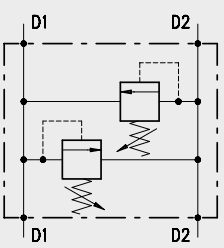




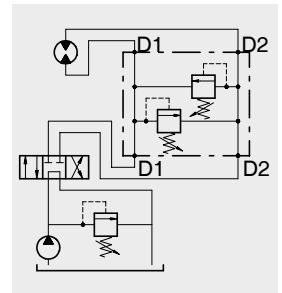
Pressure relief valves

Index

Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	US gpm	bar	psi	
	VAIL	Dual cross-line relief valve. Direct acting, poppet type, line mounting.	180	48	350	5100	85
	VADDL	Dual cross-line relief valve. Differential control, poppet type, line mounting					

Operation

Direct acting (differential control for the VADDL), poppet type, line mounting.
Allows pressure relief on delivery pipes to engines and cylinders.
Actuator close mount is recommended to assure a more rapid valve action.



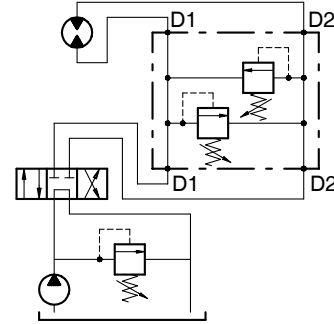
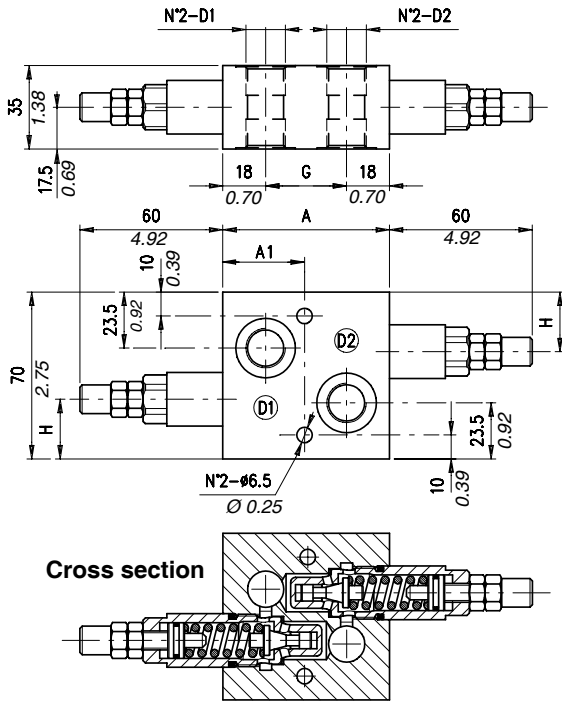
Performance

Body Valves

Type	Max. flow		Max. pres.		Application range with standard spring*	Hysteresis	Oil leaks from P to T	Weight		Cartridge
	l/min	US gpm	bar	psi				kg	lb	
VAIL 5	(38) 25 (12) 35	(38) 6.6 (12) 9.2	aluminium body 210	3050	5÷40 bar - 72.5÷580 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm)	85% of the setting value for flow capacity 1 l/min. -0.26 US gpm-	-	alum. body 0,67 steel body 1,29	alum. body 1.48 steel body 2.84	VMP 5
VAIL 10	150	40	steel body 350	5100	20÷80 bar - 290÷1150 psi (test setting 60 bar - 870 psi at 5 l/min. - 1.32 US gpm)		-	alum. body 1,12 steel body 2,20	alum. body 2.47 steel body 4.85	VMP 10
VAIL 20	(34) 100 (100) 180	(34) 26 (100) 48	350	5100	50÷220 bar - 725÷3200 psi (test setting 160 bar - 2300 psi at 5 l/min. - 1.32 US gpm) 180÷350 bar - 2600÷5100 psi (test setting 280 bar - 4100 psi at 5 l/min. - 1.32 US gpm)		-	alum. body 2,00 steel body 3,55	alum. body 4.40 steel body 7.83	VMP 20
VADDL 38	35	9.2	aluminium body 210 steel body 350	3050 5100	50÷210 bar - 725÷3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) 50-350 bar - 725÷5100 psi (test setting 250 bar-3600 psi at 5 l/min. - 1.32 US gpm)		disre-gar-dable	alum. body 0,86 steel body 1,50	alum. body 1.89 steel body 3.30	VMPD 38
VADDL 12	60	16						alum. body 1,14 steel body 2,00	alum. body 2.56 steel body 4.41	VMPD 12
VADDL 34 (100)	(34) 120 (100) 180	(34) 32 (100) 48						(34) alum. body 3,38 steel body 4,77 (100) alum. body 3,61 steel body 5,41	(34) alum. body 7.45 steel body 10.52 (100) alum. body 7.96 steel body 11.93	VMPD 34

*To perform setting of the valve see the pressure drop/ flow diagram.

Dimensions and hydraulic circuit

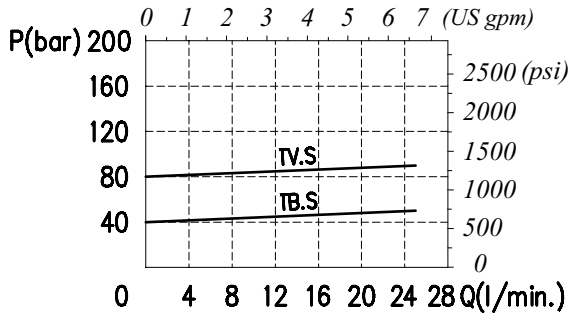


VAIL	A	A1	G	H	D1	D2
5-38	70-2.75	35-1.38	34 -1.34	25 -0.98	G 3/8	G 3/8
5-12	75-2.95	37.5-1.48	39 -1.53	24.5 -0.96	G 1/2	G 1/2

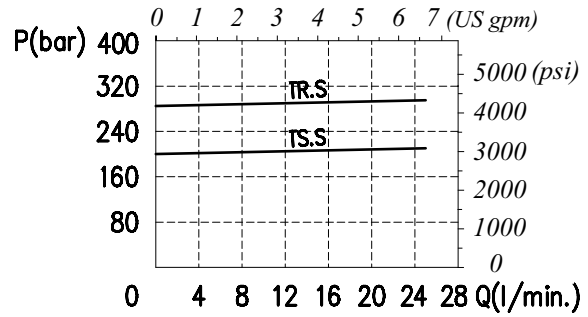
Dimensions are in mm - in

Rating diagrams

Typical pressure drop vs. flow characteristic

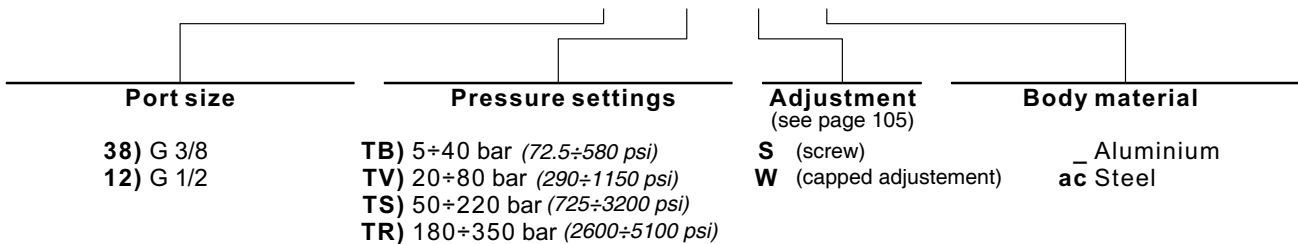


Typical pressure drop vs. flow characteristic

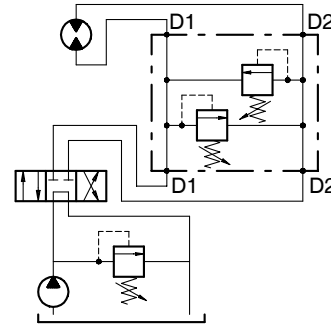
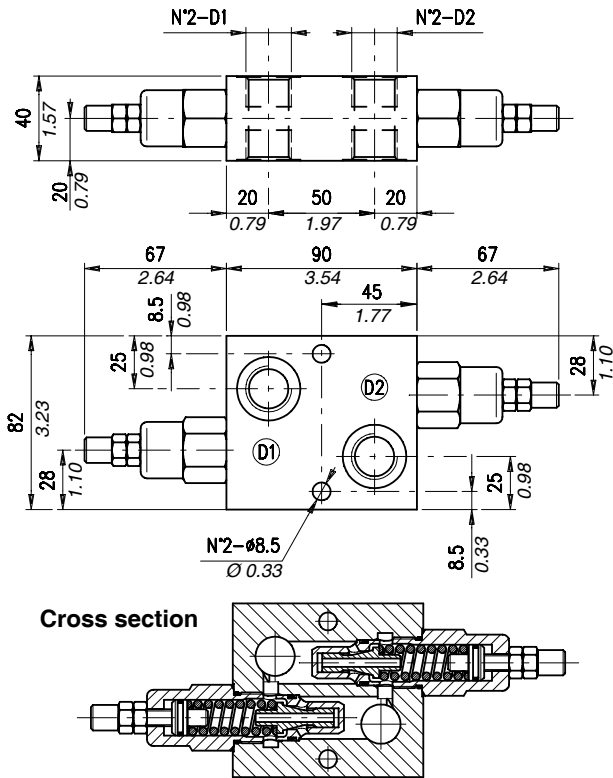


Order code

VAIL 5 - □□ / □□ . □ / □□



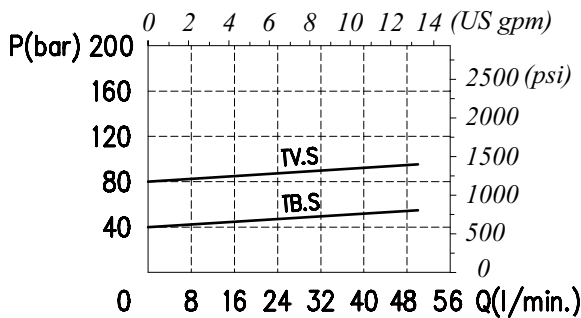
Dimensions and hydraulic circuit



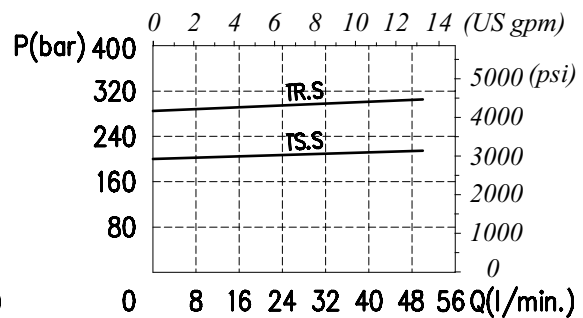
VAIL	D1	D2
10-12	G 1/2	G 1/2
10-34	G 3/4	G 3/4

Rating diagrams

Typical pressure drop vs. flow characteristic



Typical pressure drop vs. flow characteristic

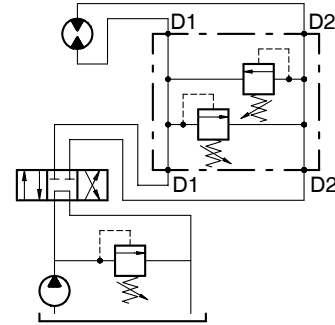
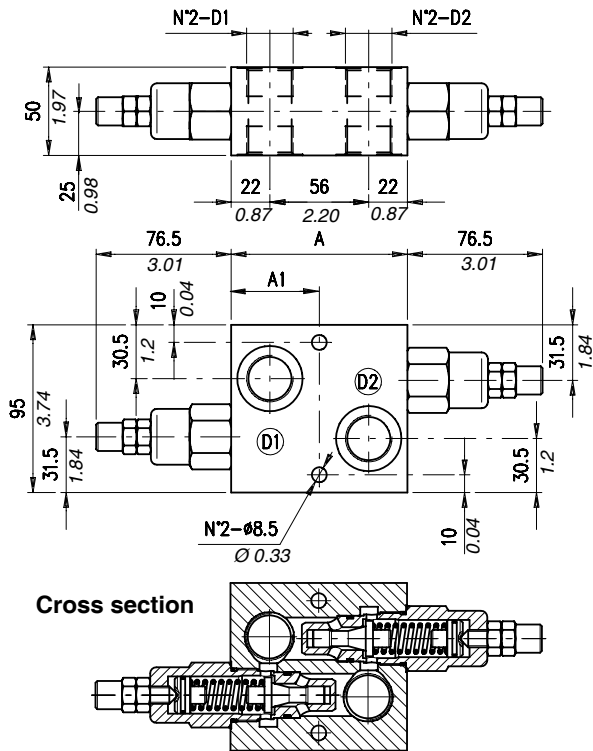


Order code

VAIL 10 - □□ / □□ . □ / □□

Port size	Pressure settings	Adjustment (see page 105)	Body material
12) G 1/2 34) G 3/4	TB) 5÷40 bar (72.5÷580 psi) TV) 20÷80 bar (290÷1150 psi) TS) 50÷220 bar (725÷3200 psi) TR) 180÷350 bar (2600÷5100 psi)	S (screw) W (capped adjustment)	_ Aluminium ac Steel

Dimensions and hydraulic circuit

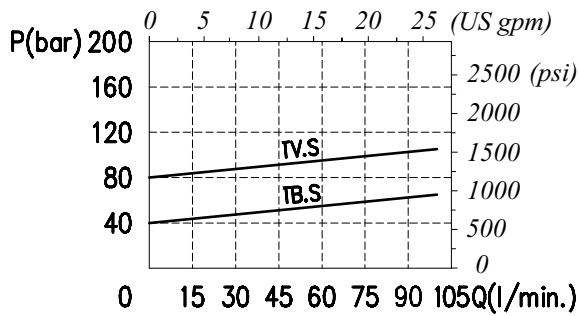


VAIL	A	A1	D1	D2
20-34	100 - 3.93	50 - 1.97	G 3/4	G 3/4
20-100	120 - 4.72	60 - 2.36	G 1	G 1

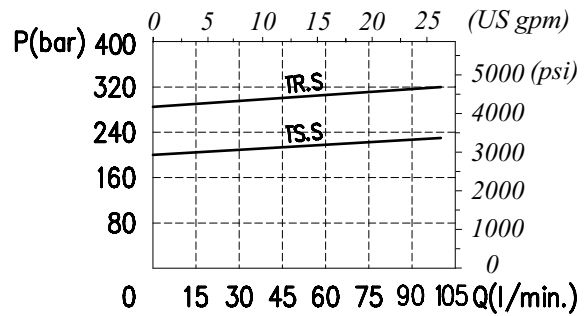
Dimensions are in mm - in

Rating diagrams

Typical pressure drop vs. flow characteristic



Typical pressure drop vs. flow characteristic

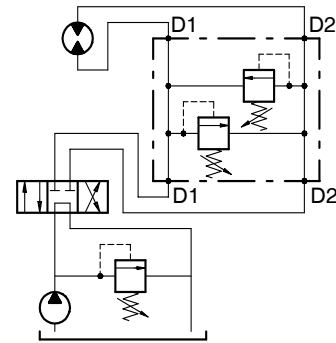
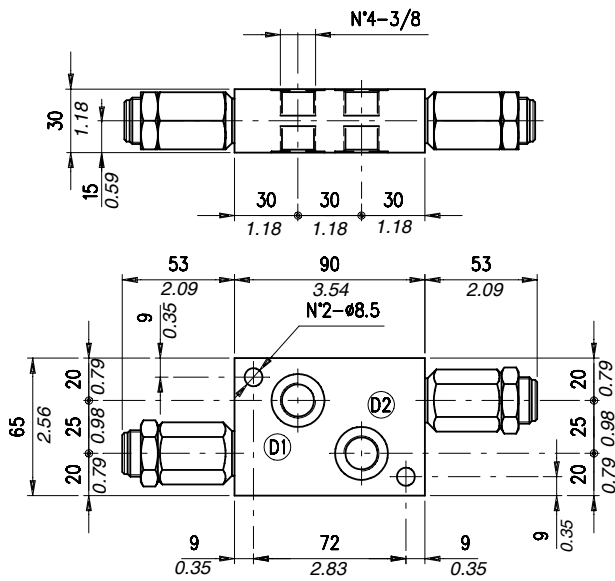


Order code

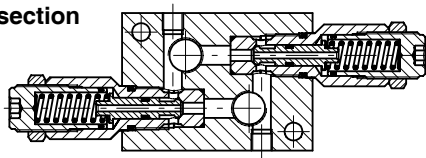
VAIL 20 - □□ / □□ . □ / □□

Port size	Pressure settings	Adjustment (see page 105)	Body material
34) G 3/4 100) G 1	TB) 5÷40 bar (72.5÷580 psi) TV) 20÷80 bar (290÷1150 psi) TS) 50÷220 bar (725÷3200 psi) TR) 180÷350 bar (2600÷5100 psi)	S (screw) W (capped adjustment)	Aluminium ac Steel

Dimensions and hydraulic circuit

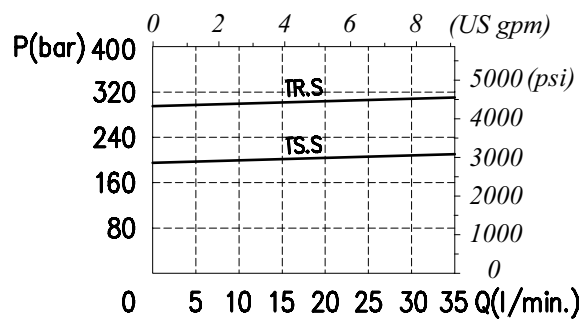


Cross section



Rating diagrams

Typical pressure drop vs. flow characteristic



Order code

VADDL 38 / □□ . S / □□

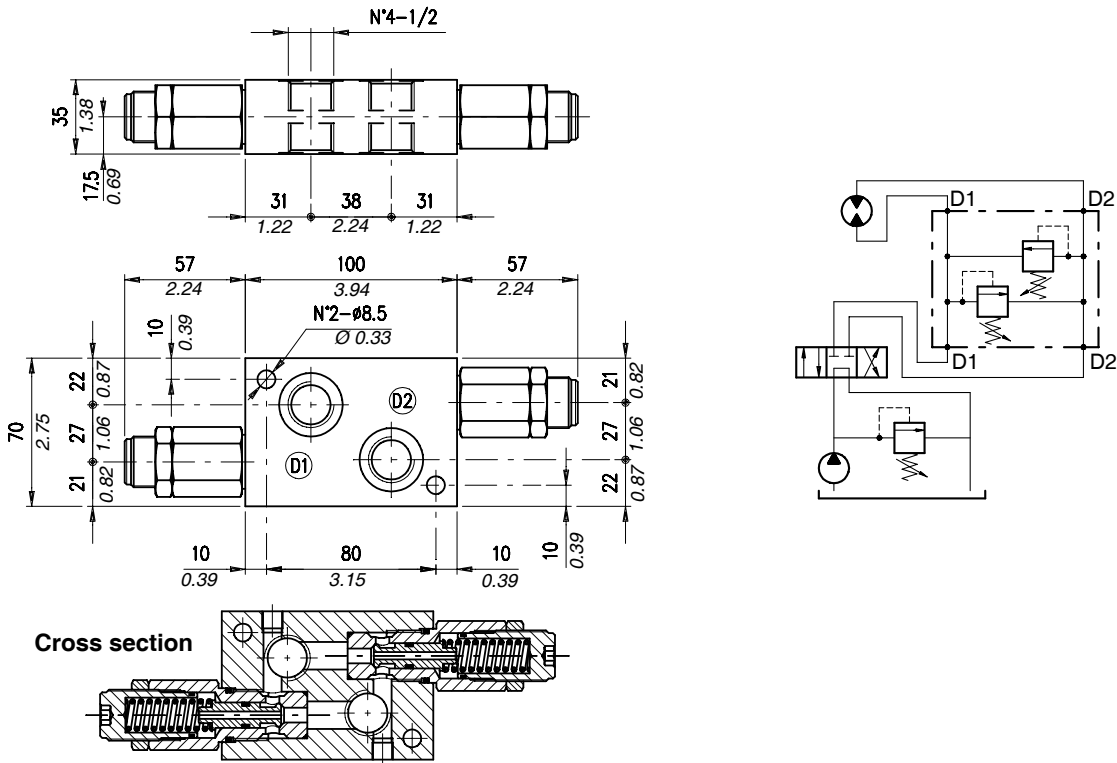
Pressure settings

Body material

TS) 5÷210 bar (72.5÷580 psi)
TR) 50÷350 bar (725÷5100 psi)

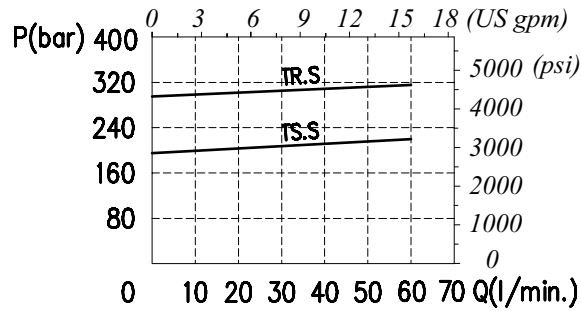
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



Rating diagrams

Typical pressure drop vs. flow characteristic



Order code

VADDL 12 / □□ . S / □□

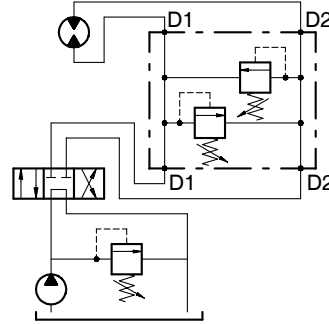
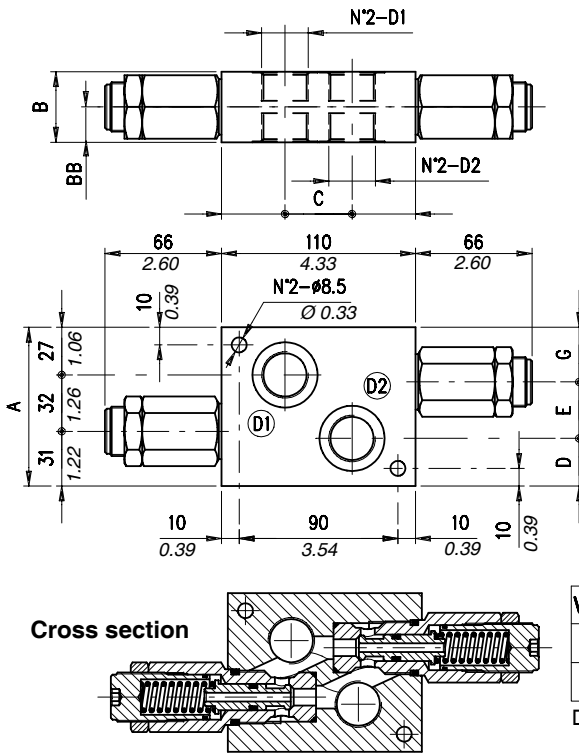
Pressure settings

Body material

TS 5+210 bar (72.5÷3050 psi)
TR 50+350 bar (725÷5100 psi)

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

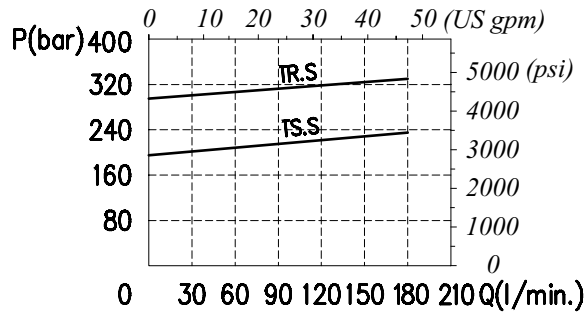


VADDL	A	B	BB	C	D	E	G	D1	D2
34	90 - 3.54	40 - 1.57	20 - 0.79	38 - 1.50	27 - 1.06	32 - 1.26	31 - 1.22	G 3/4	G 3/4
100	100 - 3.94	50 - 1.97	25 - 0.98	50 - 1.97	28 - 1.10	38 - 1.50	34 - 1.34	G 1	G 1

Dimensions are in mm - in

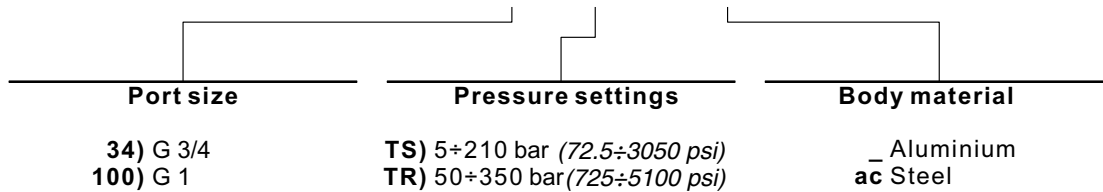
Rating diagrams

Typical pressure drop vs. flow characteristic



Order code

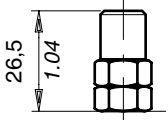
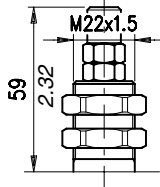
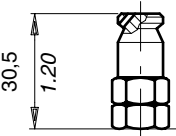
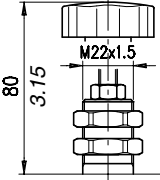
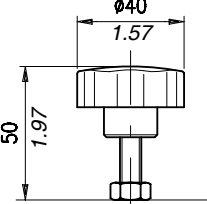
VADDL □□ / □□ . S / □□



Description and operation

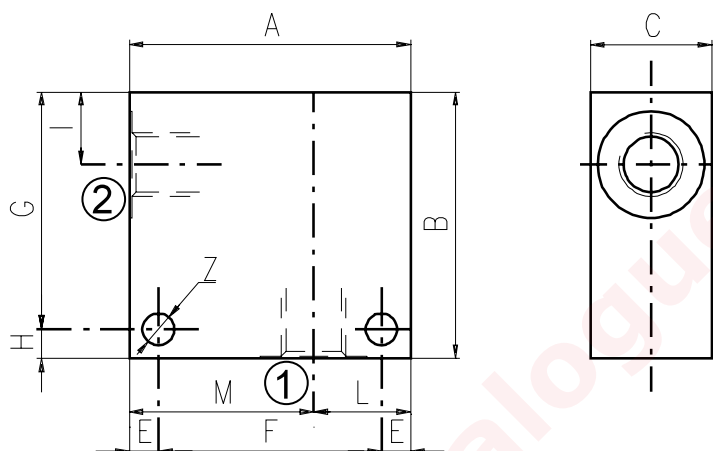
This chapter show main adjusting devices for the valves listed in this catalog.
These regulations are used to adjust flow rate between inlet and working ports.

Performance

	<p>Screw "S"</p>		<p>Panel mount "P"</p>
	<p>Copped adjustment "W"</p>		<p>Panel mount+handknob "PV"</p>
	<p>Handknob "V"</p>		

Dimensions

Material	Max. pressure	
	bar	psi
Alluminium	210	3050
Steel	350	5100



Cavità	Attacchi		A	B	C	E	F	G	H	I	L	M	Z
SAE 8/2	G 1/2	mm	70	65	35	7	56	53	12	14,5	35	35	6,5
		in	2.75	2.56	1.38	0.27	2.20	2.09	0.47	0.57	1.38	1.38	0.25
	G 1/4	mm	50	50	30	6	38	44	6	14,8	20	30	6,5
		in	1.97	1.97	1.18	0.24	1.50	1.73	0.24	0.58	0.79	1.18	0.25
	G 3/8	mm	50	50	30	6	38	44	6	14,8	20	30	6,5
		in	1.97	1.97	1.18	0.24	1.50	1.73	0.24	0.58	0.79	1.18	0.25
	SAE6	mm	50	50	30	6	38	44	6	14,8	20	30	6,5
		in	1.97	1.97	1.18	0.24	1.50	1.73	0.24	0.58	0.79	1.18	0.25
SAE 10/2	G 1/4	mm	60	60	35	6	48	54	6	18,8	25	35	6,5
		in	2.36	2.36	1.38	0.24	1.89	2.12	0.24	0.74	0.98	1.38	0.25
	G 3/8	mm	60	60	35	6	48	54	6	18,8	25	35	6,5
		in	2.36	2.36	1.38	0.24	1.89	2.12	0.24	0.74	0.98	1.38	0.25
	G 1/2	mm	60	60	35	6	48	54	6	18,8	25	35	6,5
		in	2.36	2.36	1.38	0.24	1.89	2.12	0.24	0.74	0.98	1.38	0.25
	SAE8	mm	60	70	35	6	48	64	6	18,8	25	35	6,5
		in	2.36	2.75	1.38	0.24	1.89	2.52	0.24	0.74	0.98	1.38	0.25
	SAE10	mm	70	70	35	6	58	64	6	18,5	35	35	6,5
		in	2.75	2.75	1.38	0.24	2.28	2.52	0.24	0.73	1.38	1.38	0.25
	SAE12	mm	70	70	40	8	54	62	8	22	30	40	8,5
		in	2.75	2.75	1.57	0.31	2.12	2.44	0.31	0.87	1.18	1.57	0.33
SAE 12/2	G 1/2	mm	70	80	40	8	54	72	8	25	30	40	8,5
		in	2.75	3.15	1.57	0.31	2.12	2.83	0.31	0.98	1.18	1.57	0.33
	G 3/4	mm	70	90	40	8	54	82	8	25	30	40	8,5
		in	2.75	3.54	1.57	0.31	2.12	3.23	0.31	0.98	1.18	1.57	0.33
	SAE10	mm	70	85	40	8	54	77	8	25	30	40	8,5
		in	2.75	3.35	1.57	0.31	2.12	3.03	0.31	0.98	1.18	1.57	0.33
	SAE12	mm	70	85	40	8	54	77	8	25	30	40	8,5
		in	2.75	3.35	1.57	0.31	2.12	3.03	0.31	0.98	1.18	1.57	0.33

Cavity	Ports	A	B	C	E	F	G	H	I	L	M	Z	
SAE 16/2	G 1/2	mm	80	90	50	10	60	80	10	25	35	45	10,5
		in	3.15	3.54	1.97	0.39	2.36	3.15	0.39	0.98	1.38	1.77	0.41
	G 3/4	mm	80	90	50	10	60	80	10	25	35	45	10,5
		in	3.15	3.54	1.97	0.39	2.36	3.15	0.39	0.98	1.38	1.77	0.41
	G 1	mm	85	100	60	10	65	90	10	23,5	40	45	10,5
		in	3.35	3.94	2.36	0.39	2.56	3.54	0.39	0.92	1.57	1.77	0.41
	SAE12	mm	80	90	50	10	60	80	10	25	35	45	10,5
		in	3.15	3.54	1.97	0.39	2.36	3.15	0.39	0.98	1.38	1.77	0.41
	SAE16	mm	80	100	50	10	60	90	10	25	35	45	10,5
		in	3.15	3.94	1.97	0.39	2.36	3.54	0.39	0.98	1.38	1.77	0.41

Order code

3/CC /- □ □ /20/□- □-1

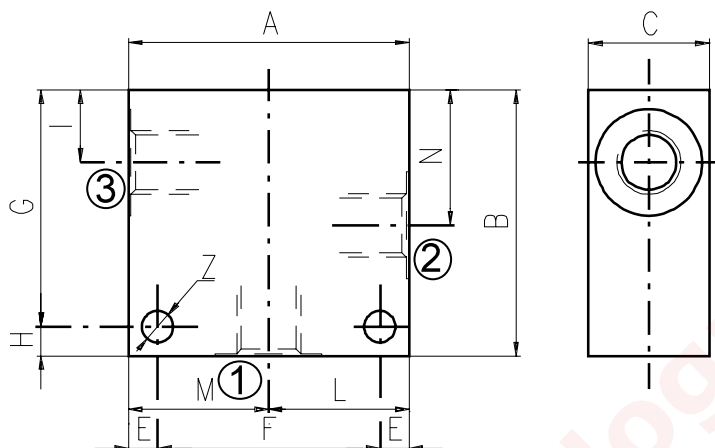
Cavity	Ports	Materials
08	B) G 1/4	1) Aluminium
10	C) G 3/8	2) Steel
12	D) G 1/2	
16	E) G 3/4	
	F) G 1	

2, 3 and 4 way Valves Bodies

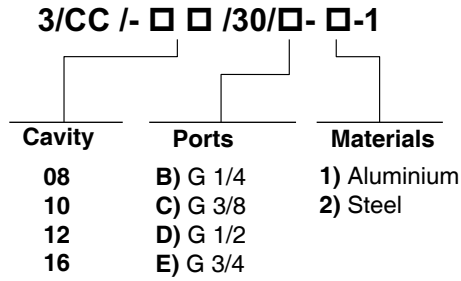
3 WAY BODIES

Dimensions

Material	Max. pressure	
	bar	psi
Alluminium	210	3050
Steel	350	5100



Cavity	Ports		A	B	C	E	F	G	H	I	L	M	N	Z
SAE 8/3	G 1/4	mm	60	60	30	7	46	48	12	14,8	30	30	29,1	6,5
		in	2.36	2.36	1.18	0.27	1.81	1.89	0.47	0.58	1.18	1.18	1.14	0.25
	G 3/8	mm	60	60	30	7	46	48	12	14,5	30	30	29,1	6,5
		in	2.36	2.36	1.18	0.27	1.81	1.89	0.47	0.57	1.18	1.18	1.14	0.25
	G 1/2	mm	70	65	35	7	56	53	12	14,5	35	35	29,1	6,5
		in	2.75	2.56	1.38	0.27	2.20	2.09	0.47	0.57	1.38	1.38	1.14	0.25
	SAE6	mm	60	60	30	7	46	48	12	14,5	30	30	29,1	6,5
		in	2.36	2.36	1.18	0.27	1.81	1.89	0.47	0.57	1.18	1.18	1.14	0.25
SAE 10/3	G 1/4	mm	60	65	35	6	48	59	6	18	30	30	34,5	7
		in	2.36	2.56	1.38	0.24	1.89	2.32	0.24	0.70	1.18	1.18	1.36	0.27
	G 3/8	mm	60	65	35	6	48	59	6	18,8	30	30	34,5	7
		in	2.36	2.56	1.38	0.24	1.89	2.32	0.24	0.74	1.18	1.18	1.36	0.27
	G 1/2	mm	65	70	35	6	53	64	6	18,8	32,5	32,5	34,5	7
		in	2.56	2.75	1.38	0.24	2.09	2.52	0.24	0.74	1.28	1.28	1.36	0.27
	SAE6	mm	65	70	35	6	53	64	6	18,8	32,5	32,5	34,5	7
		in	2.56	2.75	1.38	0.24	2.09	2.52	0.24	0.74	1.28	1.28	1.36	0.27
	SAE8	mm	65	70	35	6	53	64	6	18,8	32,5	32,5	34,5	7
		in	2.56	2.75	1.38	0.24	2.09	2.52	0.24	0.74	1.28	1.28	1.36	0.27
SAE 12/3	G 1/2	mm	70	100	40	8	54	92	8	25	35	35	53,5	8,5
		in	2.75	3.94	1.57	0.31	2.12	3.6	0.31	0.98	1.38	1.38	2.10	0.33
	G 3/4	mm	90	100	50	10	70	90	10	25,1	45	45	53,5	10,5
		in	3.54	3.94	1.97	0.39	2.75	3.54	0.39	0.99	1.77	1.77	2.11	0.41
	SAE10	mm	80	100	40	8	64	92	8	25	40	40	53,5	8,5
		in	3.15	3.94	1.57	0.31	2.52	3.6	0.31	0.98	1.57	1.57	2.11	0.33
	SAE12	mm	80	100	45	8	64	92	8	25	40	40	53,5	8,5
		in	3.15	3.94	1.57	0.31	2.52	3.6	0.31	0.98	1.57	1.57	2.11	0.33
SAE 16/3	G 3/4	mm	90	100	50	10	70	90	10	25,1	45	45	53,5	10,5
		in	3.54	3.94	1.97	0.39	2.75	3.54	0.39	0.99	1.77	1.77	2.11	0.41
	SAE12	mm	90	105	50	10	70	95	10	25,1	45	45	53,5	10,5
		in	3.54	4.13	1.97	0.39	2.75	3.74	0.39	0.99	1.77	1.77	2.11	0.41
	SAE16	mm	90	105	50	10	70	95	10	25,1	45	45	53,5	10,5
		in	3.54	4.13	1.97	0.39	2.75	3.74	0.39	0.99	1.77	1.77	2.11	0.41



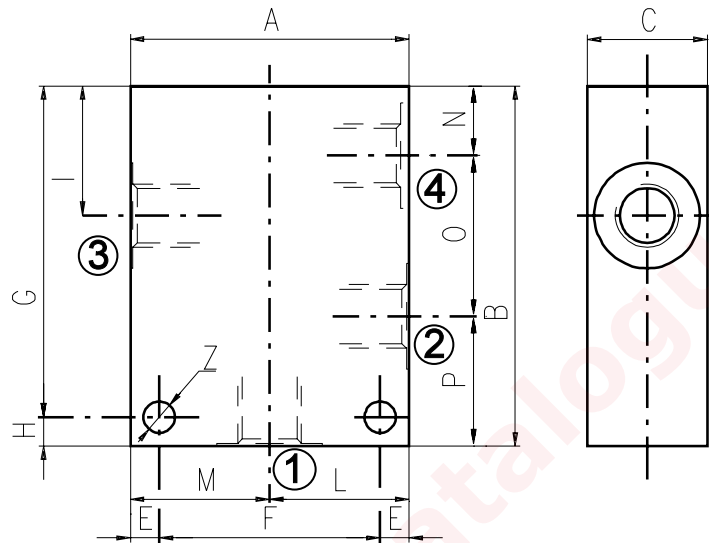
see SAE cartridges catalogue

2, 3 and 4 way Valves Bodies

4 WAY BODIES

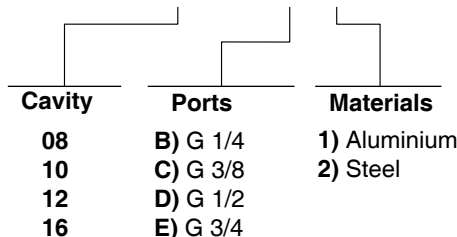
Dimensions

Material	Max. pressure	
	bar	psi
Aluminium	210	3050
Steel	350	5100

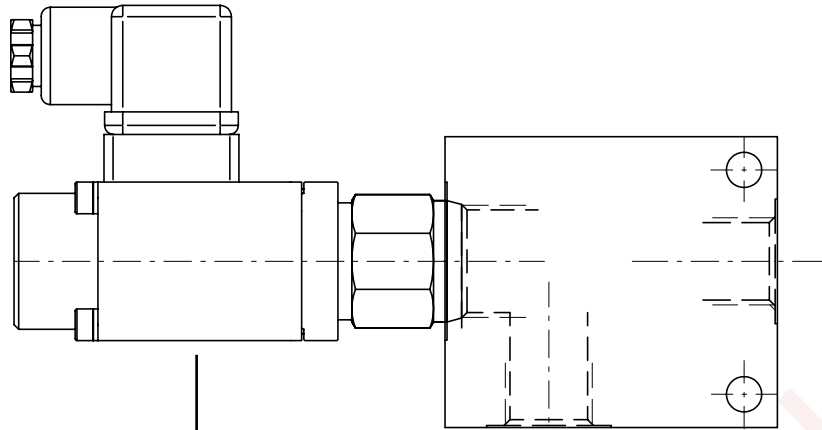


Cavity	Ports	A	B	C	E	F	G	H	I	L	M	N	O	P	Z	
SAE 8/4	G 1/4	mm	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	2.36	2.95	1.18	0.27	1.81	2.48	0.47	1.14	1.18	1.18	0.58	1.14	1.22	0.25
	SAE6	mm	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	2.36	2.95	1.18	0.27	1.81	2.48	0.47	1.14	1.18	1.18	0.58	1.14	1.22	0.25
SAE 10/4	G 3/8	mm	60	85	35	6	48	79	6	34,5	30	30	18,8	31,7	34,5	7
		in	2.36	3.35	1.38	0.24	1.89	3.11	0.24	1.36	1.18	1.18	0.74	1.25	1.36	0.27
	G 1/2	mm	70	85	35	6	58	79	6	34,5	35	35	18,8	31,7	34,5	7
		in	2.75	3.35	1.38	0.24	2.28	3.11	0.24	1.36	1.38	1.38	0.74	1.25	1.36	0.27
	SAE6	mm	60	85	35	6	48	79	6	34,5	30	30	18,8	31,7	34,5	7
		in	2.45	3.35	1.38	0.24	1.89	3.11	0.24	1.36	1.18	1.18	0.74	1.25	1.36	0.27
	SAE8	mm	70	85	35	6	58	79	6	34,5	35	35	18,8	31,7	34,5	7
		in	2.75	3.35	1.38	0.24	2.28	3.11	0.24	1.36	1.38	1.38	0.74	1.25	1.36	0.27
SAE 12/4	G 1/2	mm	80	115	40	8	64	107	8	44	40	40	22	44,5	48,5	8,5
		in	3.15	4.53	1.57	0.31	2.52	4.21	0.31	1.73	1.57	1.57	0.87	1.75	1.9	0.33
	SAE10	mm	80	115	40	8	64	107	8	44	40	40	22	44,5	48,5	8,5
		in	3.15	4.53	1.57	0.31	2.52	4.21	0.31	1.73	1.57	1.57	0.87	1.75	1.9	0.33
SAE 16/4	G 3/4	mm	100	130	50	10	80	120	10	53,5	50	50	25,1	56,9	48	10,5
		in	3.94	5.12	1.97	0.39	3.15	4.72	0.39	2.11	1.97	1.97	0.99	2.24	1.89	0.41

3/CC /- □ □ /40/□- □-1



How to order valves with body



CARTRIDGE CODE

MP-10-Y/0-4-1V/

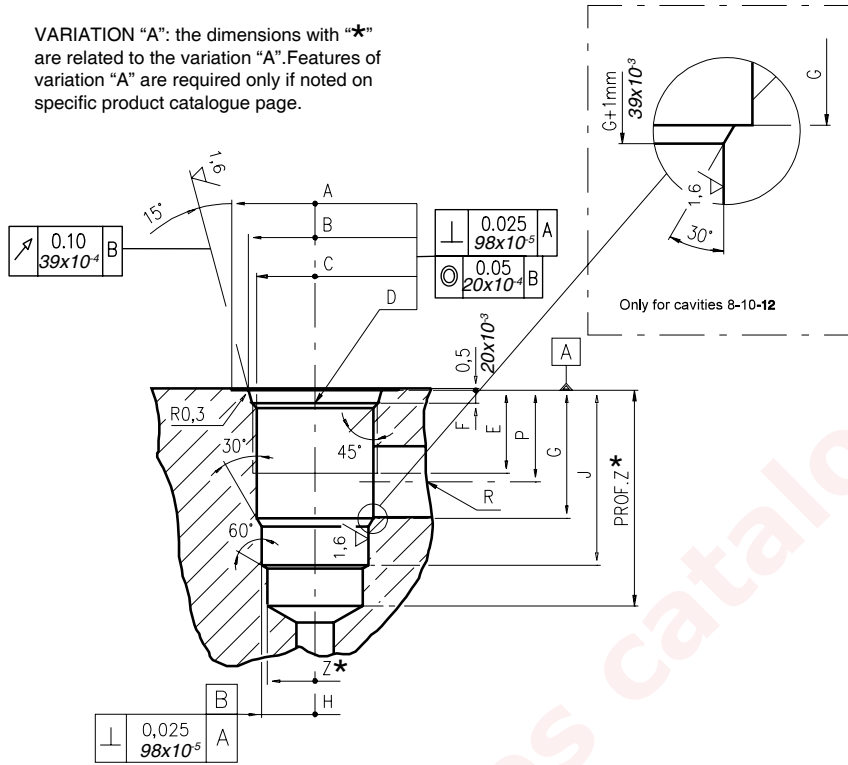
BILLET CODE

C-1-1

Cavity	Ports	Materials
08	B) G 1/4	1) Aluminium
10	C) G 3/8	
12	D) G 1/2	
16	E) G 3/4	
	F) G 1	
	J) SAE 6	2) Steel
	K) SAE 8	
	L) SAE 10	
	M) SAE 12	
	N) SAE 16	

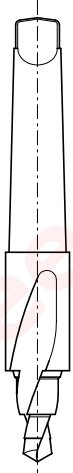
Dimensions

VARIATION "A": the dimensions with "★" are related to the variation "A". Features of variation "A" are required only if noted on specific product catalogue page.



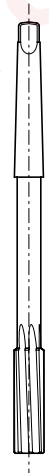
\		A	B ±0,05	C ±0,05	D	E	F	G	H ±0,02	J	K ±0,02	L	M ±0,02	N	P	R øMAX	S	T øMAX	U	V øMAX	X øMAX	Z ★ øMIN	Prof.Z MIN★
		08/2	mm	27	20,66	17,42	3/4-16 UNF	12,50	2,50	18,20	12,72	29,50	-	-	-	-	14,00	8,00	-	-	-	-	-
	in	1.06	0.81	0.68		0.49	0.10	0.72	0.50	1.16					0.55	0.31						0.47	1.53
10/2	mm	30	24,00	20,62	7/8-14 UNF	16,00	2,80	24,00	15,90	33,50	-	-	-	-	18,30	11,00	-	-	-	-	-	14,50	40
	in	1.18	0.94	0.81		0.63	0.11	0.94	0.62	1.32					0.72	0.43						0.57	1.57
12/2	mm	38	29,23	24,73	1 1/16-12 UNF	19,00	3,50	34,15	22,25	46,80	-	-	-	-	24,50	19,00	-	-	-	-	-	21,50	60
	in	1.50	1.15	0.97		0.75	0.14	1.34	0.87	1.84					0.96	0.75						0.85	2.36
16/2	mm	45	35,58	31,34	1 5/16-12 UNF	22,00	3,50	34,00	28,62	47,00	-	-	-	-	24,50	19,00	-	-	-	-	-	25,50	70
	in	1.77	1.40	1.23		0.87	0.14	1.34	1.13	1.85					0.96	0.75						1.00	2.75

Rougher tool



Cavity	Code number
08/2	3UT00053190
10/2	3UT00056610
12/2	3UT00054090
16/2	3UT00054510

Finisher tool



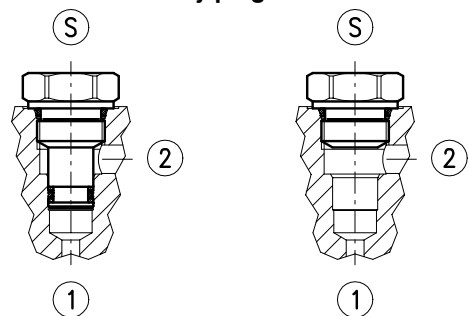
Cavity	Code number
08/2	3UT06A1270N
10/2	3UT00054580
12/2	3UT00054670
16/2	3UT00054520

Tap



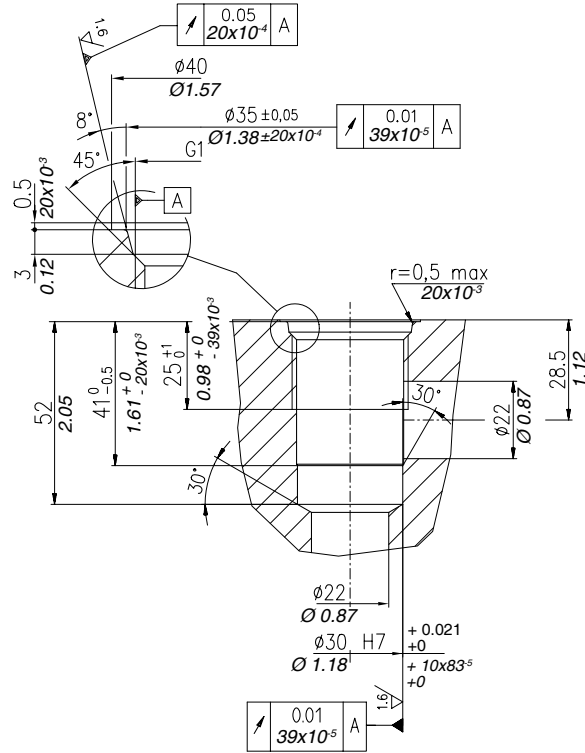
Cavity	Code number
08/2	3UT03416UNF
10/2	3UT07814UNF
12/2	3UT0111612UN
16/2	3UT0151612UN

Cavity plugs

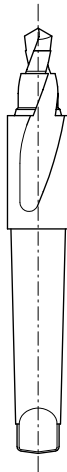


Cavity	Code number	①	②	Ⓢ
08/2	3XTP3533700	X	X	X
	4TP5531500	0	0	X
10/2	3XTP3544200	X	X	X
	3XTP1542300	0	0	X
12/2	3XTP3555400	X	X	X
	3XTP1552900	0	0	X
16/2	3XTP3575500	X	X	X
	3XTP1572900	0	0	X

X=Closed 0=Open



Rougher tool
Cod.3UT00050870A



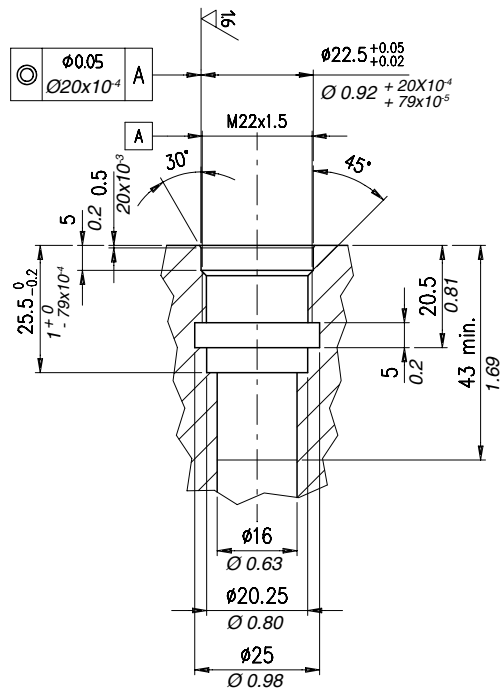
Finisher tool
Cod.3UTO6A3000N



Tap
Cod.3UT09A10F11G

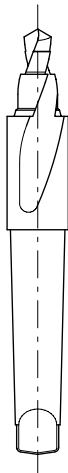


Dimensions



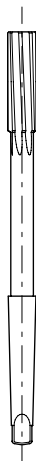
Rougher tool

Code 3UT00054660



Finisher tool

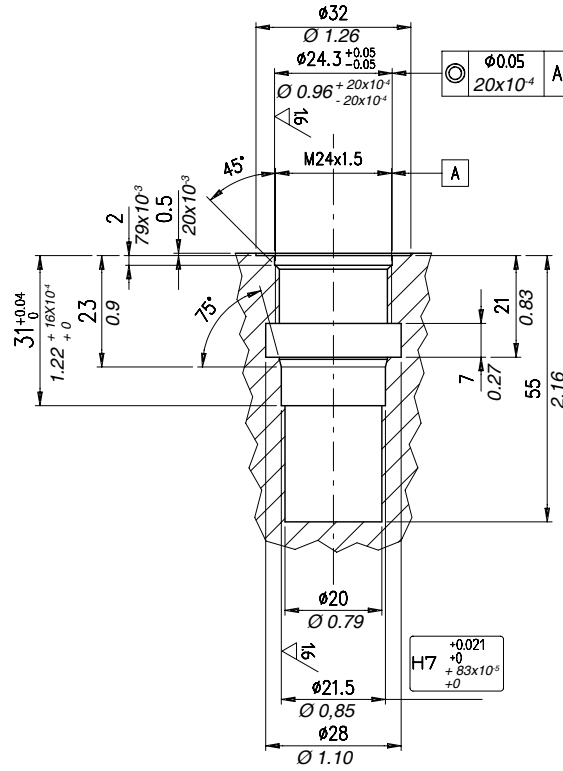
Code 3UT00055530



Tap

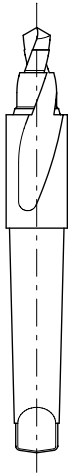
Code 3UT08A22F150





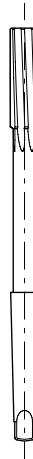
Rougher tool

Code 3UT00052210



Finisher tool

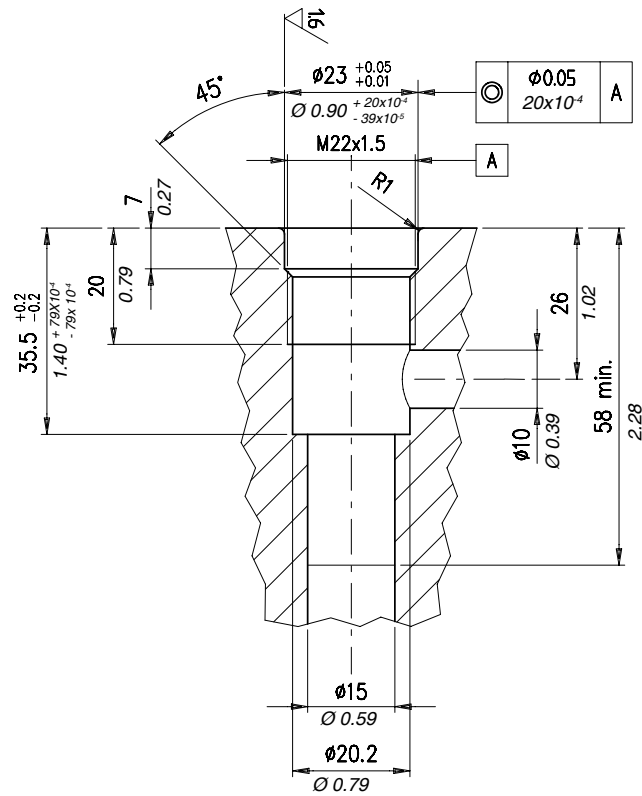
Code 3UT00055030



Tap

Code 3UT08A24F150

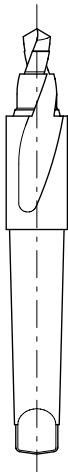


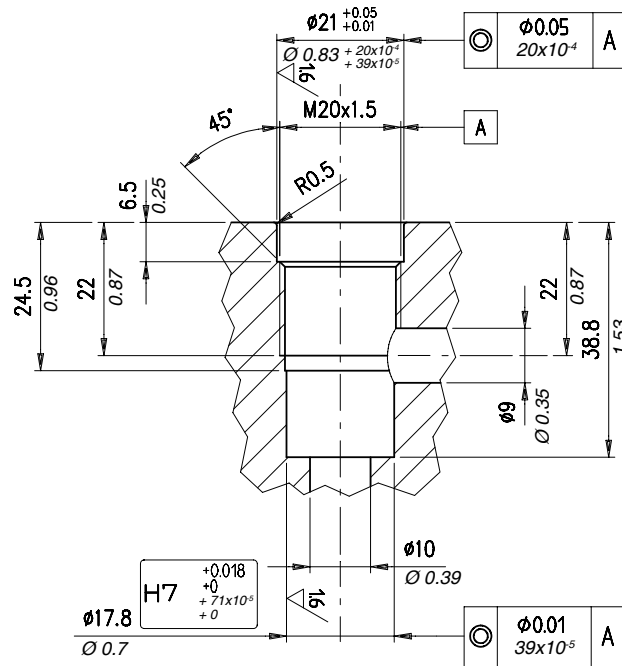


Rougher tool
Code 3UT00055540

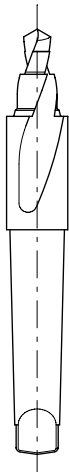
Finisher tool
Code 3UT06A2300N

Tap
Code 3UT08A22F150





Rougher tool
Code 3UT00050050



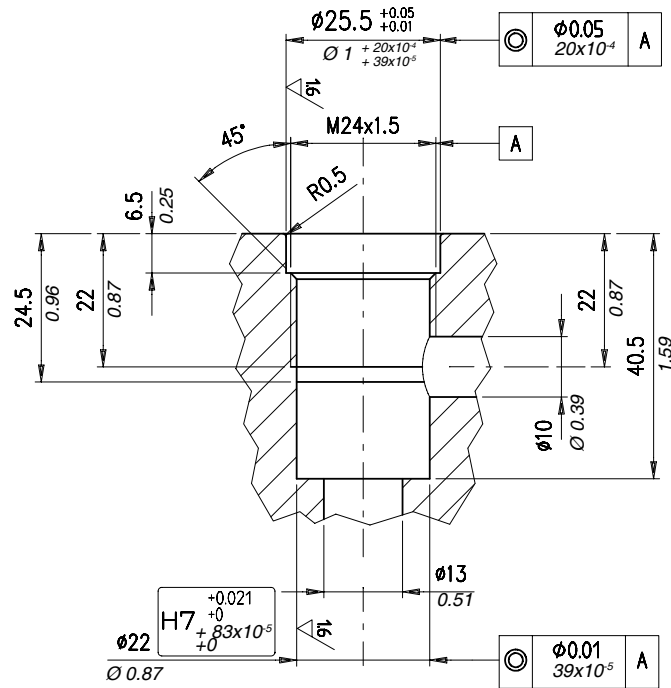
Finisher tool
Code 3UT00055040



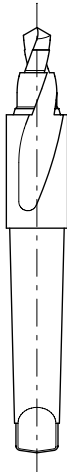
Tap
Code 3UT08A20F150



Dimensions



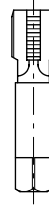
Rougher tool
Code 3UT00050070

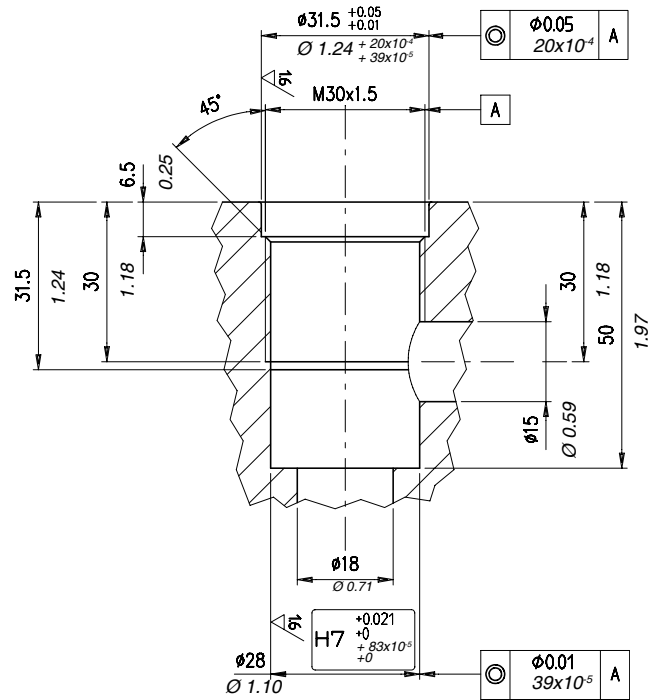


Finisher tool
Code 3UT06A22000P

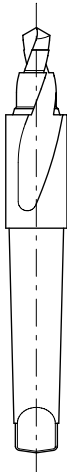


Tap
Code 3UT08A24F150





Rougher tool
Code 3UT00050070



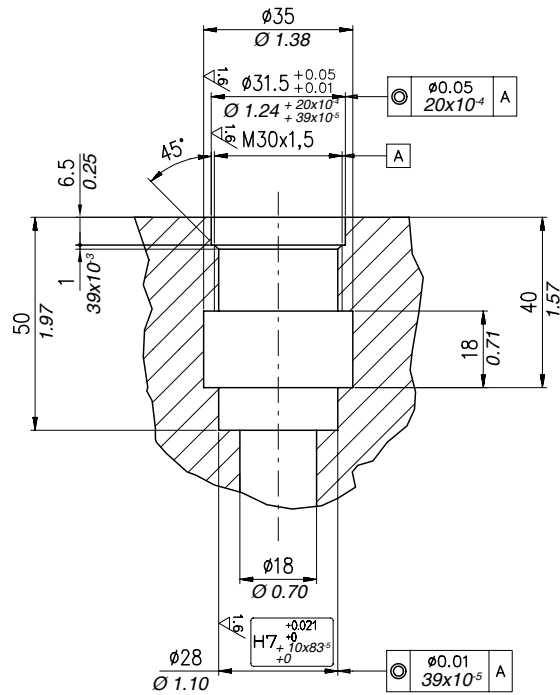
Finisher tool
Code 3UT06A22000P



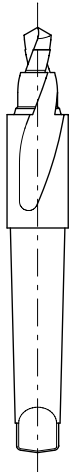
Tap
Code 3UT08A24F150



Dimensions



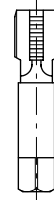
Rougher tool
Code 3UT00050070



Finisher tool
Code 3UT06A22000P



Tap
Code 3UT08A24F150



1st edition May 2010

WWW.WALVOIL.COM

 **walvoil**
HYDRAULIC CONTROL SYSTEMS

D1WWEM01E

