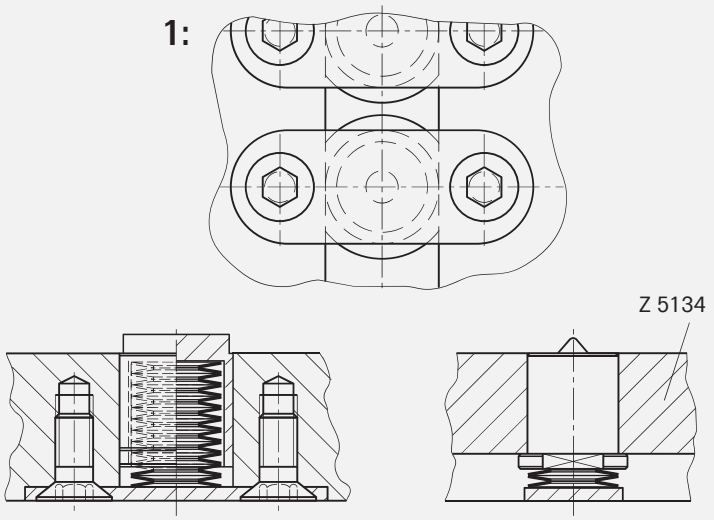




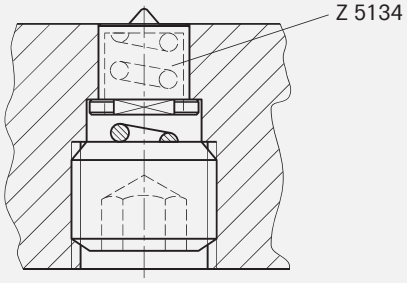
Mat.-Nr 1.2842/58 ± 2HRC
Order: STZ5134 - D1

D2	B1	t1	t2	t3	t4	D1	D3	R	L0	Ln	P2(N)	SN2500-
7	6,6	7	1,0	1,4	6,3	8,4	5,3	0,35	12	7,5	34	5-12
10	9,6	10	1,8	2,0	9,0	12,0	8,3	0,50	16	10,0	42	8-16,5
15	14,4	15	2,8	3,0	13,5	18,0	12,4	0,75	18	16,0	92	11,6-18,5

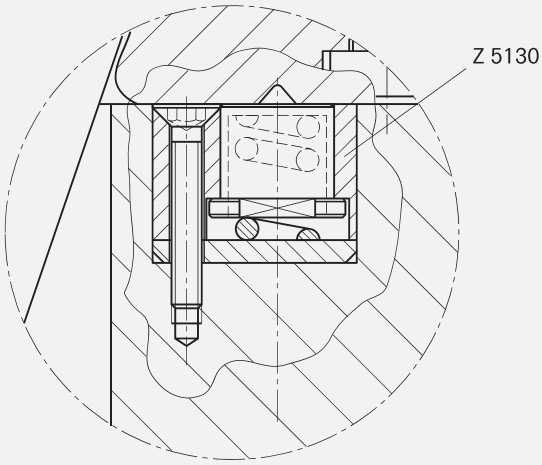
1:

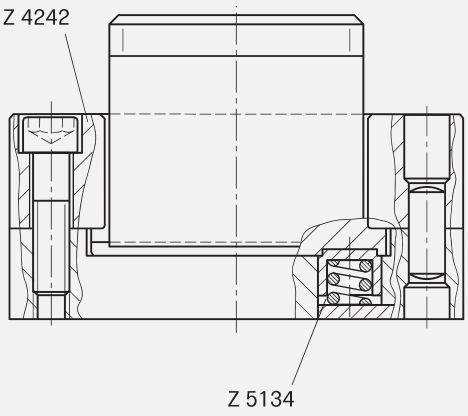


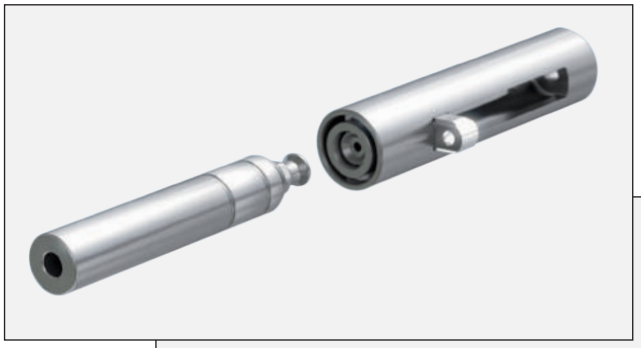
2:

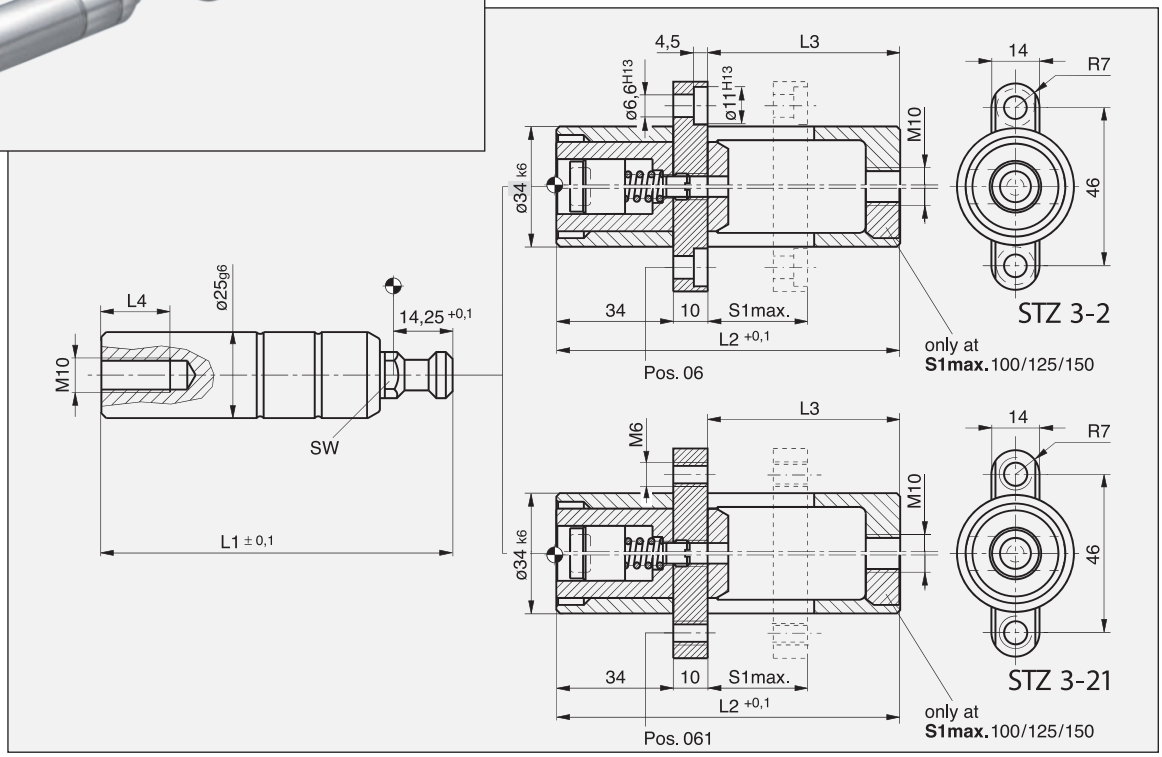


3:







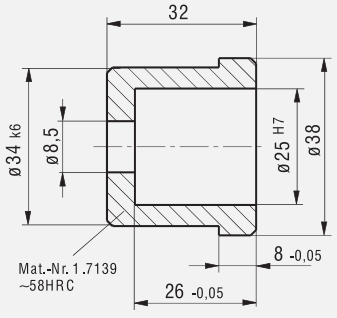


STZ3 - 2 -
STZ3 - 21 -

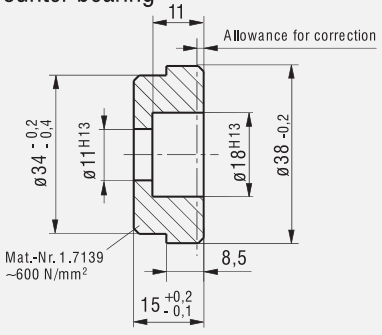
S1 max.	L1	L2	L3	L4
25	70	86	42	40
	120			
	170			
50	120	111	67	
	170			
75	120	136	92	
	170			

S1max.	L1	L2	L3	L4
100	220	161	117	40
	270			
125	220	186	142	
	270			
150	220	211	167	
	270			

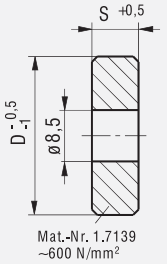
Guide bush



Counter bearing



Distance washers



STZ3 - 2 -

Pos.	
09	

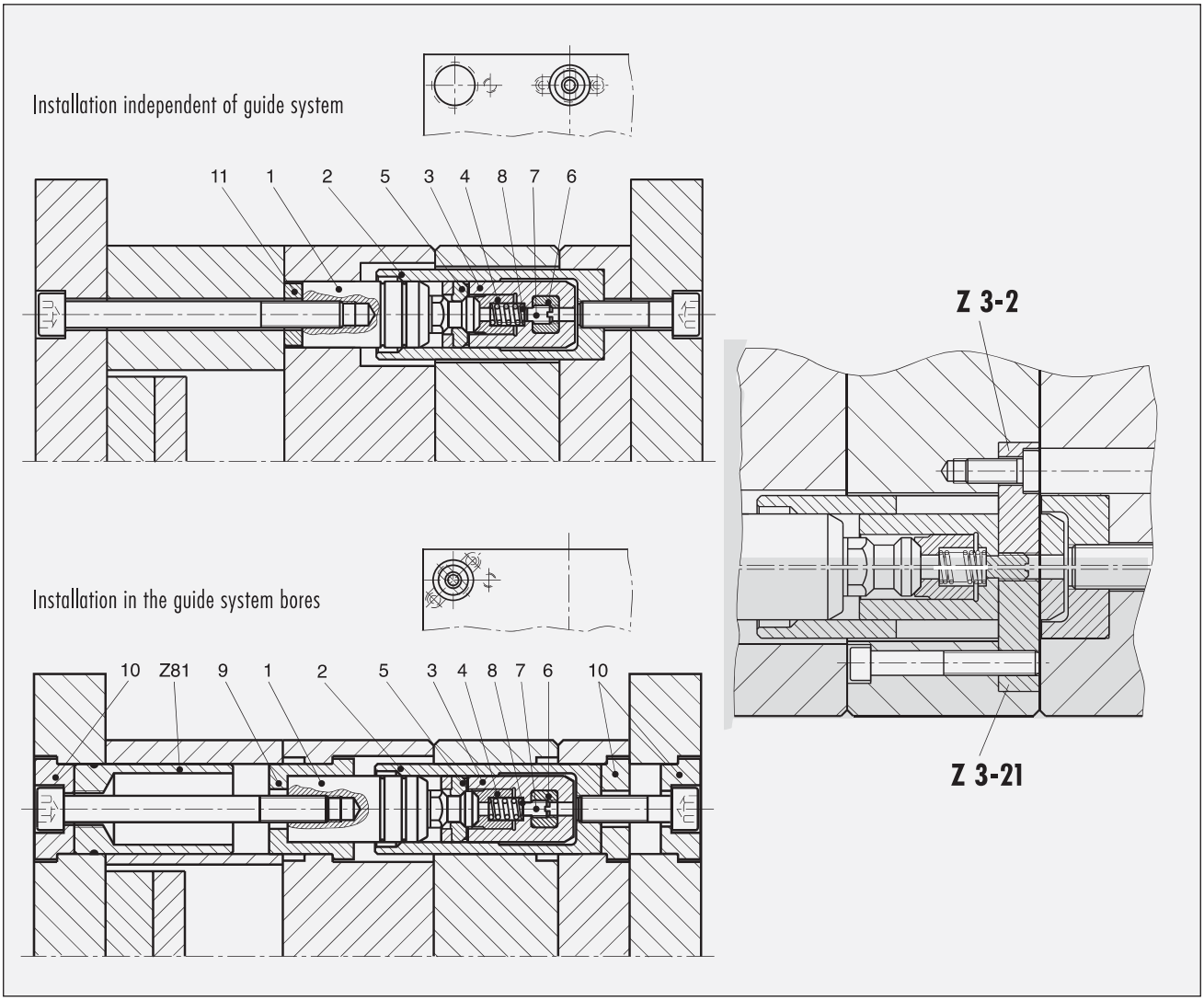
STZ3 - 2 -

Pos.	
10	

STZ3 - 2 -

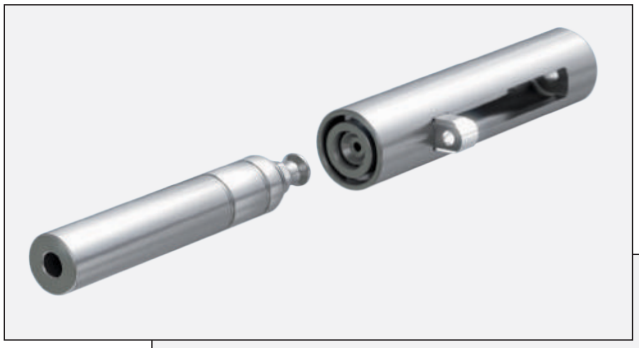
Pos.	S	D	
11	5	25	
	10		

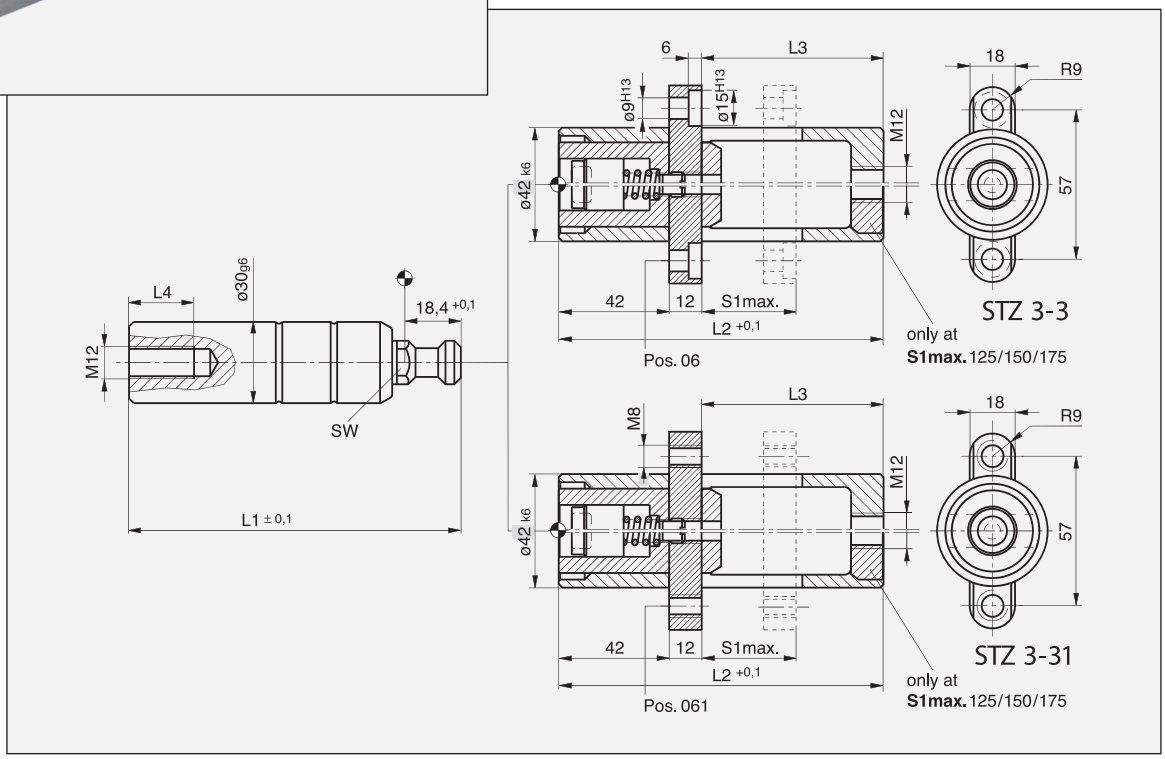
Pos.	S	D	
12	5	34	
	10		



STZ3 -

Type	Item	L1	L2	Description	Quant.	Mat.-No	Hardness
2	01	70	-	Latch Bar	1	1.5920	58 HRC
21	01	120	-	Latch Bar	1	1.5920	58 HRC
	01	170	-	Latch Bar	1	1.5920	58 HRC
	01	220	-	Latch Bar	1	1.5920	58 HRC
	01	270	-	Latch Bar	1	1.5920	58 HRC
2	02	-	86	Housing	1	1.5920	54 HRC
21	02	-	111	Housing	1	1.5920	54 HRC
	02	-	136	Housing	1	1.5920	54 HRC
	02	-	161	Housing	1	1.5920	54 HRC
	02	-	186	Housing	1	1.5920	54 HRC
	02	-	211	Housing	1	1.5920	54 HRC
2	03	-	-	Piston	1	1.2343	52 HRC
21	04	-	-	Securing Ring	1	1.2379	56 HRC
	05	-	-	Catches	2	1.2379	56 HRC
2	06	-	-	Driver	1	1.2343	52 HRC
21	061	-	-	Driver	1	1.2343	52 HRC
2	07	-	-	Socket set screw M6x8	1	Din 915	
21	08	-	-	Spring	1	1.7103	

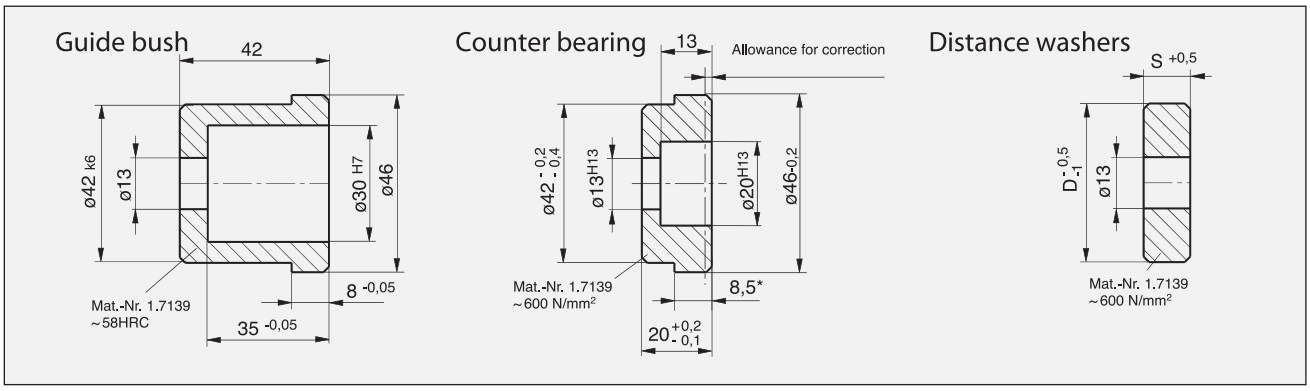




STZ3 - 3 -
STZ3 - 31 -

S1 max.	L1	L2	L3	L4
50	125	130	76	50
	175			
	225			
75	175	155	101	
	225			
100	175	180	126	
	225			

S1max.	L1	L2	L3	L4
125	275	205	151	50
	325			
150	275	230	176	
	325			
175	275	255	201	
	325			



STZ3 - 3 -

Pos.	
09	

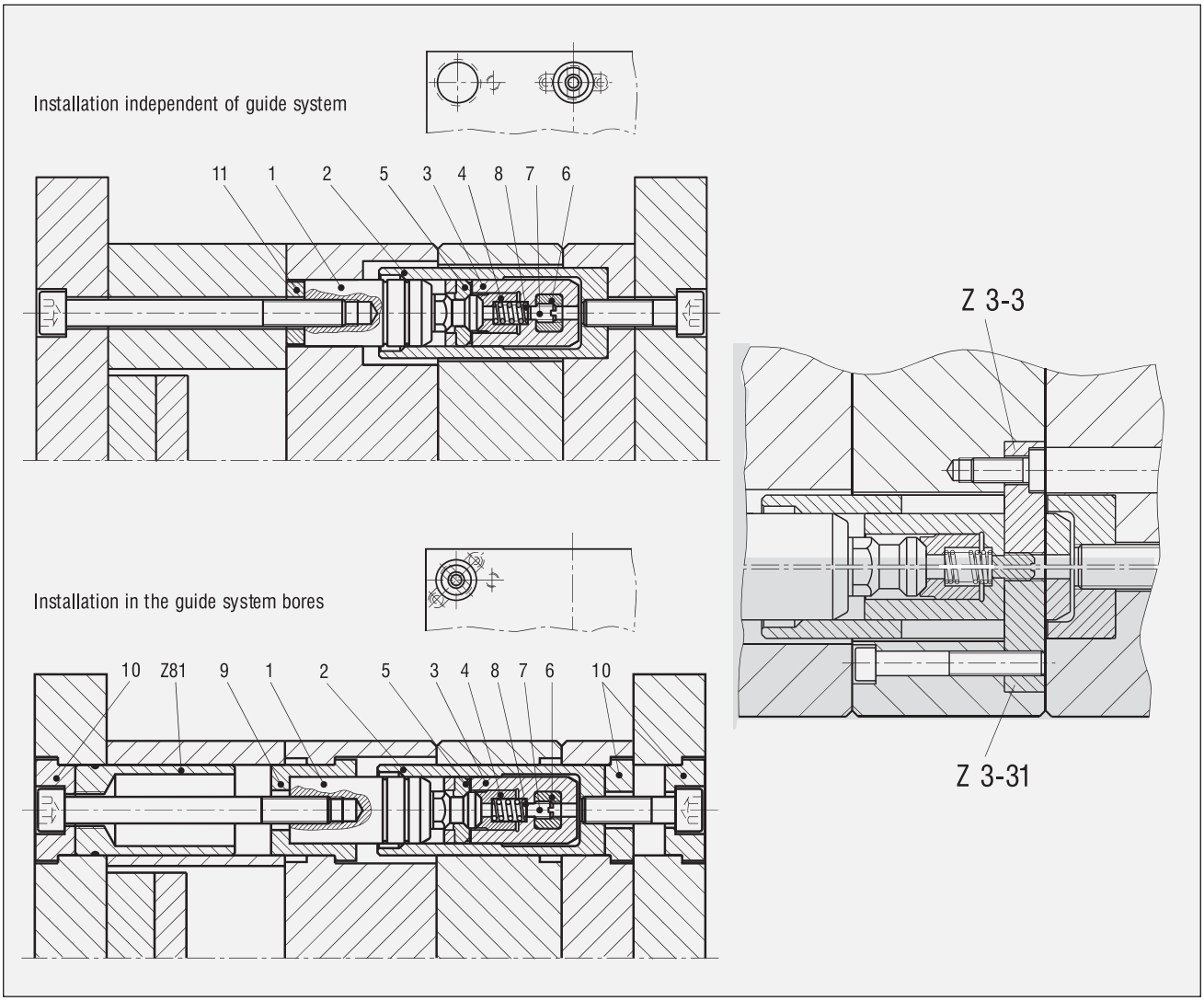
STZ3 - 3 -

Pos.	
10	

STZ3 - 3 -

Pos.	S	D	
11	5	30	
	10		

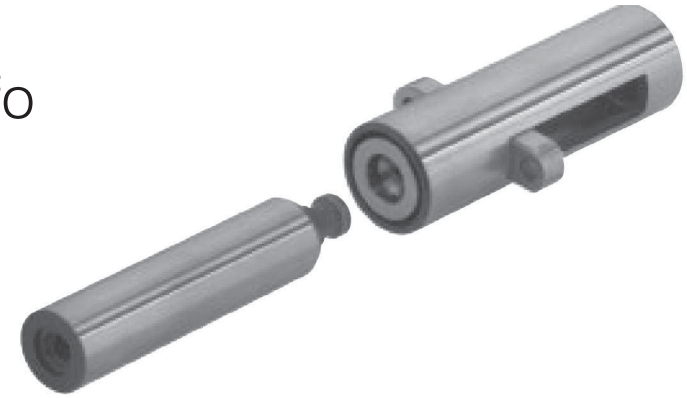
Pos.	S	D	
12	5	42	
	10		

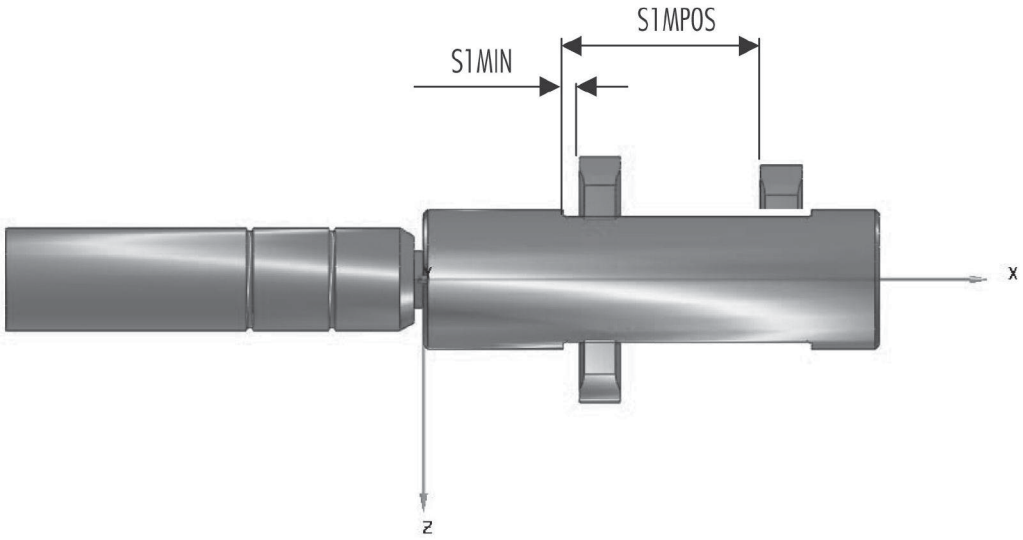


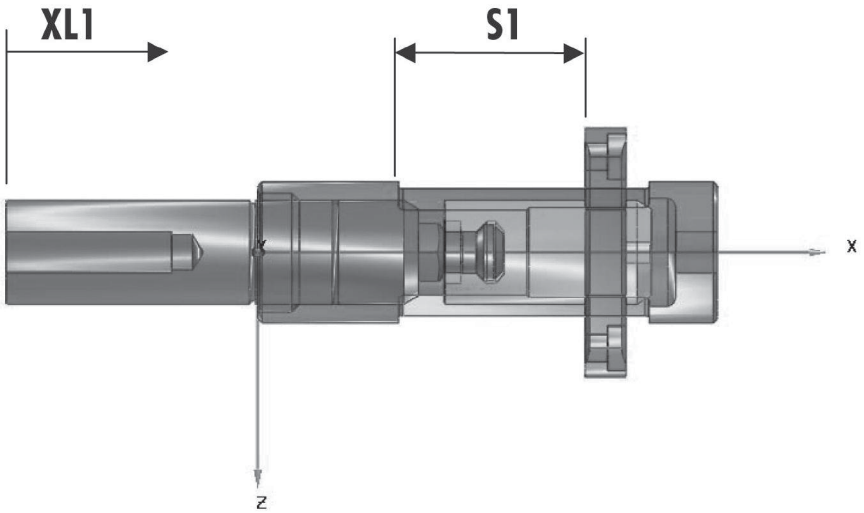
STZ3 -

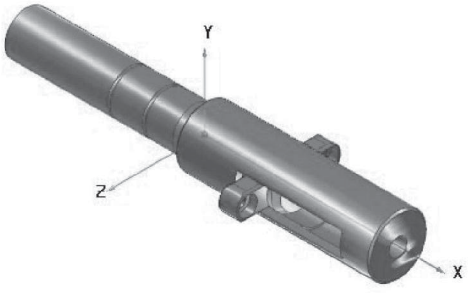
Type	Item	L1	L2	Description	Quant.	Mat.-No	Hardness
3	01	125	-	Latch Bar	1	1.5920	58 HRC
31	01	175	-	Latch Bar	1	1.5920	58 HRC
	01	225	-	Latch Bar	1	1.5920	58 HRC
	01	275	-	Latch Bar	1	1.5920	58 HRC
	01	325	-	Latch Bar	1	1.5920	58 HRC
3	02	-	130	Housing	1	1.5920	54 HRC
31	02	-	155	Housing	1	1.5920	54 HRC
	02	-	180	Housing	1	1.5920	54 HRC
	02	-	205	Housing	1	1.5920	54 HRC
	02	-	230	Housing	1	1.5920	54 HRC
	02	-	255	Housing	1	1.5920	54 HRC
3	03	-	-	Piston	1	1.2343	52 HRC
31	04	-	-	Securing Ring	1	1.2379	56 HRC
	05	-	-	Catches	2	1.2379	56 HRC
3	06	-	-	Driver	1	1.2343	52 HRC
31	061	-	-	Driver	1	1.2343	52 HRC
3	07	-	-	Socket set screw M6x8	1	Din 915	
31	08	-	-	Spring	1	1.7103	

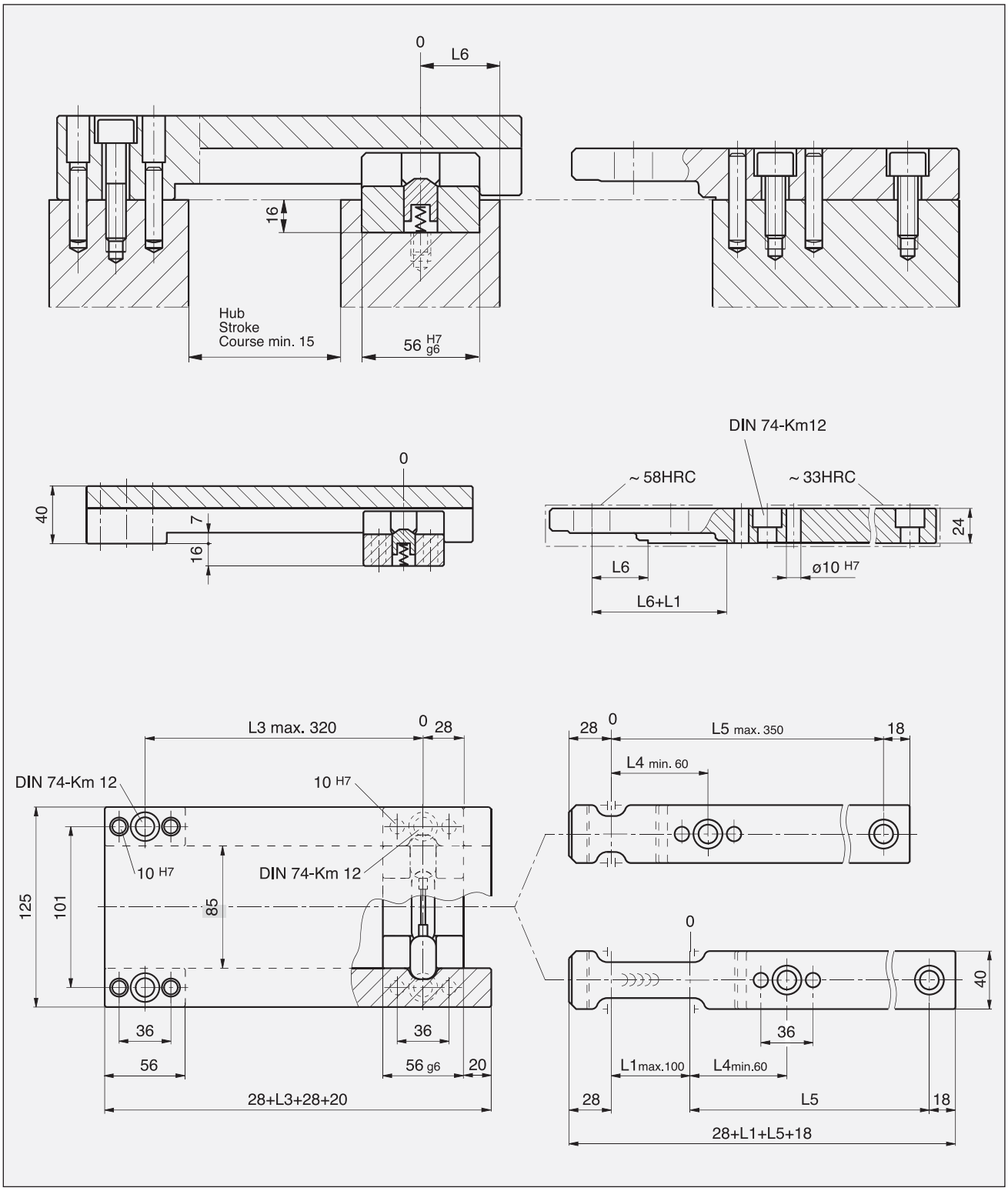
CAD Info





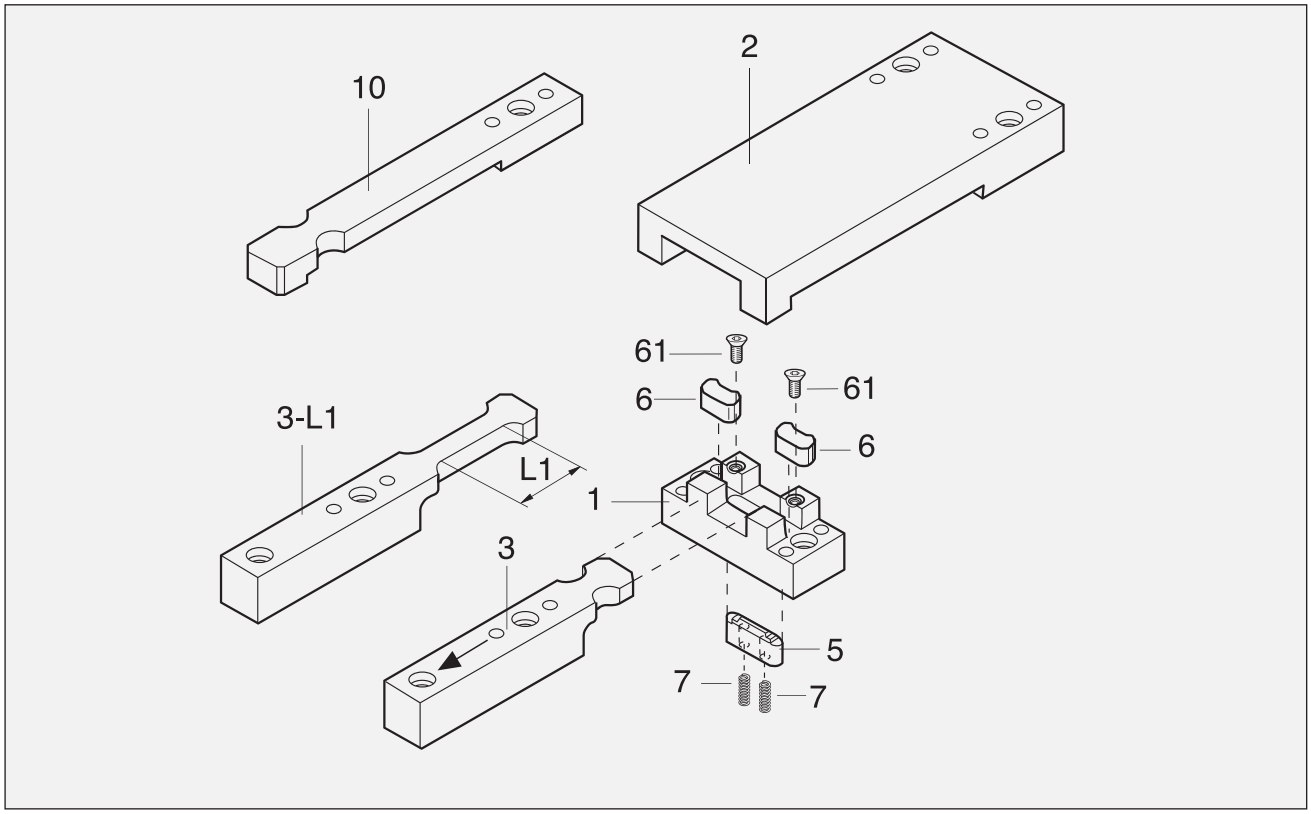






L1	L3	L4	L5	L6	Stck./Quant.

Z4-30-L1-L3-L4-L5-L6

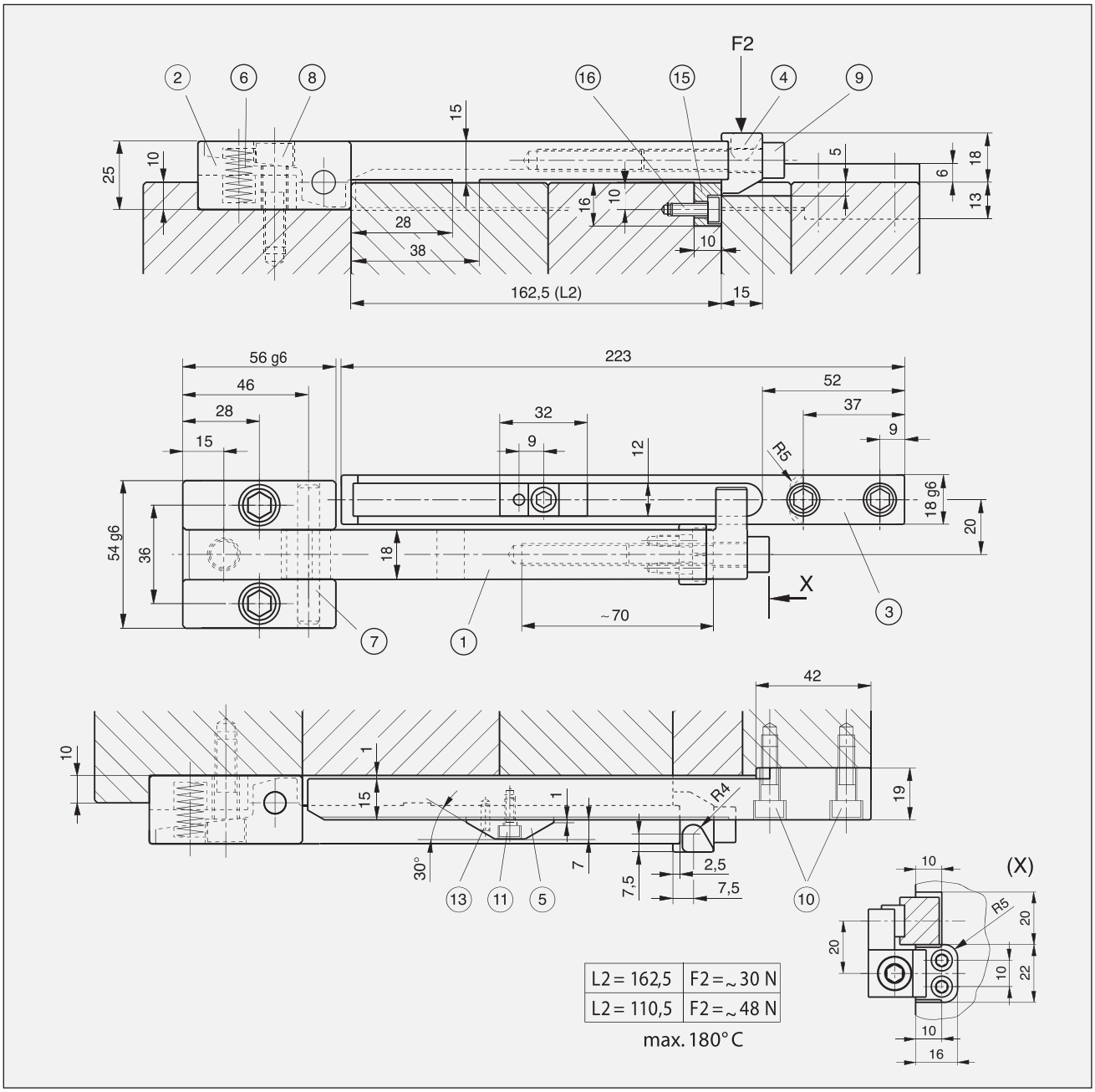


STZ4 - 30 -
STZ4 - 32 -

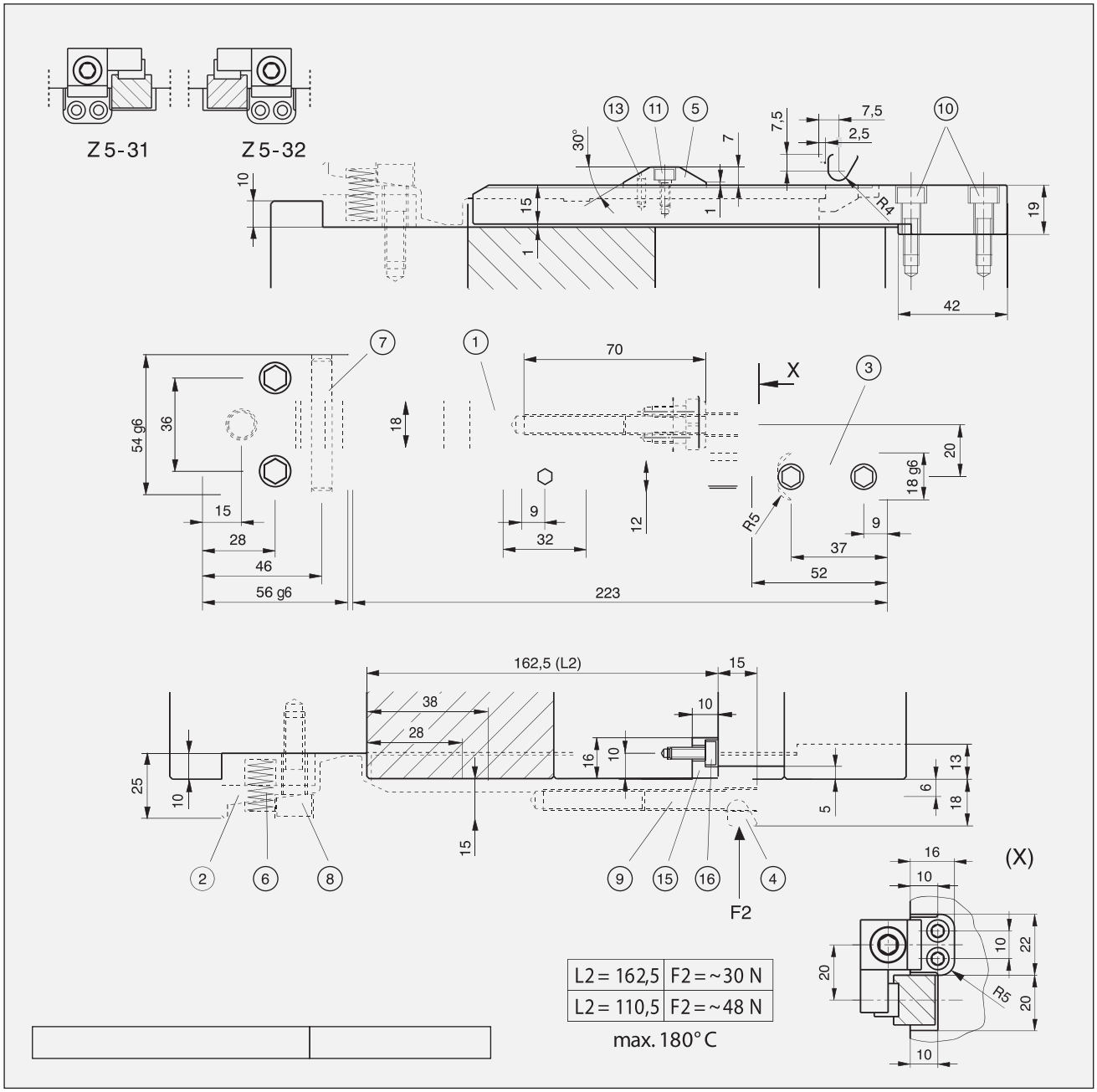
Type		Item	Description	Quant.	Mat.-No	Symbol	Hardness
01		1	Latch housing	1	1.2767	X45NiCrMo4	48 HRC
02		2	Control plate	1	1.2162	21MnCr5	58/33 HRC
03		3	Latch bar	1	1.2162	21MnCr5	58/33 HRC
				1			
03	L1	3-L1	Latch bar with delay L1=max. 100m	1	1.2162	21MnCr5	58/33 HRC
				1			
05		5	Catch stop	1	1.2767	X45NiCrMo4	54 HRC
06		6	Cath	2	1.2767	X45NiCrMo4	54 HRC
061		61	Countersunk screw	2			
07		7	Spring	3			
10		10	Reverse latch bar	1	1.2162	C45W3	58/33 HRC

Z4-30-0	Z4-30-L1	Z4-32
01	01	01
02	02	02
03	03-L1	
05	05	
06 + 061	06 + 061	06 + 061
07	07	
		10

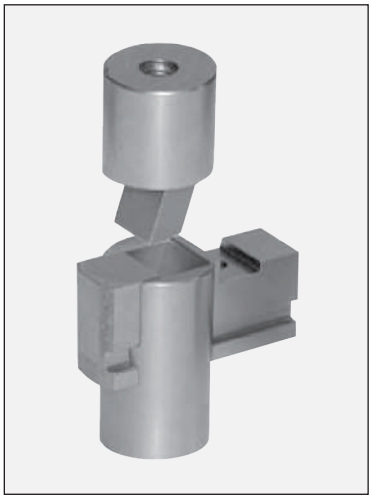
WARNING
If items 2, 3, 3-L1 or 10 are ordered as spare parts, they will be supplied without fixing holes.

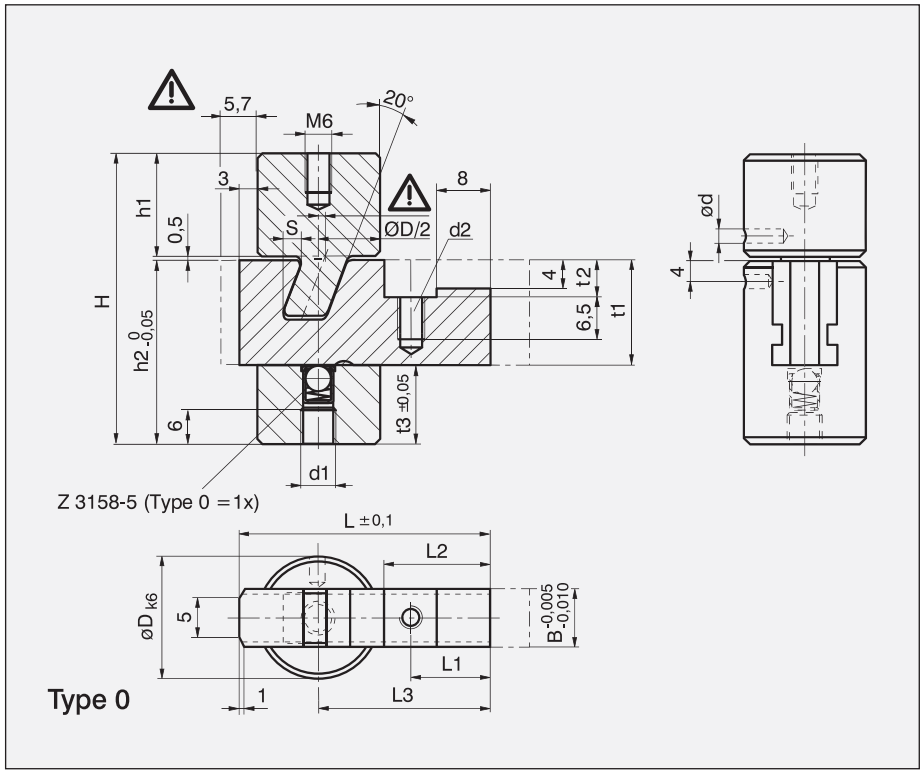


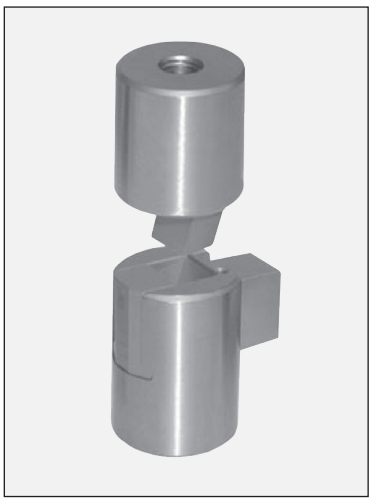
Item	Description	Quant.	Standard	Dimensions	Mat.-No	Hardness
1	Latch arm	1			1.2312	1100N/mm2
2	Fixed block	1			1.2312	1100N/mm2
3	Cam arm	1			1.2312	1100N/mm2
4	Catch	1			1.2767	~ 52 HRC
5	Cam	1			1.2767	~ 52 HRC
6	Spring	1		11,3 x 20	1.1248	52,6 N/mm2
7	Pivot	1		Ø 8 x 50		~ 58 HRC
8	Cap screw	2	DIN EN ISO 4762	M8 x 30		8.8
9	Cap screw	1	DIN EN ISO 4762	M8 x 30		8.8
10	Cap screw	2	DIN EN ISO 4762	M6 x 20		8.8
11	Cap screw	1	DIN EN ISO 10642	M5 x 12		8.8
13	Dowel pin	1	EN ISO 8734	Ø 4 x12		
15	Stop	1			1.2767	~ 54 HRC
16	Cap screw	2	DIN EN ISO 4762	M4 x 12		8.8

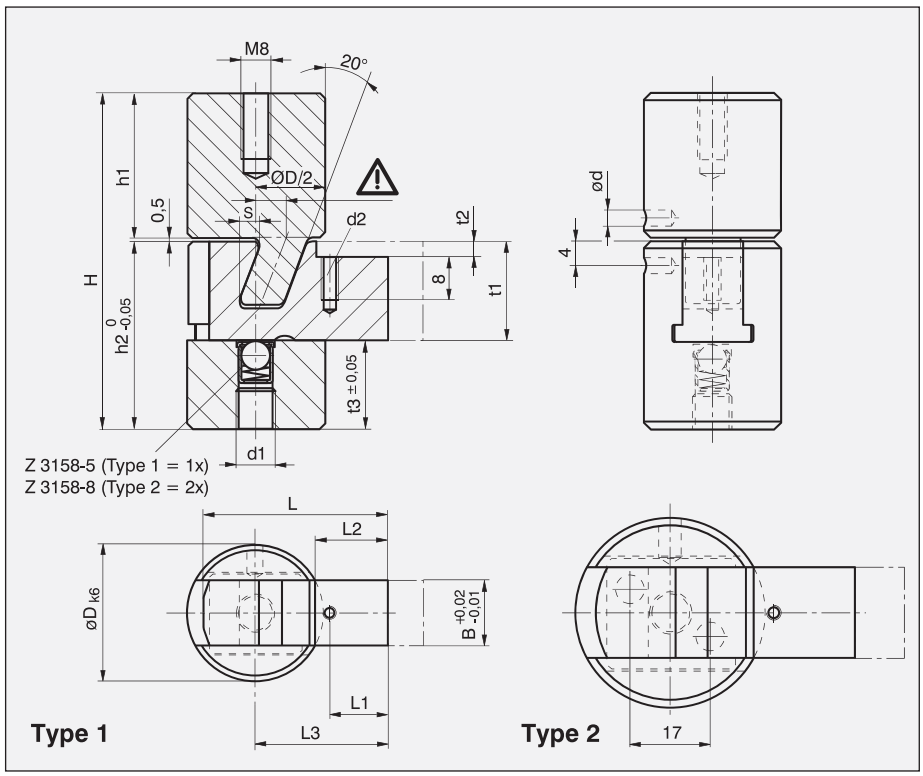


Item	Description	Quant.	Standard	Dimensions	Mat.-No	Hardness
1	Latch arm	1			1.2312	1100N/mm2
2	Fixed block	1			1.2312	1100N/mm2
3	Cam arm	1			1.2312	1100N/mm2
4	Catch	1			1.2767	~ 52 HRC
5	Cam	1			1.2767	~ 52 HRC
6	Spring	1		11,3 x 20	1.1248	52,6 N/mm2
7	Pivot	1		Ø 8 x 50		~ 58 HRC
8	Cap screw	2	DIN EN ISO 4762	M8 x 30		8.8
9	Cap screw	1	DIN EN ISO 4762	M8 x 30		8.8
10	Cap screw	2	DIN EN ISO 4762	M6 x 20		8.8
11	Cap screw	1	DIN EN ISO 10642	M5 x 12		8.8
13	Dowel pin	1	EN ISO 8734	Ø 4 x12		
15	Stop	1			1.2767	~ 54 HRC
16	Cap screw	2	DIN EN ISO 4762	M4 x 12		8.8



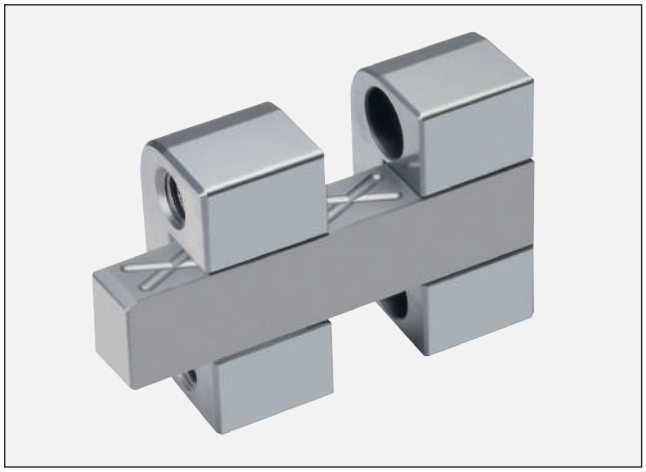


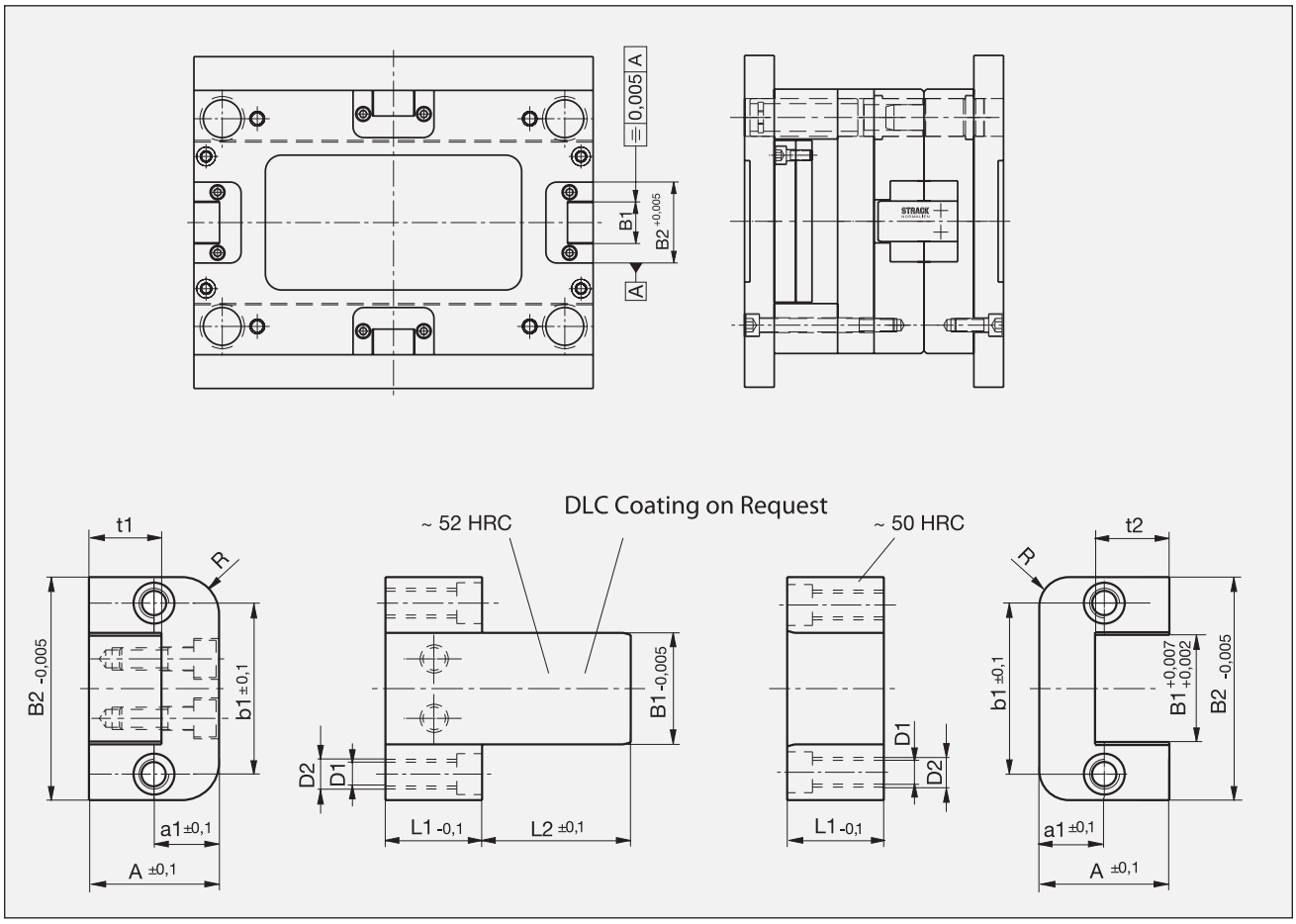




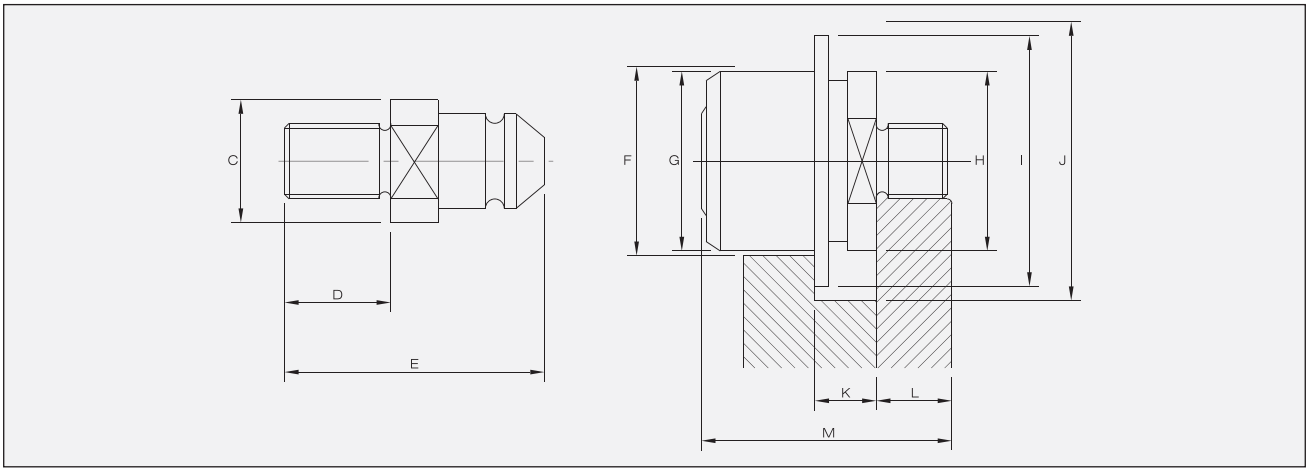
Mat.-Nr. 1.2343/52 HRC

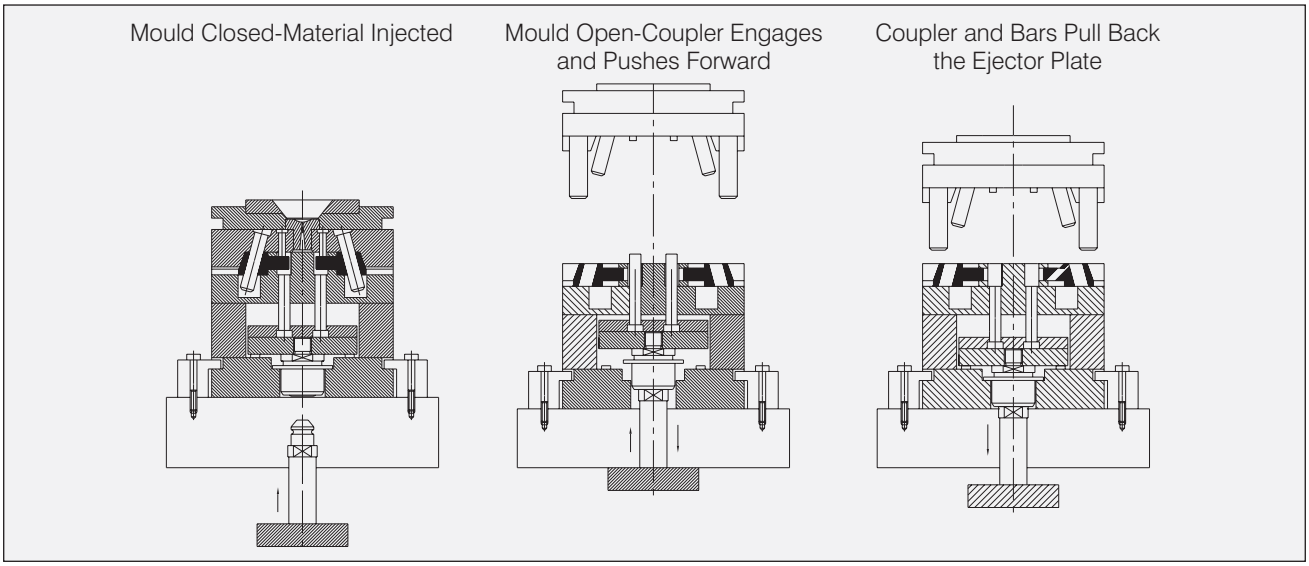
Type	D	B	S	H	h1	h2	t1	t2	t3	L	L1	L2	L3	d	d1	d2	
0	16	10	2,7	44,0	15,0	28,5	16	6,0	12,5	36,0	12,0	16,0	25,0	3	M6	M4	
1	25	11	3,4	61,5	26,5	34,5	18	2,5	16,5	32,8	10,8	13,9	24,2	3	M6	M3	
2	40	22	6,4	60,5	20,0	40,0	28	8,0	12,0	50,0	8,0	20,0	37,0	4	M8	M5	





B1	L1	L2	A	B2	D1	D2	a1	b1	t1	t2	R
16	20	20	22	45	6,8	M8	11	30	11,5	12	8
	20	40	22	45	6,8	M8	11	30	11,5	12	8
30	26	40	35	60	6,8	M8	17,5	46	19,5	20	10
	26	63	35	60	6,8	M8	17,5	46	19,5	20	10
48	36	32	46	100	10,3	M12	23	74	25,5	26	12,5
	36	50	46	100	10,3	M12	23	74	25,5	26	12,5
	36	63	46	100	10,3	M12	23	74	25,5	26	12,5
	36	80	46	100	10,3	M12	23	74	25,5	26	12,5
77	56	50	60	150	14	M16	30	114	35,5	36	16
	56	71	60	150	14	M16	30	114	35,5	36	16
	56	100	60	150	14	M16	30	114	35,5	36	16



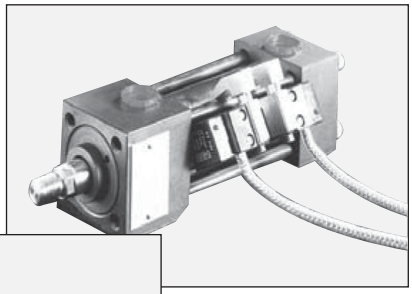


COUPLER									
Code	Thread	F	G	H	I	J	K	L	M
H302M12COUP	12X1.75	34	32	32	39	43	9	15	42.5
H402M16COUP	16X1.5	40	38	38	48	53	13	15	52
H402M162COUP	16X2	40	38	38	48	53	13	15	52
H402M20COUP	20X1.5	40	38	38	48	53	13	15	52
H412M16COUP	16X1.5	58	56	52	65	70	17	18	68

BARBS				
Code	Thread	C	D	E
H301M12Barb	12x1.75	22.8	20	45.5
H401M16Barb	16x2	25.8	20	55
H401M20Barb	20x2.5	25.8	20	55
H411M16Barb	16x2	35	35	68

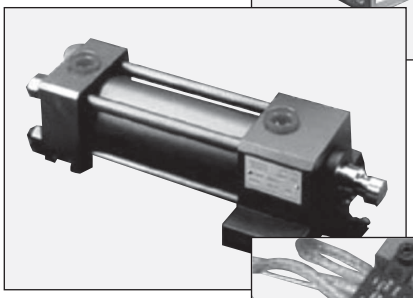
V160C

Tie rod cylinders according to ISO60202 Norms. World wide known standards, bores from 25 to 200 mm. Strokes till 1500 mm. End stroke magnetic switches option (till bore 100 mm.).



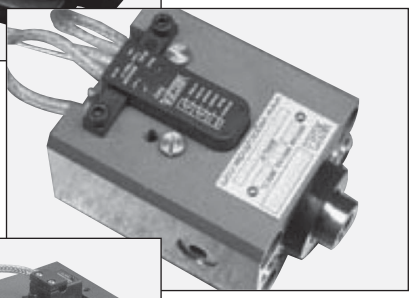
V230T

Tie rod cylinders heavy duty. High pressure, high speed and temperature. Perfect on die casting moulds or for large ejector plates. Bores from 32 to 160 mm. Strokes till 1000 mm. End stroke magnetic switches option.



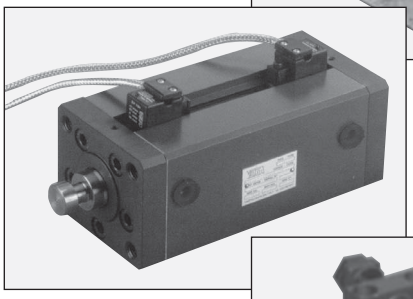
V250CBM

The short stroke “Magnetic” cylinder. Compact, light and versatile aluminium cylinder. Manifold oil delivery option – with o-rings – Bores from 25 to 100 mm. Strokes 20 and 50 mm.



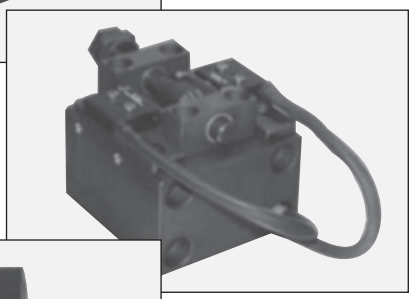
V220CBL

Same philosophy as V250 but with strokes on demand till 500 mm. Bores from 32 to 100 mm.



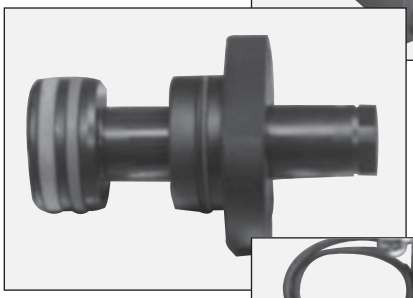
V450CBX

A heavy duty block cylinder. Short stroke. Bores: from 16 to 100 mm. Manifold oil de-livery option and extremely compact mechanical end stroke switches option, on the side with parallel rod. Pressure till 450 bars!



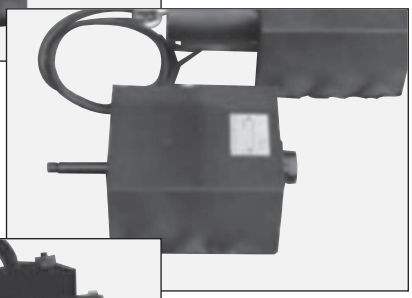
V400CI

The extreme concept of compactness: we supply rod, piston and seals; you build the body inside the mould according to our specifications. Range as V450.



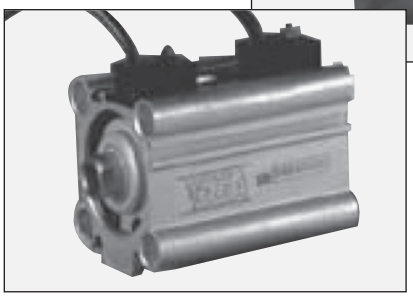
V350CBR

The double rod alternative for the block cylinder heavy duty. On the rear side we can install two mechanical end stroke switches. Bores from 32 to 100 mm. Strokes 30 and 50 mm.



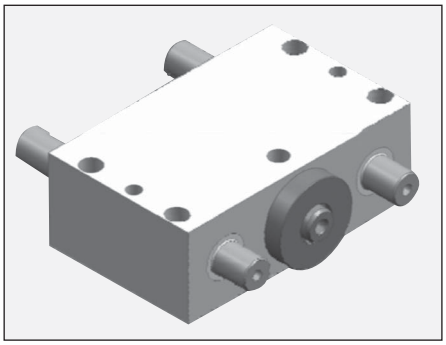
V010

Compact Pneumatic cylinders. Bores from 25 to 100mm. Strokes till 100mm. Magnetic switches open.



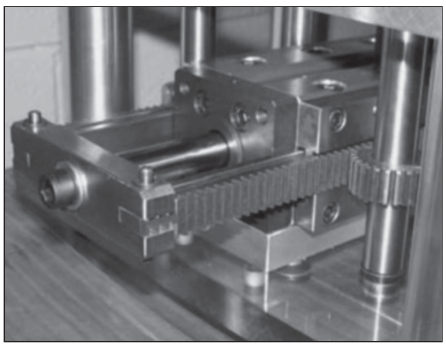
V260LK

The locking rod hydraulic cylinder. In the end stroke position, rod out, a mechanical lock provide a static force increase and permit to contrast the plastic injection force from 7 to 70 tons! Inductive end stroke option.



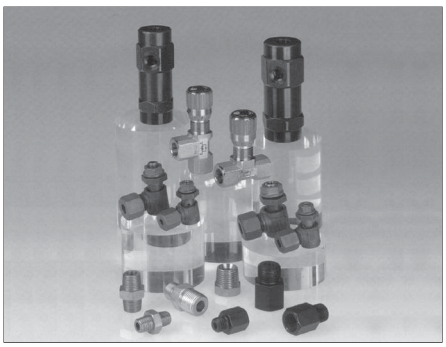
V450CBX + CUT System

An “all in one” solution is also available for a Cutting device. This option is useful in the die casting moulding for cleaning the moulded parts. We supply the complete cylinder with end stroke switches and a kit of components to assemble and customize for the mounting on the mould and for the cutting core by the mould maker. The device is available for Bore 32, 40 and 50mm. in different stroke versions



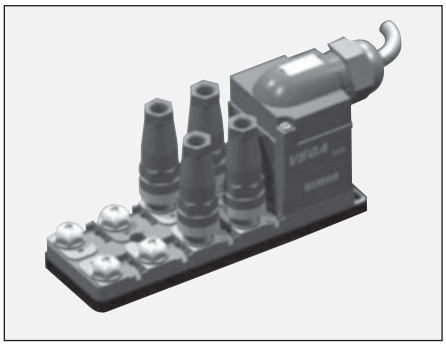
V220CBL + SCREW

An all-in-one solution for threaded cores for a compact and competitive unscrewing solution. All standard component applied on a V220 cylinder. Magnetic switches option. Bores 32, 40 and 50mm. Strokes 300, 400 and 500mm.



VR

A wide range of cylinder accessories: flanges, rod end accessories, non return valves, thermo-isolating plates, flow limiters, switches controllers.



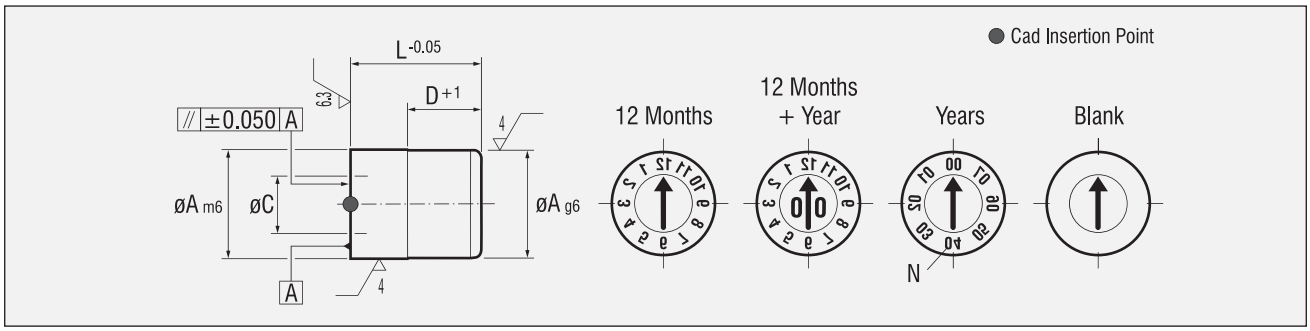
SIM08

A versatile and liable switches connection box for all type of end stroke switches. 8 plugs for connecting max. 8 switches and two clean contacts on exit, one for front position and one for back position.

Date Stamp

Mat.: INOX. 1.4034 - Hard. 51 ± 3 HRC
Maximum working temperature 150°C. Patented System

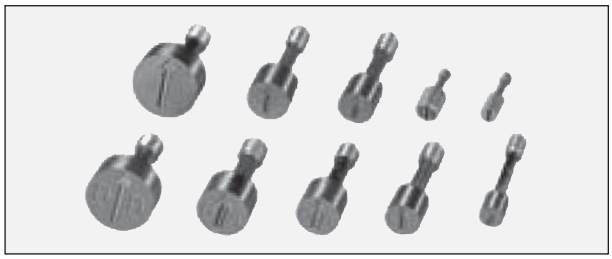
Inner insert is always at the same level as the body of the date stamp. Wide range of diameters. Only a H7 pocket required for assembly. No downtime when changing inserts. Internal mechanism guarantees secure replacement of inserts.



12 Months	12 Mon. + Yr	Years	Blank	A	C	D	E	L	N
CFA.0422SF	FA.042212-..	FA.042204-..	FA.042200	4	2.2	6	3.5	12	4
CFA.0530SF	FA.053012-..	FA.053004-..	FA.053000	5	3	6	3.5	12	4
CFA.0632SF	FA.063212-..	FA.063205-..	FA.063200	6	3.2	12	4	20	5
CFA.0847SF	FA.084712-..	FA.084705-..	FA.084700	8	4.7	12	6	20	5
CFA.1057SF	FA.105712-..	FA.105706-..	FA.105700	10	5.7	12	8	20	6
CFA.1267SF	FA.126712-..	FA.126708-..	FA.126700	12	6.7	12	10	20	8
CFA.1687SF	FA.168712-..	FA.168710-..	FA.168700	16	8.7	12	12	20	10
CFA.2007SF	FA.200712-..	FA.200710-..	FA.200700	20	10.7	12	14	20	10

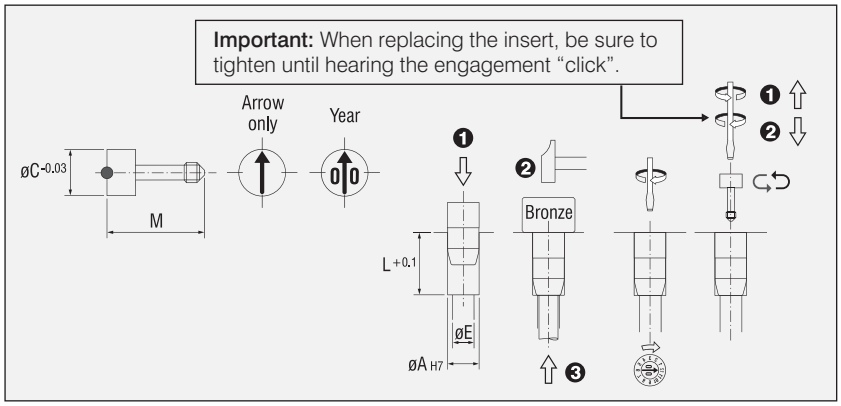
Important: Indicate the desired year after the reference. Special engraving available on request.

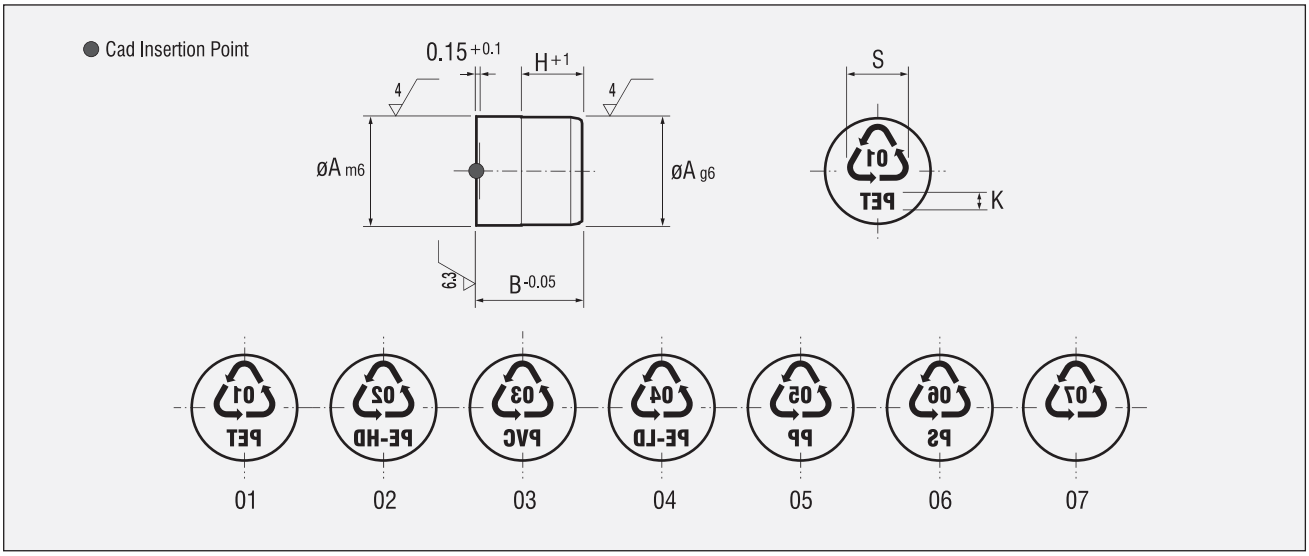
Date Insert



Mat.: INOX. 1.4034
Hardened 51 ± 3 HRC.

Arrow only	Year	C	M
CIA.2275SF	IA.2275..	2.2	7.5
CIA.3075SF	IA.3075..	3	7.5
CIA.3217SF	IA.3217..	3.2	17
CIA.4717SF	IA.4717..	4.7	17
CIA.5717SF	IA.5717..	5.7	17
CIA.6717SF	IA.6717..	6.7	17
CIA.8717SF	IA.8717..	8.7	17
CIA.1007SF	IA.1007..	10.7	17





Mat.: INOX. 1.4034
Hardened 51 ± 3 HRC

Inserts with engraving. Engraving by laser. Hardened and ground to size. Offers a standard solution to the moulder.

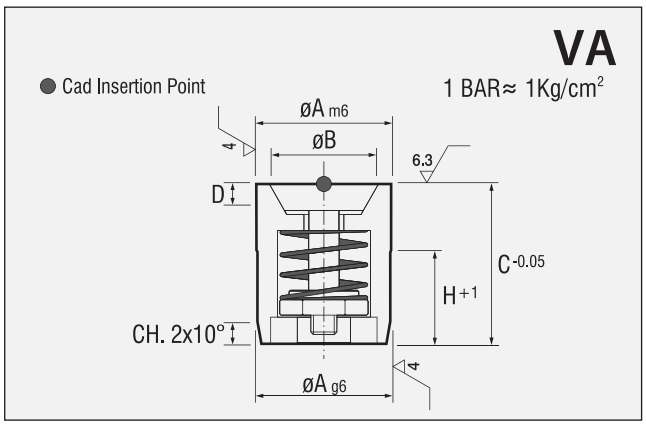
Ref.	A	B	E	H	K	S
CIR.1012..	10	12	8	7	1.5	5.6
CIR.1212..	12	12	10	7	1.8	6.8
CIR.1616..	16	16	12	9	2.4	9
CIR.2016..	20	16	16	9	3.2	11.5

Important: Indicate the desired model after the reference.

Air Poppets

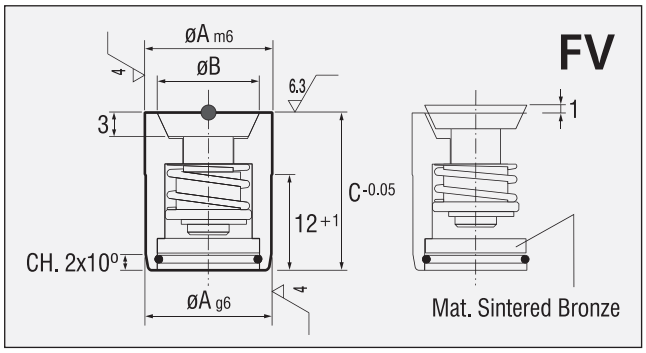
Mat.: INOX. 1.4034
Hardened 51 ± 3 HRC
Working pressure 1.5-6 BARS

Helps part ejection with air. FV has a filter incorporated. VD Allows venting. Wide range of diameters. Offers a standard solution to the moulder



Standard Air Poppets

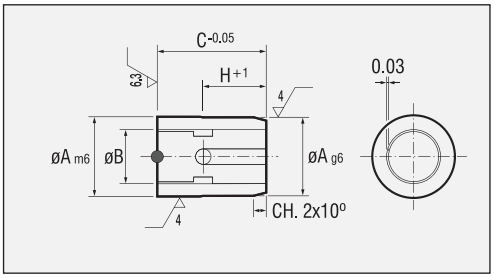
Ref.	A	B	C	D	E	H
CVA.050412	5	3	12	1.5	4	7
CVA.065212	6	5.2	12	1.5	4	7
CVA.086512	8	6.5	12	1.5	4	7
CVA.100812	10	8	12	2	8	7
CVA.121012	12	10	12	2.5	10	7
CVA.161320	16	13	20	3	12	12
CVA.201720	20	17	20	3.5	16	12

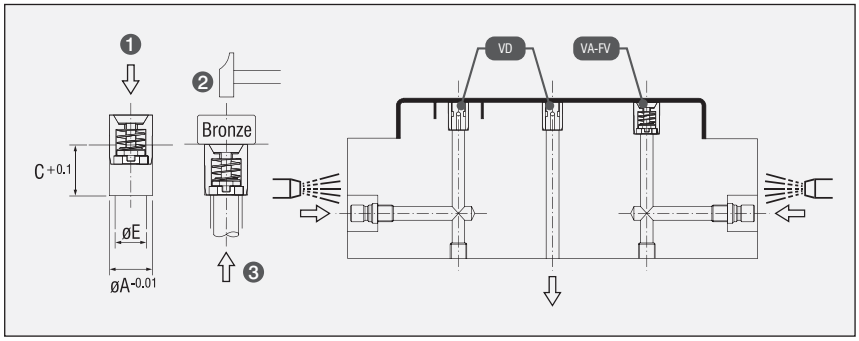


Filter Valve

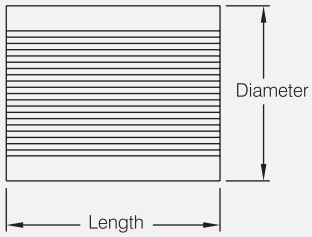
Ref.	A	B	C	E
CFV.161320	16	13	20	14
CFV.201720	20	17	20	18

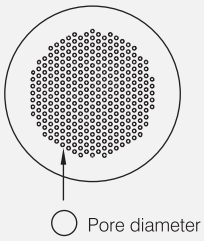
Double Valve





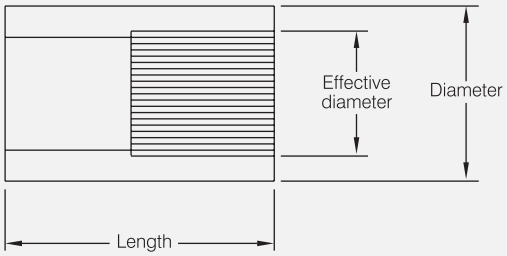
Ref.	A	B	C	E	H
CVD.080512	8	5	12	4	7
CVD.100612	10	6	12	5	7
CVD.120812	12	8	12	7	7
CVD.161020	16	10	20	9	12





Used for Blow Moulding, Diecasting
or Vacuum Casting
Pore Diameter: 0.30mm

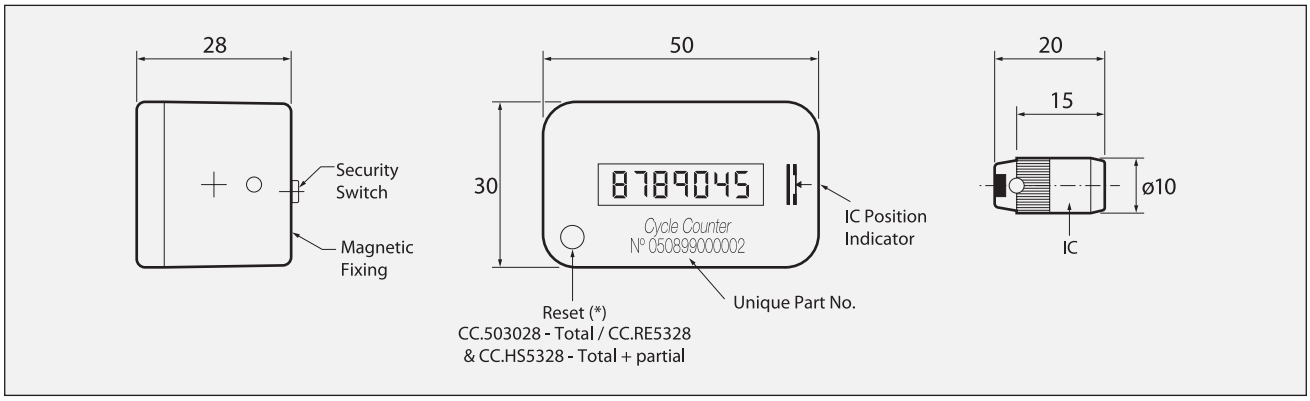
Product Code	30510	30610	30615	30810	30815	31010	31015	31210	31215	31415
Diameter	5	6	6	8	8	10	10	12	12	14
No. of Pores	89	89	89	200	200	340	340	340	340	550
Length	10	10	15	10	15	10	15	10	15	15

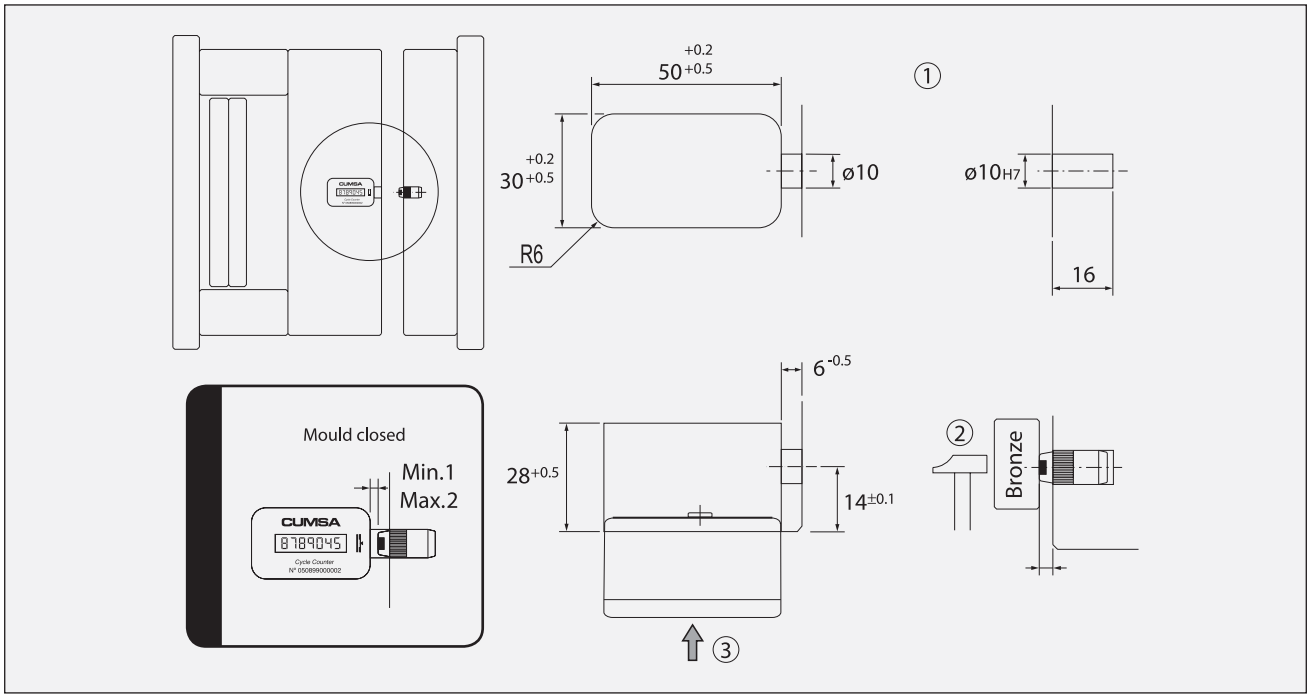


Used for Plastic Injection Moulding
Pore Diameter: 0.03 ~ 0.10mm

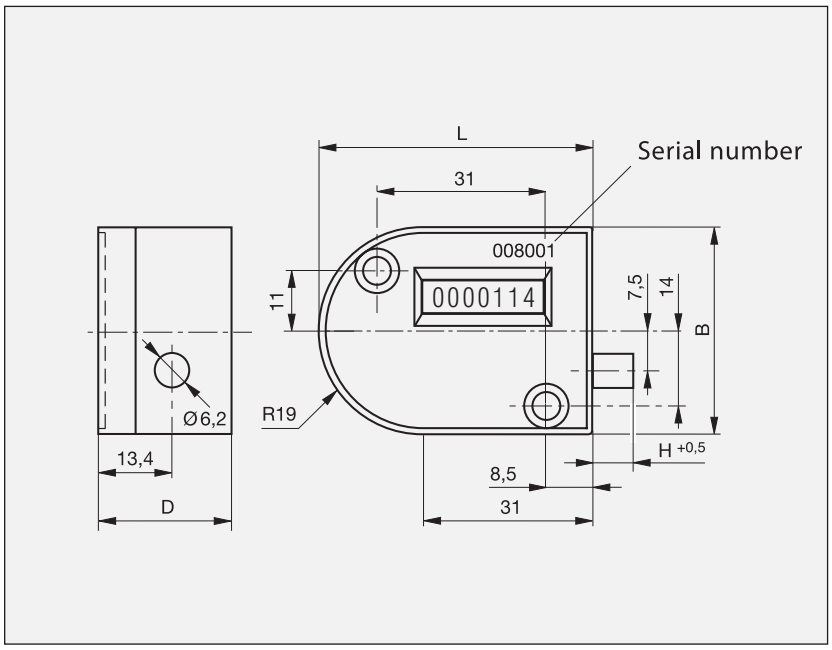
Product Code	SV030410	SV030610	SV030810	SV031010	SV050610	SV050810	SV051010	SV100810	SV101010
Outer Diameter	4	6	8	10	6	8	10	8	10
Effective Diameter	2.5	2.5	2.5	2.5	3.5	3.5	3.5	5.5	5.5
No. of Pores	880	880	880	880	880	880	880	880	880
Length	10	10	10	10	10	10	10	10	10

Mat.: ABS
Maximum working temperature 60°C
Patented System

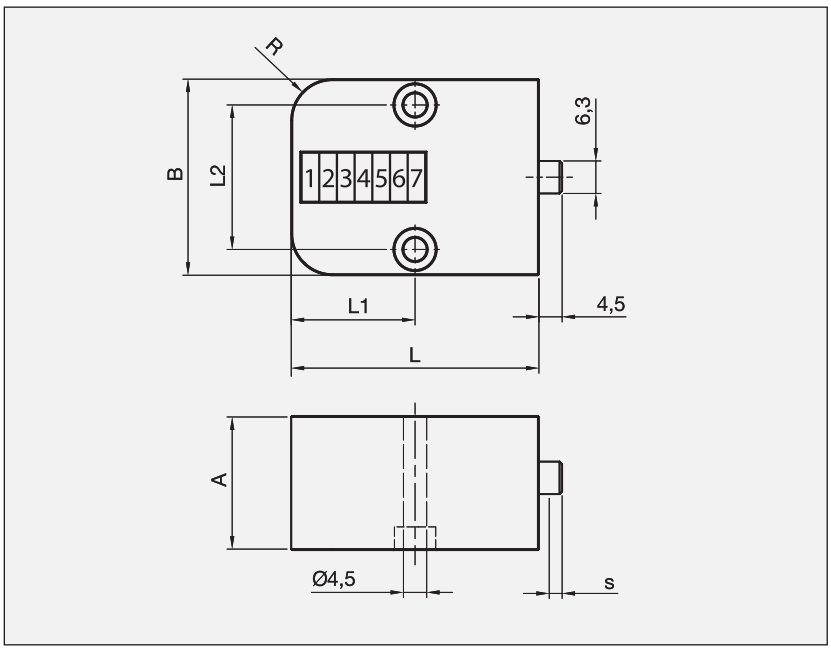




Ref.	Reset (*)	Cycles/Min	Replaceable Battery
CC.503028	-U	p to 100	-
CC.RE5328	•U	p to 100	-
CC.HS5328	•U	p to 500	ER ½ AA



L	B	D	H
50	38	24,5	7,5



B	A	L	L1	L2	R	S
38	26	48	24	28	8	Min. 3,5

TGR TGS S2 with vestige

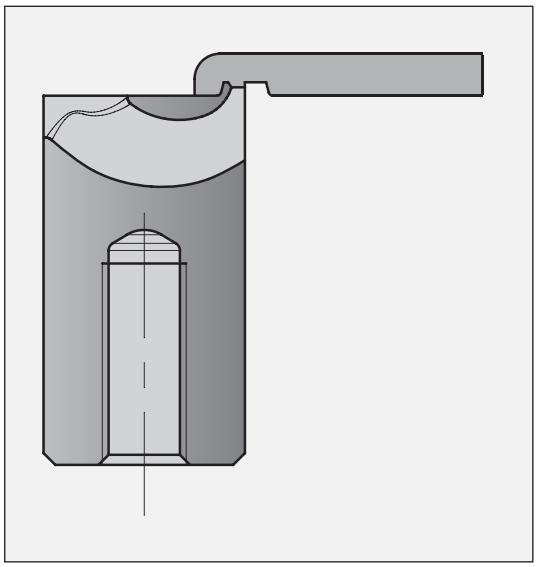
For flat parting surfaces, including vestige with integrated cutting edge

Ready to use! No adjustments necessary

Available in 2 degrees of hardness (60 HRC / 40 HRC)

Available in round (TGR) and square (TGS) versions

Please visit:
www.i-mold.com/produkte/angusseinsa.etze/index.html
to find the full i-Mold catalogue to download.



	TGR 6	TGR/TGS 8	TGR/TGS 10	TGR/TGS 12	TGR/TGS14
Gate point /	0.6	0,6 / 0,8	0,8 / 1,2 / 1,6	1,2 / 1,6 / 2,0	1,6 / 2,0 / 2,4 / 2,8
Ø Runner /	2.5	3	4	5	6

max. Shotweight (g)					
NV = low viscosity	3	5	30	50	200
MV = medium viscosity	2	4	20	35	120
HV = high viscosity	1	3	12	25	75

Limit Switch Mechanical

Z 7600

6 F8

Z 7600-2

6 F8

Z 7615

6 F11

Z 7620

6 F12

Z 7630

6 F13

Z 7632

6 F14

Z 7635

6 F15

Z 7650

6 F16

Z 7660

6 F18

Z 7662

6 F20

Z 7662-2

6 F20/1

Z 7675

6 F20/2

Limit Switch Inductive

Z 7600-4

6 F22

Z 7600-4-5

6 F23

Z 7609

6 F24

Z 7610

6 F26

Z 7685

6 F28

Z 7680

6 F46

For more information, request the Full Strack Catalogue

Connecting Lead

Z 7602

6 F36

Z 7602-1

6 F36

Z 7602-2

6 F36

Z 7603

6 F37

Z 7603-1

6 F37

Z 7603-2

6 F37

Z 7604

6 F37

Z 7612

6 F29

Z 7613

6 F29

Z 7618

6 F39

Z 7619

6 F39

Z 7621

6 F39

Z 7626

6 F39

Z 7627/28

6 F39

Z 7654

6 F40

Z 7657/58

6 F40

Z 7664

6 F40

Z 7665

6 F40

Z 7665-1

6 F41

Z 7666

6 F41

Z 7668

6 F41

Z 7670/72

6 F41

Z 7678

6 F42

Z 7679

6 F42

Z 7682

6 F42

Z 7683

6 F42

For more information, request the Full Strack Catalogue

Adjusting and test facility

Z 7601

6 F36

Z 7601-1

6 F36

Z 7611

6 F37

Z 7611-2

6 F38

Z 7611-4

6 F38

Z 7611-5

6 F38

Z 7651

6 F40

Z 7684

6 F42

Connection Housing

Z 7614

6 F29

Z 7616

6 F30

Z 7616/17

6 F31

Z 7625

6 F32

Z 7676-1

6 F35

Z 7676-2-4
Z 7677-2-4

6 F35

Accessories

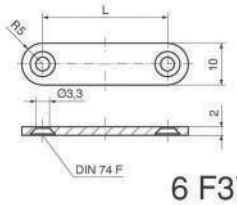
Z 7601-10

6 F36

Z 7605

6 F10

Z 7606



6 F37

Z 7608

6 F9

Z 7609-1

6 F25

Z 7609-2

6 F25

LK-Set-17

6 F43

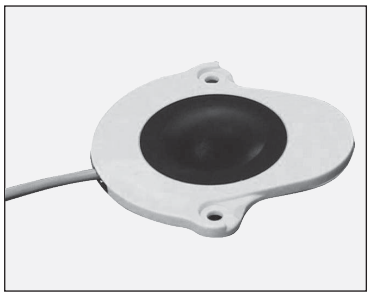
Z 7681

6 F46

For more information, request the Full Strack Catalogue

Smartflow Limit Switches

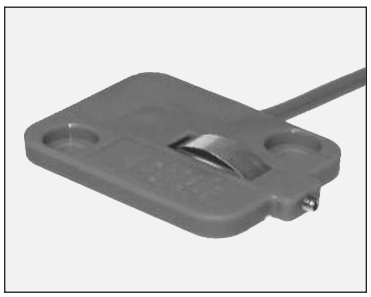
Smartflow® Mould Protective Limit Switches are designed and built by engineers with expert mould-building experience. Thinswitch®, SmartLock® and Versaswitch™ are the benchmark switches in the injection moulding industry. Moulders rely on them to provide dependable position indication and protection for valuable injection moulds.



Thinswitch® Global Limit Switch

Liquid-Resistant Limit Switch - 3mm/4mm Height
Smartflow® Global Thinswitch® Limit Switch helps prevent accidental mould close in injection moulds by verifying ejector plate return in injection moulds with 3mm or 4mm rest buttons, and where occasional water or oil spray is present. A polyurethane dome covers the actuator spring, protecting internal gold switch contacts from environmental contamination.

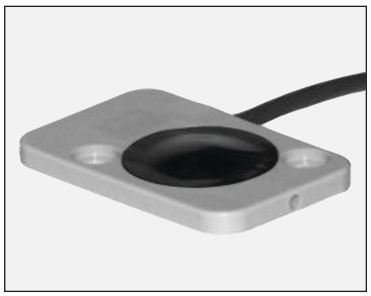
- Adjustable actuation between 3.2mm and 4mm from the switch base (excludes spacer)
- Over 14 million cycle life
- 176F (80C) standard temperature rating



Thinswitch® Limit Switch

Verify ejector plate return before closing the mould. Mount inside ejector housing and wire to machine controls. Use for core slides or any place where space is limited.

- Prevents costly mould damage
- Small size - 2.15” L x 1.5” W x 0.18” thick
- Fits behind ejector plate
- 10 million cycle mechanical life
- Adjustable operating point
- Electrical capacity at 250V AC 5 Amps Resistive, 4 Amps Inductive
- Optional high temperature model



Thinswitch® Liquid Resistant Limit Switch

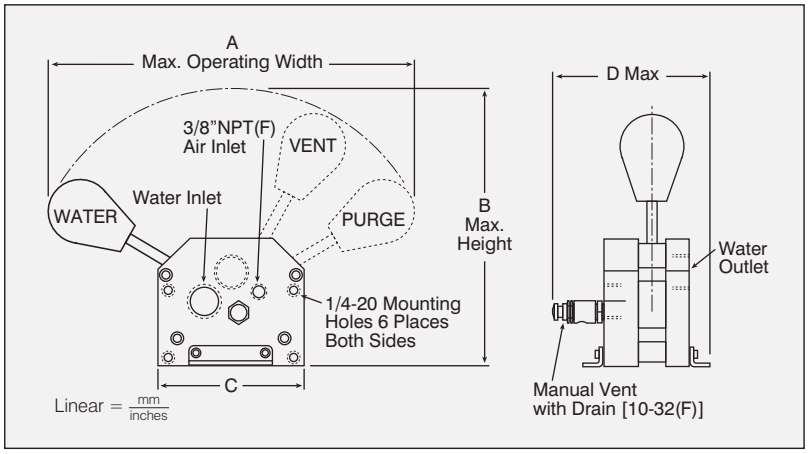
Designed to verify ejector plate return in areas where occasional water or oil spray is present. The Thinswitch helps prevent accidental mould close in injection moulding applications by providing a position switch that is tied to the injection moulding machine control. The liquid resistant switch uses the same mounting hole locations as the original Thinswitch.

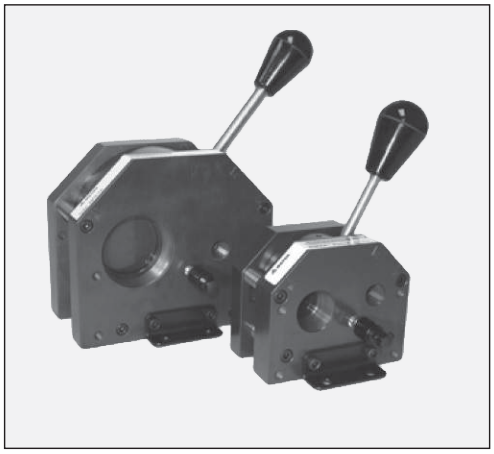
- Over 10 million cycle life
- 175F (79.4C) standard temperature rating
- 250F (121C) high temperature unit for higher temperature needs
- Mounting screws and wire clips included

Smartlock® Core Slide Retainer and Limit Switch

The slide retainer and limit switch is designed for injection moulders to provide switching plus slide retaining in one unique package. The SMARTLOCK® locking function prevents premature slide movement during moulded part ejection while the SPDT switch is simultaneously actuated.

- New capture screw prevents plunger loss.
- Over 10 million cycle life provides long dependable service.
- 27 pounds holding force: adjustable for optimum operation.
- Stripped and tinned 6 ft. wire leads make the switch ready to install without modification.





The Smartflow SWAP® Valve is a simple, manually selectable device that supplies cooling water to the mould during processing or air to purge the water from the mould, cooling lines, Supply and Return manifolds prior to tool change.

The 3-position shear valve is a proven design. The valve selector handle has three positions: WATER, PURGE and VENT. An included check valve should be installed in the return line downstream from the Return manifold to prevent backflow to the mould.

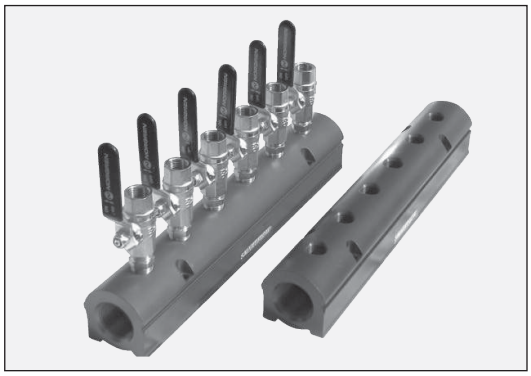
Tubing may be connected to the manual vent-drain port so any residual water after the purge cycle can be drained into a suitable container or floor drain. An optional spring-loaded, locking mechanism on the valve selector assembly is available for moulders who require additional protection from accidental valve movement.

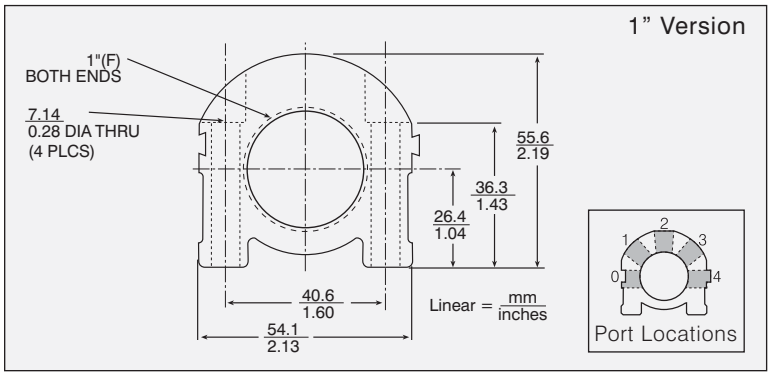
Dimensions		
	SPV8	SPV16
A	295mm/11.6"	395mm/15.5"
B	221mm/8.7"	297mm/11.7"
C	119mm/4.7"	173mm/6.8"
D	130mm/5.1"	160mm/6.3"

	Product Code	Thread Size	Swap Model	Weight
Check Valve included	SPV8-A-A	1"NPT	Standard	3kg 7lbs
	SPV8-L-A	1"NPT	With Locking Pin	
	SPV8B-A-A	1"BSPP	Standard	
	SPV8B-L-A	1"BSPP	With Locking Pin	
	SPV16-A-A	2"NPT	Standard	4.5kg 10.5lbs
	SPV16-L-A	2"NPT	With Locking Pin	
	SPV16B-A-A	2"BSPP	Standard	
	SPV16B-L-A	2"BSPP	With Locking Pin	
Check Valve not included	SPV8B-A-AN	1"BSPP	Standard	3kg 7lbs
	SPV8B-L-AN	1"BSPP	With Locking Pin	
	SPV16B-A-AN	2"BSPP	Standard	4.5kg 10.5lbs
	SPV16B-L-AN	2"BSPP	With Locking Pin	

Accessories			
Product Code	Description	Product Code	Description
DN-8	Dielectric Fitting 1"NPT	PVCV-100*	Brass Check Valve 1"NPT
DN-8B	Dielectric Fitting 1"BSPT	PVCV-200*	Brass Check Valve 2"NPT
DN-16	Dielectric Fitting 2"NPT	PVCV-100B*	Brass Check Valve 1"BSPP
DN-16B	Dielectric Fitting 2"BSPT	PVCV-200B*	Brass Check Valve 2"BSPP
PVOSET-100A	Replacement O-Ring Set 1"	PVCV-3	Air Check Valve 3/8"NPT
PVOSET-200A	Replacement O-Ring Set 2"		

* Included with new SWAP Valve





AVAILABLE IN ¾", 1", 1½" & 2" MANIFOLD

Single or parallel designs and various port configurations provide very compact overall sizes allowing use in restricted areas.

- High quality and manufactured to exacting standards.
- Predrilled for easy mounting
- Single or parallel manifold configuration
- Interlocking bodies (3/4" to 1-1/2")
- One piece extrusion and anodized for corrosion protection.
- Bespoke to your porting requirements
- 3/4" to 2" BSPP Supply - 1/4 to 1" BSPP Ports
- Available with connectors, ball valves and flow meters

HOW TO ORDER

SA - 16 - 2 - 2 - BHY

Supply Threads

NPT	SA
British Parallel	BSA
British Taper	TSA

Number of Ports: 4 to 16

Port Sizes

1/4" NPT (F)	2
1/4" BSPP (F)	2B
1/4" BSPT (F)	2T
3/8" NPT (F)	3
3/8" BSPP (F)	3B
3/8" BSPT (F)	3T
1/2" NPT (F)	4
1/2" BSPP (F)	4B
1/2" BSPT	4T

Port Locations

0	Left Side
1	Left 45°
2	Center
3	Right 45°
4	Right Side

Accessories
(add accessory and anodizing designators to the end of the model number as needed)

A	Manifold Only
B	Ball Valves Only
C	Ball Vales and Plain Flowmeter*
D	Ball Valves and Flowmeters with Thermometers*
E	Ball Valves and Flowmeters with Thermometers and pressure gauges*
F	Plain Flowmeters only*
H	Port Quick Connect Plugs
J	Port Hose Barbs
X	Special (consult the factory)

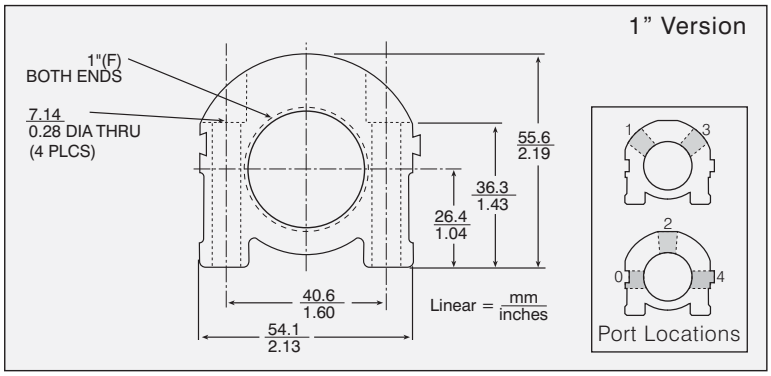
Anodizing

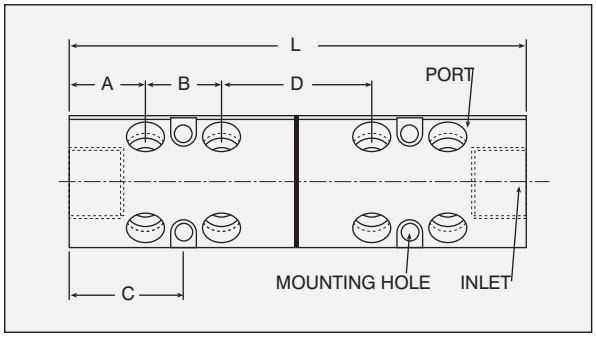
Y	Red
Z	Blue

* Specify flow rate when ordering
Custome port spacing is required when using 1/4" ports with flowmeters.

1" Manifolds								
Number of Ports	1/4" Ports				3/8" Ports			
	Model No	Length mm	Length in.	Weight kg	Weight lbs.	Model No	Length mm	Length in.	Weight kg	Weight lbs.
4	SA-4-2-2	190	7.5	0.9	2.0	SA-4-3-2	229	9	1.1	2.4
6	SA-6-2-2	267	10.5	1.3	2.8	SA-6-3-2	330	13	1.6	3.5
8	SA-8-2-2	343	13.5	1.6	3.6	SA-8-3-2	432	17	2.1	4.6
10	SA-10-2-2	419	16.5	2.0	4.5	SA-10-3-2	533	21	2.6	5.7
12	SA-12-2-2	495	19.5	2.4	5.3	SA-12-3-2	635	25	3.1	6.8
16	SA-16-2-2	648	25.5	3.1	6.9	SA-16-3-2	838	33	4.0	8.9

For paired installation, slide manifolds together using dovetail lock along the side of each manifold.





AVAILABLE IN ¾", 1" & 1½" MANIFOLD

Duoflow Manifolds are robust extruded aluminium manifolds similar to the original Smartflow one-piece design. The manifolds are divided internally and anodized for long term protection. The Duoflow design is available with standard port spacing or a shorter footprint specifically for mounting directly to an injection mould tool.

- Shorter length for easier mounting directly to injection moulds
- Mould-Mount to speed up mould changes
- Economical, Proven Design for reliability
- Optional Quick Disconnect Fittings for ease of installation

HOW TO ORDER

8SDA - 16 - 3 - 13 - YZ - NA-HB2

Supply Threads

NPT	8SDA
British Parallel	8BSDA
British Taper	8TSDA

Number of Ports: 4 to 24

Port Sizes

3/8" NPT (F)	3
3/8" BSPP (F)	3B
3/8" BSPT (F)	3T

Port Locations

13	Left 45˚ & Right 45˚
024	Left, Centre & Right

Connection Type

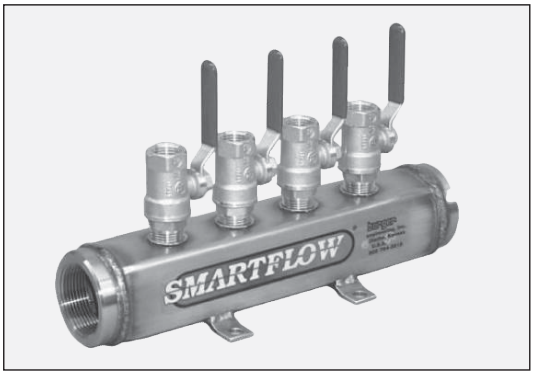
Additional brass fittings are available with NPT threaded manifolds only

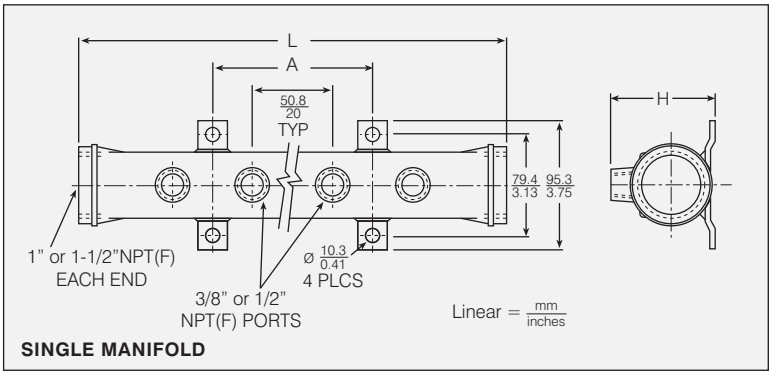
NA-HB2	Hose Barb for 1/4" ID Hose
NA-HB3	Hose Barb for 3/8" ID Hose
NA-HB4	Hose Barb for 1/2" ID Hose
NA-QC2	Quick Connect Plug with 1/4"ID
NA-QC3	Quick Connect Plug with 3/8" ID
NA-QC4	Quick Connect Plug with 1/2" ID

Note: For 3/4" and 1" Manifolds, use port locations 1 & 3, or 0, 2, & 4 in combination for proper port spacing.

1"NPT Manifolds											
Model Number (without brass fittings)	Port Size	Total Ports	Ports per End	A	B	C	D	Length L mm	Length L in.	Weight kg	Weight lbs.
8SDA-8-3-13-YZ	3/8"NPT	8	4	32mm 1.25"	32mm 1.25"	47.6mm 1.875"	57.2mm 2.25"	184	7.25	1.1	2.4
8SDA-12-3-13-YZ		12	6					248	9.75	1.4	3
8SDA-16-3-13-YZ		16	8					311	12.25	1.7	3.7

Stainless Steel Manifolds

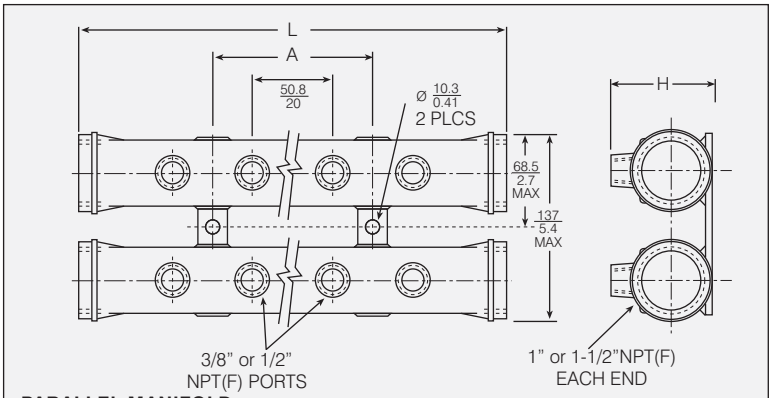




SINGLE MANIFOLD

Smartflow® stainless steel manifolds are formed and welded from 304 stainless steel. The manifolds are 100% leak tested for quality assurance. Smartflow stainless steel manifolds are excellent for high-flow applications where durability is important.

- Single or parallel
- Chemical protection
- Corrosion resistant
- Predrilled for easy mounting
- Available with accessories
- 3/4" to 1-1/2" BSPP Supply - 1/4 to 1/2" BSPP Ports



PARALLEL MANIFOLD

HOW TO ORDER

8 - SS - 16 - 2 - BH

Inlet Sizes (all threads female)

1"NPT	8
1"BSPP	8B
1-1/2"NPT	12
1-1/2"BSPP	12B

Manifold Styles

Single	SS
Parallel	PSS

Total No. of Ports: 4 to 32

Port Sizes (all threads female)

2	1/4"NPT
2B	1/4"BSPP
3	3/8"NPT
3B	3/8"BSPP
4	1/2"NPT
4B	1/2"BSPP
6	3/4"NPT
6B	3/4"BSPP

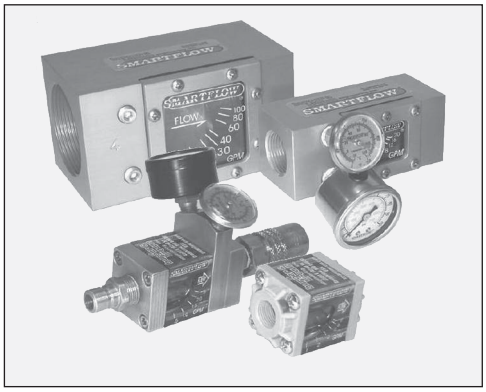
Accessories
(add accessory designators to the end of the model number as needed)

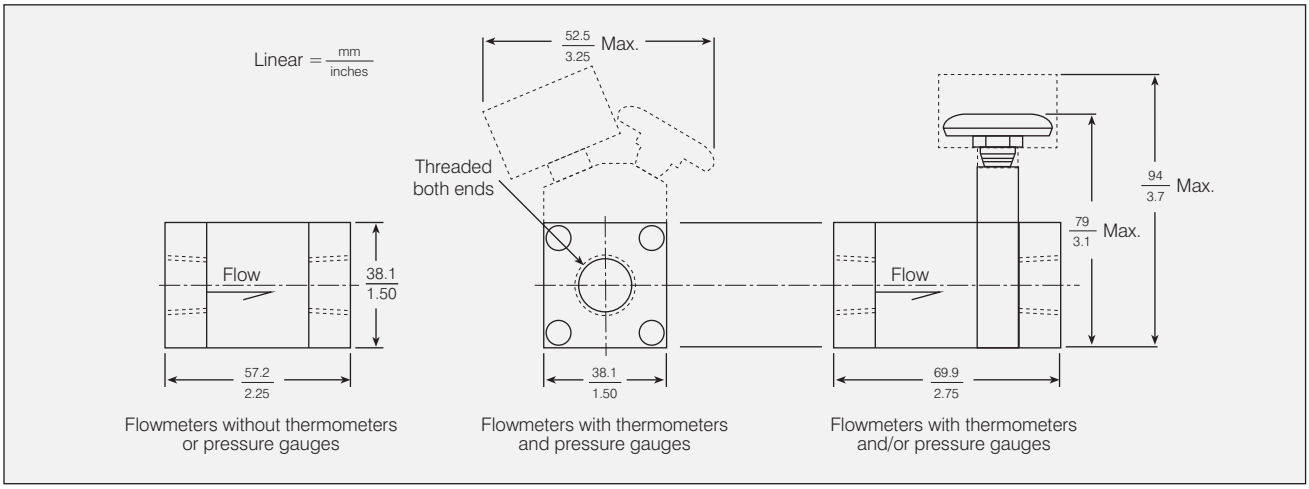
A	Manifold Only
B	Ball Valves Only
C	Ball Vales and Plain Flowmeters*
D	Ball Valves and Flowmeters with Thermometers*
E	Ball Valves and Flowmeters with Thermometers and pressure gauges*
F	Plain Flowmeters Only*
H	Quick Connect Plugs, same size as Manifold Part
J	Hose Barbs, same size as Manifold Part
X	Special

*Specify Flow rate when ordering.
Custome port spacing is required when using 1/4" ports with flowmeters

Inlet	Single Manifolds	Parallel Manifolds	Dimension A	Dimension L	Dimension H
1" Inlet	8SS - 4 - ... - A	8PSS - 8 - ... - A	102mm / 4"	286mm / 11.25"	64mm 2.5" max.
	8SS - 6 - ... - A	8PSS - 12 - ... - A	203mm / 8"	387mm / 15.25"	
	8SS - 8 - ... - A	8PSS - 16 - ... - A	305mm / 12"	489mm / 19.25"	
	8SS - 10 - ... - A	8PSS - 20 - ... - A	406mm / 16"	591mm / 23.25"	
	8SS - 12 - ... - A	8PSS - 24 - ... - A	508mm / 20"	692mm / 27.25"	
	8SS - 14 - ... - A	8PSS - 28 - ... - A	610mm / 24"	794mm / 31.25"	
	8SS - 16 - ... - A	8PSS - 32 - ... - A	711mm / 28"	895mm / 35.25"	
1 - 1/2" Inlet	12SS - 4 - ... - A	12PSS - 8 - ... - A	102mm / 4"	299mm / 11.75"	76mm 3" max.
	12SS - 6 - ... - A	12PSS - 12 - ... - A	203mm / 8"	400mm / 15.75"	
	12SS - 8 - ... - A	12PSS - 16 - ... - A	305mm / 12"	502mm / 19.75"	
	12SS - 10 - ... - A	12PSS - 20 - ... - A	406mm / 16"	603mm / 23.75"	
	12SS - 12 - ... - A	12PSS - 24 - ... - A	508mm / 20"	705mm / 27.75"	
	12SS - 14 - ... - A	12PSS - 28 - ... - A	610mm / 24"	806mm / 31.75"	
	12SS - 16 - ... - A	12PSS - 32 - ... - A	711mm / 28"	908mm / 35.75"	

... = port thread size (3 = 3/8"NPT(F) or 4 = 1/2"NPT(F))





AVAILABLE AS SMALL, MEDIUM OR LARGE MECHANICAL FLOWMETERS

Smartflow® mechanical flowmeters are durable, vane- operated devices that provide visual indication of flow rate in many different styles and sizes. Rugged wetted parts are compatible with many process liquids.

Optional temperature and pressure gauges add functionality and flexibility to Smartflow® flowmeters. Brass quick-connect fittings are available on the smaller flowmeters to create an excellent, portable tool for determining flow and locating clogged lines.

· Flow Accuracy: ±10% full scale

· Operating Temperature: 99°C max.

· Operating Pressure: 100 psi max. (6.9 bar max.)

· Dial Thermometer: -20° to 120°C ±2% accuracy (full scale)

· Pressure Gauge: 0 to 100 psi (0 to 700 Kpa) ±3% accuracy (full scale)

Turbulent Flow				
Cooling Line Inside Diameter			Turbent Flow Rate	
pipe size	drill size (dia.) inches	mm	gpm	lpm
1/16”	1/4	6.6	.33	1.3
1/8”	R	8.73	.44	1.7
1/4”	7/16	11.8	.55	2.1
3/8”	19/32	15.25	.74	2.8
1/2”	23/32	19.05	.90	3.4
3/4”	15/16	24.5	1.17	4.5
1”	1-5/32	30.75	1.44	5.5

HOW TO ORDER

F 3 - D - 25

Inlet Sizes

1/4”NPT(F)	2
1/4”BSPP(F)	2B
3/8”NPT(F)	3
3/8”BSPP(F)	3B
1/2”NPT(F)	4
3/4”NPT(F)	6

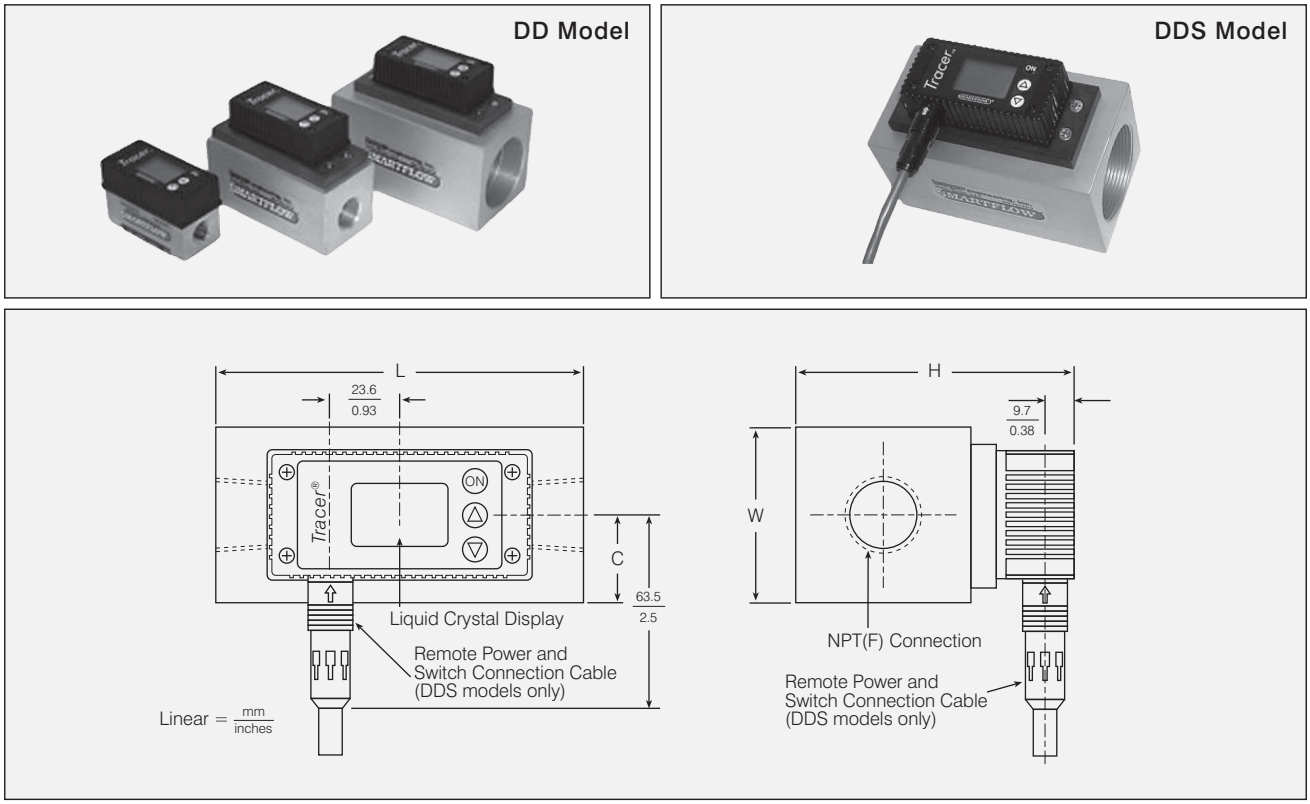
Accessories

A	Flowmeter only
B	Thermometer
C	Thermometer and pressure gauge
CL	Thermometer and liquid-filled pressure gauge
D	Thermometer, pressure gauge, quick change socket and plug*
DL	Thermometer, liquid-filled pressure gauge, quick change socket and plug
E	Thermometer and quick change socket and plug*
F	Pressure gauge
FL	Liquid-filled pressure gauge

Flow Rate (max)

15	1.5 gpm (gallons per minute)
25	2.5 gpm
80	8.0 gpm
100	10 lpm (litres per minute)
300	30 lpm

*Not available with 3/4” inlet



DD Model - Tracer® Electronic Flowmeter
With FCI (Flow Characteristic Indicator) Model DD Measures liquid flow rate, temperature, calculates BTU's per minute, and Turbulent Flow. Quickly spot-check temperature and flow in water lines using the LCD TRACER® flowmeter. This portable LCD unit is unmatched as a troubleshooting tool.

· Bi-directional flow reading makes installation simple and convenient

· Automatic display shut-off prolongs battery life

· Corrosion-resistant wetted parts assure long-lasting durability

DDS Model - Switching Tracer® Flowmeters
with Programmable SPDT Switch, Analog Output, and Flow Characteristic Indicator (FCI). Model DDS Measures liquid flow rate and temperature while providing one programmable switching set point for high or low flow or temperature.

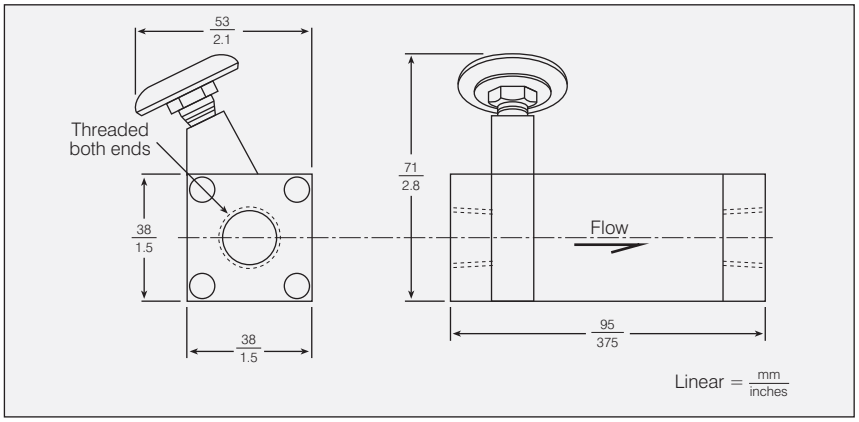
· Programmable SPDT Switch Low or High Flow and Temperature

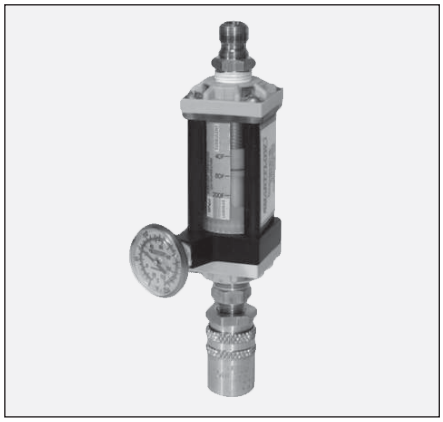
· Bi-directional flow reading makes installation simple and convenient

· 3/8" through 2" NPT(F) inlet/outlet installs easily into existing plumbing

Display Tracer	Switching Tracer	Connection Size	Flow Range	Max Dimensions (mm/in) L	H	W	C
DD-3B	DDS-3B	3/8" NPT (F)	0 - 8gpm 0 - 30lpm	87/3.42	58/2.27	42/1.67	21/0.8
DD-3B-B	DDS-3B-B	3/8" BSPP (F)					
DD-3E		3/8" quick connect					
DD-6B	DDS-6B	3/4"NPT (F)	2 - 20gpm 8 - 76lpm	121/4.75	94/3.70	57/2.25	29/1.13
DD-6B-B	DDS-6B-B	3/4"BSPP (F)					
DD-8B	DDS-8B	1"NPT (F)	3 - 30gpm 11 - 114lpm				
DD-8B-B	DDS-8B-B	1"BSPP (F)					
DD-12B	DDS-12B	1-1/2"NPT (F)	6.5 - 60gpm 25 - 228lpm	140/5.50	118/4.65	76/3.00	38/1.50
DD-12B-B	DDS-12B-B	1-1/2"BSPP (F)					
DD-16B	DDS-16B	2"NPT (F)	10 - 110gpm 38 - 418lpm				
DD-16B-B	DDS-16B-B	2"BSPP (F)					

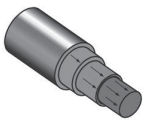
add "SS" suffix to above model numbers for 303 Stainless steel bodies with NPT threads only.





Using Fluid Characteristic Indication (FCI) technology, Dr. Eddy displays the condition of the water as it relates to flow efficiency: laminar flow, transient flow, or turbulent flow. Dr. Eddy has four scales built into the meter: three scales for FCI and one scale for flow rate. FCI Scales are selectable and correspond to cooling line inside diameter: 1/4", 3/8", or 1/2". Flow rate scale can be referenced quickly for additional functionality. The flow scale displays flow rate in gallons or liters per minute depending on the model. A dual scale temperature gauge is standard on all models for process comparison to the FCI Scales.

Dr. Eddy applies the science of heat transfer, diagnosing the condition of cooling water lines at a glance. Cooling water capacity can be conserved plant-wide by using the minimum amount of flow that will produce turbulence on all presses.


Laminar flow


Turbulent flow

Turbulent Flow Basics

Turbulent water flow is much more efficient at removing heat in a cooling system than water flowing under laminar conditions. Once turbulent flow is achieved, increasing the flow rate does not significantly improve the cooling rate of the system.

In moulding applications, many mould operators try to maximize the flow of water through their cooling systems to ensure turbulent flow. Doing so increases energy costs for pumping more water than necessary through the system. This practice may also limit the amount of cooling water available for cooling additional moulds on the same cooling system circuit.

By insuring turbulent flow using FCI Technology, less water can be used in the moulding process, saving precious resources.

HOW TO ORDER

FC3 - B - E

Brass End Caps

Inlet Sizes	
1/4"NPT(F)	FC2
1/4"BSPP(F)	FC2B
3/8"NPT(F)	FC3
3/8"BSPP(F)	FC3B

Nylon End Caps

Inlet Sizes	
1/4"NPT(F)	FCP2
1/4"BSPP(F)	FCP2B
3/8"NPT(F)	FCP3
3/8"BSPP(F)	FCP3B

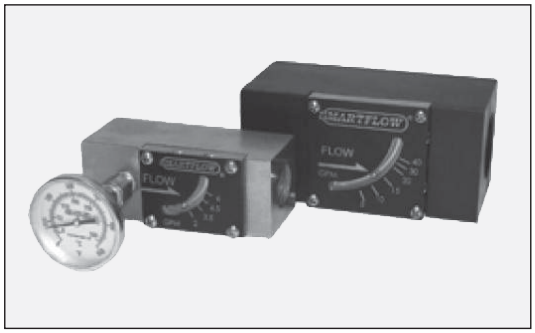
Accessories

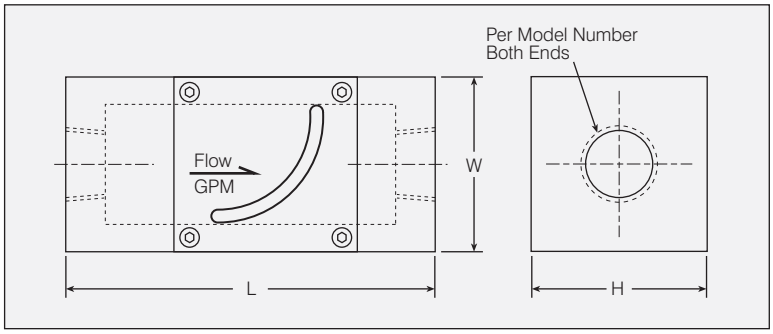
B	Thermometer (standard)
E	Thermometer with quick-connect socket and plug

Scale Units

E	English (Temp in °F and Flow in GPM)
M	Metric (Temp in °C and Flow in LPM)

Hot Oil/Water Flowmeters





Durable, vane-operated devices that provide visual indication of flow rate. The indicator ball is separated from the process by a high temperature gasket and stainless steel plate. A glass window retains the indicator ball. This flowmeter is designed specifically for hot oil or hot water circulating loops in industrial processes.

· Optional Temperature Gauge provides added function.

· Temperature rating to 288˚C

· Pressure rate to 150 psi (10.34 bar)

Model HF8
Carbon steel body (black oxide finish) with 1"NPT connection, suitable for hot oil applications, 5-40gpm scale.

Model HF4		
Product Code	Temp. Ga.	L x W x H
HF4-A-60	no	3.75 x 1.5 x 1.5
HF4-B-60	yes	3.75 x 1.5 x 1.5

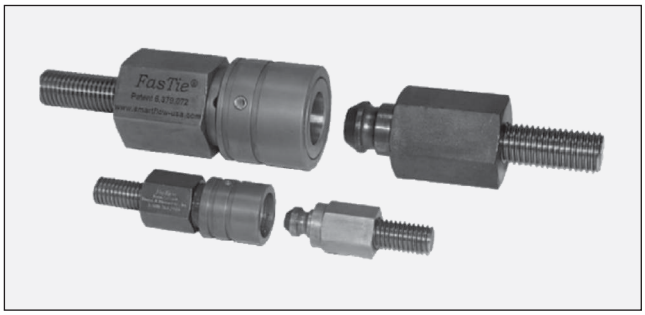
Model HF4
Stainless steel body with 1/2"NPT connection, suitable for hot oil or pressurized water applications, 2-6gpm scale.

Model HF8		
Product Code	Temp. Ga.	L x W x H
HF8-A-40	no	4.75 x 2.25 x 2.25
HF8-B-40	yes	4.75 x 2.25 x 2.25

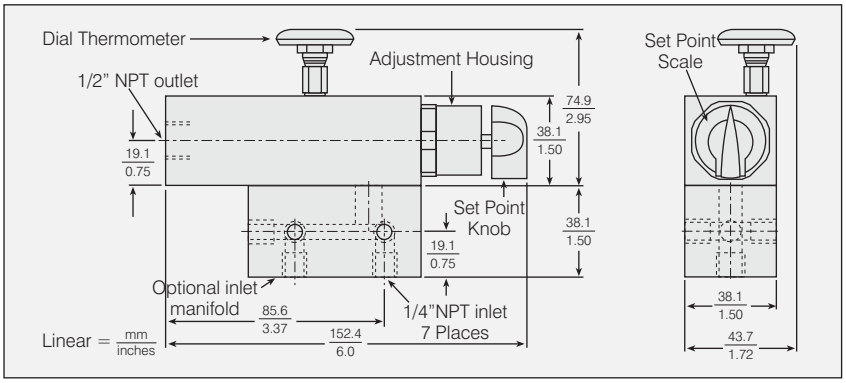
FasTie Ejector Fast Connectors

Quickly "ties-in" the mould ejector plate to the press ejection system in an injection moulding press, dramatically reducing mould change time. The greatest time savings are realized in presses where space is limited and the ejector system is difficult to tie in using solid knock-out bars.

The FasTie coupler is permanently mounted to the press ejector plate. The quick-connect locking mechanism in the coupler snaps mechanically onto the mould-mounted stud during mould installation. Three FasTie sizes are available: 1-inch, 1-3/8 inch & 2-inch models suitable for most presses and knockout configurations.



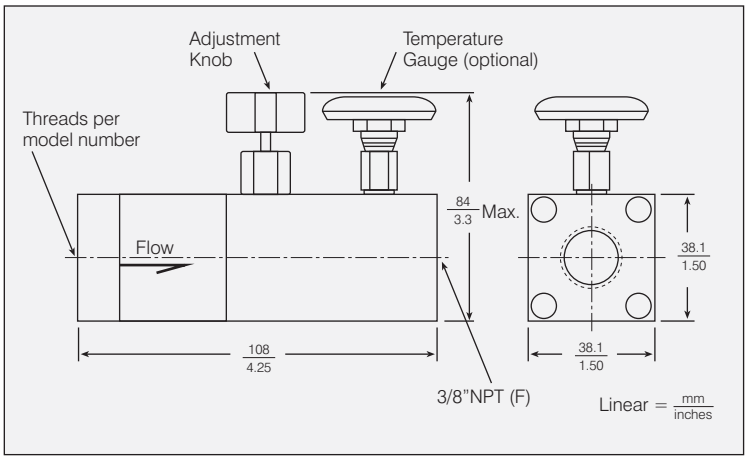
· Flexible modular system
· Hardened steel components
· Super Fast mould changes
· No mould or ejector modifications required
· Ejector force 2.5 tonnes (1") 7.5 tonnes (2")
· Space saving connectors only 1" or 2" diameter

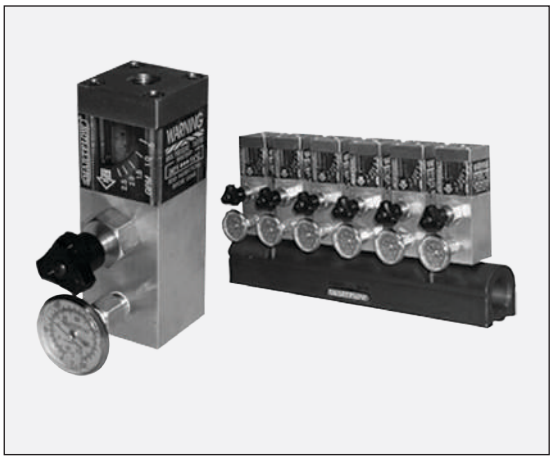


Effectively controls mould cooling water temperature between 80°F and 120°F (27°C and 49°C) to maintain a steady mould temperature. Installed to control water flow exiting an injection mould, the Mould Temperature Regulator quietly recovers waste heat from the resin shot, working without electricity to reduce shop floor clutter and cut production costs.

Product Code	Inlet	Outlet
WDT2-N2-N4	1/4" NPT (F)	1/2" NPT (F)
WDT2-S2-P2	1/4" Quick Connect Socket	1/4" Quick Connect Plug
WDT2-S3-P3	3/8" Quick Connect Socket	3/8" Quick Connect Plug
WDT2-N2-N4-M	1/4" NPT (F) 7 port Manifold	1/2" NPT (F)
WDMF-100 (manifold only)	1/4" NPT (F) 7 port	

Flow Regulators





Smartflow Flow Regulators provide a unique, leak-free, single-point manual flow control. This regulator incorporates the proven mechanical flowmeter and integral needle valve in a compact design. Very few moving parts improve reliability and leak-free operation. Used singly or in combination with a water manifold, the flow regulator allows manual control of individual cooling water lines.

· Leak free design
· Solid Brass Body
· Needle valve vontrol
· Optional Temperature gauge

HOW TO ORDER

FR3 - B - 25

Inlet Sizes

1/4"NPT(F)	FR2
1/4"BSPP(F)	FR2B
3/8"NPT(F)	FR3
3/8"BSPP(F)	FR3B
1/2"NPT (F)	FR4
1/2"BSPP(F)	FR4B

Flow Rate (Max)

15	1.5 gpm (gallons per minute)
25	2.5 gpm
80	8.0 gpm
100	10 lpm (litres per minute)
300	30 lpm

Accessories

A	Flow Regulator Only
B	Thermometer (standard)
E	Thermometer and quick change socket and plug

Delta-Q Precision Flow Regulator

Delta-Q™ is a precision flow regulator module that can be used in conjunction with other SMARTFLOW components such as threaded end caps, flowmeters, temperature and pressure gauges, Dr. Eddy® Flowmeter/Turbulent Flow Indicator, Tracer® Electronic Flowmeters, and cooling water manifolds. The Delta-Q Regulator allows full adjustability of flow volume from unrestricted flow to complete shut off using the manual flow control knob.

The modular design allows users to customize models meeting scientific cooling requirements for each application. The glass-filled nylon body is lightweight and durable. Internal stainless steel components are resistant to corrosion.

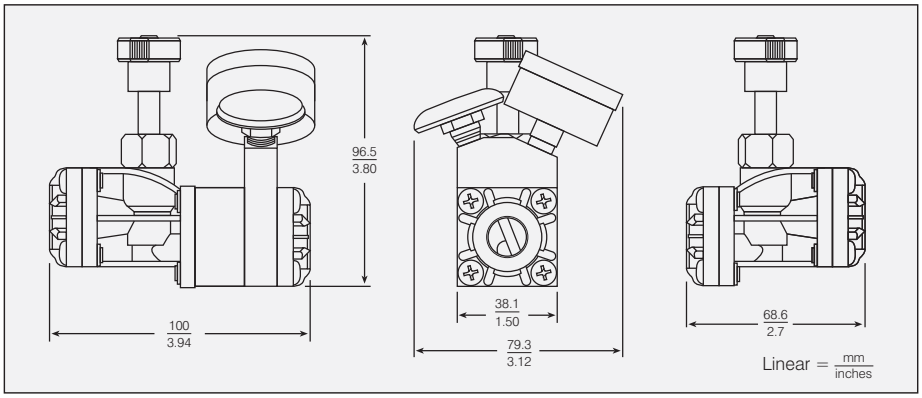
MEASUREMENT OPTIONS USING DELTA-Q AS YOUR PLATFORM FOR SCIENTIFIC COOLING:

With an IcecubeTM Flowmeter
Attach Delta-Q to a basic mechanical Ice- cube Flowmeter for economical flexibility of application. The modu- lar design allows the addition of individual measurement compo- nents: temperature gauge, pressure gauge, or liquid-filled pressure gauge. Quick disconnect fittings can also be added to create a portable troubleshooting tool to be kept in a toolbox or mold tryout station. In addition to the parameter measurements, Delta-Q allows technical molders to experiment with dif- ferent flow rates while the meter is connected, making Scientific Cooling easier.

With a Dr. Eddy® Flowmeter/Turbulent Flow Indicator
Attach Delta-Q to a Dr. Eddy meter to detect turbulent flow using FCI (Flow Characteristic Indication) Technol- ogy. The presence of turbulent flow indicates that the most efficient cooling is present. The swirling and mixing of the water inside cooling passages creates the greatest heat transfer from the mold to the cooling medium. When attached to a Dr. Eddy, the Delta-Q becomes a valuable capacity conservation tool. Conserving cooling water at each cooling supply line preserves water capacity in other locations in the shop. Downstream presses can have greater cooling water volume available when up- stream cooling line efficiency is maximized.

With a Tracer® Electronic Flowmeter
Attach Delta-Q to a Tracer Electronic Flowmeter for greater accuracy and access to FCI TechnologyTM. Tracer flowmeters have ±5% accuracy and optional NIST trace- able calibration. Turbulent flow indication is standard on all Tracer Flowmeters.
A Switching Tracer flowmeter facilitates record-keeping when attached to a PLC or other data collection system. Record-keeping is an important step in Scientific Cooling. A Switching Tracer attached to a Delta-Q is the ultimate tool for Scientific Cooling.

On a Smartflow Manifold
Attach an array of Delta-Q modular flow regulators and meters to a Smartflow Manifold and you have economical fingertip control of an entire mold half without moving in- dividual flowmeters from circuit to circuit. Smartflow mani- folds save time in mold setups and help molders start making accurate parts quickly.



HOW TO ORDER

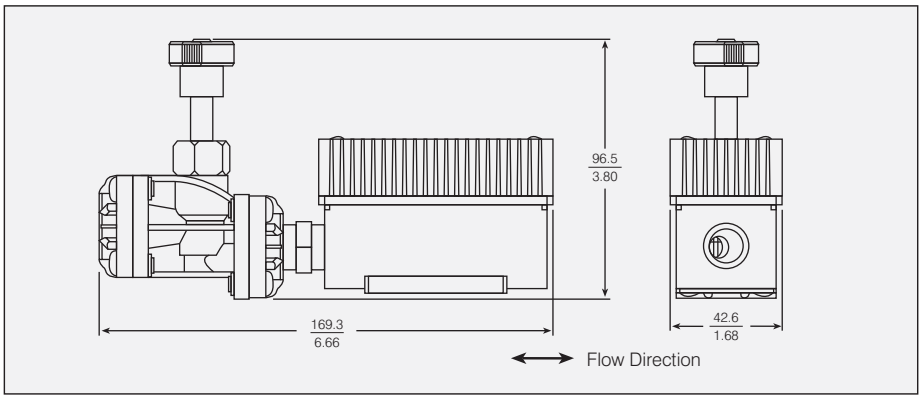
F3 - A - Q

Brass End Caps / Inlet Sizes	
1/4"NPT(F)	F2
1/4"BSPP(F)	F2B
3/8"NPT(F)	F3
3/8"BSPP(F)	F3B
1/2"NPT(F)	F4
1/2"BSPP(F)	F4B
Nylon End Caps	
1/4"NPT(F)	FP2
1/4"BSPP(F)	FP2B
3/8"NPT(F)	FP3
3/8"BSPP(F)	FP3B
1/2"NPT(F)	FP4
1/2"BSPP(F)	FP4B

Options

A	Regulator only
B	Thermometer
C	Thermometer and pressure gauge
CL	Thermometer and liquid-filled pressure gauge
F	Pressure gauge
FL	Liquid-filled pressure gaug

Delta-Q Precision Flow Regulator 3/8"Tracer



HOW TO ORDER

DD - 3B-B - Q

Meter Style

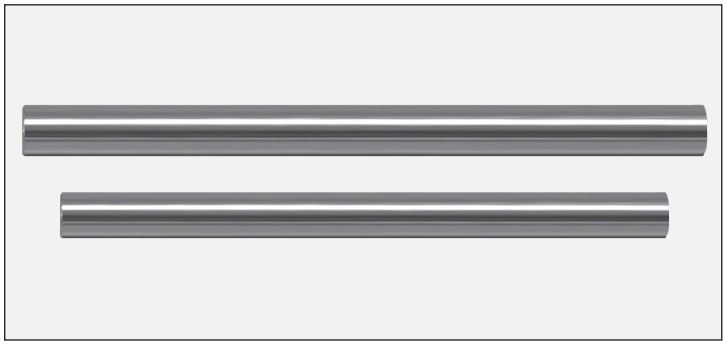
Digital Display	DD
Digital Display plus Switching	DDS

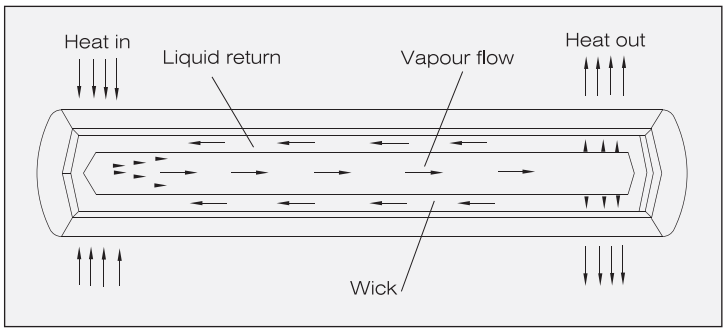
Thread Size

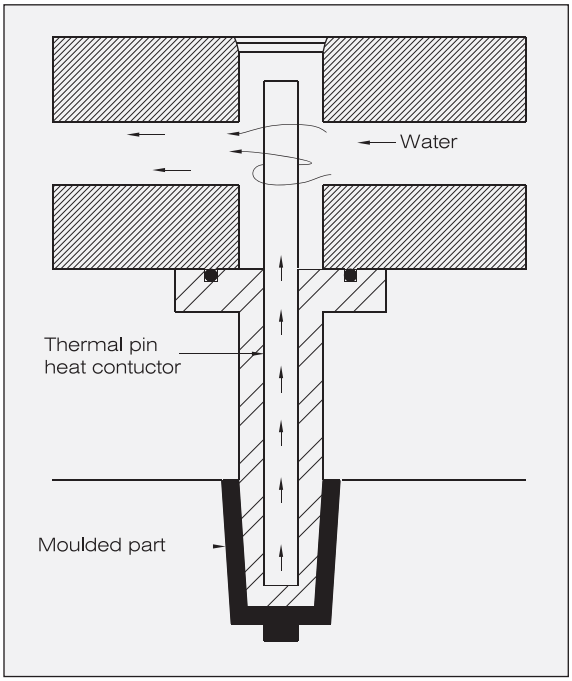
3/8" NPT(F)	3B
3/8 BSPP(F)	3B-B

Delta-Q End Cap Material

Q	Brass
QP	Nylon

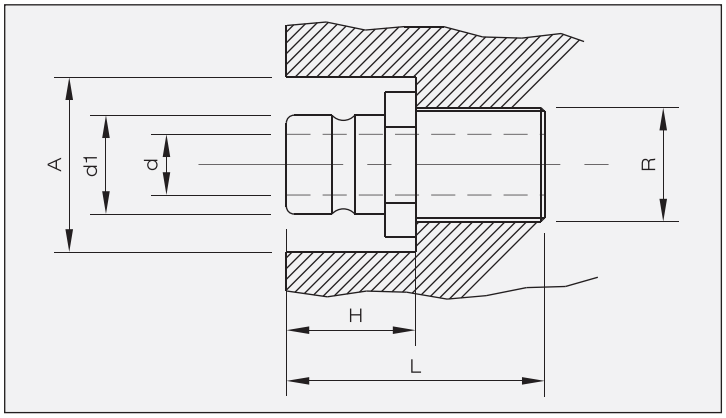


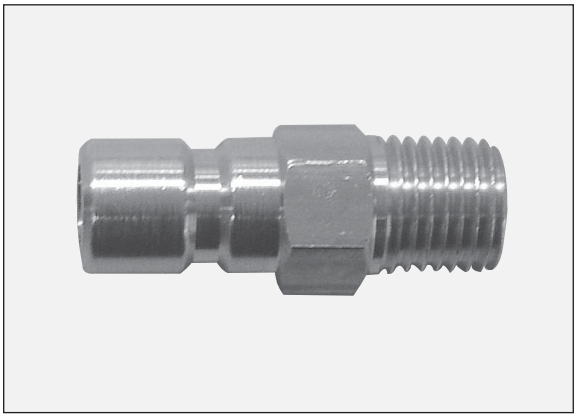




Heat Transfer Rods are designed to heat or cool cones, slides and inserts. Heat Transfer Rods conduct temperature over 10,000 times faster than copper. Heat Transfer Rods operate best when 50% of the overall length is cooled using a water flow. +0.1 to +0.2mm should be up on the rod diameter for the correct fitment. Fitment hole should be drilled.

Length in mm	Diameters and Catalogue Numbers					
	2mm	3mm	4mm	5mm	6mm	8mm
50	HTR2x50	HTR3x50	HTR4x50	HTR5x50	HTR6x50	HTR8x50
55	HTR2x55	HTR3x55	HTR4x55	HTR5x55	HTR6x55	
60	HTR2x60	HTR3x60	HTR4x60	HTR5x60	HTR6x60	HTR8x60
65	HTR2x65	HTR3x65	HTR4x65	HTR5x65	HTR6x65	
70	HTR2x70	HTR3x70	HTR4x70	HTR5x70	HTR6x70	HTR8x70
75	HTR2x75	HTR3x75	HTR4x75	HTR5x75	HTR6x75	HTR8x75
80	HTR2x80	HTR3x80	HTR4x80	HTR5x80	HTR6x80	
85	HTR2x85	HTR3x85	HTR4x85	HTR5x85	HTR6x85	HTR8x85
90	HTR2x90	HTR3x90	HTR4x90	HTR5x90	HTR6x90	
95	HTR2x95	HTR3x95	HTR4x95	HTR5x95	HTR6x95	HTR8x95
100	HTR2x100	HTR3x100	HTR4x100	HTR5x100	HTR6x100	
105	HTR2x105	HTR3x105	HTR4x105	HTR5x105	HTR6x105	HTR8x105
110	HTR2x110	HTR3x110	HTR4x110	HTR5x110	HTR6x110	
115	HTR2x115	HTR3x115	HTR4x115	HTR5x115	HTR6x115	HTR8x115
120	HTR2x120	HTR3x120	HTR4x120	HTR5x120	HTR6x120	
125	HTR2x125	HTR3x125	HTR4x125	HTR5x125	HTR6x125	HTR8x125
135	HTR2x135	HTR3x135	HTR4x135	HTR5x135	HTR6x135	
145	HTR2x145	HTR3x145	HTR4x145	HTR5x145	HTR6x145	HTR8x145
155	HTR2x155	HTR3x155	HTR4x155	HTR5x155	HTR6x155	
165		HTR3x165	HTR4x165	HTR5x165	HTR6x165	HTR8x165
185		HTR3x185	HTR4x185	HTR5x185	HTR6x185	HTR8x185
205		HTR3x205	HTR4x205	HTR5x205	HTR6x205	HTR8x205



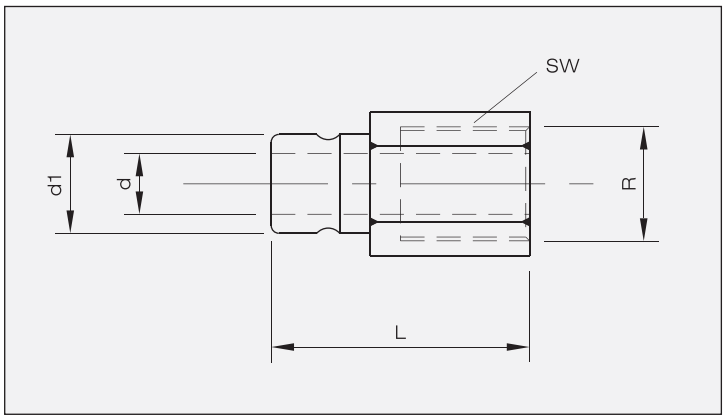


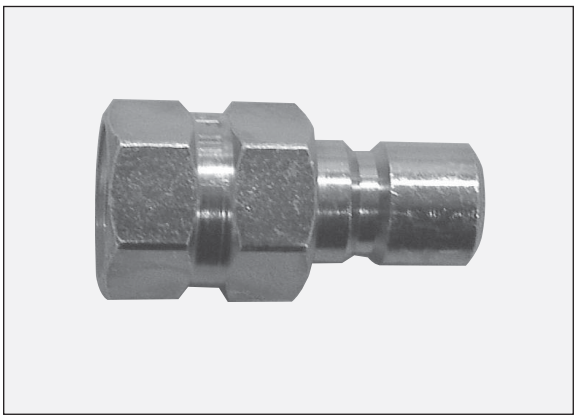
200 Series plugs are also available with an internal shut-off valve.
300 Series plugs are also available with an internal shut-off valve.

Male Type Brass

Part Number	Series	R BSPT	Di	H	A	L
CM251	200 Series 1/4 Flow	1/8	9	17	22	25
CM252		1/4	9	19	26	29
CM253		3/8	9	19	30	30
CM351	300 Series 3/8 Flow	1/8	13	25	26	35
CM352*		1/4	13	25	26	35
CM353*		3/8	13	26	30	38
CM354		1/2	13	28	37	42
CM552	500 Series 1/2 Flow	1/4	20	37	30	41
CM553		3/8	20	37	32	41
CM554		1/2	20	38	32	39
CM556		3/4	20	38	38	45

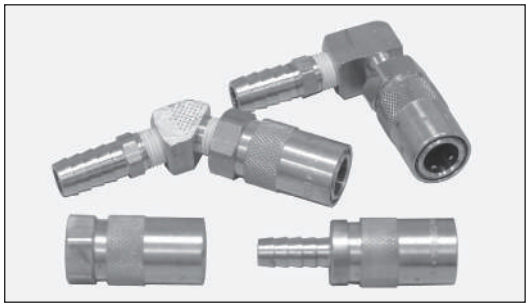
*Also available with internal valve, specify “V”



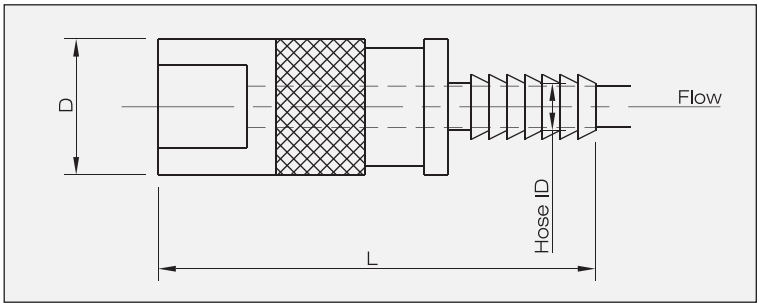


Female Type Brass

Part Number	Series	R Thread	d	di	L	SW
CM251F	200 Series	1/8	6	9	28	13
CM252F		1/4	6	9	32	17
CM253F		3/8	6	9	34	19
CM352F	300 Series	1/4	9	13	37	17
CM353F		3/8	9	13	39	19
CM354F		1/2	9	13	46	24

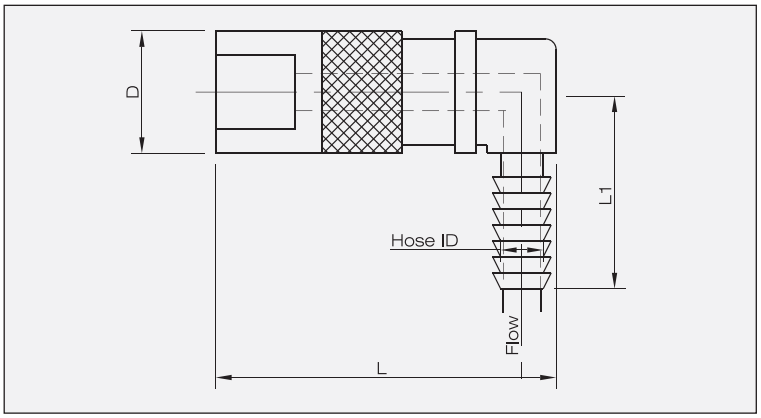


Hales Socket Connectors offer an efficient and speedy method of hose removal. Made of brass with stainless steel bearings, they are of premium quality.



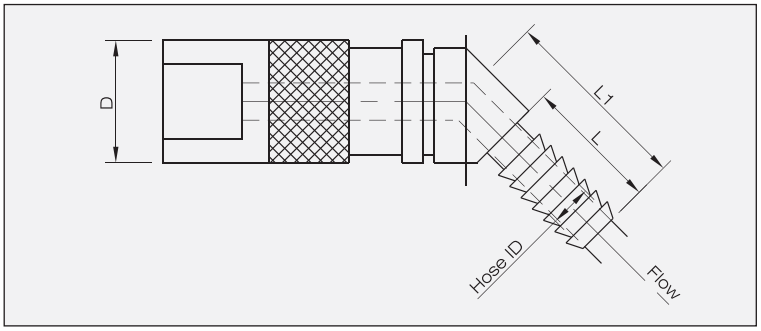
Straight Socket

Part Number W/O Valve	Part Number With Valve	Hose ID	Flow	L	D	Series
CM206	CM206V	3/8	1/4	51mm	17	200
CM306	CM306V	3/8	1/4	64mm	23	300
CM308	CM308V	1/2	3/8	66.5mm	23	300
CM506	CM506V	3/4	5/8	89mm	30	500



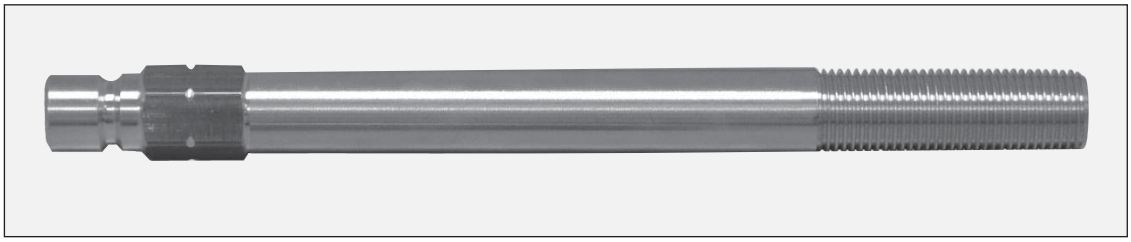
Straight Socket

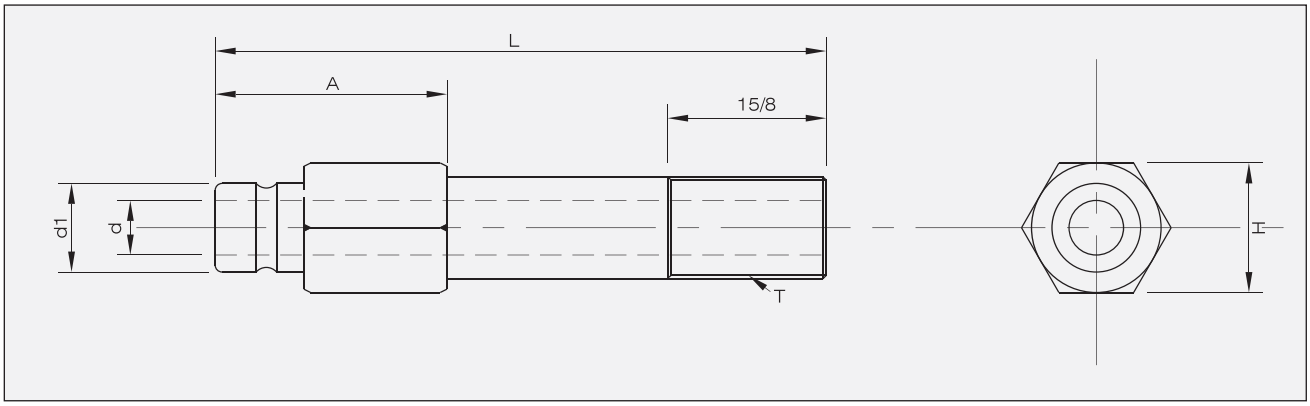
Part Number W/O Valve	Part Number With Valve	Hose ID	Flow	L	L1	D	Series
CM216	CM216V	3/8	1/4	40mm	22mm	17	200
CM318	CM318V	1/2	3/8	56mm	28.5mm	23	300
CM516	CM516V	3/4	5/8	77mm	32mm	30	500



Straight Socket

Part Number W/O Valve	Part Number With Valve	Hose ID	Flow	L	L1	D	Series
CM226	CM226V	3/8	1/8	55.5mm	22mm	18	200
CM328	CM328V	1/2	3/8	75mm	25mm	24	300
CM526	CM526V	3/4	5/8	77mm	30mm	32	500

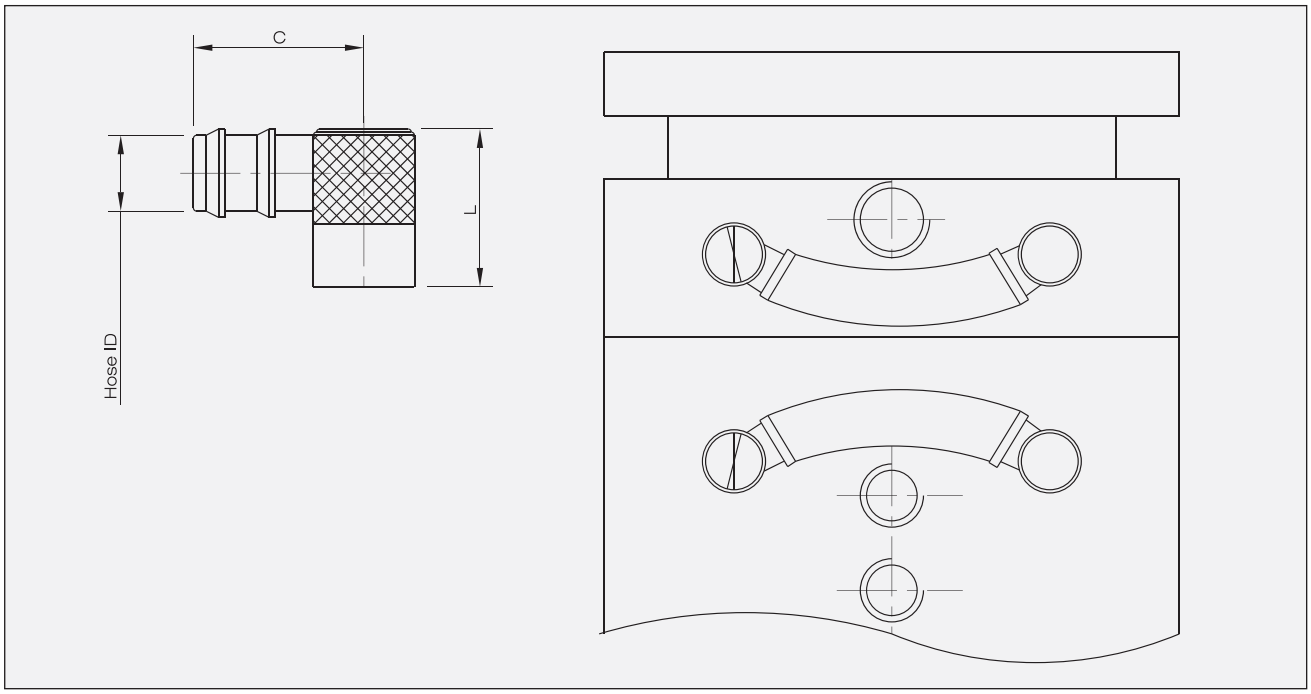




Hales Brass Exensions offer the flexibility of a long thread, making precise adjustments easy.

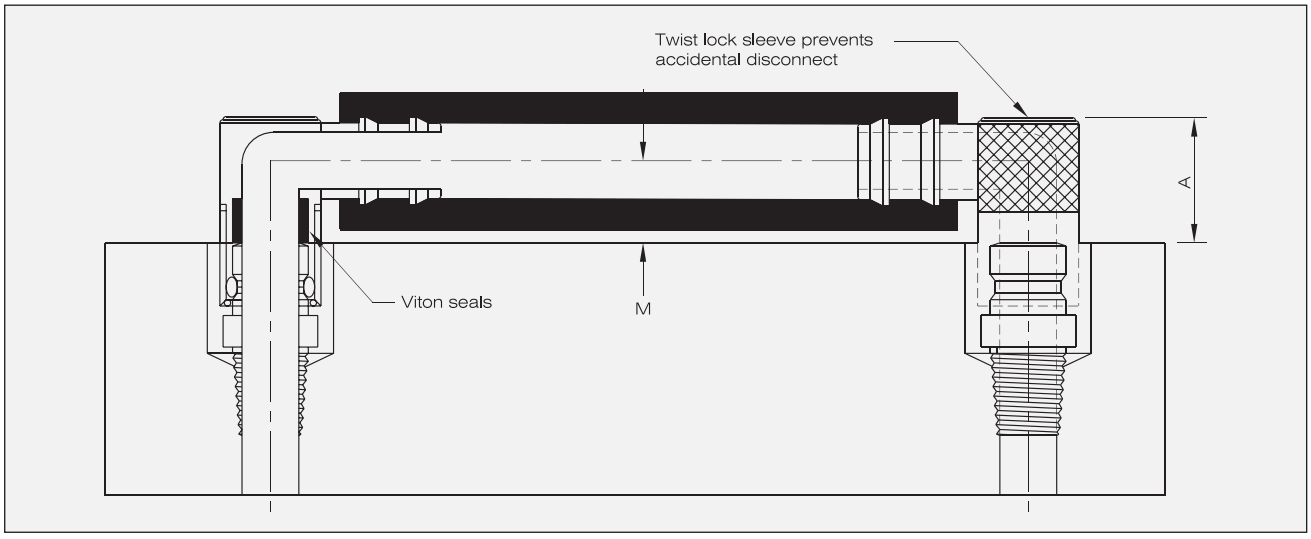
200 Series 1/4 Flow					
Part Number	L	T	d	di	A
CM251252	22 1/2	1/8	1/4	3/8	11/16
CM2514	4	1/8	1/4	3/8	1
CM251512	5 1/2	1/8	1/4	3/8	1
CM2517	7	1/8	1/4	3/8	1
CM251812	8 1/2	1/8	1/4	3/8	1
CM252212	2 1/2	1/4	1/4	3/8	7/8
CM2524	4	1/4	1/4	3/8	1 1/4
CM252512	5 1/2	1/4	1/4	3/8	1 1/4
CM2527	7	1/4	1/4	3/8	1 1/4
CM252812	8 1/2	1/4	1/4	3/8	1 1/4
CM253212	2 1/2	3/8	1/4	3/8	1
CM2534	4	3/8	1/4	3/8	1 1/4
CM253512	5 1/2	3/8	1/4	3/8	1 1/4
CM2537	7	3/8	1/4	3/8	1 1/4

300 Series 3/8 Flow					
Part Number	L	T	d	di	A
CM351252	2 1/2	1/8	3/8	1/2	7/8
CM3514	4	1/8	3/8	1/2	1
CM351512	5 1/2	1/8	3/8	1/2	1
CM3517	7	1/8	3/8	1/2	1
CM351812	8 1/2	1/8	3/8	1/2	1
CM352212	2 1/2	1/4	3/8	1/2	7/8
CM3524	4	1/4	3/8	1/2	1 1/4
CM352512	5 1/2	1/4	3/8	1/2	1 1/4
CM3527	7	1/4	3/8	1/2	1 1/4
CM352812	8 1/2	1/4	3/8	1/2	1 1/4
CM35210	10	1/4	3/8	1/2	1 1/4
CM3534	4	3/8	3/8	1/2	1
CM353512	5 1/2	3/8	3/8	1/2	1 1/4
CM3537	7	3/8	3/8	1/2	1 1/4
CM35310	10	3/8	3/8	1/2	1 1/4



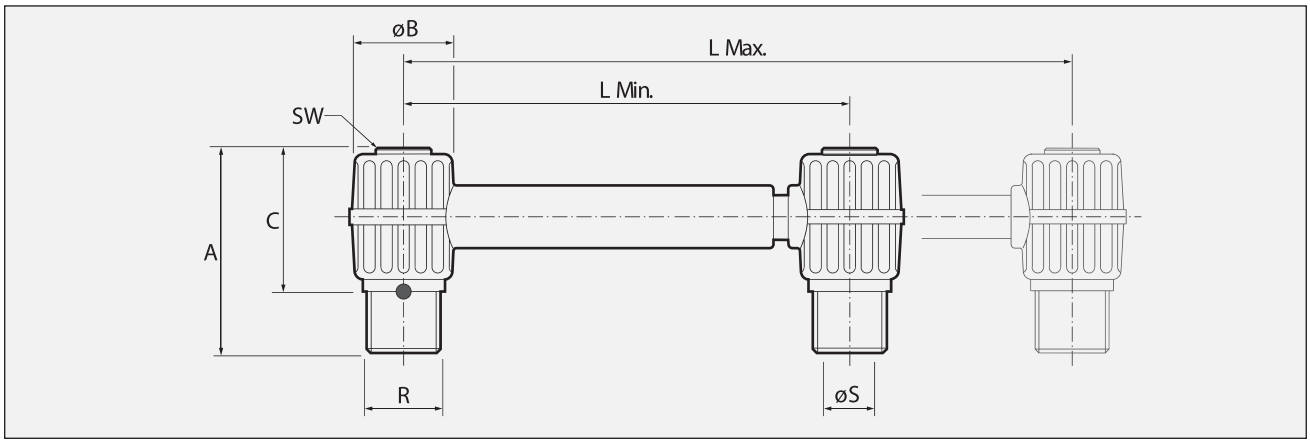
Part Number	FHS Series	Hose ID	L	C	M	A
WJ200-6	200	3/8	1	1 1/4	3/8	5/8
WJ300-6	300	3/8	1 7/16	1 9/16	1/2	7/8
WJ300-8	300	3/8	1 7/16	1 9/16	1/2	7/8

Hales Water Jumpers offer smooth unrestricted flow paths and consistent cooling flow rate, eliminating crimped hoses.

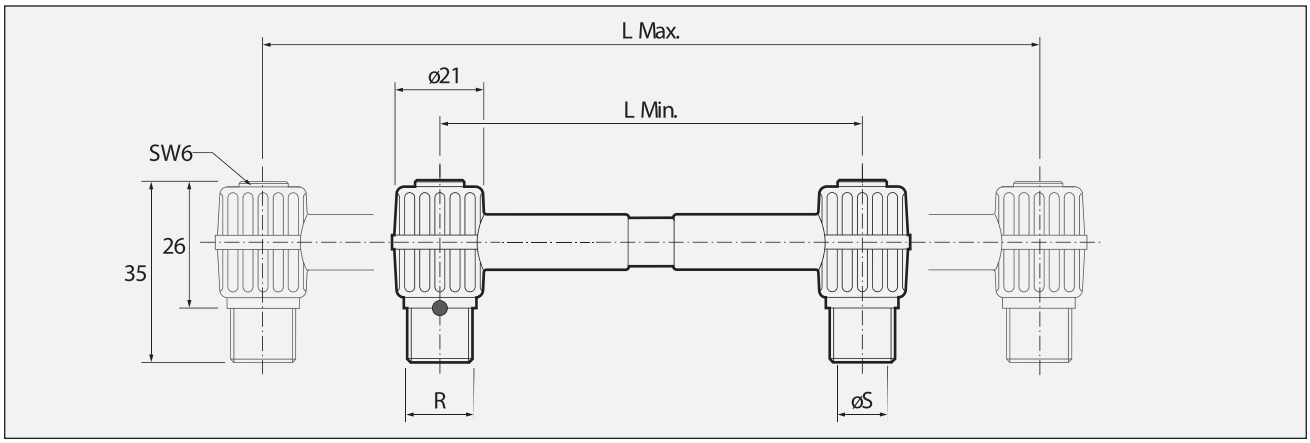


Mat.: POM + BRASS
Max. temp. 80C - Max. pressure 6 BARS.
Patented System

Telescopic adjustment. Integral part of the tool. Reduces time in connecting the water circuits. Offers a standard solution to the moulder.

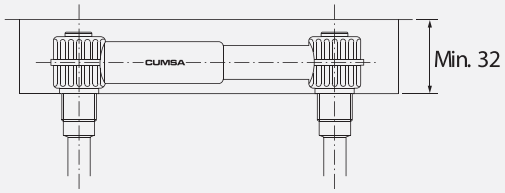


Ref.	A	B	C	R	S	SW	L Min.	L Max.
CMA.506518	35	21	26	1/8"	5	6	50	65
CMA.650018	35	21	26	1/8"	5	6	65	100
CMA.506514	35	21	26	1/4"	6	6	50	65
CMA.650014	35	21	26	1/4"	6	6	65	100
CMA.608514	39	25	30	1/4"	9	8	60	85
CMA.851314	39	25	30	1/4"	9	8	85	130
CMA.608538	39	25	30	3/8"	9	8	60	85
CMA.851338	39	25	30	3/8"	9	8	85	13

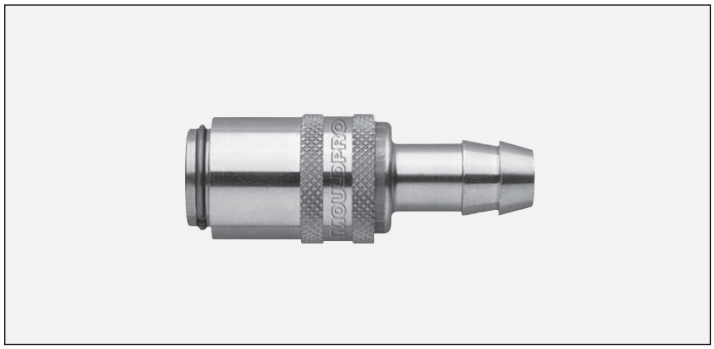


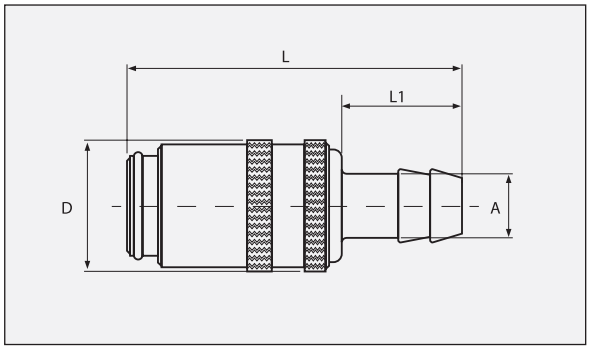
Ref.	R	S	L Min.	L Max.
CMA.101318	1/8"	5	100	130
CMA.132018	1/8"	5	130	200
CMA.101314	1/4"	6	100	130
CMA.132014	1/4"	6	130	200

IMPORTANT



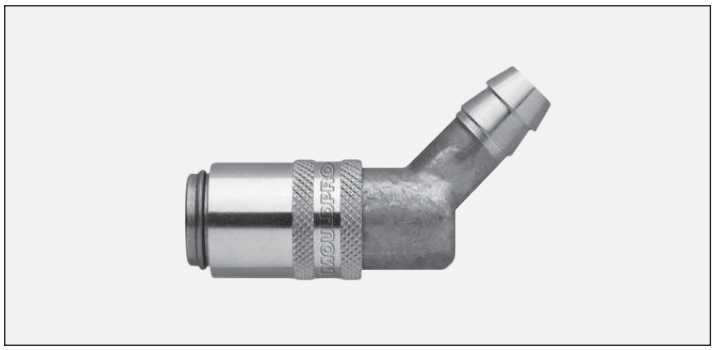
Straight Coupling - Hasco Equivalent

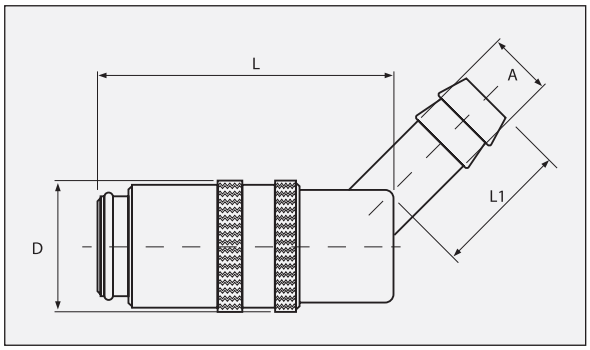




Product Code	A	D	L	L1	Flow	Valve
09K10	10	18	52	22	6	-
09K10V	10	18	52	22	6	+
13K13	13	23	61,5	25	9	-
13K13V	13	23	61,5	25	9	+

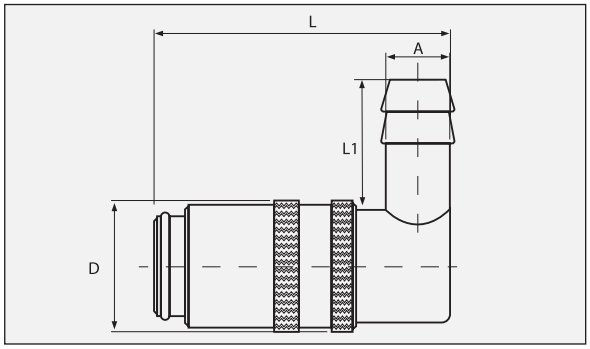
45° Hose Tail Coupling - Hasco Equivalent





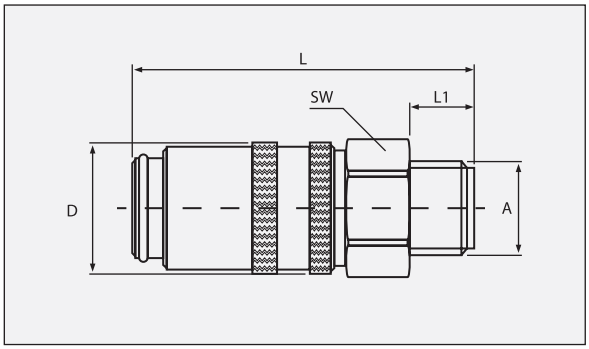
Product Code	A	D	L	L1	Flow	Valve
09K10-45	10	18	41	22	6	-
09K10V-45	10	18	41	22	6	+
13K13-45	13	23	51	25	9	-

Straight Coupling - Hasco Equivalent



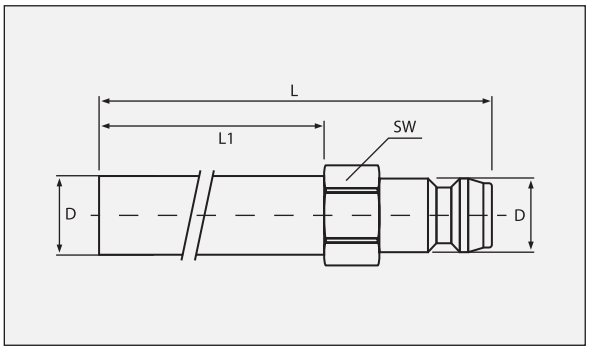
Product Code	A	D	L	L1	Flow	Valve
09K10-90	10	18	41	22	6	-
09K10V-90	10	18	41	22	6	+

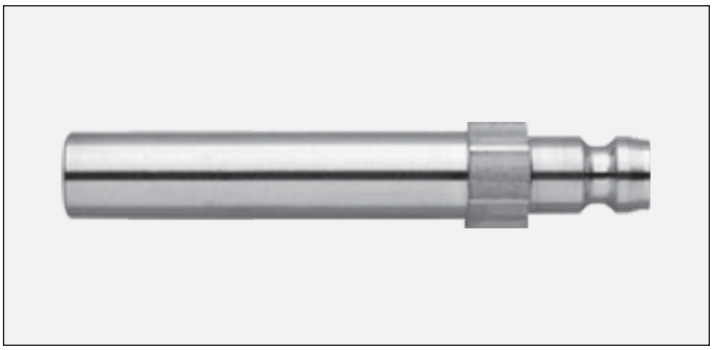
Male Thread Coupling - Hasco Equivalent



Product Code	A	D	L	L1	SW	Flow	Valve
09KUR1/4	G1/4	18	48	9	17	6	-
09KUR1/4V	G1/4	18	48	9	17	6	+
13KUR3/8	G1/3	23	51,5	9	22	9	-

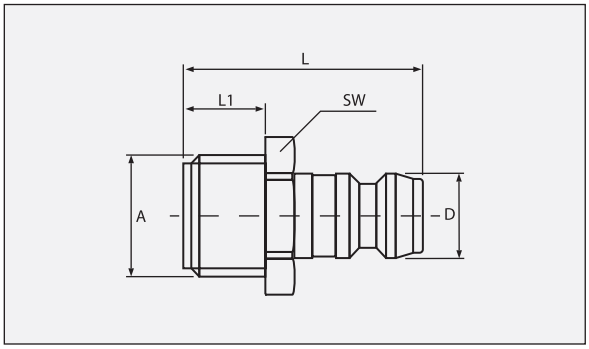
Extended Connector - Hasco Equivalent

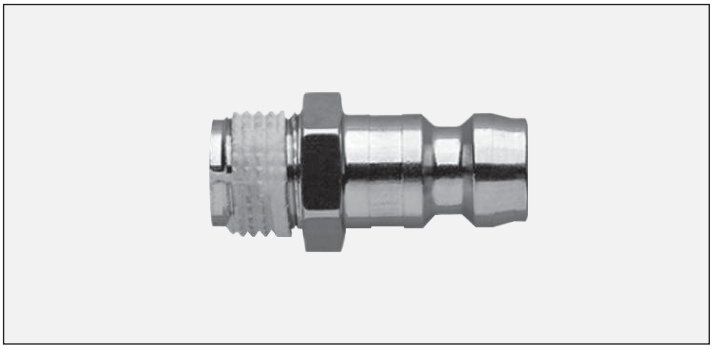




Product Code	A	D	L	L1	SW	Flow	Valve
09N100	8	9	100	79	9	6	-
09N120	10	9	120	100	11	6	-
13N150	14	13,5	150	125	15	9	-

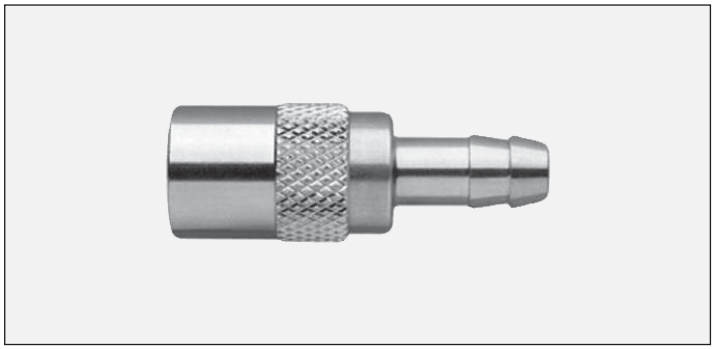
Male Connector - Hasco Equivalent

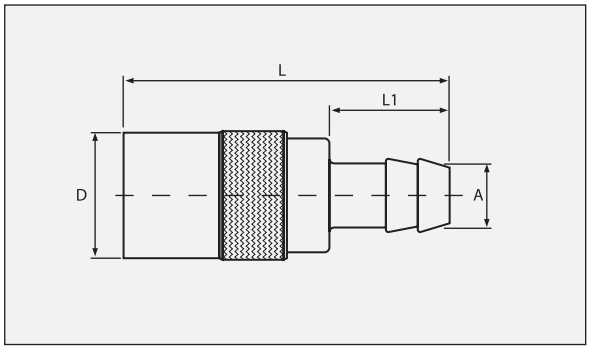




Product Code	A	D	L	L1	SW	Flow	Valve
09NM10	M10x1	9	24	7	11	6	-
09NR1/4	G1/4	9	26	9	15	6	-
09NR1/8	G1/8	9	24	7	11	6	-
09NR3/8	G3/8	9	30	10	17	6	-
13NR1/4	G1/4	13,5	26	9	15	9	-
13NR1/8	G1/8	13,5	25	8	14	9	-

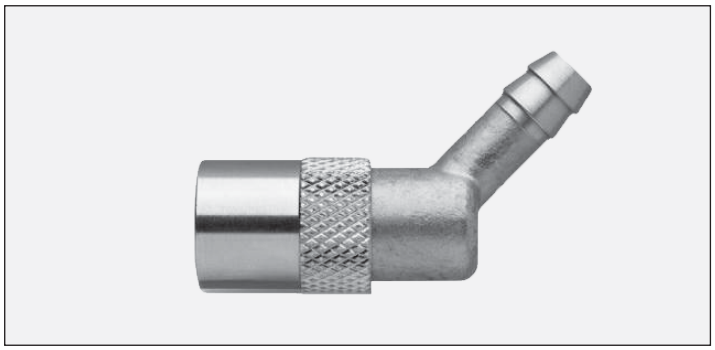
Straight Coupling - DME Equivalent

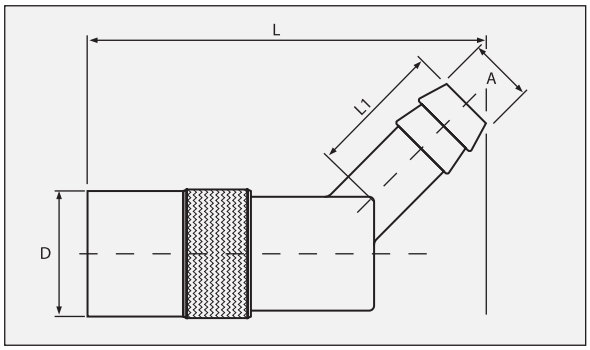




Product Code	A	D	L	L1	Flow	Valve
20K10	10	18	51	22	6	-
20K10V	10	18	51	22	6	+
30K13	13	24	66,5	25	9	-
30K13V	13	24	66,5	25	9	+

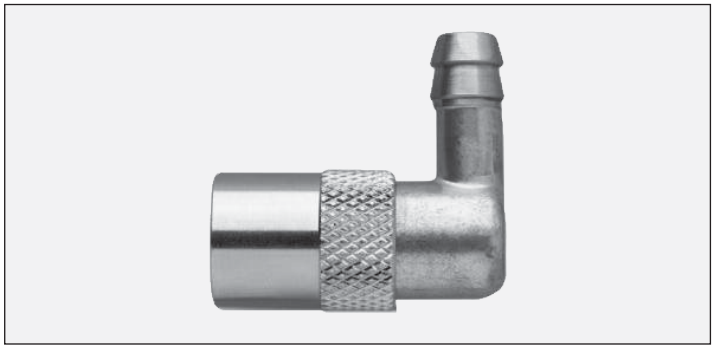
45° Hose Tail Coupling - DME Equivalent

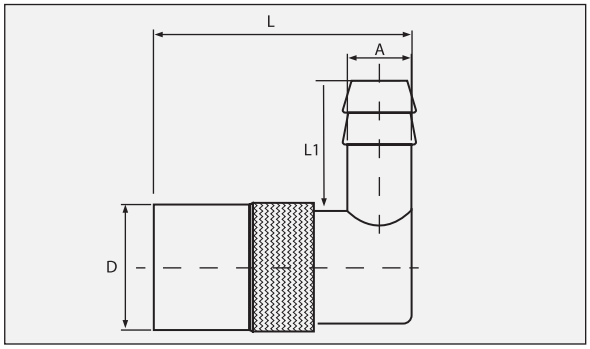




Product Code	A	D	L	L1	Flow	Valve
30K13V/45	13	24	75	25	9	+

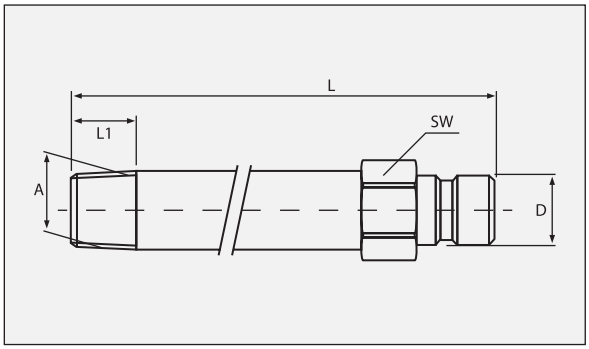
Straight Coupling - DME Equivalent

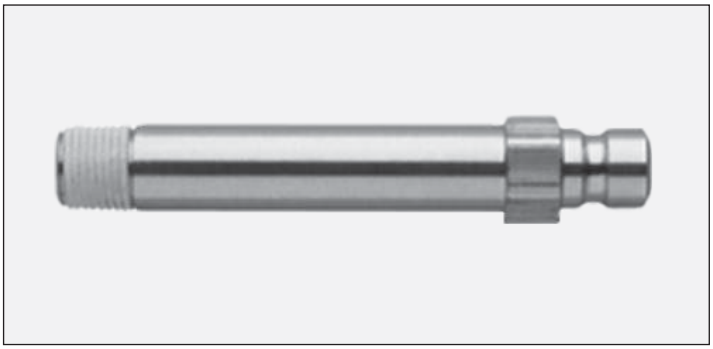




Product Code	A	D	L	L1	Flow	Valve
30K13/90	13	24	56	28,5	9	-
30K13V/90	13	24	56	28,5	9	+

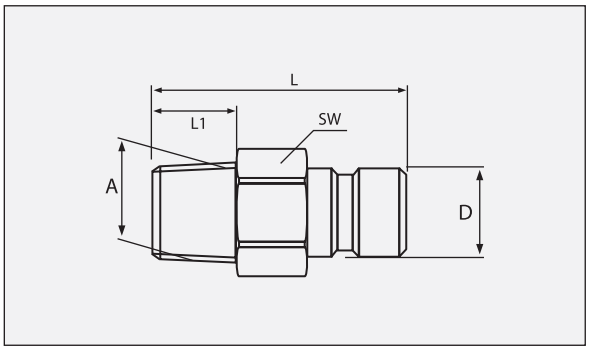
Extended Connector - DME Equivalent

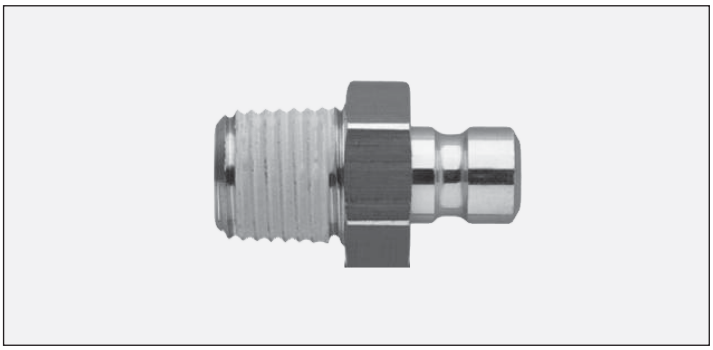




Product Code	A	D	L	L1	SW	Flow	Valve
100R1/8	9,5	100	9	11	6	-	
20N150	R1/8	9,5	150	9	11	6	-
30N150	R1/4	13,5	150	12	15	9	-
30N250	R1/4	13,5	250	12	15	9	-

Male Connector - DME Equivalent



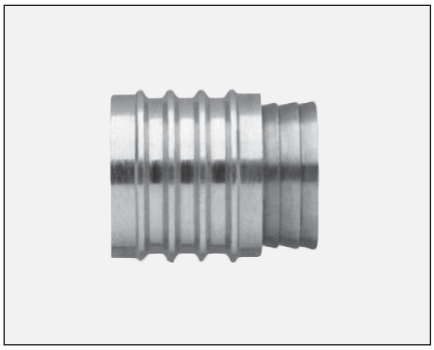


Product Code	A	D	L	L1	SW	Flow	Valve
20NR1/4	R1/4	9,5	29	12	16	6	-
20NR1/8	R1/8	9,5	24	9	13	6	-
30NR1/4	R1/4	13,5	34	12	16	6	-

Canal Pressure Plugs
Channel Plug Equivalent

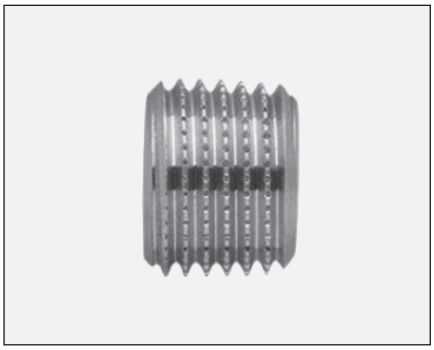
Product Code	ID
KN105-8	6mm

Pressure Plugs
Channel Plug Equivalent



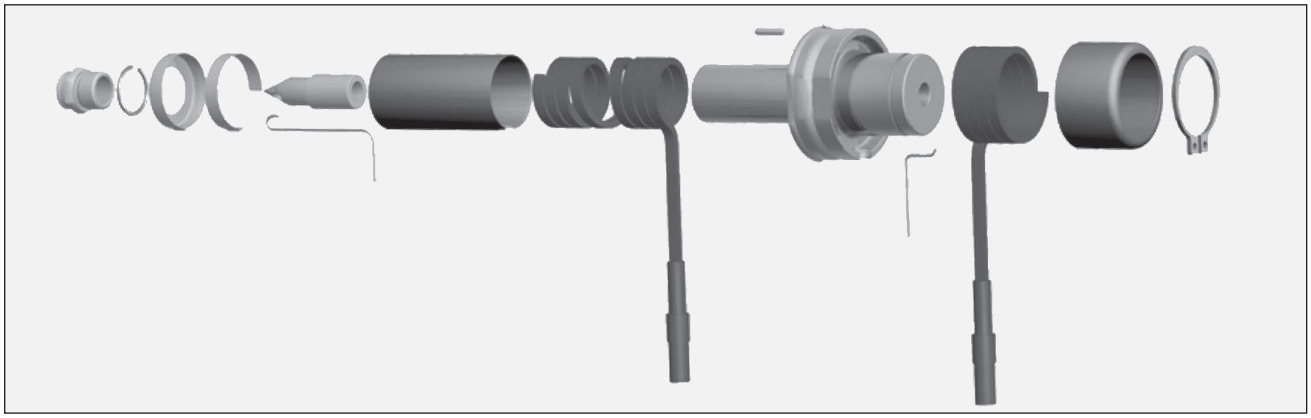
Product Code	D
S10-1	10mm
S6	6mm
S8	8mm

Pressure Plugs Threaded
Conical Plug Equivalent



Product Code	BSPT
R1/4	1/4
R1/8	1/8

SX Nozzle



Availability				
	13 Series	16 Series	19 Series	27 Series
L	45		—	
	55			—
	65			—
	75			
	95			
	115			
	—		145	
	—		175	
	—			225
	—			275
L4	18		20	25
L5	44		46	50
d2	40		50	

All measurements are in millimeters

Overview and Applications

With two heaters the SX nozzle is perfectly suited for all single nozzle applications. Independently controlled heater zones provide uniform temperature distribution along the length of the nozzle, making it ideal to process difficult plastics.

Features

Mould Design

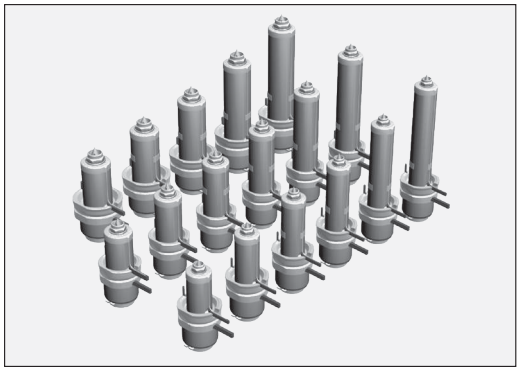
- Ability to easily order special length nozzles
- Shares the same gate profiles as MX and BX
- Consistent nozzle lengths across the range
- Ability to mould large parts with smaller nozzles due to optimum flow characteristics

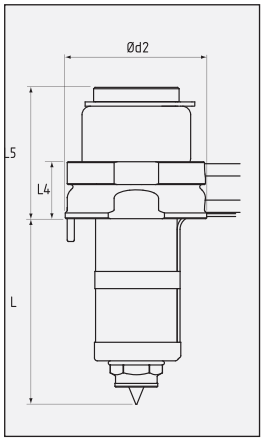
Operation

- Seperate heater for the nozzle head for maximum temperature control
- Wide moulding window
- Excellent temperature profile and thermal stability
- Operates at low moulding pressure and temperature
- Optimum cycle times due to superior thermal insulation
- Uses economical and robust coil heaters

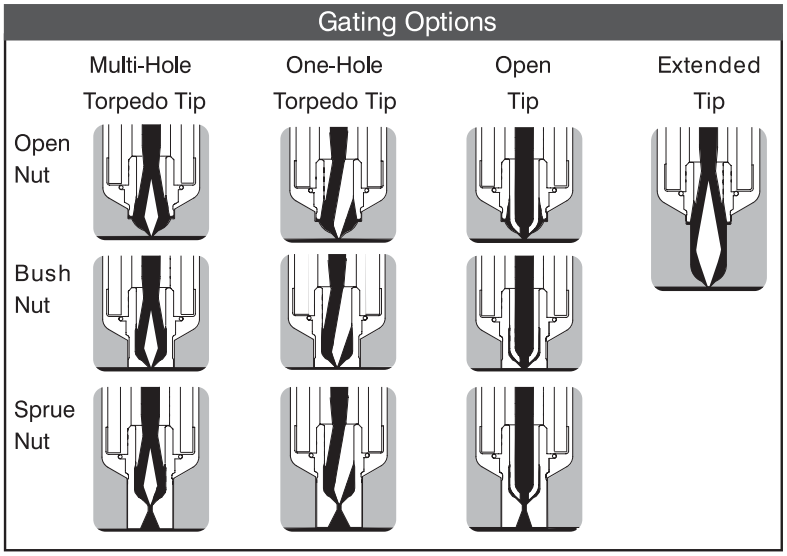
Installation and Maintenance

- Simple machining and installation requirements
- Improved reliability due to the use of advanced material
- Common tip and nut options provide ready availability of spare parts

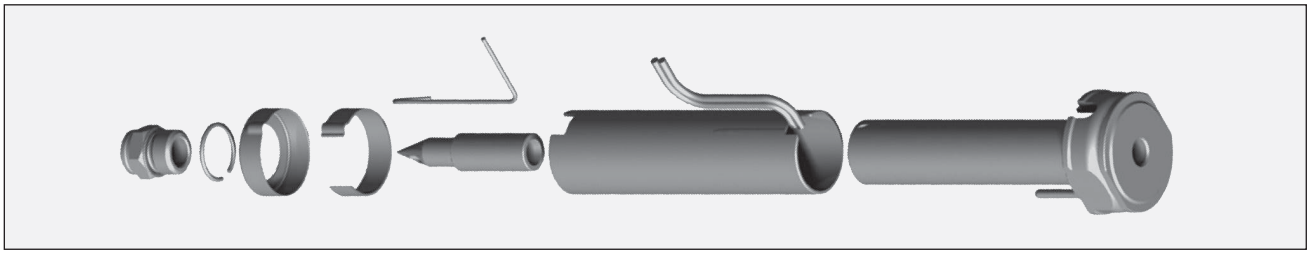




Gating Options



hales Tooling Components & Industrial Supplies



Overview and Applications

Low moulding temperature and pressure, excellent temperature consistency and front loading capabilities, that's the Mastip MX nozzle, specifically designed for multi cavity manifold systems and hot halves. The MX nozzle is suited for small to medium applications in all types of markets. It is able to process a wide range of plastics, from the easy ethylenes to tough engineering resins.

Features

Mould Design

- Efficiently designed profile to allow closer cavity pitching
- Shares the same gate profiles as BX and SX
- Available in both thermal and valve gate options
- Consistent nozzle lengths across the range
- Ability to mould large parts with smaller nozzles due to optimum flow characteristics

Operation

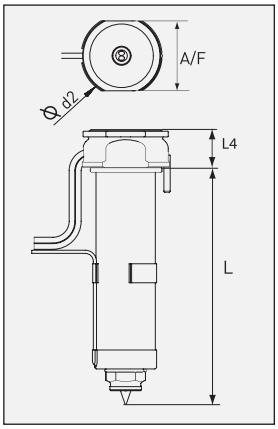
- Wide moulding window
- Excellent temperature profile and thermal stability
- Operates at low moulding pressure and temperature
- Optimum cycle times due to superior thermal insulation
- Uses an advanced micro coil heater with integrated heat deflection tube

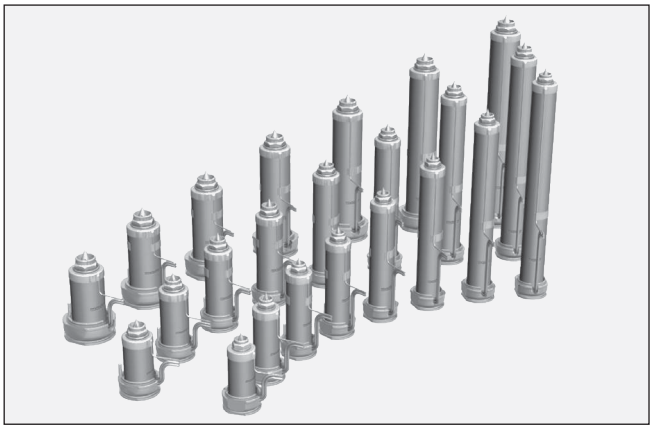
Installation and Maintenance

- Front loading capability for easier servicing of tips, heaters and thermocouples
- Simple machining and installation requirements
- Improved reliability due to the use of advanced materials
- Common tip and nut options provide ready availability of spare parts

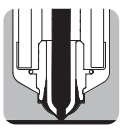
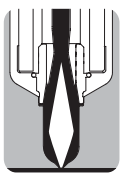
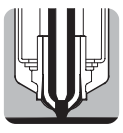
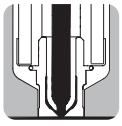
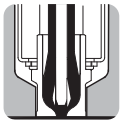
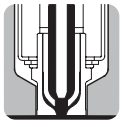
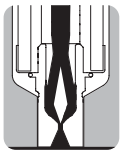
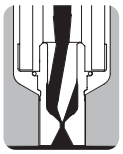
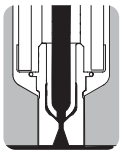
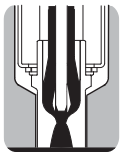
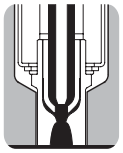
Availability			
	13 Series	16 Series	19 Series
L	45		—
	55		
	65		
	75		
	95		
	115		
	145		
	175		
A/F	24	26	36
d2	28	30	40
L4	12		15

All measurements are in millimeters

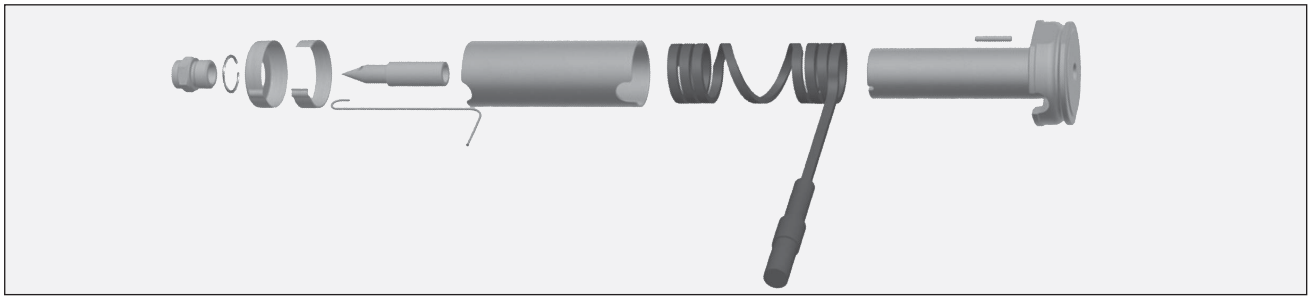




Gating Options

	Multi-Hole Torpedo Tip	One-Hole Torpedo Tip	Open Tip	Extended Tip	Valve Gate Torpedo Tip	Valve Gate Open tip
Open Nut						
Bush Nut						
Sprue Nut						

BX Nozzle



Overview and Applications

Building on the performance of X range technology the BX nozzle is designed to provide cost sensitive solutions for low to medium cavitation applications, not requiring hot half construction. Available in 13, 16, 19 and 27 series in a large variety of lengths, makes this nozzle a very versatile product for a broad array of applications.

Features

Mould Design

- Efficiently designed profile to allow closer cavity pitching
- Shares the same gate profiles as BX and SX
- Available in both thermal and valve gate options
- Consistent nozzle lengths across the range
- Ability to mould large parts with smaller nozzles due to optimum flow characteristics

Operation

- Wide moulding window
- Excellent temperature profile and thermal stability
- Operates at low moulding pressure and temperature
- Optimum cycle times due to superior thermal insulation
- Uses an economical and robust coil heater

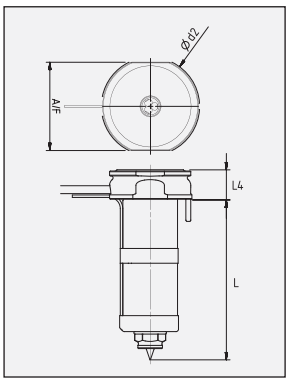
Installation and Maintenance

- Simple machining and installation requirements
- Improved reliability due to the use of advanced materials
- Common tip and nut options provide ready availability of spare parts

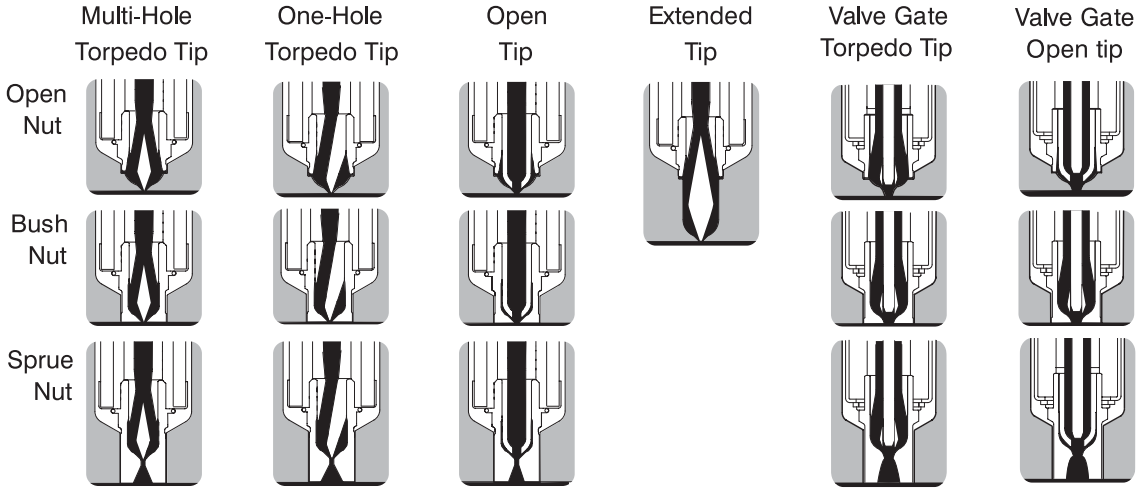
Availability

	13 Series	16 Series	19 Series	27 Series
L	45		—	
	55			—
	65			—
	75			
	95			
	115			
	145			
	175			
	—			225
	—			275
A/F	31	34	36	45
D2	34	38	40	50
L4	12		15	20

All measurements are in millimeters

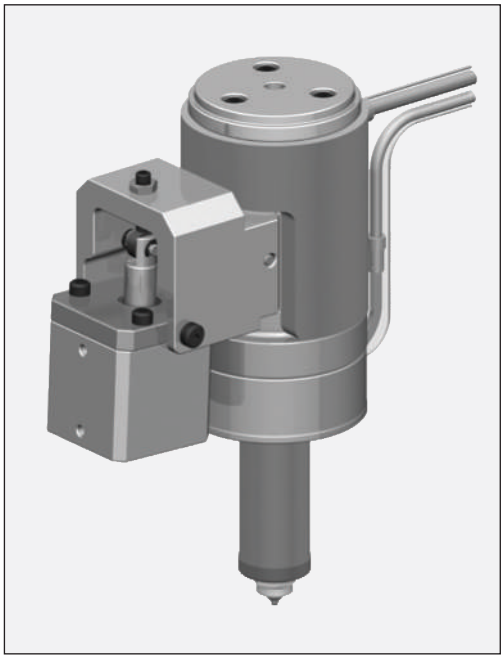


Gating Options



Overview and Applications

The SVG (Single Valve Gate) system gives you precise control at the gate to achieve optimal moulding conditions. This makes the SVG ideal for applications requiring high cosmetic gate finish, fast flow rates, large volume parts and dimensional accuracy.



Features

Mould Design

- Available for use with BX16, BX19 & BX27 series nozzles
- Shares the same gate profiles as X range nozzles
- Easy machining of pockets

Operation

- Separate heaters for maximum temperature control
- Reduced moulding pressure
- Increased moulding window
- Lower mould filling stress results and better part quality
- Reduced gate cooling requirements

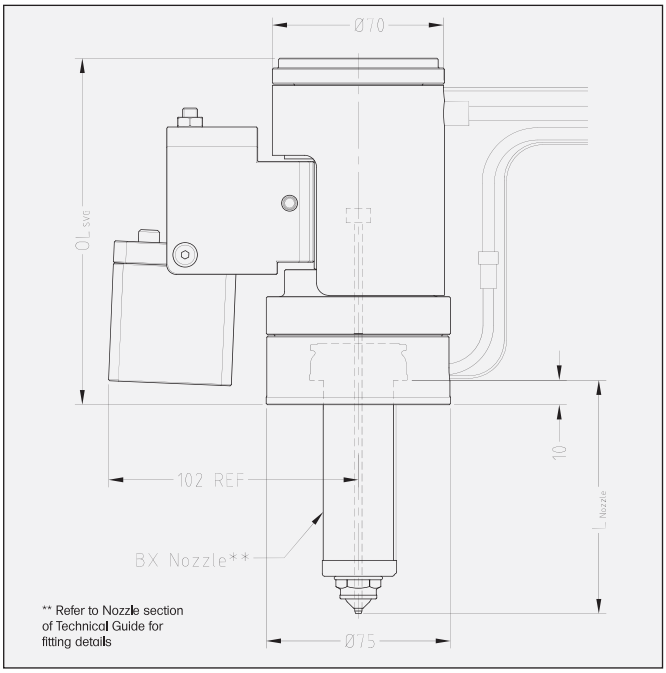
Installation and Maintenance

- Simple installation
- Easy pin adjustment
- Replaceable pin and seal
- X range tip and nut option

Nozzle Compatibility			
	16 Series	19 Series	27 Series
	BX	BX	BX
L Nozzle	55		—
	65		—
	75		
	95		
	115		
	145		

All measurements are in millimeters

Valve Gate Assembly			
	16 Series	19 Series	27 Series
	BX	BX	BX
Model	SVG 33		
Actuation Type	Pneumatic		
Pin Size	2.5	3.0	5.0
Stroke	10		
OL SVG	138	141	146

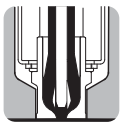


Gating Options

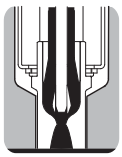
Valve Gate TorpedoTip

Open Nut

Bush Nut

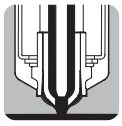


Sprue Nut

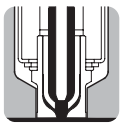


Valve Gate Open tip

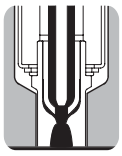
Open Nut



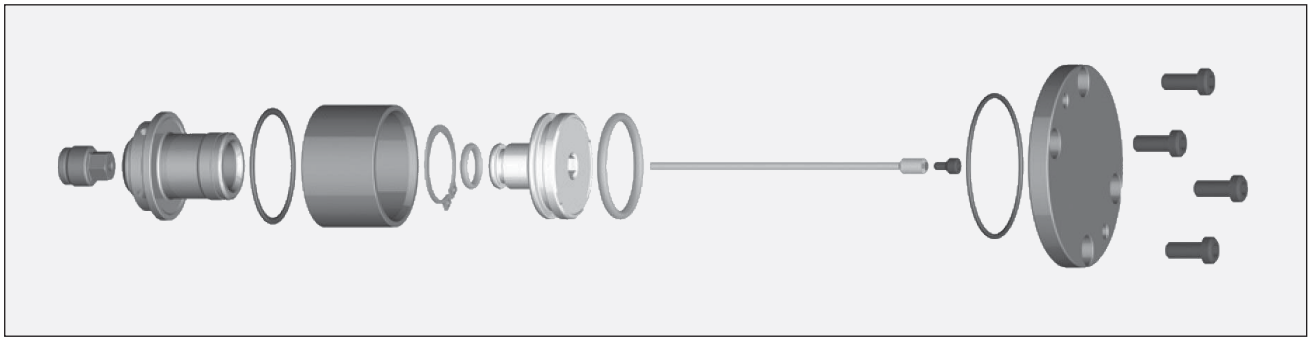
Bush Nut



Sprue Nut



MVG Valve Gate



Overview and Applications

The MVG (Manifold Valve Gate) system is ideal for all applications which require high speed, sequential filling or highly cosmetic gates. Due to its multiple gating options and lack of material traps it will operate with the most demanding materials. The MVG is designed for easy installation due to simple mounting in the backplate with integral airways.

Features

Mould Design

- Ability for close nozzle spacing. Minimal pitching is 75mm (can be modified to fit 58mm pitching)
- Backplates can be as thin as 55mm
- Easy machining of the pockets
- Pneumatic circuit is integrated with the backplate

Operation

- MVG is available for MX series and BX series nozzles
- Reduced moulding pressure
- Increased moulding window
- Lower mould filling stress results in better part quality
- Reduced gate cooling requirements

Installation and Maintenance

- Easy machining and installation
- Easy pin adjustment and seal replacement while the mould remains assembled

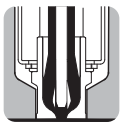
Availability							
	13 Series		16 Series		19 Series		27 Series
	MX	BX	MX	BX	MX	BX	BX
L	45				—		—
	55						—
	65						—
	75						
	95						
	115						
	145						
	—		—		—		175
A/F	24	31	26	34	36		45
d2	28	34	30	39	40		50
L4	12				15		20

Gating Options

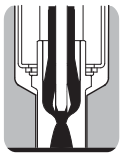
Valve Gate Torpedo Tip

Open Nut

Bush Nut

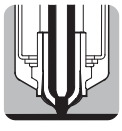


Sprue Nut

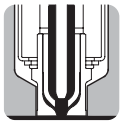


Valve Gate Open tip

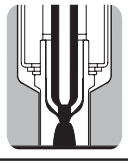
Open Nut



Bush Nut



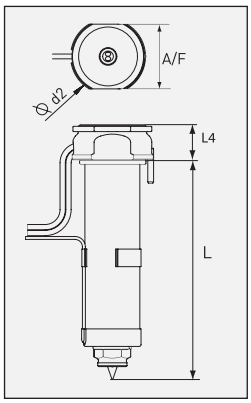
Sprue Nut

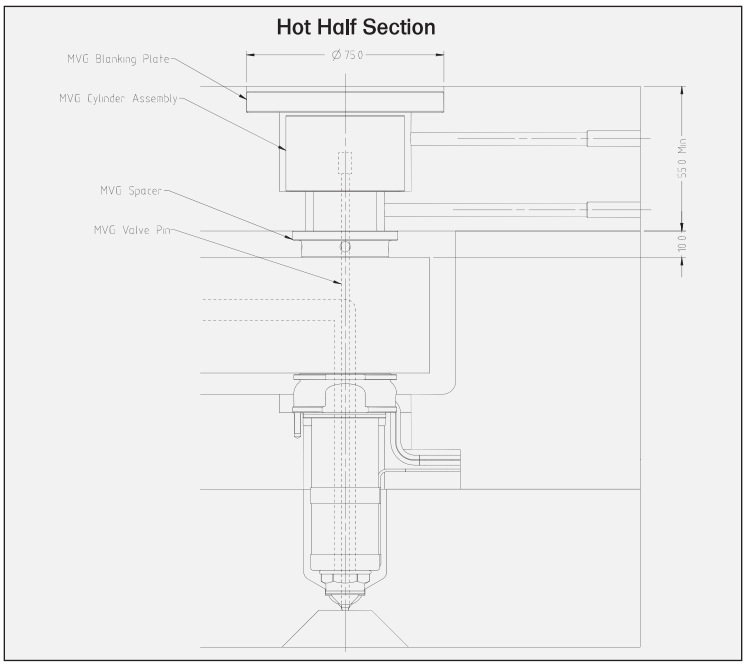


Valve Gate Assembly				
	13 Series*	16 Series	19 Series	27 Series
	MX / BX	MX / BX	MX / BX	MX / BX
Model	MVG40-2.0 x 250	MVG40-2.5 x 250	MVG40-3.0 x 250	MVG40-5.0 x 250
Actuation Type	Pneumatic			
Pin Size	2.0	2.5	3.0	5.0
Stroke	10			

*13 Series available in open nut and open tip only

All measurements are in millimeters

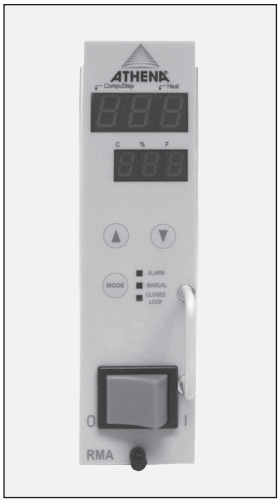




hales Tooling Components & Industrial Supplies

RMA Module

- Simultaneous digital setpoint and digital temperature indication.
- Accepts Type J or Type K thermocouple input (jumper selectable).
- Auto-tuning, with adjustable proportional band and rate.
- Bumpless auto/manual transfer.
- CompuStep bakeout feature prevents moisture at start-up.
- Built-in loop break, short, open, and reverse thermocouple protection.
- Optional triac failure protection.
- Preset alarms at 30°F (17°C).
- Jumper-selectable self-start mode.
- Current monitor feature displays average current to load.
- CE-compliant.



IMP Module

- Available in single zone, 15amp and 30amp temperature controllers, as well as for multi-zone temperature control systems.
- CompuStep feature removes moisture from the heater before full power is applied.
- CompuCycle feature improves response time, reduces thermal fatigue and prolongs heater life by applying AC power smoothly and continuously.
- Manual control for non-thermocouple applications, provides standby or “weekend” heat or to manually control temperature if a thermocouple fails.
- Diagnostic and protection features include power “on”, power to load, manual made, and over/under temperature, plus indicators and system protection for reversed and open thermocouples.

Single Zone Temperature Control System

Features as per IMPX15 Module

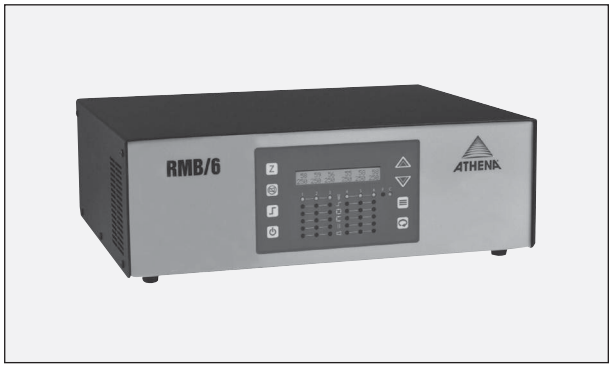
Description	Code
10 Amp Unit	PIM1Bx10

Multi Zone Temperature Control System

16 to 48 Zone Mainframes are also
available to order. 30 Amp option also available

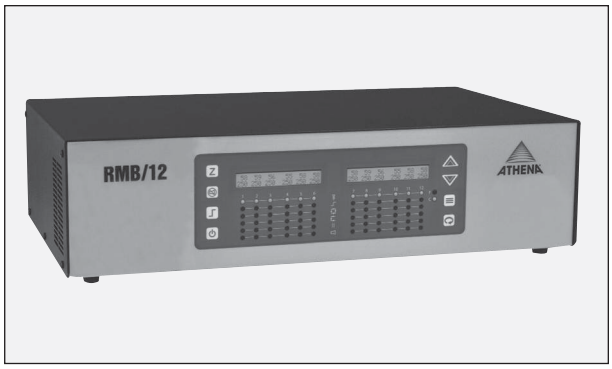
Description	Code
2 Zone 15 Amp	MFFMP2
3 Zone 15 Amp	MFFMP3
5 Zone 15 Amp	MFx5
8 Zone 15 Amp	MFx8
12 Zone 15 Amp	MFx12

Hot Runner Temperature Control Systems



RMB6 Non-Modular Hot Runner Controllers

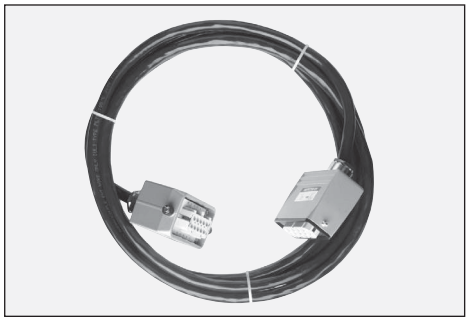
- Adjustable set point limits
- "Boost" mode for temporary % of power output increase
- Remote input standby function
- Remote alarm output contacts
- Fan Cooled
- Easily serviceable with optional spare parts
- Limited Two Year Warranty-Consult Factory
- Compact package design
- Accepts "J" or "K" thermocouple input, grounded or ungrounded
- 6 zone model has total 15 amps per zone
- Built-in loop break, short, open, and reverse thermocouple
- CompuStep® bake out feature prevents moisture at start up



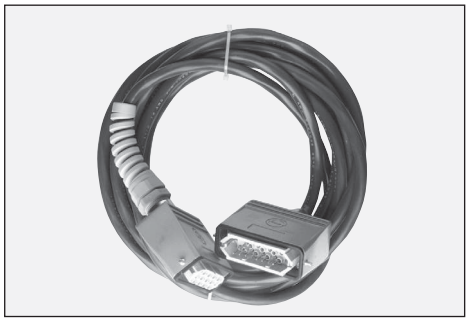
RMB12 Non-Modular Hot Runner Controllers

- Adjustable set point limits
- "Boost" mode for temporary % of power output increase
- Remote input standby function
- Remote alarm output contacts
- Fan Cooled
- Easily serviceable with optional spare parts
- Limited Two Year Warranty-Consult Factory
- Compact package design
- Accepts "J" or "K" thermocouple input, grounded or ungrounded
- 12 zone model has total 15 amps per zone
- Built-in loop break, short, open, and reverse thermocouple
- CompuStep® bake out feature prevents moisture at start up

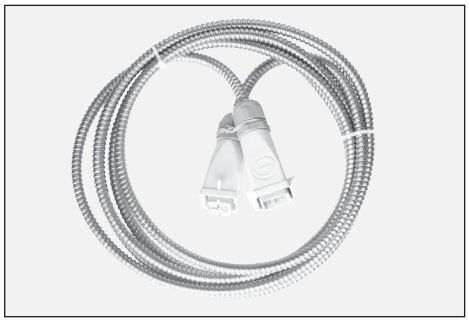
Power and Thermocouple Cables



Thermocouples Cables		
Cables	Zones	Length
MAST/TC = Mould	05 = 5 Zones	C10 = 10˚
Thermocouple	08 = 8 Zones	C20 = 20˚
Cable	12 = 12 Zones	

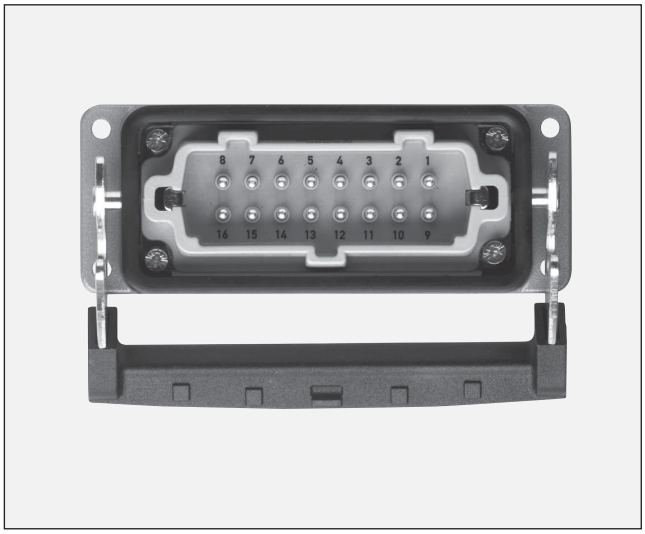


Power Cables		
Cables	Zones	Length
MAST/MPC=Mould	05 = 5 Zones	C10 = 10˚
Power Cable	08 = 8 Zones	C20 = 20˚
	12 = 12 Zones	

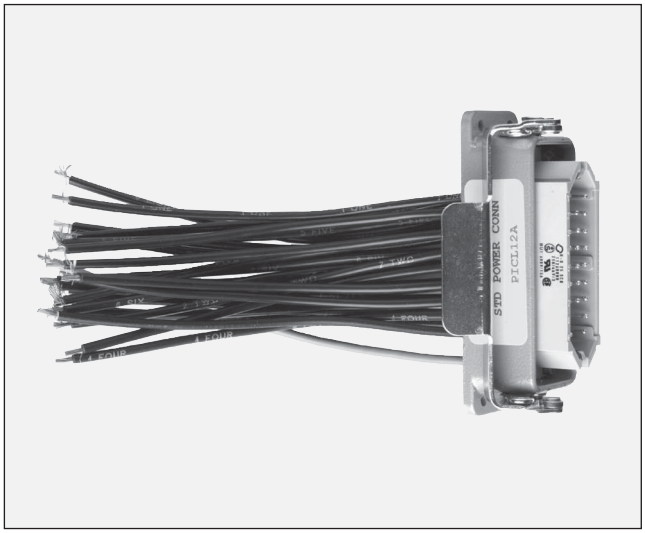


Combination Power and Thermocouple Cables	
Cable	Length
MAST/MPTC = Mould	C10 = 10˚
and Thermocouple Cables	C20 = 20˚

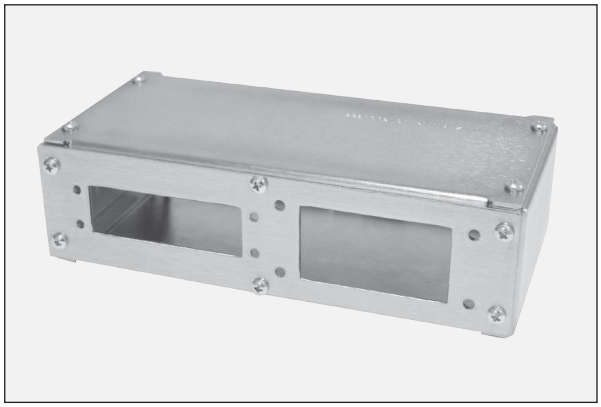
Thermocouple Connectors	
Connector	Zones
MAST/MTC = Mould Thermocouple Connector	05 = 5 Zones
	08 = 8 Zones
	12 = 12 Zones



Mould Power/Input Connectors	
Connector	Zones
MAST/PIC = Mould Power Connector	05 = 5 Zones
	08 = 8 Zones
	12 = 12 Zones



Single Zone Connectors			
MAST/CKPTM1	MAST/CKPTOC1	MAST/CKPTF1	MAST/CKPTIC1



Mounting Boxes		
Box	Zones	Kit
PTCL=Combination Box	005 = 5 Zones	TB = Terminal Box
(domestic and export)	008 = 8 Zones	
	12 = 12 Zones	

Closure (Blanking) Panels	
Must be used to cover unused zones in main frames. Supplied with push-pull panel fasteners	
Panel	Zones
MFB = Blank	10 = Single Zone

Universal Floor Stand	
Panel	Zones
MFS = Floorstand	5812 = Adjustable

Module Replacement Fuses	
Catalogue No.	Amps
ABC15	15
A25X30	30
ABC10	10

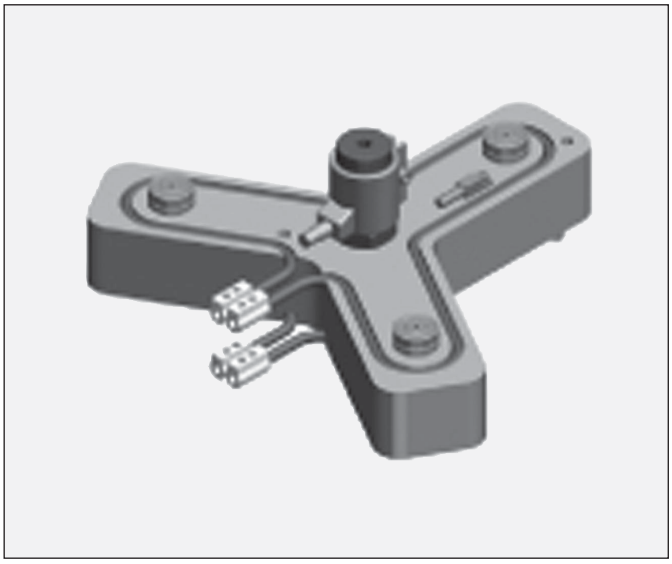
Insulated Crimp Connectors	
Catalogue No.	Amps
HWCC-1	15
HWCC-2	30

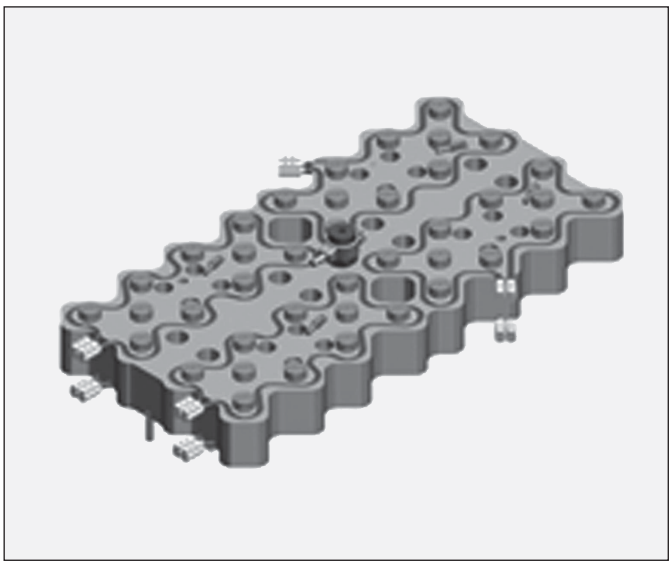
Mastip™ recognises that the manifold is a vital part of the complete Hot Runner System and therefore designs every system to meet customer's requirements including detailed designs for:

- Even part/cavity filling
- Balanced material flow
- Even heat profile
- Ideal for technical materials and fast colour changes

Valve gate system can be supplied for either balanced or sequential fill requirements.

From single cavity to high cavity or multi material, thermal or valve gating, we can supply a system to suit your requirements.





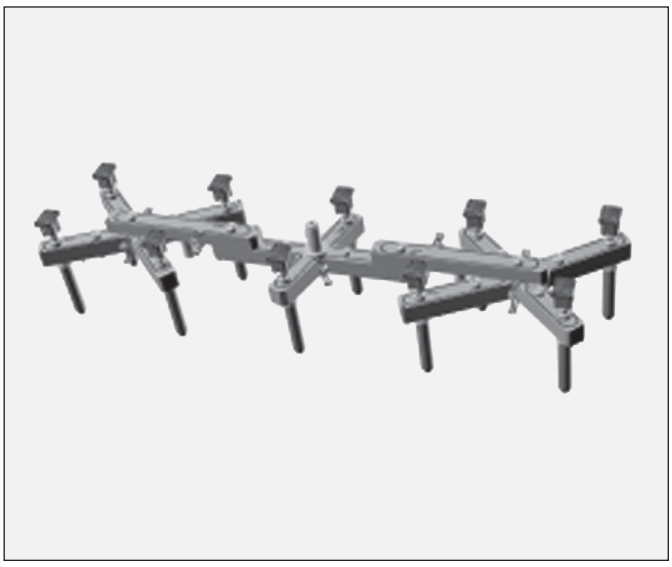


Table of Standard ISA Tolerances in Microns

(1 micron = 0.001mm / 25.4 micron = 0.001 inches)

Designation	Application	up to 3mm.	3 to 6mm.	6 to 10mm.	10 to 18mm.	18 to 30mm.	30 to 50mm.
d9		-20 -45	-30 -60	-40 -76	-50 -93	-65 -117	-80 -142
f7	Ground Surfaces	-6 -16	-10 -22	-13 -28	-16 -34	-20 -41	-25 -50
F7	Drill guides-I.D.	+16 +7	+22 +10	+28 +13	+34 +16	+41 +20	+50 +25
g5		-2 -6	-4 -9	-5 -11	-6 -14	-7 -16	-9 -20
g6	Ejector Pins	-2 -8	-4 -12	-5 -14	-6 -17	-7 -20	-9 -25
h4	Guide pins (die sets)	0 -3	0 -4	0 -4	0 -5	0 -6	0 -7
h5		0 -4	0 -5	0 -6	0 -8	0 -9	0 -11
h6	Punches D.C. F(pt)	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16
h7		0 -10	0 -12	0 -15	0 -18	0 -21	0 -25
h9		0 -25	0 -30	0 -36	0 -43	0 -52	0 -62
h11		0 -60	0 -75	0 -90	0 -110	0 -210	0 -250
H5		+4 0	+5 0	+6 0	+8 0	+9 0	+11 0
H7	Punch guides-I.D. Reamers	+10 0	+12 0	+15 0	+18 0	+21 0	+25 0
H8	Die inserts or buttons- I.D.(A&B)	+14 0	+18 0	+22 0	+27 0	+33 0	+39 0
j5		+2 -2	+3 -2	+4 -2	+5 -3	+5 -4	+6 -5
j6		+4 -2	+6 -2	+7 -2	+8 -3	+9 -4	+11 -5
j7		+7 -2	+9 -3	+10 -5	+12 -6	+13 -8	+15 -10
k6	Die inserts O.D(B)	+10 +1	+12 +1	+15 +2	+18 +2		
m5		+7 +2	+9 +4	+12 +6	+15 +7	+17 +8	+20 +9
m6	Punches E,F(shk) Dowels	+9 +2	+12 +4	+15 +6	+18 +7	+21 +8	+25 +9
n6	Die inserts-O.D.(A) Guide Bushes-O.D.	+13 +6	+16 +8	+19 +10	+23 +12	+28 +15	+32 +17
p6		+16 +9	+20 +12	+24 +15	+29 +18	+35 +22	+42 +26
r6		+19 +12	+23 +15	+28 +19	+34 +23	+41 +28	+50 +34
s5		+18 +14	+24 +19	+29 +23	+36 +28	+44 +35	+54 +43
s6		+22 +15	+27 +19	+32 +23	+39 +28	+48 +35	+59 +43