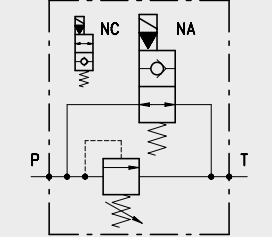
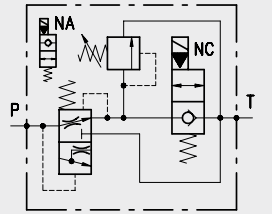




# Pressure relief valves

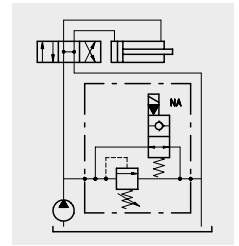
## Index

Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	US gpm	bar	psi	
	<b>VMP/VE 14 (38)</b>	Pressure relief valve with electric bypass	35	9.2	350	5100	77

Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	US gpm	bar	psi	
	<b>VMP/VE 12 (34)</b>	Pressure relief valve with electric bypass	90	24	350	5100	73
	<b>VMP/VE 100 (114)</b>		250	66			

**Operation**

Pilot operated with venting for the 12 (34) and direct acting for the 14 (38).  
The valve Allows oil flow from P to T when pressure in P reaches the setting of the spring. Pick the solenoid UP (for NC types) or DOWN (for NA types) to allow for free oil flow from P into T.



**Performance**

**Body Valves**

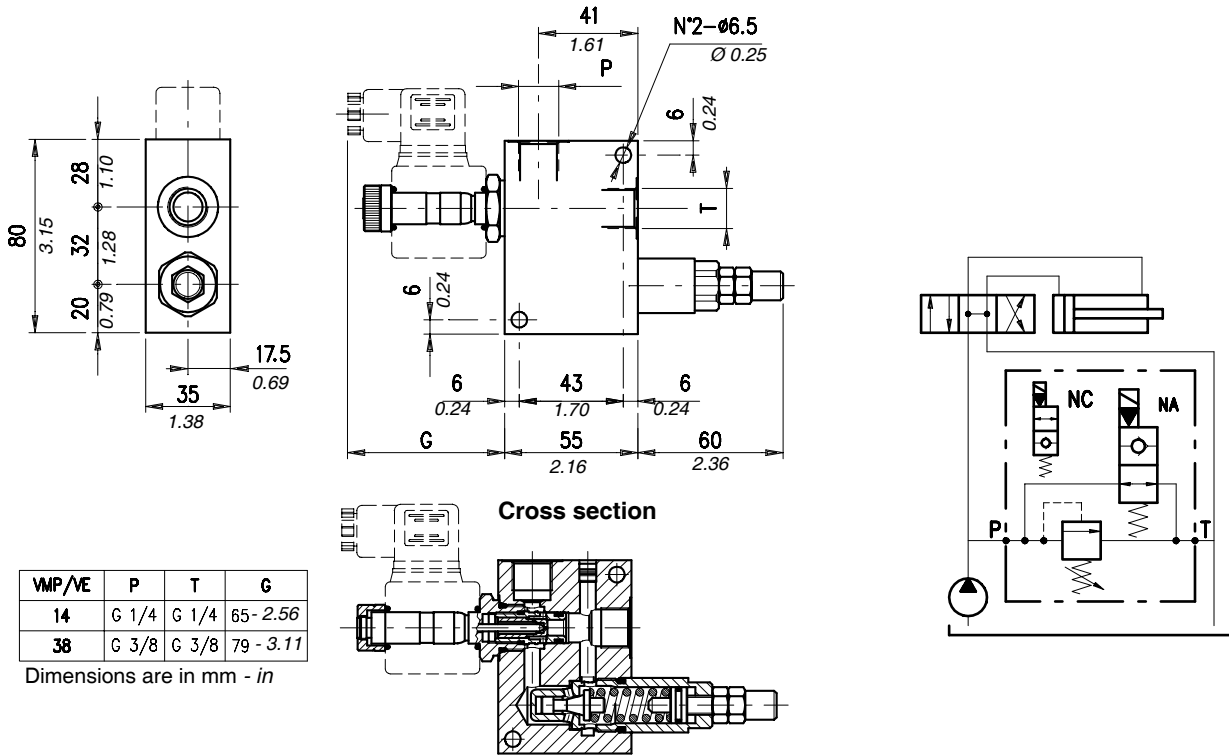
Type VMP/VE	Max. flow		Max. pres.		Application range with standard spring*	Hysteresis	Coils	Oil leaks from P to T	Weight		Cartridge
	l/min	US gpm	bar	psi					kg	lb	
VMP/VE 14 (38)	(14) 20 (38) 35	(14) 5.3 (38) 9.2	210 aluminium body 350 steel body	3050 5100	5±40 bar - 72.5÷580 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm) 20÷80 bar - 290÷1150 psi (test setting 60 bar - 870 psi at 5 l/min. - 1.32 US gpm) 5÷220 bar - 72.5÷3200 psi (test setting 160 bar - 2300 psi at 5 l/min. - 1.32 US gpm) 180÷350 bar - 2600÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm)	90% of the setting value for flow capacity 1 l/min. -0.26 US gpm-	VMP/VE 14 (210 bar - 3050 psi): see BE  VMP/VE 14 (350 bar - 5100 psi) and VMP/VE 38: see BT	disregardable	aluminium body 0,60 steel body 1,13	alum. body 1.32 steel body 2.49	VMP5Y  VMP/VE 14 (210 bar - 3050 psi): EC08A  VMP/VE 14 (350 bar - 5100 psi-) EC08A and VMP/VE 38: EC08B
VMP/VE 12 (34)	90	24			5±50 bar - 72.5÷725 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm) 50÷200 bar - 725÷2900 psi (test setting 160 bar - 2300 psi at 5 l/min. - 1.32 US gpm) 150÷350 bar - 2200÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm-)		VMP/VE 12-34 (210 bar-3050 psi) see BE  VMP/VE 12-34 (350 bar-5100 psi) see BT		aluminium body 1,20 steel body 2,50	alum. body 2.64 steel body 5.51	MC08A (210 bar - 350 psi): EC08A (350 bar - 5100 psi): EC08B
VMP/VE 100 (114)	(100) 150 (114) 250	(100) 40 (114) 66			VMP/VE 100-114/ (210 bar - 3050 psi) see BE  VMP/VE 100-114 BT/ (350 bar - 5100 psi) see BT		aluminium body 1,92 (VMP/VE 100) 3,13 (VMP/VE 114)  steel body 3,92 (VMP/VE 100) 7,63 (VMP/VE 114)		alum. body 23 6.9  steel body 8.64 16.82		

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

# Type VMP/VE 14 (38)

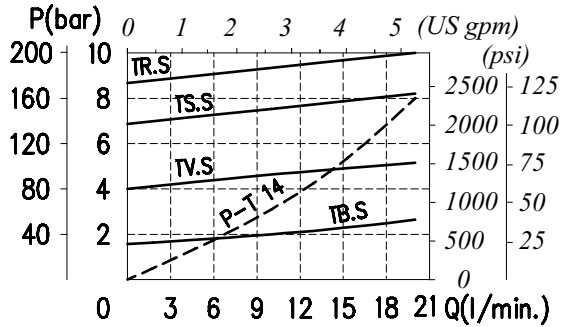
Pressure relief valve with electric bypass

## Dimensions and hydraulic circuit

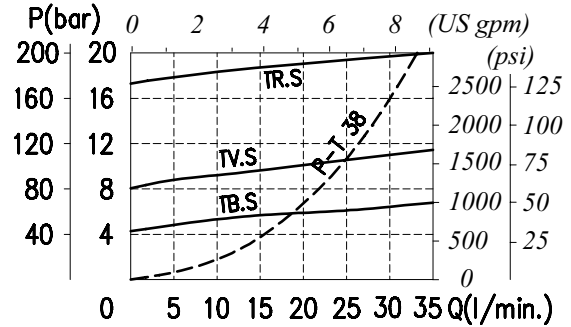


## Rating diagrams

Typical pressure drop vs. flow characteristic



Typical pressure drop vs. flow characteristic



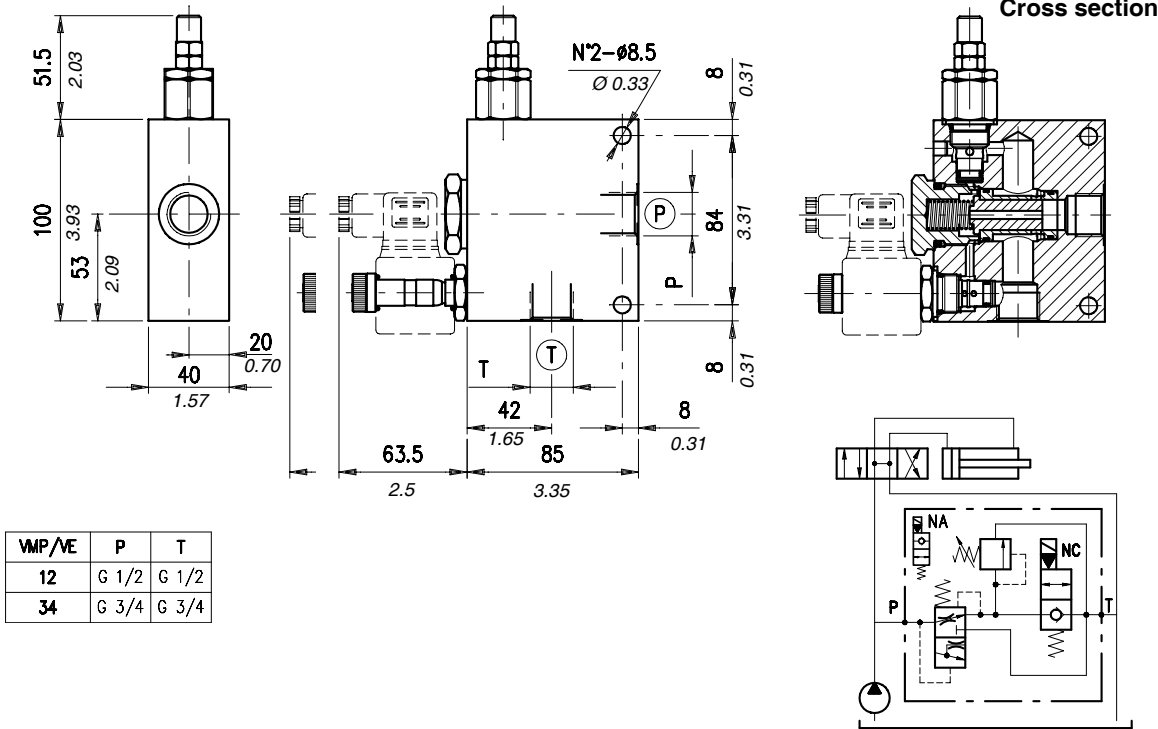
## Order code

VMP / VE **00** / **00** / **00** . **0** / **00**

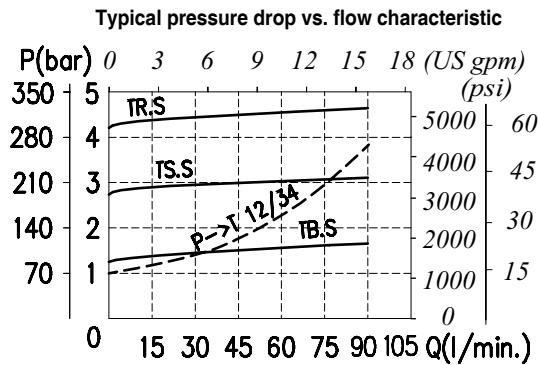
Port size	Assembly scheme	Pressure settings	Adjustment (see page 105)	Body material
14) G 1/4 38) G 3/8	NA) Normally opened NC) Normally closed	TB) 5÷40 bar (72.5÷580 psi) TV) 20÷80 bar (290÷1150 psi) TS) 50÷220 bar (725÷3200 psi) TR) 180÷350 bar (2600÷5100 psi)	S (screw) V (handknob) W (capped adjustment)	_ Aluminium ac Steel



**Dimensions and hydraulic circuit**



**Rating diagrams**



**Order code**

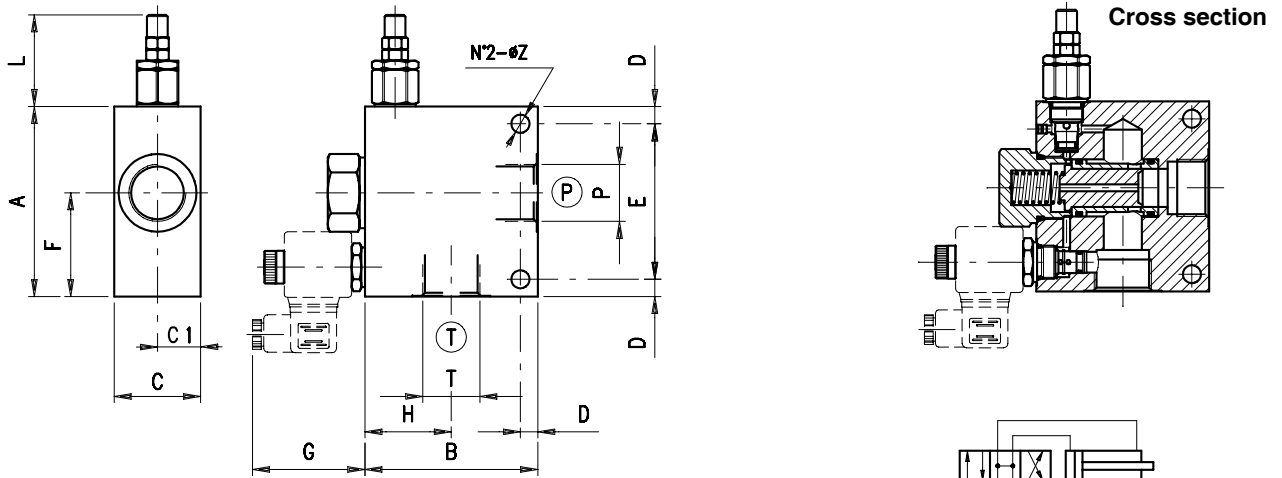
**VMP /VE 00 / 00 / 00 . 0 / 00**

Port size	Assembly scheme	Pressure settings	Adjustment (see page 105)	Body material
12) G 1/2 34) G 3/4	NA) Normally opened NC) Normally closed	TB) 5+50 bar (72.5÷725 psi) TS) 50+220 bar (725÷3200 psi) TR) 180+350 bar (2600÷5100 psi)	S (screw) V (handknob) W (capped adjustment)	_ Aluminium ac Steel

# Type VMP/VE 100 (114)

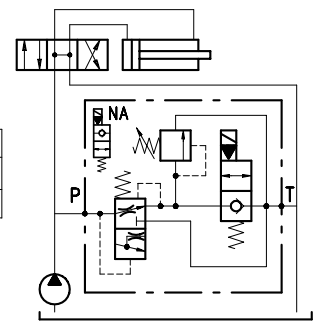
Pressure relief valve  
with electric bypass

## Dimensions and hydraulic circuit



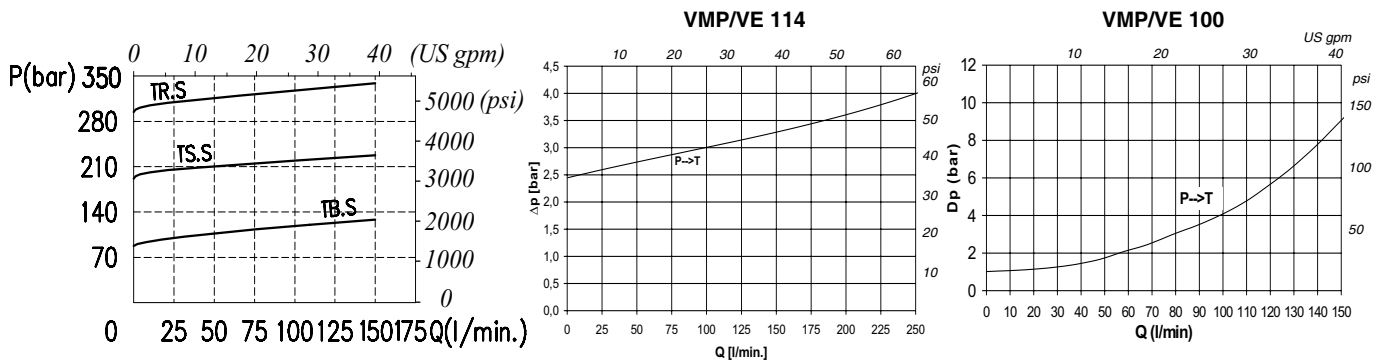
VMP/VE	P	T	A	B	C	C1	D	E	F	G	H	L	Z
100	G 1	G 1	110 - 4.33	100 - 3.94	50 - 1.97	25 - 0.98	10 - 0.04	90 - 3.54	60 - 2.36	65 - 2.56	50 - 1.97	53 - 2.09	10.5 - 0.41
114	G 1 1/4	G 1 1/4	130 - 5.12	130 - 5.12	70 - 2.75	35 - 2.75	12 - 0.47	106 - 4.17	72 - 2.83	65 - 2.56	62 - 2.44	53 - 2.09	12.5 - 0.49

Dimensions are in mm - in



## Rating diagrams

Typical pressure drop vs. flow characteristic



## Order code

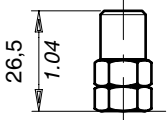
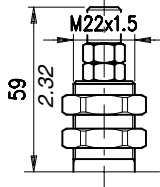
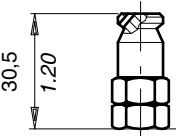
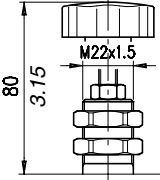
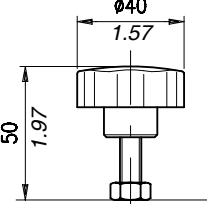
VMP / VE □ / □ / □ . □ / □

Port size	Assembly scheme	Pressure settings	Adjustment (see page 105)	Body material
100) G 1 114) G 1 1/4	NA) Normally opened NC) Normally closed	TB) 5÷50 bar (72.5÷725 psi) TS) 50÷220 bar (725÷3200 psi) TR) 180÷350 bar (2610÷5100 psi)	S (screw) V (handknob) W (capped adjustment)	_ Aluminium ac Steel

## Description and operation

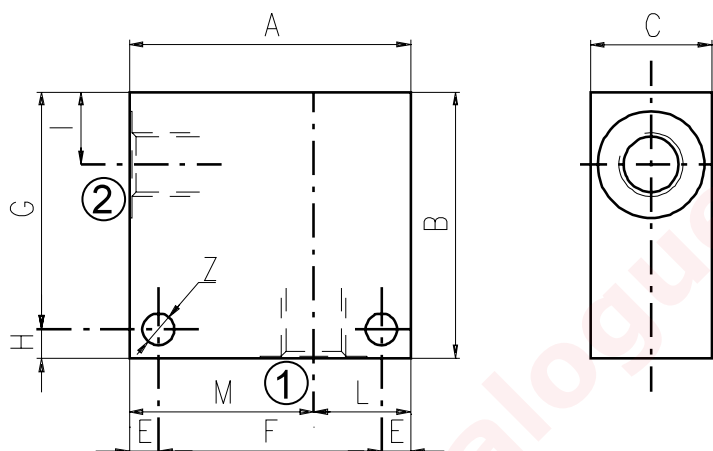
This chapter show main adjusting devices for the valves listed in this catalog.  
These regulations are used to adjust flow rate between inlet and working ports.

## Performance

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

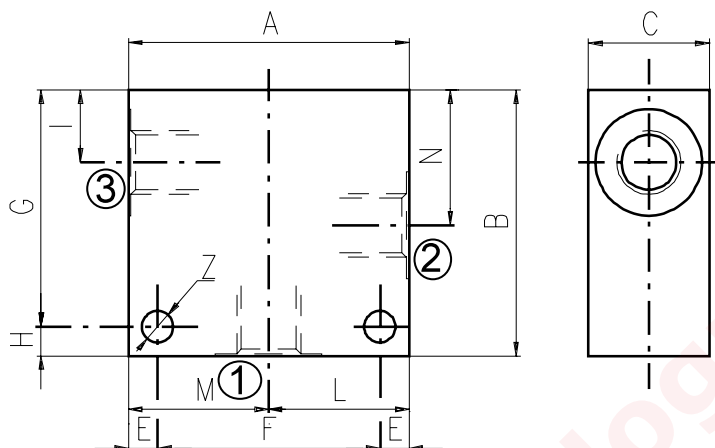
Cavity	Ports	Materials
08	B) G 1/4	1) Aluminium
10	C) G 3/8	2) Steel
12	D) G 1/2	
16	E) G 3/4	
	F) G 1	

# 2, 3 and 4 way Valves Bodies

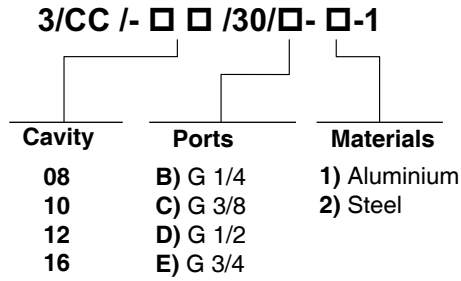
3 WAY BODIES

## 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



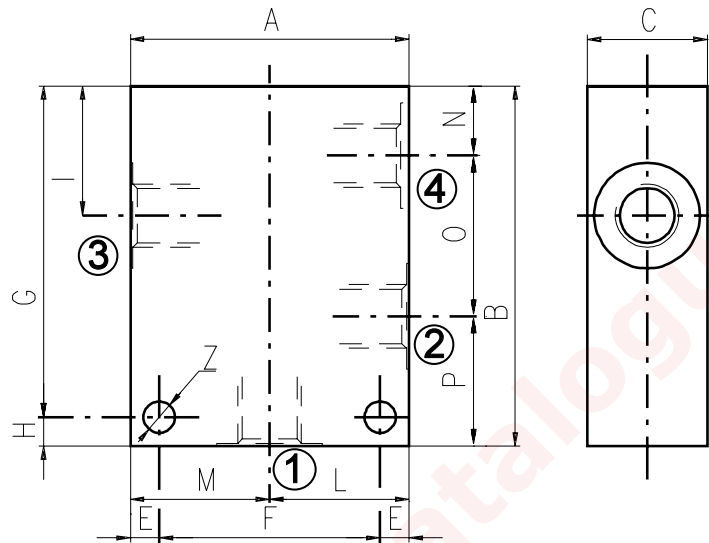
see SAE cartridges catalogue

# 2, 3 and 4 way Valves Bodies

4 WAY BODIES

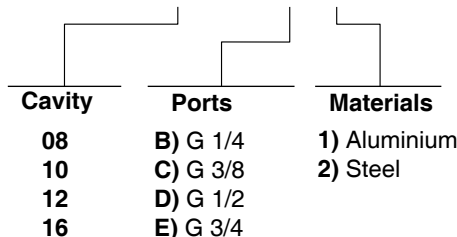
## Dimensions

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



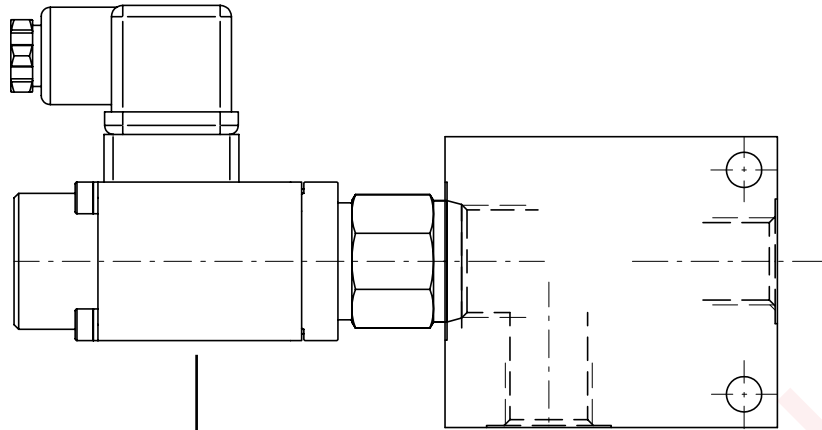
Cavity	Ports	A	B	C	E	F	G	H	I	L	M	N	O	P	Z	
SAE 8/4	G 1/4	mm	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	2.36	2.95	1.18	0.27	1.81	2.48	0.47	1.14	1.18	1.18	0.58	1.14	1.22	0.25
	SAE6	mm	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	2.36	2.95	1.18	0.27	1.81	2.48	0.47	1.14	1.18	1.18	0.58	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/**

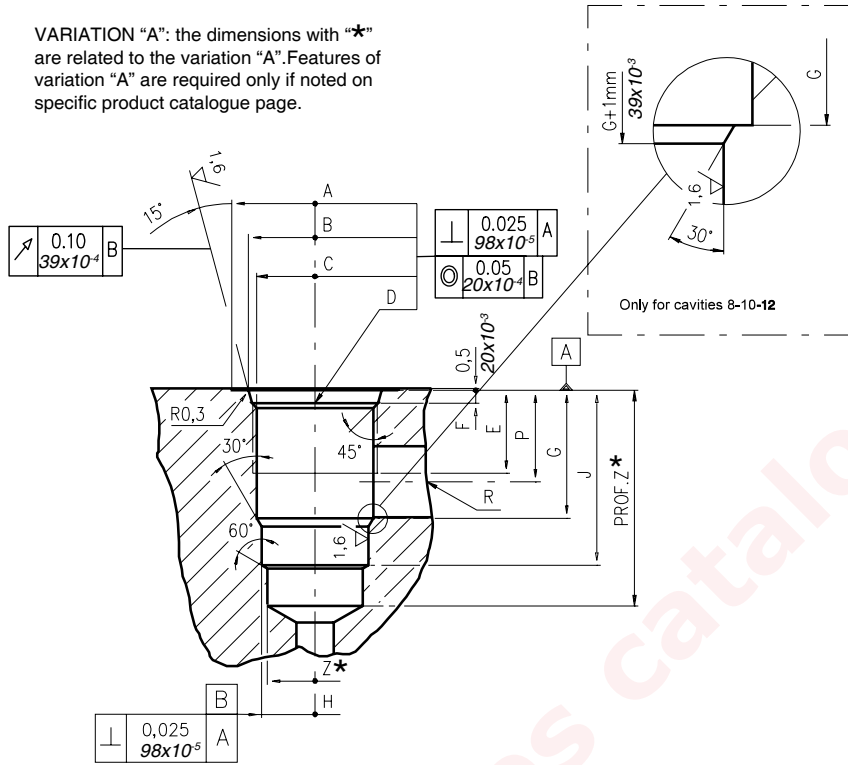
**BILLET CODE**

**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	

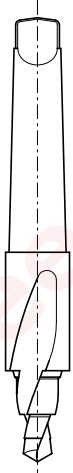
## Dimensions

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.



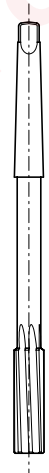
\		A	B ±0,05	C ±0,05	D	E	F	G	H ±0,02	J	K ±0,02	L	M ±0,02	N	P	R øMAX	S	T øMAX	U	V øMAX	X øMAX	Z ★ øMIN	Prof.Z MIN★
		08/2	mm	27	20,66	17,42	3/4-16 UNF	12,50	2,50	18,20	12,72	29,50	-	-	-	-	14,00	8,00	-	-	-	-	-
	in	1.06	0.81	0.68		0.49	0.10	0.72	0.50	1.16					0.55	0.31						0.47	1.53
10/2	mm	30	24,00	20,62	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



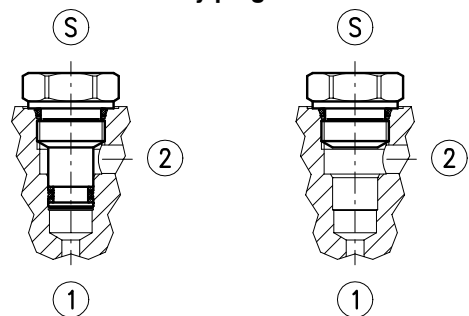
Cavity	Code number
08/2	3UT06A1270N
10/2	3UT00054580
12/2	3UT00054670
16/2	3UT00054520

Tap



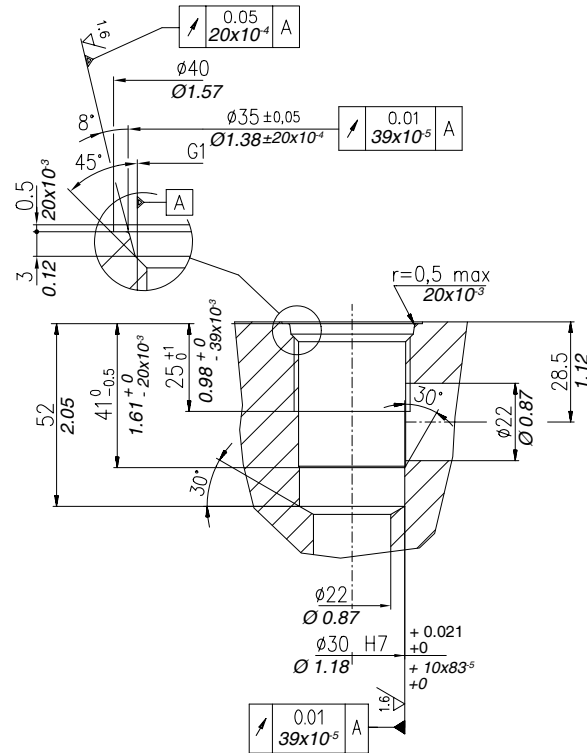
Cavity	Code number
08/2	3UT03416UNF
10/2	3UT07814UNF
12/2	3UT0111612UN
16/2	3UT0151612UN

Cavity plugs

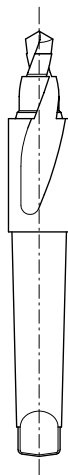


Cavity	Code number	①	②	Ⓢ
08/2	3XTP3533700	X	X	X
	4TP5531500	0	0	X
10/2	3XTP3544200	X	X	X
	3XTP1542300	0	0	X
12/2	3XTP3555400	X	X	X
	3XTP1552900	0	0	X
16/2	3XTP3575500	X	X	X
	3XTP1572900	0	0	X

X=Closed 0=Open



**Rougher tool**  
Cod.3UT00050870A



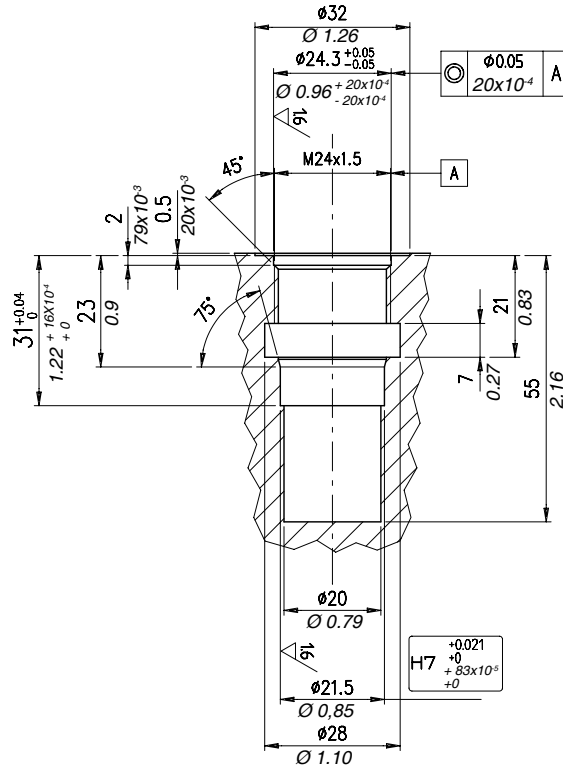
**Finisher tool**  
Cod.3UTO6A3000N



**Tap**  
Cod.3UT09A10F11G

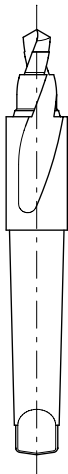






Rougher tool

Code 3UT00052210



Finisher tool

Code 3UT00055030

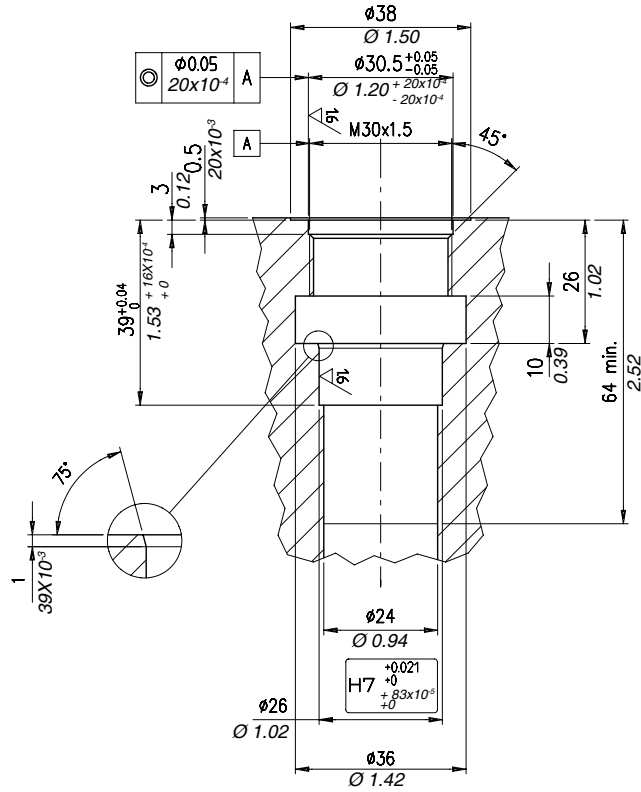


Tap

Code 3UT08A24F150



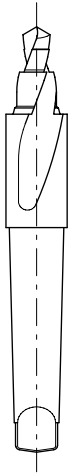
## Dimensions

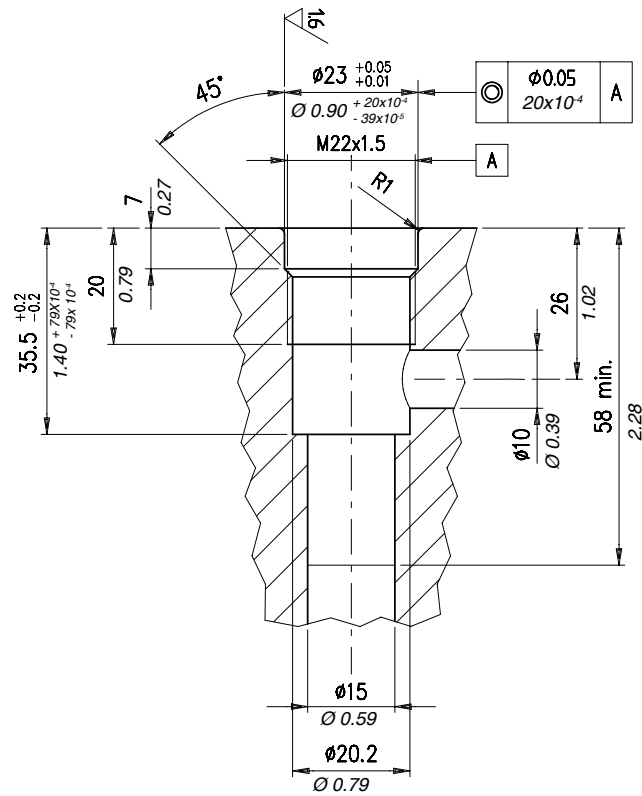


**Rougher tool**  
Code 3UT00052200

**Finisher tool**  
Code 3UT06A2600P

**Tap**  
Code 3UT08A30F150

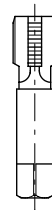
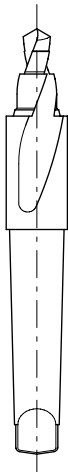




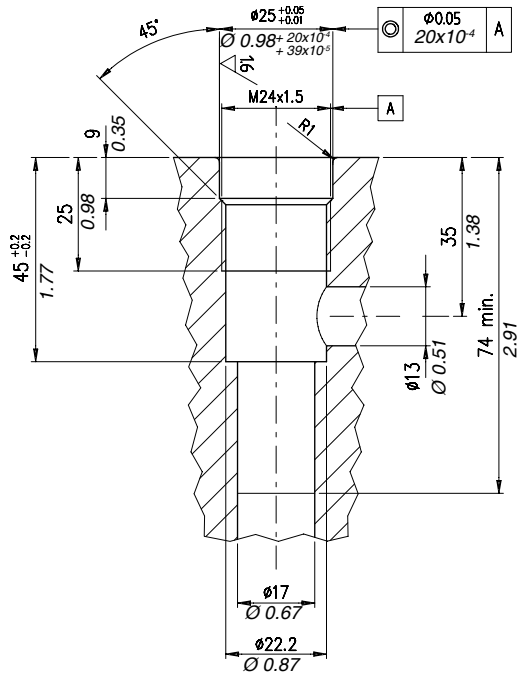
**Rougher tool**  
Code 3UT00055540

**Finisher tool**  
Code 3UT06A2300N

**Tap**  
Code 3UT08A22F150

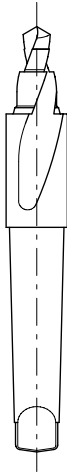


## Dimensions



**Rougher tool**

Code 3UT00055550



**Finisher tool**

Code 3UT06A2500N



**Tap**

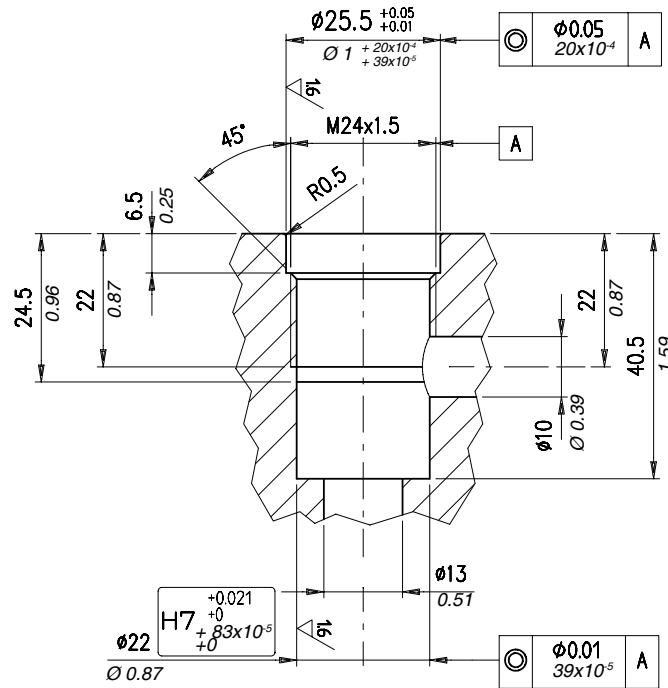
Code 3UT08A24F150



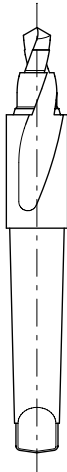




## Dimensions



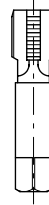
**Rougher tool**  
Code 3UT00050070

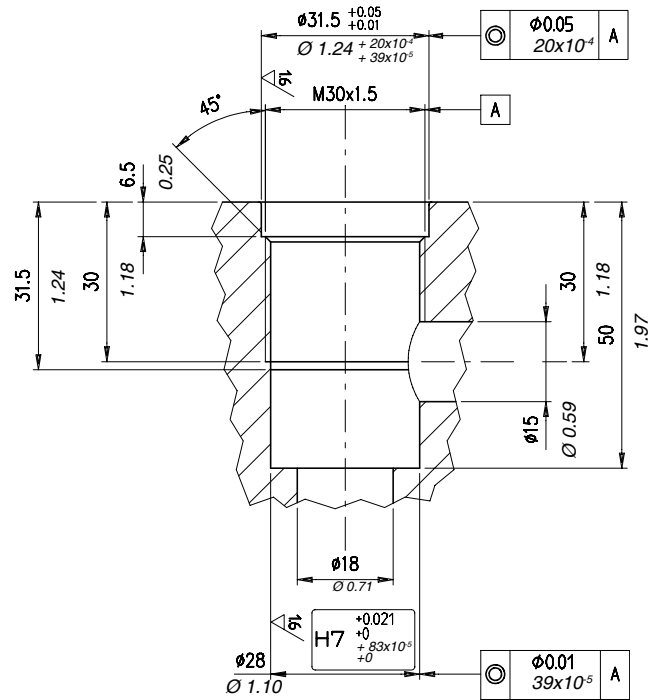


**Finisher tool**  
Code 3UT06A22000P

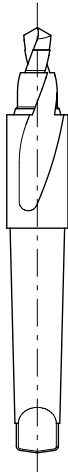


**Tap**  
Code 3UT08A24F150





**Rougher tool**  
Code 3UT00050070



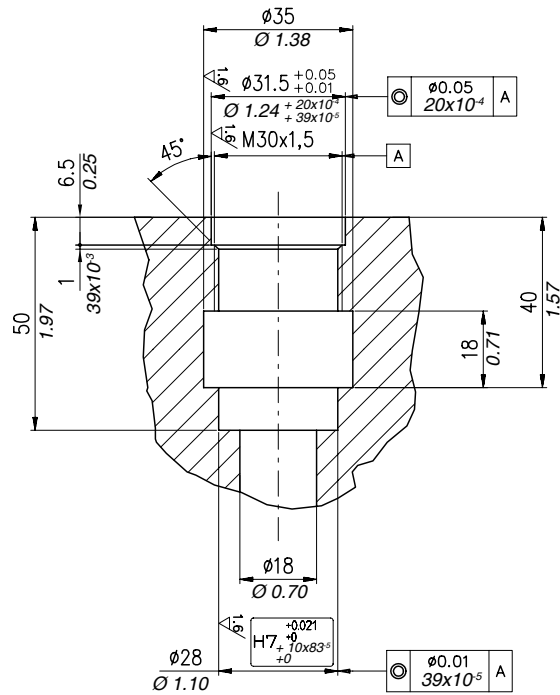
**Finisher tool**  
Code 3UT06A22000P



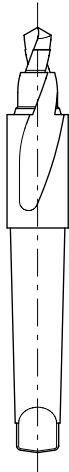
**Tap**  
Code 3UT08A24F150



## Dimensions



**Rougher tool**  
Code 3UT00050070



**Finisher tool**  
Code 3UT06A22000P



**Tap**  
Code 3UT08A24F150





1<sup>st</sup> edition May 2010

[WWW.WALVOIL.COM](http://WWW.WALVOIL.COM)

 **walvoil**  
HYDRAULIC CONTROL SYSTEMS

D1WWEM01E

