CATALOGUE



Counterbalance valves

walvoil
HYDRAULIC CONTROL SYSTEMS

WARNING!

Variations and modifications of technical features and dimensions are reserved.
WALVOIL S.p.A. also reserves the right to stop production of each and any model listed in the catalogue with no notice.
Copyrights on the text contained herein belong to **WALVOIL S.p.A.** .
Partial and full reproductions or copies of this catalogue are forbidden.

WALVOIL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN INCORRECT USE OF THE PRODUCT.

2nd edition February 2012

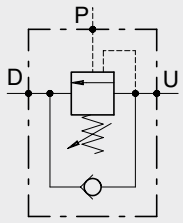
General Information

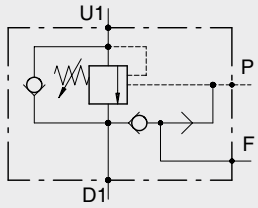
Fluid:best use mineral oil with viscosity ranging between 10 and 200 cSt.
Filter:dirty oil is the main reason for failure and troubles of hydraulic parts and systems.
The table below contains **OLEOSTAR S.p.A**. recommendations about the minimum oil contamination level according to individual specifications of different items. For further safety of your hydraulic equipment and of all valves assembled on it, we either recommend use suction filters (rather than return filters) or separated filter lines.

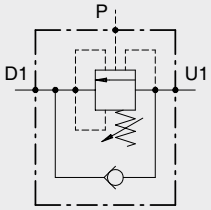
TYPE OF EQUIPMENT - TYPE OF VALVE	CONTAMINATION LEVEL According to ISO 4406
- Heavy duty equipment - Equipment running at 210-350 bar (3050-5100 psi) working pressure - Equipment using proportional controls - Equipment with high frequency cycles	-/16/13
- Equipment running up to 210 bar *(3050 psi)* working pressure - Spool-type valves - Valves with calibrated ports	-/18/14
- Equipment running at low working pressure - Pilot plants and equipment - Equipment with low frequency cycles	-/19/15

Installation:make sure to provide suitable gasket lubrication with clean oil before screwing the cartridge on the valve body . Also make sure to screw the cartridge manually in to reach against the gaskets in the valve body.
Material:internal components made out of high grade steel duly treated and fabricated.
For more information please ask our technical office .
Working temperature:min. -25°C *(-13°F)* max. 90°C *(194°F)* with standard BUNA N seals.
min. -20°C *(-4°F)* max. 200°C *(392°F)* with optional VITON seals.
Rating diagrams:all rating diagrams of this catalogue are measured with mineral oil of 46 cSt viscosity at 40° *(104°F)* temperature.
All drawings dimensions are defined as $\frac{mm}{in}$

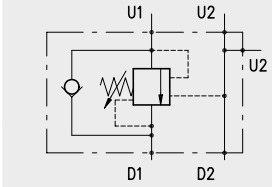
Index

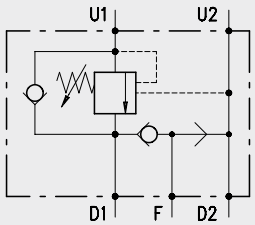
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VOC**	Counterbalance valves	120	*32*	350	*5100*	9
	VOSLP	Single counterbalance valves, external pilot operated type, line mounting, cartridge construction	180	*48*			
	VOSLP/F	Single counterbalance 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*			
	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*			

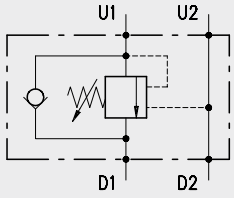
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VOSLP/A**	Single counterbalance valves, external pilot operated type, line mounting, cartridge construction. Equipped with connection for hydraulic brake release	180	*48*	350	*5100*	35

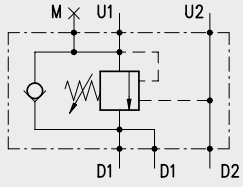
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VOSLP/CC**	Single counterbalance valves, external pilot operated type, line mounting and situable for closed centre, cartridge construction	100	*26*	350	*5100*	39
	VOSLP/SC/CC	Single counterbalance valves, external pilot operated type, line mounting for closed centre	180	*48*			
	CC	Single counterbalance valves for closed centre, line mounting, not affected by pressure	90	*24*			

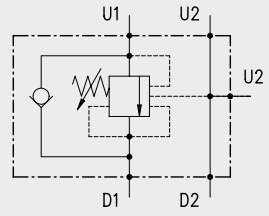
Index

Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VOSL**	Single counterbalance valves, line mounting, cartridge construction	180	*48*	350	*5100*	51
	VOSL/F	Single counterbalance valves, face mounting cartridge construction					

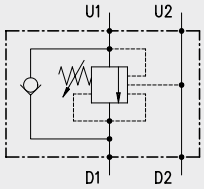
Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VOSL/A**	Single counterbalance valves, line mounting, with connection for hydraulic brake release, cartridge construction	180	*48*	350	*5100*	59

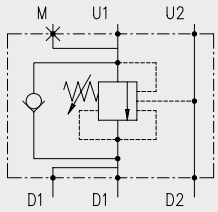
Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VOSL/SC**	Single counterbalance valves, line mounting	180	*48*	350	*5100*	63
	VOSL/SC/C 1116		60	*16*			
	VOSL/SC/VU		20	*5.3*			
	VOSL/SC/F	Single counterbalance valves face mounting	120	*32*			

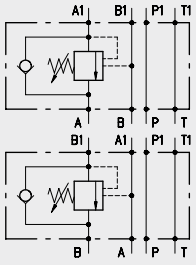
Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VOSL/SC/F/C 1116**	Single counterbalance valves, face mounting	60	*16*	350	*5100*	75

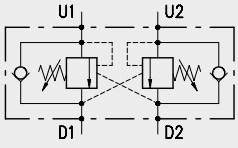
Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VOSL/CC**	Single counterbalance valves for closed centre, line mounting, cartridge construction	100	*26*	350	*5100*	81

Index

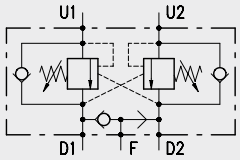
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VOSL/SC/CC**	Single counterbalance valves for closed centre, line mounting	180	*48*	350	*5100*	85
	VOSL/SC/CC/C 1116		60	*16*			

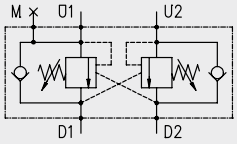
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VOSL/SC/CC/F/C 1116**	Single counterbalance valves for closed centre, face mounting	60	*16*	350	*5100*	93

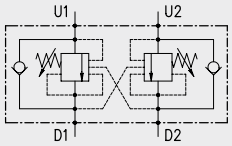
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VOSL/ML**	Single counterbalance valves, sandwich mounting “NG”, cartridge construction	70	*18*	350	*5100*	97

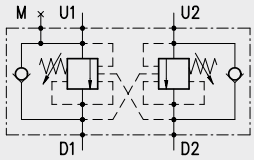
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VODL**	Dual counterbalance valves, line mounting, cartridge construction	180	*48*	350	*5100*	101
	VODL/F	Dual counterbalance valves, face mounting, cartridge construction					
	VODL/SC	Dual counterbalance valves, line mounting					
	VODL/SC/VU		20	*5.3*			
	VODL/SC/C 1116		60	*16*			

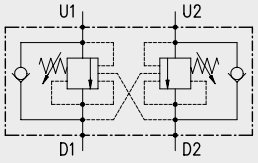
Index

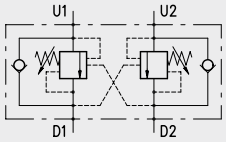
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VODL/A**	Dual counterbalance valves, line mounting, with connection for hydraulic brake release, cartridge construction	180	*48*	350	*5100*	117
	VODL/SC/A	Dual counterbalance valves, line mounting, with connection gate for hydraulic brake release					

Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VODL/SC/F1/C 1116**	Dual counterbalance valves, line mounting	60	*16*	350	*5100*	127

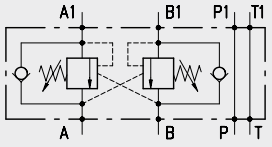
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VODL/CC**	Dual counterbalance valves, line mounting for closed centre, cartridge construction	100	*26*	350	*5100*	131

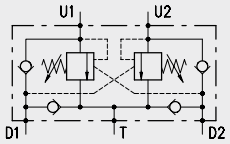
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VODL/SC/CC/F1/C 1116**	Dual counterbalance valves for closed centre, line mounting	60	*16*	350	*5100*	135

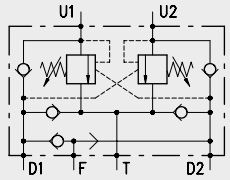
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VODL/SC/CC**	Dual counterbalance valves for closed centre, line mounting	180	*48*	350	*5100*	139

Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VODL/SC/F**	Dual counterbalance valves face mounting	75	*20*	350	*5100*	145

Index

Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VODL/ML**	Dual counterbalance valves, sandwich mounting “NG”, cartridge construction	70	*18*	350	*5100*	149

Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VABAL**	Cross-line, relief valves for motion control, anti-shock and anti-cavitation, line mounting, cartridge construction	180	*48*	350	*5100*	153

Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VABAL/SF**	Cross-line, relief valves for motion control, anti-shock and anti-cavitation, line mounting, cartridge construction and connection for hydraulic brakes	100	*26*	350	*5100*	159

Valves Bodies

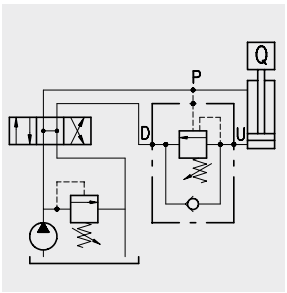
2 Way Bodies ..... page 163
3 Way Bodies ..... page 165
4 Way Bodies ..... page 167
How to order valves with bodies ..... page 168

Cavities, tool and tap

3 Way “SAE” Cavity ..... page 169
VOC 60 Cavity..... page 170
VOC 120 Cavity..... page 171
VMPD 38 Cavity..... page 172
VMPD 12 Cavity..... page 173
VMPD 34 Cavity..... page 174

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 pressure130 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*) 50÷350 bar -*725÷5100 psi* (test setting 280 bar -*4100 psi* at 5 l/min. -*1.3 US gpm*)	0,25 cm³/min -*15x10⁻³ in³/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*					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*) 50÷350 bar -*725÷5100 psi* (test setting 280 bar -*4100 psi* at 5 l/min. -*1.3 US gpm*) 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)	0,75 aluminium 1,49 steel	*1.65* *3.28* 	-
VOSLP 12**	70	*18*					1:7 (standard type) 1:3 (on request only)	0,96 aluminium 1,86 steel	*2.12* *4.10* 	-
VOSLP 34***	100	*26*						1,75 aluminium 5.96 steel	*3.86* *13.14* 	-
VOSLP 100***	180	*48*						2,90 aluminium 6,16 steel	*6.39* *13.58* 	
VOSLP/F 38*	35	*9.2*					1:4 (standard type) 1:3 (on request only)	0,73 aluminium 1,41 steel	*1.61* *3.11* 	-

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

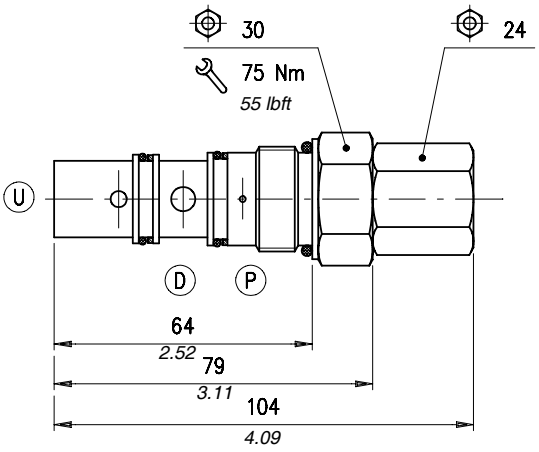
Body Valves

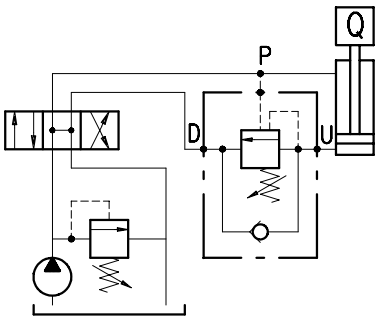
Overcenter cartridge: *VMPD 38 - **VMPD12 - ***VMPD34

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*) 50÷350 bar -*725÷5100 psi* (test setting 280 bar -*4100 psi* at 5 l/min. -*1.3 US gpm*) 100÷700 bar -*1450÷10150 psi* (test setting 350 bar -*5100 psi* at 5 l/min. -*1.3 US gpm*)	0,25 cm³/min -*15x10⁻³ in³/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	
VOSLP/F 34***	100	*26*						1,70	*3.75*
								aluminium	
								3,30	*7.27*
								steel	
VOSLP/F 100***	180	*48*						2,87	*6.33*
								aluminium	
								6,20	*13.67*
								steel	

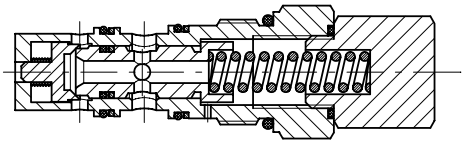
Type	Max flow		Max. press.		Application range with standard springs*	Oil leakage from U (U1) to D (D1)	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSLP/SC 38	40	*11*	350	*5100*	5÷210 bar-*72.5÷3050 psi* (test setting 170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar-*725÷5100 psi* (test setting 280 bar-*4100 psi* at 5 l/min.-*1.3 US gpm*) 100÷700 bar -*1450÷10150 psi* (test setting 350 bar-*5100 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min -*15x10⁻³ in³/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	
VOSLP/SC 12	75	*20*					1:7 (standard type) 1:3 (on request only)	0,95	*2.09*
								aluminium	
								2,03	*4.47*
								steel	
VOSLP/SC 34	120	*32*						1,40	*3.09*
								aluminium	
								3,20	*7.05*
								steel	
VOSLP/SC 100	180	*48*						2,70	*5.95*
								aluminium	
								6,52	*14.37*
								steel	
VOSLP/SC/C 1116/38	30	*7.9*			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*)		1:4	0,6	*1.32*
								aluminium	
								1,35	*2.98*
								steel	
VOSLP/SC/C 1116/12	60	*16*						0,9	*1.98*
								aluminium	
								1,95	*4.30*
								steel	
VOSLP/SC/RO 38	40	*11*			5÷210 bar-*72.5÷3050 psi* (test setting 170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar-*725÷5100 psi* (test setting 280 bar-*4100 psi* at 5 l/min.-*1.3 US gpm*) 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)	0,87	*1.92*
								aluminium	
								1,62	*3.57*
								steel	

Dimensions and hydraulic circuit



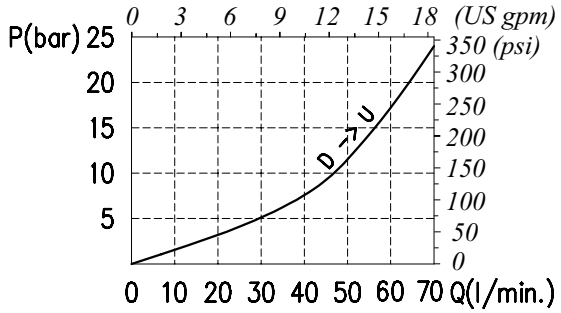


Section

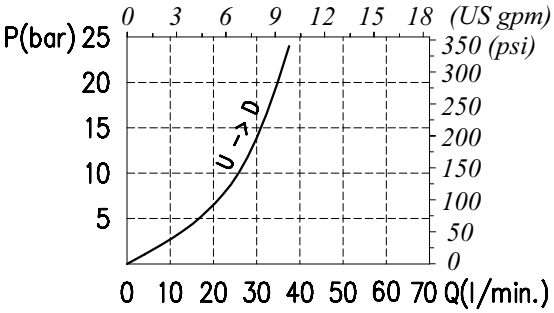


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

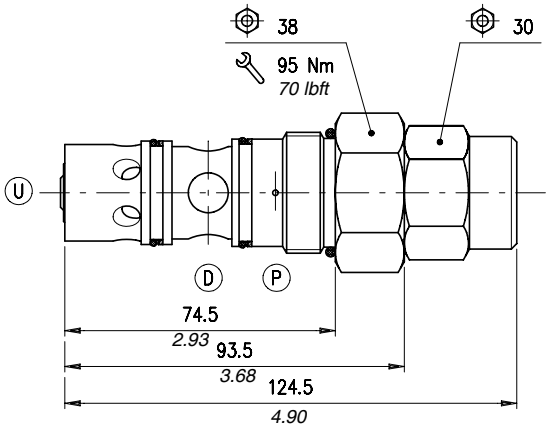


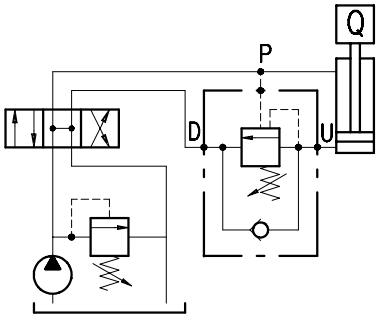
Order code

VOC 60 / □□ . S . □□ / □□

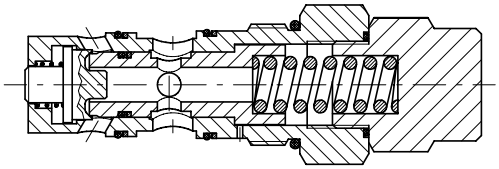
Pressure settings	Pilot ratio	Body material
TS) 20÷220 bar *(290÷3200 psi)*	**p4)** 1:3,5	_ Aluminium
TR) 50÷350 bar *(725÷5100 psi)*	**p2)** 1:1,8	**ac** Steel
(Standard)		

Dimensions and hydraulic circuit



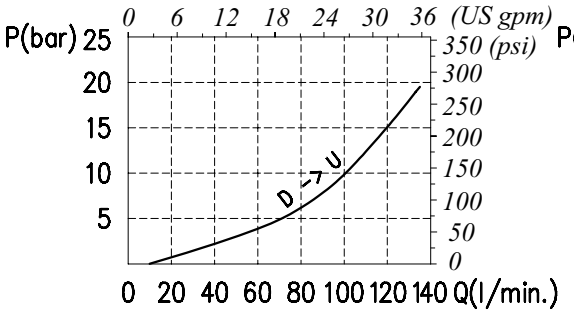


Section

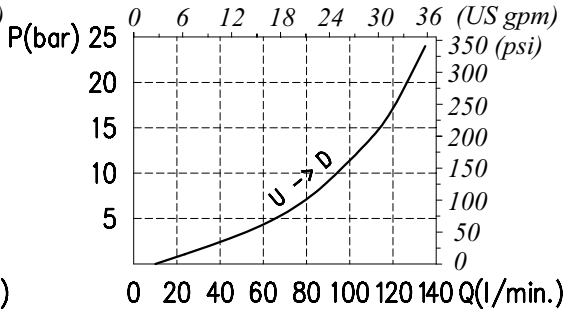


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

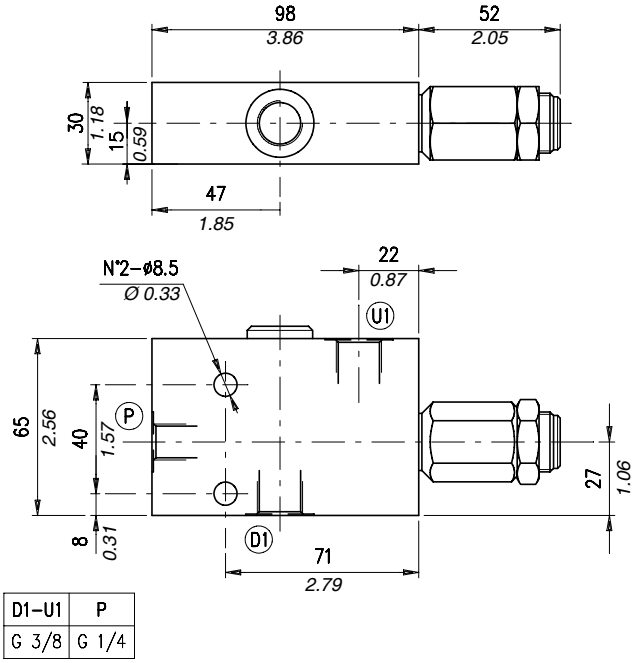


Order code

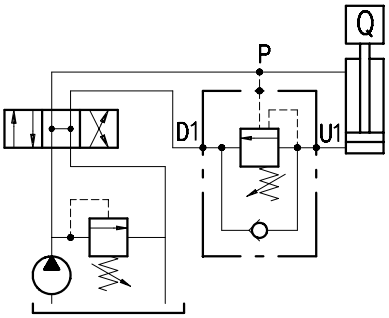
VOC 120 / □□ . S . □□ / □□

Pressure settings	Pilot ratio	Body material
TR) 50÷350 bar *(725÷5100 psi)*	**P4)** 1:4 (Standard)	**_** Aluminium **ac** Steel

Dimensions and hydraulic circuit

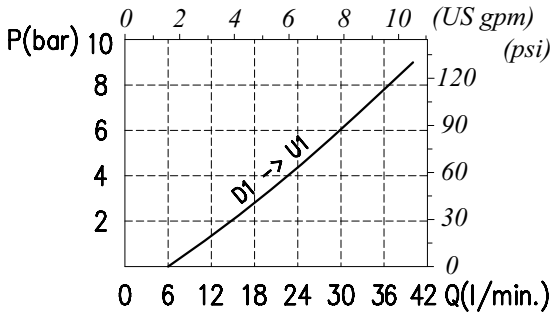


D1–U1	P
G 3/8	G 1/4

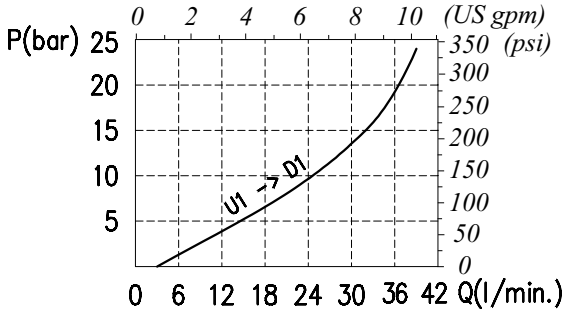


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP 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

PG) With damper
– Without damper (Standard)

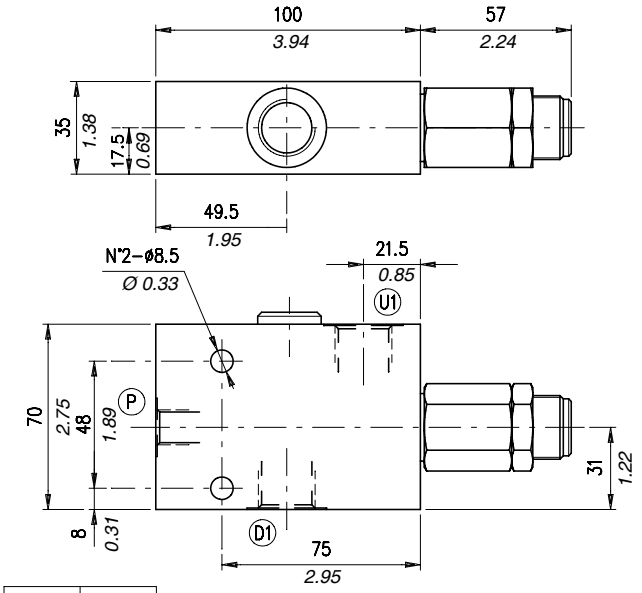
Check valve seat

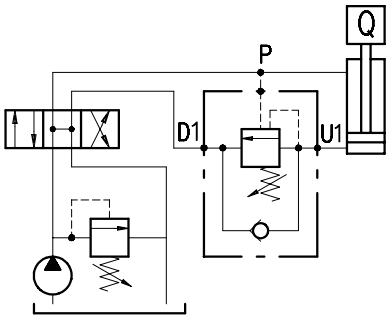
VRR) Hardened steel
– See body

Body material

ac Steel
– Aluminium

Dimensions and hydraulic circuit

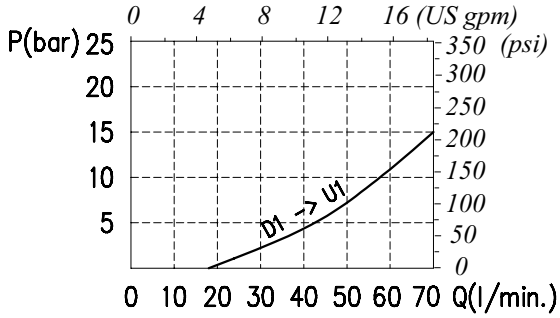




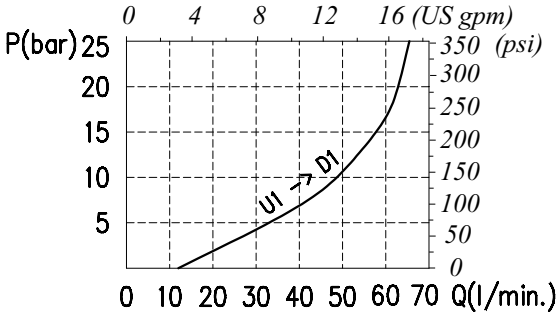
D1–U1	P
G 1/2	G 1/4

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP 12 / □ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

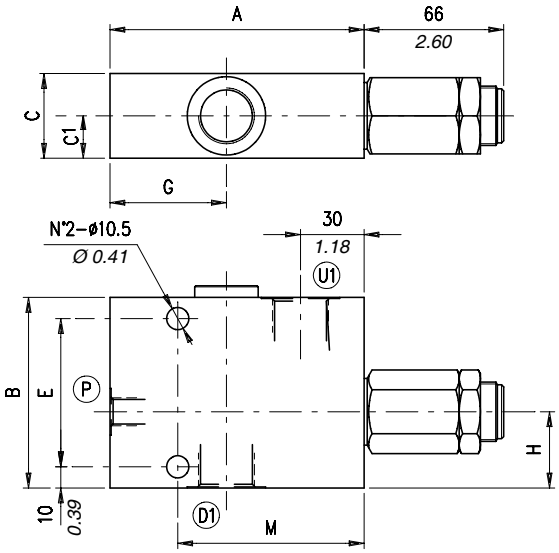
Check valve seat

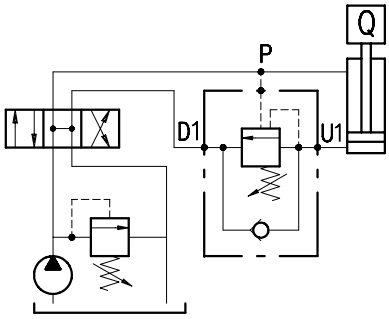
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



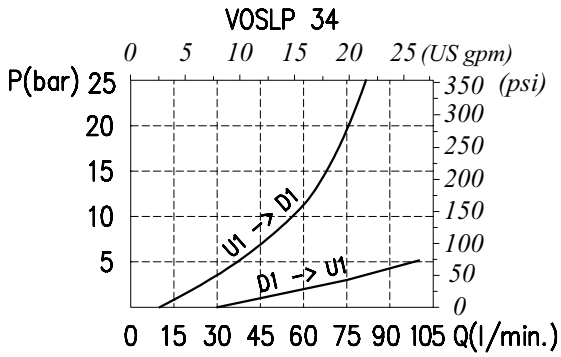


VOSLP	A*	B*	C*	C1*	E*	G*	H*	M*	D1–U1	P
34	120 - *4.72*	90 - *3.54*	40 - *1.57*	20 - *0.78*	70 - *2.75*	55 - *2.16*	36 - *1.42*	88 - *3.46*	G 3/4	G 1/4
100	140 - *5.51*	100 - *3.94*	60 - *2.36*	30 - *0.59*	80 - *3.15*	64 - *2.52*	37 - *1.46*	110 - *4.33*	G 1"	G 1/4

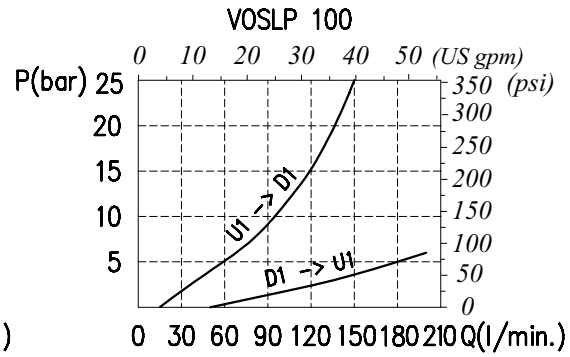
* Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

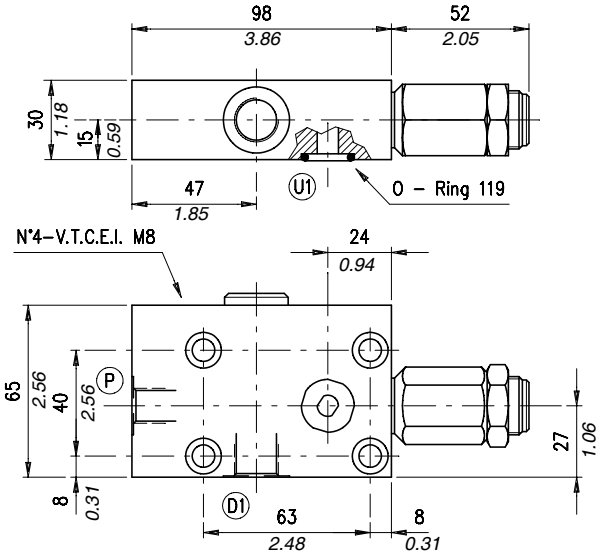


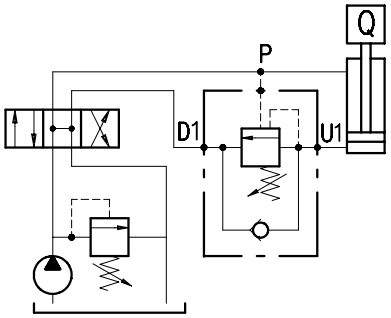
Order code

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

Dimensions and hydraulic circuit



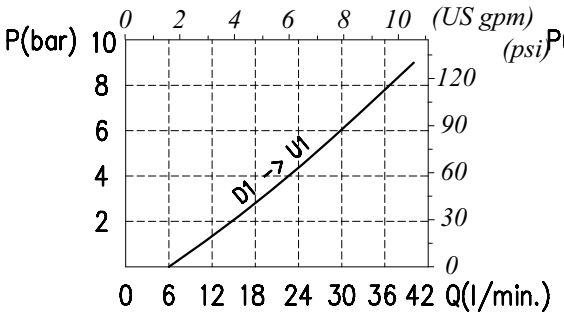


D1	U1*	P
G 3/8	ø8 - *0.31*	G 1/4

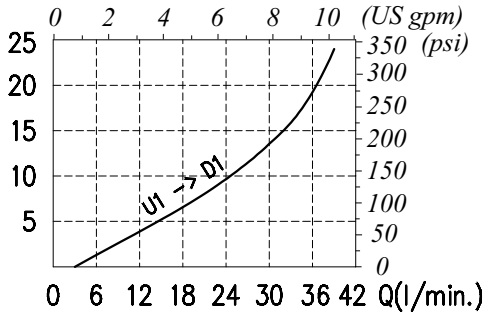
*Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

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

Pressure settings

TS) 5÷210 bar *(72,5÷3050psi)*
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

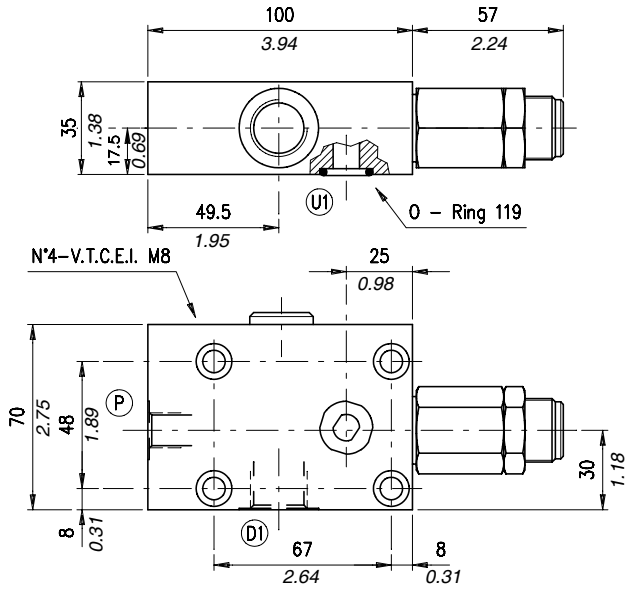
Check valve seat

_ See body
VRR) Hardened steel

Body material

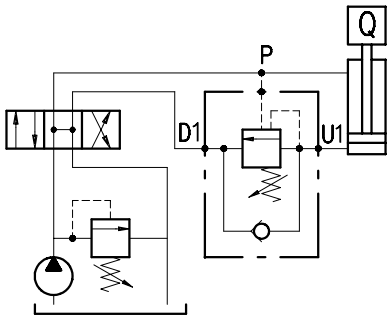
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



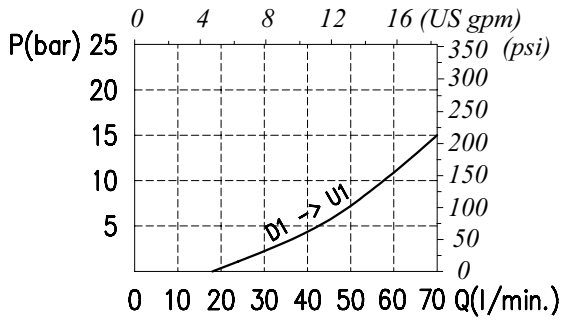
D1	U1*	P
G 1/2	ø10 - 0.39	G 1/4

* Dimensions are in mm - *in*

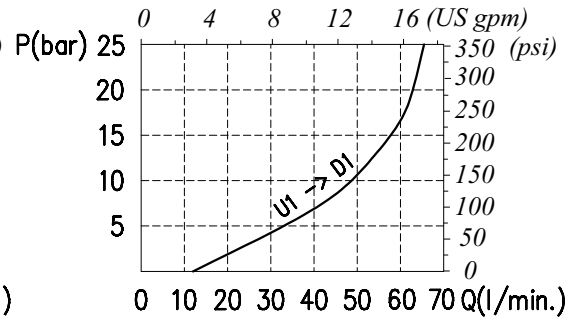


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /F 12 / □ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

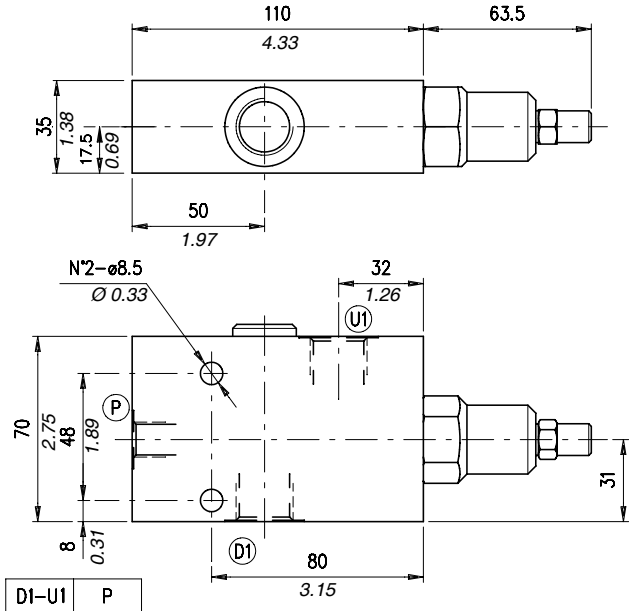
Check valve seat

_ See body
VR) Hardened steel

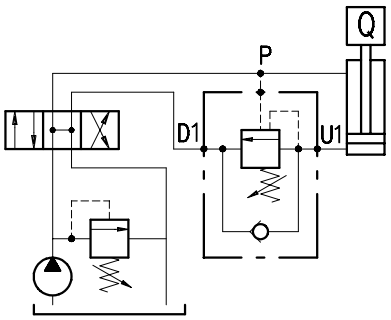
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

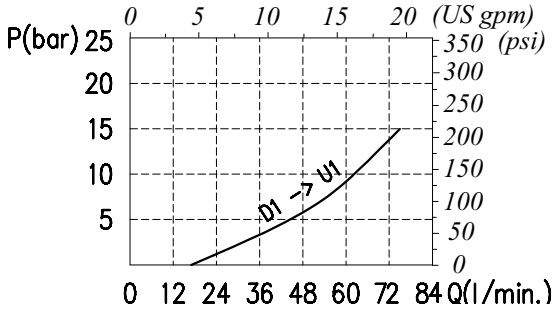


D1–U1	P
G 1/2	G 1/4

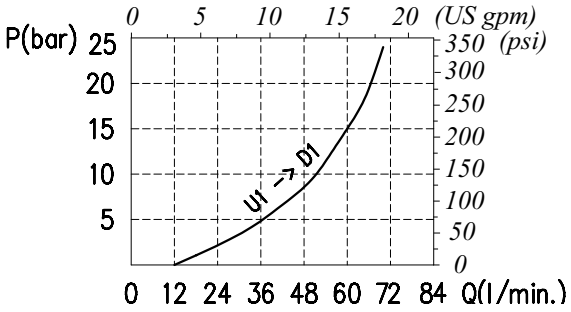


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /SC 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)

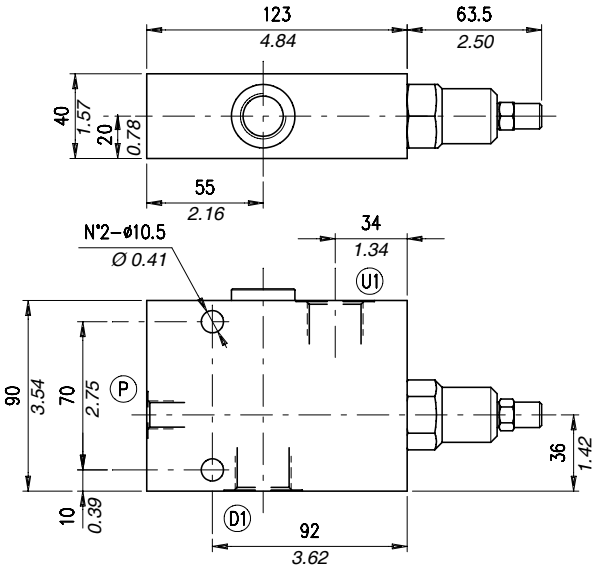
Check valve seat

_ See body
VRR) Hardened steel

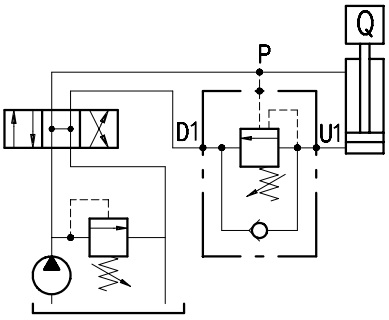
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

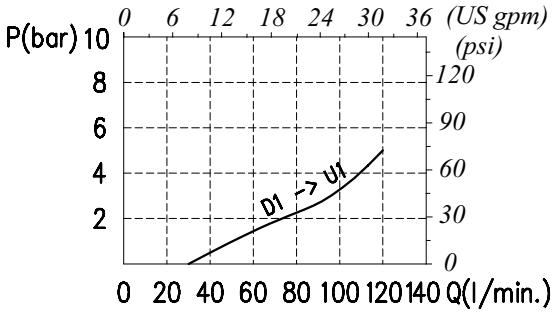


D1	U1	P
G 3/4	G 3/4	G 1/4

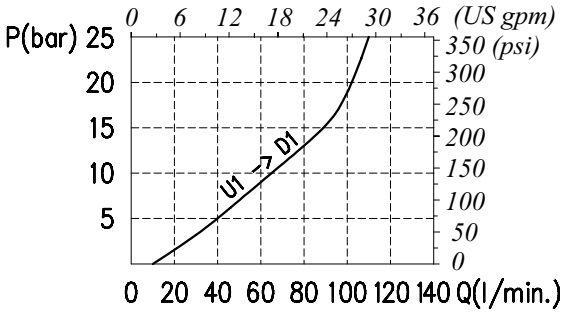


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /SC 34 / □□ . 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)

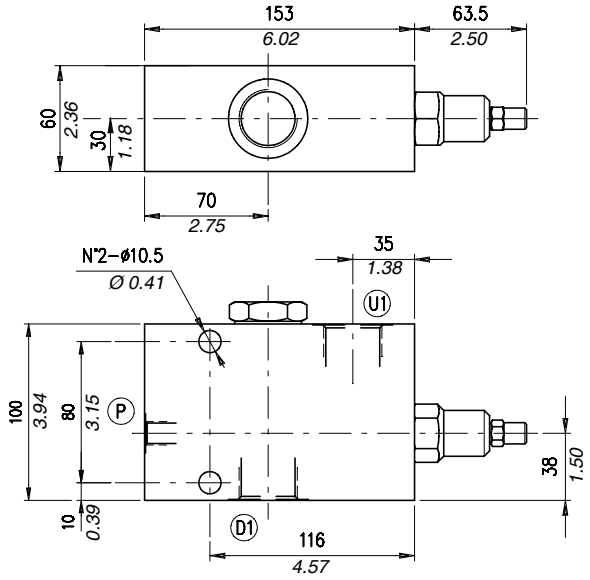
Check valve seat

_ See body
VRR) Hardened steel

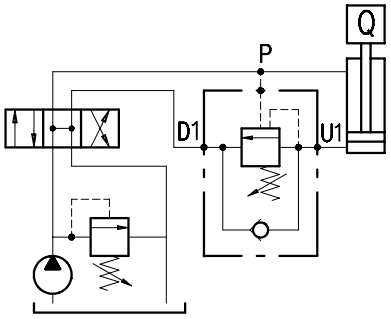
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

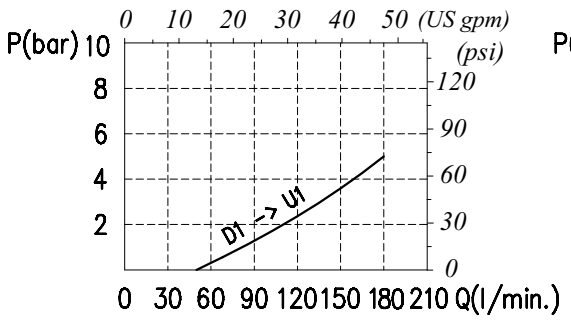


D1	U1	P
G 1	G 1	G 1/4

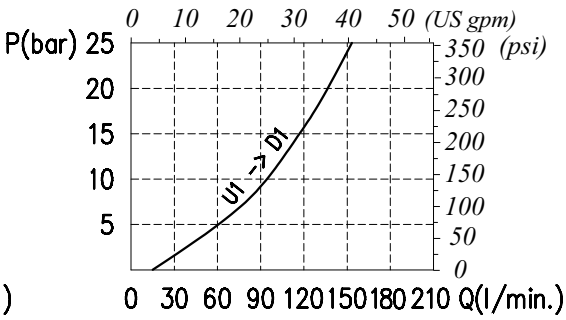


Rating diagrams

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)

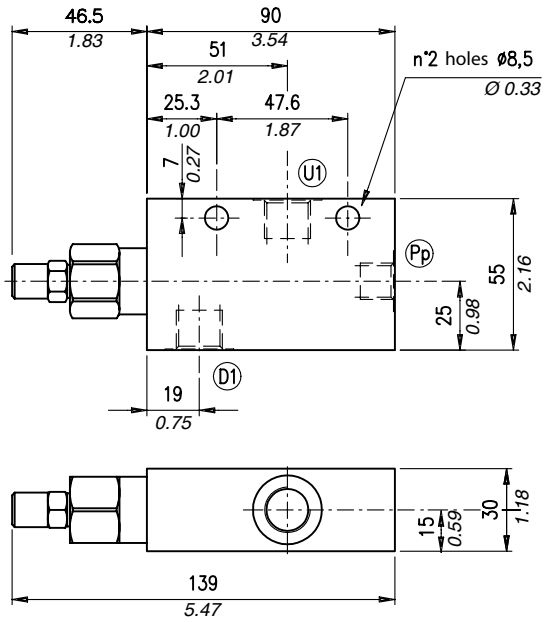
Check valve seat

_ See body
VRR) Hardened steel

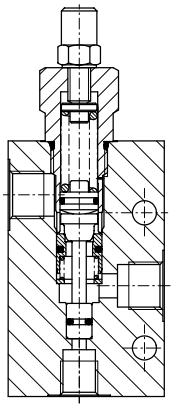
Body material

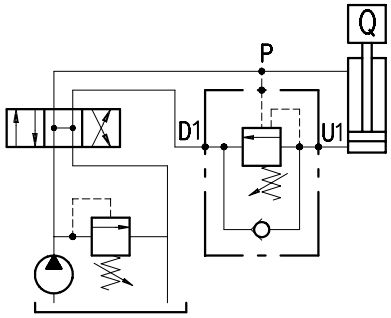
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



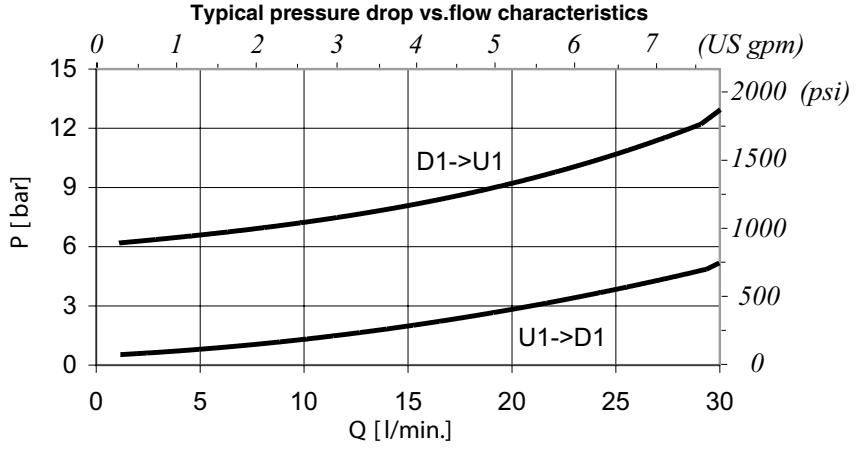
Section





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

Rating diagrams



Order code

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

Pressure settings

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

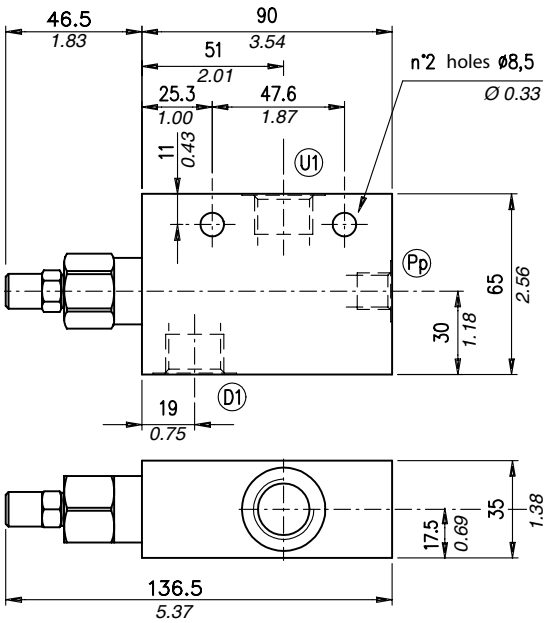
Pilot ratio

p4) 1:4
p11) 1:11

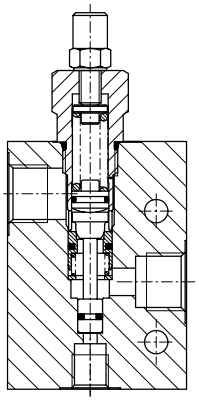
Body material

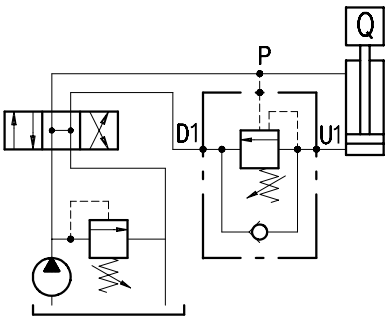
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



Section

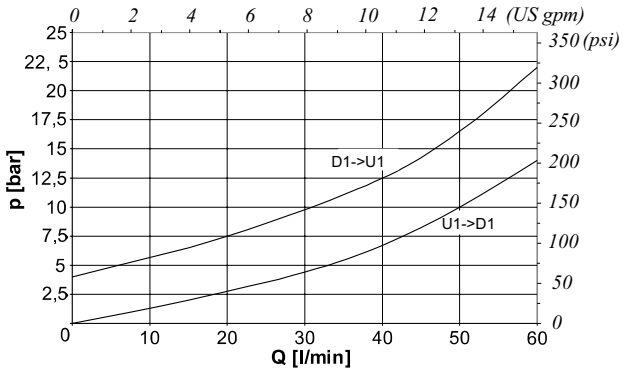




D1	U1	P
G 1/2	G 1/2	G 1/4

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)

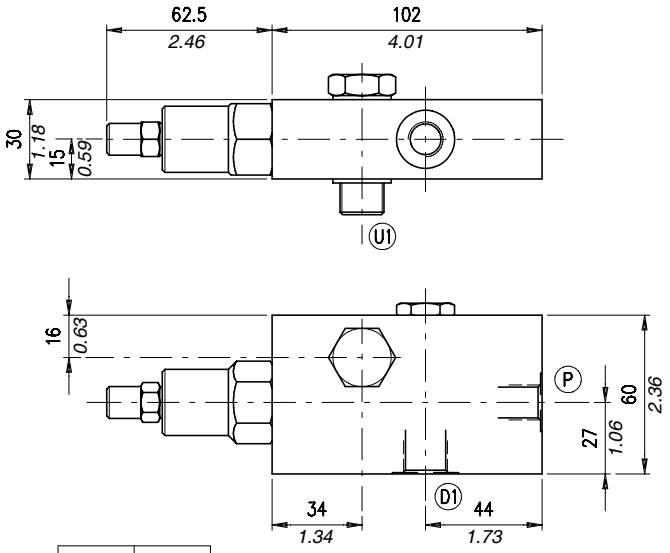
Pilot ratio

p4) 1:4
p11) 1:11

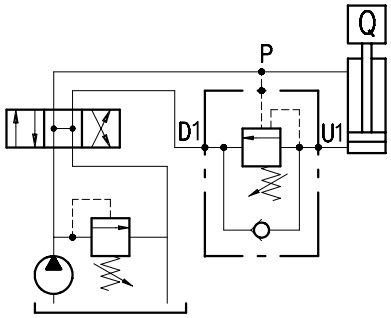
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

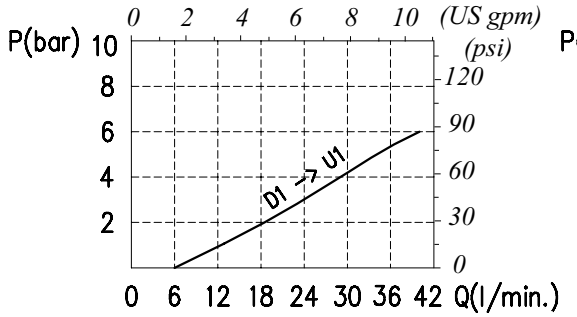


D1–U1	P
G 3/8	G 1/4

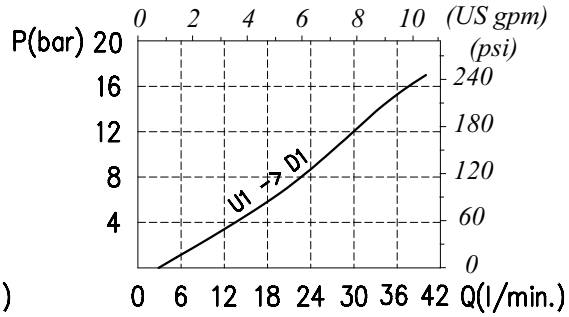


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /SC /RO 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)

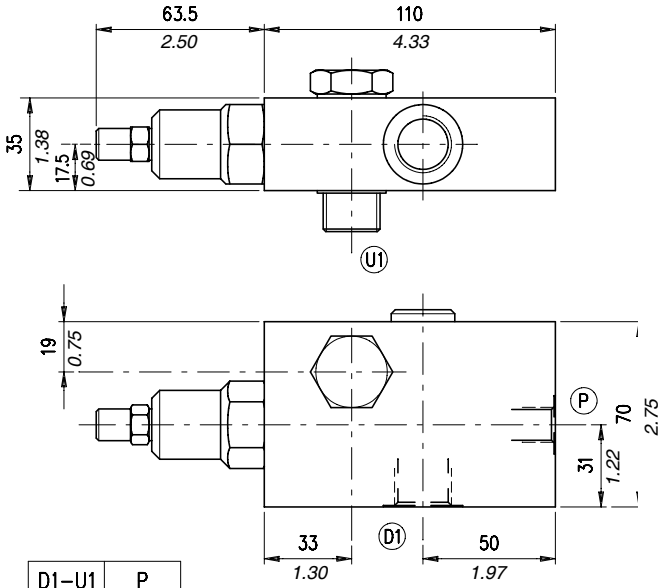
Check valve seat

_ See body
VRR) Hardened steel

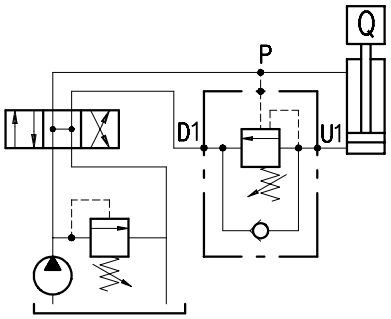
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

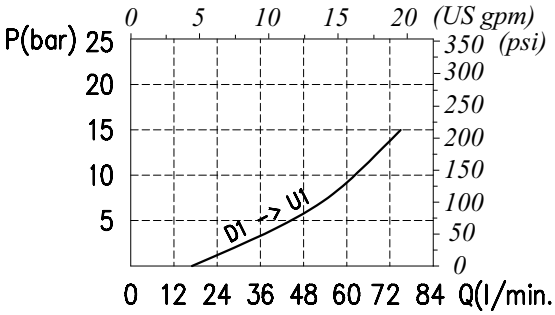


D1–U1	P
G 1/2	G 1/4

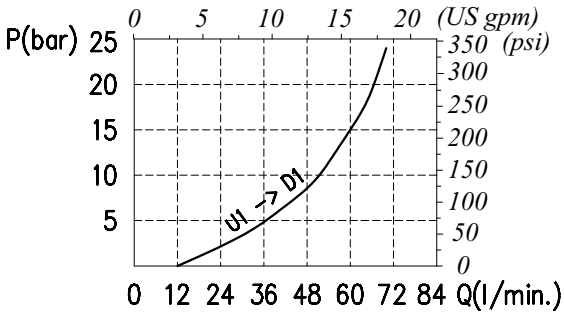


Rating diagrams

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)

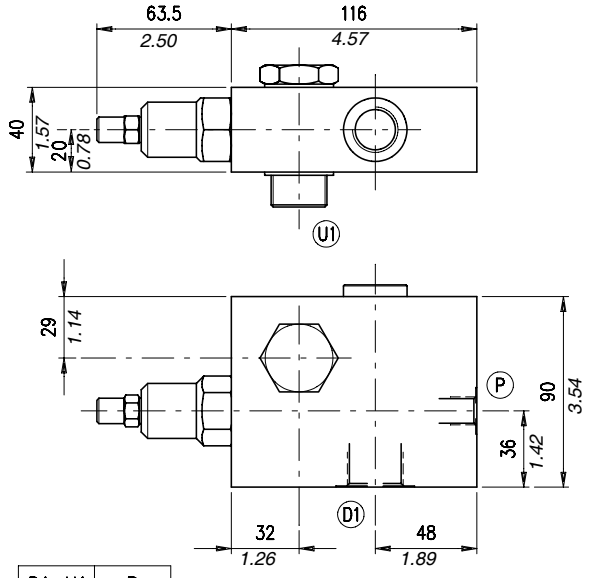
Check valve seat

_ See body
VRR) Hardened steel

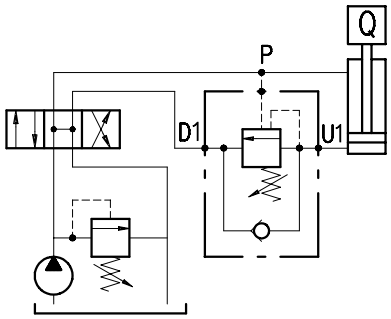
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

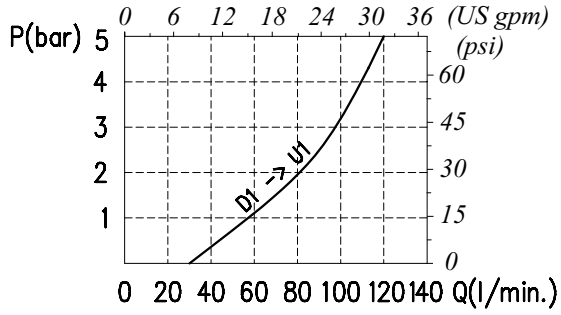


D1–U1	P
G 3/4	G 1/4

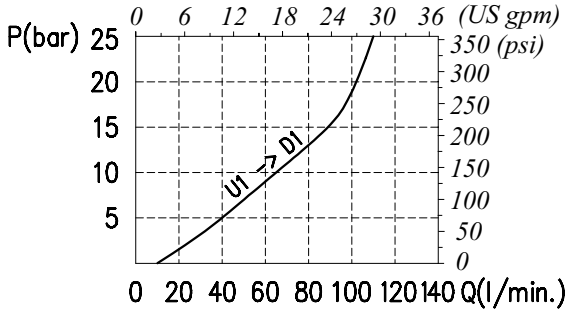


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /SC /RO 34 / □□ . 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)

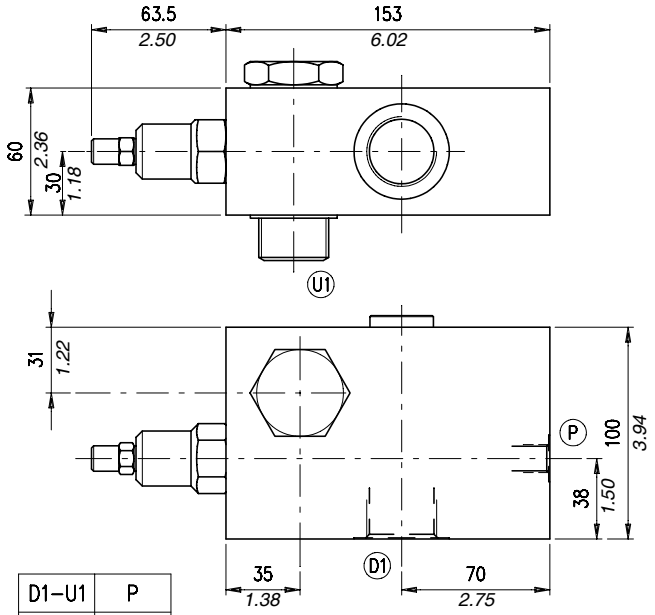
Check valve seat

_ See body
VRR) Hardened steel

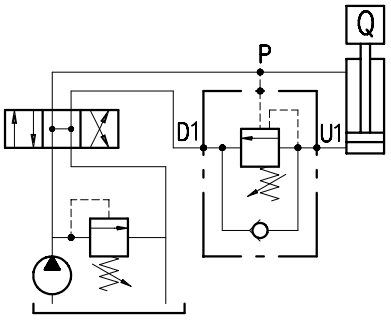
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

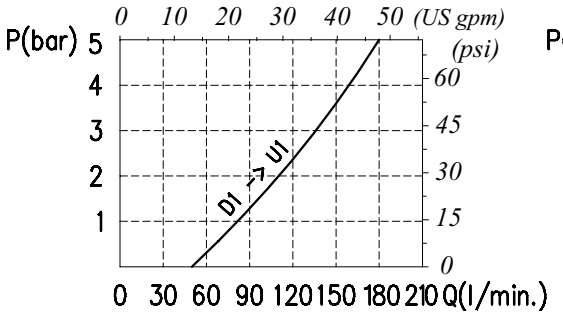


D1–U1	P
G 1	G 1/4

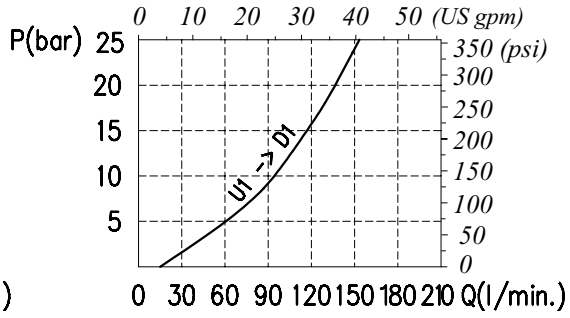


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

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

Pressure settings

TS) 5÷210 bar
TR) 50÷350 bar (Standard)
TG) 100÷700 bar

Pilot ratio

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

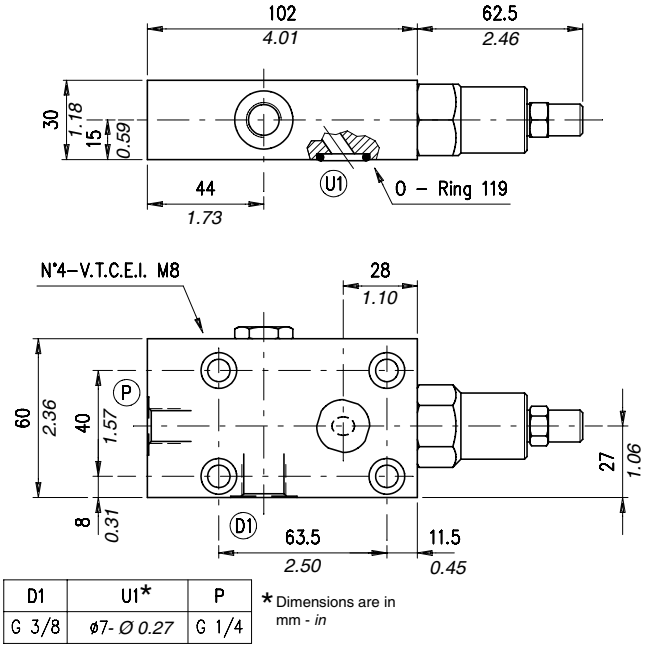
Check valve seat

_ See body
VRR) Hardened steel

Body material

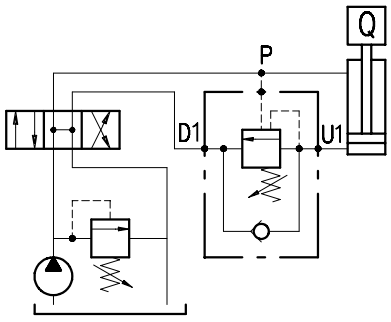
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



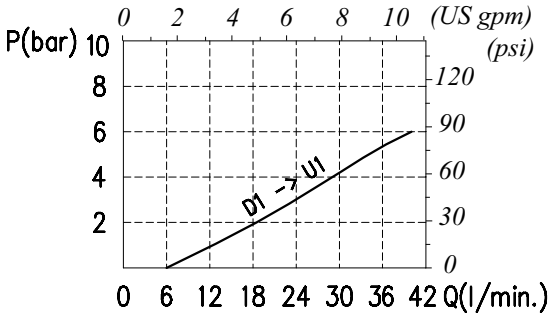
D1	U1*	P
G 3/8	ø7- Ø 0.27	G 1/4

* Dimensions are in mm - *in*

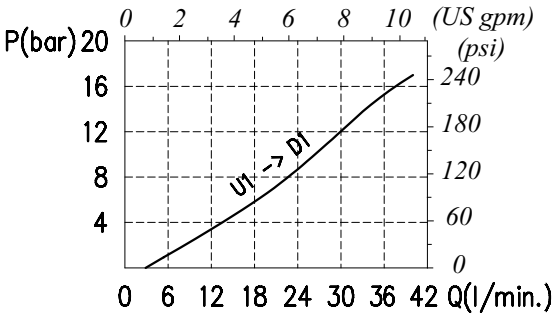


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /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)

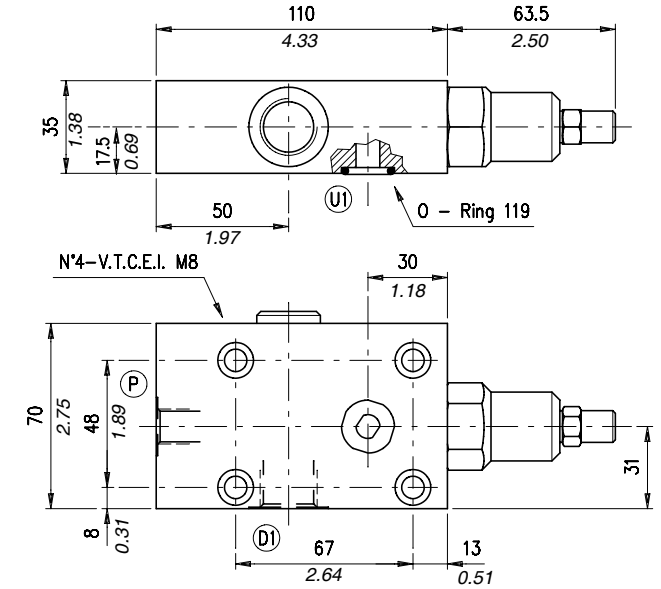
Check valve seat

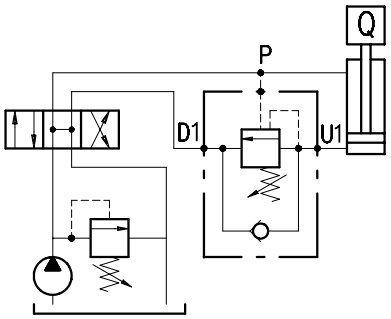
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



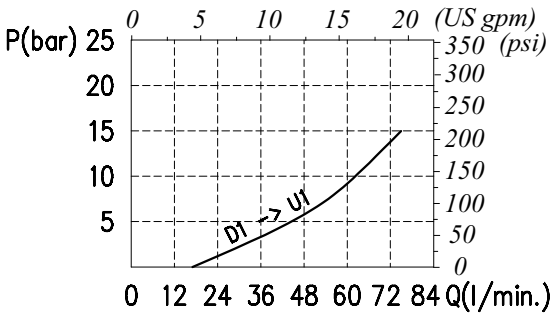


D1	U1*	P
G 1/2	ø9 - Ø 0.35	G 1/4

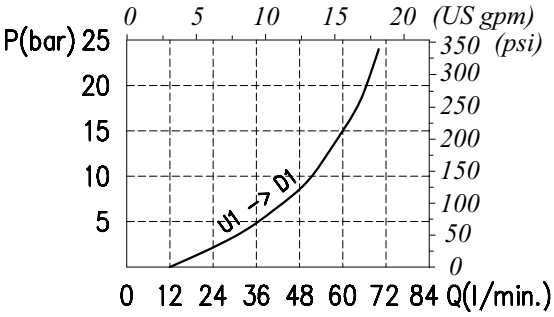
* Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

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

Pressure settings (bar)

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

Pilot ratio

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

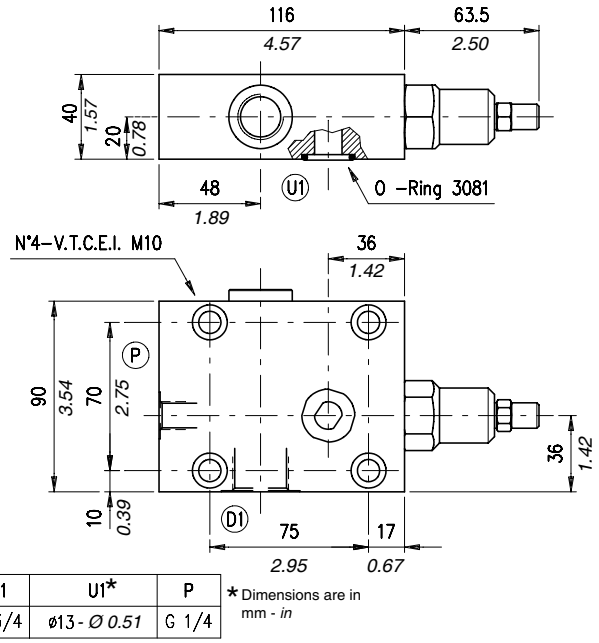
Check valve seat

_ See body
VRR) Hardened steel

Body material

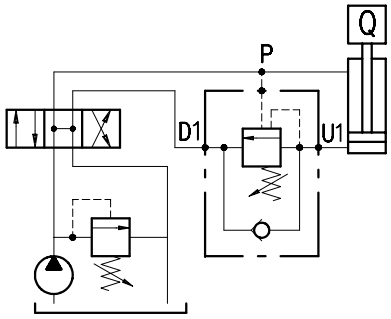
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



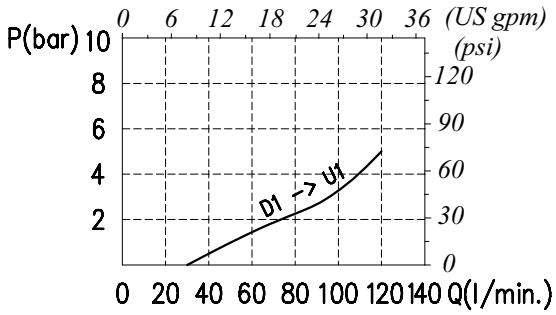
D1	U1*	P
G 3/4	ø13 - Ø 0.51	G 1/4

* Dimensions are in mm - *in*

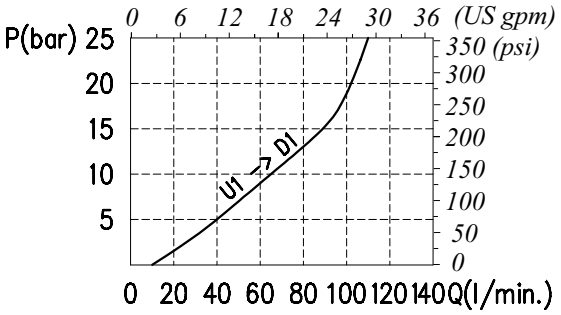


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /SC /F 34 / □□ . 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)

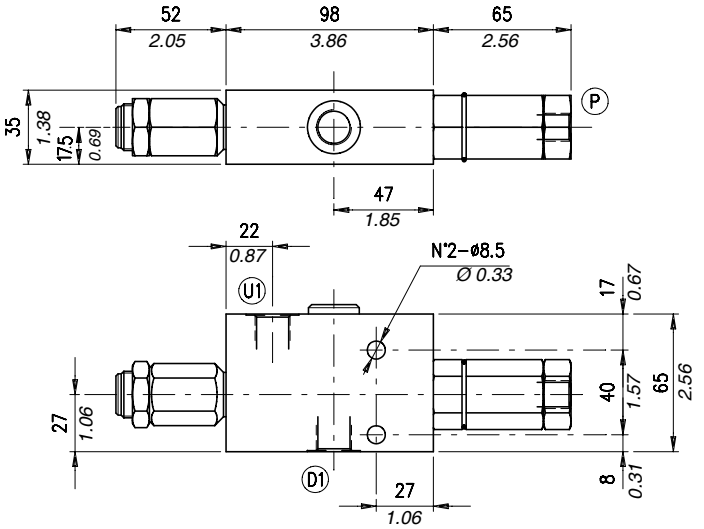
Check valve seat

_See body
VRR) Hardened steel

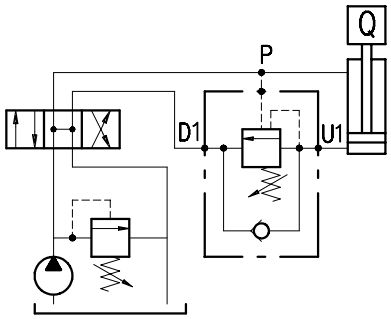
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

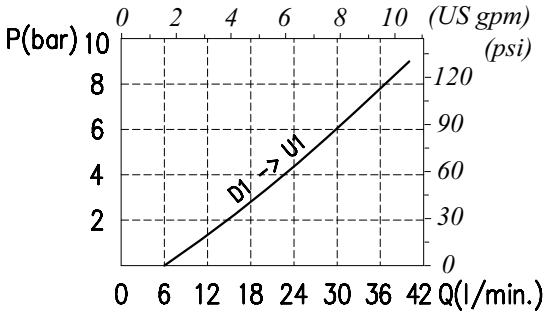


D1–U1	P
G 3/8	G 1/4

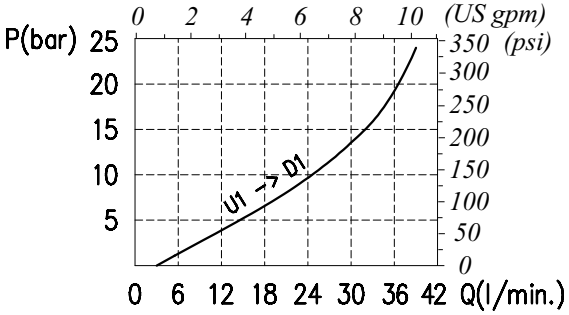


Rating diagrams

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

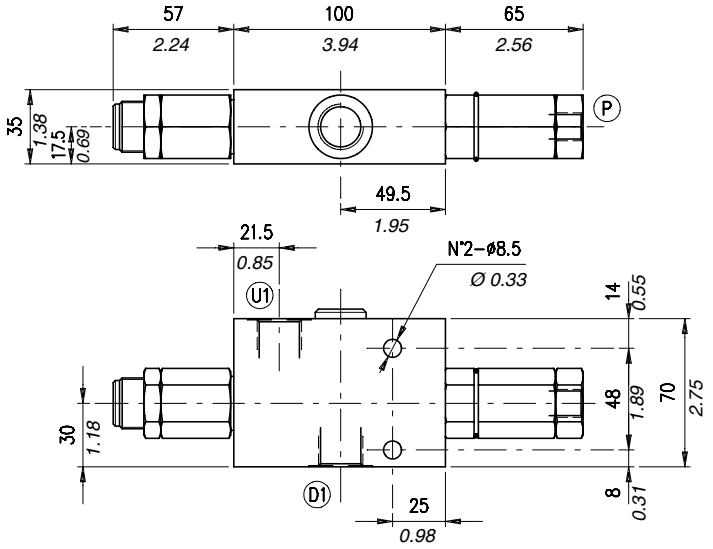
Check valve seat

_ See body
VRR) Hardened steel

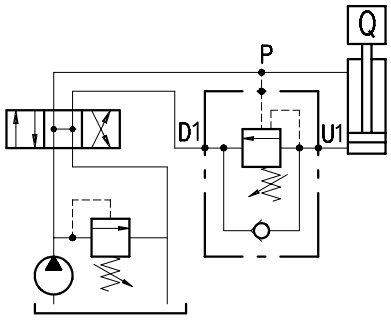
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

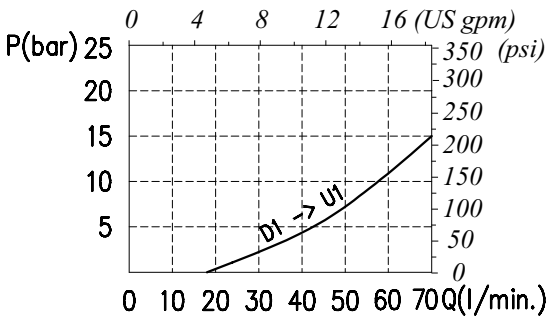


D1–U1	P
G 1/2	G 1/4

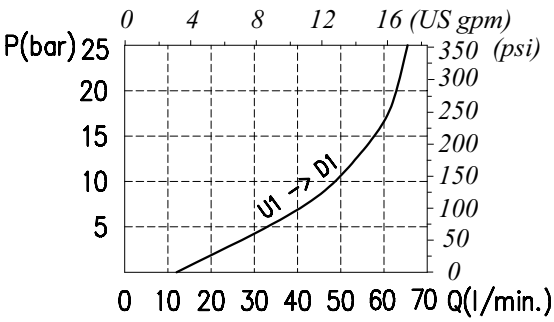


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /PS 12 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper
PG) With damper

Check valve seat

_ See body
VRR) Hardened steel

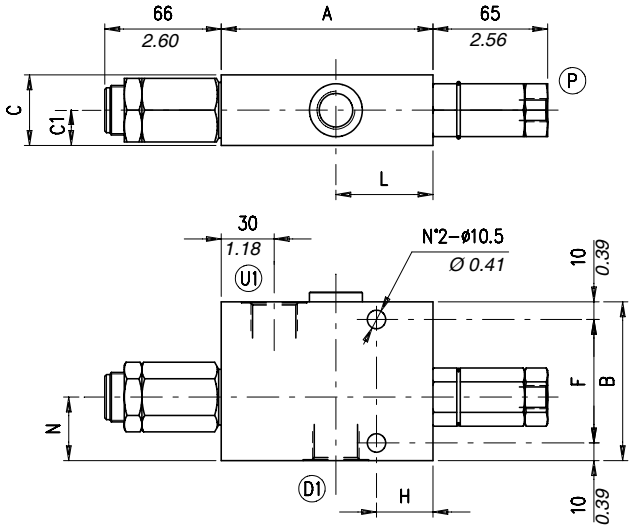
Body material

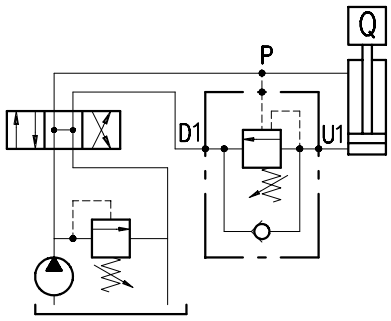
_ Aluminium
ac Steel

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



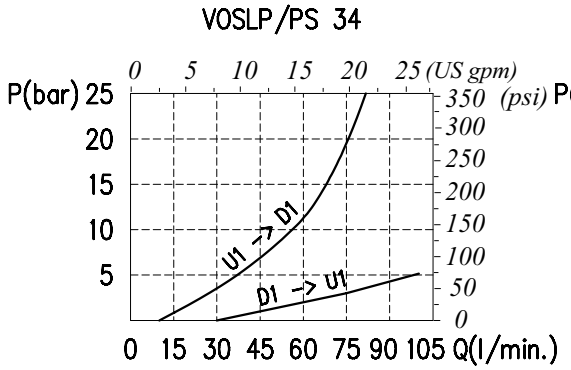


VOSLP/PS	D1-U1	P	A*	B*	C*	C1*	F*	H*	L*	N*
34	G 3/4	G 1/4	120 - *4.72*	90 - *3.54*	40 - *1.57*	20 - *0.78*	70 - *2.75*	32 - *1.26*	55 - *2.16*	36 - *1.42*
100	G 1	G 1/4	140 - *5.51*	100- *3.94*	60 - *2.36*	30 - *1.18*	80 - *3.15*	30 - *1.18*	64 - *2.52*	37 - *1.46*

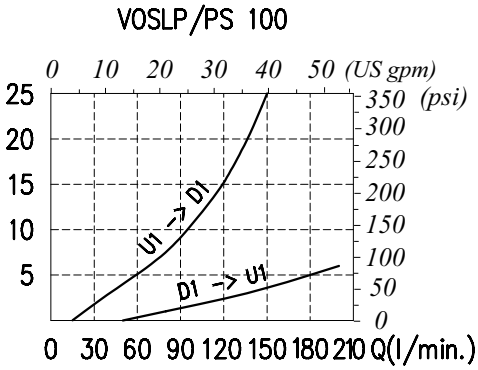
* Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

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

Port size

34) G 3/4
100) G 1

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)

Type of pilot

_ Without damper
PG) With damper

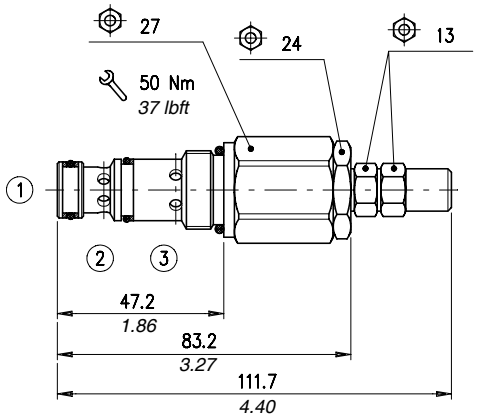
Check valve seat

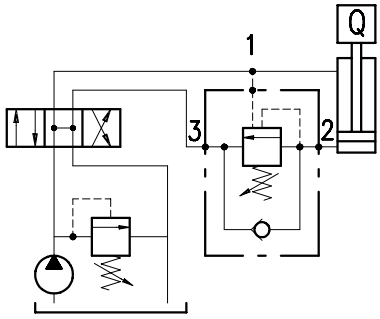
_ See body
VRR) Hardened steel

Body material

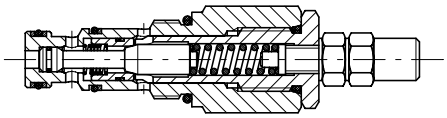
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



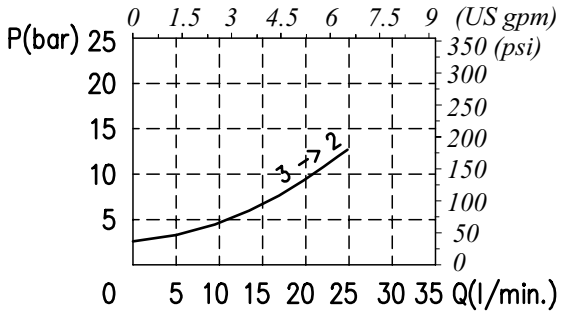


Section

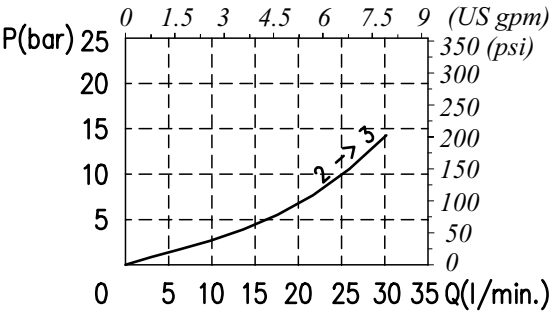


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

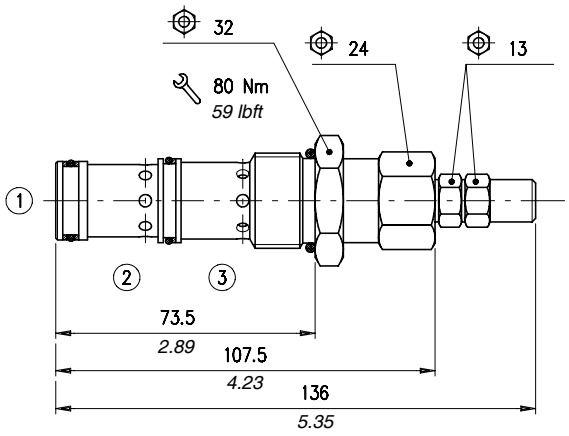


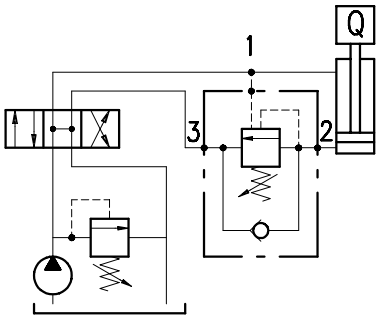
Order code

CA10A / □ -□ -□ -□

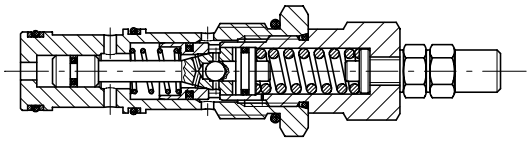
Pilot ratio	Adjustments	Pressure settings	Seals
4) 1:4	**S** **W**	**1)** 50÷220 bar *(725÷3200 psi)* **2)** 180÷350 bar *(2600÷5100 psi)* **3)** 300÷700 bar *(4350÷10150 psi)*	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



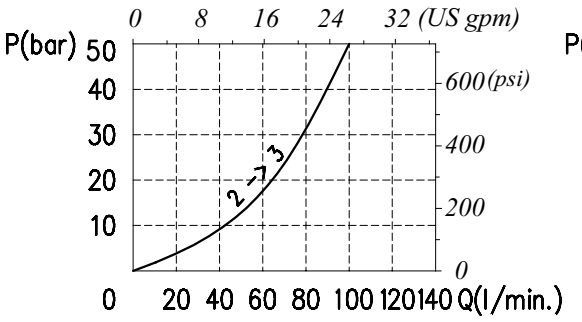


Section

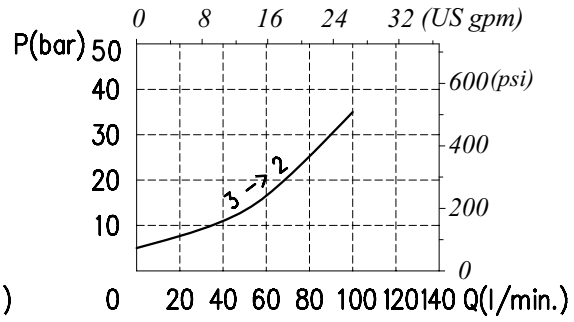


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

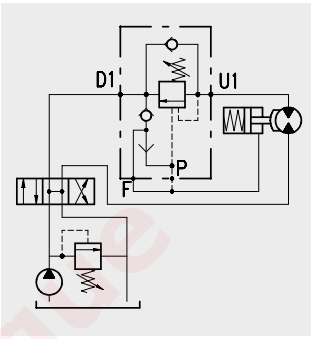


Order code

CA12A / ☐ -☐ -☐ -☐

Pilot ratio	Adjustments	Pressure settings	Seals
4) 1:4	**S**		**B)** Buna
	W	**1)** 50÷220 bar *(725÷3200 psi)*	**V)** Viton
		2) 180÷350 bar *(2600÷5100 psi)*	
		3) 300÷700 bar *(4350÷10150 psi)*	

Operation



The oil flow is allowed from D1 to U1 and is stopped in the opposite way (from U1 to D1) up to the spring setting value. Free oil flow from U1 to D1 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 is 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 D1, the setting value of valve poppet (1:1 ratio) will increase and the pilot pressure be negatively affected (1:1 ratio).
Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve
application may require a PG version. Please contact our technical service for action. Use of a special shuttle valve allows for release of hydraulic parking brakes.

Performance

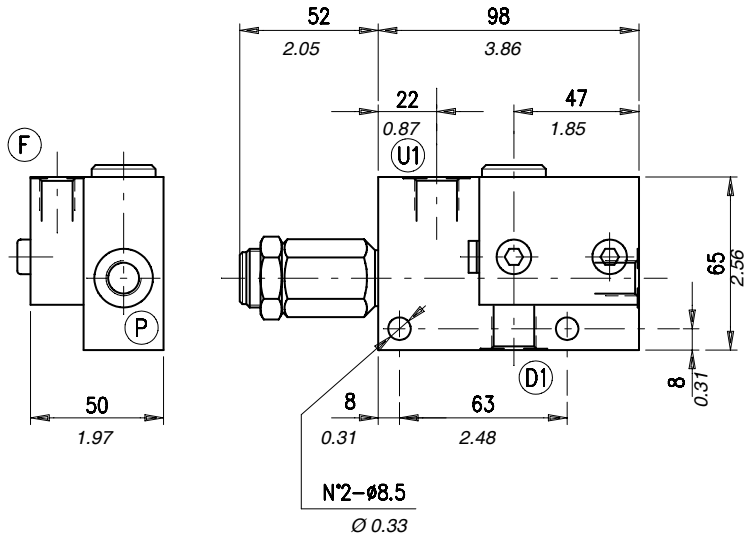
Body Valves

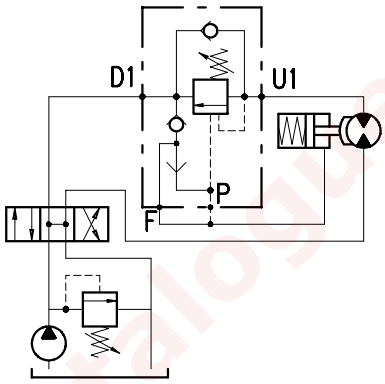
Type	Max. flow		Max. pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSLP/A 38*	35	*9.2*	350	*5100*	5-210 bar-*72.5÷3050 psi* (test setting: 170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar-*725÷5100 psi* (test setting 280 bar-*4100 psi* at 5 l/min.-*1.3 US gpm*) 100÷700 bar-*1450÷10150 psi* (test setting 350 bar-*5100 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min *-15x10⁻³ in³/min* (5 drops) at 210 bar-*3050 psi* and 80% of the spring setting value with oil viscosity of 46 cSt.	1:3 (standard type) 1:4 (on request only)	1,16	*2.56*
								aluminium	
								1.87	*4.12*
								steel	
VOSLP/A 12**	70	*18*					1:3 (standard type) 1:7 (on request only)	1,37	*3.02*
								aluminium	
								2.26	*4.98*
								steel	
VOSLP/A 34***	100	*26*						2,30	*5.07*
								aluminium	
								3.80	*8.38*
								steel	
VOSLP/A 100***	180	*47*						6,70	*14.77*
								aluminium	
								9.89	*21.80*
								steel	

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

see SAE cartridges catalogue

Dimensions and hydraulic circuit

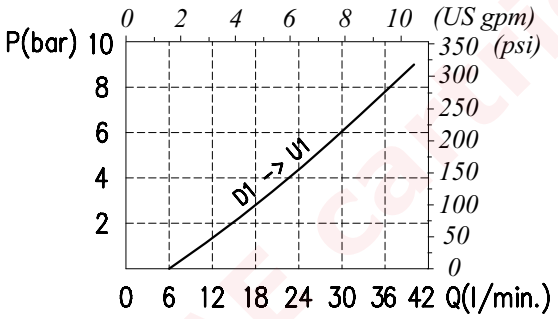




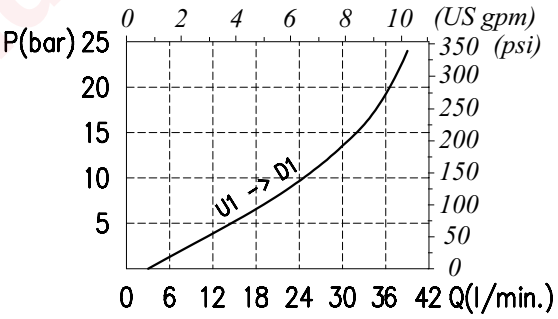
D1–U1	F–P
G 3/8	G 1/4

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /A 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) 1:2,8 (Standard)
p4) 1:4

Type of pilot

_ Without damper (standard)
PG) With damper

Check valve seat

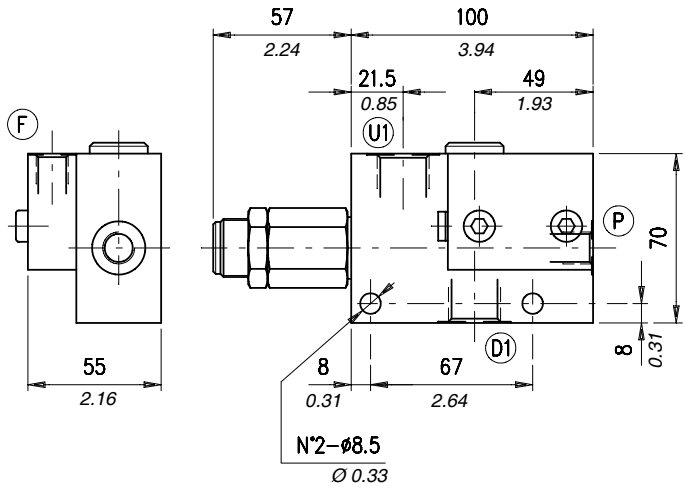
_ See body
VRR) Hardened steel

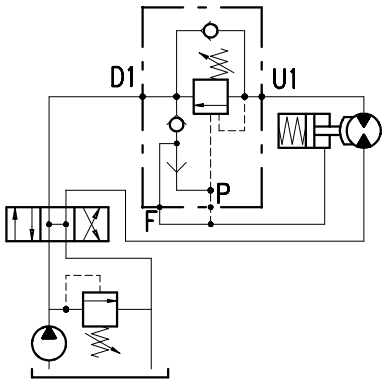
Body material

_ Aluminium
ac Steel

see SAE catalogue

Dimensions and hydraulic circuit

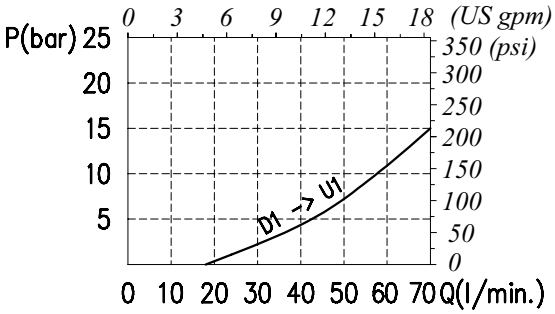




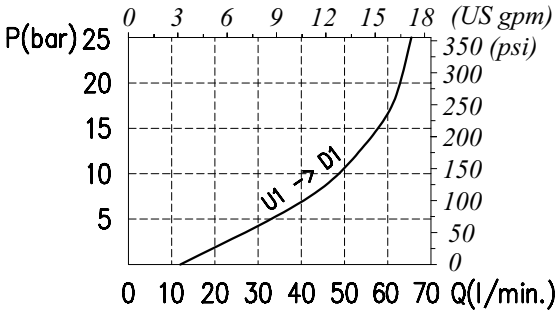
D1–U1	F–P
G 1/2	G 1/4

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /A 12 / □□ . 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 (Standard)
p4) 1:4

Type of pilot

_ Without damper (Standard)
PG) With damper

Check valve seat

_ See body
VRR) Hardened steel

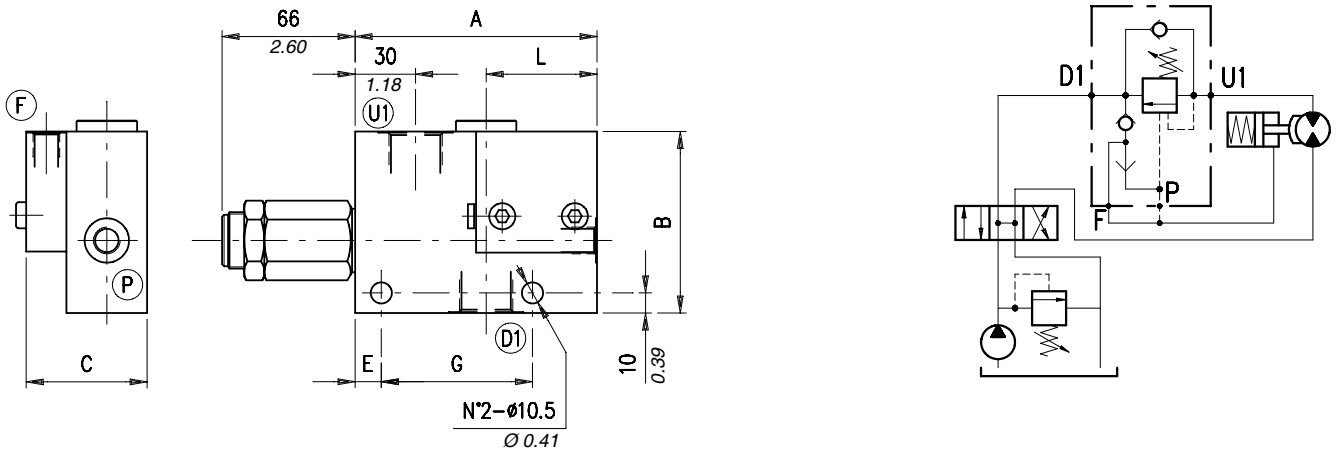
Body material

_ Aluminium
ac Steel

Type VOSLP/A 34 (100)

Single overcenter valve, external pilot operated type, line mounting, cartridge construction.Equipped with connection for hydraulic brake release

Dimensions and hydraulic circuit

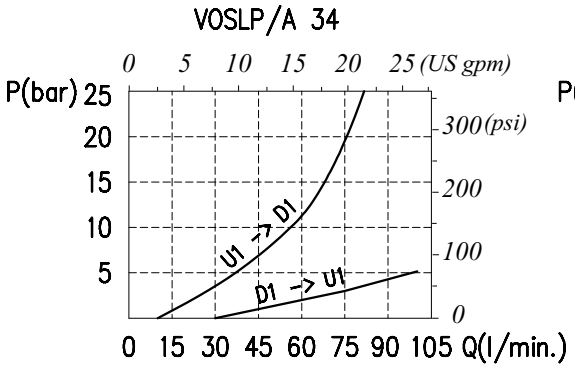


VOSLP/A	D1–U1	F–P	A*	B*	C*	E*	G*	L*
34	G 3/4	G 1/4	120 - *4.72*	90 - *3.54*	60 - *2.36*	13 - *0.51*	75 - *2.95*	55 - *2.16*
100	G 1	G 1/4	140 - *5.51*	100 - *3.94*	80 - *3.15*	10 - *0.39*	100 - *3.94*	64 - *2.52*

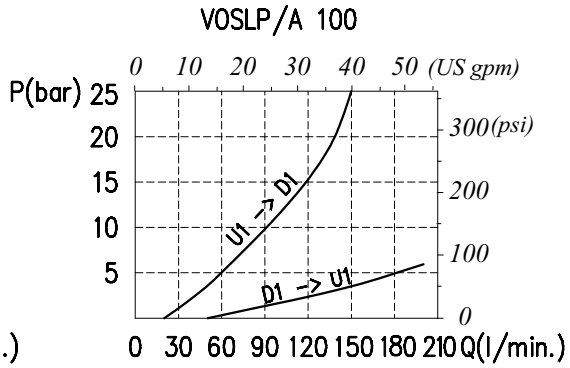
*Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

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

Port size

34) G 3/4
100) G 1

Pressure settings

TS) 5÷210 bar *(72.5÷3050 psi)*
TR) 50÷350 bar *(725÷5100 psi)*
TG) 100÷700 bar *(1450÷10150 psi)*

Pilot ratio

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

Type of pilot

_ Without damper (Standard)
PG) With damper

Check valve seat

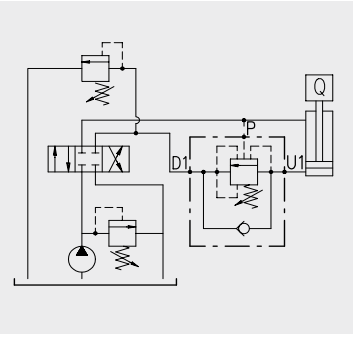
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Operation

The oil flow is allowed from D1 to U1 and is stopped in the opposite way (from U1 to D1) up to the spring setting value. Free oil flow from U1 to D1 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 is 130 bar *(430 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*].
Counterpressure in D1 may negatively affect the pilot pressure (1:1 ratio).



Performance

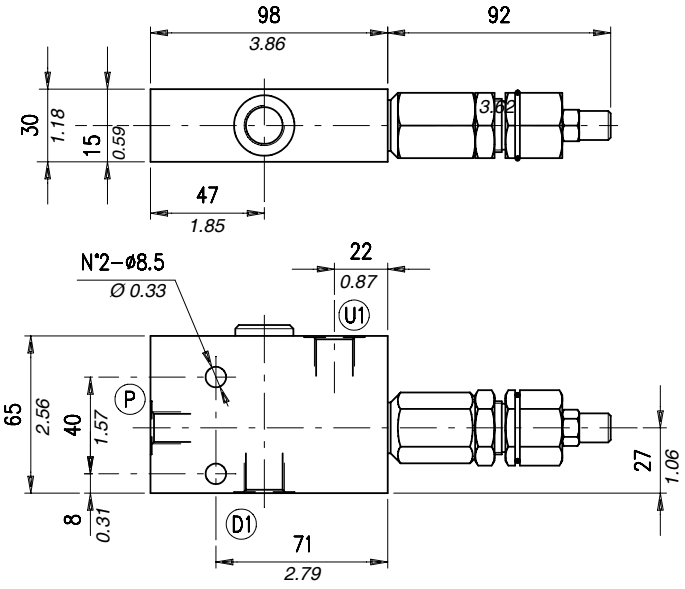
Body Valves

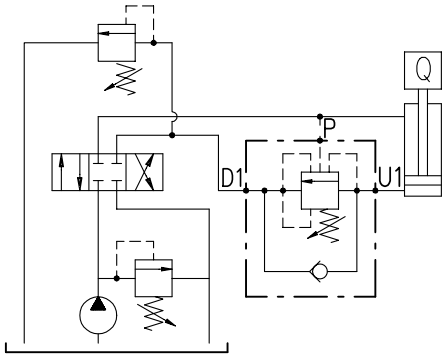
Type	Max. flow		Max. pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSLP/CC 38	35	*9.2*	350	*5100*	5-210 bar-*72.5÷725 psi* (test setting: 170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar -*725÷5100 psi* (test setting 280 bar-*4100 psi* at 5 l/min.-*1.3 US gpm*) 100÷700 bar -*1450÷10150 psi* (test setting 350 bar-*5100 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min -*15x10⁻³ in³/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)	0,75	*1.65*
								aluminium	
								1.49	*3.28*
								steel	
VOSLP/CC 12	70	*18*					1:7 (standard type) 1:3 (on request only)	0,96	*2.12*
								aluminium	
								1.86	*4.10*
								steel	
VOSLP/CC 34	100	*26*						1,75	*3.86*
								aluminium	
								5.96	*13.14*
								steel	
VOSLP/SC/CC 38	40	*10*					1:4 (standard type) 1:3 (on request only)	0,70	*1.54*
								aluminium	
								1.43	*3.15*
								steel	
VOSLP/SC/CC 12	75	*19*					1:7 (standard type) 1:3 (on request only)	1,00	*2.20*
								aluminium	
								2.08	*4.58*
								steel	
VOSLP/SC/CC 34	120	*32*						1,40	*3.09*
								aluminium	
								3.20	*7.05*
								steel	
VOSLP/SC/CC 100	180	*48*						2,78	*6.13*
								aluminium	
								6.60	*14.55*
								steel	

Cartridges

Type	Maximum flow		Maximum pressure		Application range with standard springs*	Oil leakage from 2 to 3	Pilot ratio	Weight		Cavities and tools
	l/min	*US gpm*	bar	*psi*				kg	*lb*	
CC10A	30	*7.9*	350	*5100*	5-220 bar-*72.5÷3200 psi* (test setting 180 bar-*2600 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	0,28	*0.62*	SAE 10-3 page 171
CC12A	60	*16*			180-350 bar-*2600÷5100 psi* (test setting 250 bar-*3600 psi* at 5 l/min.-*1.3 US gpm*)			0,38	*0.84*	SAE 12-3 page 171
CC16A	90	*24*			300-700 bar-*4350÷10150 psi* (test setting 350 bar-*5100 psi* at 5 l/min.-*1.3 US gpm*)			0,72	*1.59*	SAE 16-3 page 171

Dimensions and hydraulic circuit

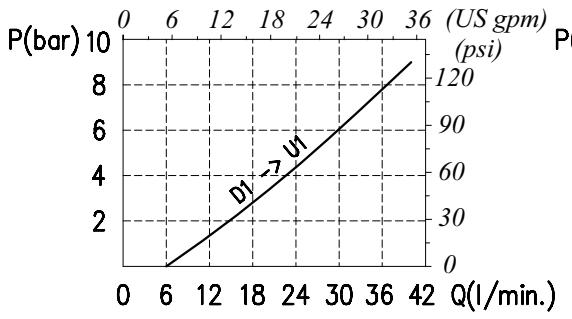




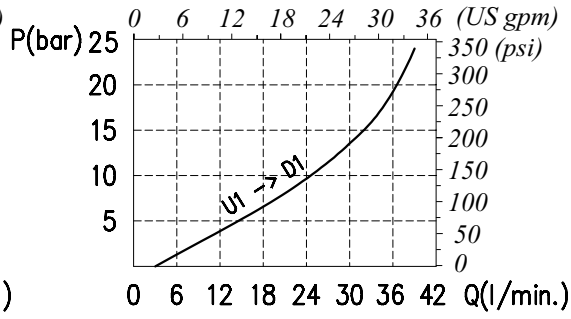
D1–U1	P
G 3/8	G 1/4

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /CC 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

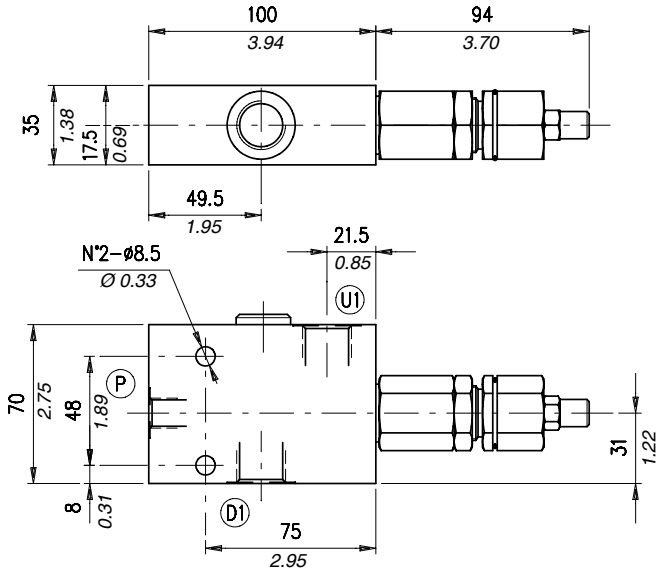
Check valve seat

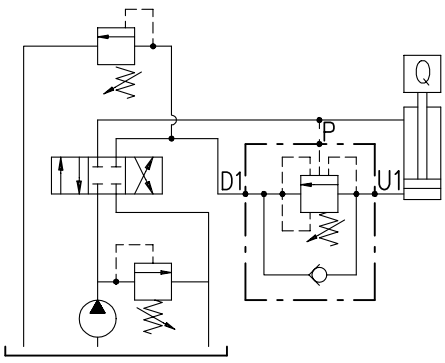
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

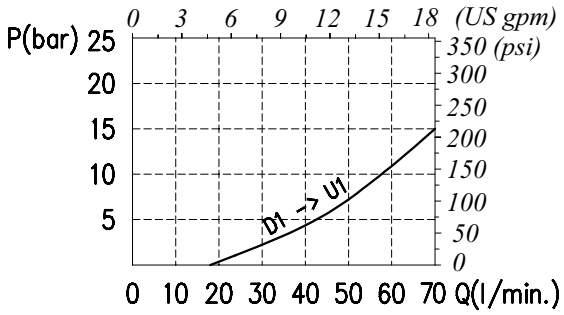




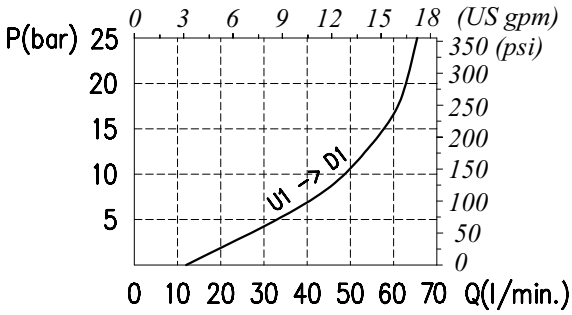
D1-U1	P
G 1/2	G 1/4

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /CC 12 / □ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

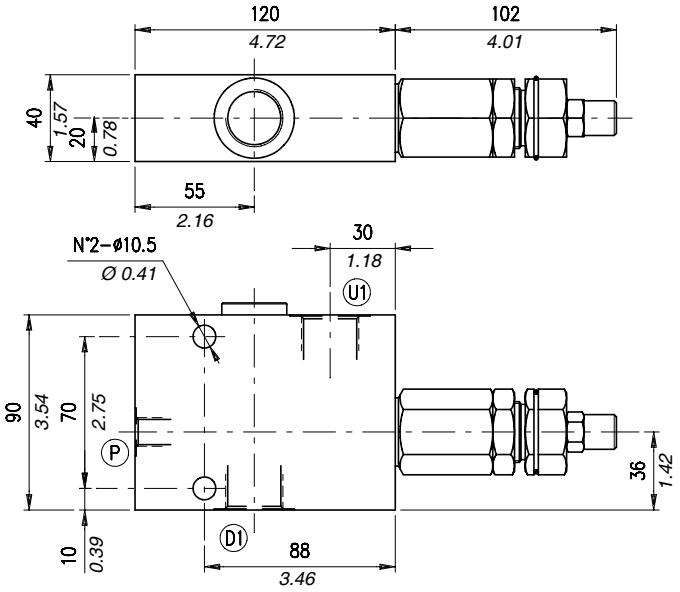
Check valve seat

_ See body
VRR) Hardened steel

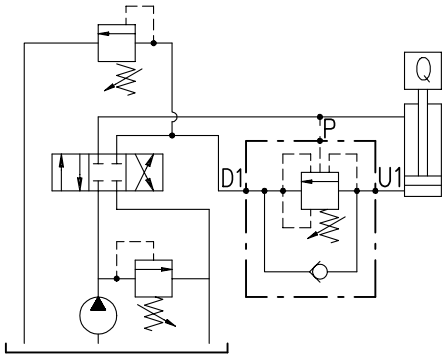
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

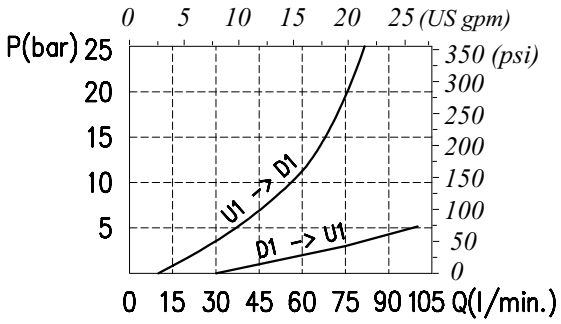


D1–U1	P
G 3/4	G 1/4



Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VOSLP /CC 34 / □ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

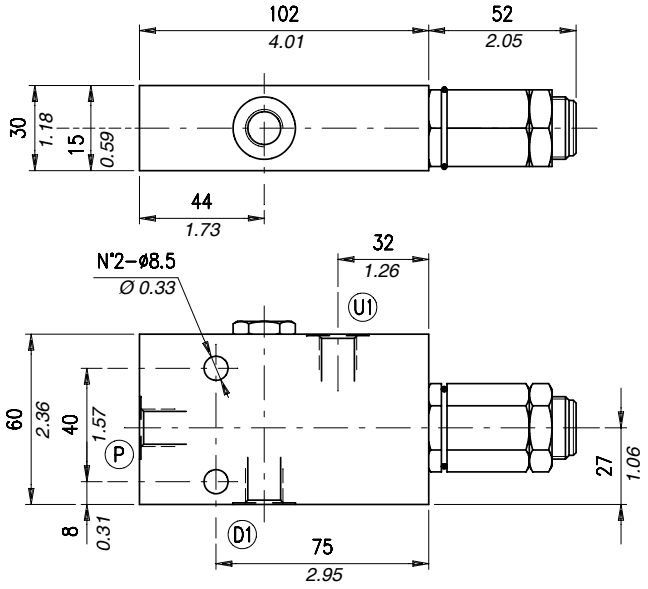
Check valve seat

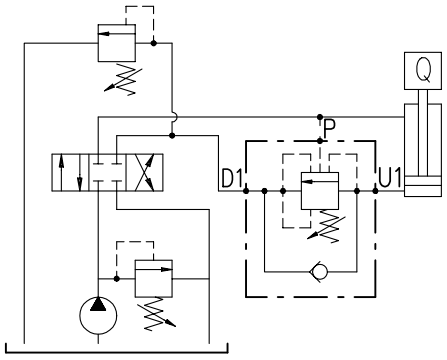
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

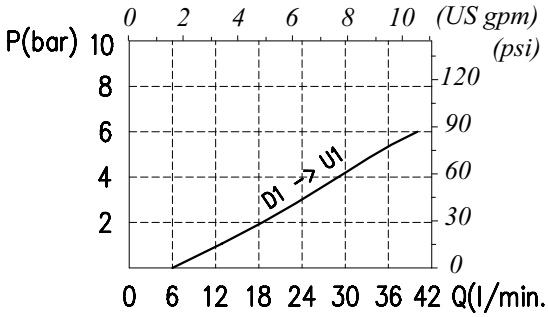




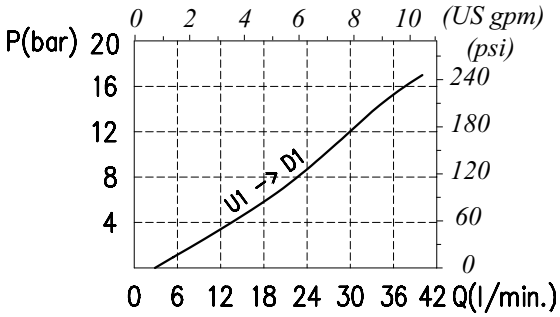
D1–U1	P
G 3/8	G 1/4

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /SC /CC 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)

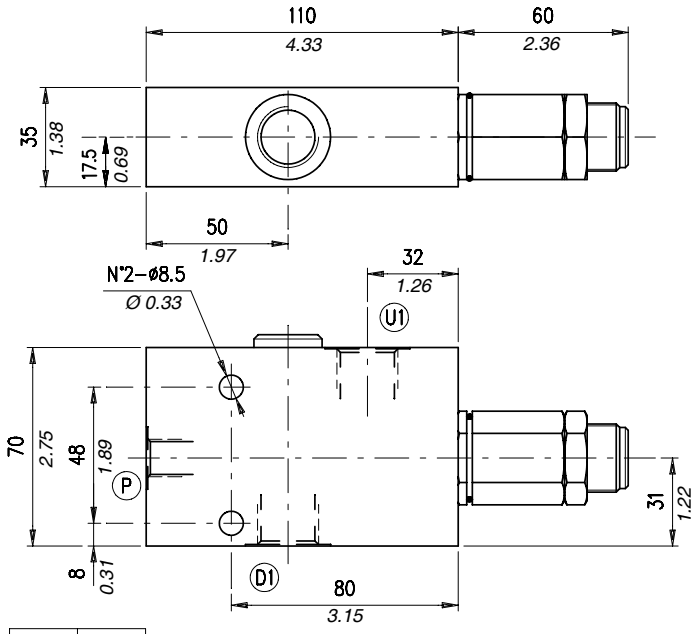
Check valve seat

_ See body
VRR) Hardened steel

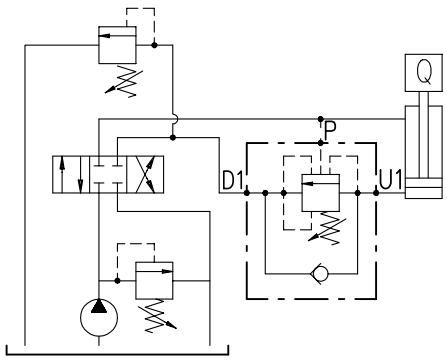
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

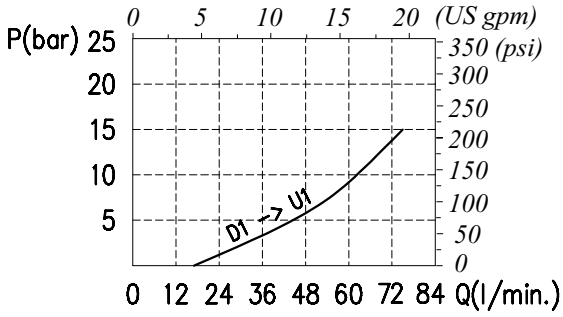


D1–U1	P
G 1/2	G 1/4

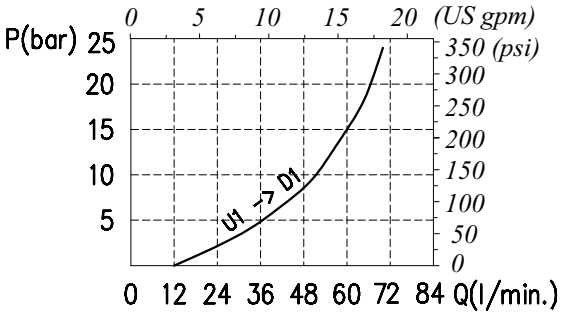


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /SC /CC 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)

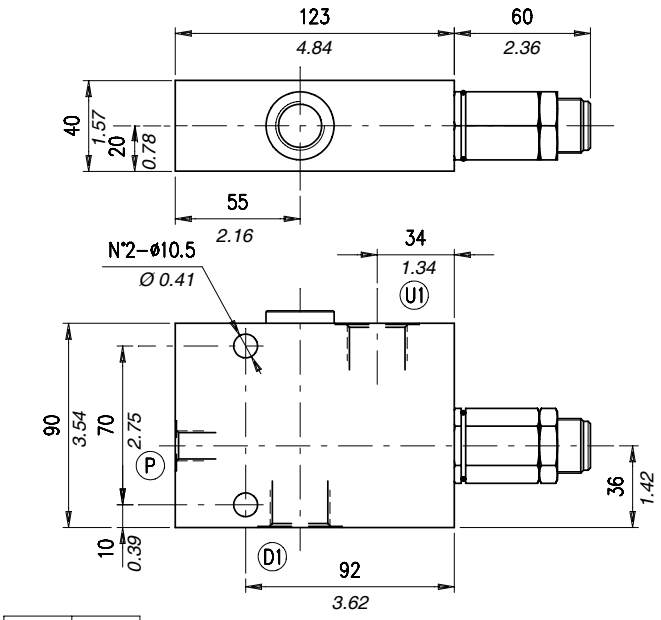
Check valve seat

_ See body
VRR) Hardened steel

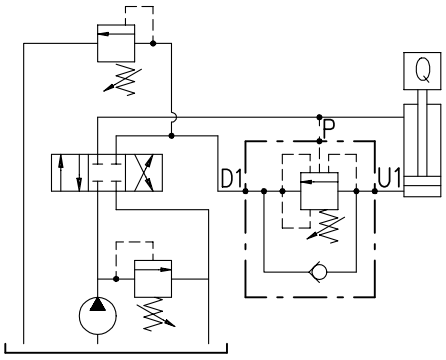
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

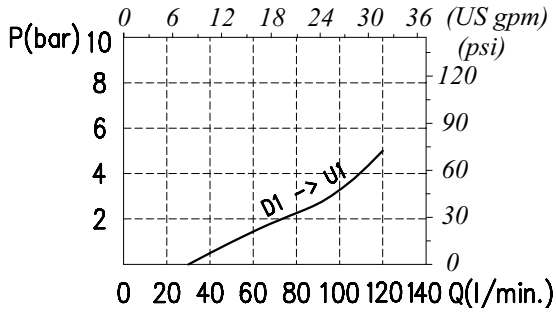


D1–U1	P
G 3/4	G 1/4

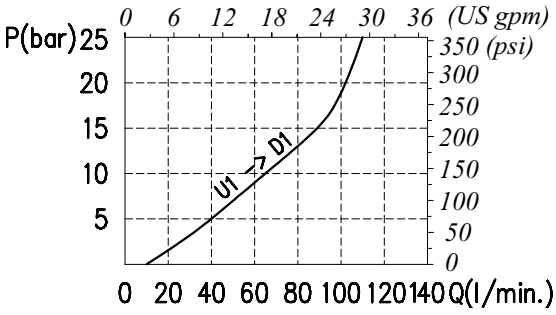


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

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

Pressure settings

TS) 0÷210 bar *(0÷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)

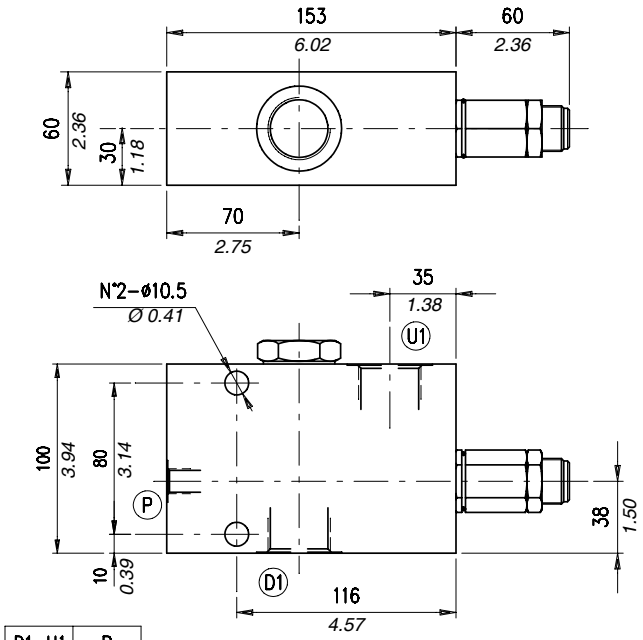
Check valve seat

_ See body
VRR) Hardened steel

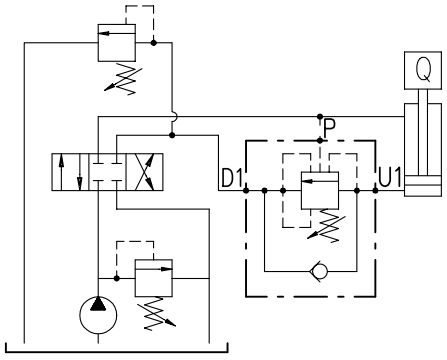
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

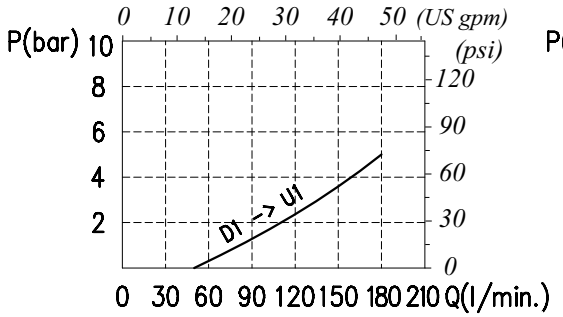


D1–U1	P
G 1	G 1/4

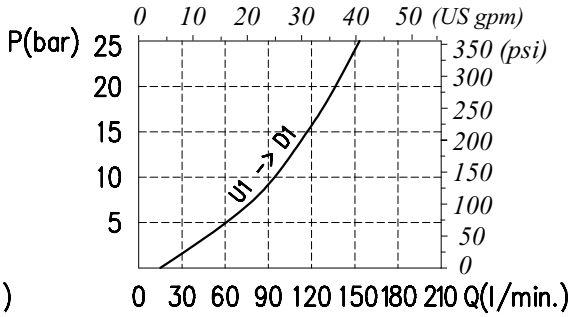


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP /SC /CC 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)

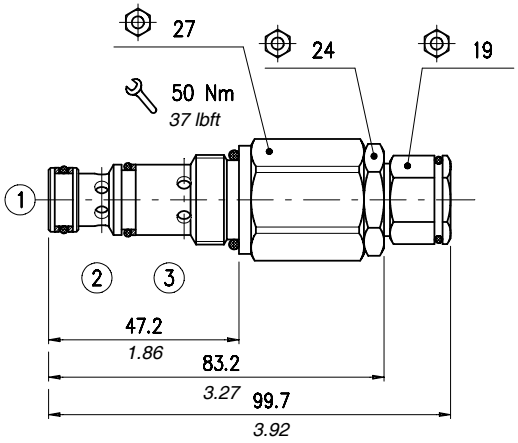
Check valve seat

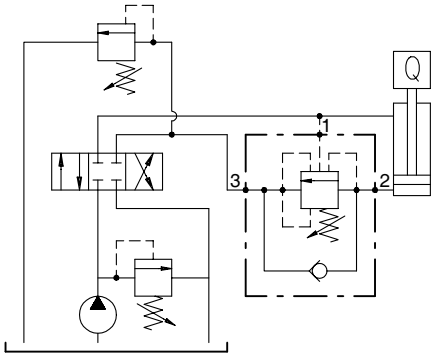
_ See body
VRR) Hardened steel

Body material

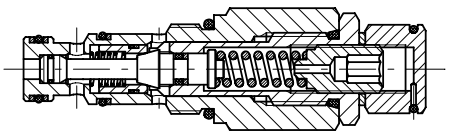
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



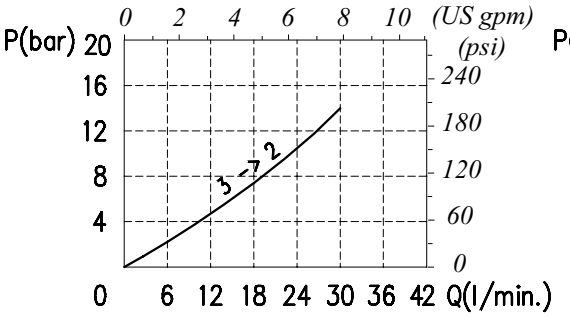


Section

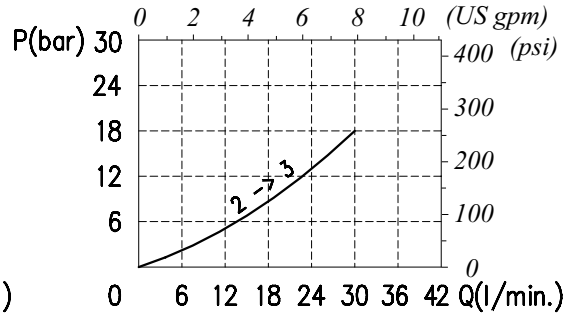


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

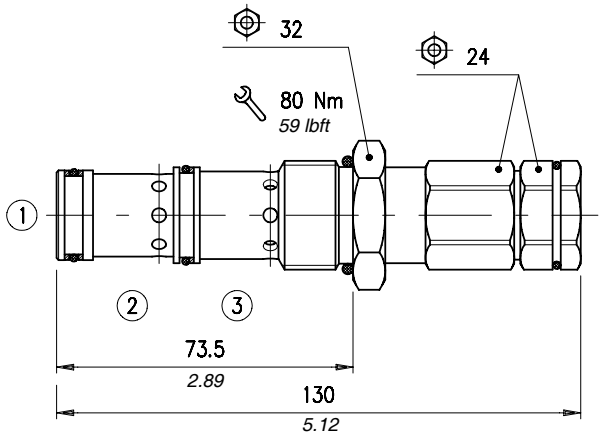


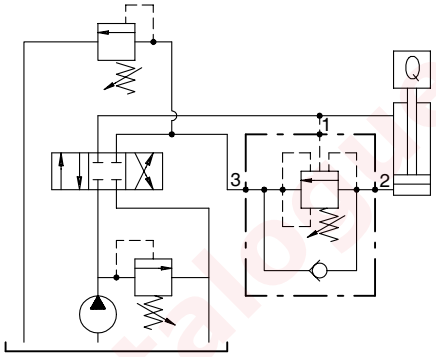
Order code

CC10A / □ -□ -□ -□

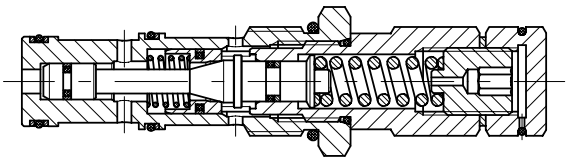
Pilot ratio	Adjustments	Pressure settings	Seals
	S		B) Buna
4) 1:4	W	**1)** 50÷220 bar *(725÷3200 psi)*	V) Viton
		2) 180÷350 bar *(2600÷5100 psi)*	
		3) 300÷700 bar *(4350÷10150 psi)*	

Dimensions and hydraulic circuit



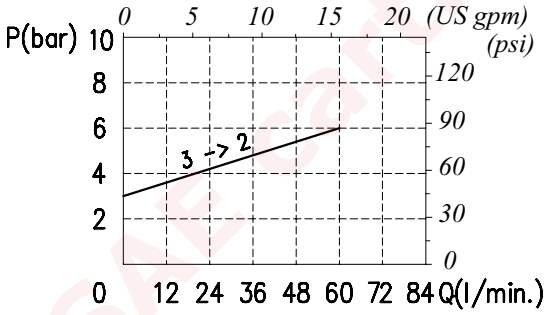


Section

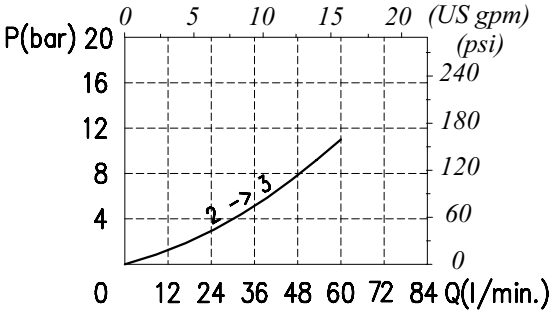


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



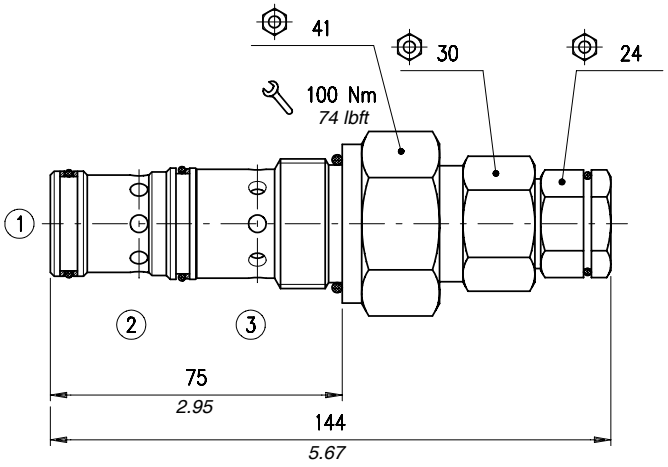
Order code

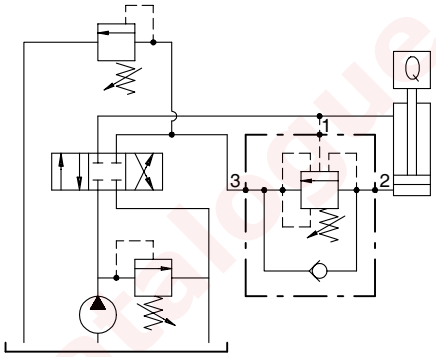
CC12A / ☐ -☐ -☐ -☐

Pilot ratio	Adjustments	Pressure settings	Seals
	S		B) Buna
4) 1:4	W	1) 50÷220 bar *(725÷3200 psi)*	V) Viton
		2) 180÷350 bar *(2600÷5100 psi)*	
		3) 300÷700 bar *(4350÷10150 psi)*	

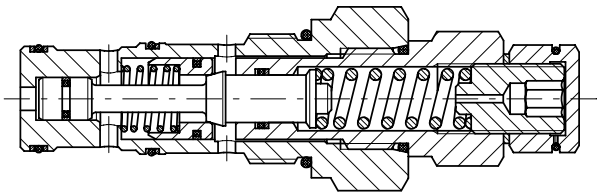
see SAE cartridges catalogue

Dimensions and hydraulic circuit



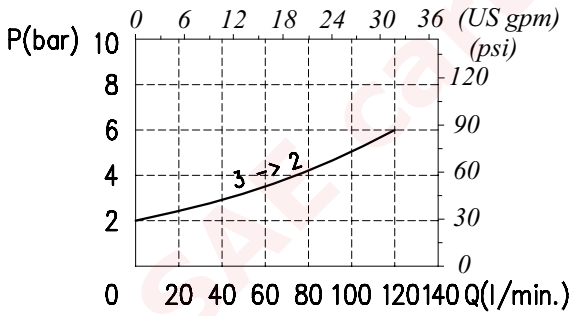


Section

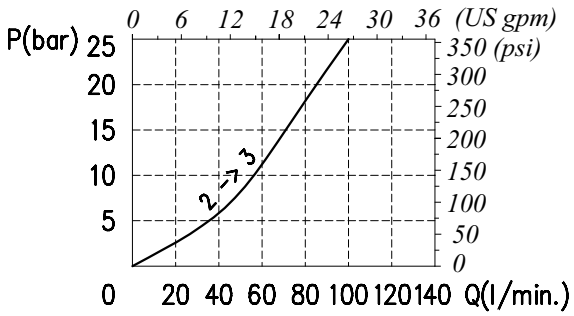


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

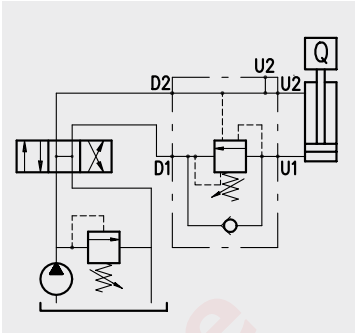
CC16A / □ -□ -□ -□

Pilot ratio	Adjustments	Pressure settings	Seals
	S		**B)** Buna
4) 1:4	W	**1)** 50÷220 bar *(725÷3200 psi)*	**V)** Viton
		2) 180÷350 bar *(2600÷5100 psi)*	
		3) 300÷700 bar *(4350÷10150 psi)*	

see SAE cartridges catalogue

Operation

The oil flow is allowed from D1 to U1 and is stopped in the opposite way (from U1 to D1) up to the spring setting value. Free oil flow from U1 to D1 is strictly possible when the pilot pressure in D2 to U2 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 is 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 D1, the setting value of valve poppet (1:1 ratio) will increase and the pilot pressure be negatively affected (1:1 ratio). Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action.



Performance

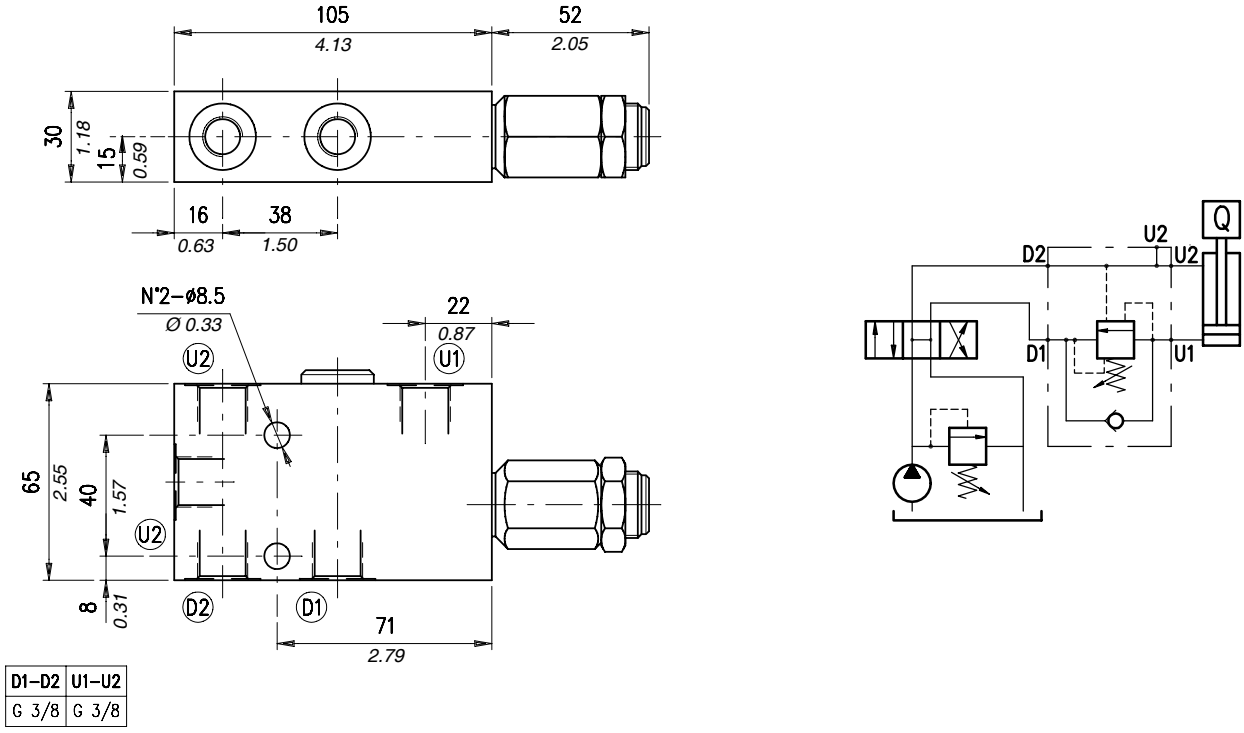
Body valves

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

Type	Maximum flow		Max. pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSL 38*	35	*9.2*	350	*5100*	5-210 bar-*72.5÷3050 psi* (test setting 150 bar-*2200 psi* at 5 l/min.-*1.3 US gpm*) 50-350 bar-*725÷5100 psi* (test setting 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*) 100-700 bar-*1450÷10150 psi* (test setting 350 bar -*5100 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min -*15x10⁻³ in³/min* (5 drops) at 210 bar -*3050 psi* and 80% of the spring setting value with oil viscosity of 46 cSt.	1:4 (standard) 1:3 (on request only)	0,78	*1.72*
								aluminium	
								1,52	*3.35*
								steel	
VOSL 12**	70	*18*					1:7 (standard) 1:3 (on request only)	1,00	*2.20*
								aluminium	
								1,95	*4.30*
								steel	
VOSL 34***	100	*26*						1,85	*4.08*
								aluminium	
								3,55	*7.83*
								steel	
VOSL 100***	180	*48*						3,26	*7.19*
								aluminium	
								7,07	*15.59*
								steel	
VOSL/F 38*	35	*9.2*					1:4 (standard) 1:3 (on request only)	0,75	*1.65*
								aluminium	
								1,45	*3.20*
								steel	
VOSL/F 12**	70	*18*					1:7 (standard) 1:3 (on request only)	0,98	*2.16*
								aluminium	
								1,96	*4.32*
								steel	
VOSL/F 34***	100	*26*						1,82	*4.01*
								aluminium	
								3,57	*7.87*
								steel	
VOSL/F 100***	180	*48*						3,23	*7.12*
								aluminium	
								7,12	*15.70*
								steel	

see SAE cartridges catalogue

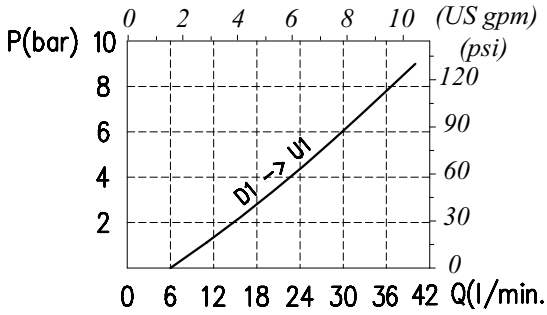
Dimensions and hydraulic circuit



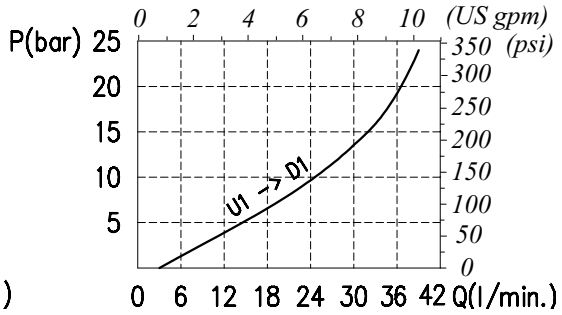
D1–D2	U1–U2
G 3/8	G 3/8

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

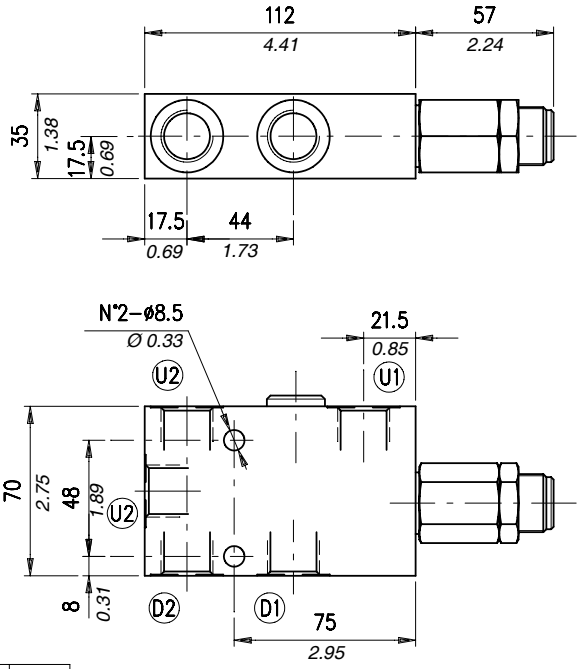


Order code

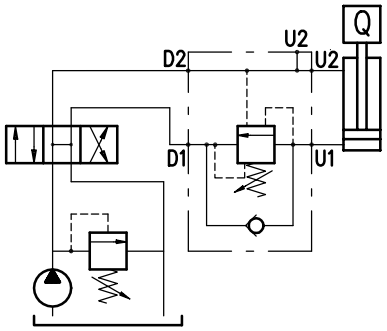
VOSL 38 / □ . S .□□ . □□ . □□ / □□

Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body material
TS) 5÷210 *(72.5÷3050 psi)* **TR)** 50÷350 *(725÷5100 psi)* (Standard) **TG)** 100÷700 *(1450÷10150 psi)*	**p3)** 1:3 **p4)** 1:4 (Standard)	_ Without damper (Standard) **PG)** With damper	_ See body **VR)** Hardened steel	_ Aluminium **ac** Steel

Dimensions and hydraulic circuit

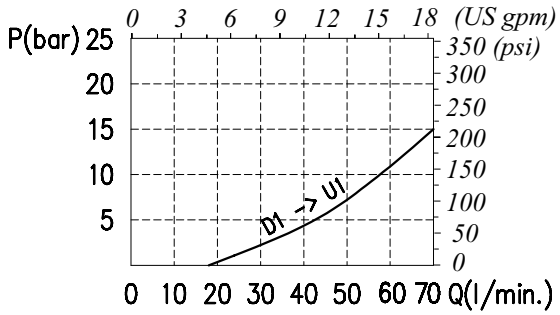


D1–D2	U1–U2
G 1/2	G 1/2

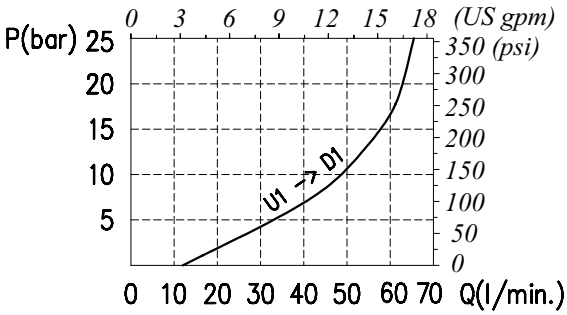


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL 12 / □ . 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) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

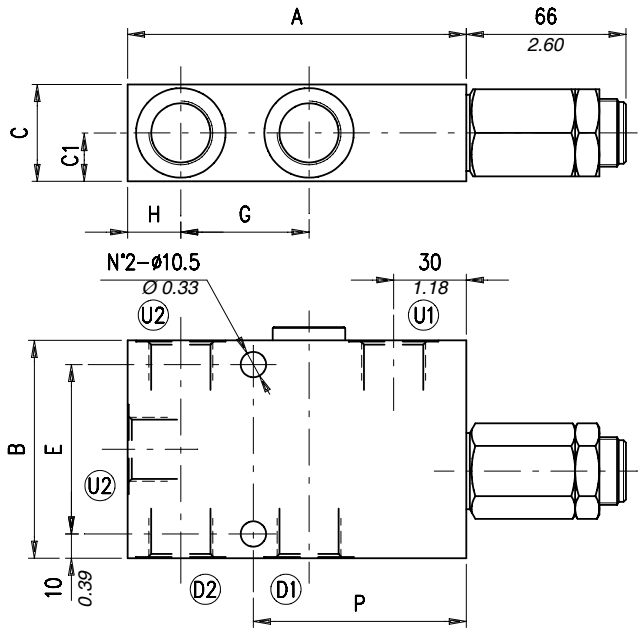
Check valve seat

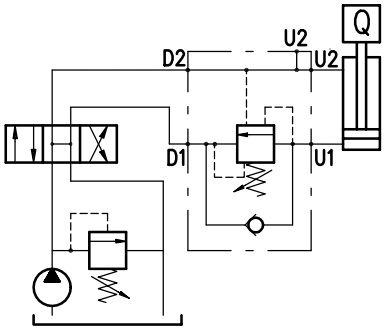
_ See body
VR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



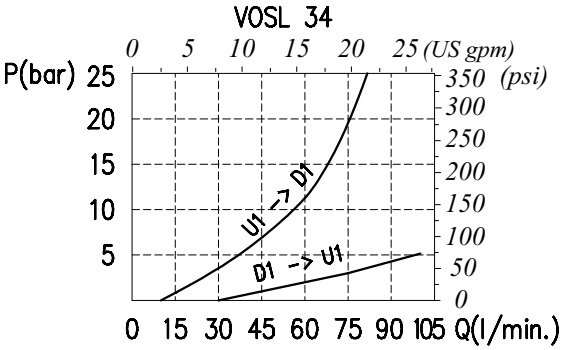


VOSL	D1–D2	U1–U2	A*	B*	C*	C1*	E*	G*	H*	P*
34	G 3/4	G 3/4	140 - *5.51*	90 - *3.54*	40 - *1.57*	20- *0.78*	70 - *2.75*	53 - *2.09*	22 - *0.66*	88 - *3.46*
100	G 1	G 1	174 - *6.85*	100 - *3.94*	60 - *2.36*	30- *1.18*	80 - *3.15*	66 - *2.60*	32 - *1.26*	110 - *4.33*

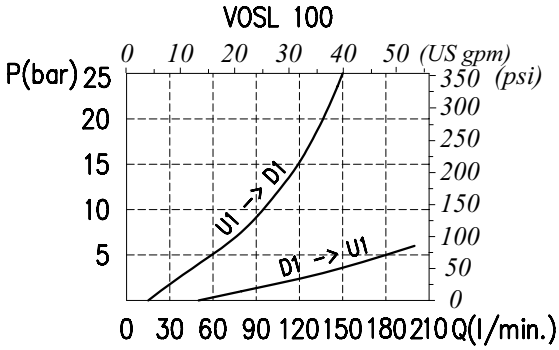
* Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL □□ / □ . S .□□ . □□ . □□ / □□

Port size

34) G 3/4
100) G 1

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)

Type of pilot

_ Without damper
PG) With damper

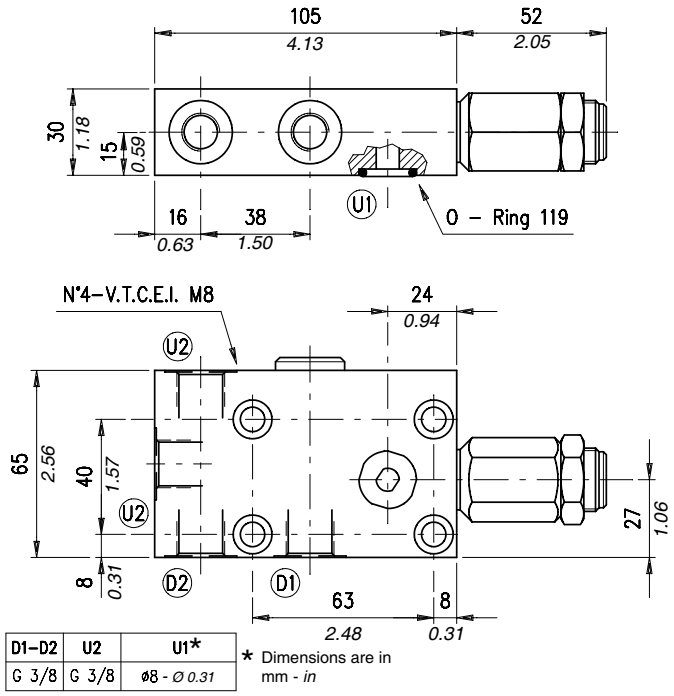
Check valve seat

_ See body
VRR) Hardened steel

Body material

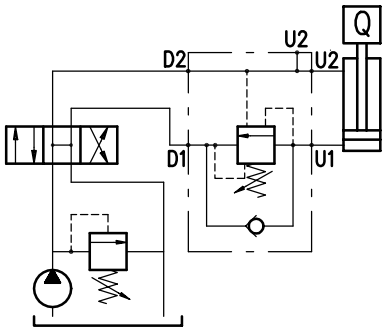
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



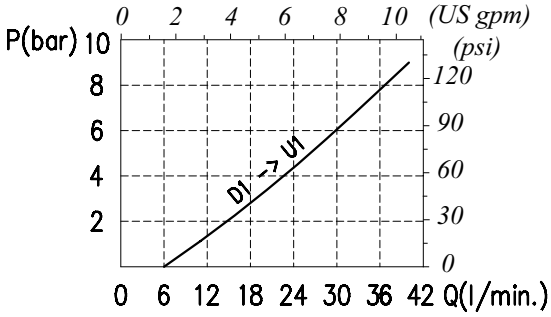
D1–D2	U2	U1*
G 3/8	G 3/8	ø8 - Ø 0.31

* Dimensions are in mm - *in*

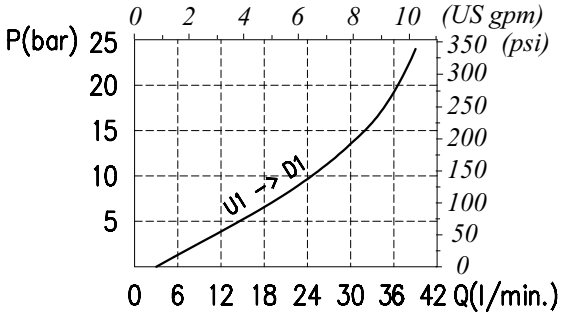


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /F 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

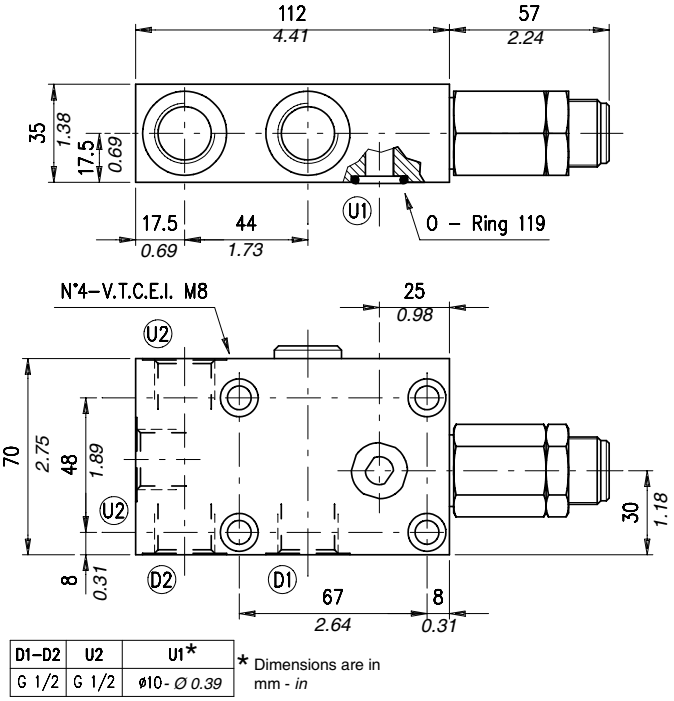
Check valve seat

_ See body
VRR) Hardened steel

Body material

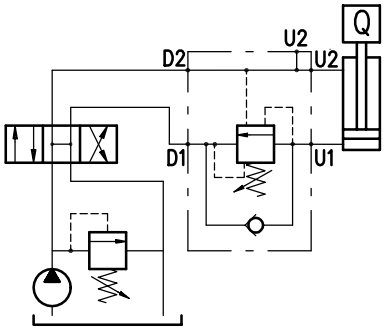
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



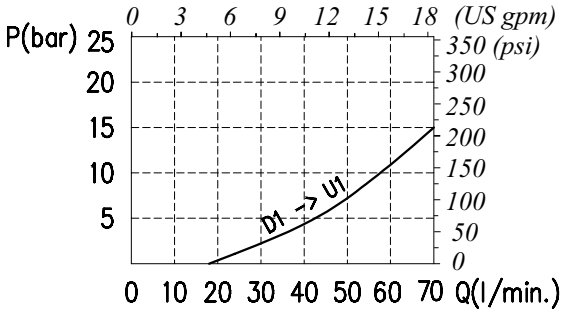
D1–D2	U2	U1*
G 1/2	G 1/2	ø10 - Ø 0.39

* Dimensions are in mm - *in*

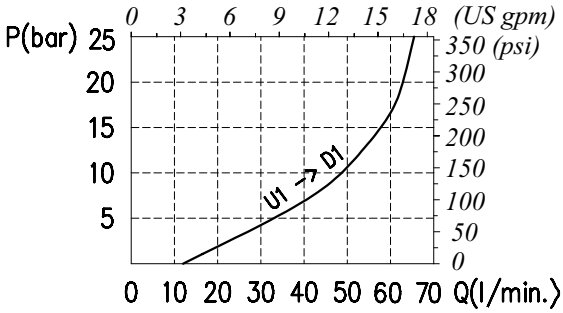


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /F 12 / □ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

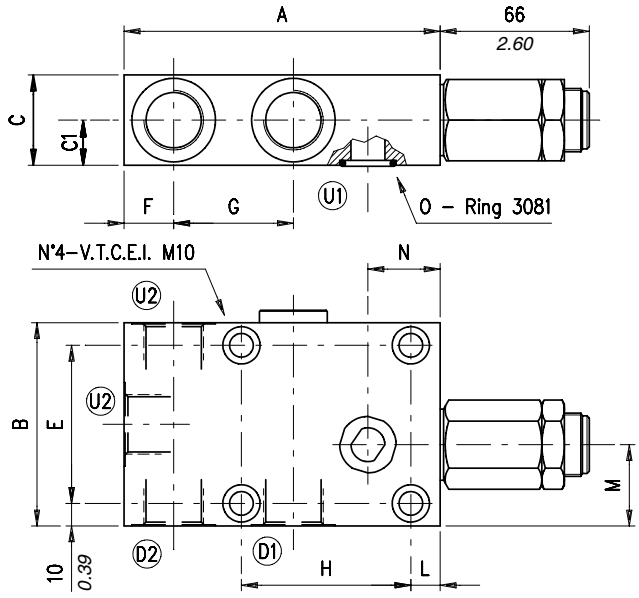
Check valve seat

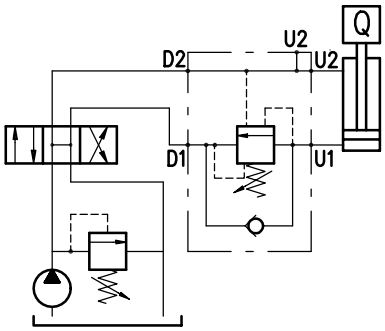
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



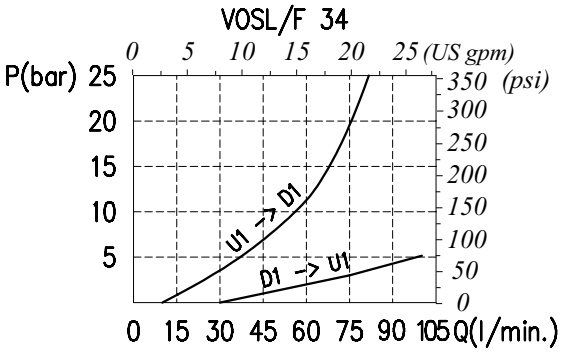


VOSL/F	D1–D2	U2	U1	A*	B*	C*	C1*	E*	F*	G*	H*	L*	M*	N*
34	G 3/4	G 3/4	ø15 - Ø 0.59	140 - 5.51	90 - 3.54	40 - 1.57	20 - 0.78	70 - 2.75	22 - 0.87	53 - 2.09	75 - 2.95	13 - 0.51	36 - 1.42	32 - 1.26
100	G 1	G 1	ø19 - Ø 0.75	174 - 6.85	100 - 3.94	60 - 2.36	30 - 1.18	55 - 2.16	32 - 1.26	66 - 2.60	100 - 3.94	10 - 0.39	37 - 1.46	35 - 1.38

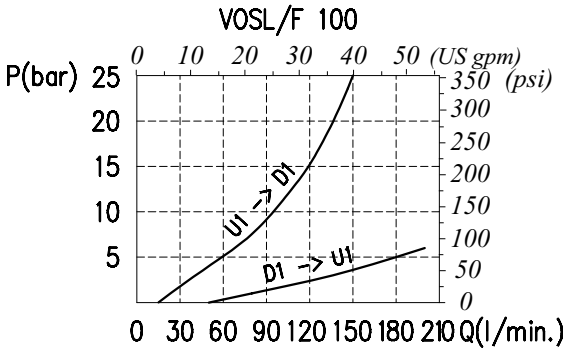
* Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /F □□ / □ . S .□□ . □□ . □□ / □□

Port size

34) 3/4" BSP
100) 1" BSP

Pressure settings (bar)

TS) 5÷210 *(72.5÷3050 psi)*
TR) 50÷350 (standard) *(725÷5100 psi)*
TG) 100÷700 *(1450÷10150 psi)*

Pilot ratio

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

Type of pilot

_ without damper (standard)
PG) with damper

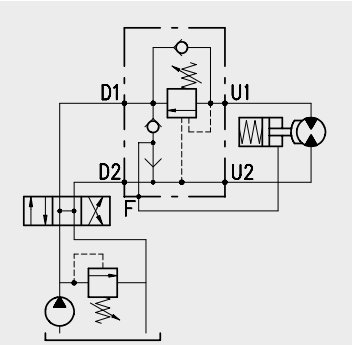
Check valve seat

_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Operation



The oil flow is allowed from D1 to U1 and is stopped in the opposite way (from U1 to D1) up to the spring setting value. Free oil flow from U1 to D1 is strictly possible when the pilot pressure in D2 and U2 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 is 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 D1, the setting value of valve poppet (1:1 ratio) will increase and the pilot pressure be negatively affected (1:1 ratio). Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action.
Use of a special shuttle valve allows for release of hydraulic parking brakes..

Performance

Body valves

<table>
<tr><th rowspan="2">Type</th><th colspan="2">Maximum flow</th><th colspan="2">Maximum pressure</th><th rowspan="2">Application range with standard springs</th><th rowspan="2">Oil leakage from U1 to D1</th><th rowspan="2">Pilot ratio</th><th colspan="2">Weight</th><th rowspan="2">Overcenter cartridge</th></tr>
<tr><th>l/min</th><th>US gpm</th><th>bar</th><th>psi</th><th>kg</th><th>lb</th></tr>
<tr><td rowspan="3">VOSL/A 38</td><td rowspan="3">35</td><td rowspan="3">9.2</td><td rowspan="12">210 (alum.)

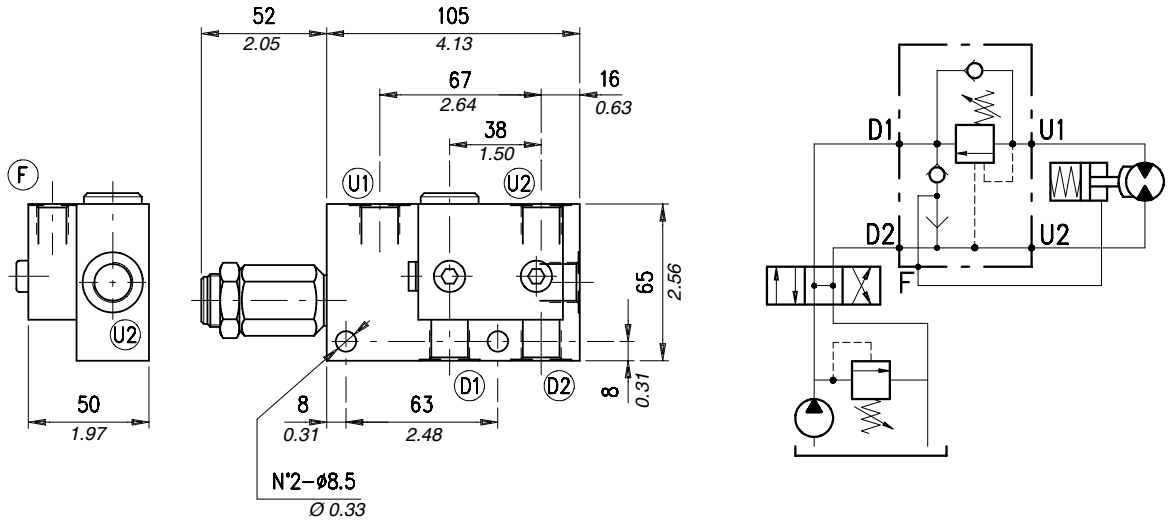
350 (steel)</td><td rowspan="12">3050 (alum.)

5100 (steel)</td><td rowspan="12">5-210 bar
-72.5÷3050 psi
(test setting: 150 bar -2200 psi at 5 l/min.-1.3 US gpm)

50-350 bar
-725÷5100 psi
(test setting: 280 bar-4060 psi at 5 l/min.-1.3 US gpm)

100-700 bar
-1450÷10150 psi
(test setting: 350 bar-5100 psi at 5 l/min.-1.3 US gpm)</td><td rowspan="12">0,25 cm³/min
-15x10⁻³ in³/min
(5 drops) at 210 bar
-3050 psi-
and 80% of the spring setting value with oil viscosity of 46 cSt.</td><td rowspan="3">1:3 (standard type)
1:4 (on request only)</td><td>1,18</td><td>2.60</td><td rowspan="3">VMPD 38</td></tr>
<tr><td colspan="2">aluminium</td></tr>
<tr><td>1,90</td><td>4.19</td></tr>
<tr><td rowspan="3">VOSL/A 12</td><td rowspan="3">70</td><td rowspan="3">18</td><td rowspan="9">1:3 (standard type)
1:7 (on request only)</td><td>1,41</td><td>3.11</td><td rowspan="3">VMPD 12</td></tr>
<tr><td colspan="2">aluminium</td></tr>
<tr><td>2,34</td><td>5.16</td></tr>
<tr><td rowspan="3">VOSL/A 34</td><td rowspan="3">100</td><td rowspan="3">26</td><td colspan="2">steel</td></tr>
<tr><td>2,16</td><td>4.76</td><td rowspan="6">VMPD 34</td></tr>
<tr><td colspan="2">aluminium</td></tr>
<tr><td rowspan="3">VOSL/A 100</td><td rowspan="3">180</td><td rowspan="3">48</td><td>3,81</td><td>8.40</td></tr>
<tr><td colspan="2">steel</td></tr>
<tr><td>4,10</td><td>9.04</td></tr>
<tr><td colspan="2">aluminium</td></tr>
<tr><td>7,90</td><td>17.42</td></tr>
<tr><td colspan="2">steel</td></tr>
</table>

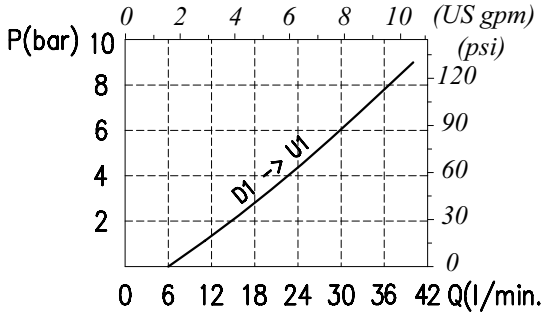
Dimensions and hydraulic circuit



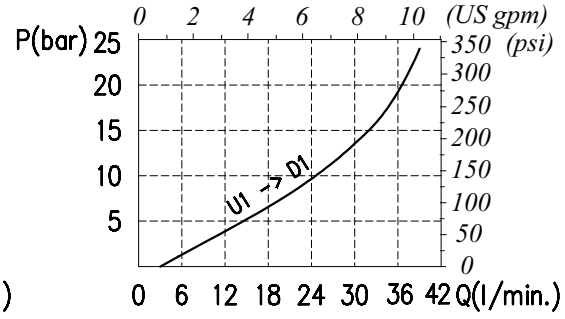
D1–D2	U1–U2	F
G 3/8	G 3/8	G 1/4

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /A 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 (Standard)
p4) 1:4

Type of pilot

_ Without damper (Standard)
PG) With damper

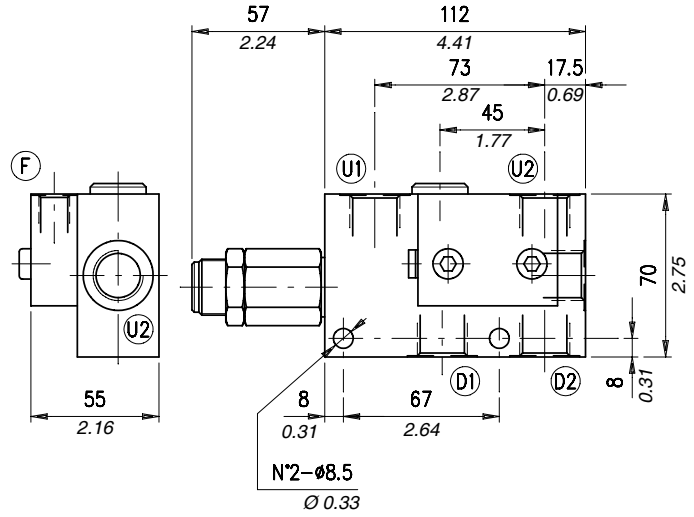
Check valve seat

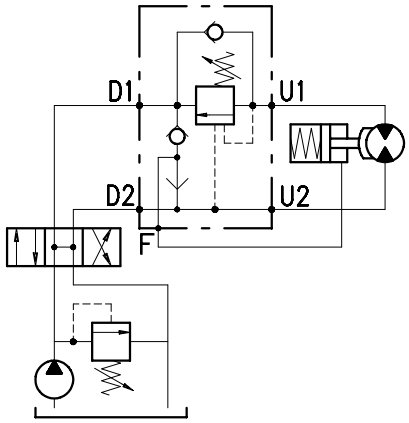
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

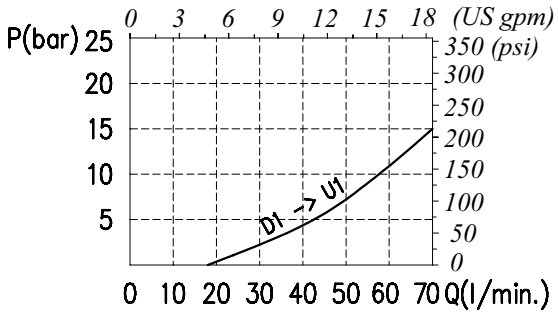




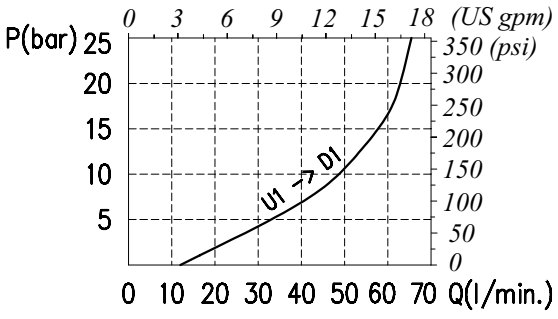
D1–D2	U1–U2	F
G 1/2	G 1/2	G 1/4

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /A 12 / □ . 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 (Standard)
p7) 1:7

Type of pilot

_ Without damper (Standard)
PG) With damper

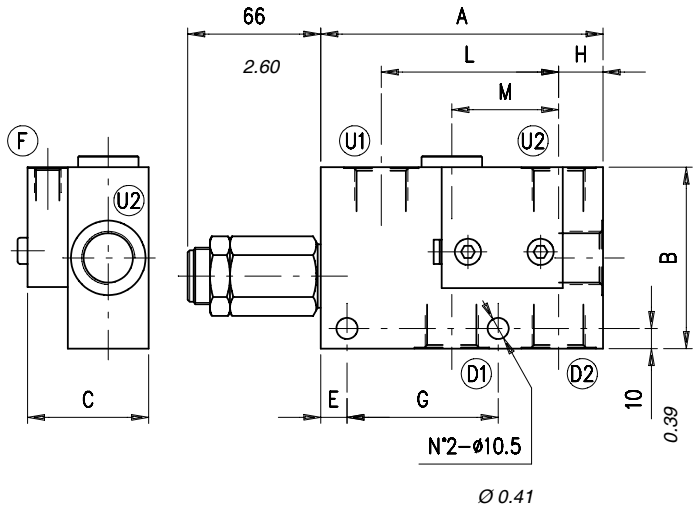
Check valve seat

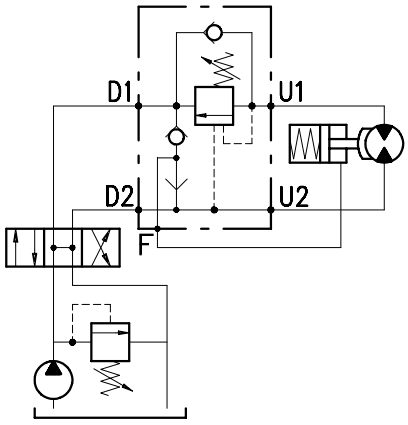
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



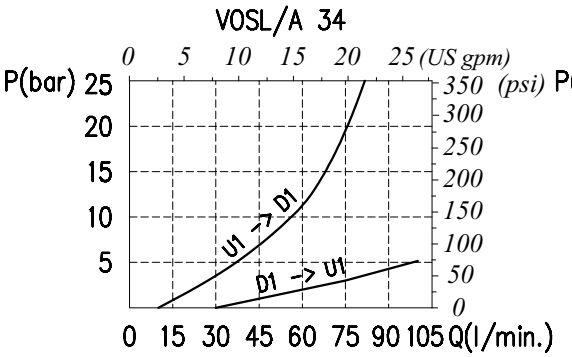


VOSL/A	D1–D2	U1–U2	F	A*	B*	C*	E*	G*	H*	L*	M*
34	G 3/4	G 3/4	G 1/4	140 - *5.51*	90 - *3.54*	60 - *2.36*	13 - *0.51*	75 - *2.95*	22 - *0.87*	88 - *3.46*	53 - *2.09*
100	G 1	G 1	G 1/4	174 - *6.85*	100 - *3.94*	80 - *3.15*	10 - *0.39*	100 - *3.94*	30 - *1.18*	112 - *4.41*	46 - *1.81*

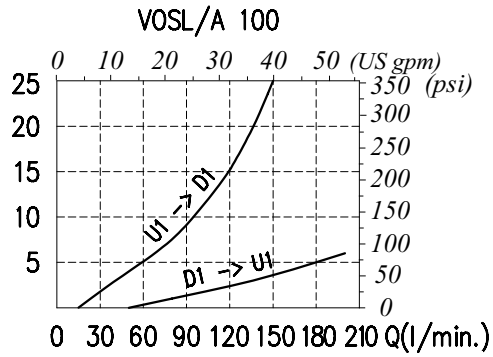
* Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /A □□ / □ . S .□□ . □□ . □□ / □□

Port size

34) G 3/4
100) G 1

Pressure settings

TS) 5÷210 bar *(72.5÷3050 psi)*
TR) 50÷350 bar *(725÷5100 psi)* (Standard)
TG) 100÷700 bar

Pilot ratio

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

Type of pilot

_ Without damper (Standard)
PG) With damper

Check valve seat

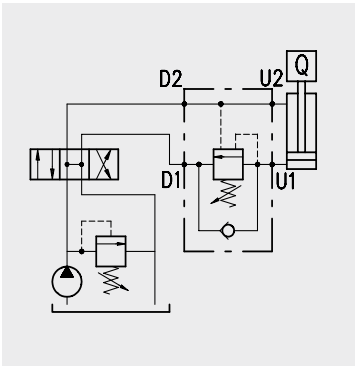
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Operation

The oil flow is allowed from D1 to U1 and is stopped in the opposite way (from U1 to D1) up to the spring setting value. Free oil flow from U1 to D1 is strictly possible when the pilot pressure in D2 and U2 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 is 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 D1, the setting value of valve poppet (1:1 ratio) will increase and the pilot pressure be negatively affected (1:1 ratio).



Performance

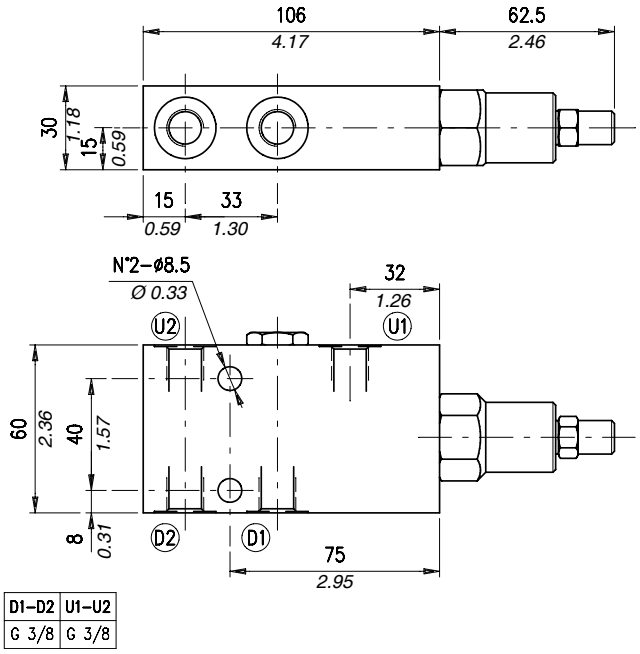
Body valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSL/SC 38	40	*11*	210 (aluminium) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar-*72.5÷3050 psi* (test setting 170 bar -*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar-*725÷5100 psi* (test setting 280 bar -*4100 psi* at 5 l/min.-*1.3 US gpm*) 100÷700 bar -*1450÷10150 psi* (test setting 350 bar-*5100 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min -*15x10⁻³ in³/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 aluminium 1,44 steel	*1.50*
VOSL/SC 12	75	*20*					1:7 (standard type) 1:3 (on request only)	0,95 aluminium 2,03 steel	*2.09* *4.47*
VOSL/SC 34	120	*32*						1,45 aluminium 3,28 steel	*3.20* *7.23*
VOSL/SC 100	180	*48*						3,10 aluminium 7,54 steel	*6.83* *16.62*
VOSL /SC/C 1116/38	30	*7.9*			5÷350 bar-*725÷5100 psi* pressure increase= 131 bar-*1900 psi* /turn (test setting 280 bar -*4060 psi* at 5 l/min.-*1.3 US gpm*)		1:4	0,6 aluminium 1,4 steel	*1.32* *3.09*
VOSL /SC/C 1116/12	60	*16*						0,9 aluminium 2 steel	*1.98* *4.41*
VOSL /SC /VU 14	20	*5.2*			5÷210 bar-*72.5÷3050 psi* (test setting 150 bar -*2200 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar-*725÷5100 psi* (test setting 280 bar -*4100 psi* at 5 l/min.-*1.3 US gpm*)		1:6	0,95	*2.09*

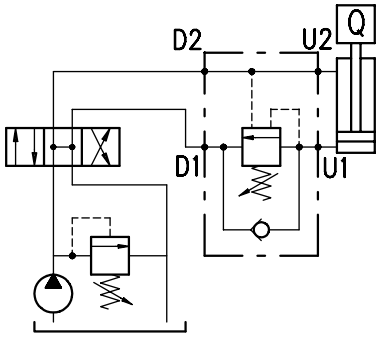
Body valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSL /SC /F 38	40	*11*	210 (aluminium) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar *-72.5÷3050 psi* (test setting 150 bar-*2200 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar *-725÷5100 psi* (test setting 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*) 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	1:4 (standard type) 1:3 (on request only)	0,68	*1.50*
								aluminium	
								1,40	*3.09*
								steel	
VOSL /SC /F 12	75	*20*					1:7 (standard type) 1:3 (on request only)	0,95	*2.09*
								aluminium	
								2,00	*4.41*
								steel	
VOSL /SC /F 34	120	*32*						1,45	*3.20*
								aluminium	
								3,27	*7.21*
								steel	

Dimensions and hydraulic circuit

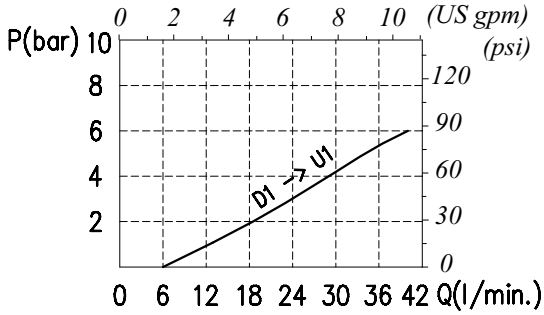


D1–D2	U1–U2
G 3/8	G 3/8

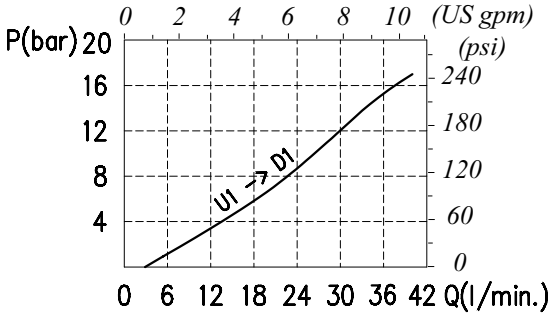


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /SC 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)

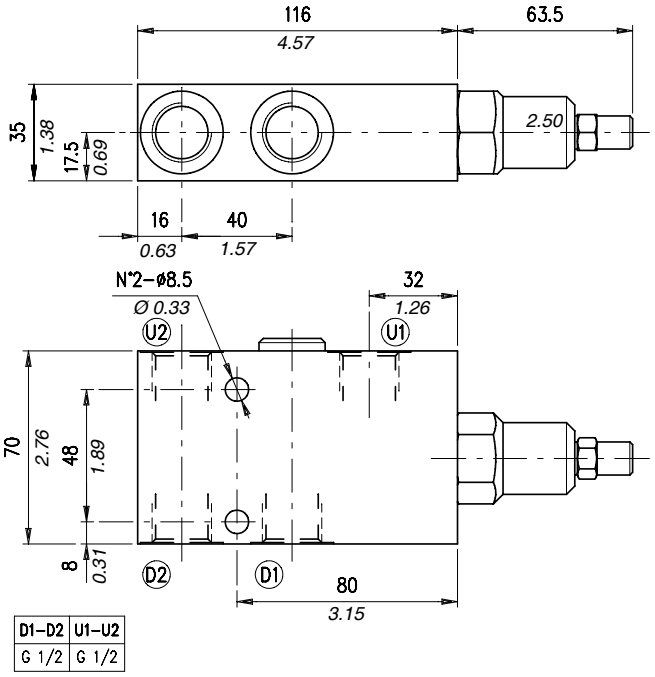
Check valve seat

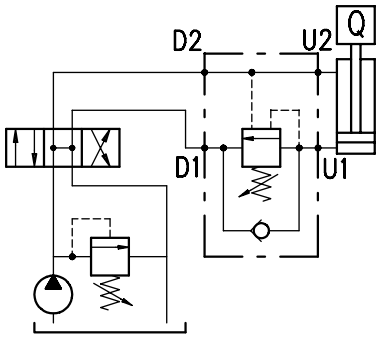
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

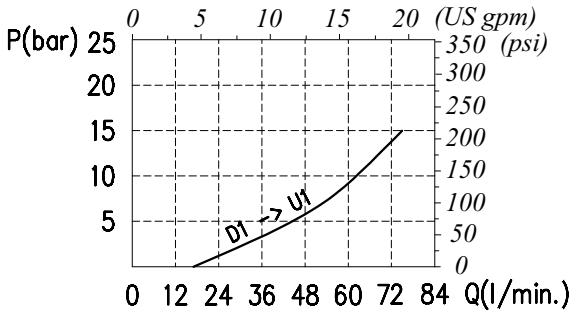
Dimensions and hydraulic circuit



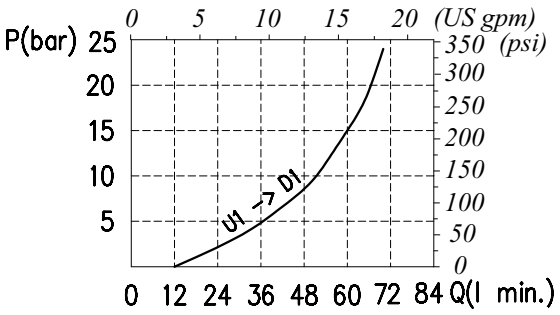


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /SC 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)

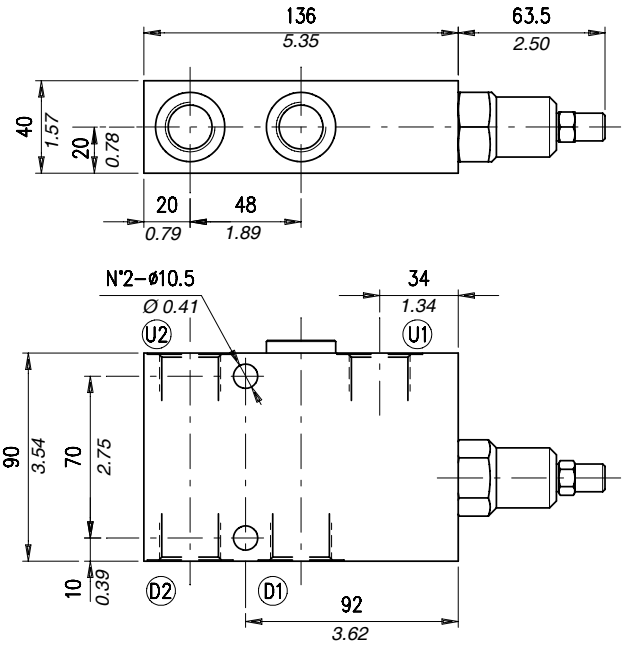
Check valve seat

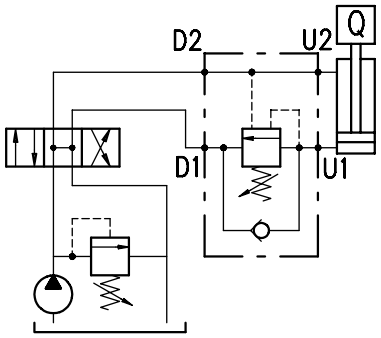
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

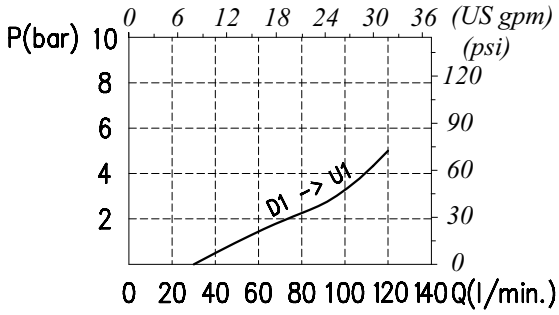




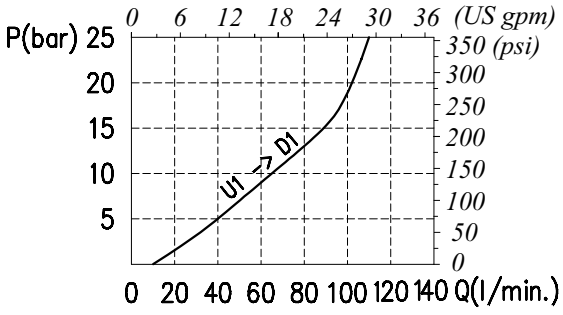
D1–D2	U1–U2
G 3/4	G 3/4

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /SC/34 / □□ . S . □□ . PG . □□ / □□

Pressure settings

TS) 5÷210 bar *(72.5÷3050psi)*
TR) 50÷350 bar *(725÷5100 psi)* (Standard)
TG) 100÷700 bar *(1450÷10150 psi)*

Pilot ratio

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

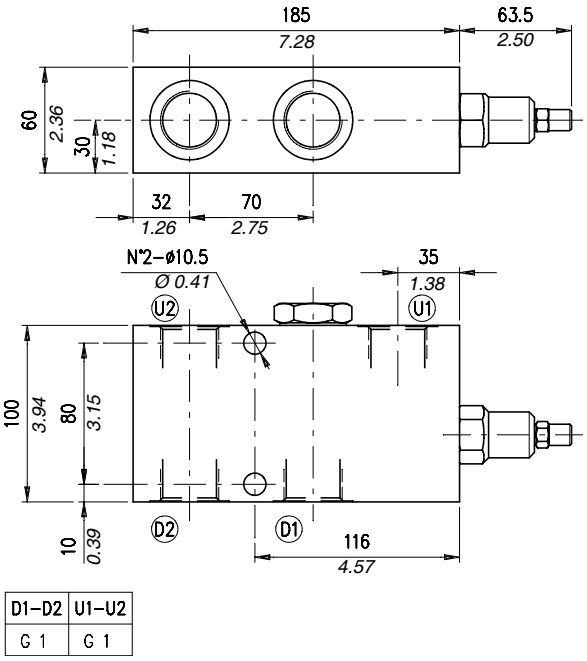
Check valve seat

_ See body
VRR) Hardened steel

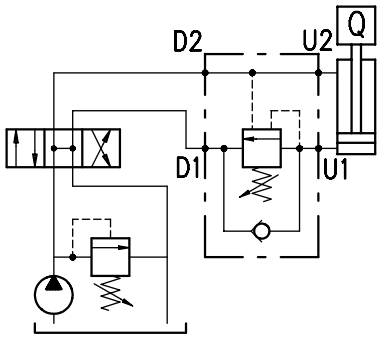
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

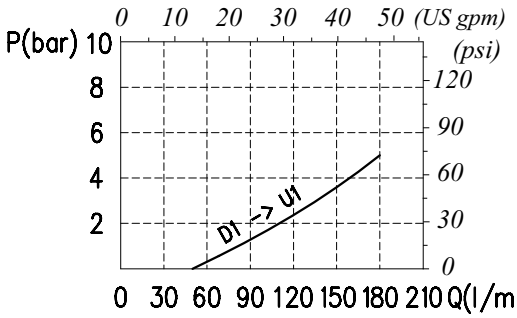


D1–D2	U1–U2
G 1	G 1

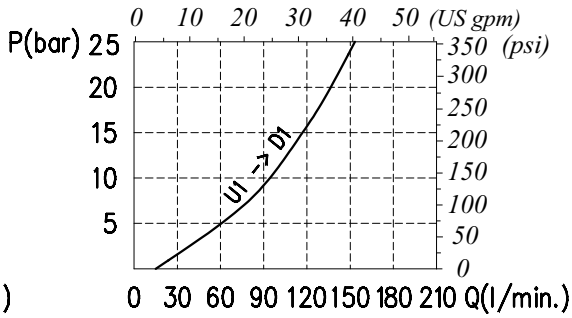


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /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)

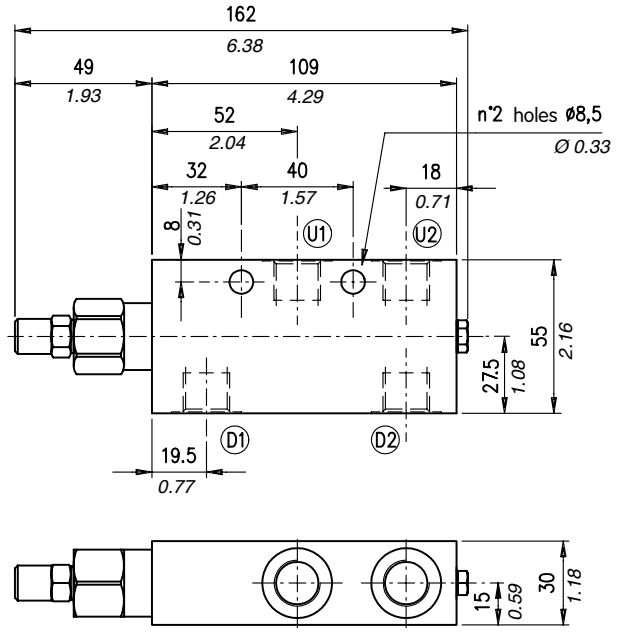
Check valve seat

_ See body
VRR) Hardened steel

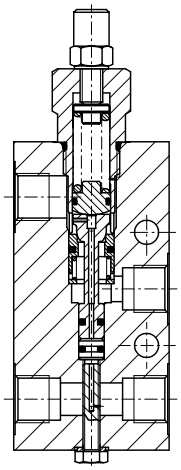
Body material

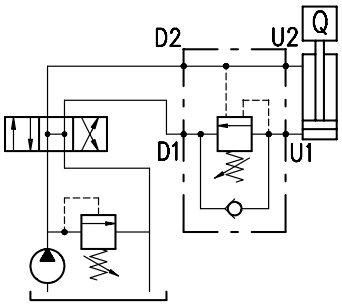
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



Section

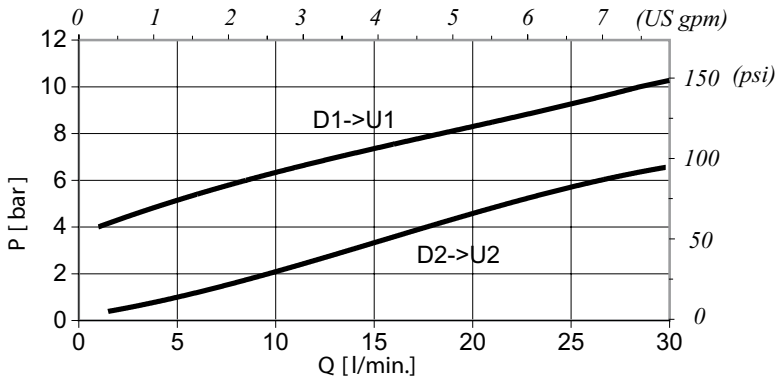




D1–D2	U1–U2
G 3/8	G 3/8

Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

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

Pressure Settings

TR) 50÷350 bar (Standard)

Pilot ratio

p4)1:4

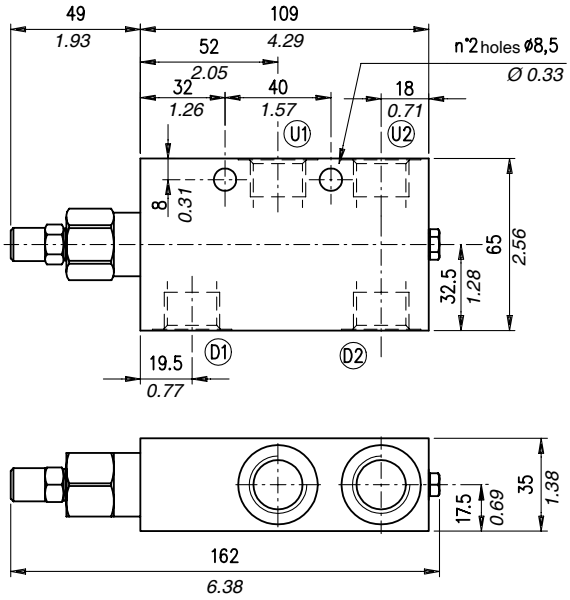
Body material

_ Aluminium
ac Steel

Type VOSL/SC/C 1116/12

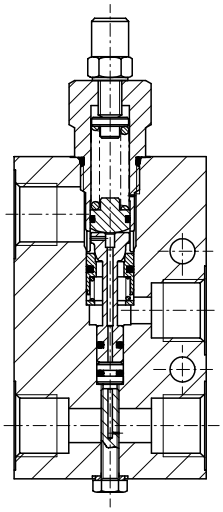
Single overcenter valve, line mounting. The main features of this valve are compact dimensions and good tolerance to oil contamination

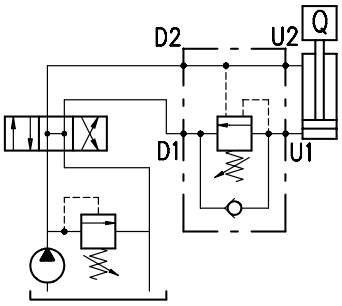
Dimensions and hydraulic circuit



D1–D2	U1–U2
G 1/2	G 1/2

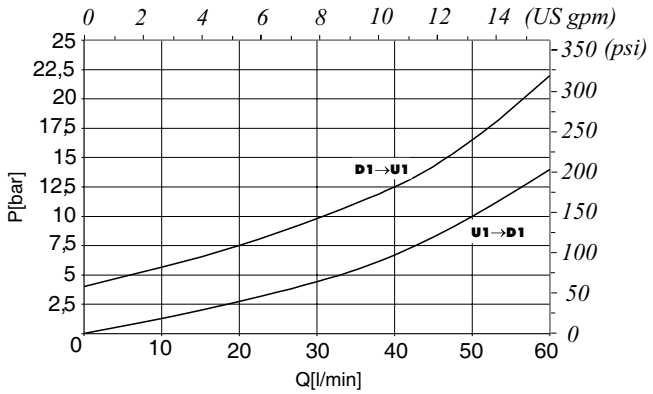
Section





Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

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

Pressure settings

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

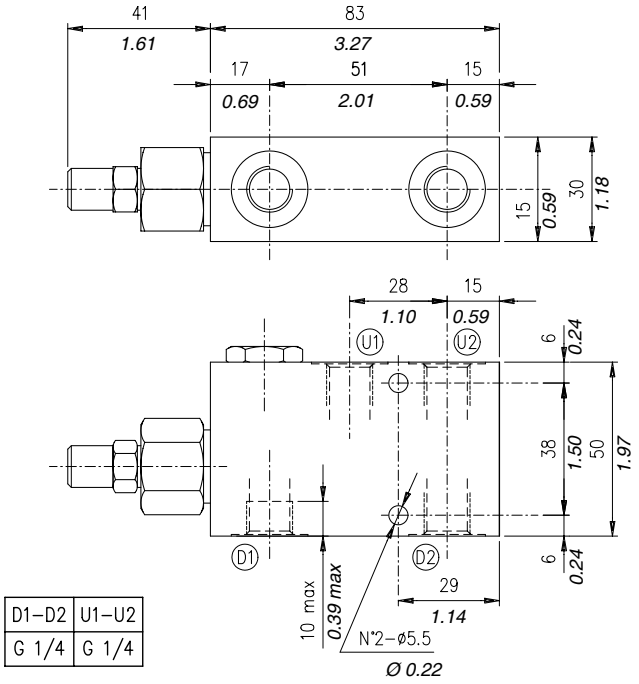
Pilot ratio

p4) 1:4
p11) 1:11

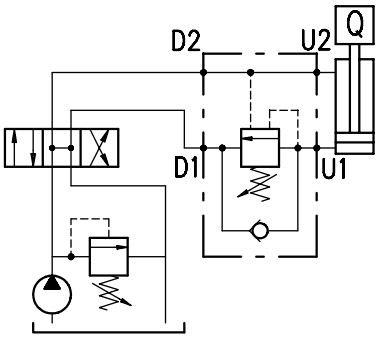
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

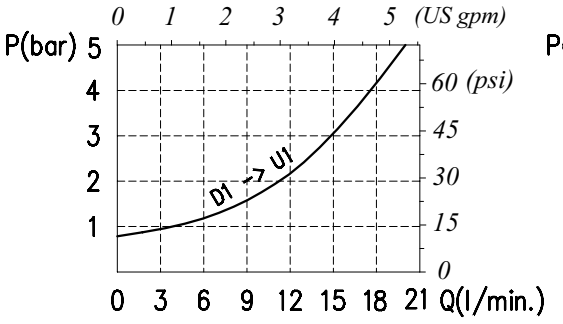


D1–D2	U1–U2
G 1/4	G 1/4

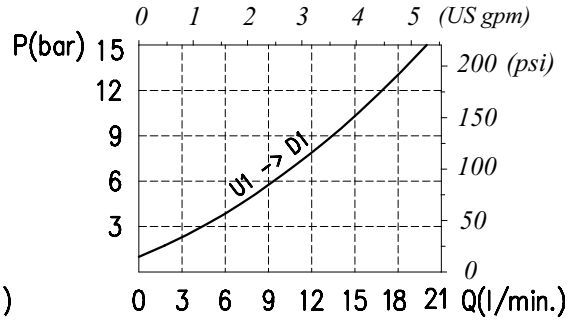


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

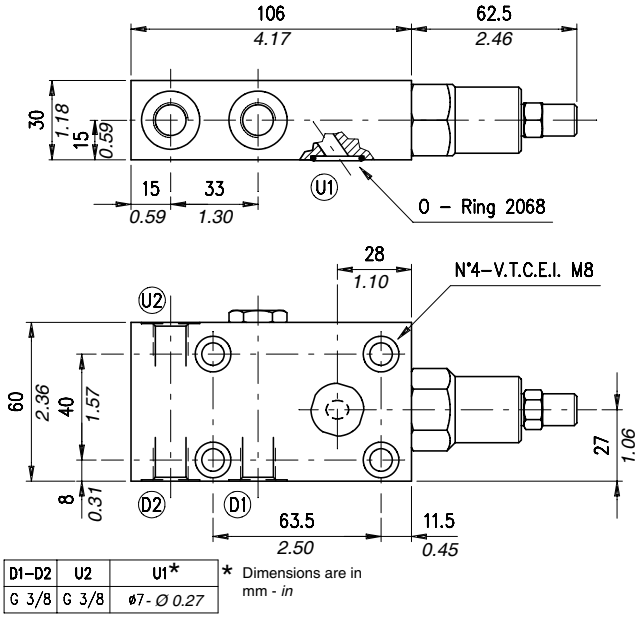


Order code

VOSL

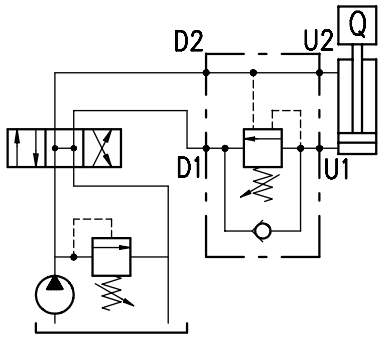
(72.5÷3050 psi)
(725÷5100 psi)

Dimensions and hydraulic circuit



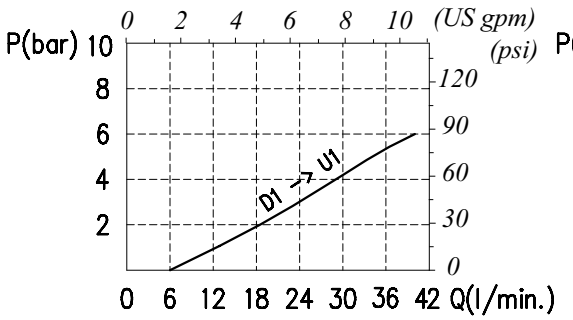
D1–D2	U2	U1*
G 3/8	G 3/8	ø7 - Ø 0.27

* Dimensions are in mm - *in*

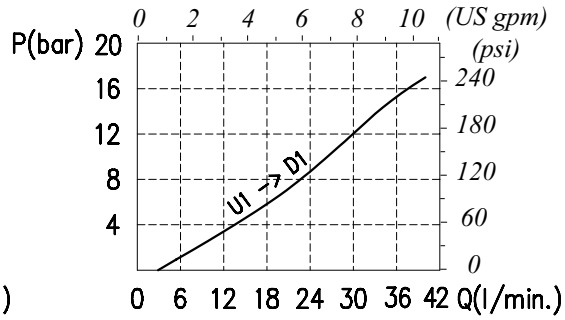


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /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)

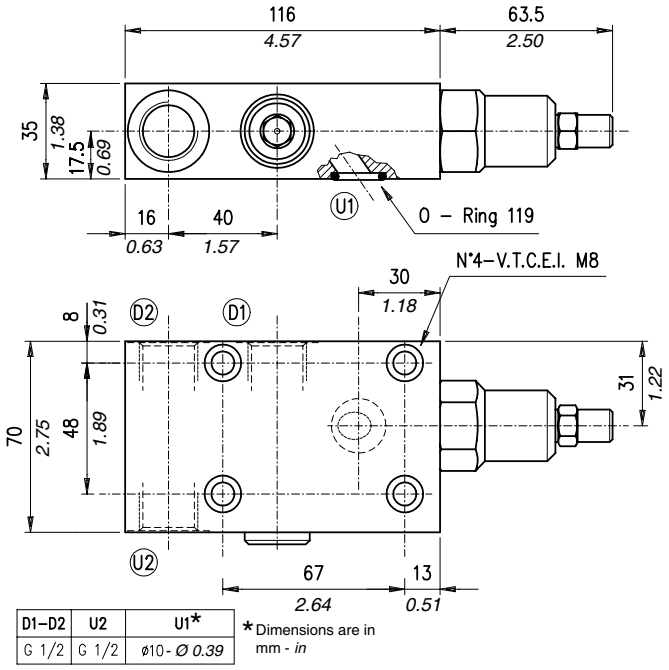
Check valve seat

_ See body
VRR) Hardened steel

Body material

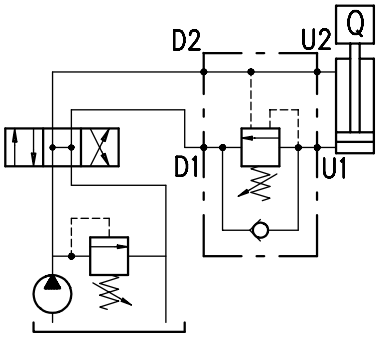
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



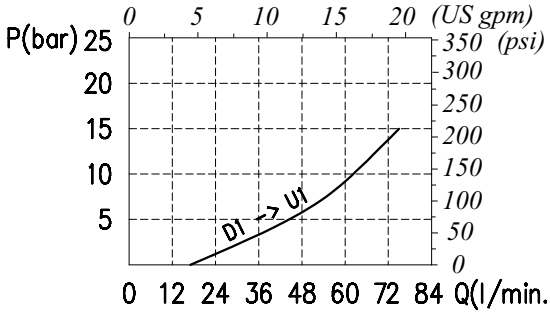
D1–D2	U2	U1*
G 1/2	G 1/2	ø10 - Ø 0.39

*Dimensions are in mm - *in*

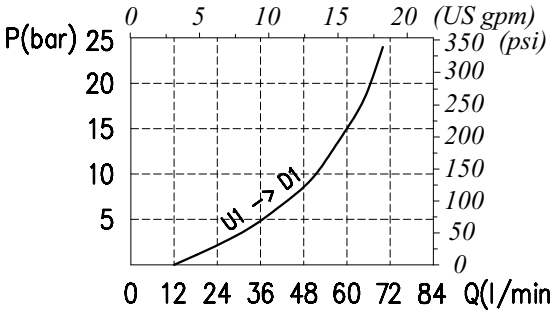


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

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

Pressure settings

TS) 5÷210 *(72.5÷3050 psi)*
TR) 50÷350 *(725 ÷ 5100 psi)* (Standard)
TG) 100÷700 *(1450÷10150 psi)*

Pilot ratio

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

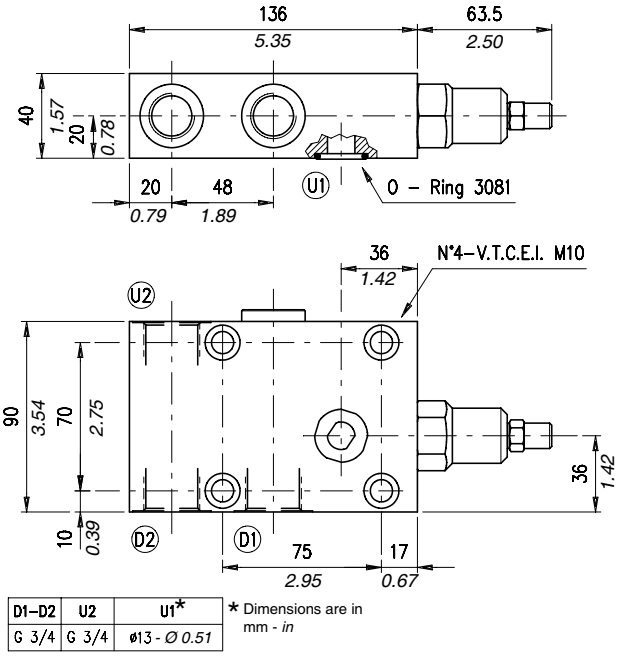
Check valve seat

_ See body
VRR) Hardened steel

Body material

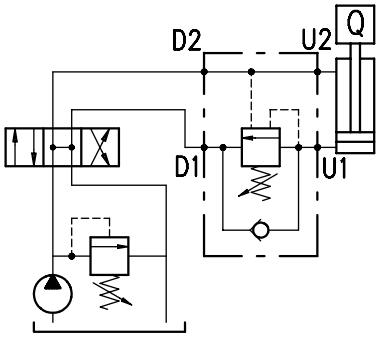
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



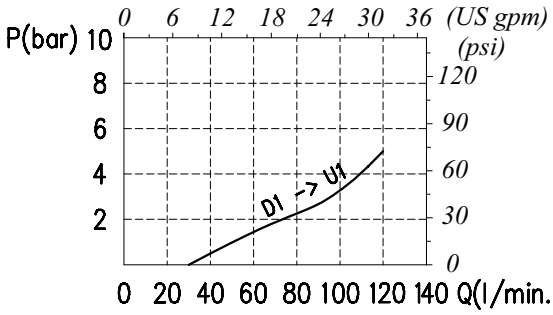
D1–D2	U2	U1*
G 3/4	G 3/4	ø13 - Ø 0.51

* Dimensions are in mm - *in*

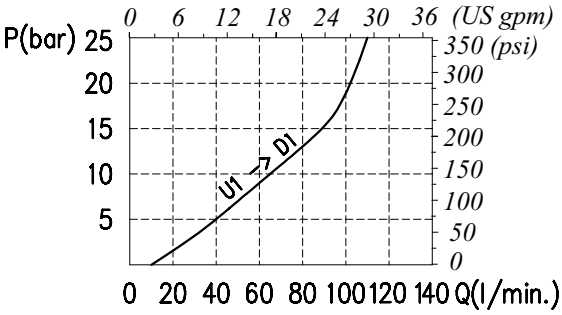


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

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

Pressure settings (bar)

TS) 5÷210 *(72.5÷3050 psi)*
TR)50÷350 (standard) *(725÷5100 psi)*
TG) 100÷700 *(1450÷10150 psi)*

Pilot ratio

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

Check valve seat

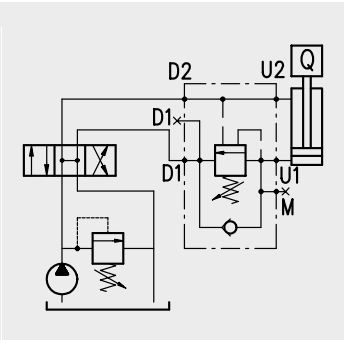
_ See body
VRR) Hardened steel

Body material

_Aluminium
ac Steel

Operation

The main features of this valve is compact dimensions and good tolerance to oil contamination.
The oil flow is allowed from D1 to U1 and is stopped in the opposite way (from U1 to D1) up to the spring setting value. Free oil flow from U1 to D1 is strictly possible when the pilot pressure in D2 and U2 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 you pilot ratio is 1:4, your setting pressure is 250 bar *(3600 psi)* and your load pressure is 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 D1, the setting value of valve poppet (1:1 ratio) will increase and the pilot pressure be negatively affected (1:1 ratio).



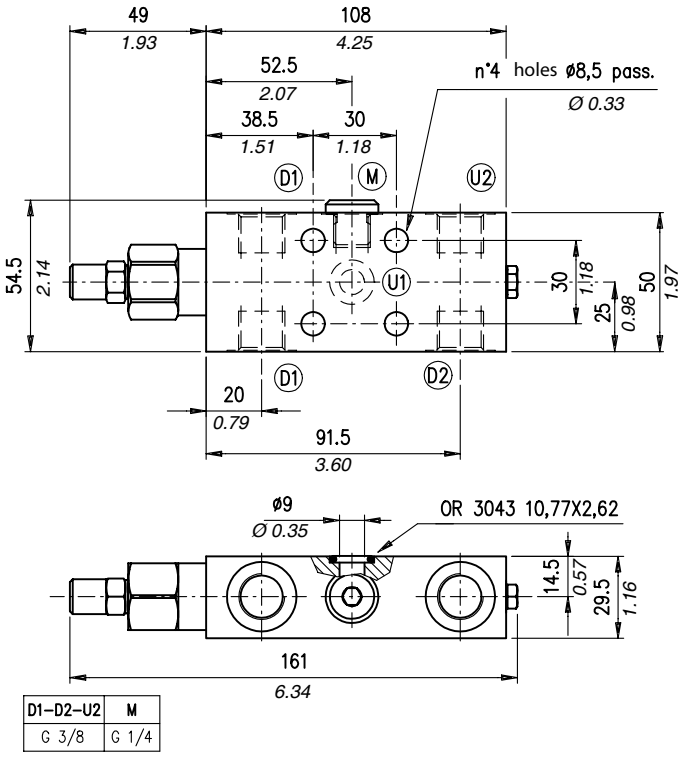
Performance

Body valves

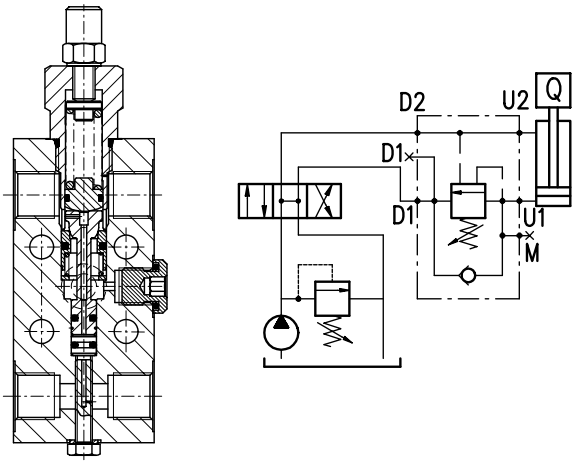
Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSL/SC/F/C 1116/38	30	*7.9*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	50÷350 bar *-725÷5100 psi*; pressure increase =131 bar-*1900 psi*/turn-*1900 psi* (test setting 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min *-15x10⁻³ in³/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	
								1,3	*2.87*
								steel	
VOSL/SC/F/C 1116/12	60	*16*						0,9	*1.98*
								aluminium	
								1,9	*4.19*
								steel	
VOSL/SC/CC/F/C 1116/38	30	*7.9*						0,6	*1.32*
								aluminium	
								1,3	*2.87*
								steel	
VOSL /SC/F/C 1116/12	60	*16*						0,9	*1.98*

Single overcenter valve, face mounting. The main features of this valve are compact dimensions and good tolerance yo oil contamination

Dimensions and hydraulic circuit

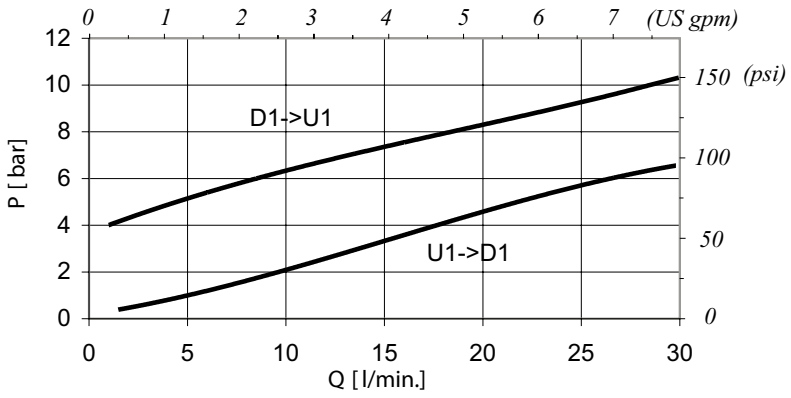


Section



Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VODL /SC /F/C 1116/ 38 / □□ . S .□□ . / □□

Pressure settings

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

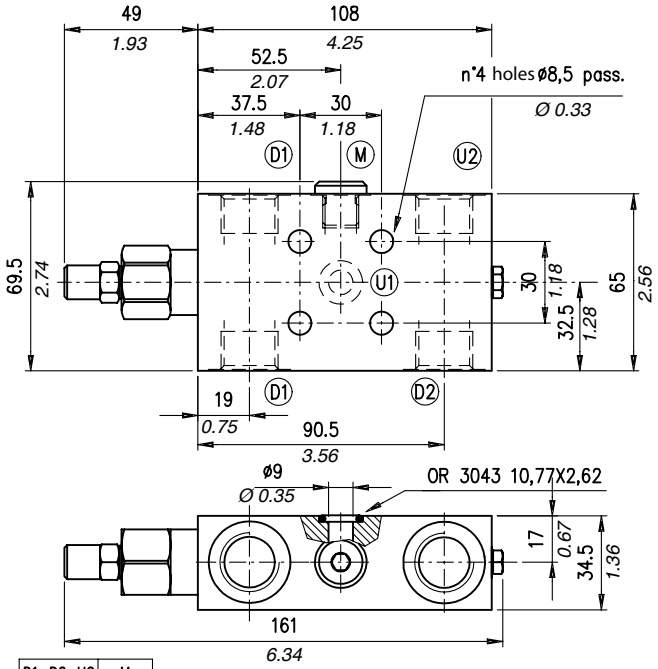
Pilot ratio

p4) 1:4
p11) 1:11

Body material

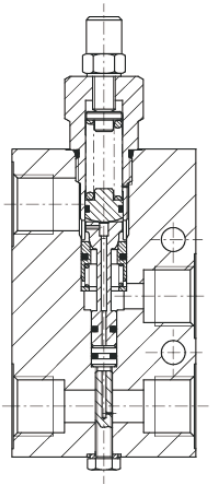
_ Aluminium
ac Steel

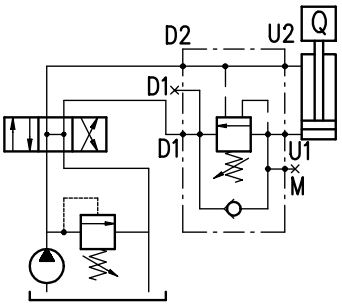
Dimensions and hydraulic circuit



D1–D2–U2	M
G 1/2	G 1/4

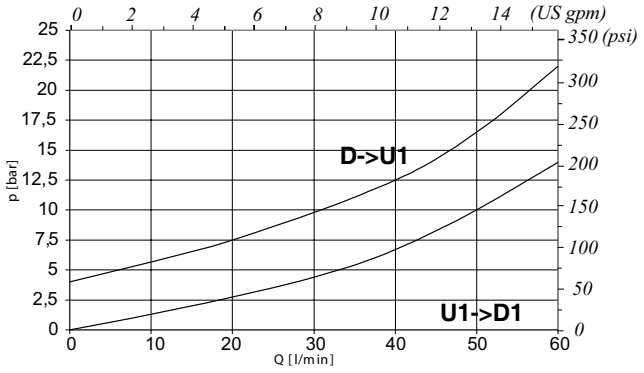
Section





Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VOSL /SC/F/C 1116 /12 □□ . S . □□ . / □□

Pressure settings (Bar)

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

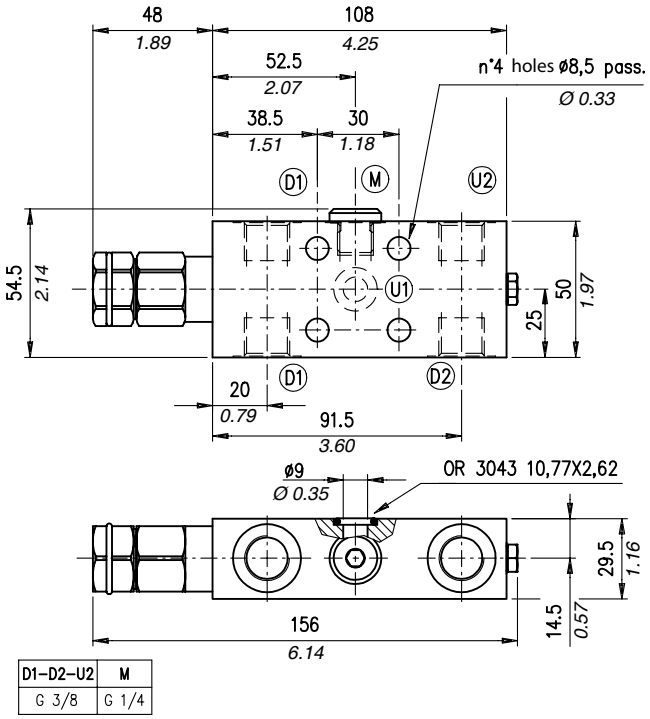
Pilot Ratio

p4) 1:4
P11) 1:11

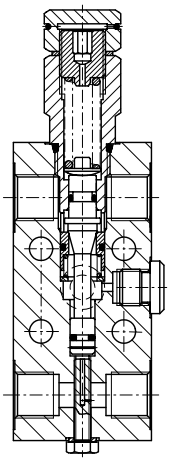
Body material

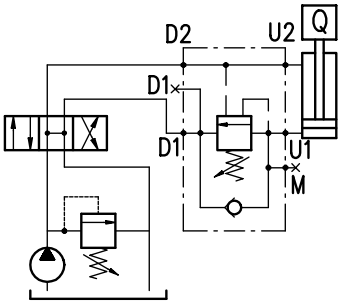
_Aluminium
ac Steel

Dimensions and hydraulic circuit



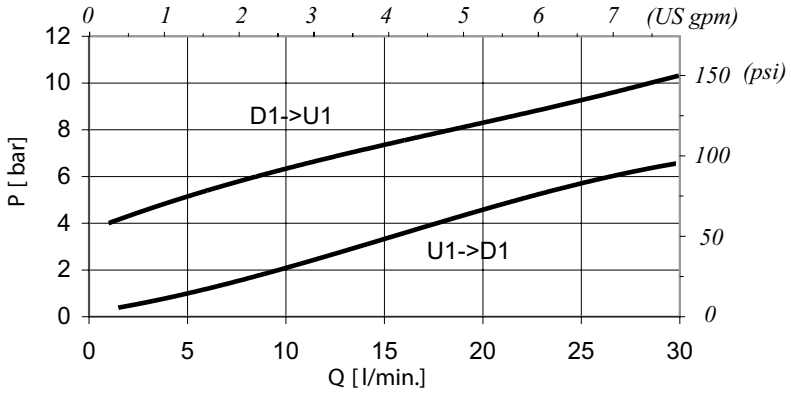
Section





Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VOSL /SC/F/C 1116 /38 □□ . S . □□ . / □□

Pressure settings (Bar)

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

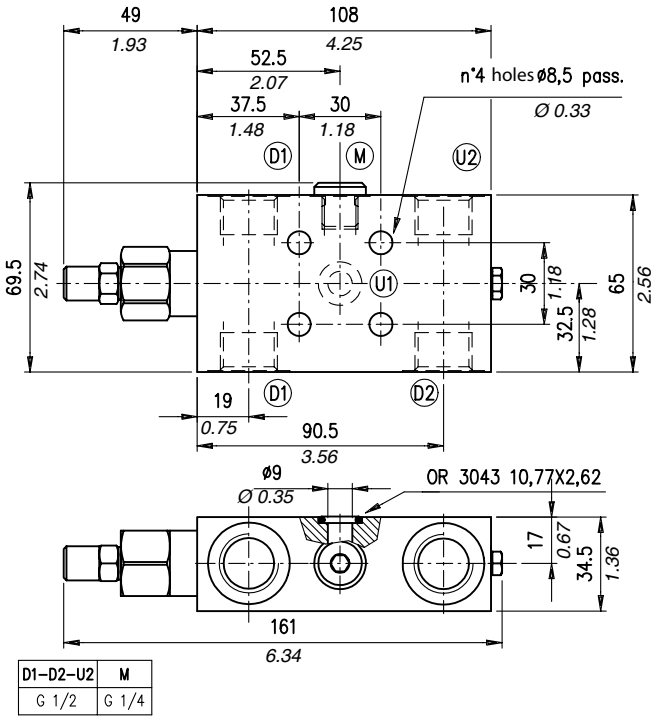
Pilot Ratio

p4) 1:4

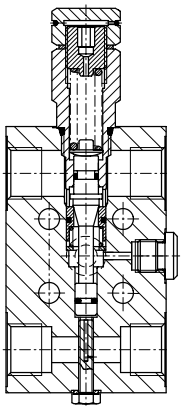
Body material

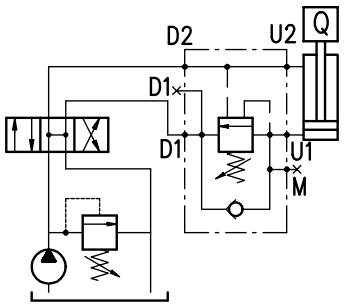
_Aluminium
ac Steel

Dimensions and hydraulic circuit



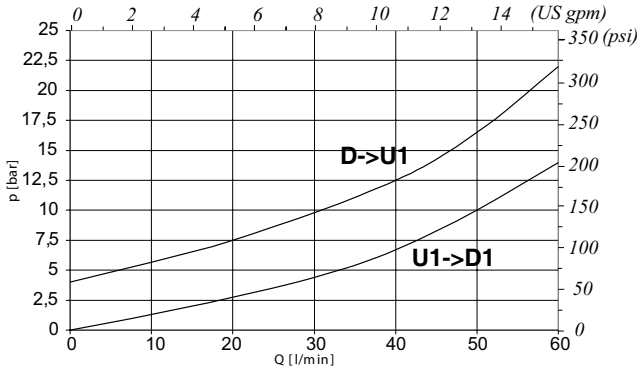
Section





Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VOSL /SC/F/C 1116 /12 □□ . S . □□ . / □□

Pressure settings (Bar)

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

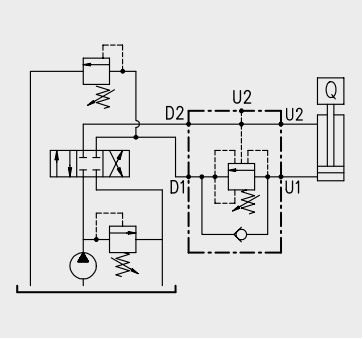
Pilot Ratio

p4) 1:4
P11) 1:11

Body material

_Aluminium
ac Steel

Operation



The oil flow is allowed from D1 to U1 and is stopped in the opposite way (from U1 to D1) up to the spring setting value. Free oil flow from U1 to D1 is strictly possible when the pilot pressure in D2 and U2 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 is 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 D1 shall negatively affect the pilot pressure (1:1 ratio).

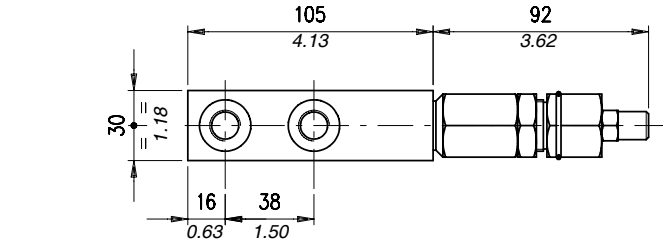
Performance

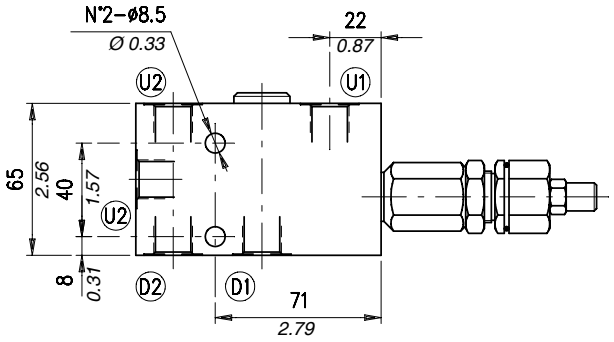
Body valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSL/CC 38*	35	*9.2*	350	*5100*	5-210 bar-*72.5÷3050 psi* (test setting 170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50-350 bar-*725÷5100 psi* (test setting 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*) 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.	1:4 (standard) 1:3 (on request only)	0,78	*1.72*
								aluminium	
								1,52	*3.35*
								steel	
VOSL/CC 12**	70	*18*					1:7 (standard) 1:3 (on request only)	1,00	*2.20*
								aluminium	
								1,95	*4.30*
								steel	
VOSL/CC 34***	100	*26*						1,85	*4.08*
								aluminium	
								3,55	*7.83*
								steel	

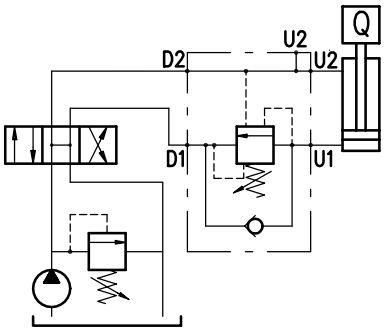
overcenter cartridge: *VMPD 38 - **VMPD12 - ***VMPD34

Dimensions and hydraulic circuit



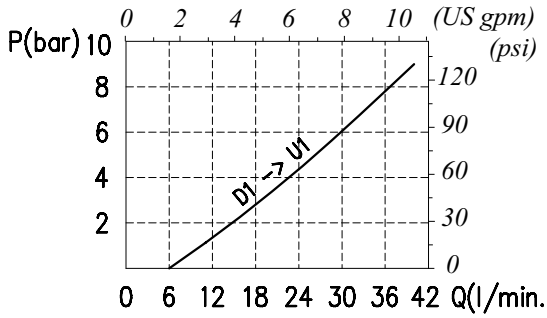


D1–D2	U1–U2
G 3/8	G 3/8

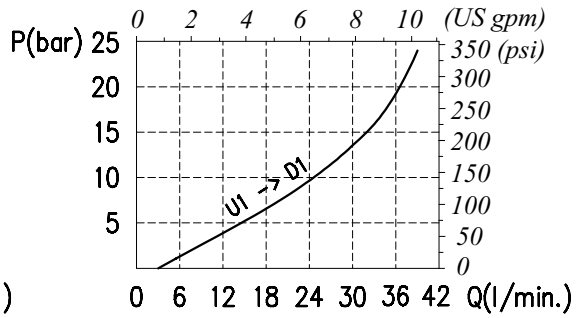


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

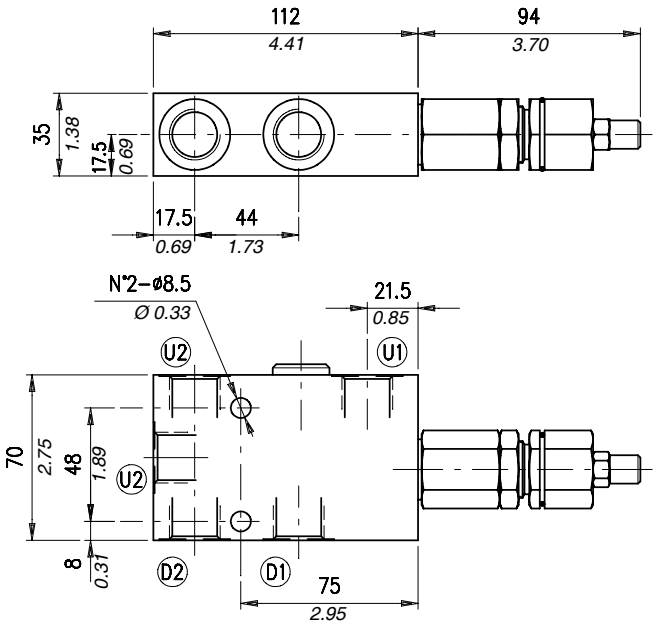


Order code

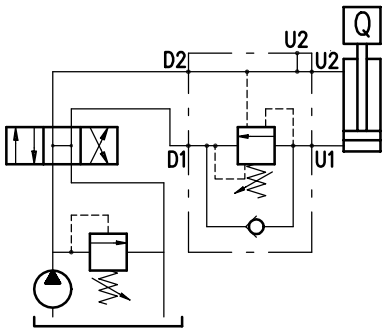
VOSL /CC 38 / □ . S .□□ . □□ . □□ / □□

Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body Material
TS) 5÷210 bar *(72.5÷3050 psi)*	**p3)** 1:3	_ Without damper (Standard)	_ See body	_ Aluminium
TR) 50÷350 bar *(725÷5100 psi)* (Standard)	**p4)** 1:4 (Standard)	**PG)** With damper	**VR)** Hardened steel	**ac** Steel
TG) 100÷700 bar *(1450÷10150 psi)*				

Dimensions and hydraulic circuit

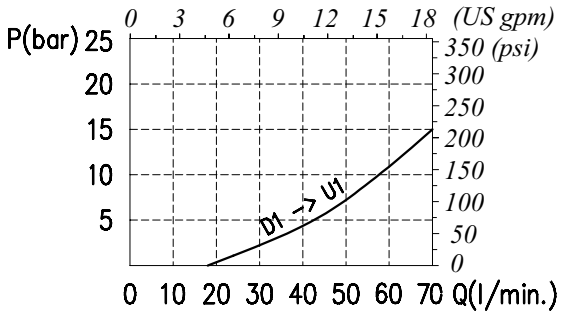


D1–D2	U1–U2
G 1/2	G 1/2

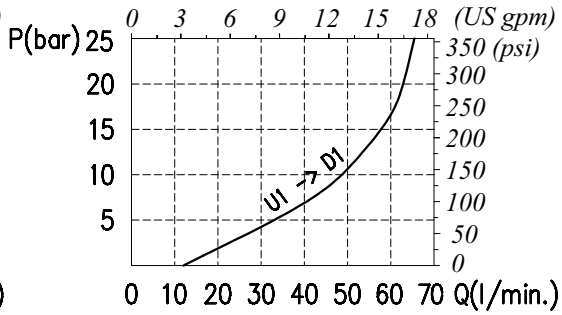


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /CC 12 / □ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

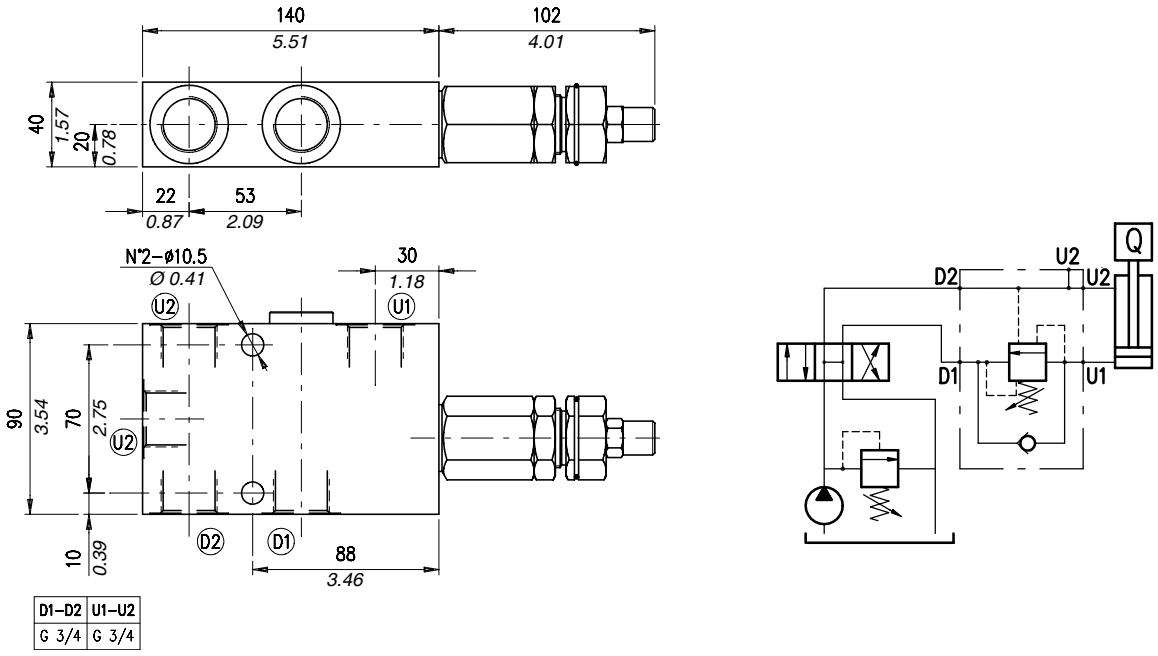
Check valve seat

_ See body
VRR) Hardened steel

Body material

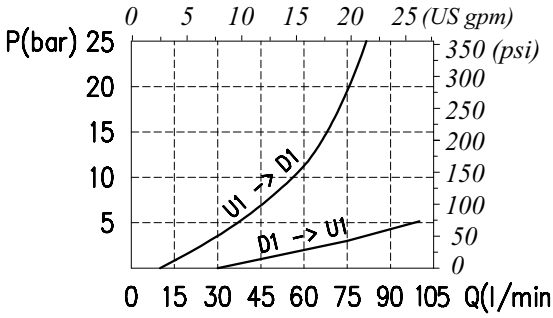
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VOSL /CC 34 / □ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

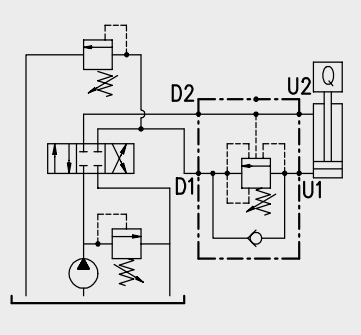
Check valve seat

_ See body
VR) Hardened steel

Body material

_ Aluminium
ac Steel

Operation



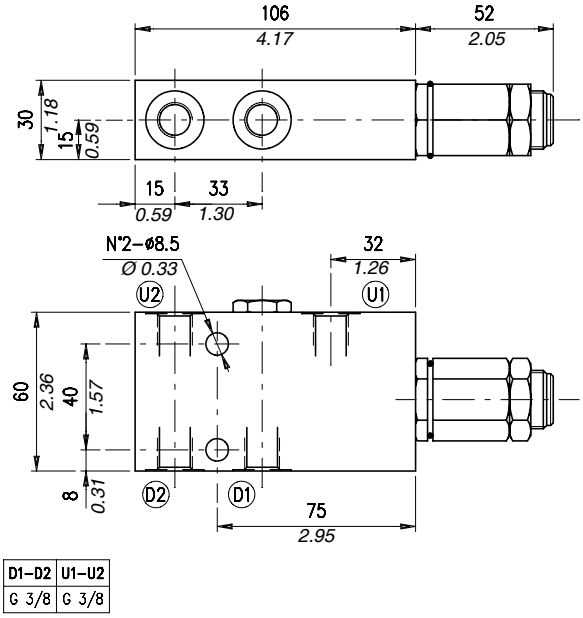
The oil flow is allowed from D1 to U1 and is stopped in the opposite way (from U1 to D1) up to the spring setting value. Free oil flow from U1 to D1 is strictly possible when the pilot pressure in D2 and U2 is strong enough to pilot the valve poppet.
Use the following formula to assert the applicable 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 is 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*].
Counterpressure arise in D1 shall negatively effect the pilot pressure (1:1 ratio).

Performance

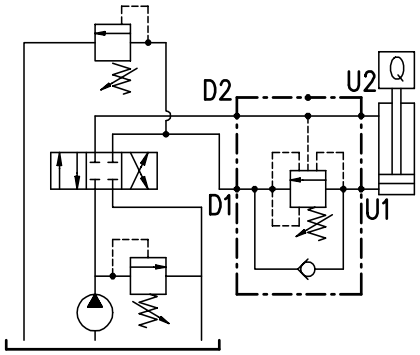
Body valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSL/SC/CC 38	40	*11*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar *-72.5÷3050 psi* (test setting 170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar *-725÷5100 psi* (test setting 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*) 100÷700 bar *-1450÷10150 psi* (test setting 350 bar-*5100 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min *-15x10⁻³ in³/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	
								1,44	*3.17*
								steel	
VOSL/SC/CC 12	75	*20*					1:7 (standard type) 1:3 (on request only)	0,95	*2.09*
								aluminium	
								2,03	*4.47*
								steel	
VOSL/SC/CC 34	120	*32*						1,45	*3.20*
								aluminium	
								3,28	*7.23*
								steel	
VOSL/SC/CC 100	180	*48*						3,10	*6.83*
								aluminium	
								7,54	*16.62*
								steel	
VOSL/SC/CC/C1116/38	30	*7.9*			50÷350 bar-*725÷5100 psi*; pressure increase =140 bar/turn-*2030 psi* (test setting 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*)		1:4 (standard type)	0,9	*1.98*
								aluminium	
								1,95	*4.30*
								steel	
VOSL/SC/CC/C1116/12	60	*16*						0,9	*1.98*
								aluminium	
								1,95	*4.30*
								steel	

Dimensions and hydraulic circuit

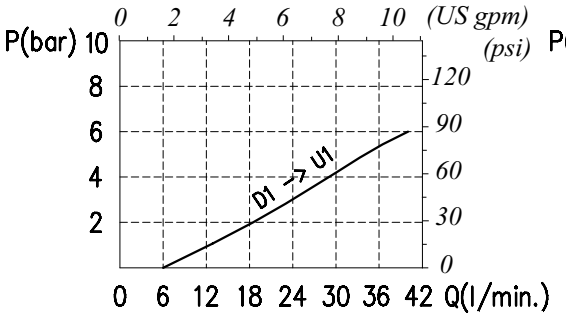


D1–D2	U1–U2
G 3/8	G 3/8

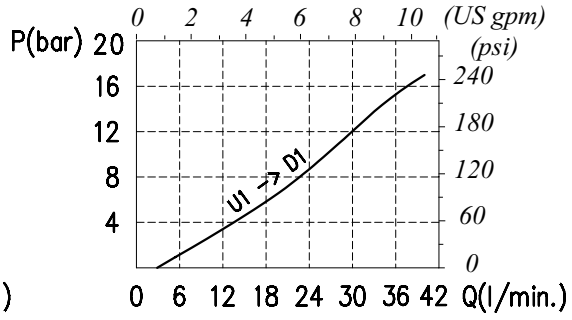


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /SC /CC 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)

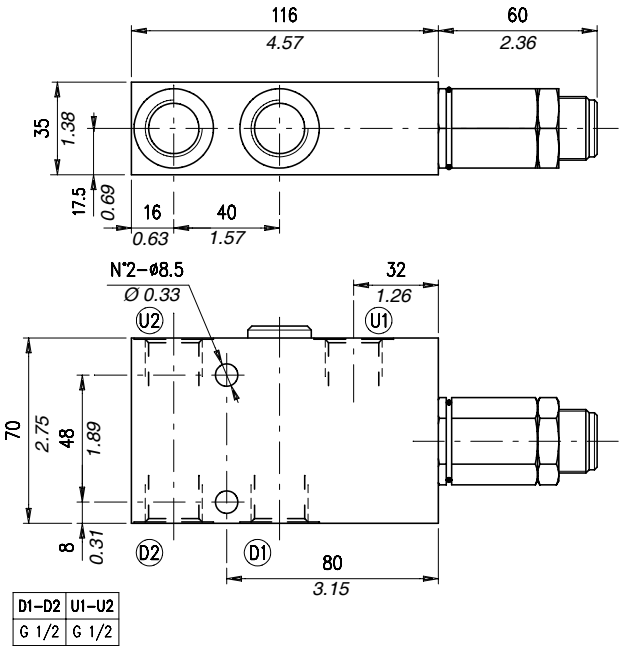
Check valve seat

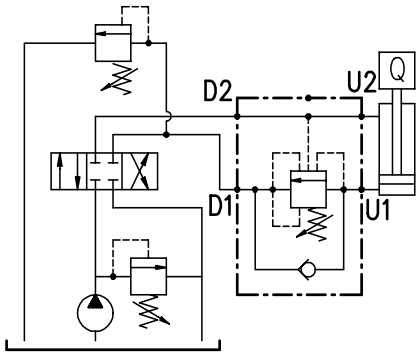
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

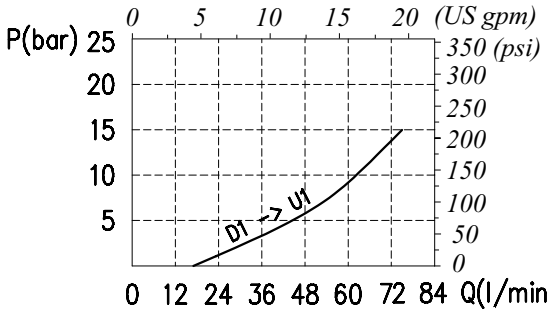
Dimensions and hydraulic circuit



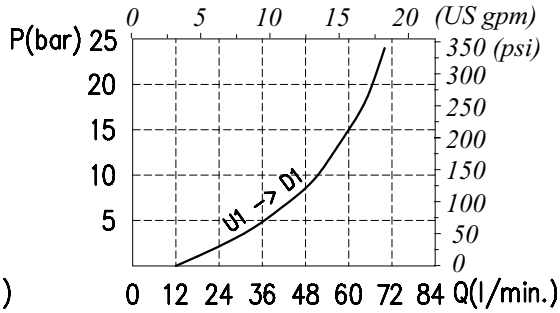


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

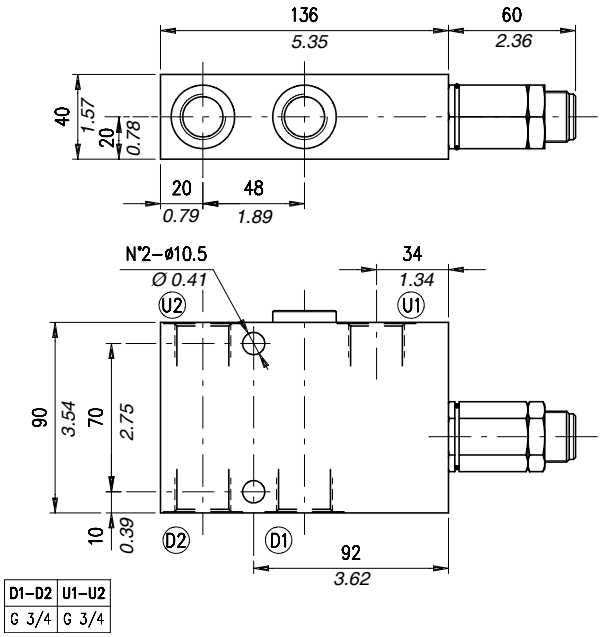


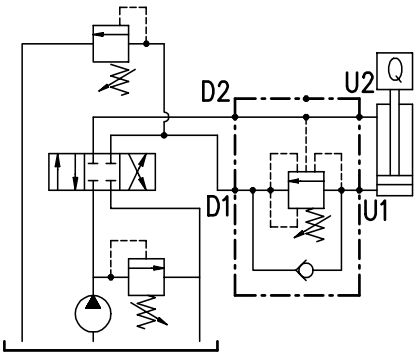
Order code

VODL /SC /CC 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 **p4)** 1:7 (Standard)	_ Without damper (Standard) **PG)** With damper	_ See body **VRR)** Hardened steel	_ Aluminium **ac** Steel

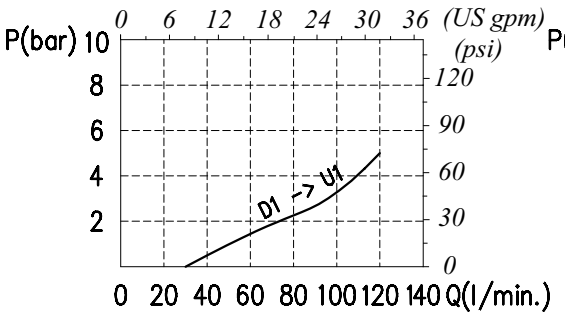
Dimensions and hydraulic circuit



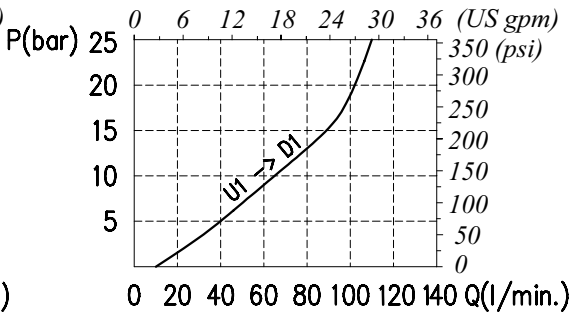


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /SC /CC 34 / □□ . 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)

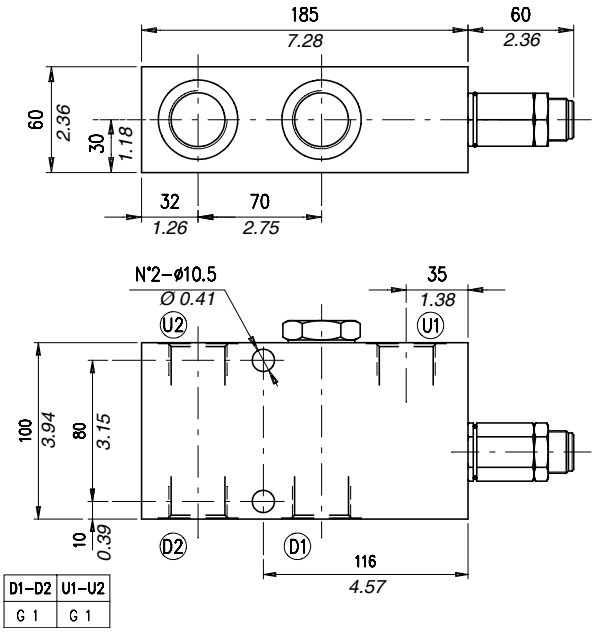
Check valve seat

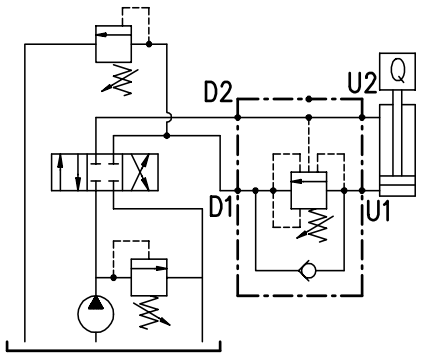
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

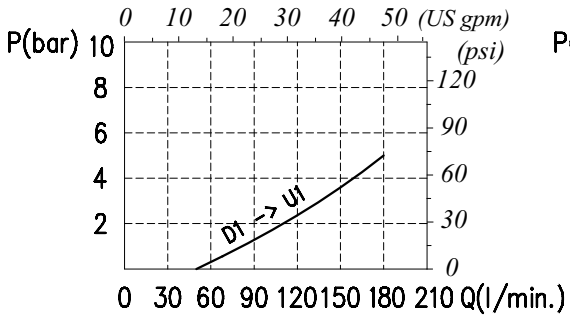
Dimensions and hydraulic circuit



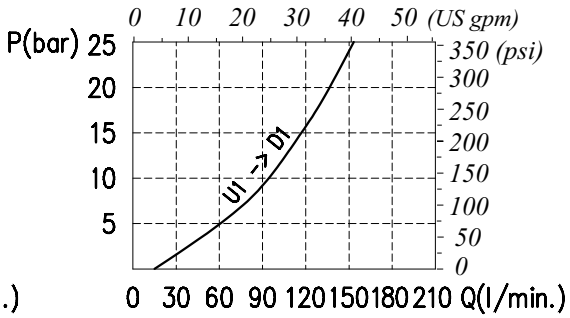


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /SC /CC 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)

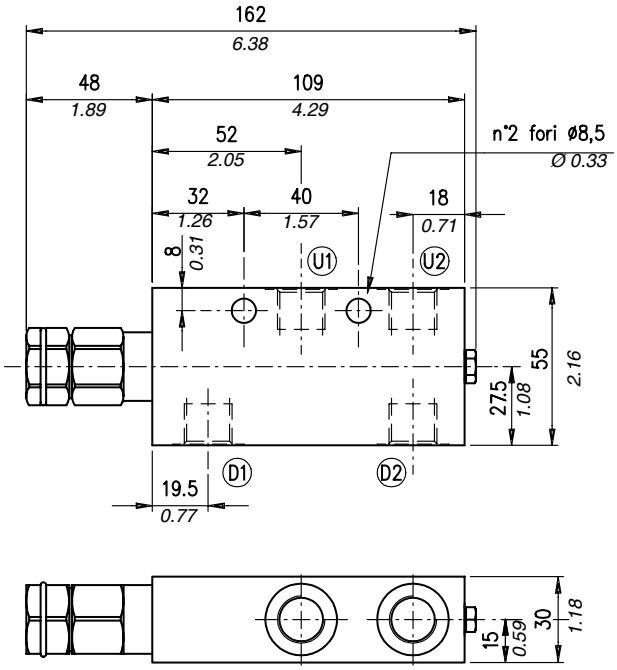
Check valve seat

_ See body
VRR) Hardened steel

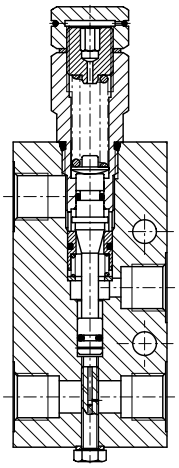
Body material

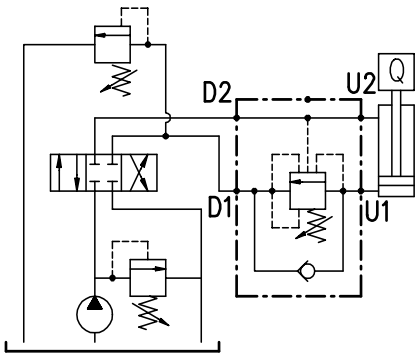
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



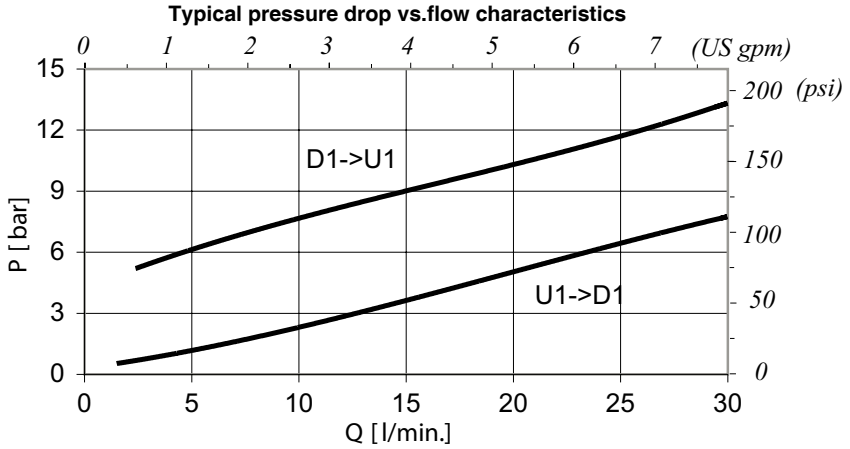
Section





D1–D2	U1–U2
G 3/8	G 3/8

Rating diagrams



Order code

VOSL /SC /CC/C 1116/ 38 / □□ . S .□□ . / □□

Pressure settings

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

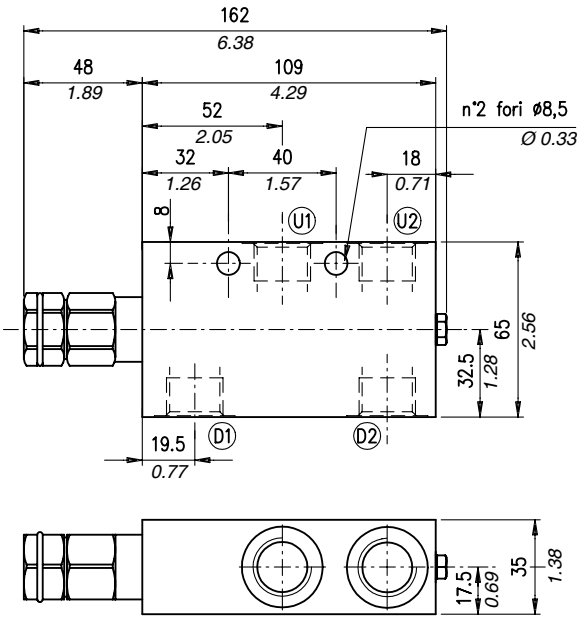
Pilot ratio

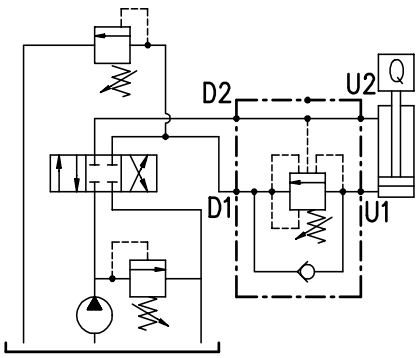
p4) 1:4
p11) 1:11

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

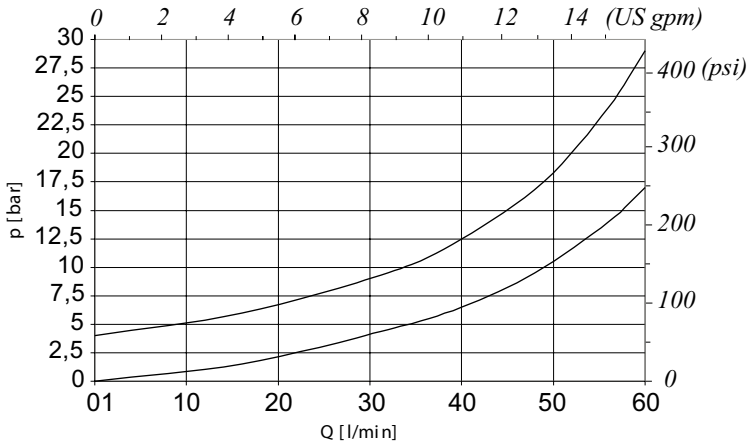




D1–D2	U1–U2
G 1/2	G 1/2

Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VOSL /SC /CC/C 1116/ 12 / □□ . S .□□ . / □□

Pressure settings

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

Pilot ratio

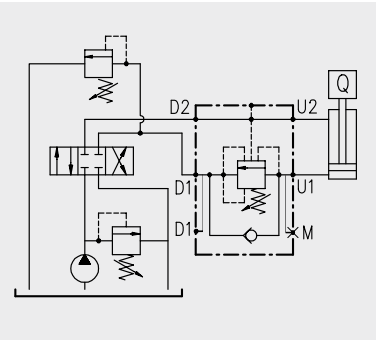
p4) 1:4
p11) 1:11

Body material

_ Aluminium
ac Steel

Performance

The main features of this valve is compact dimensions and good tolerance to oil contamination.
The oil flow is allowed from D1 to U1 and is stopped in the opposite way (from U1 to D1) up to the spring setting value. Free oil flow from U1 to D1 is strictly possible when the pilot pressure in D2 and U2 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 you pilot ratio is 1:4, your setting pressure is 250 bar *(3600 psi)* and your load pressure is 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 D1, the setting value of valve poppet (1:1 ratio) will increase and the pilot pressure be negatively affected (1:1 ratio).

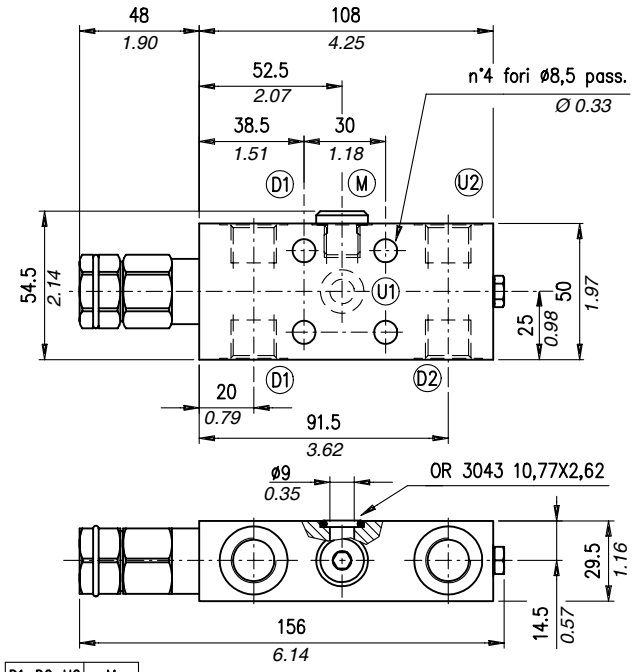


Performance

Body valves

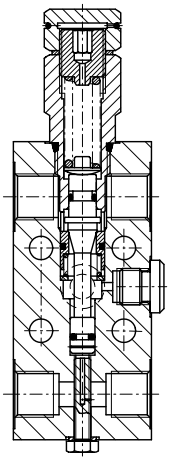
Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSL/SC/CC/F/C 1116/38	30	*7.9*	210 (alum.)	*3050 (alum.)*	50÷350 bar *-725÷5100 psi*; pressure increase =131 bar-*1900 psi*/turn (test setting 280 bar *-4060 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	
								1,3	*2.87*
								steel	
VOSL/SC/CC/F/C 1116/12	60	*16*	350 (steel)	*5100 (steel)*				0,9	*1.98*
								aluminium	
								1,9	4.19
								steel	

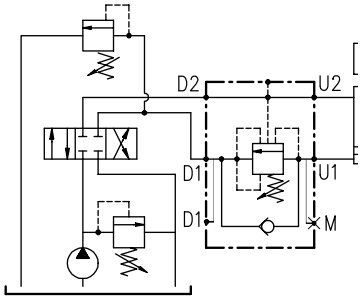
Dimensions and hydraulic circuit



D1–D2–U2	M
G 3/8	G 1/4

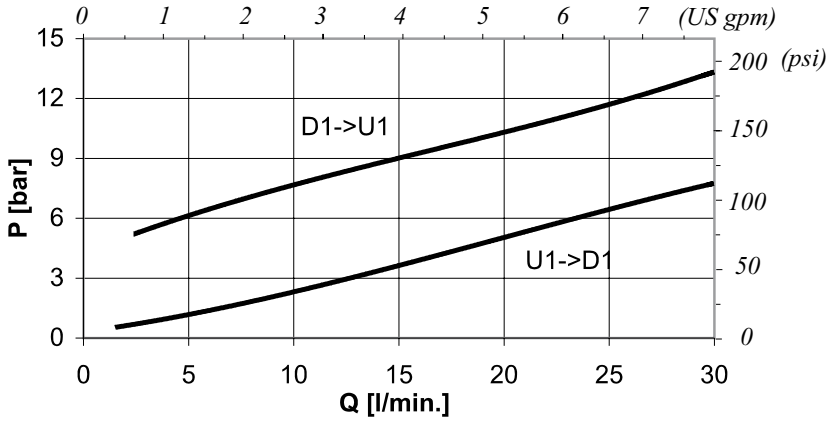
Section





Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VOSL /SC/CC /F/C 1116/ 38 / □□ . S .□□ . / □□

Pressure settings

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

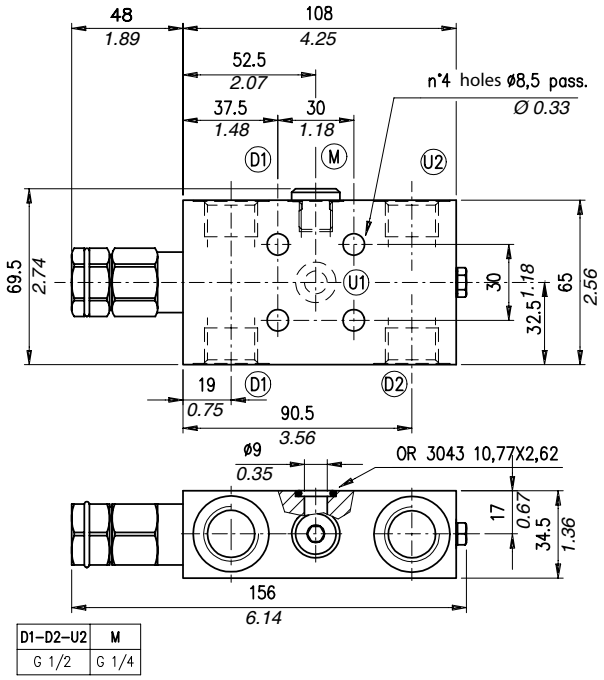
Pilot ratio

p4) 1:4
p11) 1:11

Body material

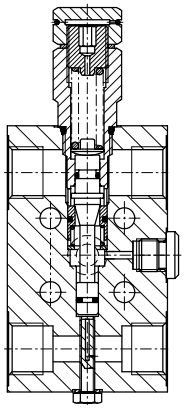
_ Aluminium
ac Steel

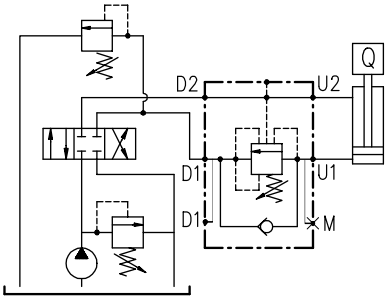
Dimensions and hydraulic circuit



D1–D2–U2	M
G 1/2	G 1/4

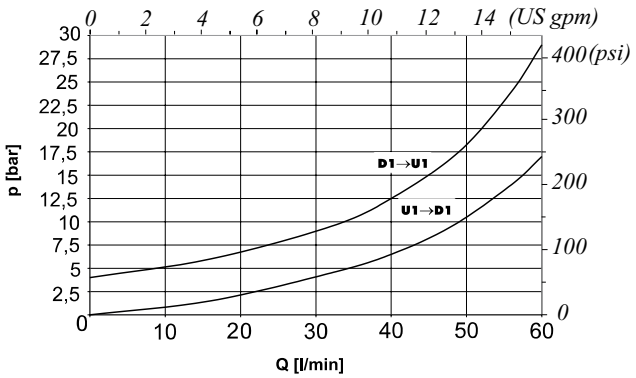
Section





Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VOSL /SC /CC/F/C 1116/ 12 □□ . S . □□ . / □□

Pressure settings (Bar)

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

Pilot Ratio

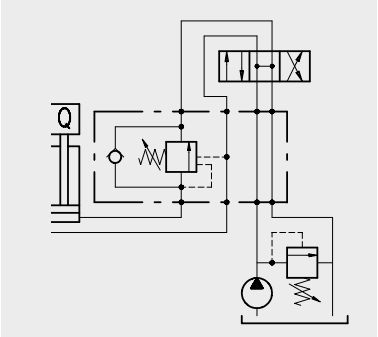
p4) 1:4
P11) 1:11

Body material

_Aluminium
ac Steel

Operation

The oil flow is allowed from A (B) to A1 (B1) and is stopped in the opposite way from A1 (B1) to A (B) up to the spring setting value. Free oil flow from A1 (B1) to A (B) is strictly possible when the pilot pressure in B and B1 (A and A1) 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 is 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*].
Counterpressure in A (B) increase the setting value (1:1 ratio) of the poppet spring and negatively affect the pilot pressure (1:1 ratio).
Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action.

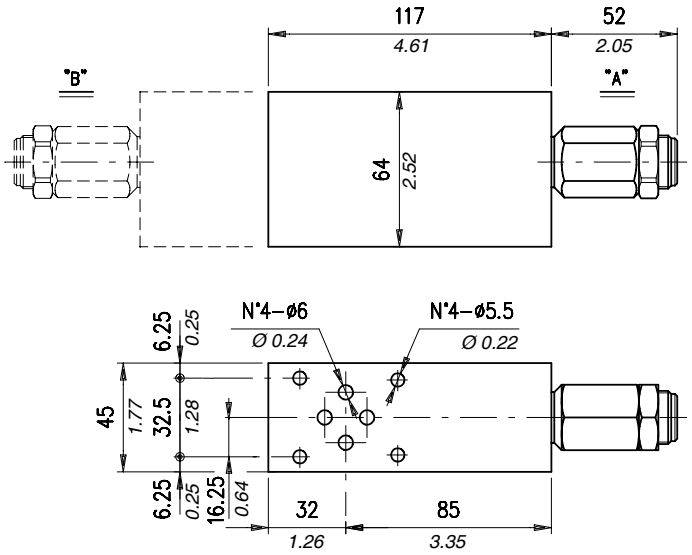


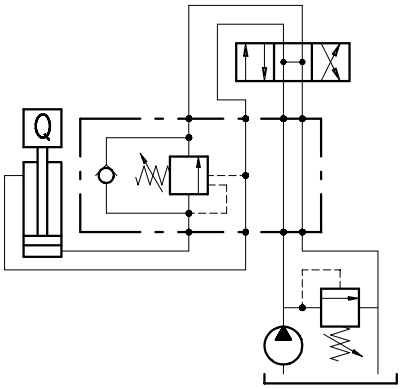
Performance

Body valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from A1 (B1) to A (B)	Pilot ratio	Weight		Overcenter cartridge
	l/min	*US gpm*	bar	*psi*				kg	*lb*	
VOSL /ML 6-38	35	*9.2*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar *-72.5÷3050 psi* test setting 150 bar *-2200 psi* at 5 l/min. *-1.3 US gpm*) 50÷350 bar *-725÷5100 psi* (test setting 280 bar *-4060 psi* at 5 l/min. *-1.3 US gpm*) 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.	1:4 (standard type) 1:3 (on request only)	1,15	*2.53*	VMPD 38
								aluminium		
								2,59	*5.71*	
								steel		
VOSL /ML 10-12	70	*18*					1:7 (standard type) 1:3 (on request only)	2,17	*4.78*	VMPD 12
								aluminium		
								5,30	*11.68*	
								steel		

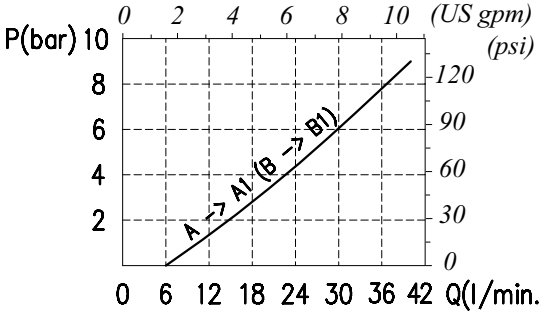
Dimensions and hydraulic circuit



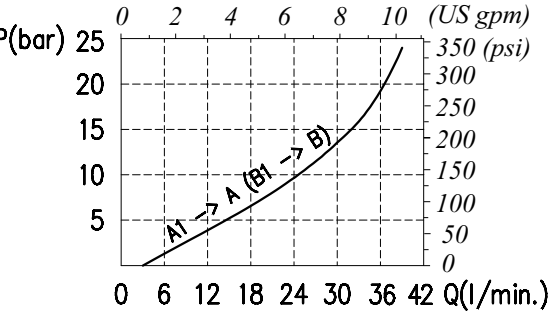


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSL /ML 6-38 □ / □□ . S .□□ . □□ . □□ / □□

Direction controlled

A
B

Pressure settings

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

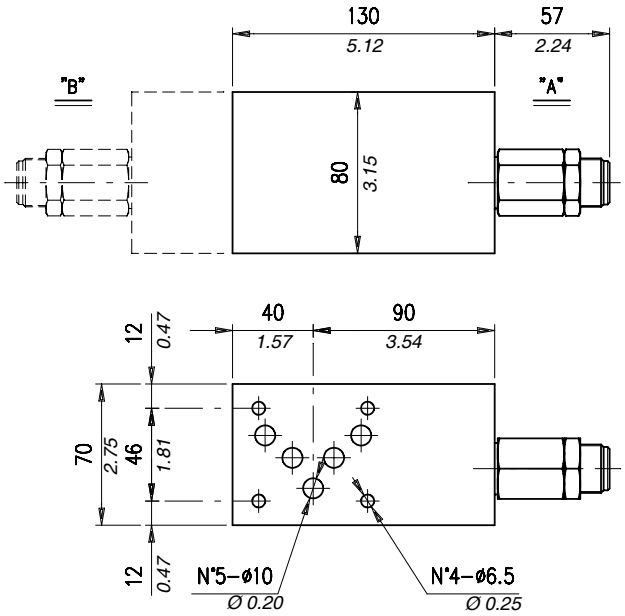
Check valve seat

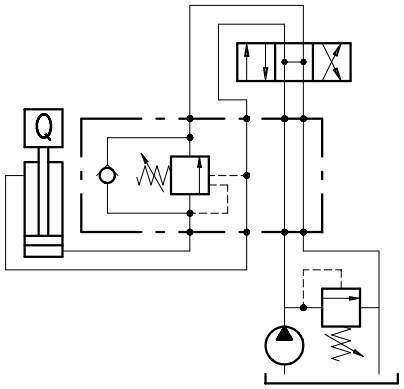
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

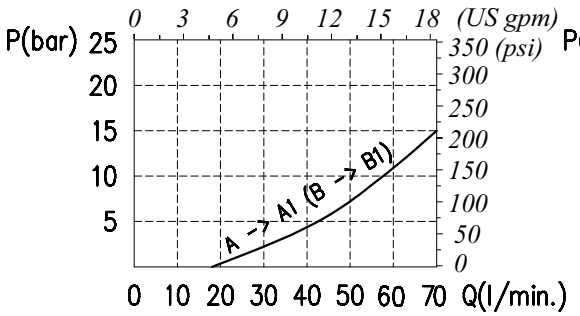
Dimensions and hydraulic circuit



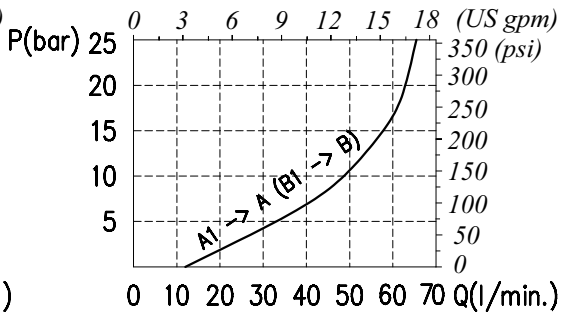


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



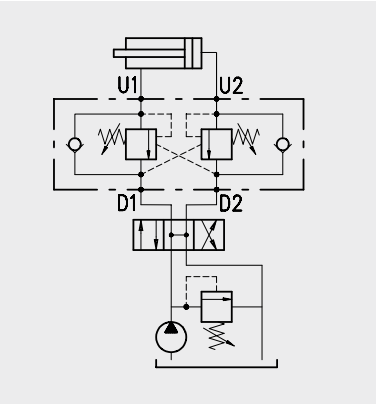
Order code

VOSL /ML 10-12 □ / □□ . S .□□ . □□ . □□ / □□

Direction controlled	Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body material
A	**TS)** 5÷210 bar *(72.5÷3050 psi)* (Standard)	**p3)** 1:3	_ Without damper (Standard)	_ See body	_ Aluminium
B	**TR)** 50÷350 bar *(725÷5100 psi)*	**p7)** 1:7 (di serie)	**PG)** With damper	**VRR)** Hardened steel	**ac** Steel
	TG) 100÷700 bar *(1450÷10150 psi)*				

Operation

The oil flow is allowed from D1 (D2) to U1 (U2) and is stopped in the opposite way from U1 (U2) to D1 (D2) up to the spring setting value. Free oil flow from U1 (U2) to D1 (D2) is strictly possible when the pilot pressure in D2 and U2 (D1 and U1) 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 is 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 D1 (D2), the setting value of valve poppet (1:1 ratio) will increase and the pilot pressure be negatively affected (1:1 ratio). Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action.



Performance

Body valves

Type	Max. flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 (U2) to D1 (D2)	Pilot ratio	Weight		Overcenter cartridge
	l/min	*US gpm*	bar	*psi*				kg	*lb*	
VODL 38	35	*9.2*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar *-72.5÷3050 psi* (test setting 150 bar-*2200 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar *-725÷5100 psi* (test setting 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*) 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.	1:4 (standard type) 1:3 (on request only)	1,23	*2.71*	VMPD 38
								aluminium		
								2,21	*4.87*	
								steel		
VODL 12	70	*18*					1:7 (standard type) 1:3 (on request only)	1,58	*3.48*	VMPD 12
								aluminium		
								2,83	*6.24*	
								steel		
VODL 34 (100)	**(34)** 100	*26*						**(34)** 2,98	*6.57*	VMPD 34
								aluminium		
								(34) 5,15	*11.35*	
								steel		
	(100) 180	*48*						**(100)** 4,79	*10.56*	
								aluminium		
								(100) 9,52	*20.99*	
								steel		
VODL/F 38	35	*9.2*					1:4 (standard type) 1:3 (on request only)	1,20	*2.64*	VMPD 38
								aluminium		
								2,20	*4.85*	
								steel		
VODL/F 12	70	*18*					1:7 (standard type) 1:3 (on request only)	1,57	*3.46*	VMPD 12
								aluminium		
								2,81	*6.19*	
								steel		

Body valves

<table>
<tr><th rowspan="2">Type</th><th colspan="2">Max. flow</th><th colspan="2">Maximum pressure</th><th rowspan="2">Application range with standard springs</th><th rowspan="2">Oil leakage from U1 (U2) to D1 (D2)</th><th rowspan="2">Pilot ratio</th><th colspan="2">Weight</th><th rowspan="2">Overcenter cartridge</th></tr>
<tr><th>l/min</th><th>US gpm</th><th>bar</th><th>psi</th><th>kg</th><th>lb</th></tr>
<tr><td rowspan="2">VODL/F 34 (100)</td><td>(34)
100</td><td>26</td><td rowspan="9">210 (alum.)

350 (steel)</td><td rowspan="9">3050 (alum.)

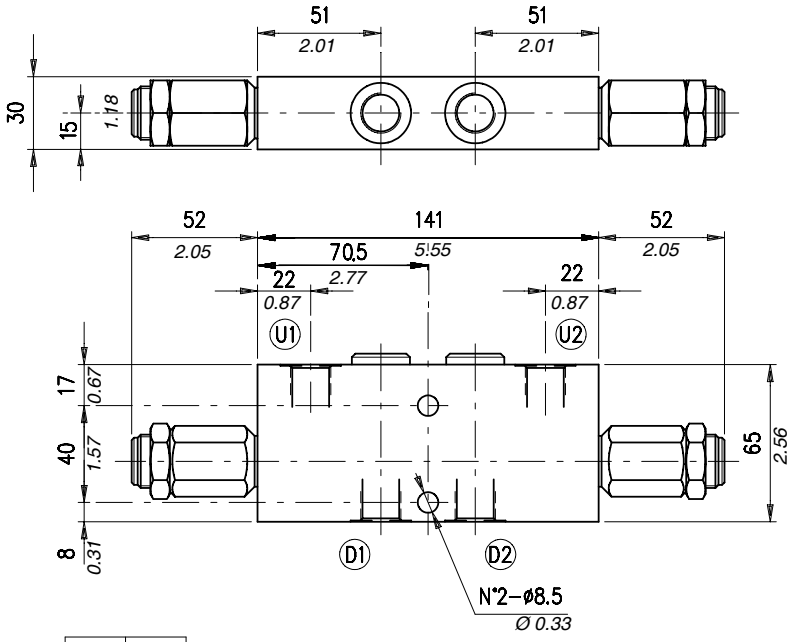
5100 (steel)</td><td rowspan="3">5÷210 bar
-72.5÷3100 psi
(test setting 150 bar -2200 psi at 5 l/min. -1.3 US gpm)

50÷350 bar
-725÷5100 psi
(test setting 280 bar -4060 psi at 5 l/min.-1.3 US gpm)

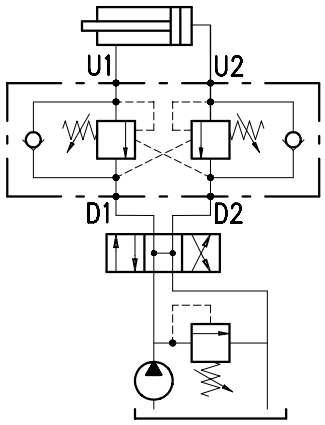
100÷700 bar
-1450÷10150 psi
(test setting 350 bar-5100 psi at 5 l/min.-1.3 US gpm)</td><td rowspan="10">0,25 cm³/min -15x10⁻³ in³/min (5 drops) at 210 bar -3050 psi and 80% of the spring setting value with oil viscosity of 46 cSt.</td><td rowspan="3">1:7 (standard type)
1:3 (on request only)</td><td>(34)
2,90</td><td>6.39</td><td rowspan="3">VMPD 34</td></tr>
<tr><td colspan="2">aluminium</td></tr>
<tr><td>(34)
5,17</td><td>11.40</td></tr>
<tr><td rowspan="2">(100)
180</td><td rowspan="2">48</td><td colspan="2">steel</td></tr>
<tr><td rowspan="3">1:4 (standard type)
1:3 (on request only)</td><td>(100)
4,76</td><td>10.49</td></tr>
<tr><td>VODL/SC 38</td><td>40</td><td>11</td><td colspan="2">aluminium</td><td rowspan="3">-</td></tr>
<tr><td colspan="2">steel</td></tr>
<tr><td>VODL/SC 12</td><td>75</td><td>20</td><td rowspan="4">1:7 (standard type)
1:3 (on request only)</td><td>1,13</td><td>2.49</td></tr>
<tr><td>VODL/SC 34</td><td>120</td><td>32</td><td colspan="2">aluminium</td><td rowspan="3">-</td></tr>
<tr><td>VODL/SC 100</td><td>180</td><td>48</td><td>2,16</td><td>4.76</td></tr>
<tr><td colspan="2">steel</td></tr>
<tr><td>VODL/SC/VU 14</td><td>20</td><td>5.2</td><td>350</td><td>5100</td><td>5÷210 bar
-72.5÷3050 psi
(test setting 150 bar -2200 psi at 5 l/min.-1.3 US gpm)

50÷350 bar
-725÷5100 psi
(test setting 280 bar-4060 psi at 5 l/min.-1.3 US gpm)</td><td>1:6</td><td>1,75</td><td>3.86</td><td>-</td></tr>
<tr><td rowspan="2">VODL/SC/C 1116/38</td><td rowspan="2">30</td><td rowspan="2">7.9</td><td rowspan="3">210 (alum. body white anodized)
350 (steel body yellow zinc plated)</td><td rowspan="3">3050 (alum. body white anodized)
5100 (steel body yellow zinc plated)</td><td rowspan="3">50÷350 bar
-725÷5100 psi-;
pressure increase =131 bar/turn -1900 psi (test setting 280 bar-4060 psi at 5 l/min.-1.3 US gpm)</td><td rowspan="2">1:4</td><td>1,1</td><td>2.42</td><td rowspan="2">-</td></tr>
<tr><td colspan="2">aluminium</td></tr>
<tr><td rowspan="2">VODL/SC/C 1116/12</td><td rowspan="2">60</td><td rowspan="2">16</td><td>2,1</td><td>4.63</td></tr>
<tr><td colspan="2">steel</td><td rowspan="2">1:4</td><td>1,4</td><td>3.09</td><td rowspan="2">-</td></tr>
<tr><td colspan="2">aluminium</td></tr>
<tr><td colspan="2">2,8</td><td>6.17</td><td colspan="2">steel</td></tr>
</table>

Dimensions and hydraulic circuit

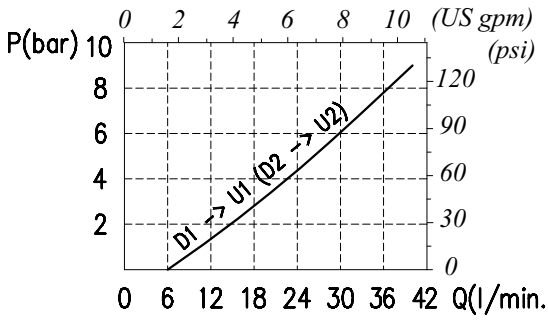


D1–D2	U1–U2
G 3/8	G 3/8

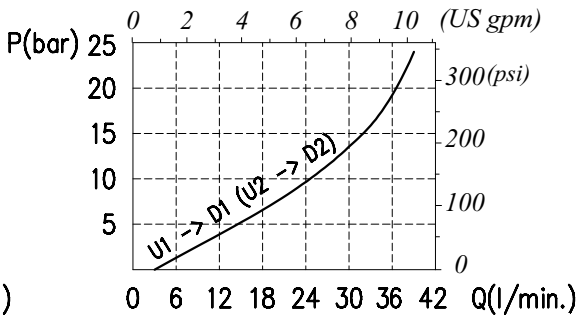


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL 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

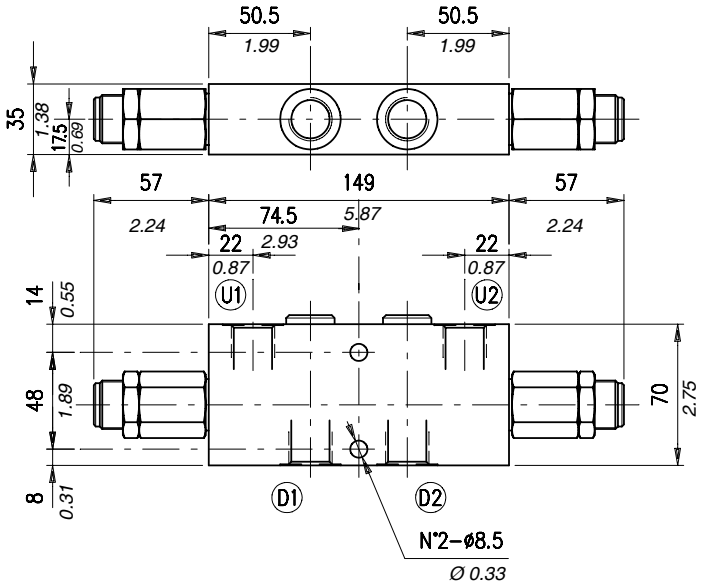
Check valve seat

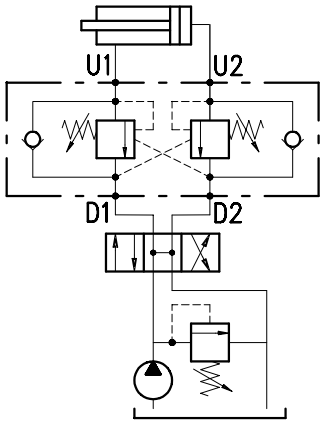
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

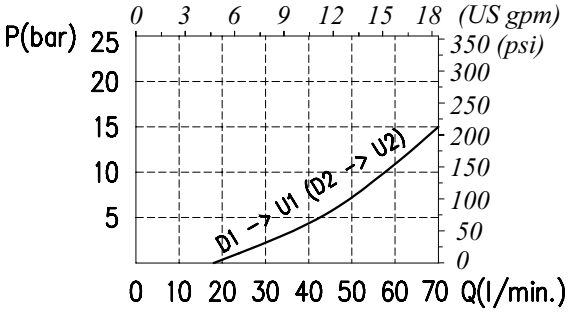




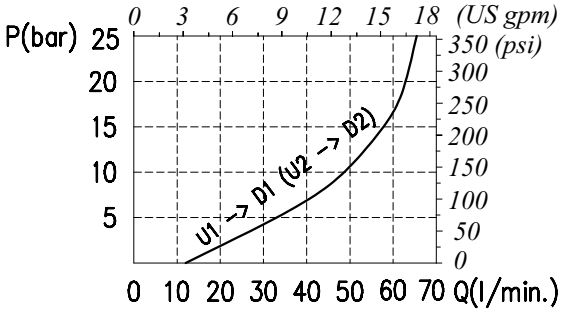
D1–D2	U1–U2
G 1/2	G 1/2

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL 12 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

Without damper (Standard)
PG) With damper

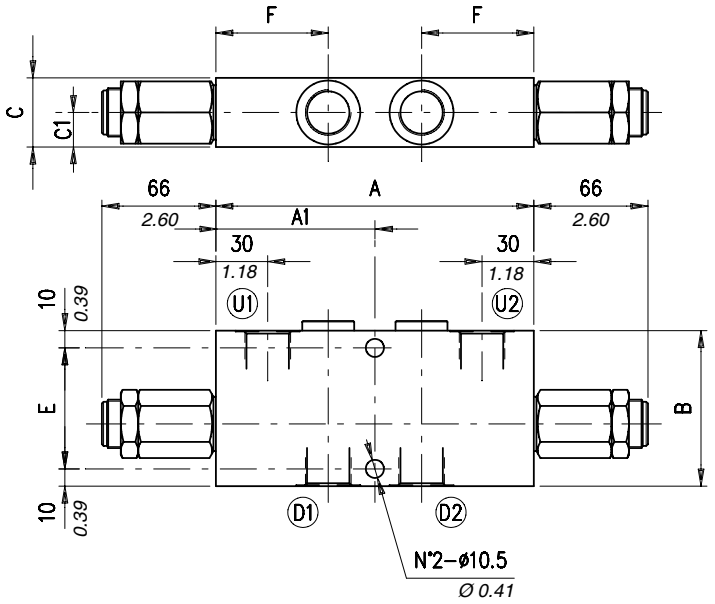
Check valve seat

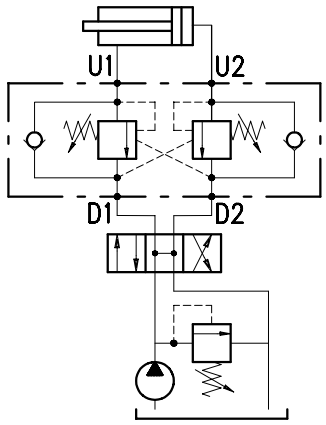
See body
VRR) Hardened steel

Body material

Aluminium
ac Steel

Dimensions and hydraulic circuit



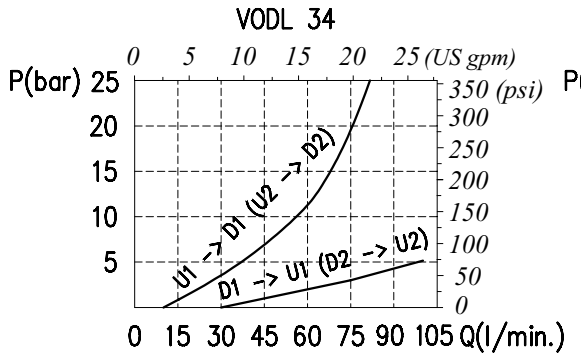


VODL	D1–D2	U1–U2	A*	A1*	B*	C*	C1*	E*	F*
34	G 3/4	G 3/4	184 - *7.24*	92 - *3.62*	90 - *3.54*	40 - *1.57*	20 - *0.78*	70 - *2.75*	65 - *2.56*
100	G 1	G 1	218 - *8.58*	109 - *3.62*	100 - *3.93*	60 - *2.36*	30 - *1.18*	80 - *3.15*	76 - *2.99*

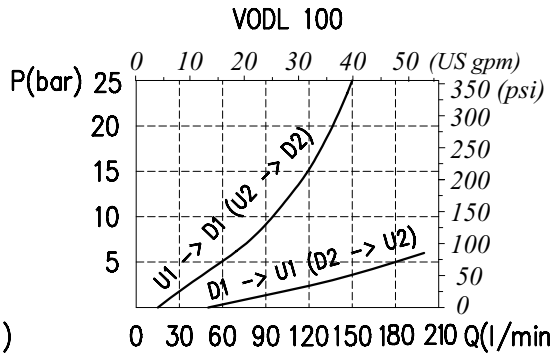
* Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL □□ / □ . S .□□ . □□ . □□ / □□

Port size

34) G 3/4
100) G 1

Pressure settings

TS) 5÷210 bar
TR) 50÷350 bar (Standard)
TG) 100÷700 bar

Pilot ratio

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

Type of pilot

_ Without damper (Standard)
PG) With damper

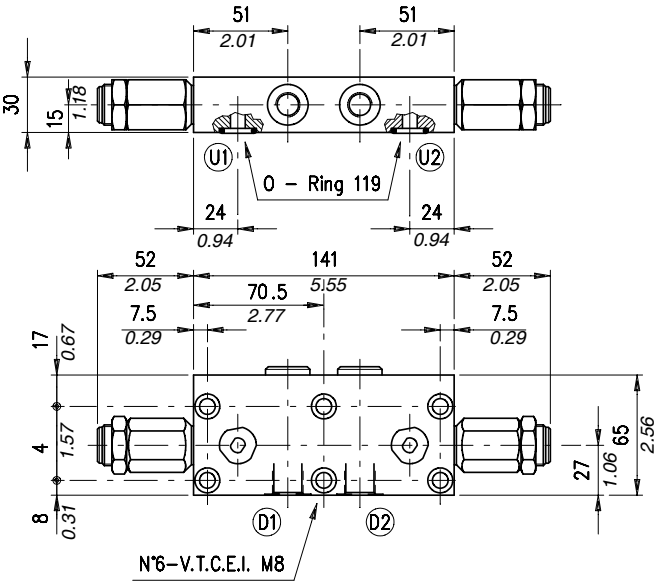
Check valve seat

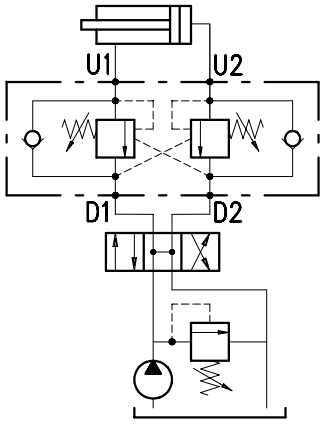
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



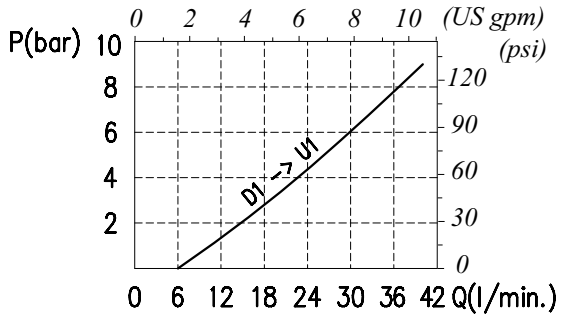


D1–D2	U1–U2*
G 3/8	ø8 - Ø 0.31

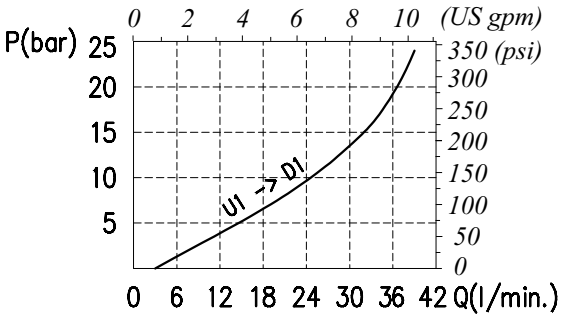
* Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /F 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

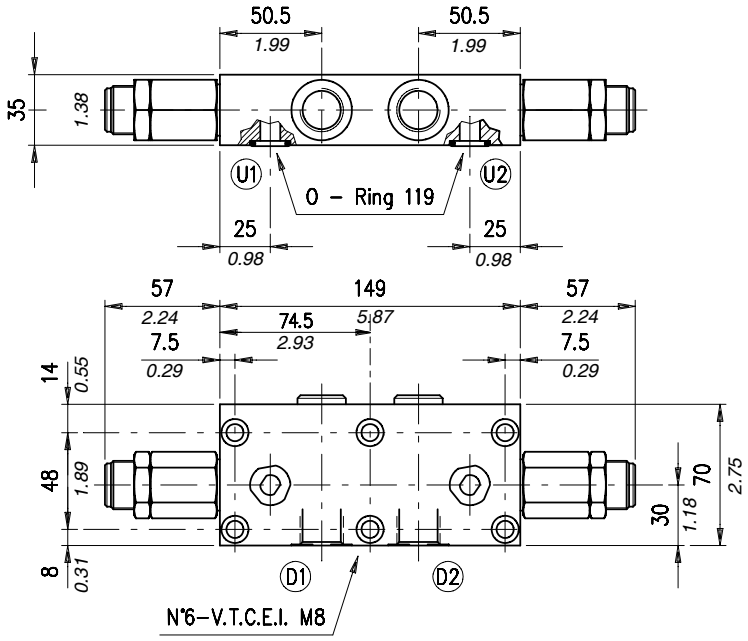
Check valve seat

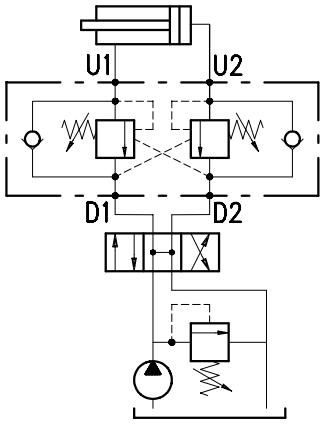
See body
VRR) Hardened steel

Body material

Aluminium
ac Steel

Dimensions and hydraulic circuit



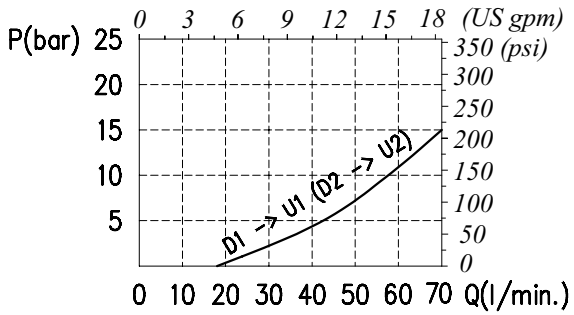


D1–D2	U1–U2*
G 1/2	ø10 - Ø 0.39

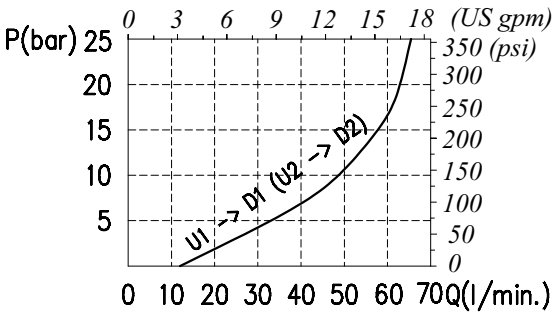
*Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /F 12 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

– Without damper (Standard)
PG) With damper

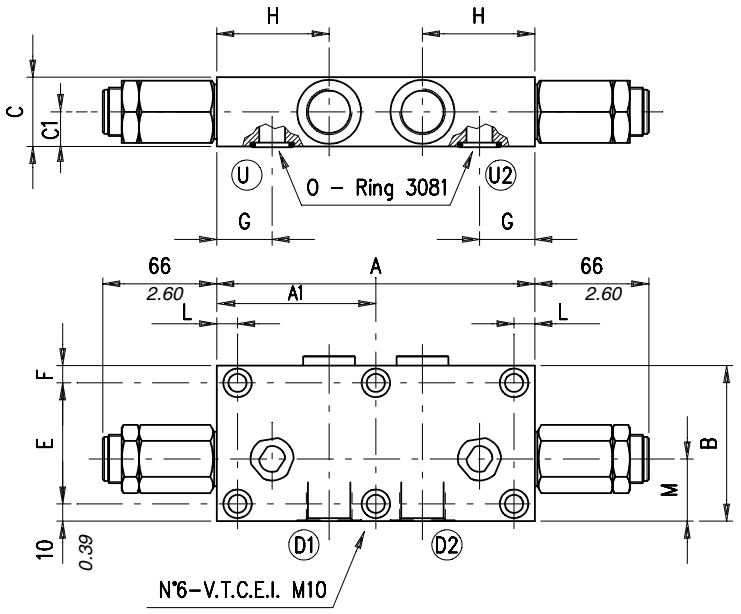
Check valve seat

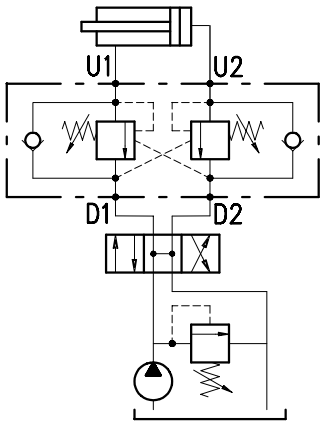
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit



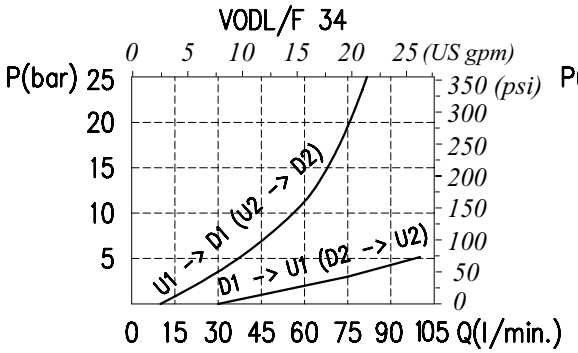


VODL/F	D1–D2	U1–U2	A*	A1*	B*	C*	C1*	E*	F*	G*	H*	L*	M*
34	G 3/4	ø15 - Ø 0.59	184 - 7.24	92 - 3.62	90 - 3.54	40 - 1.57	20 - 0.78	70 - 2.75	10 - 0.39	32 - 1.26	65 - 2.56	12 - 0.47	36 - 1.42
100	G 1	ø19 - Ø 0.75	220 - 8.66	110 - 4.33	100 - 3.94	60 - 2.36	30 - 1.18	55 - 2.16	35 - 1.38	35 - 1.38	76 - 2.99	10 - 0.39	37 - 1.46

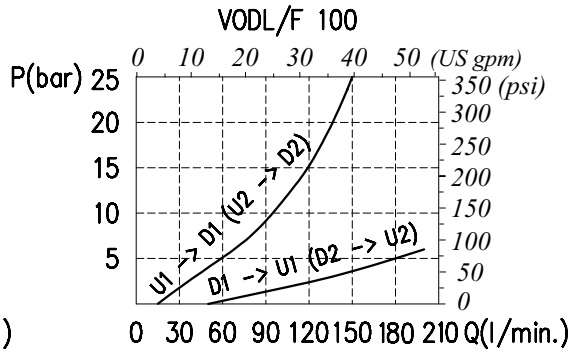
* Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

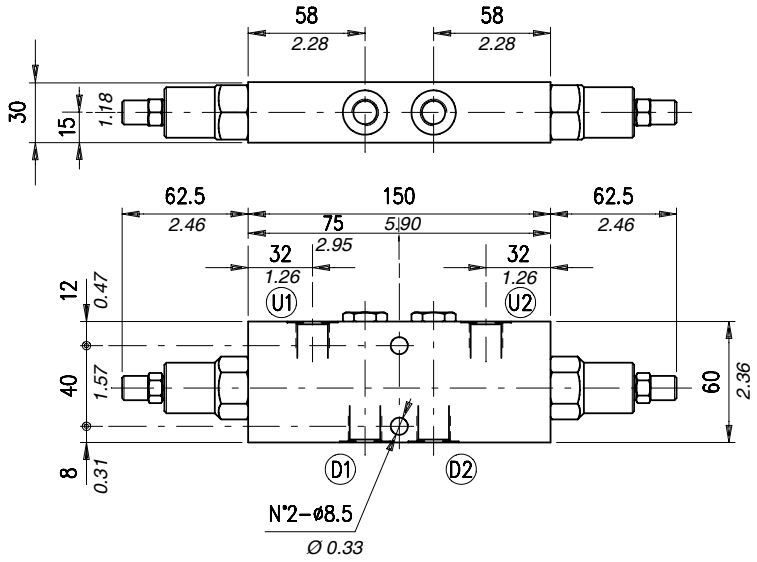


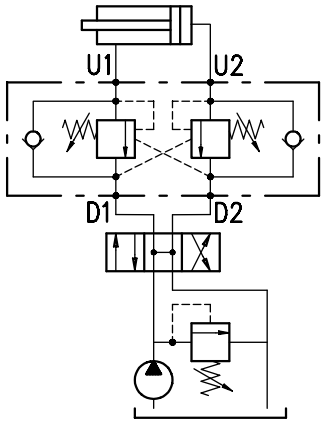
Order code

VODL /F □□ / □ . S .□□ . □□ . □□ / □□

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

Dimensions and hydraulic circuit

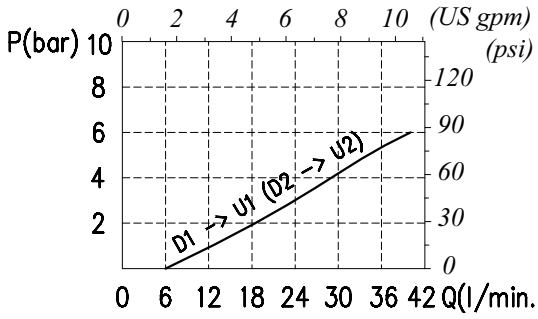




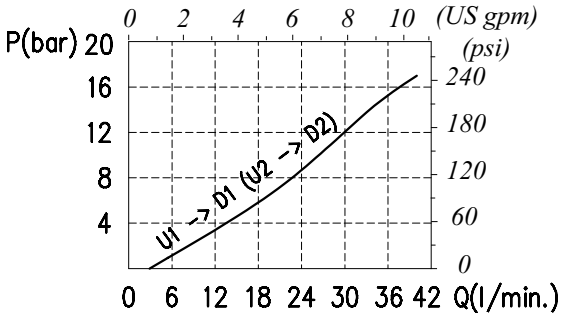
D1–D2	U1–U2
G 3/8	G 3/8

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC 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

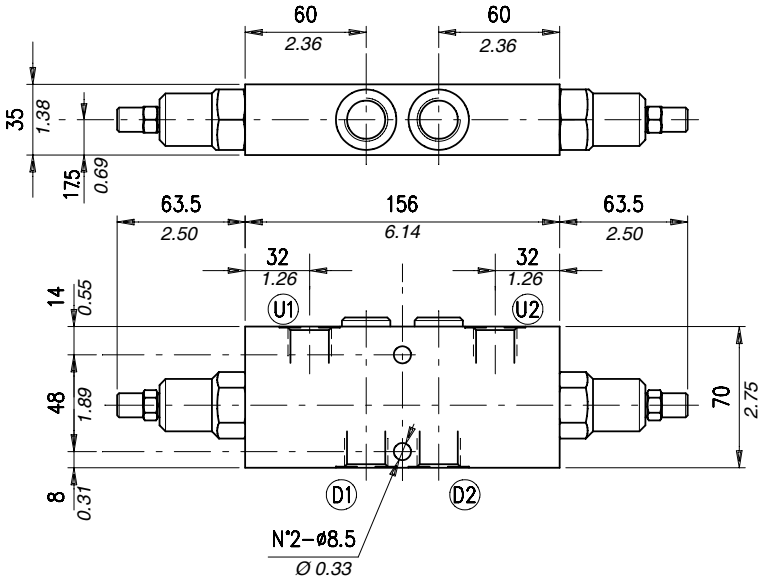
Check valve seat

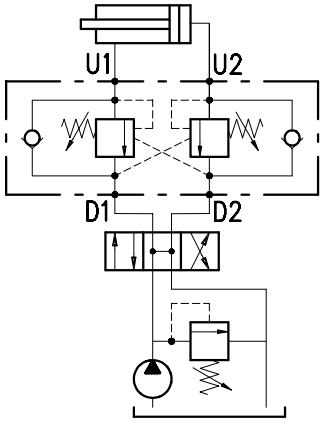
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

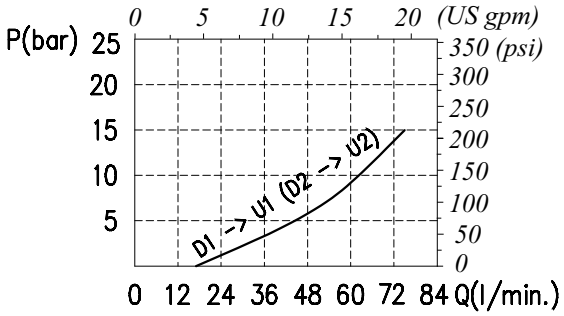




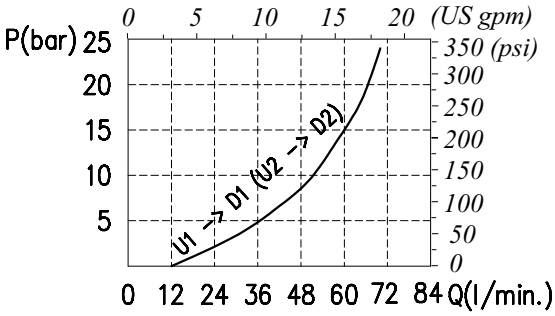
D1–D2	U1–U2
G 1/2	G 1/2

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC 12 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

– Without damper (Standard)
PG) With damper

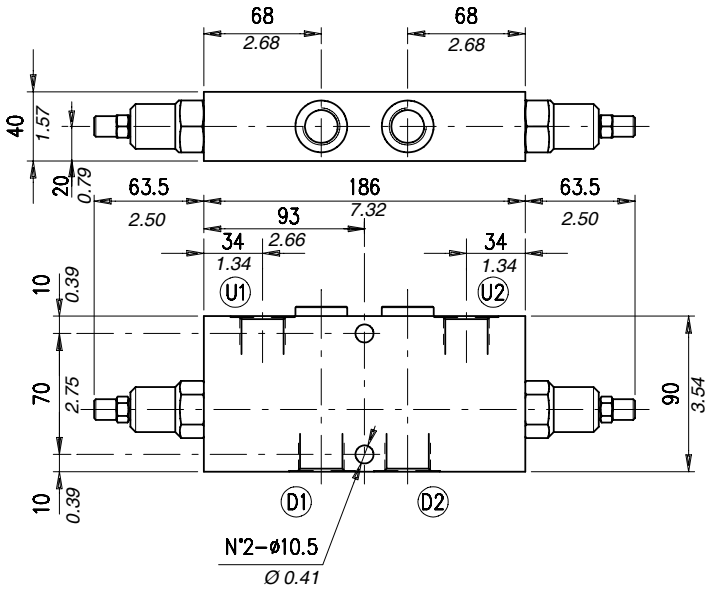
Check valve seat

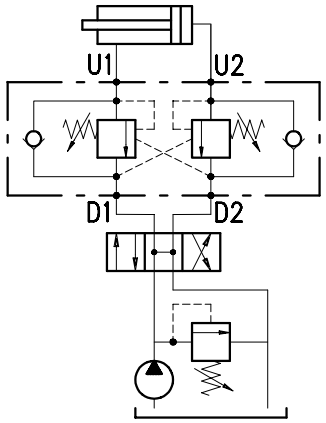
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

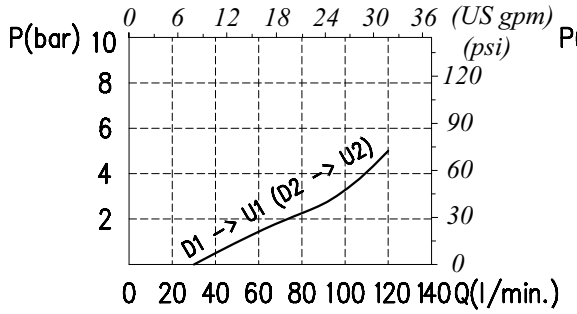




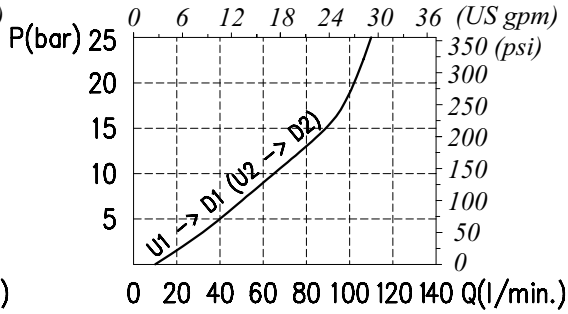
D1–D2	U1–U2
G 3/4	G 3/4

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC 34 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

– Without damper (Standard)
PG) With damper

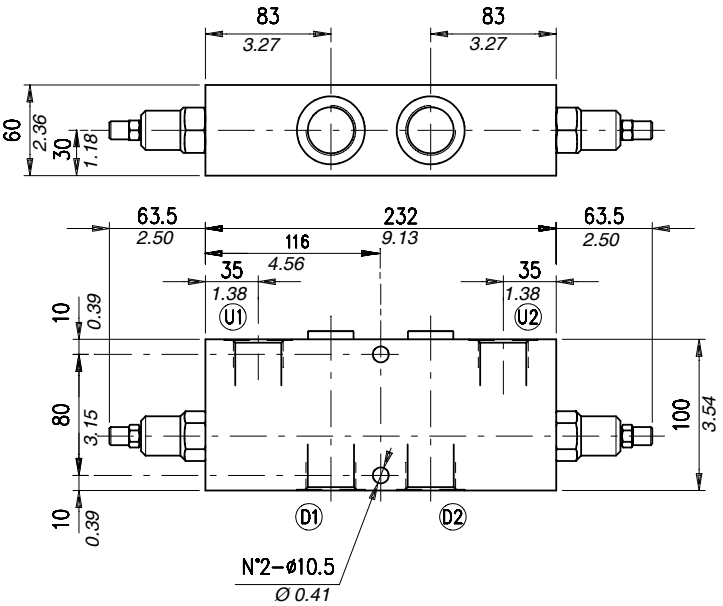
Check valve seat

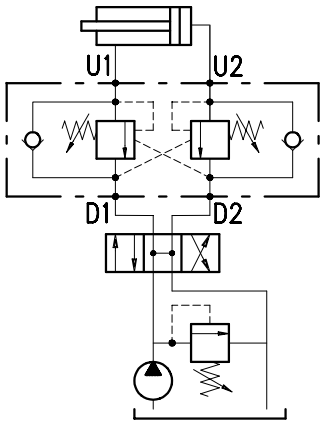
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

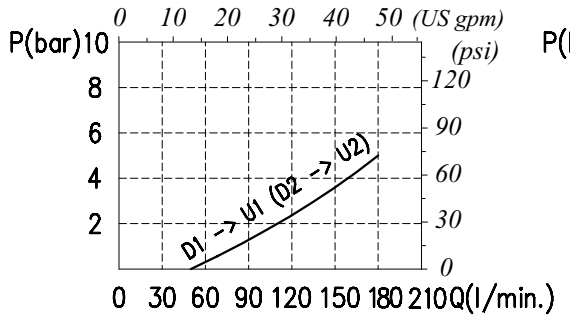




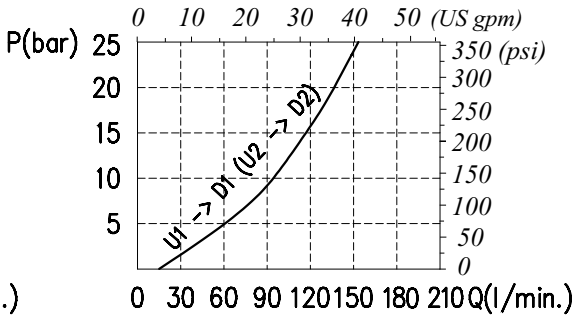
D1–D2	U1–U2
G 1	G 1

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC 100 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

– Without damper (Standard)
PG) With damper

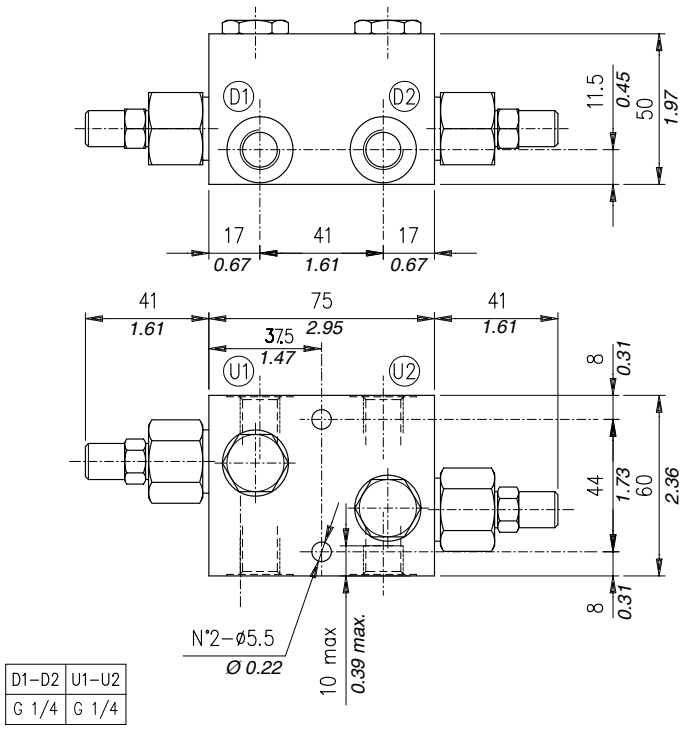
Check valve seat

– See body
VRR) Hardened steel

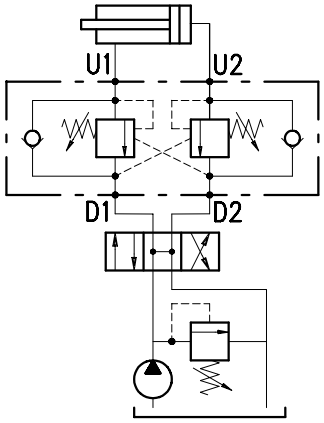
Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

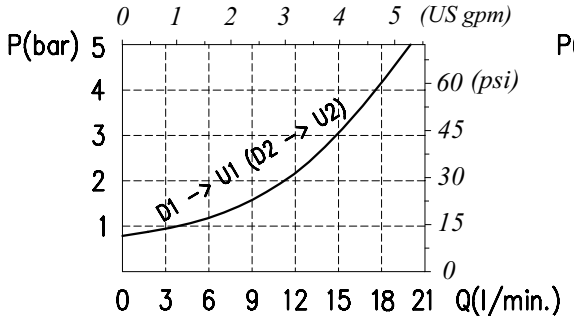


D1–D2	U1–U2
G 1/4	G 1/4

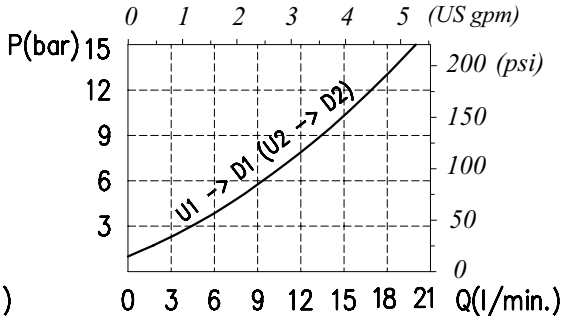


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC /VU 14 / □□ . S .□□ . □□ . □□ / ac

Pressure settings

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

Pilot ratio

p6) 1:6

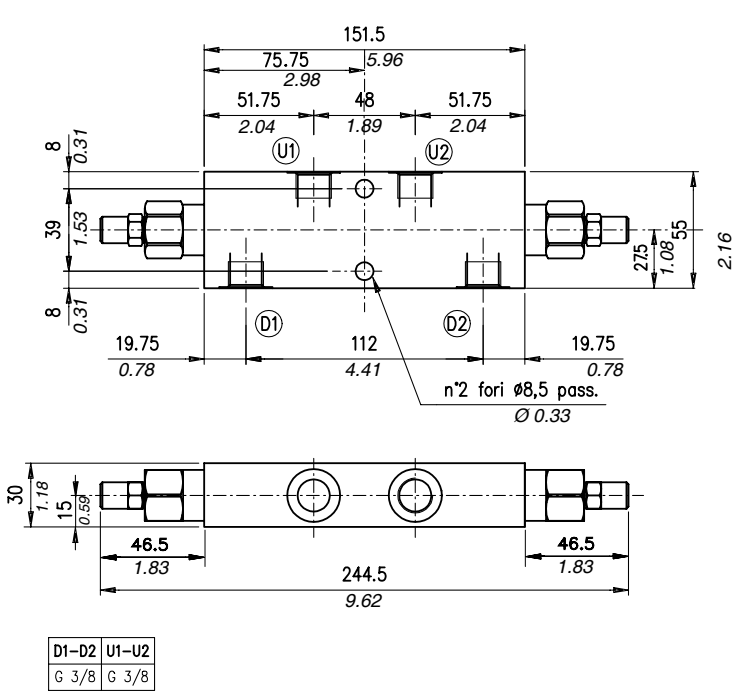
Type of pilot

Without damper (Standard)
PG) With damper

Check valve seat

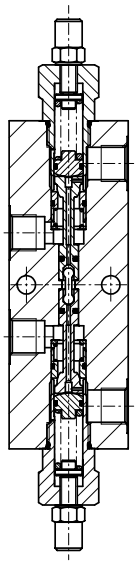
See body
VR) Hardened steel

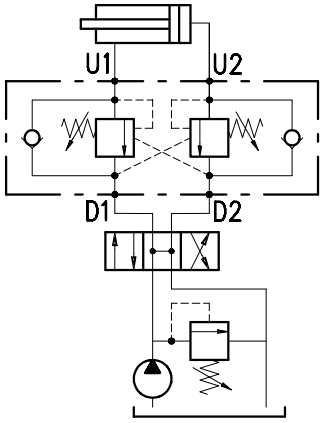
Dimensions and hydraulic circuit



D1–D2	U1–U2
G 3/8	G 3/8

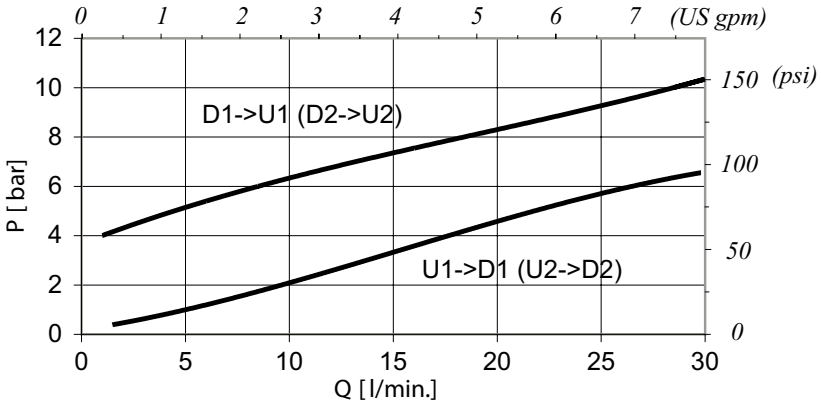
Section





Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

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

Pressure settings

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

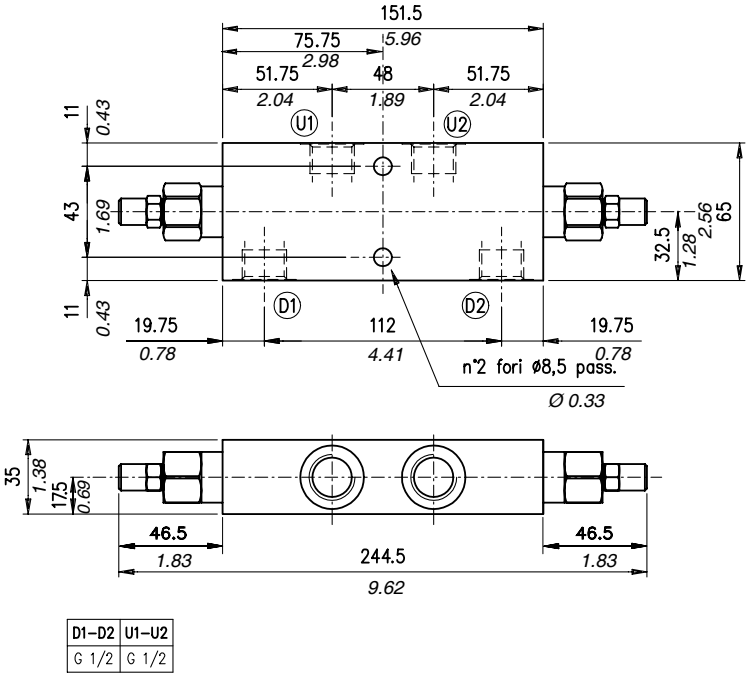
Pilot ratio

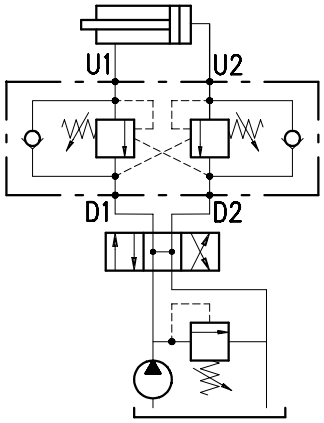
p4)1:4
p11) 1:11

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

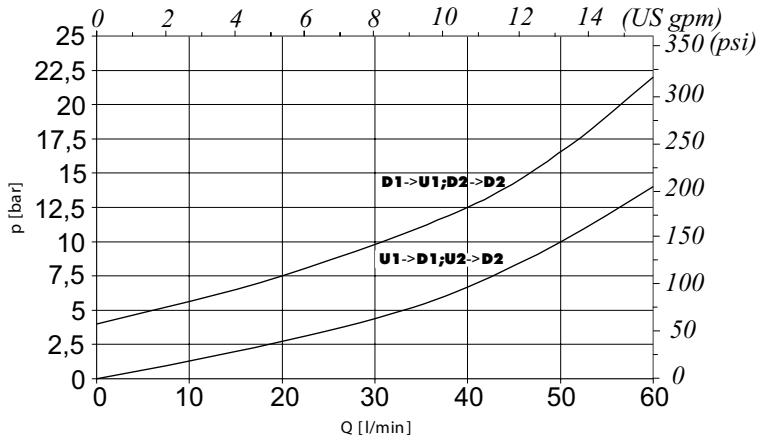




D1–D2	U1–U2
G 1/2	G 1/2

Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

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

Pressure settings

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

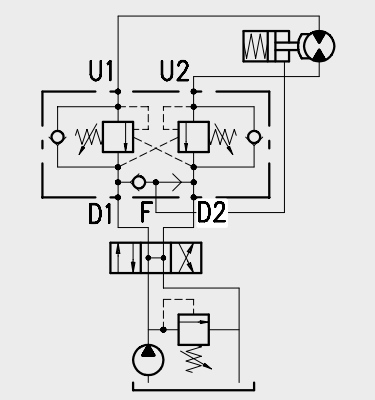
Pilot ratio

p4) 1:4
p11) 1:11

Body material

_ Aluminium
ac Steel

Operation



The oil flow is allowed from D1 (D2) to U1 (U2) and is stopped in the opposite way from U1 (U2) to D1 (D2) up to the spring setting value. Free oil flow from U1 (U2) to D1 (D2) is strictly possible when the pilot pressure in D2 and U2 (D1 and U1) 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 is 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 D1 (D2), the setting value of valve poppet (1:1 ratio) will increase and the pilot pressure be negatively affected (1:1 ratio).
Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action. Use of a special shuttle valve allows for release of hydraulic parking brakes.

Performance

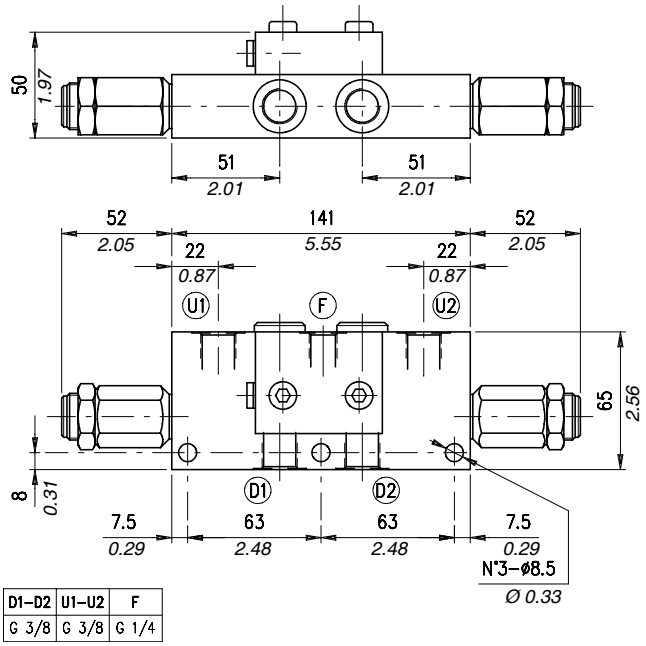
Body valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 (U2) to D1 (D2)	Pilot ratio	Weight		Overcenter cartridge
	l/min	*US gpm*	bar	*psi*				kg	*lb*	
VODL/A 38	35	*9.2*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar *-72.5÷3050 psi* (test setting 150 bar-*2200 psi* at 5 l/min.-*1.3 US gpm*) 0÷350 bar *-0÷5100 psi* (test setting 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*) 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-*3050 psi* bar and 80% of the spring setting value with oil viscosity of 46 cSt.	1:3 (standard type) 1:4 (on request only)	1,64	*3.61*	VMPD 38
								aluminium		
								2,55	*5.62*	
								steel		
VODL/A 12	70	*18*					1:3 (standard type) 1:7 (on request only)	2,00	*4.41*	VMPD 12
								aluminium		
								3,25	*7.16*	
								steel		
VODL/A 34	100	*26*					1:3 (standard type) 1:7 (on request only)	3,47	*7.65*	VMPD 34
								aluminium		
								5,64	*12.43*	
								steel		
VODL/A 100	180	*48*						5,37	*11.84*	
								aluminium		
								10	*22.05*	
								steel		
VODL/SC/A 38	40	*11*					1:3 (standard type) 1:4 (on request only)	1,54	*3.39*	-
								aluminium		
								2,50	*5.51*	
								steel		

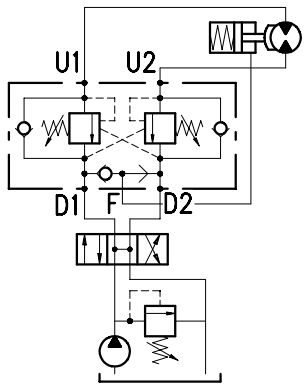
Body valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 (U2) to D1 (D2)	Pilot ratio	Weight		Overcenter cartridge
	l/min	*US gpm*	bar	*psi*				kg	*lb*	
VODL/SC/A 12	75	*20*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar *-72.5÷3050 psi-* (test setting 150 bar *-2200 psi-* at 5 l/min. *-1.3 US gpm*) 50÷350 bar *-725÷5100 psi* (test setting 280 bar *-4060 psi* at 5 l/min. *-1.3 US gpm*) 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.	1:3 (standard type) 1:7 (on request only)	1,93	*4.25*	-
								aluminium		
								3,32	*7.32*	
								steel		
VODL/SC/A 34	120	*32*						2,73	*6.02*	-
								aluminium		
								5,17	*11.40*	
								steel		
VODL/SC/A 100	180	*48*						4,86	*10.71*	-
								aluminium		
								10,20	*22.49*	
								steel		

Dimensions and hydraulic circuit

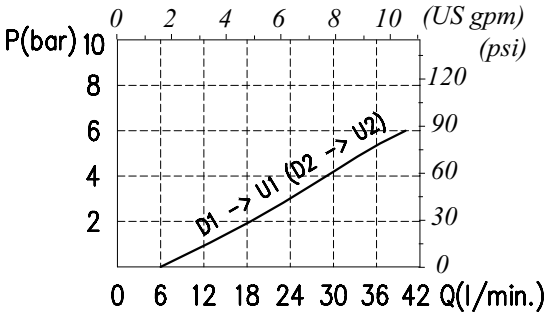


D1–D2	U1–U2	F
G 3/8	G 3/8	G 1/4

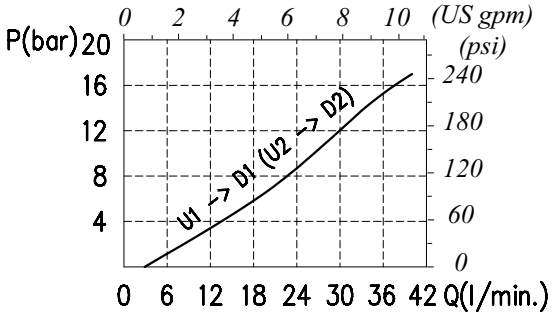


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /A 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 (Standard)
p4) 1:4

Type of pilot

– Without damper (Standard)
PG) With damper

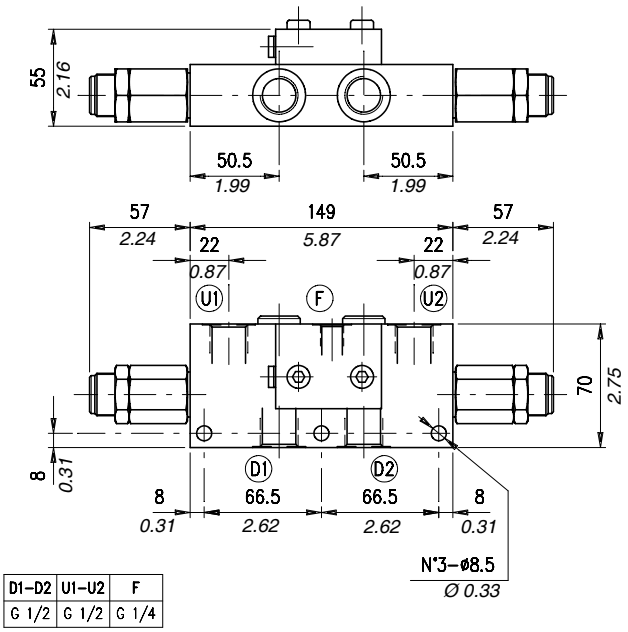
Check valve seat

– See body
VRR) Hardened steel

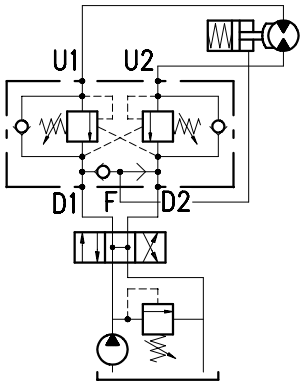
Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

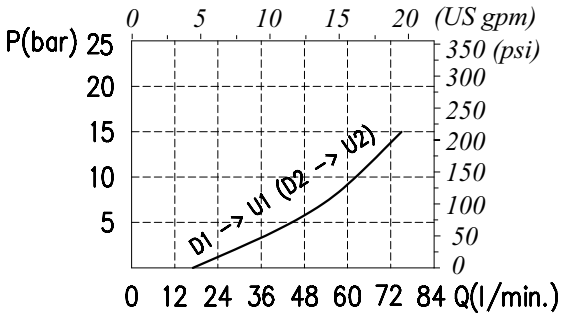


D1–D2	U1–U2	F
G 1/2	G 1/2	G 1/4

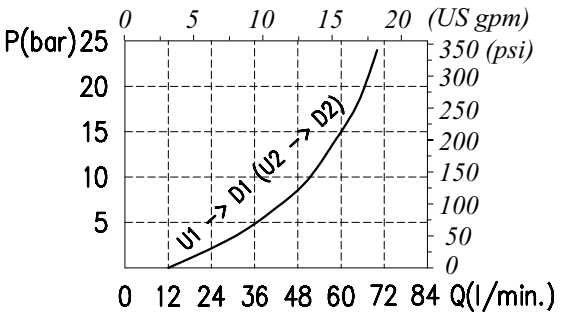


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL/ A 12 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

– Without damper (Standard)
PG) With damper

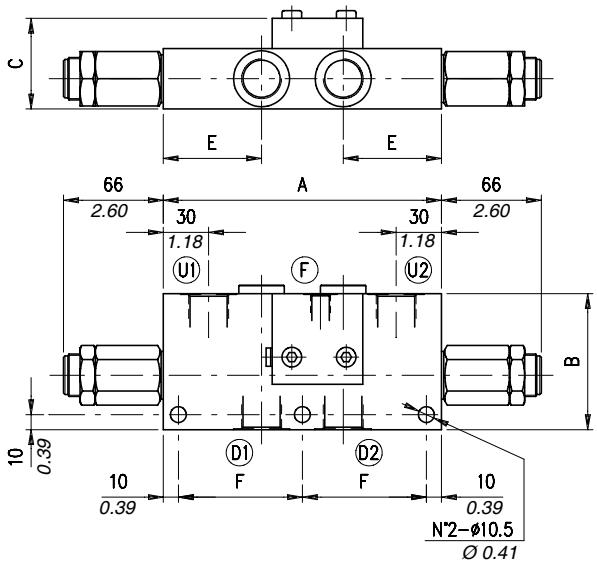
Check valve seat

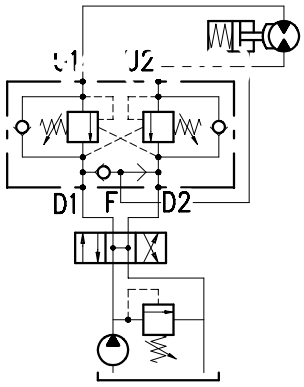
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit



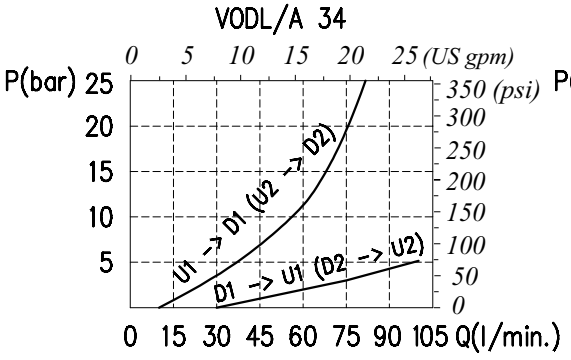


VODL/A	D1–D2	U1–U2	F	A*	B*	C*	E*	F*
34	G 3/4	G 3/4	G 1/4	184 - *7.24*	90 - *3.54*	60 - *2.36*	65 - *2.56*	82 - *3.23*
100	G 1	G 1	G 1/4	218 - *8.58*	100 - *3.94*	80 - *3.15*	76 - *2.99*	99 - *3.90*

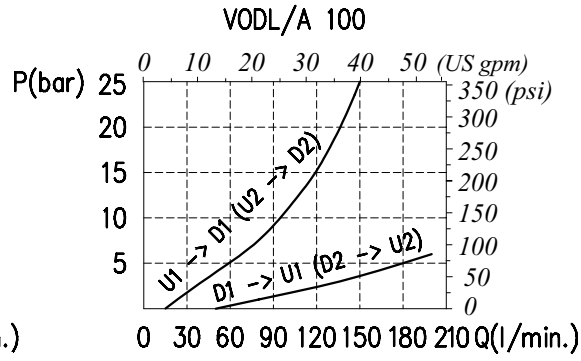
*Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /A □□ / □ . S .□□ . □□ . □□ / □□

Port size

34) 3/4" BSP
100) 1" BSP

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 (Standard)
p7) 1:7

Type of pilot

Without damper
PG) With damper

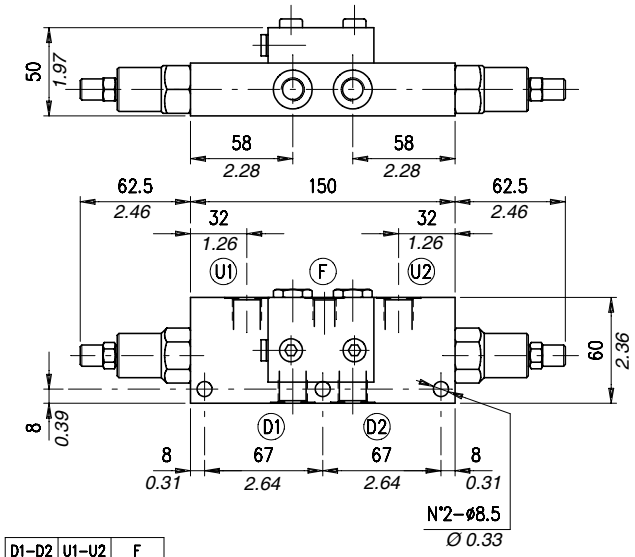
Check valve seat

See body
VRR) Hardened steel

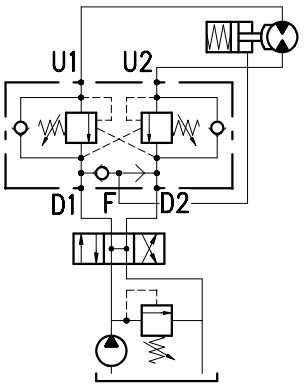
Body material

Aluminium
ac Steel

Dimensions and hydraulic circuit

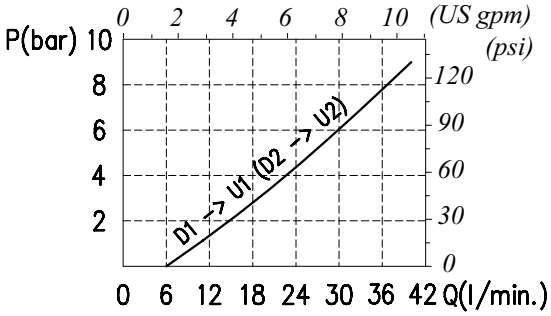


D1-D2	U1-U2	F
G 3/8	G 3/8	G 1/4

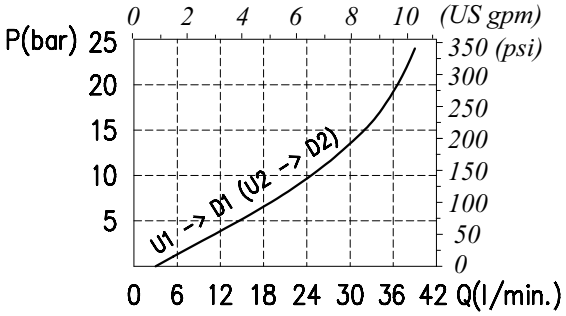


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC /A 38 / □□ . S .□□ . □□ . □□ / □□

Pressure settings

TS) 5÷210 bar *(72.5÷3050 psi)*
TR) 50÷350 bar *(725÷5075 psi)* (Standard)
TG) 100÷700 bar *(1450÷10150 psi)*

Pilot ratio

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

Type of pilot

– Without damper (Standard)
PG) With damper

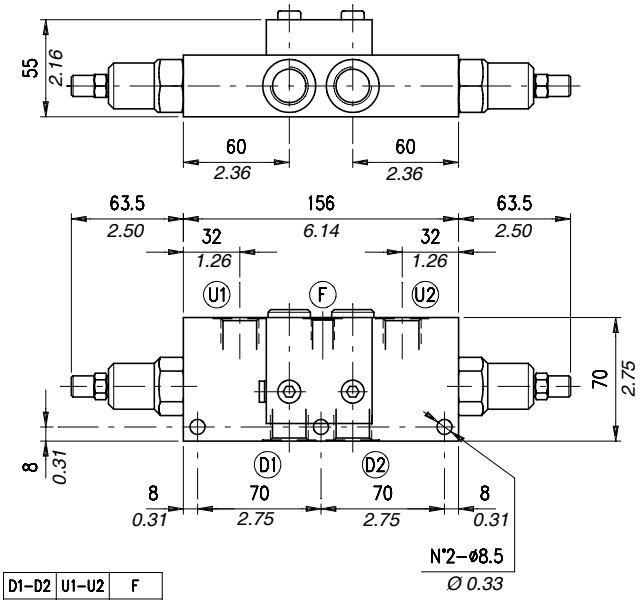
Check valve seat

– See body
VR) Hardened steel

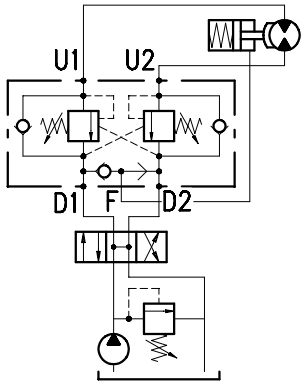
Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

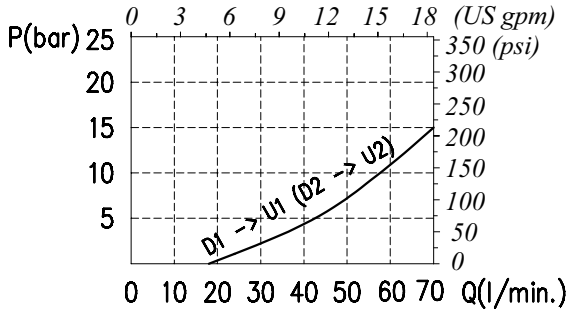


D1–D2	U1–U2	F
G 1/2	G 1/2	G 1/4

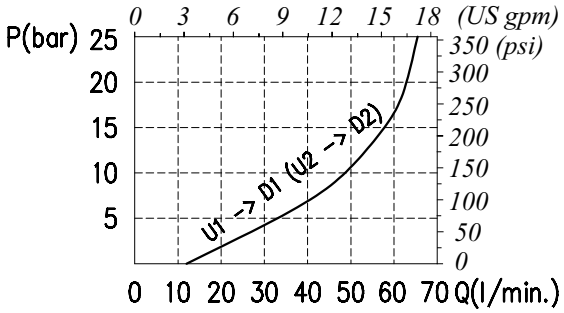


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC /A 12 / □□ . 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 (Standard)
p7) 1:7

Type of pilot

– Without damper (Standard)
PG) With damper

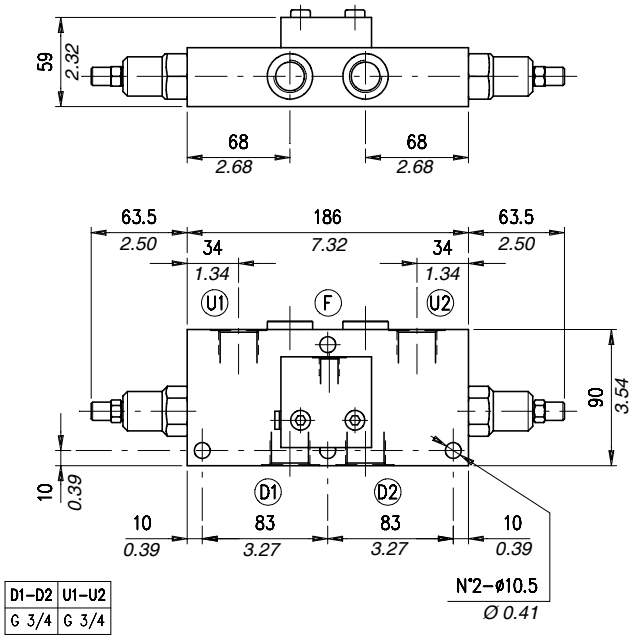
Check valve seat

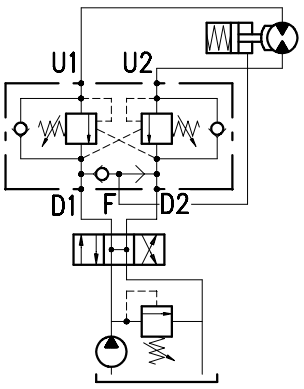
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

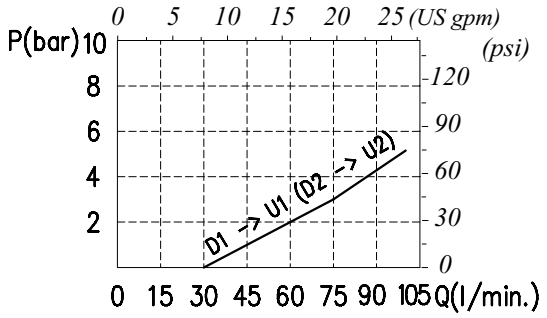
Dimensions and hydraulic circuit



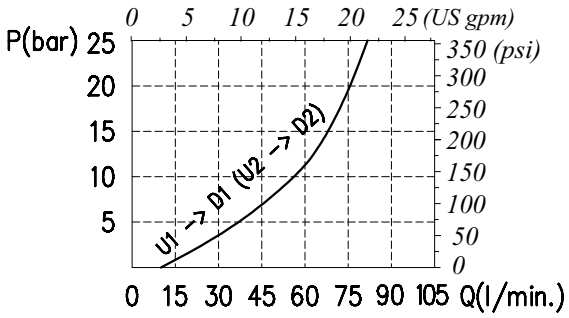


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC /A 34 / □□ . 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 (Standard)
p7) 1:7

Type of pilot

– Without damper (Standard)
PG) With damper

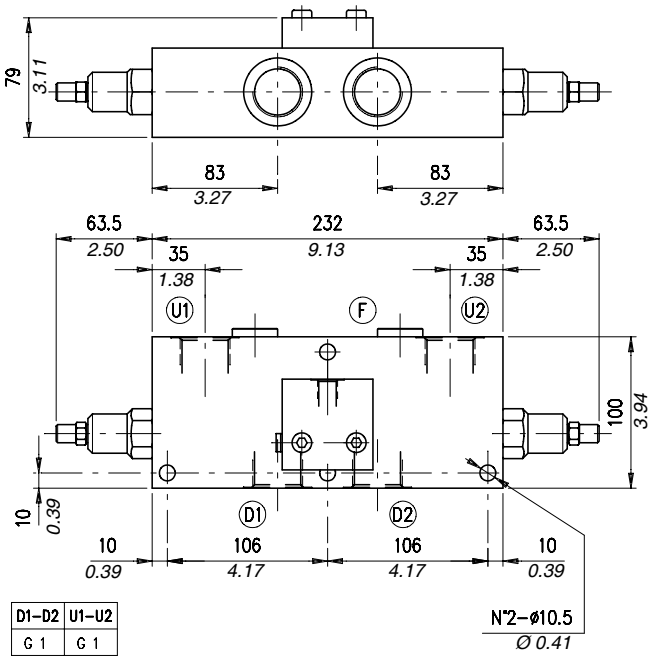
Check valve seat

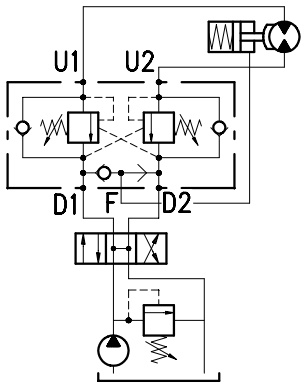
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

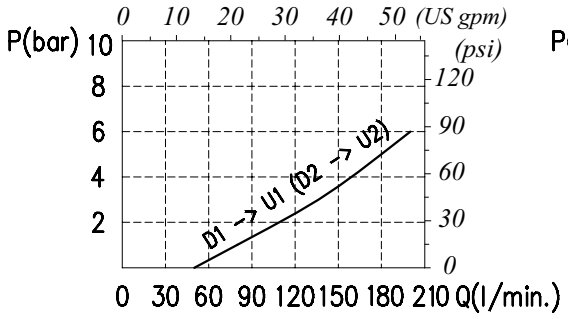
Dimensions and hydraulic circuit



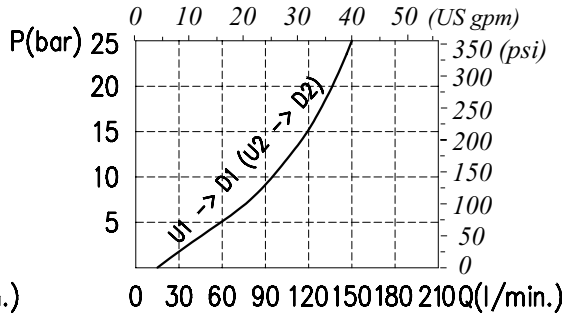


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC /A 100 / □□ . 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 (Standard)
p7) 1:7

Type of pilot

– Without damper (Standard)
PG) With damper

Check valve seat

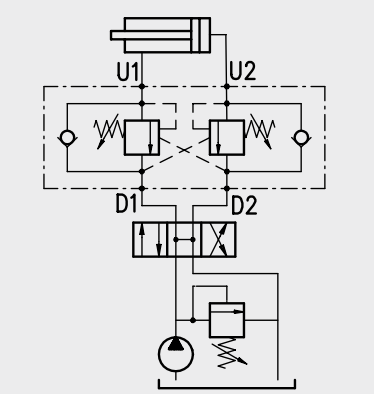
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Operation

The oil flow is allowed from D1 (D2) to U1 (U2) and is stopped in the opposite way from U1 (U2) to D1 (D2) up to the spring setting value. Free oil flow from U1 (U2) to D1 (D2) is strictly possible when the pilot pressure in D2 and U2 (D1 and U1) 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 is 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 D1 (D2), the setting value of valve poppet (1:1 ratio) will increase and the pilot pressure be negatively affected (1:1 ratio).

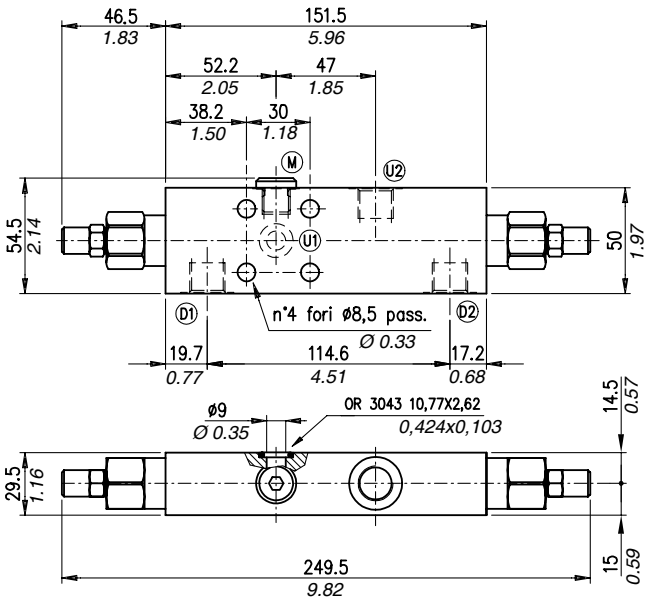


Performance

Body valves

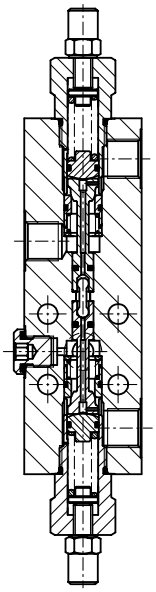
Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage U1 (U2) to D1 (D2)	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VODL/SC/F1/C 1116/38	30	*7.9*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	50÷350 bar *-725÷5100 psi*; pressure increase =131 bar-*1900 psi*/turn (test setting: 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min *-15x10⁻³ in³/min* (5 drops) at 210 bar-*3050 psi* and 80% of the spring setting value with oil viscosity 46 cSt.	1:4	1,1	*2.42*
								aluminium	
								2,1	*4.63*
								steel	
VODL/SC/F1/C 1116/12	60	*16*						1,4	*3.09*
								aluminium	
								2,8	*6.17*
								steel	

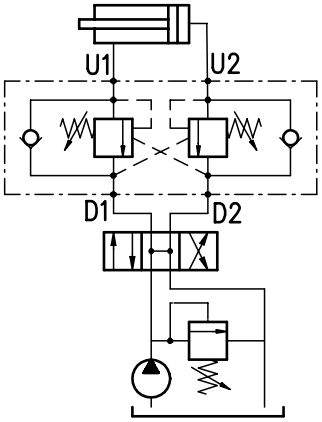
Dimensions and hydraulic circuit



D1–D2–U2	M
G 3/8	G 1/4

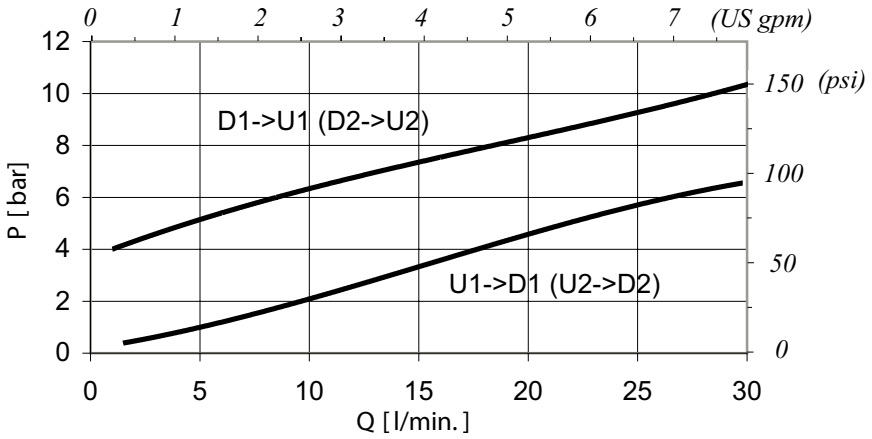
Section





Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VODL /SC/F1/ C 1116/ 38 / □□ . S .□□ . / □□

Pressure settings

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

Pilot ratio

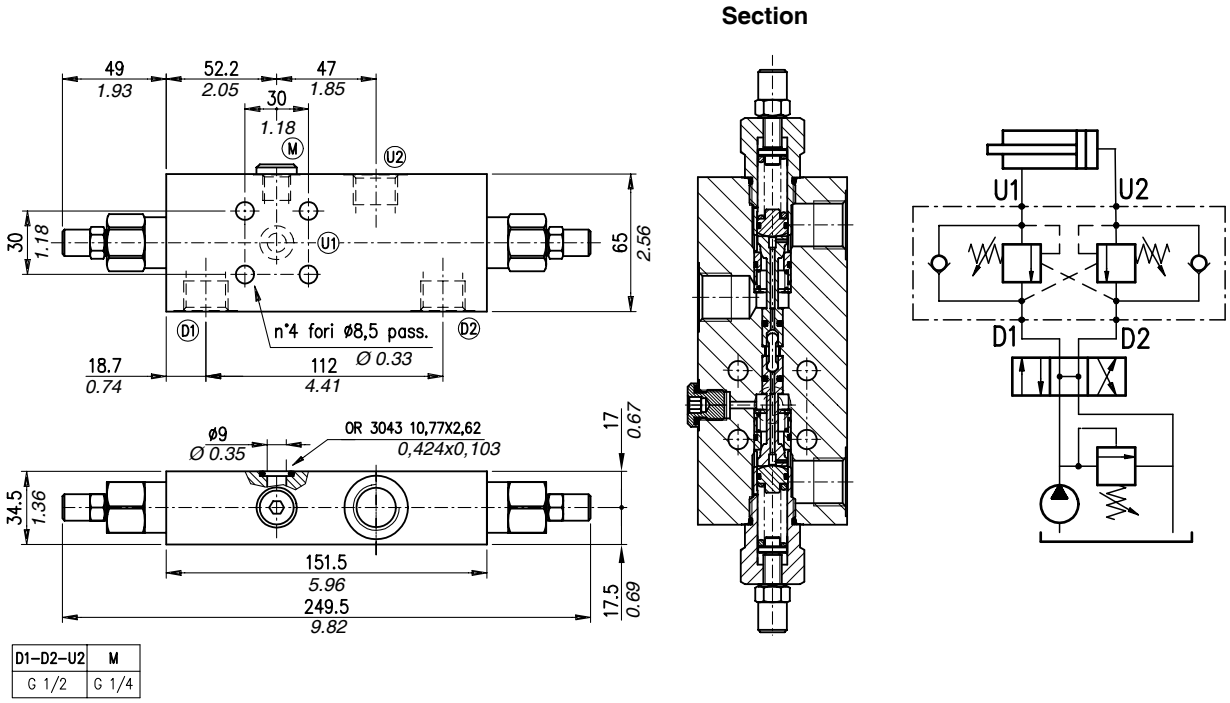
p4) 1:4
p11) 1:11

Body material

_ Aluminium
ac Steel

Type VODL/SC/F1/C 1116/12

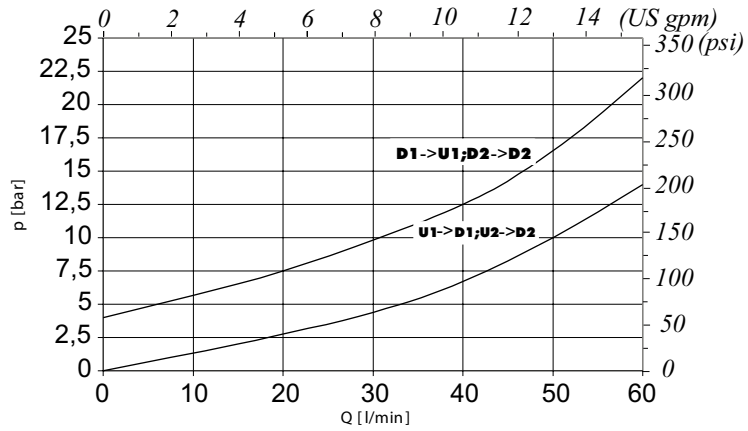
Dimensions and hydraulic circuit



D1–D2–U2	M
G 1/2	G 1/4

Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VODL /SC/F1/ C 1116/ 12 / □□ . S .□□ . / □□

Pressure settings

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

Pilot ratio

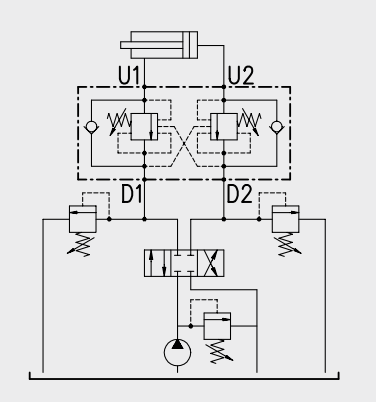
p4)1:4
p11) 1:11

Body material

_ Aluminium
ac Steel

Operation

The oil flow is allowed from D1 (D2) to U1 (U2) and is stopped in the opposite way from U1 (U2) to D1 (D2) up to the spring setting value. Free oil flow from U1 (U2) to D1 (D2) is strictly possible when the pilot pressure in D2 and U2 (D1 and U1) 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
Foe example:
If your pilot ratio is 1:4, your setting pressure is 250 bar *(3600 psi)* and your load pressure is 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*].
Counterpressure arise in D1 (D2) shall negatively effect the pilot pressure (1:1 ratio).
Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action.

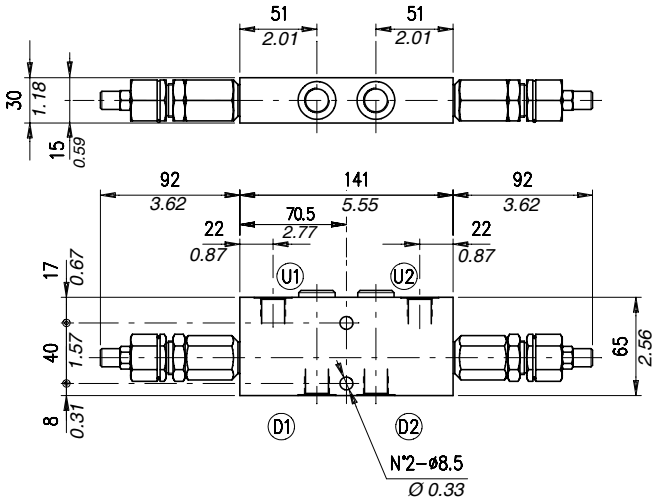


Performance

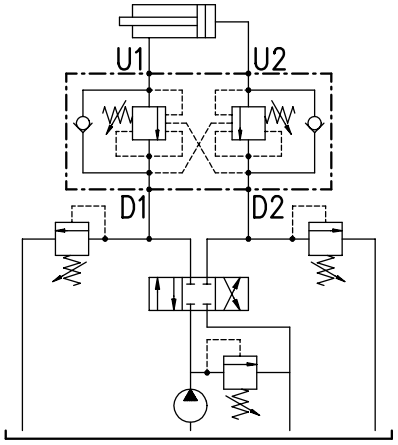
Body valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 (U2) to D1 (D2)	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VODL /CC 38	35	*9.2*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar-*72.5÷3050 psi* (test setting 170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar *-725÷5100 psi* (test setting 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*) 100÷700 bar *-1450÷10150 psi* (test setting 350 bar-*5100 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min *-15x10⁻³ in³/min* (5 drops) at 210 bar *-3050 psi-* and 80% of the spring setting value with oil viscosity of 46 cSt.	1:3 (standard type) 1:4 (on request only)	1,45	*3.20*
								aluminium	
								2,43	*5.36*
								steel	
VODL /CC 12	70	*18*					1:7 (standard type) 1:3 (on request only)	1,88	*4.14*
								aluminium	
								3,13	*6.90*
								steel	
VODL /CC 34	100	*26*						0,21	*0.46*
								aluminium	
								0,48	*1.06*
								steel	

Dimensions and hydraulic circuit

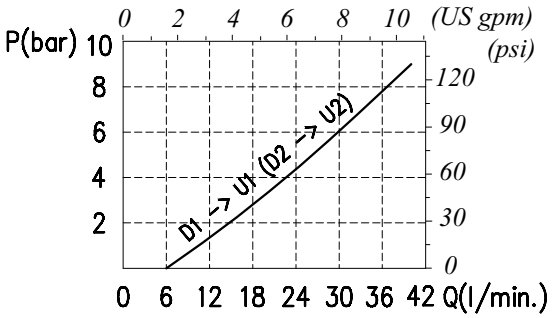


D1–D2	U1–U2
G 3/8	G 3/8

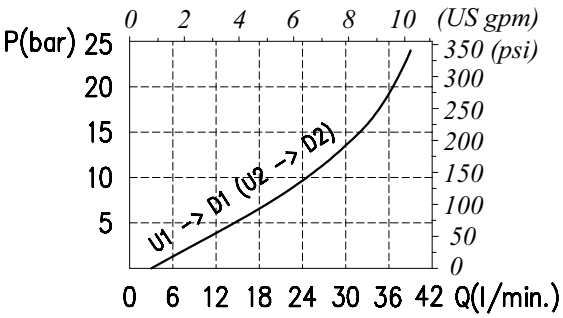


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /CC 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

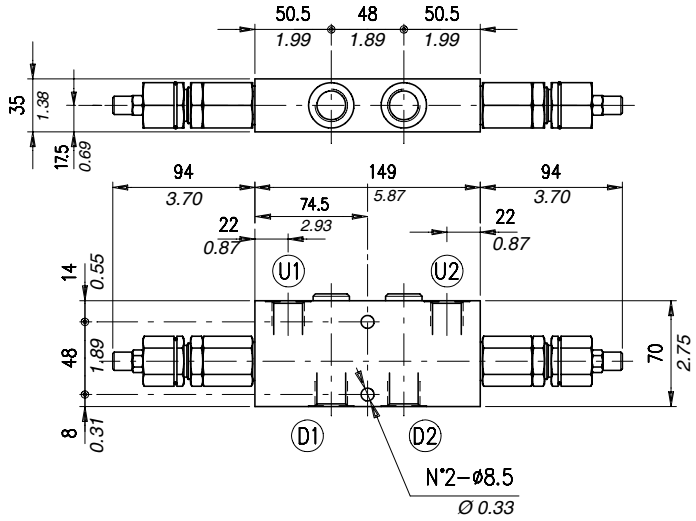
Check valve seat

– See body
VRR) Hardened steel

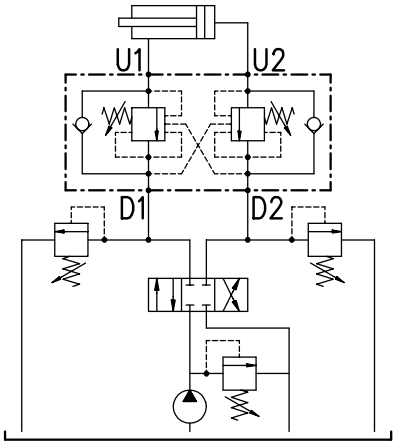
Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

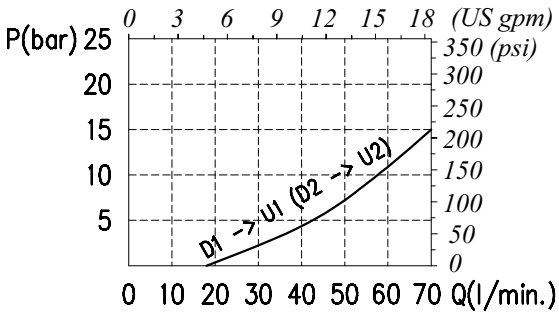


D1–D2	U1–U2
G 1/2	G 1/2

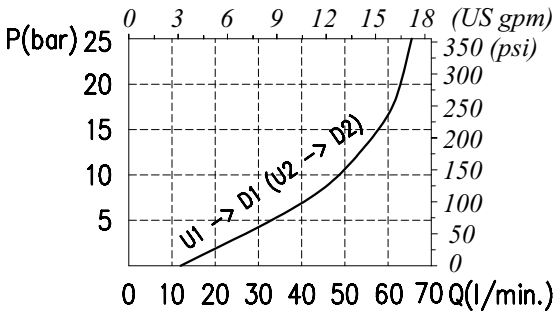


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



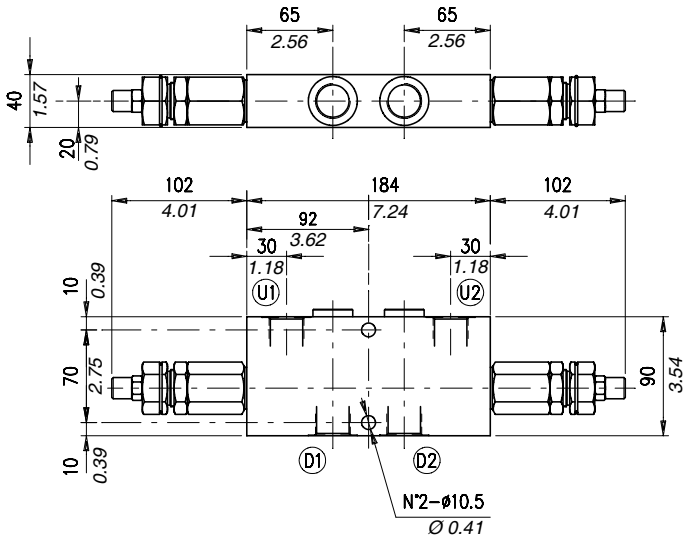
Order code

Pressure settings

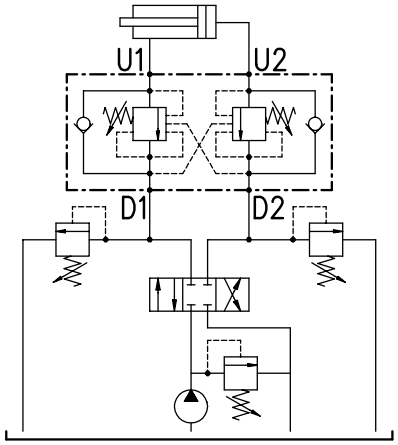
(72.5÷3050 psi)
(725÷5100 psi)

(1450÷10150 psi)

Dimensions and hydraulic circuit

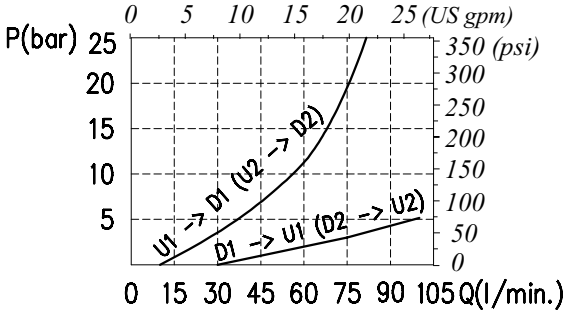


D1–D2	U1–U2
G 3/4	G 3/4



Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VODL /CC 34 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

Check valve seat

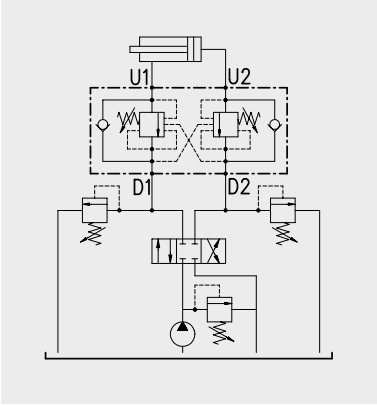
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Operation

The oil flow is allowed from D1 (D2) to U1 (U2) and is stopped in the opposite way from U1 (U2) to D1 (D2) up to the spring setting value. Free oil flow from U1 (U2) to D1 (D2) is strictly possible when the pilot pressure in D2 and U2 (D1 and U1) 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 is 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 D1 (D2), the pilot pressure (1:1 ratio) be negatively affected.

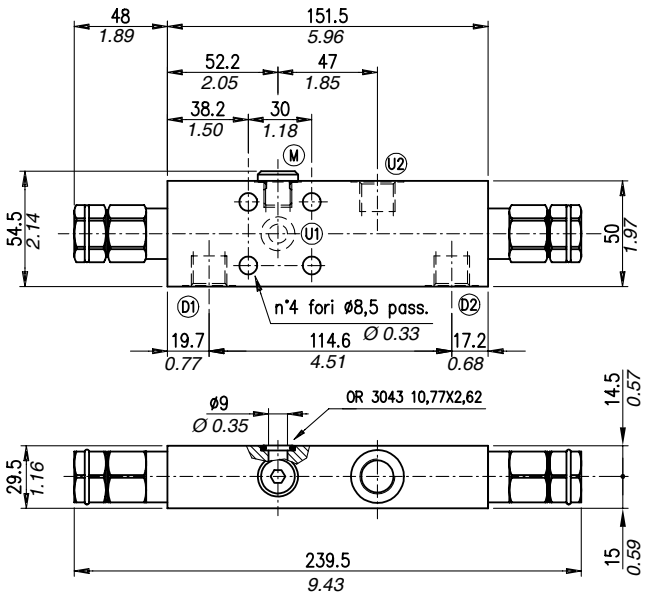


Performance

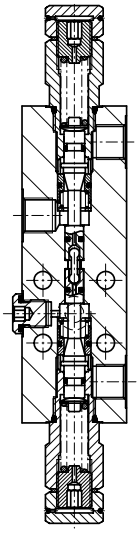
Body valves

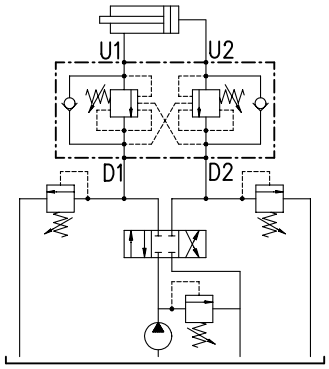
Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 (U2) to D1 (D2)	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VODL /SC/CC/F1/C 1116/38	30	*7.9*	210 (alum. body white anodized)	*3050* (alum. body white anodized	50÷350 bar *-725÷5100 psi*; pressure increase =131 bar-*1900 psi*/turn (test setting: 280 bar *-4060 psi* at 5 l/min. *-1.3 US gpm*)	0,25 cm³/min *-15x10⁻³ in³/min* (5 drops) at 210 bar *-3050 psi-* and 80% of the spring setting value with oil viscosity of 46 cSt.	1:4	1,1	*2.42*
								aluminium	
								2,2	*4.85*
								steel	
VODL /SC/CC/F1/C 1116/12	60	*16*	350 (steel body yellow zinc plated)	*5100* (steel body yellow zinc plated)	50÷350 bar *-725÷5100 psi*; pressure increase =140 bar-*2030 psi* /turn(test setting: 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*)		1:4 (standard type)	1,55	*3.42*
								aluminium	
								2,95	*6.50*
								steel	

Dimensions and hydraulic circuit



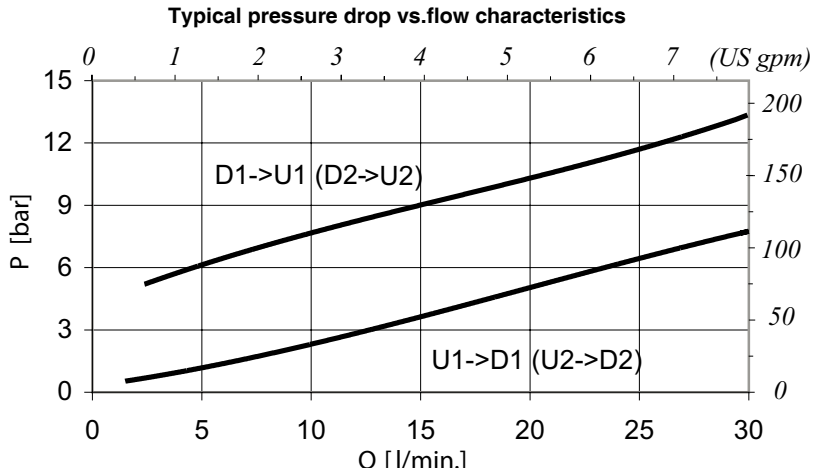
Section





D1–D2–U2	M
G 3/8	G 1/4

Rating diagrams



Order code

VODL /SC /CC/F1/C 1116/ 38 / □□ . S .□□ . / □□

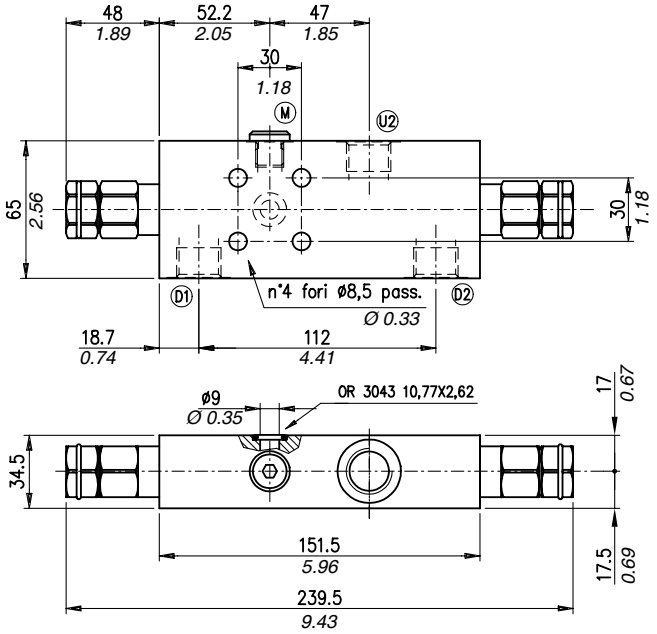
VODL /SC /CC/F1/C 1116/ 38 / □□ . S .□□ . / □□

Pressure settings
di
(bar)
TR) 50÷350 (Standard)
TR) 50÷350 (di serie)
(725÷5100 psi)

Pilot ratio
Rapporto di pilotaggio
p4) 1:4
p11) 1:11
p4) 1:4
P11) 1:11

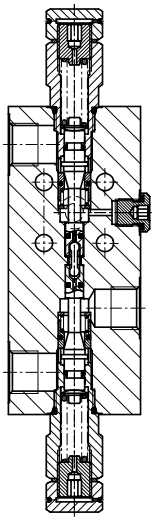
Body material
Materiale corpo
Aluminium
ac Steel
Alluminio
ac Acciaio

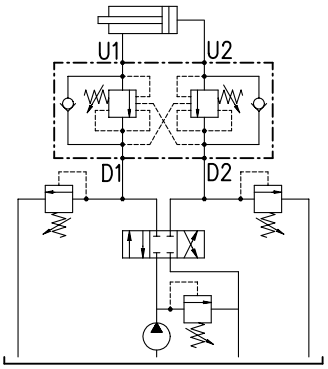
Dimensions and hydraulic circuit



D1–D2–U2	M
G 1/2	G 1/4

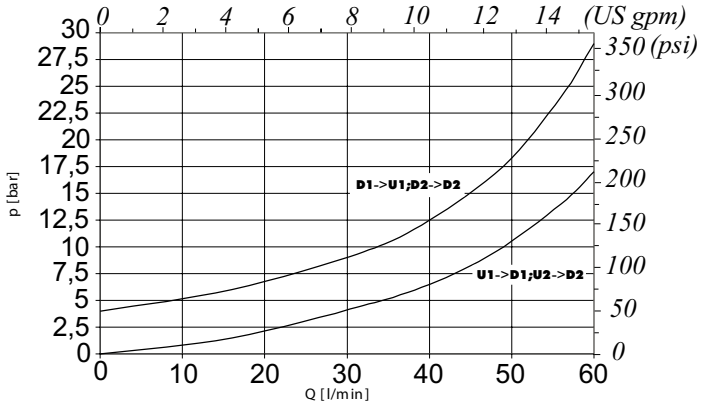
Section





Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VODL /SC /CC/F1/C 1116/ 12 / □□ . S .□□ . / □□

Pressure settings

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

Pilot ratio

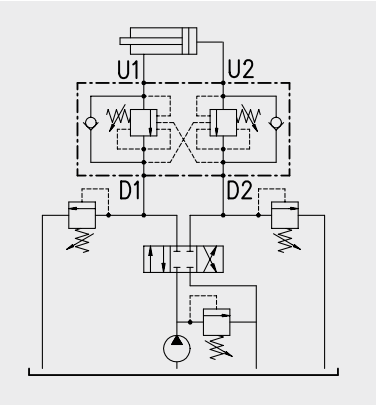
p4) 1:4

Body material

_ Aluminium
ac Steel

Operation

The oil flow is allowed from D1 (D2) to U1 (U2) and is stopped in the opposite way from U1 (U2) to D1 D(2) up to the spring setting value. Free oil flow from U1 (U2) to D1 D(2) is strictly possible when the pilot pressure in D2 and U2 (D1 and U1) 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 tour pilot ratio is 1:4, your setting pressure is 250 bar *(3600 psi)* and your load pressure is 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 D1 (D2), the pilot pressure (1:1 ratio) be negatively affected. Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action.

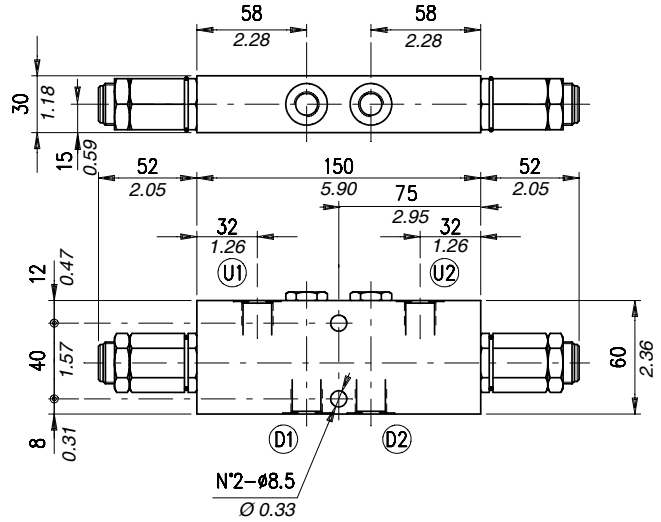


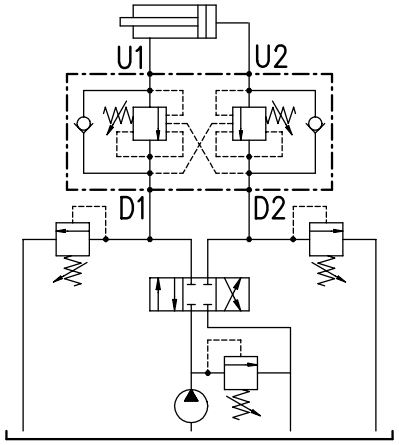
Performance

Body valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 (U2) to D1 (D2)	Pilot ratio	Weight	
	l/min	*US gp*	bar	*psi*				kg	*lb*
VODL/SC/CC 38	40	*11*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar-*72.5÷3050 psi* (test setting: 170 bar *-2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar-*725÷5100 psi* (test setting 280 bar *-4060 psi* at 5 l/min.-*1.3 US gpm*) 100÷700 bar *-1450÷10150 psi* (test setting 350 bar-*5100 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min *-15x10⁻³ in³/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)	1,17	*2.58*
								aluminium	
								2,20	*4.85*
								steel	
VODL/SC/CC 12	75	*20*					1:7 (standard type) 1:3 (on request only)	1,60	*3.53*
								aluminium	
								3,02	*6.66*
								steel	
VODL/SC/CC 34	120	*32*						2,35	*5.18*
								aluminium	
								4,88	*10.76*
								steel	
VODL/SC/CC 100	180	*48*						4,25	*9.37*
								aluminium	
								9,81	*21.63*
								steel	

Dimensions and hydraulic circuit

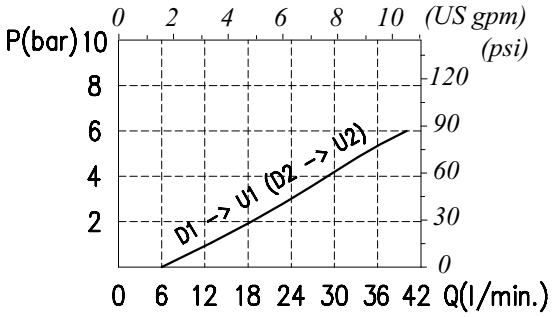




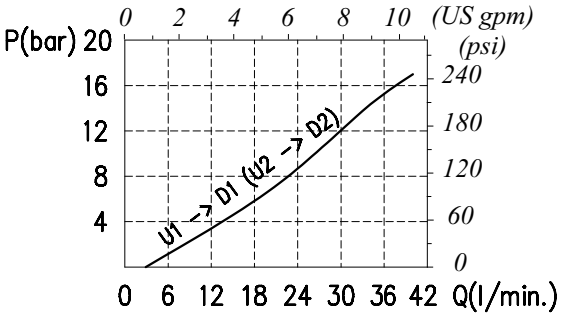
D1–D2	U1–U2
G 3/8	G 3/8

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC /CC 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

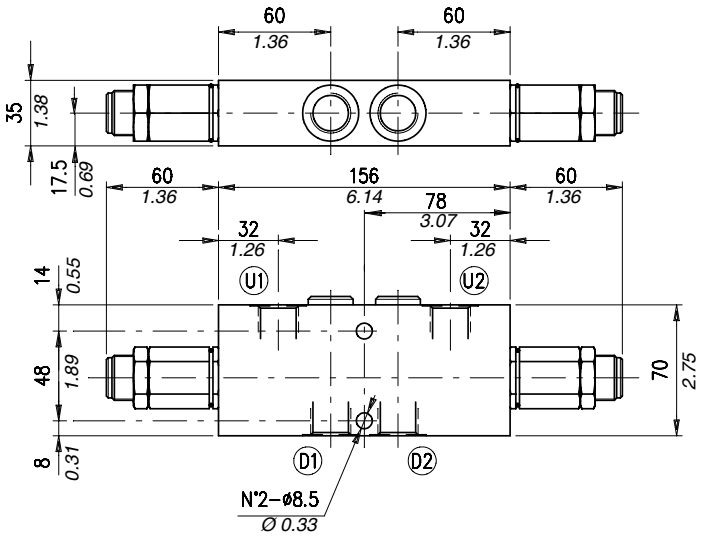
Check valve seat

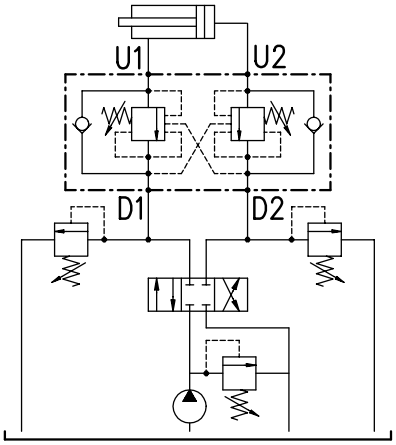
See body
VRR) Hardened steel

Body material

Aluminium
ac Steel

Dimensions and hydraulic circuit

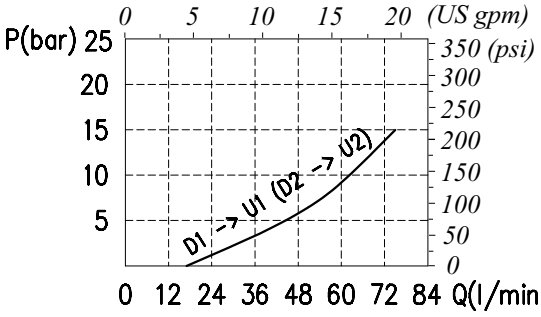




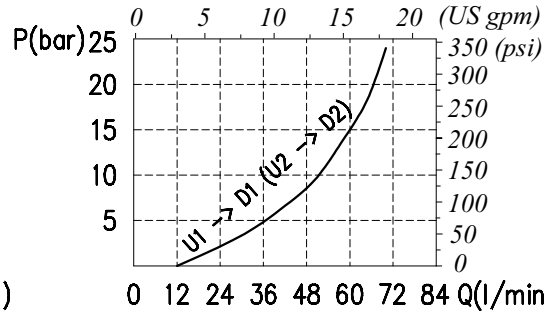
D1–D2	U1–U2
G 1/2	G 1/2

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC /CC 12 / □□ . 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) 1:7 (Standard)

Type of pilot

– Without damper (Standard)
PG) With damper

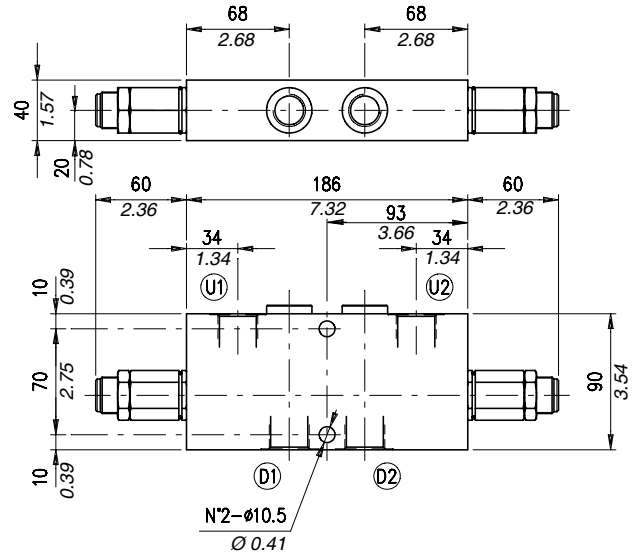
Check valve seat

– See body
VRR) Hardened steel

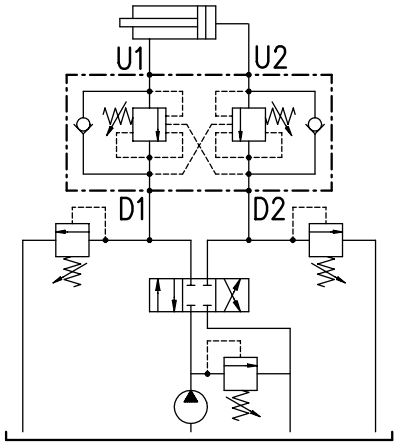
Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

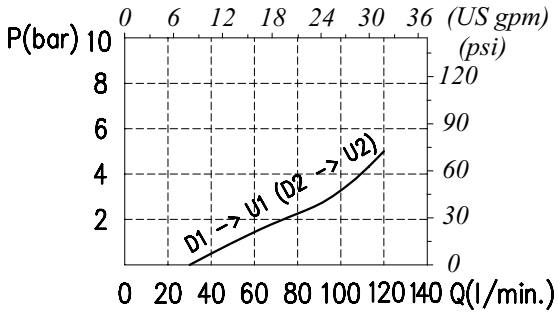


D1–D2	U1–U2
G 3/4	G 3/4

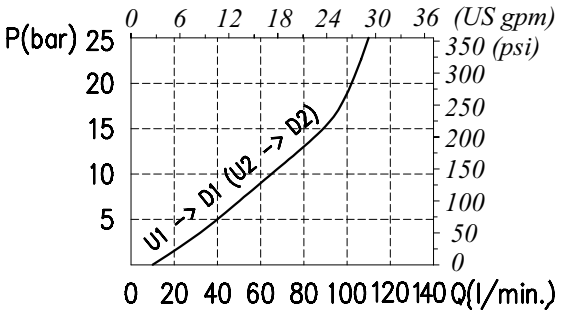


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC /CC 34 / □□ . 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) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

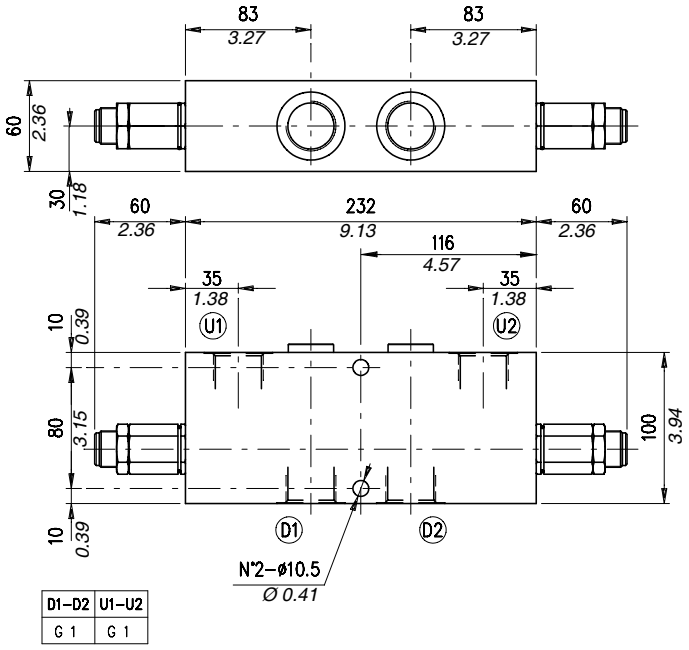
Check valve seat

_ See body
VRR) Hardened steel

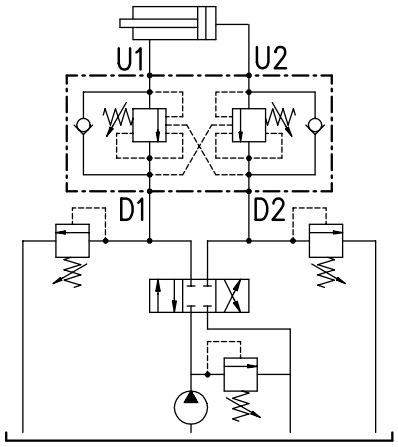
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

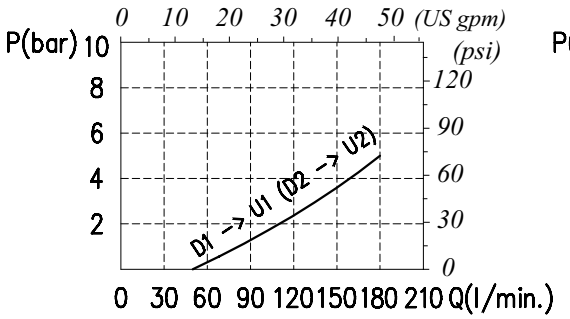


D1–D2	U1–U2
G 1	G 1

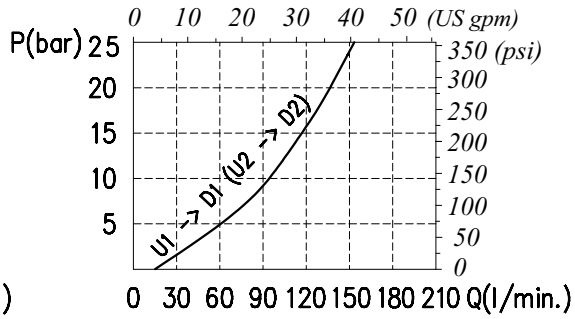


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC /CC 100 / □□ . 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) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

Check valve seat

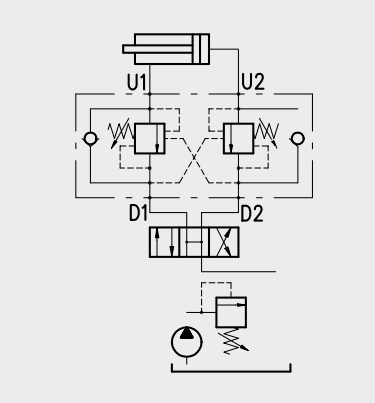
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Operation

The oil flow is allowed from D1 (D2) to U1 (U2) and is stopped in the opposite way from U1 (U2) to D1 D(2) up to the spring setting value. Free oil flow from U1 (U2) to D1 D(2) is strictly possible when the pilot pressure in D2 and U2 (D1 and U1) 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 tour pilot ratio is 1:4, your setting pressure is 250 bar *(3600 psi)* and your load pressure is 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 D1 (D2), the pilot pressure (1:1 ratio) be negatively affected. Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action..

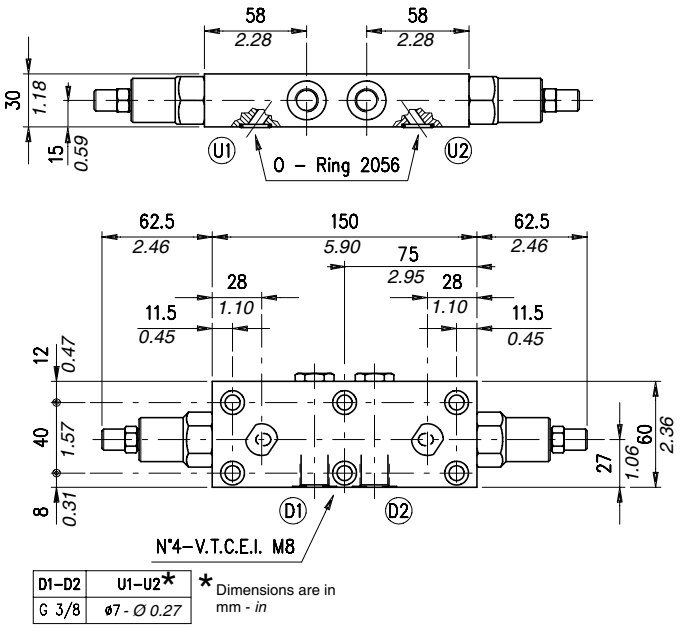


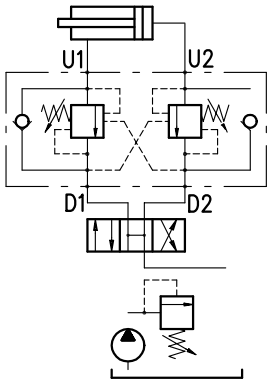
Performance

Body valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 (U2) to D1 (D2)	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VODL/SC/F 38	40	*11*	210 (alum.)	*3050 (alum.)*	5÷210 bar-*72.5÷3050 psi* (test setting:170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar-*725÷5100 psi* (test setting: 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*) 100÷700 bar-*1450÷10150 psi* (test setting 350 bar -*5100 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min -*15x10⁻³ in³/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)	1,13	*2.49*
								aluminium	
								2,16	*4.76*
								steel	
VODL/SC/F 12	75	*20*	350 (steel)	*5100 (steel)*	5÷210 bar-*72.5÷3050 psi* (test setting 150 bar-*2200 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar-*725÷5100 psi*- (test setting 280 bar -*4060 psi* at 5 l/min.-*1.3 US gpm*) 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)	1,47	*3.24*
								aluminium	
								2,89	*6.37*
								steel	

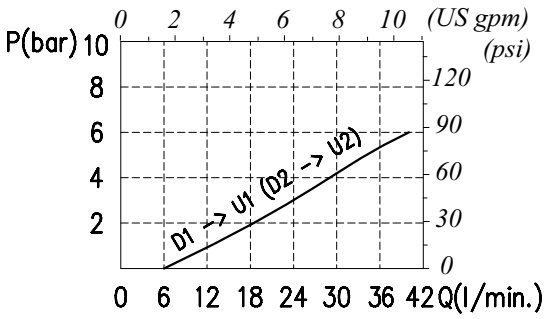
Dimensions and hydraulic circuit



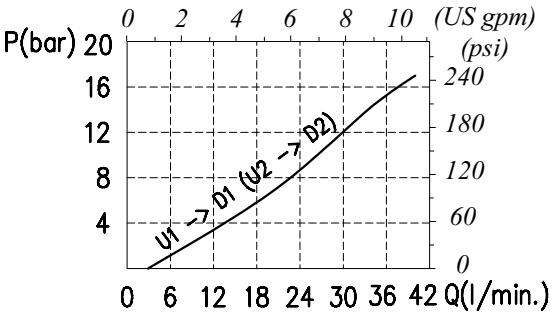


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC / F 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

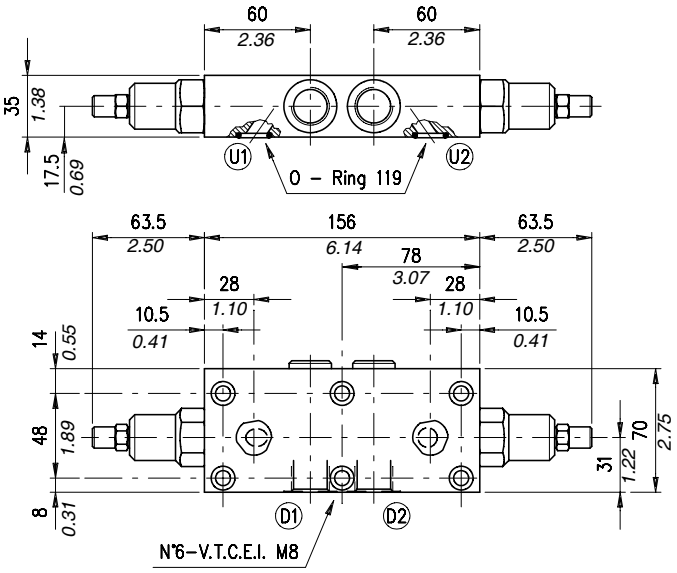
Check valve seat

_ See body
VRR) Hardened steel

Body material

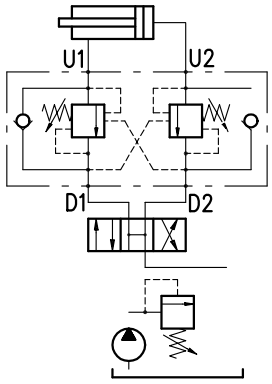
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



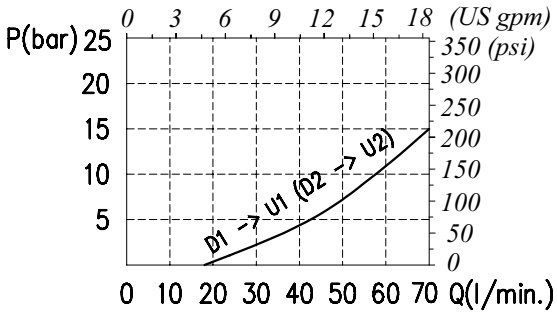
D1–D2	U1–U2*
G 1/2	ø9 - Ø 0.35

* Dimensions are in mm - *in*

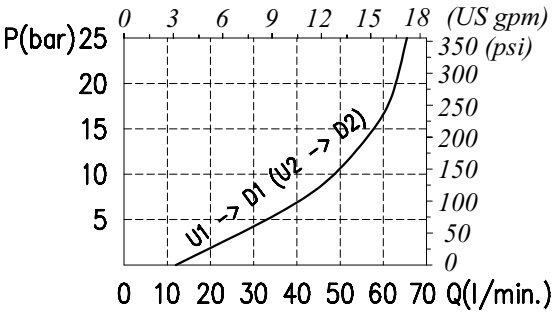


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /SC / F 12 / □□ . 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) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

Check valve seat

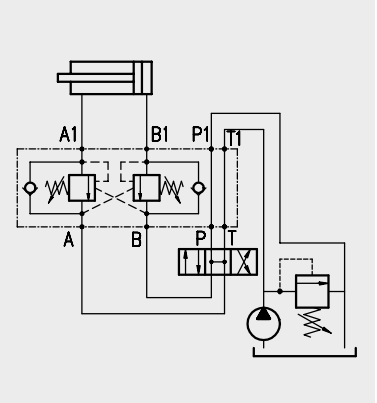
_ See body
VR) Hardened steel

Body material

_ Aluminium
ac Steel

Operation

The oil flow is allowed from A (B) to A1 (B1) and is stopped in the opposite way from A1 (B1) to A (B) up to the spring setting value. Free oil flow from A1 (B1) to A (B) is strictly possible when the pilot pressure in B and B1 (A and A1) 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 is 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*].
Counterpressure in A (B) increase the setting value (1:1 ratio) of the poppet spring and negatively affect the pilot pressure (1:1 ratio).
Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action.

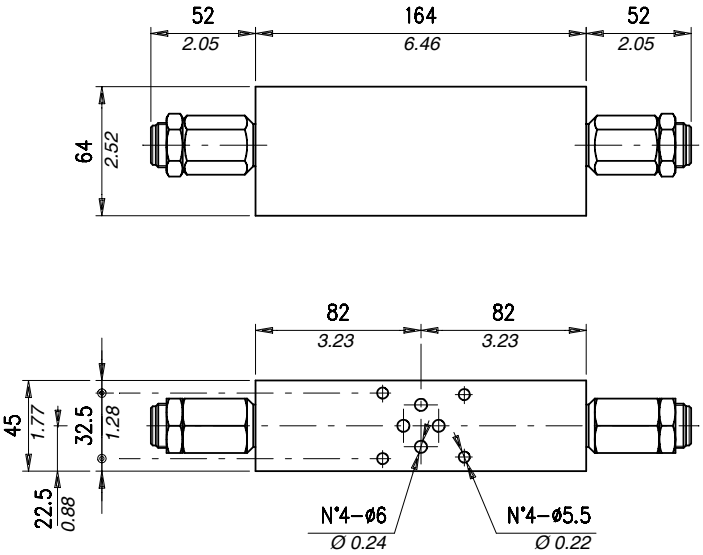


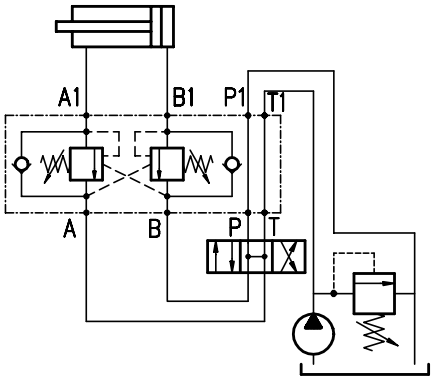
Performance

Body Valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from A1 (B1) to A (B)	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VODL/ML 6-38	35	*9.2*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar-*72.5÷3050 psi* (test setting 170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar *-725÷5100 psi* (test setting 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*) 100÷700 bar *-1450÷10150 psi* (test setting 350 bar-*5100 psi* at 5 l/min.-*1.3 US gpm*)	0,25 cm³/min *-15x10⁻³ in³/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)	1,75	*3.85*
								aluminium	
								3,75	*8.27*
								steel	
VODL/ML 10-12	70	*18*					1:7 (standard type) 1:3 (on request only)	3,21	*7.08*
								aluminium	
								7,46	*16.45*
								steel	

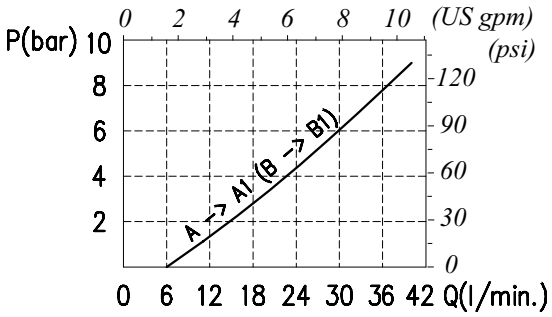
Dimensions and hydraulic circuit



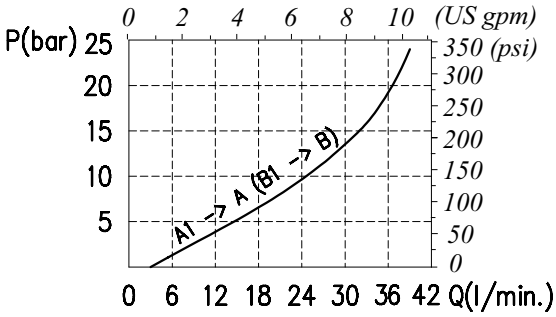


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /ML 6 - 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

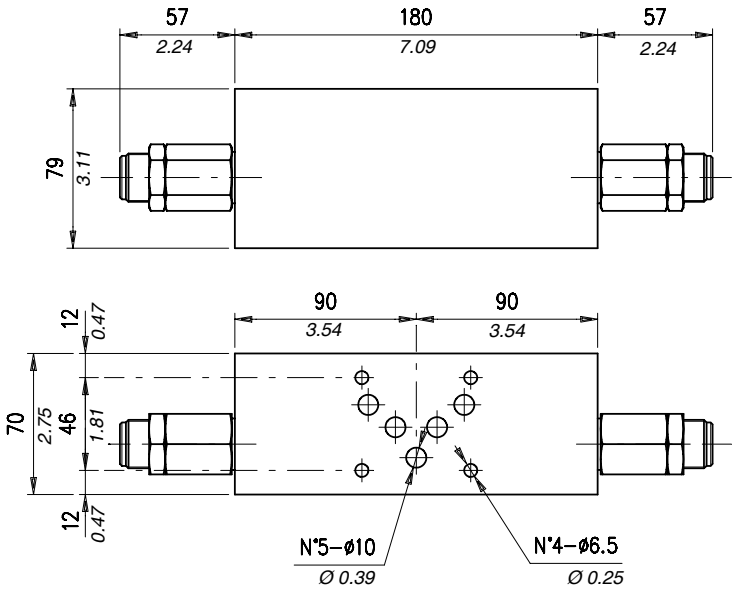
Check valve seat

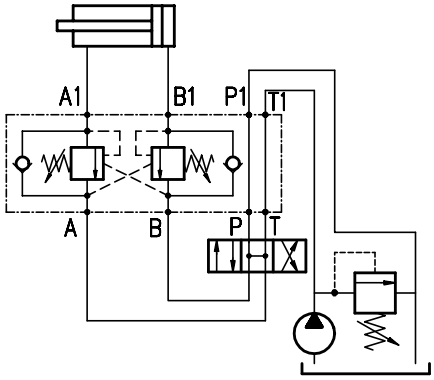
_ See body
VR) Hardened steel

Body material

_ Aluminium
ac Steel

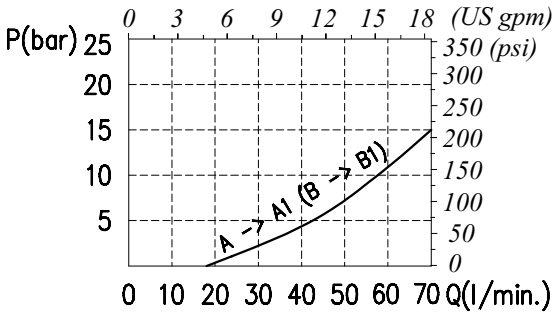
Dimensions and hydraulic circuit



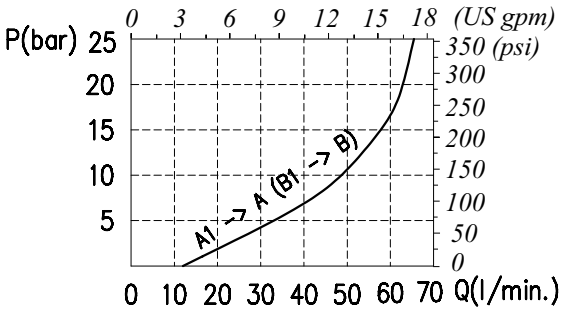


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VODL /ML 10 - 12 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

Check valve seat

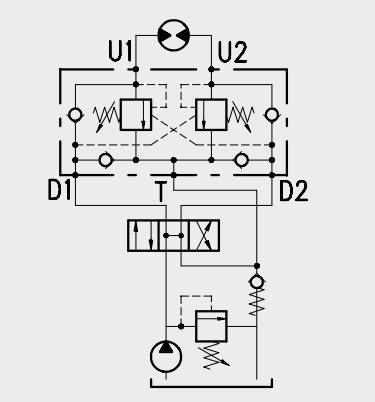
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Operation

The oil flow is allowed from D1 (D2) to U1 (U2) and is stopped in the opposite way from U1 (U2) to D1 (D2) up to the spring setting value. Free oil flow from U1 (U2) to D1 (D2) is strictly possible when the pilot pressure in D2 and U2 (D1 and U1) 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 is 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-*19*00 psi)÷ 4 = 30 bar-*430 psi*].
Counterpressure in D1 (D2) increase the setting value (1:1 ratio) of the poppet spring and negatively affect the pilot pressure (1:1 ratio).
Use of two check-valves between D1 (D2) and T avoids cavitation on the pressure line during relief operation. To obtain immediate valve response and no pressure drop, preferably mount this valve next to the application to check.
Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action.

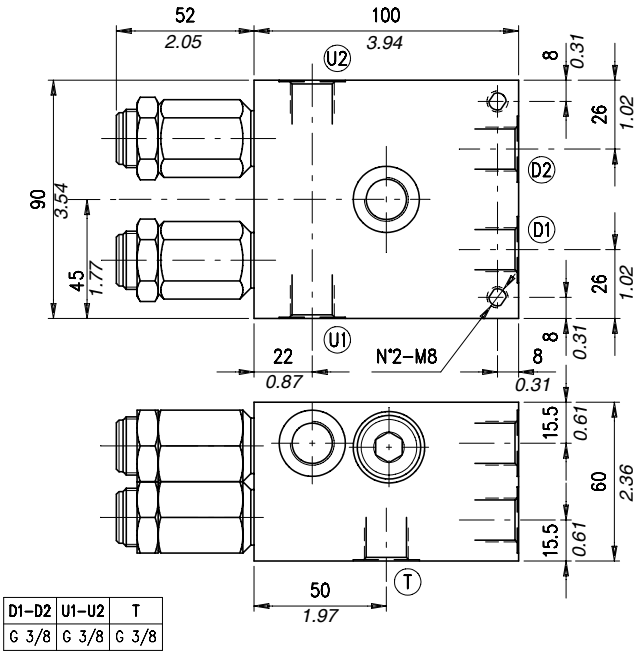


Performance

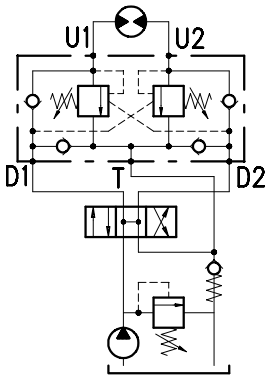
Body valves

Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from A1 (B1) to A (B)	Pilot ratio	Weight		Overcenter cartridge
	l/min	*US gpm*	bar	*psi*				kg	*lb*	
VABAL 38	35	*9.2*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar *-72.5÷3050 psi* (test setting 170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar *-725÷5100 psi* (test setting 280 bar-*4060 psi* at 5 l/min.-*1.3 US gpm*) 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.	1:4 (standard type) 1:3 (on request only)	1,95	*4.30*	VMPD 38
								aluminium		
								4,01	*8.84*	
								steel		
VABAL 12	70	*18*					1:7 (standard type) 1:3 (on request only)	2,45	*5.40*	VMPD 12
								aluminium		
								5,05	*11.13*	
								steel		
VABAL 34	100	*26*						4,42	*9.74*	VMPD 34
								aluminium		
								8,73	*19.25*	
								steel		
VABAL 100	180	*46*						4,42	*9.74*	
								aluminium		
								8,73	*19.25*	
								steel		

Dimensions and hydraulic circuit

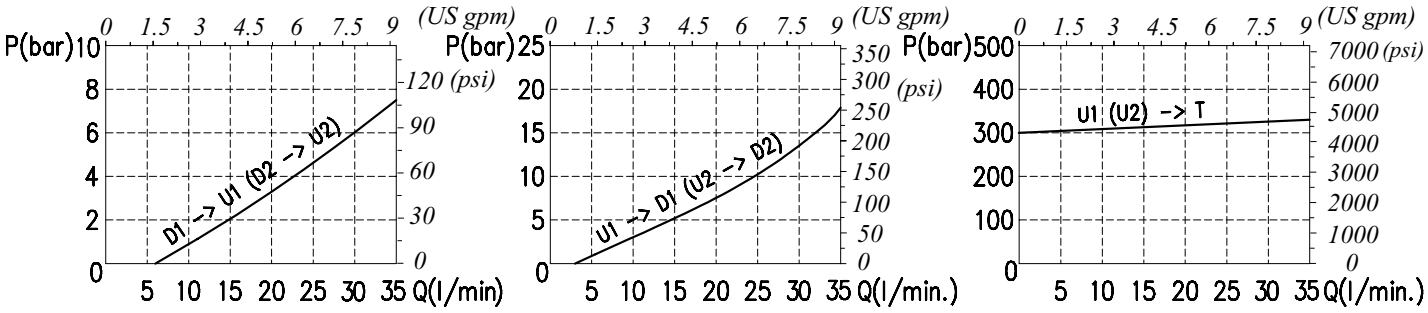


D1-D2	U1-U2	T
G 3/8	G 3/8	G 3/8



Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VABAL 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

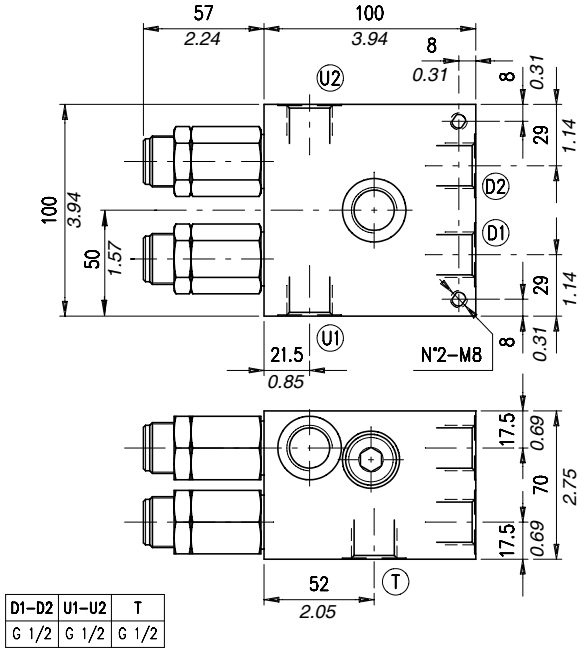
Check valve seat

_ See body
VRR) Hardened steel

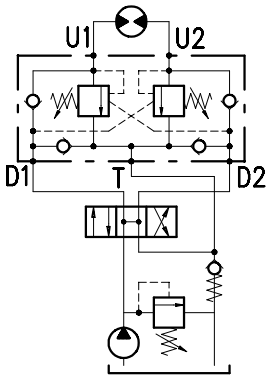
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

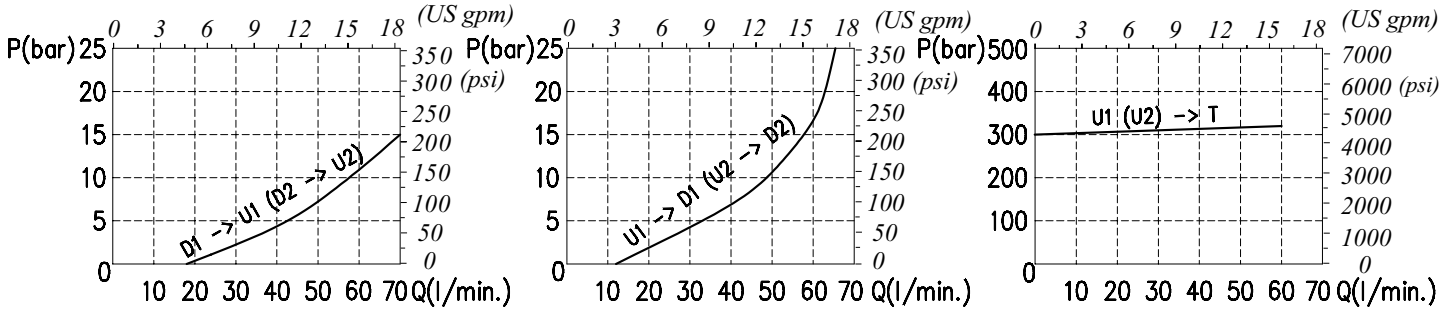


D1–D2	U1–U2	T
G 1/2	G 1/2	G 1/2



Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VABAL 12 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

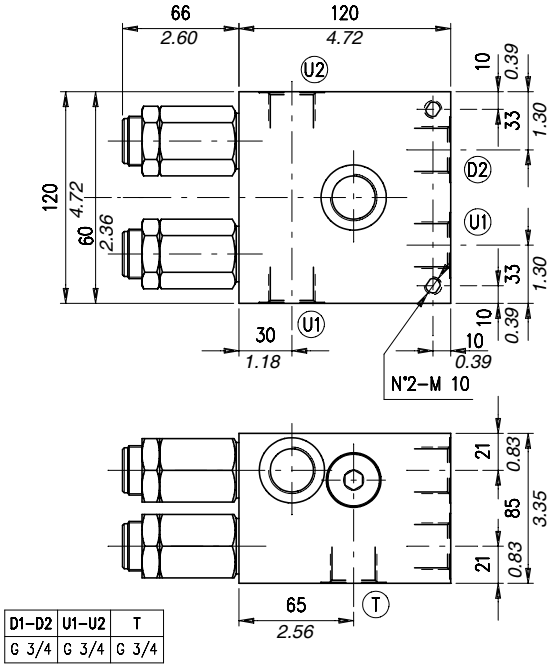
Check valve seat

_ See body
VRR) Hardened steel

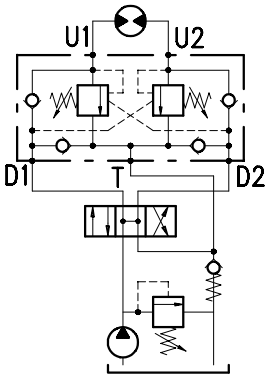
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

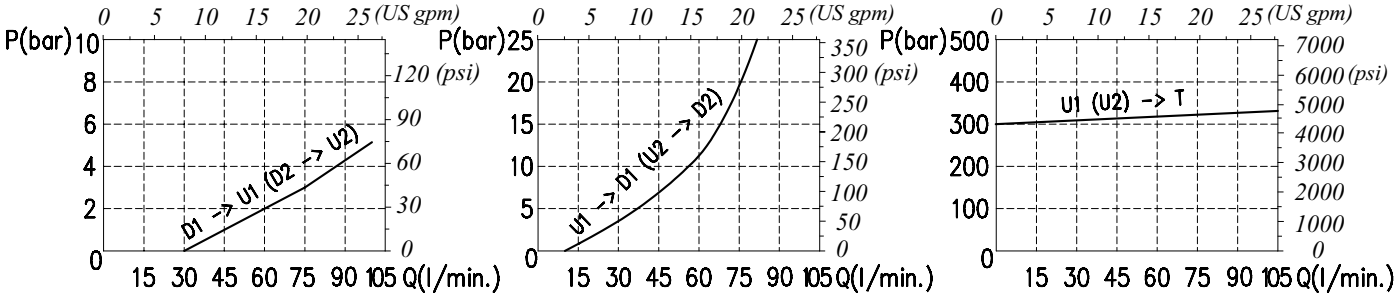


D1–D2	U1–U2	T
G 3/4	G 3/4	G 3/4



Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VABAL 34 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

Without damper (Standard)
PG) With damper

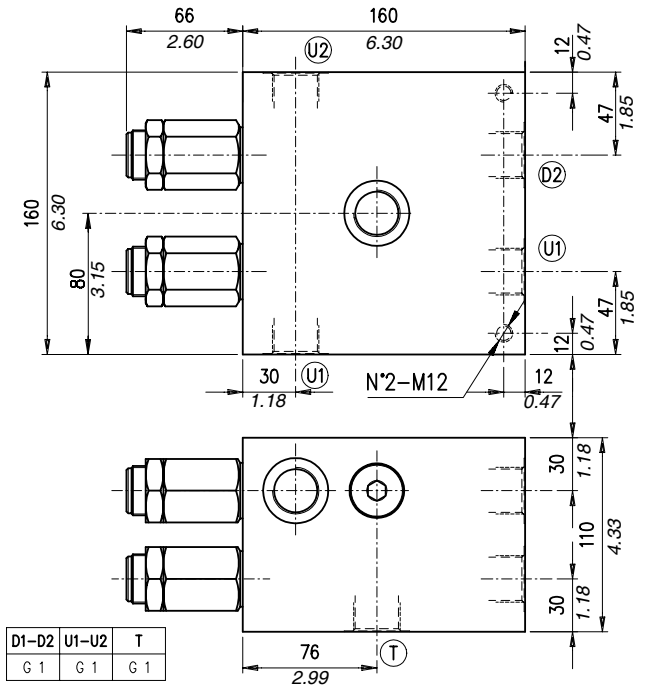
Check valve seat

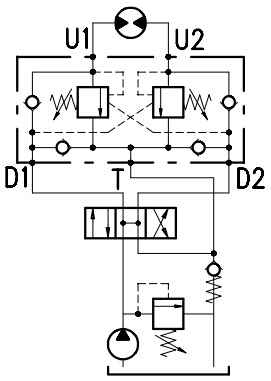
_ See body
VR) Hardened steel

Body material

_ Aluminium
ac Steel

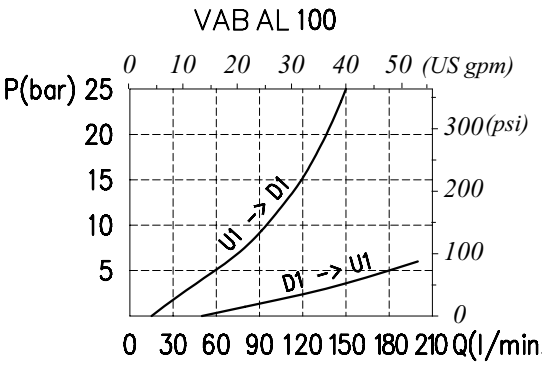
Dimensions and hydraulic circuit





Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VABAL 100 / □□ . 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
p7) 1:7 (Standard)

Type of pilot

_ Without damper (Standard)
PG) With damper

Check valve seat

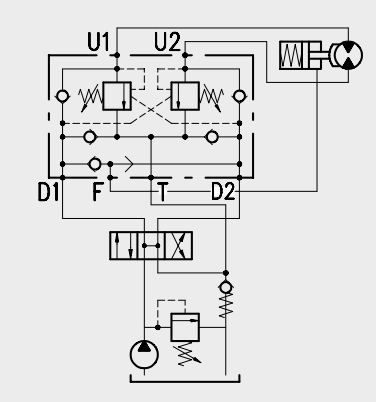
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Operation

The oil flow is allowed from D1 (D2) to U1 (U2) and is stopped in the opposite way from U1 (U2) to D1 (D2) up to the spring setting value. Free oil flow from U1 (U2) to D1 (D2) is strictly possible when the pilot pressure in D2 and U2 (D1 and U1) 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 is 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*].
Counterpressure in D1 (D2) increase the setting value (1:1 ratio) of the poppet spring and negatively affect the pilot pressure (1:1 ratio).
Use of two check-valves between D1 (D2) and T avoids cavitation on the pressure line during relief operation. To obtain immediate valve response and no pressure drop, preferably mount this valve next to the application to check.
Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action. Use of a special shuttle valve allows for release of hydraulic parking brakes.



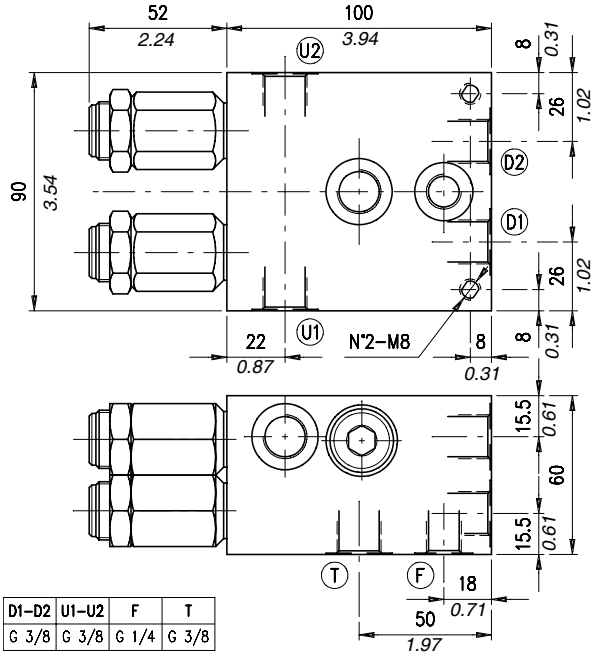
Performance

Body valves

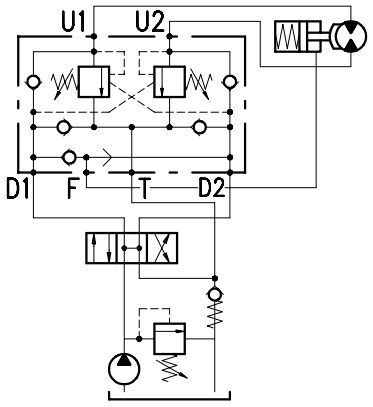
Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from A1 (B1) to A (B)	Pilot ratio	Weight		Overcenter cartridge
	l/min	*US gpm*	bar	*psi*				kg	*lb*	
VABAL/SF 38	35	*9.2*	210 (aluminium) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar *-72.5÷3050 psi* (test setting 170 bar *-2500 psi* at 5 l/min. *-1.3 US gpm*) 50÷350 bar *-725÷5100 psi* (test setting 280 bar *-4060 psi* at 5 l/min. *-1.3 US gpm*) 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.	1:4 (standard type) 1:3 (on request only)	1,96	*4.32*	VMPD 38
								aluminium		
								3,98	*8.77*	
								steel		
VABAL/SF 12	70	*18*					1:7 (standard type) 1:3 (on request only)	2,46	*5.42*	VMPD 12
								aluminium		
								4,98	*10.98*	
								steel		
VABAL/SF 34	100	*26*						4,50	*9.92*	VMPD 34
								aluminium		
								8,71	*19.20*	
								steel		

Cross-line, relief valve for motion control, anti-shock and anti-cavitation, line mounting. Cartridge construction and connection for hydraulic brakes release

Dimensions and hydraulic circuit

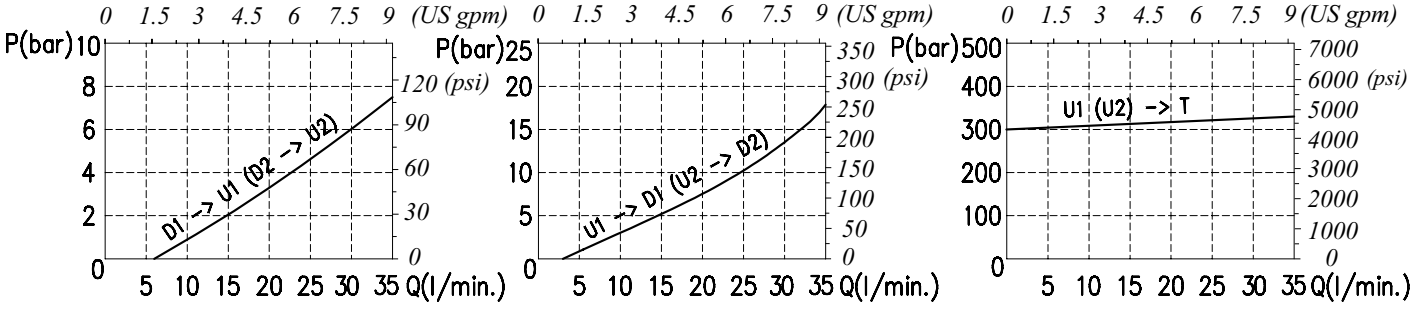


D1-D2	U1-U2	F	T
G 3/8	G 3/8	G 1/4	G 3/8



Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VABAL /SF 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 (Standard)
p4) 1:4

Type of pilot

_ Without damper (Standard)
PG) With damper

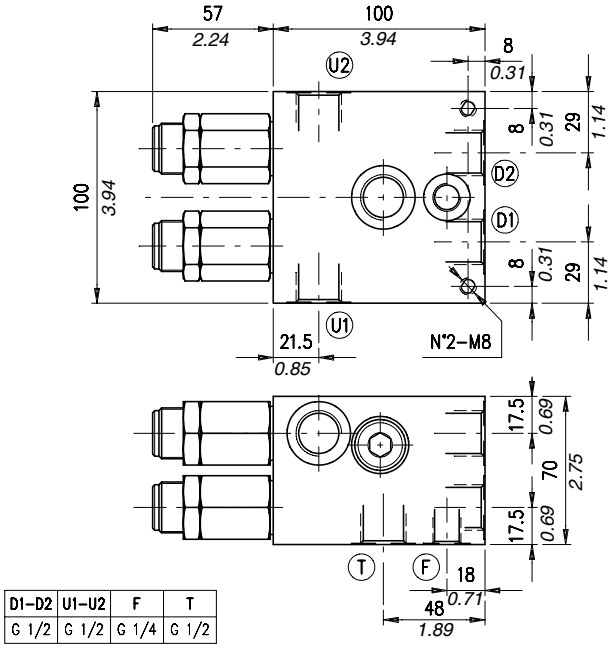
Check valve seat

_ See body
VRR) Hardened steel

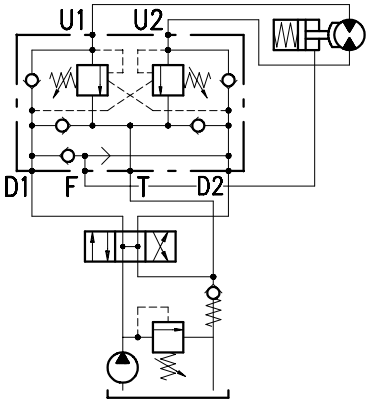
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

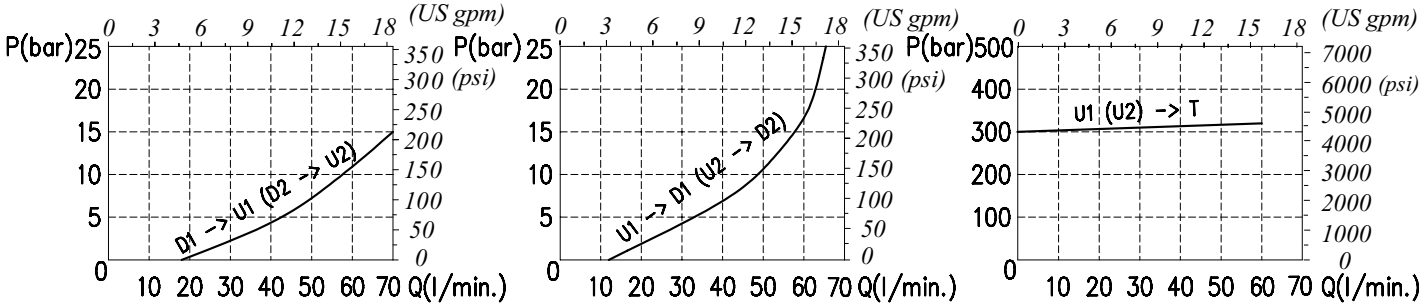


D1–D2	U1–U2	F	T
G 1/2	G 1/2	G 1/4	G 1/2



Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VABAL /SF 12 / □□ . 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 (Standard)
p7) 1:7

Type of pilot

_ Without damper (Standard)
PG) With damper

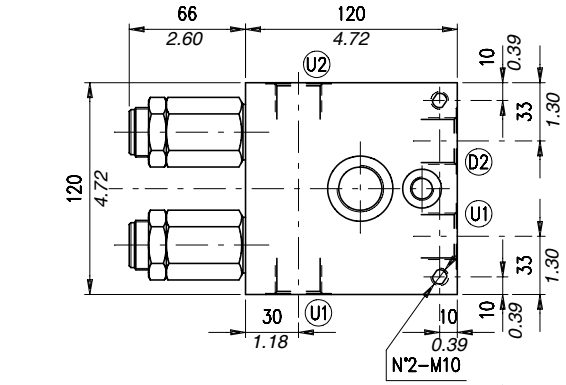
Check valve seat

_ See body
VRR) Hardened steel

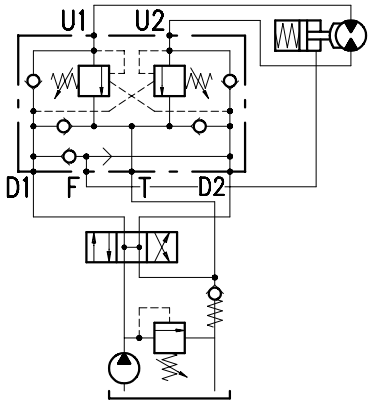
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

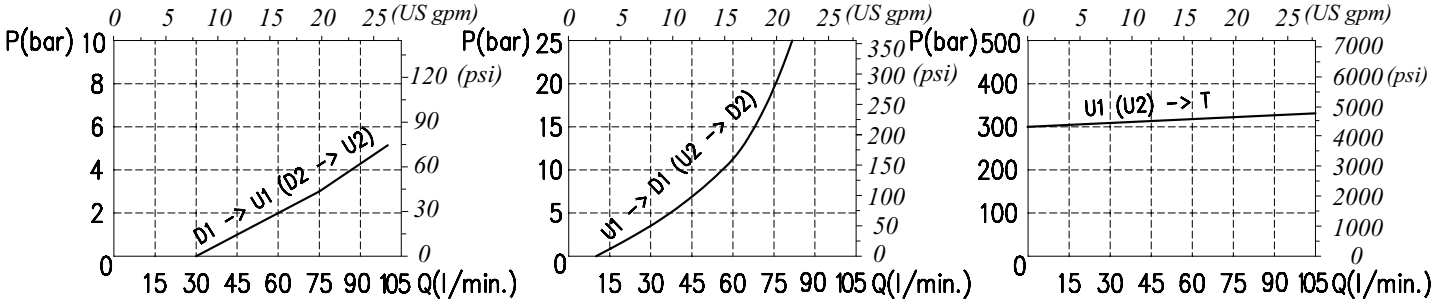


D1–D2	U1–U2	F	T
G 3/4	G 3/4	G 1/4	G 3/4



Rating diagrams

Typical pressure drop vs.flow characteristics



Order code

VABAL /SF 34 / □□ . 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 (Standard)
p7) 1:7

Type of pilot

_ Without damper (Standard)
PG) With damper

Check valve seat

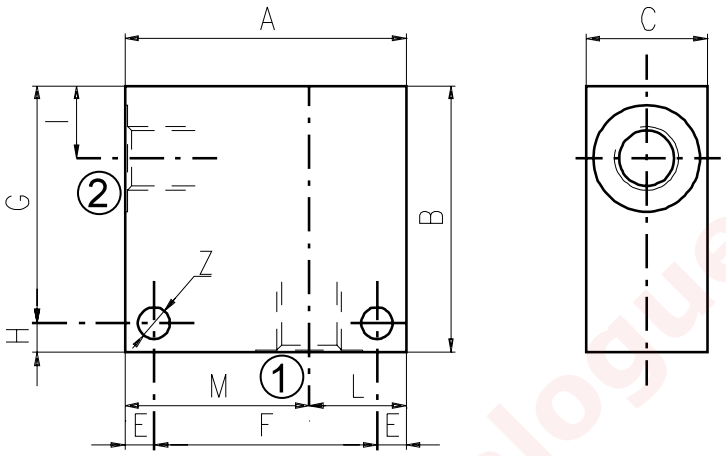
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions

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*

see Online catalogue

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

08
10
12
16

Ports

B) G 1/4
C) G 3/8
D) G 1/2
E) G 3/4
F) G 1

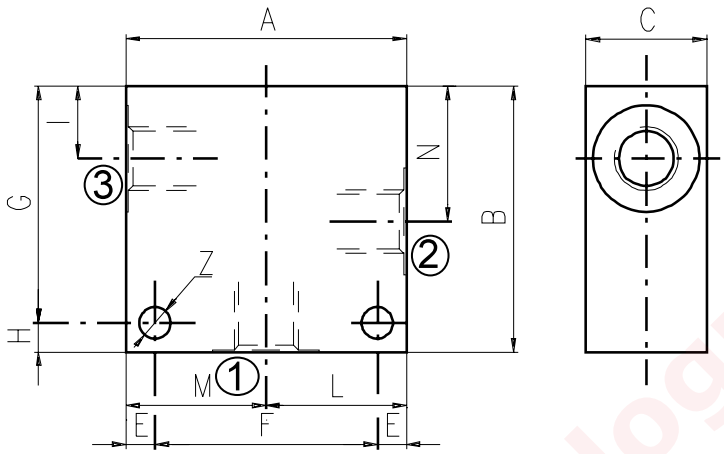
Materials

1) Aluminium
2) Steel

see SAE cartridges catalogue

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*	*1.77*	*0.31*	*2.52*	*3.6*	*0.31*	*0.98*	*1.57*	*1.57*	*2.11*	*0.33*

see electronic catalogue

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

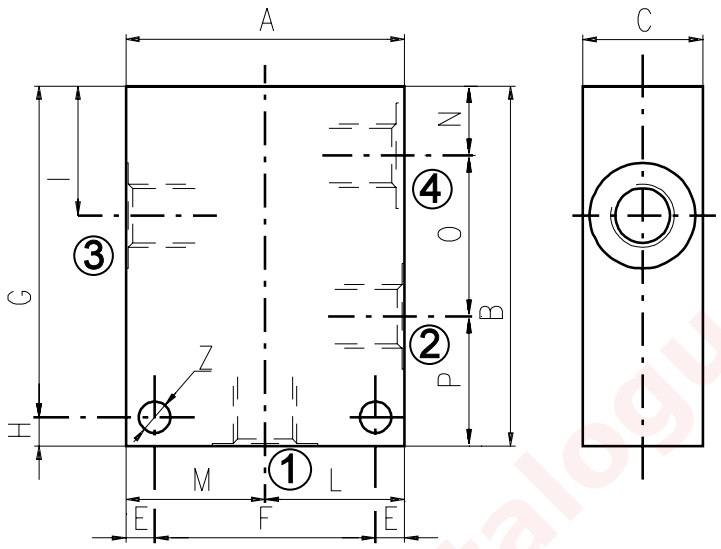
3/CC /- □ □ /30/□- □-1

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	

see SAE cartridges catalogue

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	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*

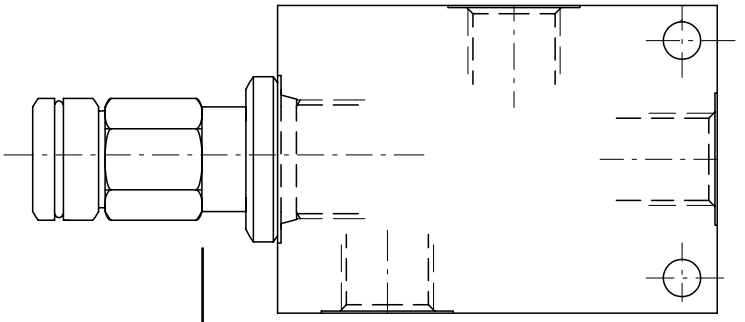
Order code

3/CC /- □ □ /40/□- □-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	

see online catalogue

How to order valves with body

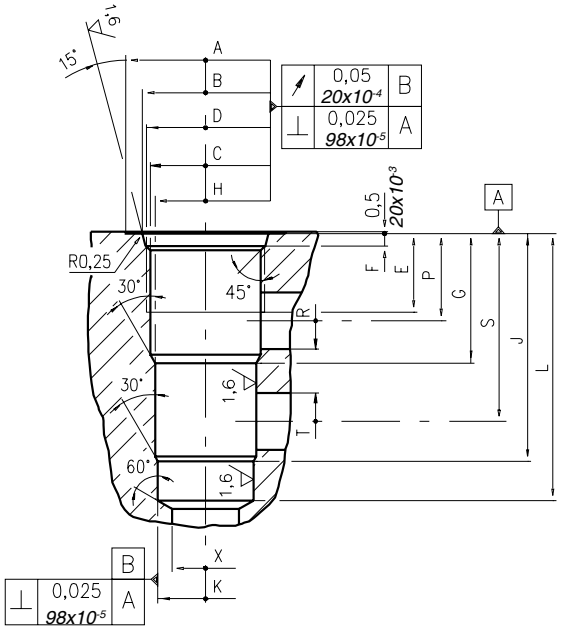


CARTRIDGE CODE **BILLET CODE**

CC-12-A/9-S-2B/ **D- 1-1**

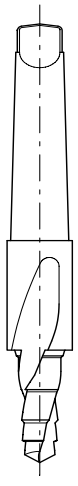
Cavity	Ports	Materials
08	B) G 1/4	1) Aluminium
10	C) G 3/8	
12	D) G 1/2	
16	E) G 3/4	
	F) G 1	
	J) SAE 6	2) Steel
	K) SAE 8	
	L) SAE 10	
	M) SAE 12	
	N) SAE 16	

Dimensions



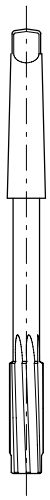
\		A	B ±0,05	C ±0,05	D	E	F	G	H ±0,02	J	K ±0,02	L	M ±0,02	N	P	R øMAX	S	T øMAX	U	V øMAX	X øMAX	Z øMIN	Prof. Z MIN
08/3	mm	27	20,66	17,42	3/4-16 UNF	12,50	2,5	19,10	15,90	33,30	14,30	43,30	-	-	14,30	5,50	28,60	5,50	-	-	12,50	-	-
	in	*1.06*	*0.81*	*0.68*		*0.49*	*0.10*	*0.75*	*0.62*	*1.31*	*0.56*	*1.70*			*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*		

Rougher tool



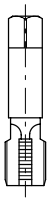
Cavity	Code number
08/3	3UT00052190
10/3	3UT00054170
12/3	3UT00054290
16/3	3UT00054470

Finisher tool



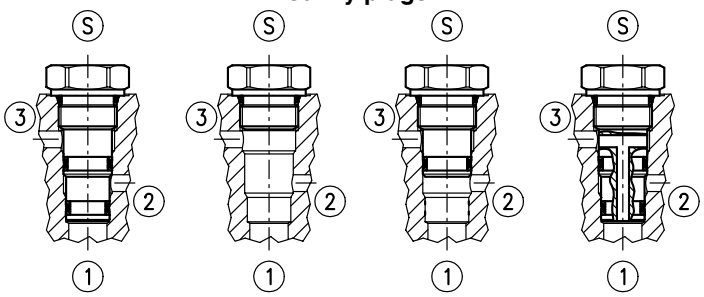
Cavity	Code number
08/3	3UT00052740
10/3	3UT00054180
12/3	3UT00054300
16/3	3UT00054480

Tap

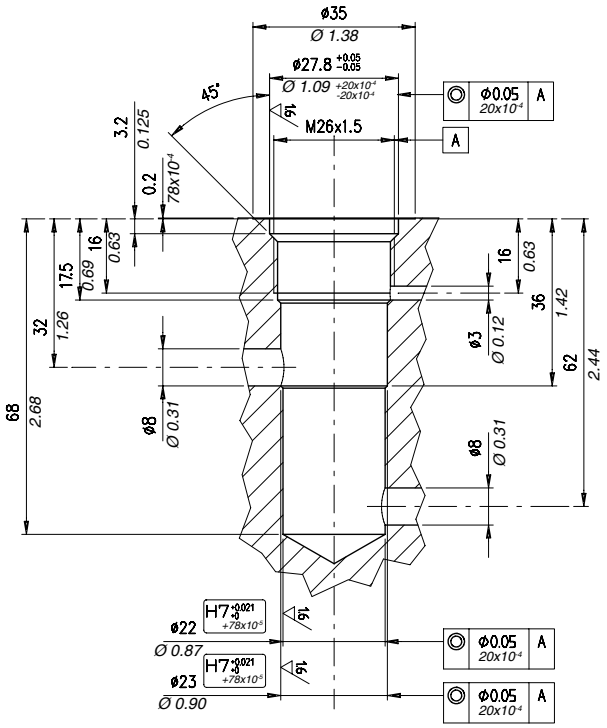


Cavity	Code number
08/3	3UT03416UNF
10/3	3UT07814UNF
12/3	3UT0111612UN
16/3	3UT0151612UN

Cavity plugs

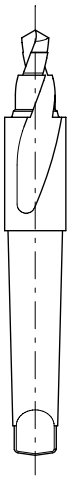


Dimensions



Rougher tool

Cod.3UT00052430



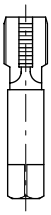
Finisher

Cod.3UT00053540

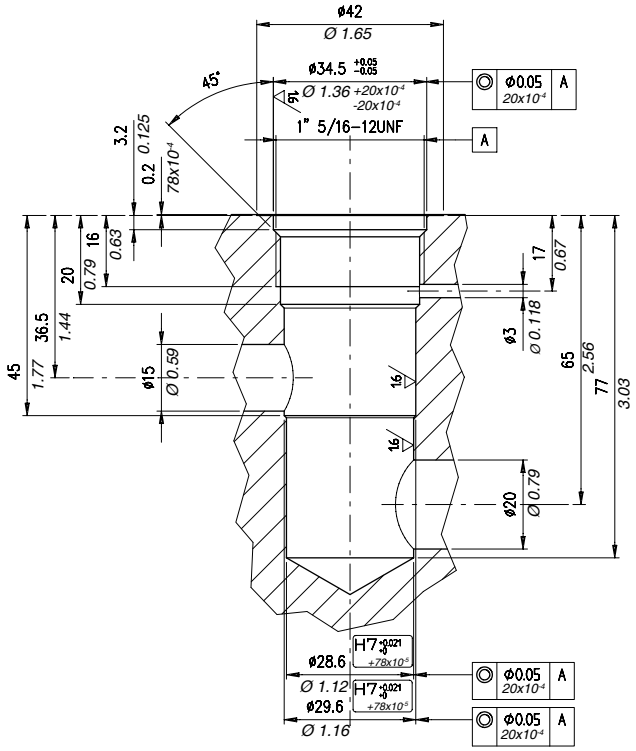


Tap

Cod.3UT08A26F150

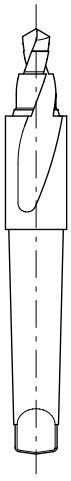


Dimensions



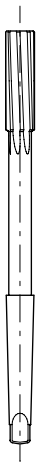
Rougher tool

Cod.3UT00053530



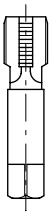
Finisher

Cod.3UT00053550

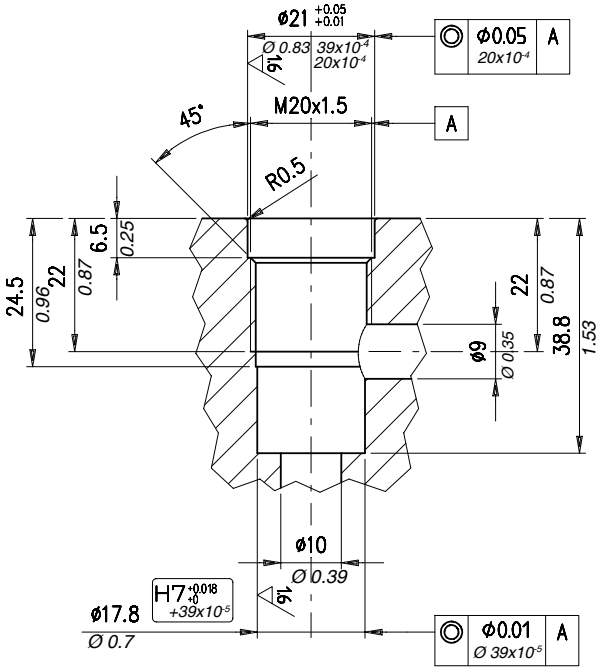


Tap

Cod.3UT0151612UN

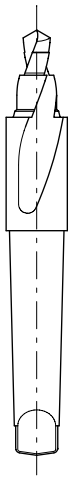


Dimensions



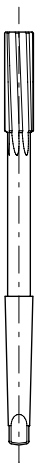
Rougher tool

Cod.3UT00050050



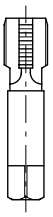
Finisher

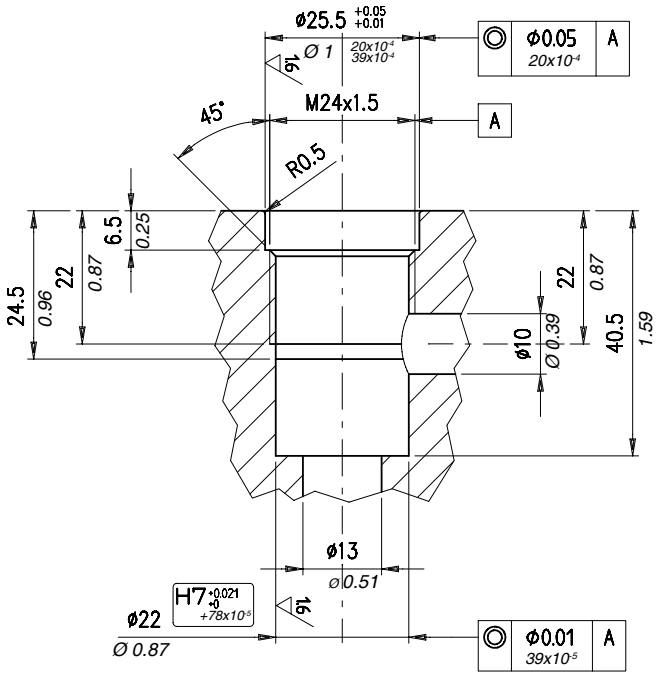
Cod.3UT00055040



Tap

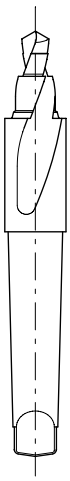
Cod.3UT08A20F150





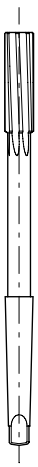
Rougher tool

Cod.3UT00050070



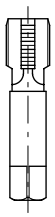
Finisher

Cod.3UT06A22000P

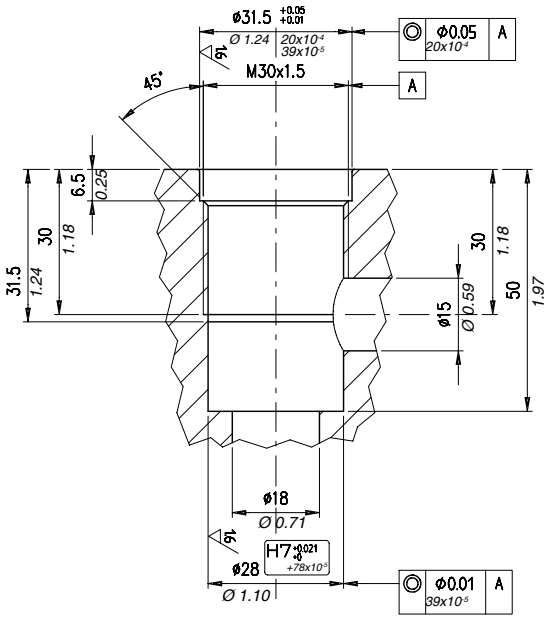


Tap

Cod.3UT08A24F150

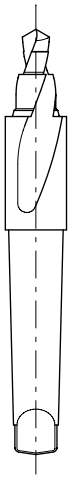


Dimensions



Rougher tool

Cod.3UT00050100



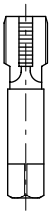
Finisher

Cod.3UT06A2800P



Tap

Cod.3UT08A30F150



Notes

2nd edition February 2012

WWW.WALVOIL.COM

D1WWER01E

walvoil
HYDRAULIC CONTROL SYSTEMS