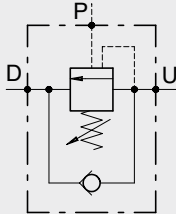




Counterbalance valves

COUNTERBALANCE VALVES

Index

Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	US gpm	bar	psi	
	VOC	Counterbalance valves	120	32			
	VOSLP	Single counterbalance valves, external pilot operated type, line mounting, cartridge construction	180	48			
	VOSLP/F	Single counterbalance valves, external pilot operated type, face mounting, cartridge construction	180	48			
	VOSLP/SC VOSLP/SC/C	Single counterbalance valves, external pilot operated type, line mounting	60	16			
	VOSLP/SC/RO	Single counterbalance valves, external pilot operated type, bolt mounting	180	48	350	5100	9
	VOSLP/SC/F	Single counterbalance valves, external pilot operated type, face mounting	120	32			
	VOSLP/PS	Single counterbalance valves, external pilot operated type, line mounting and suitable for closed centre, cartridge construction	180	48			
	CA	Counterbalance valves	60	16			

Operation

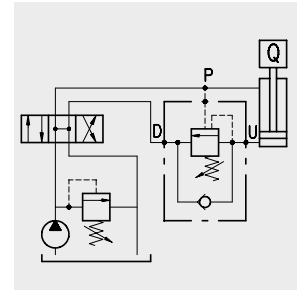
The oil flow is allowed from D to U and is stopped in the opposite way (from U to D) up to the spring setting value. Free oil flow from U to D is strictly possible when the pilot pressure in P is strong enough to pilot the valve poppet.

Use the following formula to assert the applicable pilot pressure:

(Valve setting - Load pressure) ÷ Pilot ratio = Pilot pressure

For example: if your pilot ratio is 1:4, your setting pressure is 250 bar (3600 psi) and your load pressure 130 bar (1900 psi) then you will need 30 bar (430 psi) pilot pressure in order to displace the load [(250 bar-3600 psi - 130 bar-1900 psi)/ 4 = 30 bar-430 psi].

Should counterpressure arise in D, the setting value of valve poppet (ratio 1:1) will increase and the pilot pressure be negatively affected (ratio 1:1).



Performance

Body Valves

Type	Max. flow		Max. press.		Application range with standard springs*	Oil leakage from U to D	Pilot ratio	Weight		Cavity and tools	
	l/min	US gpm	bar	psi				kg	lb		
VOC 60	60	16	350	5100	5÷210 bar -72.5÷3050 psi (test setting 170 bar -2500 psi at 5 l/min. -1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:3,5 (standard type) 1:1,18 (on request only)	0,28	0.62	Cavity VOC 60 see page 172	
VOC 120	120	32			50÷350 bar -725÷5100 psi (test setting 280 bar -4100 psi at 5 l/min. -1.3 US gpm)		1:4	0,60	1.32	Cavity VOC 120 see page 173	
VOSLP 38*	35	9.2			5÷210 bar -72.5÷3050 psi (test setting 170 bar -2500 psi at 5 l/min. -1.3 US gpm)		1:4 (standard type) 1:3 (on request only)	0,75	1.65	-	
VOSLP 12**	70	18					aluminium	1,49	3.28		
					steel		0,96	2.12			
VOSLP 34***	100	26			50÷350 bar -725÷5100 psi (test setting 280 bar -4100 psi at 5 l/min. -1.3 US gpm)		1:7 (standard type) 1:3 (on request only)	aluminium	1,86	4.10	-
								steel	1,75	3.86	
VOSLP 100***	180	48	100÷700 bar -1450÷10150 psi (test setting 350 bar -5100 psi at 5 l/min. -1.3 US gpm)	1:7 (standard type) 1:3 (on request only)	aluminium	5,96	13.14	-			
					steel	2,90	6.39				
VOSLP/F 38*	35	9.2	100÷700 bar -1450÷10150 psi (test setting 350 bar -5100 psi at 5 l/min. -1.3 US gpm)	1:4 (standard type) 1:3 (on request only)	aluminium	0,73	1.61	-			
					steel	1,41	3.11				

Overcenter cartridge: *VMPD 38 - **VMPD12 - ***VMPD34

Series VOC, VOLSP and CA

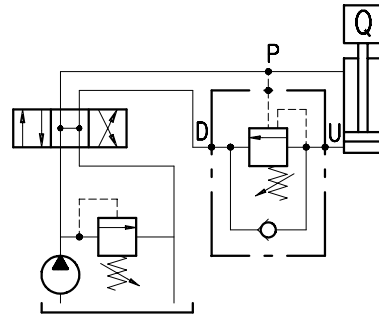
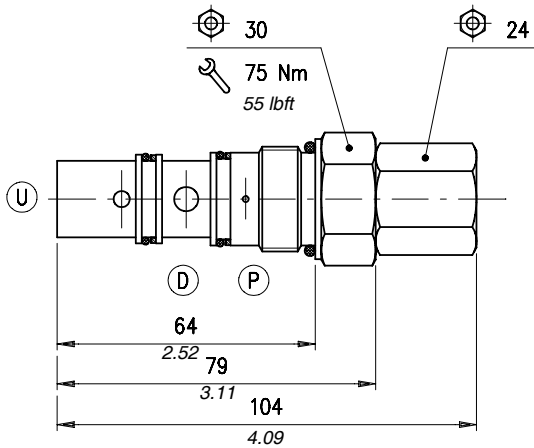
Body Valves

Overcenter cartridge: *VMPD 38 - **VMPD12 - ***VMPD34

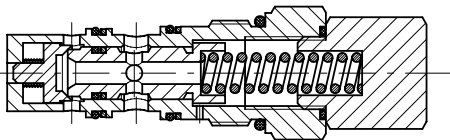
Type	Max. flow		Max. press.		Application range with standard springs*	Oil leakage from U to D	Pilot ratio	Weight		
	l/min	US gpm	bar	psi				kg	lb	
VOSLP/F 12**	70	18	350	5100	5÷210 bar -72.5÷3050 psi (test setting 170 bar -2500 psi at 5 l/min. -1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:7 (standard type) 1:3 (on request only)	0,96	2.12	
								aluminium	1,86	4.10
	steel	1,70						3.75		
VOSLP/F 34***	100	26	350	5100	50÷350 bar -725÷5100 psi (test setting 280 bar -4100 psi at 5 l/min. -1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:7 (standard type) 1:3 (on request only)	aluminium	3,30	7.27
								steel	2,87	6.33
	aluminium	6,20						13.67		
VOSLP/F 100***	180	48	350	5100	100÷700 bar -1450÷10150 psi (test setting 350 bar -5100 psi at 5 l/min. -1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:7 (standard type) 1:3 (on request only)	steel	2,87	6.33
	aluminium	6,20						13.67		
	steel	6,20						13.67		

Type	Max flow		Max. press.		Application range with standard springs*	Oil leakage from U (U1) to D (D1)	Pilot ratio	Weight		
	l/min	US gpm	bar	psi				kg	lb	
VOSLP/SC 38	40	11	350	5100	5÷210 bar-72.5÷3050 psi (test setting 170 bar-2500 psi at 5 l/min.-1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:4 (standard type) 1:3 (on request only)	0,68	1.50	
								aluminium	1,41	3.11
	steel	1,41						3.11		
VOSLP/SC 12	75	20	350	5100	50÷350 bar-725÷5100 psi (test setting 280 bar-4100 psi at 5 l/min.-1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:7 (standard type) 1:3 (on request only)	0,95	2.09	
								aluminium	2,03	4.47
	steel	1,40						3.09		
VOSLP/SC 34	120	32	350	5100	100÷700 bar -1450÷10150 psi (test setting 350 bar-5100 psi at 5 l/min.-1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:7 (standard type) 1:3 (on request only)	aluminium	3,20	7.05
								steel	2,70	5.95
	aluminium	6,52						14.37		
VOSLP/SC 100	180	48	350	5100	100÷700 bar -1450÷10150 psi (test setting 350 bar-5100 psi at 5 l/min.-1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:7 (standard type) 1:3 (on request only)	steel	6,52	14.37
	aluminium	6,52						14.37		
	steel	6,52						14.37		
VOSLP/SC/C 1116/38	30	7.9	350	5100	50÷350 bar-725÷5100 psi pressure increase =131 bar/turn-1900 psi (test setting 280 bar-4100 psi at 5 l/min.-1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:4	0,6	1.32	
								aluminium	1,35	2.98
	steel	1,35						2.98		
VOSLP/SC/C 1116/12	60	16	350	5100	50÷350 bar-725÷5100 psi pressure increase =131 bar/turn-1900 psi (test setting 280 bar-4100 psi at 5 l/min.-1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:4	0,9	1.98	
								aluminium	1,95	4.30
	steel	1,95						4.30		
VOSLP/SC/RO 38	40	11	350	5100	5÷210 bar-72.5÷3050 psi (test setting 170 bar-2500 psi at 5 l/min.-1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:4 (standard type) 1:3 (on request only)	0,87	1.92	
								aluminium	1,62	3.57
	steel	1,62						3.57		

Dimensions and hydraulic circuit

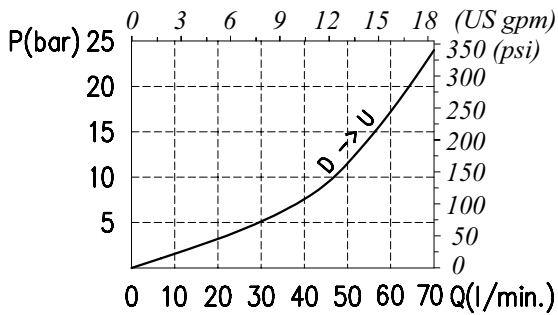


Section

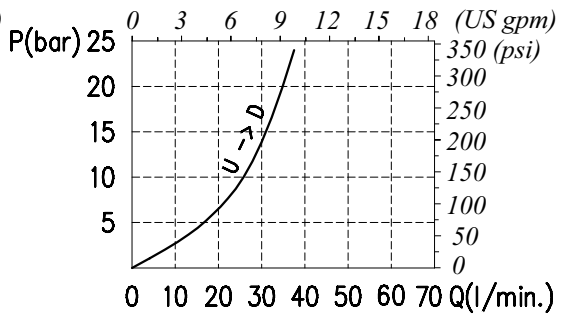


Rating diagrams

Typical pressure drop vs. flow characteristics

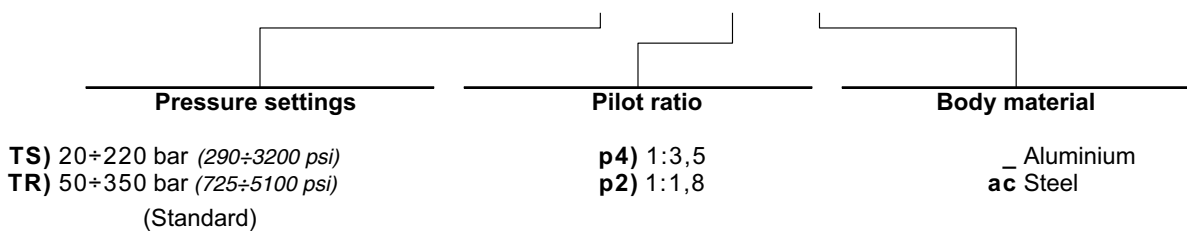


Typical pressure drop vs. flow characteristics

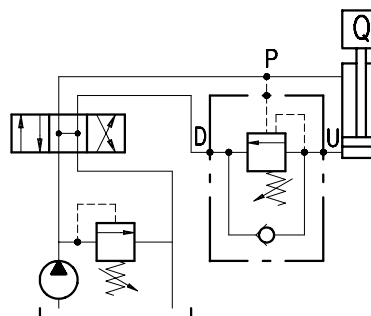
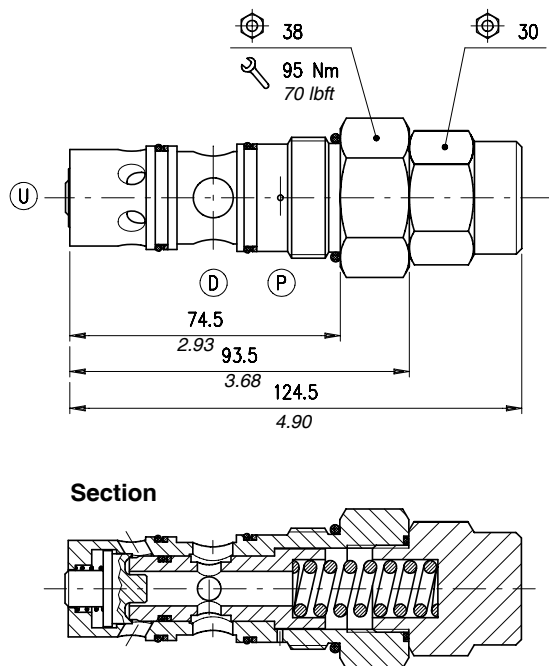


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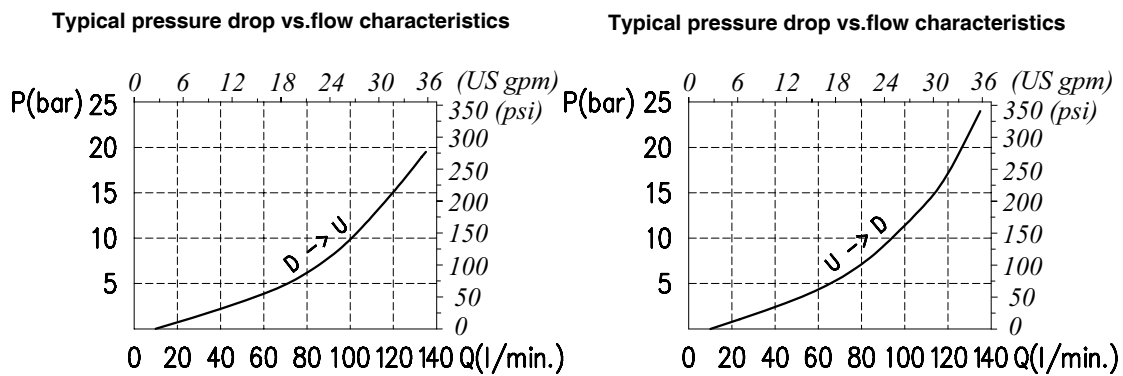
VOC 60 / □□ . S . □□ / □□



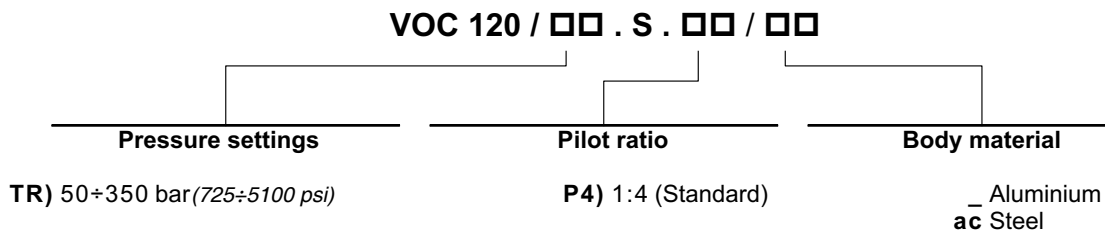
Dimensions and hydraulic circuit



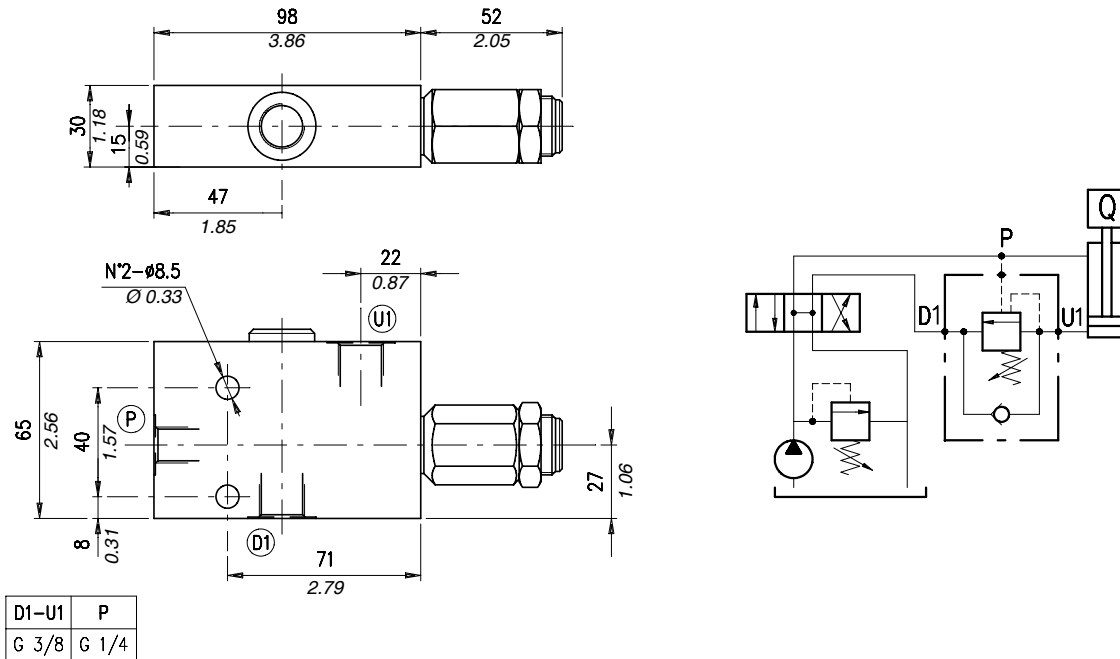
Rating diagrams



Order code

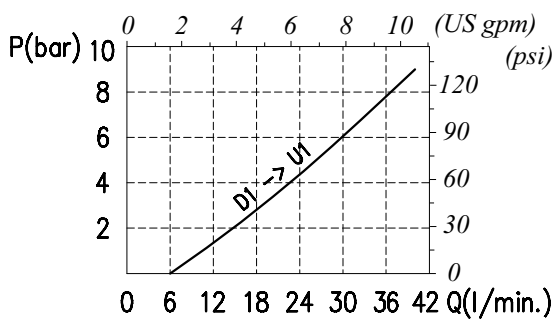


Dimensions and hydraulic circuit

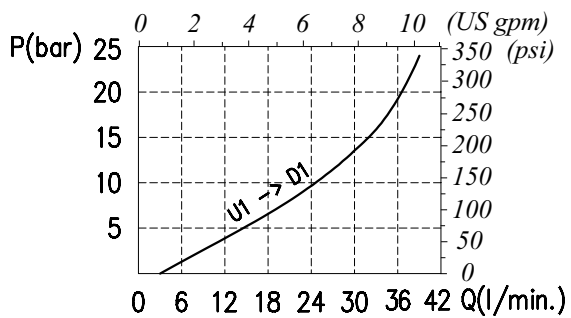


Rating diagrams

Typical pressure drop vs. flow characteristics

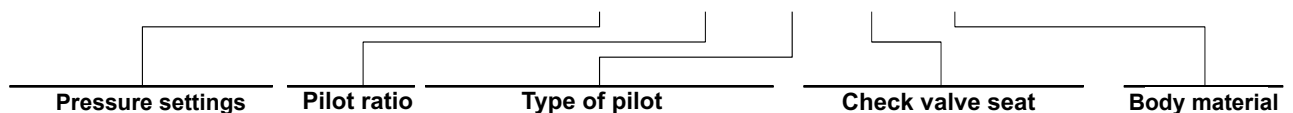


Typical pressure drop vs. flow characteristics



Order code

VOSLP 38 / □ . S . □□ . □□ . □□ / □□



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

TG 100÷700 bar (1450÷10150 psi)

p3 1:3
p4 1:4
(Standard)

PG Without damper (Standard)
With damper

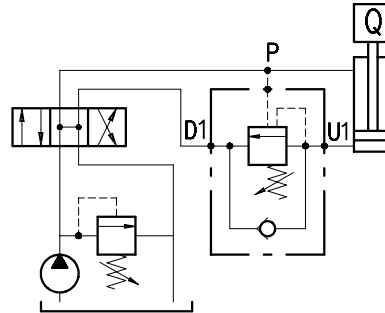
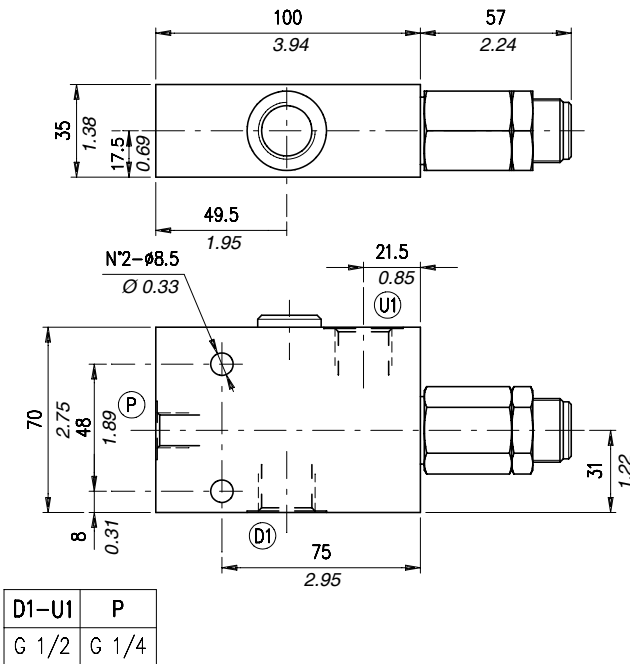
VRR See body
Hardened steel

ac Aluminium
Steel

Type VOSLP 12

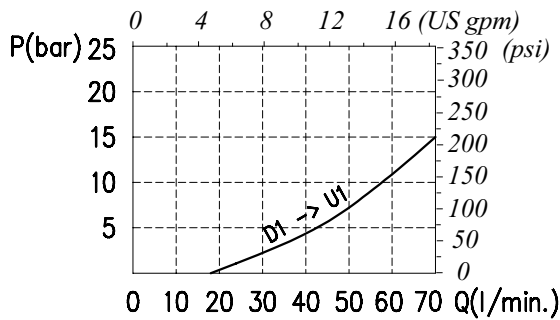
Single overcenter valve, external pilot operated type, line mounting, cartridge construction

Dimensions and hydraulic circuit

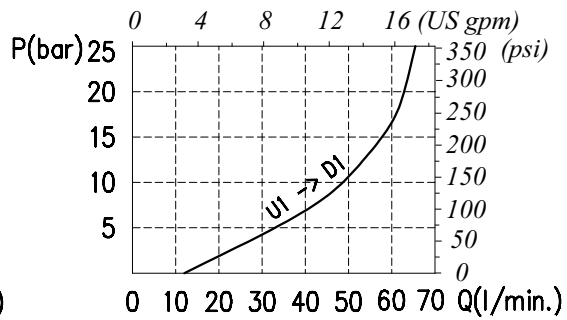


Rating diagrams

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics

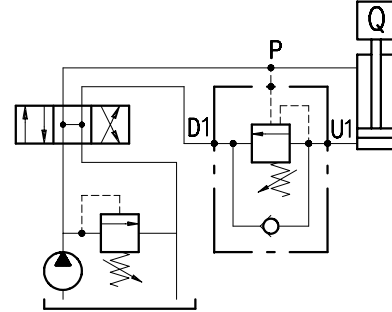
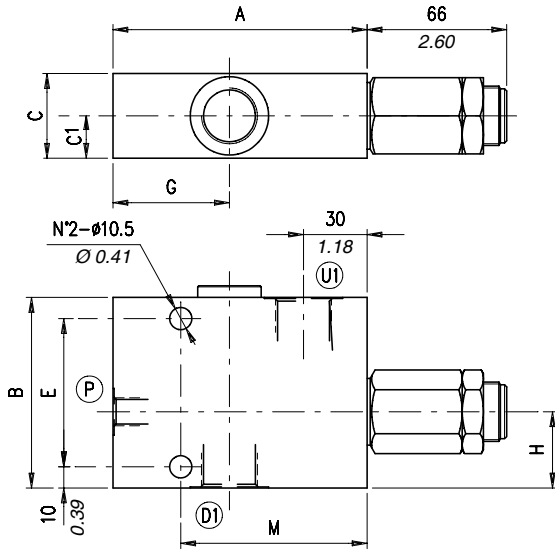


Order code

VOSLP 12 / □ . S . □□ . □□ . □□ / □□

Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body material
TS) 5÷210 bar (72,5÷3050 psi) TR) 50÷350 bar (725÷5100 psi) (Standard) TG) 100÷700 bar (1450÷10150 psi)	p3) 1:3 p7) 1:7 (Standard)	_ Without damper (Standard) PG) With damper	See body VRR) Hardened steel	_ Aluminium ac Steel

Dimensions and hydraulic circuit



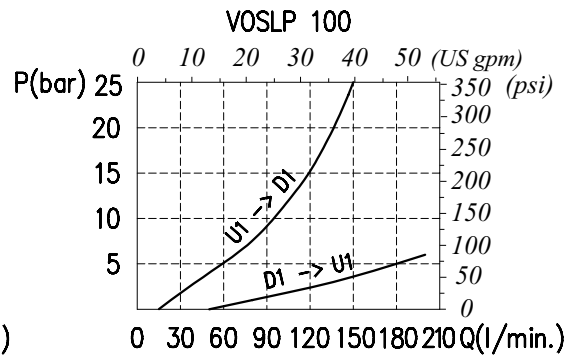
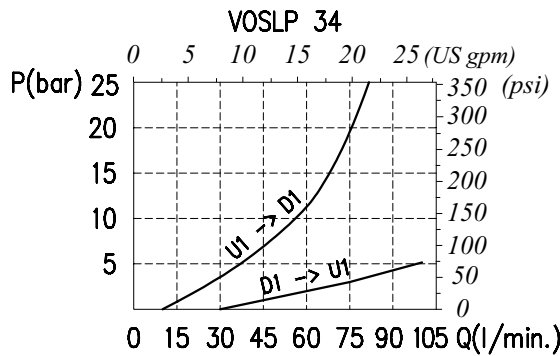
VOSLP	A*	B*	C*	C1*	E*	G*	H*	M*	D1-U1	P
34	120 - 4.72	90 - 3.54	40 - 1.57	20 - 0.78	70 - 2.75	55 - 2.16	36 - 1.42	88 - 3.46	G 3/4	G 1/4
100	140 - 5.51	100 - 3.94	60 - 2.36	30 - 0.59	80 - 3.15	64 - 2.52	37 - 1.46	110 - 4.33	G 1"	G 1/4

* Dimensions are in mm - in

Rating diagrams

Typical pressure drop vs. flow characteristics

Typical pressure drop vs. flow characteristics



Order code

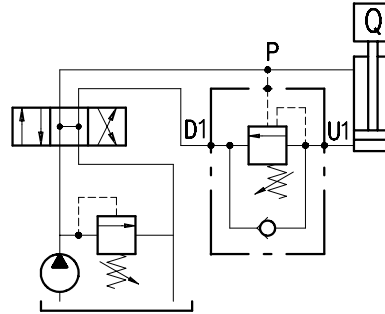
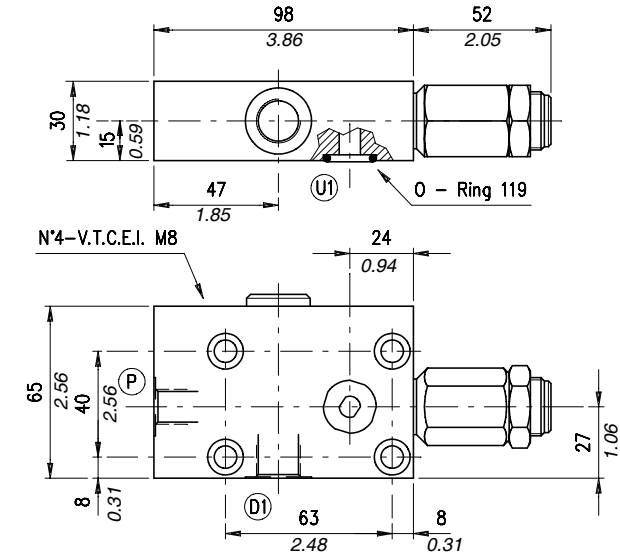
VOSLP □□ / □□ . S . □□ . □□ . □□ / □□

Port size	Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body material
34) G 3/4 100) G 1	TS) 5÷210 bar (72.5÷3050 psi) TR) 50÷350 bar (725÷5100 psi) (Standard) TG) 100÷700 bar (1450÷10150 psi)	p3) 1:3 p7) 1:7 (Standard)	- Without damper (Standard) PG) With damper	See body VRR) Hardened steel	- Aluminium ac) Steel

Type VOSLP/F 38

Single overcenter valve, external pilot operated type, face mounting, cartridge construction

Dimensions and hydraulic circuit

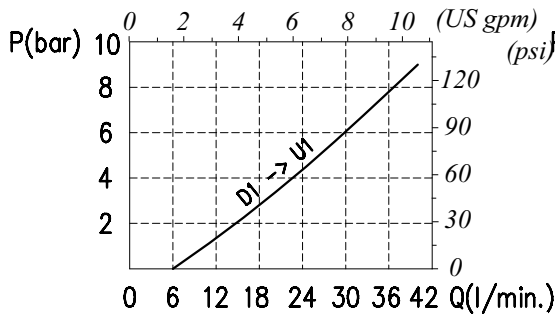


D1	U1*	P
G 3/8	ø8-0.31	G 1/4

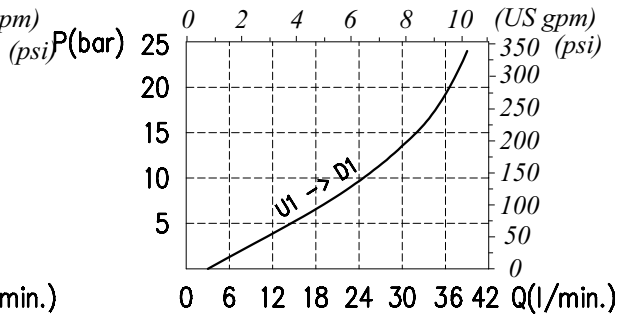
*Dimensions are in mm - in

Rating diagrams

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics



Order code

VOSLP/F 38 / □ . S . □□ . □□ . □□ / □□

Pressure settings

Pilot ratio

Type of pilot

Check valve seat

Body material

TS) 5÷210 bar (72,5÷3050 psi)

TR) 50÷350 bar (725÷5100 psi)
(Standard)

TG) 100÷700 bar (1450÷10150 psi)

p3) 1:3

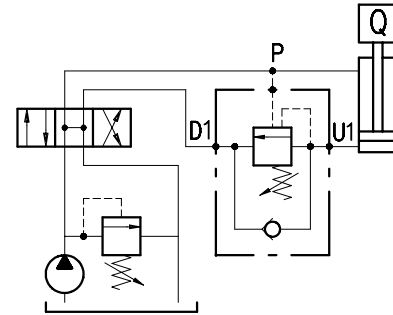
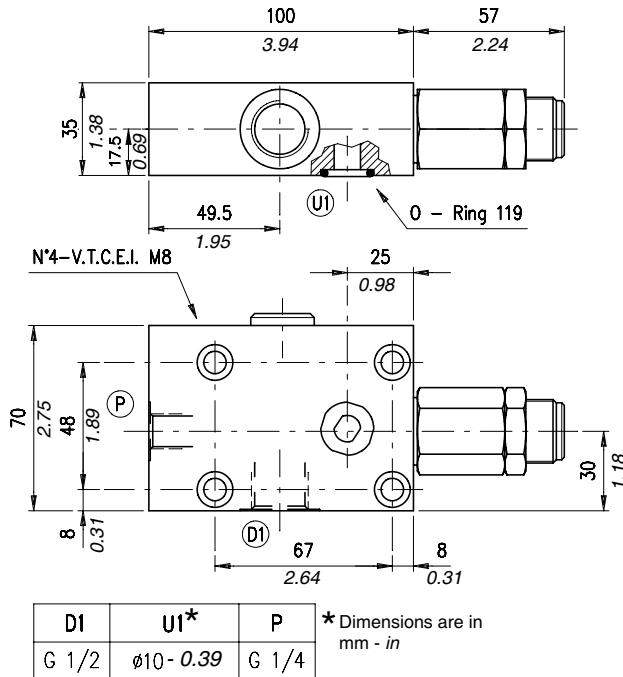
p4) 1:4
(Standard)

_ Without damper
(Standard)
PG) With damper

_ See body
VRR) Hardened steel

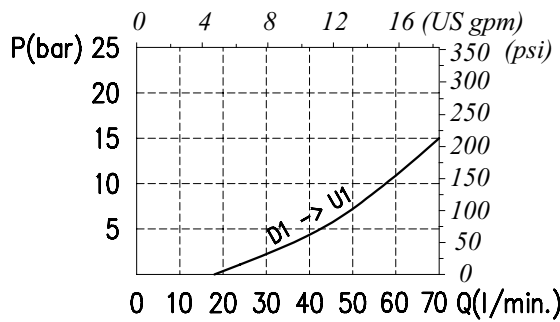
_ Aluminium
ac Steel

Dimensions and hydraulic circuit

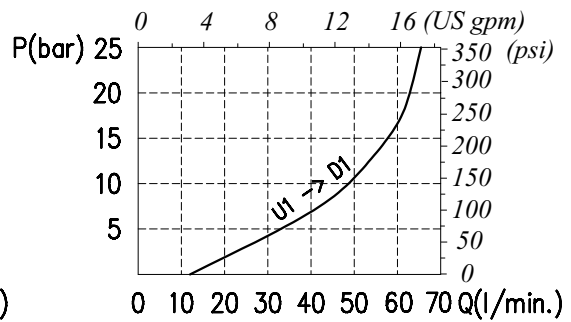


Rating diagrams

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics



Order code

VOSL/F 12 / □ . S . □□ . □□ . □□ / □□

Pressure settings

Pilot ratio

Type of pilot

Check valve seat

Body material

TS) 5÷210 bar (72,5÷3050 psi)
TR) 50÷350 bar (725÷5100 psi)
 (Standard)

TG) 100÷700 bar (1450÷10150 psi)

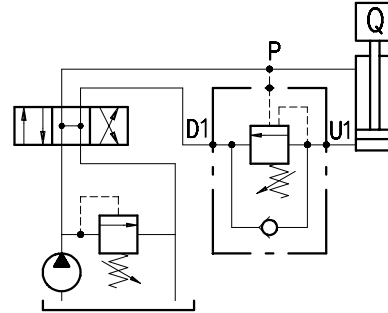
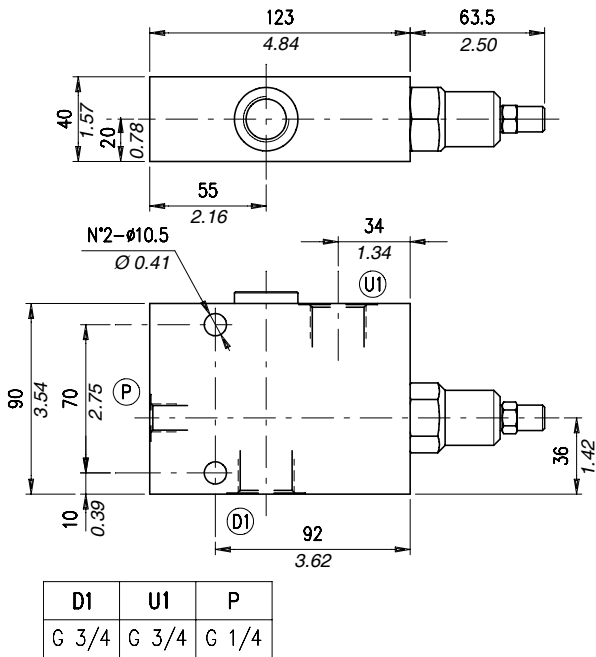
p3) 1:3
p7) 1:7
 (Standard)

— Without damper (Standard)
PG) With damper

— See body
VRR) Hardened steel

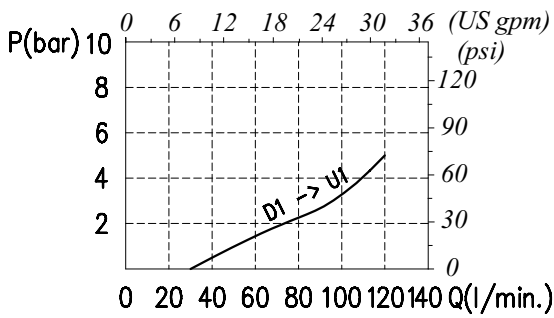
— Aluminium
acSteel

Dimensions and hydraulic circuit

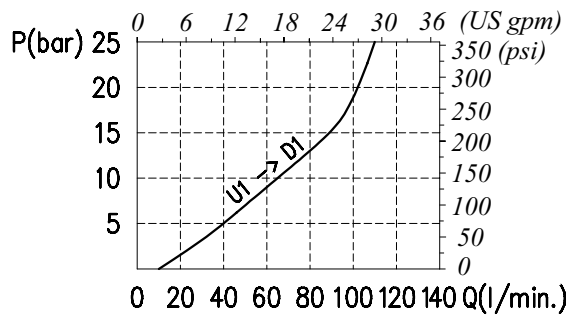


Rating diagrams

Typical pressure drop vs. flow characteristics

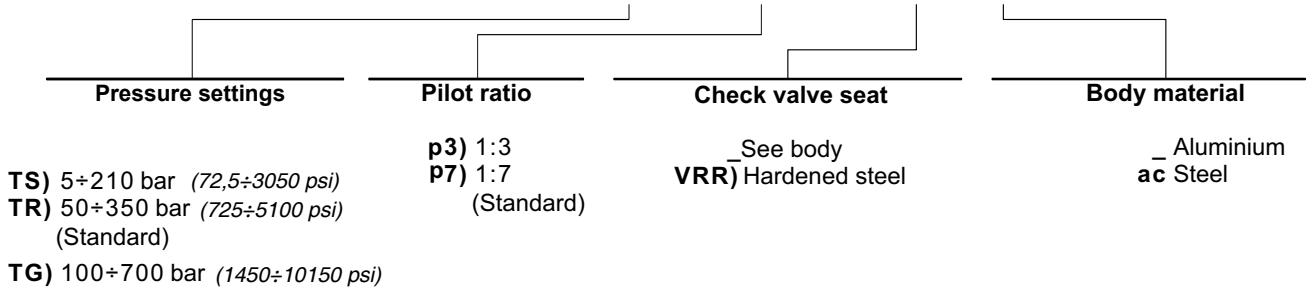


Typical pressure drop vs. flow characteristics



Order code

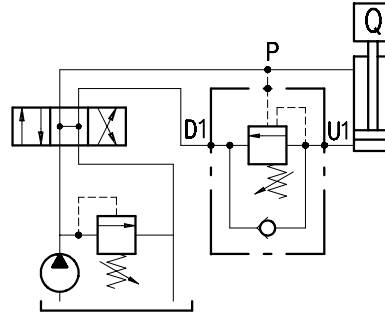
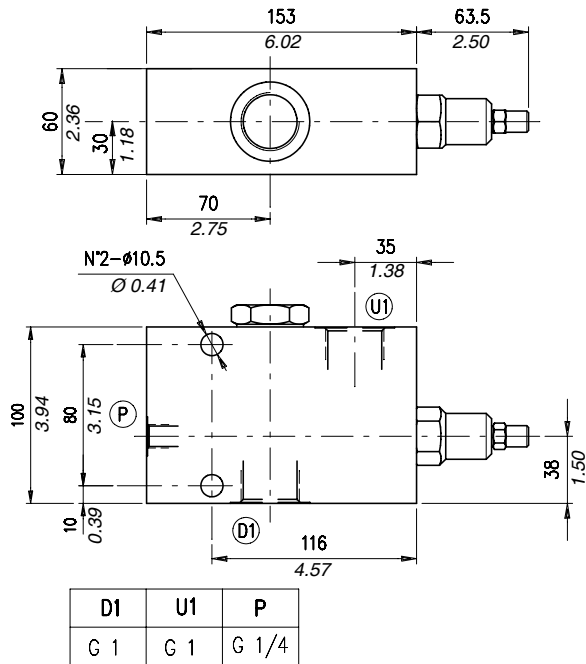
VOSLP / SC 34 / □□ . S . □□ . PG . □□ / □□



Type VOSLP/SC 100

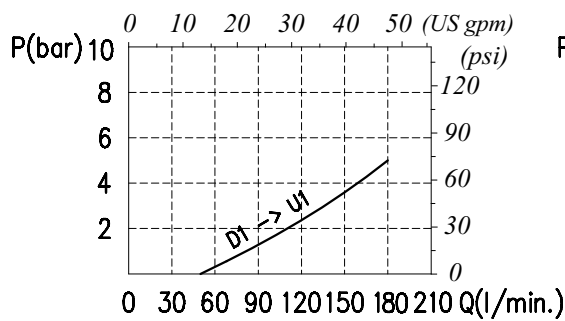
Single overcenter valve, external pilot operated type, line mounting

Dimensions and hydraulic circuit

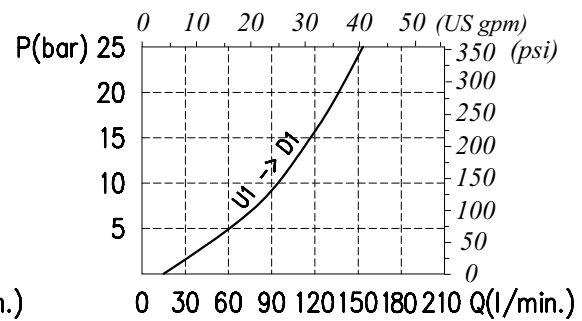


Rating diagrams

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics



Order code

VOSLP / SC 100 / □□ . S . □□ . PG . □□ / □□

Pressure settings

TS) 5÷210 bar (72,5÷3050 psi)

TR) 50÷350 bar (725÷5100 psi)
(Standard)

TG) 100÷700 bar (1450÷10150 psi)

Pilot ratio

p3) 1:3

p7) 1:7
(Standard)

Check valve seat

_ See body
VRR) Hardened steel

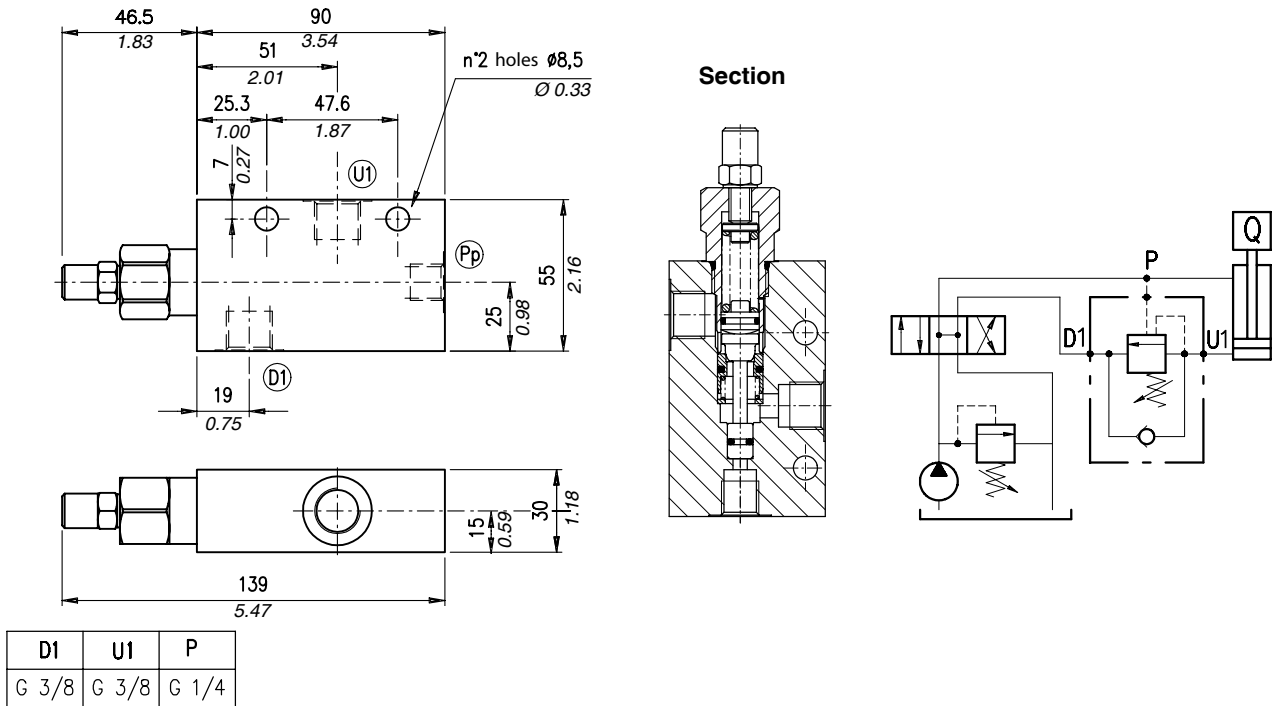
Body material

_ Aluminium
ac) Steel

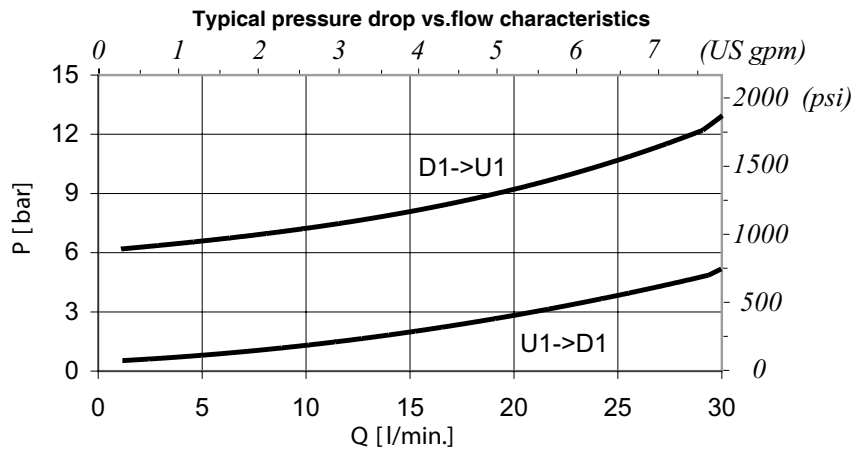
Single overcenter valve, external pilot operated type, line mounting.
The main features of this valve are compact dimensions and good tolerance to oil contamination

Type VOSLP/SC/C 1116/38

Dimensions and hydraulic circuit

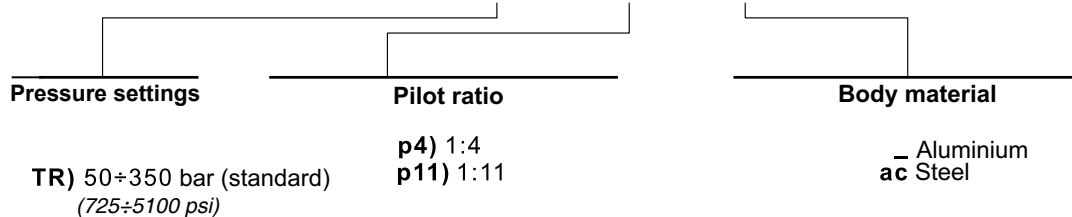


Rating diagrams



Order code

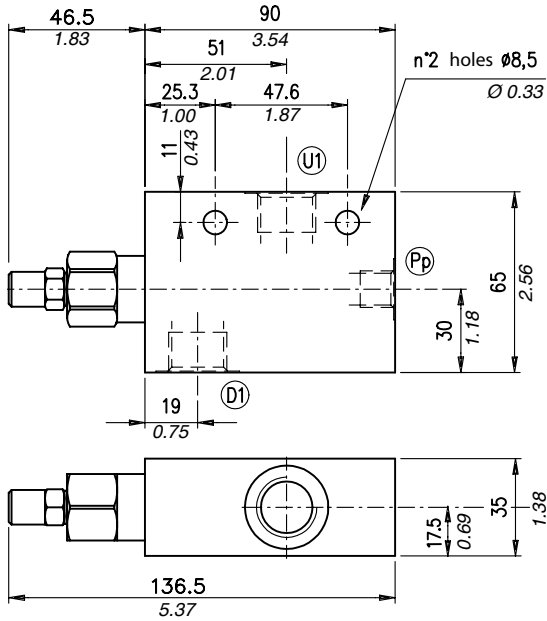
VOSLP/SC / C 1116 /38/□□ . S . □□ . / □□



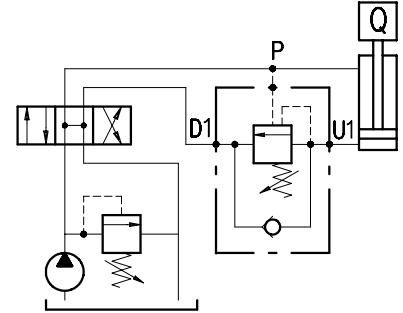
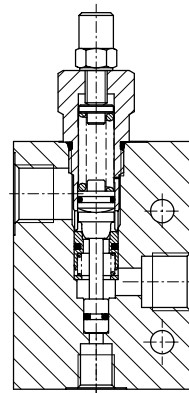
Type VOSLP/SC/C 1116/12

Single overcenter valve, external pilot operated type, line mounting.
The main features of this valve are compact dimensions and good tolerance to oil contamination

Dimensions and hydraulic circuit



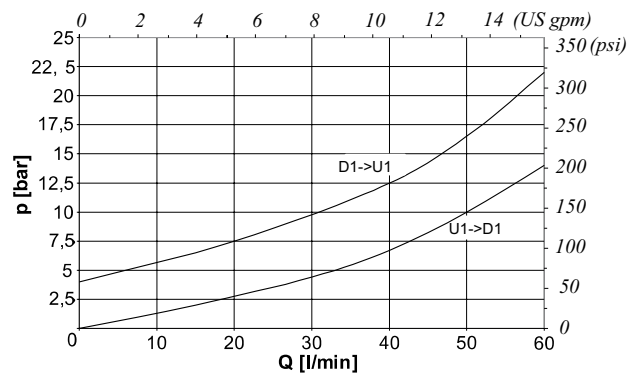
Section



D1	U1	P
G 1/2	G 1/2	G 1/4

Rating diagrams

Typical pressure drop vs. flow characteristics



Order code

VOSLP / SC / C 1116 / 12 / □□ . S . □□ . / □□

Pressure settings

TR) 50÷350 bar (standard)
(725÷5100 psi)

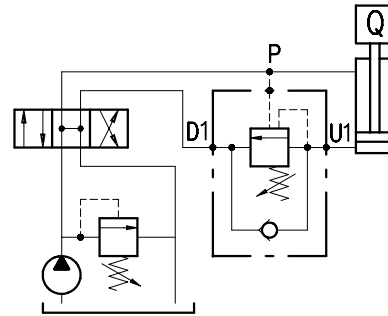
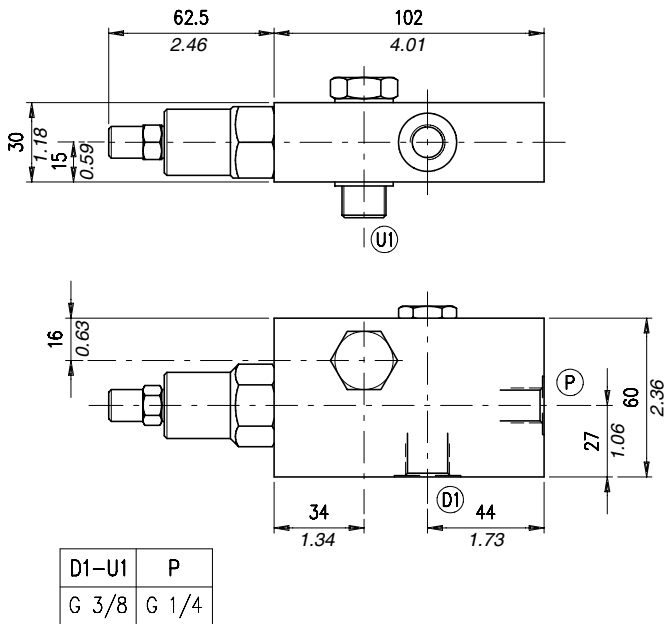
Pilot ratio

p4) 1:4
p11) 1:11

Body material

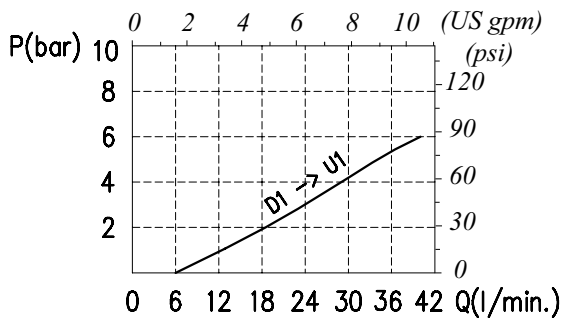
_ Aluminium
ac Steel

Dimensions and hydraulic circuit

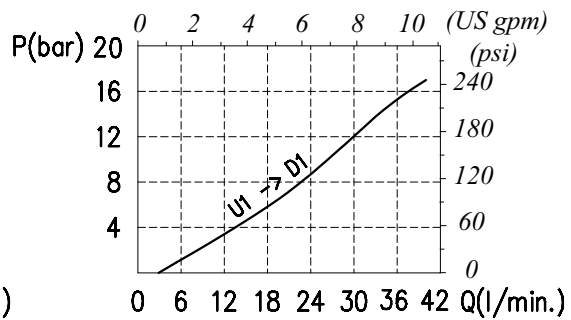


Rating diagrams

Typical pressure drop vs.flow characteristics

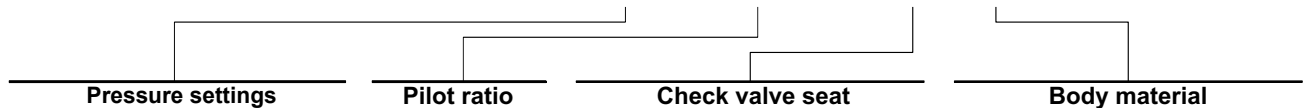


Typical pressure drop vs.flow characteristics



Order code

VOSLP /SC /RO 38 / □□ . S . □□ . PG . □□ / □□



TS) 5÷210 bar (72,5÷3050 psi)
TR) 50÷350 bar (725÷5100 psi)
 (Standard)

TG) 100÷700 bar (1450÷10150 psi)

p3) 1:3
p4) 1:4
 (Standard)

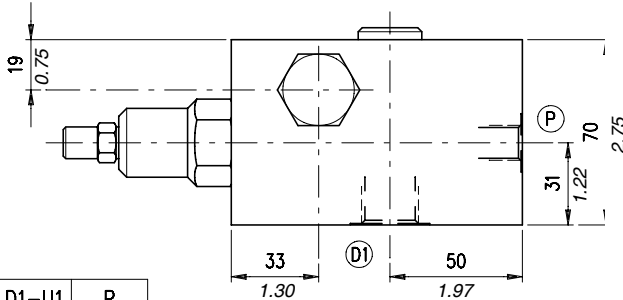
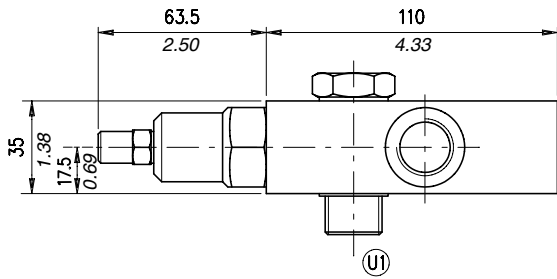
See body
VRR) Hardened steel

Aluminium
ac Steel

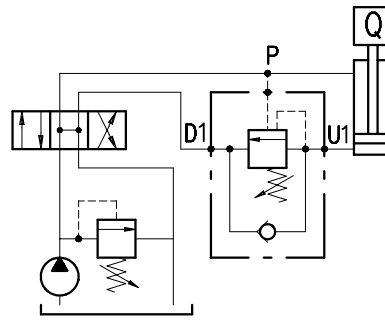
Type VOSLP/SC/RO 12

Single overcenter valve, external pilot operated type, bolt mounting

Dimensions and hydraulic circuit

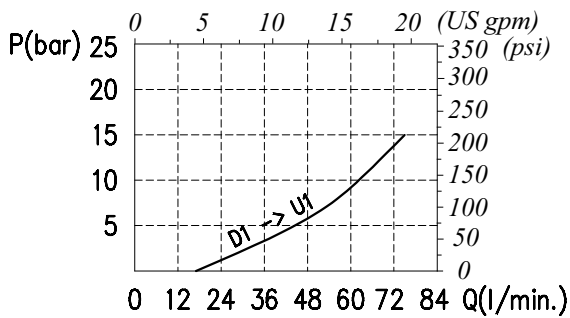


D1-U1	P
G 1/2	G 1/4

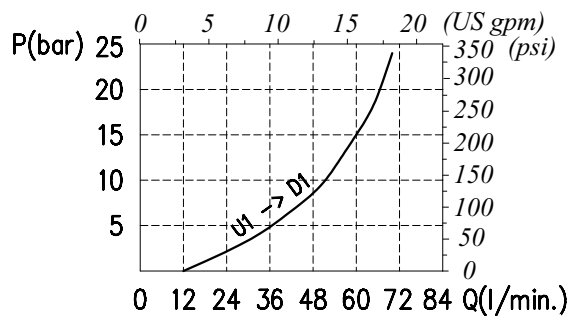


Rating diagrams

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics



Order code

VOSLP / SC / RO 12 / □□ . S . □□ . PG . □□ / □□

Pressure settings

TS 5÷210 bar (72,5÷3050 psi)
TR 50÷350 bar (725÷5100 psi)
 (Standard)

TG 100÷700 bar (1450÷10150 psi)

Pilot ratio

p3 1:3
p7 1:7
 (Standard)

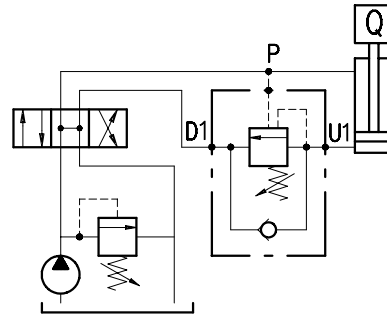
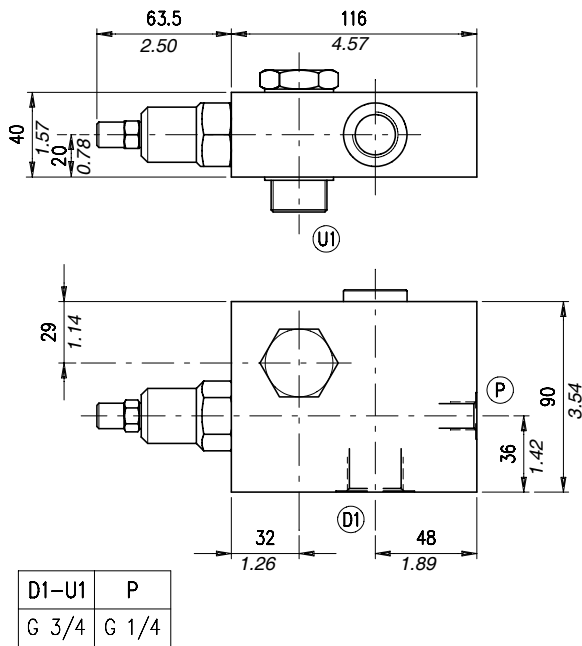
Check valve seat

See body
VRR Hardened steel

Body material

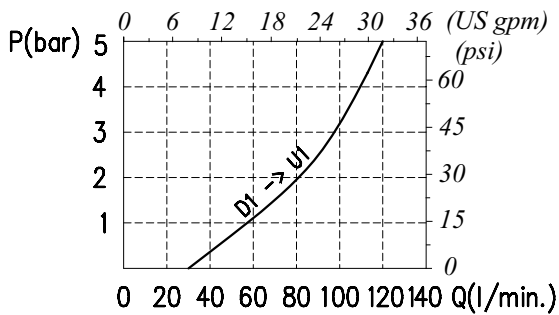
Aluminium
ac Steel

Dimensions and hydraulic circuit

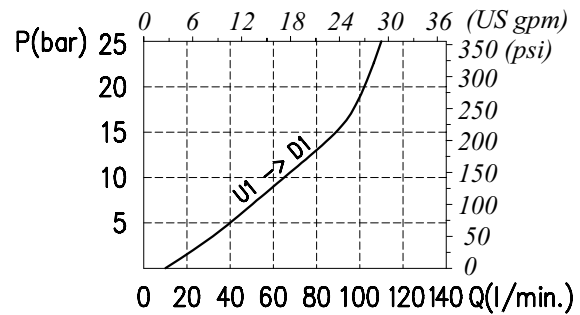


Rating diagrams

Typical pressure drop vs. flow characteristics

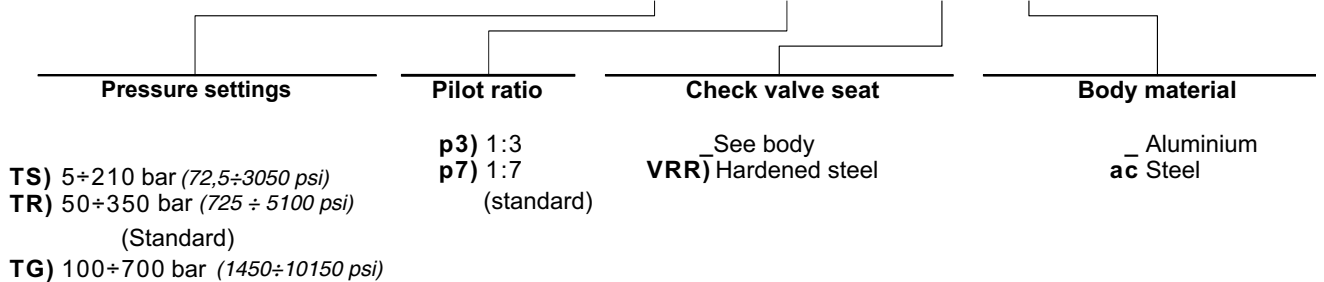


Typical pressure drop vs. flow characteristics



Order code

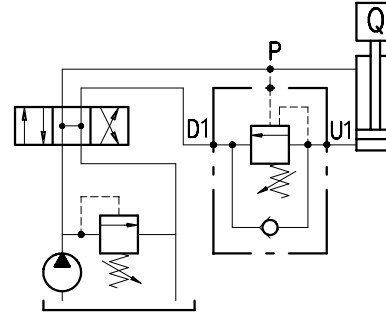
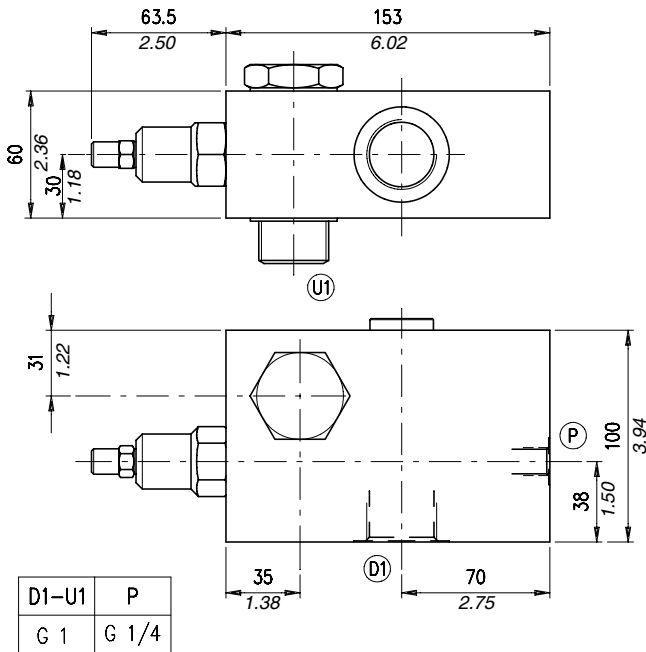
VOSLP / SC / RO 34 / □□ . S . □□ . PG . □□ / □□



Type VOSLP/SC/RO 100

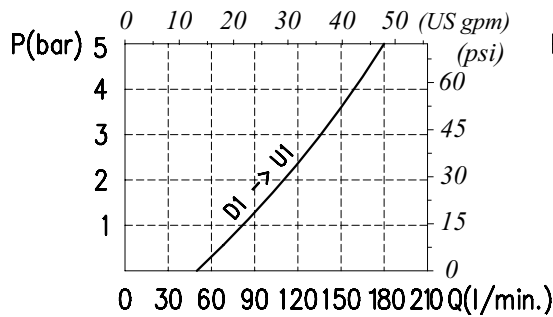
Single overcenter valve, external pilot operated type, bolt mounting

Dimensions and hydraulic circuit

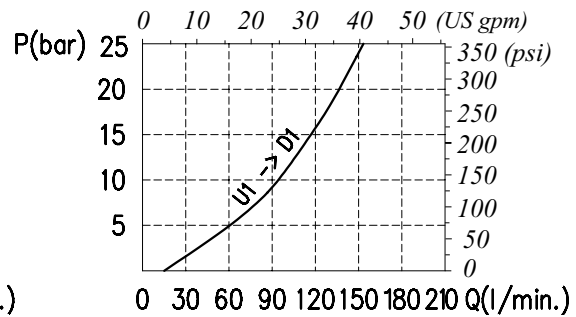


Rating diagrams

Typical pressure drop vs. flow characteristics

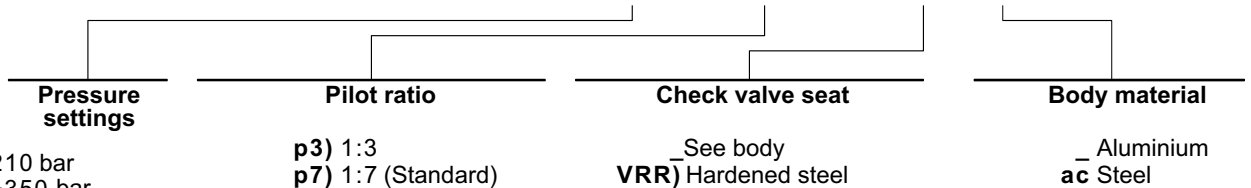


Typical pressure drop vs. flow characteristics

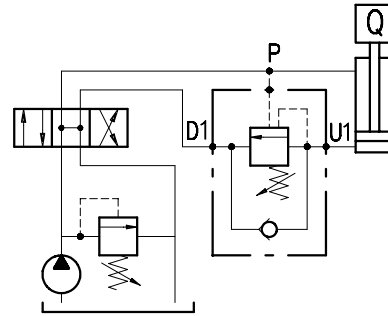
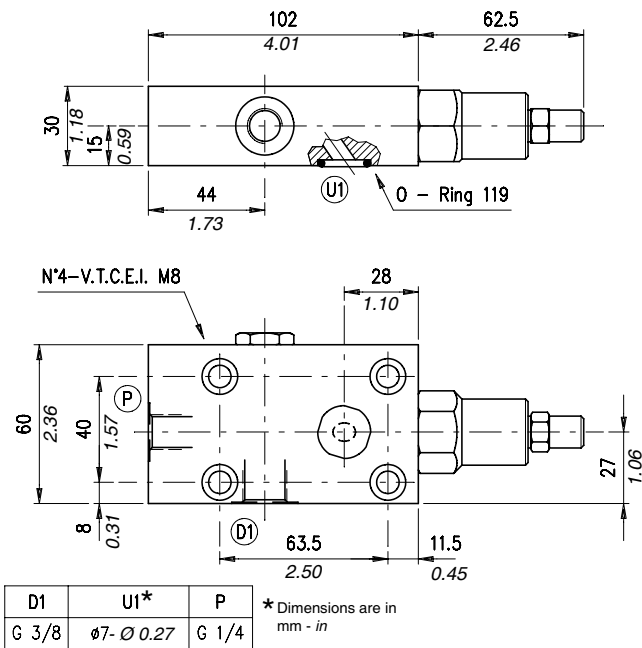


Order code

VOSLP /SC /RO 100 / □□ . S . □□ . PG . □□ / □□

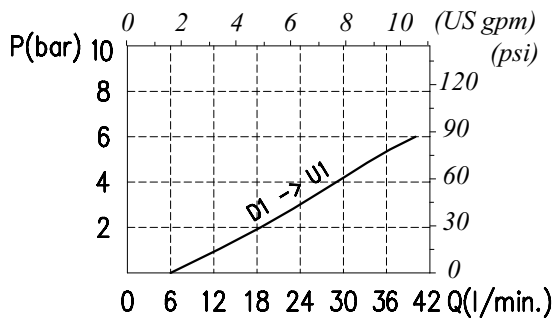


Dimensions and hydraulic circuit

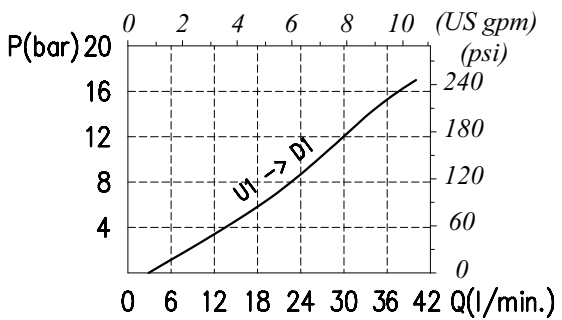


Rating diagrams

Typical pressure drop vs. flow characteristics

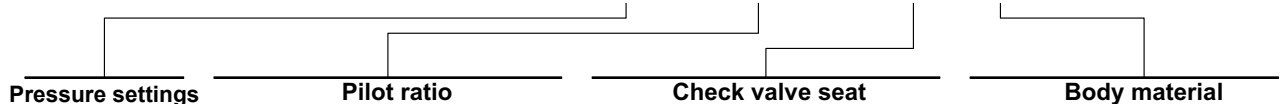


Typical pressure drop vs. flow characteristics



Order code

VOSLP /SC /F 38 / □□ . S . □□ . PG . □□ / □□

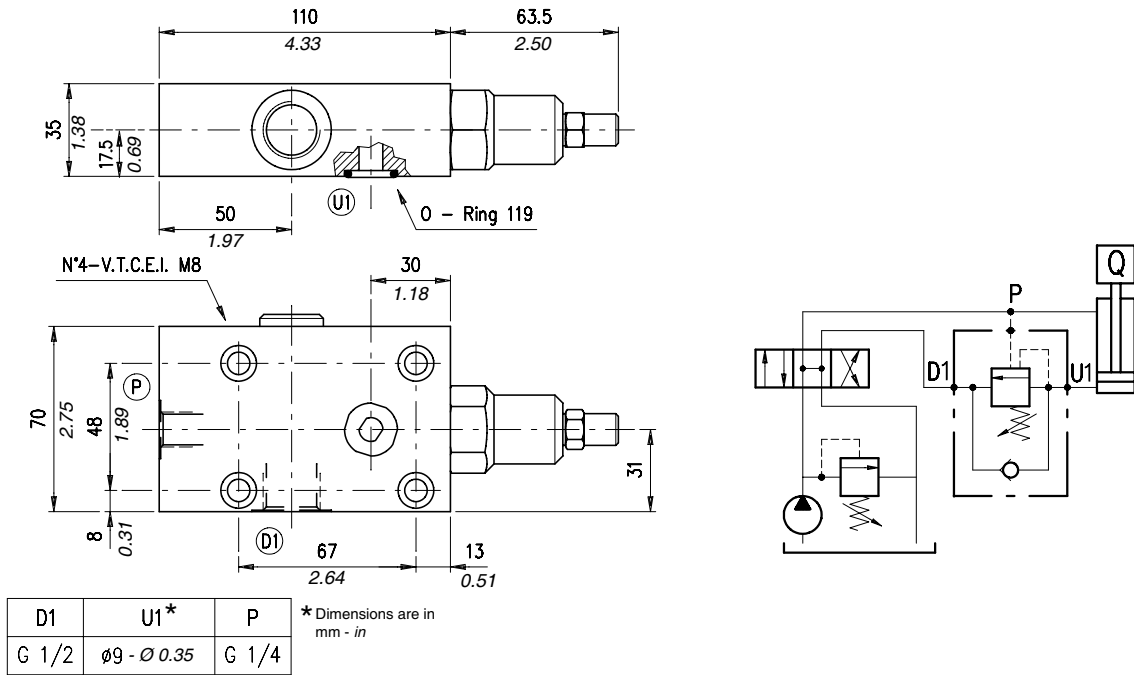


- Pressure settings**
TS 5÷210 bar (72,5÷3050 psi)
TR 50÷350 bar (725÷5100 psi) (Standard)
TG 100÷700 bar (1450÷10150 psi)
- Pilot ratio**
p3 1:3
p4 1:4 (Standard)
- Check valve seat**
 _ See body
VRR Hardened steel
- Body material**
 _ Aluminium
ac Steel

Type VOSLP/SC/F 12

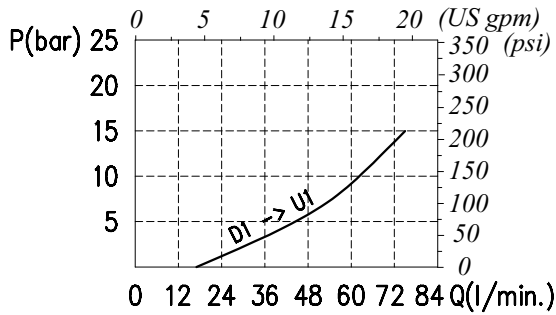
Single overcenter valve, external pilot operated type, face mounting

Dimensions and hydraulic circuit

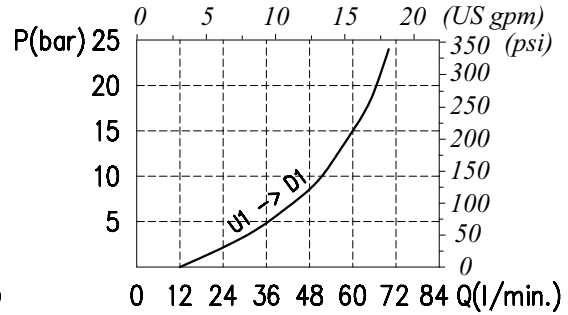


Rating diagrams

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics

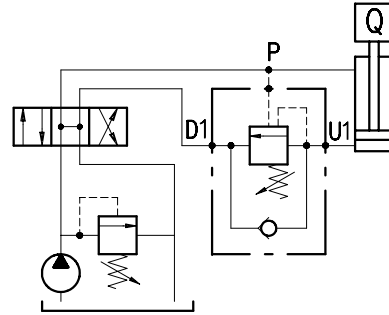
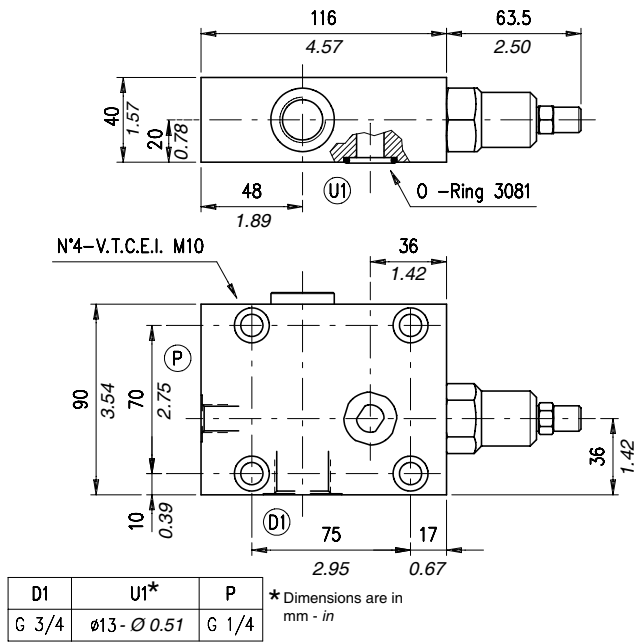


Order code

VOSLP / SC / F 12 / □□ . S . □□ . PG . □□ / □□

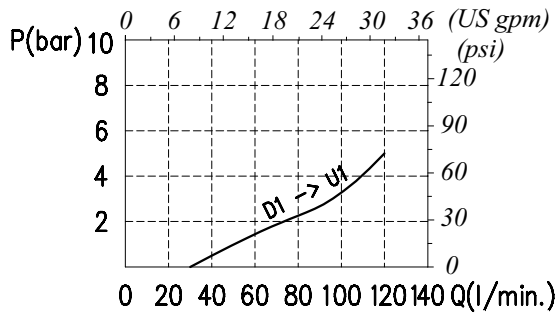
Pressure settings (bar)	Pilot ratio	Check valve seat	Body material
TS) 5÷210 (72,5÷3050 psi) TR) 50÷350 (standard)(725÷5100 psi) TG) 100÷700 (1450÷10150 psi)	p3) 1:3 p7) 1:7 (standard)	_ See body VRR) Hardened steel	_ Aluminium ac Steel

Dimensions and hydraulic circuit

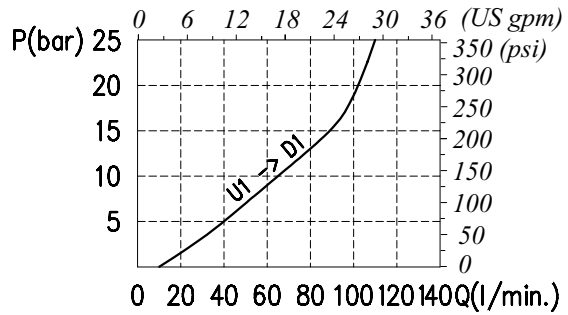


Rating diagrams

Typical pressure drop vs. flow characteristics

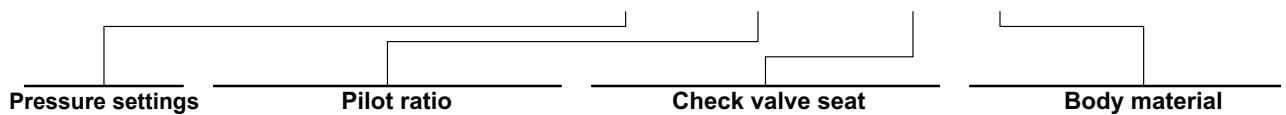


Typical pressure drop vs. flow characteristics



Order code

VOSLP /SC /F 34 / □□ . S . □□ . PG . □□ / □□



TS 5÷210 bar (72,5÷3050 psi)
TR 50÷350 bar (725÷5100 psi)
 (Standard)
TG 100÷700 bar (1450÷10150 psi)

p3 1:3
p7 1:7 (Standard)

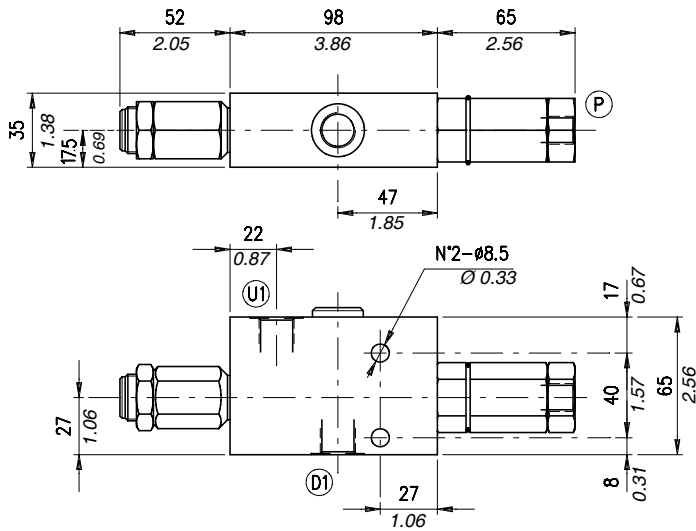
_ See body
VRR Hardened steel

_ Aluminium
ac Steel

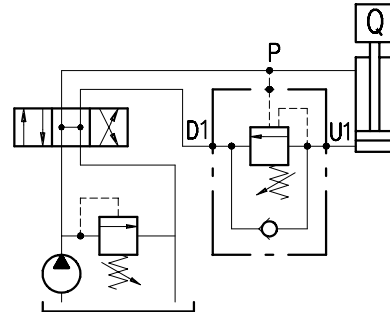
Type VOSLP/PS 38

Single overcenter valve, external pilot operated type, line mounting and suitable for closed centre, cartridge construction

Dimensions and hydraulic circuit

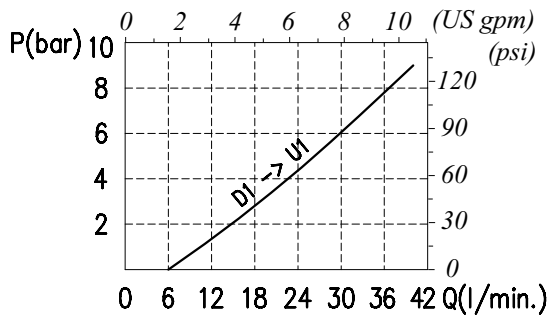


D1-U1	P
G 3/8	G 1/4

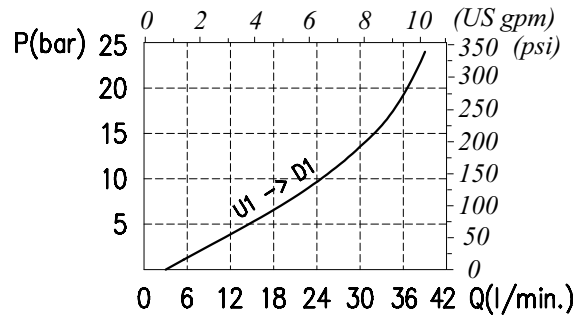


Rating diagrams

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics



Order code

VOSLP / PS 38 / □ . S . □□ . □□ . □□ / □□

Pressure settings

TS 5÷210 bar (72,5÷3050 psi)
TR 50÷350 bar (725÷5100 psi)
 (Standard)
TG 100÷700 bar (1450÷10150 psi)

Pilot ratio

p3) 1:3
p4) 1:4
 (Standard)

Type of pilot

— Without damper
 (Standard)
PG) With damper

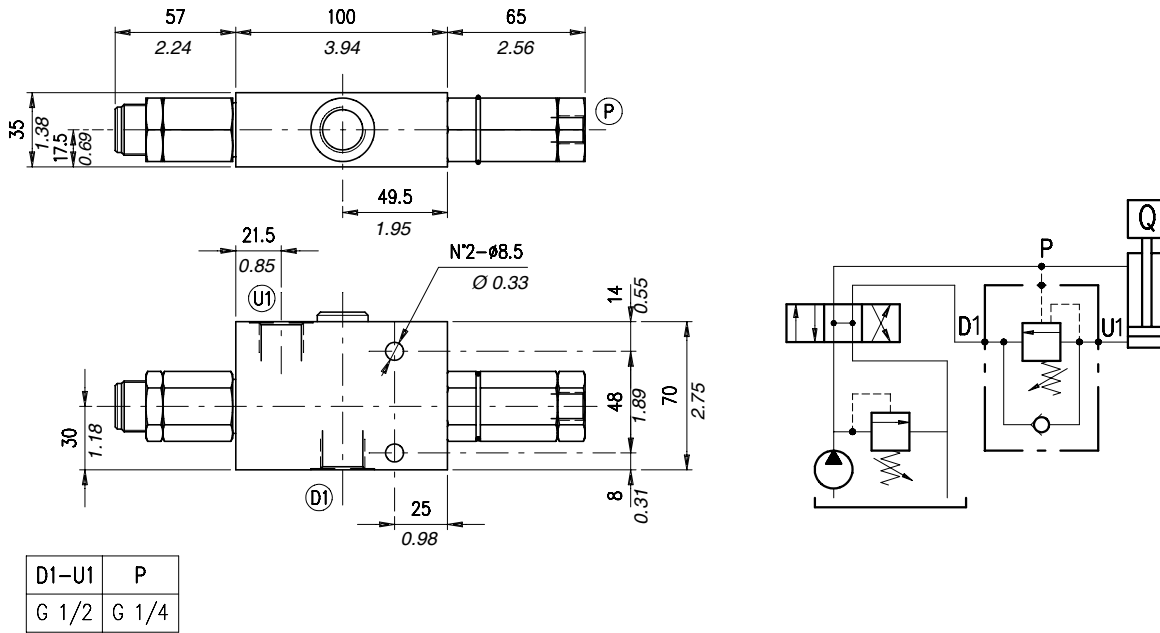
Check valve seat

— See body
VRR) Hardened steel

Body material

— Aluminium
ac Steel

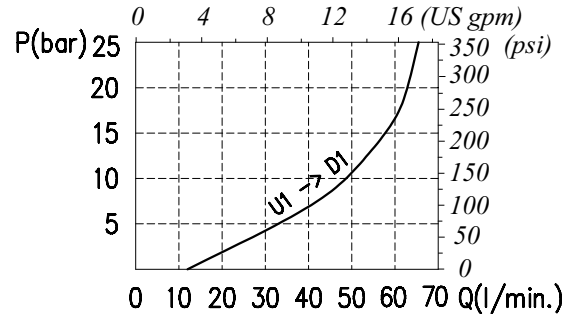
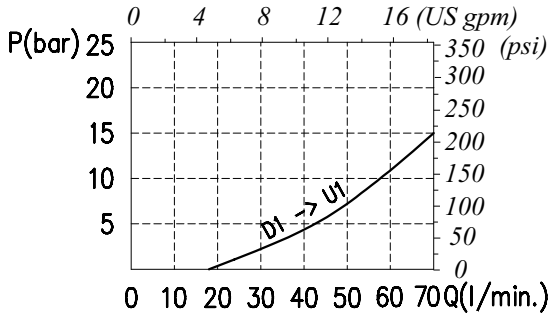
Dimensions and hydraulic circuit



Rating diagrams

Typical pressure drop vs. flow characteristics

Typical pressure drop vs. flow characteristics



Order code

VOSLP / PS 12 / □□ . S . □□ . □□ . □□ / □□

Pressure settings

Pilot ratio

Type of pilot

Check valve seat

Body material

TS) 5÷210 bar (72,5÷3050 psi)
TR) 50÷350 bar (725÷5100 psi)
(Standard)

p3) 1:3
p7) 1:7
(Standard)

P) Without damper
G) With damper

VRR) See body
Hardened steel

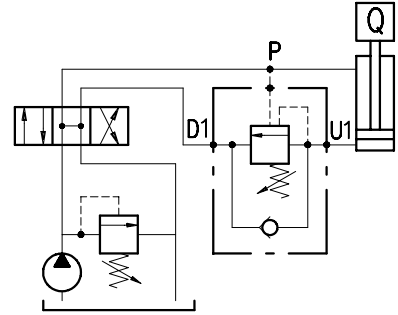
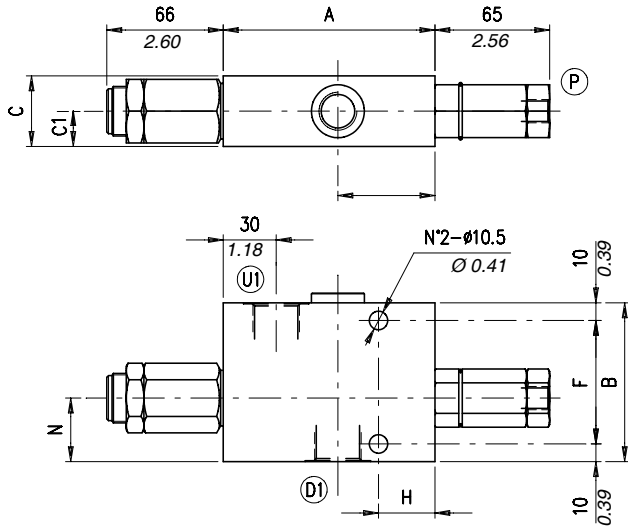
ac) Aluminium
Steel) Steel

TG) 100÷700 bar (1450÷10150 psi)

Type VOSLP/PS 34 (100)

Single overcenter valve, external pilot operated type, line mounting and suitable for closed centre, cartridge construction

Dimensions and hydraulic circuit

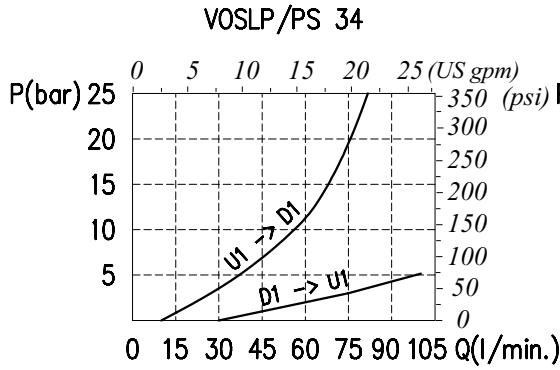


VOSLP/PS	D1-U1	P	A*	B*	C*	C1*	F*	H*	L*	N*
34	G 3/4	G 1/4	120 - 4.72	90 - 3.54	40 - 1.57	20 - 0.78	70 - 2.75	32 - 1.26	55 - 2.16	36 - 1.42
100	G 1	G 1/4	140 - 5.51	100 - 3.94	60 - 2.36	30 - 1.18	80 - 3.15	30 - 1.18	64 - 2.52	37 - 1.46

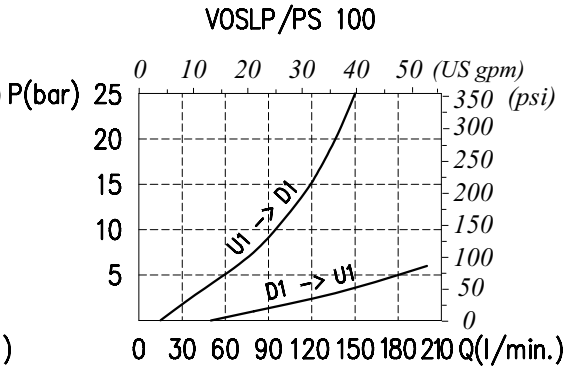
* Dimensions are in mm - in

Rating diagrams

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics

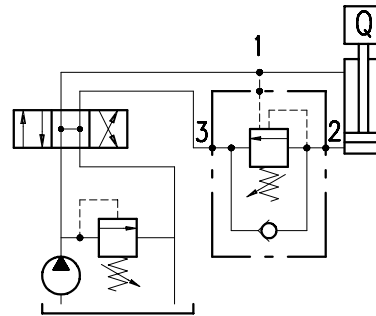
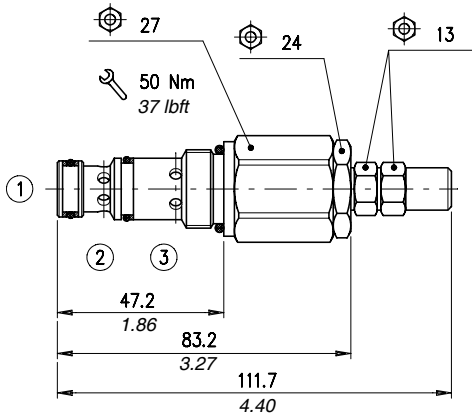


Order code

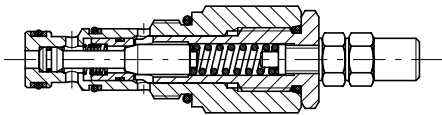
VOSLP / PS / . S . . . /

Port size	Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body material
34) G 3/4 100) G 1	TS) 5÷210 bar (72.5÷3050 psi) TR) 50÷350 bar (725÷5100 psi) (Standard) TG) 100÷700 bar (1450÷10150 psi)	p3) 1:3 p7) 1:7 (Standard)	<input type="checkbox"/> Without damper <input checked="" type="checkbox"/> PG) With damper	<input type="checkbox"/> See body <input checked="" type="checkbox"/> VRR) Hardened steel	<input type="checkbox"/> Aluminium <input checked="" type="checkbox"/> acSteel

Dimensions and hydraulic circuit



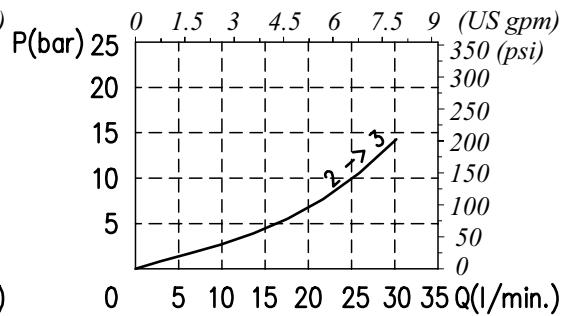
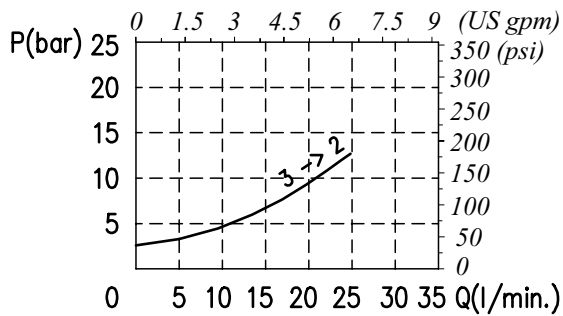
Section



Rating diagrams

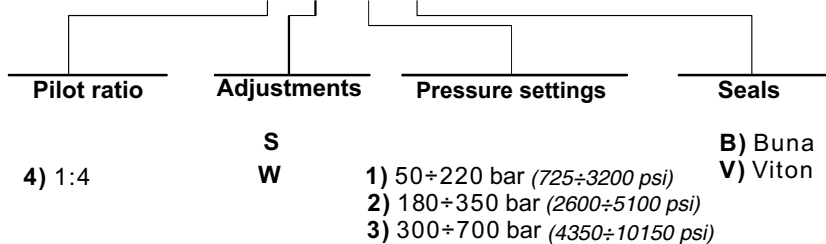
Typical pressure drop vs. flow characteristics

Typical pressure drop vs. flow characteristics

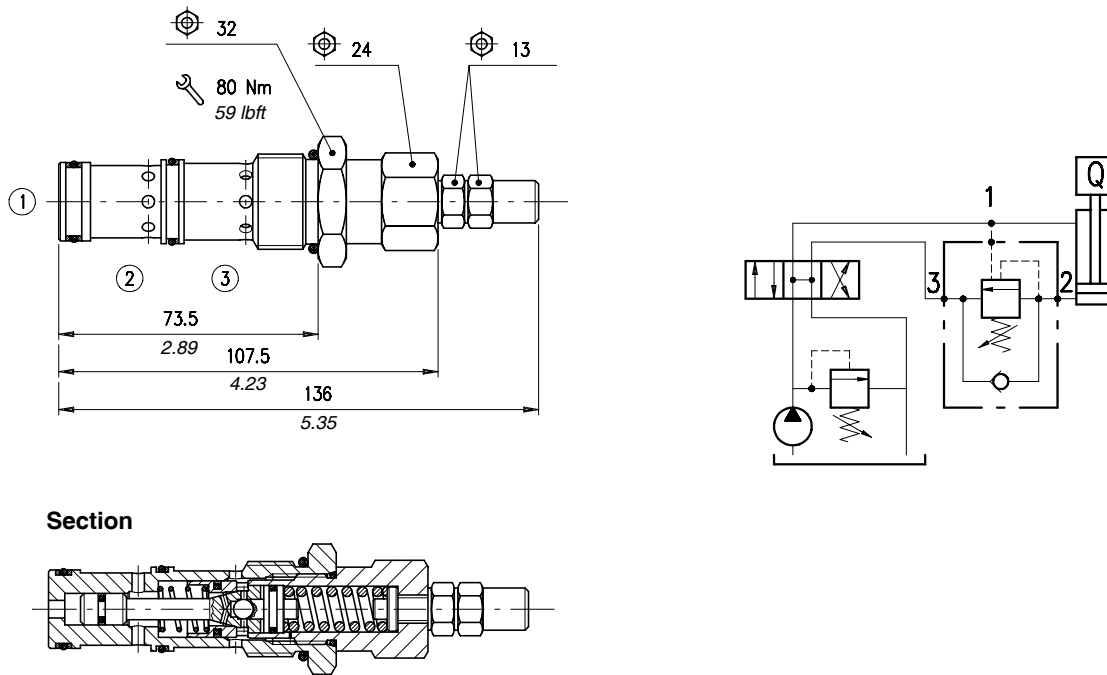


Order code

CA10A / □ - □ - □ - □

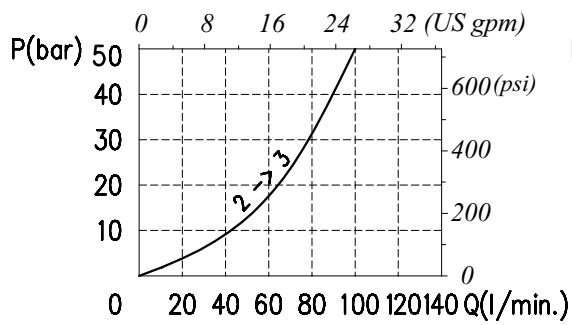


Dimensions and hydraulic circuit

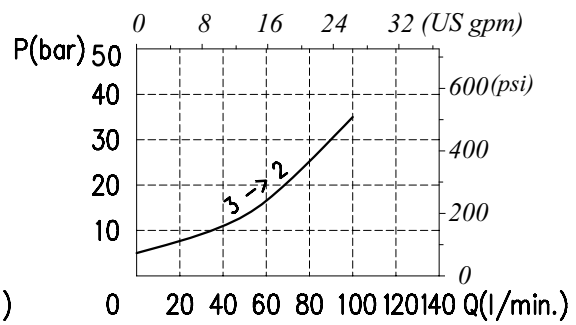


Rating diagrams

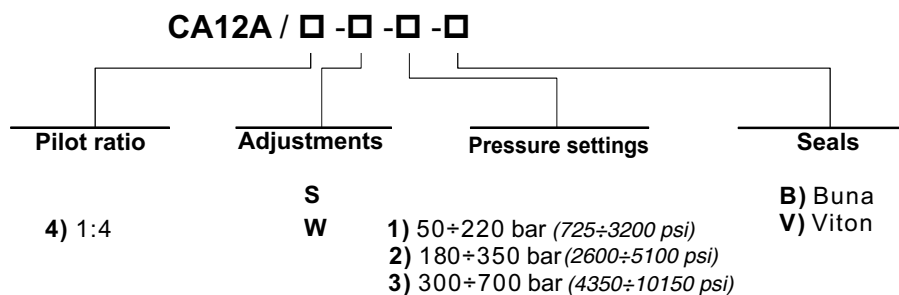
Typical pressure drop vs. flow characteristics



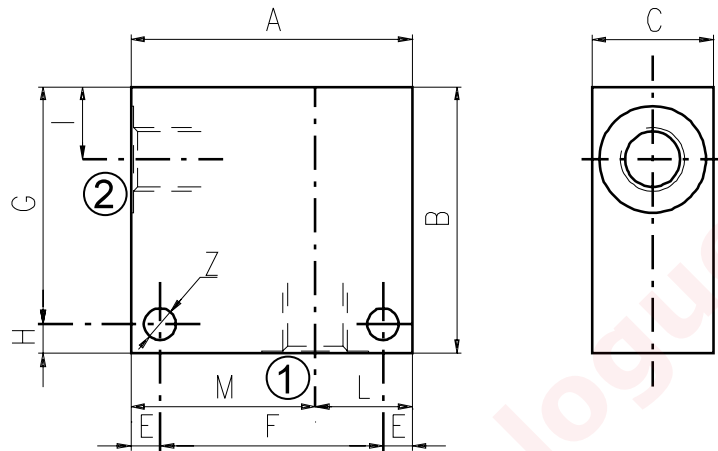
Typical pressure drop vs. flow characteristics



Order code



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

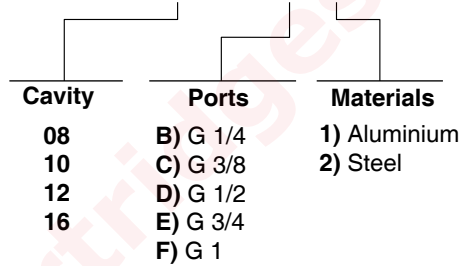


Cavity	Ports	A	B	C	E	F	G	H	I	L	M	Z	
SAE 8/2	G 1/2	mm	70	65	35	7	56	53	12	14,5	35	35	6,5
		in	2.75	2.56	1.38	0.27	2.20	2.09	0.47	0.57	1.38	1.38	0.25
	G 1/4	mm	50	50	30	6	38	44	6	14,8	20	30	6,5
		in	1.97	1.97	1.18	0.24	1.50	1.73	0.24	0.58	0.79	1.18	0.25
	G 3/8	mm	50	50	30	6	38	44	6	14,8	20	30	6,5
		in	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

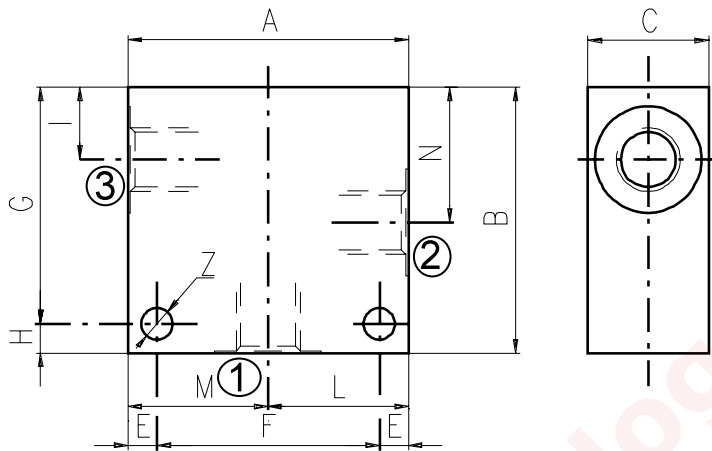
Cavity	Ports	A	B	C	E	F	G	H	I	L	M	Z	
SAE 16/2	G 1/2	mm	80	90	50	10	60	80	10	25	35	45	10,5
		in	3.15	3.54	1.97	0.39	2.36	3.15	0.39	0.98	1.38	1.77	0.41
	G 3/4	mm	80	90	50	10	60	80	10	25	35	45	10,5
		in	3.15	3.54	1.97	0.39	2.36	3.15	0.39	0.98	1.38	1.77	0.41
	G 1	mm	85	100	60	10	65	90	10	23,5	40	45	10,5
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

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

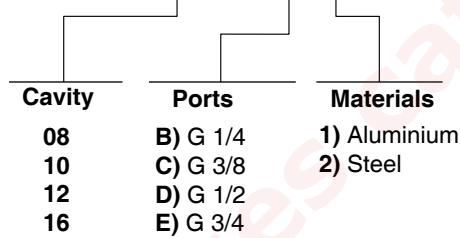


Cavity	Ports		A	B	C	E	F	G	H	I	L	M	N	Z
SAE 8/3	G 1/4	mm	60	60	30	7	46	48	12	14,8	30	30	29,1	6,5
		in	2.36	2.36	1.18	0.27	1.81	1.89	0.47	0.58	1.18	1.18	1.14	0.25
	G 3/8	mm	60	60	30	7	46	48	12	14,5	30	30	29,1	6,5
		in	2.36	2.36	1.18	0.27	1.81	1.89	0.47	0.57	1.18	1.18	1.14	0.25
	G 1/2	mm	70	65	35	7	56	53	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	1.77	0.31	2.52	3.6	0.31	0.98	1.57	1.57	2.11	0.33	

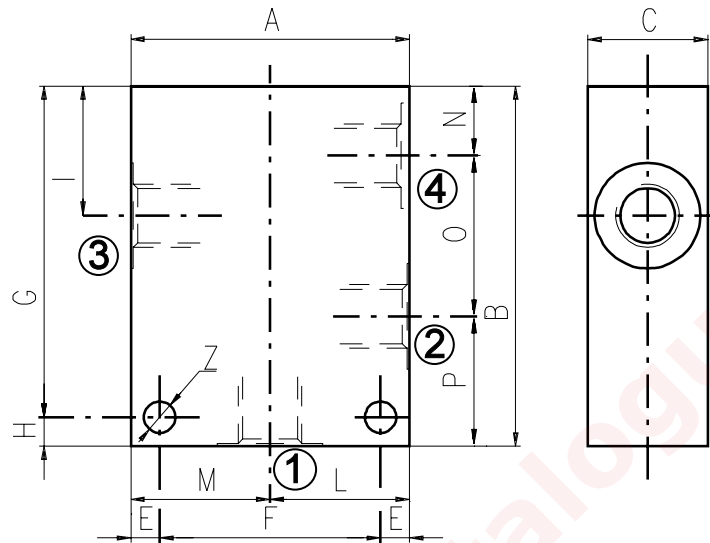
Cavity	Ports	A	B	C	E	F	G	H	I	L	M	N	Z	
SAE 16/3	G 3/4	mm	90	100	50	10	70	90	10	25,1	45	45	53,5	10,5
		in	3.54	3.94	1.97	0.39	2.75	3.54	0.39	0.99	1.77	1.77	2.11	0.41
	SAE12	mm	90	105	50	10	70	95	10	25,1	45	45	53,5	10,5
		in	3.54	4.13	1.97	0.39	2.75	3.74	0.39	0.99	1.77	1.77	2.11	0.41
	SAE16	mm	90	105	50	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

Order code _____

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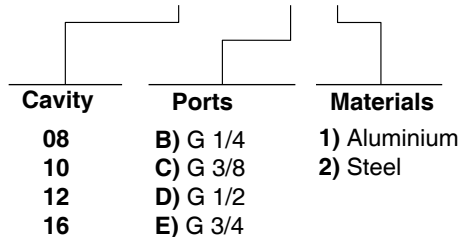
Material	Max. pressure	
	bar	psi
Alluminium	210	3050
Steel	350	5100



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	2.36	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
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

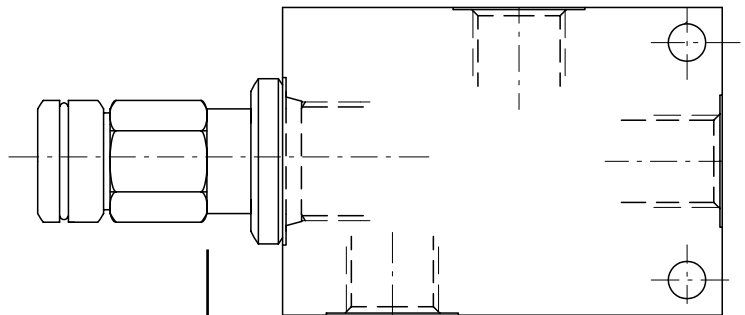
Order code

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Informations

How to order valves with body



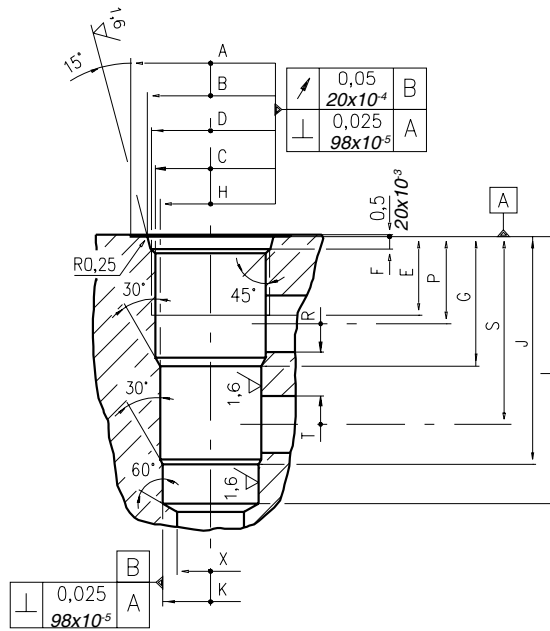
CARTRIDGE CODE

BILLET CODE

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D- 1-1

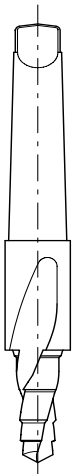
Cavity	Ports	Materials
08	B) G 1/4	1) Aluminium
10	C) G 3/8	
12	D) G 1/2	
16	E) G 3/4	
	F) G 1	
	J) SAE 6	2) Steel
	K) SAE 8	
	L) SAE 10	
	M) SAE 12	
	N) SAE 16	



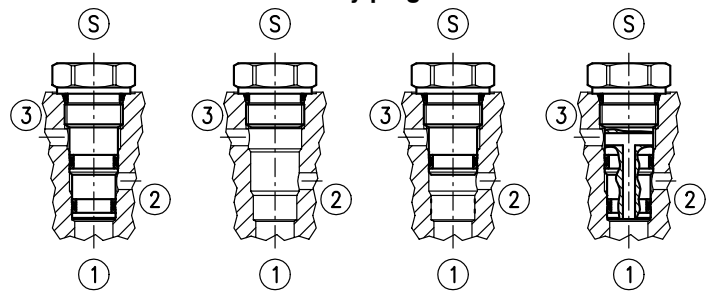
\	A	B $\pm 0,05$	C $\pm 0,05$	D	E	F	G	H $\pm 0,02$	J	K $\pm 0,02$	L	M $\pm 0,02$	N	P	R ϕ MAX	S	T ϕ MAX	U	V ϕ MAX	X ϕ MAX	Z ϕ MIN	Prof. Z MIN	
08/3	mm	27	20,66	17,42	3/4-16 UNF	12,50	2,5	19,10	15,90	33,30	14,30	43,30	-	-	14,30	5,50	28,60	5,50	-	-	12,50	-	-
	in	1.06	0.81	0.68		0.49	0.10	0.75	0.62	1.31	0.56	1.70			0.56	0.22	1.12	0.22			0.49		
10/3	mm	30	24,00	20,62	7/8-14 UNF	16,00	2,80	23,10	17,50	39,60	15,90	47,60	-	-	18,30	6,50	34,00	6,50	-	-	14,00	-	-
	in	1.18	0.94	0.81		0.63	0.11	0.94	0.69	1.56	0.62	1.87			0.72	0.25	1.34	0.25			0.55		
12/3	mm	38	29,23	24,73	1 1/16-12 UNF	19,00	3,56	36,60	23,82	63,50	22,25	75,40	-	-	24,50	16,00	53,00	16,00	-	-	19,00	-	-
	in	1.50	1.15	0.97		0.75	0.14	1.44	0.94	2.5	0.88	2.97			0.96	0.63	2.09	0.63			0.75		
16/3	mm	45	35,6	31,34	1 5/16-12 UNF	22,00	3,5	36,50	28,62	64,30	27,02	75,38	-	-	24,60	16,00	53,00	16,00	-	-	19,00	-	-
	in	1.77	1.40	1.23		0.87	0.14	1.44	1.13	2.53	1.06	2.97			0.97	0.63	2.09	0.63			0.75		

Cavity plugs

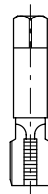
Rougher tool



Finisher tool



Tap

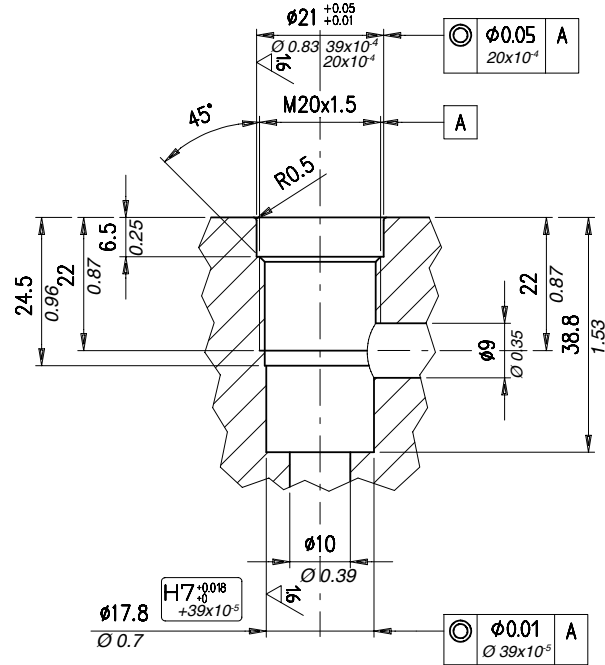


Cavity	Code number
08/3	3UT00052190
10/3	3UT00054170
12/3	3UT00054290
16/3	3UT00054470

Cavity	Code number
08/3	3UT00052740
10/3	3UT00054180
12/3	3UT00054300
16/3	3UT00054480

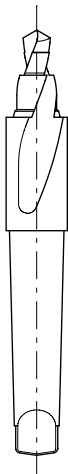
Cavity	Code number
08/3	3UT03416UNF
10/3	3UT07814UNF
12/3	3UT0111612UN
16/3	3UT0151612UN

Dimensions



Rougher tool

Cod.3UT00050050



Finisher

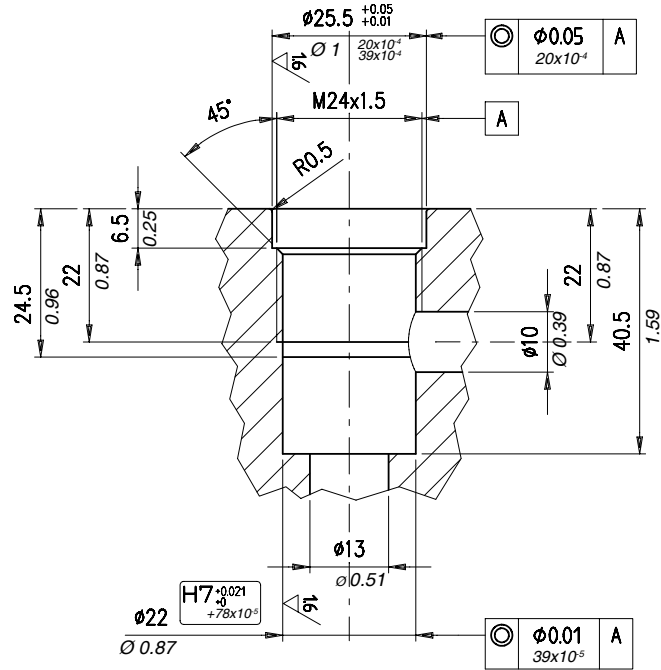
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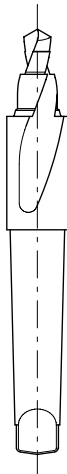
Tap

Cod.3UT08A20F150





Rougher tool
Cod.3UT00050070



Finisher
Cod.3UT06A22000P



Tap
Cod.3UT08A24F150



