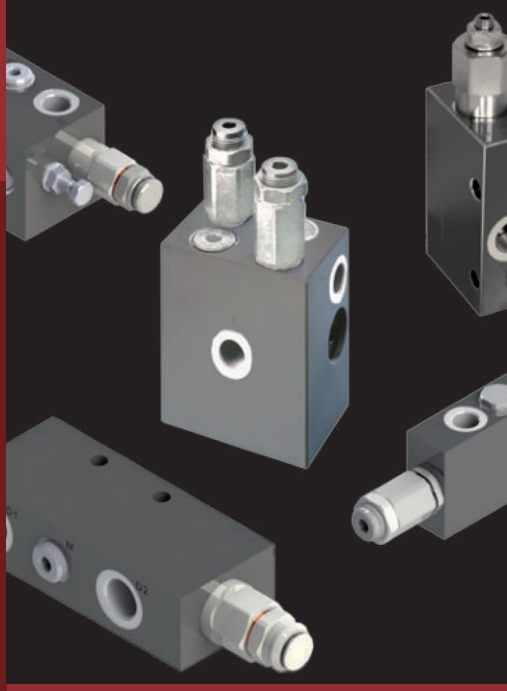
CATALOGUE



Counterbalance valves

A member of INTERPUMP GROUP

walvoil
FLUID POWER E|MOTION

Additional information
This catalogue shows the product in the most standard configurations.
Please contact Sales Dpt. for more detailed information or special request.

WARNING!
All specifications of this catalogue refer to the standard product at this date.
Walvoil, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications, without notice.

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

3rd edition October 2016

Counterbalance valves

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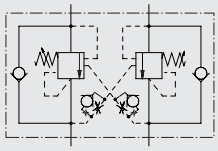
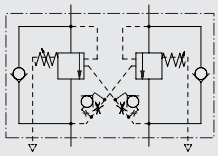
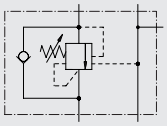
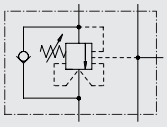
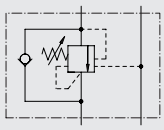
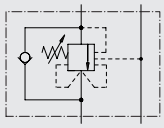
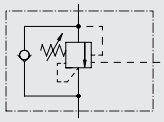
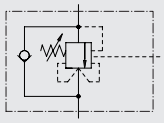
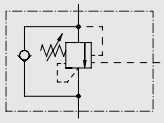
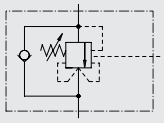
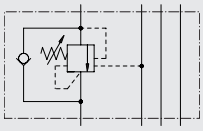
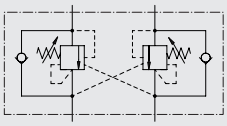
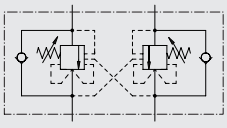
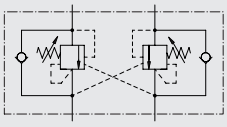
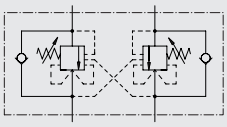
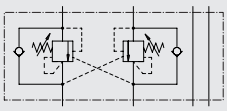
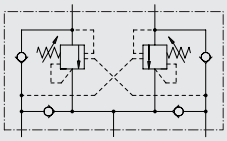
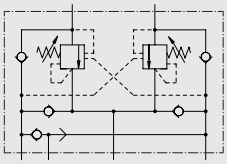
Counterbalance valves

Hydraulic diagram	Type	Execution	Operation/ Features	Max. flow up to		Max. press. up to		Page
				l/min	*US gpm*	bar	*psi*	
	**VODL/N1516/CS**	double acting	load sensitive	160	*42.3*	400 steel body	*5800 steel body*	45
	**VODL/V1516/CS**	double acting	vented	160	*42.3*	400 steel body	*5800 steel body*	45
	**VOSL**	single acting	load sensitive	180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	51
	**VOSL/CC**	single acting	relief compensated	180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	55
	**VOSL/SC**	single acting		180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	59
	**VOSL/SC/CC**	single acting		180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	63
	**VOSLP**	single acting	with external pilot	180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	67
	**VOSLP/CC**	single acting	relief compensated, with external pilot	180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	71
	**VOSLP/SC**	single acting	load sensitive, with external pilot	180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	75
	VOSLP/SC/RO	single acting	load sensitive, with external pilot, bolt connection	180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	79
	**VOSLP/SC/CC**	single acting	relief compensated, with external pilot	180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	83
	**VOSL/ML**	single acting	load sensitive, CETOP flange connection	70	*18.5*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	87

Counterbalance valves

Hydraulic diagram	Type	Execution	Operation/ Features	Max. flow up to		Max. press. up to		Page
				l/min	*US gpm*	bar	*psi*	
	**VODL**	double acting		180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	91
	**VODL/CC**	double acting	relief compensated	180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	95
	**VODL/SC**	double acting	load sensitive	180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	99
	**VODL/SC/CC**	double acting		180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	103
	**VODL/ML**	double acting	load sensitive, CETOP flange connection	70	*18.5*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	107
	**VABAL**	double acting	load sensitive, pressure relief valve for motion control	180	*47.5*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	111
	**VABAL/SF**	double acting	load sensitive, pressure relief valve for motion control	180	*47.6*	210 alum. body 350 steel body	*3050 alum. body 5100 steel body*	115

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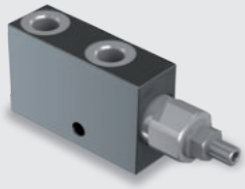


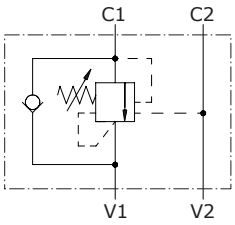
Type VOSL/N78/....
counterbalance valves

- Single acting
- Steel body

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

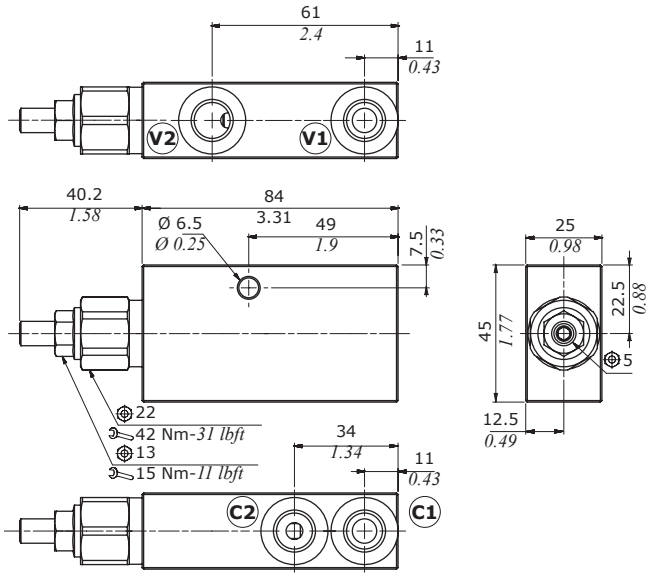
	VOSL/N78 - VOSL/N78/..PB
Nominal flow	40 l/min *(10.57 US gpm)*
Max. pressure	Steel body = 350 bar *(5100 psi)*
Oil leakage	0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 80% of pressure setting
Fluid	mineral based oil
Viscosity	from 10 to 200 cSt
Max. level of contamination	18/16/13 ISO4406
Fluid temperature	*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*
Environmental temp. for working conditions	from -40°C *(-40°F)* to 100°C *(212°F)*
steel	0.723 kg *(1.59 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.

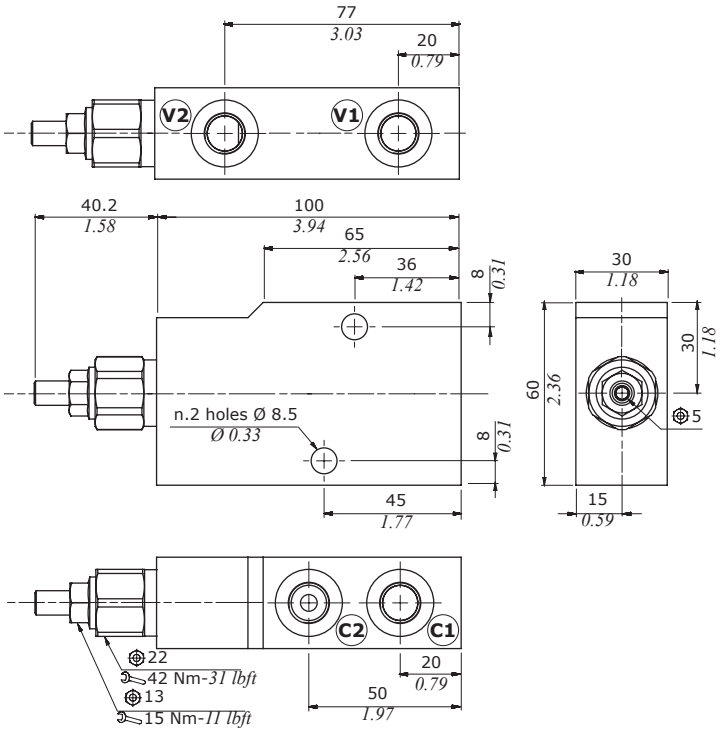


Dimensions

VOSL/N78/14



VOSL/N78/14PB

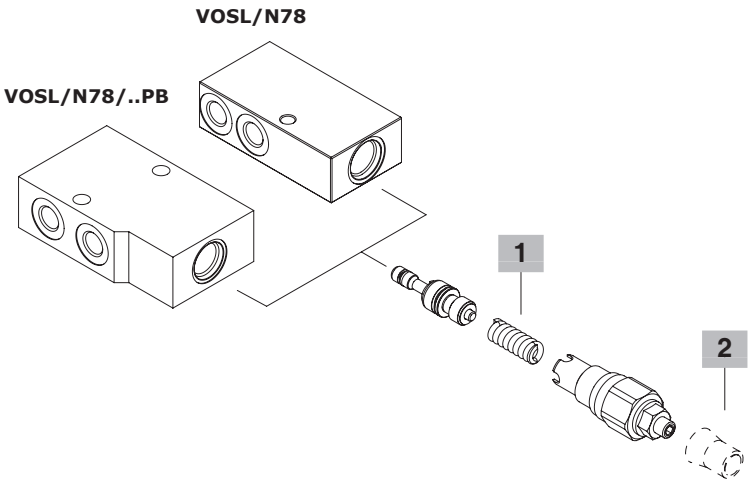


Ordering codes and description composition

Port size

VOSL/N78/14/G3.p4/ac

2 **1**



VOSL/N78 complete valves

TYPE: **VOSL/N78/14/G5.p4/ac** CODE: 1513512100
DESCRIPTION: Steel body, pilot ratio 1:4, range 100-350 bar *(1450-5075 psi)*, standard setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N78/14/G3.p4/ac** CODE: 1513512101
DESCRIPTION: Steel body, pilot ratio 1:4, range 60-220 bar *(870-3190 psi)*, standard setting 150 bar *(2170 psi)* @ 5 l/min *(1.32 US gpm)*

VOSL/N78....PB complete valves

TYPE: **VOSL/N78/14PB/G5.p4/ac** CODE: 1513612100
DESCRIPTION: Steel body, pilot ratio 1:4, range 100-350 bar *(1450-5075 psi)*, standard setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N78/14PB/G3.p4/ac** CODE: 1513612101
DESCRIPTION: Steel body, pilot ratio 1:4, range 60-220 bar *(870-3190 psi)*, standard setting 150 bar *(2170 psi)* @ 5 l/min *(1.32 US gpm)*

1 Pressure setting spring

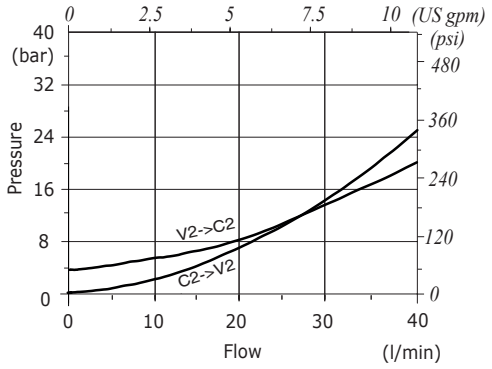
TYPE	CODE	DESCRIPTION
For 1:4 pilot ratio		
3	3MOL310282	For range 60-220 bar *(870-3190 psi)* standard setting 150 bar *(2170 psi)* @ 5 l/min *(1.32 US gpm)*
5	380113	For range 100-350 bar *(1450-5075 psi)* standard setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

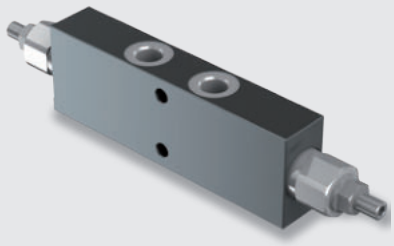
2 Setting type

TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP120420	Antitampering cap

Rating diagrams

**Pressure drop vs. flow
from C2->V2 and V2->C2**





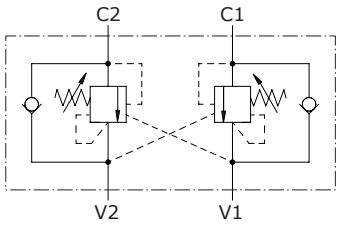
Type VODL/N78 /....
counterbalance valves

- Double acting
- Steel body

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

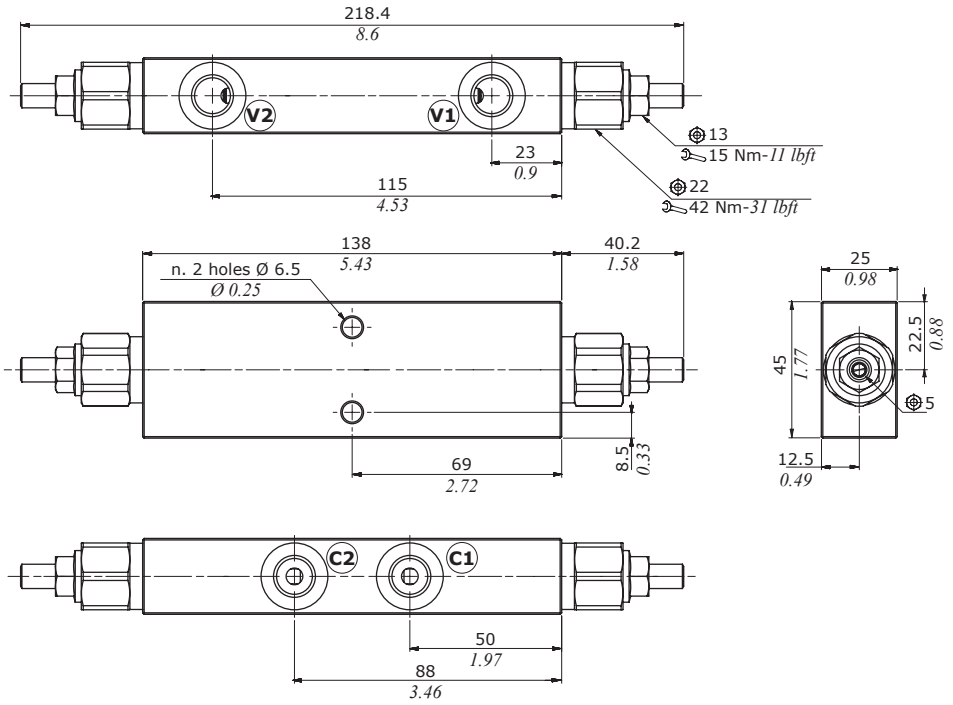
	VODL/N78 - VODL/N78/..PB
Nominal flow	40 l/min *(10.57 US gpm)*
Max. pressure	Steel body = 350 bar *(5100 psi)*
Oil leakage	0.25 cm³/min - *0.015 in³/min.* (5 drops) at 80% of pressure setting
Fluid	mineral based oil
Viscosity	from 10 to 200 cSt
Max. level of contamination	18/16/13 ISO4406
Fluid temperature	*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*
Environmental temp. for working conditions	from -40°C *(-40°F)* to 100°C *(212°F)*
steel	1.25 kg *(2.75 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.

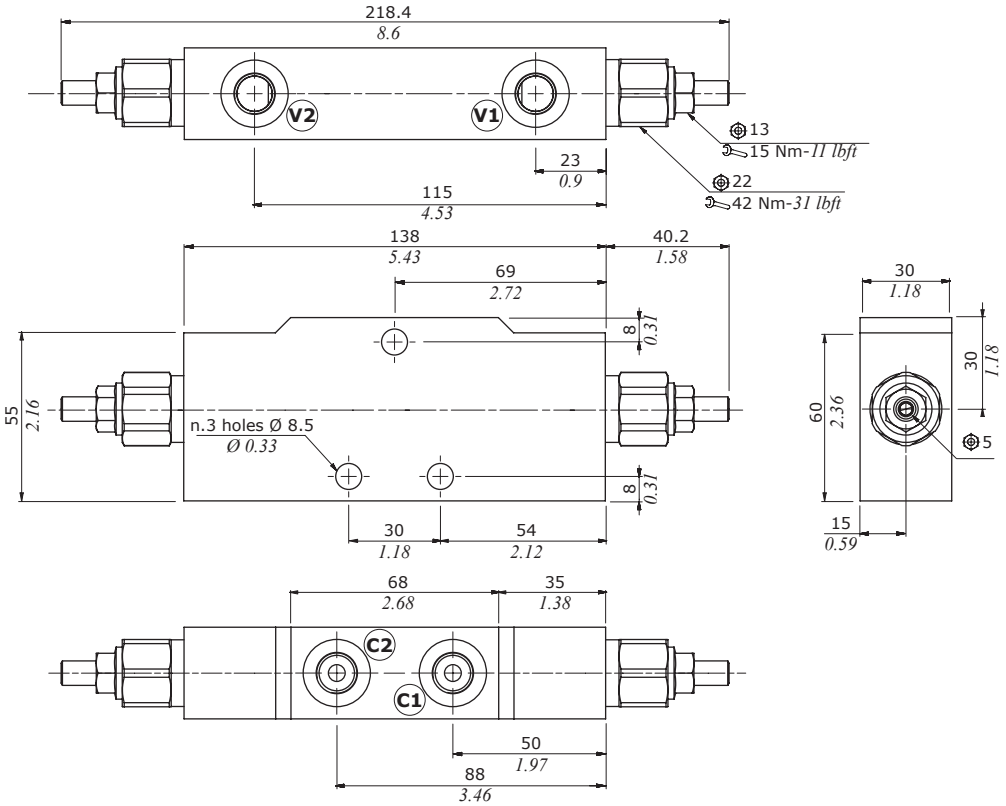


Dimensions

VODL/N78/14



VODL/N78/14PB

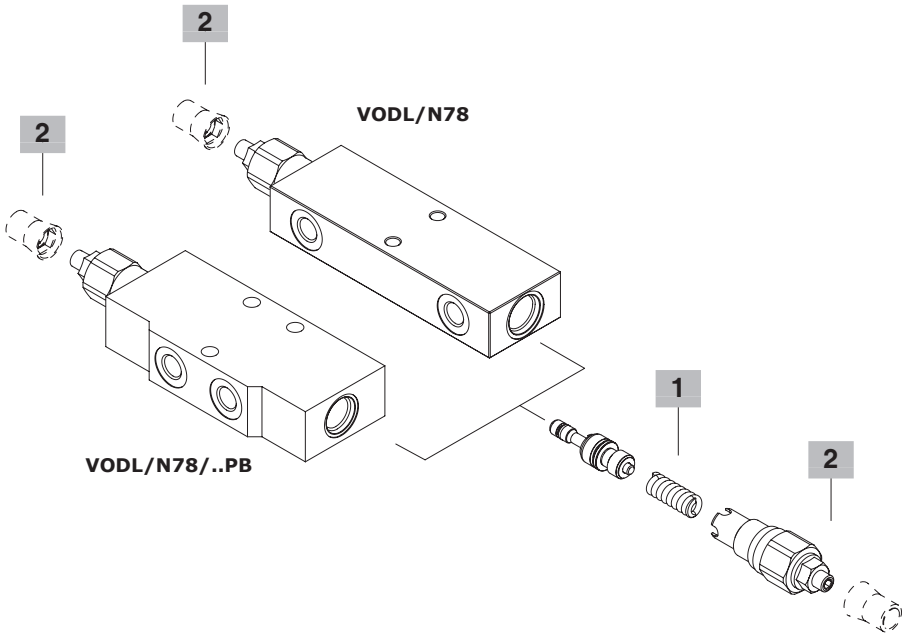


Ordering codes and description composition

Port size

VODL/N78/14/G3.p4/ac

2 1



VODL/N78 complete valves

TYPE: **VODL/N78/14/G5.p4/ac** CODE: 1553612100
DESCRIPTION: Steel body, pilot ratio 1:4, range 100-350 bar *(1450-5075 psi)*, standard setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/N78/14/G3.p4/ac** CODE: 1553612101
DESCRIPTION: Steel body, pilot ratio 1:4, range 60-220 bar *(870-3190 psi)*, standard setting 150 bar *(2170 psi)* @ 5 l/min *(1.32 US gpm)*

VODL/N78....PB complete valves

TYPE: **VODL/N78/14PB/G5.p4/ac** CODE: 1553712100
DESCRIPTION: Steel body, pilot ratio 1:4, range 100-350 bar *(1450-5075 psi)*, standard setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/N78/14PB/G3.p4/ac** CODE: 1553712101
DESCRIPTION: Steel body, pilot ratio 1:4, range 60-220 bar *(870-3190 psi)*, standard setting 150 bar *(2170 psi)* @ 5 l/min *(1.32 US gpm)*

1 Pressure setting spring

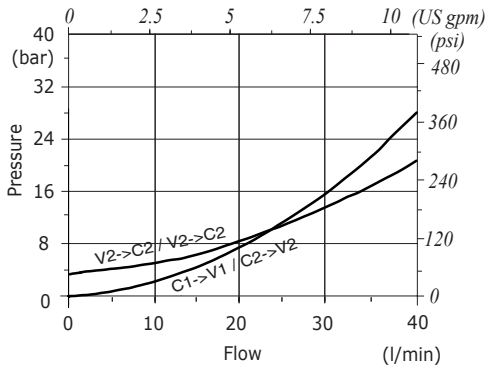
TYPE	CODE	DESCRIPTION
For 1:4 pilot ratio		
3	3MOL310282	For range 60-220 bar *(870-3190 psi)* standard setting 150 bar *(2170 psi)* @ 5 l/min *(1.32 US gpm)*
5	380113	For range 100-350 bar *(1450-5075 psi)* standard setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

2 Setting type

TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP120420	Antitampering cap

Rating diagrams

Pressure drop vs. flow from C2->V2 and V2->C2



Type VOSL/N1116 - VOSL/R1116 - VOSL/V1116
counterbalance valves

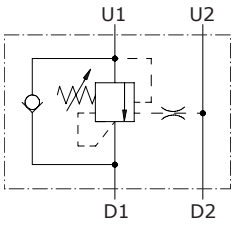
- Single acting
- Steel body
- Load Sensitive (type N)
- Relief compensated (type R)
- Vented (type V)
- Configuration with F1 and F2 flange

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

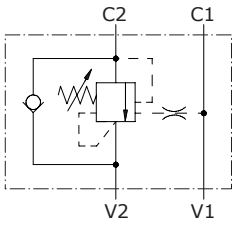
		VOSL/N1116 (38-12) - VOSL/R1116 (38-12) - VOSL/V1116 (38-12)
Nominal flow		60 l/min *(15.9 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi*
Fluid		mineral based oil
Viscosity		from 10 to 200 cSt
Max. level of contamination		18/16/13 ISO4406
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*
Weight	*aluminium*	**VOSL/N1116/38:** 0.59 kg *(1.30 lb)* - **VOSL/N1116/12:** 0.75 kg *(1.65 lb)* **VOSL/R1116/38:** 0.64 kg *(1.41 lb)* - **VOSL/R1116/12:** 0.82 kg *(1.81 lb)* **VOSL/V1116/38:** 0.66 kg *(1.46 lb)* - **VOSL/V1116/12:** 0.83 kg *(1.83 lb)*
	steel	**VOSL/N1116/38:** 1.31 kg *(2.88 lb)* - **VOSL/N1116/12:** 1.74 kg *(3.84 lb)* **VOSL/N1116/38PB:** - **VOSL/N1116/12PB:** **VOSL/R1116/38:** 1.34 kg *(2.95 lb)* - **VOSL/R1116/12:** 1.73 kg *(3.81 lb)* **VOSL/V1116/38:** 1.36 kg *(2.88 lb)* - **VOSL/V1116/12:** 1.78 kg *(3.92 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.

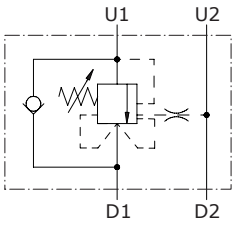
VOSL/N1116



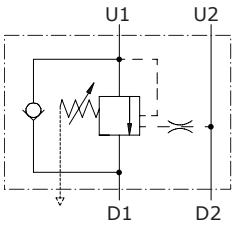
VOSL/N1116/PB



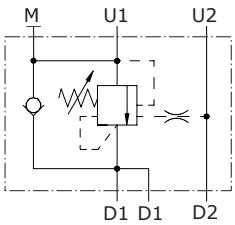
VOSL/R1116



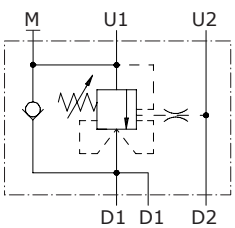
VOSL/V1116



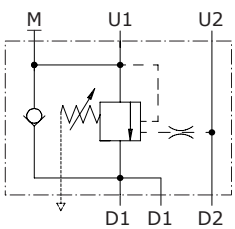
VOSL/N1116/F1



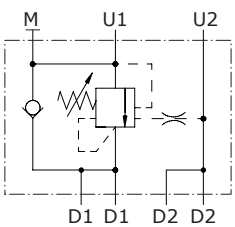
VOSL/R1116/F1



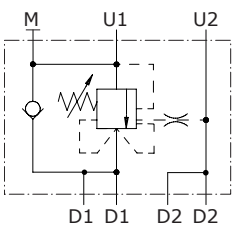
VOSL/V1116/F1



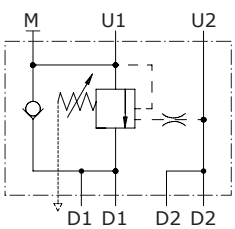
VOSL/N1116/F2



VOSL/R1116/F2

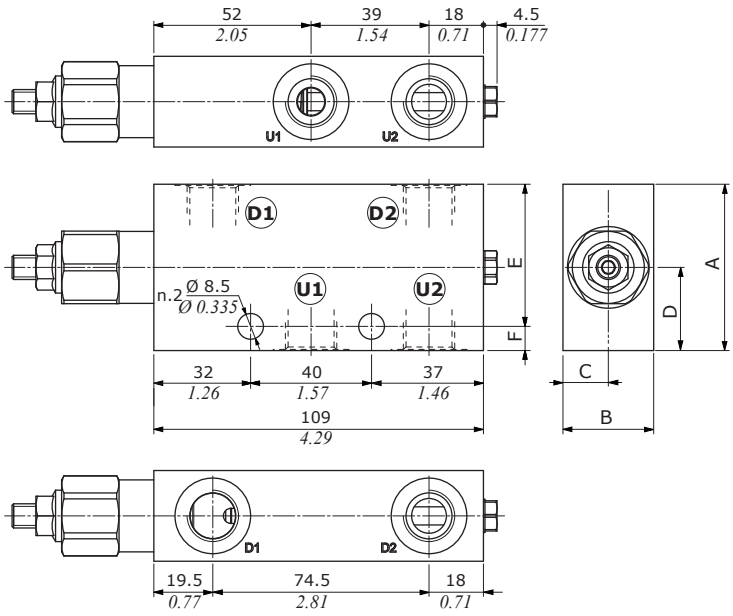


VOSL/V1116/F2

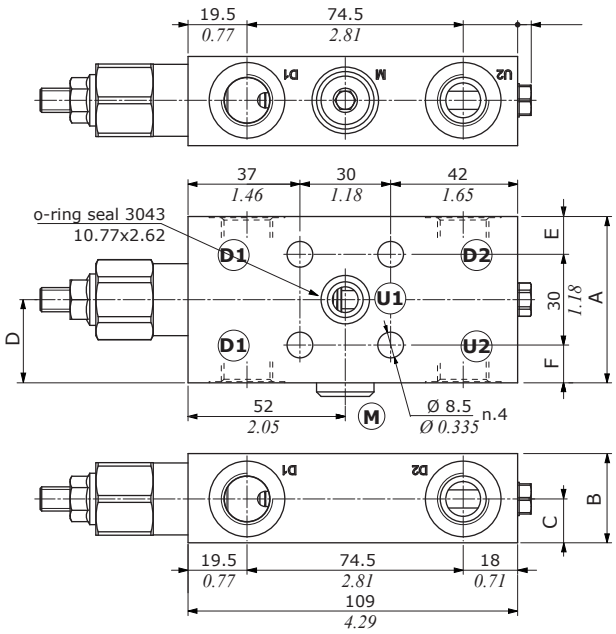


Dimensions

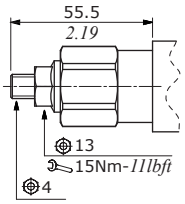
VOSL/...1116/38 - VOSL/...1116/12



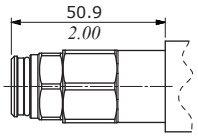
VOSL/...1116/38F1 - VOSL/...1116/12F1



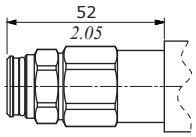
VOSL/N configuration



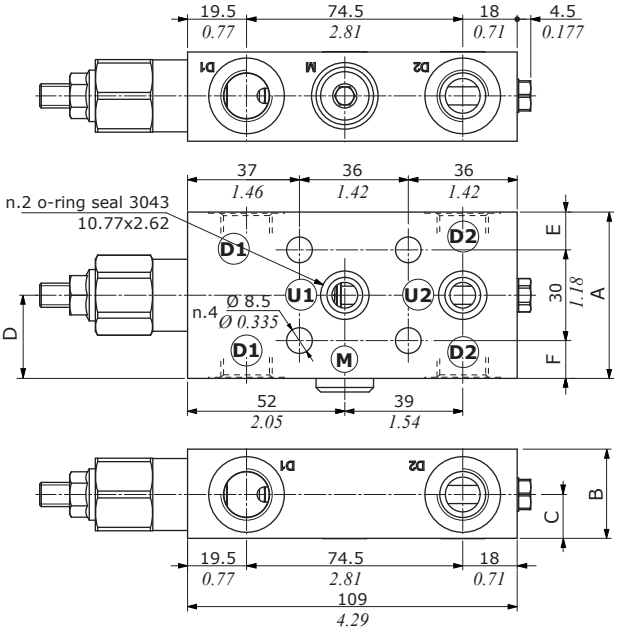
VOSL/R configuration



VOSL/V configuration



VOSL/...1116/38F2 - VOSL/...1116/12F2



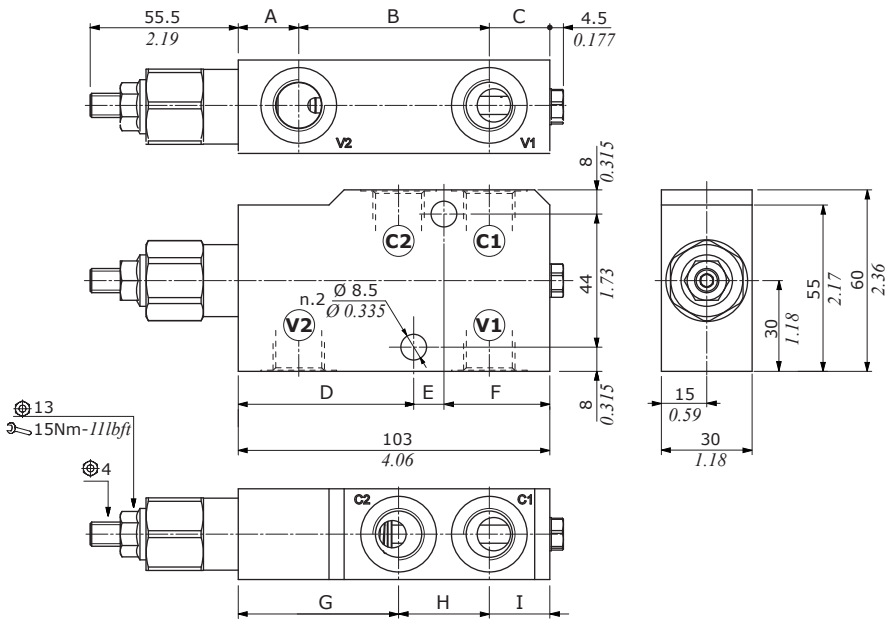
Valve type	D1	D2	U1	U2	M
VOSL/...1116/38	G3/8	G3/8	G3/8	G3/8	G1/4
VOSL/...1116/12	G1/2	G1/2	G1/2	G1/2	G1/4
VOSL/...1116/38F1	G3/8	G3/8	Ø8.5 *Ø0.335*	G3/8	G1/4
VOSL/...1116/12F1	G1/2	G1/2	Ø8.5 *Ø0.335*	G1/2	G1/4
VOSL/...1116/38F2	G3/8	G3/8	Ø8.5 *Ø0.335*	Ø8.5 *Ø0.335*	G1/4
VOSL/...1116/12F2	G1/2	G1/2	Ø8.5 *Ø0.335*	Ø8.5 *Ø0.335*	G1/4

Dimensions are in mm-*in*

Valve type	A	B	C	D	E	F
VOSL/...1116/38	55-*2.17*	30-*1.18*	15-*0.59*	27.5-*1.08*	47-*1.85*	8-*0.315*
VOSL/...1116/12	65-*2.26*	35-*1.38*	17.5-*0.69*	32.5-*1.28*	57-*2.24*	8-*0.315*
VOSL/...1116/38F1	55-*2.17*	29.5-*1.16*	14.5-*0.57*	27.5-*1.08*	12.5-*0.49*	12.5-*0.49*
VOSL/...1116/12F1	65-*2.26*	34.5-*1.36*	17-*0.67*	32.5-*1.28*	17.5-*0.69*	17.5-*0.69*
VOSL/...1116/38F2	55-*2.17*	29.5-*1.16*	14.5-*0.57*	27.5-*1.08*	12.5-*0.49*	12.5-*0.49*
VOSL/...1116/12F2	65-*2.26*	34.5-*1.36*	17-*0.67*	32.5-*1.28*	17.5-*0.69*	17.5-*0.69*

Ordering codes and description composition

VOSL/N1116/38PB - VOSL/N1116/12PB



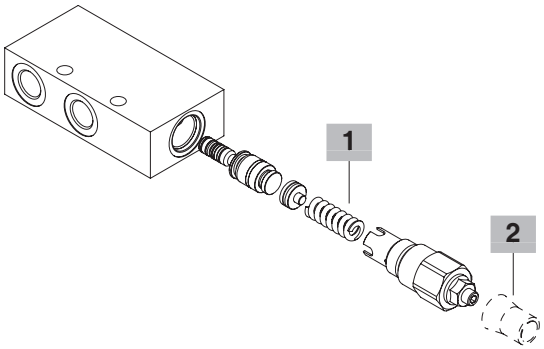
Valve type	All ports
VOSL/N1116/38PB	G3/8
VOSL/N1116/12PB	G1/2

Dimensions are in mm-*in*

Valve type	A	B	C	D	E	F	G	H	I
VOSL/N1116/38PB	20-*0.79*	63-*2.48*	20-*0.79*	58-*2.28*	10-*0.394*	35-*1.38*	53-*2.09*	30-*1.18*	20-*0.79*
VOSL/N1116/12PB	20-*0.79*	69-*2.72*	14-*0.55*	60.5-*2.38*	10-*0.394*	32.5-*1.28*	53-*2.09*	36-*1.42*	14-*0.55*

Ordering codes and description composition

Port size
VOSL/N1116/38/G3.p4/ac
2 1



VOSL/N1116 complete valves

Load sensitive (N) configuration with G3/8 thread

Pilot ratio 1:4

TYPE: **VOSL/N1116/38/G3.p4/ac** CODE: 1514322101
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi), s*td setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/38/G5.p4/ac** CODE: 1514322100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/38/G5.p4** CODE: 1514321100
DESCRIPTION: Aluminium body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VOSL/N1116/38/G5.p8/ac** CODE:1514322104
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VOSL/N1116/38/G3.p0/ac** CODE: 1514322106
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi).* Std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/38/G5.p0/ac** CODE: 1514322107
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G3/8 thread and F1 flange

TYPE: **VOSL/N1116/38F1/G5.p4/ac** CODE: 1515022100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/38F1/G5.p8/ac** CODE: 1515022101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/38F1/G5.p0/ac** CODE: 1515022102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G3/8 thread and F2 flange

TYPE: **VOSL/N1116/38F2/G5.p4/ac** CODE: 1515022103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/38F2/G5.p8/ac** CODE: 1515022104
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/38F2/G5.p0/ac** CODE: 1515022105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

VOSL/N1116 complete valves

Load sensitive (N) configuration with G1/2 thread

TYPE: **VOSL/N1116/12/G5.p4/ac** CODE: 1514332100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/12/G5.p8/ac** CODE: 1514332101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/12/G5.p0/ac** CODE: 1514332102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/12/G5.p4** CODE: 1514331100
DESCRIPTION: Aluminium body, pilot ratio 1:4 range 50-350 bar *(725-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G1/2 thread and F1 flange

TYPE: **VOSL/N1116/12F1/G5.p4/ac** CODE: 1515032100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/12F1/G5.p8/ac** CODE: 1515032101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/12F1/G5.p0/ac** CODE: 1515032102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G1/2 thread and F1 flange

TYPE: **VOSL/N1116/12F2/G5.p4/ac** CODE: 1515032103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/12F2/G5.p8/ac** CODE: 1515032104
DESCRIPTION: Steel body, pilot ratio 1:8. Range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/N1116/12F2/G5.p0/ac** CODE: 1515032105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

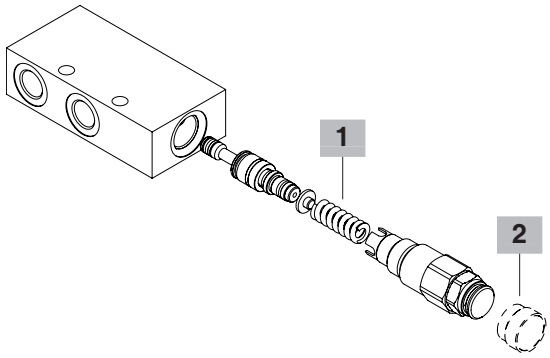
TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3ML1133201	For range 5-210 bar *(72.5-3050 psi)*
5	3ML1133200	For range 50-350 bar *(725-5075 psi)*
For 1:8 pilot ratio		
5	3ML1133201	For range 5-350 bar *(72.5-5075 psi)*

2 Setting type

TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP120420	Antitampering cap

Ordering codes and description composition

Port size
VOSL/R1116/38/G3.p4/ac
2 1



VOSL/R1116 complete valves

Relief compensated (R) configuration with G3/8 thread

Pilot ratio 1:4

TYPE: **VOSL/R1116/38/G3.p4/ac** CODE: 1514422101
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi),* std setting 150 bar *(2175 psi)* @5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/38/G5.p4/ac** CODE: 1514422100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/38/G5.p4** CODE: 1514421100
DESCRIPTION: Aluminium body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VOSL/R1116/38/G5.p8/ac** CODE: 1514422104
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VOSL/R1116/38/G3.p0/ac** CODE: 1514422106
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi),* std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/38/G5.p0/ac** CODE: 1514422107
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Relief compensated (R) configuration with G3/8 thread and F1 flange

TYPE: **VOSL/R1116/38F1/G5.p4/ac** CODE: 1515122100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/38F1/G5.p8/ac** CODE: 1515122101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/38F1/G5.p0/ac** CODE: 1515122102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Relief compensated (R) configuration with G3/8 thread and F2 flange

TYPE: **VOSL/R1116/38F2/G5.p4/ac** CODE: 1515122103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/38F2/G5.p8/ac** CODE: 1515122104
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/38F2/G5.p0/ac** CODE: 1515122105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

VOSL/R1116 complete valves

Relief compensated (R) configuration with G1/2 thread

TYPE: **VOSL/R1116/12/G5.p4/ac** CODE: 1514432100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/12/G5.p8/ac** CODE: 1514432101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/12/G5.p0/ac** CODE: 1514432102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/12/G5.p4** CODE: 1514431100
DESCRIPTION: Aluminium body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Relief compensated (R) configuration with G1/2 thread and F1 flange

TYPE: **VOSL/R1116/12F1/G5.p4/ac** CODE: 1515132100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/12F1/G5.p8/ac** CODE: 1515132101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* stdsetting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/12F1/G5.p0/ac** CODE: 1515132102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Relief compensated (R) configuration with G1/2 thread and F2 flange

TYPE: **VOSL/R1116/12F2/G5.p4/ac** CODE: 1515132103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/12F2/G5.p8/ac** CODE: 1515132104
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/R1116/12F2/G5.p0/ac** CODE: 1515132105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

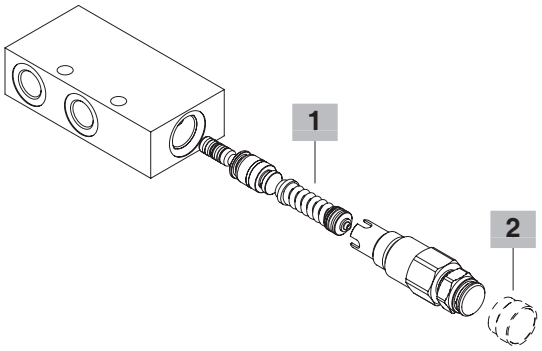
TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3ML1133201	For range 5-210 bar *(72.5-3050 psi)*
5	3ML1133200	For range 50-350 bar *(725-5075 psi)*
For 1:8 pilot ratio		
5	3ML1133201	For range 5-350 bar *(72.5-5075 psi)*

2 Setting type

TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP130200	Antitampering cap

Ordering codes and description composition

Port size
VOSL/V1116/38/G3.p4/ac
2 1



VOSL/V1116 complete valves

Vented (V) configuration with G3/8 thread

Pilot ratio 1:4

TYPE: **VOSL/V1116/38/G3.p4/ac** CODE: 1514522101
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi),* std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/38/G5.p4/ac** CODE: 1514522100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/38/G5.p4** CODE: 1514521100
DESCRIPTION: Aluminium body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VOSL/V1116/38/G5.p8/ac** CODE: 1514522104
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VOSL/V1116/38/G3.p0/ac** CODE: 1514522106
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi),* std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/38/G5.p0/ac** CODE: 1514522107
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G3/8 thread and F1 flange

TYPE: **VOSL/V1116/38F1/G5.p4/ac** CODE: 1515222100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/38F1/G5.p8/ac** CODE: 1515222101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE:**VOSL/V1116/38F1/G5.p0/ac** CODE: 1515222102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G3/8 thread and F2 flange

TYPE: **VOSL/V1116/38F2/G5.p4/ac** CODE: 1515222103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/38F2/G5.p8/ac** CODE: 1515222104
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/38F2/G5.p0/ac** CODE: 1515222105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

VOSL/V1116 complete valves

Vented (V) configuration with G1/2 thread

TYPE: **VOSL/V1116/12/G5.p4/ac** CODE: 1514532100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/12/G5.p8/ac** CODE: 1514532101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/12/G5.p0/ac** CODE: 1514532102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/12/G5.p4** CODE: 1514531100
DESCRIPTION: Aluminium body pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G1/2 thread and F1 flange

TYPE: **VOSL/V1116/12F1/G5.p4/ac** CODE: 1515232100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/12F1/G5.p8/ac** CODE: 1515232101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/12F1/G5.p0/ac** CODE: 1515232102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G1/2 thread and F2 flange

TYPE: **VOSL/V1116/12F2/G5.p4/ac** CODE: 1515232103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/12F2/G5.p8/ac** CODE: 1515232104
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1116/12F2/G5.p0/ac** CODE: 1515232105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3ML1133201	For range 5-210 bar *(72.5-3050 psi)*
5	3ML1133200	For range 50-350 bar *(725-5075 psi)*
For 1:8 pilot ratio		
5	3ML1133201	For range 5-350 bar *(72.5-5075 psi)*

2 Setting type

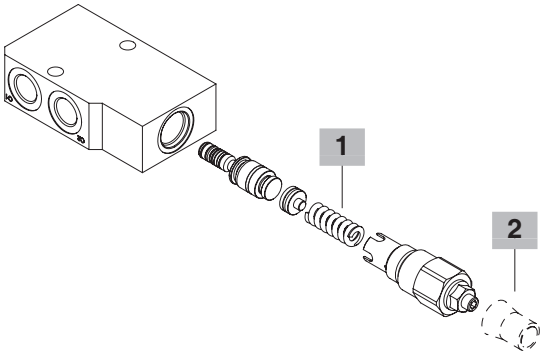
TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP130200	Antitampering cap

Ordering codes and description composition

Port size

VOSL/N1116/38PB/G3.p4/ac

2 1



1 Pressure setting spring

TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3ML1133201	For range 5-210 bar *(72.5-3050 psi)*
5	3ML1133200	For range 50-350 bar *(725-5075 psi)*
For 1:8 pilot ratio		
5	3ML1133201	For range 5-350 bar *(72.5-5075 psi)*

2 Setting type

TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP130200	Antitampering cap

VOSL/N1116/PB complete valves

Load sensitive (N) configuration with G3/8 thread

Pilot ratio 1:4

TYPE: **VOSL/N1116/38PB/G3.p4/ac** CODE: 1554222101
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi), s*td setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1116/38PB/G5.p4/ac** CODE: 1514222100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VOSL/N1116/38PB/G5.p8/ac** CODE:1514222102
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VOSL/N1116/38PB/G5.p0/ac** CODE: 1514222103
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G1/2 thread

Pilot ratio 1:4

TYPE: **VOSL/N1116/12PB/G3.p4/ac** CODE: 1514232101
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi), s*td setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1116/12PB/G5.p4/ac** CODE: 1514232100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VOSL/N1116/12PB/G5.p8/ac** CODE:1514232102
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

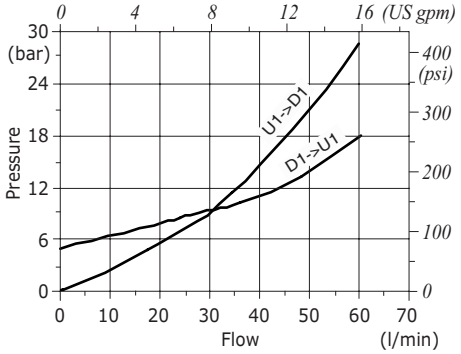
Zero differential pilot ratio

TYPE: **VOSL/N1116/12PB/G5.p0/ac** CODE: 1514232103
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi), s*td setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

Ordering codes and description composition

VOSL/(N-R-V) 1116 (38-12) pressure drop vs. flow from D1->U1 and U1->D1



Type VOSLP/N1116 - VOSLP/R1116 counterbalance valves

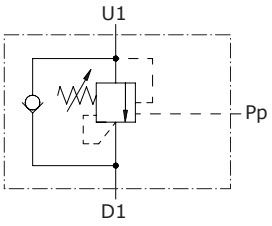
- Single acting
- Steel body
- External pilot
- Load Sensitive (type N)
- Relief Compensated (type R)

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

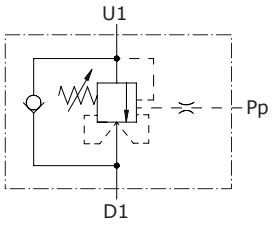
		VOSLP/N1116 (38-12) - VOSLP/R1116 (38-12)
Nominal flow		60 l/min *(15.9 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi*
Fluid		mineral based oil
Viscosity		from 10 to 200 cSt
Max. level of contamination		18/16/13 ISO4406
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*
Weight	*aluminium*	**VOSLP/N1116/38:** 0.51kg *(1.12 lb)* - **VOSLP/N1116/12:** 0.65 kg *(1.43 lb)*
	steel	**VOSLP/N1116/38:** 1.13 kg *(2.49 lb)* - **VOSLP/N1116/12:** 1.51 kg *(3.33 lb)* **VOSLP/R1116/38:** 1.20 kg *(2.64 lb)* - **VOSLP/R1116/12:** 1.58 kg *(3.48 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.

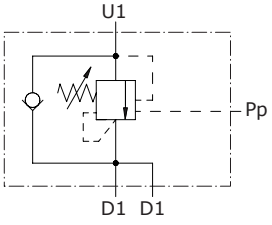
VOSLP/N1116



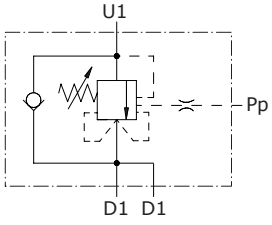
VOSLP/R1116



VOSLP/N1116/F1

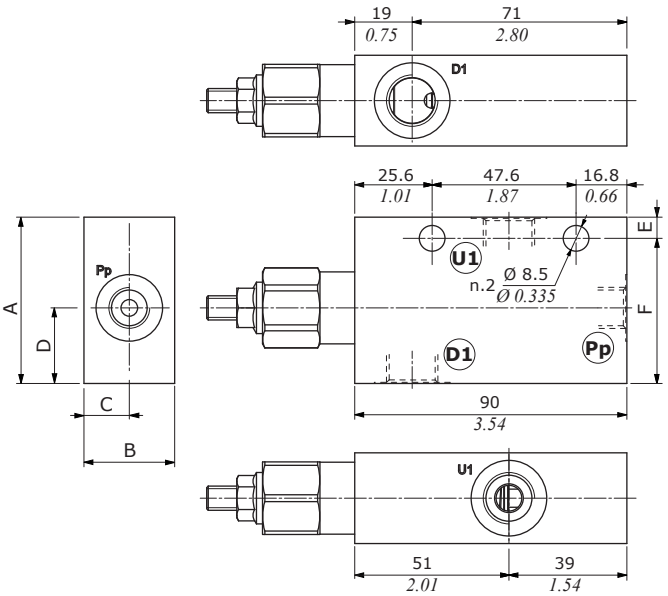


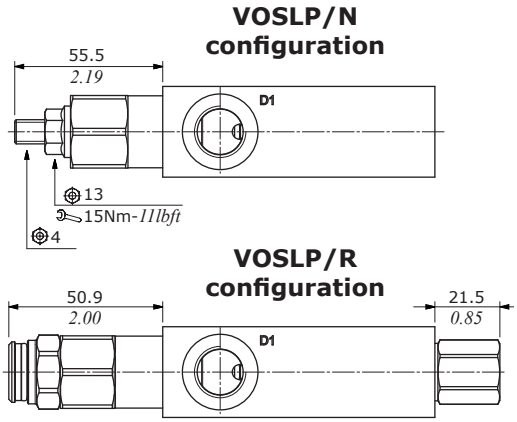
VOSLP/R1116/F1



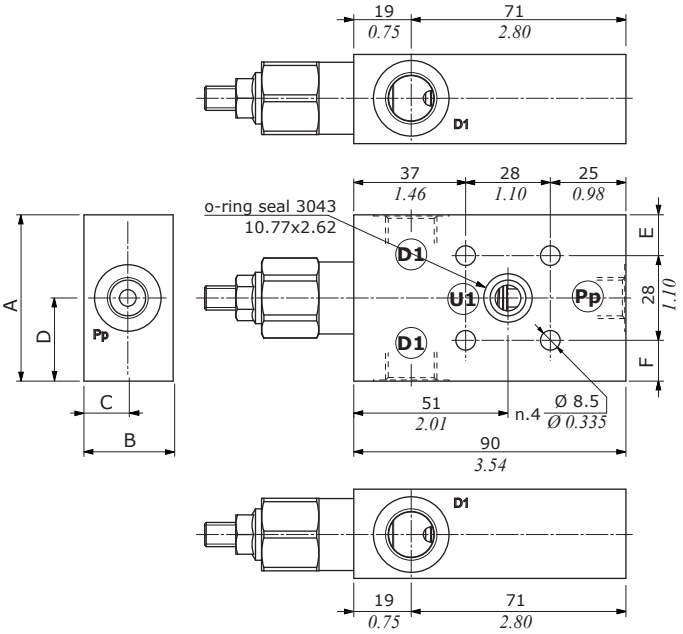
Dimensions

VOSLP/...1116/38 - VOSLP/...1116/12





VOSLP/...1116/38F1 - VOSLP/...1116/12F1



Valve type	D1	U1	Pp
VOSLP/...1116/38	G3/8	G3/8	G1/4
VOSLP/...1116/12	G1/2	G1/2	G1/4
VOSLP/...1116/38F1	G3/8	Ø8.5 *Ø0.335*	G1/4
VOSLP/...1116/12F1	G1/2	Ø8.5 *Ø0.335*	G1/4

Dimensions are in mm-*in*

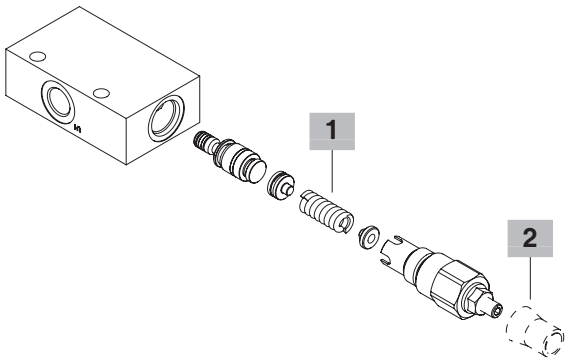
Valve type	A	B	C	D	E	F
VOSLP/...1116/38	55 *2.17*	30 *1.18*	15 *0.59*	25 *0.98*	48 *1.89*	7 *0.276*
VOSLP/...1116/12	65 *2.26*	35 *1.38*	17.5 *0.69*	32.5 *1.28*	54 *2.13*	11 *0.433*
VOSLP/...1116/38F1	55 *2.17*	29.5 *1.16*	14.5 *0.57*	27.5 *1.08*	13.5 *053*	13.5 *053*
VOSLP/...1116/12F1	65 *2.26*	34.5 *1.36*	17 *0.67*	32.5 *1.28*	18.5 *0.73*	18.5 *0.73*

Ordering codes and description composition

Port size

VOSLP/N1116/38/G3.p4/ac

2 1



VOSLP/N1116 complete valves

Load sensitive (N) configuration with G3/8 thread

Pilot ratio 1:4

TYPE: **VOSLP/N1116/38/G3.p4/ac** CODE: 1534322101
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/N1116/38/G5.p4/ac** CODE: 1534322100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*. std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/N1116/38/G5.p4** CODE: 1534321100
DESCRIPTION: Aluminium body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VOSLP/N1116/38/G5.p8/ac** CODE: 1534322104
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VOSLP/N1116/38/G3.p0/ac** CODE: 1534322106
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/N1116/38/G5.p0/ac** CODE: 1534322107
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G3/8 thread and F1 flange

TYPE: **VOSLP/N1116/38F1/G5.p4/ac** CODE: 1535522100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/N1116/38F1/G5.p8/ac** CODE: 1535522101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/N1116/38F1/G5.p0/ac** CODE: 1535522102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

VOSLP/N1116 complete valves

Load sensitive (N) configuration with G1/2 thread

TYPE: **VOSLP/N1116/12/G5.p4/ac** CODE: 1534332100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/N1116/12/G5.p8/ac** CODE: 1534332101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/N1116/12/G5.p0/ac** CODE: 1534332102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/N1116/12/G5.p4** CODE: 1534331100
DESCRIPTION: Aluminium body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G1/2 thread and F1 flange

TYPE: **VOSLP/N1116/12F1/G5.p4/ac** CODE: 1535532100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/N1116/12F1/G5.p8/ac** CODE: 1535532101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/N1116/12F1/G5.p0/ac** CODE: 1535532102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

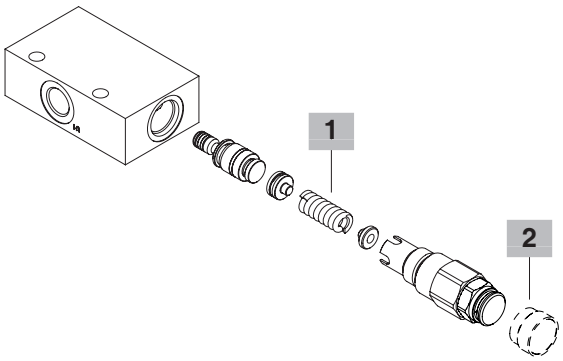
TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3ML1133201	For range 5-210 bar *(72.5-3050 psi)*
5	3ML1133200	For range 50-350 bar *(725-5075 psi)*
For 1:8 pilot ratio		
5	3ML1133201	For range 5-350 bar *(72.5-5075 psi)*

2 Setting type

TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP120420	Antitampering cap

Ordering codes and description composition

Port size
VOSLP/R1116/38/G3.p4/ac
2 1



VOSLP/R1116 complete valves

Relief compensated (R) configuration with G3/8 thread

Pilot ratio 1:4

TYPE: **VOSLP/R1116/38/G3.p4/ac** CODE: 1534422101
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/R1116/38/G5.p4/ac** CODE: 1534422100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VOSLP/R1116/38/G5.p8/ac** CODE: 1534422104
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VOSLP/R1116/38/G3.p0/ac** CODE: 1534422106
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/R1116/38/G5.p0/ac** CODE: 1534422107
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Relief compensated (R) configuration with G3/8 thread and F1 flange

TYPE: **VOSLP/R1116/38F1/G5.p4/ac** CODE: 1535622100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/R1116/38F1/G5.p8/ac** CODE: 1535622101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/R1116/38F1/G5.p0/ac** CODE: 1535622102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

VOSLP/R1116 complete valves

Relief compensated (R) configuration with G1/2 thread

TYPE: **VOSLP/R1116/12/G5.p4/ac** CODE: 1534432100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/R1116/12/G5.p8/ac** CODE: 1534432101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/R1116/12/G5.p0/ac** CODE: 1534432102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Relief compensated (R) configuration with G1/2 thread and F1 flange

TYPE: **VOSLP/R1116/12F1/G5.p4/ac** CODE: 1535632100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/R1116/12F1/G5.p8/ac** CODE: 1535632101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSLP/R1116/12F1/G5.p0/ac** CODE: 1535632102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

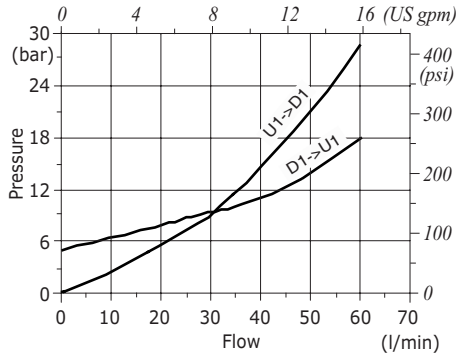
TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3ML1133201	For range 5-210 bar *(72.5-3050 psi)*
5	3ML1133200	For range 50-350 bar *(725-5075 psi)*
For 1:8 pilot ratio		
5	3ML1133201	For range 5-350 bar *(72.5-5075 psi)*

2 Setting type

TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP130200	Antitampering cap

Rating diagrams

VOSLP/(N-R) 1116 (38-12) pressure drop vs. flow from D1->U1 and U1->D1



Type VODL/N1116 - VODL/R1116 counterbalance valves

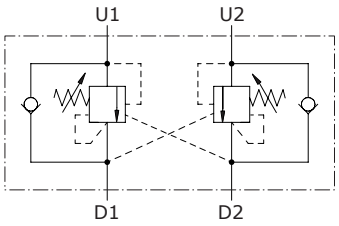
- Double acting
- Steel body
- Load Sensitive (type N)
- Relief Compensated (type R)

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

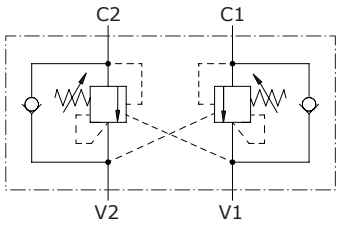
	VODL/N1116 (38-12) - VODL/R1116 (38-12)
Nominal flow	60 l/min *(15.9 US gpm)*
Max. pressure	Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*
Oil leakage	0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi*
Fluid	mineral based oil
Viscosity	from 10 to 200 cSt
Max. level of contamination	18/16/13 ISO4406
Fluid temperature	*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*
Environmental temp. for working conditions	from -40°C *(-40°F)* to 100°C *(212°F)*
Weight *aluminium*	**VODL/N1116/38:** 0.91 kg *(2.01 lb)* - **VODL/N1116/12:** 1.13 kg *(2.49 lb)* **VODL/R1116/38:** 1.06 kg *(2.34 lb)* - **VODL/R1116/12:** 1.29 kg *(2.84 lb)*
Weight *steel*	**VODL/N1116/38:** 1.91 kg *(4.21 lb)* - **VODL/N1116/12:** 2.55 kg *(5.62 lb)* **VODL/N1116/38PB:** - **VODL/N1116/12PB:** **VODL/R1116/38:** 2.06 kg *(4.54 lb)* - **VODL/R1116/12:** 2.69 kg *(5.93 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.

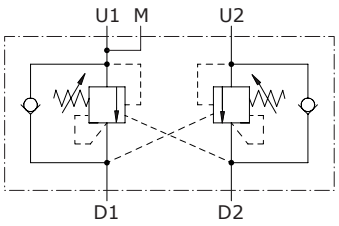
VODL/N1116
VODL/N1116/F2



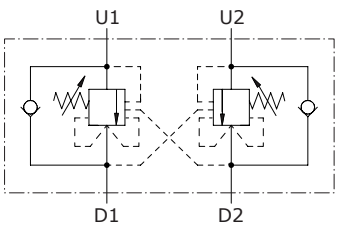
VODL/N1116/PB



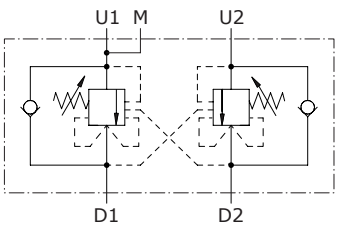
VODL/N1116/F1



VODL/R1116
VODL/R1116/F2

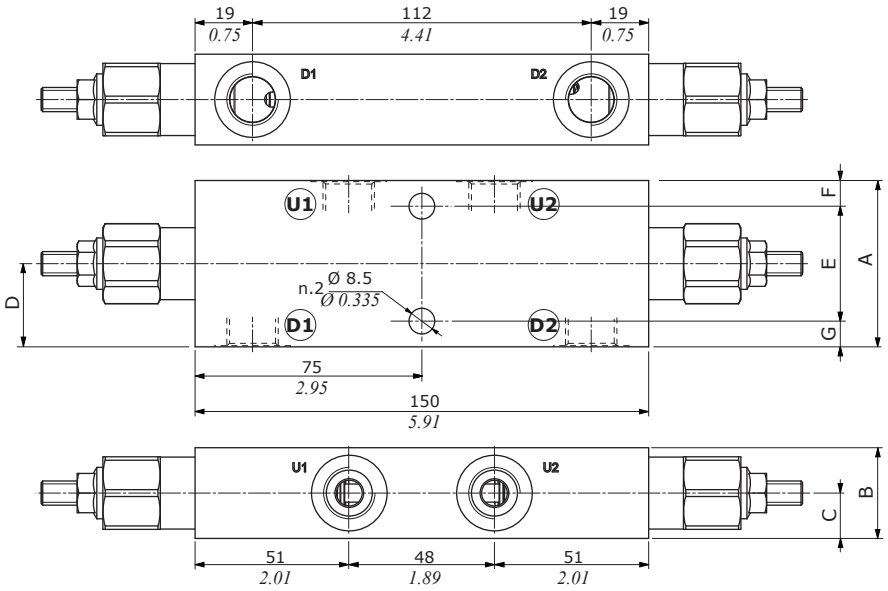


VODL/R1116/F1

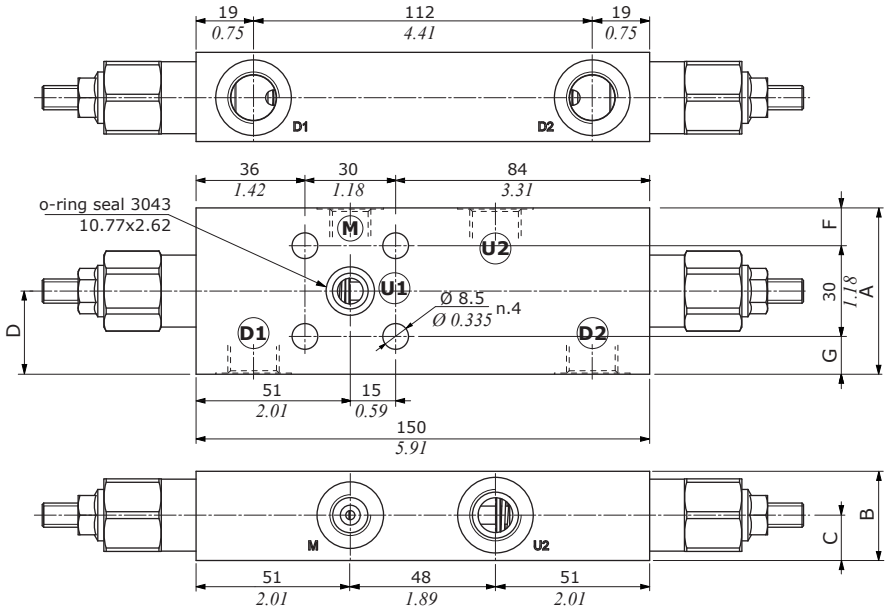


Dimensions

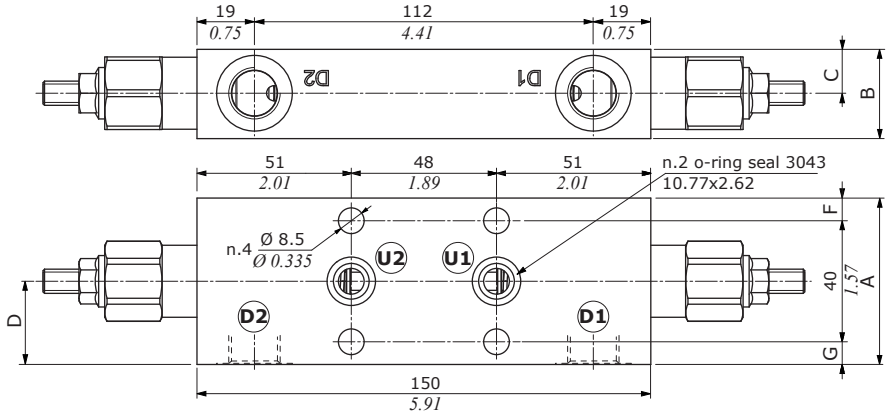
VODL/...1116/38 - VODL/...1116/12



VODL/...1116/38F1 - VODL/...1116/12F1

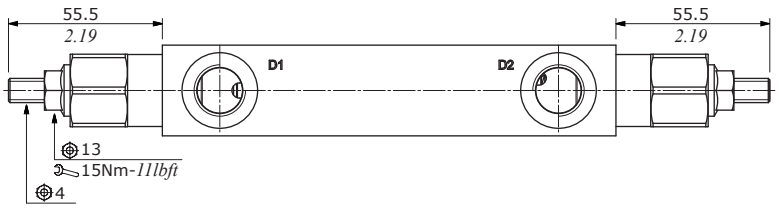


VODL/...1116/38F2 - VODL/...1116/12F2

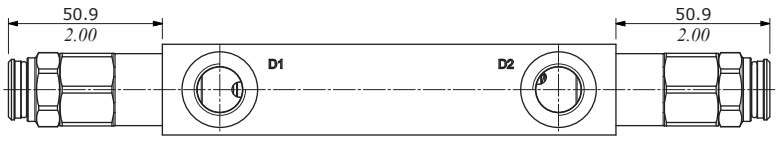


Dimensions

VODL/N configuration



VODL/R configuration

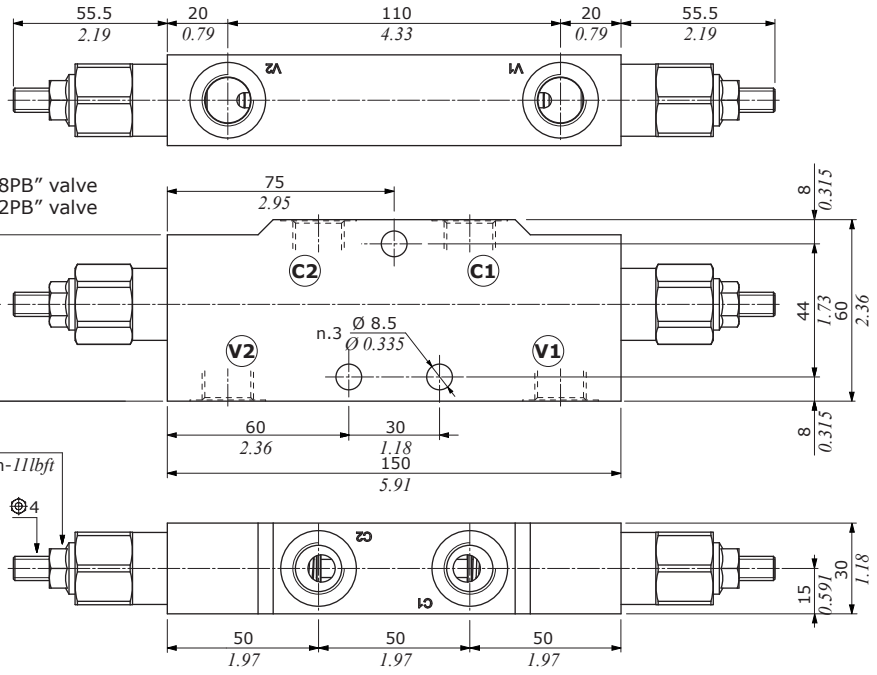


Valve type	D1	D2	U1	U2	M
VODL/...1116/38	G3/8	G3/8	G3/8	G3/8	-
VODL/...1116/12	G1/2	G1/2	G1/2	G1/2	-
VODL/...1116/38F1	G3/8	G3/8	Ø8.5 *Ø0.335*	G3/8	G1/4
VODL/...1116/12F1	G1/2	G1/2	Ø8.5 *Ø0.335*	G1/2	G1/4
VODL/...1116/38F2	G3/8	G3/8	Ø8.5 *Ø0.335*	Ø8.5 *Ø0.335*	-
VODL/...1116/12F2	G1/2	G1/2	Ø8.5 *Ø0.335*	Ø8.5 *Ø0.335*	-

Dimensions are in mm-*in*

Valve type	A	B	C	D	E	F
VODL/...1116/38	55 *2.17*	30 *1.18*	15 *0.59*	25 *0.98*	48 *1.89*	7 *0.276*
VODL/...1116/12	65 *2.26*	35 *1.38*	17.5 *0.69*	32.5 *1.28*	54 *2.13*	11 *0.433*
VODL/...1116/38F1	55 *2.17*	29.5 *1.16*	15 *0.59*	27.5 *1.08*	12.5 *0.49*	12.5 *0.49*
VODL/...1116/12F1	65 *2.26*	34.5 *1.36*	17 *0.67*	32.5 *1.28*	17.5 *0.69*	17.5 *0.69*
VODL/...1116/38F2	55 *2.17*	29.5 *1.16*	14.5 *0.57*	27.5 *1.08*	7.5 *0.295*	7.5 *0.295*
VODL/...1116/12F2	65 *2.26*	34.5 *1.36*	17 *0.67*	32.5 *1.28*	12.5 *0.49*	12.5 *0.49*

VODL/N1116/38PB - VODL/N1116/12PB



NOTES
([1]): dimension referred to "38PB" valve
([2]): dimension referred to "12PB" valve

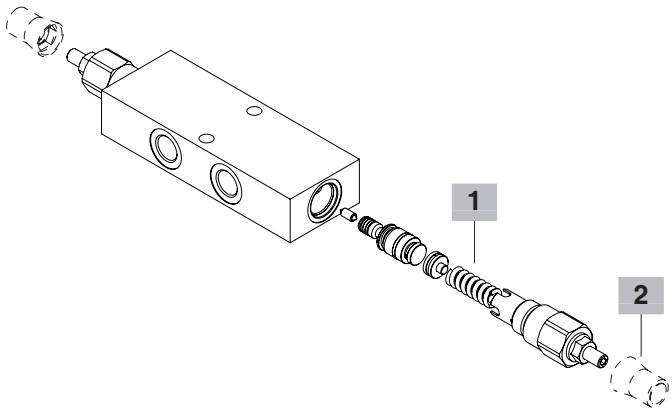
Valve type	All ports
VODL/N1116/38PB	G3/8
VODL/N1116/12PB	G1/2

Ordering codes and description composition

Port size

VODL/N1116/38/G3.p4/ac

2 1



VODL/N1116 complete valves

Load sensitive (N) configuration with G3/8 thread

Pilot ratio 1:4

TYPE: **VODL/N1116/38/G3.p4/ac** CODE: 1554322103
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi),* std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/38/G5.p4/ac** CODE: 1554322100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/38/G5.p4** CODE: 1554321100
DESCRIPTION: Aluminium body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VODL/N1116/38/G5.p8/ac** CODE: 1554322106
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VODL/N1116/38/G3.p0/ac** CODE: 1554322108
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi),* std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/38/G5.p0/ac** CODE: 1554322109
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G3/8 thread and F1 flange

TYPE: **VODL/N1116/38F1/G5.p4/ac** CODE: 1555122100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/38F1/G5.p8/ac** CODE: 1555122101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/38F1/G5.p0/ac** CODE: 1555122102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G3/8 thread and F2 flange

TYPE: **VODL/N1116/38F2/G5.p4/ac** CODE: 1555122103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/38F2/G5.p8/ac** CODE: 1555122104
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/38F2/G5.p0/ac** CODE: 1555122105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

VODL/N1116 complete valves

Load sensitive (N) configuration with G1/2 thread

TYPE: **VODL/N1116/12/G5.p4/ac** CODE: 1554332100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/12/G5.p8/ac** CODE: 1554332101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/12/G5.p0/ac** CODE: 1554332102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/12/G5.p4** CODE: 1554331100
DESCRIPTION: Aluminium body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G1/2 thread and F1 flange

TYPE: **VODL/N1116/12F1/G5.p4/ac** CODE: 1555132100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/12F1/G5.p8/ac** CODE: 1555132101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/12F1/G5.p0/ac** CODE: 1555132102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G1/2 thread and F2 flange

TYPE: **VODL/N1116/12F2/G5.p4/ac** CODE: 1555132103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/12F2/G5.p8/ac** CODE: 1555132104
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/12F2/G5.p0/ac** CODE: 1555132105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3ML1133201	For range 5-210 bar *(72.5-3050 psi)*
5	3ML1133200	For range 50-350 bar *(725-5075 psi)*
For 1:8 pilot ratio		
5	3ML1133201	For range 5-350 bar *(72.5-5075 psi)*

2 Setting type

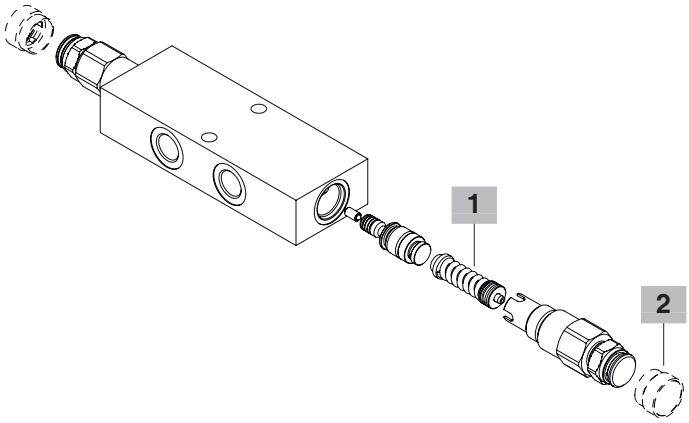
TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP120420	Antitampering cap

Ordering codes and description composition

Port size

VODL/R1116/38/G3.p4/ac

2 1



VODL/R1116 complete valves

Relief compensated (R) configuration with G3/8 thread

Pilot ratio 1:4

TYPE: **VODL/R1116/38/G3.p4/ac** CODE: 1554422101
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi),* std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/38/G5.p4/ac** CODE: 1554422100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/38/G5.p4** CODE: 1554421100
DESCRIPTION: aluminium body configuration range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VODL/R1116/38/G5.p8/ac** CODE: 1554422104
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VODL/R1116/38/G3.p0/ac** CODE: 1554422106
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi),* std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/38/G5.p0/ac** CODE: 1554422107
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Relief compensated (R) configuration with G3/8 thread and F1 flange

TYPE: **VODL/R1116/38F1/G5.p4/ac** CODE: 1555022100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/38F1/G5.p8/ac** CODE: 1555022101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/38F1/G5.p0/ac** CODE: 1555022102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Relief compensated (R) configuration with G3/8 thread and F2 flange

TYPE: **VODL/R1116/38F2/G5.p4/ac** CODE: 1555022103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4 060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/38F2/G5.p8/ac** CODE: 1555022104
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/38F2/G5.p0/ac** CODE: 1555022105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

VODL/R1116 complete valves

Relief compensated (R) configuration with G1/2 thread

TYPE: **VODL/R1116/12/G5.p4/ac** CODE: 1554432101
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/12/G5.p8/ac** CODE: 1554432100
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/12/G5.p0/ac** CODE: 1554432102
DESCRIPTION: Steel body, zero differential pilot ratio. Range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/12/G5.p4** CODE: 1554431100
DESCRIPTION: Aluminium body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Relief compensated (R) configuration with G1/2 thread and F1 flange

TYPE: **VODL/R1116/12F1/G5.p4/ac** CODE: 1555032103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/12F1/G5.p8/ac** CODE: 1555032104
DESCRIPTION: pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/12F1/G5.p0/ac** CODE: 1555032105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

Relief compensated (R) configuration with G1/2 thread and F2 flange

TYPE: **VODL/R1116/12F2/G5.p4/ac** CODE: 1555032100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/12F2/G5.p8/ac** CODE: 1555032101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

TYPE: **VODL/R1116/12F2/G5.p0/ac** CODE: 1555032102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3ML1133201	For range 5-210 bar *(72.5-3050 psi)*
5	3ML1133200	For range 50-350 bar *(725-5075 psi)*
For 1:8 pilot ratio		
5	3ML1133201	For range 5-350 bar *(72.5-5075 psi)*

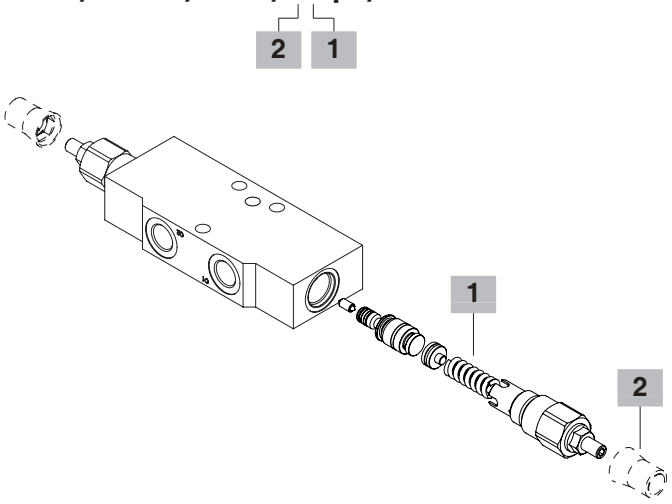
2 Setting type

TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP130200	Antitampering cap

Rating diagrams

Port size

VODL/N1116/38PB/G3.p4/ac



1 Pressure setting spring

TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3ML1133201	For range 5-210 bar *(72.5-3050 psi)*
5	3ML1133200	For range 50-350 bar *(725-5075 psi)*
For 1:8 pilot ratio		
5	3ML1133201	For range 5-350 bar *(72.5-5075 psi)*

2 Setting type

TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP120420	Antitampering cap

VODL/N1116/PB complete valves

Load sensitive (N) configuration with G3/8 thread

Pilot ratio 1:4

TYPE: **VODL/N1116/38PB/G3.p4/ac** CODE: 1555422101
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/38PB/G5.p4/ac** CODE: 1555422100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VODL/N1116/38PB/G5.p8/ac** CODE: 1555422102
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VODL/N1116/38PB/G5.p0/ac** CODE: 1555422103
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G1/2 thread

Pilot ratio 1:4

TYPE: **VODL/N1116/12PB/G3.p4/ac** CODE: 1555432101
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1116/2PB/G5.p4/ac** CODE: 1555432100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VODL/N1116/12PB/G5.p8/ac** CODE: 1555432102
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

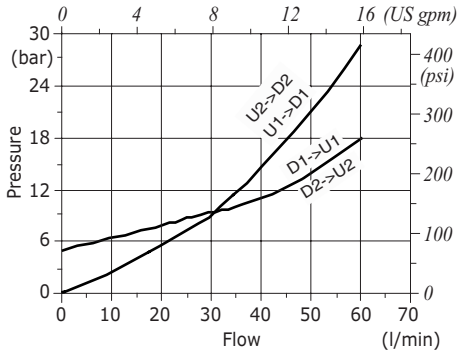
Zero differential pilot ratio

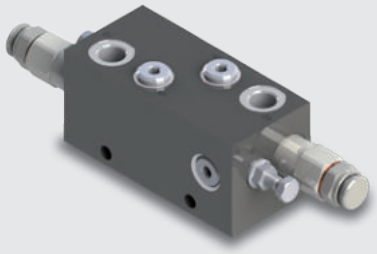
TYPE: **VODL/N1116/12PB/G5.p0/ac** CODE: 1555432103
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

Rating diagrams

VODL/(N-R) 1116 (38-12) pressure drop vs. flow from D1->U1 and U1->D1 (D2->U2 and U2->D2)





Type VODL/V1116/CS counterbalance valves

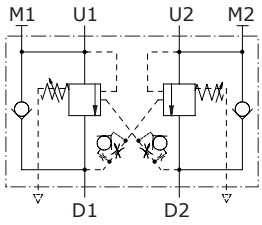
- Double acting
- Steel body
- Vented type

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

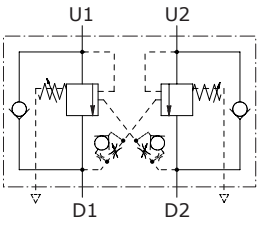
	VODL/V1116/CS (38-12)
Nominal flow	60 l/min *(15.9 US gpm)*
Max. pressure	350 bar *(5100 psi)*
Oil leakage	0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi*
Fluid	mineral based oil
Viscosity	from 10 to 200 cSt
Max. level of contamination	18/16/13 ISO4406
Fluid temperature	*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*
Environmental temp. for working conditions	from -40°C *(-40°F)* to 100°C *(212°F)*
Weight	**VODL/V1116/CS/38:** 3.64 kg *(8.02 lb)* - **VODL/V1116/CS/12:** 3.50 kg *(7.72 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.

VODL/V1116/CS

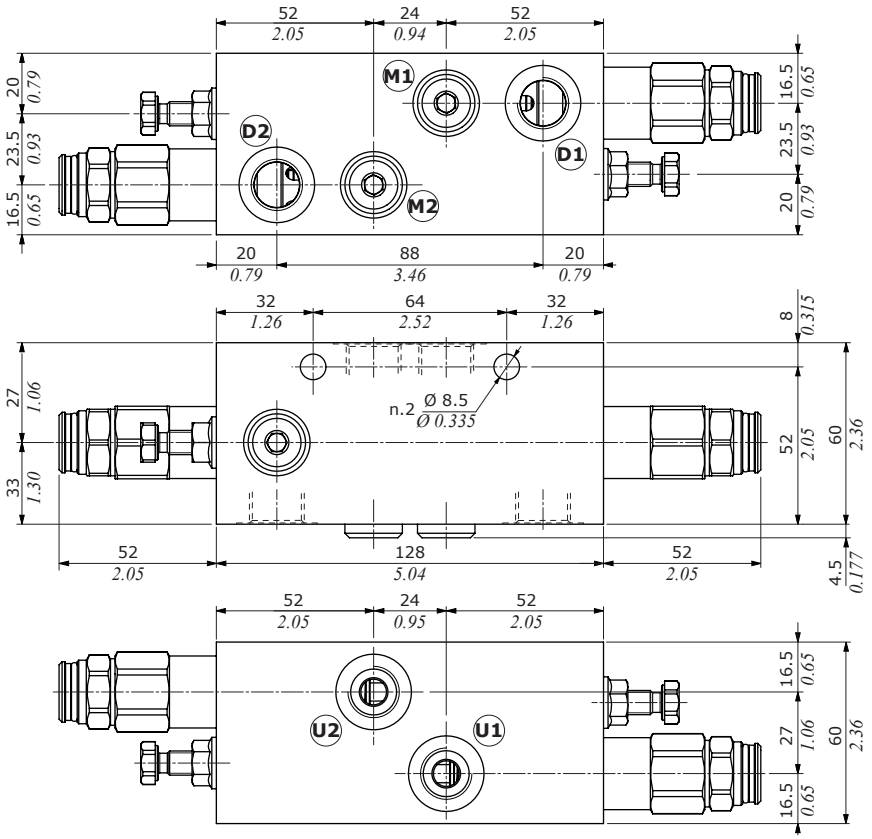


VODL/V1116/CS/F2

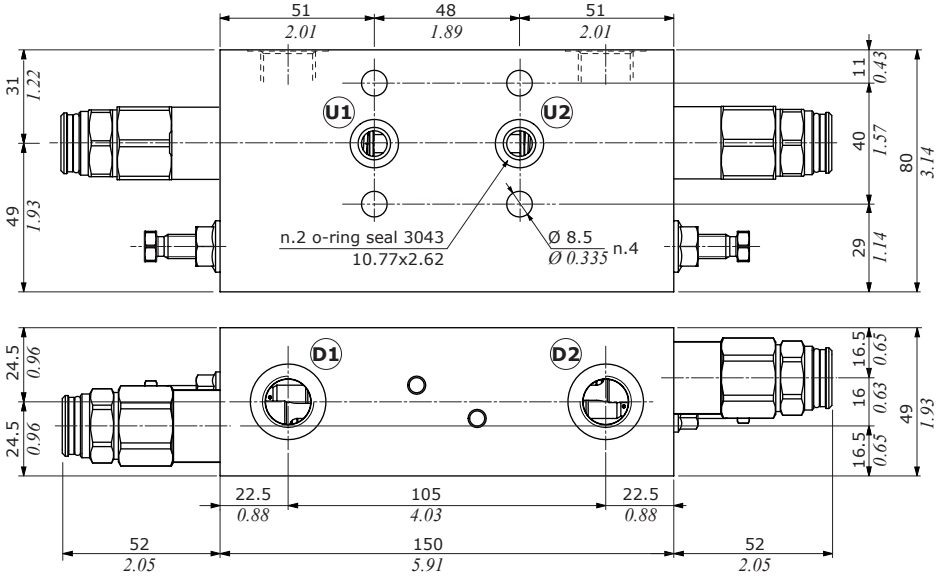


Dimensions

VODL/V1116/CS/38 - VODL/V1116/CS/12



VODL/V1116/CS/38F2 - VODL/V1116/CS/12F2



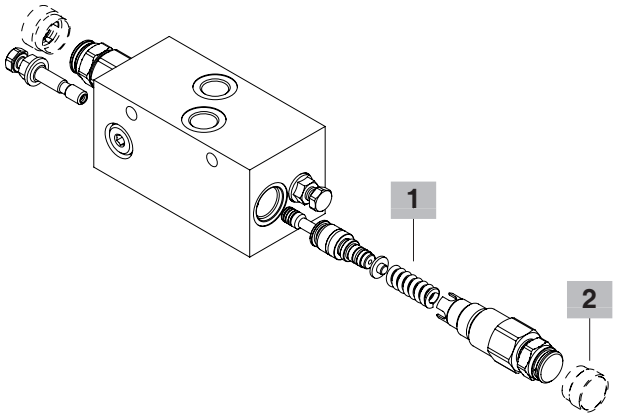
Valve type	D1 D2	U1 U2	M1 M2
VODL/V1116/CS/38	G3/8	G3/8	G1/4
VODL/V1116/CS/12	G1/2	G1/2	G1/4
VODL/V1116/CS/38F2	G3/8	Ø8.5 - *Ø0.335*	-
VODL/V1116/CS/12F2	G1/2	Ø8.5 - *Ø0.335*	-

Ordering codes and description composition

Port size

VODL/V1116/CS/38/G3.p4.PR/ac

2 1



Complete valves

Vented (V) configuration with G3/8 thread

Pilot ratio 1:4

TYPE: **VODL/V1116/CS/38/G3.p4.PR/ac** CODE: 1554522102
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi),* std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/V1116/CS/38/G5.p4.PR/ac** CODE: 1554522100
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VODL/V1116/CS/38/G5.p8.PR/ac** CODE: 1554522105
DESCRIPTION: Steel body, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VODL/V1116/CS/38/G3.p0.PR/ac** CODE: 1554522107
DESCRIPTION: Steel body, range 5-210 bar *(72.5-3050 psi),* std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/V1116/CS/38/G5.p0.PR/ac** CODE: 1554522101
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G3/8 thread and F2 flange

TYPE: **VODL/V1116/CS/38F2/G5.p4.PR/ac** CODE: 1556022100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 min *(1.32 US gpm)*
TYPE: **VODL/V1116/CS/38F2/G5.p8.PR/ac** CODE: 1556022101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/V1116/CS/38F2/G5.p0.PR/ac** CODE: 1556022102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Complete valves

Vented (V) configuration with G1/2 thread

TYPE: **VODL/V1116/CS/12/G5.p4.PR/ac** CODE:1554532100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/V1116/CS/12/G5.p8.PR/ac** CODE: 1554532101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/V1116/CS/12/G5.p0/ac** CODE: 1554532102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G1/2 thread and F2 flange

TYPE: **VODL/V1116/CS/12F2/G5.p4.PR/ac** CODE: 1556032100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/V1116/CS/12F2/G5.p8.PR/ac** CODE: 1556032101
DESCRIPTION: Steel body, pilot ratio 1:8, range 5-350 bar *(72.5-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/V1116/CS/12F2/G5.p0.PR/ac** CODE: 1556032102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

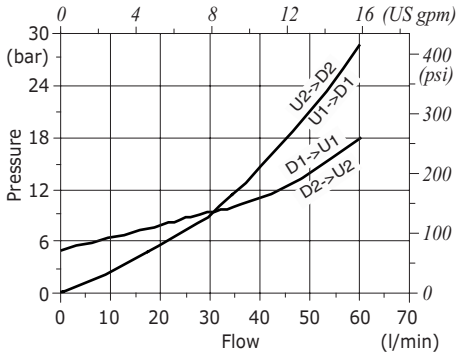
TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3ML1133201	For range 5-210 bar *(72.5-3050 psi)*
5	3ML1133200	For range 50-350 bar *(725-5075 psi)*
For 1:8 pilot ratio		
5	3ML1133201	For range 5-350 bar *(72.5-5075 psi)*

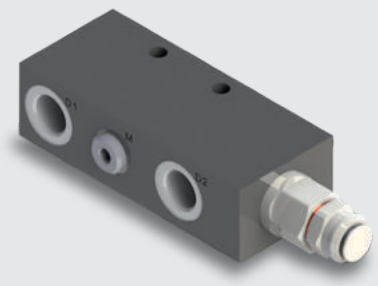
2 Setting type

TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP130200	Antitampering cap

Rating diagrams

VODL/V/1116/CS pressure drop vs. flow
from D1->U1 and U1 to D1 (D2->U2 and U2 to D2)





Type VOSL/N1516 - VOSL/V1516 counterbalance valves

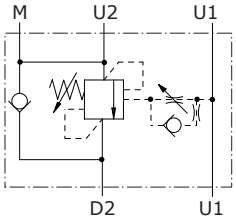
- Single acting
- Steel body
- Load Sensitive (type N)
- Vented (type V)
- Configuration with F1 and F2 flange

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

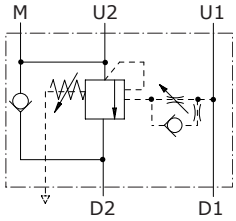
	VOSL/N1516 (12-34) - VOSL/V1516 (12-34)
Nominal flow	160 l/min *(42.3 US gpm)*
Max. pressure	350 bar(1) *(5100 psi)* - 400 bar(2) *(5800 psi)*
Oil leakage	0.5 cm^3/min *(0.030 in^3/min)* - 10 drops/min at 80% of pressure setting
Fluid	mineral based oil
Viscosity	from 10 to 200 cSt
Max. level of contamination	18/16/13 ISO4406
Fluid temperature	*with NBR seals* from -20°C *(-4°F)* to 90°C *(194°F)*
Environmental temp. for working conditions	from -20°C *(-4°F)* to 50°C *(122°F)*
Weight	**VOSL/N1516/12:** 2.50 kg *(5.51 lb)* - **VOSL/N1516/34:** 3.30 kg *(7.27 lb)* **VOSL/V1516/12:** 2.50 kg *(5.51 lb)* - **VOSL/V1516/34:** 3.30 kg *(7.27 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt. - (1)According to NFPA T 2.6.1., fatigue rating verified for 1 million cycles on 6 sample valves with test Pressure = 1.23 x Max. pressure indicated - (2)Intermittent pressure at max. 100,000 cycles with specific internal testing.

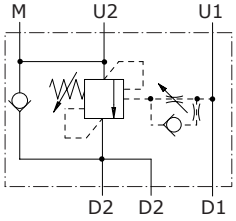
VOSL/N1516



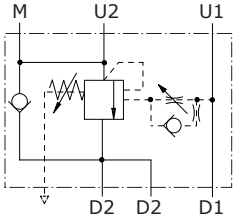
VOSL/V1516



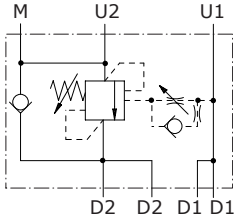
VOSL/N1516/F1



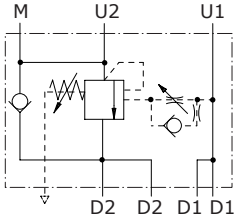
VOSL/V1516/F1



VOSL/N1516/F2

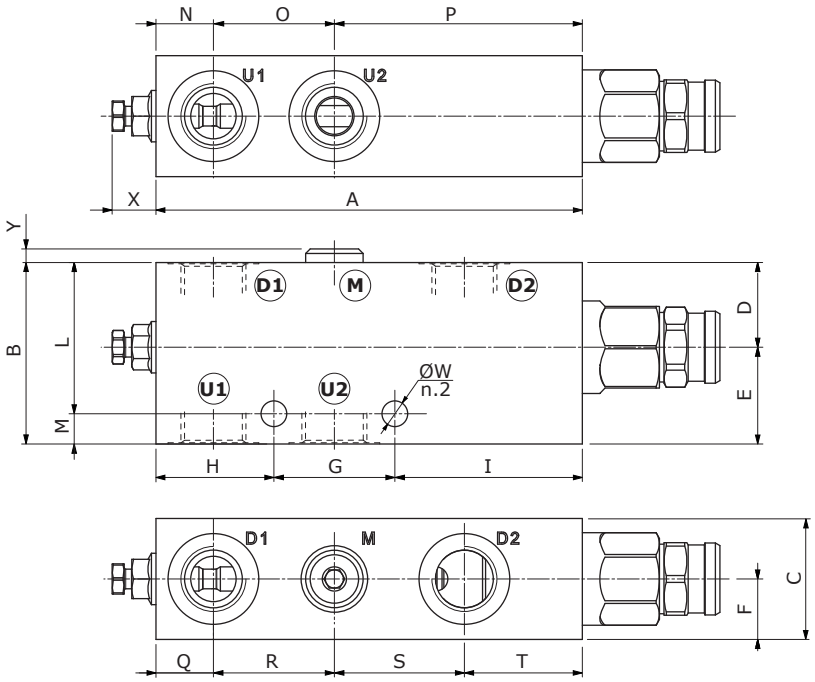


VOSL/V1516/F2

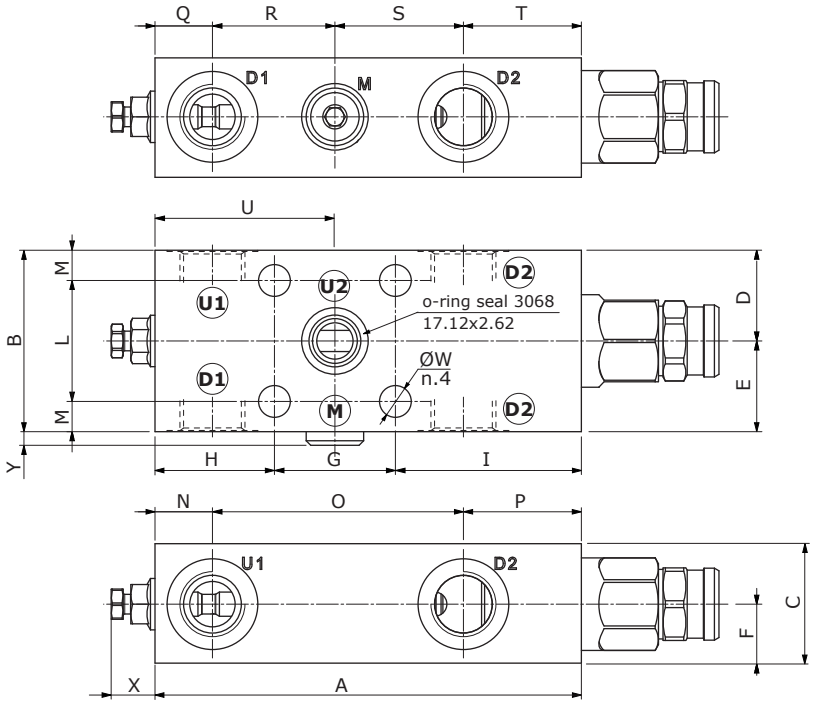


Dimensions

VOSL/...1516/12 - VOSL/...1516/34

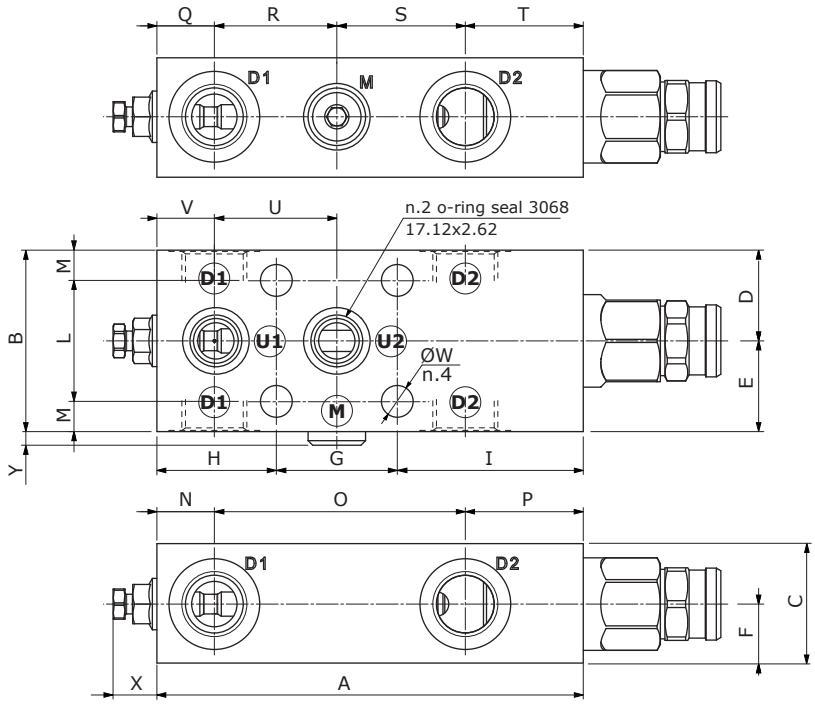


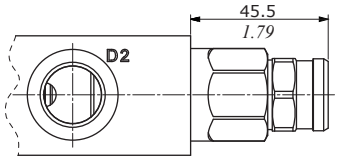
VOSL/...1516/12F1 - VOSL/...1516/34F1



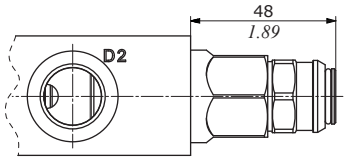
Dimensions

VOSL/...1516/12F2 - VOSL/...1516/34F2





VOSL/N configuration



VOSL/V configuration

Valve type	D1	D2	U1	U2	M
VOSL/...1516/12	G1/2	G1/2	G1/2	G1/2	G1/4
VOSL/...1516/34	G3/4	G3/4	G3/4	G3/4	G1/4
VOSL/...1516/12F1	G1/2	G1/2	G1/2	Ø12 *Ø0.472*	G1/4
VOSL/...1516/34F1	G3/4	G3/4	G3/4	Ø12 *Ø0.472*	G1/4
VOSL/...1516/12F2	G1/2	G1/2	Ø12 *Ø0.472*	Ø12 *Ø0.472*	G1/4
VOSL/...1516/34F2	G3/4	G3/4	Ø12 *Ø0.472*	Ø12 *Ø0.472*	G1/4

Dimensions are in mm-*in*

Valve type	A	B	C	D	E	F	G	H	I	L	M	N
VOSL/...1516/12	141-*5.55*	60-*2.36*	40-*1.57*	28-*1.10*	32-*1.26*	20-*0.79*	40-*1.57*	39-*1.54*	62-*2.44*	50-*1.97*	10-*0.394*	19-*0.75*
VOSL/...1516/34	147-*5.79*	80-*3.15*	40-*1.57*	39-*1.54*	41-*1.61*	20-*0.79*	40-*1.57*	45-*1.77*	62-*2.44*	60-*2.36*	20-*0.79*	22-*0.87*
VOSL/...1516/12F1	141-*5.55*	60-*2.36*	39.5-*1.56*	30-*118*	30-*118*	19.5-*0.77*	40-*1.57*	39.5-*1.56*	61.5-*2.42*	40-*1.57*	10-*0.394*	19-*0.75*
VOSL/...1516/34F1	147-*5.79*	80-*3.15*	39.5-*1.56*	40-*1.57*	40-*1.57*	19.5-*0.77*	40-*1.57*	45-*1.77*	62-*2.44*	40-*1.57*	20-*0.79*	22-*0.87*
VOSL/...1516/12F2	141-*5.55*	60-*2.36*	39.5-*1.56*	30-*1.18*	30-*1.18*	19.5-*0.77*	40-*1.57*	39.5-*1.56*	61.5-*2.42*	40-*1.57*	10-*0.394*	19-*0.75*
VOSL/...1516/34F2	147-*5.79*	80-*3.15*	39.5-*1.56*	40-*1.57*	40-*1.57*	19.5-*0.77*	40-*1.57*	45-*1.77*	62-*2.44*	40-*1.57*	20-*0.79*	22-*0.87*

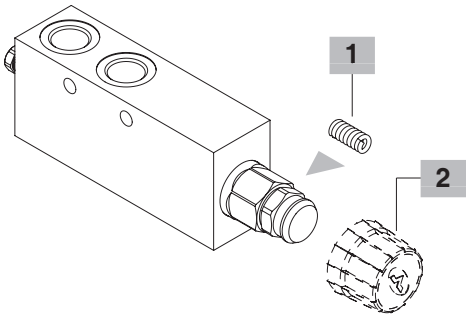
Valve type	O	P	Q	R	S	T	U	V	ØW	X(max)	Y
VOSL/...1516/12	40-*1.57*	82-*3.23*	19-*0.75*	40-*1.57*	43-*1.69*	39-*1.54*	-	-	8.5-*0.335*	22-*0.87*	4.5-*0.177*
VOSL/...1516/34	43-*1.69*	65-*2.56*	22-*0.87*	43-*1.69*	43-*1.69*	39-*1.54*	-	-	10.5-*0.413*	22-*0.87*	4.5-*0.177*
VOSL/...1516/12F1	83-*3.27*	39-*1.54*	19-*0.75*	40.5-*1.59*	42.5-*1.67*	39-*1.54*	59.5-*2.34*	-	10.5-*0.413*	22-*0.87*	4.5-*0.177*
VOSL/...1516/34F1	86-*3.39*	39-*1.54*	22-*0.87*	43-*1.69*	43-*1.69*	39-*1.54*	65-*2.56*	-	10.5-*0.413*	22-*0.87*	4.5-*0.177*
VOSL/...1516/12F2	83-*3.27*	39-*1.54*	19-*0.75*	40.5-*1.59*	42.5-*1.67*	39-*1.54*	40-*1.57*	19.5-*0.77*	10.5-*0.413*	22-*0.87*	4.5-*0.177*
VOSL/...1516/34F2	86-*3.39*	39-*1.54*	22-*0.87*	43-*1.69*	43-*1.69*	39-*1.54*	43-*1.69*	22-*0.87*	10.5-*0.413*	22-*0.87*	4.5-*0.177*

Ordering codes and description composition

Port size

VOSL/N1516/12/G3.p4.PR/ac

2 1



VOSL/N1516 Complete valves

Load sensitive (N) configuration with G1/2 thread

Pilot ratio 1:4

TYPE: **VOSL/N1516/12/G3.p4.PR/ac** CODE: 1514632100
DESCRIPTION: Steel body, range 50-210 bar *(725-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/12/G5.p4.PR/ac** CODE: 1514632101
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/12/G7.p4.PR/ac** CODE: 1514632102
DESCRIPTION: Steel body, range 150-400 bar *(2175-5800 psi)*, std setting 350 bar *(5075 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VOSL/N1516/12/G5.p8.PR/ac** CODE: 1514632104
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/12/G7.p8.PR/ac** CODE: 1514632105
DESCRIPTION: Steel body, range 150-400 bar *(2175-5800 psi)*, std setting 350 bar *(5075 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VOSL/N1516/12/G3.p0.PR/ac** CODE: 1514632106
DESCRIPTION: Steel body, range 50-210 bar *(725-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/12/G5.p0.PR/ac** CODE: 1514632107
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/12/G7.p0.PR/ac** CODE: 1514632108
DESCRIPTION: Steel body, range 150-400 bar *(2175-5800 psi)*, std setting 350 bar *(5075 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G1/2 thread and F1 flange

TYPE: **VOSL/N1516/12F1/G5.p4.PR/ac** CODE: 1515632100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/12F1/G5.p8.PR/ac** CODE: 1515632101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/12F1/G5.p0.PR/ac** CODE: 1515632102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G1/2 thread and F2 flange

TYPE: **VOSL/N1516/12F2/G5.p4.PR/ac** CODE: 1515632103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/12F2/G5.p8.PR/ac** CODE: 1515632104
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/12F2/G5.p0.PR/ac** CODE: 1515632105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

VOSL/N1516 Complete valves

Load sensitive (N) configuration with G3/4 thread

TYPE: **VOSL/N1516/34/G5.p4.PR/ac** CODE: 1514642100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/34/G5.p8.PR/ac** CODE: 1514642101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/34/G5.p0.PR/ac** CODE: 1514642102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G3/4 thread and F1 flange

TYPE: **VOSL/N1516/34F1/G5.p4.PR/ac** CODE: 1515642100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/34F1/G5.p8.PR/ac** CODE: 1515642101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/34F1/G5.p0.PR/ac** CODE: 1515642102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G3/4 thread and F2 flange

TYPE: **VOSL/N1516/34F2/G5.p4.PR/ac** CODE: 1515642103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/34F2/G5.p8.PR/ac** CODE: 1515642104
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/N1516/34F2/G5.p0.PR/ac** CODE: 1515642105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3MOL316450	For range 50-210 bar *(725-3050 psi)*
5	3MOL316430	For range 50-350 bar *(725-5075 psi)*
7	3MOL316411	For range 150-400 bar *(2175-5800 psi)*
For 1:8 pilot ratio		
5	3MOL316450	For range 50-350 bar *(725-5075 psi)*
7	3MOL316430	For range 150-400 bar *(2175-5800 psi)*

2 Antitampering cap

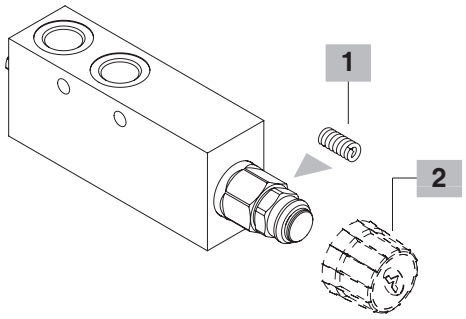
TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP140311	Antitampering cap

Ordering codes and description composition

Port size

VOSL/N1516/12/G3.p4.PR/ac

2 1



VOSL/V1516 Complete valves

Vented (V) configuration with G1/2 thread

Pilot ratio 1:4

TYPE: **VOSL/V1516/12/G3.p4.PR/ac** CODE: 1514732100
DESCRIPTION: Steel body, range 50-210 bar *(725-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/12/G5.p4.PR/ac** CODE: 1514732101
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/12/G7.p4.PR/ac** CODE: 1514732102
DESCRIPTION: Steel body, range 150-400 bar *(2175-5800 psi)*, std setting 350 bar *(5075 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VOSL/V1516/12/G5.p8.PR/ac** CODE: 1514732104
DESCRIPTION: Steel body, range 50-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/12/G7.p8.PR/ac** CODE: 1514732105
DESCRIPTION: Steel body, range 150-400 bar *(2175-5800 psi)*, std setting 350 bar *(5075 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VOSL/V1516/12/G3.p0.PR/ac** CODE: 1514732106
DESCRIPTION: Steel body, range 50-210 bar *(725-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/12/G5.p0.PR/ac** CODE: 1514732107
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/12/G7.p0.PR/ac** CODE: 1514732108
DESCRIPTION: Steel body, range 150-400 bar *(2175-5800 psi)*, std setting 350 bar *(5075 psi)* @ 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G1/2 thread and F1 flange

TYPE: **VOSL/V1516/12F1/G5.p4.PR/ac** CODE: 1515732100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/12F1/G5.p8.PR/ac** CODE: 1515732101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/12F1/G5.p0.PR/ac** CODE: 1515732102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G1/2 thread and F2 flange

TYPE: **VOSL/V1516/12F2/G5.p4.PR/ac** CODE: 1515732103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/12F2/G5.p8.PR/ac** CODE: 1515732104
DESCRIPTION: Steel body, Pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/12F2/G5.p0.PR/ac** CODE: 1515732105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

VOSL/V1516 Complete valves

Vented (V) configuration with G2/4 thread

TYPE: **VOSL/V1516/34/G5.p4.PR/ac** CODE: 1514742100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/34/G5.p8.PR/ac** CODE: 1514742101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/34/G5.p0.PR/ac** CODE: 1514742102
DESCRIPTION: Steel body, zero differential pilot ratio, sange 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G3/4 thread and F1 flange

TYPE: **VOSL/V1516/34F1/G5.p4.PR/ac** CODE: 1515742100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/34F1/G5.p8.PR/ac** CODE: 1515742101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/34F1/G5.p0.PR/ac** CODE: 1515742102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G3/4 thread and F2 flange

TYPE: **VOSL/V1516/34F2/G5.p4.PR/ac** CODE: 1515742103
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/34F2/G5.p8.PR/ac** CODE: 1515742104
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VOSL/V1516/34F2/G5.p0.PR/ac** CODE: 1515742105
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

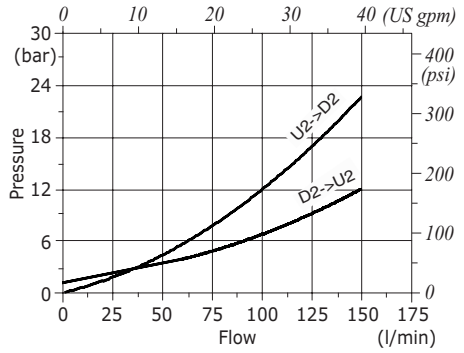
TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3MOL316450	For range 50-210 bar *(725-3050 psi)*
5	3MOL316430	For range 50-350 bar *(725-5075 psi)*
7	3MOL316411	For range 150-400 bar *(2175-5800 psi)*
For 1:8 pilot ratio		
5	3MOL316450	For range 50-350 bar *(725-5075 psi)*
7	3MOL316430	For range 150-400 bar *(2175-5800 psi)*

2 Antitampering cap

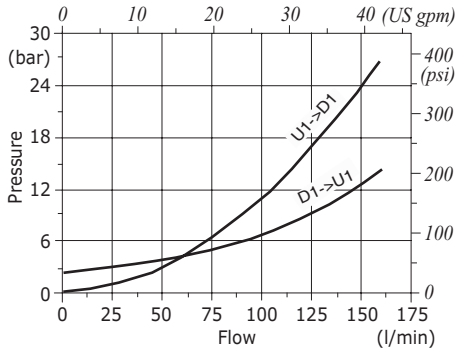
TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP140311	Antitampering cap

Rating diagrams

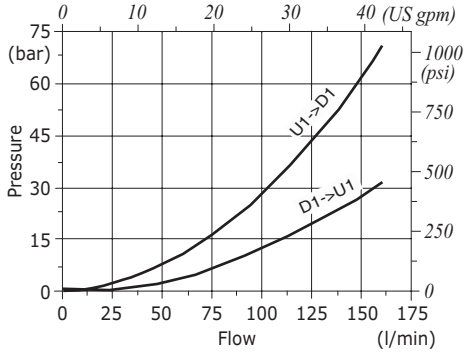
VOSL/(N-V) 1516 (12-34) pressure drop vs. flow from D2->U2 and U2->D2



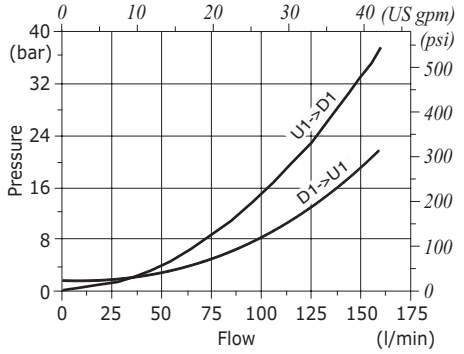
VOSL/(N-V) 1516 (12-34) pressure drop vs. flow from D1->U1 and U1->D1 pilot ratio 1:4



VOSL/(N-V) 1516 (12-34) pressure drop vs. flow from D1->U1 and U1->D1 pilot ratio 1:8



VOSL/(N-V) 1516 (12-34) pressure drop vs. flow from D1->U1 and U1->D1 zero differential pilot ratio



Type VODL/N1516/CS - VODL/V1516/CS counterbalance valves

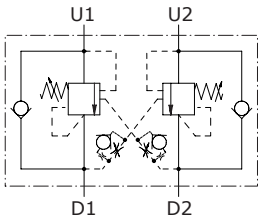
- Double acting
- Steel body
- Load Sensitive (type N)
- Vented (type V)

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

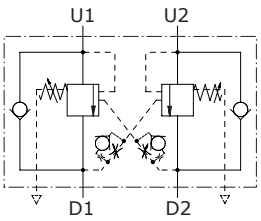
	VODL/N1516/CS (12-34) - VODL/V1516/CS (12-34)
Nominal flow	160 l/min *(42.3 US gpm)*
Max. pressure	350 bar(1) *(5100 psi)* - 400 bar(2) *(5800 psi)*
Oil leakage	0.5 cm^3/min *(0.030 in^3/min)* - 10 drops/min at 80% of pressure setting
Fluid	mineral based oil
Viscosity	from 10 to 200 cSt
Max. level of contamination	18/16/13 ISO4406
Fluid temperature	*with NBR seals* from -20°C *(-4°F)* to 90°C *(194°F)*
Environmental temp. for working conditions	from -20°C *(-4°F)* to 50°C *(122°F)*
Weight	**VODL/N1516/CS/12:** 5.40 kg *(11.90 lb)* - **VODL/N1516/CS/34:** 5.30 kg *(11.68 lb)* **VODL/V1516/CS/12:** 5.40 kg *(11.90 lb)* - **VODL/V1516/CS/34:** 5.30 kg *(11.68 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt. - (1)According to NFPA T 2.6.1., fatigue rating verified for 1 million cycles on 6 sample valves with test Pressure = 1.23 x Max. pressure indicated - (2)Intermittent pressure at max. 100,000 cycles with specific internal testing.

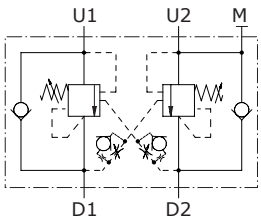
VODL/N1516/CS



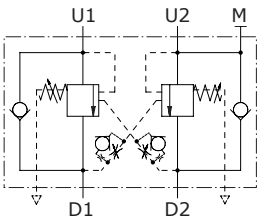
VODL/V1516/CS



VODL/N1516/CS/F2

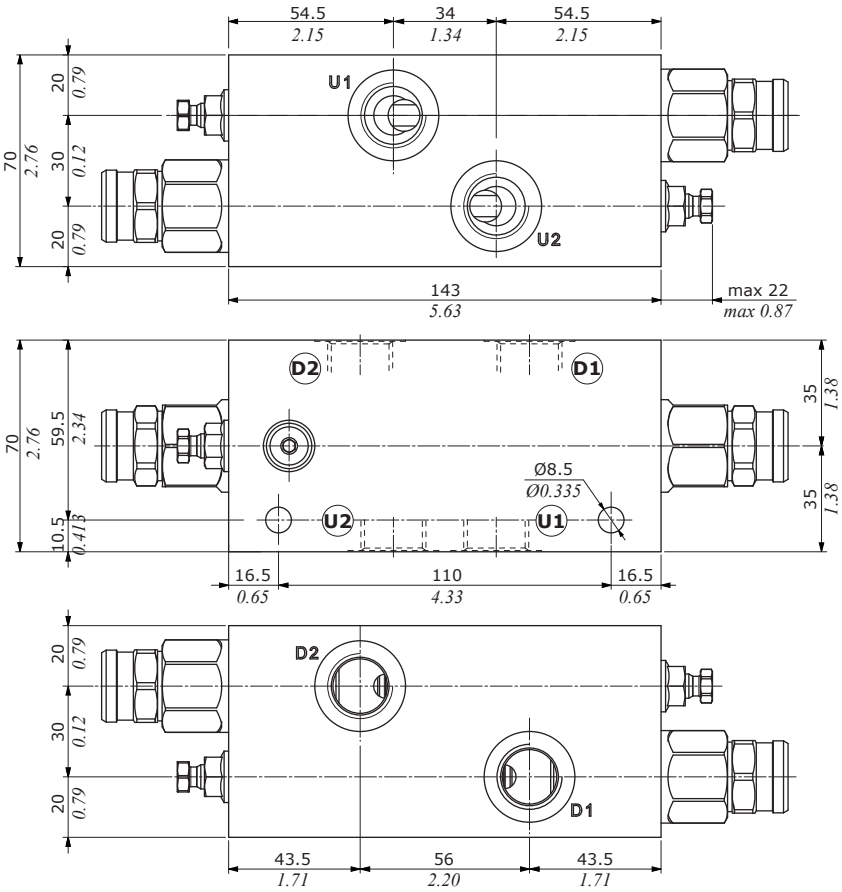


VODL/V1516/CS/F2

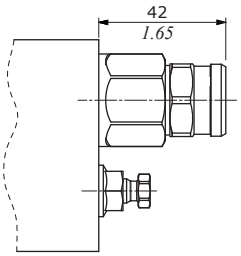


Dimensions

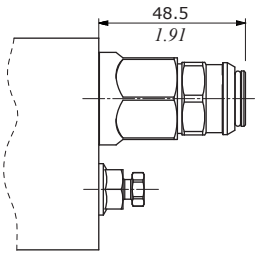
VODL/...1516/CS/12 - VODL/...1516/CS/34



VODL/N configuration

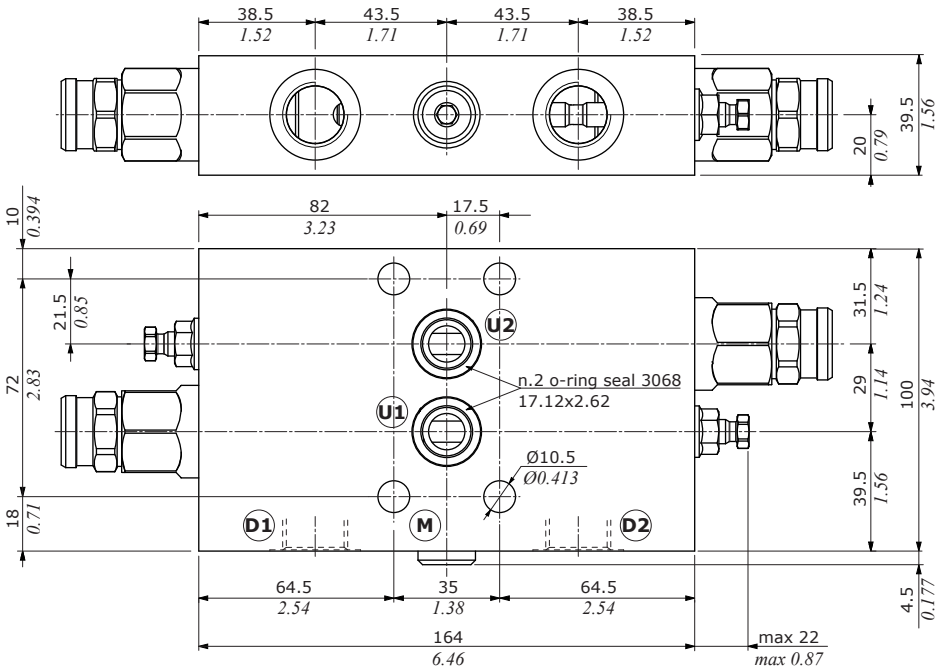


VODL/N configuration



Valve type	D1	D2	U1	U2	M
VODL/...1516/CS/12	G1/2		G1/2		-
VODL/...1516/CS/34	G3/4		G3/4		-
VODL/...1516/CS/12F2	G1/2		Ø12 Ø0.472		G1/4
VODL/...1516/CS/34F2	G3/4		Ø12 Ø0.472		G1/4

VODL/...1516/CS/12F2 - VODL/...1516/CS/34F2

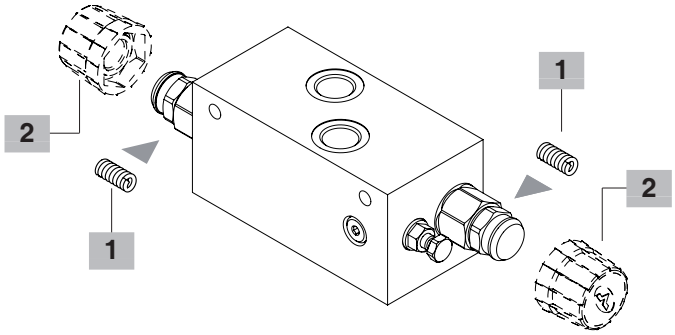


Ordering codes and description composition

Port size

VODL/N1516/CS/12/G3.p4.PR/ac

2 1



VODL/N1516 Complete valves

Load sensitive (N) configuration with G1/2 thread

Pilot ratio 1:4

TYPE: **VODL/N1516/CS/12/G3.p4.PR/ac** CODE: 1556532100
DESCRIPTION: Steel body, range 50-210 bar *(725-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/12/G5.p4.PR/ac** CODE: 1556532101
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/12/G7.p4.PR/ac** CODE: 1556532102
DESCRIPTION: range 150-400 bar *(2175-5800 psi)*, std setting 350 bar *(5075 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VODL/N1516/CS/12/G5.p8.PR/ac** CODE: 1556532104
DESCRIPTION: Steel body, range 50-350 bar *(72.5-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/12/G7.p8.PR/ac** CODE: 1556532105
DESCRIPTION: Steel body, range 150-400 bar *(2175-5800 psi)*, std setting 350 bar *(5075 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VODL/N1516/CS/12/G3.p0.PR/ac** CODE: 1556532106
DESCRIPTION: Steel body, range 50-210 bar *(725-3050 psi)*, std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/12/G5.p0.PR/ac** CODE: 1556532107
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/12/G7.p0.PR/ac** CODE: 1556532108
DESCRIPTION: Steel body, range 150-400 bar *(2175-5800 psi)*, std setting 350 bar *(5075 psi)* @ 5 l/min*(1.32 US gpm)*

Load sensitive (N) configuration with G1/2 thread and F2 flange

TYPE: **VODL/N1516/CS/12F2/G5.p4.PR/ac** CODE: 1557032100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/12F2/G5.p8.PR/ac** CODE: 1557032101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/12F2/G5.p0.PR/ac** CODE: 1557032102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

VODL/N1516 Complete valves

Load sensitive (N) configuration with G3/4 thread

TYPE: **VODL/N1516/CS/34/G5.p4.PR/ac** CODE: 1556542100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/34/G5.p8.PR/ac** CODE: 1556542101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/34/G5.p0.PR/ac** CODE:1556542102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*

Load sensitive (N) configuration with G3/4 thread and F2 flange

TYPE: **VODL/N1516/CS/34F2/G5.p4.PR/ac** CODE: 1557042100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/34F2/G5.p8.PR/ac** CODE: 1557042101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/34F2/G5.p0.PR/ac** CODE: 1557042102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3MOL316450	For range 50-210 bar *(725-3050 psi)*
5	3MOL316430	For range 50-350 bar *(725-5075 psi)*
7	3MOL316411	For range 150-400 bar *(2175-5800 psi)*
For 1:8 pilot ratio		
5	3MOL316450	For range 50-350 bar *(725-5075 psi)*
7	3MOL316430	For range 150-400 bar *(2175-5800 psi)*

2 Antitampering cap

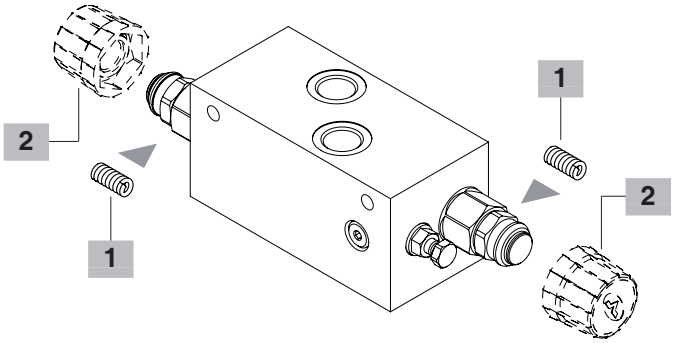
TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP140311	Antitampering cap

Ordering codes and description composition

Port size

VODL/V1516/CS/12/G3.p4.PR/ac

2 1



VODL/V1516 Complete valves

Vented (V) configuration with G1/2 thread

Pilot ratio 1:4

TYPE: **VODL/V1516/CS/12/G3.p4.PR/ac** CODE: 1556632100
DESCRIPTION: Steel body, range 50-210 bar *(725-3050 psi),* std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/V1516/CS/12/G5.p4.PR/ac** CODE: 1556632101
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/V1516/CS/12/G7.p4.PR/ac** CODE: 1556632102
DESCRIPTION: Steel body, range 150-400 bar *(2175-5800 psi),* std setting 350 bar *(5075 psi)* @ 5 l/min *(1.32 US gpm)*

Pilot ratio 1:8

TYPE: **VODL/V1516/CS/12/G5.p8.PR/ac** CODE: 1556632104
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/N1516/CS/12/G7.p8.PR/ac** CODE: 1556532105
DESCRIPTION: Steel body, range 150-400 bar *(2175-5800 psi),* std setting 350 bar *(5075 psi)* @ 5 l/min *(1.32 US gpm)*

Zero differential pilot ratio

TYPE: **VODL/V1516/CS/12/G3.p0.PR/ac** CODE: 1556632106
DESCRIPTION: Steel body, range 50-210 bar *(725-3050 psi),* std setting 150 bar *(2175 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/V1516/CS/12/G5.p0.PR/ac** CODE: 1556632107
DESCRIPTION: Steel body, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/V1516/CS/12/G7.p0.PR/ac** CODE: 1556632108
DESCRIPTION: Steel body, range 150-400 bar *(2175-5800 psi),* std setting 350 bar *(5075 psi)* @ 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G1/2 thread and F2 flange

TYPE: **VODL/V1516/CS/12F2/G5.p4.PR/ac** CODE: 1557132100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/V1516/CS/12F2/G5.p8.PR/ac** CODE: 1557132101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/V1516/CS/12F2/G5.p0.PR/ac** CODE: 1557132102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

VODL/V1516 Complete valves

Vented (V) configuration with G3/4 thread

TYPE: **VODL/V1516/CS/34/G5.p4.PR/ac** CODE: 1556642100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/V1516/CS/34/G5.p8.PR/ac** CODE: 1556642101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/V1516/CS/34/G5.p0.PR/ac** CODE: 1556642102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Vented (V) configuration with G3/4 thread and F2 flange

TYPE: **VODL/V1516/CS/34F2/G5.p4.PR/ac** CODE: 1557142100
DESCRIPTION: Steel body, pilot ratio 1:4, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/V1516/CS/34F2/G5.p8.PR/ac** CODE: 1557142101
DESCRIPTION: Steel body, pilot ratio 1:8, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

TYPE: **VODL/V1516/CS/34F2/G5.p0.PR/ac** CODE: 1557142102
DESCRIPTION: Steel body, zero differential pilot ratio, range 50-350 bar *(725-5075 psi),* std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*

Note: for further configurations ask to Sales Dpt.

1 Pressure setting spring

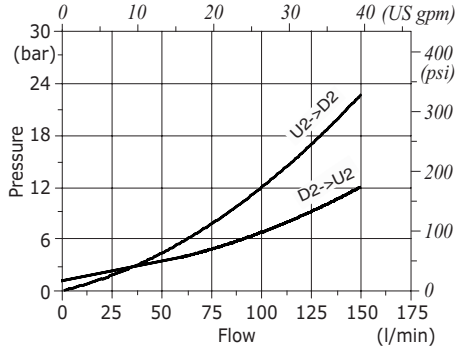
TYPE	CODE	DESCRIPTION
For 1:4 and zero differential pilot ratio		
3	3MOL316450	For range 50-210 bar *(725-3050 psi)*
5	3MOL316430	For range 50-350 bar *(725-5075 psi)*
7	3MOL316411	For range 150-400 bar *(2175-5800 psi)*
For 1:8 pilot ratio		
5	3MOL316450	For range 50-350 bar *(725-5075 psi)*
7	3MOL316430	For range 150-400 bar *(2175-5800 psi)*

2 Antitampering cap

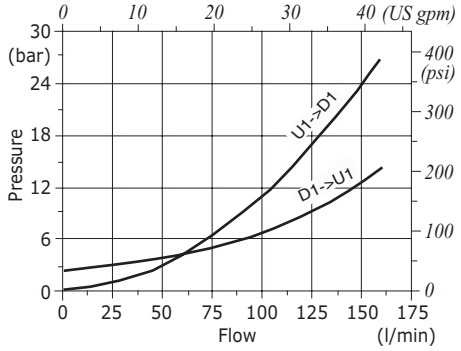
TYPE	CODE	DESCRIPTION
G	-	Screw setting
Z	4COP140311	Antitampering cap

Rating diagrams

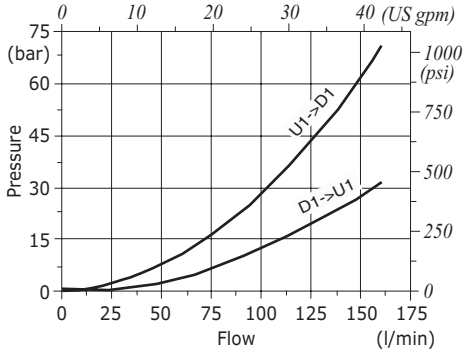
VODL/(N-V) 1516/CS (12-34) pressure drop vs. flow from D2->U2 and U2->D2



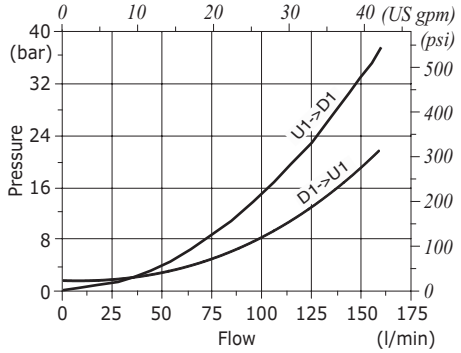
VODL/(N-V) 1516/CS (12-34) pressure drop vs. flow from D1->U1 and U1->D1 pilot ratio 1:4



VODL/(N-V) 1516/CS (12-34) pressure drop vs. flow from D1->U1 and U1->D1 pilot ratio 1:8



VODL/(N-V) 1516/CS (12-34) pressure drop vs. flow from D1->U1 and U1->D1 zero differential pilot ratio



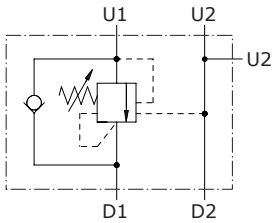
Type VOSL
counterbalance valves

- Single acting
- Load sensitive

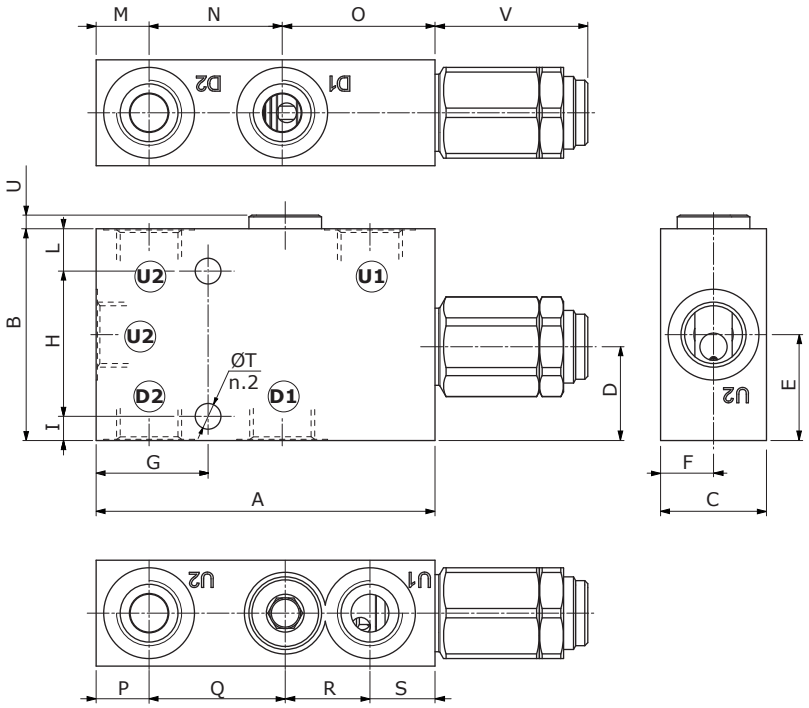
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VOSL 38	VOSL 12	VOSL 34	VOSL 100
Nominal flow		35 l/min *(9.2 US gpm)*	70 l/min *(18.4 US gpm)*	100 l/min *(26.4 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm³/min - *0.015 in³/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	0.78 kg *(1.71 lb)*	1.00 kg *(2.20 lb)*	1.85 kg *(4.07 lb)*	3.26 kg *(7.18 lb)*
	steel	1.52 kg *(3.35 lb)*	1.95 kg *(4.29 lb)*	3.55 kg *(7.82 lb)*	7.07 kg *(15.5 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1	D2	U1	U2
VOSL 38	G3/8		G3/8	
VOSL 12	G1/2		G1/2	
VOSL 34	G3/4		G3/4	
VOSL 100	G1"		G1"	

Dimensions are in mm-*in*

Valve type	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	ØT	U	V
VOSL 38	105	65	30	27	32.5	15	34	40	8	17	16	38	51	16	38	29	22	8.5	4.5	52
	4.13	*2.56*	*1.18*	*1.06*	*1.30*	*0.59*	*1.34*	*1.57*	*0.315*	*0.67*	*0.63*	*1.50*	*2.01*	*0.63*	*1.50*	*1.14*	*0.87*	*0.335*	*0.177*	*2.05*
VOSL 12	112	70	35	31	35	17.5	37	48	8	14	17.5	44	50.5	17.5	45	28	21.5	8.5	4.5	57
	4.41	*2.76*	*1.38*	*1.22*	*1.38*	*0.69*	*1.46*	*1.89*	*0.315*	*0.55*	*0.69*	*1.73*	*1.99*	*0.69*	*1.77*	*1.10*	*0.85*	*0.335*	*0.177*	*2.24*
VOSL 34	140	90	40	36	45	20	52	70	10	10	22	53	65	22	53	35	30	10.5	5.5	66
	5.51	*3.54*	*1.57*	*1.42*	*1.77*	*0.79*	*2.05*	*2.76*	*0.394*	*0.394*	*0.87*	*2.09*	*2.56*	*0.87*	*2.09*	*1.38*	*1.18*	*0.413*	*0.217*	*2.60*
VOSL 100	174	100	60	37	50	37	64	80	10	10	32	66	76	32	66	46	30	10.5	12.5	66
	6.85	*3.64*	*2.36*	*1.46*	*1.97*	*1.46*	*2.52*	*3.15*	*0.394*	*0.394*	*1.26*	*2.60*	*2.99*	*1.26*	*2.60*	*1.81*	*1.18*	*0.413*	*0.492*	*2.60*

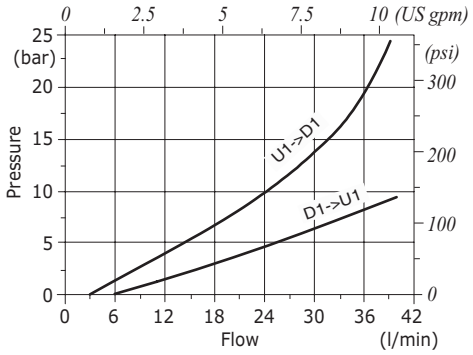
Ordering codes

VOSL complete valves

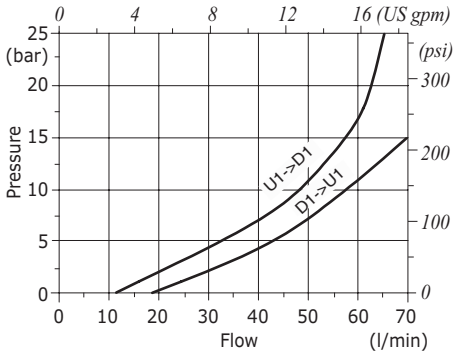
TYPE: **VOSL 38/TR.S.p4** CODE: 1510021102
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL 12/TR.S.p7** CODE: 1510031102
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL 34/TR.S.p7** CODE: 1510041102
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL 100/TR.S.p7** CODE: 1510051102
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dpt

Rating diagrams

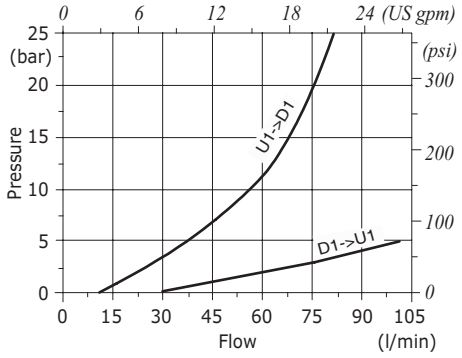
VOSL 38 pressure drop vs. flow from D1->U1 and U1->D1



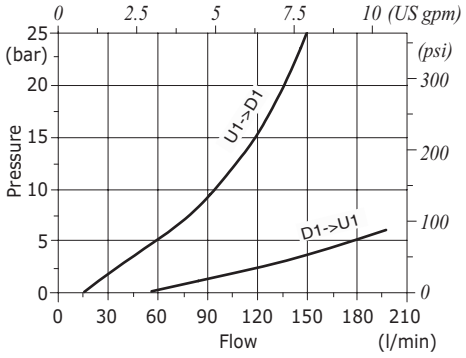
VOSL 12 pressure drop vs. flow from D1->U1 and U1->D1



VOSL 34 pressure drop vs. flow from D1->U1 and U1->D1



VOSL 100 pressure drop vs. flow from D1->U1 and U1->D1



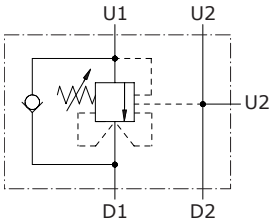
Type VOSL/CC counterbalance valves

- Single acting
- Relief compensated

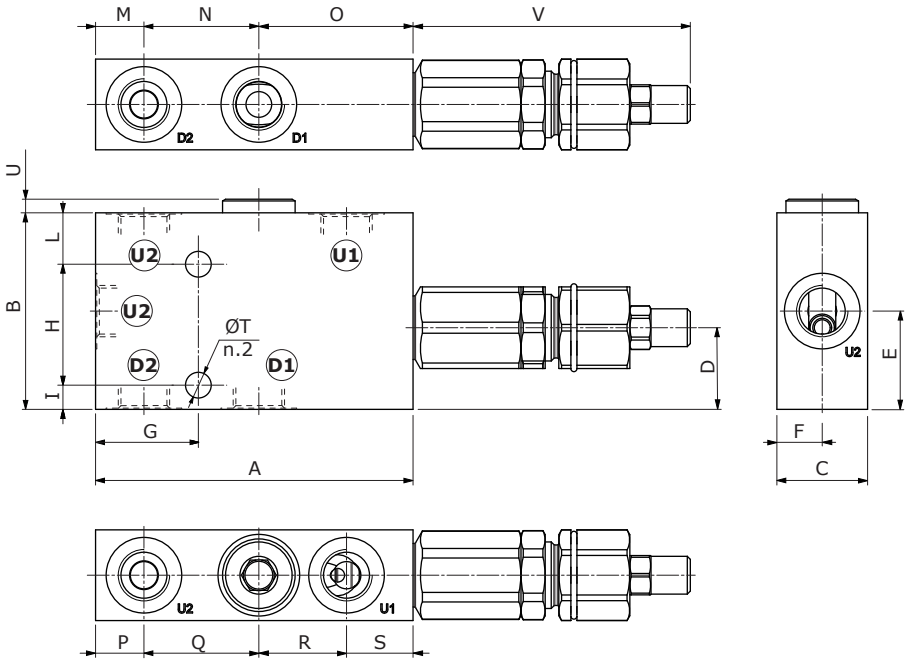
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

	VOSL/CC 38	VOSL/CC 12	VOSL/CC 34	VOSL/CC 100
Nominal flow	35 l/min *(9.2 US gpm)*	70 l/min *(18.4 US gpm)*	100 l/min *(26.4 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure	Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage	0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid	mineral based oil			
Viscosity	from 10 to 200 cSt			
Max. level of contamination	18/16/13 ISO4406			
Fluid temperature	*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions	from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight *aluminium*	1.01 kg *(2.23 lb)*	1.16 kg *(2.56 lb)*	1.94 kg *(4.28 lb)*	3.33 kg *(7.34 lb)*
Weight *steel*	1.81 kg *(3.99 lb)*	2.11 kg *(4.65 lb)*	3.61 kg *(7.96 lb)*	7.07 kg *(15.5 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1	D2	U1	U2
VOSL/CC 38	G3/8		G3/8	
VOSL/CC 12	G1/2		G1/2	
VOSL/CC 34	G3/4		G3/4	
VOSL/CC 100	G1"		G1"	

Dimensions are in mm-*in*

Valve type	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	ØT	U	V
VOSL/CC 38	105 *4.13*	65 *2.56*	30 *1.18*	27 *1.06*	32.5 *1.30*	15 *0.59*	34 *1.34*	40 *1.57*	8 *0.315*	17 *0.67*	16 *0.63*	38 *1.50*	51 *2.01*	16 *0.63*	38 *1.50*	29 *1.14*	22 *0.87*	8.5 *0.335*	4.5 *0.177*	92.2 *3.63*
VOSL/CC 12	112 *4.41*	70 *2.76*	35 *1.38*	31 *1.22*	35 *1.38*	17.5 *0.69*	37 *1.46*	48 *1.89*	8 *0.315*	14 *0.55*	17.5 *0.69*	44 *1.73*	50.5 *1.99*	17.5 *0.69*	45 *1.77*	28 *1.10*	21.5 *0.85*	8.5 *0.335*	4.5 *0.177*	99.7 *3.93*
VOSL/CC 34	140 *5.51*	90 *3.54*	40 *1.57*	36 *1.42*	45 *1.77*	20 *0.79*	52 *2.05*	70 *2.76*	10 *0.394*	10 *0.394*	22 *0.87*	53 *2.09*	65 *2.56*	22 *0.87*	53 *2.09*	35 *1.38*	30 *1.18*	10.5 *0.413*	5.5 *0.217*	101.7 *4.00*
VOSL/CC 100	174 *6.85*	100 *3.64*	60 *2.36*	37 *1.46*	50 *1.97*	37 *1.46*	64 *2.52*	80 *3.15*	10 *0.394*	10 *0.394*	32 *1.26*	66 *2.60*	76 *2.99*	32 *1.26*	66 *2.60*	46 *1.81*	30 *1.18*	10.5 *0.413*	12.5 *0.492*	101.7 *4.00*

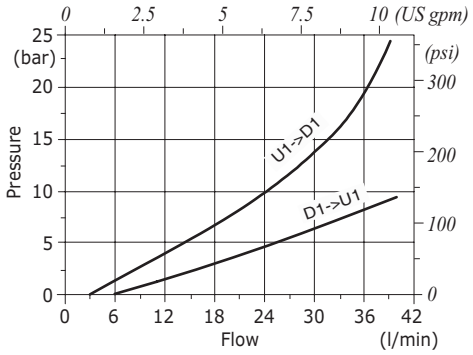
Ordering codes

VOSL/CC complete valves

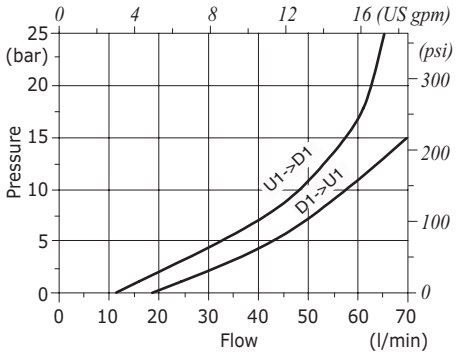
TYPE: **VOSL/CC 38/TR.S.p4** CODE: 1514921100
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/CC 12/TR.S.p7** CODE: 1514931100
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/CC 34/TR.S.p7** CODE: 1514941101
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/CC 100/TR.S.p7** CODE: 1514951100
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dpt

Rating diagrams

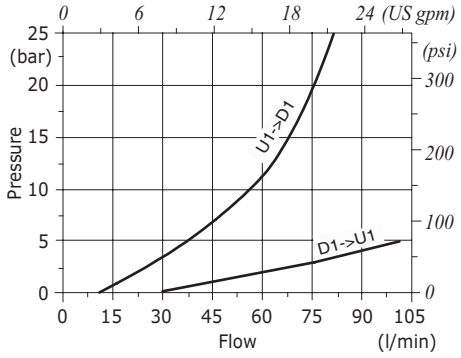
VOSL/CC 38 pressure drop vs. flow from D1->U1 and U1->D1



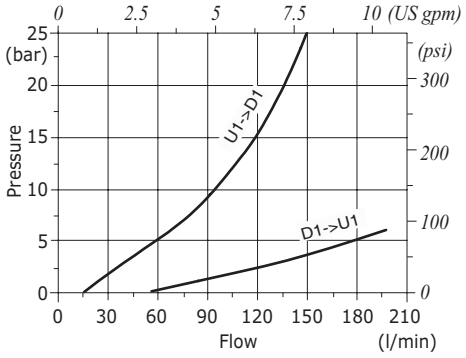
VOSL/CC 12 pressure drop vs. flow from D1->U1 and U1->D1

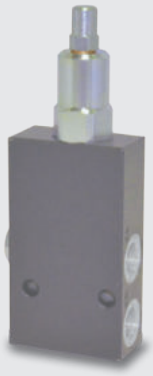


VOSL/CC 34 pressure drop vs. flow from D1->U1 and U1->D1



VOSL/CC 100 pressure drop vs. flow from D1->U1 and U1->D1





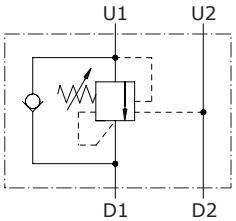
Type VOSL/SC counterbalance valves

- Single acting

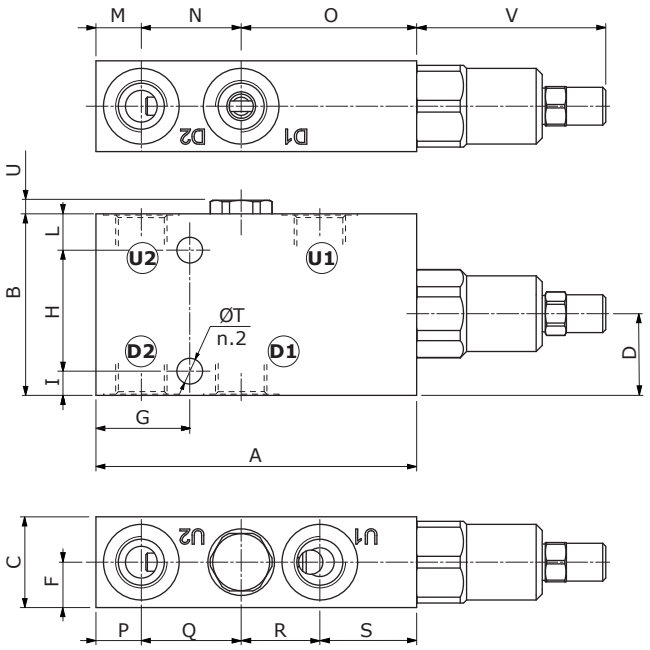
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VOSL/SC 38	VOSL/SC 12	VOSL/SC 34	VOSL/SC 100
Nominal flow		40 l/min *(10.6 US gpm)*	75 l/min *(19.8 US gpm)*	120 l/min *(31.7 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	0.80 kg *(1.76 lb)*	1.06 kg *(2.34 lb)*	1.48 kg *(3.26 lb)*	3.13 kg *(6.90 lb)*
	steel	1.54 kg *(3.40 lb)*	2.15 kg *(4.74 lb)*	3.34 kg *(7.36 lb)*	7.64 kg *(16.8 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1	D2	U1	U2
VOSL/SC 38	G3/8		G3/8	
VOSL/SC 12	G1/2		G1/2	
VOSL/SC 34	G3/4		G3/4	
VOSL/SC 100	G1"		G1"	

Dimensions are in mm-*in*

Valve type	A	B	C	D	F	G	H	I	L	M	N	O	P	Q	R	S	ØT	U	V
VOSL/SC 38	106 *4.17*	60 *2.36*	30 *1.18*	27 *1.06*	15 *0.89*	31 *1.22*	40 *1.57*	8 *0.315*	12 *0.472*	15 *0.59*	33 *1.30*	58 *2.28*	15 *0.59*	33 *1.30*	26 *1.02*	32 *1.26*	8.5 *0.335*	4.5 *0.177*	62.5 *2.46*
VOSL/SC 12	116 *4.57*	70 *2.76*	35 *1.38*	31 *1.22*	17.5 *0.69*	36 *1.42*	48 *1.89*	8 *0.315*	14 *0.55*	16 *0.63*	40 *1.57*	60 *2.36*	16 *0.63*	40 *1.57*	28 *1.10*	32 *1.26*	8.5 *0.335*	4.5 *0.177*	62.5 *2.46*
VOSL/SC 34	136 *5.35*	90 *3.54*	40 *1.57*	36 *1.42*	20 *0.79*	44 *1.73*	70 *2.76*	10 *0.394*	10 *0.394*	20 *0.79*	48 *1.89*	68 *2.68*	20 *0.79*	48 *1.89*	34 *1.34*	34 *1.34*	10.5 *0.413*	5.5 *0.217*	62.5 *2.46*
VOSL/SC 100	185 *7.28*	100 *3.94*	60 *2.36*	38 *1.50*	30 *1.18*	62 *2.44*	80 *3.15*	10 *0.394*	10 *0.394*	32 *1.26*	70 *2.76*	83 *3.27*	32 *1.26*	70 *2.76*	48 *1.89*	35 *1.38*	10.5 *0.413*	12.5 *0.492*	62.5 *2.46*

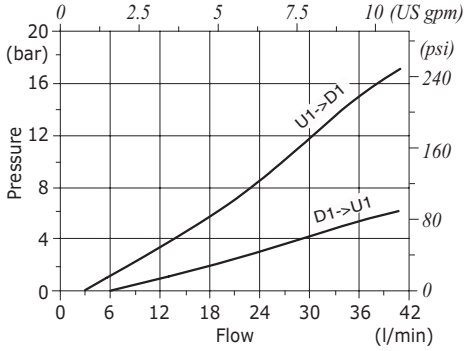
Ordering codes

VOSL/SC complete valves

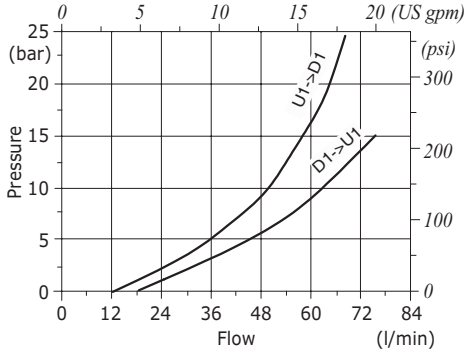
TYPE: **VOSL/SC 38/TR.S.p4.PG** CODE: 1520021108
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/SC 12/TR.S.p7.PG** CODE: 1520031107
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/SC 34/TR.S.p7.PG** CODE: 1520041102
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/SC 100/TR.S.p7.PG** CODE: 1520051102
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dpt.

Rating diagrams

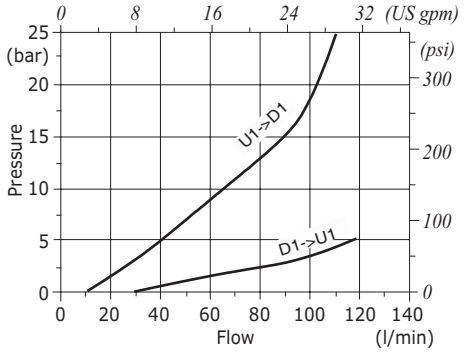
VOSL/SC 38 pressure drop vs. flow from D1->U1 and U1->D1



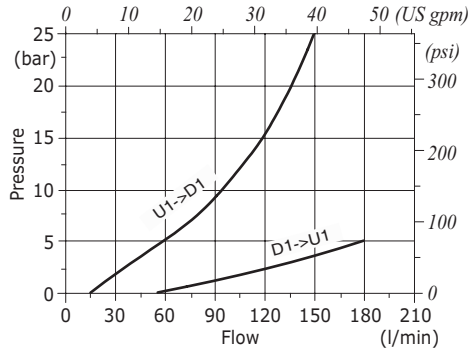
VOSL/SC 12 pressure drop vs. flow from D1->U1 and U1->D1



VOSL/SC 34 pressure drop vs. flow from D1->U1 and U1->D1



VOSL/SC 100 pressure drop vs. flow from D1->U1 and U1->D1



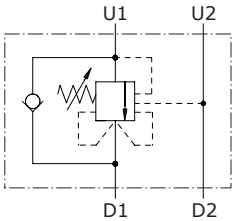
Type VOSL/SC/CC counterbalance valves

- Single acting

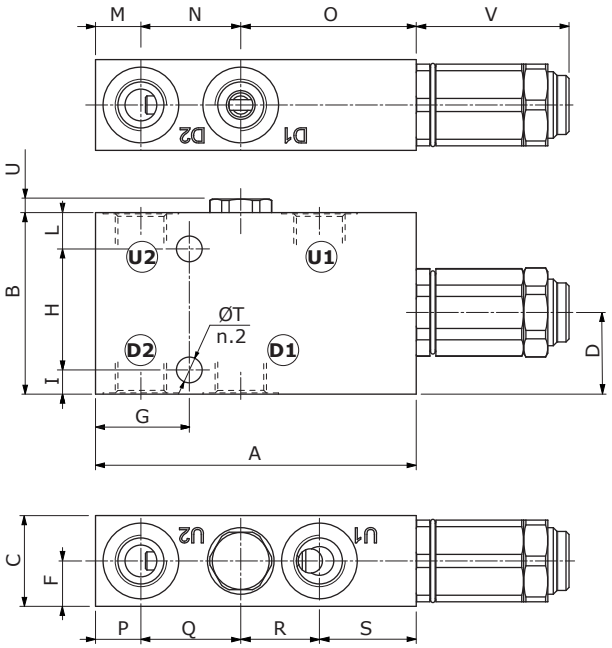
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VOSL/SC/CC 38	VOSL/SC/CC 12	VOSL/SC/CC 34	VOSL/SC/CC 100
Nominal flow		40 l/min *(10.6 US gpm)*	75 l/min *(19.8 US gpm)*	120 l/min *(31.7 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*)			
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	0.83 kg *(1.83 lb)*	1.11 kg *(2.45 lb)*	1.53 kg *(3.37 lb)*	3.18 kg *(7.01 lb)*
	steel	1.56 kg *(3.44 lb)*	2.32 kg *(5.11 lb)*	3.39 kg *(7.47 lb)*	7.69 kg *(16.9 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1	D2	U1	U2
VOSL/SC/CC 38	G3/8		G3/8	
VOSL/SC/CC 12	G1/2		G1/2	
VOSL/SC/CC 34	G3/4		G3/4	
VOSL/SC/CC 100	G1"		G1"	

Dimensions are in mm-*in*

Valve type	A	B	C	D	F	G	H	I	L	M	N	O	P	Q	R	S	ØT	U	V
VOSL/SC 38/CC	106 *4.17*	60 *2.36*	30 *1.18*	27 *1.06*	15 *0.89*	31 *1.22*	40 *1.57*	8 *0.315*	12 *0.472*	15 *0.59*	33 *1.30*	58 *2.28*	15 *0.59*	33 *1.30*	26 *1.02*	32 *1.26*	8.5 *0.335*	4.5 *0.177*	51 *2.01*
VOSL/SC/CC 12	116 *4.57*	70 *2.76*	35 *1.38*	31 *1.22*	17.5 *0.69*	36 *1.42*	48 *1.89*	8 *0.315*	14 *0.55*	16 *0.63*	40 *1.57*	60 *2.36*	16 *0.63*	40 *1.57*	28 *1.10*	32 *1.26*	8.5 *0.335*	4.5 *0.177*	51 *2.01*
VOSL/SC/CC 34	136 *5.35*	90 *3.54*	40 *1.57*	36 *1.42*	20 *0.79*	44 *1.73*	70 *2.76*	10 *0.394*	10 *0.394*	20 *0.79*	48 *1.89*	68 *2.68*	20 *0.79*	48 *1.89*	34 *1.34*	34 *1.34*	10.5 *0.413*	5.5 *0.217*	51 *2.01*
VOSL/SC/CC 100	185 *7.28*	100 *3.94*	60 *2.36*	38 *1.50*	30 *1.18*	62 *2.44*	80 *3.15*	10 *0.394*	10 *0.394*	32 *1.26*	70 *2.76*	83 *3.27*	32 *1.26*	70 *2.76*	48 *1.89*	35 *1.38*	10.5 *0.413*	12.5 *0.492*	51 *2.01*

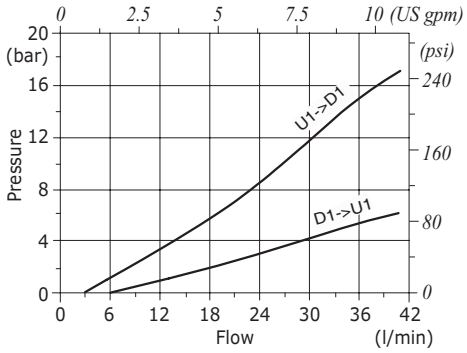
Ordering codes

VOSL/SC/CC complete valves

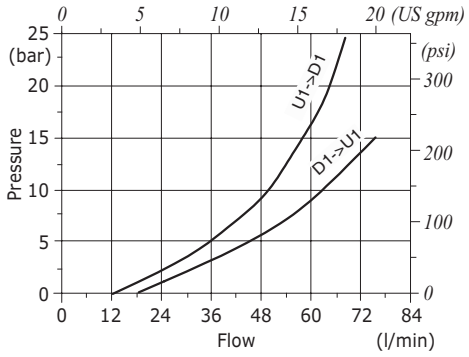
TYPE: **VOSL/SC/CC 38/TR.S.p4.PG** CODE: 1525021102
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/SC/CC 12/TR.S.p7.PG** CODE: 1525031102
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/SC/CC 34/TR.S.p7.PG** CODE: 1525041102
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/SC/CC 100/TR.S.p7.PG** CODE: 1525051102
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

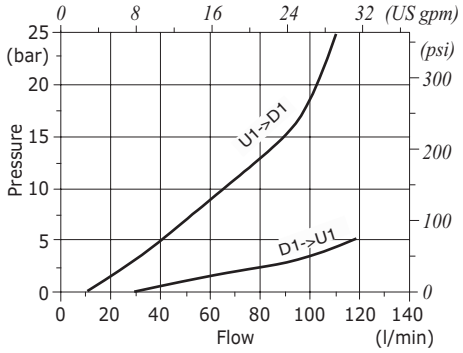
VOSL/SC 38 pressure drop vs. flow from D1->U1 and U1->D1



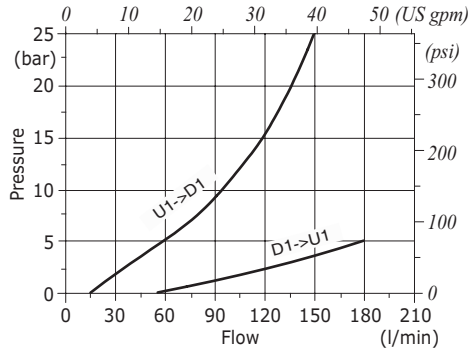
VOSL/SC 12 pressure drop vs. flow from D1->U1 and U1->D1



VOSL/SC 34 pressure drop vs. flow from D1->U1 and U1->D1



VOSL/SC 100 pressure drop vs. flow from D1->U1 and U1->D1



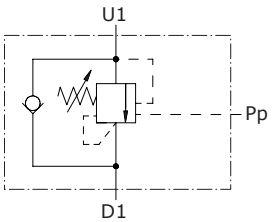
Type VOSLP counterbalance valves

- Single acting

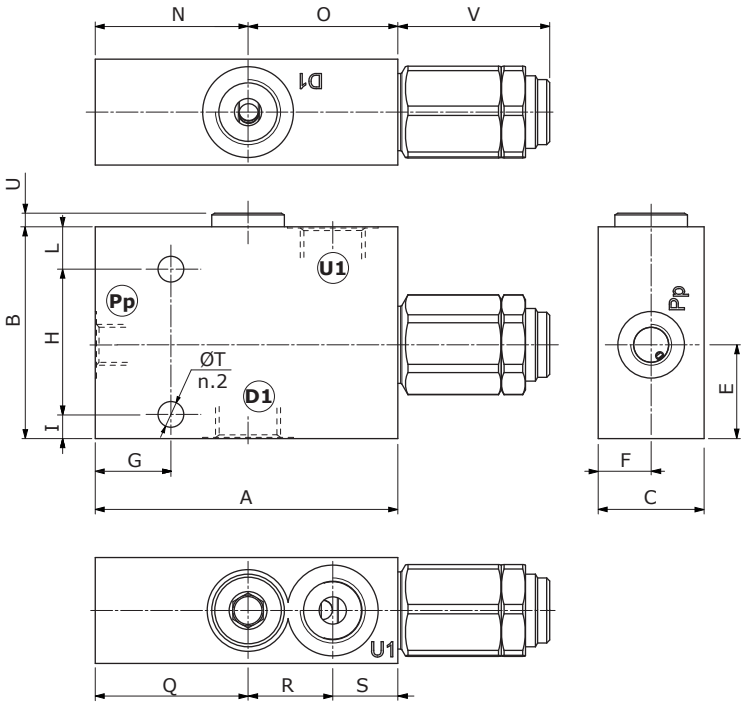
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VOSLP 38	VOSLP 12	VOSLP 34	VOSLP 100
Nominal flow		35 l/min *(9.2 US gpm)*	70 l/min *(18.5 US gpm)*	100 l/min *(26.4 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*)			
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	0.89 kg *(1.96 lb)*	0.97 kg *(2.14 lb)*	1.75 kg *(3.86 lb)*	2.90 kg *(6.39 lb)*
	steel	1.59 kg *(3.51 lb)*	1.88 kg *(4.14 lb)*	3.29 kg *(7.25 lb)*	6.18 kg *(13.6 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1 U1	Pp
VOSLP 38	G3/8	G1/4
VOSLP 12	G1/2	G1/4
VOSLP 34	G3/4	G1/4
VOSLP 100	G1"	G1/4

Dimensions are in mm-*in*

Valve type	A	B	C	E	F	G	H	I	L	N	O	Q	R	S	ØT	V
VOSLP 38	98 *3.86*	65 *2.56*	30 *1.18*	27 *1.06*	15 *0.59*	27 *1.06*	40 *1.57*	8 *0.315*	17 *0.70*	47 *1.85*	51 *2.01*	47 *1.85*	29 *1.14*	22 *0.87*	8.5 *0.335*	52 *2.05*
VOSLP 12	100 *3.94*	70 *2.76*	35 *1.38*	31 *1.22*	17.5 *0.69*	25 *0.98*	48 *1.89*	8 *0.315*	14 *0.551*	50.5 *1.99*	49.5 *1.95*	50.5 *1.99*	28 *1.10*	21.5 *0.85*	8.5 *0.335*	57 *2.24*
VOSLP 34	120 *4.72*	90 *3.54*	40 *1.57*	36 *1.42*	20 *0.79*	32 *1.26*	70 *2.76*	10 *0.394*	10 *0.394*	55 *2.16*	65 *2.56*	55 *2.17*	35 *1.38*	30 *1.18*	10.5 *0.41*	66 *2.60*
VOSLP 100	140 *5.51*	100 *3.94*	60 *2.36*	37 *1.46*	30 *1.18*	30 *1.18*	80 *3.15*	10 *0.394*	10 *0.394*	64 *2.52*	76 *2.99*	64 *2.52*	46 *1.81*	30 *1.18*	10.5 *0.41*	66 *2.60*

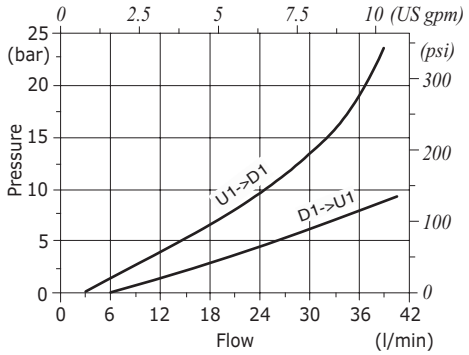
Ordering codes

VOSLP complete valves

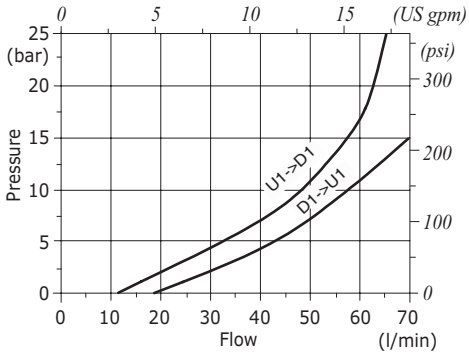
TYPE: **VOSLP 38/TR.S.p4** CODE: 1530021102
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP 12/TR.S.p7** CODE: 1530031102
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP 34/TR.S.p7** CODE: 1530041102
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP 100/TR.S.p7** CODE: 1530051102
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

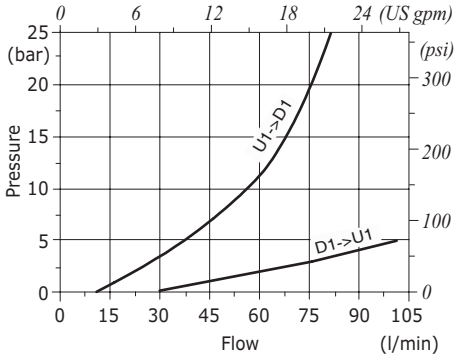
VOSLP 38 pressure drop vs. flow from D1->U1 and U1->D1



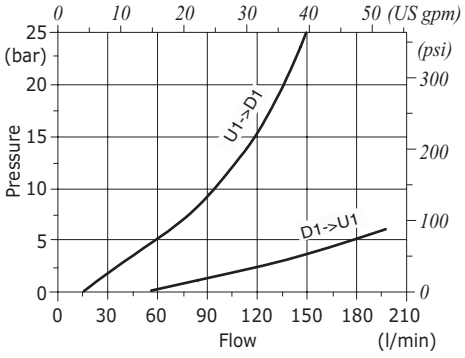
VOSLP 12 pressure drop vs. flow from D1->U1 and U1->D1



VOSLP 34 pressure drop vs. flow from D1->U1 and U1->D1



VOSLP 100 pressure drop vs. flow from D1->U1 and U1->D1



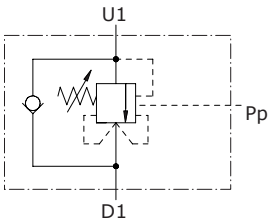
Type VOSLP/CC counterbalance valves

- Single acting
- Relief compensated

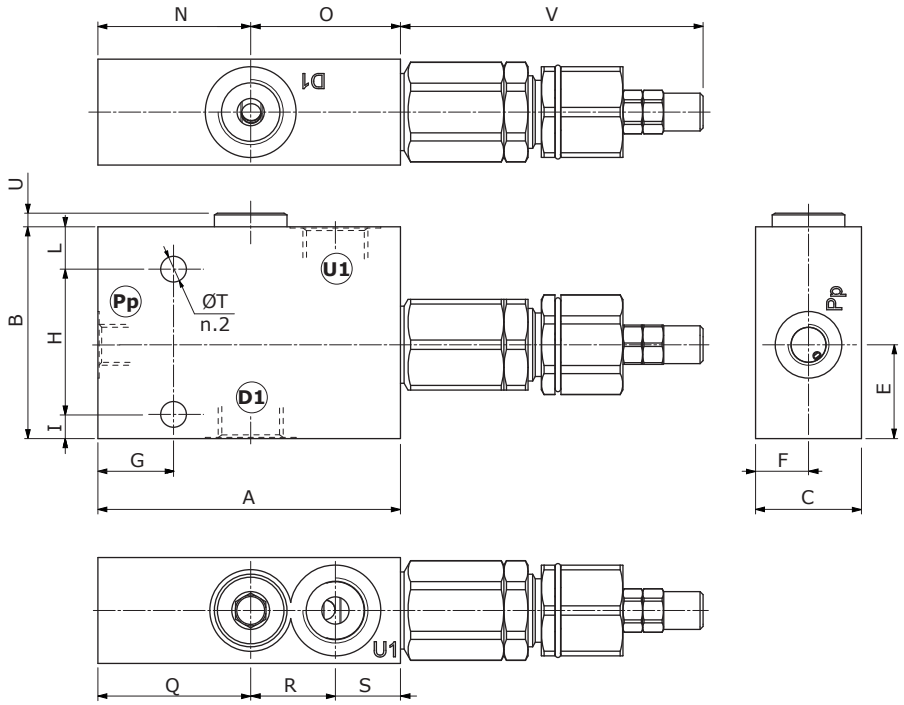
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VOSLP/CC 38	VOSLP/CC 12	VOSLP/CC 34	VOSLP/CC 100
Nominal flow		35 l/min *(9.2 US gpm)*	70 l/min *(18.5 US gpm)*	100 l/min *(26.4 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	1.01 kg *(2.23 lb)*	1.13 kg *(2.49 lb)*	1.83 kg *(4.03 lb)*	2.98 kg *(6.57 lb)*
	steel	1.70 kg *(3.75 lb)*	2.01 kg *(4.43lb)*	3.37 kg *(7.43 lb)*	6.26 kg *(13.8 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1 U1	Pp
VOSLP/CC 38	G3/8	G1/4
VOSLP/CC 12	G1/2	G1/4
VOSLP/CC 34	G3/4	G1/4
VOSLP/CC 100	G1"	G1/4

Dimensions are in mm-*in*

Valve type	A	B	C	E	F	G	H	I	L	N	O	Q	R	S	ØT	V
VOSLP/CC 38	98 *3.86*	65 *2.56*	30 *1.18*	27 *1.06*	15 *0.59*	27 *1.06*	40 *1.57*	8 *0.315*	17 *0.70*	47 *1.85*	51 *2.01*	47 *1.85*	29 *1.14*	22 *0.87*	8.5 *0.335*	92.2 *3.63*
VOSLP/CC 12	100 *3.94*	70 *2.76*	35 *1.38*	31 *1.22*	17.5 *0.69*	25 *0.98*	48 *1.89*	8 *0.315*	14 *0.551*	50.5 *1.99*	49.5 *1.95*	50.5 *1.99*	28 *1.10*	21.5 *0.85*	8.5 *0.335*	99.7 *3.93*
VOSLP/CC 34	120 *4.72*	90 *3.54*	40 *1.57*	36 *1.42*	20 *0.79*	32 *1.26*	70 *2.76*	10 *0.394*	10 *0.394*	55 *2.16*	65 *2.56*	55 *2.17*	35 *1.38*	30 *1.18*	10.5 *0.41*	101.7 *4.00*
VOSLP/CC 100	140 *5.51*	100 *3.94*	60 *2.36*	37 *1.46*	30 *1.18*	30 *1.18*	80 *3.15*	10 *0.394*	10 *0.394*	64 *2.52*	76 *2.99*	64 *2.52*	46 *1.81*	30 *1.18*	10.5 *0.41*	101.7 *4.00*

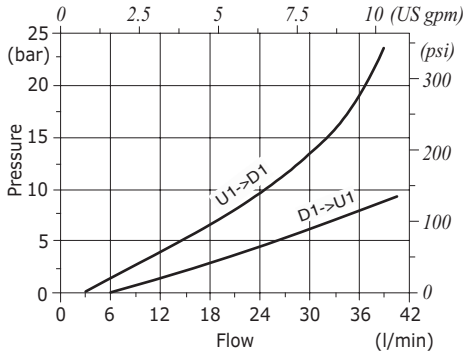
Ordering codes

VOSLP/CC complete valves

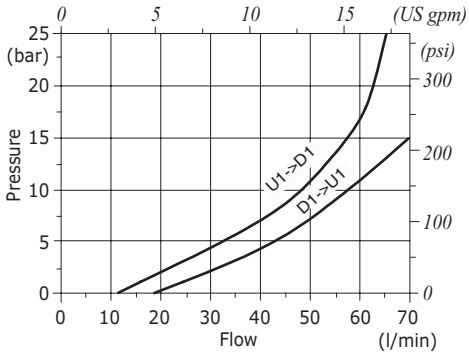
TYPE: **VOSLP/CC 38/TR.S.p4** CODE: 1534921100
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/CC 12/TR.S.p7** CODE: 1534931100
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/CC 34/TR.S.p7** CODE: 1534941100
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/CC 100/TR.S.p7** CODE: 1534951100
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

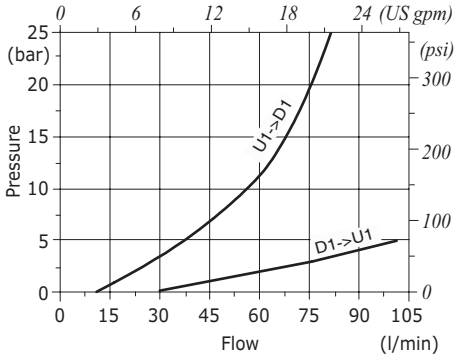
VOSLP/CC 38 pressure drop vs. flow from D1->U1 and U1->D1



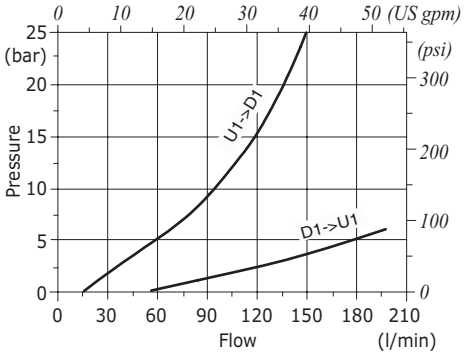
VOSLP/CC 12 pressure drop vs. flow from D1->U1 and U1->D1



VOSLP/CC 34 pressure drop vs. flow from D1->U1 and U1->D1



VOSLP/CC 100 pressure drop vs. flow from D1->U1 and U1->D1



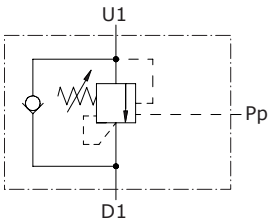
Type VOSLP/SC counterbalance valves

- Single acting
- Load sensitive

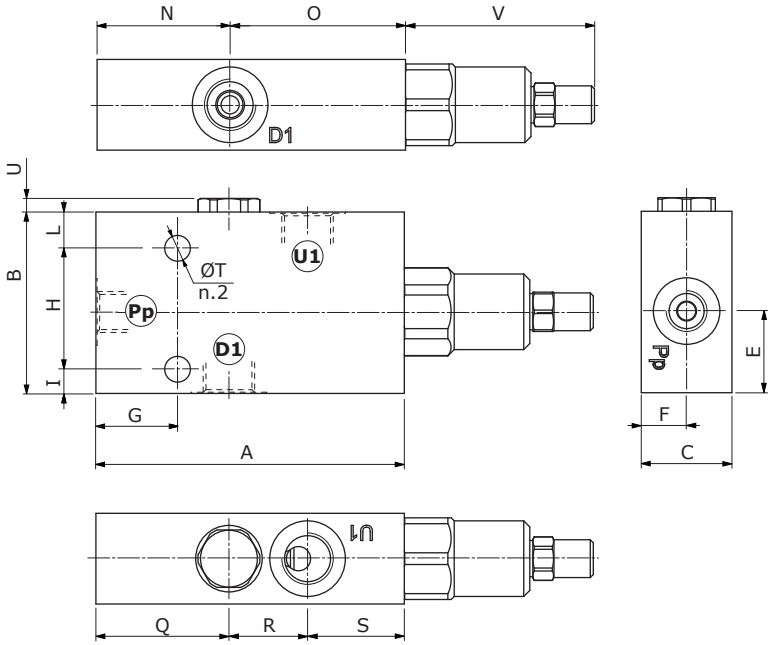
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VOSLP/SC 38	VOSLP/SC 12	VOSLP/SC 34	VOSLP/SC 100
Nominal flow		40 l/min *(10.6 US gpm)*	75 l/min *(19.8 US gpm)*	120 l/min *(31.7 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	0.68 kg *(1.50 lb)*	0.95 kg *(2.09 lb)*	1.40 kg *(3.09 lb)*	2.70 kg *(5.95 lb)*
	steel	1.41 kg *(3.11 lb)*	2.03 kg *(4.47 lb)*	3.20 kg *(7.05 lb)*	6.52 kg *(14.37 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1 U1	Pp
VOSLP/SC 38	G3/8	G1/4
VOSLP/SC 12	G1/2	G1/4
VOSLP/SC 34	G3/4	G1/4
VOSLP/SC 100	G1"	G1/4

Dimensions are in mm-*in*

Valve type	A	B	C	E	F	G	H	I	L	N	O	Q	R	S	ØT	V
VOSLP/SC 38	102 *4.02*	60 *2.36*	30 *1.18*	27 *1.06*	15 *0.59*	27 *1.06*	40 *1.57*	8 *0.315*	12 *0.472*	44 *1.73*	58 *2.28*	44 *1.73*	26 *1.02*	32 *1.26*	8.5 *0.335*	62.5 *2.46*
VOSLP/SC 12	110 *4.33*	70 *2.76*	35 *1.38*	31 *1.22*	17.5 *0.69*	30 *1.18*	48 *1.89*	8 *0.315*	14 *0.551*	50 *1.97*	60 *2.36*	50 *1.97*	28 *1.10*	32 *1.26*	8.5 *0.335*	63.5 *2.48*
VOSLP/SC 34	123 *4.84*	90 *3.54*	40 *1.57*	36 *1.42*	20 *0.78*	31 *1.22*	70 *2.76*	10 *0.394*	10 *0.394*	55 *2.17*	68 *2.68*	55 *2.17*	34 *1.34*	34 *1.34*	10.5 *0.413*	63.5 *2.48*
VOSLP/SC 100	153 *6.02*	100 *3.94*	30 *1.18*	38 *1.38*	30 *1.18*	37 *1.46*	80 *3.15*	10 *0.394*	10 *0.394*	70 *2.76*	83 *3.27*	70 *2.76*	48 *1.89*	35 *1.38*	10.5 *0.413*	63.5 *2.48*

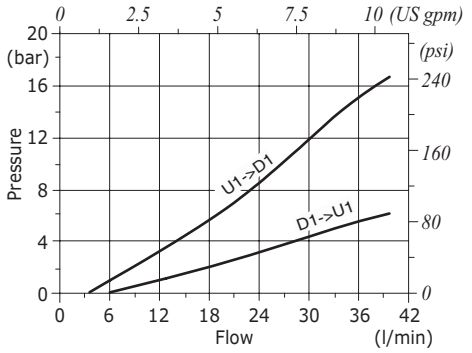
Ordering codes

VOSLP/SC complete valves

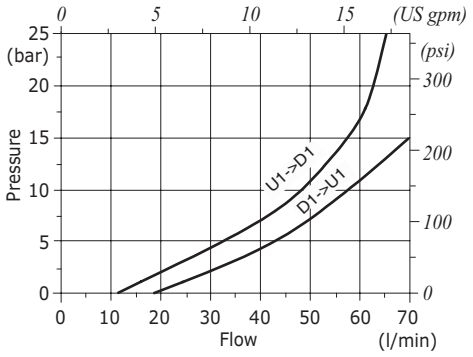
TYPE: **VOSLP/SC 38/TR.S.p4** CODE: 1540021102
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/SC 12/TR.S.p7** CODE: 1540031102
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/SC 34/TR.S.p7** CODE: 1540041102
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/SC 100/TR.S.p7** CODE: 1540051102
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

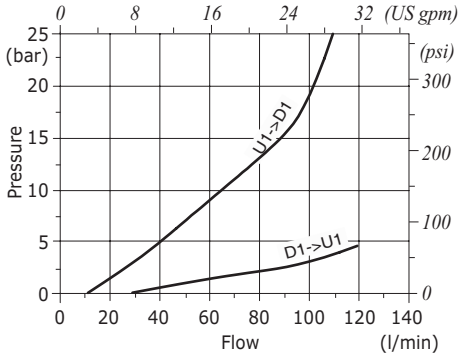
VOSLP/SC 38 pressure drop vs. flow from D1->U1 and U1->D1



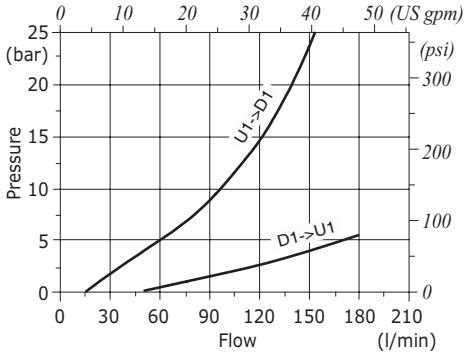
VOSLP/SC 12 pressure drop vs. flow from D1->U1 and U1->D1



VOSLP/SC 34 pressure drop vs. flow from D1->U1 and U1->D1



VOSLP/SC 100 pressure drop vs. flow from D1->U1 and U1->D1



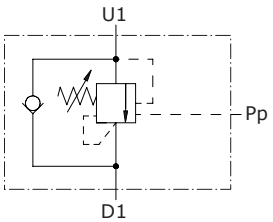
Type VOSLP/SC/RO counterbalance valves

- Single acting
- Load sensitive

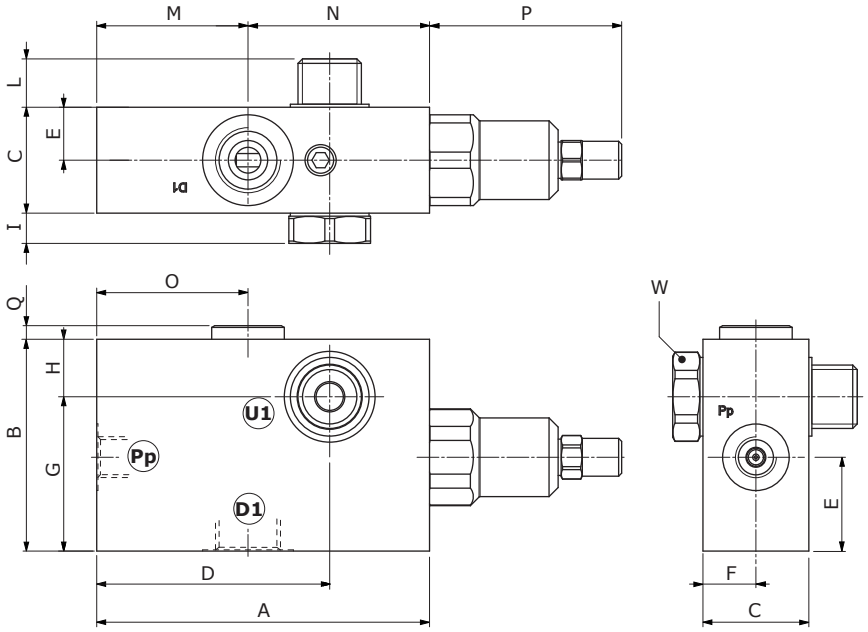
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VOSLP/SC/RO 38	VOSLP/SC/RO 12	VOSLP/SC/RO 34	VOSLP/SC/RO 100
Nominal flow		40 l/min *(10.6 US gpm)*	75 l/min *(19.8 US gpm)*	120 l/min *(31.7 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	0.87 kg *(1.91 lb)*	1.19 kg *(2.62 lb)*	1.57 kg *(3.46 lb)*	3.19 kg *(7.03 lb)*
	steel	1.61 kg *(3.55 lb)*	2.24 kg *(4.94 lb)*	3.17 kg *(7.19 lb)*	6.91 kg *(15.23 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1 female	U1 male	Pp
VOSLP/SC/RO 38	G3/8	G3/8	G1/4
VOSLP/SC/RO 12	G1/2	G1/2	G1/4
VOSLP/SC/RO 34	G3/4	G3/4	G1/4
VOSLP/SC/RO 100	G1"	G1"	G1/4

Dimensions are in mm-*in*

Valve type	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	W
VOSLP/SC/RO 38	102 *4.02*	60 *2.36*	30 *1.18*	68 *2.68*	27 *1.06*	15 *0.59*	44 *1.73*	16 *0.63*	9 *0.354*	22 *0.87*	44 *1.73*	58 *2.28*	44 *1.73*	62.5 *2.46*	4.5 *0.177*	22 *0.87*
VOSLP/SC/RO 12	110 *4.33*	70 *2.76*	35 *1.38*	77 *3.03*	31 *1.22*	17.5 *0.68*	51 *2.01*	19 *0.75*	10 *0.394*	16 *0.63*	50 *1.97*	60 *2.36*	50 *1.97*	63.5 *2.50*	4.5 *0.177*	27 *1.06*
VOSLP/SC/RO 34	116 *4.57*	90 *3.54*	40 *1.57*	84 *3.31*	36 *1.42*	20 *0.79*	61 *2.40*	29 *1.14*	10 *0.394*	17 *0.67*	48 *1.89*	68 *2.68*	48 *1.89*	63.5 *2.50*	5.5 *0.217*	32 *1.26*
VOSLP/SC/RO 100	153 *6.02*	100 *3.94*	60 *2.36*	118 *4.65*	38 *1.50*	30 *1.18*	69 *2.72*	31 *1.22*	12 *0.472*	22 *0.87*	70 *2.76*	73 *2.87*	70 *2.76*	63.5 *2.50*	12.5 *0.492*	41 *1.61*

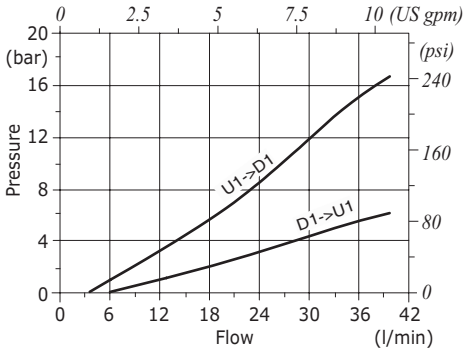
Ordering codes

VOSLP/SC/RO complete valves

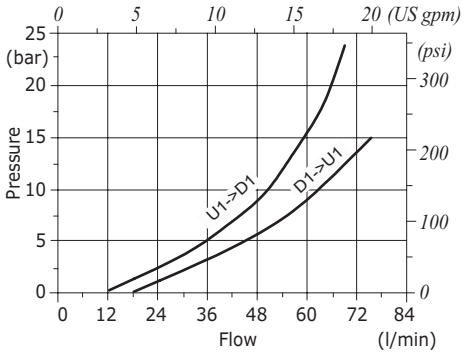
TYPE: **VOSLP/SC/RO 38/TR.S.p4.PG** CODE: 1544021102
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/SC/RO 12/TR.S.p7.PG** CODE: 1544031102
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/SC/RO 34/TR.S.p7.PG** CODE: 1544041102
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/SC/RO 100/TR.S.p7.PG** CODE: 1544051106
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

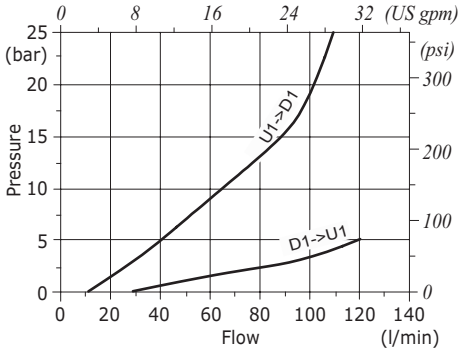
VOSLP/SC/RO 38 pressure drop vs. flow from D1->U1 and U1->D1



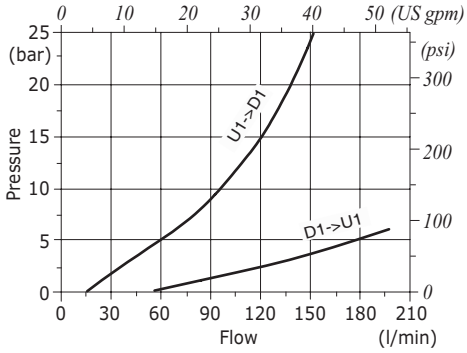
VOSLP/SC/RO 12 pressure drop vs. flow from D1->U1 and U1->D1



VOSLP/SC/RO 34 pressure drop vs. flow from D1->U1 and U1->D1



VOSLP/SC/RO 100 pressure drop vs. flow from D1->U1 and U1->D1



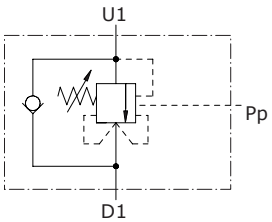
Type VOSLP/SC/CC counterbalance valves

- Single acting
- Relief compensated

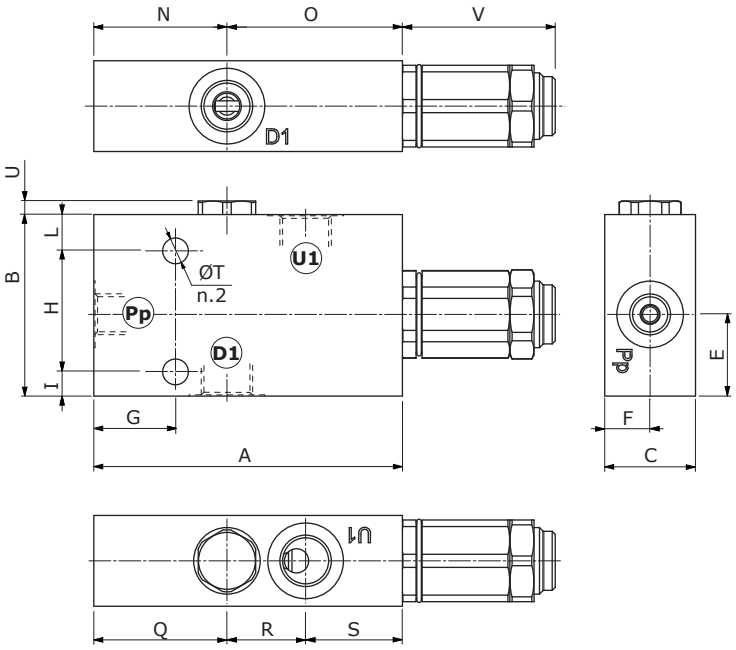
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VOSLP/SC/CC 38	VOSLP/SC/CC 12	VOSLP/SC/CC 34	VOSLP/SC/CC 100
Nominal flow		40 l/min *(10.6 US gpm)*	75 l/min *(19.8 US gpm)*	120 l/min *(31.7 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	0.82 kg *(1.81 lb)*	1.10 kg *(2.43 lb)*	1.45 kg *(3.20 lb)*	2.78 kg *(6.13 lb)*
	steel	1.93 kg *(4.25 lb)*	2.20 kg *(485 lb)*	3.24 kg *(7.14 lb)*	6.64 kg *(14.6 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1 U1	Pp
VOSLP/SC/CC 38	G3/8	G1/4
VOSLP/SC/CC 12	G1/2	G1/4
VOSLP/SC/CC 34	G3/4	G1/4
VOSLP/SC/CC 100	G1"	G1/4

Dimensions are in mm-*in*

Valve type	A	B	C	E	F	G	H	I	L	N	O	Q	R	S	ØT	V
VOSLP/SC/CC 38	102 *4.02*	60 *2.36*	30 *1.18*	27 *1.06*	15 *0.59*	27 *1.06*	40 *1.57*	8 *0.315*	12 *0.472*	44 *1.73*	58 *2.28*	44 *1.73*	26 *1.02*	32 *1.26*	8.5 *0.335*	50.5 *1.99*
VOSLP/SC/CC 12	110 *4.33*	70 *2.76*	35 *1.38*	31 *1.22*	17.5 *0.69*	30 *1.18*	48 *1.89*	8 *0.315*	14 *0.551*	50 *1.97*	60 *2.36*	50 *1.97*	28 *1.10*	32 *1.26*	8.5 *0.335*	50.5 *1.99*
VOSLP/SC/CC 34	123 *4.84*	90 *3.54*	40 *1.57*	36 *1.42*	20 *0.78*	31 *1.22*	70 *2.76*	10 *0.394*	10 *0.394*	55 *2.17*	68 *2.68*	55 *2.17*	34 *1.34*	34 *1.34*	10.5 *0.413*	50.5 *1.99*
VOSLP/SC/CC 100	153 *6.02*	100 *3.94*	30 *1.18*	38 *1.38*	30 *1.18*	37 *1.46*	80 *3.15*	10 *0.394*	10 *0.394*	70 *2.76*	83 *3.27*	70 *2.76*	48 *1.89*	35 *1.38*	10.5 *0.413*	50.5 *1.99*

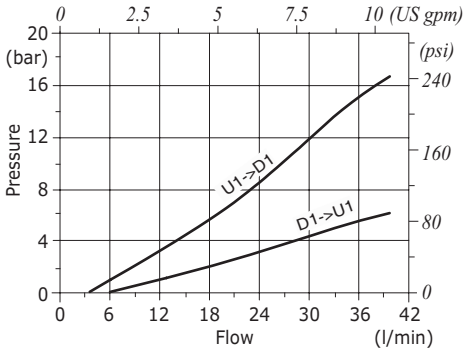
Ordering codes

VOSLP/SC/CC complete valves

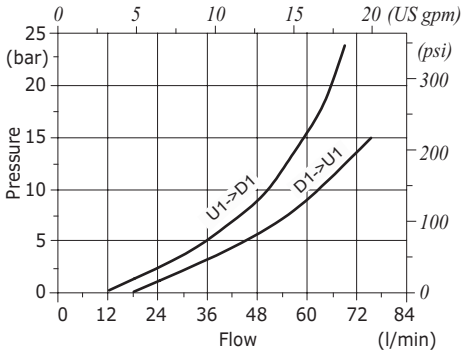
TYPE: **VOSLP/SC/CC 38/TR.S.p4.PG** CODE: 1545021102
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/SC/CC 12/TR.S.p7.PG** CODE: 1545031102
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/SC/CC 34/TR.S.p7.PG** CODE: 1545041102
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSLP/SC/CC 100/TR.S.p7.PG** CODE: 1545051102
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

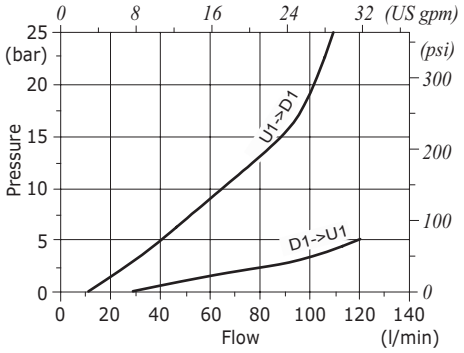
VOSLP/SC/CC 38 pressure drop vs. flow from D1->U1 and U1->D1



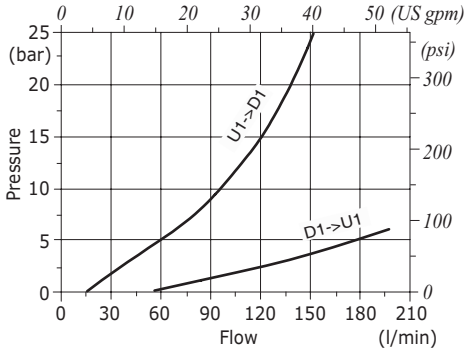
VOSLP/SC/CC 12 pressure drop vs. flow from D1->U1 and U1->D1



VOSLP/SC/CC 34 pressure drop vs. flow from D1->U1 and U1->D1



VOSLP/SC/CC 100 pressure drop vs. flow from D1->U1 and U1->D1



Type VOSL/ML counterbalance valves

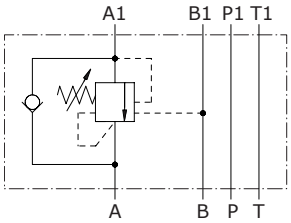
- Single acting
- Load sensitive
- Flange assembling according to ISO 4401:2005 (CETOP)

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

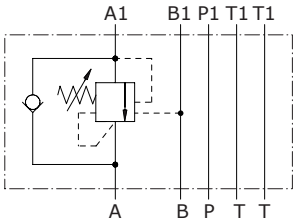
		VOSL/ML 6-38	VOSL/ML 10-12
Nominal flow		35 l/min *(9.2 US gpm)*	70 l/min *(18.5 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*	
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting	
Fluid		mineral based oil	
Viscosity		from 10 to 200 cSt	
Max. level of contamination		18/16/13 ISO4406	
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*	
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*	
Weight	*aluminium*	1.27 kg *(2.80 lb)*	2.27 kg *(5.00 lb)*
	steel	2.68 kg *(5.91 lb)*	5.46 kg *(12.04 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.

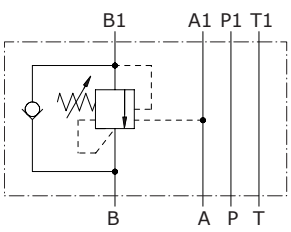
VOSL/ML 6-38A



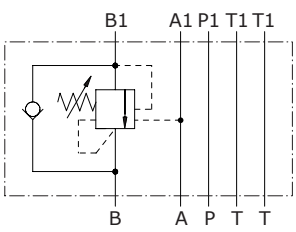
VOSL/ML 10-12A



VOSL/ML 6-38B

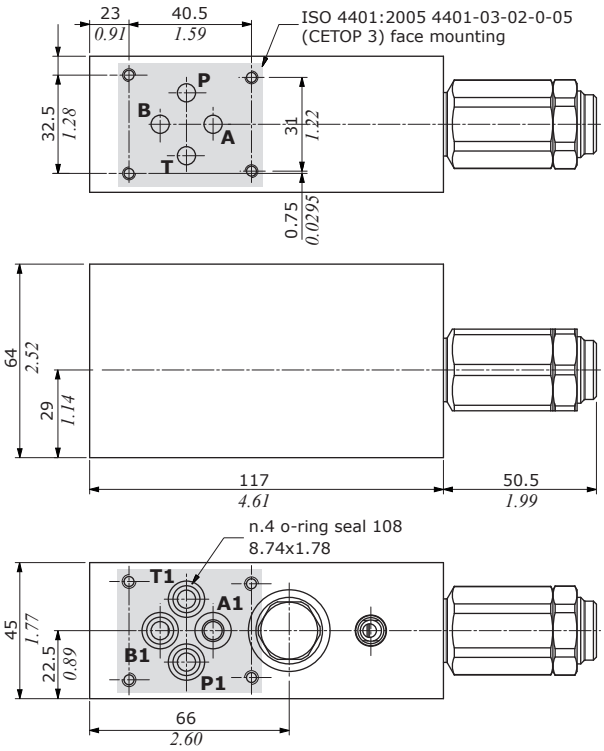


VOSL/ML 10-12B

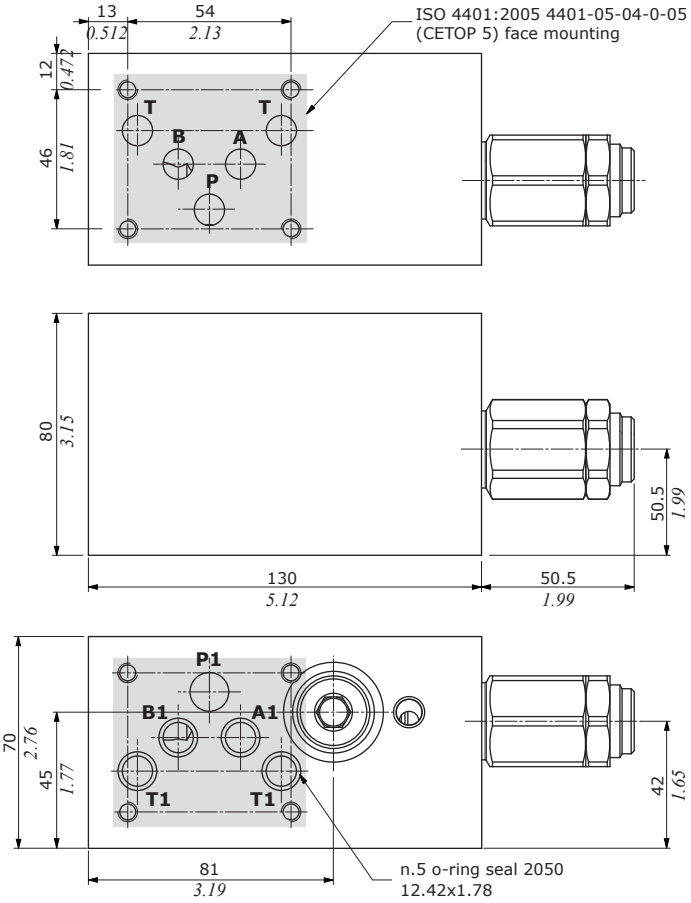


Dimensions

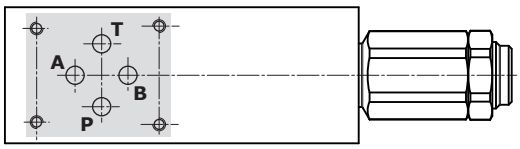
VOSL/ML 6-38A



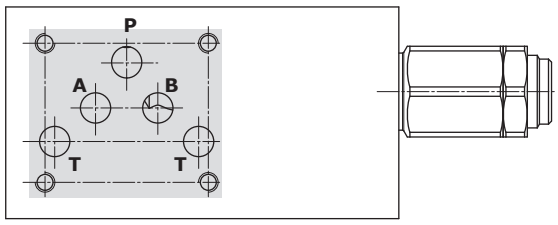
VOSL/ML 10-12A



VOSL/ML 6-38B



VOSL/ML 10-12B



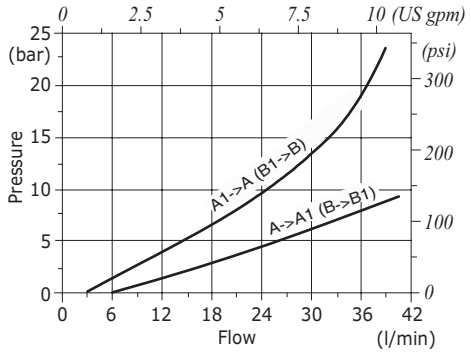
Ordering codes

VOSL/ML complete valves

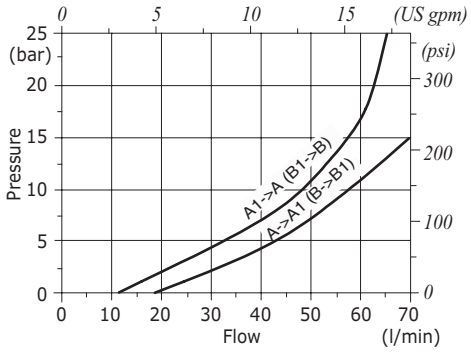
TYPE: **VOSL/ML 6-38A/TR.S.p4** CODE: 1518021802
DESCRIPTION: Aluminium body, CETOP 3 flange, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/ML 6-38B/TR.S.p4** CODE: 1518021808
DESCRIPTION: Aluminium body, CETOP 3 flange, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/ML 10-12A/TR.S.p7.PG** CODE: 1518031802
DESCRIPTION: Aluminium body, CETOP 5 flange, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VOSL/ML 10-12B/TR.S.p7.PG** CODE: 1518031808
DESCRIPTION: Aluminium body, CETOP 5 flange, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

VOSL/ML 6-38 pressure drop vs. flow from A->A1 (B->B1) and A1->A (B1->B)



VOSL/ML 10-12 pressure drop vs. flow from A->A1 (B->B1) and A1->A (B1->B)



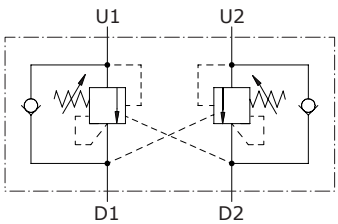
Type VODL
counterbalance valves

- Double acting
- Load sensitive

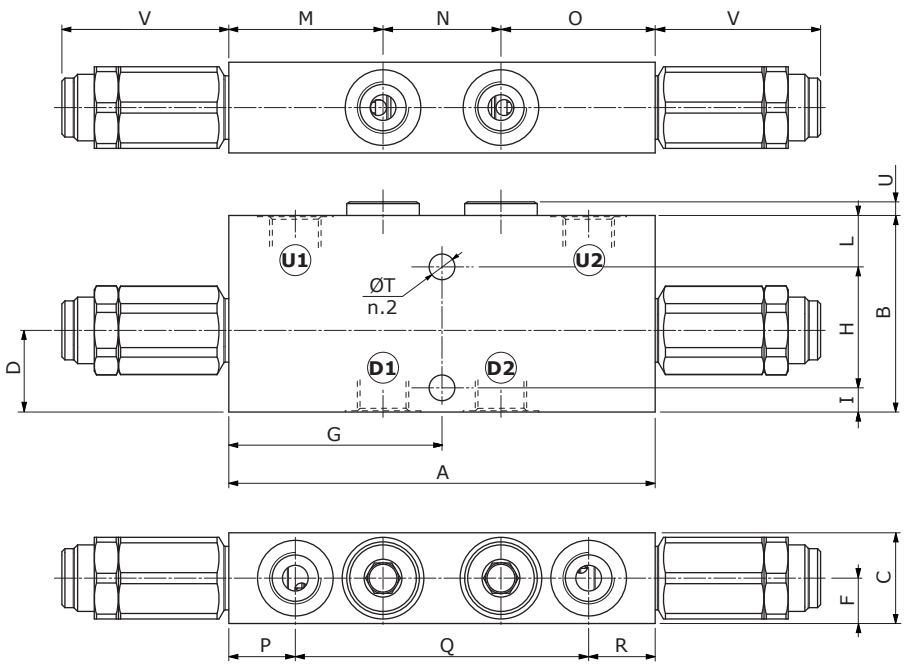
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VODL 38	VODL 12	VODL 34	VODL 100
Nominal flow		35 l/min *(9.2 US gpm)*	70 l/min *(18.5 US gpm)*	100 l/min *(26.4 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	1.32 kg *(2.91 lb)*	1.69 kg *(3.73 lb)*	2.92 kg *(6.44 lb)*	4.75 kg *(10.47 lb)*
	steel	2.39 kg *(5.27 lb)*	2.95 kg *(6.50 lb)*	5.13 kg *(11.31 lb)*	9.60 kg *(21.16 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1	D2	U1	U2
VODL 38	G3/8		G3/8	
VODL 12	G1/2		G1/2	
VODL 34	G3/4		G3/4	
VODL 100	G1"		G1"	

Dimensions are in mm-*in*

Valve type	A	B	C	F	G	H	I	L	M	N	O	P	Q	R	ØT	U	V
VODL 38	141 *5.55*	65 *2.56*	30 *1.18*	15 *0.59*	70.5 *2.76*	40 *1.57*	8 *0.315*	17 *0.67*	51 *2.01*	39 *1.54*	51 *2.01*	22 *0.87*	97 *3.82*	22 *0.87*	8.5 *0.335*	4.5 *0.177*	55 *2.17*
VODL 12	149 *5.87*	70 *2.76*	34.5 *1.36*	17.25 *0.68*	74.5 *2.93*	48 *1.89*	8 *0.315*	14 *0.551*	50.5 *1.99*	48 *1.89*	50.5 *1.99*	21.5 *0.85*	106 *4.17*	21.5 *0.85*	8.5 *0.335*	4.5 *0.177*	50.5 *1.99*
VODL 34	184 *7.25*	90 *3.54*	40 *1.57*	20 *0.79*	92 *3.62*	70 *2.76*	10 *0.394*	10 *0.394*	65 *2.56*	54 *2.13*	65 *2.56*	30 *1.18*	124 *4.88*	30 *1.18*	10.5 *0.413*	5.5 *0.217*	61 *2.40*
VODL 100	218 *8.58*	100 *3.94*	60 *2.36*	30 *1.18*	109 *4.29*	80 *3.15*	10 *0.394*	10 *0.394*	76 *2.99*	66 *2.60*	76 *2.99*	30 *1.18*	158 *6.22*	30 *1.18*	10.5 *0.413*	12.5 *0.492*	61 *2.40*

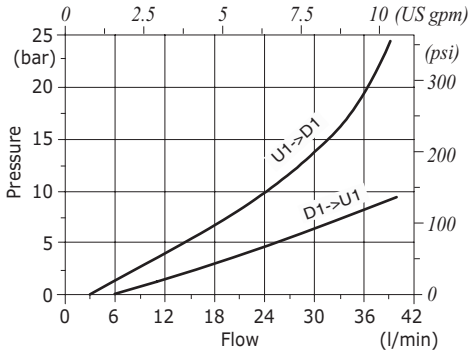
Ordering codes

VODL complete valves

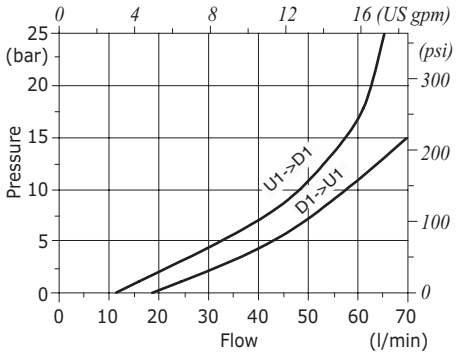
TYPE: **VODL 38/TR.S.p4** CODE: 1550021102
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL 12/TR.S.p7** CODE: 1550031102
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL 34/TR.S.p7** CODE: 155041102
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL 100/TR.S.p7** CODE: 1550051102
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

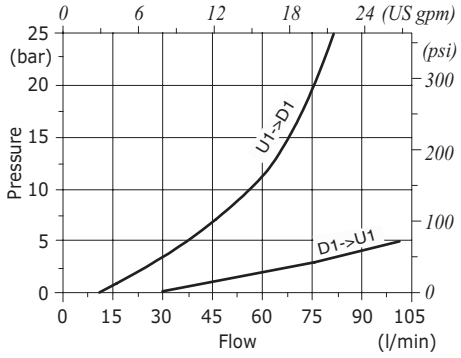
VODL 38 pressure drop vs. flow from D1->U1 and U1->D1



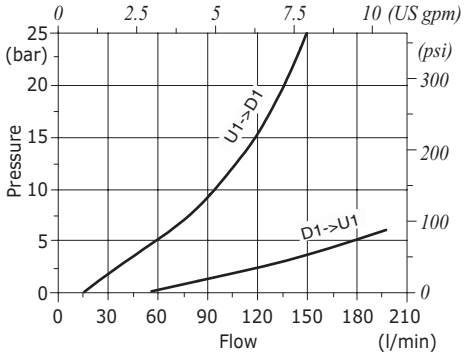
VODL 12 pressure drop vs. flow from D1->U1 and U1->D1



VODL 34 pressure drop vs. flow from D1->U1 and U1->D1



VODL 100 pressure drop vs. flow from D1->U1 and U1->D1



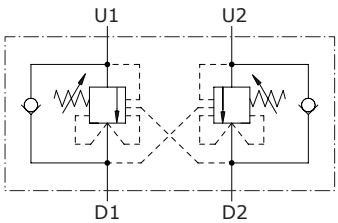
Type VODL/CC counterbalance valves

- Double acting
- Relief compensated

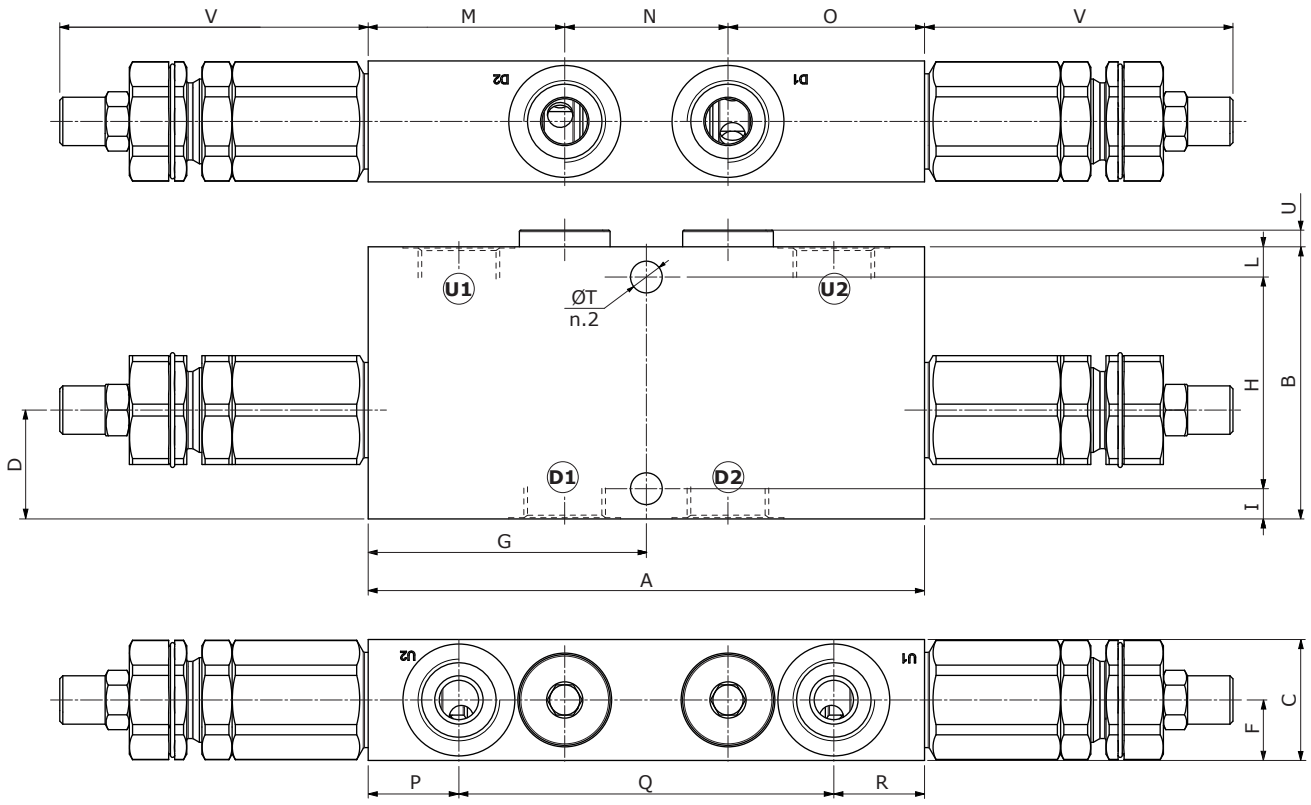
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VODL/CC 38	VODL/CC 12	VODL/CC 34	VODL/CC 100
Nominal flow		35 l/min *(9.2 US gpm)*	70 l/min *(18.5 US gpm)*	100 l/min *(26.4 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	1.45 kg *(3.20 lb)*	2.00 kg *(4.41 lb)*	3.08 kg *(6.79 lb)*	4.91 kg *(10.82 lb)*
	steel	2.62 kg *(5.78 lb)*	3.26 kg *(7.19 lb)*	5.29 kg *(11.66 lb)*	9.76 kg *(21.52 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Dimensions are in mm-*in*

Valve type	A	B	C	F	G	H	I	L	M	N	O	P	Q	R	ØT	U	V	D1 D2	U1 U2
VODL 38/CC	141 *5.55*	65 *2.56*	30 *1.18*	15 *0.59*	70.5 *2.76*	40 *1.57*	8 *0.315*	17 *0.67*	51 *2.01*	39 *1.54*	51 *2.01*	22 *0.87*	97 *3.82*	22 *0.87*	8.5 *0.335*	4.5 *0.177*	92.5 *3.64*	G3/8	G3/8
VODL 12/CC	149 *5.87*	70 *2.76*	34.5 *1.36*	17.25 *0.68*	74.5 *2.93*	48 *1.89*	8 *0.315*	14 *0.551*	50.5 *1.99*	48 *1.89*	50.5 *1.99*	21.5 *0.85*	106 *4.17*	21.5 *0.85*	8.5 *0.335*	4.5 *0.177*	100.5 *1.99*	G1/2	G1/2
VODL 34/CC	184 *7.25*	90 *3.54*	40 *1.57*	20 *0.79*	92 *3.62*	70 *2.76*	10 *0.394*	10 *0.394*	65 *2.56*	54 *2.13*	65 *2.56*	30 *1.18*	124 *4.88*	30 *1.18*	10.5 *0.413*	5.5 *0.217*	102 *4.02*	G3/4	G3/4
VODL 100/CC	218 *8.58*	100 *3.94*	60 *2.36*	30 *1.18*	109 *4.29*	80 *3.15*	10 *0.394*	10 *0.394*	76 *2.99*	66 *2.60*	76 *2.99*	30 *1.18*	158 *6.22*	30 *1.18*	10.5 *0.413*	12.5 *0.492*	101 *3.98*	G1″	G1″

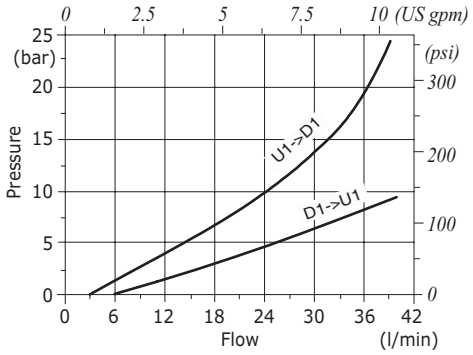
Ordering codes and description

VODL/CC complete valves

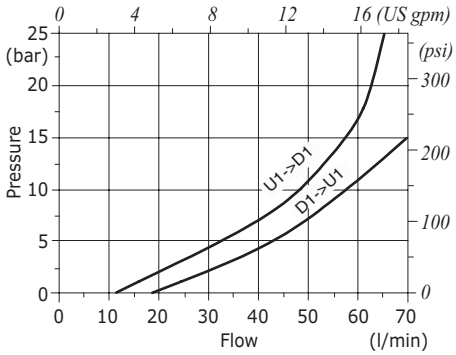
TYPE: **VODL/CC 38/TR.S.p4** CODE: 1559421100
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/CC 12/TR.S.p7** CODE: 1559431100
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/CC 34/TR.S.p7** CODE: 1559441100
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/CC 100/TR.S.p7** CODE: 1559451100
DESCRIPTION: Aluminium body, G1″ ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

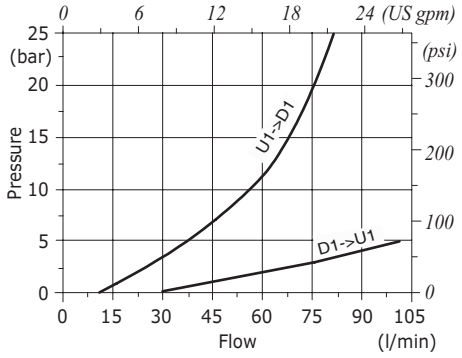
VODL/CC 38 pressure drop vs. flow from D1->U1 and U1->D1



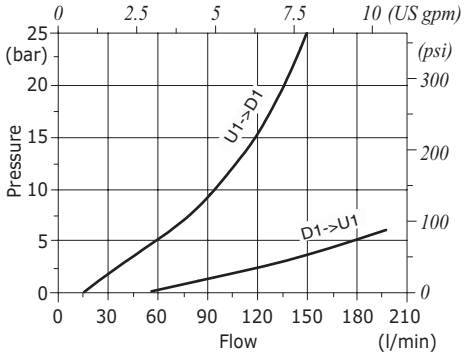
VODL/CC 12 pressure drop vs. flow from D1->U1 and U1->D1



VODL/CC 34 pressure drop vs. flow from D1->U1 and U1->D1



VODL/CC 100 pressure drop vs. flow from D1->U1 and U1->D1



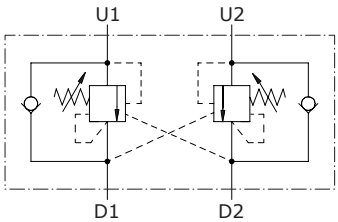
Type VODL/SC counterbalance valves

- Double acting
- Load sensitive

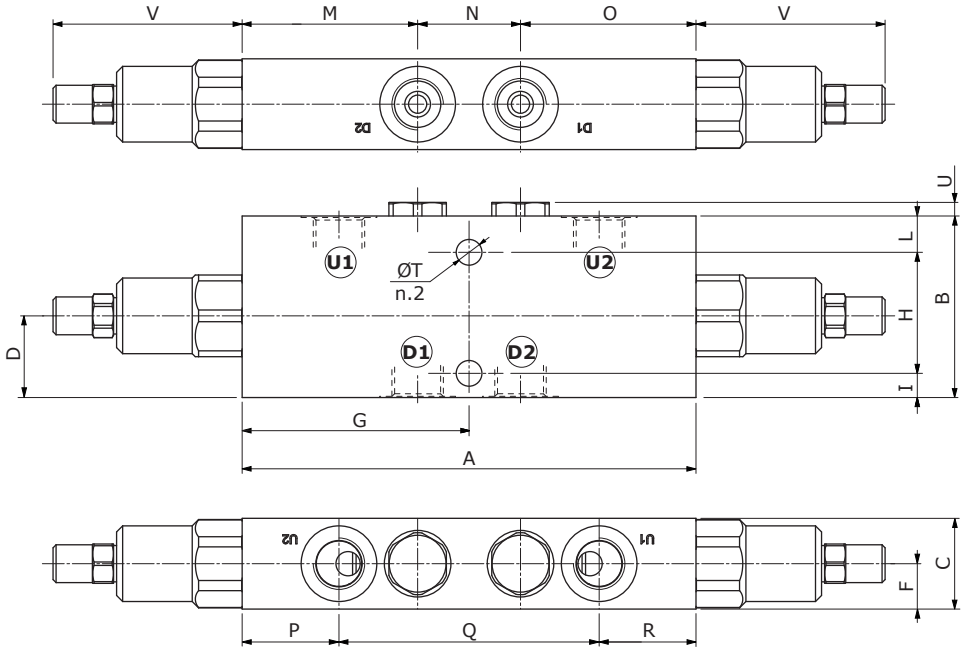
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VODL/SC 38	VODL/SC 12	VODL/SC 34	VODL/SC 100
Nominal flow		40 l/min *(10.6 US gpm)*	75 l/min *(19.8 US gpm)*	120 l/min *(31.7 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	1.09 kg *(2.40 lb)*	1.53 kg *(3.37 lb)*	2.26 kg *(4.98 lb)*	4.24 kg *(9.35 lb)*
	steel	2.15 kg *(4.74 lb)*	2.96 kg *(6.53 lb)*	4.78 kg *(10.54 lb)*	9.71 kg *(21.41 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1	D2	U1	U2
VODL 38	G3/8		G3/8	
VODL 12	G1/2		G1/2	
VODL 34	G3/4		G3/4	
VODL 100	G1"		G1"	

Dimensions are in mm-*in*

Valve type	A	B	C	F	G	H	I	L	M	N	O	P	Q	R	ØT	U	V
VODL 38	150 *5.91*	60 *2.36*	30 *1.18*	15 *0.59*	75 *2.95*	40 *1.57*	8 *0.315*	12 *0.472*	58 *2.28*	34 *1.34*	58 *2.28*	32 *1.26*	86 *3.82*	32 *1.26*	8.5 *0.335*	4.5 *0.177*	62.5 *2.46*
VODL 12	156 *6.14*	70 *2.76*	35 *1.38*	17.5 *0.69*	78 *3.07*	48 *1.89*	8 *0.315*	14 *0.551*	60 *2.52*	36 *1.89*	60 *2.52*	32 *1.26*	92 *3.62*	32 *1.26*	8.5 *0.335*	4.5 *0.177*	57.5 *2.26*
VODL 34	186 *7.32*	90 *3.54*	40 *1.57*	20 *0.79*	93 *3.66*	70 *2.76*	10 *0.394*	10 *0.394*	68 *2.68*	50 *1.97*	68 *2.68*	34 *2.28*	118 *4.65*	34 *2.28*	10.5 *0.413*	5.5 *0.217*	63.5 *2.50*
VODL 100	232 *9.13*	100 *3.94*	60 *2.36*	30 *1.18*	116 *4.57*	80 *3.15*	10 *0.394*	10 *0.394*	83 *3.27*	66 *2.60*	83 *3.27*	35 *1.38*	162 *6.38*	35 *1.38*	10.5 *0.413*	12.5 *0.492*	63.5 *2.50*

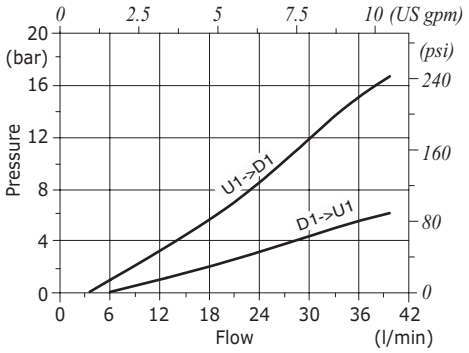
Ordering codes and description

VODL/SC complete valves

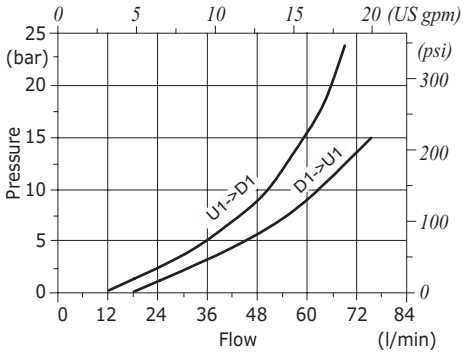
TYPE: **VODL/SC 38/TR.S.p4** CODE: 1560021102
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/SC 12/TR.S.p7** CODE: 1560031102
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/SC 34/TR.S.p7** CODE: 1560041102
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/SC 100/TR.S.p7** CODE: 1560051102
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

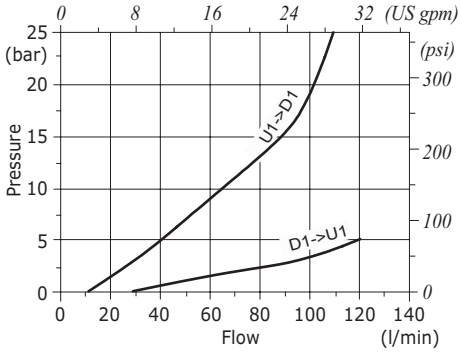
VODL/SC 38 pressure drop vs. flow from D1->U1 and U1->D1



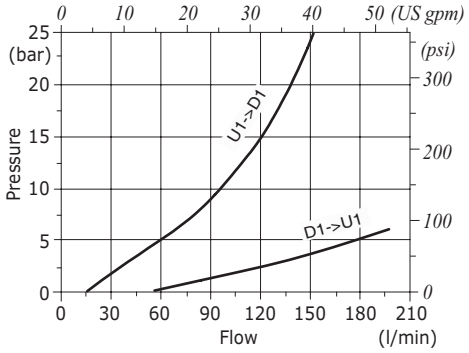
VODL/SC 12 pressure drop vs. flow from D1->U1 and U1->D1

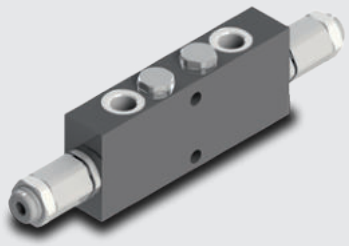


VODL/SC 34 pressure drop vs. flow from D1->U1 and U1->D1



VODL/SC 100 pressure drop vs. flow from D1->U1 and U1->D1





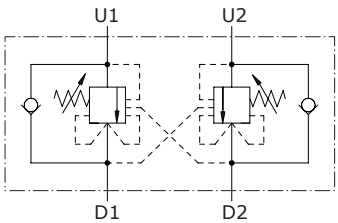
Type VODL/SC/CC counterbalance valves

- Double acting
- Relief compensated

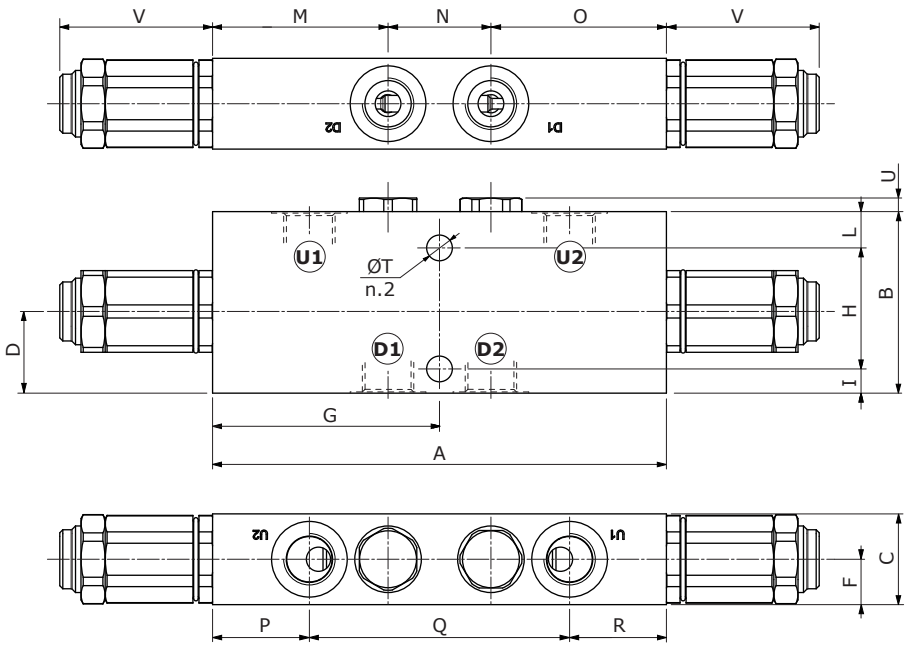
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

		VODL/SC/CC 38	VODL/SC/CC 12	VODL/SC/CC 34	VODL/SC/CC 100
Nominal flow		40 l/min *(10.6 US gpm)*	75 l/min *(18.5 US gpm)*	120 l/min *(31.7 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	1.14 kg *(2.51 lb)*	1.63 kg *(3.59 lb)*	2.37 kg *(5.22 lb)*	4.35 kg *(9.59 lb)*
	steel	2.18 kg *(4.81 lb)*	3.06 kg *(6.75 lb)*	4.85 kg *(10.69 lb)*	9.82 kg *(21.65 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions



Valve type	D1	D2	U1	U2
VODL 38	G3/8		G3/8	
VODL 12	G1/2		G1/2	
VODL 34	G3/4		G3/4	
VODL 100	G1"		G1"	

Dimensions are in mm-*in*

Valve type	A	B	C	F	G	H	I	L	M	N	O	P	Q	R	ØT	U	V
VODL 38	150 *5.91*	60 *2.36*	30 *1.18*	15 *0.59*	75 *2.95*	40 *1.57*	8 *0.315*	12 *0.472*	58 *2.28*	34 *1.34*	58 *2.28*	32 *1.26*	86 *3.82*	32 *1.26*	8.5 *0.335*	4.5 *0.177*	50.5 *1.99*
VODL 12	156 *6.14*	70 *2.76*	35 *1.38*	17.5 *0.69*	78 *3.07*	48 *1.89*	8 *0.315*	14 *0.551*	60 *2.52*	36 *1.89*	60 *2.52*	32 *1.26*	92 *3.62*	32 *1.26*	8.5 *0.335*	4.5 *0.177*	50.5 *1.99*
VODL 34	186 *7.32*	90 *3.54*	40 *1.57*	20 *0.79*	93 *3.66*	70 *2.76*	10 *0.394*	10 *0.394*	68 *2.68*	50 *1.97*	68 *2.68*	34 *2.28*	118 *4.65*	34 *2.28*	10.5 *0.413*	5.5 *0.217*	50.5 *1.99*
VODL 100	232 *9.13*	100 *3.94*	60 *2.36*	30 *1.18*	116 *4.57*	80 *3.15*	10 *0.394*	10 *0.394*	83 *3.27*	66 *2.60*	83 *3.27*	35 *1.38*	162 *6.38*	35 *1.38*	10.5 *0.413*	12.5 *0.492*	50.5 *1.99*

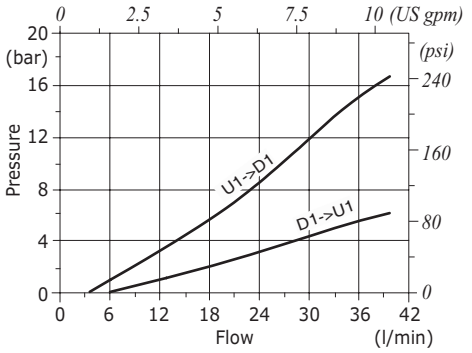
Ordering codes and description

VODL/SC/CC complete valves

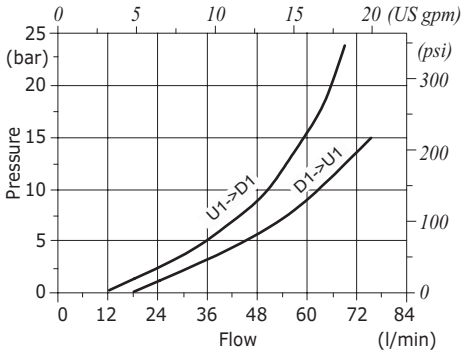
TYPE: **VODL/SC/CC 38/TR.S.p4** CODE: 1565021102
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/SC/CC 12/TR.S.p7** CODE: 1565031102
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/SC/CC 34/TR.S.p7** CODE: 1565041102
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/SC/CC 100/TR.S.p7** CODE: 1565051102
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

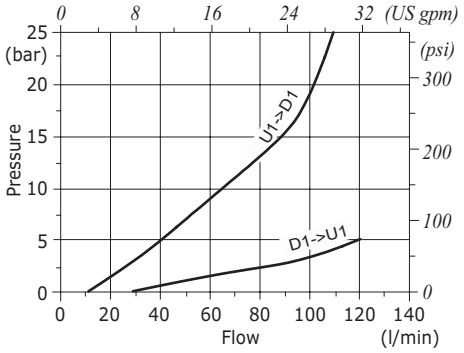
VODL/SC/CC 38 pressure drop vs. flow from D1->U1 and U1->D1



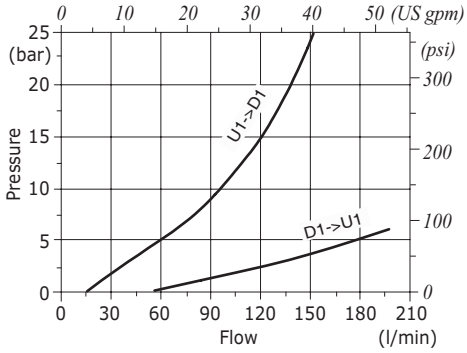
VODL/SC/CC 12 pressure drop vs. flow from D1->U1 and U1->D1



VODL/SC/CC 34 pressure drop vs. flow from D1->U1 and U1->D1



VODL/SC/CC 100 pressure drop vs. flow from D1->U1 and U1->D1



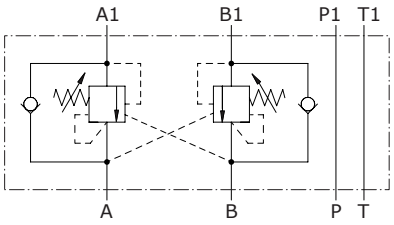
Type VODL/ML counterbalance valves

- Double acting
- Load sensitive
- Flange assembling according to ISO 4401:2005 (CETOP)

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

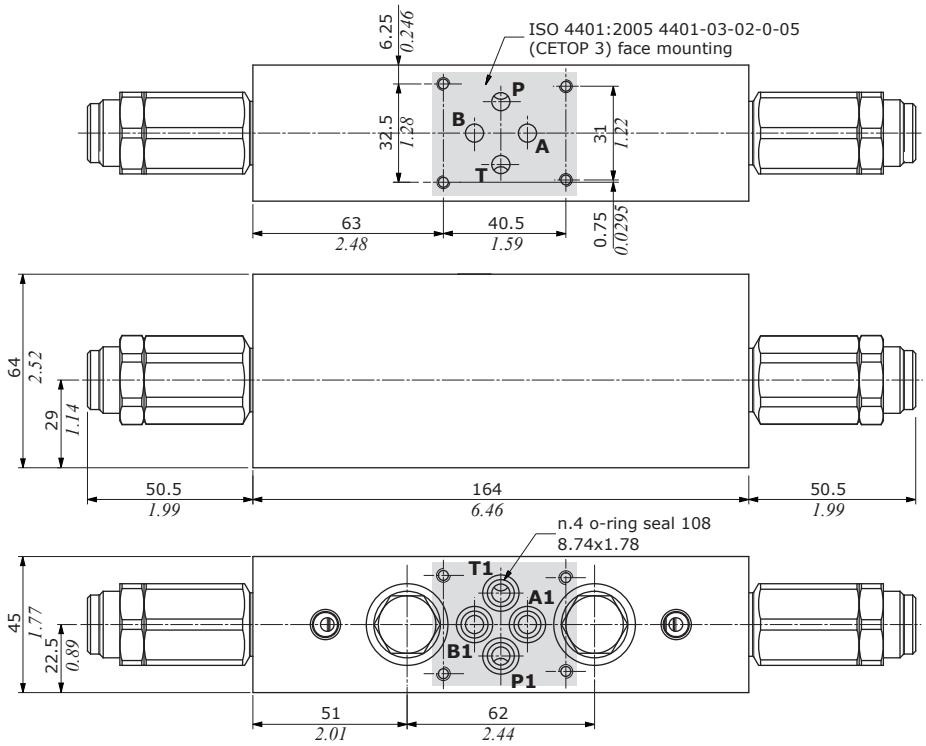
		VODL/ML 6-38	VODL/ML 10-12
Nominal flow		35 l/min *(9.2 US gpm)*	70 l/min *(18.5 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*	
Oil leakage		0.25 cm^3/min - *0.015 in^3/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting	
Fluid		mineral based oil	
Viscosity		from 10 to 200 cSt	
Max. level of contamination		18/16/13 ISO4406	
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*	
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*	
Weight	*aluminium*	1.75 kg *(3.86 lb)*	3.25 kg *(7.147 lb)*
	steel	3.70 kg *(8.16 lb)*	7.55 kg *(16.64 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.

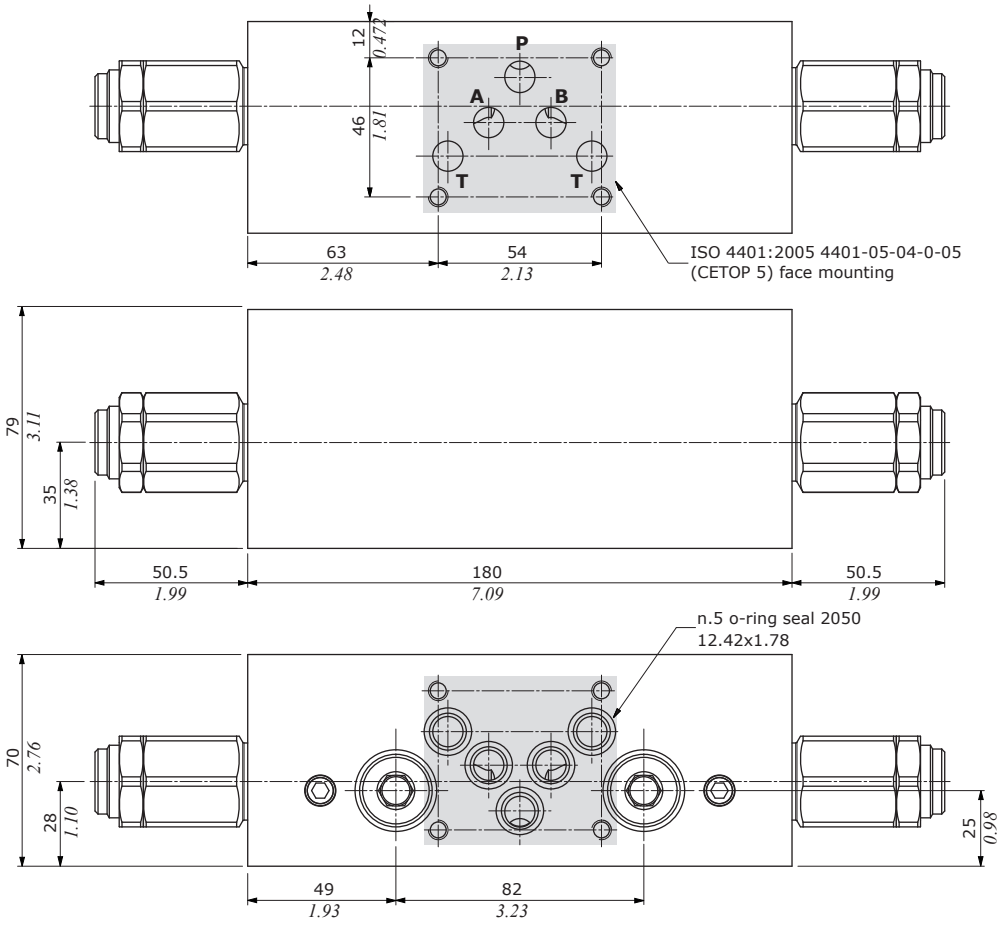


Dimensions

VODL/ML 6-38



VODL/ML 10-12



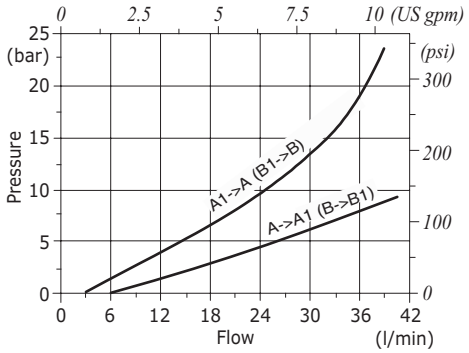
Ordering codes

VODL/ML complete valves

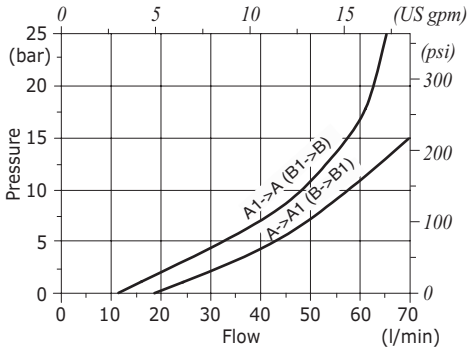
TYPE: **VODL/ML 6-38/TR.S.p4** CODE: 1558021802
DESCRIPTION: Aluminium body, CETOP 3 flange, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VODL/ML 10-12/TR.S.p7** CODE: 1518031802
DESCRIPTION: Aluminium body, CETOP 5 flange, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

VOSL/ML 6-38 pressure drop vs. flow from A->A1 (B->B1) and A1->A (B1->B)



VOSL/ML 10-12 pressure drop vs. flow from A->A1 (B->B1) and A1->A (B1->B)



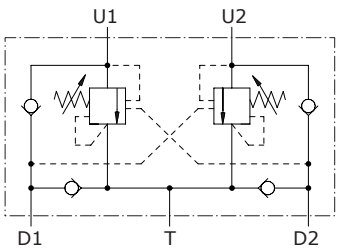
Type VABAL counterbalance valves

- Cross line, relief valves for motion control
- Load sensitive

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

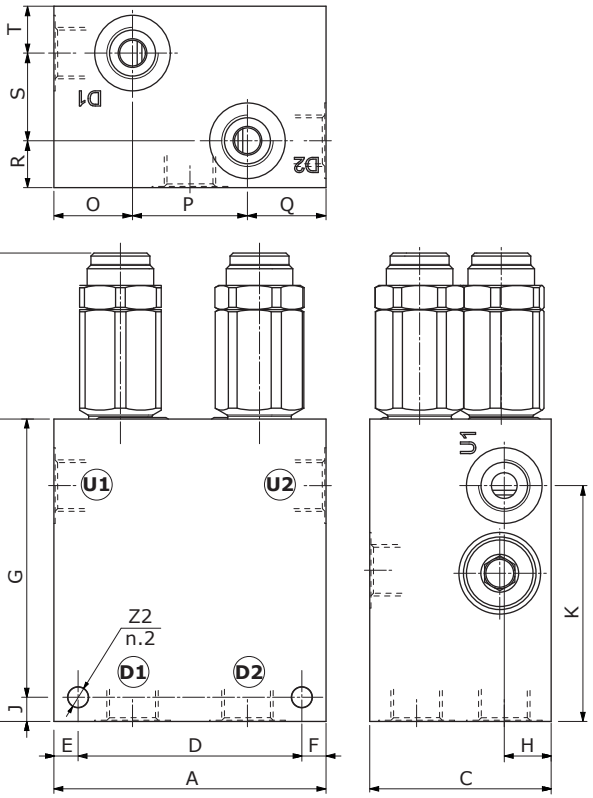
		VABAL 38	VABAL 12	VABAL 34	VABAL 100
Nominal flow		35 l/min *(9.2 US gpm)*	70 l/min *(18.5 US gpm)*	100 l/min *(26.4 US gpm)*	180 l/min *(47.5 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm³/min - *0.015 in³/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	2.16 kg *(4.76 lb)*	2.48 kg *(5.47 lb)*	4.47 kg *(9.85 lb)*	9.32 kg *(20.55 lb)*
	steel	4.33 kg *(9.55 lb)*	5.14 kg *(11.33 lb)*	9.05 kg *(19.95 lb)*	20.65 kg *(45.53 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions

Valve type	D1 D2	U1 U2	T
VABAL 38	G3/8	G3/8	G3/8
VABAL 12	G1/2	G1/2	G1/2
VABAL 34	G3/4	G3/4	G3/4
VABAL 100	G1"	G1"	G1"



Dimensions are in mm-*in*

Valve type	A	B	C	D	E	F	G	J	K
VODL 38	90 *3.54*	100 *3.94*	60 *2.36*	74 *2.91*	8 *0.315*	8 *0.315*	92 *3.62*	8 *0.315*	78 *3.07*
VODL 12	100 *3.94*	100 *3.94*	70 *2.76*	84 *3.31*	8 *0.315*	8 *0.315*	92 *3.62*	8 *0.315*	78.5 *3.09*
VODL 34	120 *4.72*	120 *4.72*	85 *3.35*	100 *3.94*	10 *0.394*	10 *0.394*	110 *4.33*	10 *0.394*	90 *3.54*
VODL 100	160 *6.30*	160 *6.30*	110 *4.33*	136 *5.35*	12 *0.472*	12 *0.472*	148 *5.83*	12 *0.472*	130 *5.12*

Valve type	H	I	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Z1	Z2
VODL 38	15.5 *0.61*	44.5 *1.75*	78 *3.07*	45 *1.77*	50 *1.97*	26 *1.02*	38 *1.50*	26 *1.02*	15.5 *0.61*	29 *1.14*	15.5 *0.61*	16.5 *0.65*	27 *1.06*	16.5 *0.65*	22 *0.87*	46 *1.81*	22 *0.87*	54.8 *2.16*	M8
VODL 12	17.5 *0.69*	52.5 *2.07*	78.5 *3.09*	50 *1.97*	48 *1.89*	29 *1.14*	42 *1.14*	29 *1.14*	17.5 *0.69*	35 *1.38*	17.5 *0.69*	18.5 *0.73*	33 *1.30*	18.5 *0.73*	27 *1.06*	46 *1.81*	27 *1.06*	50.2 *1.98*	M8
VODL 34	21 *0.83*	64 *2.52*	90 *3.54*	60 *2.36*	55 *2.17*	33 *1.30*	54 *2.13*	33 *1.30*	21 *0.83*	43 *1.70*	21 *0.83*	24 *0.94*	37 *1.46*	24 *0.94*	28 *1.10*	64 *2.52*	28 *1.10*	60.8 *2.39*	M10
VODL 100	30 *1.18*	80 *3.15*	130 *5.12*	80 *3.15*	84 *3.31*	47 *1.85*	66 *2.60*	47 *1.85*	30 *1.18*	50 *1.97*	30 *1.18*	30 *1.18*	50 *1.97*	30 *1.18*	47 *1.85*	66 *2.60*	47 *1.85*	64.7 *2.54*	M12

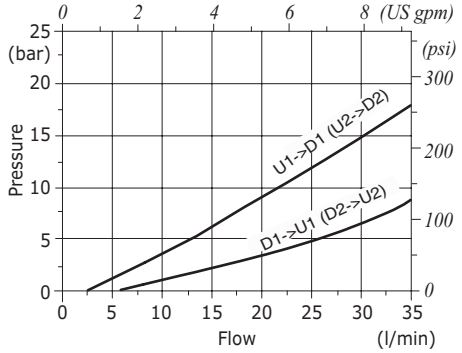
Ordering codes

VABAL complete valves

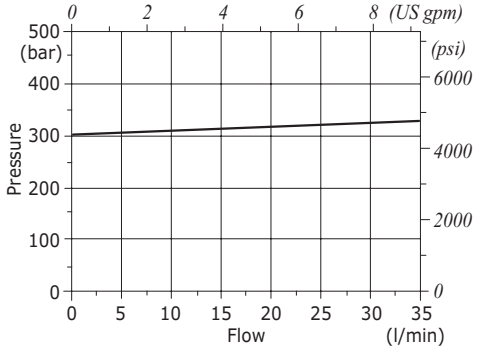
TYPE: **VABAL 38/TR.S.p4** CODE: 1570021102
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:4, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VABAL 12/TR.S.p7** CODE: 1570031102
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VABAL 34/TR.S.p7** CODE: 1570041102
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VABAL 100/TR.S.p7.PG** CODE: 1570051102
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:7, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

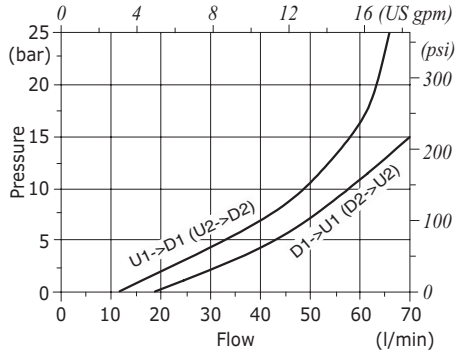
VABAL 38 pressure drop vs. flow from U1->D1 (U2->D2) and D1->U1 (D2->U2)



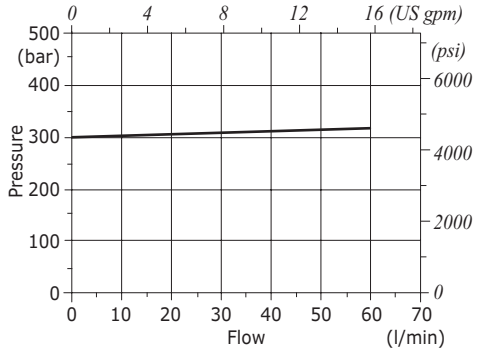
VABAL 38 pressure setting vs. flow from U1 (U2)->T



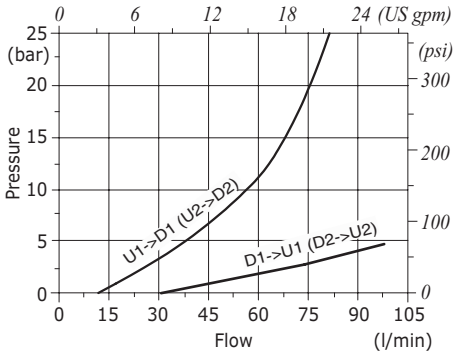
VABAL 12 pressure drop vs. flow from U1->D1 (U2->D2) and D1->U1 (D2->U2)



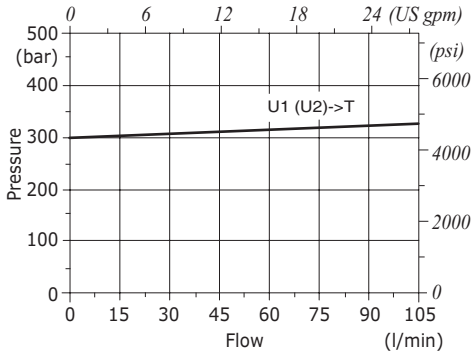
VABAL 12 pressure setting vs. flow from U1 (U2)->T



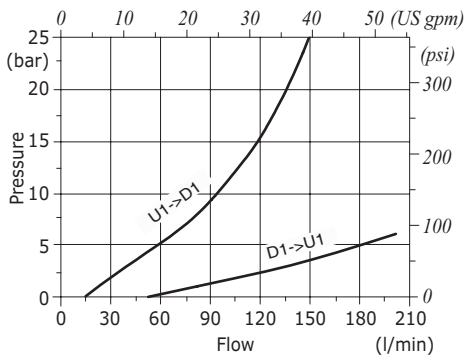
VABAL 34 pressure drop vs. flow from U1->D1 (U2->D2) and D1->U1 (D2->U2)



VABAL 34 pressure setting vs. flow from U1 (U2)->T



VABAL 100 pressure drop vs. flow from U1->D1 and D1->U1



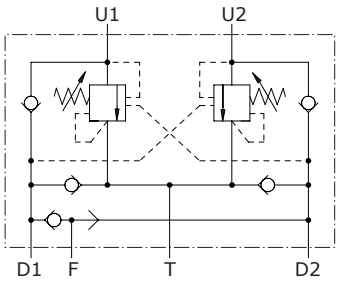
Type VABAL/SF counterbalance valves

- Cross line, relief valves for motion control
- Load sensitive

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C *(104°F)* temperature.

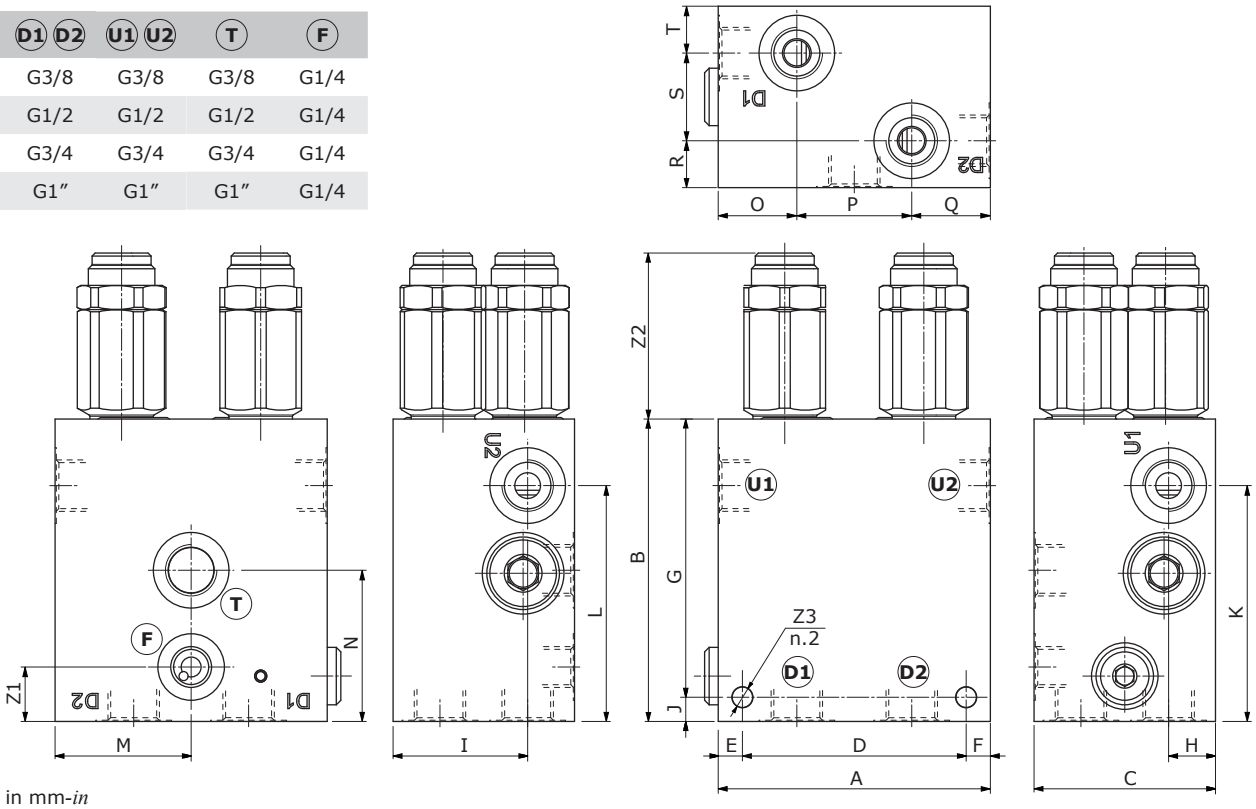
		VABAL/SF 38	VABAL/SF 12	VABAL/SF 34	VABAL/SF 100
Nominal flow		35 l/min *(9.2 US gpm)*	70 l/min *(18.5 US gpm)*	100 l/min *(26.4 US gpm)*	180 l/min *(47.6 US gpm)*
Max. pressure		Aluminium body = 210 bar *(3050 psi)* Steel body = 350 bar *(5100 psi)*			
Oil leakage		0.25 cm³/min - *0.015 in³/min.* (5 drops) at 210 bar - *3050 psi* at 80% of pressure setting			
Fluid		mineral based oil			
Viscosity		from 10 to 200 cSt			
Max. level of contamination		18/16/13 ISO4406			
Fluid temperature		*with NBR seals* from -20°C *(-4°F)* to 80°C *(176°F)*			
Environmental temp. for working conditions		from -40°C *(-40°F)* to 100°C *(212°F)*			
Weight	*aluminium*	2.73 kg *(6.02 lb)*	2.50 kg *(5.51 lb)*	4.52 kg *(9.96 lb)*	9.27 kg *(20.44 lb)*
	steel	4.31 kg *(9.50 lb)*	5.19 kg *(11.44 lb)*	9.03 kg *(19.91 lb)*	20.27 kg *(44.69 lb)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Dimensions

Valve type	D1 D2	U1 U2	T	F
VABAL 38	G3/8	G3/8	G3/8	G1/4
VABAL 12	G1/2	G1/2	G1/2	G1/4
VABAL 34	G3/4	G3/4	G3/4	G1/4
VABAL 100	G1"	G1"	G1"	G1/4



Dimensions are in mm-*in*

Valve type	A	B	C	D	E	F	G	J	K
VODL 38	90 *3.54*	100 *3.94*	60 *2.36*	74 *2.91*	8 *0.315*	8 *0.315*	92 *3.62*	8 *0.315*	78 *3.07*
VODL 12	100 *3.94*	100 *3.94*	70 *2.76*	84 *3.31*	8 *0.315*	8 *0.315*	92 *3.62*	8 *0.315*	78.5 *3.09*
VODL 34	120 *4.72*	120 *4.72*	85 *3.35*	100 *3.94*	10 *0.394*	10 *0.394*	110 *4.33*	10 *0.394*	90 *3.54*
VODL 100	160 *6.30*	160 *6.30*	110 *4.33*	136 *5.35*	12 *0.472*	12 *0.472*	148 *5.83*	12 *0.472*	130 *5.12*

Valve type	H	I	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Z1	Z2	Z3
VODL 38	15.5 *0.61*	44.5 *1.75*	78 *3.07*	45 *1.77*	50 *1.97*	26 *1.02*	38 *1.50*	26 *1.02*	15.5 *0.61*	29 *1.14*	15.5 *0.61*	16.5 *0.65*	27 *1.06*	16.5 *0.65*	22 *0.87*	46 *1.81*	22 *0.87*	18 *0.71*	54.8 *2.16*	M8
VODL 12	17.5 *0.69*	52.5 *2.07*	78.5 *3.09*	50 *1.97*	48 *1.89*	29 *1.14*	42 *1.14*	29 *1.14*	17.5 *0.69*	35 *1.38*	17.5 *0.69*	18.5 *0.73*	33 *1.30*	18.5 *0.73*	27 *1.06*	46 *1.81*	27 *1.06*	18 *0.71*	50.2 *1.98*	M8
VODL 34	21 *0.83*	64 *2.52*	90 *3.54*	60 *2.36*	55 *2.17*	33 *1.30*	54 *2.13*	33 *1.30*	21 *0.83*	43 *1.70*	21 *0.83*	24 *0.94*	37 *1.46*	24 *0.94*	28 *1.10*	64 *2.52*	28 *1.10*	20 *0.79*	60.8 *2.39*	M10
VODL 100	30 *1.18*	80 *3.15*	130 *5.12*	80 *3.15*	84 *3.31*	47 *1.85*	66 *2.60*	47 *1.85*	30 *1.18*	50 *1.97*	30 *1.18*	30 *1.18*	50 *1.97*	30 *1.18*	47 *1.85*	66 *2.60*	47 *1.85*	27 *1.06*	64.7 *2.54*	M12

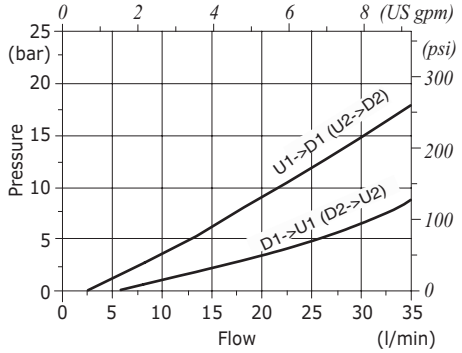
Ordering codes

VABAL/SF complete valves

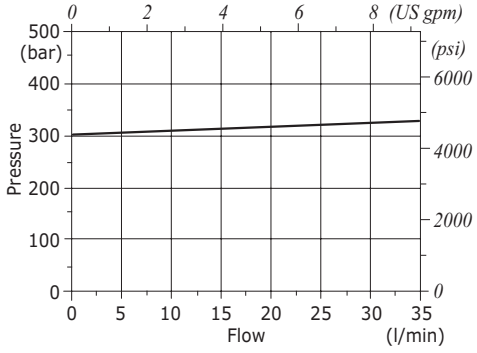
TYPE: **VABAL/SF 38/TR.S.p3** CODE: 1572021103
DESCRIPTION: Aluminium body, G3/8 ports, pilot ratio 1:3, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VABAL/SF 12/TR.S.p3** CODE: 1572031103
DESCRIPTION: Aluminium body, G1/2 ports, pilot ratio 1:3, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VABAL/SF 34/TR.S.p3** CODE: 1572041103
DESCRIPTION: Aluminium body, G3/4 ports, pilot ratio 1:3, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
TYPE: **VABAL/SF 100/TR.S.p3.PG** CODE: 1572051103
DESCRIPTION: Aluminium body, G1" ports, pilot ratio 1:3, range 50-350 bar *(725-5075 psi)*, std setting 280 bar *(4060 psi)* @ 5 l/min *(1.32 US gpm)*
Note: for further configurations and steel body ask to Sales Dept.

Rating diagrams

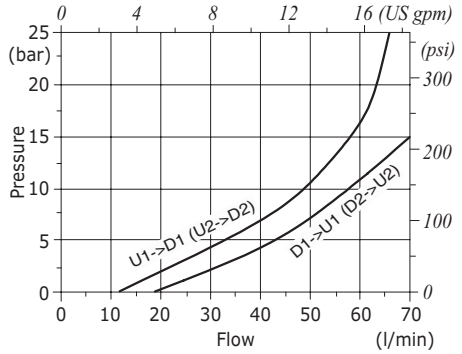
VABAL 38 pressure drop vs. flow from U1->D1 (U2->D2) and D1->U1 (D2->U2)



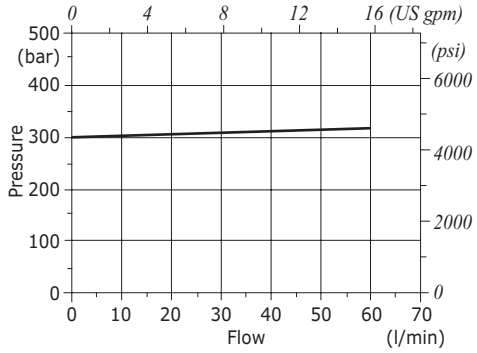
VABAL 38 pressure setting vs. flow from U1 (U2)->T



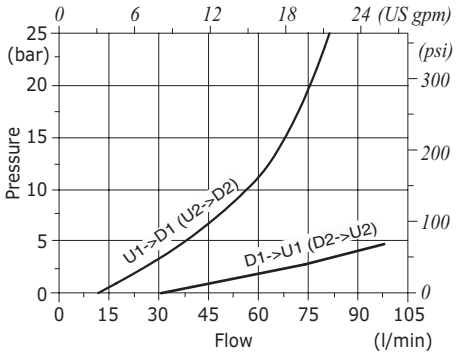
VABAL 12 pressure drop vs. flow from U1->D1 (U2->D2) and D1->U1 (D2->U2)



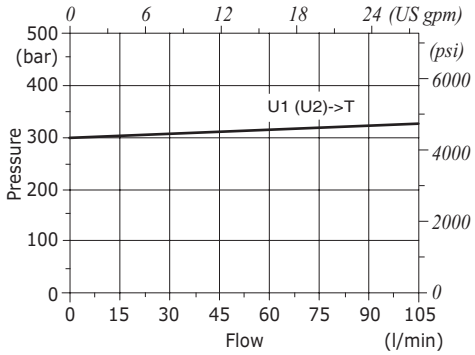
VABAL 12 pressure setting vs. flow from U1 (U2)->T



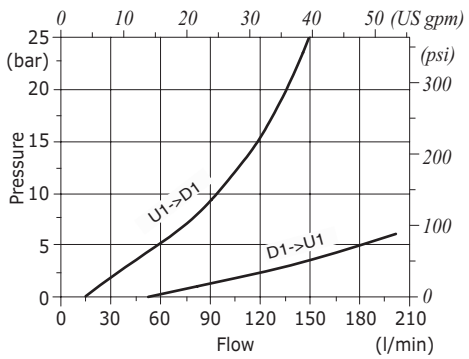
VABAL 34 pressure drop vs. flow from U1->D1 (U2->D2) and D1->U1 (D2->U2)



VABAL 34 pressure setting vs. flow from U1 (U2)->T



VABAL 100 pressure drop vs. flow from U1->D1 and D1->U1



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CATALOGUE

Counterbalance valves

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HYDRAULIC CONTROL SYSTEMS

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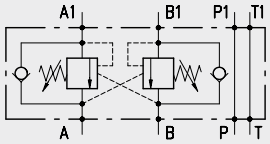
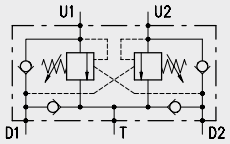
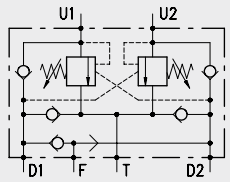
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VODL/ML**	Dual counterbalance valves, sandwich mounting “NG”, cartridge construction	70	*18*	350	*5100*	149

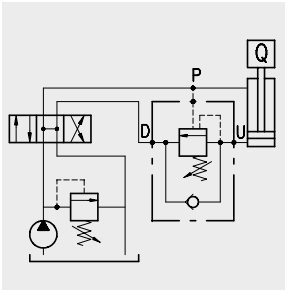
Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VABAL**	Cross-line, relief valves for motion control, anti-shock and anti-cavitation, line mounting, cartridge construction	180	*48*	350	*5100*	153

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

Cavities, tool and tap

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

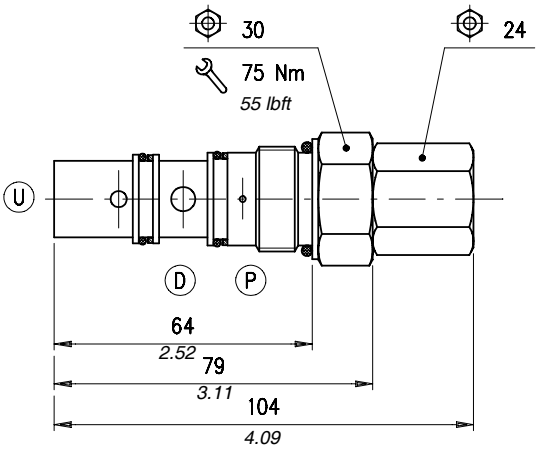
Body Valves

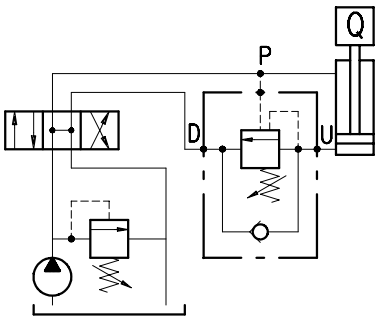
Overcenter cartridge: *VMPD 38 - **VMPD12 - ***VMPD34

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	

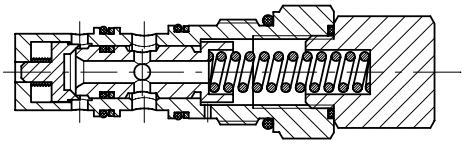
Type	Max flow		Max. press.		Application range with standard springs*	Oil leakage from U (U1) to D (D1)	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSLP/SC 38	40	*11*	350	*5100*	5÷210 bar-*72.5÷3050 psi* (test setting 170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar-*725÷5100 psi* (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



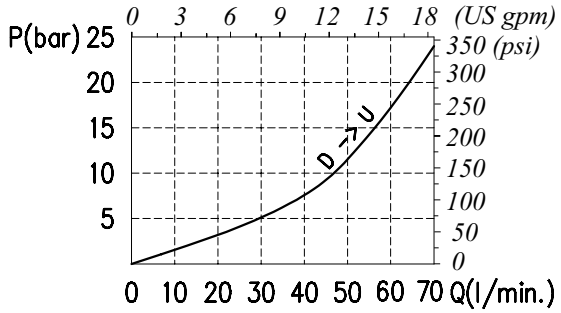


Section

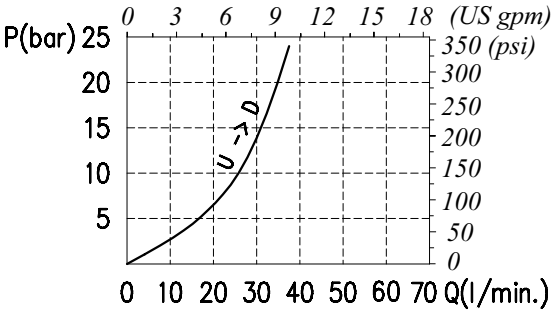


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

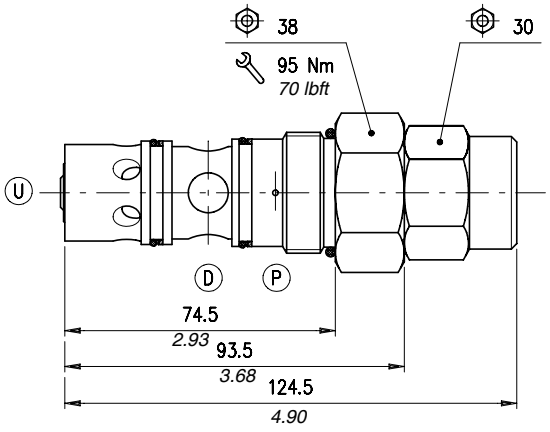


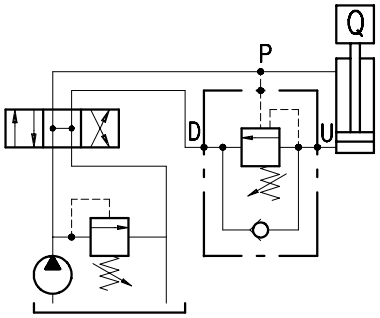
Order code

VOC 60 / □□ . S . □□ / □□

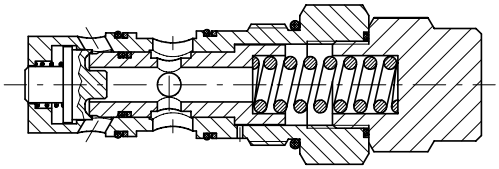
Pressure settings	Pilot ratio	Body material
TS) 20÷220 bar *(290÷3200 psi)*	**p4)** 1:3,5	_ Aluminium
TR) 50÷350 bar *(725÷5100 psi)*	**p2)** 1:1,8	**ac** Steel
(Standard)		

Dimensions and hydraulic circuit



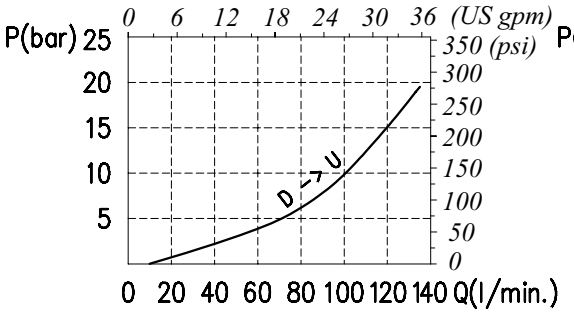


Section

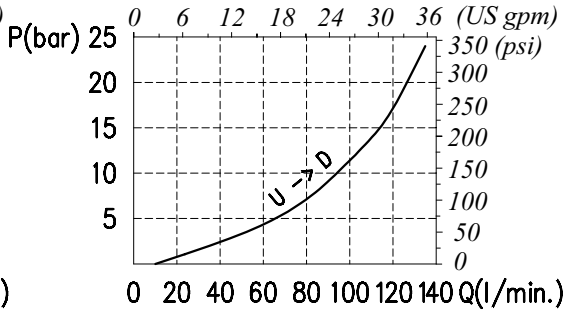


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

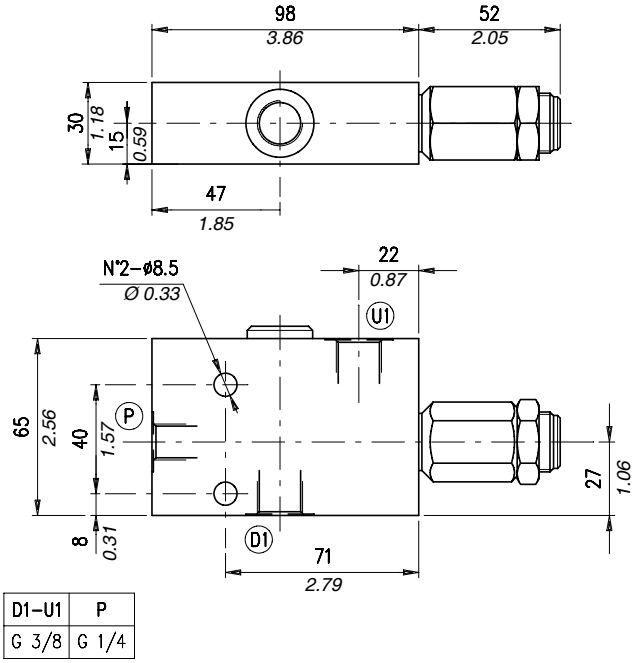


Order code

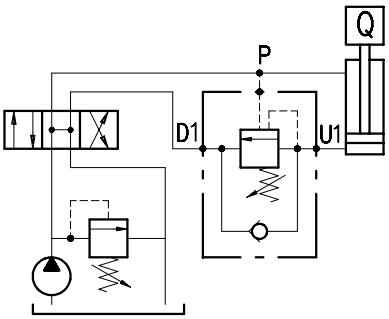
VOC 120 / □□ . S . □□ / □□

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

Dimensions and hydraulic circuit

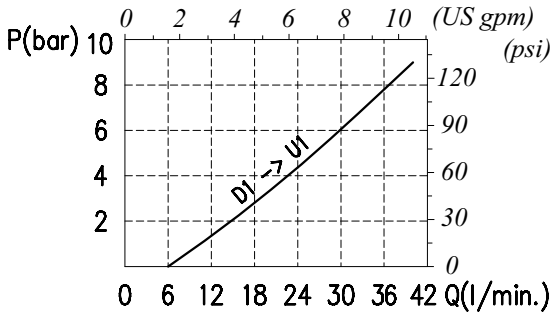


D1–U1	P
G 3/8	G 1/4

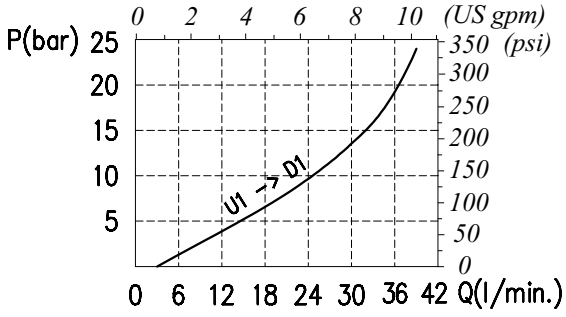


Rating diagrams

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)

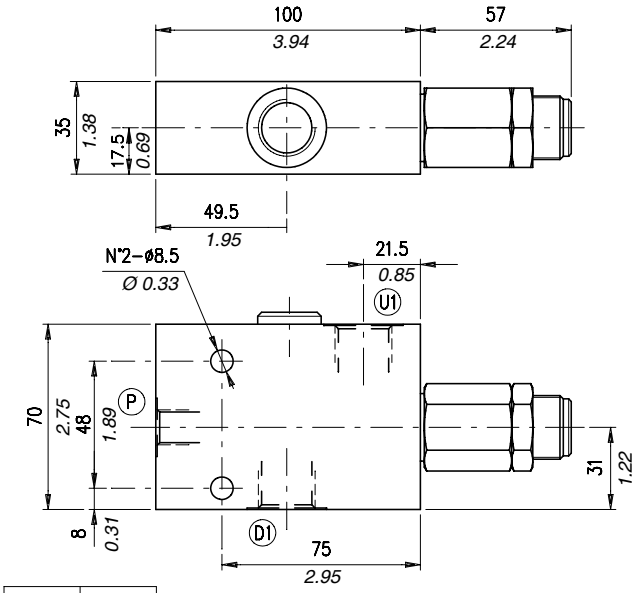
Check valve seat

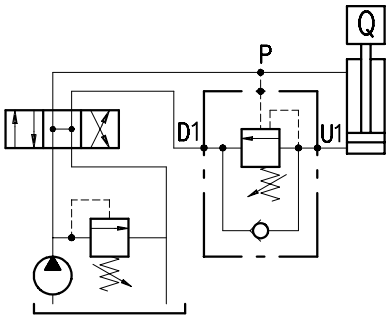
VRR) Hardened steel
– See body

Body material

ac Steel
– Aluminium

Dimensions and hydraulic circuit

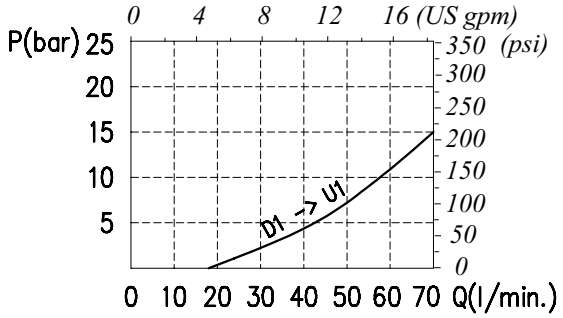




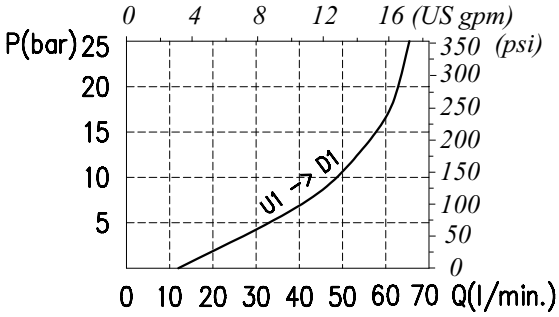
D1–U1	P
G 1/2	G 1/4

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

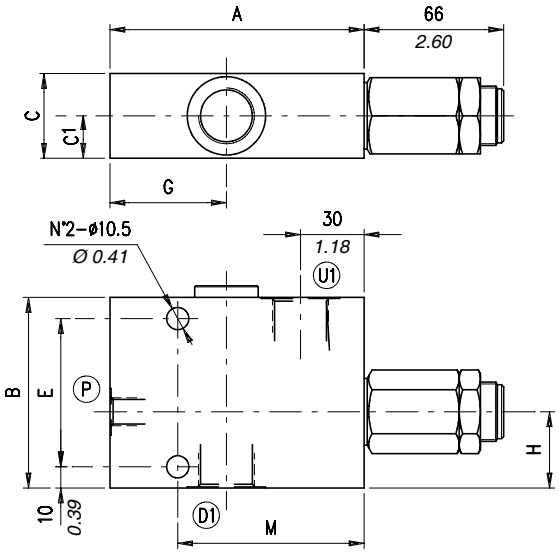
Check valve seat

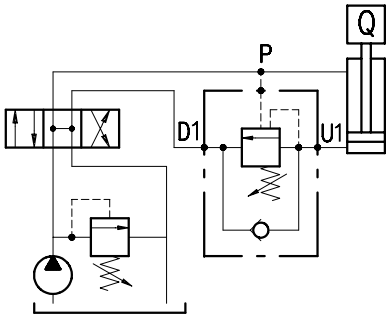
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



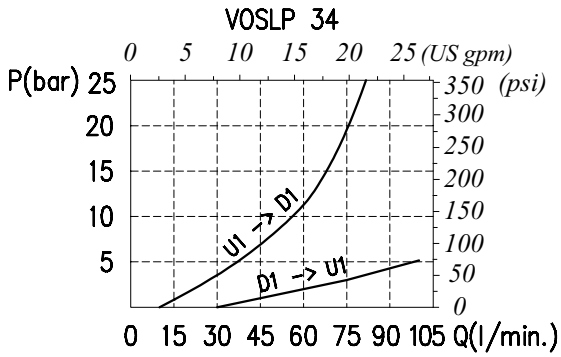


VOSLP	A*	B*	C*	C1*	E*	G*	H*	M*	D1–U1	P
34	120 - *4.72*	90 - *3.54*	40 - *1.57*	20 - *0.78*	70 - *2.75*	55 - *2.16*	36 - *1.42*	88 - *3.46*	G 3/4	G 1/4
100	140 - *5.51*	100 - *3.94*	60 - *2.36*	30 - *0.59*	80 - *3.15*	64 - *2.52*	37 - *1.46*	110 - *4.33*	G 1"	G 1/4

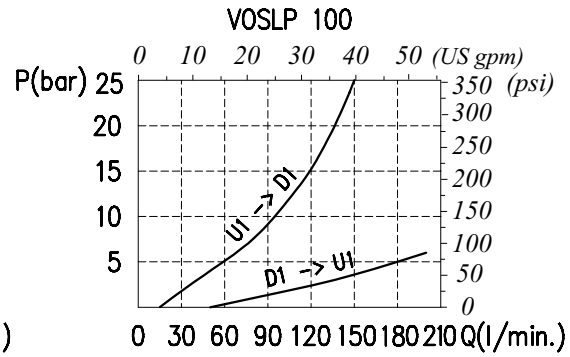
* Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



Order code

VOSLP □□ / □□ . S .□□ . □□. □□ / □□

Port size

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 (Standard)
PG) With damper

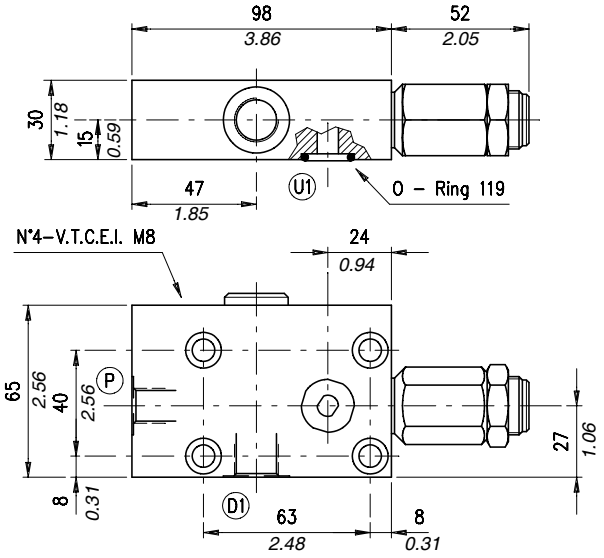
Check valve seat

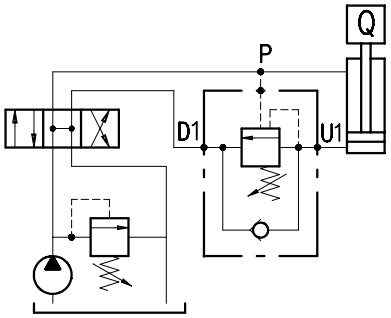
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



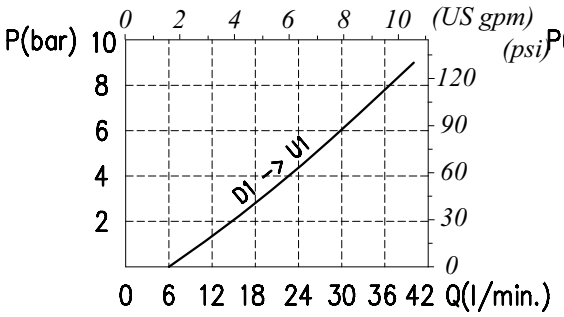


D1	U1*	P
G 3/8	ø8 - 0.31	G 1/4

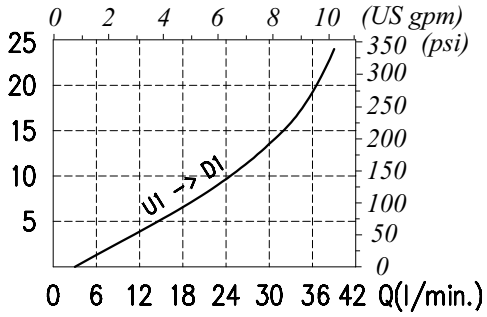
*Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

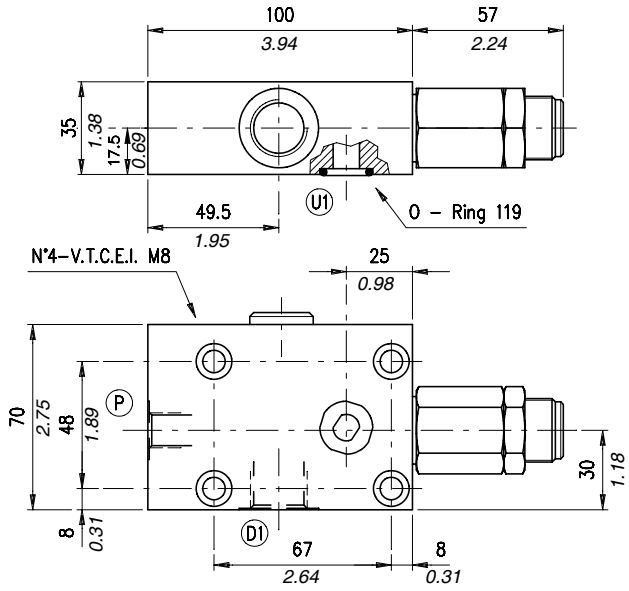


Order code

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

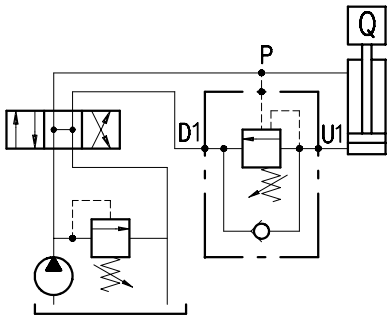
Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body material
TS) 5÷210 bar *(72,5÷3050psi)*	**p3)** 1:3	_ Without damper (Standard)	_ See body	_ Aluminium
TR) 50÷350 bar *(725÷5100 psi)* (Standard)	**p4)** 1:4 (Standard)	**PG)** With damper	**VRR)** Hardened steel	**ac** Steel
TG) 100÷700 bar *(1450÷10150 psi)*				

Dimensions and hydraulic circuit



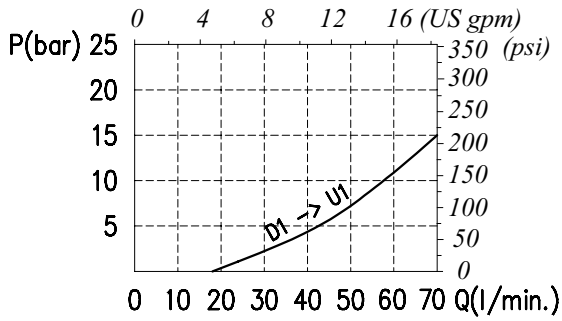
D1	U1*	P
G 1/2	ø10 - 0.39	G 1/4

* Dimensions are in mm - *in*

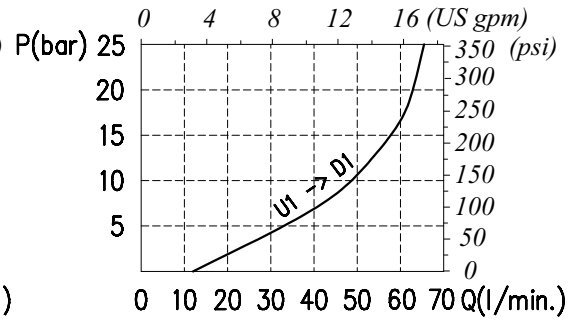


Rating diagrams

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

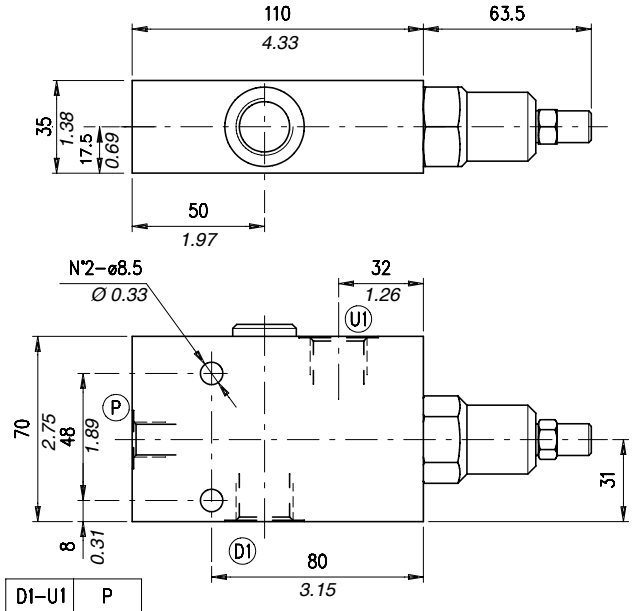
Check valve seat

_ See body
VR) Hardened steel

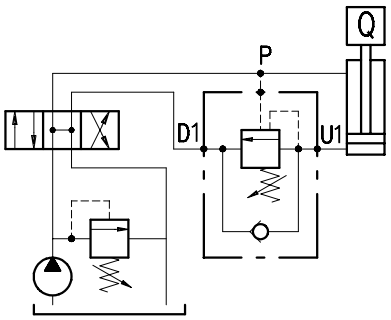
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

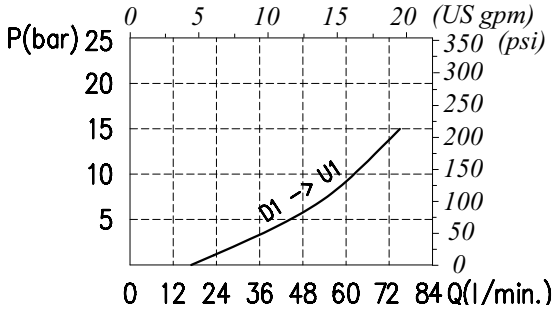


D1–U1	P
G 1/2	G 1/4

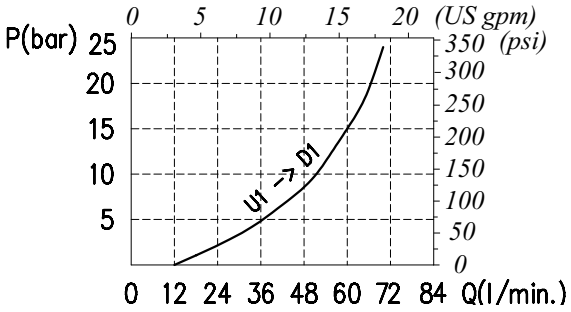


Rating diagrams

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)

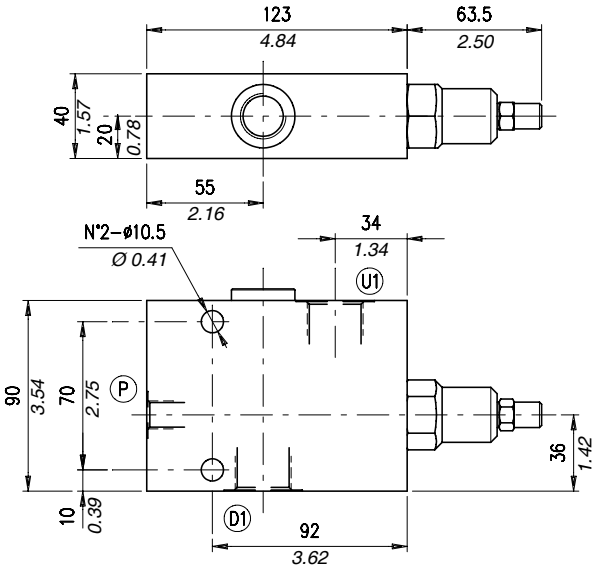
Check valve seat

_ See body
VRR) Hardened steel

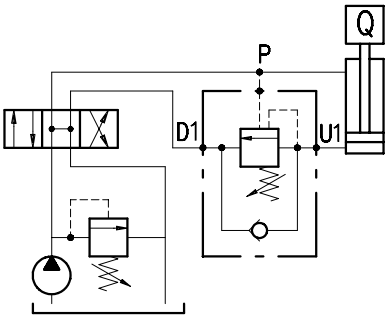
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

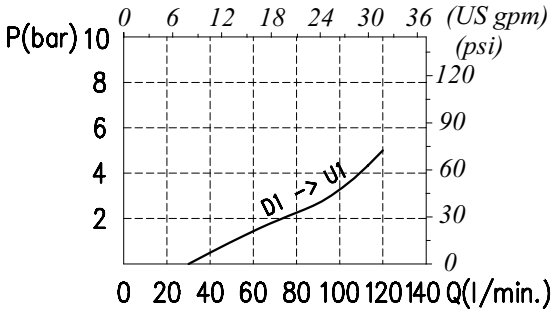


D1	U1	P
G 3/4	G 3/4	G 1/4

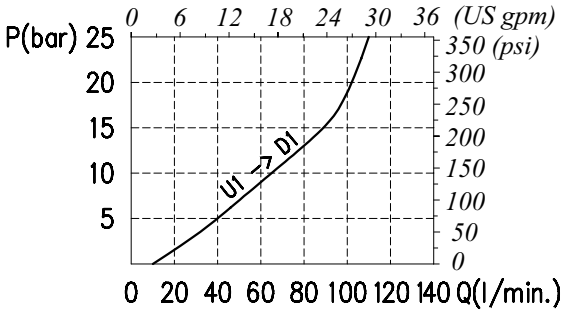


Rating diagrams

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)

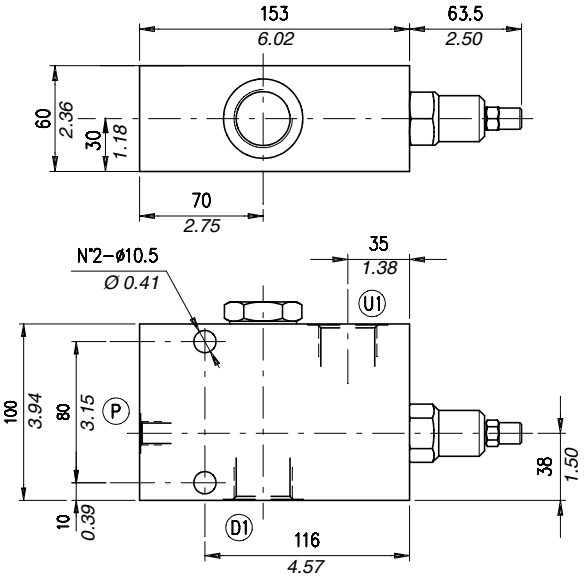
Check valve seat

_ See body
VRR) Hardened steel

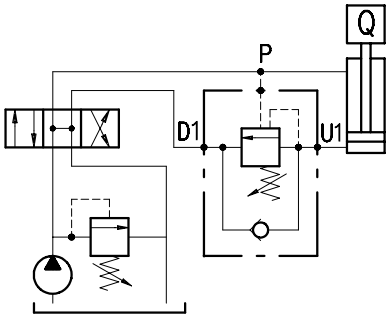
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

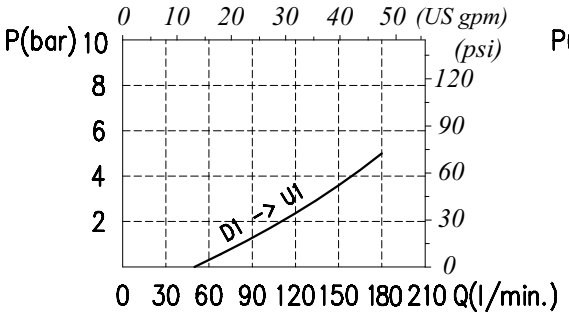


D1	U1	P
G 1	G 1	G 1/4

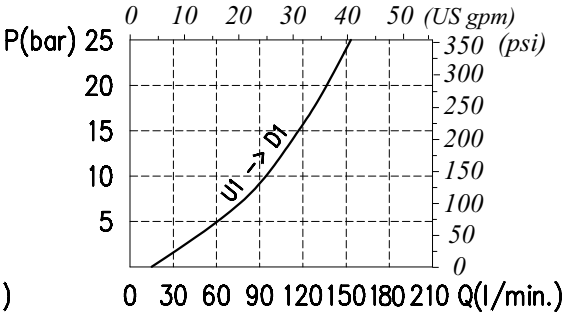


Rating diagrams

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)

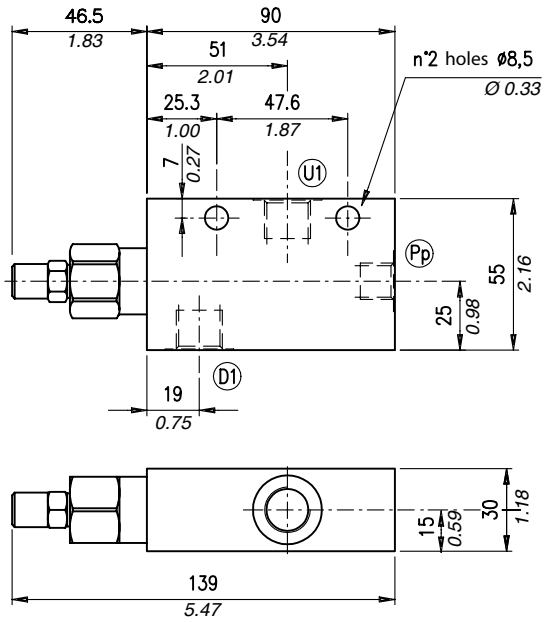
Check valve seat

_ See body
VRR) Hardened steel

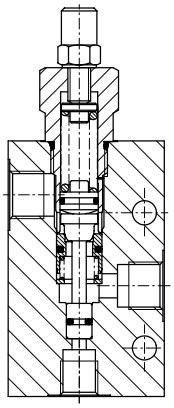
Body material

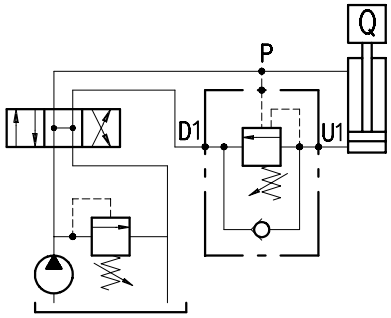
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



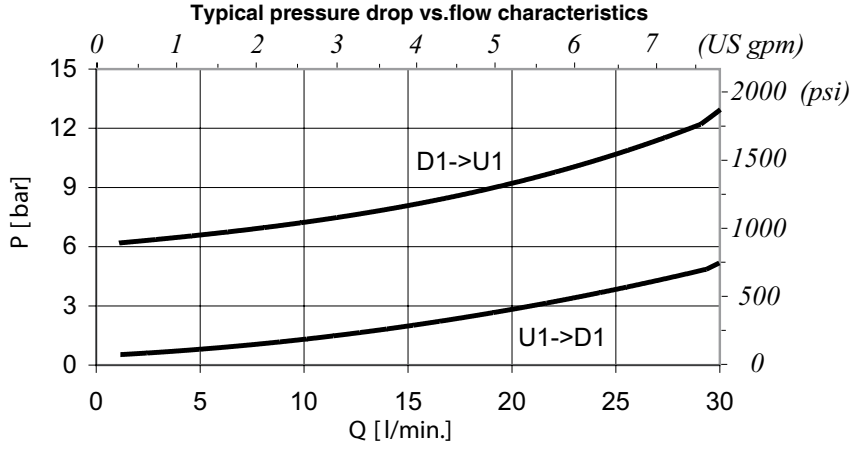
Section





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)

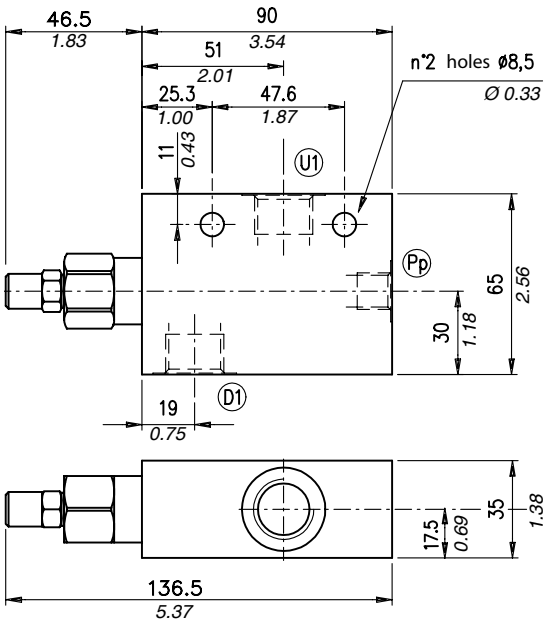
Pilot ratio

p4) 1:4
p11) 1:11

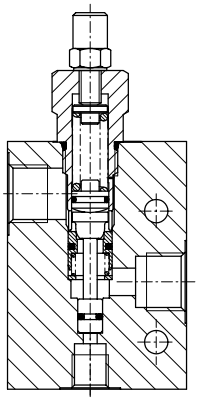
Body material

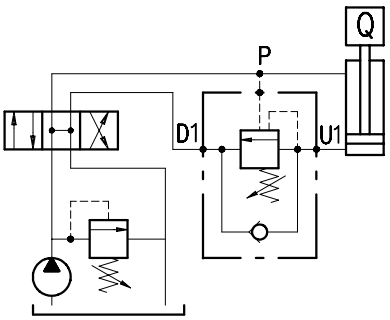
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



Section

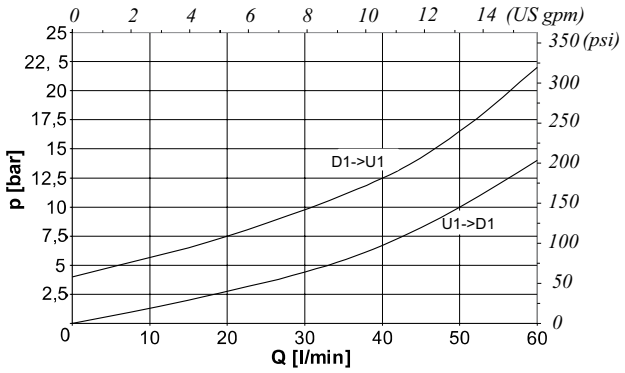




D1	U1	P
G 1/2	G 1/2	G 1/4

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)

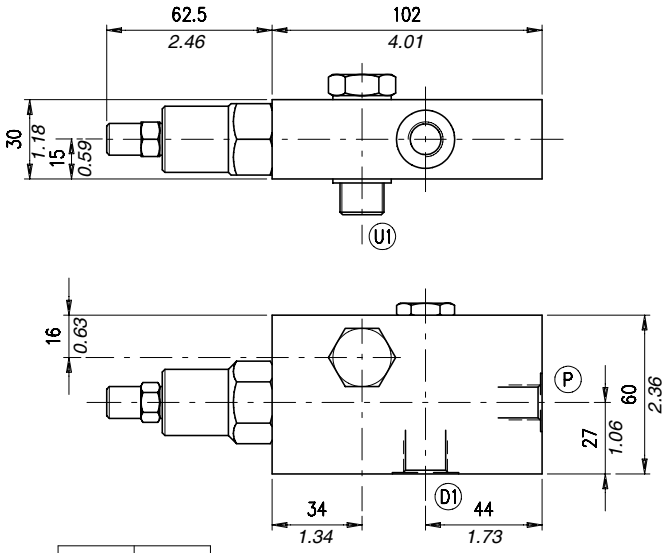
Pilot ratio

p4) 1:4
p11) 1:11

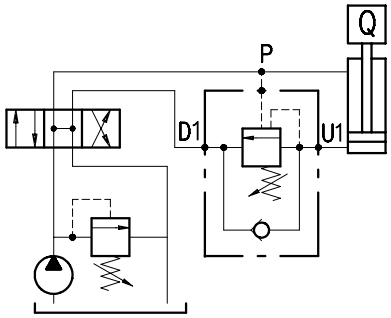
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

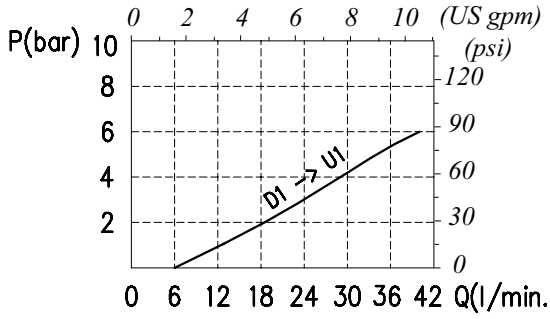


D1–U1	P
G 3/8	G 1/4

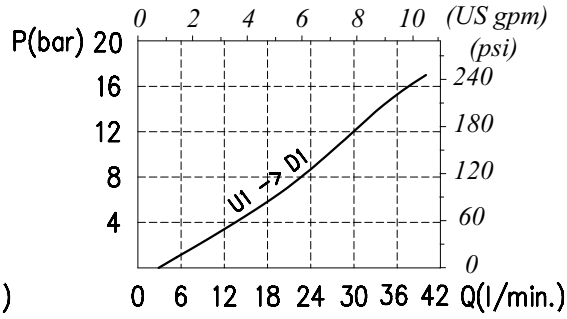


Rating diagrams

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)

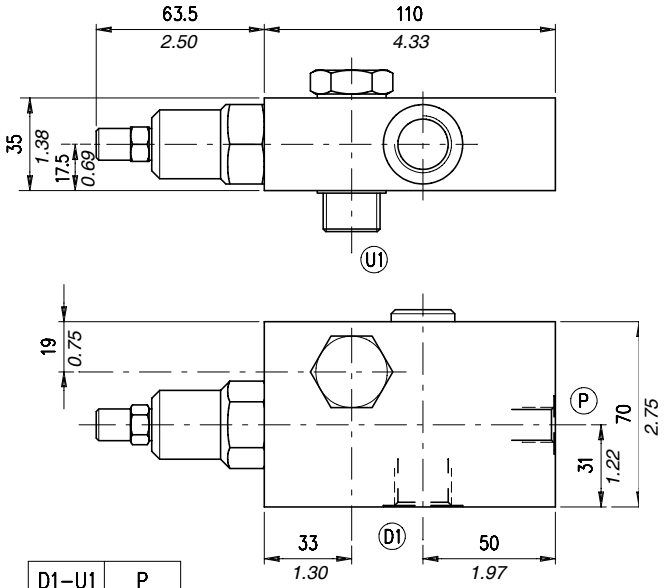
Check valve seat

_ See body
VRR) Hardened steel

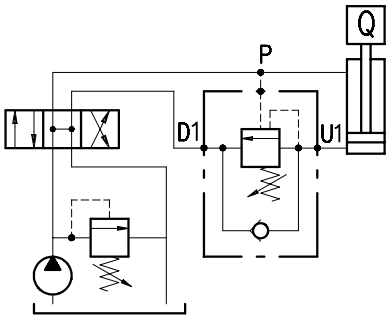
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

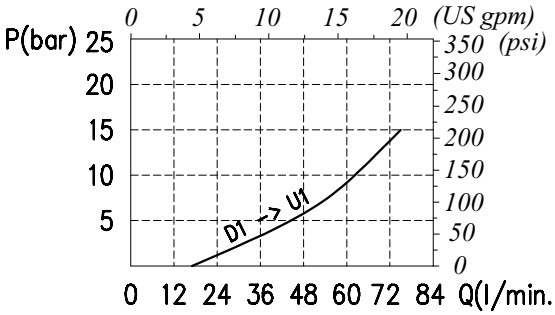


D1–U1	P
G 1/2	G 1/4

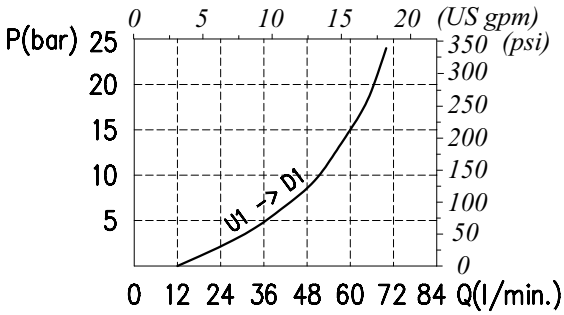


Rating diagrams

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)

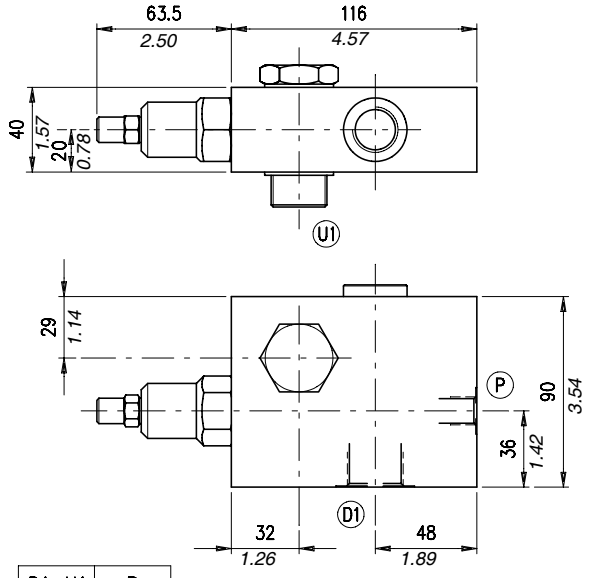
Check valve seat

_ See body
VRR) Hardened steel

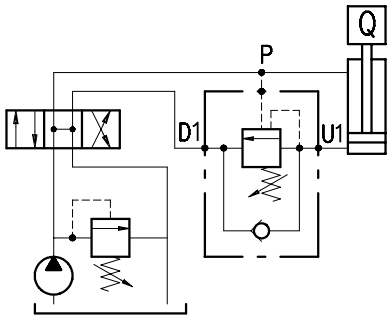
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

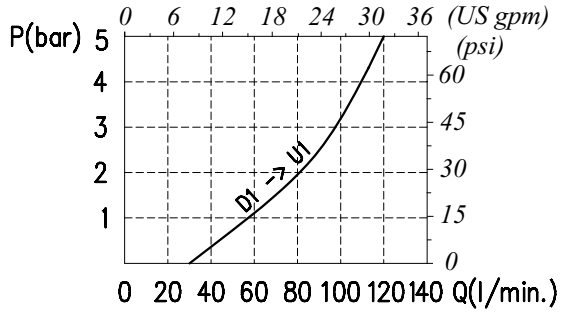


D1–U1	P
G 3/4	G 1/4

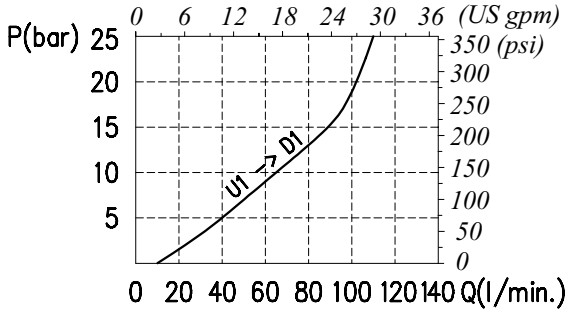


Rating diagrams

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)

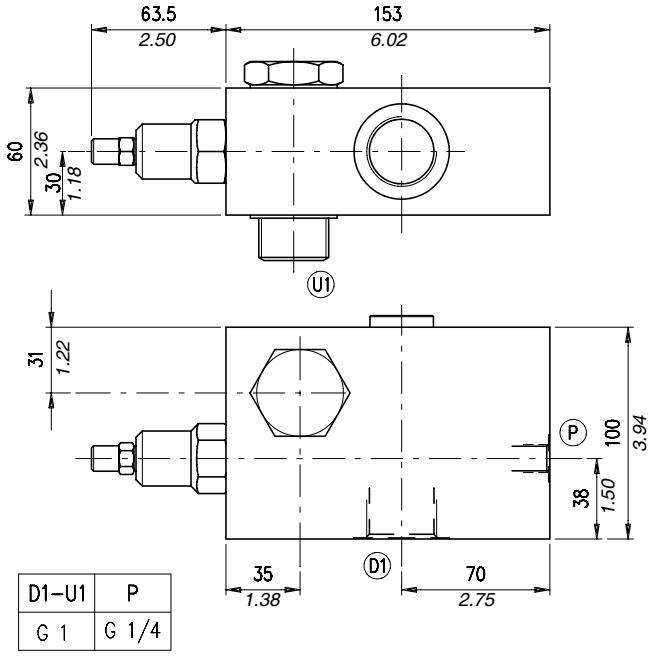
Check valve seat

_ See body
VRR) Hardened steel

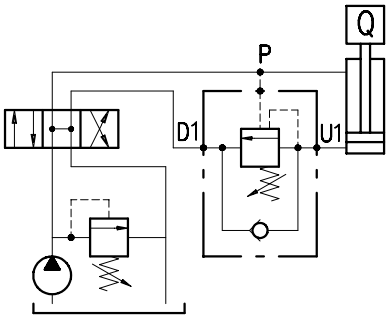
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

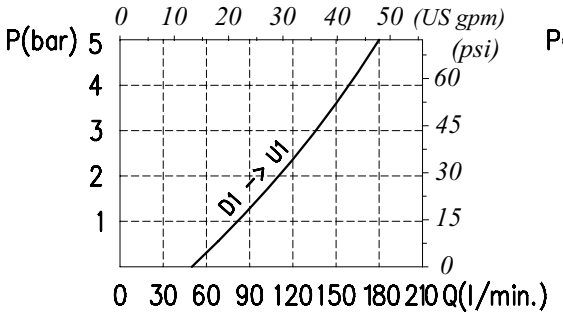


D1–U1	P
G 1	G 1/4

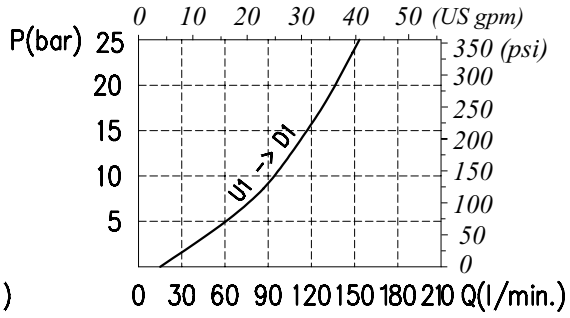


Rating diagrams

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)

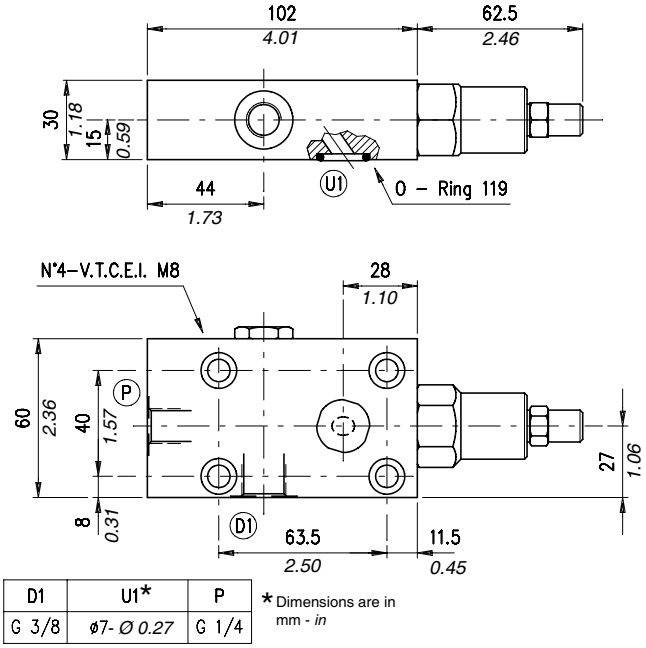
Check valve seat

_ See body
VRR) Hardened steel

Body material

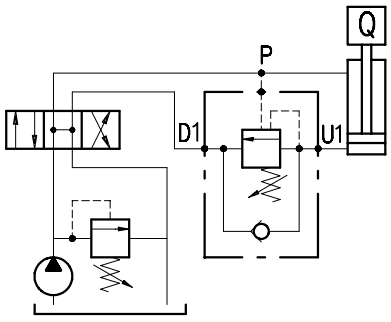
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



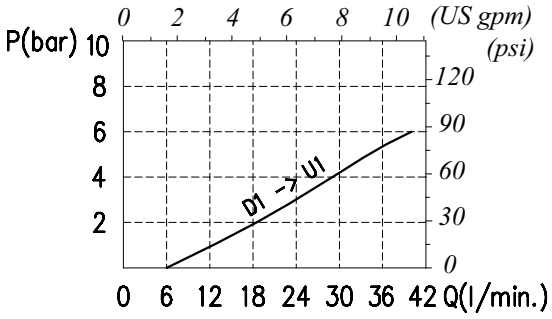
D1	U1*	P
G 3/8	ø7- Ø 0.27	G 1/4

* Dimensions are in mm - *in*

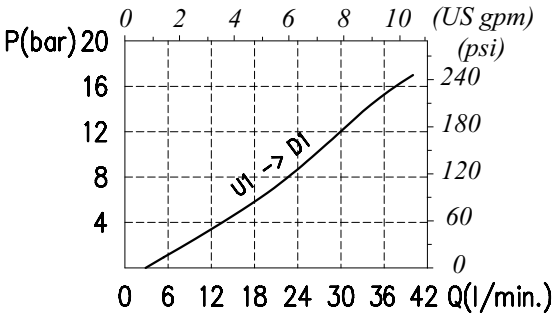


Rating diagrams

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)

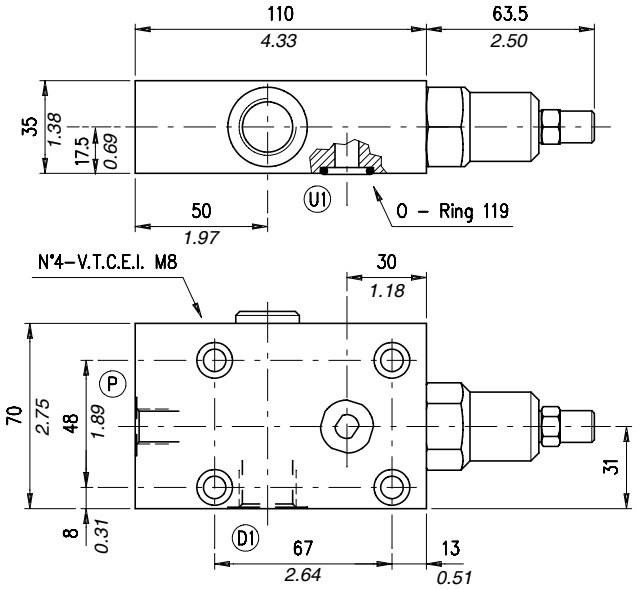
Check valve seat

_ See body
VRR) Hardened steel

Body material

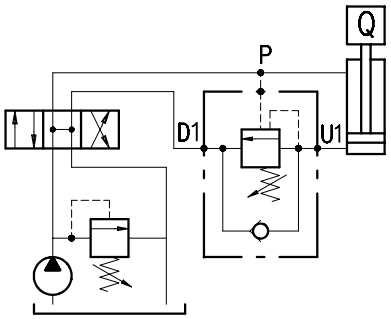
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



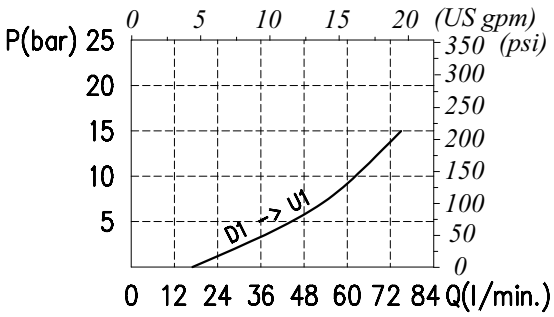
D1	U1*	P
G 1/2	ø9 - Ø 0.35	G 1/4

* Dimensions are in mm - *in*

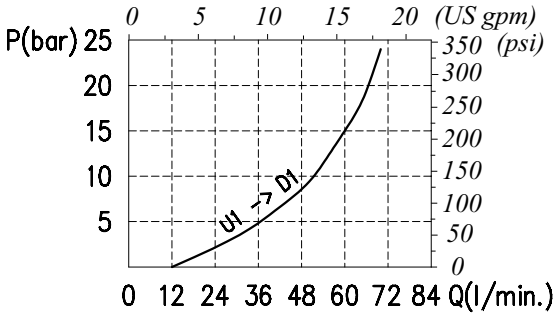


Rating diagrams

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)

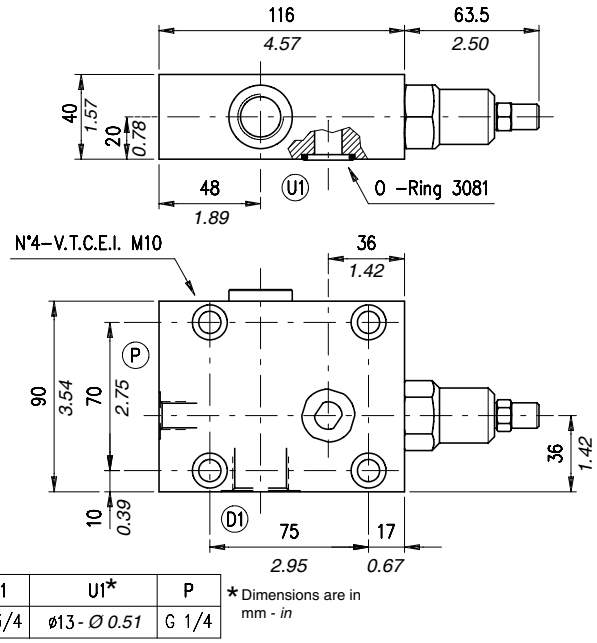
Check valve seat

_ See body
VRR) Hardened steel

Body material

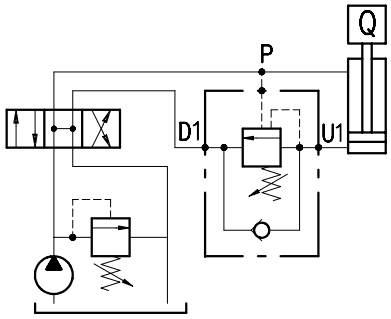
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



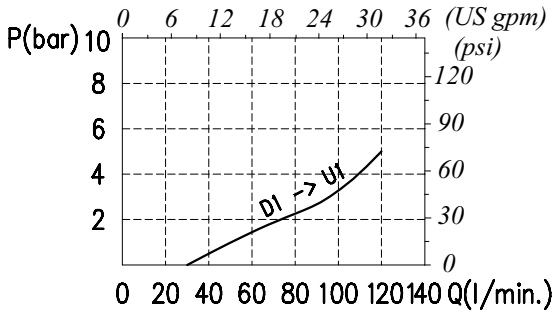
D1	U1*	P
G 3/4	ø13 - Ø 0.51	G 1/4

* Dimensions are in mm - *in*

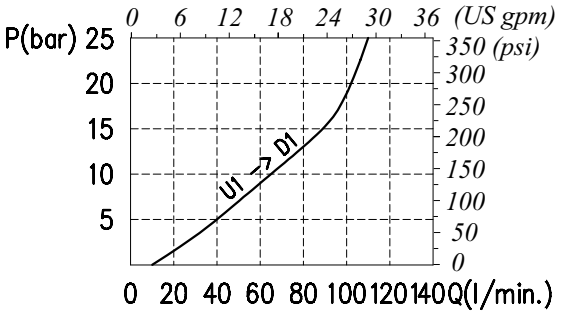


Rating diagrams

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)

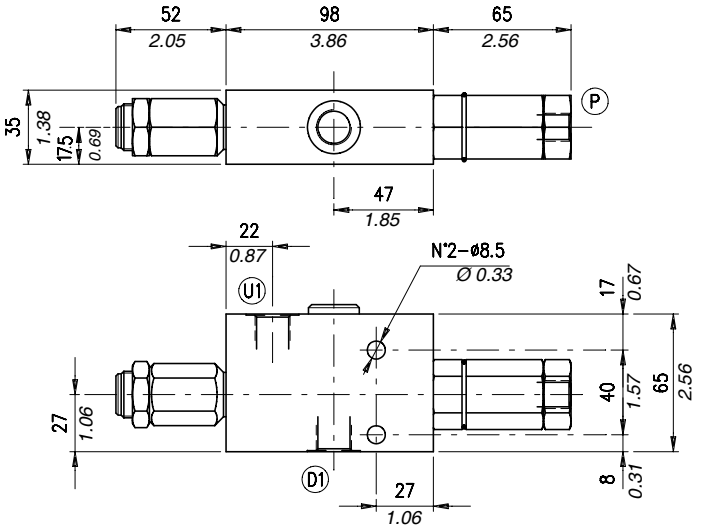
Check valve seat

_See body
VRR) Hardened steel

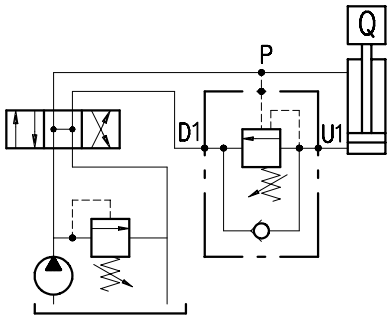
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

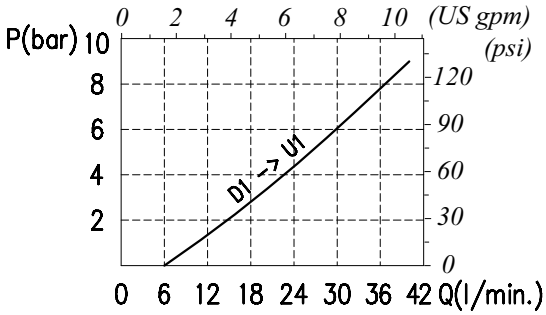


D1–U1	P
G 3/8	G 1/4

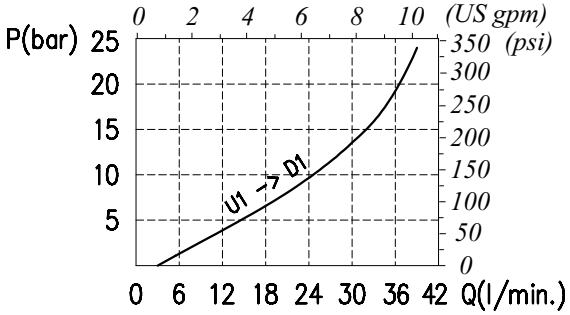


Rating diagrams

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

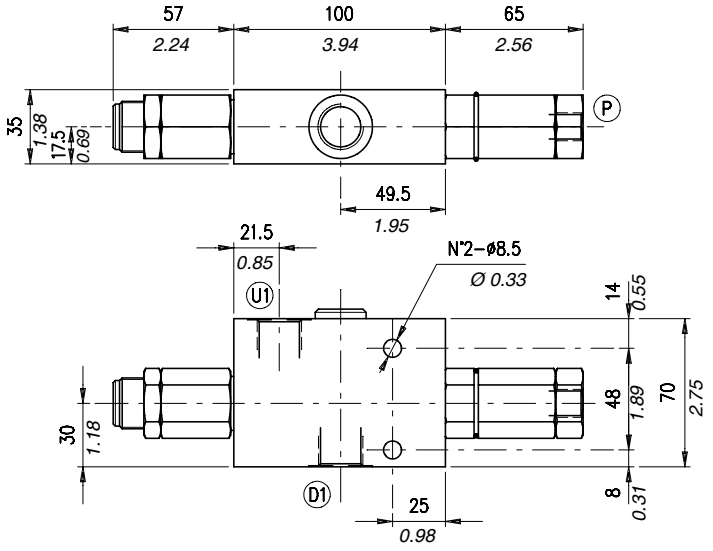
Check valve seat

_ See body
VRR) Hardened steel

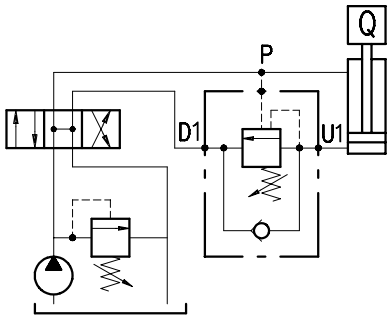
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

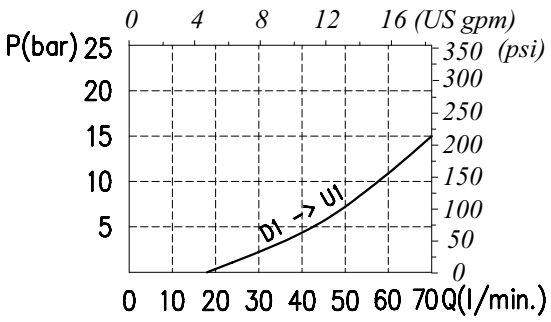


D1–U1	P
G 1/2	G 1/4

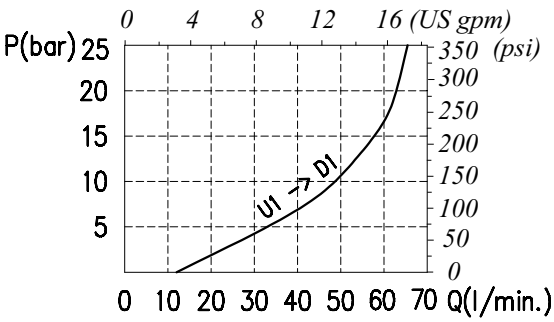


Rating diagrams

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

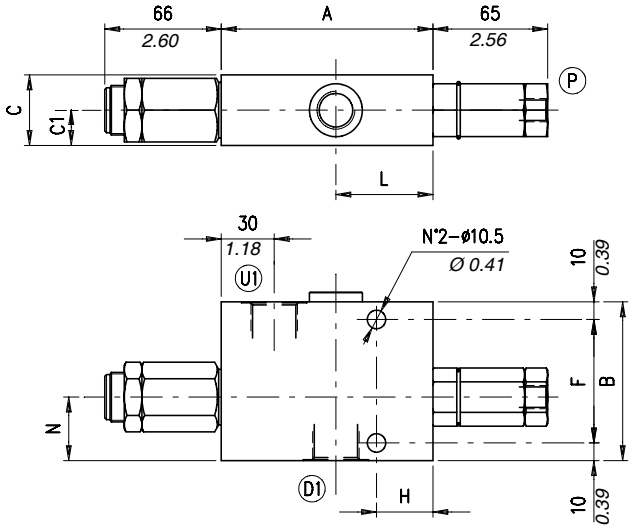
Check valve seat

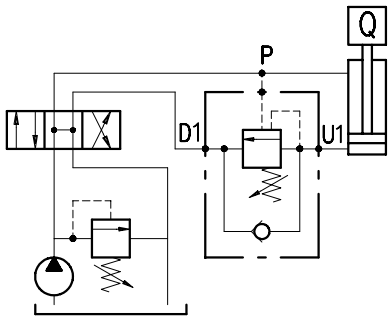
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



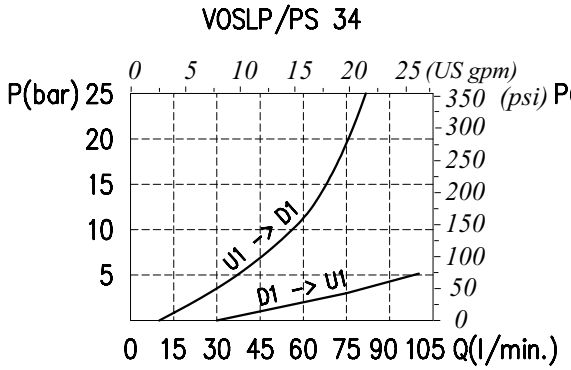


VOSLP/PS	D1–U1	P	A*	B*	C*	C1*	F*	H*	L*	N*
34	G 3/4	G 1/4	120 - *4.72*	90 - *3.54*	40 - *1.57*	20 - *0.78*	70 - *2.75*	32 - *1.26*	55 - *2.16*	36 - *1.42*
100	G 1	G 1/4	140 - *5.51*	100- *3.94*	60 - *2.36*	30 - *1.18*	80 - *3.15*	30 - *1.18*	64 - *2.52*	37 - *1.46*

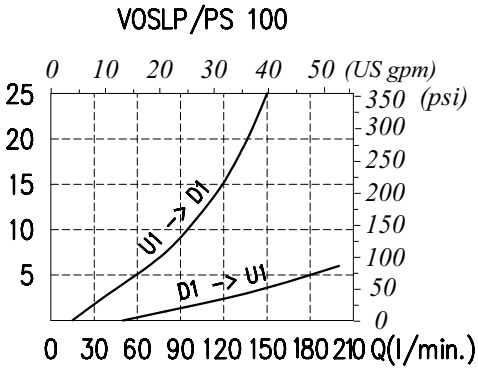
* Dimensions are in mm - *in*

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

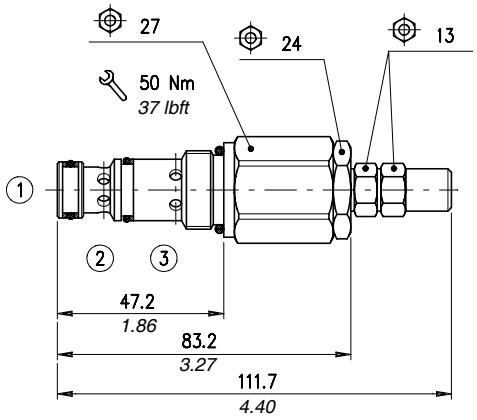
Check valve seat

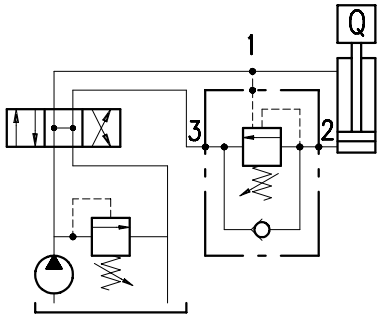
_ See body
VRR) Hardened steel

Body material

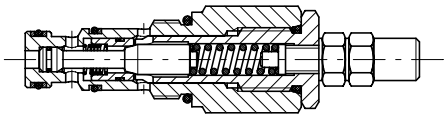
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



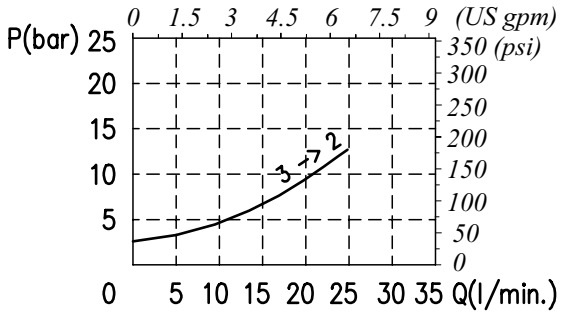


Section

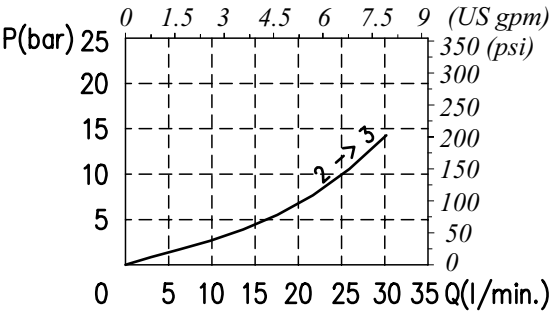


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

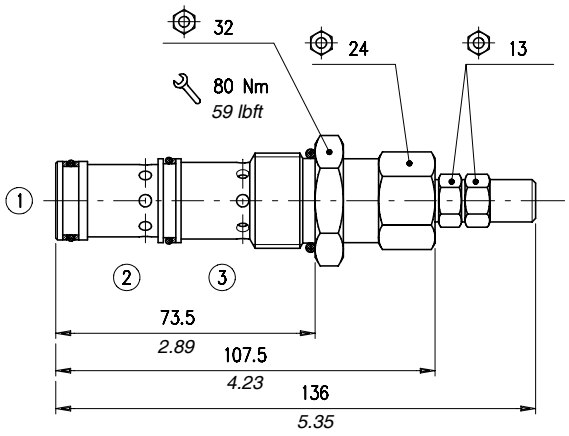


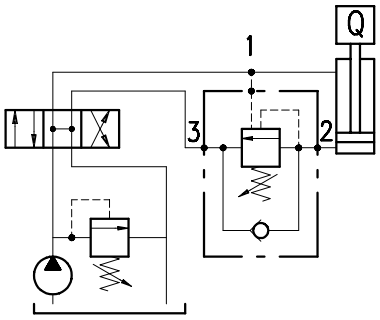
Order code

CA10A / □ -□ -□ -□

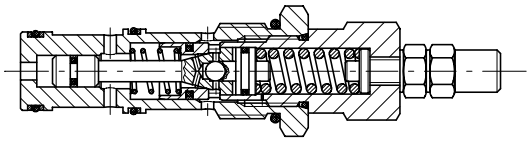
Pilot ratio	Adjustments	Pressure settings	Seals
4) 1:4	**S** **W**	**1)** 50÷220 bar *(725÷3200 psi)* **2)** 180÷350 bar *(2600÷5100 psi)* **3)** 300÷700 bar *(4350÷10150 psi)*	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



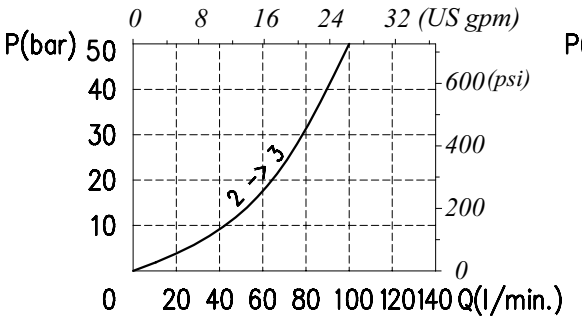


Section

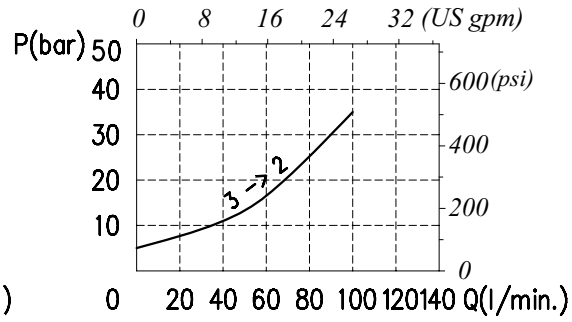


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



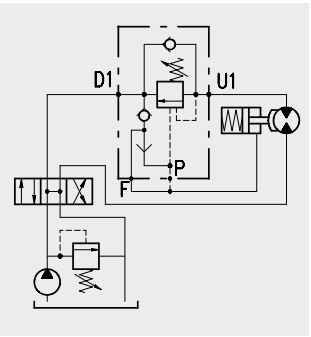
Order code

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.



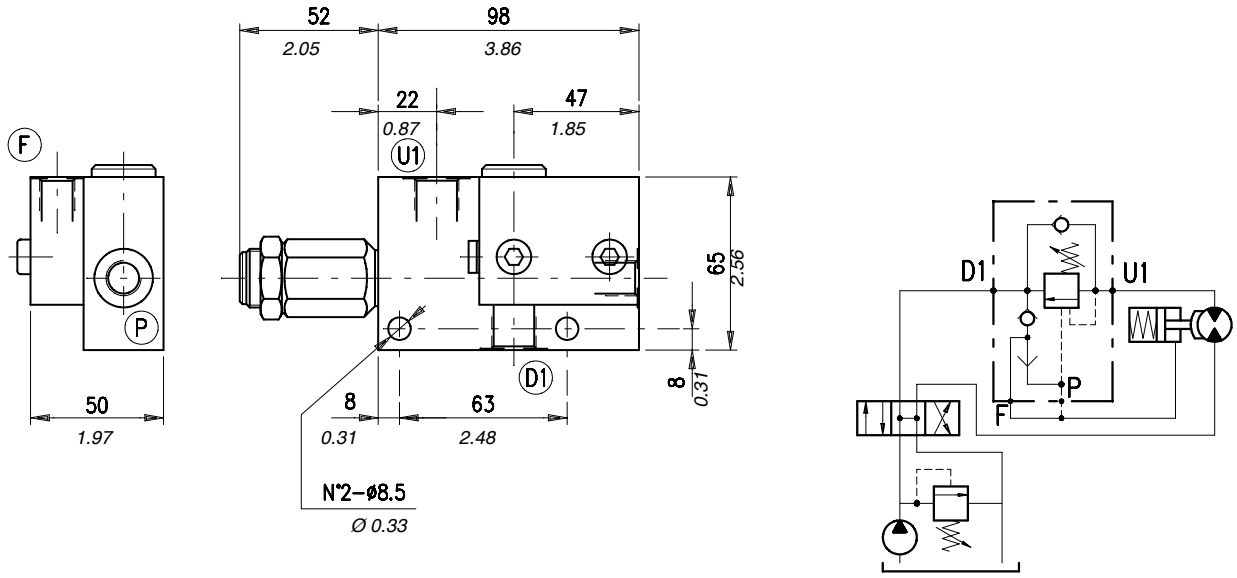
Performance

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

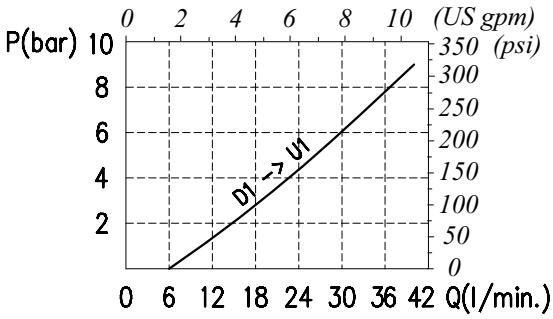
Dimensions and hydraulic circuit



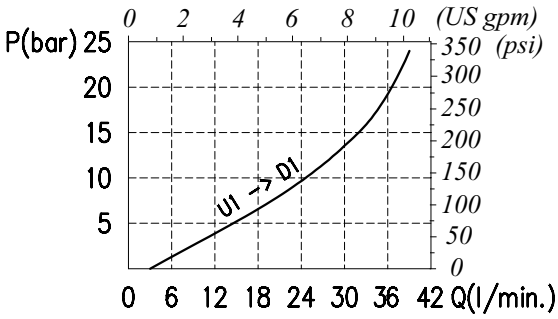
D1–U1	F–P
G 3/8	G 1/4

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

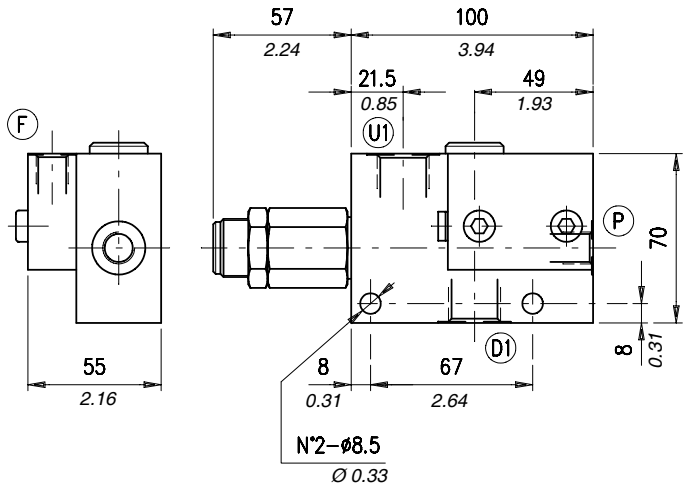
Check valve seat

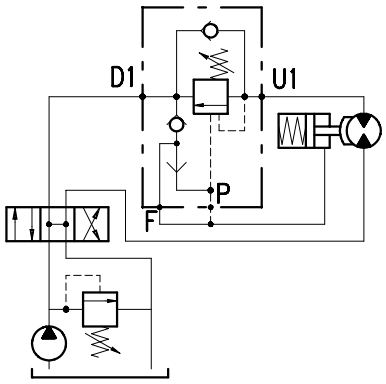
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

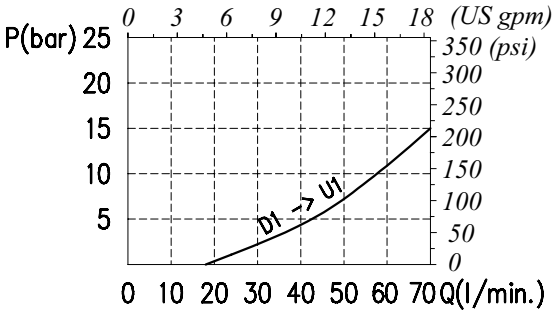




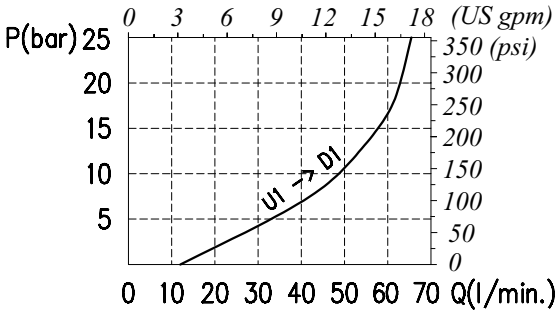
D1–U1	F–P
G 1/2	G 1/4

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

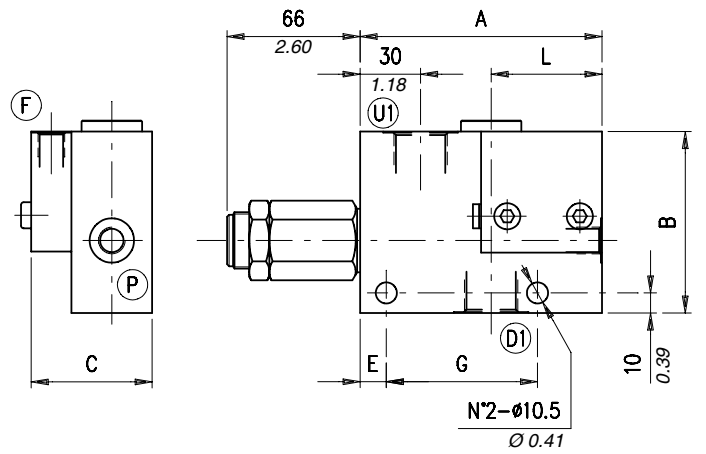
Body material

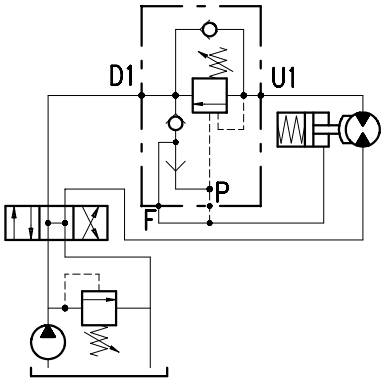
_ Aluminium
ac Steel

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



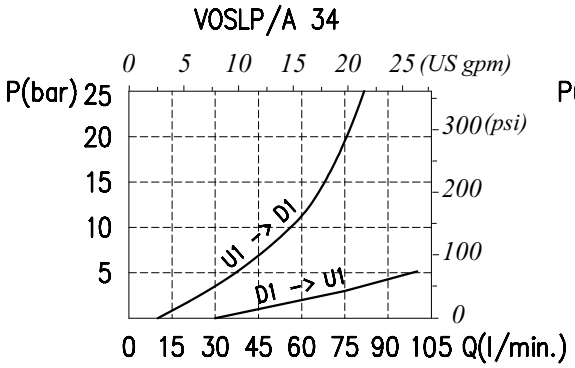


VOSLP/A	D1–U1	F–P	A*	B*	C*	E*	G*	L*
34	G 3/4	G 1/4	120 - *4.72*	90 - *3.54*	60 - *2.36*	13 - *0.51*	75 - *2.95*	55 - *2.16*
100	G 1	G 1/4	140 - *5.51*	100 - *3.94*	80 - *3.15*	10 - *0.39*	100 - *3.94*	64 - *2.52*

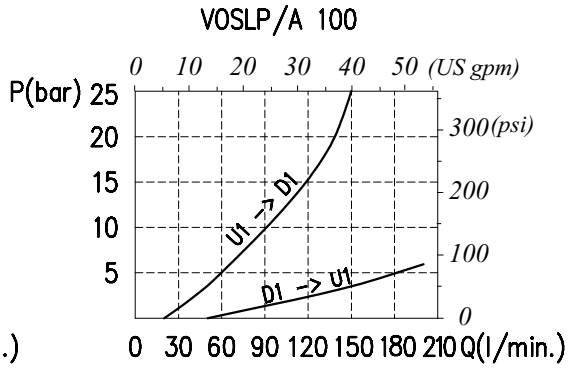
*Dimensions are in mm - *in*

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

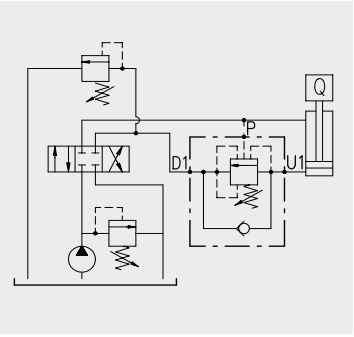
_ See body
VRR) Hardened steel

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

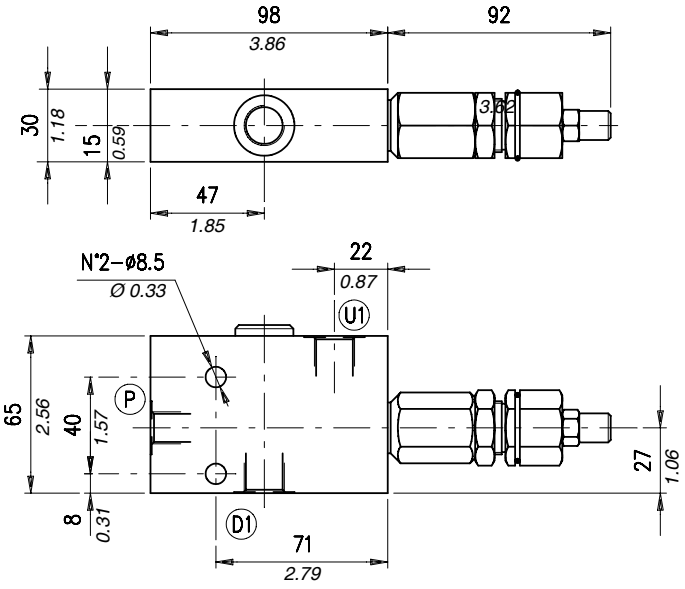
Body Valves

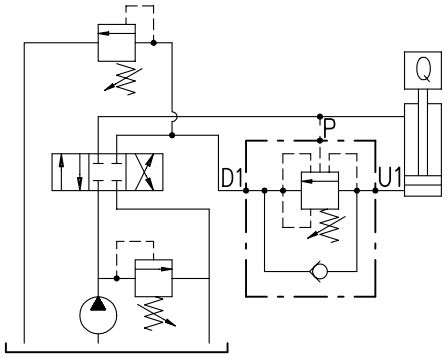
Type	Max. flow		Max. pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSLP/CC 38	35	*9.2*	350	*5100*	5-210 bar-*72.5÷725 psi* (test setting: 170 bar-*2500 psi* at 5 l/min.-*1.3 US gpm*) 50÷350 bar -*725÷5100 psi* (test 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

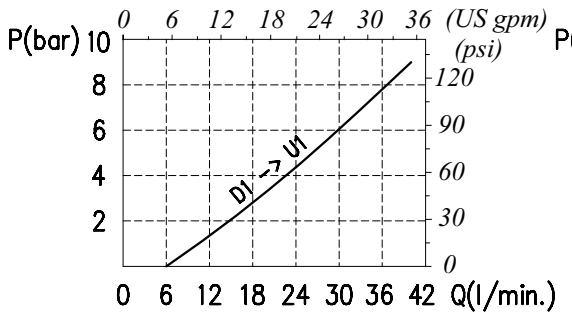




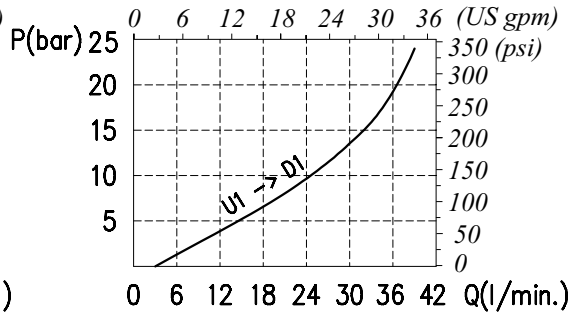
D1–U1	P
G 3/8	G 1/4

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

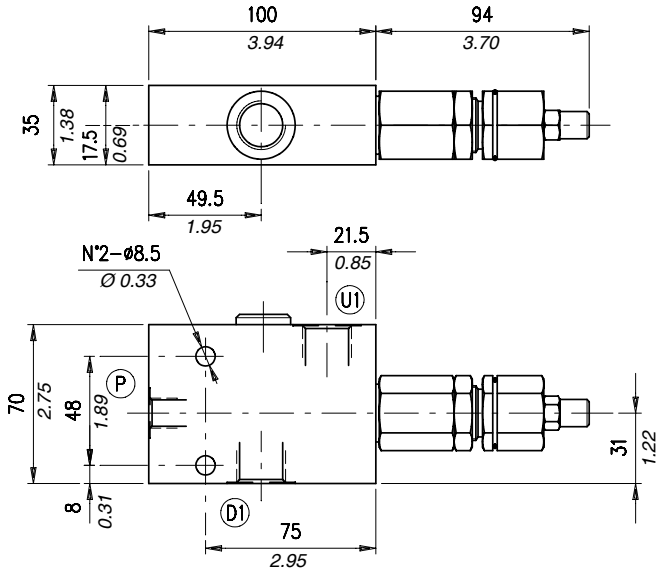
Check valve seat

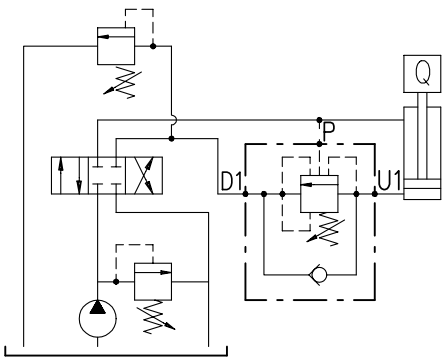
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

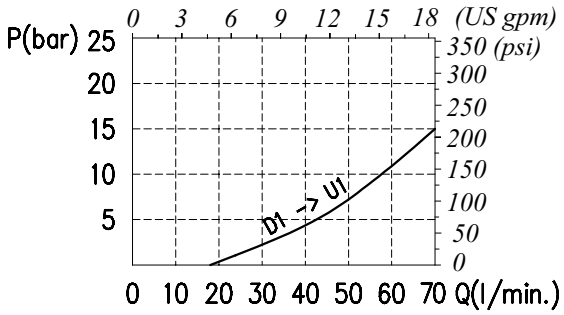




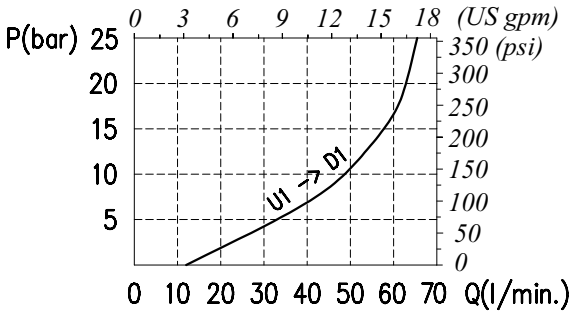
D1-U1	P
G 1/2	G 1/4

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

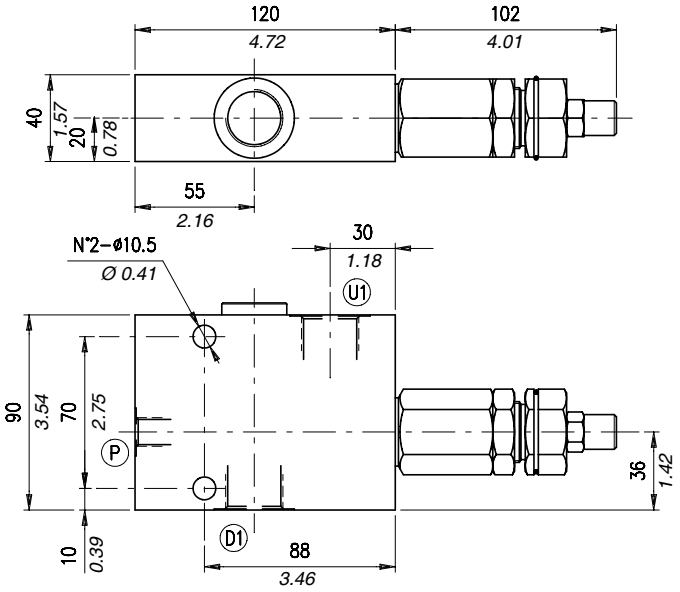
Check valve seat

_ See body
VRR) Hardened steel

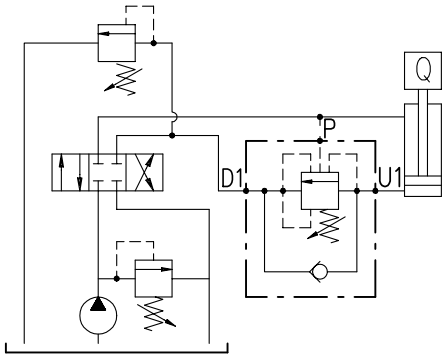
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

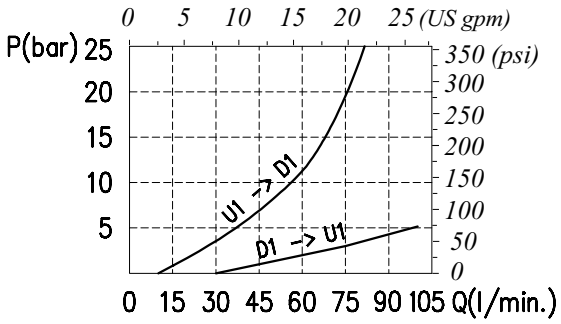


D1–U1	P
G 3/4	G 1/4



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

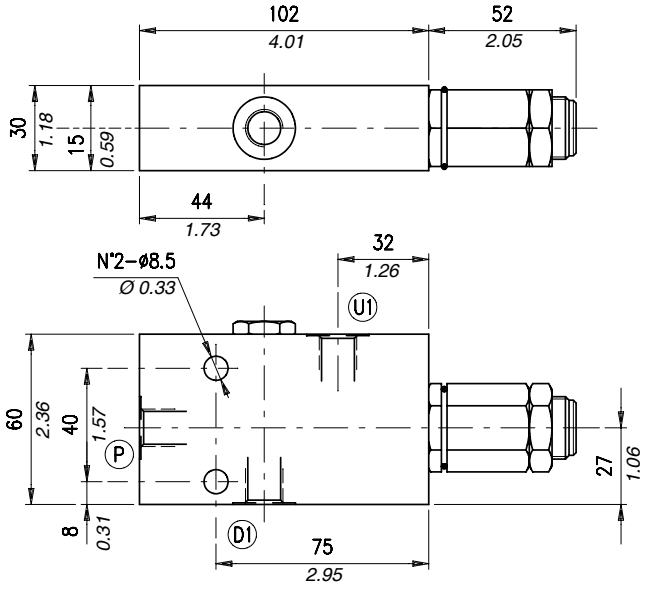
Check valve seat

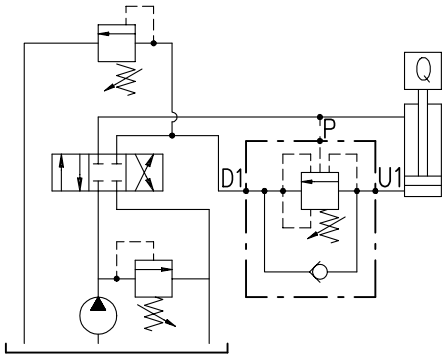
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

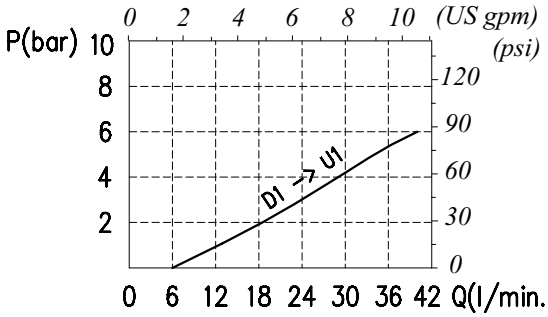




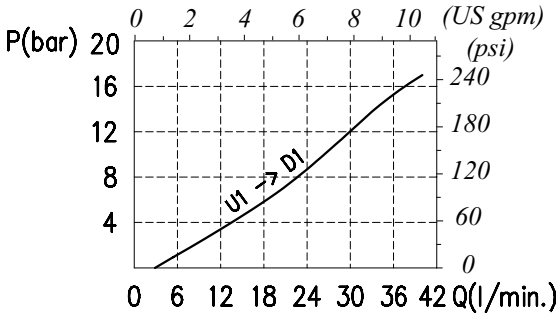
D1–U1	P
G 3/8	G 1/4

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)

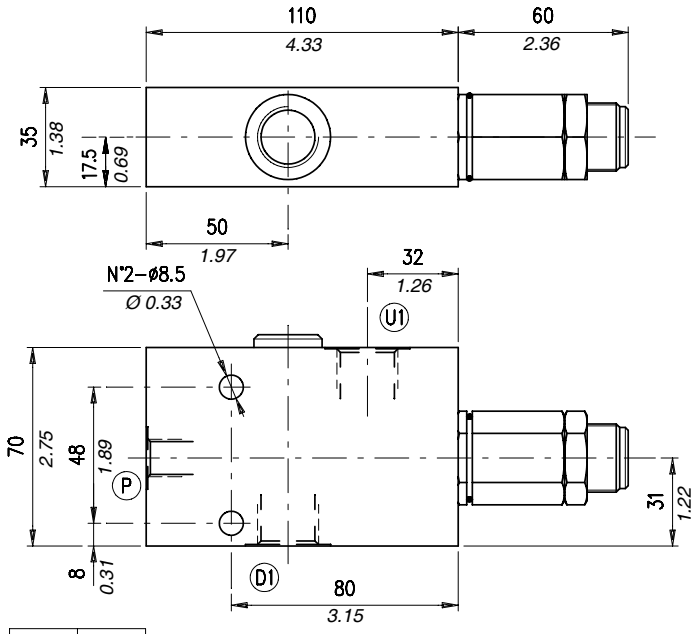
Check valve seat

_ See body
VRR) Hardened steel

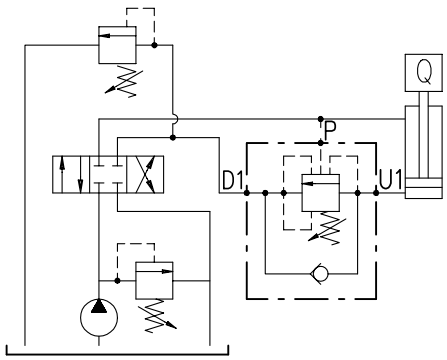
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

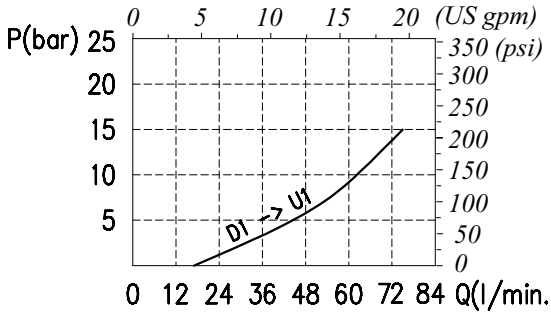


D1–U1	P
G 1/2	G 1/4

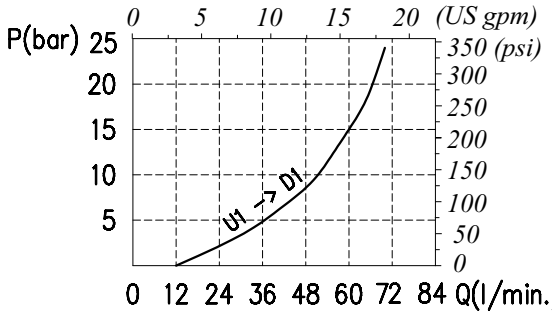


Rating diagrams

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)

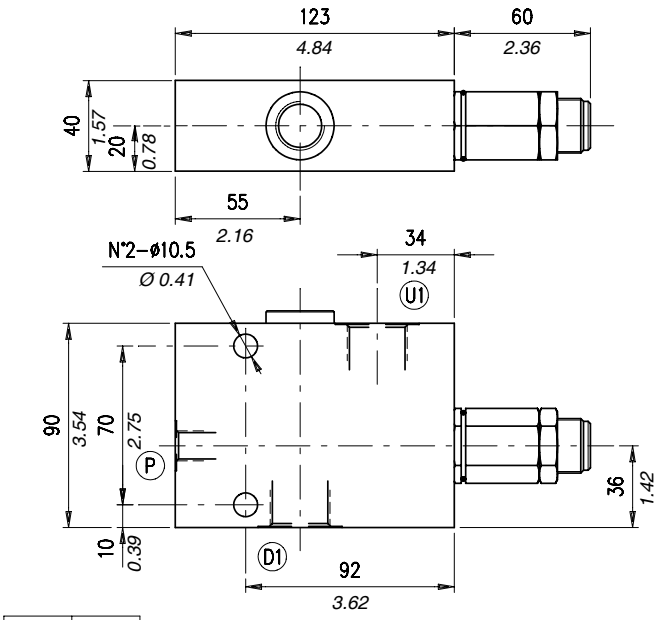
Check valve seat

_ See body
VRR) Hardened steel

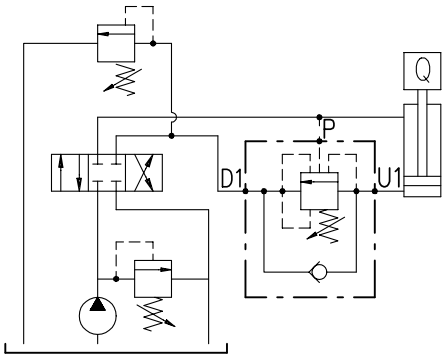
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

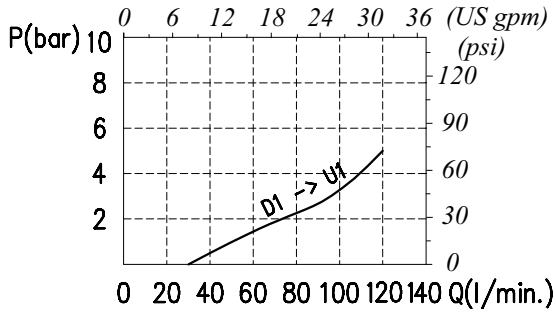


D1–U1	P
G 3/4	G 1/4

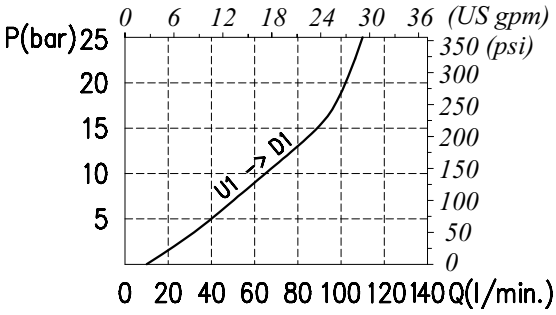


Rating diagrams

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)

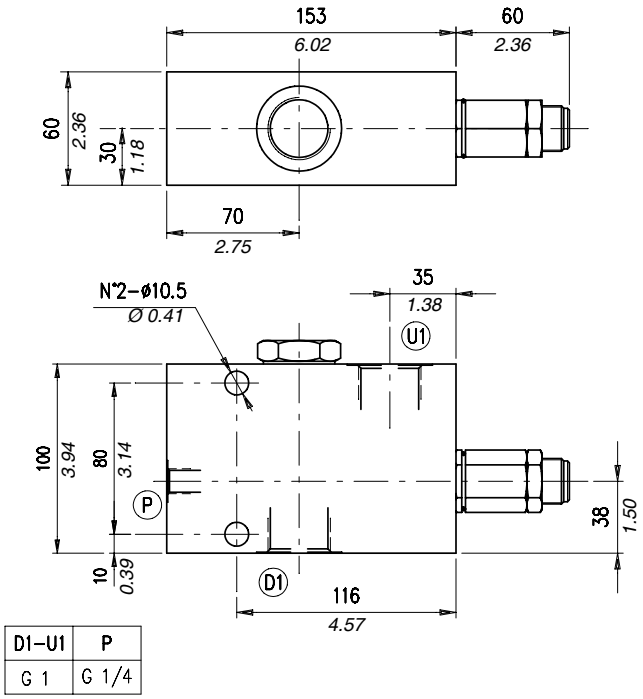
Check valve seat

_ See body
VRR) Hardened steel

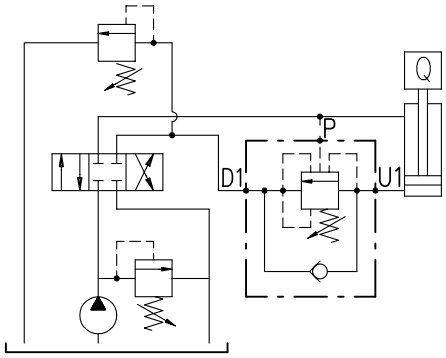
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

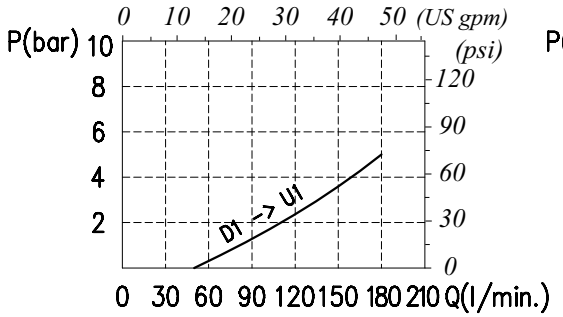


D1–U1	P
G 1	G 1/4

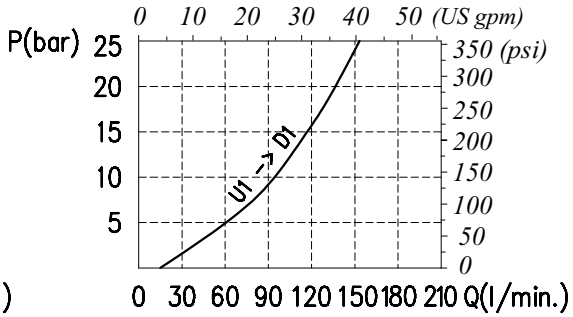


Rating diagrams

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)

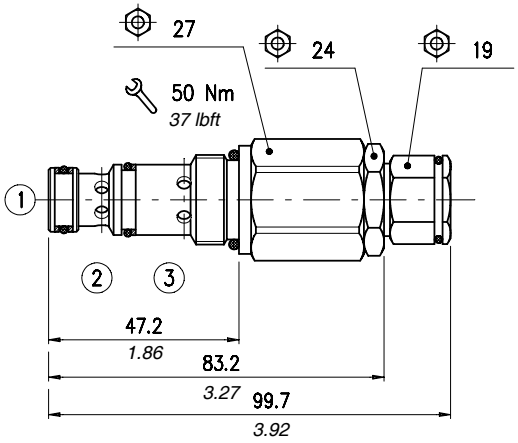
Check valve seat

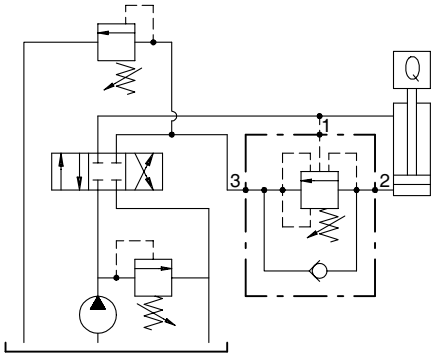
_ See body
VRR) Hardened steel

Body material

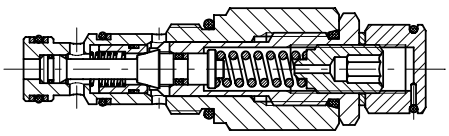
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



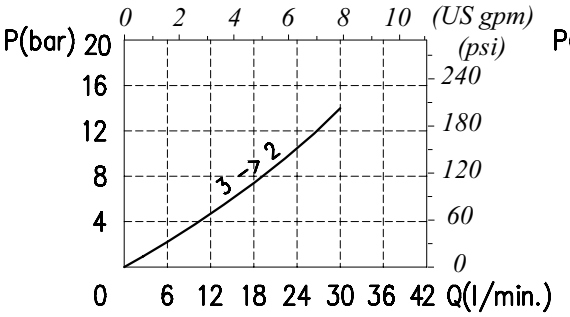


Section

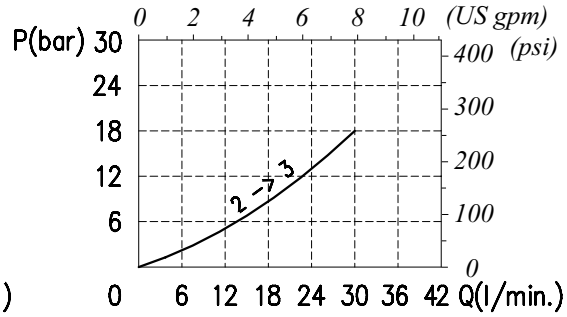


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

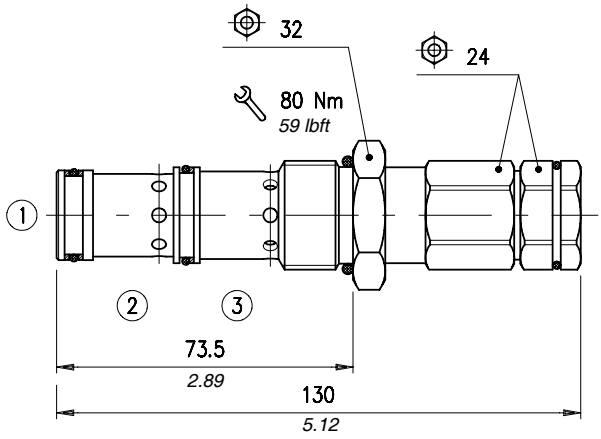


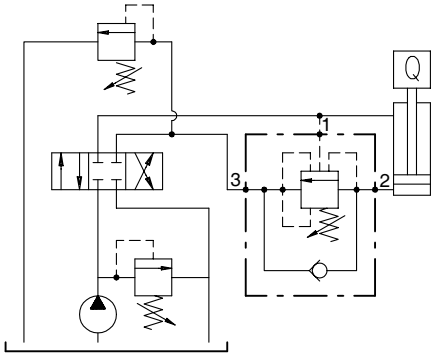
Order code

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





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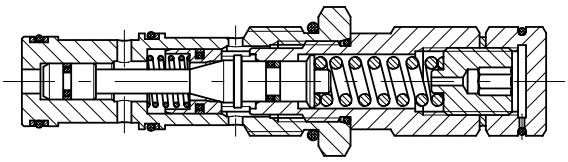
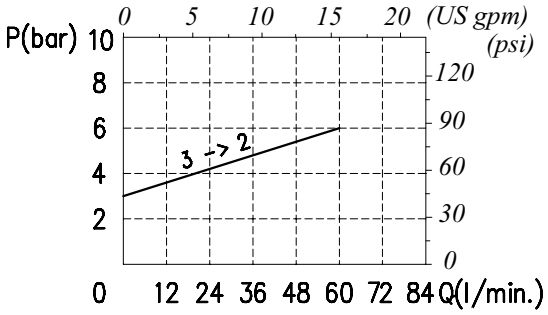
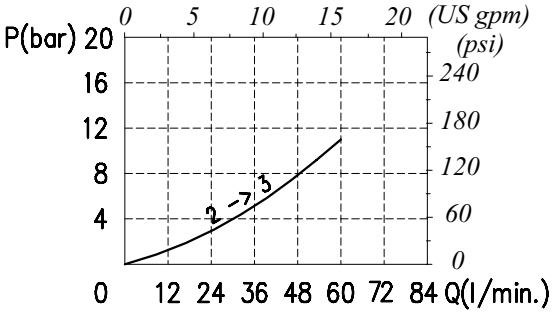


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

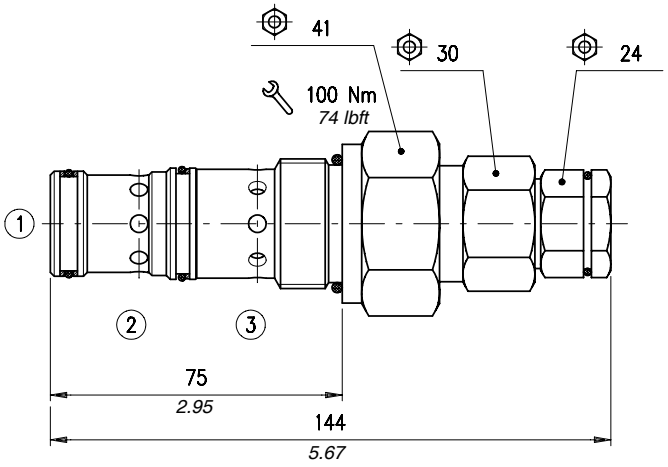


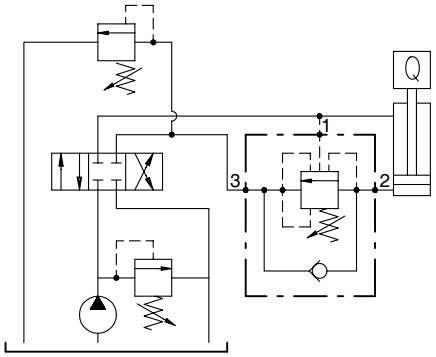
Order code

CC12A / ☐ -☐ -☐ -☐

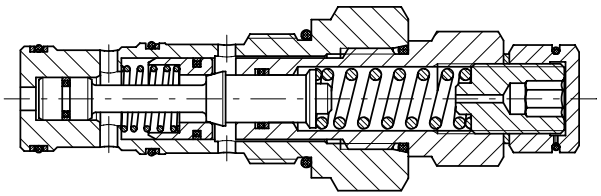
Pilot ratio	Adjustments	Pressure settings	Seals
4) 1:4	**S** **W**	**1)** 50÷220 bar *(725÷3200 psi)* **2)** 180÷350 bar *(2600÷5100 psi)* **3)** 300÷700 bar *(4350÷10150 psi)*	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



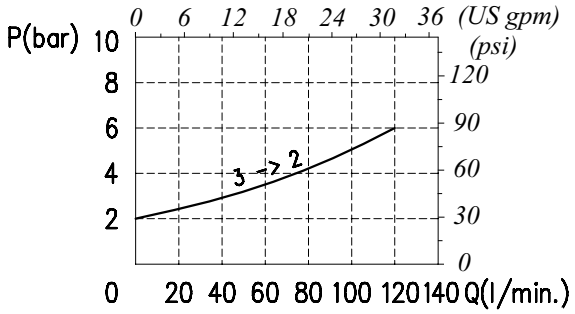


Section

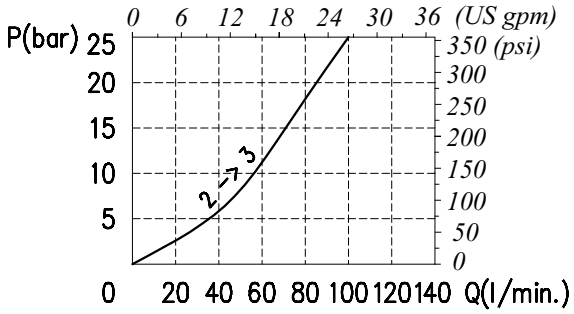


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

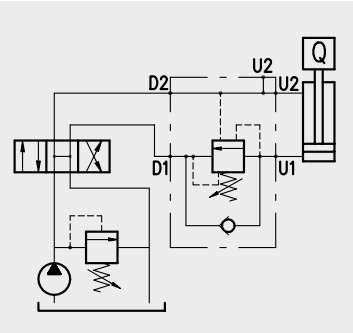


Order code

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)*	

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.

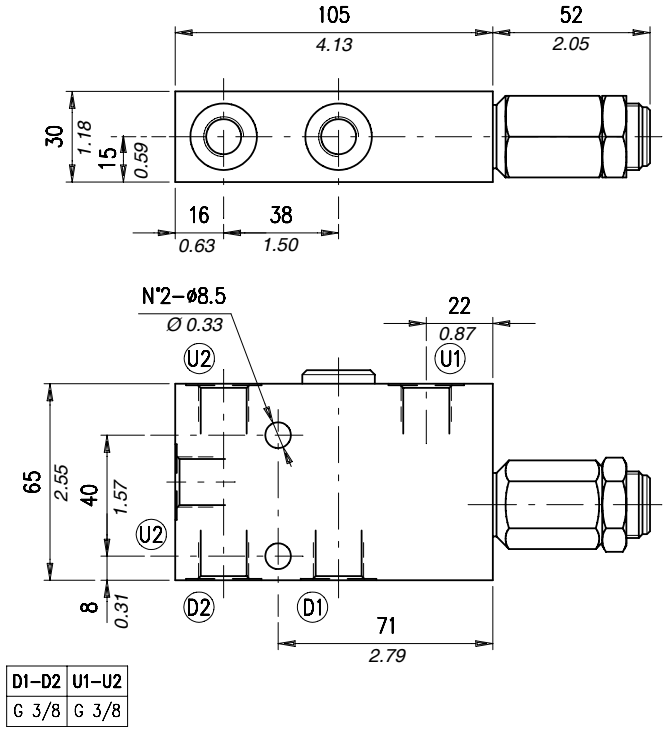
Performance

Body valves

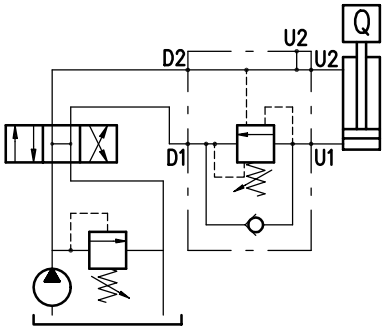
Overcenter cartridge: *VMPD 38 - **VMPD12 - ***VMPD34

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	

Dimensions and hydraulic circuit

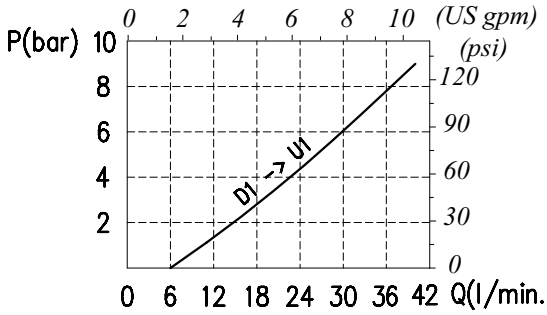


D1–D2	U1–U2
G 3/8	G 3/8

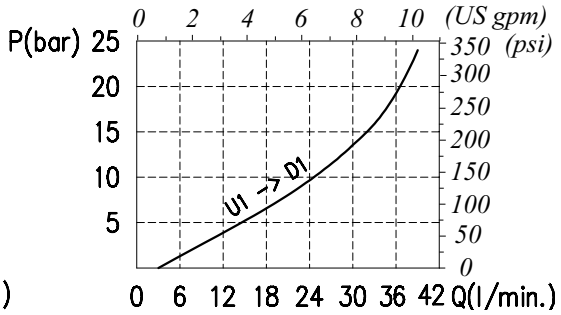


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

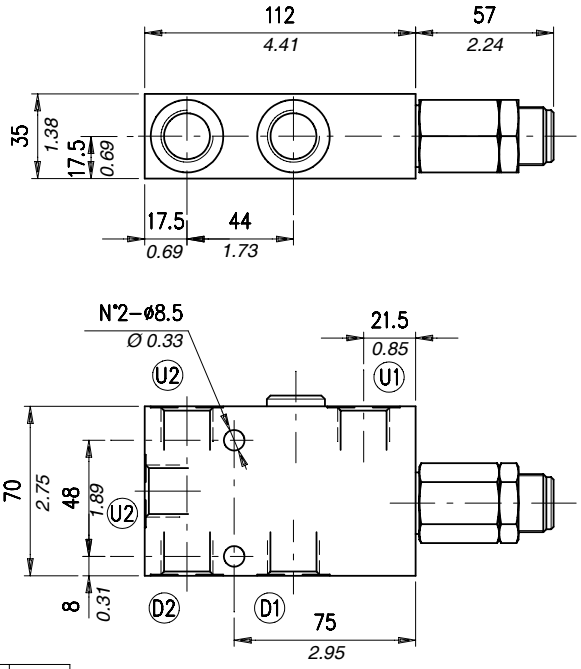


Order code

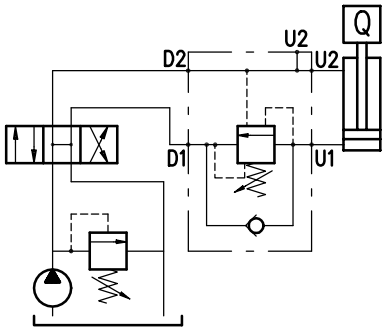
VOSL 38 / □ . S .□□ . □□ . □□ / □□

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

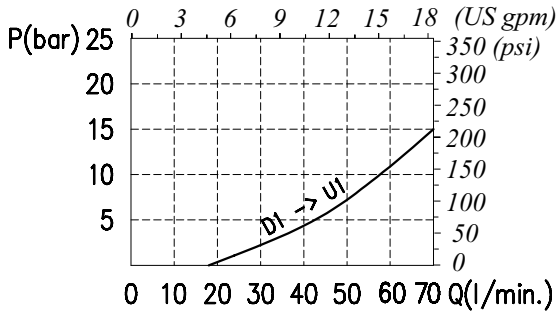


D1–D2	U1–U2
G 1/2	G 1/2

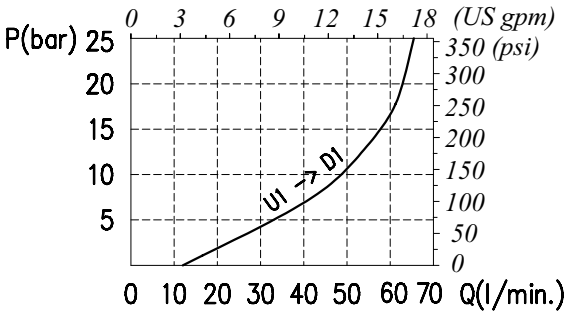


Rating diagrams

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

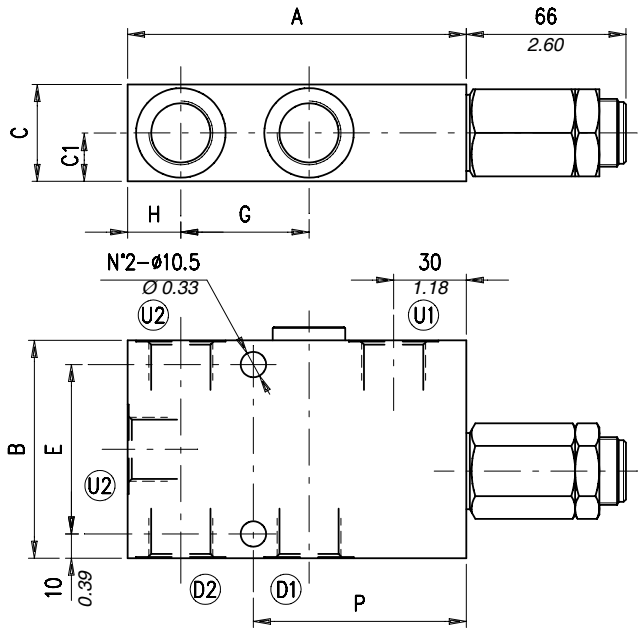
Check valve seat

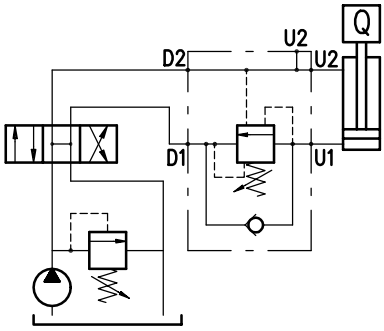
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



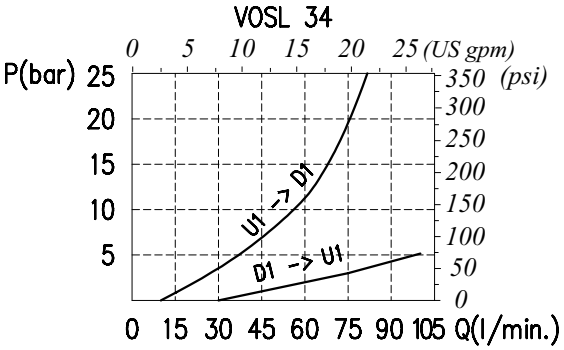


VOSL	D1–D2	U1–U2	A*	B*	C*	C1*	E*	G*	H*	P*
34	G 3/4	G 3/4	140 - *5.51*	90 - *3.54*	40 - *1.57*	20- *0.78*	70 - *2.75*	53 - *2.09*	22 - *0.66*	88 - *3.46*
100	G 1	G 1	174 - *6.85*	100 - *3.94*	60 - *2.36*	30- *1.18*	80 - *3.15*	66 - *2.60*	32 - *1.26*	110 - *4.33*

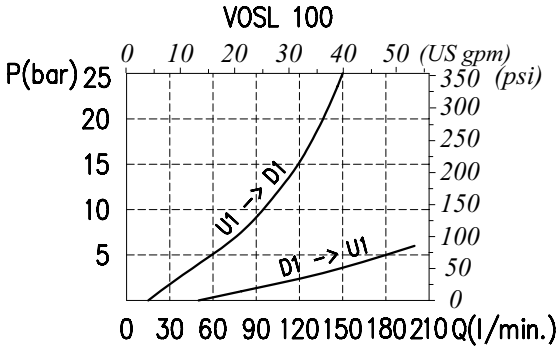
* Dimensions are in mm - *in*

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

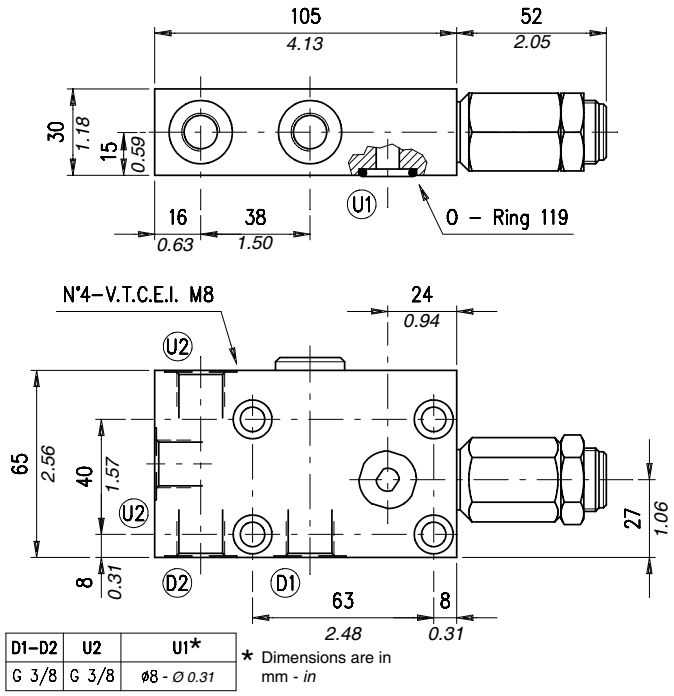
Check valve seat

_ See body
VRR) Hardened steel

Body material

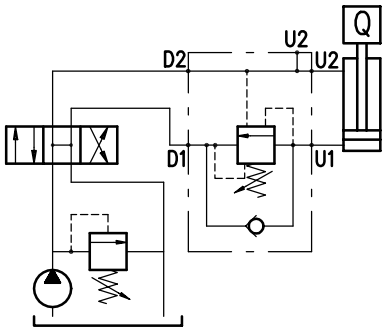
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



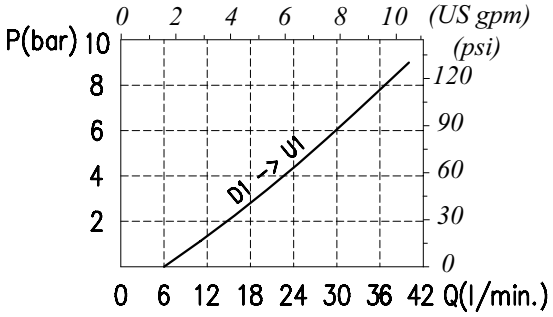
D1–D2	U2	U1*
G 3/8	G 3/8	ø8 - Ø 0.31

* Dimensions are in mm - *in*

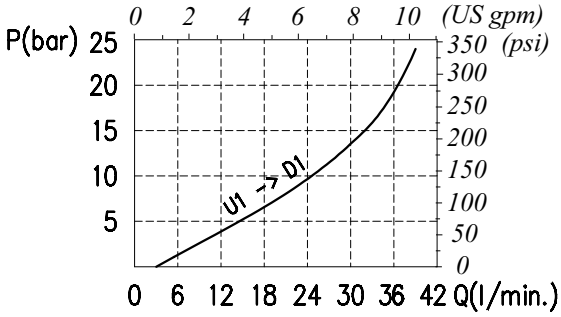


Rating diagrams

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

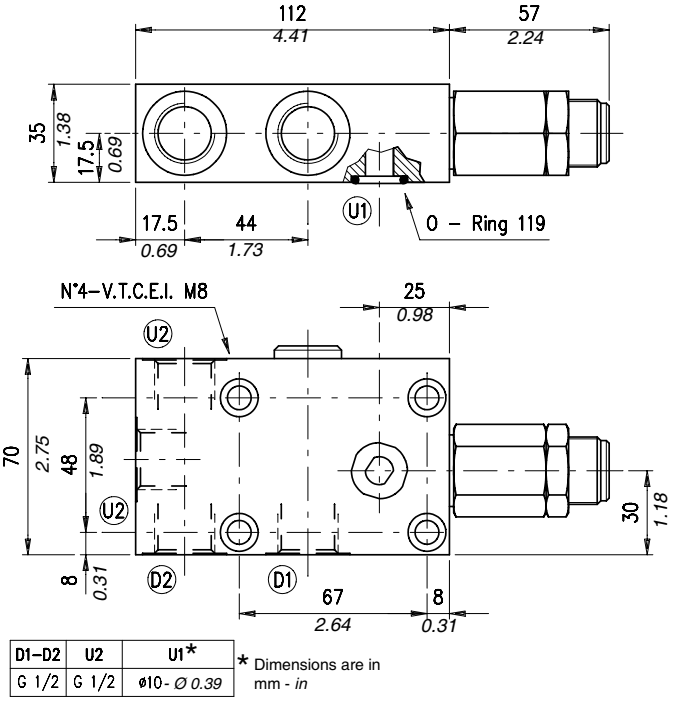
Check valve seat

_ See body
VRR) Hardened steel

Body material

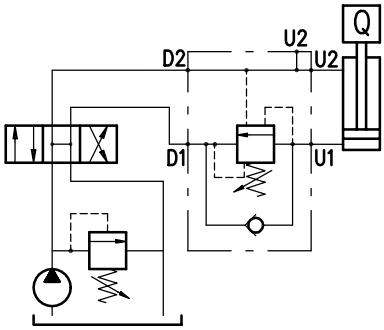
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



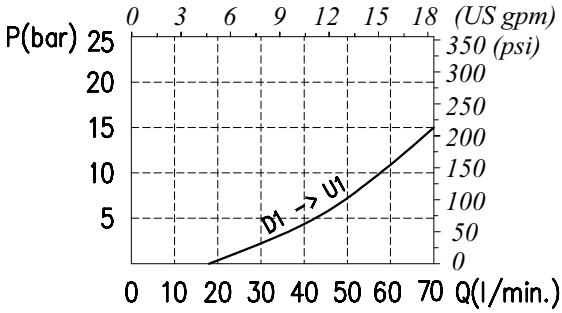
D1–D2	U2	U1*
G 1/2	G 1/2	ø10 - Ø 0.39

* Dimensions are in mm - *in*

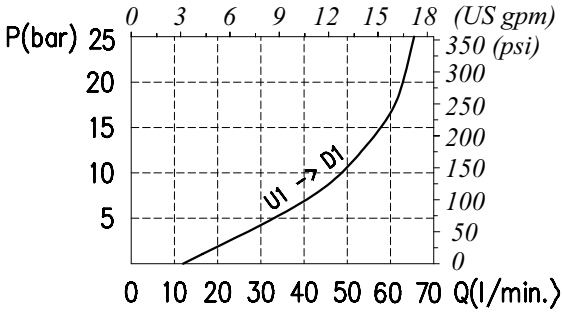


Rating diagrams

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

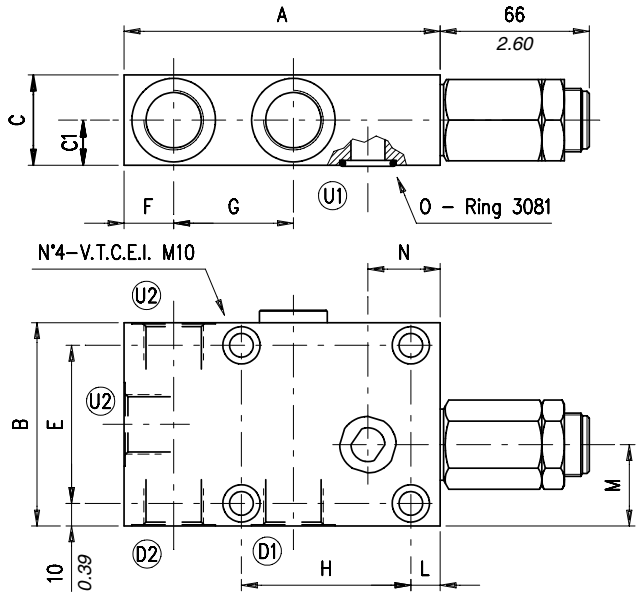
Check valve seat

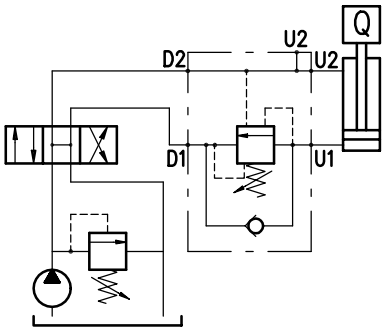
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



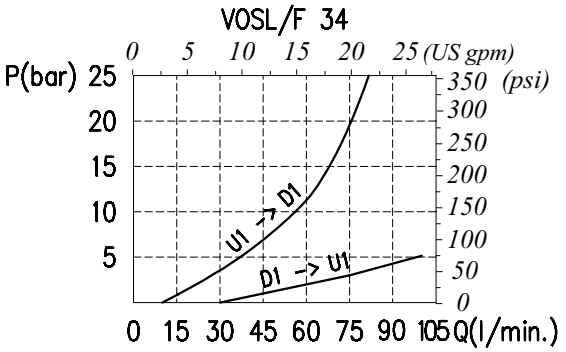


VOSL/F	D1–D2	U2	U1	A*	B*	C*	C1*	E*	F*	G*	H*	L*	M*	N*
34	G 3/4	G 3/4	ø15 - Ø 0.59	140 - 5.51	90 - 3.54	40 - 1.57	20 - 0.78	70 - 2.75	22 - 0.87	53 - 2.09	75 - 2.95	13 - 0.51	36 - 1.42	32 - 1.26
100	G 1	G 1	ø19 - Ø 0.75	174 - 6.85	100 - 3.94	60 - 2.36	30 - 1.18	55 - 2.16	32 - 1.26	66 - 2.60	100 - 3.94	10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

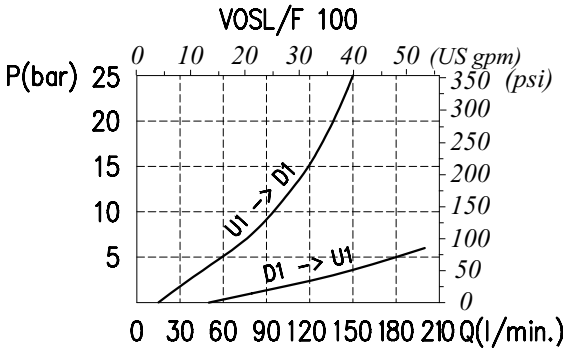
* Dimensions are in mm - *in*

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

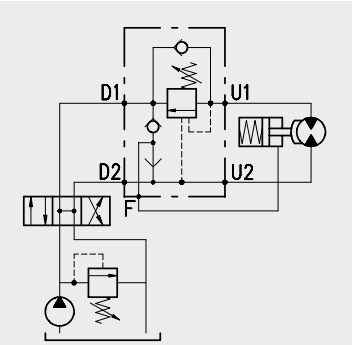
Check valve seat

_ 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.)

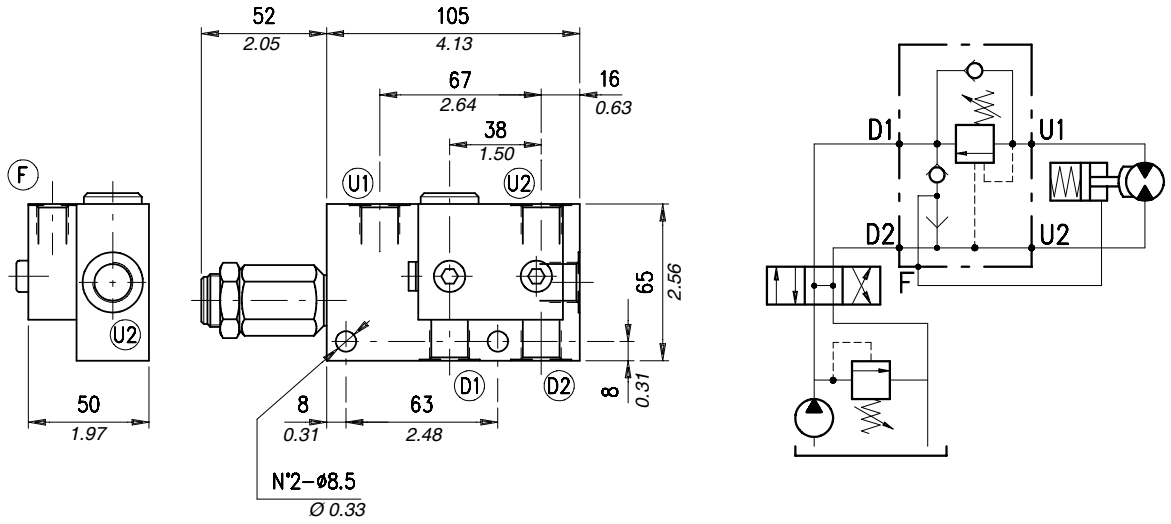
350 (steel)</td><td rowspan="12">3050 (alum.)

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>

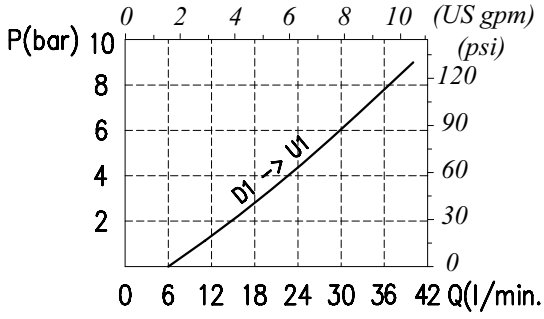
Dimensions and hydraulic circuit



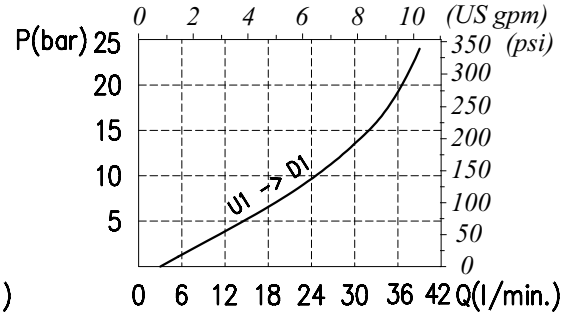
D1–D2	U1–U2	F
G 3/8	G 3/8	G 1/4

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

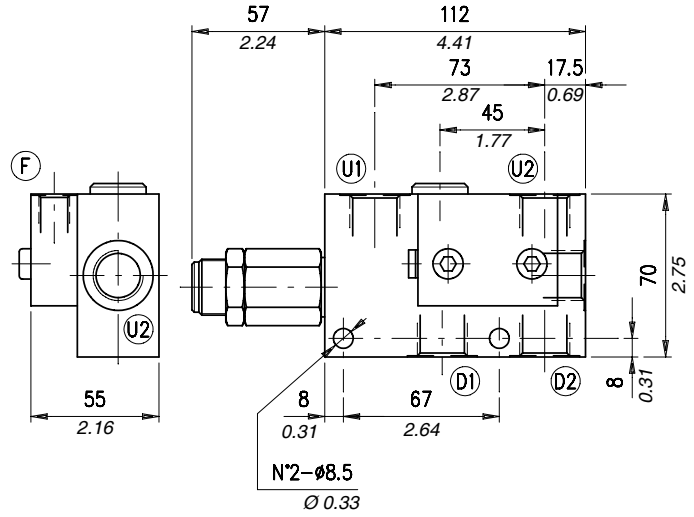
Check valve seat

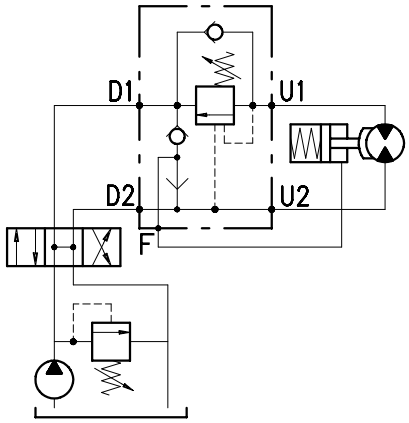
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

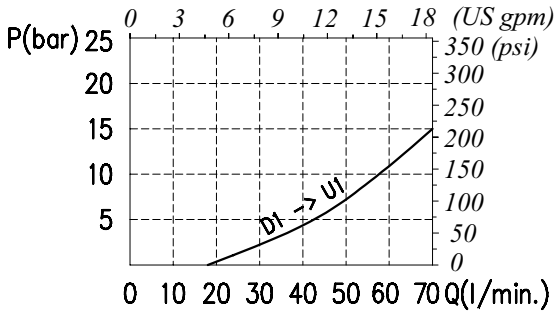




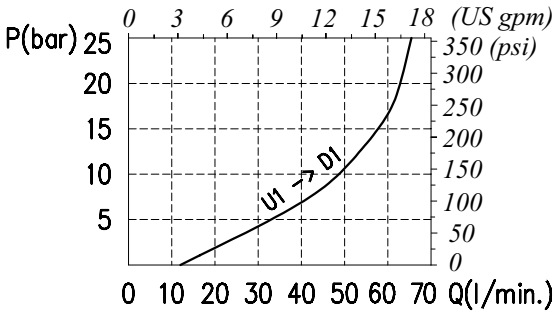
D1–D2	U1–U2	F
G 1/2	G 1/2	G 1/4

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
VR) Hardened steel

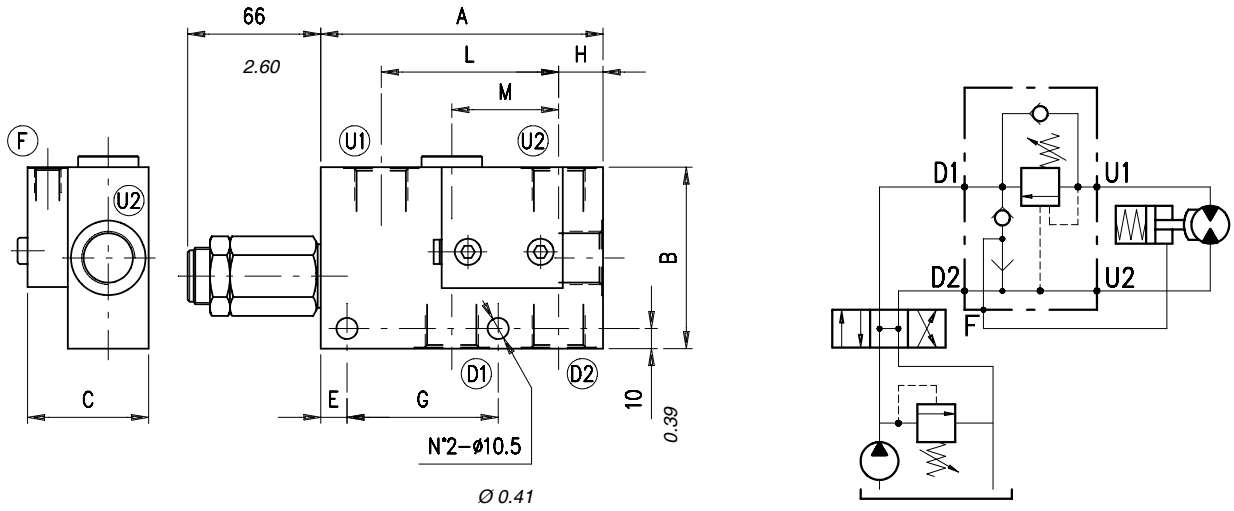
Body material

_ Aluminium
ac Steel

Type VOSL/A 34 (100)

Single overcenter valve, line mounting, with connection for hydraulic brake release. Cartridge construction

Dimensions and hydraulic circuit

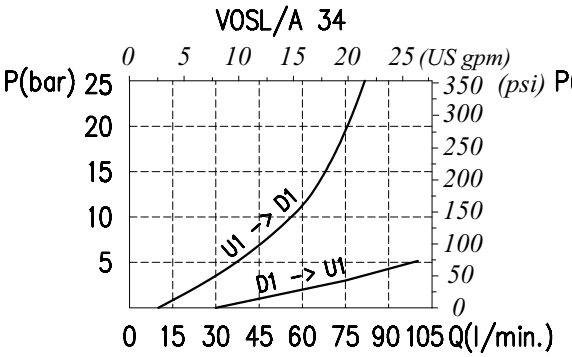


VOSL/A	D1–D2	U1–U2	F	A*	B*	C*	E*	G*	H*	L*	M*
34	G 3/4	G 3/4	G 1/4	140 - *5.51*	90 - *3.54*	60 - *2.36*	13 - *0.51*	75 - *2.95*	22 - *0.87*	88 - *3.46*	53 - *2.09*
100	G 1	G 1	G 1/4	174 - *6.85*	100 - *3.94*	80 - *3.15*	10 - *0.39*	100 - *3.94*	30 - *1.18*	112 - *4.41*	46 - *1.81*

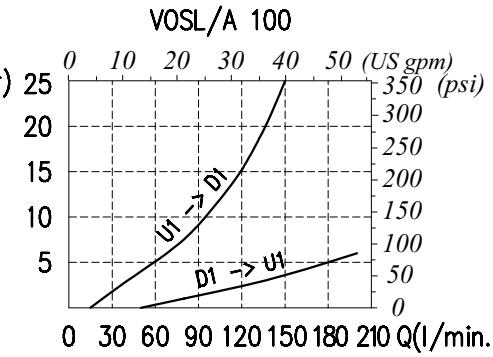
* Dimensions are in mm - *in*

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

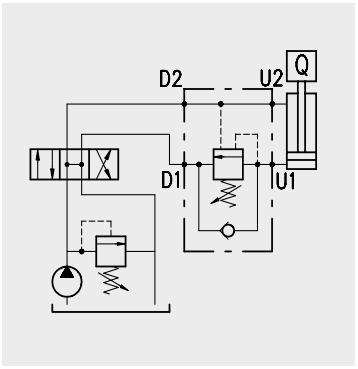
_ See body
VRR) Hardened steel

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

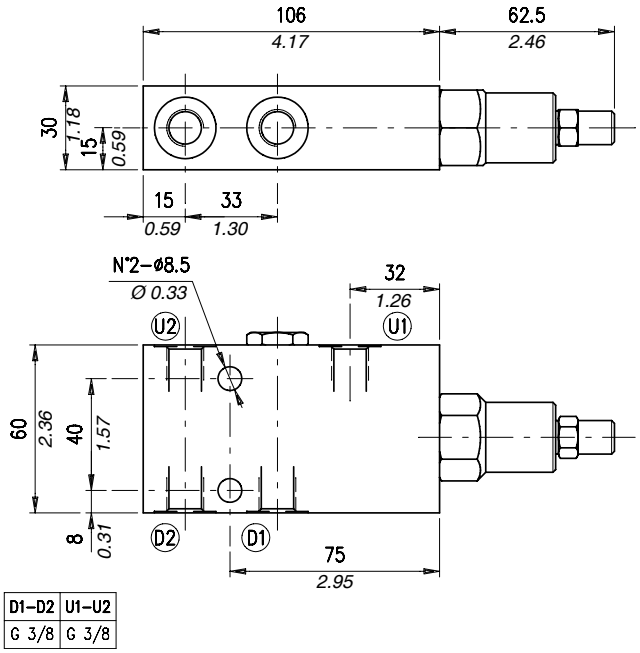
Body valves

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*

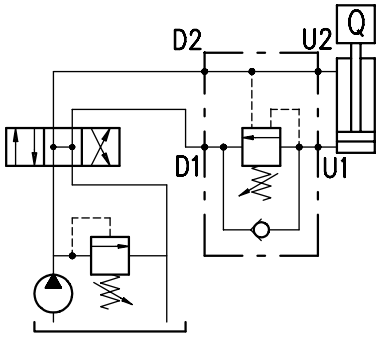
Body valves

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

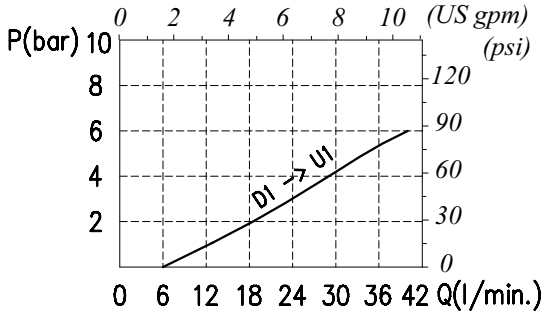


D1–D2	U1–U2
G 3/8	G 3/8

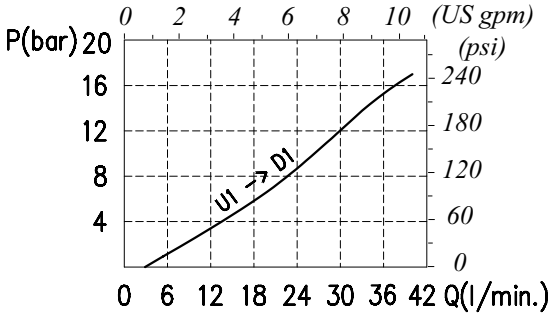


Rating diagrams

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)

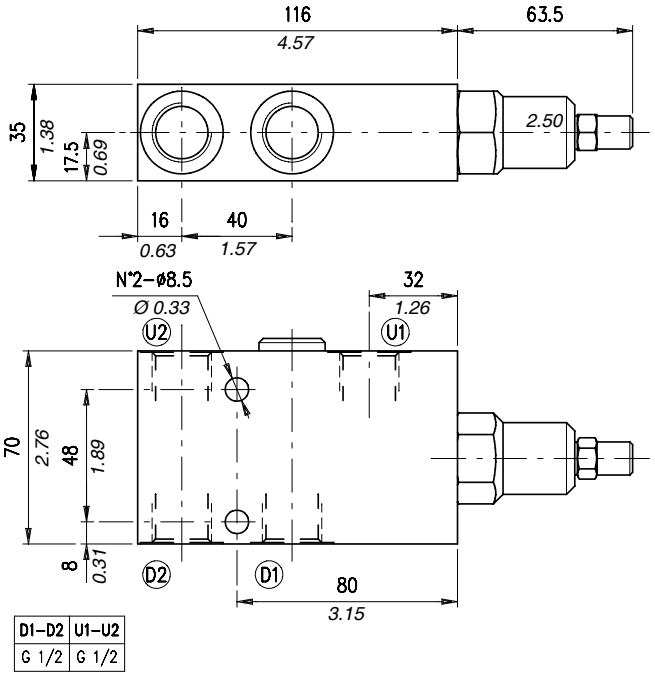
Check valve seat

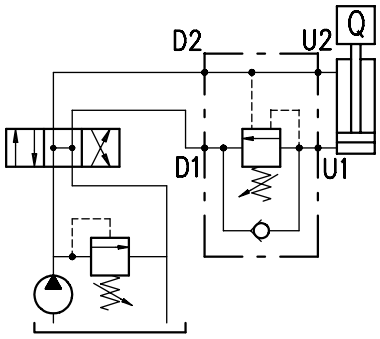
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

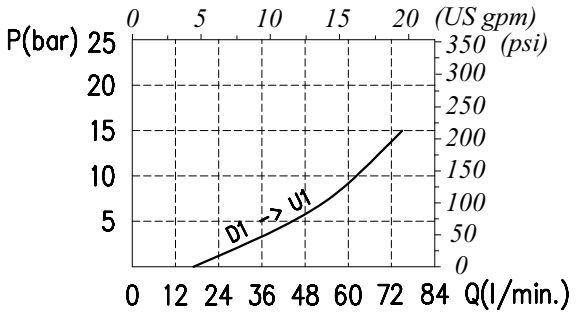
Dimensions and hydraulic circuit



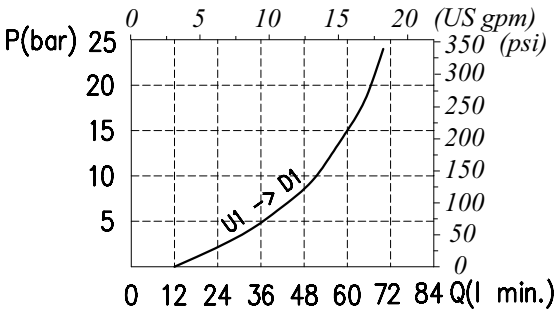


Rating diagrams

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)

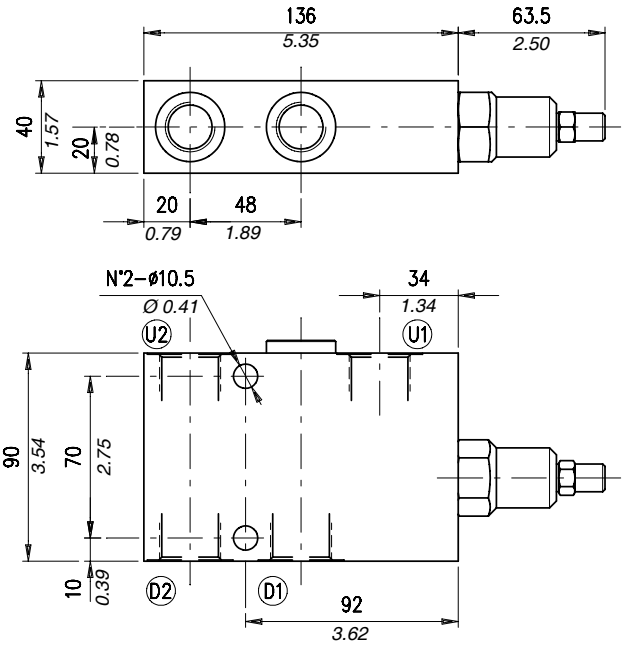
Check valve seat

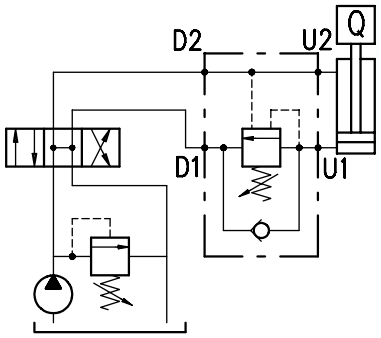
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

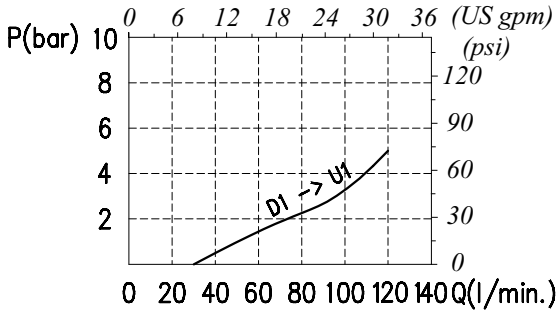




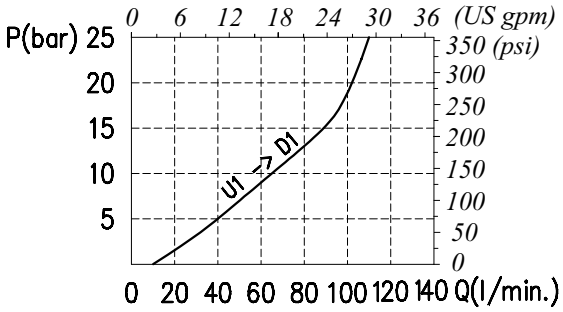
D1–D2	U1–U2
G 3/4	G 3/4

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)

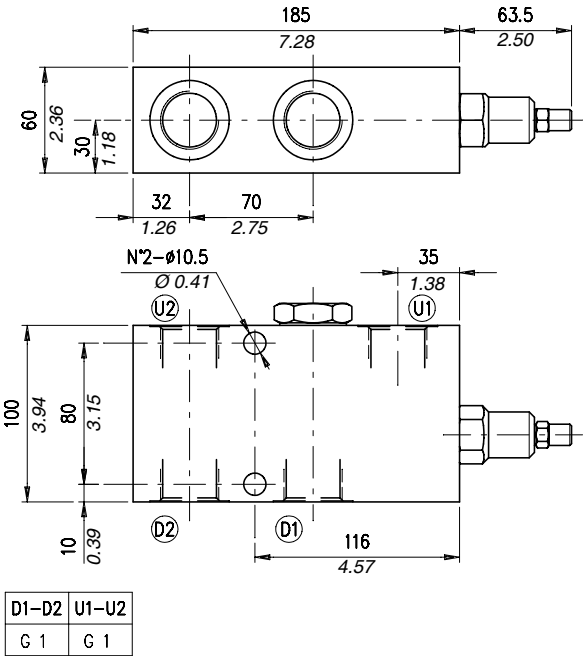
Check valve seat

_ See body
VRR) Hardened steel

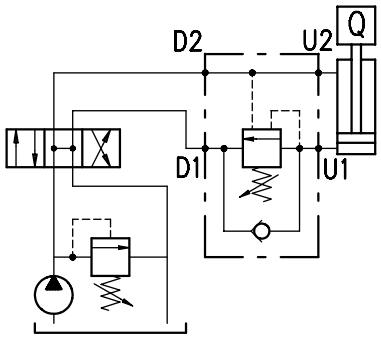
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

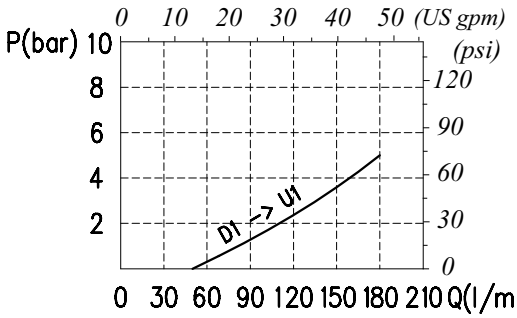


D1–D2	U1–U2
G 1	G 1

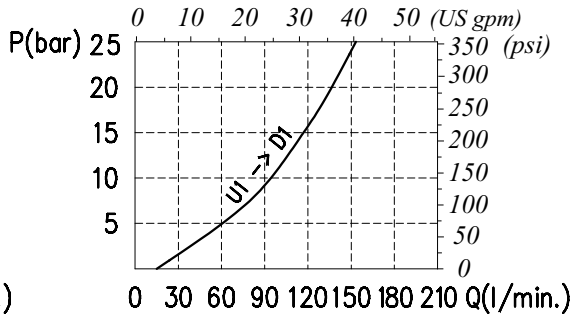


Rating diagrams

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)

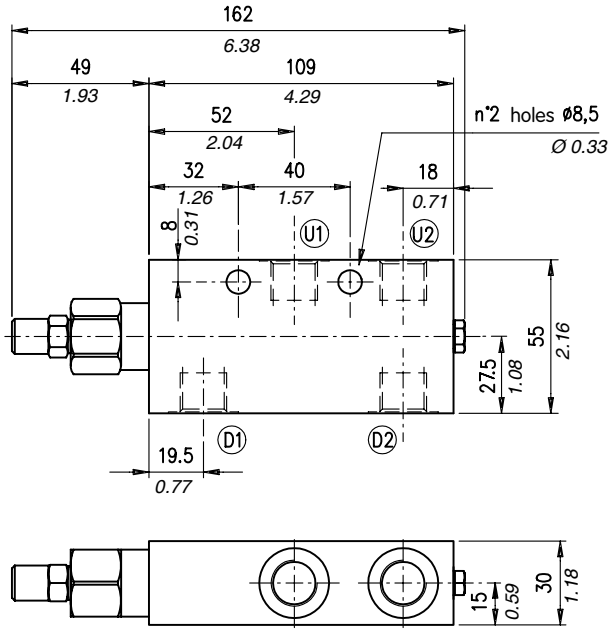
Check valve seat

_ See body
VRR) Hardened steel

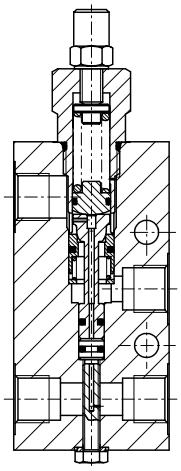
Body material

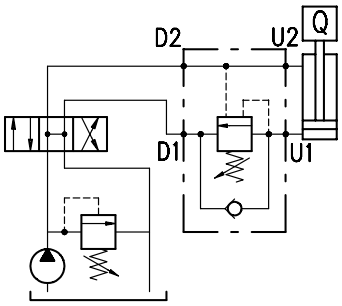
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



Section

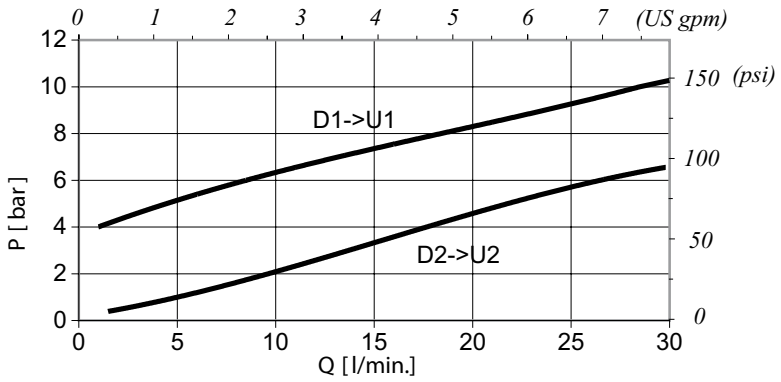




D1–D2	U1–U2
G 3/8	G 3/8

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

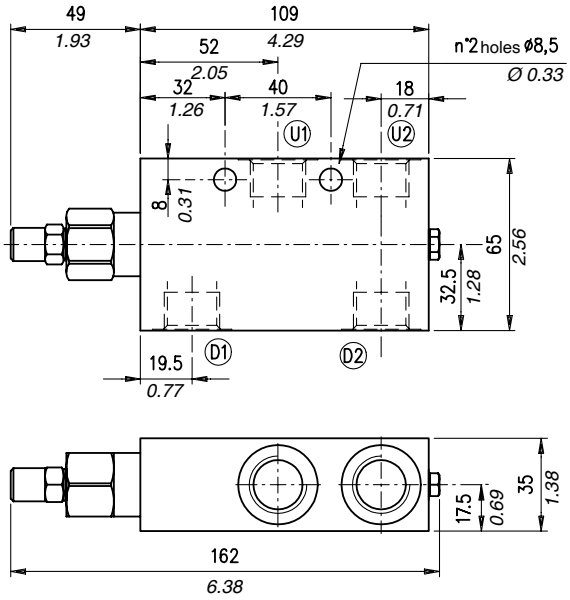
p4)1:4

Body material

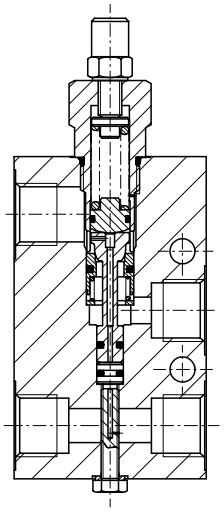
_ Aluminium
ac Steel

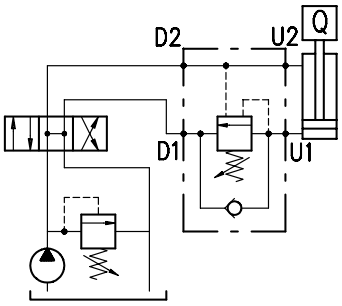
Single overcenter valve, line mounting. The main features of this valve are compact dimensions and good tolerance to oil contamination

Dimensions and hydraulic circuit



Section

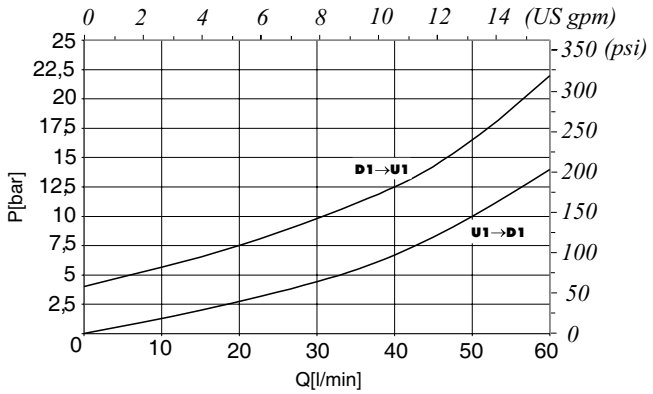




D1–D2	U1–U2
G 1/2	G 1/2

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)

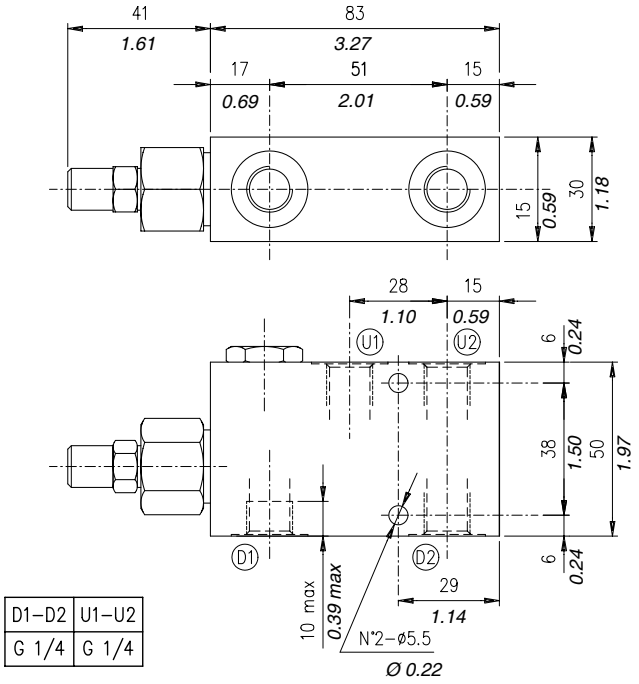
Pilot ratio

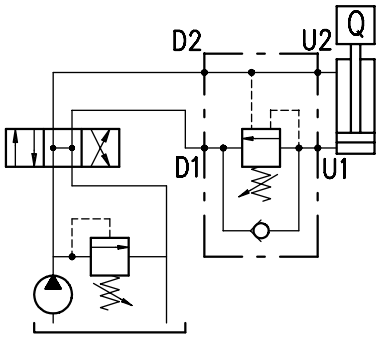
p4) 1:4
p11) 1:11

Body material

_ Aluminium
ac Steel

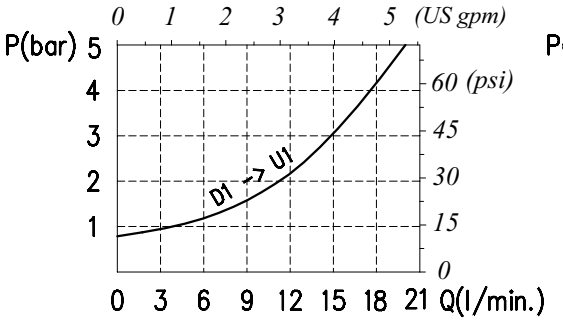
Dimensions and hydraulic circuit



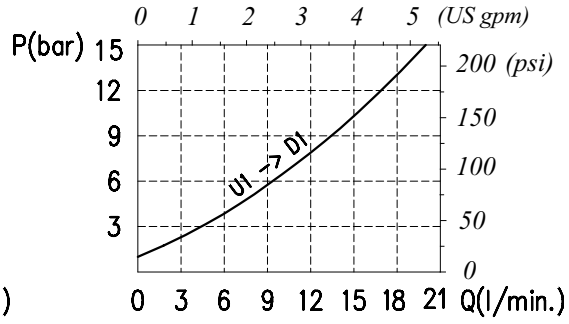


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

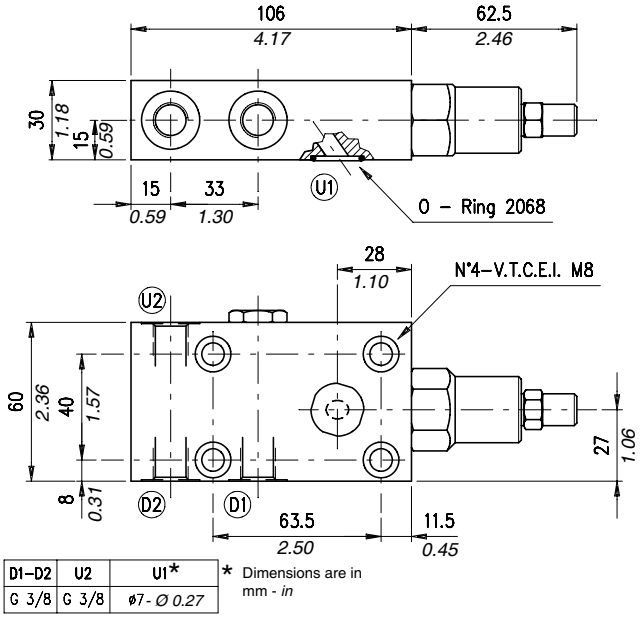


Order code

VOSL

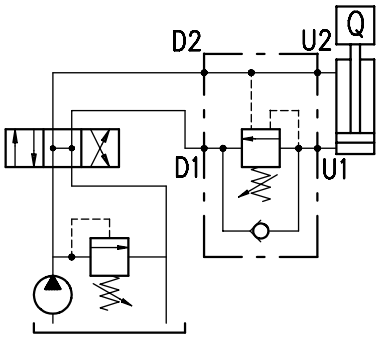
(72.5÷3050 psi)
(725÷5100 psi)

Dimensions and hydraulic circuit



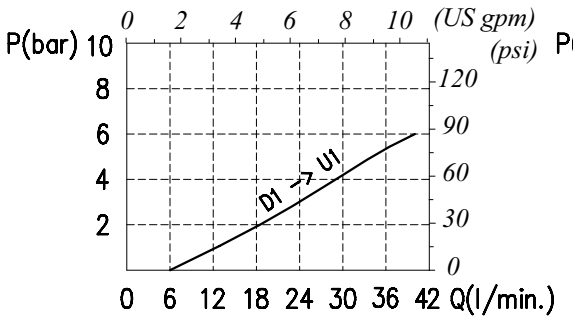
D1–D2	U2	U1*
G 3/8	G 3/8	ø7 - Ø 0.27

* Dimensions are in mm - *in*

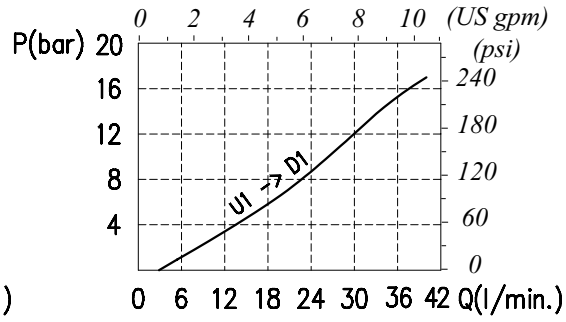


Rating diagrams

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)

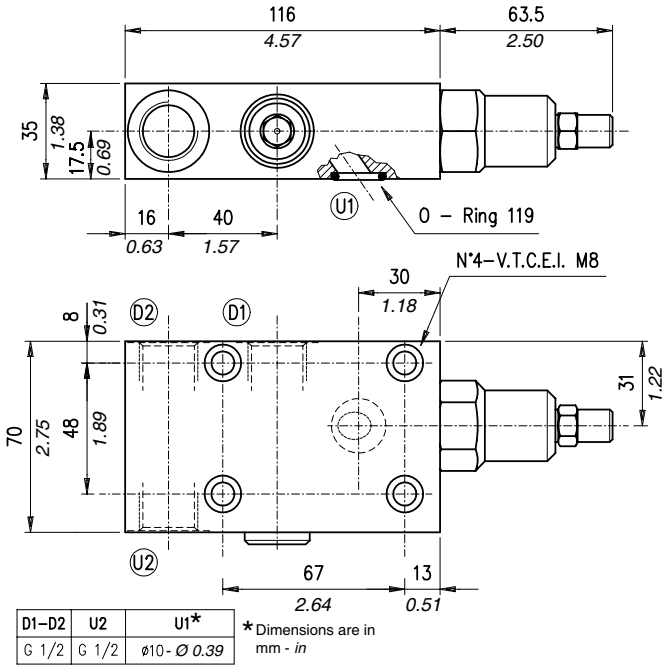
Check valve seat

_ See body
VRR) Hardened steel

Body material

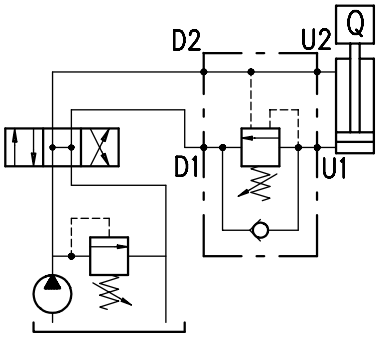
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



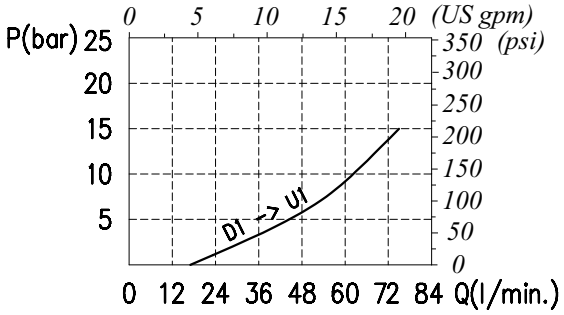
D1–D2	U2	U1*
G 1/2	G 1/2	ø10 - Ø 0.39

*Dimensions are in mm - *in*

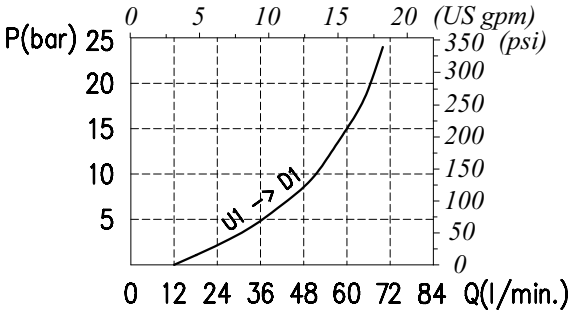


Rating diagrams

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)

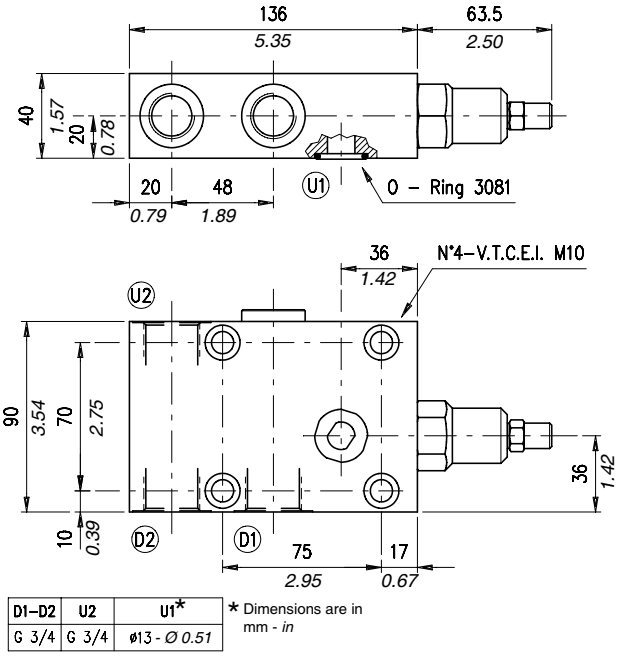
Check valve seat

_ See body
VRR) Hardened steel

Body material

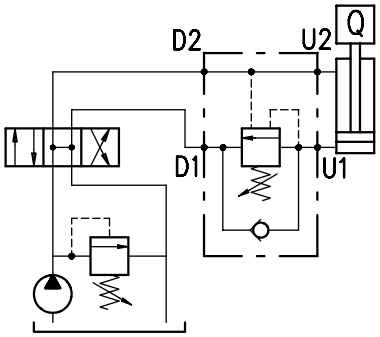
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



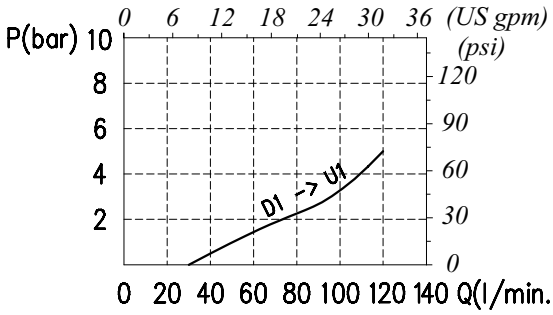
D1–D2	U2	U1*
G 3/4	G 3/4	ø13 - Ø 0.51

* Dimensions are in mm - *in*

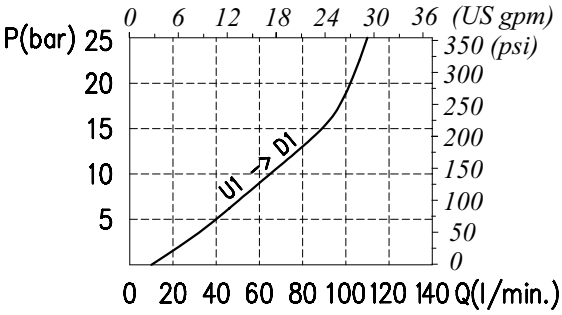


Rating diagrams

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

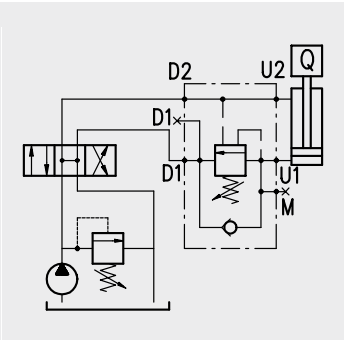
_ See body
VRR) Hardened steel

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).



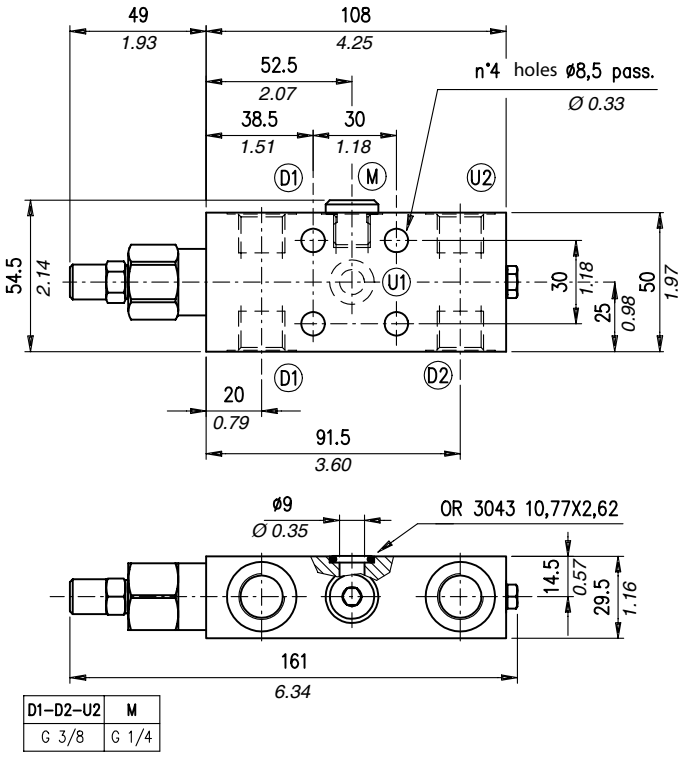
Performance

Body valves

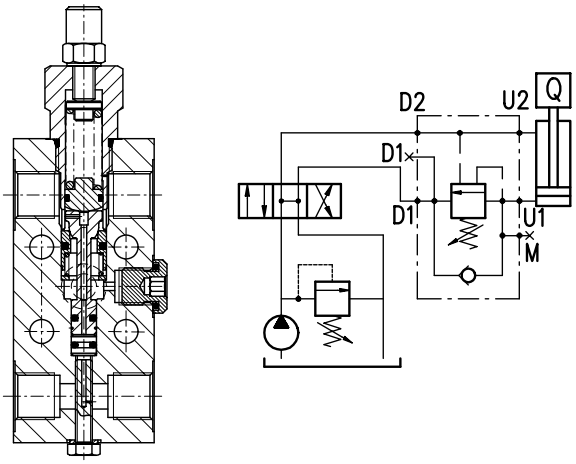
Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSL/SC/F/C 1116/38	30	*7.9*	210 (alum.) 350 (steel)	*3050 (alum.)* *5100 (steel)*	50÷350 bar *-725÷5100 psi*; pressure increase =131 bar-*1900 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

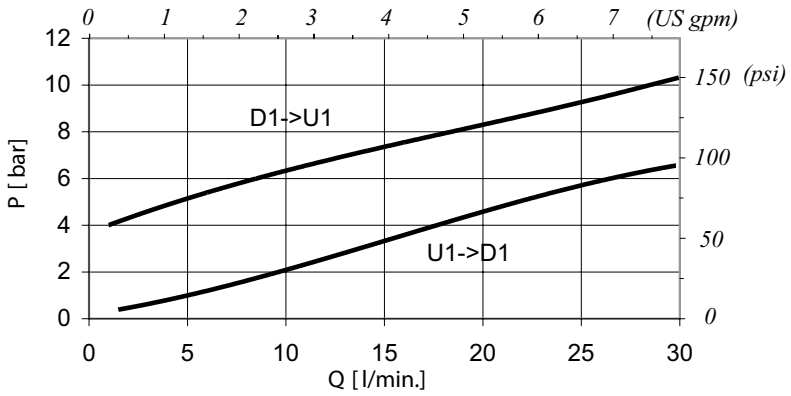


Section



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)

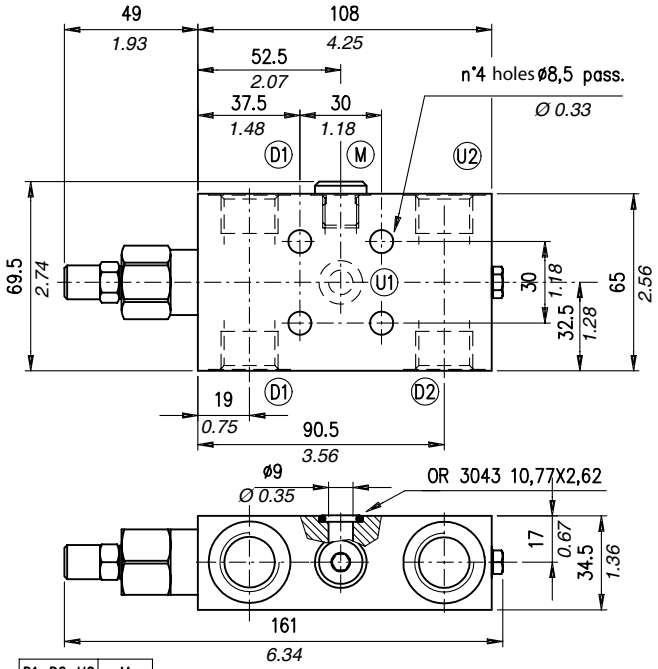
Pilot ratio

p4) 1:4
p11) 1:11

Body material

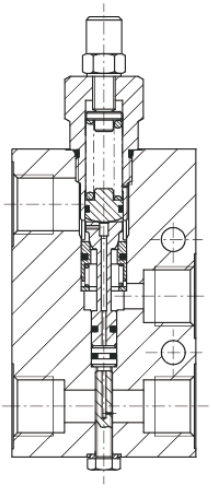
_ Aluminium
ac Steel

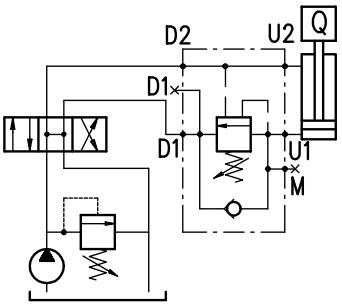
Dimensions and hydraulic circuit



D1–D2–U2	M
G 1/2	G 1/4

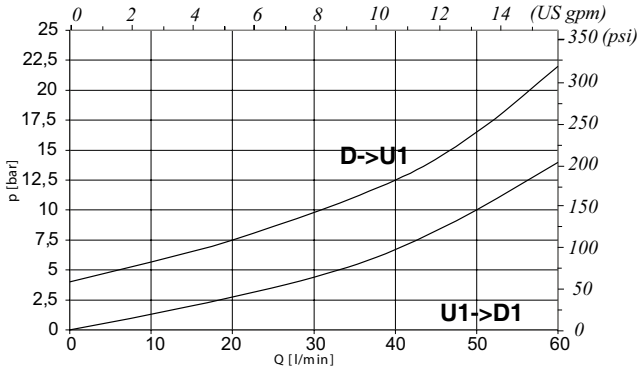
Section





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)*

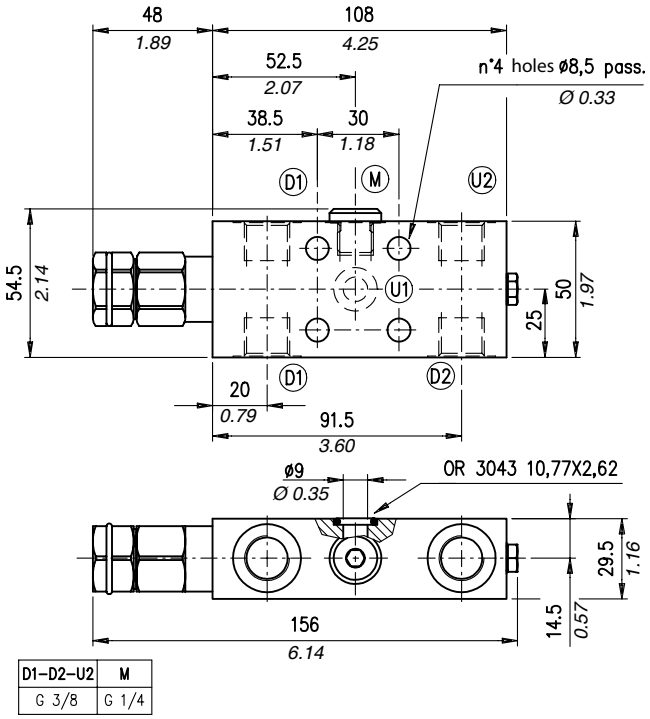
Pilot Ratio

p4) 1:4
P11) 1:11

Body material

_Aluminium
ac Steel

Dimensions and hydraulic circuit



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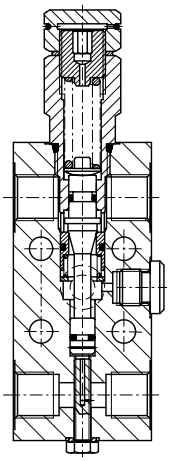
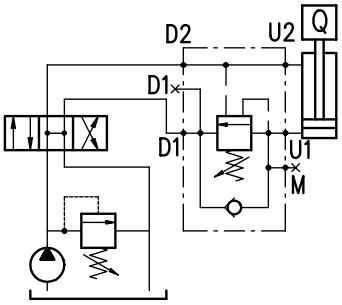
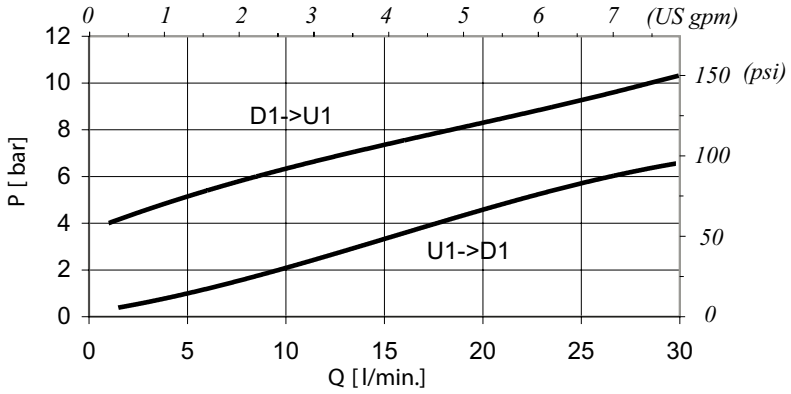




Rating diagrams

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)*

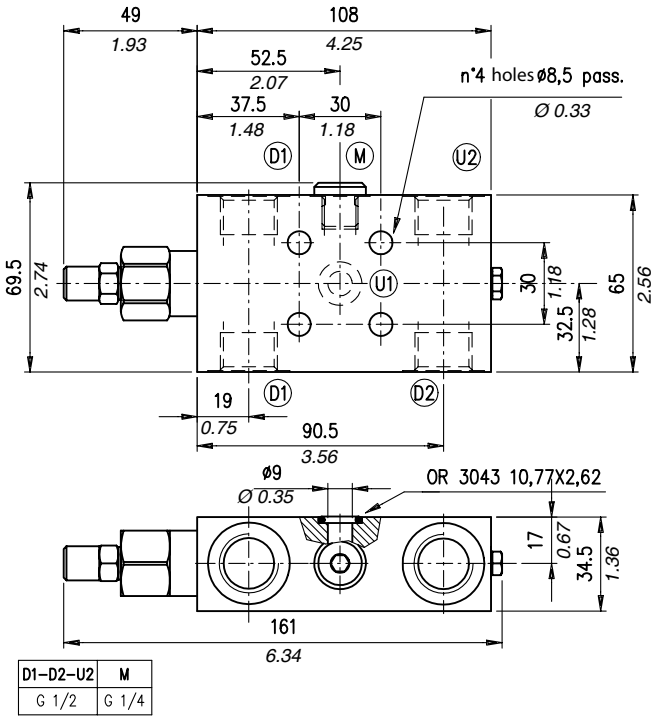
Pilot Ratio

p4) 1:4

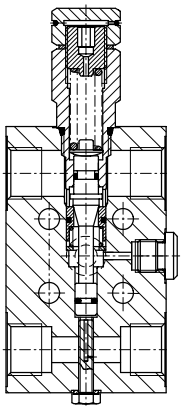
Body material

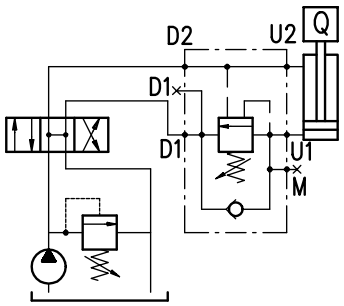
_Aluminium
ac Steel

Dimensions and hydraulic circuit



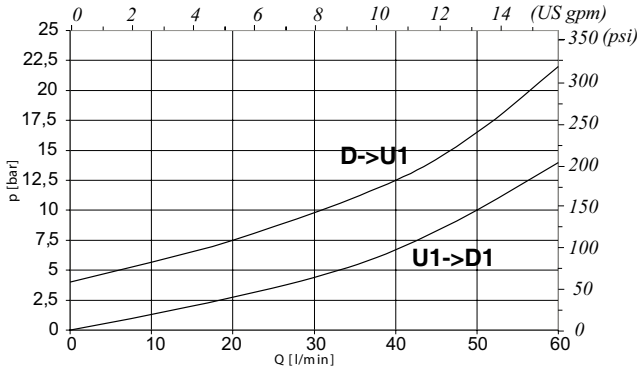
Section





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)*

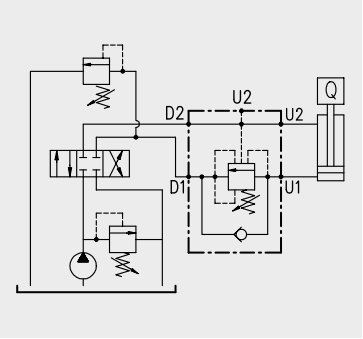
Pilot Ratio

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).

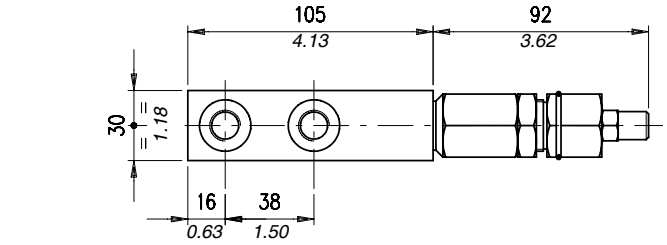
Performance

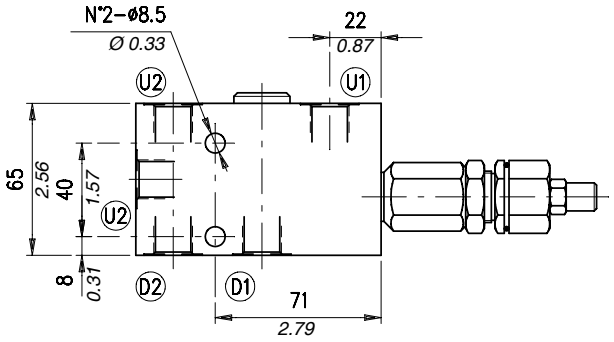
Body valves

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	

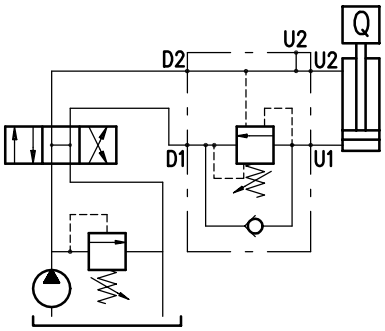
overcenter cartridge: *VMPD 38 - **VMPD12 - ***VMPD34

Dimensions and hydraulic circuit



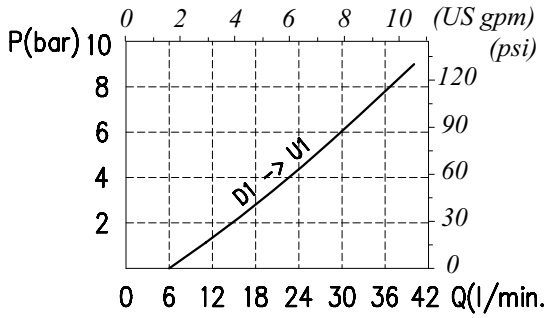


D1–D2	U1–U2
G 3/8	G 3/8

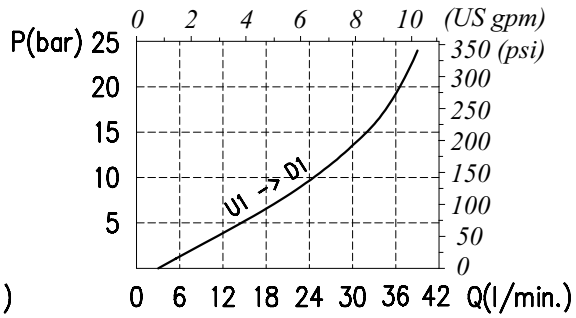


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

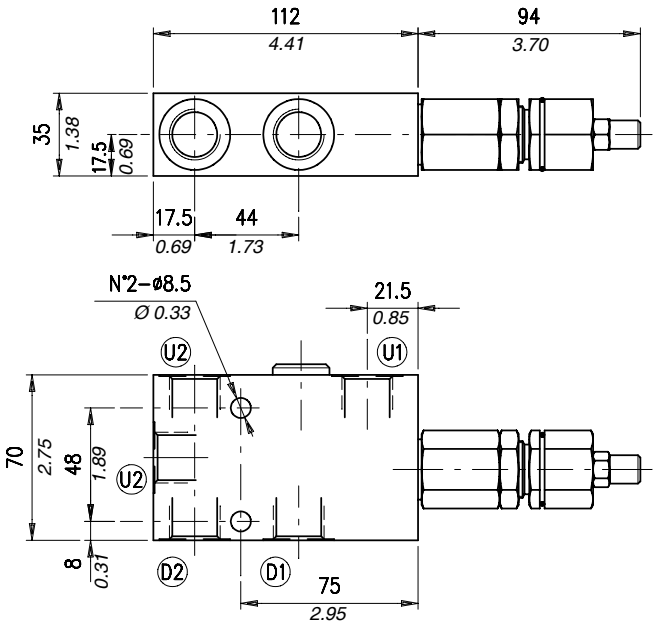


Order code

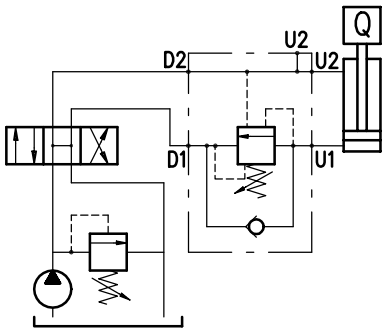
VOSL /CC 38 / □ . S .□□ . □□ . □□ / □□

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

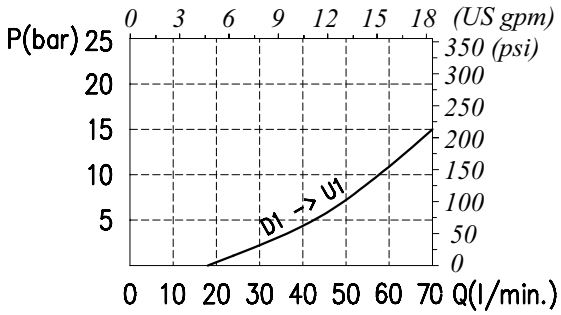


D1–D2	U1–U2
G 1/2	G 1/2

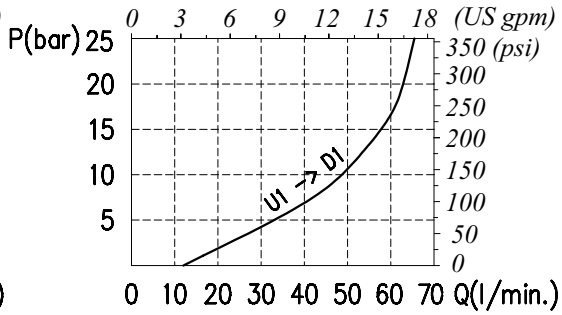


Rating diagrams

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

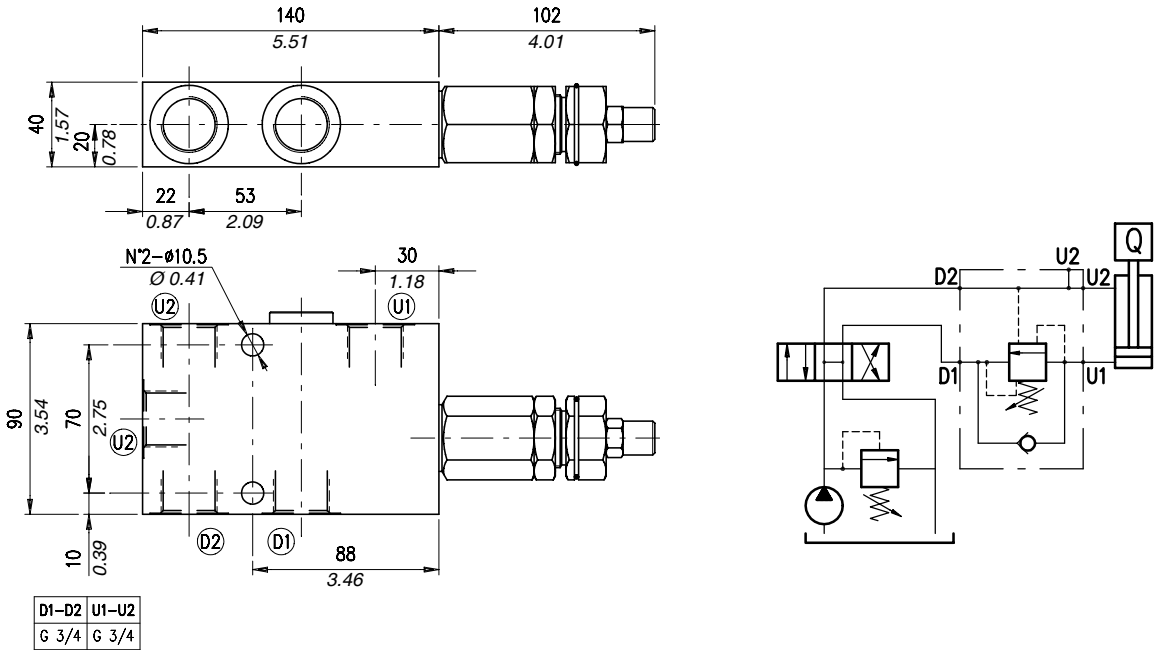
Check valve seat

_ See body
VRR) Hardened steel

Body material

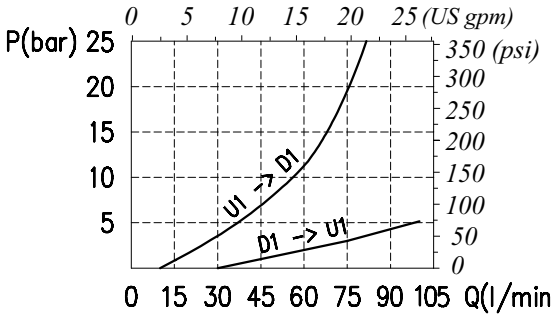
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



Rating diagrams

Typical pressure drop vs.flow characteristics

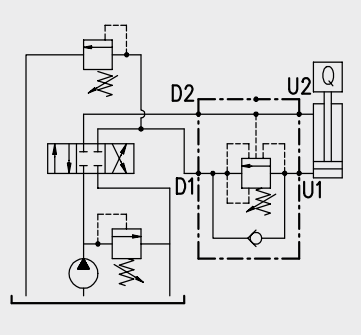


Order code

VOSL /CC 34 / □ . S .□□ . □□ . □□ / □□

Pressure settings	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)	**p7)** 1:7 (Standard)	**PG)** With damper	**VRR)** Hardened steel	**ac** Steel
TG) 100÷700 bar *(1450÷10150 psi)*				

Operation



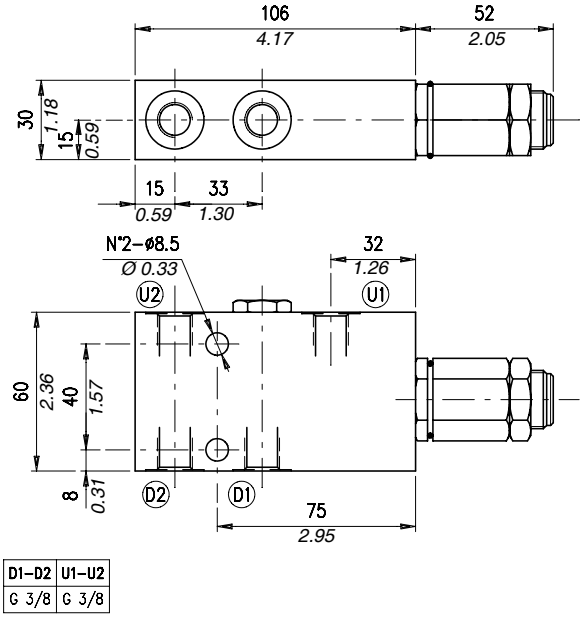
The oil flow is allowed from D1 to U1 and is stopped in the opposite way (from U1 to D1) up to the spring setting value. Free oil flow from U1 to D1 is strictly possible when the pilot pressure in D2 and U2 is strong enough to pilot the valve poppet.
Use the following formula to assert the applicable 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

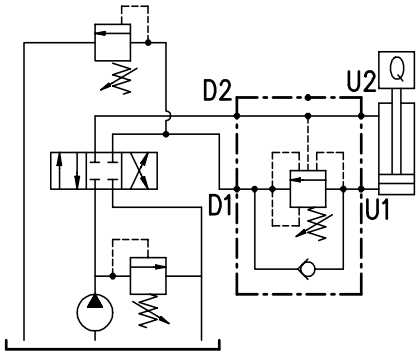
Body valves

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

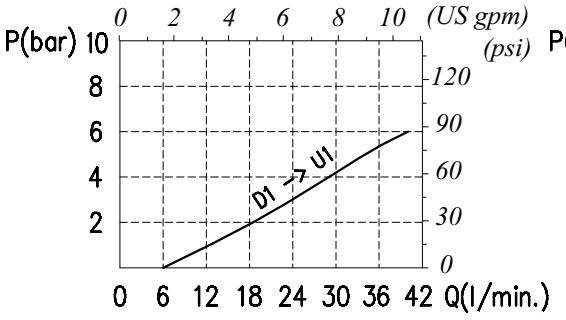


D1–D2	U1–U2
G 3/8	G 3/8

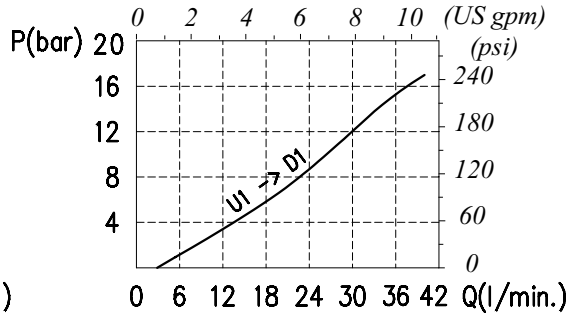


Rating diagrams

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)

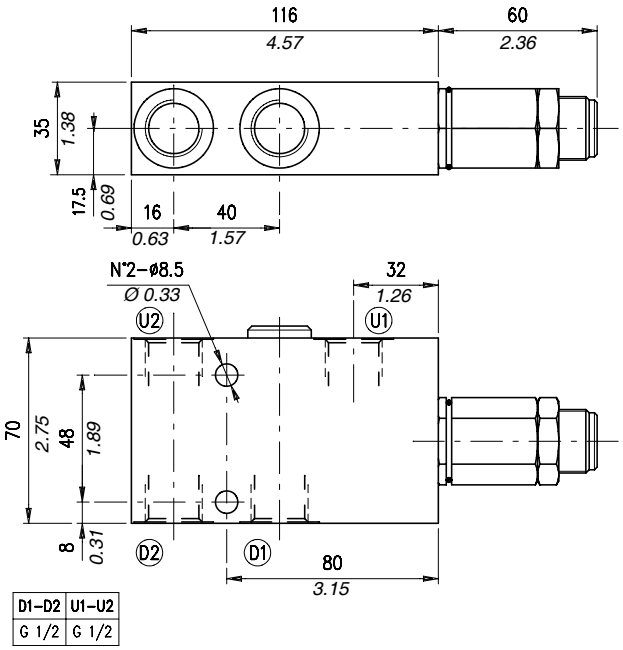
Check valve seat

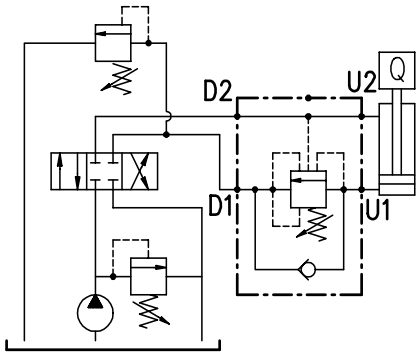
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

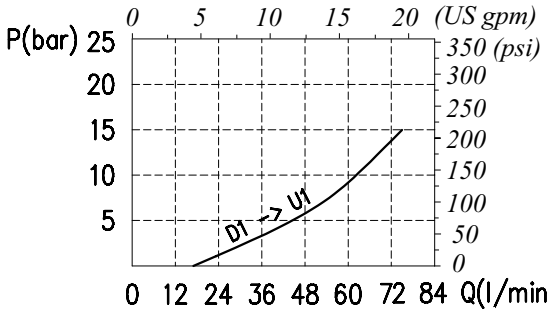
Dimensions and hydraulic circuit



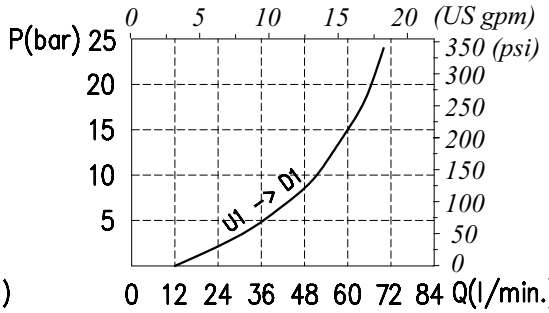


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

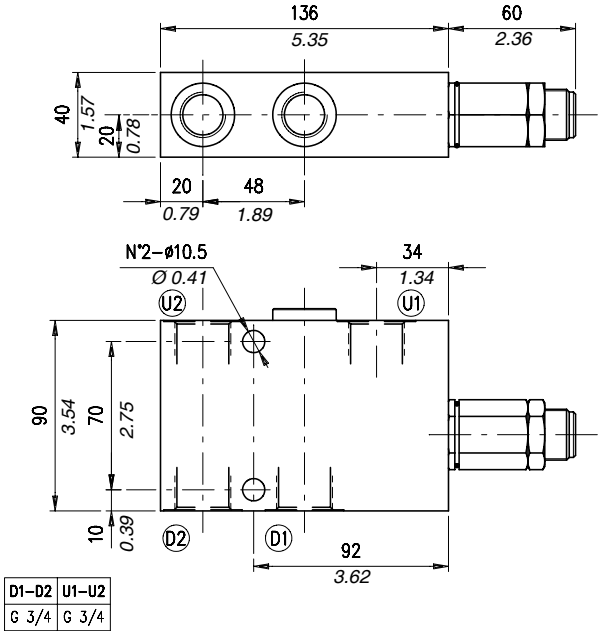


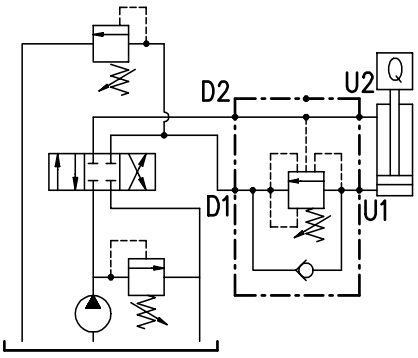
Order code

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

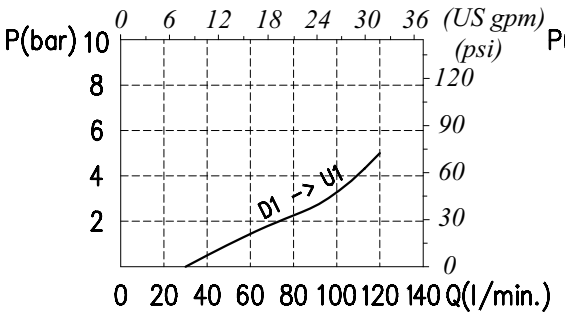
Dimensions and hydraulic circuit



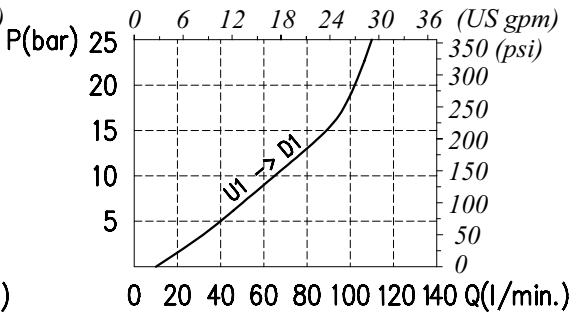


Rating diagrams

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)

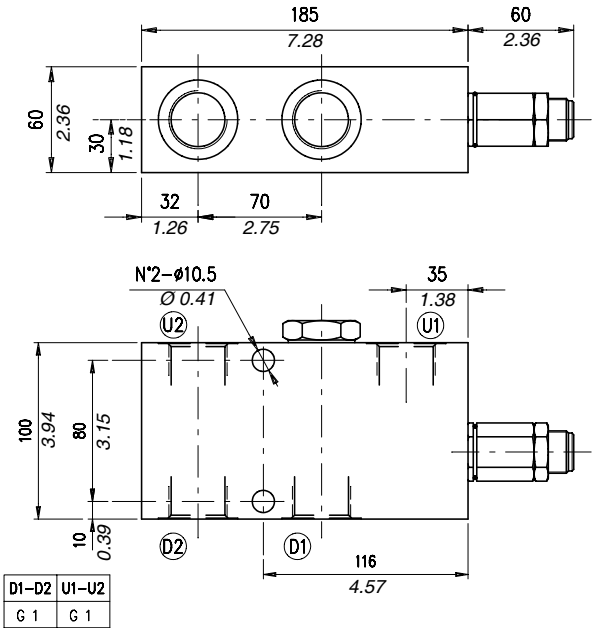
Check valve seat

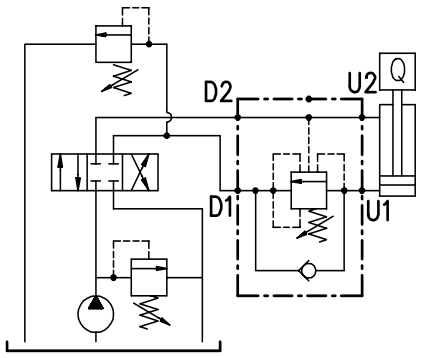
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

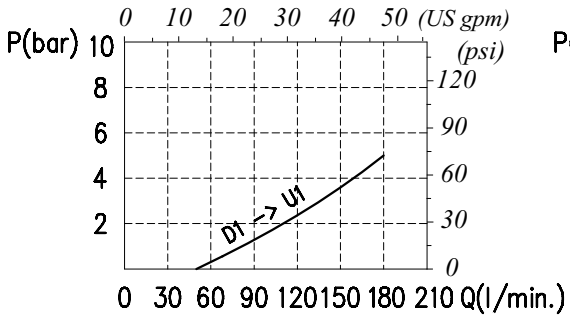
Dimensions and hydraulic circuit



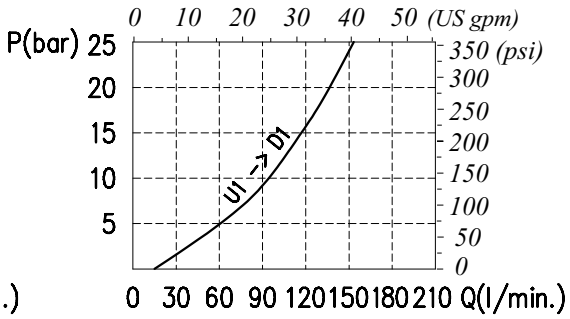


Rating diagrams

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)

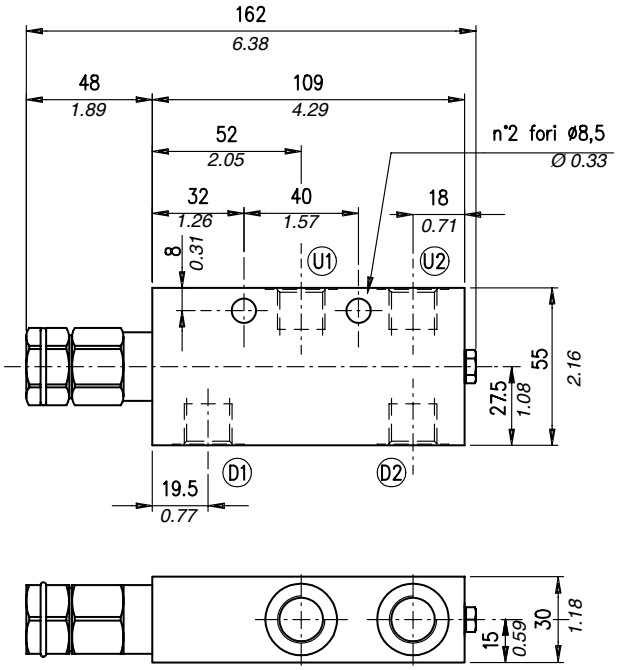
Check valve seat

_ See body
VRR) Hardened steel

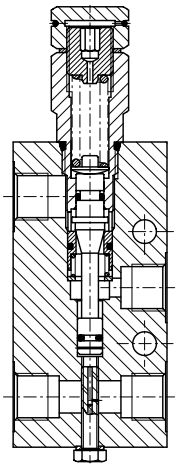
Body material

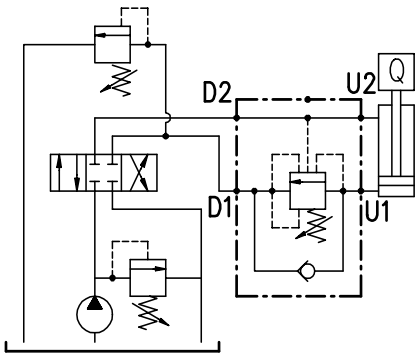
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



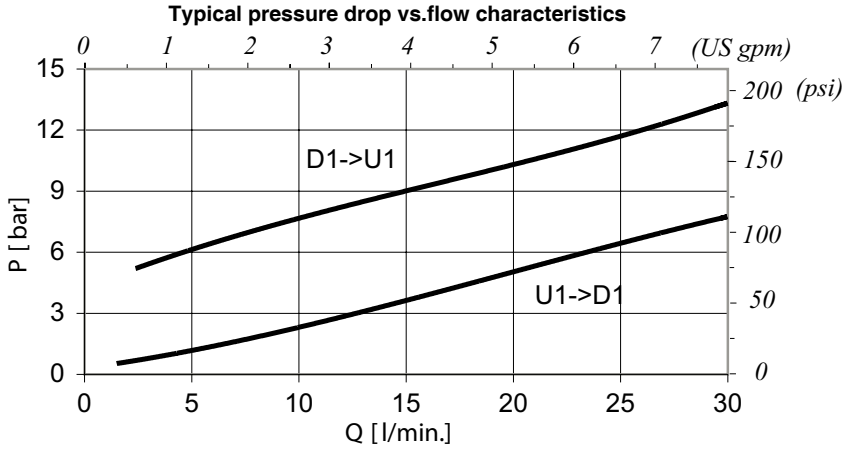
Section





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)

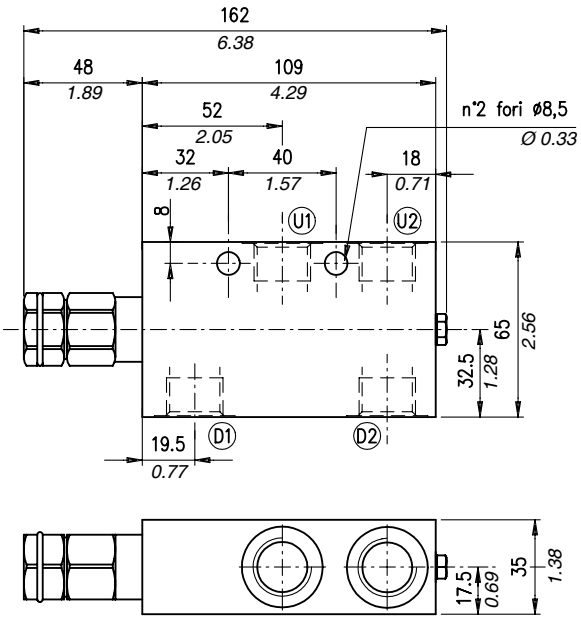
Pilot ratio

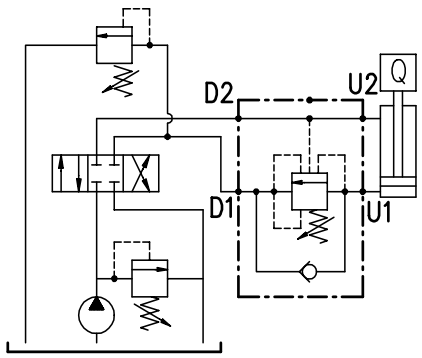
p4) 1:4
p11) 1:11

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

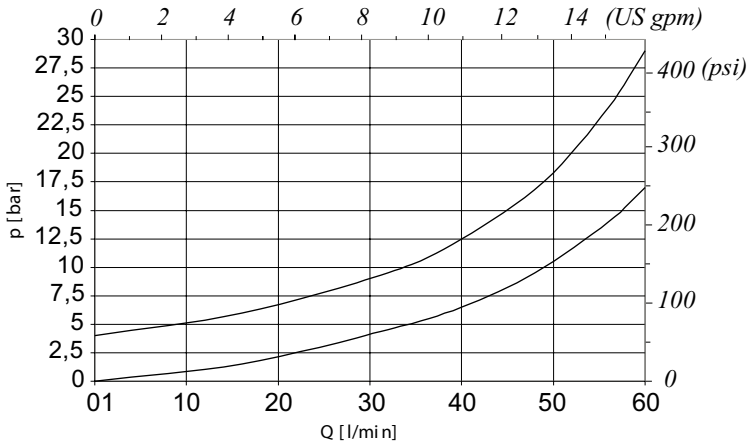




D1–D2	U1–U2
G 1/2	G 1/2

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

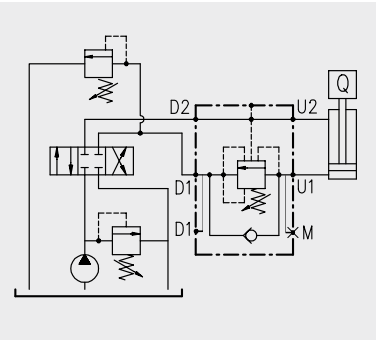
p4) 1:4
p11) 1:11

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).

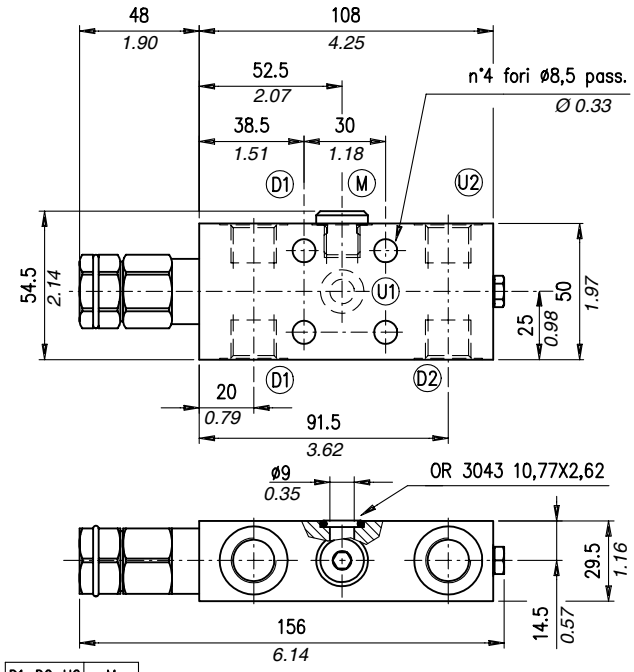


Performance

Body valves

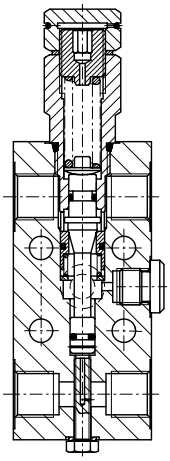
Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 to D1	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VOSL/SC/CC/F/C 1116/38	30	*7.9*	210 (alum.)	*3050 (alum.)*	50÷350 bar *-725÷5100 psi*; pressure increase =131 bar-*1900 psi*/turn (test setting 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	

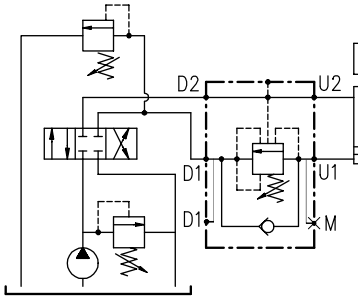
Dimensions and hydraulic circuit



D1–D2–U2	M
G 3/8	G 1/4

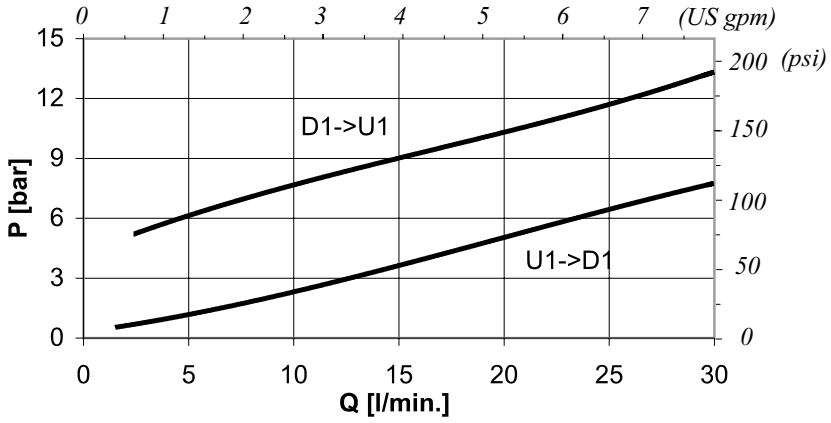
Section





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)

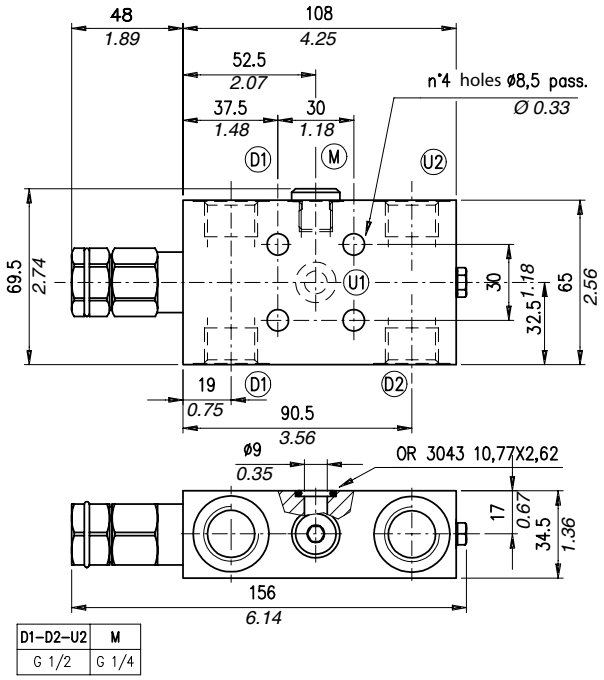
Pilot ratio

p4) 1:4
p11) 1:11

Body material

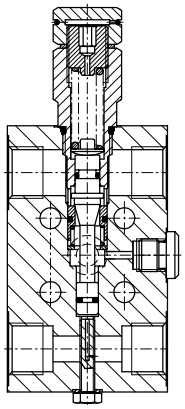
_ Aluminium
ac Steel

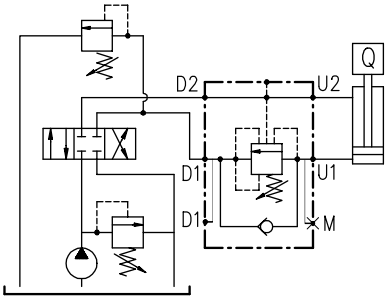
Dimensions and hydraulic circuit



D1–D2–U2	M
G 1/2	G 1/4

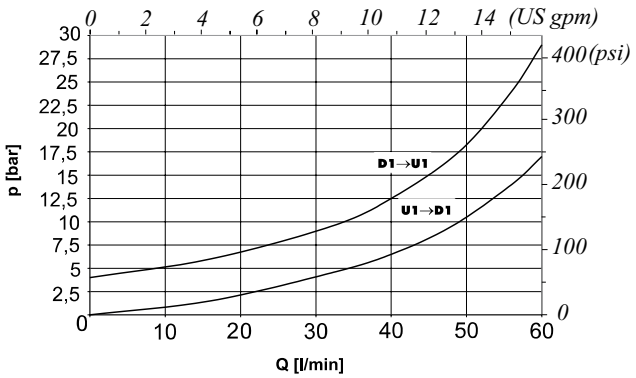
Section





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

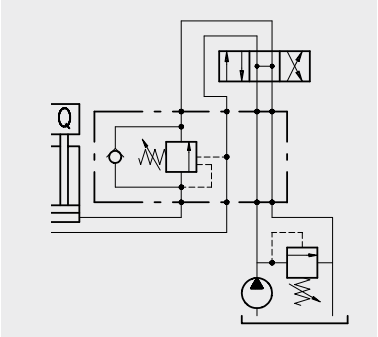
p4) 1:4
P11) 1:11

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.

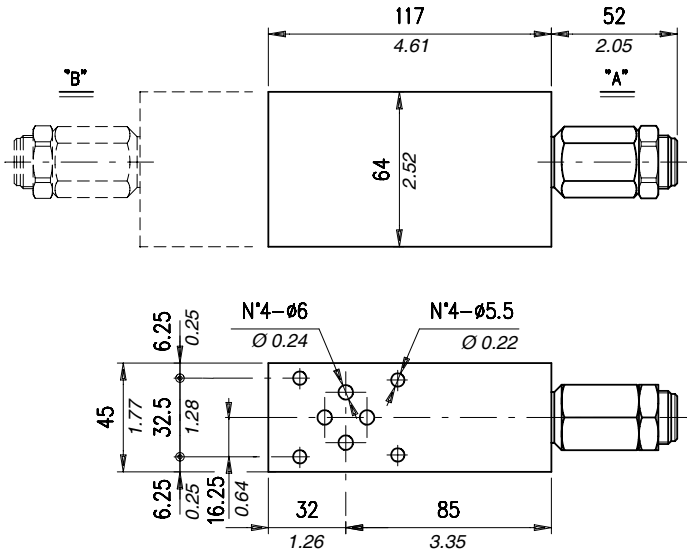


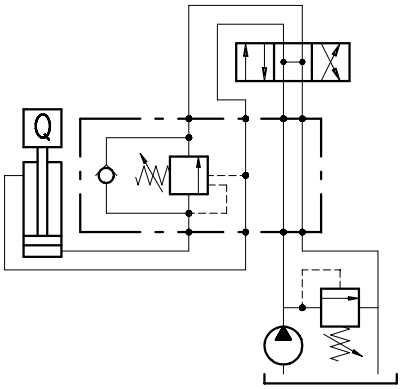
Performance

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		

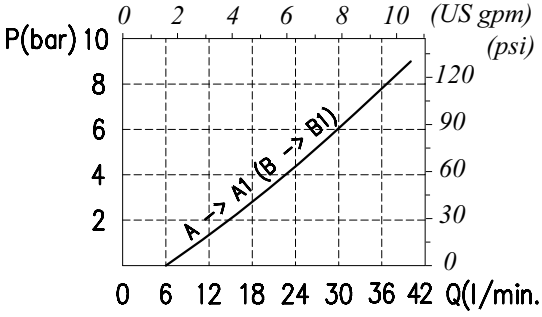
Dimensions and hydraulic circuit



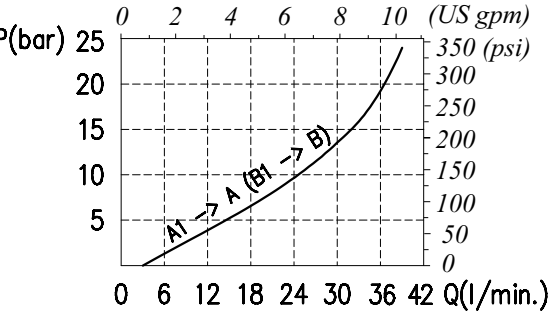


Rating diagrams

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

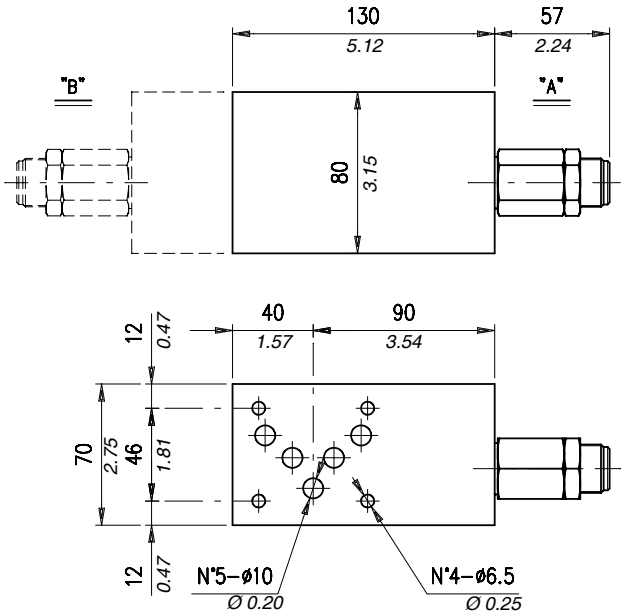
Check valve seat

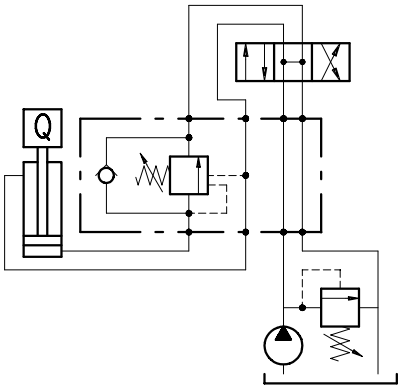
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

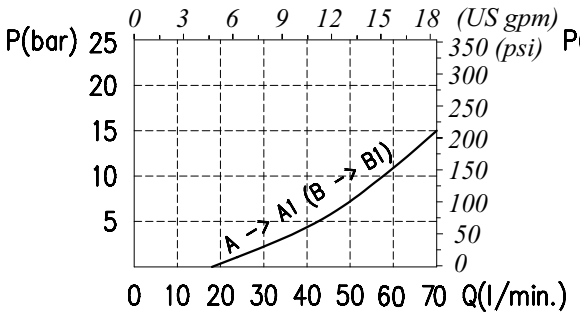
Dimensions and hydraulic circuit



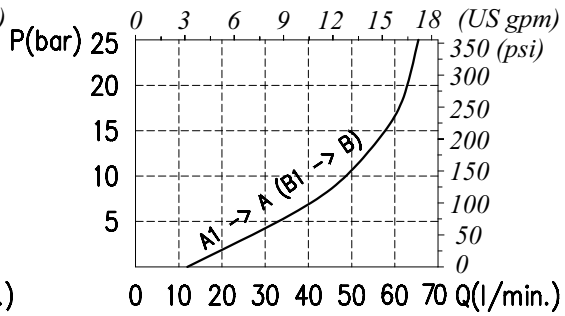


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



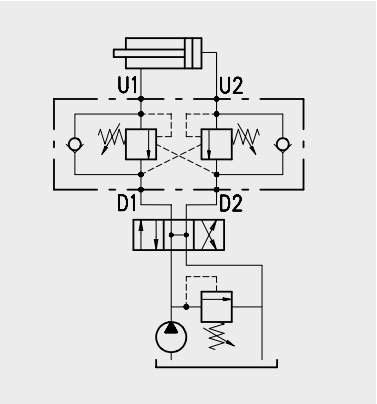
Order code

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="10">210 (alum.)

350 (steel)</td><td rowspan="10">3050 (alum.)

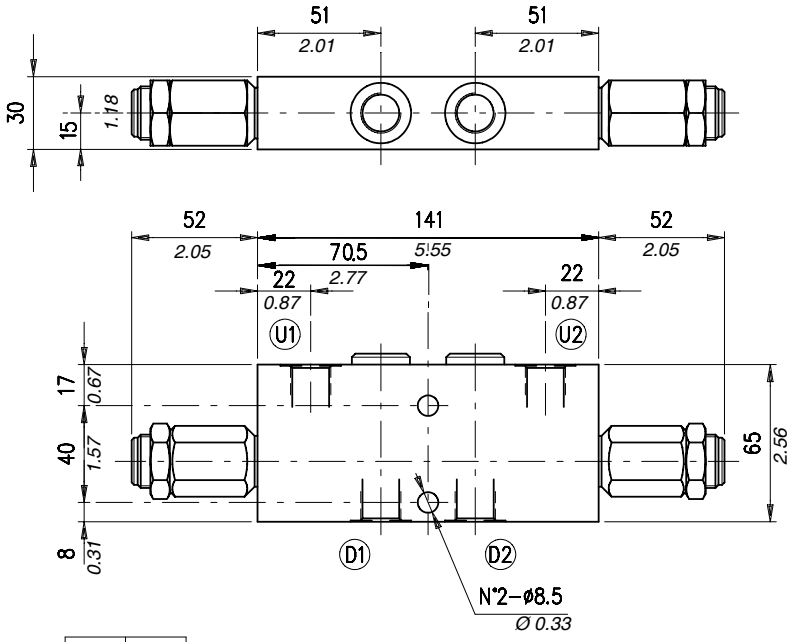
5100 (steel)</td><td rowspan="3">5÷210 bar
-72.5÷3100 psi
(test setting 150 bar -2200 psi at 5 l/min. -1.3 US gpm)

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

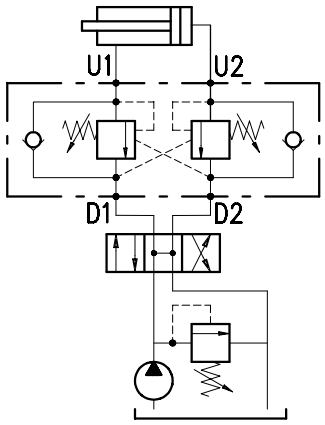
100÷700 bar
-1450÷10150 psi
(test setting 350 bar-5100 psi at 5 l/min.-1.3 US gpm)</td><td rowspan="10">0,25 cm³/min -15x10⁻³ in³/min (5 drops) at 210 bar -3050 psi and 80% of the spring setting value with oil viscosity of 46 cSt.</td><td rowspan="3">1:7 (standard type)
1:3 (on request only)</td><td>(34)
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>(100)
4,76</td><td>10.49</td><td rowspan="3">-</td></tr>
<tr><td>VODL/SC 38</td><td>40</td><td>11</td><td colspan="2">aluminium</td><td rowspan="2">1:4 (standard type)
1:3 (on request only)</td></tr>
<tr><td>2,16</td><td>4.76</td></tr>
<tr><td>VODL/SC 12</td><td>75</td><td>20</td><td colspan="2">steel</td><td rowspan="3">1:7 (standard type)
1:3 (on request only)</td><td>1,47</td><td>3.24</td><td rowspan="2">-</td></tr>
<tr><td>VODL/SC 34</td><td>120</td><td>32</td><td colspan="2">aluminium</td><td>2,89</td><td>6.37</td></tr>
<tr><td>VODL/SC 100</td><td>180</td><td>48</td><td colspan="2">steel</td><td>2,22</td><td>4.89</td><td rowspan="2">-</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 colspan="2">aluminium</td></tr>
<tr><td>VODL/SC/C 1116/38</td><td>30</td><td>7.9</td><td rowspan="2">210 (alum. body white anodized)
350 (steel body yellow zinc plated)</td><td rowspan="2">3050 (alum. body white anodized)
5100 (steel body yellow zinc plated)</td><td rowspan="2">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>1:6</td><td>1,75</td><td>3.86</td><td>-</td></tr>
<tr><td>VODL/SC/C 1116/12</td><td>60</td><td>16</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 colspan="2">2,1</td><td>4.63</td><td rowspan="2">1:4</td></tr>
<tr><td colspan="2">steel</td><td>1,4</td><td>3.09</td></tr>
<tr><td colspan="2">aluminium</td><td colspan="2">2,8</td><td>6.17</td><td>-</td></tr>
<tr><td colspan="2">steel</td></tr>
</table>

Dimensions and hydraulic circuit

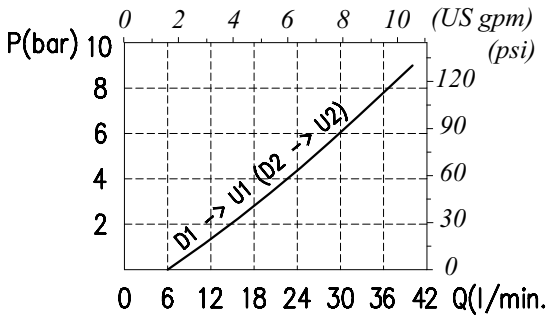


D1–D2	U1–U2
G 3/8	G 3/8

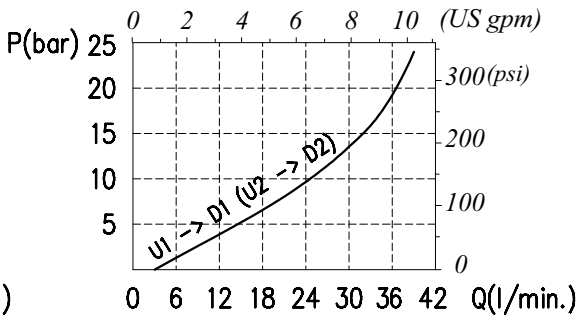


Rating diagrams

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

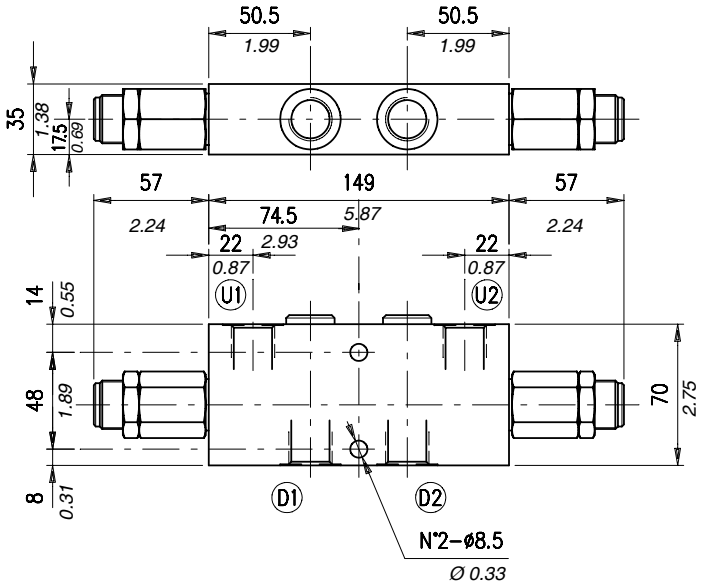
Check valve seat

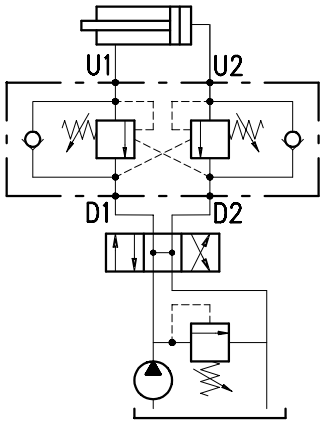
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

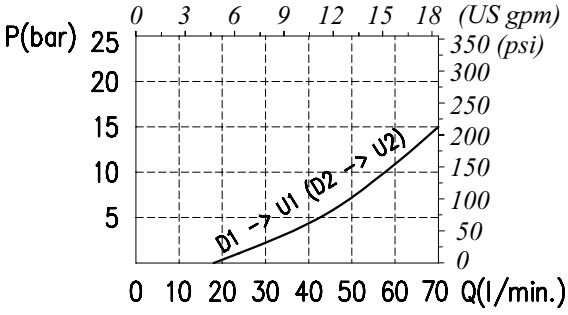




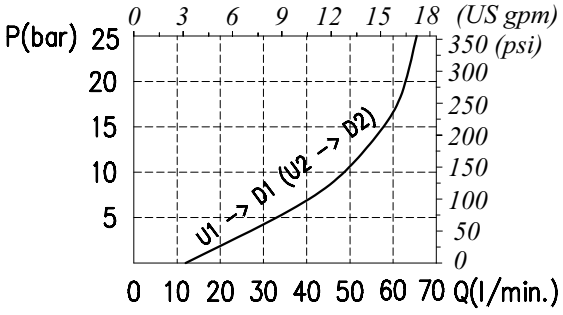
D1–D2	U1–U2
G 1/2	G 1/2

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

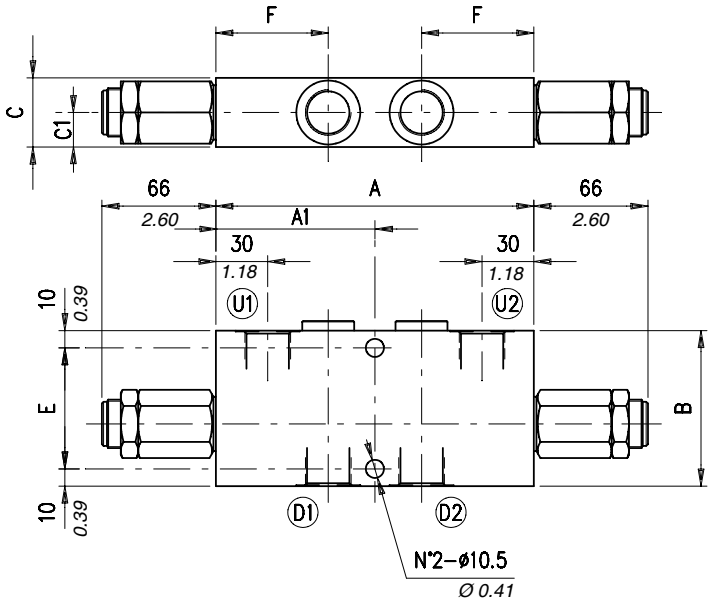
Check valve seat

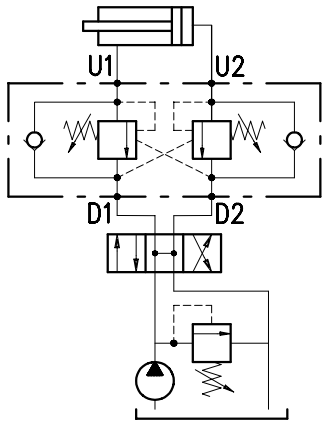
See body
VRR) Hardened steel

Body material

Aluminium
ac Steel

Dimensions and hydraulic circuit



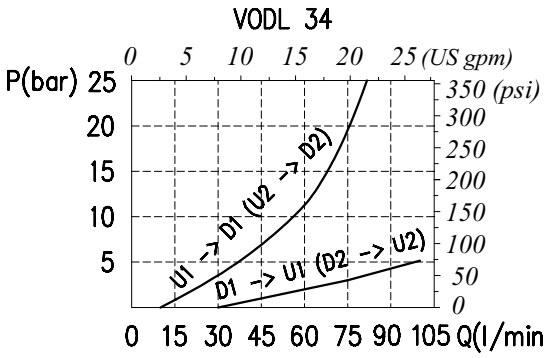


VODL	D1–D2	U1–U2	A*	A1*	B*	C*	C1*	E*	F*
34	G 3/4	G 3/4	184 - *7.24*	92 - *3.62*	90 - *3.54*	40 - *1.57*	20 - *0.78*	70 - *2.75*	65 - *2.56*
100	G 1	G 1	218 - *8.58*	109 - *3.62*	100 - *3.93*	60 - *2.36*	30 - *1.18*	80 - *3.15*	76 - *2.99*

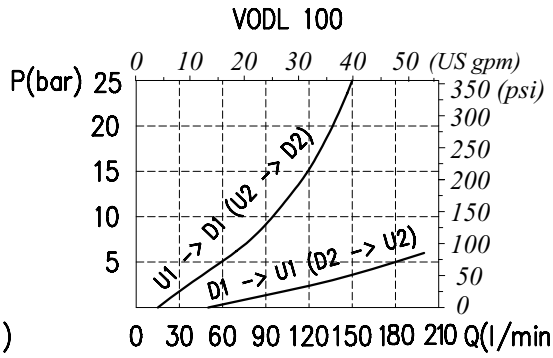
* Dimensions are in mm - *in*

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

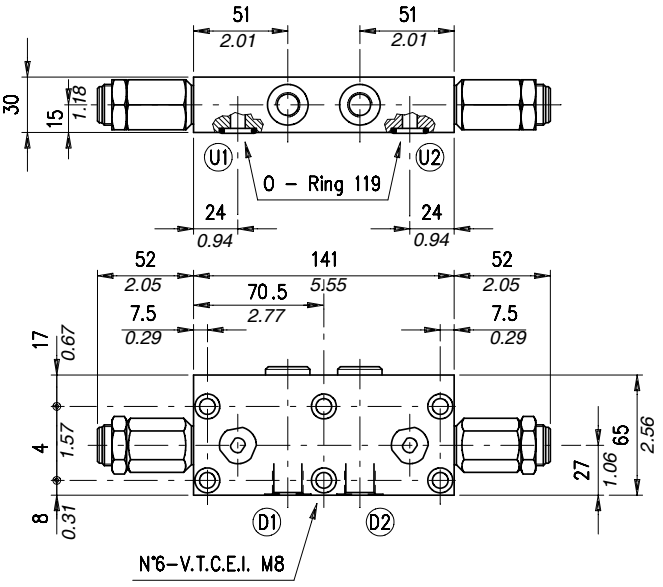
Check valve seat

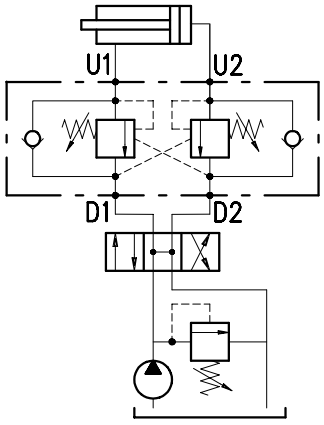
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



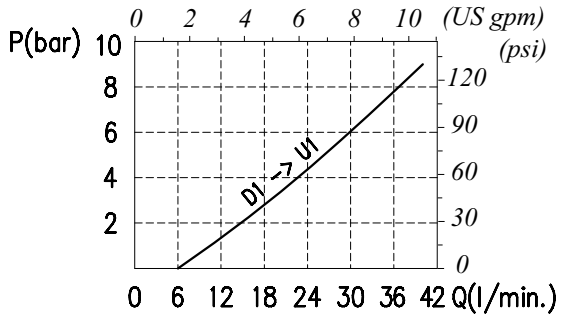


D1–D2	U1–U2*
G 3/8	ø8 - Ø 0.31

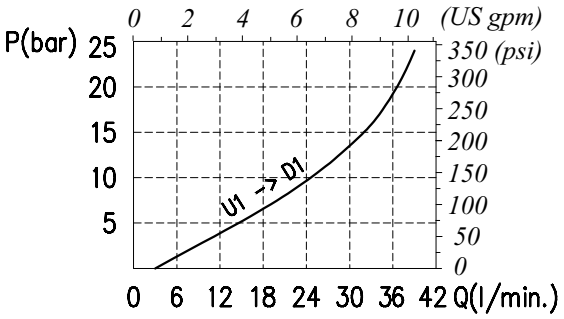
* Dimensions are in mm - *in*

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

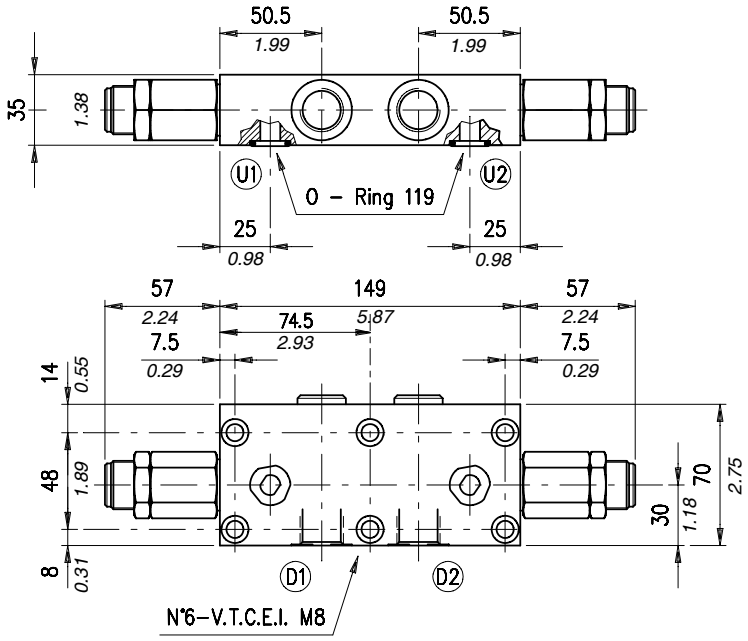
Check valve seat

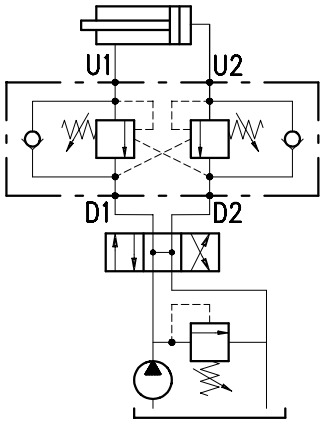
See body
VRR) Hardened steel

Body material

Aluminium
ac Steel

Dimensions and hydraulic circuit



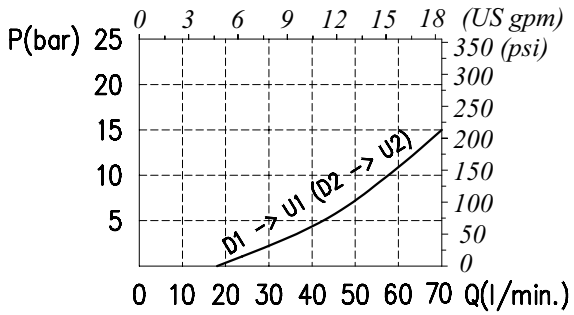


D1–D2	U1–U2*
G 1/2	ø10 - Ø 0.39

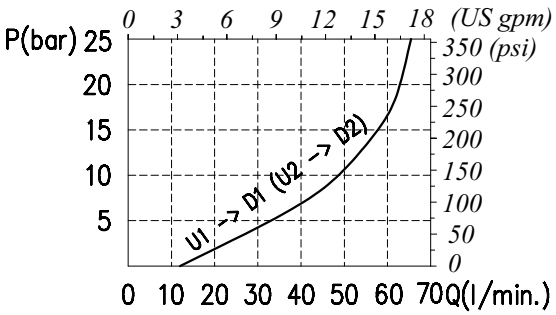
*Dimensions are in mm - *in*

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

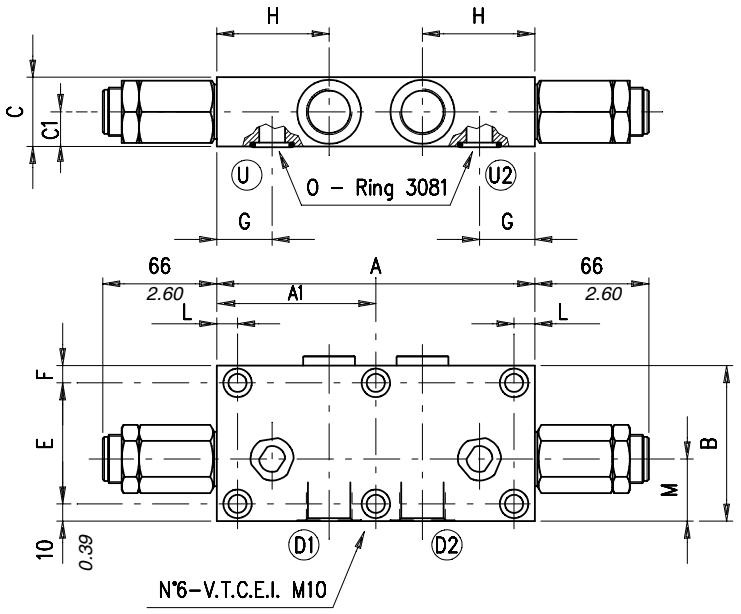
Check valve seat

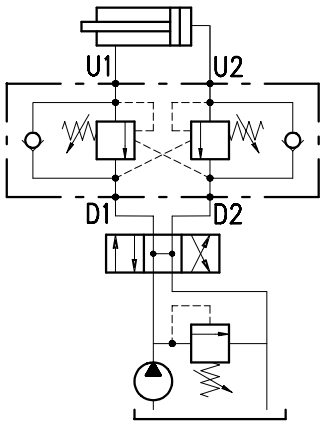
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit



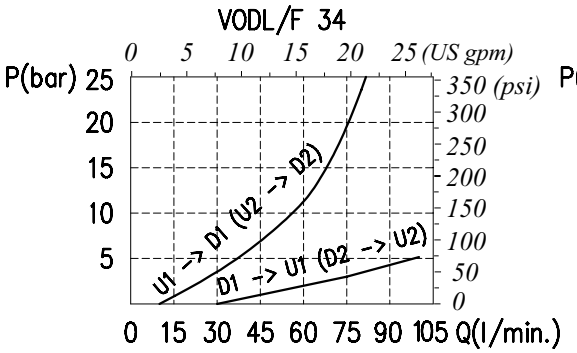


VODL/F	D1–D2	U1–U2	A*	A1*	B*	C*	C1*	E*	F*	G*	H*	L*	M*
34	G 3/4	ø15 - Ø 0.59	184 - 7.24	92 - 3.62	90 - 3.54	40 - 1.57	20 - 0.78	70 - 2.75	10 - 0.39	32 - 1.26	65 - 2.56	12 - 0.47	36 - 1.42
100	G 1	ø19 - Ø 0.75	220 - 8.66	110 - 4.33	100 - 3.94	60 - 2.36	30 - 1.18	55 - 2.16	35 - 1.38	35 - 1.38	76 - 2.99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

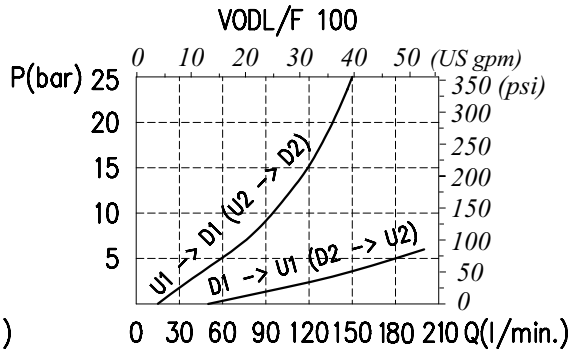
* Dimensions are in mm - *in*

Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

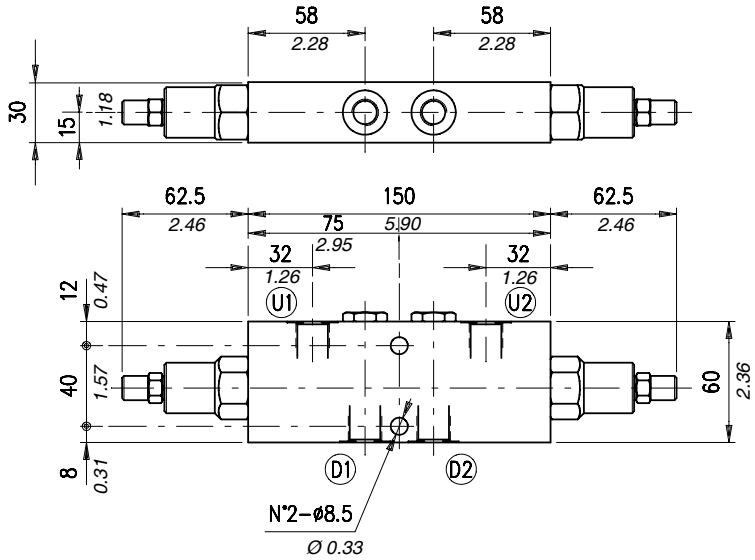


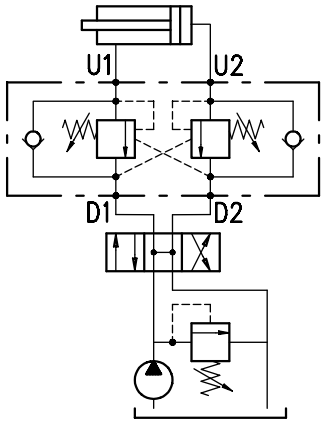
Order code

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

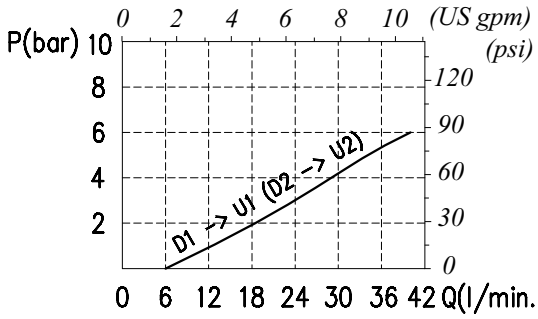




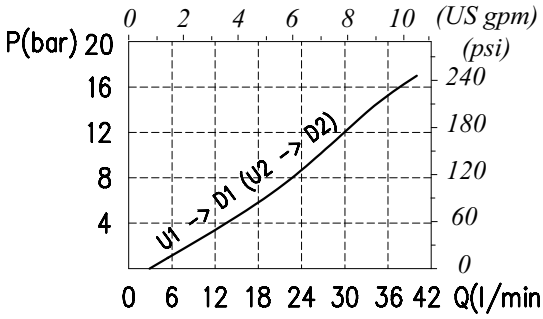
D1–D2	U1–U2
G 3/8	G 3/8

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

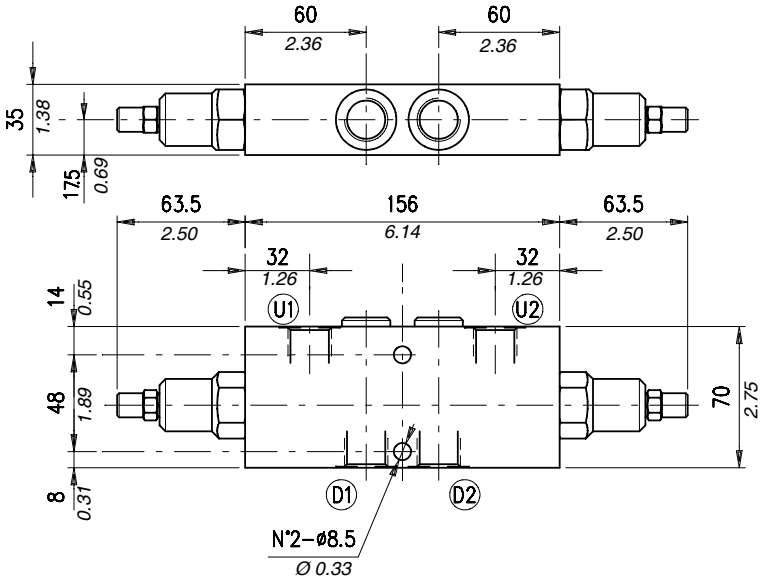
Check valve seat

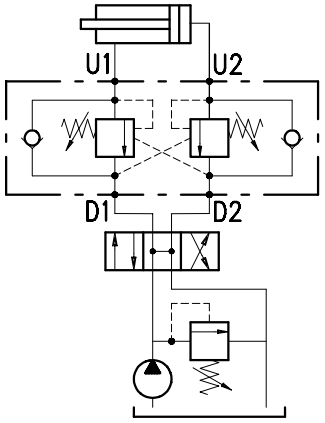
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

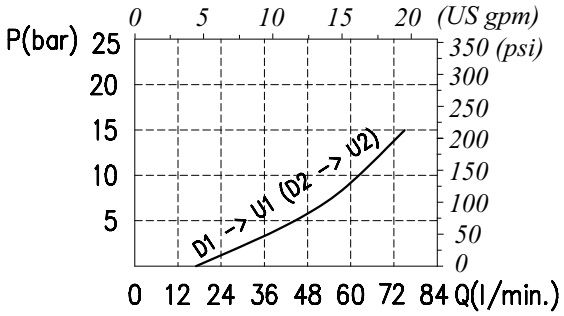




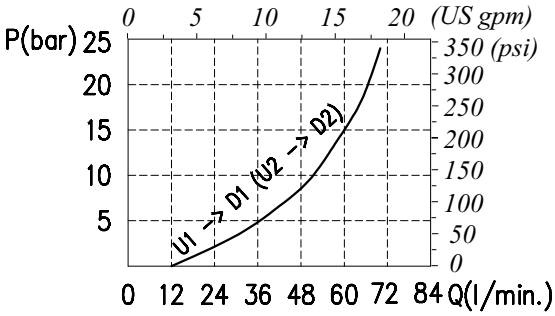
D1–D2	U1–U2
G 1/2	G 1/2

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

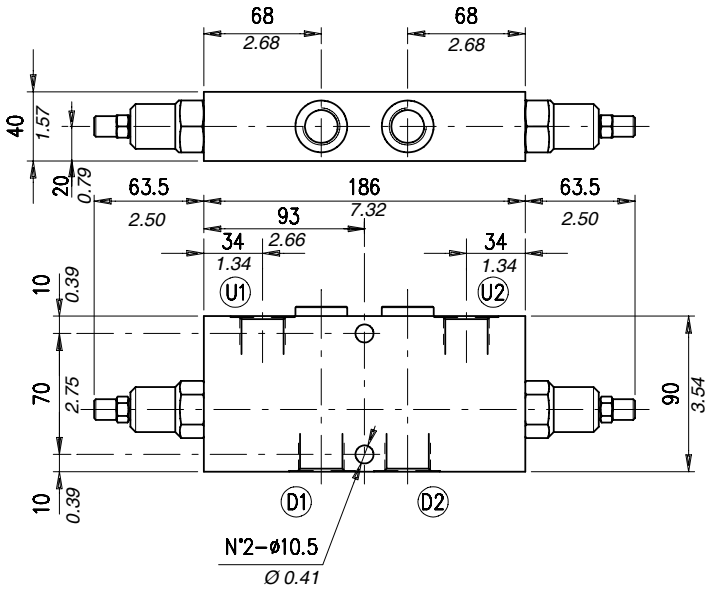
Check valve seat

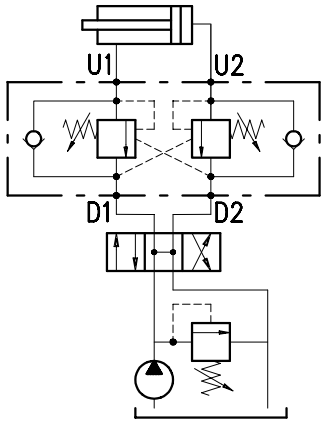
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

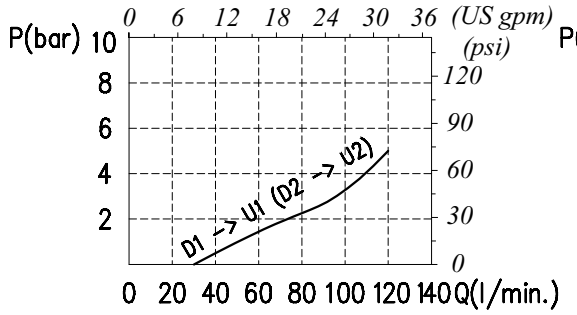




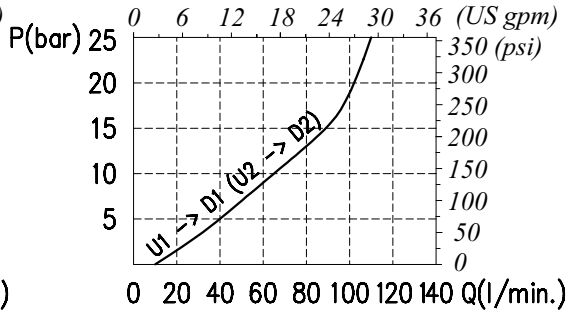
D1–D2	U1–U2
G 3/4	G 3/4

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

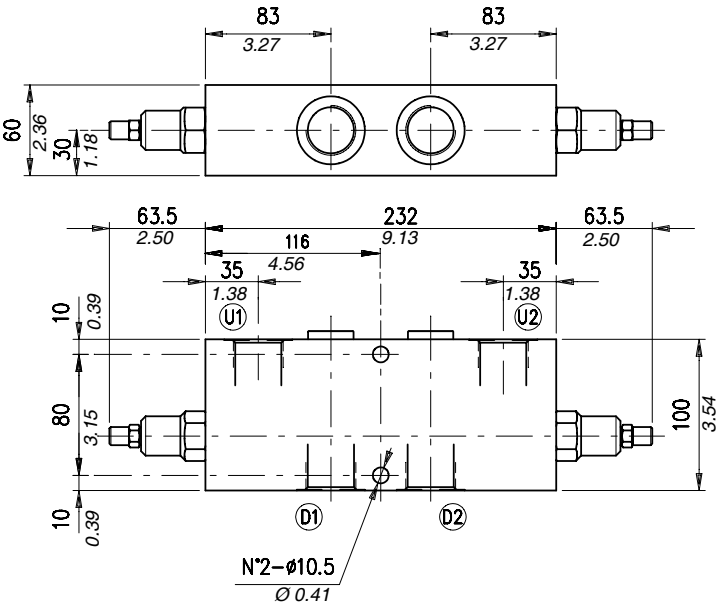
Check valve seat

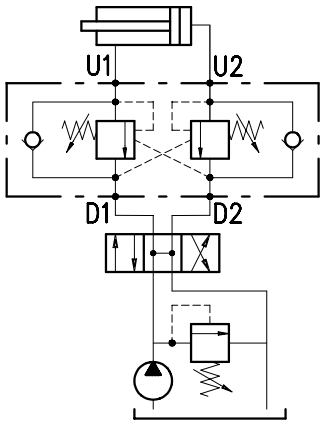
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

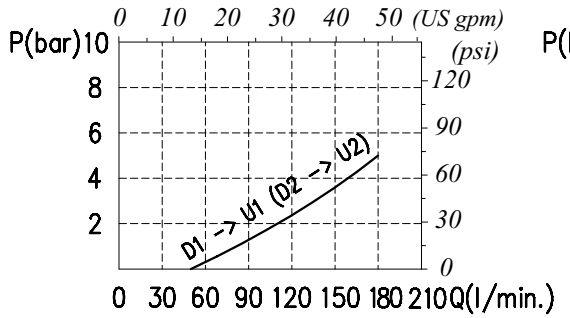




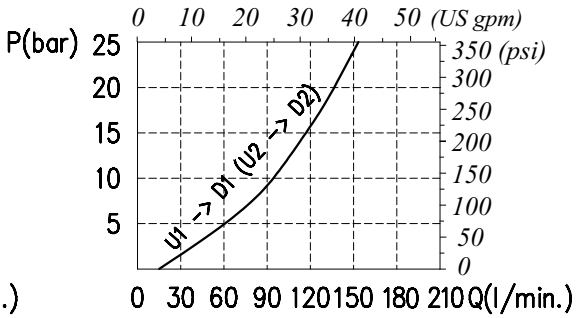
D1–D2	U1–U2
G 1	G 1

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

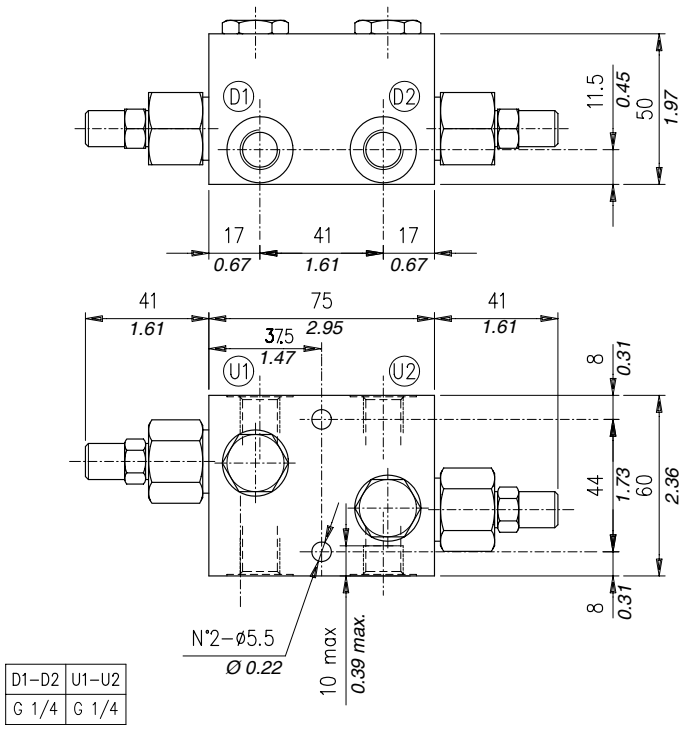
Check valve seat

– See body
VRR) Hardened steel

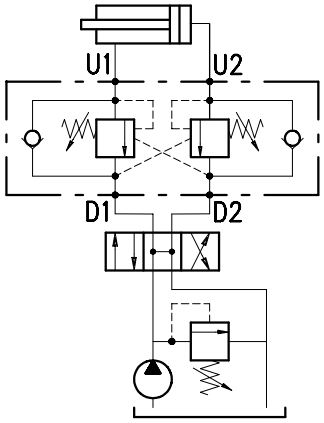
Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

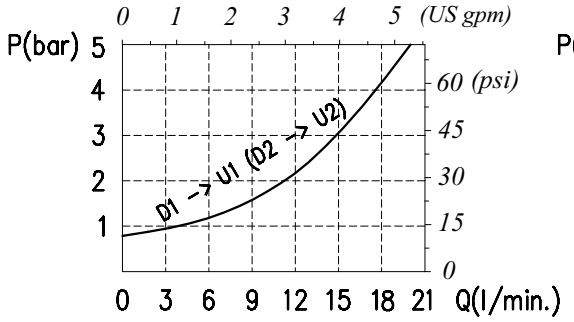


D1–D2	U1–U2
G 1/4	G 1/4

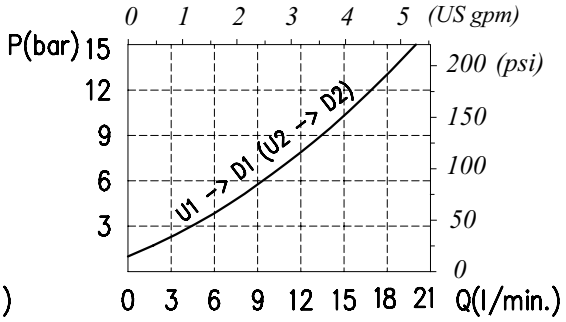


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

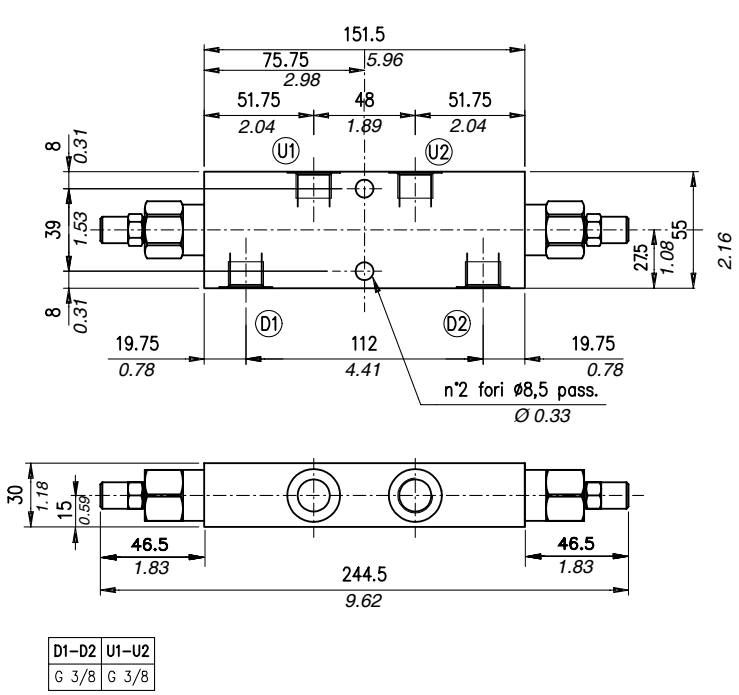


Order code

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

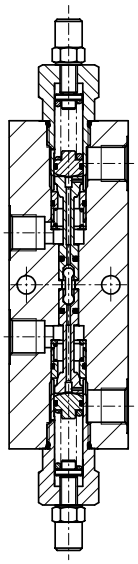
Pressure settings	Pilot ratio	Type of pilot	Check valve seat
TS) 5÷210 bar *(72.5÷3050 psi)* **TR)** 50÷350 bar *(725÷5100 psi)* (Standard)	**p6)** 1:6	Without damper (Standard) **PG)** With damper	See body **VR)** Hardened steel

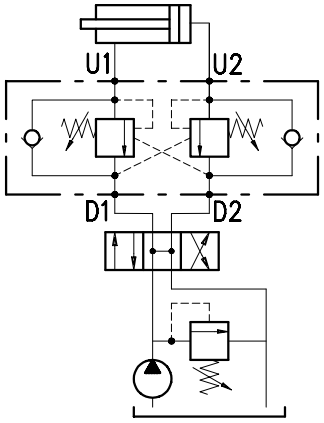
Dimensions and hydraulic circuit



D1–D2	U1–U2
G 3/8	G 3/8

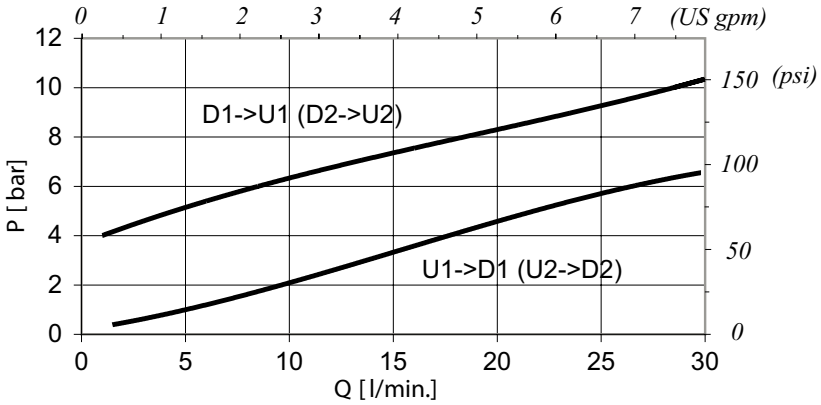
Section





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)

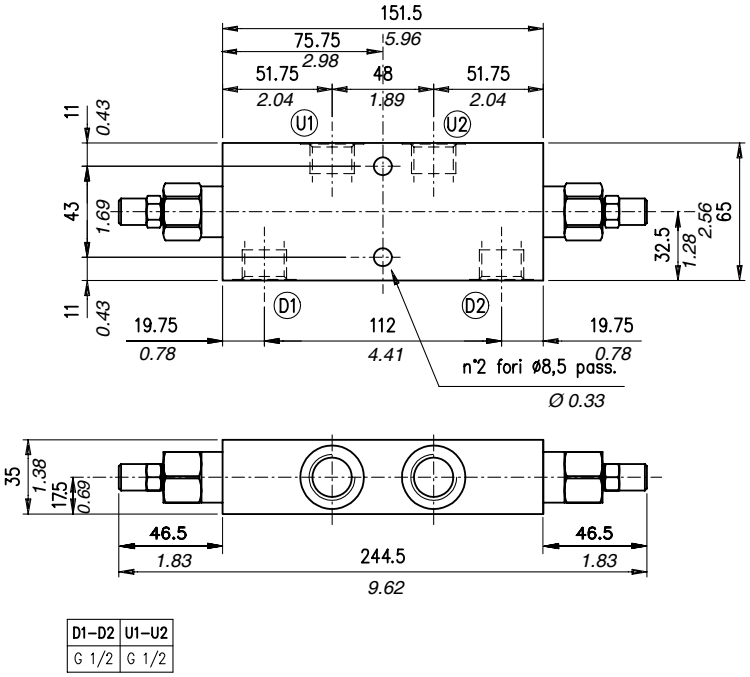
Pilot ratio

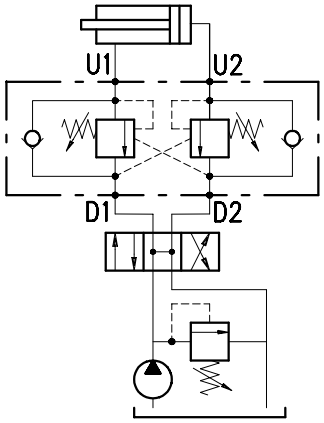
p4)1:4
p11) 1:11

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

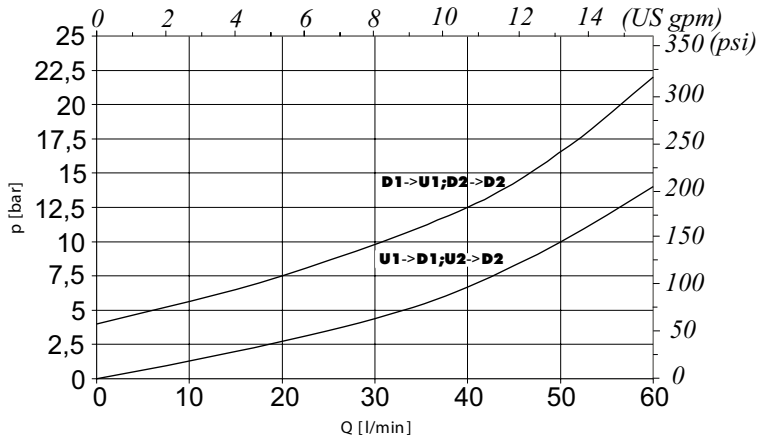




D1–D2	U1–U2
G 1/2	G 1/2

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

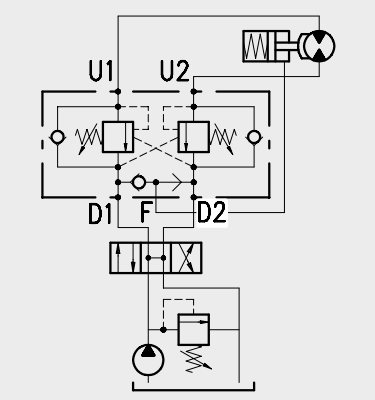
p4) 1:4
p11) 1:11

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

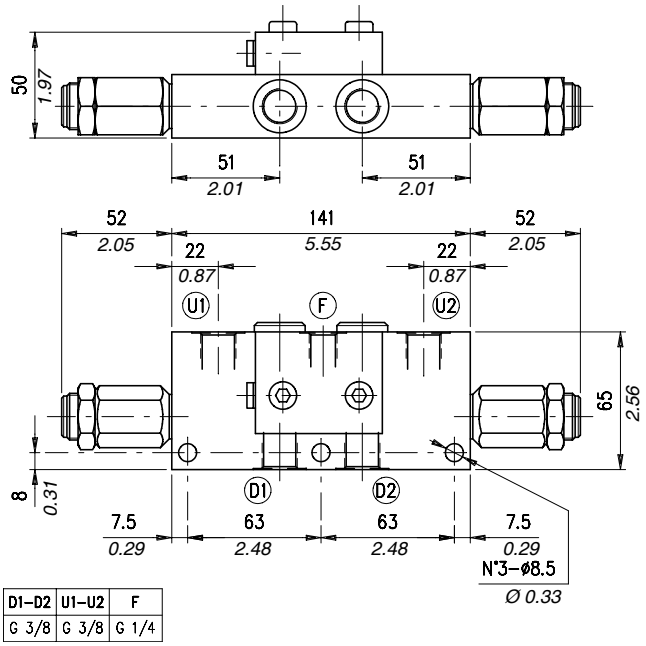
Body valves

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		

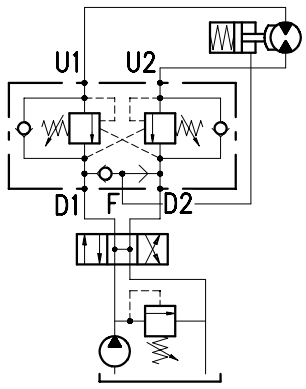
Body valves

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

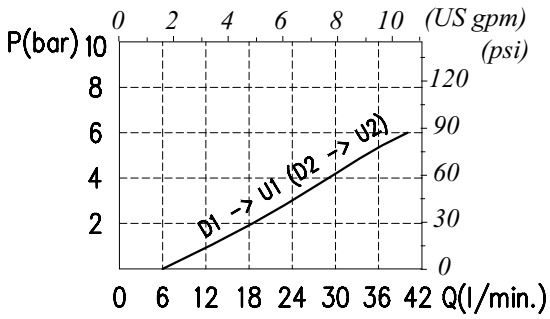


D1–D2	U1–U2	F
G 3/8	G 3/8	G 1/4

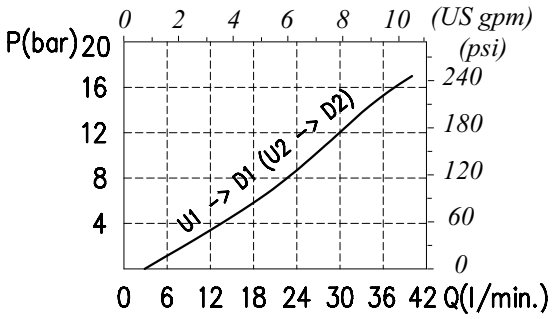


Rating diagrams

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

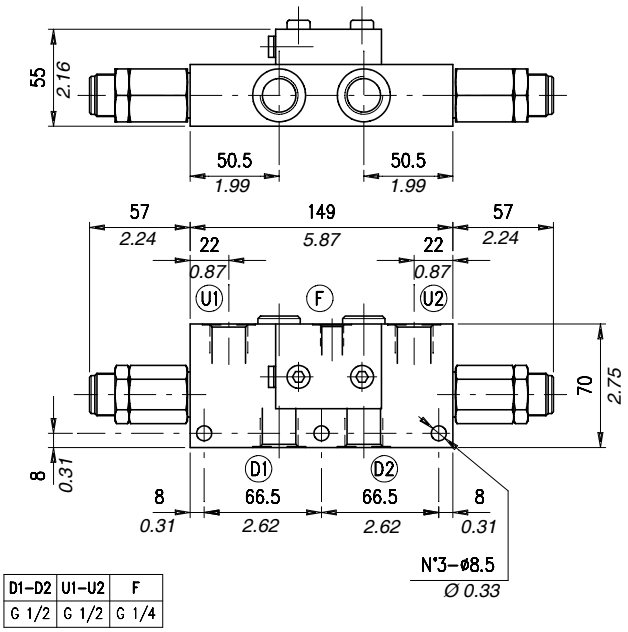
Check valve seat

– See body
VRR) Hardened steel

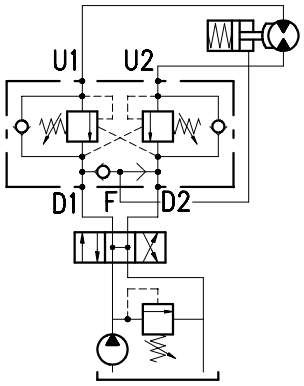
Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

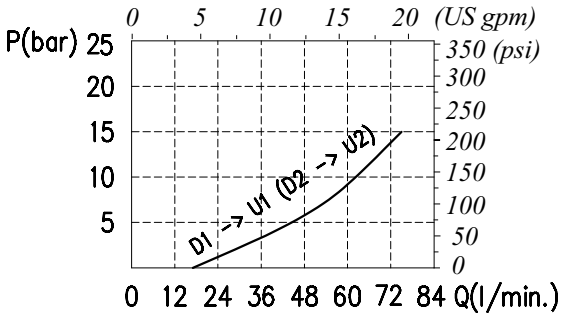


D1-D2	U1-U2	F
G 1/2	G 1/2	G 1/4

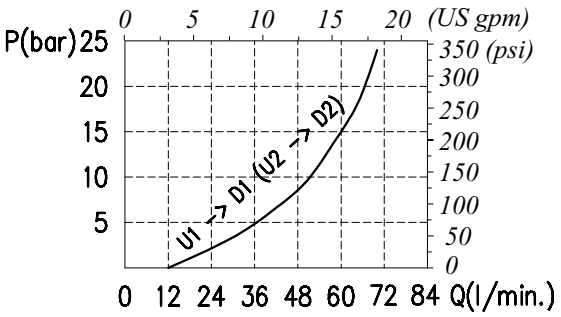


Rating diagrams

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

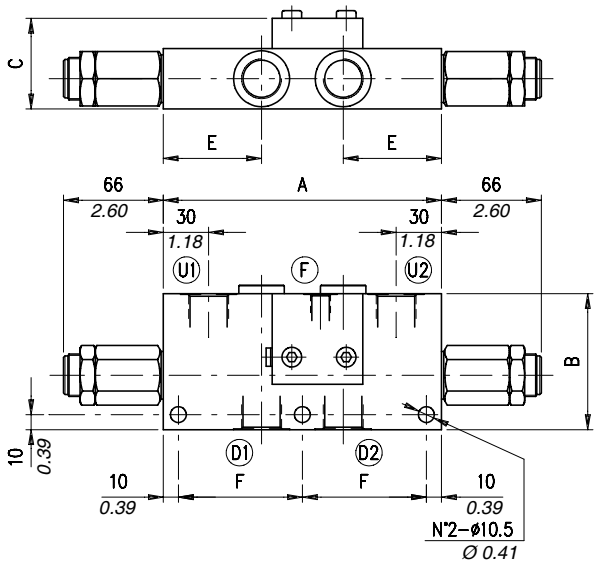
Check valve seat

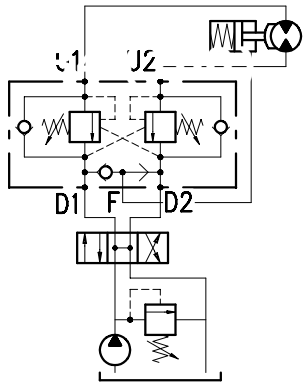
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit



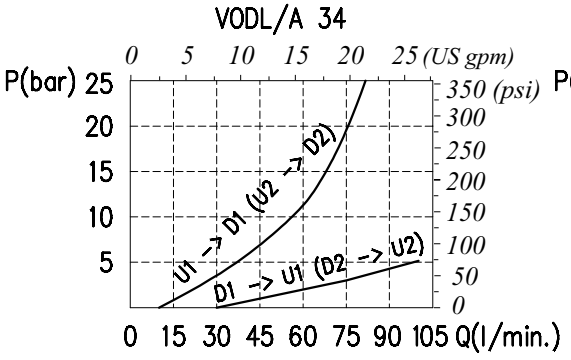


VODL/A	D1–D2	U1–U2	F	A*	B*	C*	E*	F*
34	G 3/4	G 3/4	G 1/4	184 - *7.24*	90 - *3.54*	60 - *2.36*	65 - *2.56*	82 - *3.23*
100	G 1	G 1	G 1/4	218 - *8.58*	100 - *3.94*	80 - *3.15*	76 - *2.99*	99 - *3.90*

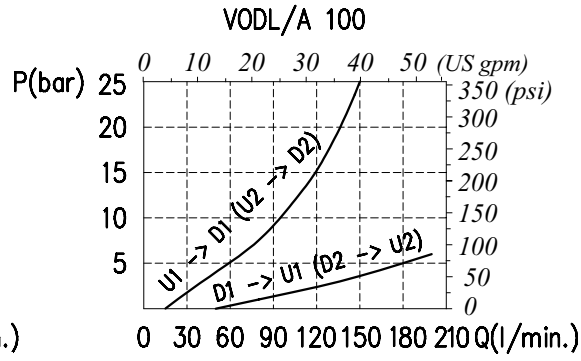
*Dimensions are in mm - *in*

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

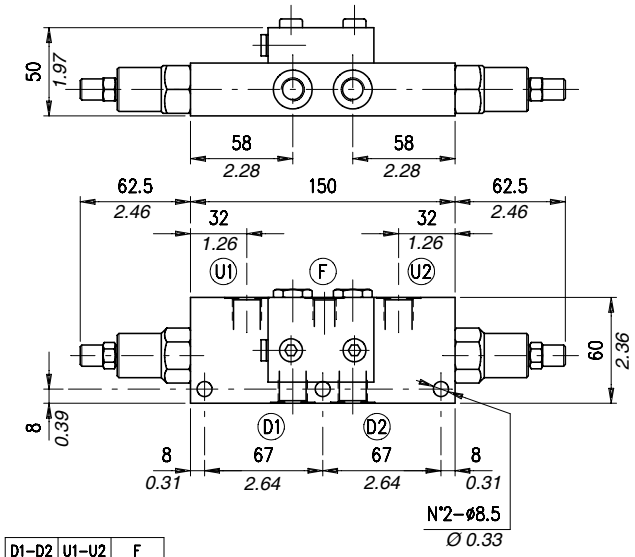
Check valve seat

See body
VRR) Hardened steel

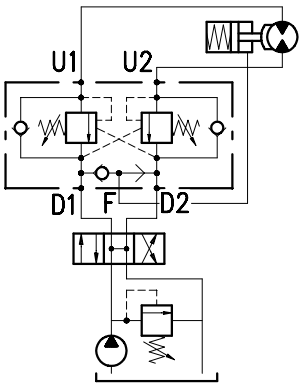
Body material

Aluminium
ac Steel

Dimensions and hydraulic circuit

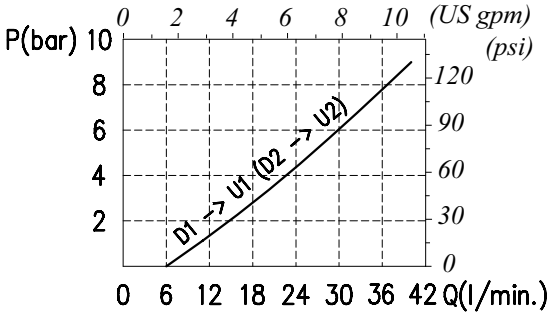


D1–D2	U1–U2	F
G 3/8	G 3/8	G 1/4

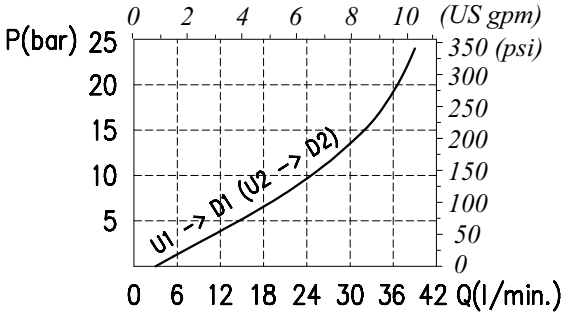


Rating diagrams

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

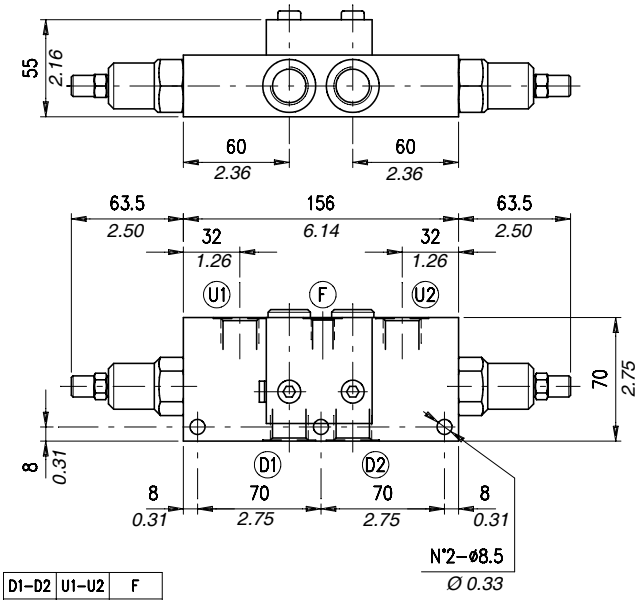
Check valve seat

– See body
VR) Hardened steel

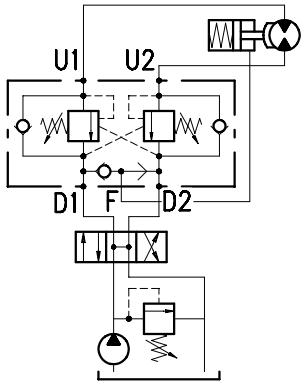
Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

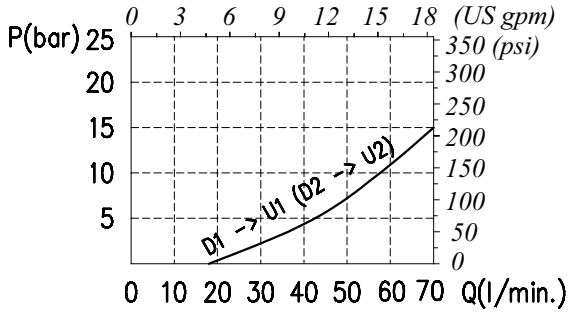


D1–D2	U1–U2	F
G 1/2	G 1/2	G 1/4

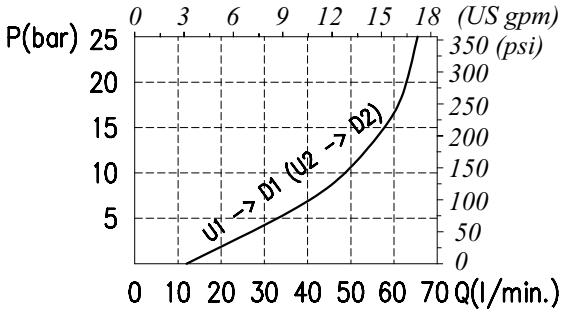


Rating diagrams

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

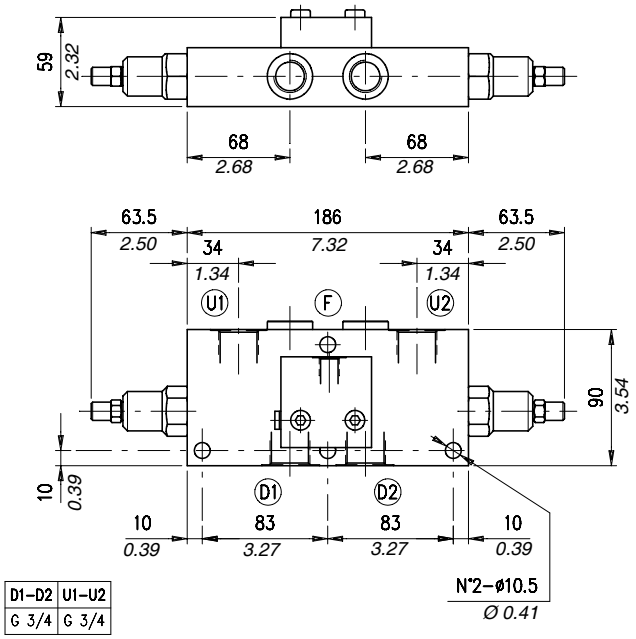
Check valve seat

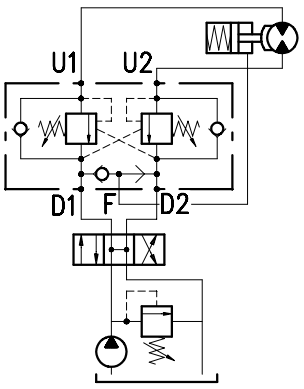
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

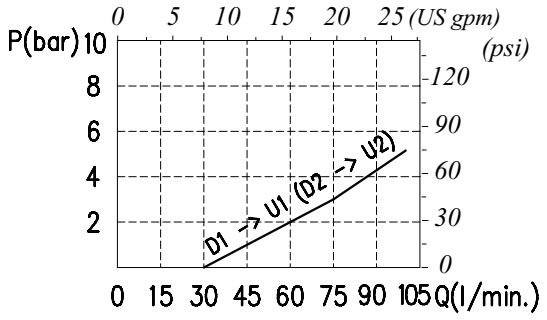
Dimensions and hydraulic circuit



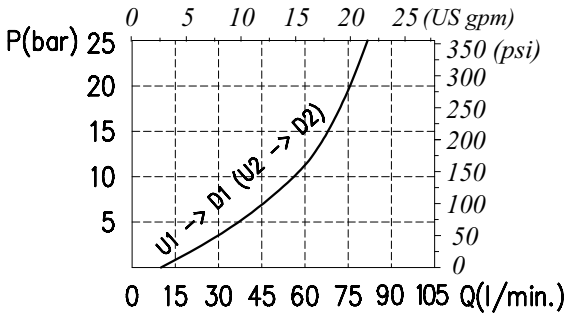


Rating diagrams

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

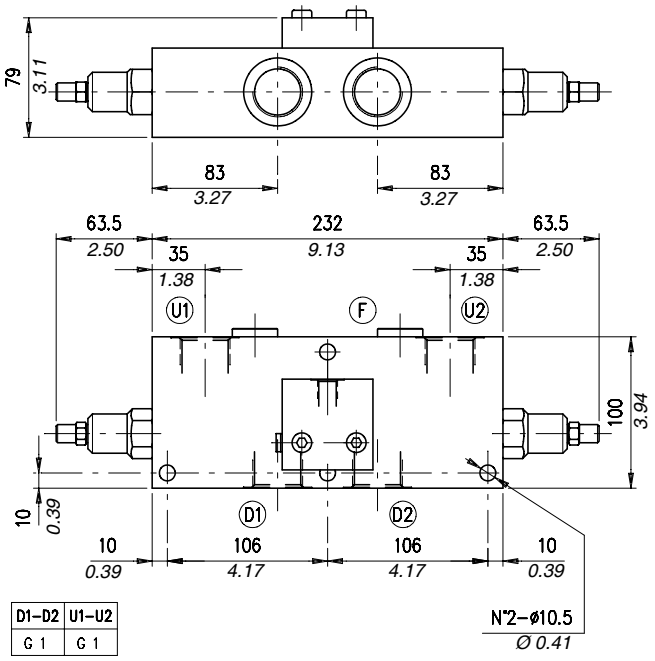
Check valve seat

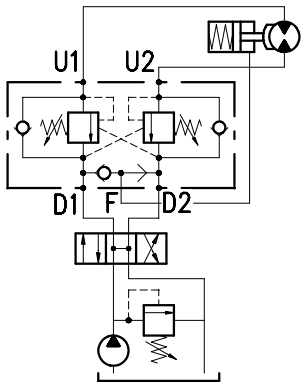
– See body
VRR) Hardened steel

Body material

– Aluminium
ac Steel

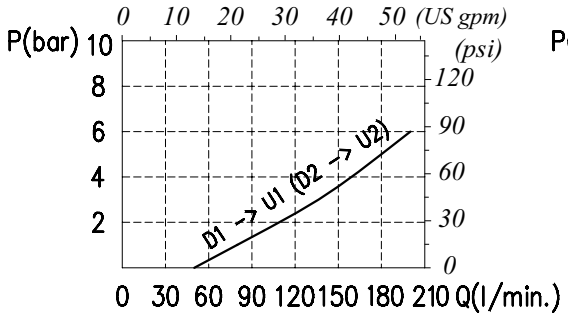
Dimensions and hydraulic circuit



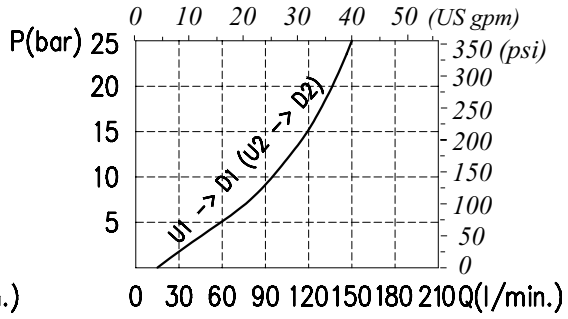


Rating diagrams

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

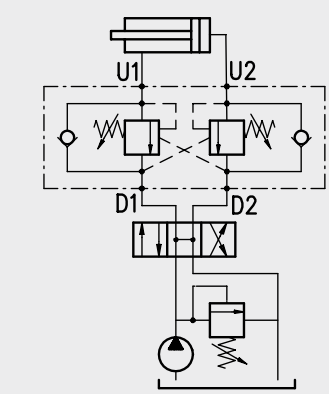
– See body
VRR) Hardened steel

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

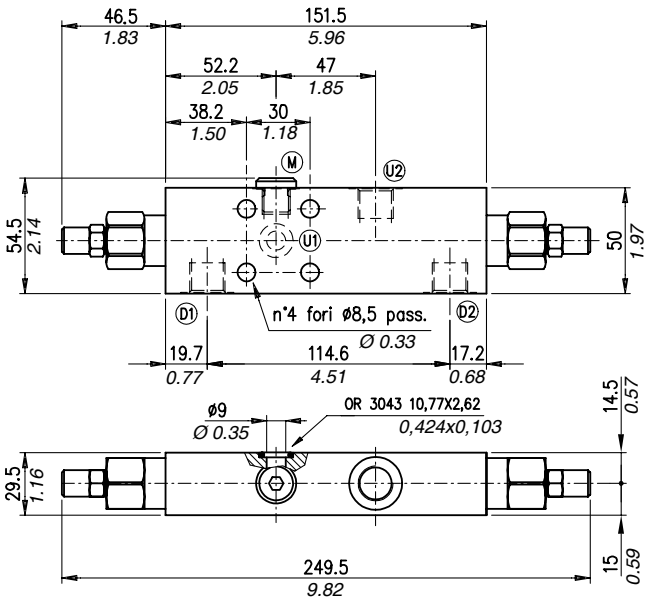
Body valves

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	

Type VODL/SC/F1/C 1116/38

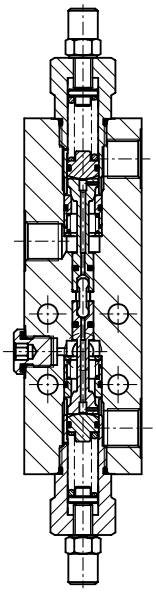
Dual overcenter valve, line mounting. The main features of this valve are compact dimensions and good tolerance to oil contamination

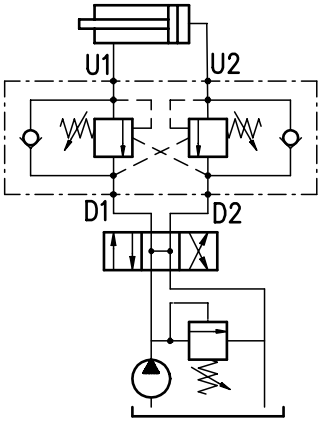
Dimensions and hydraulic circuit



D1–D2–U2	M
G 3/8	G 1/4

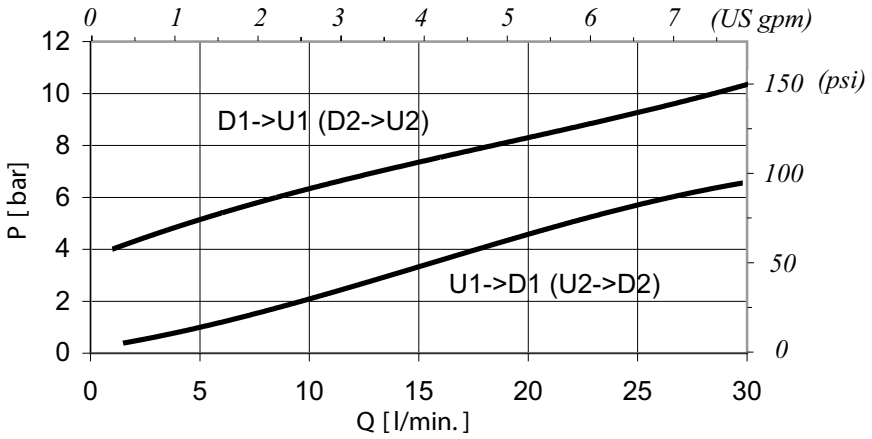
Section





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

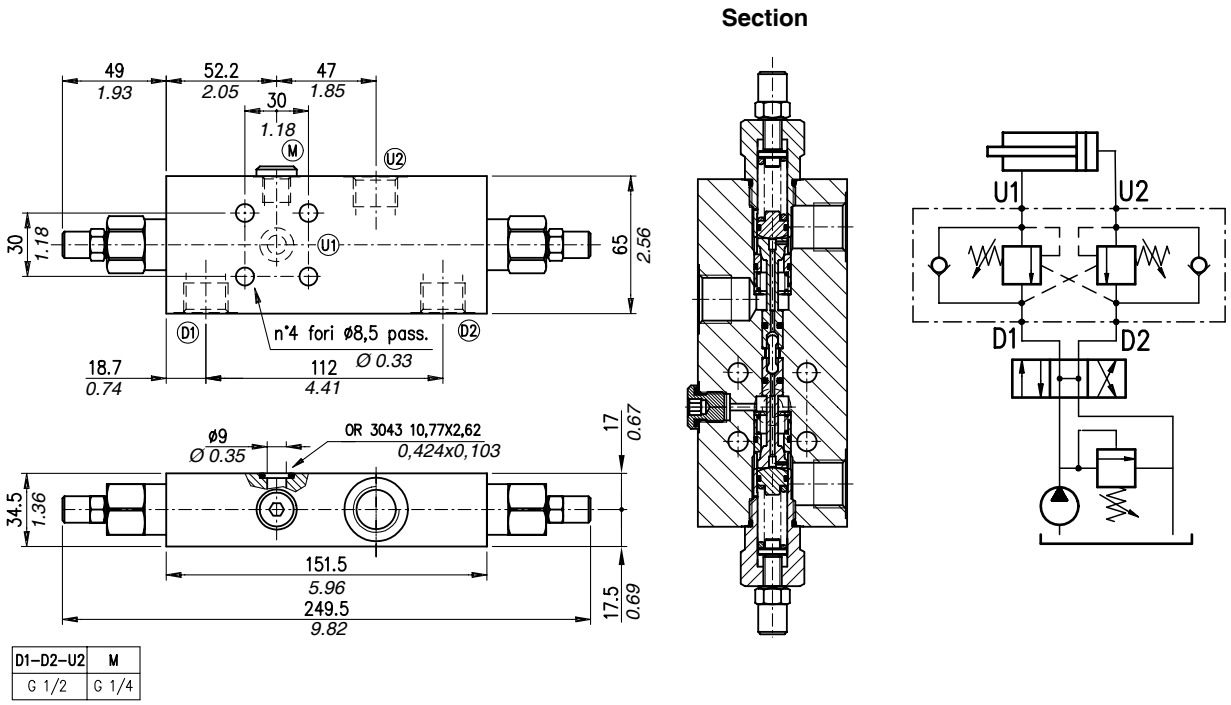
p4) 1:4
p11) 1:11

Body material

_ Aluminium
ac Steel

Type VODL/SC/F1/C 1116/12

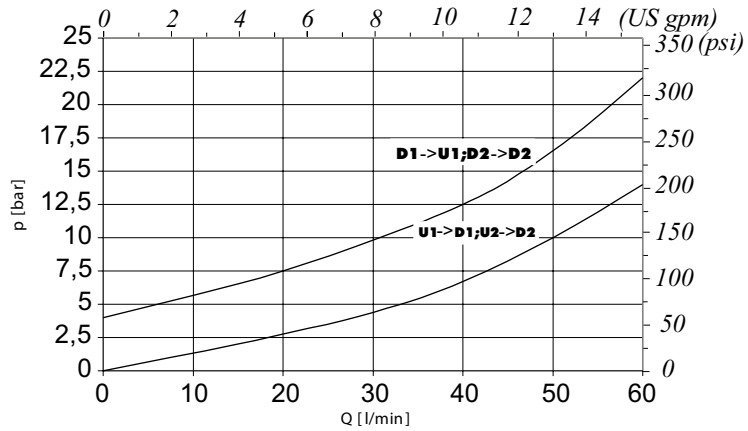
Dimensions and hydraulic circuit



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)

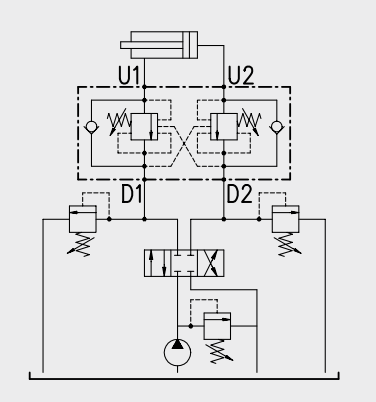
Pilot ratio

p4) 1:4
p11) 1:11

Body material

_ Aluminium
ac Steel

Operation



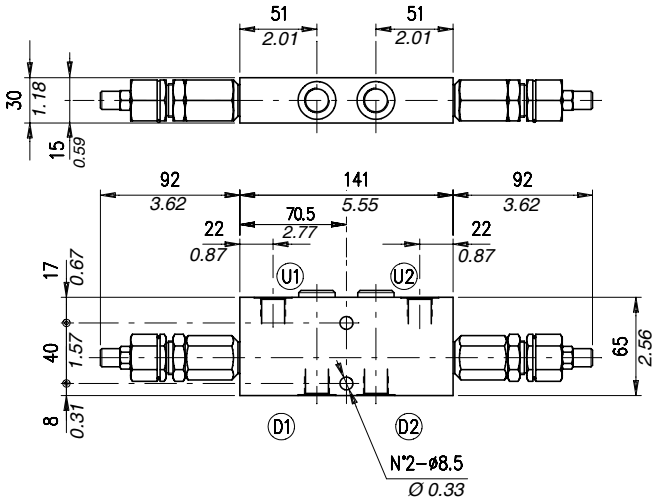
The oil flow is allowed from D1 (D2) to U1 (U2) and is stopped in the opposite way from U1 (U2) to D1 (D2) up to the spring setting value. Free oil flow from U1 (U2) to D1 (D2) is strictly possible when the pilot pressure in D2 and U2 (D1 and U1) is strong enough to pilot the valve poppet.
Use the following 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

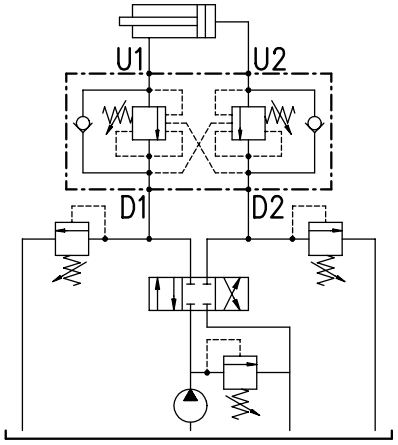
Body valves

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

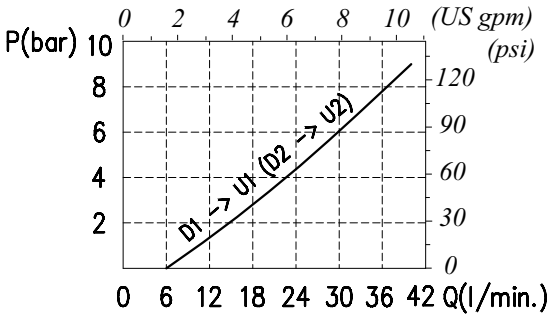


D1–D2	U1–U2
G 3/8	G 3/8

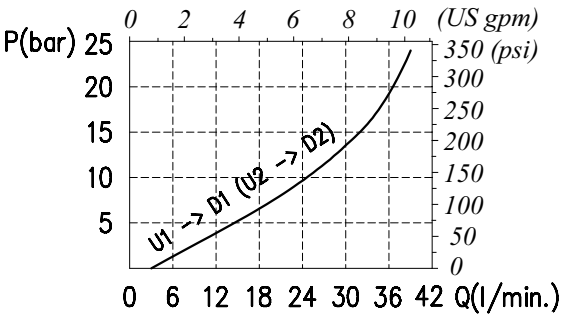


Rating diagrams

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

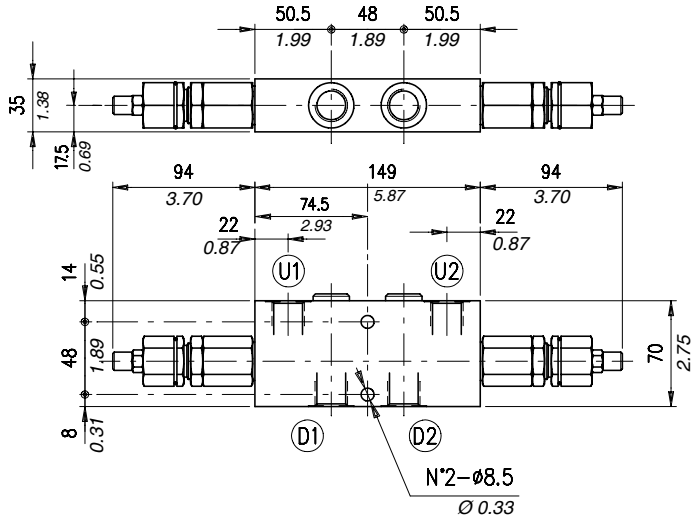
Check valve seat

– See body
VRR) Hardened steel

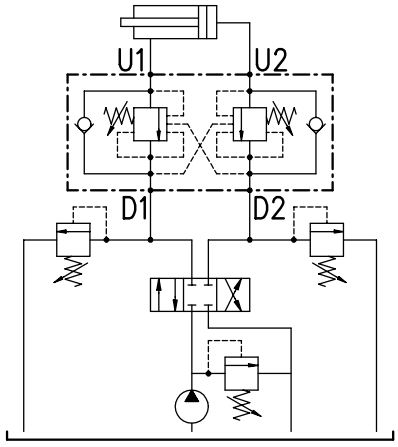
Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

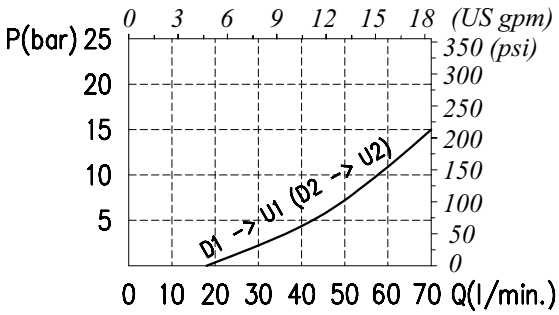


D1–D2	U1–U2
G 1/2	G 1/2

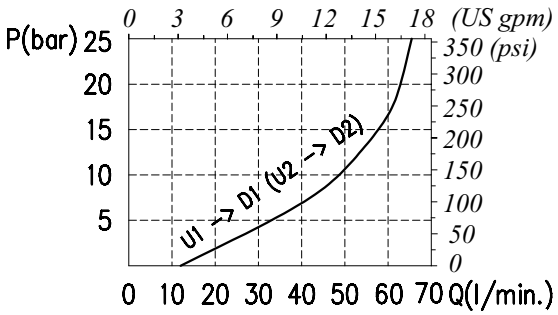


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



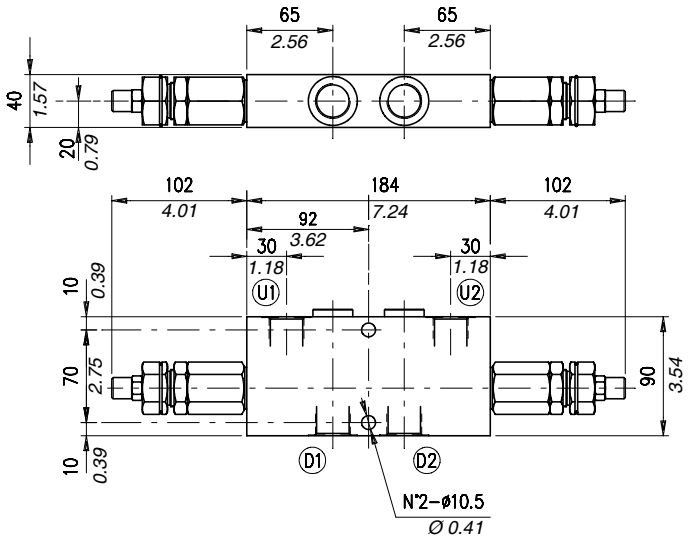
Order code

Pressure settings

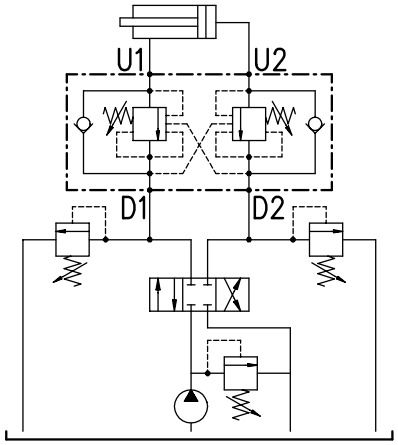
(72.5÷3050 psi)
(725÷5100 psi)

(1450÷10150 psi)

Dimensions and hydraulic circuit

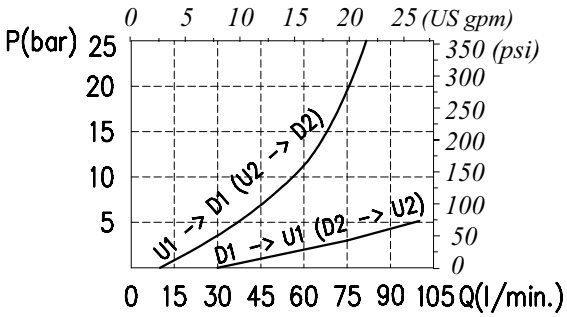


D1–D2	U1–U2
G 3/4	G 3/4



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

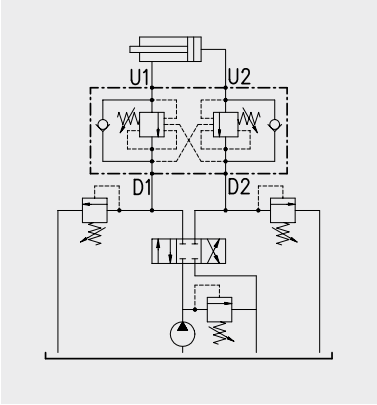
_ See body
VRR) Hardened steel

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.

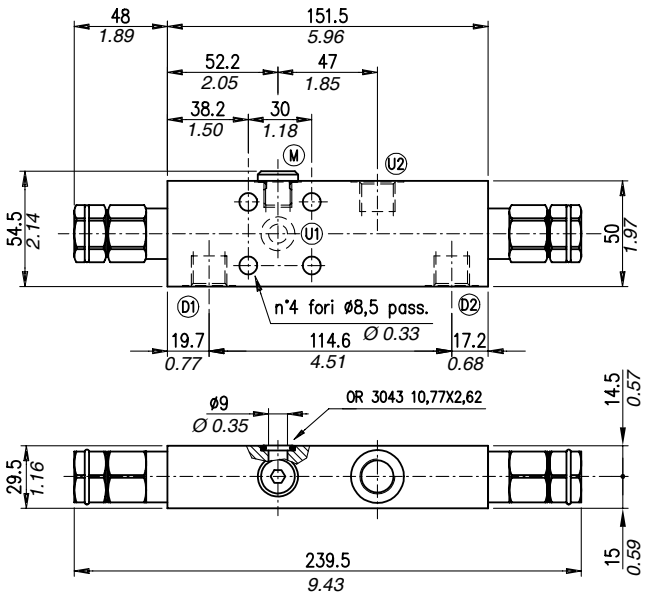


Performance

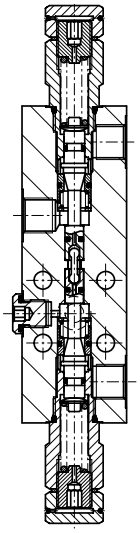
Body valves

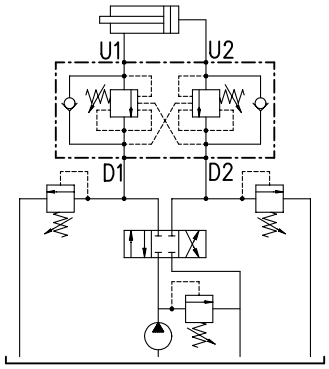
Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 (U2) to D1 (D2)	Pilot ratio	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
VODL /SC/CC/F1/C 1116/38	30	*7.9*	210 (alum. body white anodized)	*3050* (alum. body white anodized	50÷350 bar *-725÷5100 psi*; pressure 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



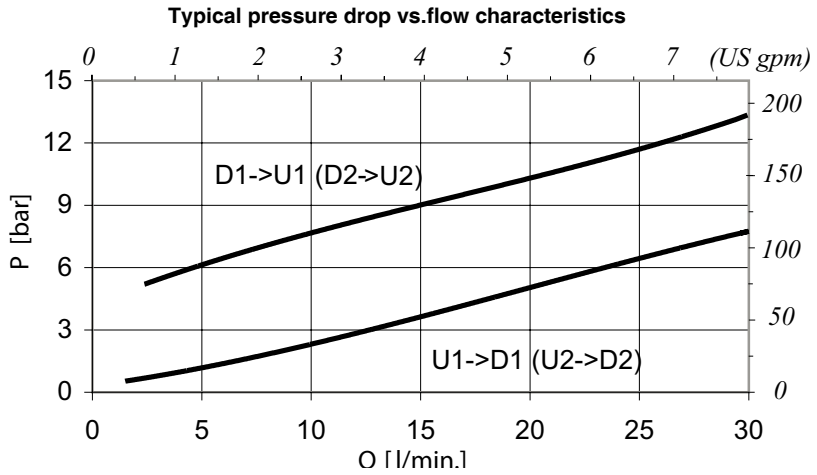
Section





D1–D2–U2	M
G 3/8	G 1/4

Rating diagrams



Order code

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

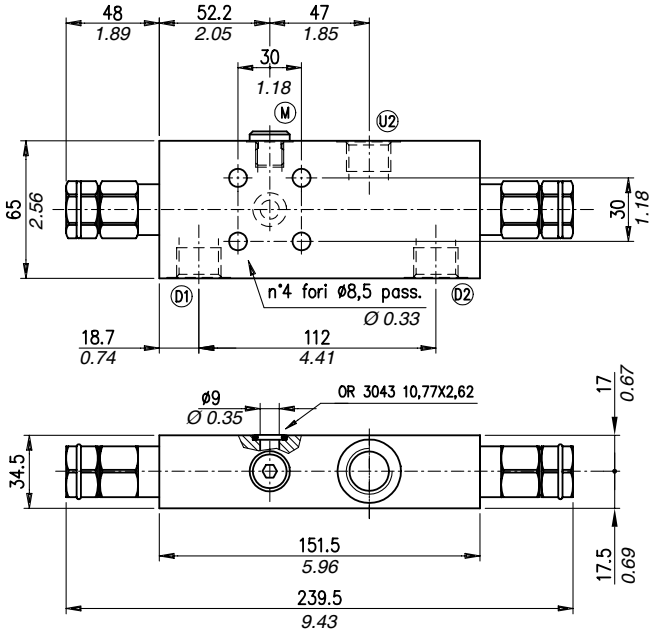
VODL /SC /CC/F1/C 1116/ 38 / □□ . S .□□ . / □□

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

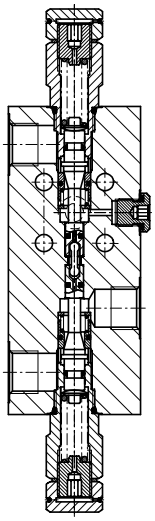
Body material
Materiale corpo
Aluminium
ac Steel
Alluminio
ac Acciaio

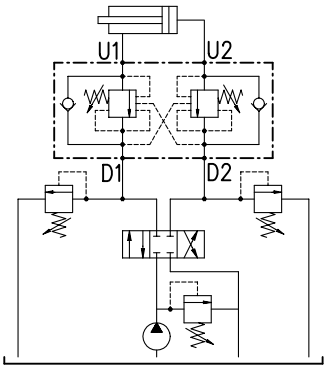
Dimensions and hydraulic circuit



D1–D2–U2	M
G 1/2	G 1/4

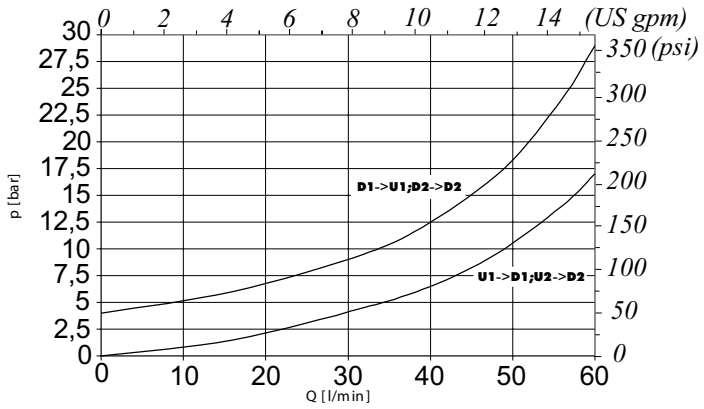
Section





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

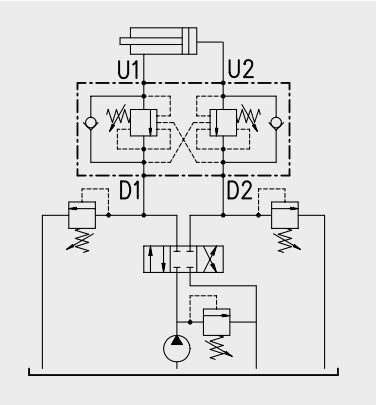
p4) 1:4

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.

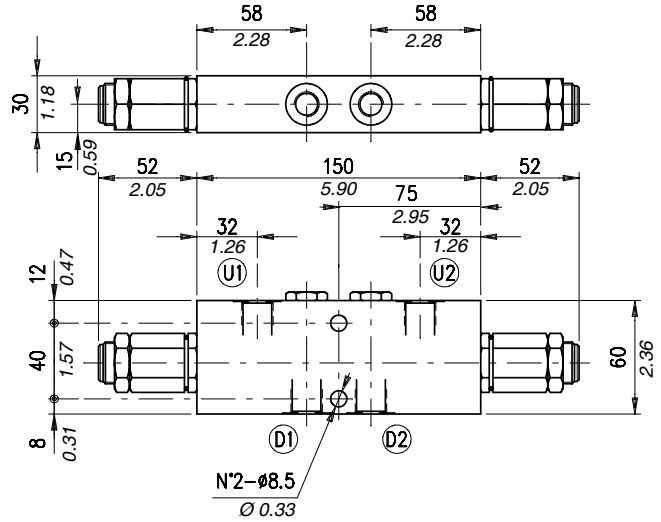


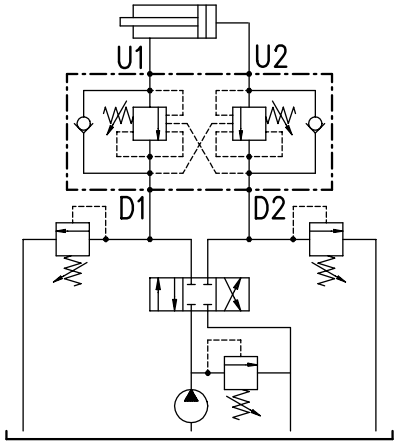
Performance

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

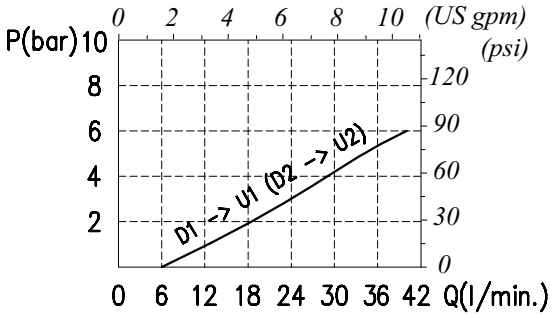




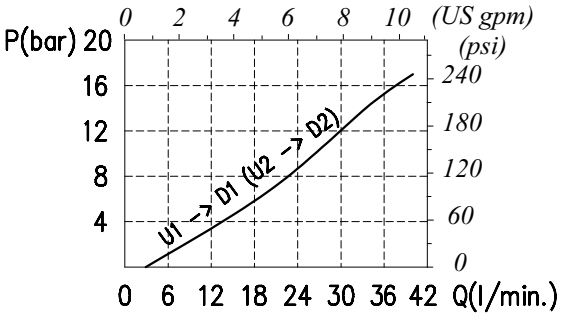
D1–D2	U1–U2
G 3/8	G 3/8

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

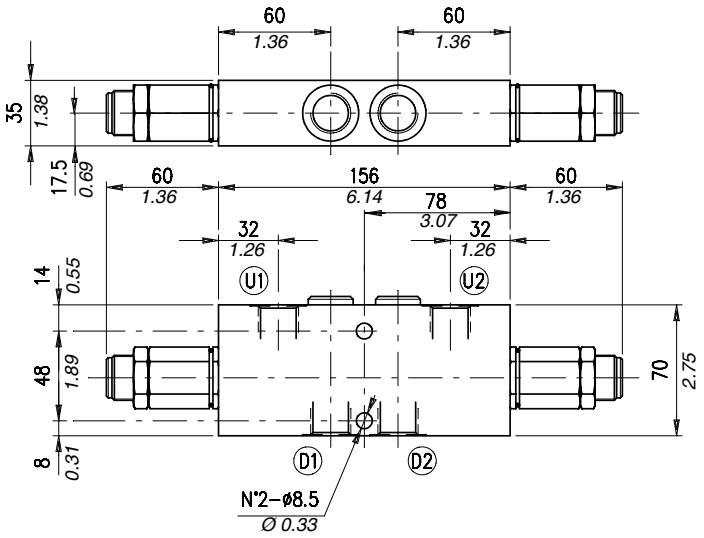
Check valve seat

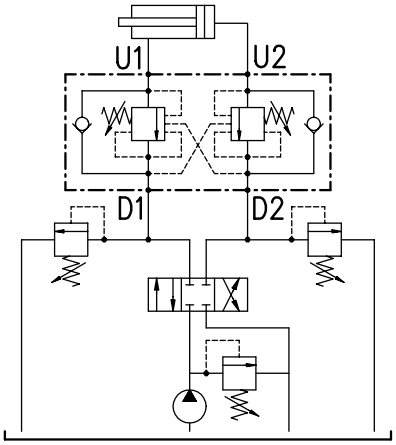
See body
VRR) Hardened steel

Body material

Aluminium
ac Steel

Dimensions and hydraulic circuit

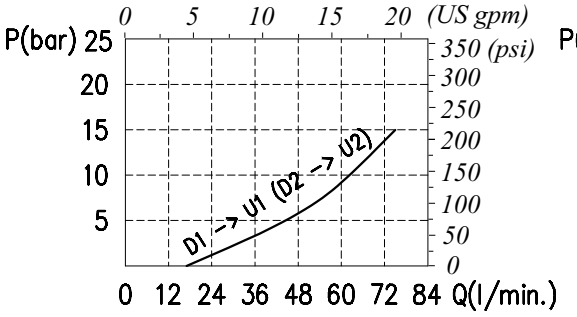




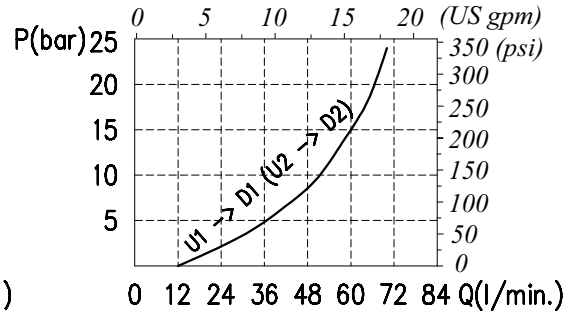
D1–D2	U1–U2
G 1/2	G 1/2

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

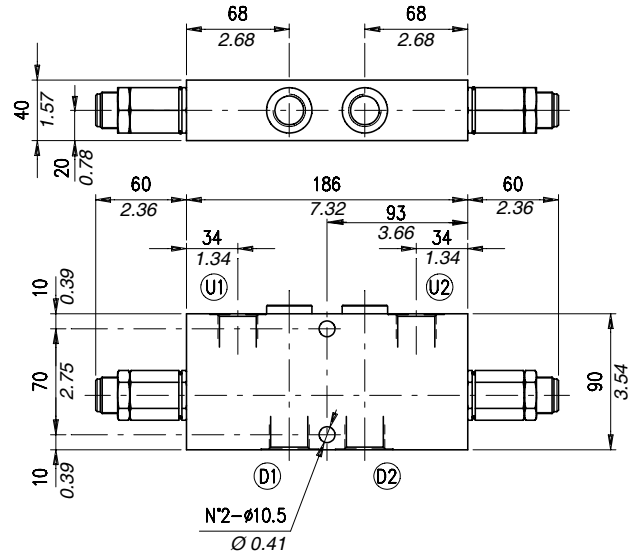
Check valve seat

– See body
VRR) Hardened steel

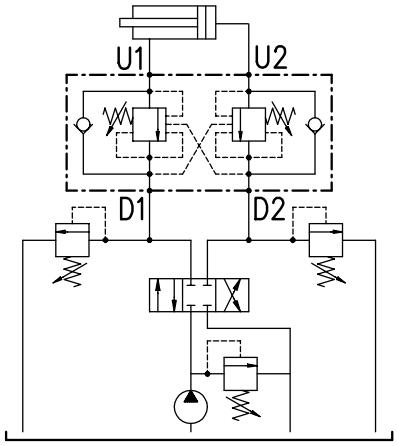
Body material

– Aluminium
ac Steel

Dimensions and hydraulic circuit

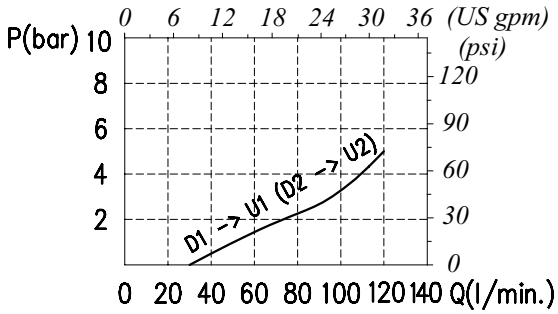


D1–D2	U1–U2
G 3/4	G 3/4

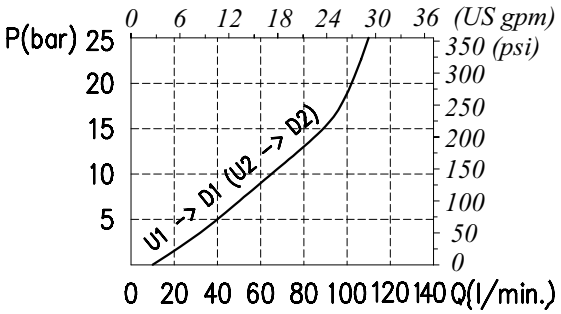


Rating diagrams

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

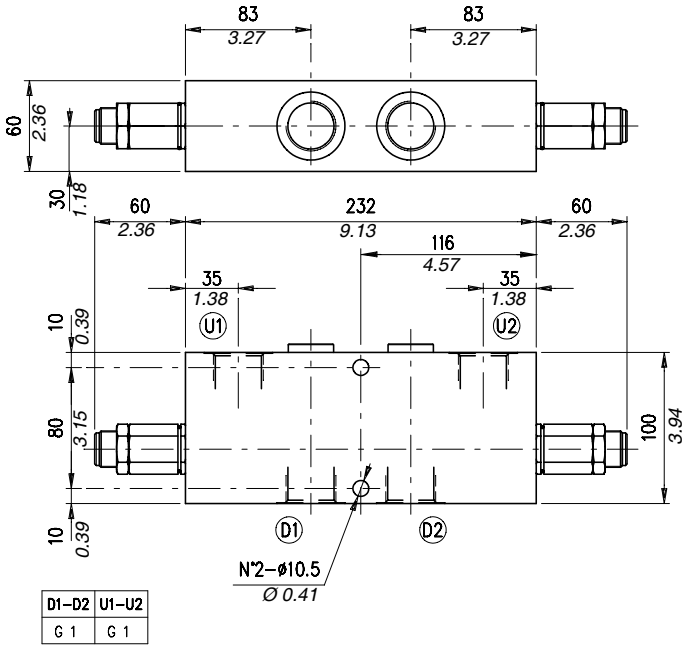
Check valve seat

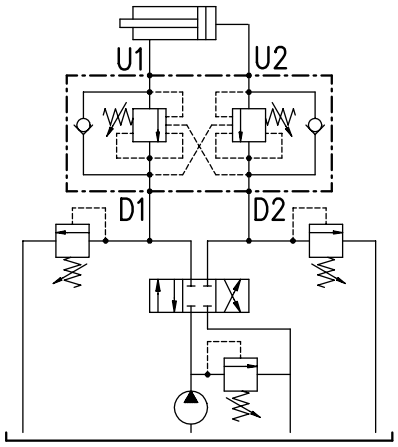
_ See body
VRR) Hardened steel

Body material

_ Aluminium
ac Steel

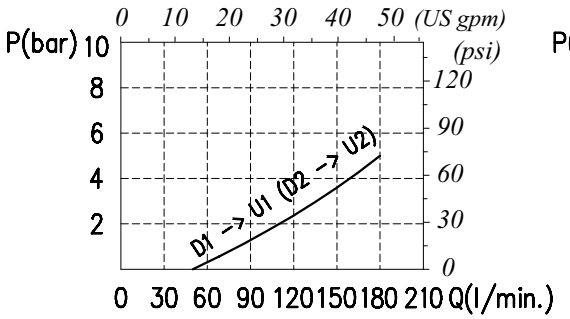
Dimensions and hydraulic circuit



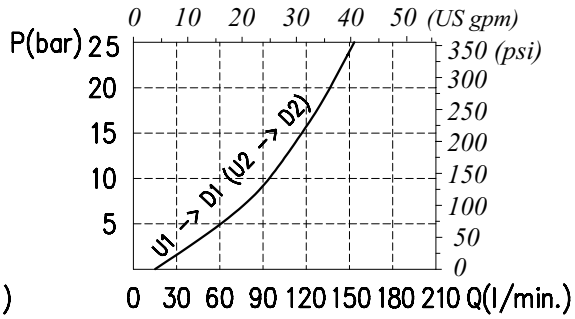


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics



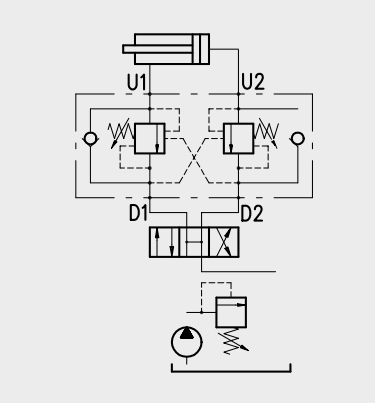
Order code

VODL /SC /CC 100 / □□ . 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 **VR)** Hardened steel	_ 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..

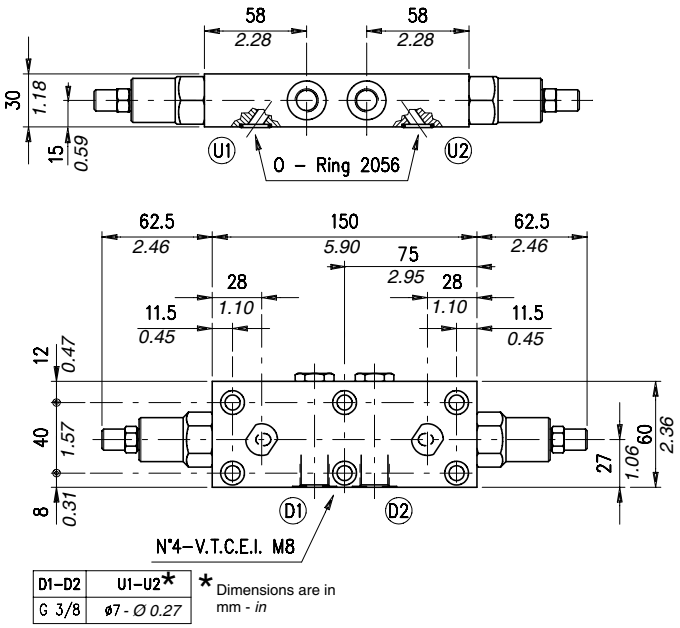


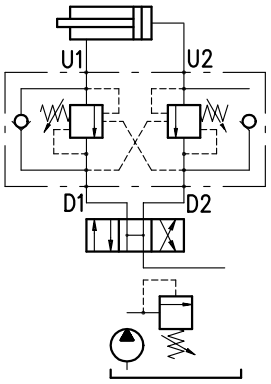
Performance

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	

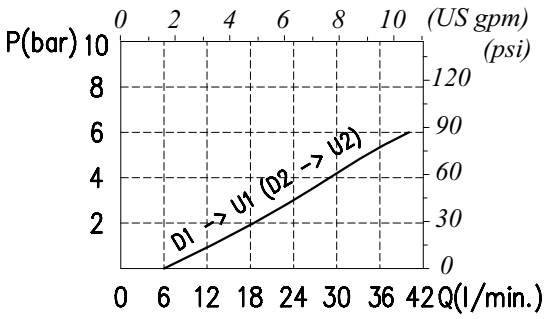
Dimensions and hydraulic circuit



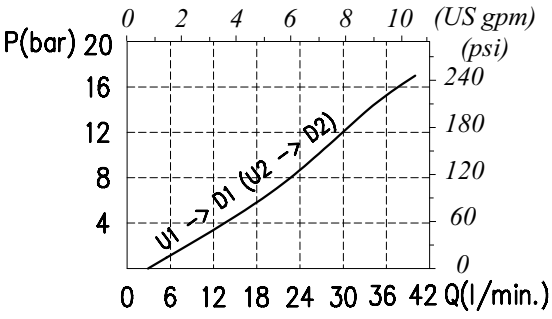


Rating diagrams

Typical pressure drop vs.flow characteristics



Typical pressure drop vs.flow characteristics

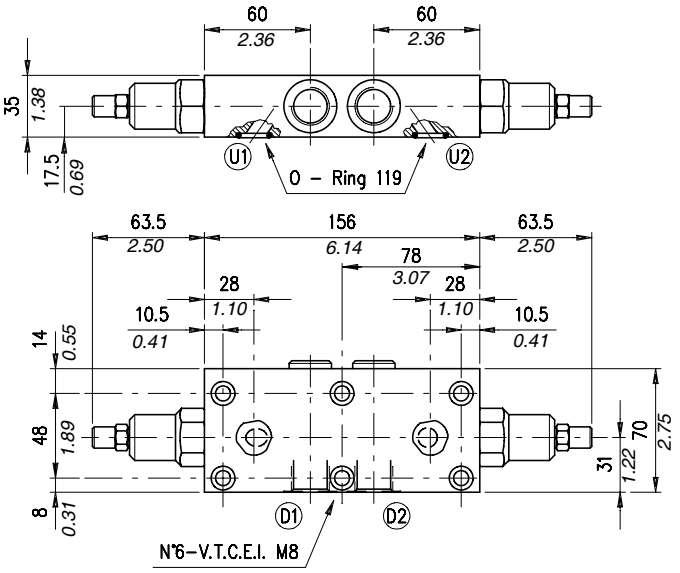


Order code

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

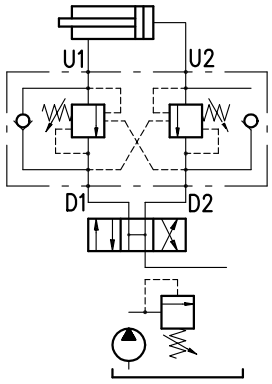
Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body material
TS) 5÷210 bar *(72.5÷3050 psi)*	**p3)** 1:3	Without damper (Standard)	See body	Aluminium
TR) 50÷350 bar *(725÷5100 psi)* (Standard)	**p4)** 1:4 (Standard)	**PG)** With damper	**VR)** Hardened steel	**ac** Steel
TG) 100÷700 bar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

Dimensions and hydraulic circuit



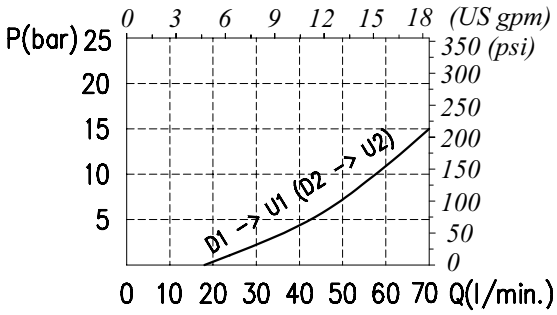
D1–D2	U1–U2*
G 1/2	ø9 - Ø 0.35

* Dimensions are in mm - *in*

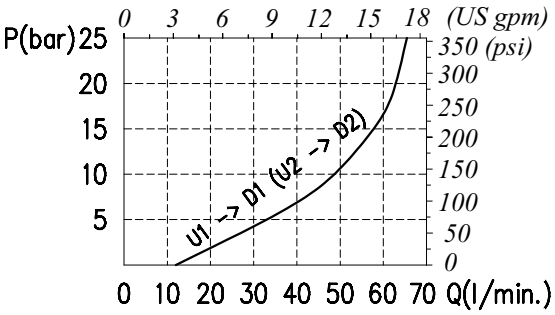


Rating diagrams

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

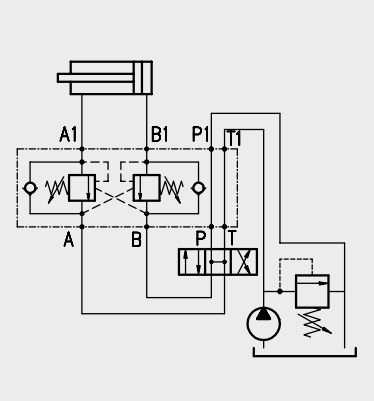
Check valve seat

_ 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

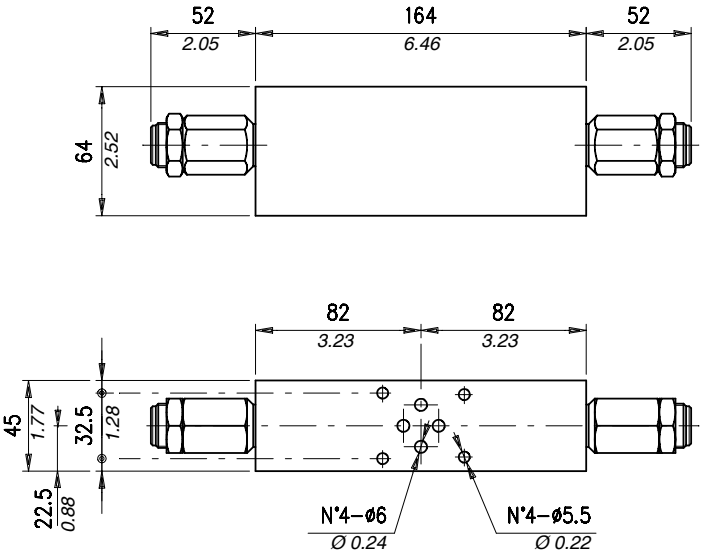
Body Valves

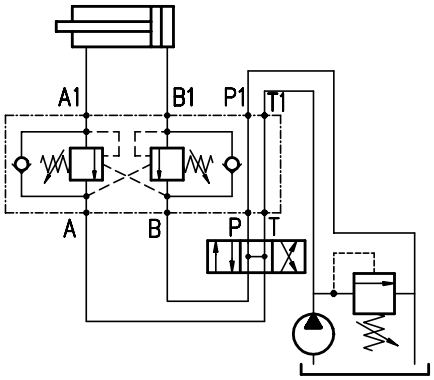
<table>
<tr><th rowspan="2">Type</th><th colspan="2">Maximum flow</th><th colspan="2">Maximum pressure</th><th rowspan="2">Application range with standard springs</th><th rowspan="2">Oil leakage from A1 (B1) to A (B)</th><th rowspan="2">Pilot ratio</th><th colspan="2">Weight</th></tr>
<tr><th>l/min</th><th>US gpm</th><th>bar</th><th>psi</th><th>kg</th><th>lb</th></tr>
<tr><td rowspan="4">VODL/ML 6-38</td><td rowspan="4">35</td><td rowspan="4">9.2</td><td rowspan="8">210 (alum.)
350 (steel)</td><td rowspan="8">3050 (alum.)
5100 (steel)</td><td rowspan="8">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)</td><td rowspan="8">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="4">1:4 (standard type)
1:3 (on request only)</td><td>1,75</td><td>3.85</td></tr>
<tr><td colspan="2">aluminium</td></tr>
<tr><td>3,75</td><td>8.27</td></tr>
<tr><td colspan="2">steel</td></tr>
<tr><td rowspan="4">VODL/ML 10-12</td><td rowspan="4">70</td><td rowspan="4">18</td><td rowspan="4">1:7 (standard type)
1:3 (on request only)</td><td>3,21</td><td>7.08</td></tr>
<tr><td colspan="2">aluminium</td></tr>
<tr><td>7,46</td><td>16.45</td></tr>
<tr><td colspan="2">steel</td></tr>
</table>

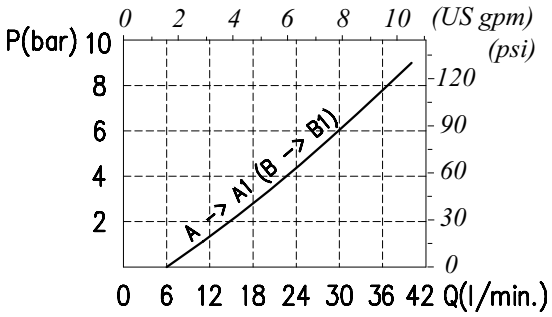
Dimensions and hydraulic circuit



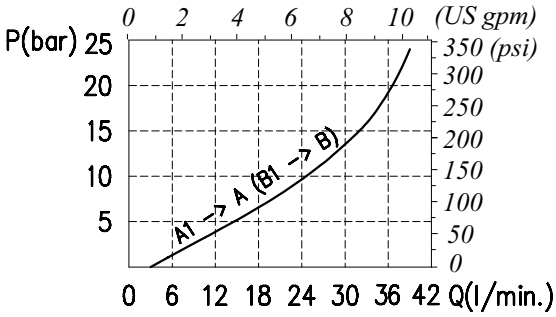


Rating diagrams

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

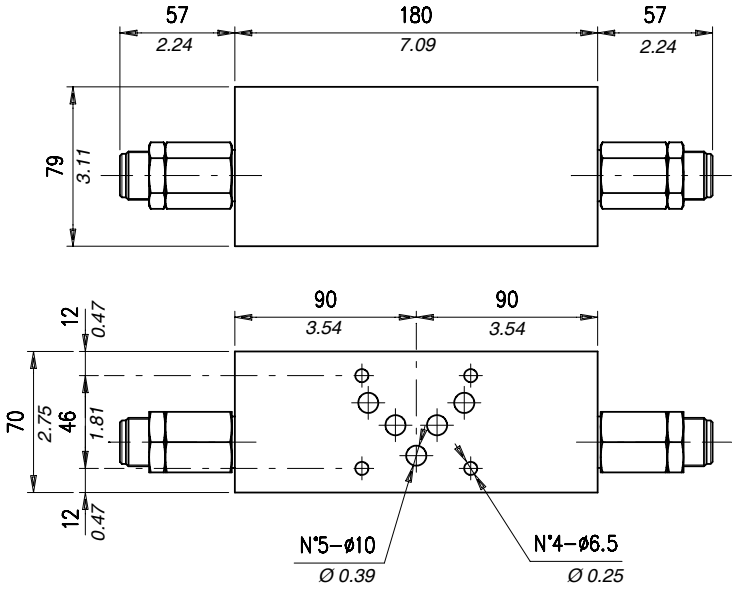
Check valve seat

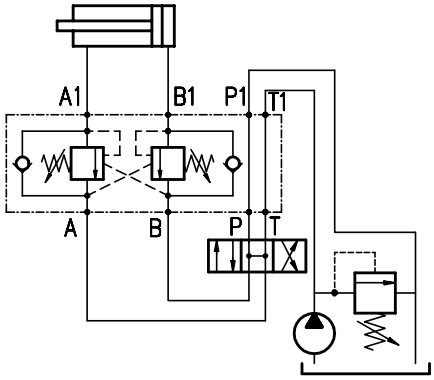
_ See body
VR) Hardened steel

Body material

_ Aluminium
ac Steel

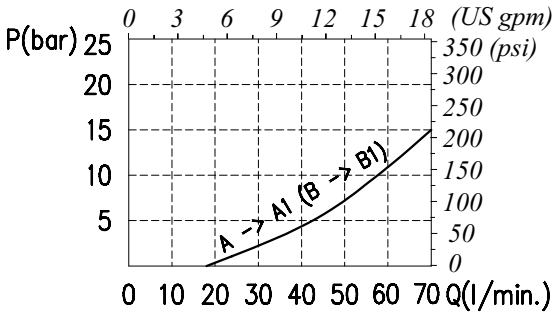
Dimensions and hydraulic circuit



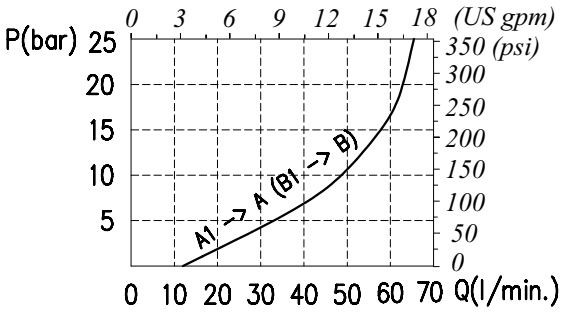


Rating diagrams

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

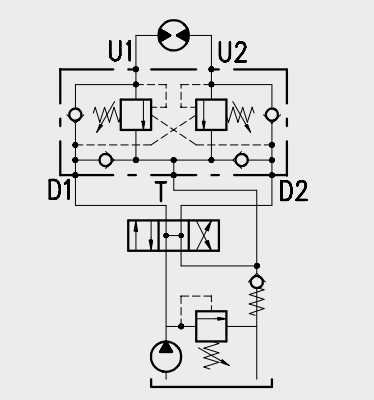
_ See body
VR) Hardened steel

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.

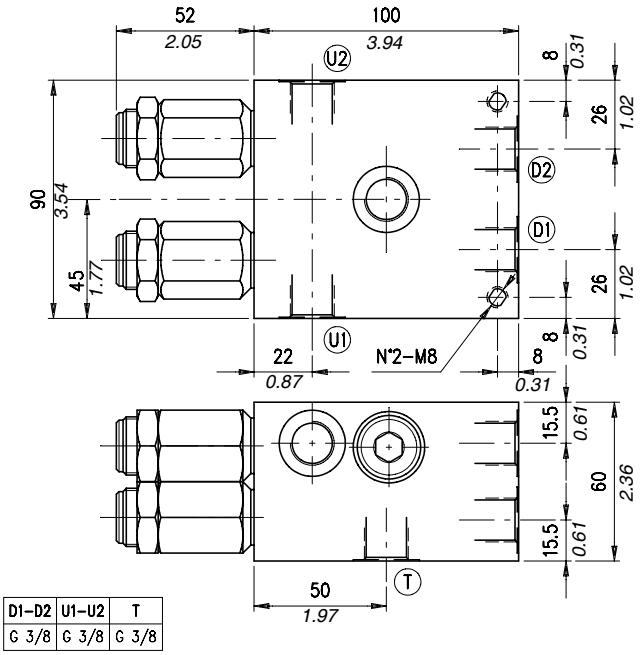


Performance

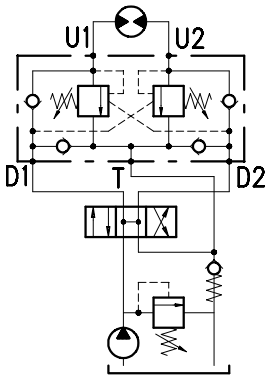
Body valves

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

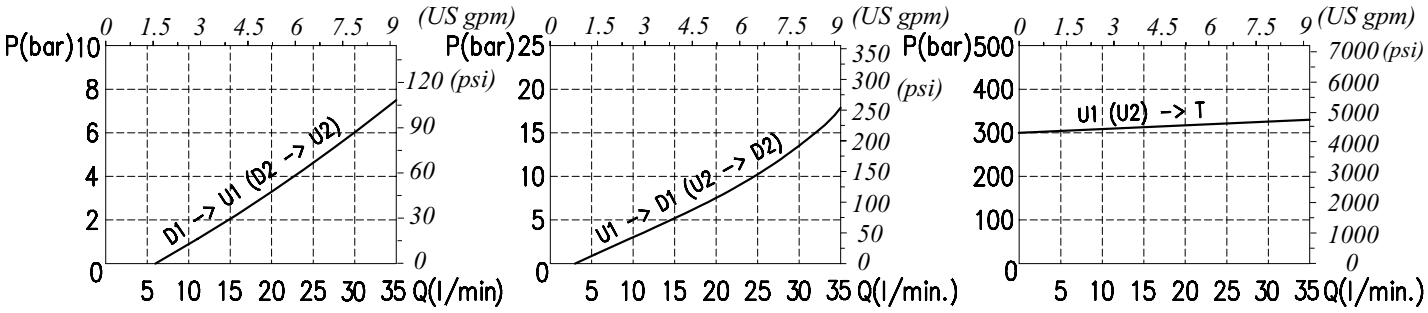


D1-D2	U1-U2	T
G 3/8	G 3/8	G 3/8



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

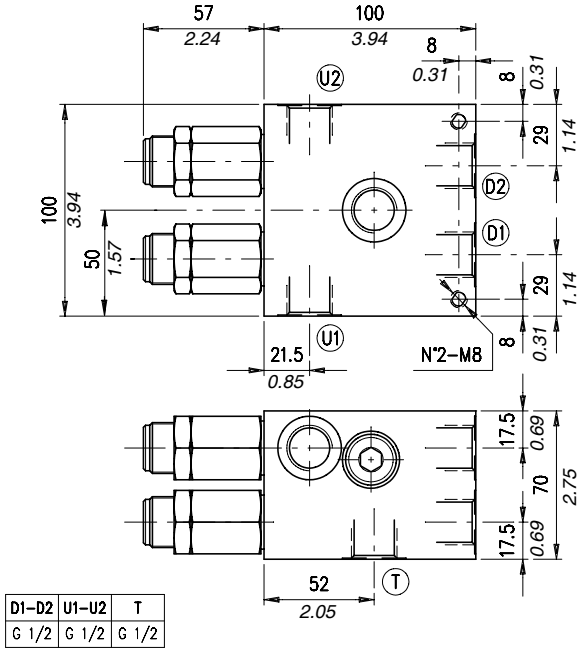
Check valve seat

_ See body
VRR) Hardened steel

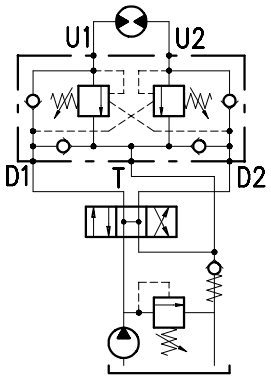
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

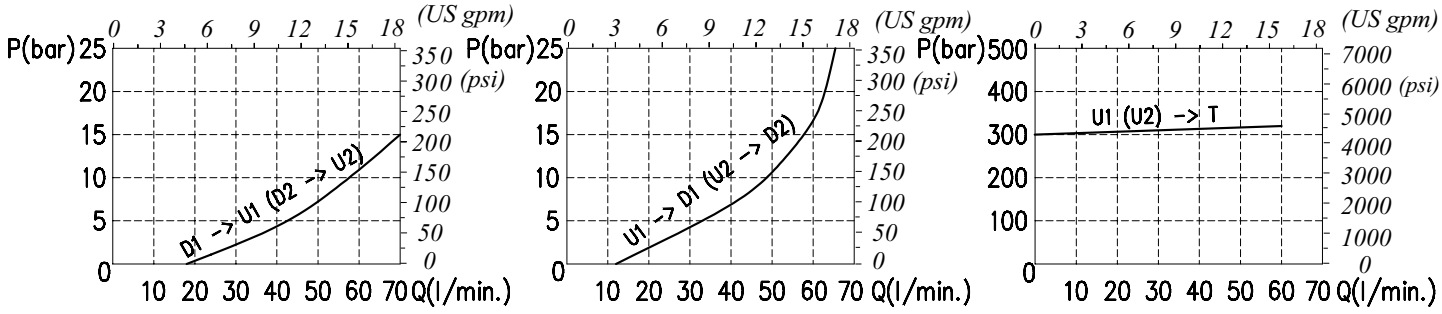


D1–D2	U1–U2	T
G 1/2	G 1/2	G 1/2



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

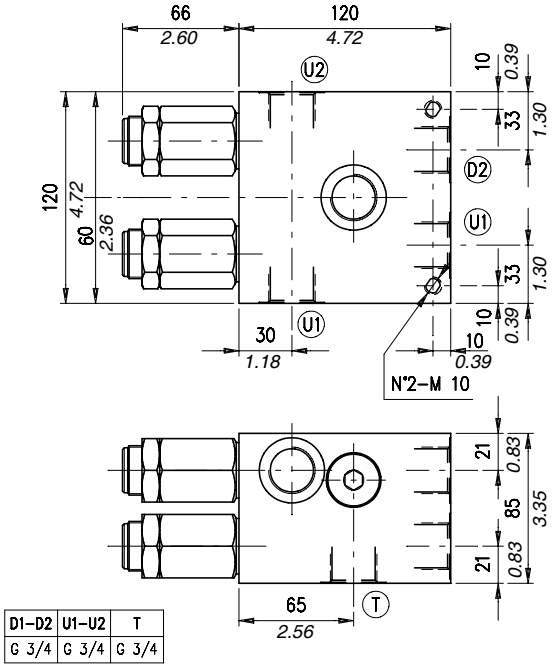
Check valve seat

_ See body
VR) Hardened steel

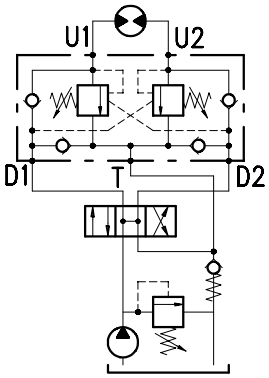
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

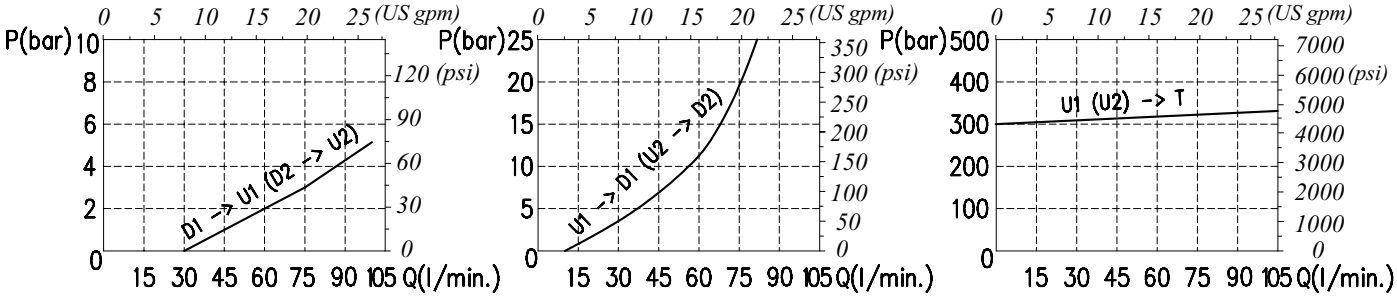


D1–D2	U1–U2	T
G 3/4	G 3/4	G 3/4



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

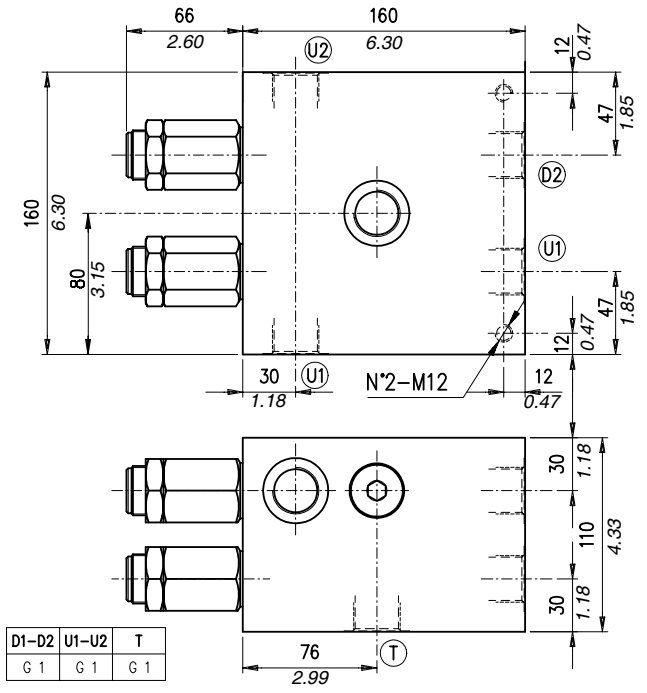
Check valve seat

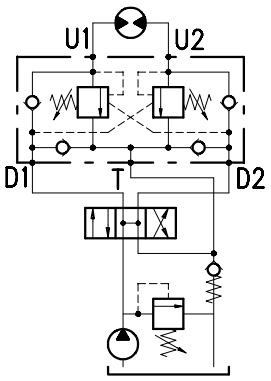
_ See body
VR) Hardened steel

Body material

_ Aluminium
ac Steel

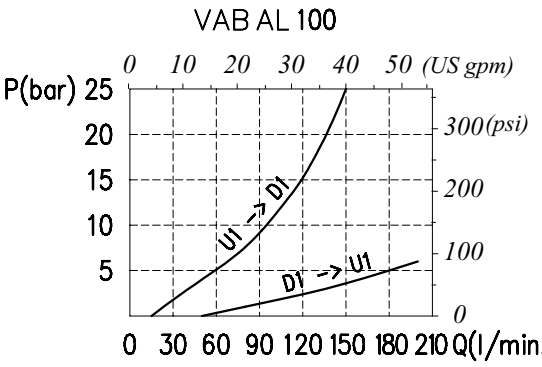
Dimensions and hydraulic circuit





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

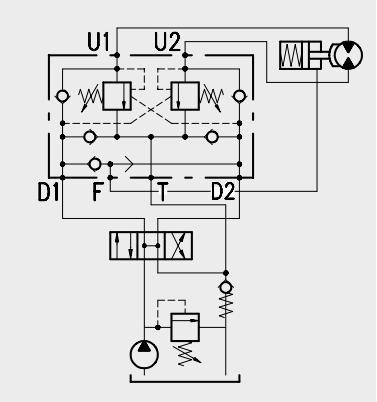
_ See body
VRR) Hardened steel

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.



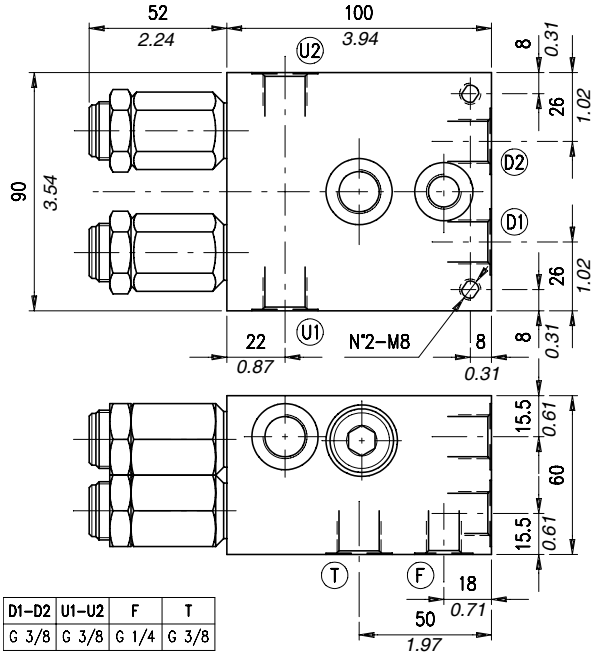
Performance

Body valves

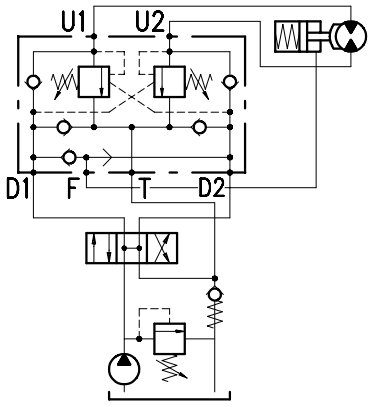
Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from A1 (B1) to A (B)	Pilot ratio	Weight		Overcenter cartridge
	l/min	*US gpm*	bar	*psi*				kg	*lb*	
VABAL/SF 38	35	*9.2*	210 (aluminium) 350 (steel)	*3050 (alum.)* *5100 (steel)*	5÷210 bar *-72.5÷3050 psi* (test 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

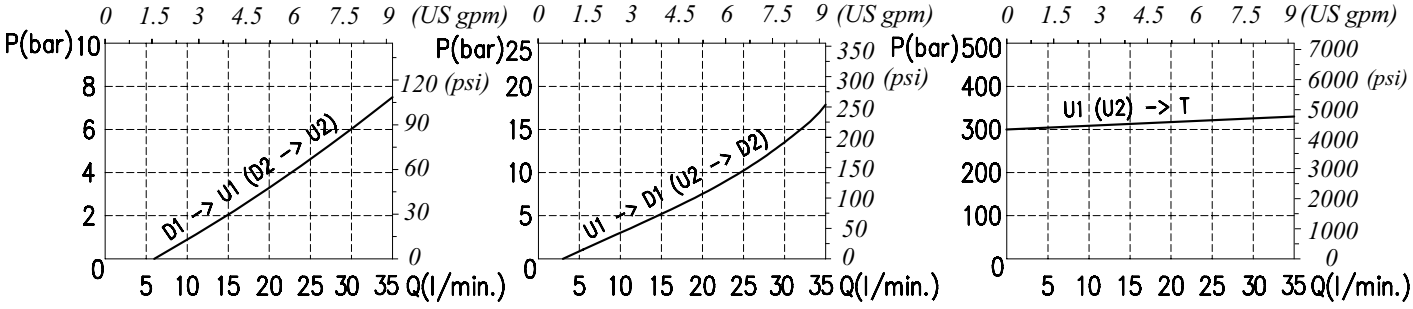


D1-D2	U1-U2	F	T
G 3/8	G 3/8	G 1/4	G 3/8



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

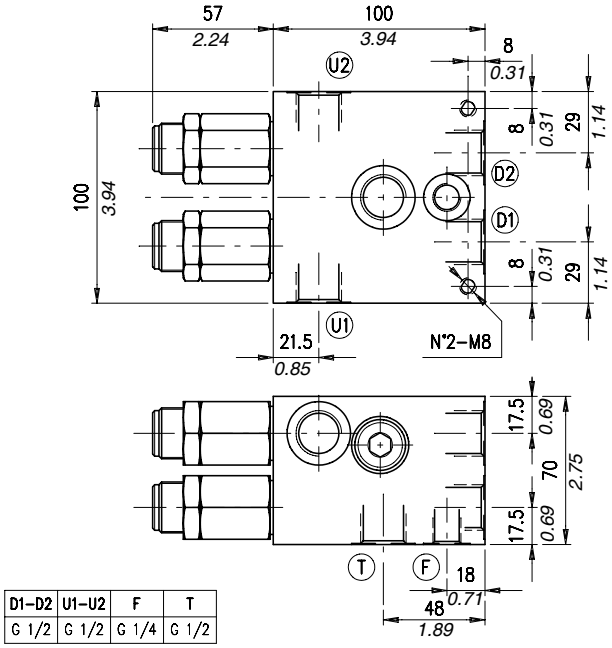
Check valve seat

_ See body
VRR) Hardened steel

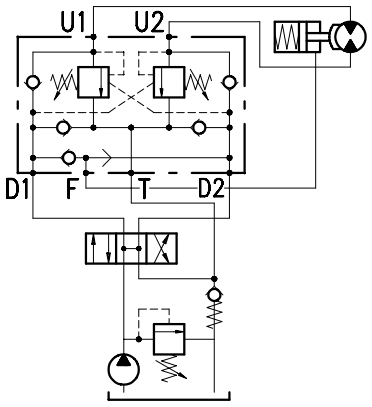
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

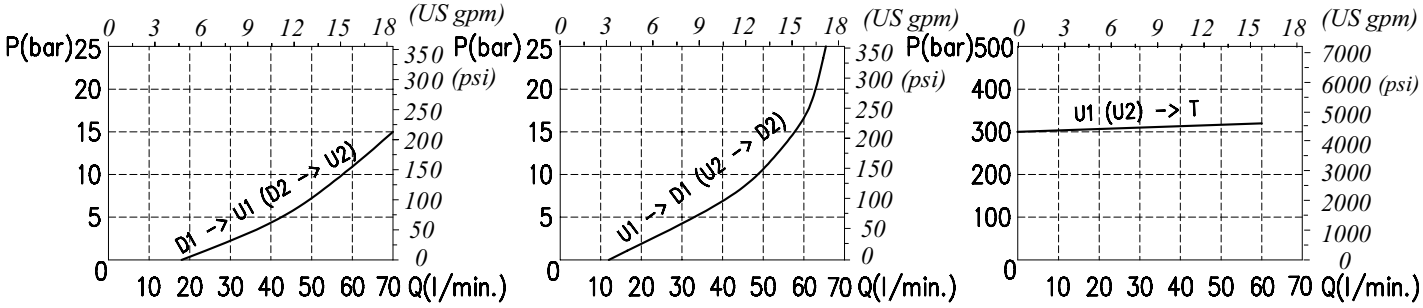


D1–D2	U1–U2	F	T
G 1/2	G 1/2	G 1/4	G 1/2



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

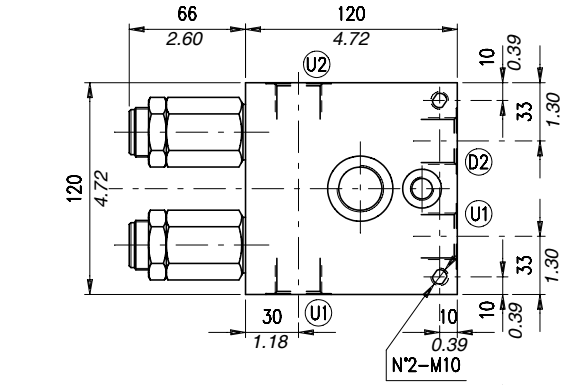
Check valve seat

_ See body
VRR) Hardened steel

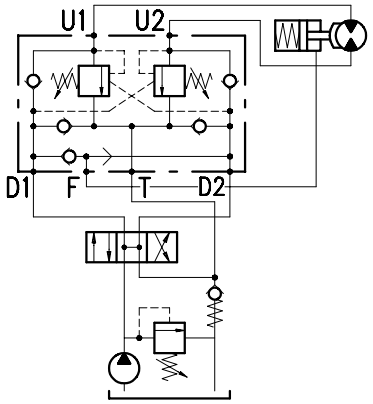
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

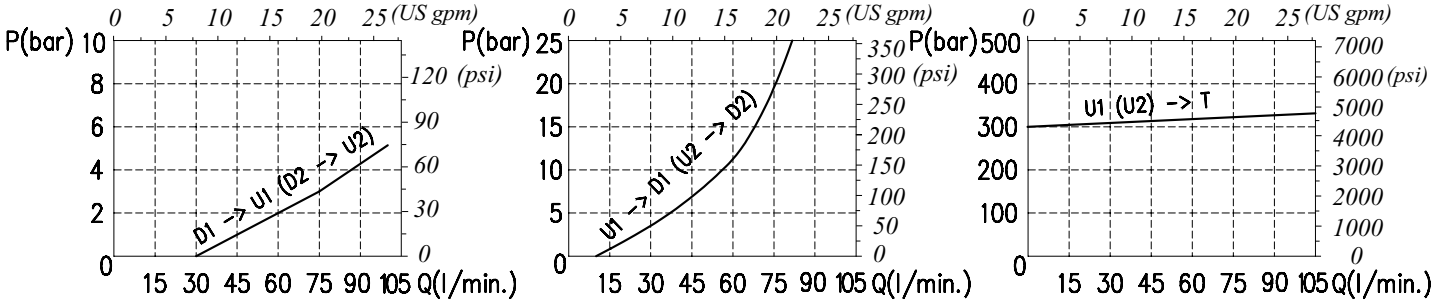


D1–D2	U1–U2	F	T
G 3/4	G 3/4	G 1/4	G 3/4



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

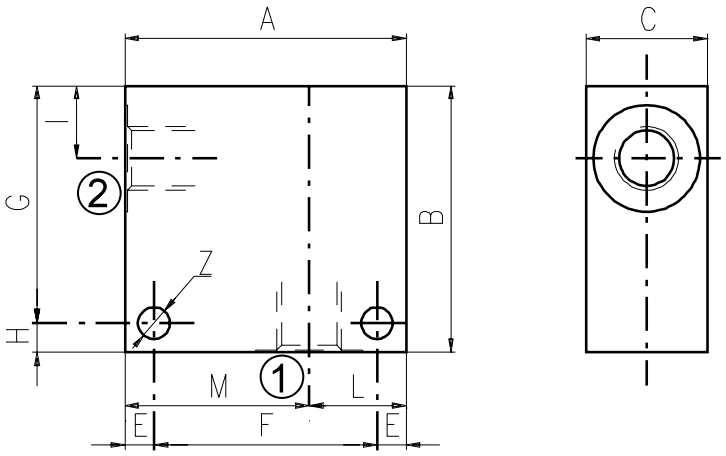
_ See body
VRR) Hardened steel

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*

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

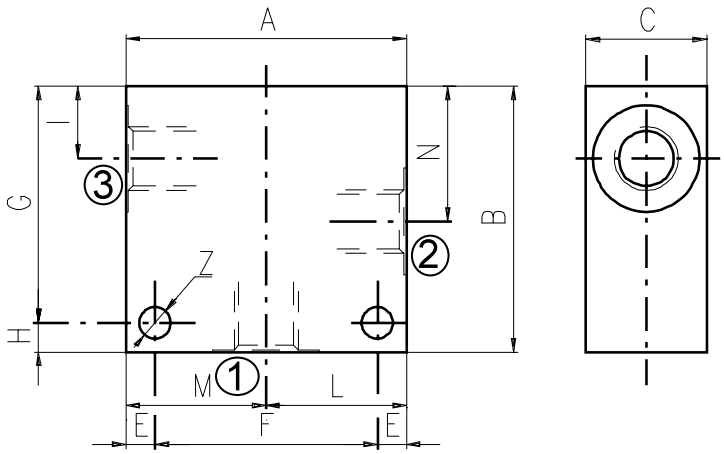
B) G 1/4
C) G 3/8
D) G 1/2
E) G 3/4
F) G 1

Materials

1) Aluminium
2) Steel

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*

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*

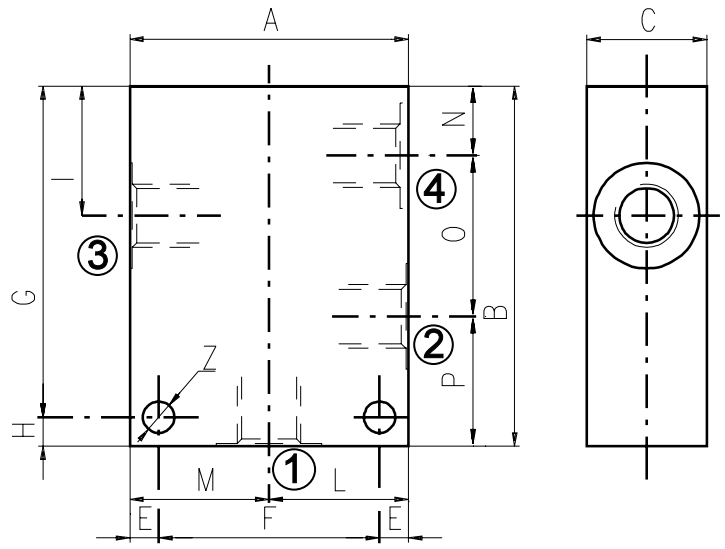
Order code

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	

Dimensions

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



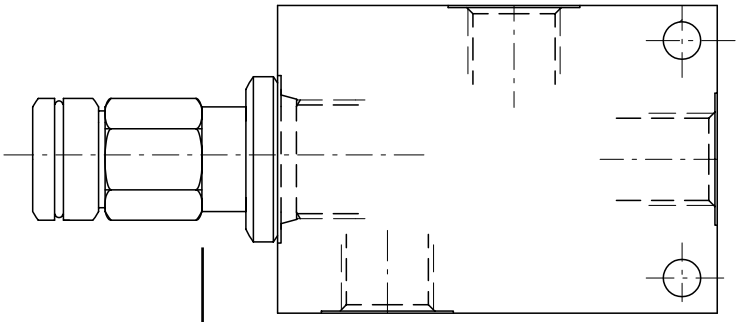
Cavity	Ports		A	B	C	E	F	G	H	I	L	M	N	O	P	Z
SAE 8/4	G 1/4	**mm**	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	*2.36*	*2.95*	*1.18*	*0.27*	*1.81*	*2.48*	*0.47*	*1.14*	*1.18*	*1.18*	*0.58*	*1.14*	*1.22*	*0.25*
	SAE6	**mm**	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	*2.36*	*2.95*	*1.18*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

How to order valves with body

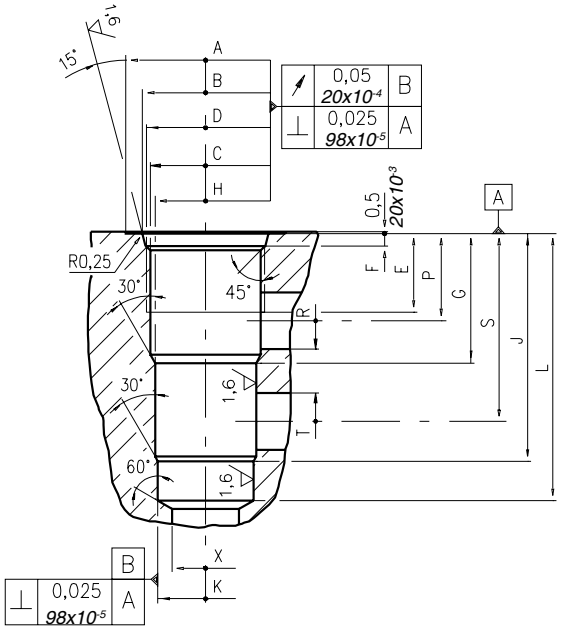


CARTRIDGE CODE **BILLET CODE**

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

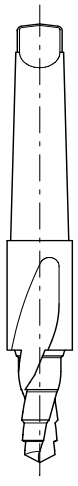
Cavity	Ports	Materials
08	B) G 1/4	1) Aluminium
10	C) G 3/8	
12	D) G 1/2	
16	E) G 3/4	
	F) G 1	
	J) SAE 6	2) Steel
	K) SAE 8	
	L) SAE 10	
	M) SAE 12	
	N) SAE 16	

Dimensions



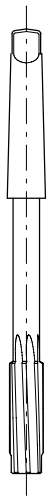
\		A	B ±0,05	C ±0,05	D	E	F	G	H ±0,02	J	K ±0,02	L	M ±0,02	N	P	R øMAX	S	T øMAX	U	V øMAX	X øMAX	Z øMIN	Prof. Z MIN
08/3	mm	27	20,66	17,42	3/4-16 UNF	12,50	2,5	19,10	15,90	33,30	14,30	43,30	-	-	14,30	5,50	28,60	5,50	-	-	12,50	-	-
	in	*1.06*	*0.81*	*0.68*		*0.49*	*0.10*	*0.75*	*0.62*	*1.31*	*0.56*	*1.70*			*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
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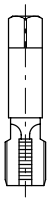
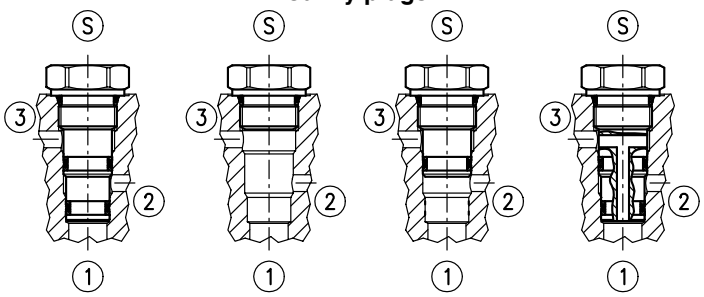
10/3	3UT00054180
12/3	3UT00054300
16/3	3UT00054480

Tap

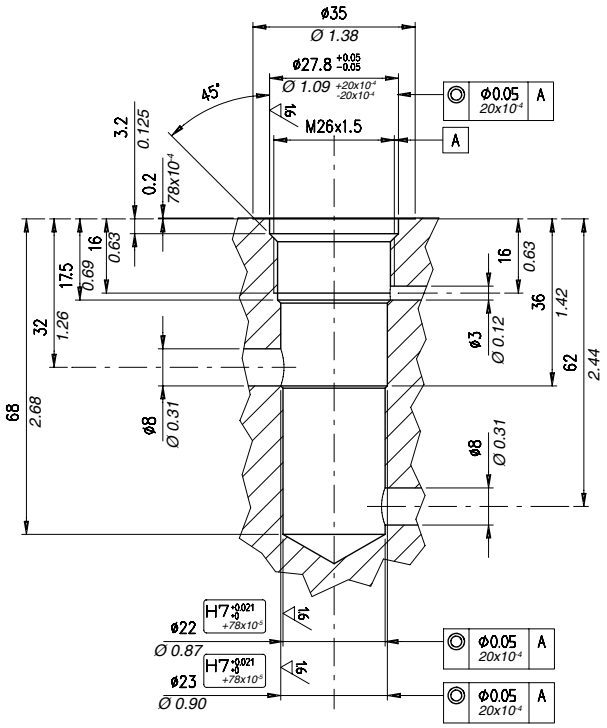


Cavity	Code number
08/3	3UT03416UNF
10/3	3UT07814UNF
12/3	3UT0111612UN
16/3	3UT0151612UN

Cavity plugs

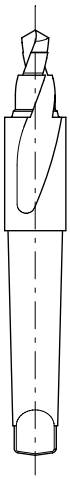


Dimensions



Rougher tool

Cod.3UT00052430

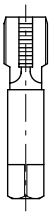


Finisher

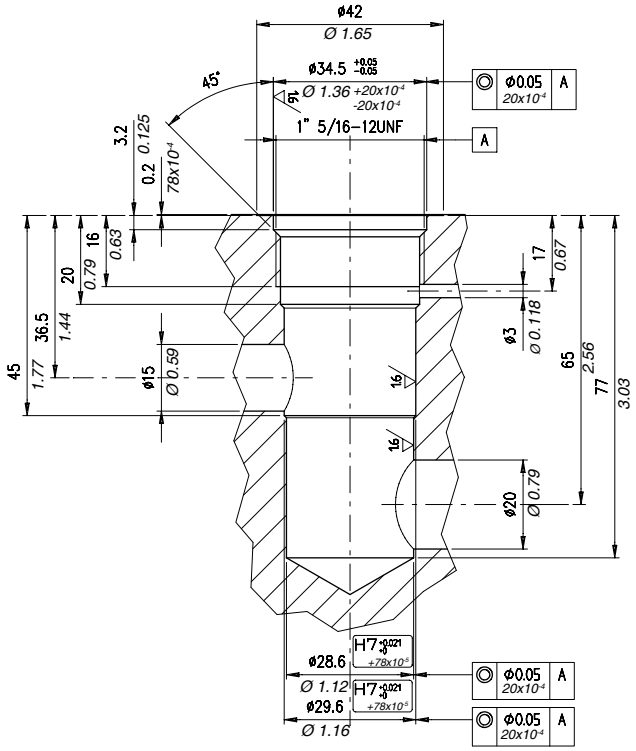
Cod.3UT00053540

Tap

Cod.3UT08A26F150

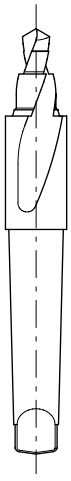


Dimensions



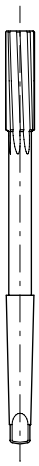
Rougher tool

Cod.3UT00053530



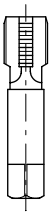
Finisher

Cod.3UT00053550

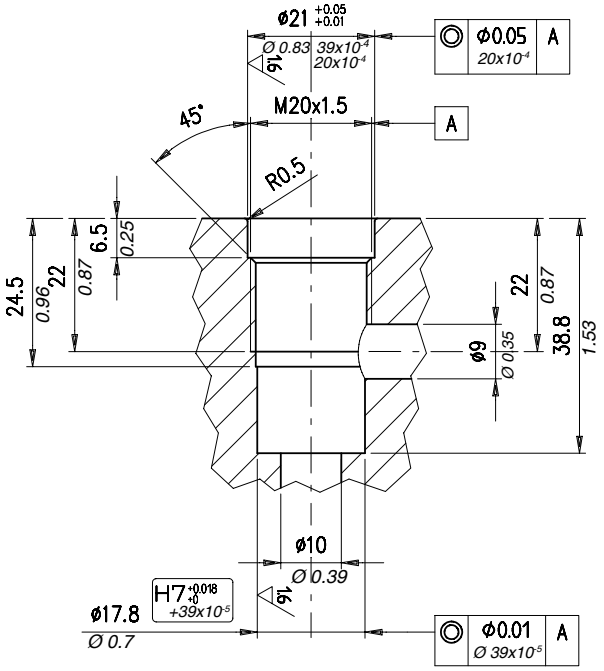


Tap

Cod.3UT0151612UN



Dimensions



Rougher tool

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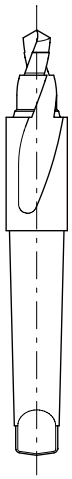
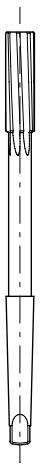


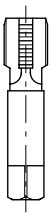
Finisher

Cod.3UT00055040

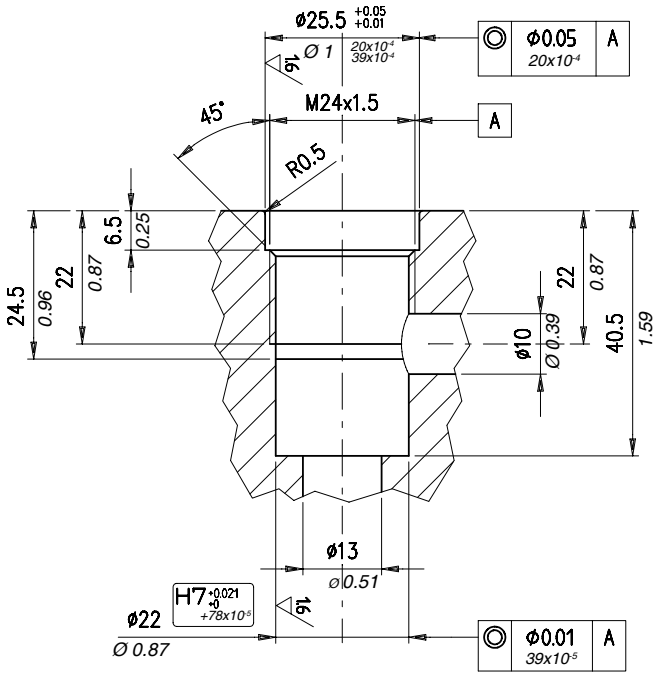


Tap

Cod.3UT08A20F150

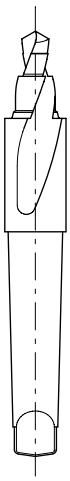


Dimensions



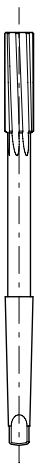
Rougher tool

Cod.3UT00050070



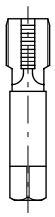
Finisher

Cod.3UT06A22000P

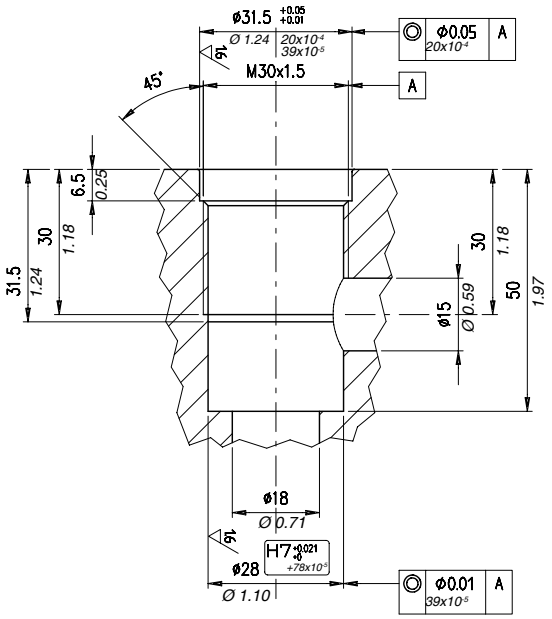


Tap

Cod.3UT08A24F150



Dimensions



Rougher tool

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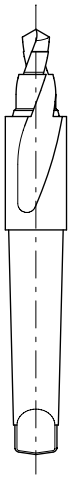
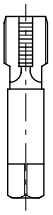


Finisher

Cod.3UT06A2800P

Tap

Cod.3UT08A30F150



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HYDRAULIC CONTROL SYSTEMS

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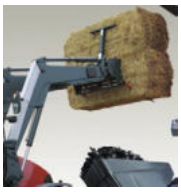
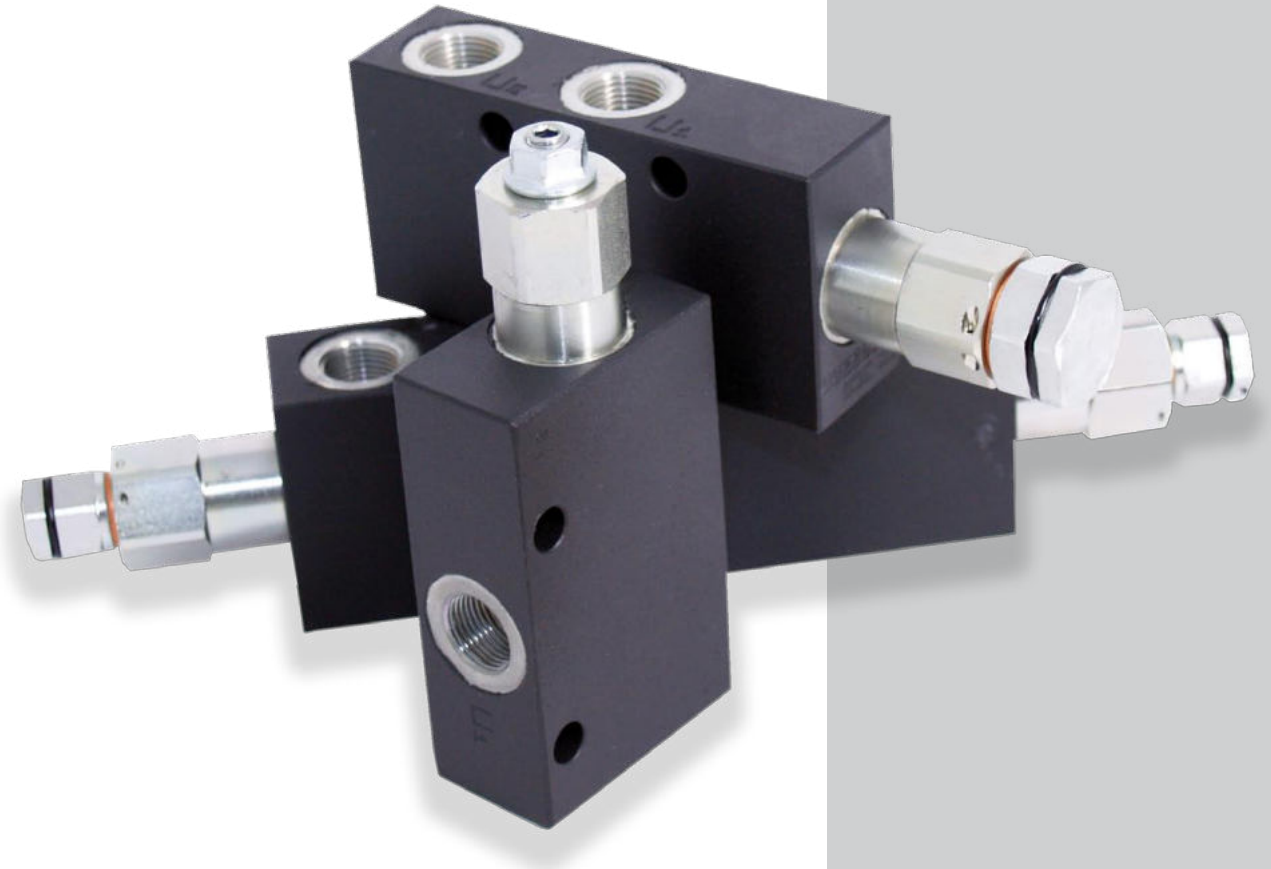
NEW

new series 1116

Overcenter valves

The ideal solution for load motion control



walvoil
HYDRAULIC CONTROL SYSTEMS

New series 1116 Overcenter valves

Walvoil is pleased to present a new range of single and double acting overcenter valves. They are made for mobile applications to control negative and gravitational loads.

The zinc-plated steel body allows working pressures up to 400 bar *(5800 psi)* with a nominal flow rate of 60 l/min *(15.85 US gpm).*

Three are the models of valves available. The N1116 is a non-compensated valve (load sensitive) to the back pressure in the return line. The R1116 works as a function of the main relief (relief compensated) and is insensitive to back pressures. The V1116 is a totally compensated (vented) valve. The various pressure settings and pilot ratios make the range complete and wide. This provides the possibility to find the optimum product for each application.

The new overcenter valves 1116 represent the ideal solution for load control in both open and closed center hydraulic circuits.

Working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46 cSt viscosity at 40° *(104°F)* temperature.

Nominal flow		up to 60 l/min *(15.85 US gpm)*
Nominal pressure (max.)		400 bar *(5800 psi)*
Fluid		Mineral oil
Leakage from U1 to D1 at 80% of the setting pressure		0,25 cm^3/min *(in^3/min 0.015)*
Fluid temperature range	*with NBR o-rings*	from -20°C *(-4°F)* to 80°C *(176°F)*
Viscosity		10-200 cSt
Contamination level		18/16/13 ISO 4406
Environmental temperature for working conditions		from -20°C *(-4°F)* to 50°C *(122°F)*

NOTE - For different conditions, please contact Walvoil Sales Dpt.

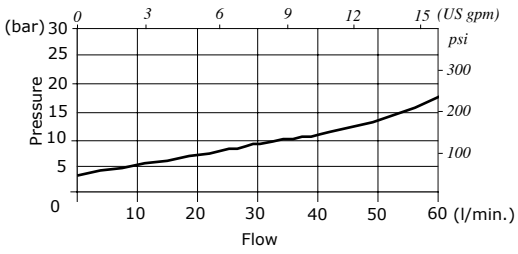
VODL/□1116

VOSLP/□1116

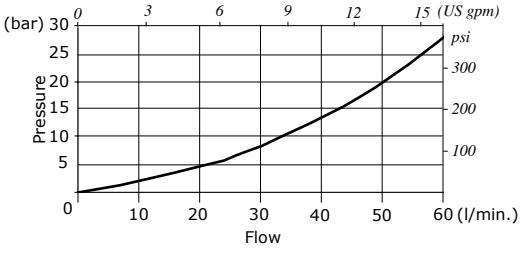
VOSL/□1116

PERFORMANCE DATA series 1116

Pressure drop from D1 to U1



Pressure drop from U1 to D1



NEW

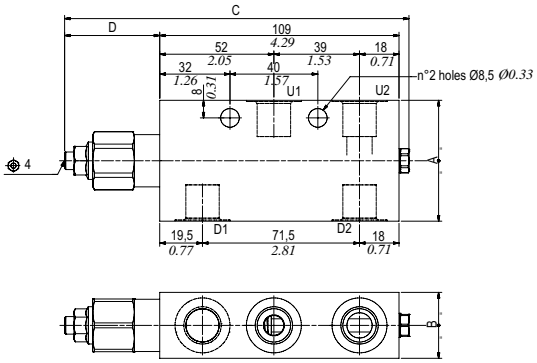
VOSL

N1116 - *Load sensitive*

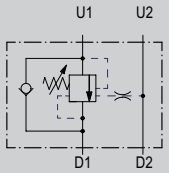
R1116 - *Relief compensated*

V1116 - *Vented*

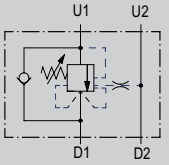
Single overcenter valves with internal pilot line



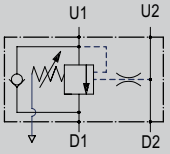
VOSL/N1116	U1-U2-D1-D2	A	B	C	D
38	G 3/8 SAE 8	55 *2.16*	30 *1.18*	156,8 *6.17*	43,3 *1.70*
12	G 1/2 SAE 10	65 *2.56*	35 *1.38*	156,8 *6.17*	43,3 *1.70*



VOSL/R1116	U1-U2-D1-D2	A	B	C	D
38	G 3/8 SAE 8	55 *2.16*	30 *1.18*	165,4 *6.51*	51,9 *2.04*
12	G 1/2 SAE 10	65 *2.56*	35 *1.38*	165,4 *6.51*	51,9 *2.04*



VOSL/V1116	U1-U2-D1-D2	A	B	C	D
38	G 3/8 SAE 8	55 *2.16*	30 *1.18*	163,5 *6.44*	50 *1.97*
12	G 1/2 SAE 10	65 *2.56*	35 *1.38*	163,5 *6.44*	50 *1.97*

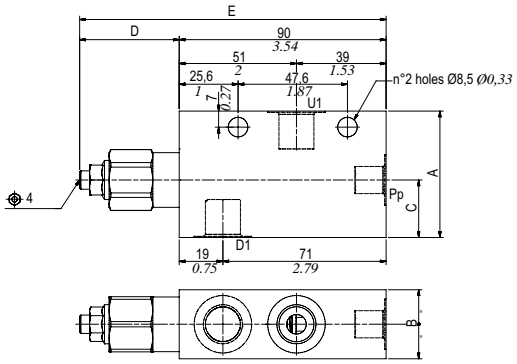


VOSLP

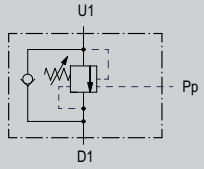
N1116 - *Load sensitive*

R1116 - *Relief compensated*

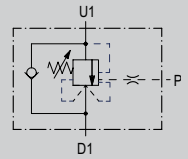
Single overcenter valves with external pilot line



VOSLP/N1116	U1-D1	Pp	A	B	C	D	E
38	G 3/8 SAE 8	G 1/4	55 *2.16*	30 *1.18*	25 *0.98*	133,3 *5.25*	43,3 *1.70*
12	G 1/2 SAE 10	G 1/4	65 *2.56*	35 *1.38*	30 *1.18*	133,3 *5.25*	43,3 *1.70*



VOSLP/R1116	U1-D1	Pp	A	B	C	D	E
38	G 3/8 SAE 8	G 1/4	55 *2.16*	30 *1.18*	25 *0.98*	163,4 *6.43*	51,9 *2.04*
12	G 1/2 SAE 10	G 1/4	65 *2.56*	35 *1.38*	30 *1.18*	163,4 *6.43*	51,9 *2.04*

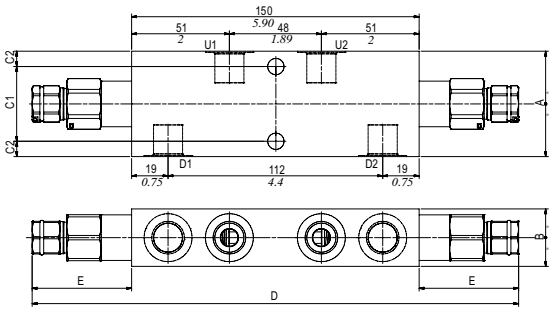


VODL

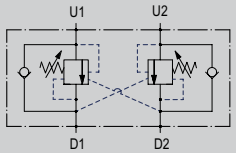
N1116 - *Load sensitive*

R1116 - *Relief compensated*

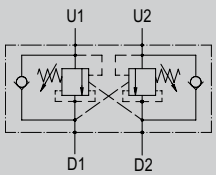
Double overcenter valves with crossed pilot lines



VODL/N1116	U1-U2-D1-D2	A	B	C1	C2	D	E
38	G 3/8 SAE 8	55 *2.16*	30 *1.18*	38 *1.50*	8 *0.31*	232,6 *9.16*	41,3 *1.62*
12	G 1/2 SAE 10	65 *2.56*	35 *1.38*	43 *1.69*	11 *0.43*	232,6 *9.16*	41,3 *1.62*



VODL/R1116	U1-U2-D1-D2	A	B	C1	C2	D	E
38	G 3/8 SAE 8	55 *2.16*	30 *1.18*	38 *1.50*	8 *0.31*	253,8 *10*	51,9 *2.04*
12	G 1/2 SAE 10	65 *2.56*	35 *1.38*	43 *1.69*	11 *0.43*	253,8 *10*	51,9 *2.04*



Features

The new overcenter series 1116 are available in the following in configurations: single with internal pilot line, single with external pilot line and double with crossed pilot lines.

Three different types of valves are available with regards to compensation of back pressure in the return line:

- Model N1116 Load Sensitive

For circuit without significant back pressure on the outlet

- Model R1116 Relief Compensated

With function of the pressure relief valve insensitive to back pressure on the outlet

- Model V1116 Vented

Completely insensitive to backpressures of both the pressure relief valve and the pilot line

Other features:
- compact design thanks to the load check in line with the shuttle;
- body kits in zinc-plated steel;
- standard pilot ratio 1:4, other pilot ratios available upon request;
- possibility to realize customized control systems of the pilot pressure for each application.

Application

This new line of valves can be used in many applications with suspended loads. Main applications:
tower cranes, aerial platforms, telehandlers, car trailers, truck recovery vehicles, fork lifts, compactors, winches and hydraulic motor control.

Configuration and options

All these valves are available with three different setting ranges:
- setting range 3: 5÷210 bar *(72.5÷3045 psi)*
- setting range 5: 50÷350 bar *(725÷5075 psi)*
- setting range 7: 100÷700 bar *(1450÷10150 psi)*

They all can be supplied with anti-violation tamper-proof option or with arrangement for tamper-proof option.

Description composition

VOSL / N 1116 / 38...

Scheme:	**Type:**	**Port size:**
VOSL VOSLP VODL	N-R-V	38-SAE 8 12-SAE 10

Other configurations:
- flange
- setting range
- Pilot ratio
- tamper-proof option