CATALOGUE

Sequence valves

Automatic reversing valves

walvoil
HYDRAULIC CONTROL SYSTEMS

WARNING!

Variations and modifications of technical features and dimensions are reserved.
WALVOIL S.p.A. also reserves the right to stop production of each and any model listed in the catalogue with no notice.

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

1st EDITION MAY 2010

General Information

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

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

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

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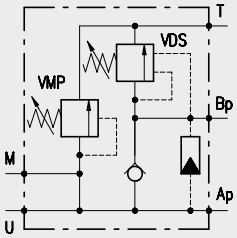
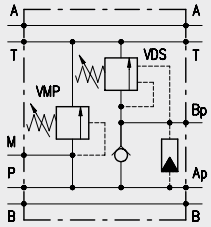
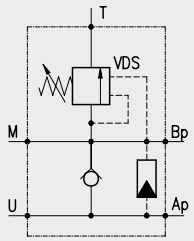
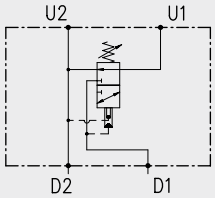
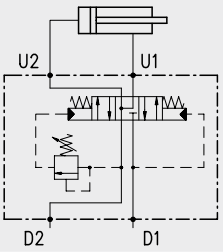
Hydraulic diagram	Type	Description	Maximum flow up to			Maximum pressure		Page
			line	l/min	*US gpm*	bar	*psi*	
	**VEP**	High/Low pressure cut-out valve	Ap line Bp line U line	80 200 250	*21* *53* *66*	350	*5100*	33

Hydraulic diagram	Type	Description	Maximum flow up to			Maximum pressure		Page
			line	l/min	*US gpm*	bar	*psi*	
	**VEP/FL**	High/Low pressure cut-out valve with “NG” flange	Ap line Bp line P line	30 80 100	*7.9* *21* *26*	350	*5100*	39

Hydraulic diagram	Type	Description	Maximum flow up to			Maximum pressure		Page
			line	l/min	*US gpm*	bar	*psi*	
	**VEP/FC**	High/Low pressure cut-out valve	Ap line Bp line P line	10 25 30	*2.6* *6.6* *7.9*	350	*5100*	43

Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VRCL**	Regenerative valve	50	*13*	210	*3050*	45

Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VRCL/KD**	Regenerative valve	150	*40*	350	*5100*	49

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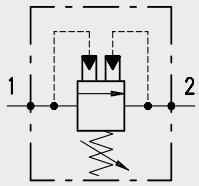
Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**SW..A**	Pressure release valves, pilot operated, spool type	180	*48*	350	*5100*	71

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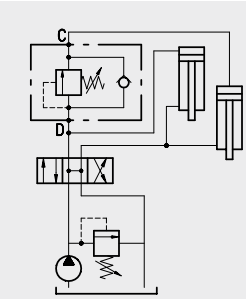
Operation

Allows for oil flow from D into C when the pressure in D achieves the spring setting value. Should back pressure arise in C, the valve opening pressure shall be same as the setting pressure plus the back pressur.



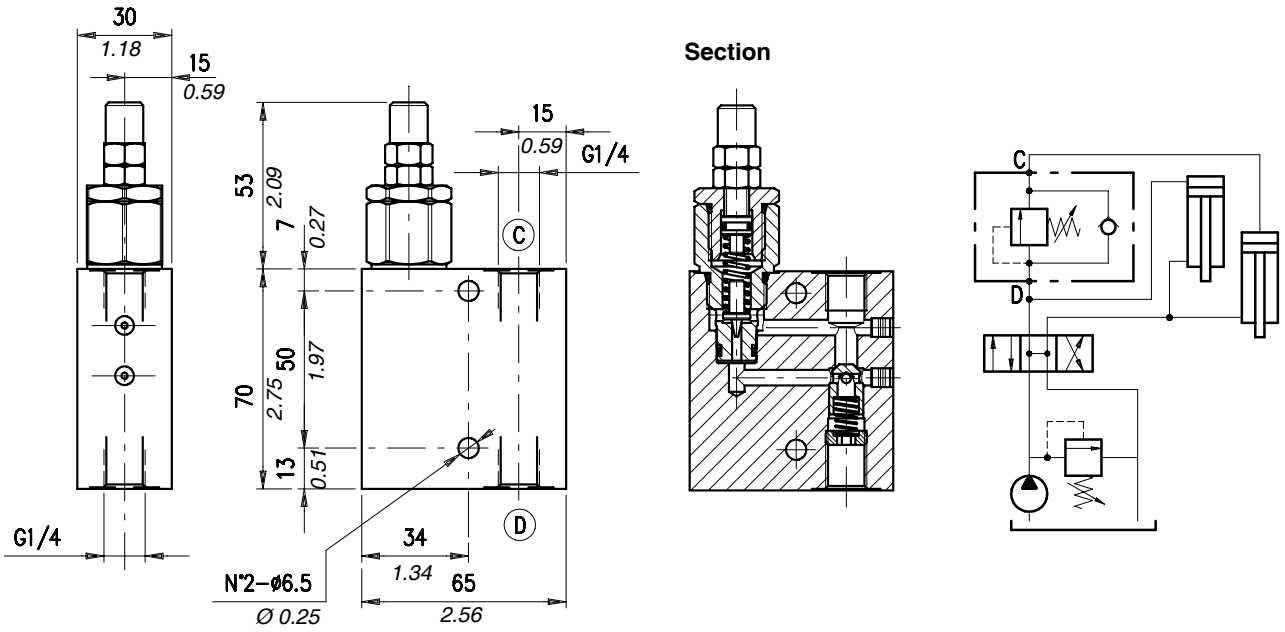
Performance

Body Valves

Type VDSRL	Maximum flow		Maximum pressure		Application range with standard springs	Cartridge used	Peso	
	l/min	*US gpm*	bar	*psi*			kg	*lb*
VDSRL 03-14	10	*2.6*	210 alum. body 350 steel body	*3050 alum. body* *5100 steel body*	5÷50 bar *-72.5÷725 psi* (test setting: 30 bar *- 430 psi* at 5 l/min. *-1.3 US gpm*) 20÷220 bar - *290÷3200 psi* (test setting: 160 bar - *2300 psi-* at 5 l/min. *-1.3 US gpm*) 180÷350 bar *-2600÷5100 psi-* (test setting: 280 bar *-4060 psi-* at 5 l/min. *-1.3 US gpm*)	MC08A	0.50	*1.10*
							aluminium	
							1.08	*2.38*
							steel	
VDSRL 5-38	25	*6.6*			5÷40 bar - *72.5÷580 psi* (test setting: 30 bar *- 430 psi* at 5 l/min. *-1.3 US gpm*) 20÷80 bar - *290÷1150 psi* (test setting: 60 bar *-870 psi* at 5 l/min. *-1.3 US gpm*) 50÷220 bar - *725÷3200 psi* (test setting: 160 bar *-2300 psi* at 5 l/min. *-1.3 US gpm*) 180÷350 - *2600÷5100 psi* (bar test setting: 280 bar - *4060 psi* at 5 l/min. *-1.3 US gpm*)	VMP5	0,65	*1.43*
							aluminium	
							1,45	*3.20*
							steel	
VDSRL 5-12	35	*9.2*					0,70	*1.54*
							aluminium	
							1,50	*3.31*
							steel	
VDSRL 5Y-38	25	*6.6*			5÷80 bar *-72.5÷1150 psi-* (test setting: 60 bar *-870 psi-* at 5 l/min. *-1.3 US gpm*) 40÷150 bar - *580÷2200 psi* (test setting: 120 bar - *1800 psi* at 5 l/min. *-1.3 US gpm*) 140÷190 bar - *2050÷2750 psi* (test setting: 150 bar - *2200 psi* at 5 l/min. *-1.3 US gpm*) 180÷350 bar - *2600÷5100 psi* (test setting: 280 bar - *4060 psi* at 5 l/min. *-1.3 US gpm*)	VMP5Y	0,65	*1.43*
							aluminium	
							1,45	*3.20*
							steel	
VDSRL 5Y-12	35	*9.2*					0,70	*1.54*
							aluminium	
							1,50	*3.31*
							steel	
VDSRL 10-12	50	*13*			see test setting VDSRL 5 (38-12)	VMP10	1,00	*2.20*
							aluminium	
							2,15	*4.74*
							steel	
VDSRL 10-34	70	*18*					1,10	*2.42*
							aluminium	
							2,41	*5.31*
							steel	
VDSRL 20-34	120	*32*				VMP20	1,80	*3.97*
							aluminium	
							4,00	*8.82*
							steel	

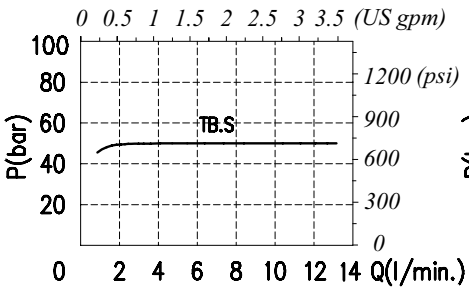
***To perform setting of the valve see the pressure drop/flow diagram**

Dimensions and hydraulic circuit

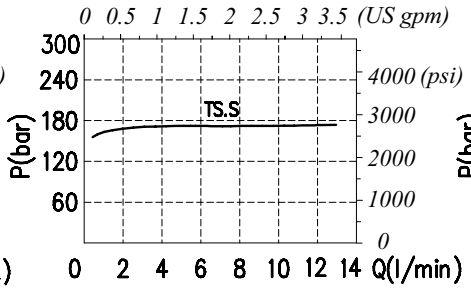


Rating diagrams

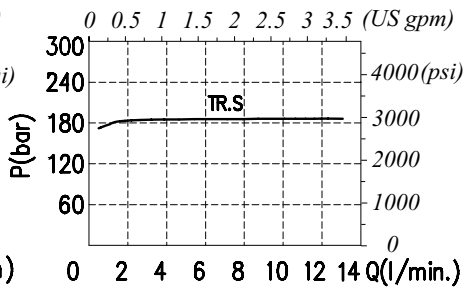
Adjustment diagram



Adjustment diagram



Adjustment diagram



Order code

VDSRL 03-14 / □ . □ / □□

Pressure settings

TB) 5÷50 bar *(72.5÷725 psi)*
TS) 20÷220 bar *(290÷3200 psi)*
TR) 180÷400 bar *(2600÷5800 psi)*

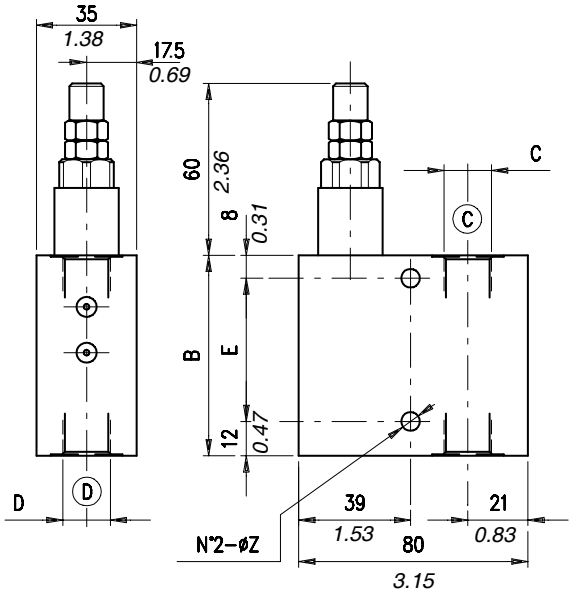
Adjustments
(see page 80)

S (screw)
V (handknob)
W (copped adjustment)
P (panel mount)

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



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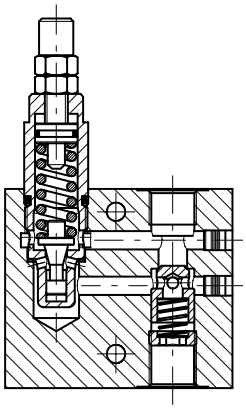
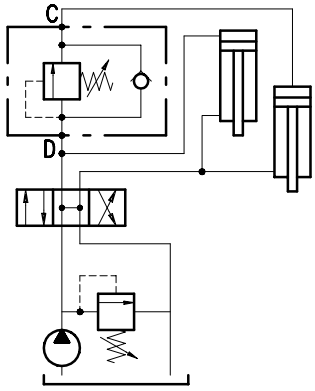


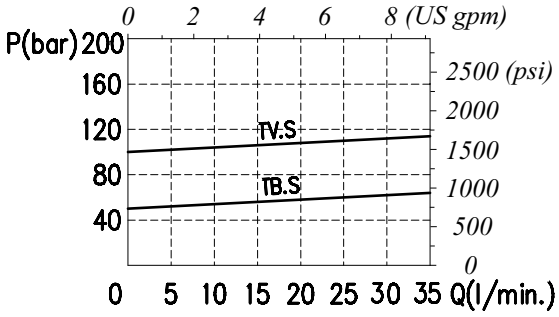


VDSRL	B	C	D	E	Z
5-38	70 - *2.75*	G 3/8	G 3/8	50 - *1.97*	6.5 - *0.25*
5-12	75 - *2.95*	G 1/2	G 1/2	55 - *2.16*	8.5 - *0.33*

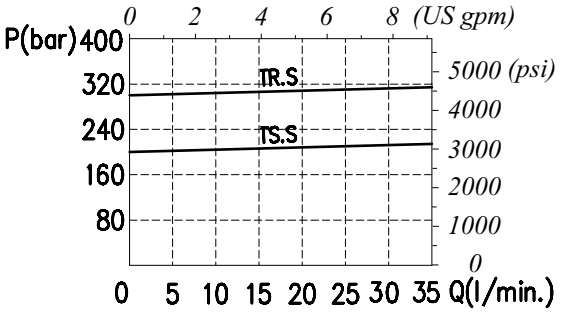
dimensions are in mm-*in*

Rating diagrams

Adjustment diagram



Adjustment diagram



Order code

VDSRL 5 - □□ / □□ . □ / □□

Port size

38) G 3/8
12) G 1/2

Pressure settings

TB) 5÷50 bar *(72.5÷725 psi)*
TV) 20÷80 bar *(290÷1150 psi)*
TS) 50÷220bar *(725÷3200 psi)*
TR) 180÷350bar *(2600÷5100 psi)*

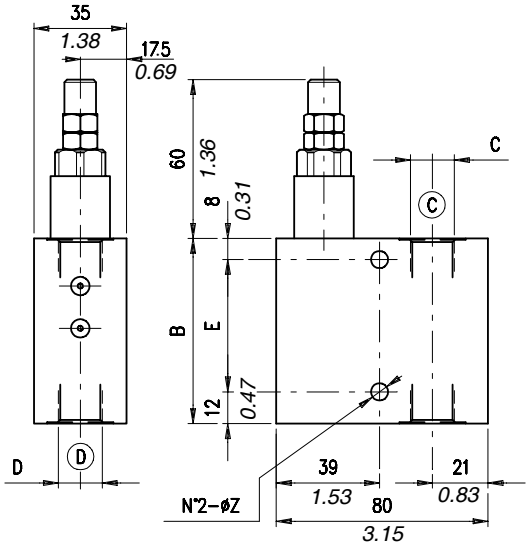
Adjustments
(see page 80)

S (screw)
V (handknob)
W (copped adjustment)
P (panel mount)

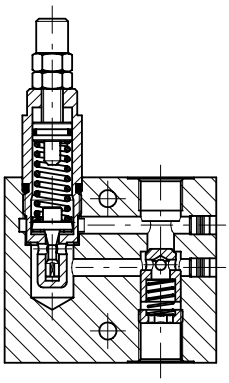
Body material

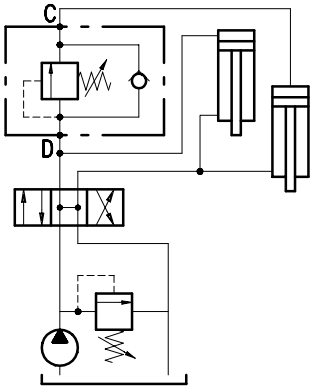
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



Section



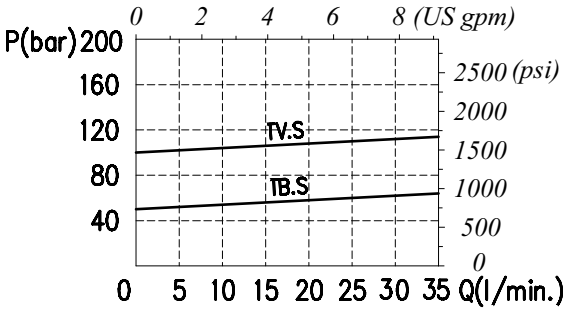


VDSRL	B	C	D	E	Z
5Y-38	70 - *2.75*	G 3/8	G 3/8	50 - *1.97*	6.5 - *0.25*
5Y-12	75 - *2.95*	G 1/2	G 1/2	55 - *2.16*	8.5 - *0.33*

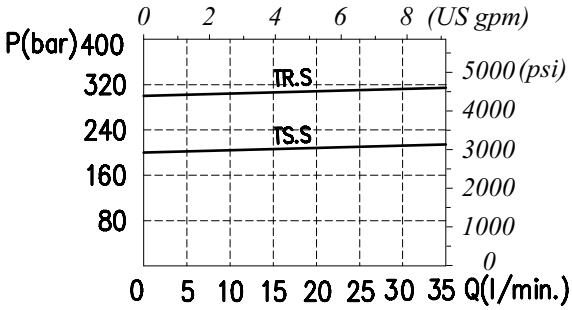
dimensions are in mm-*in*

Rating diagrams

Adjustment diagram



Adjustment diagram



Order code

VDSRL 5Y - □□ / □□ . □ / □□

Port size

38) G 3/8
12) G 1/2

Pressure settings

TB) 5÷80 bar *(72.5÷1150 psi)*
TV) 40÷ 150 bar *(580÷2200 psi)*
TS) 140 ÷190 bar *(2050÷2750 psi)*
TR) 180÷320 bar *(2600÷4650 psi)*

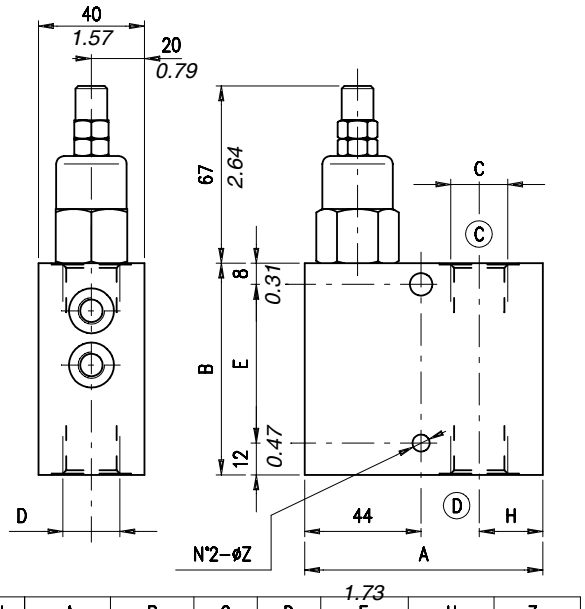
Adjustments
(see page 80)

S (screw)
V (handknob)
W (copped adjustment)
P (panel mount)
PV (panel mount + handknob)

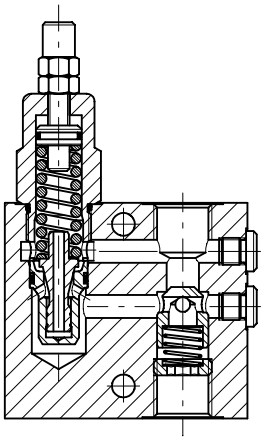
Body material

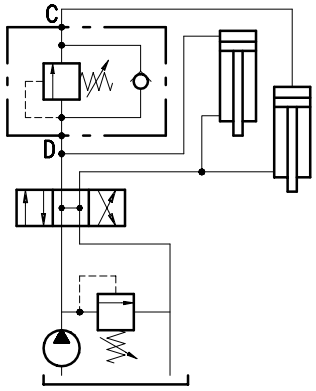
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



Section



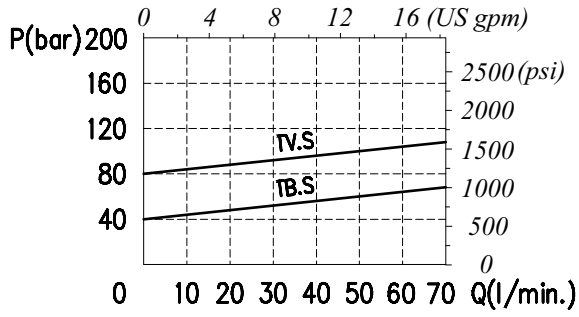


VDSRL	A	B	C	D	E	H	Z
10–12	90 - *3.54*	80 - *3.15*	G 1/2	G 1/2	60 - *2.36*	24 - *0.94*	8.5 - *0.33*
10–34	95 - *3.74*	90 - *3.54*	G 3/4	G 3/4	70 - *2.75*	27 - *1.06*	8.5 - *0.33*

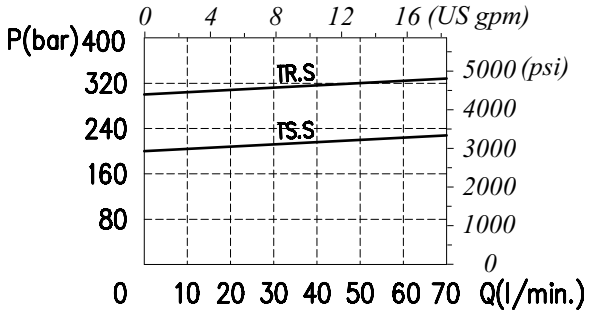
dimensions are in mm-*in*

Rating diagrams

Adjustment diagram



Adjustment diagram



Order code

VDSRL 10 -□□ / □□ . □ / □□

Port size

12) G 1/2
34) G 3/4

Pressure settings

TB) 5÷40 bar *(72.5÷580 psi)*
TV) 20÷80 bar *(290÷1150 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

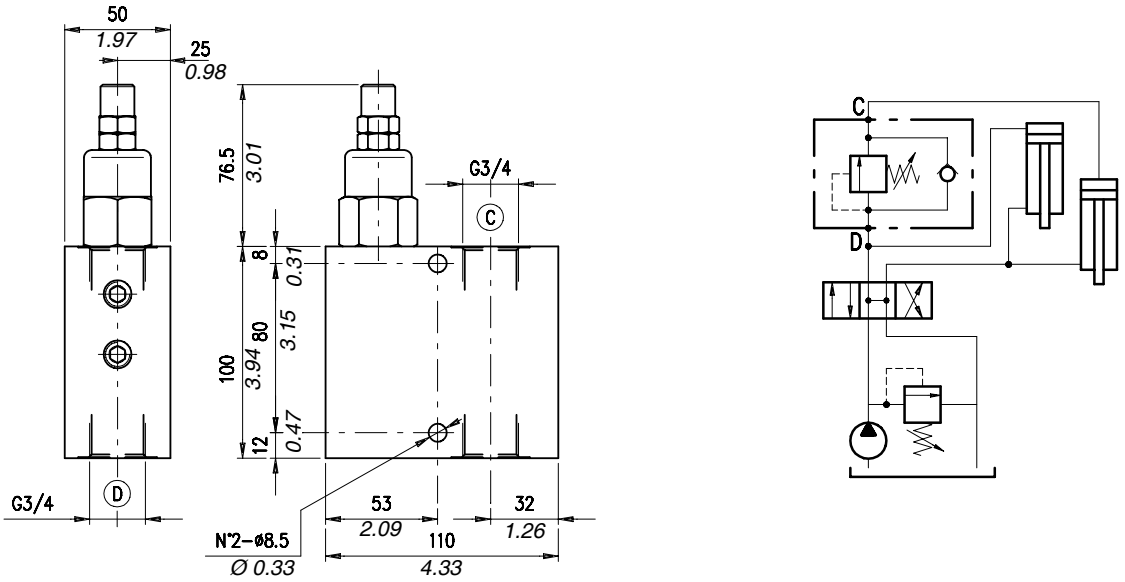
Adjustments
(see page80)

S (screw)
V (handknob)
W (copped adjustment)

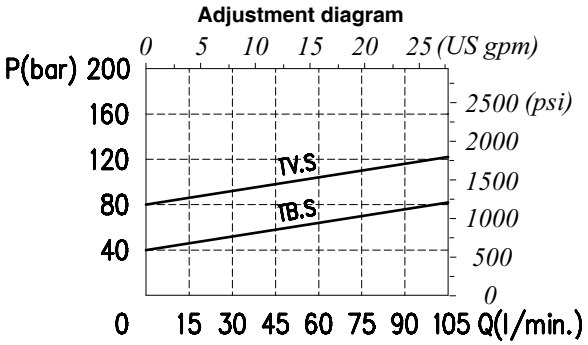
Body material

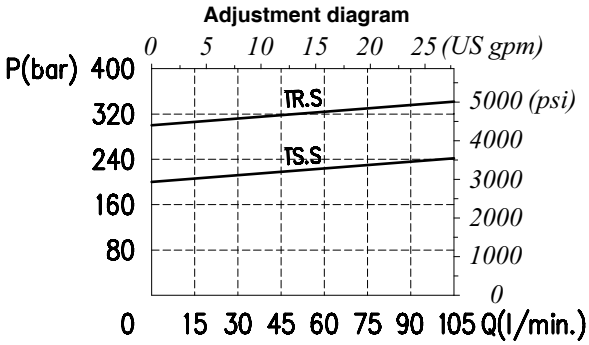
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



Rating diagrams





Order code

VDSRL 20 - 34 / □□ . □ / □□

Pressure settings

TB) 5÷40 bar *(72.5÷580 psi)*
TV) 20÷80 bar *(290÷1150 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Adjustments
(see page 80)

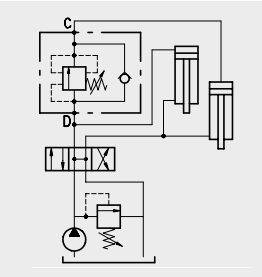
S (screw)
V (handknob)
W (copped adjustment)

Body material

_ Aluminium
ac Steel

Operation

Allows for oil flow from D into C when the pressure in D achieves the spring setting value. The valve opening pressure does not change when back pressure in C arises.



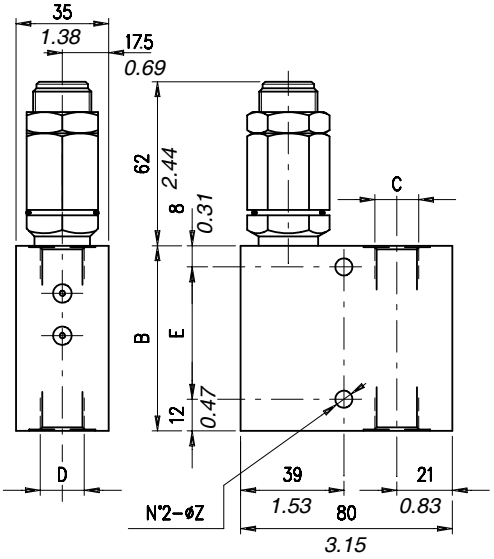
Performance

Body Valves

Type VDSRL..-../APP	Maxmum flow		Maximum pressure		Application range with standard springs*	Weight	
	l/min	*US gpm*				kg	*lb*
VDSRL 5-38/APP	25	*6.6*	210 bar aluminium body 350 bar steel body	*3050 aluminium body* *5100 steel body*	5÷50 bar - *72.5÷725 psi* (test setting: 30 bar - *435 psi* at 5 l/min. -*1.32 US gpm*) 20÷100 bar - *290÷1450 psi* (test setting: 60 bar -*870 psi* at 5 l/min. - *1.32 US gpm*) 50÷220 bar - *725÷3200 psi* (test setting: 160 bar -*2300 psi* at 5 l/min. -*1.32 US gpm*) 100÷350 bar - *1450÷5100 psi* (test setting: 280 bar - *4050 psi* at 5 l/min. -*1.32 US gpm*)	0,73	*1.61*
						aluminium	
						1,60	*3.53*
						steel	
VDSRL 5-12/APP	35	*9.2*				0,78	*1.72*
						aluminium	
						1,65	*3.64*
						steel	
VDSRL 10-12/APP	50	*13.2*				1,00	*2.20*
						aluminium	
						2,15	*4.74*
						steel	
VDSRL 10-34/APP	70	*18*				1,10	*2.42*
						aluminium	
						2,41	*5.31*
						steel	
VDSRL 20-34/APP	120	*32*				1,80	*3.97*
						aluminium	
						4,04	*8.91*
						steel	
VDSD/B 38	30	*8*				0,60	*1.32*
						aluminium	
						1,01	*2.23*
						steel	
VDSD/B 12	60	*16*				0,80	*1.76*
						aluminium	
						1,55	*3.42*
						steel	
VDSD/B 34	120	*32*				1,18	*2.60*
						aluminium	
						2,40	*5.29*
						steel	
VDSD/B 100	200	*53*				2,10	*4.63*
						aluminium	
						4,80	*10.58*
						steel	

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

Dimensions and hydraulic circuit



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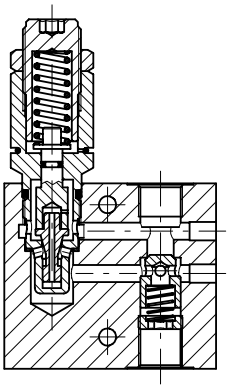
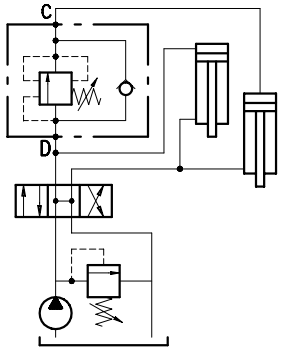


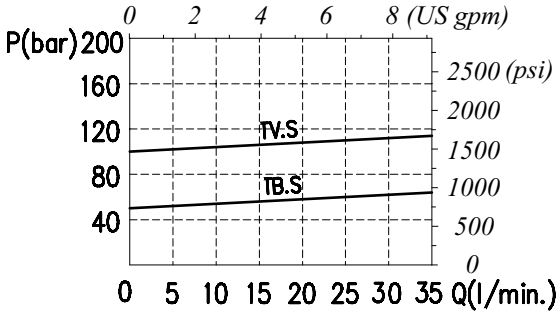


VDSRL	B	C	D	E	Z
5-38/APP	70 - *2.75*	G 3/8	G 3/8	50 - *1.97*	6.5 - *0.25*
5-12/APP	75 - *2.95*	G 1/2	G 1/2	55 - *2.16*	8.5 - *0.33*

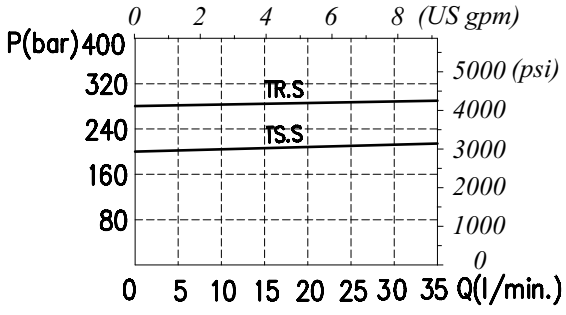
dimensions are in mm-*in*

Rating diagrams

Adjustment diagram



Adjustment diagram



Order code

VDSRL 5 - □□ / APP/ □□ . S / □□

Port size

38) G 3/8
12) G 1/2

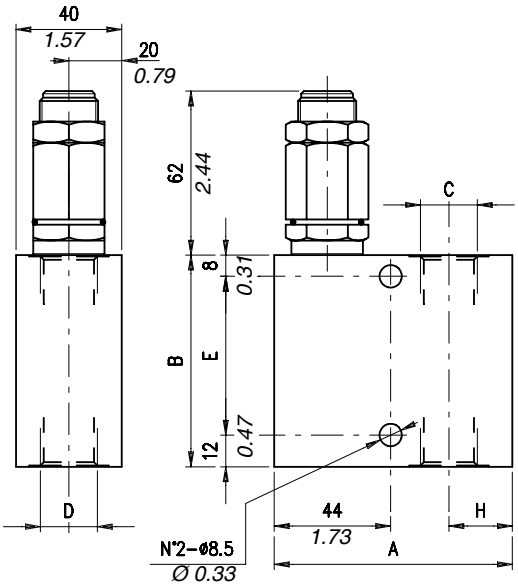
Pressure settings

TS) 50÷220 bar *(725÷3200 psi)*
TR) 100÷350 bar *(1450÷5100 psi)*
TB) 5÷50 bar *(72.5÷725 psi)*
TV) 20÷100 bar *(290÷1450 psi)*

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



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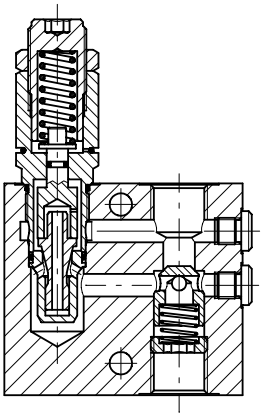
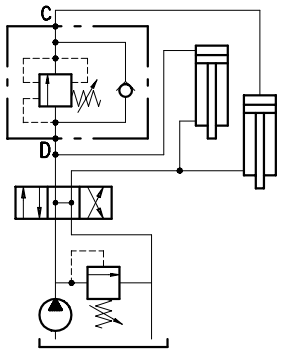


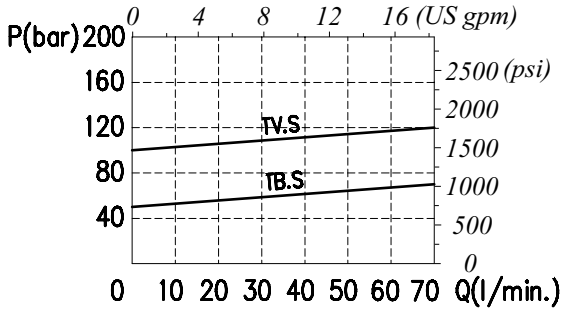


VDSRL	A	B	C	D	E	H
10-12/APP	90 - *3.54*	80 - *3.15*	G 1/2	G 1/2	60 - *2.36*	24 - *0.94*
10-34/APP	95 - *3.74*	90 - *3.54*	G 3/4	G 3/4	70 - *2.75*	27 - *1.10*

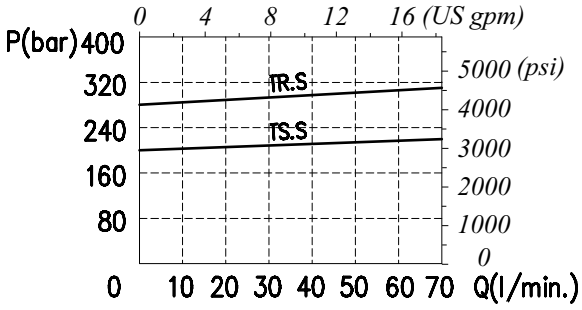
dimensions are in mm-*in*

Rating diagrams

Adjustment diagram



Adjustment diagram



Order code

VDSRL 10 - □□ / APP/ □□ . S / □□

Port size

12) G 1/2
34) G 3/4

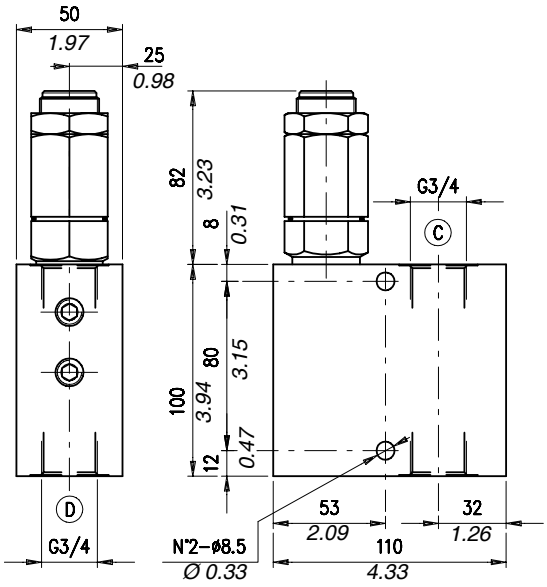
Pressure settings

TV) 20÷100 bar *(290÷1450 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 100÷350 bar *(1450÷5100 psi)*
TB) 5÷50 bar *(72.5÷725 psi)*

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



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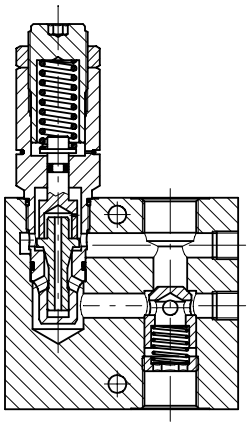
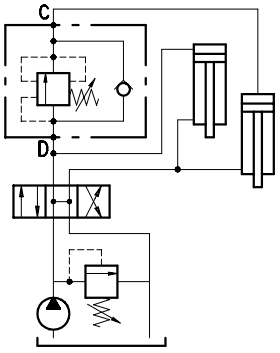
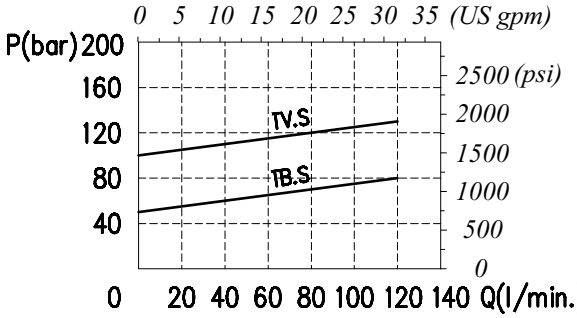


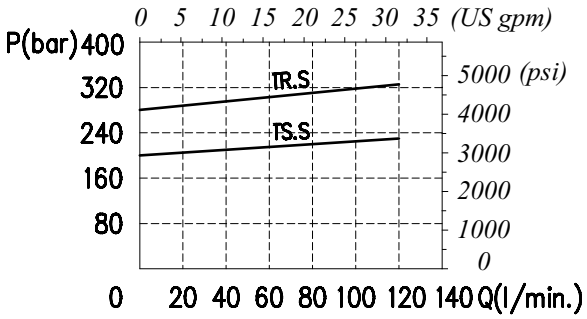


Rating diagrams

Adjustment diagram



Adjustment diagram



Order code

VDSRL 20 - 34 / APP/ □□ . S / □□

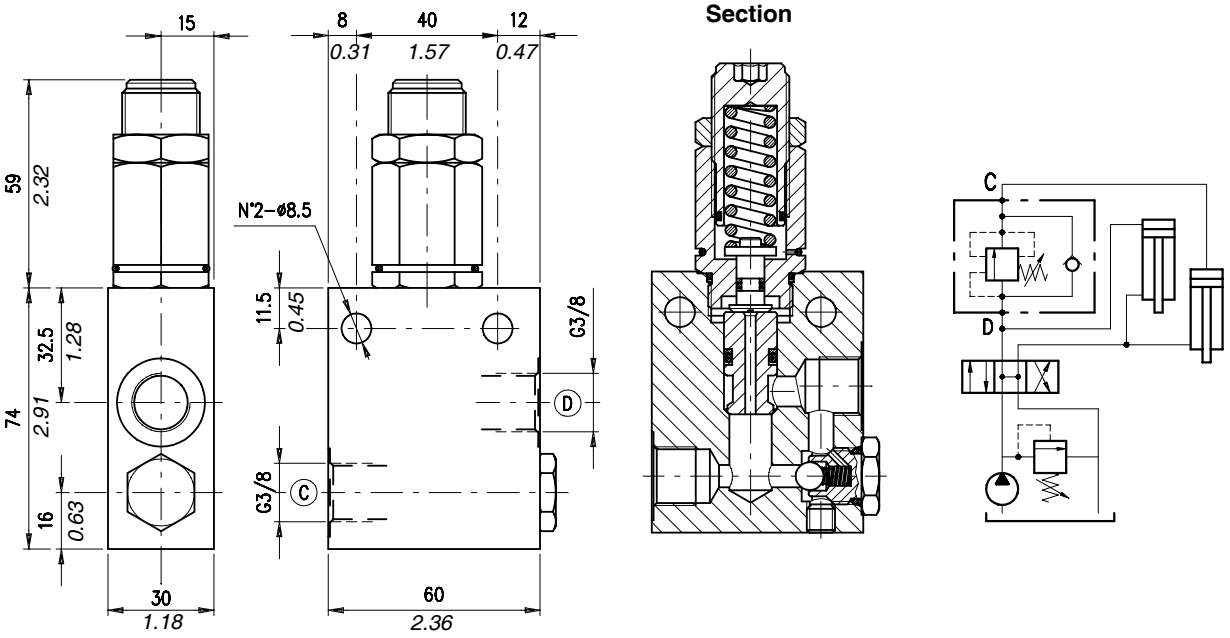
Pressure settings

TB) 5÷50 bar *(72.5÷725 psi)*
TV) 20÷100 bar *(290÷1450 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 100÷350 bar *(1450÷5100 psi)*

Body material

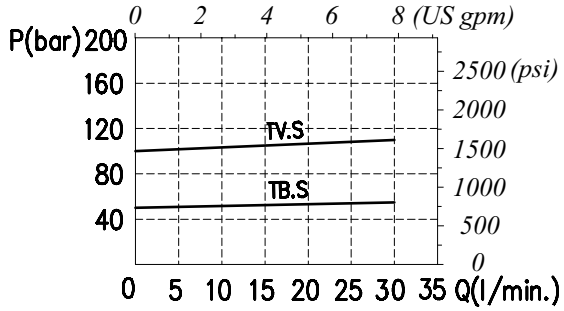
_ Aluminium
ac Steel

Dimensions and hydraulic circuit

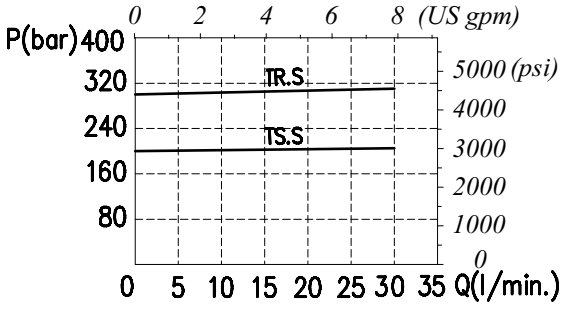


Rating diagrams

Adjustment diagram



Adjustment diagram



Order code

VDSD /B 38 / □□ . S / □□

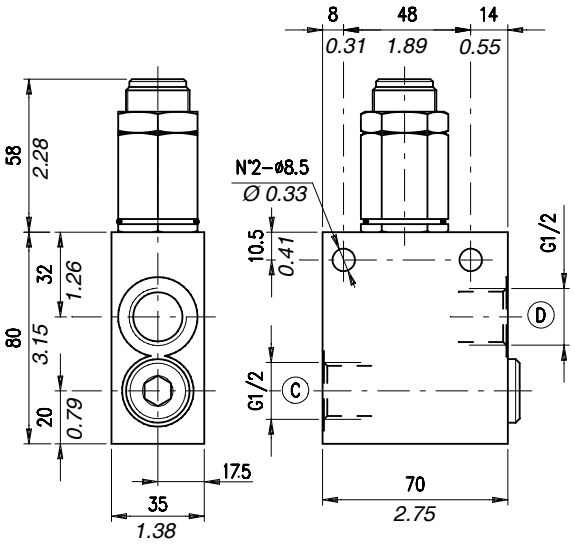
Pressure settings

TB) 5÷50 bar *(72.5÷725 psi)*
TV) 20÷100 bar *(290÷1450 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 100÷350 bar *(1450÷5100 psi)*

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



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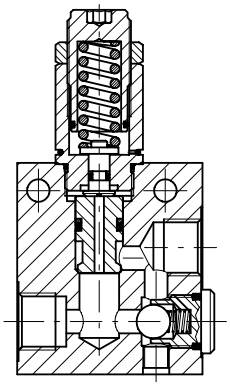
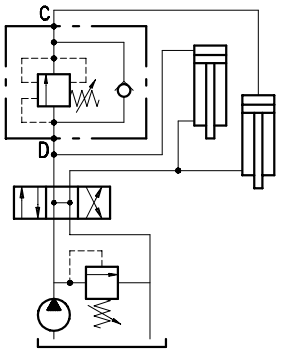
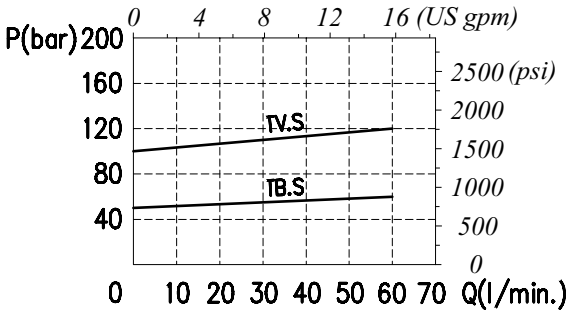


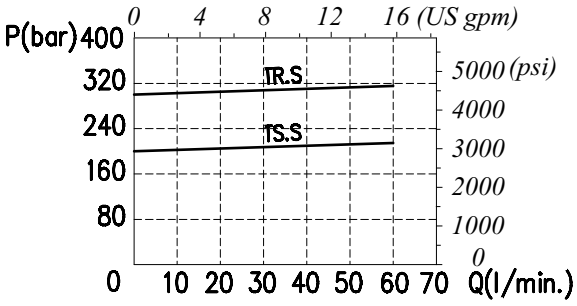


Rating diagrams

Adjustment diagram



Adjustment diagram



Order code

VDSD /B 12 / □□ . S / □□

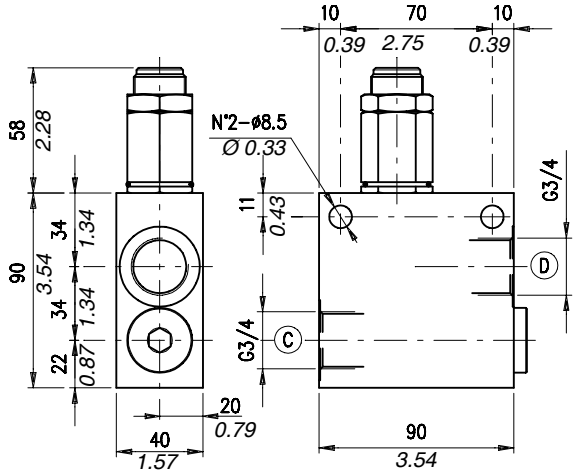
Pressure settings

TB) 5÷50 bar *(72.5÷725 psi)*
TV) 20÷100 bar *(290÷1450 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 100÷350 bar *(1450÷5100 psi)*

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



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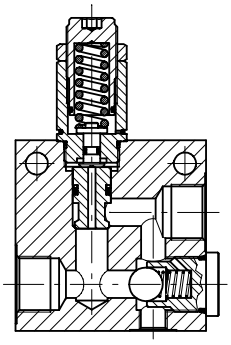
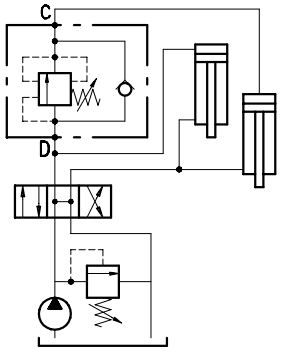
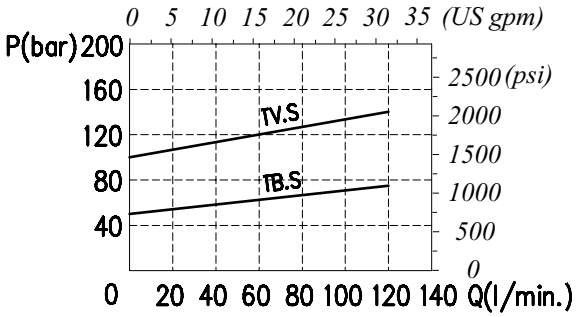


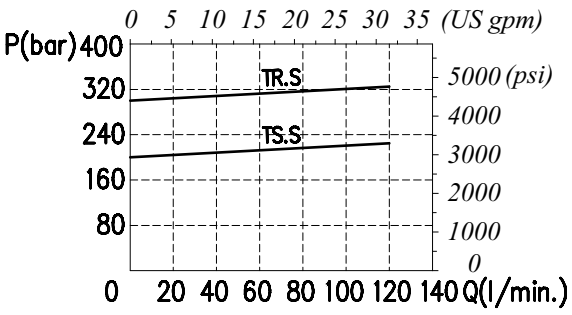


Rating diagrams

Adjustment diagram



Adjustment diagram



Order code

VDSD /B 34 / □□ . S / □□

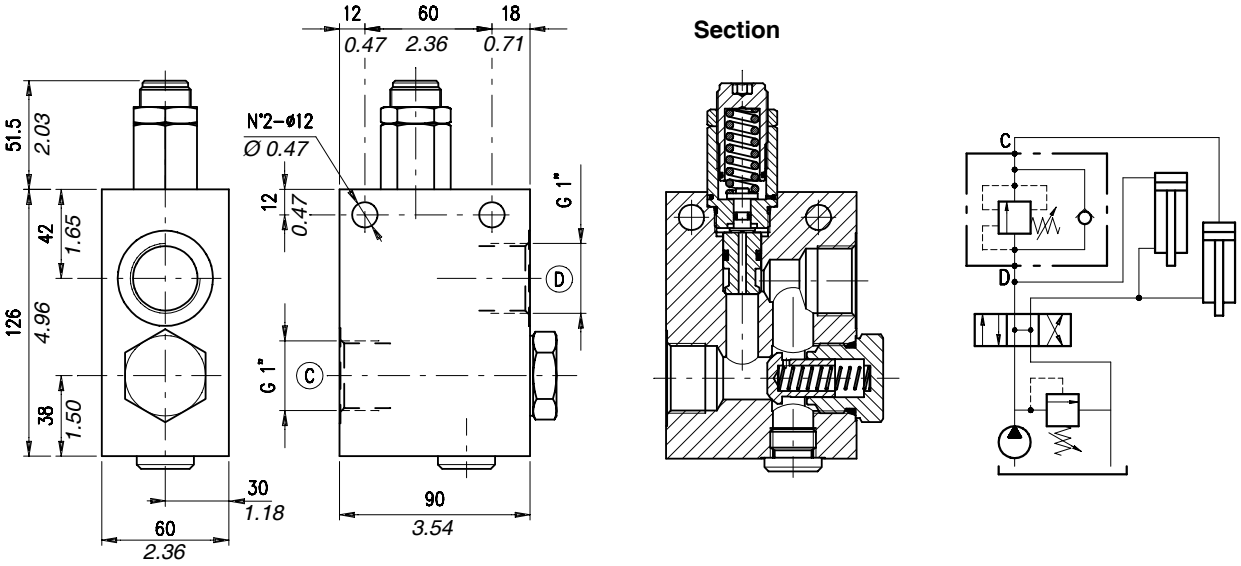
Pressure settings

TB) 5÷50 bar *(72.5÷725 psi)*
TV) 20÷100 bar *(290÷1450 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 100÷350 bar *(1450÷5100 psi)*

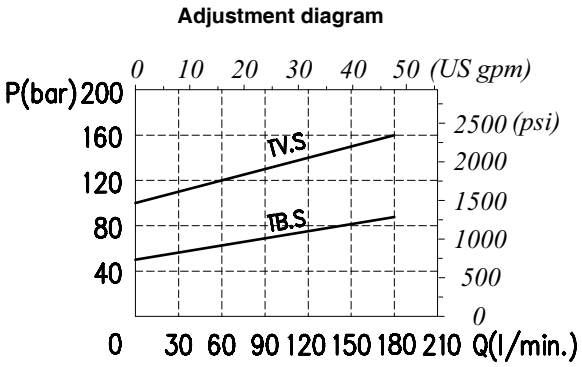
Body material

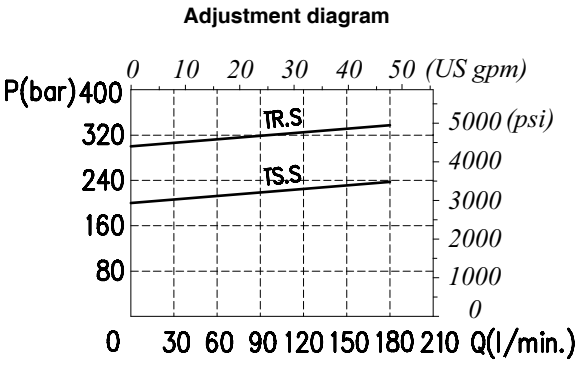
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



Rating diagrams





Order code

VDSD /B 100 / □□ . S / □□

Pressure settings

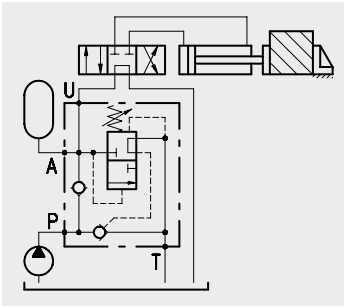
TB) 5÷50 bar *(72.5÷725 psi)*
TV) 20÷100 bar *(290÷1450 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 100÷350 bar *(1450÷5100 psi)*

Body material

_ Aluminium
ac Steel

Operation

Allows for pump discharge when the setting pressure is reached in U. Later the valve keeps constant pressure in U by means of the accumulator in.



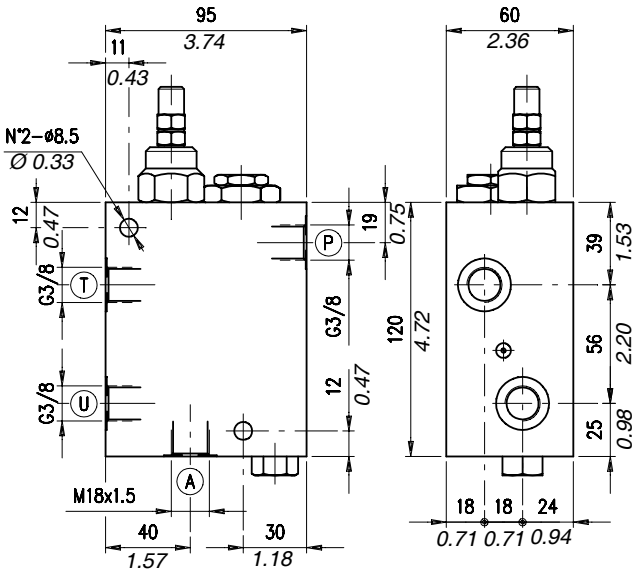
Performance

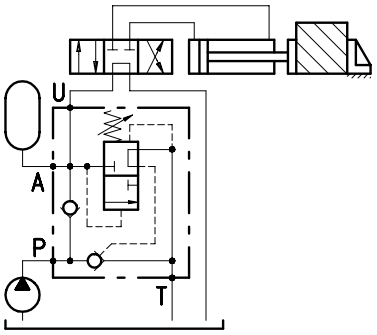
Body Valves

Type VDA	Max. flow		Max. pressure		Application range with standard springs*	Connection pressure	Weight aluminium body	
	l/min	*US gpm*	bar	*psi*			kg	*lb*
VDA 38	25	*6.6*	250 aluminium body	*3600 aluminium body*	5÷110 bar *-72.5÷1600 psi* (test setting 90 bar *-1300 psi* 5 l/min. *-1.32 US gpm*) 100÷250 bar *-1450÷3600 psi-* (test setting 200 bar *- 2900 psi-* 5 l/min. *-1.32 US gpm*)	15% of the valve setting pressure for standard valves, ask our technical office for special valves	2,15	*4.74*
VDA 12	50	*13.2*					2,35	*5.18*
VDA 34	100	*26*					3,20	*7.05*

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

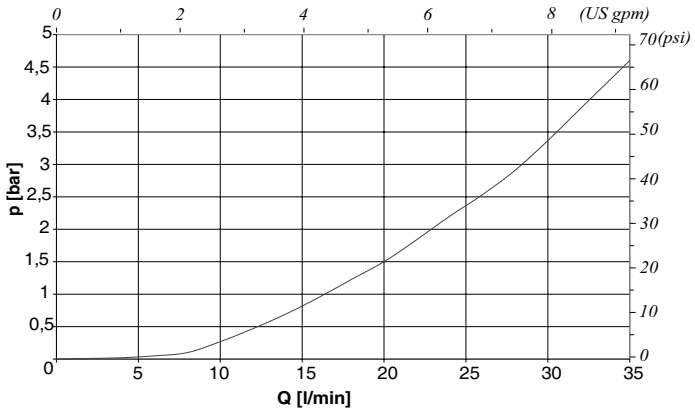
Dimensions and hydraulic circuit



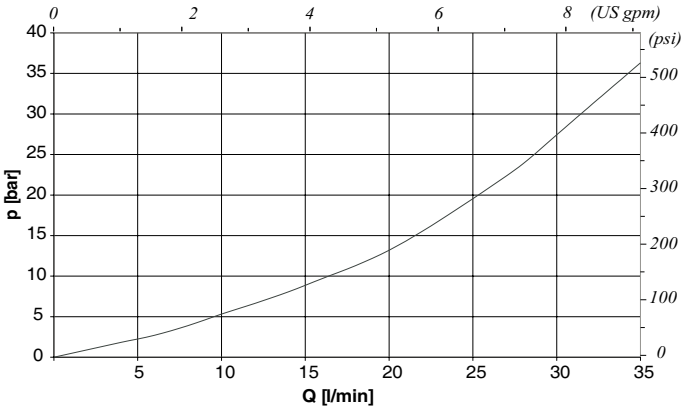


Rating diagrams

Typical Pressure drop vs. Flow characteristic P →T



Typical Pressure drop vs. Flow characteristic P →U



Order code

VDA 38 / □□ . S / □□

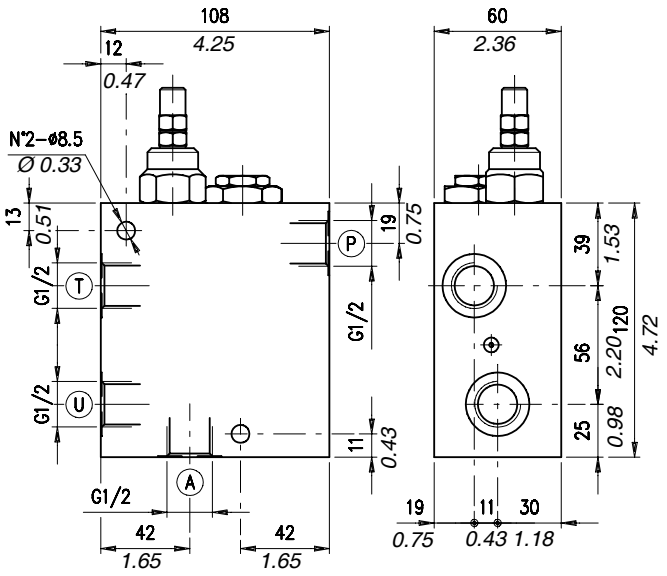
Pressure settings

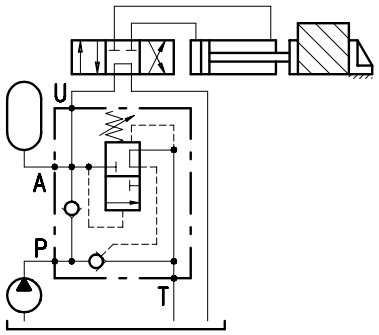
TV) 5÷110 bar *(72.5÷1600 psi)*
TR) 100÷250 bar *(1450÷3600 psi)*

Body material

_ Aluminium
ac Steel

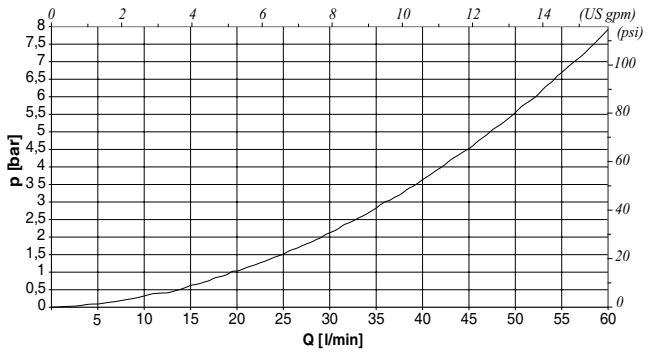
Dimensions and hydraulic circuit



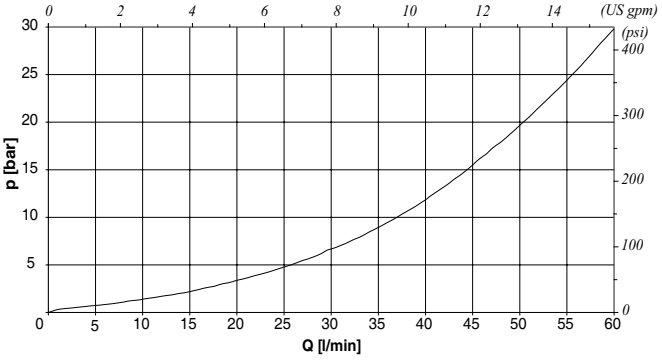


Rating diagrams

Typical Pressure drop vs. Flow characteristic P →T



Typical Pressure drop vs. Flow characteristic P →U



Order code

VDA 12 / □□ . S / □□

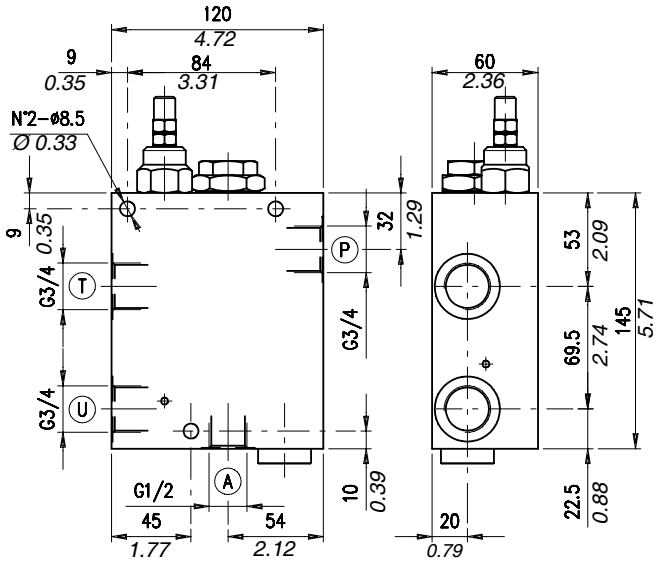
Pressure settings

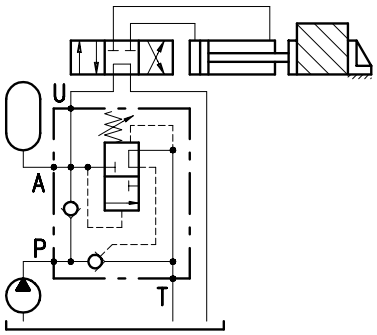
TV) 5÷110 bar *(72.5÷1600 psi)*
TR) 100÷250 bar *(1450÷3600 psi)*

Body material

_ Aluminium
ac Steel

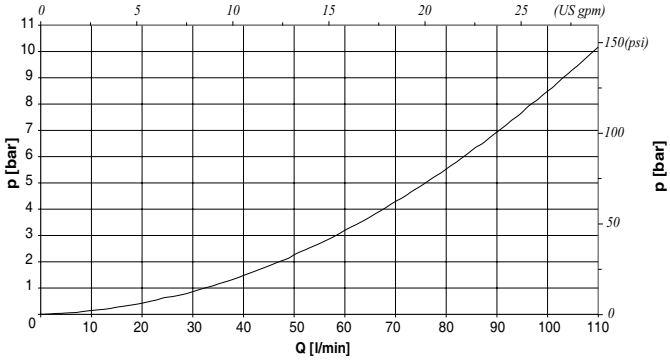
Dimensions and hydraulic circuit



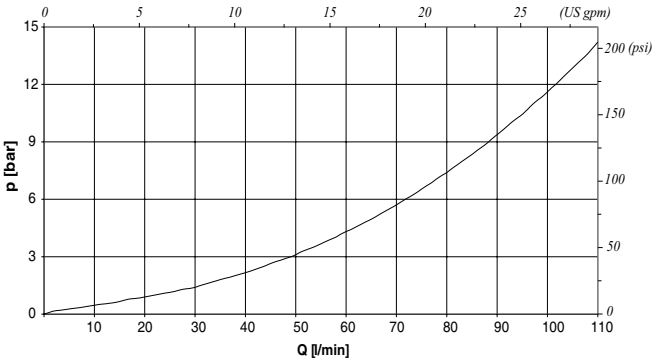


Rating diagrams

Typical Pressure drop vs. Flow characteristic P →T



Typical Pressure drop vs. Flow characteristic P →U



Order code

VDA 34 / □□ . S / □□

Pressure settings

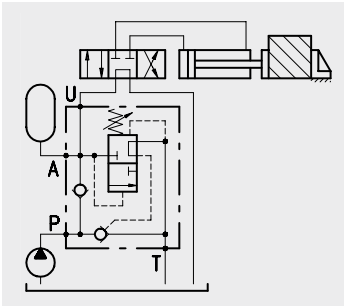
TV) 5÷110 bar *(72.5÷1600 psi)*
TR) 100÷250 bar *(1450÷3600 psi)*

Body material

_ Aluminium
ac Steel

Operation

Allows for pump discharge when the setting pressure is reached in U. Later the valve keeps costant pressure in U by means of the accumulator in A. This version (with Drain Port) allow to keep unchanged the sequence valve setting regardless of any possible back pressure in T port.



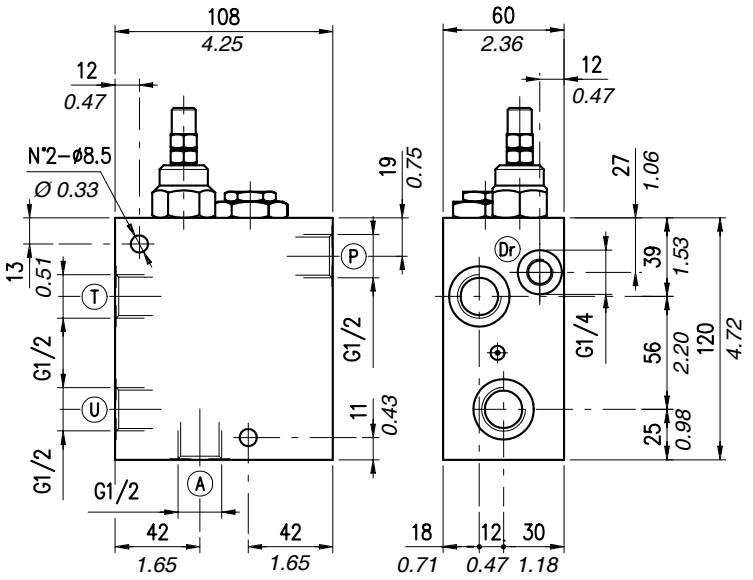
Performance

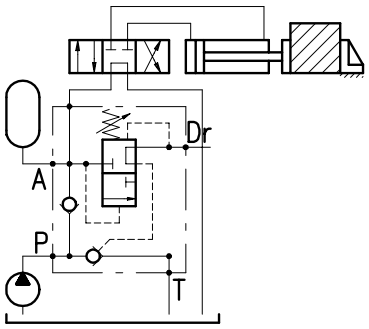
Body Valves

Type VDA/DR	Max. flow		Max pressure		Application range with standard springs*	Connection pressure	Aluminium body weight	
	l/min	*US gpm*	bar	*psi*			kg	*lb*
VDA 12/DR	50	*13.2*	250 aluminium body	*3600 aluminium body*	5÷110 bar - *72.5÷1600 psi* (test setting 90 bar -*1300 psi* 5 l/min. -*1.32 US gpm*) 100÷250 bar - *1450÷3600 psi* (test setting 200 bar - *2900 psi* 5 l/min. -*1.32 US gpm*)	15% of the valve setting pressure for standard valves, ask our technical office for special valves	2,35	*5.18*

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

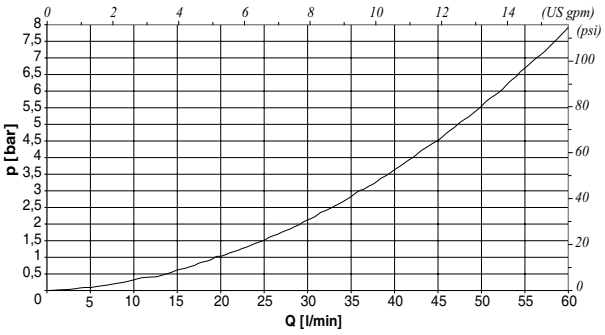
Dimensions and hydraulic circuit



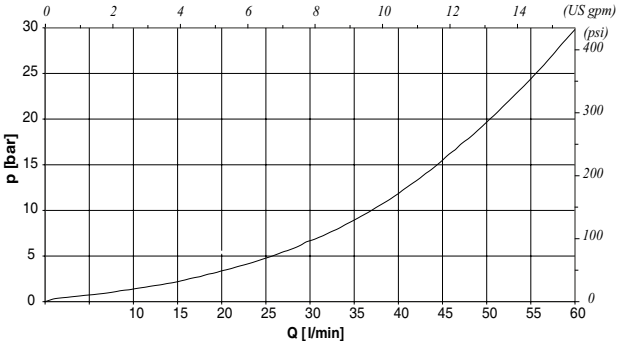


Rating diagrams

Typical Pressure drop vs. Flow characteristic P →T



Typical Pressure drop vs. Flow characteristic P →U



Order code

VDA 12 / □□ . S. DR /□□

Pressure settings

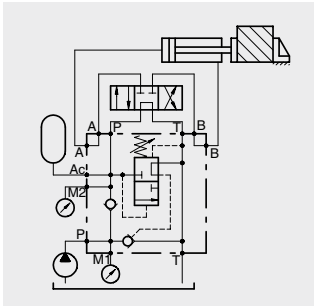
TV) 5÷110 bar *(72.5÷1600 psi)*
TR) 100÷250 bar *(1450÷3600 psi)*

Body material

_ Aluminium
ac Steel

Operation

Allows for pump dischange when the setting pressure is reached in P. Later the valve Keeps constant pressure in P by means of the accumulator in Ac.



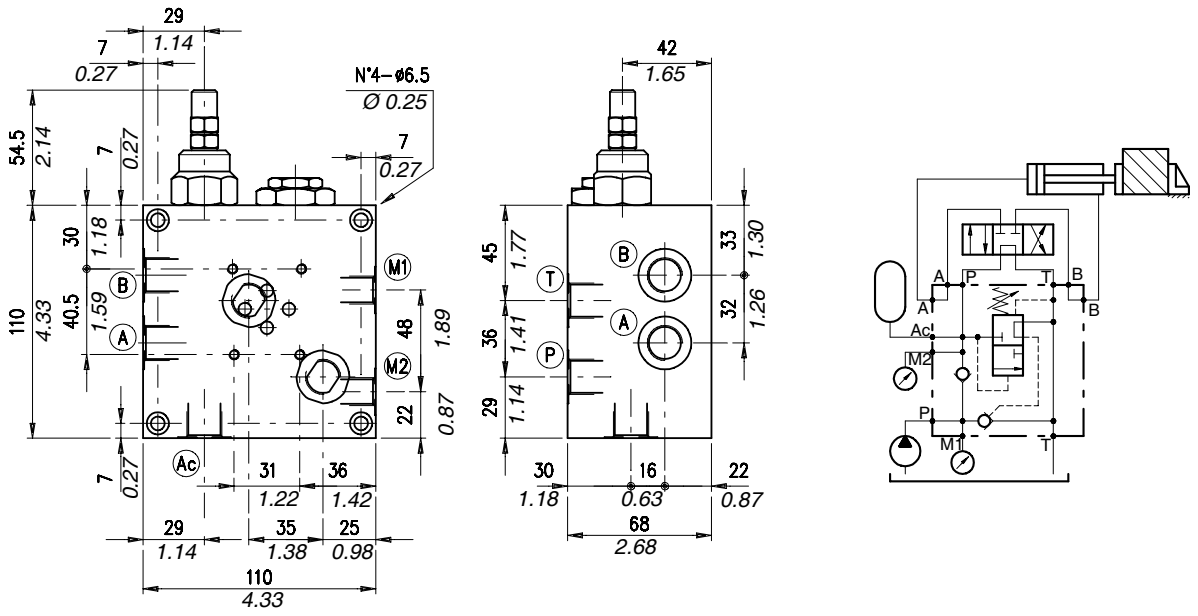
Performance

Body Valves

Type VDA/FL	Maximum flow		Maximum pressure		Application range with standard springs*	Connection pressure	Aluminium body weight	
	l/min	*US gpm*	bar	*psi*			kg	*lb*
VDA /FL 6-38	25	*6.6*	250 aluminium body	*3600 aluminium body*	5÷110 bar - *72.5÷1600 psi* (test setting 90 bar -*1300 psi* 5 l/min. -*1.32 US gpm*)	15% of the valve setting pressure for standard valves, ask our technical office for special valves	2,43	*5.36*
VDA /FL 10-12	50	*13.2*			100÷250 bar - *1450÷3600 psi* (test setting 200 bar -*2900 psi* 5 l/min. -*1.32 US gpm*)		2,86	*6.30*

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

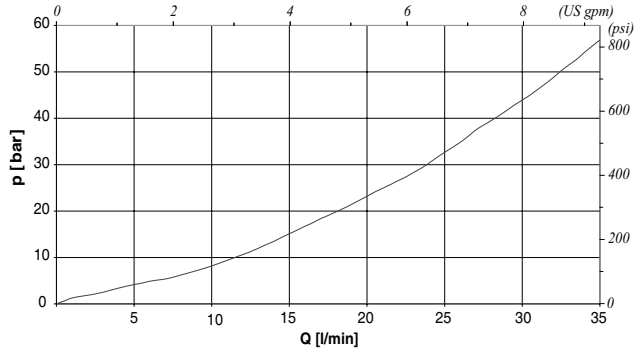
Dimensions and hydraulic circuit



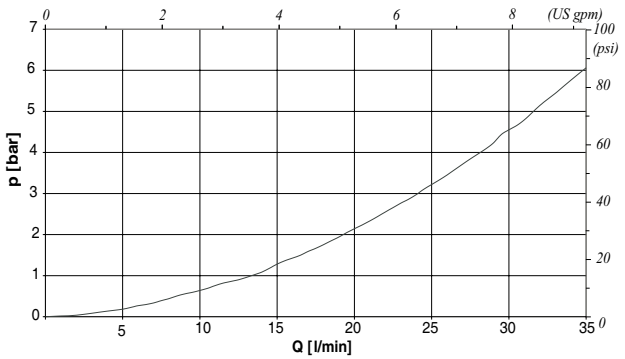
VDA/FL	A–B	P–T	M1	M2
6–38	G 3/8	G 3/8	G 1/4	G 1/4

Rating diagrams

Typical Pressure drop vs. Flow characteristic P →p cetop



Typical Pressure drop vs. Flow characteristic P →T



Order code

VDA /FL 6-38 / □□ . S / □□

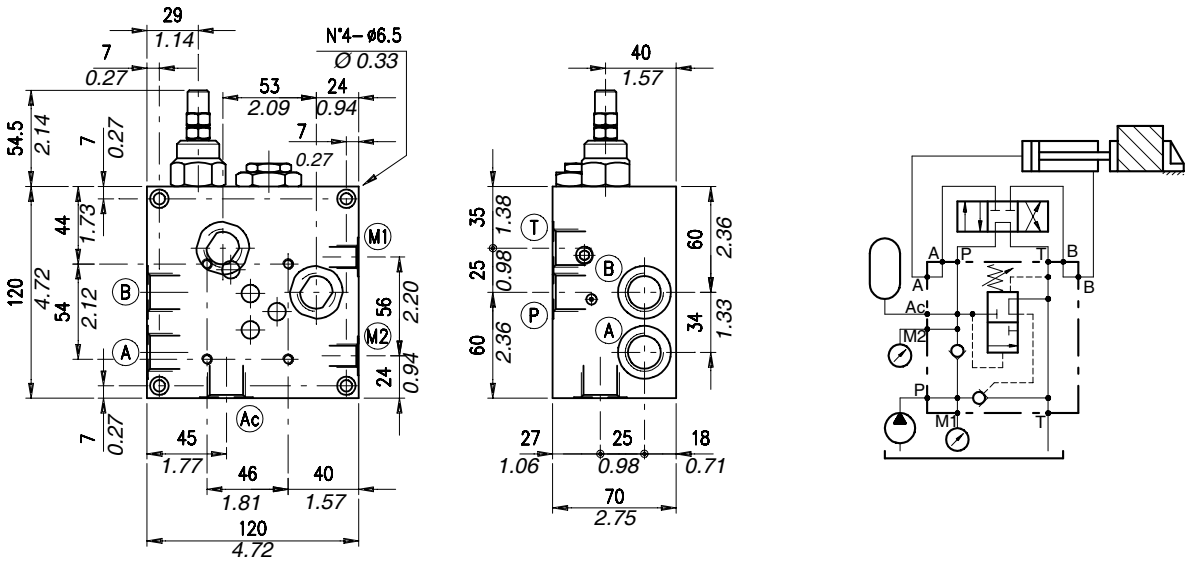
Pressure settings

TV) 5÷110 bar *(72.5÷1600 psi)*
TR) 100÷250 bar *(1450÷3600 psi)*

Body material

_ Aluminium
ac Steel

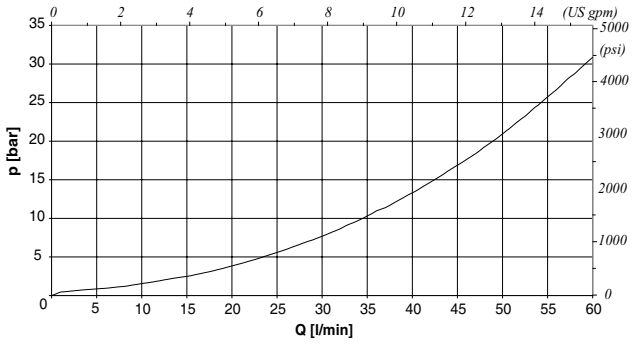
Dimensions and hydraulic circuit



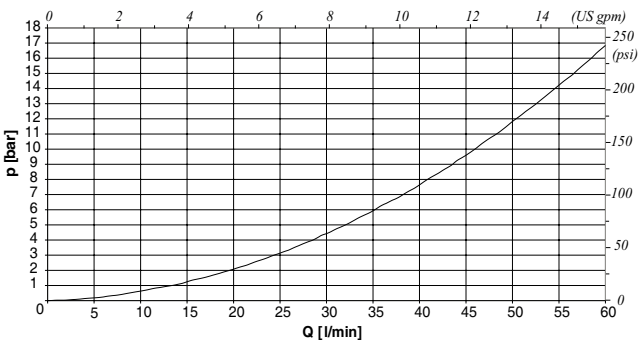
VDA/FL	A–B	P–T	M1	M2
10–12	G 1/2	G 1/2	G 1/4	G 1/4

Rating diagrams

Typical Pressure drop vs. Flow characteristic P →P cetop



Typical Pressure drop vs. Flow characteristic P →T



Order code

VDA /FL 10-12 / □□ . S / □□

Pressure settings

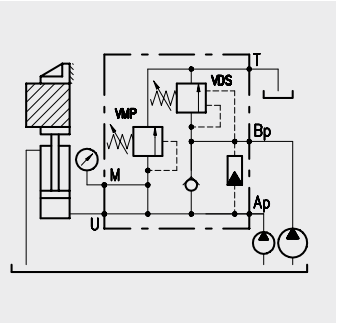
TV) 5÷110 bar *(72.5÷1600 psi)*
TR) 100÷250 bar *(1450÷3600 psi)*

Body material

_ Aluminium
ac Steel

Operation

Recommended for systems powered by two pumps where double speed (fast-slow sequence) is made available. Fast speed is obtained by summing up both pumps capacity up to the setting value of the VDS valve. Slow speed according to the small pump is obtained by later discharge of the bigger pump. Working pressure during slow speed is controlled bu the VMP valve.



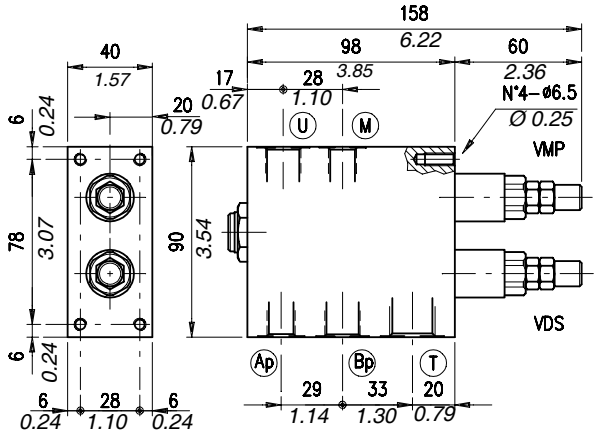
Performance

Body Valves

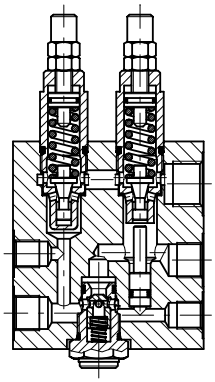
Type VEP	Maximum flow			Maximum pressure		Application range with standard springs "Ap" (VMP)*	Application range with standard springs "Bp" (VDS)	Weight	
	line	l/min	*US gpm*	bar	*psi*			kg	*lb*
VEP 38	Ap line Bp line U line	10 25 30	*2.6* *6.6* *8*	250 aluminium body 350 steel body	*3600 alum. body* *5100 steel body*	50÷220 bar - *725÷3200 psi* (test setting 180 bar - *2600 psi* 5 l/min. - *1.32 US gpm*) 180÷350 bar - *2600÷5100 psi* (test setting 280 bar - *4050 psi* 5 l/min. - *1.32 US gpm*)	5÷40 bar - *72.5÷580 psi* (test setting 30 bar - *435 psi* at 5 l/min. - *1.32 US gpm*) 20÷80 bar - *290÷1150 psi* (test setting 60 bar - *870 psi* at 5 l/min. - *1.32 US gpm*)	1,20 aluminium 2,63 steel	*2.64* *5.80*
VEP 12	Ap line Bp line U line	20 45 55	*5.3* *12* *14.5*				5÷80 bar - *72.5÷1150 psi* (test setting 40 bar - *580 psi* at 5 l/min. - *1.32 US gpm*)	2,05 aluminium 4,50 steel	*4.52* *9.92*
VEP 34	Ap line Bp line U line	30 80 100	*8* *21* *26*				10÷50 bar - *145÷725 psi* (test setting 30 bar - *435 psi* at 5 l/min. - *1.32 US gpm*) 10÷80 bar - *145÷1150 psi* (test setting 50 bar - *725 psi* at 5 l/min. - *1.32 US gpm*) 50÷110 bar - *725÷1600 psi* (test setting 80 bar -*1150 psi* at 5 l/min. - *1.32 US gpm*)	3,77 aluminium 9,37 steel	*8.31* *20.66*
VEP 100	Ap line Bp line U line	50 150 180	*13* *40* *48*				5÷40 bar - *72.5÷580 psi* (test setting 30 bar - *435 psi* at 5 l/min. -*1.32 US gpm*) 20÷80 bar - *290÷1150 psi* (test setting 60 bar - *870 psi* at 5 l/min. -*1.32 US gpm*)	5,85 aluminium 13,50 steel	*12.90* *29.76*
VEP 114	Ap line Bp line U line	80 200 250	*2* *53* *66*				50÷220 bar - *725÷3200 psi* (test setting 160 bar - *2300 psi* at 5 l/min. - *1.32 US gpm*)	8,40 aluminium 19,50 steel	*18.52* *42.99*

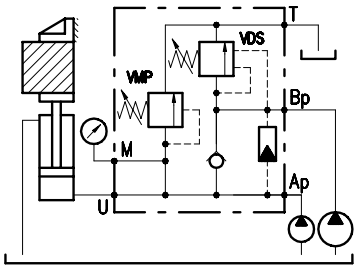
***To perform setting of the valve see the pressure drop/flow diagram.**

Dimensions and hydraulic circuit



Section

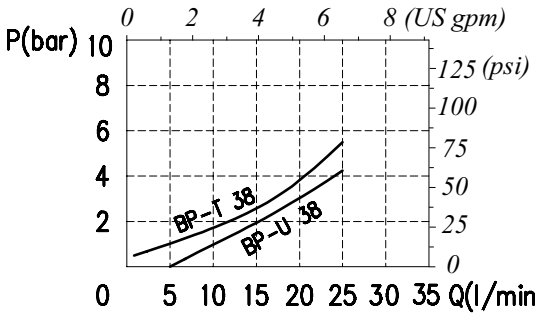




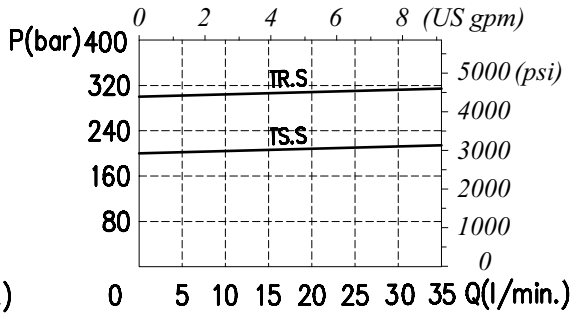
VEP	U	M	T	Ap	Bp
38	G 3/8	G 1/4	G 1/2	G 1/4	G 3/8

Rating diagrams

Pressure drop diagram



Adjustment diagram



Order code

VEP 38 / □□ - □□ . □ - S / □□

Pressure setting AP

TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Pressure settings BP

TB) 5÷40 bar *(72.5÷580 psi)*
TV) 20÷80 bar *(290÷1150 psi)*

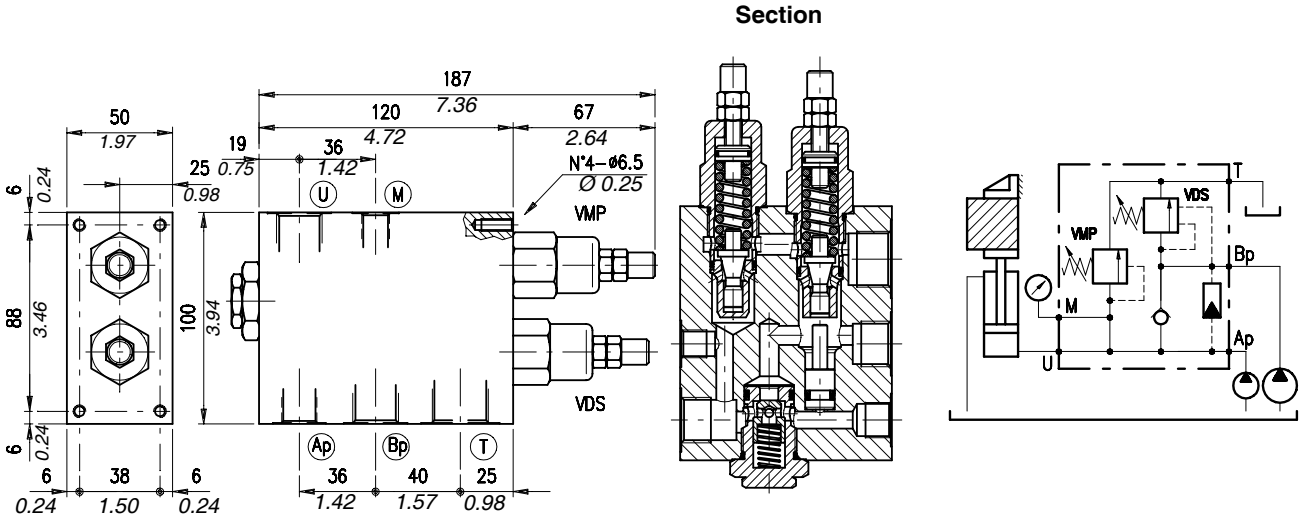
Adjustment AP

(see page 80)
S (screw)
V (handknob)
W (copped adjustment)

Body material

_ Aluminium
ac Steel

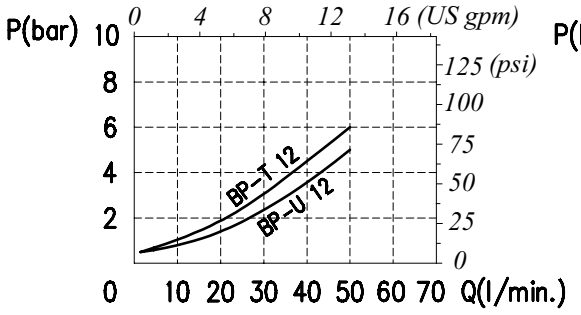
Dimensions and hydraulic circuit



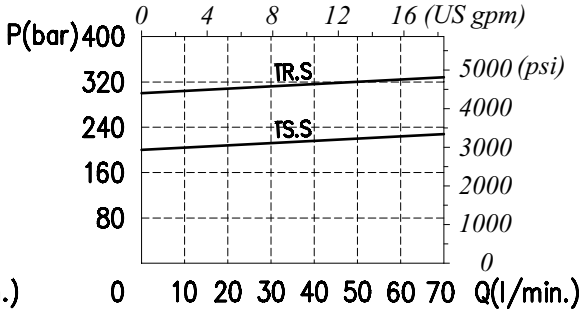
VEP	U	M	T	Ap	Bp
12	G 1/2	G 1/4	G 3/4	G 3/8	G 1/2

Rating diagrams

Pressure drop diagram



Adjustment diagram



Order code

VEP 12 / □□ - □□ . □ - S / □□

Pressure setting AP

TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Pressure settings BP

TV) 5÷80 bar *(72.5÷1150 psi)*

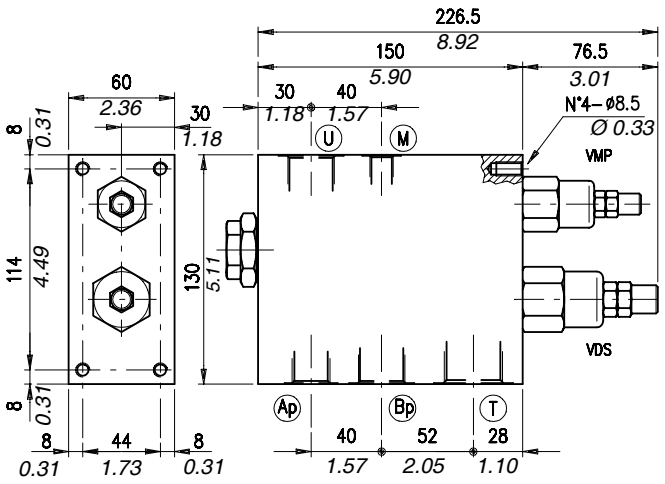
Adjustment AP

(see page 80)
S (screw)
V (handknob)
W (copped adjustment)

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



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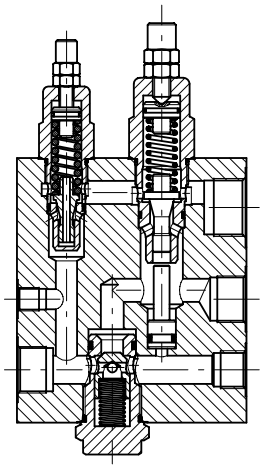
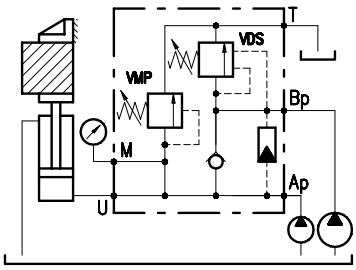
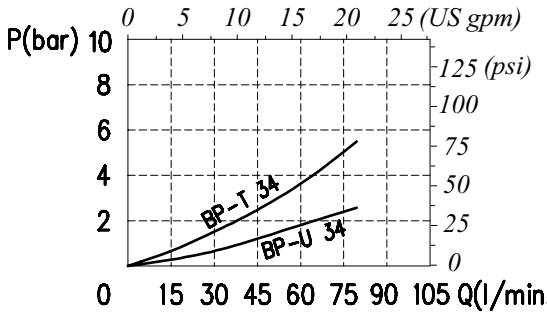




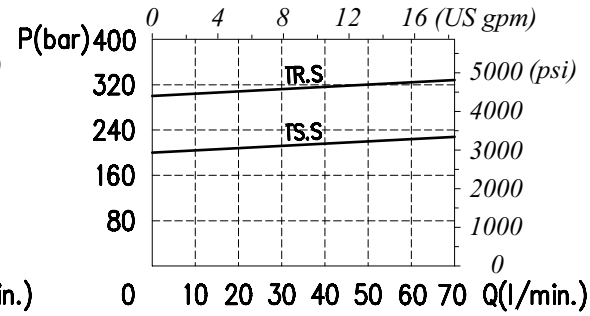
VEP	U	M	T	Ap	Bp
34	G 3/4	G 1/4	G 1"	G 1/2	G 3/4

Rating diagrams

Pressure drop diagram



Adjustment diagram



Order code

VEP 34 / □□ - □□ . □ - S / □□

Pressure settings AP

TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Pressure settings BP

TB) 10÷50 bar *(145÷725 psi)*
TV) 10÷80 bar *(145÷1150 psi)*
TS) 50÷110 bar *(725÷1600 psi)*

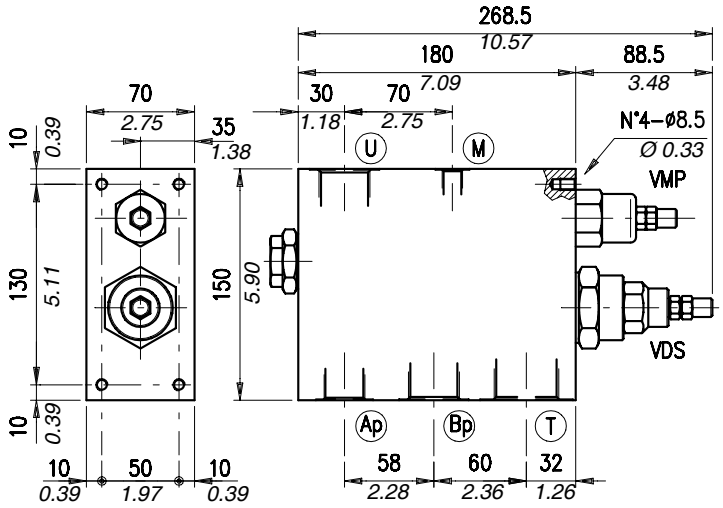
Adjustment AP

(see page 80)
S (screw)
V (handknob)
W (copped adjustment)

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



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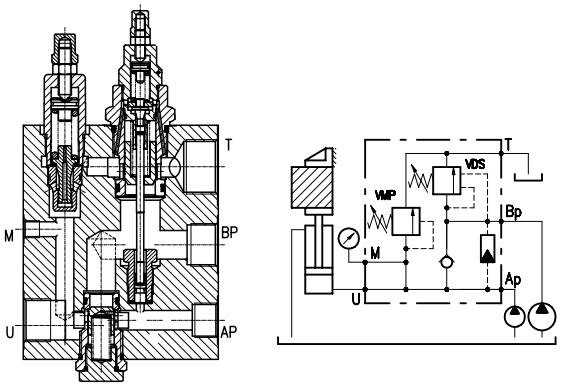
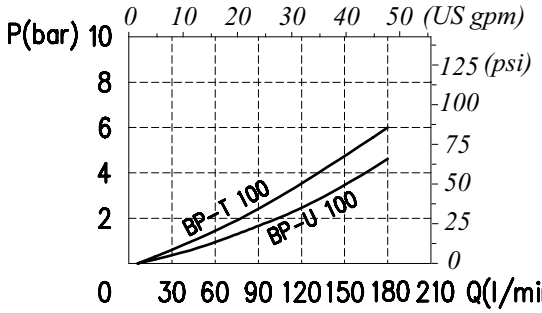


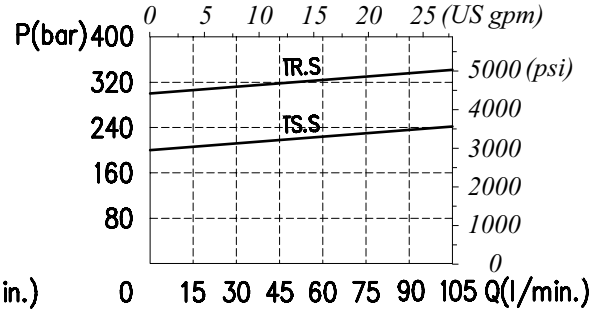
VEP	U	M	T	Ap	Bp
100	G 1"	G 1/4	G1" 1/4	G 3/4	G 1"

Rating diagrams

Pressure drop diagram



Adjustment diagram



Order code

VEP 100 / □□ - □□ . □ - S / □□

Pressure settings AP

TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Pressure settings BP

TB) 5÷40 bar *(72.5÷580 psi)*
TV) 20÷80 bar *(290÷1150 psi)*
TS) 50÷220 bar *(725÷3200 psi)*

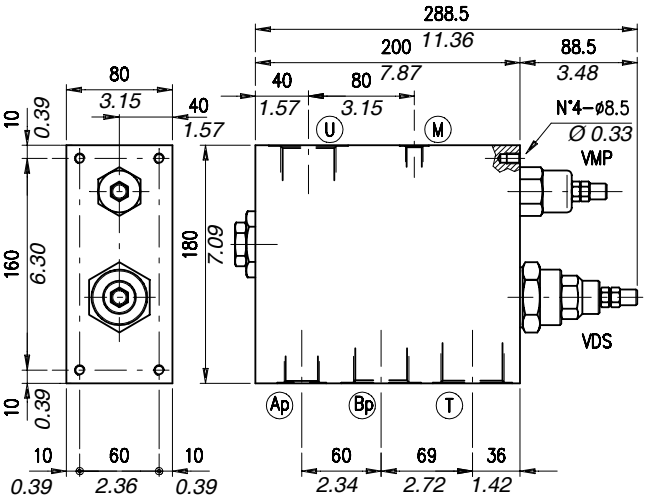
Adjustment AP

(see page 80)
S (screw)
V (handknob)
W (copped adjustment)

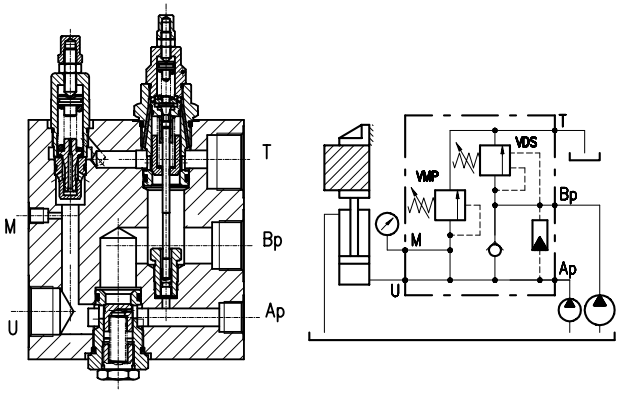
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit



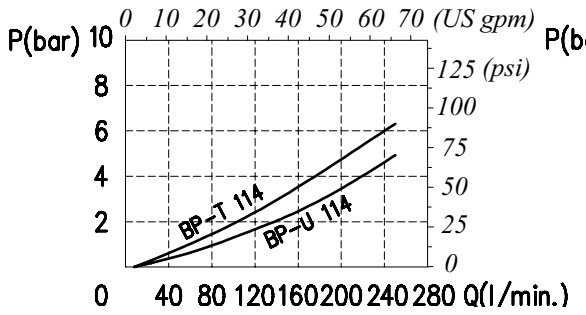
Section



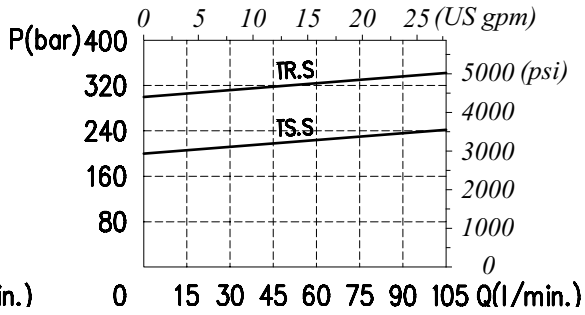
VEP	U	M	T	Ap	Bp
114	G 1" 1/4	G 1/4	G 1" 1/2	G 3/4	G 1" 1/4

Rating diagrams

Pressure drop diagram



Adjustment diagram



Order code

VEP 114 / □□ - □□ . □ - S / □□

Pressure settings AP

TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Pressure settings BP

TB) 5÷40 bar *(72.5÷580 psi)*
TV) 20÷80 bar *(290÷1150 psi)*
TS) 50÷220 bar *(725÷3200 psi)*

Adjustment AP

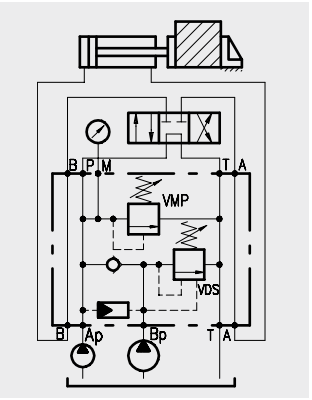
(see page 80)
S (screw)
V (handknob)
W (copped adjustment)

Body material

_ Aluminium
ac Steel

Operation

High-Low pressure cut-out valve with "NG 6","NG 10" and "NG 16" flange . Recommended for systems powered by two pumps where double speed (fast-slow sequence) is made available. Fast speed is obtained by summing up both pumps capacity up to the setting value of the VDS valve. Slow speed according to the small pump is obtained by later discharge of the bigger pump. Working pressure during slow speed is controlled by the VMP valve.



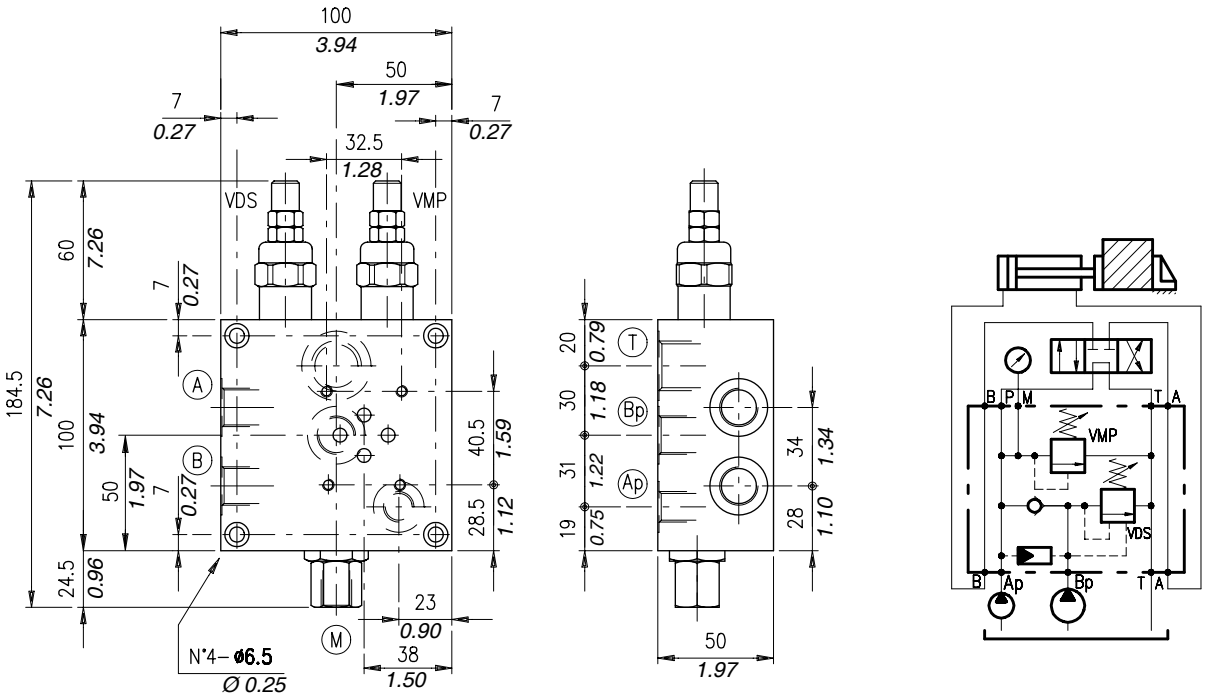
Performance

Body Valves

Type	Maximum flow			Maximum pressure		Application range with standard springs"Ap" (VMP)*	Application range with standard springs "Bp" (VDS)	Weight	
	line	l/min	*US gpm*	bar	*psi*			kg	*lb*
VEP /FL 6-38	Ap line Bp line P line	10 25 30	*2.6* *6.6* *8*	210 alum. body 350 steel body	*3050 alum. body* *5100 steel body*	50÷220 bar - *725÷3200 psi* (test setting 180 bar - *2600 psi* at 5 l/min. - *1.32 US gpm*) 180÷350 bar - *2600÷5100 psi* (test setting 280 bar - *4050 psi* at 5 l/min. - *1.32 US gpm*)	5÷40 bar - *72.5÷580 psi* (test setting 30 bar - *435 psi* at 5 l/min. -*1.32 US gpm*) 20÷80 bar -*290÷1160 psi* (test setting 60 bar - *870 psi* at 5 l/min. - *1.32 US gpm*)	1,54 aluminium 3,53 steel	*3.39* *7.78*
VEP /FL 10-12	Ap line Bp line P line	20 45 55	*5.3* *12* *14.5*				5÷40 bar - *72.5÷580 psi* (test setting 40 bar - *580 psi* at 5 l/min. - *1.32 US gpm*) 20÷80 bar - *290÷1150 psi* (test setting 70 bar - *1000 psi* at 5 l/min. - *1.32 US gpm*)	3,09 aluminium 6,35 steel	*6.81* *14.00*
VEP /FL 16-34	Ap line Bp line P line	30 80 100	*8* *21* *26*				10÷50 bar - *145÷725 psi* (test setting 30 bar - *435 psi* at 5 l/min. - *1.32 US gpm*) 10÷80 bar -*145÷1150 psi* (test setting 50 bar - *725 psi* at 5 l/min. - *1.32 US gpm*) 50÷110 bar - *725 ÷ 1600 psi* (test setting 80 bar - *1150 psi* at 5 l/min. - *1.32 US gpm*)	6,38 aluminium 16,50 steel	*14.06* *36.38*
VEP /FL 16-100									

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

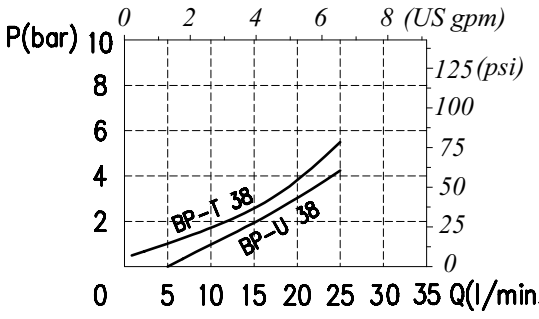
Dimensions and hydraulic circuit



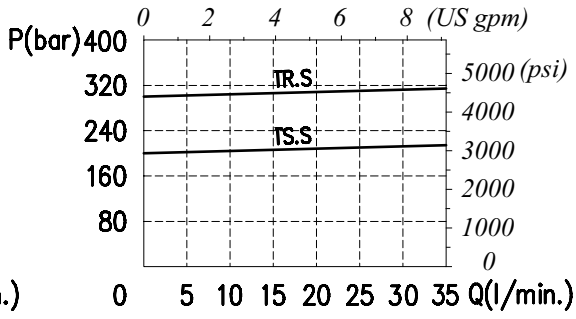
VEP/FL	A–B	M	T	Ap	Bp
6–38	G 3/8	G 1/4	G 1/2	G 1/4	G 3/8

Rating diagrams

Pressure drop diagram



Adjustment diagram



Order code

VEP /FL 6-38 /□□ - □□ . □ - S / □□

Pressure settings AP

TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Pressure settings BP

TB) 5÷40 bar *(72.5÷580 psi)*
TV) 20÷80 bar *(290÷1150 psi)*

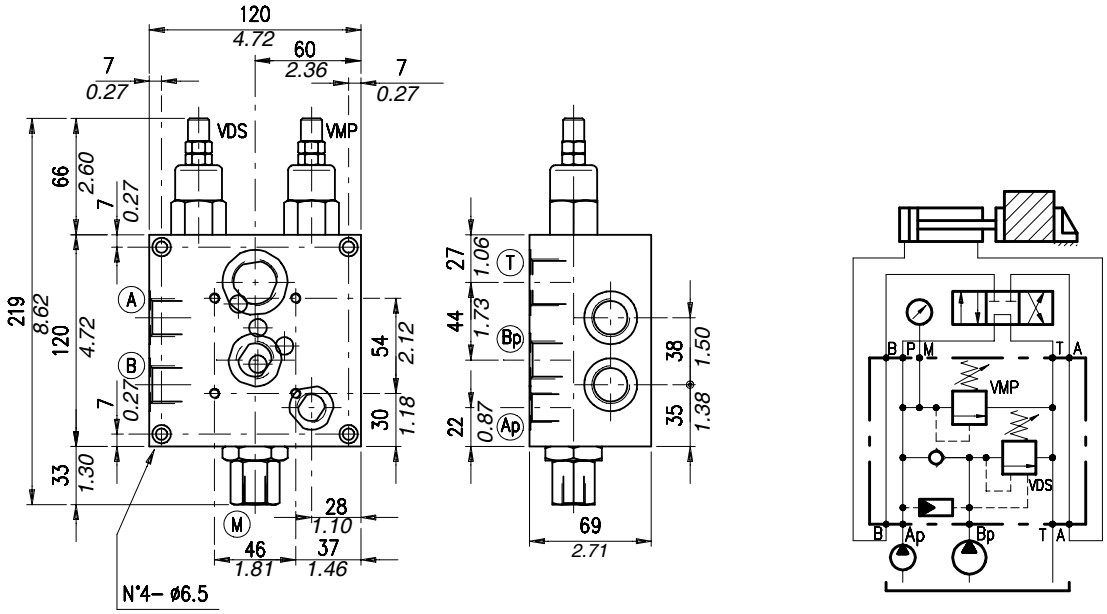
Adjustment AP

(see page 80)
S (screw)
V (handknob)
W (copped adjustment)

Body material

_ Aluminium
ac Steel

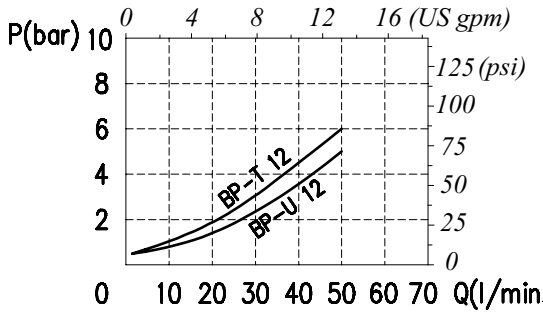
Dimensions and hydraulic circuit



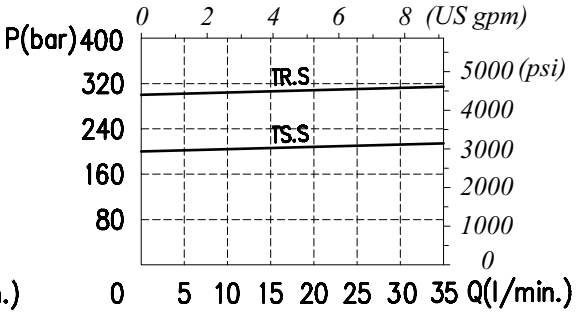
VEP/FL	A–B	M	T	Ap	Bp
10–12	G 1/2	G 1/4	G 3/4	G 3/8	G 1/2

Rating diagrams

Pressure drop diagram



Adjustment diagram



Order code

VEP /FL 10-12 /□□ - □□ . □ - S / □□

Pressure settings AP

TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Pressure settings BP

TB) 5÷40 bar *(72.5÷580 psi)*
TV) 20÷80 bar *(290÷1150 psi)*

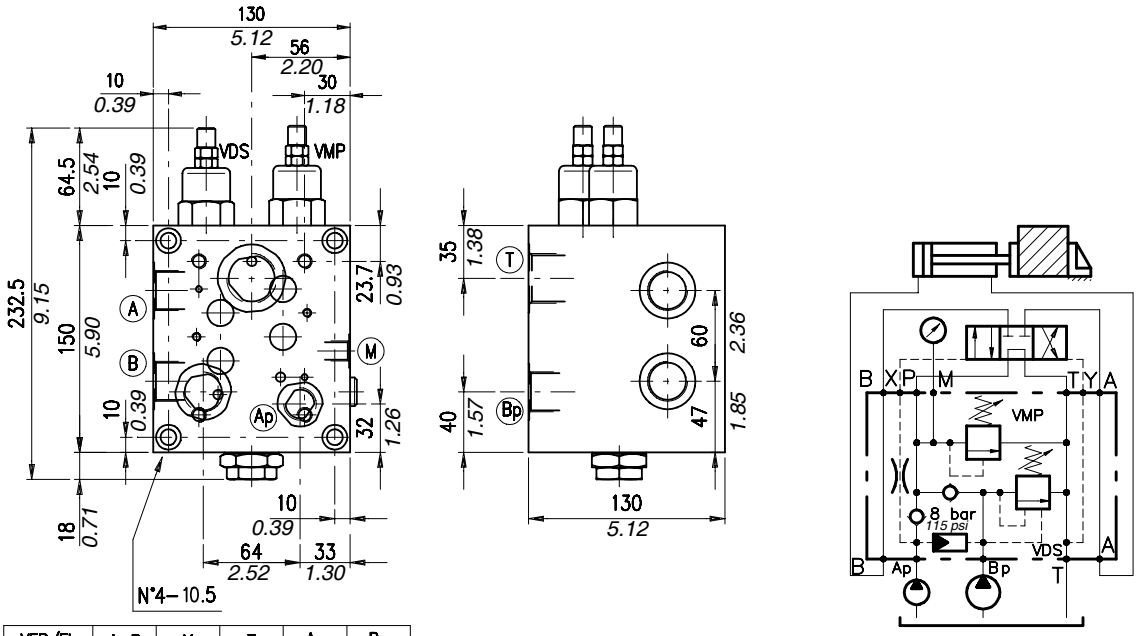
Adjustment AP

(see page 80)
S (screw)
V (handknob)
W (copped adjustment)

Body material

_ Aluminium
ac Steel

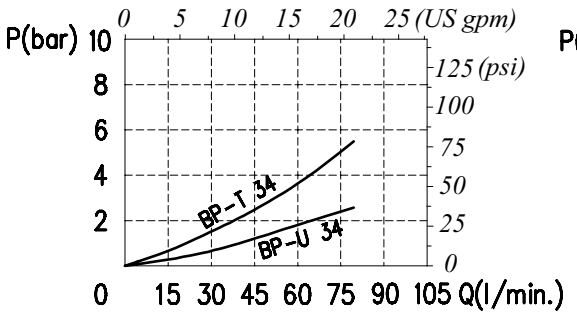
Dimensions and hydraulic circuit



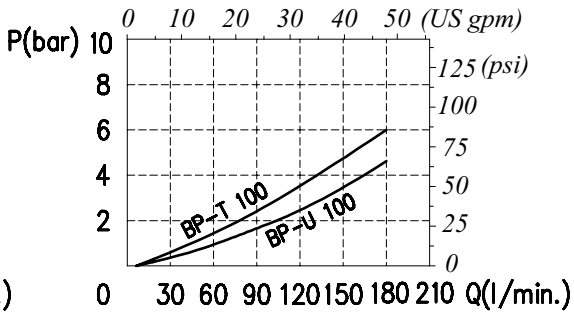
VEP/FL	A–B	M	T	Ap	Bp
16–34	G 3/4	G 1/4	G 1"	G 1/2	G 3/4
16–100	G 1"	G 1/4	G 1"	G 1/2	G 3/4

Rating diagrams

Pressure drop diagram



Pressure drop diagram



Order code

VEP /FL 16-□□ / □□ - □□ . □ - S / □□

Port size

34) G 3/4
100) G 1"

Pressure settings AP

TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Pressure settings BP

TB) 10÷50 bar *(145÷725 psi)*
TV) 10÷80 bar *(145÷1150 psi)*
TS) 50÷110 bar *(725÷1600 psi)*

Adjustments AP

(see page 80)

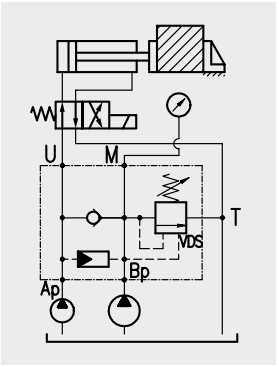
S (screw)
V (handknob)
W (copped adjustment)

Body material

_ Aluminium
a c Steel

Operation

Recommended for systems powered by two pumps where double speed (fast-slow sequence) is made available: fast speed is obtained by summing up both pumps capacity up to the setting value of the VDS valve. Slow speed according to the small pump is obtained by later discharge of the bigger pump.



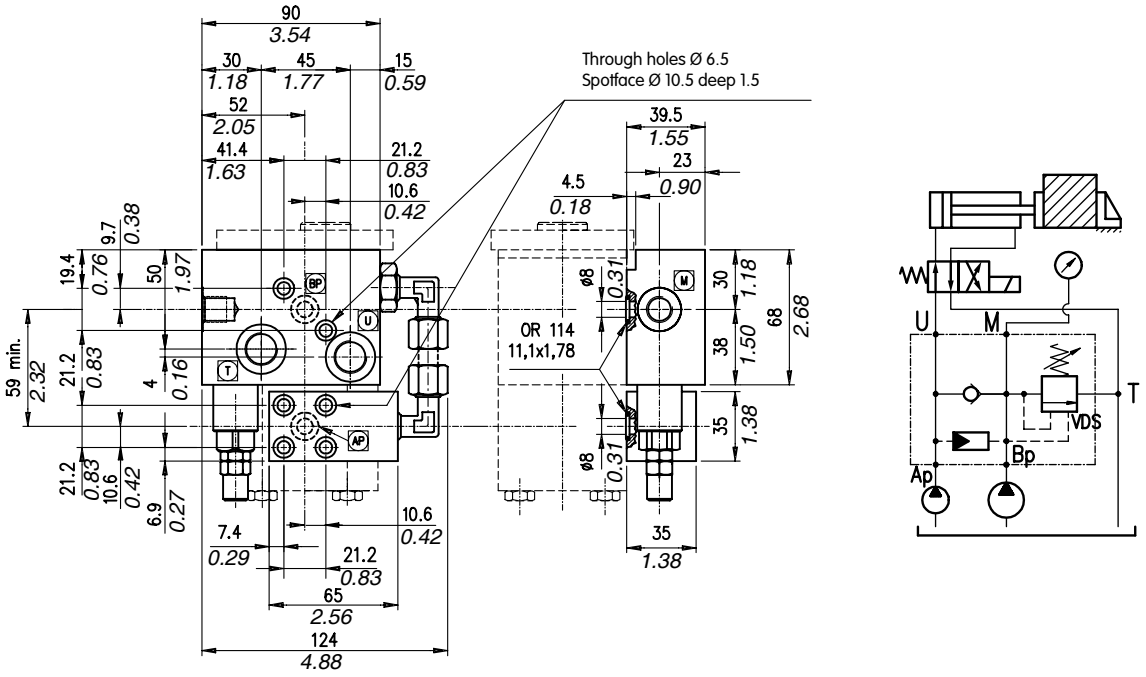
Performance

Body Valves

Type	Maximum flow			Maximum pressure		Application range with standard springs "Bp" (VDS)*	Weight	
	line	l/min	*US gpm*	bar	*psi*		kg	*lb*
VEP /FC 38-gr 1+1-PLP	Ap line Bp line P line	10 25 30	*2.6* *6.6* *8*	210 aluminium body 350 steel body	*3050 alum. body* *5100 steel body*	5÷40 bar - *72.5÷580 psi* (test setting 30 bar - *435 psi* at 5 l/min. - *1.32 US gpm*) 20÷80 bar - *290÷1160 psi* (test setting 60 bar - *870 psi* at 5 l/min. - *1.32 US gpm*)	1,1 aluminium 3 steel	*2.42* *6.61*

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

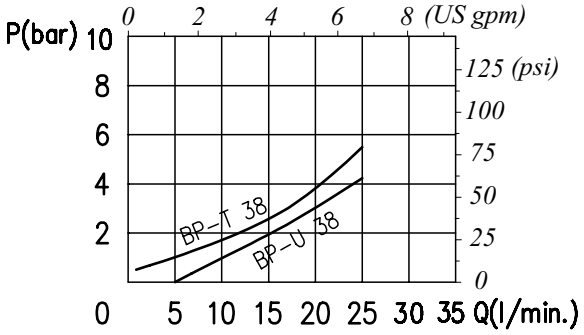
Dimensions and hydraulic circuit



VEP/FC	U	T	M	AP – BP
38	G 3/8	G 3/8	G 1/4	Flanged ports

Rating diagrams

Pressure drop diagram



Order code

VEP/FC 38-gr 1+1-PLP / □□ . □ - S / □□

Pressure settings BP

TB) 5÷40 bar *(72.5÷580 psi)*
TV) 20÷80 bar *(290÷1150 psi)*

Adjustments AP

(See page 80)

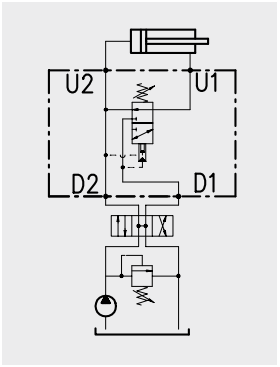
S (screw)
V (handknob)
W (copped adjustment)

Body material

_ Aluminium
ac Steel

Operation

Feeding the valve from D2, in neutral position, the valve regenerates the return flow coming back from U1. When the pressure exceeds the pressure setting, the valve's spool shifts to open from U1 to D1 while it close the passage from U1 to U2, feeding from D1 the cylinder is going back. The setting pressure should be at least 40 bar less then the max circuit pressure.

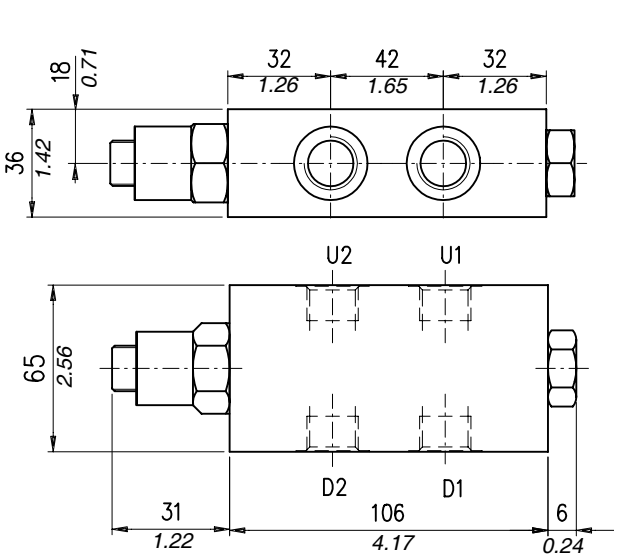


Performance

Body valves

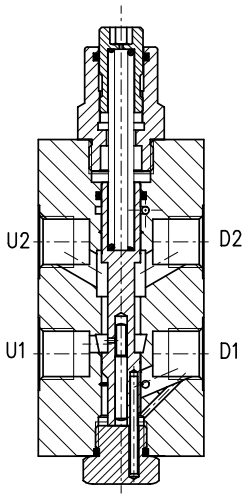
Type	Maximum flow		Maximum pressure		Application range with standard springs	Weight	
	l/min	*US gpm*	bar	*psi*		kg	*US gpm*
VRCL/38	30	*7.92*	210 cast iron body	*3050 cast iron body*	30÷140 bar - *435÷2050 psi* (test setting 100 bar -*1450 psi* at 15 l/min. - *3.96 US gpm*) 38 bar/turn - *550 psi*	2,2	*4.85*
						cast iron body	
VRCL/12	50	*13.21*	210 cast iron body	*3050 cast iron body*	30÷140 bar - *435÷2050 psi* (test setting 100 bar -*1450 psi* at 15 l/min. - *3.96 US gpm*) 38 bar/turn - *550 psi*	2,73	*6.02*
						cast iron body	

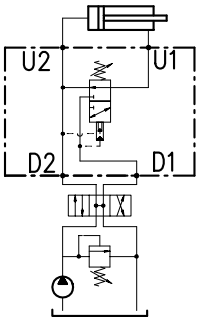
Dimensions and hydraulic circuit



D1–D2	U1–U2
G3/8	G3/8

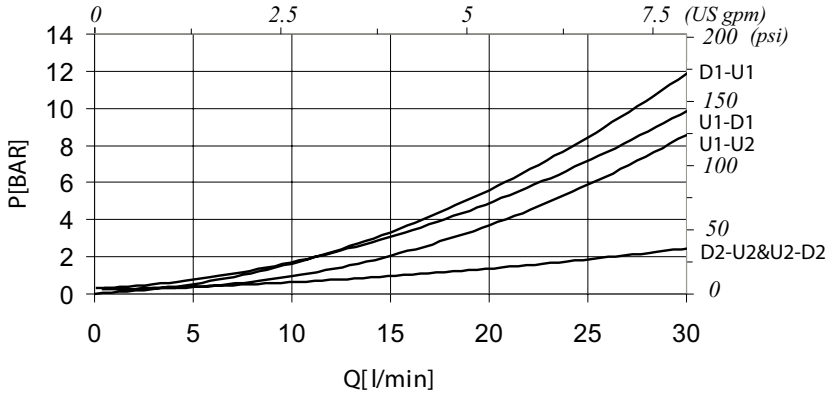
Section





Rating diagrams

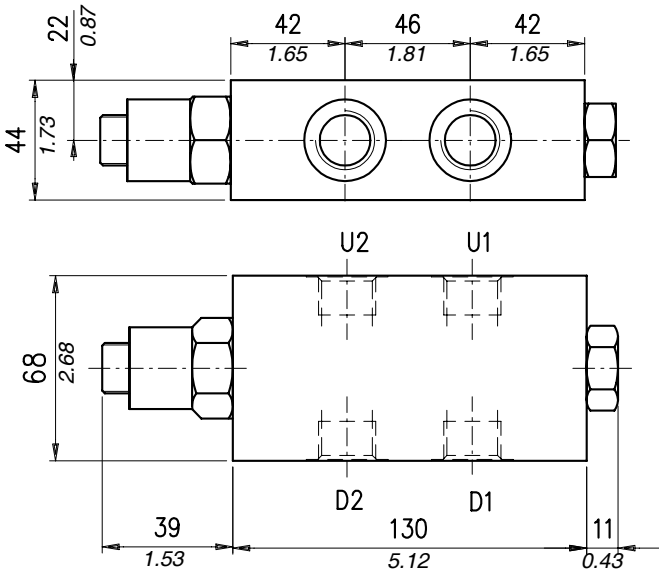
Pressure drop diagram

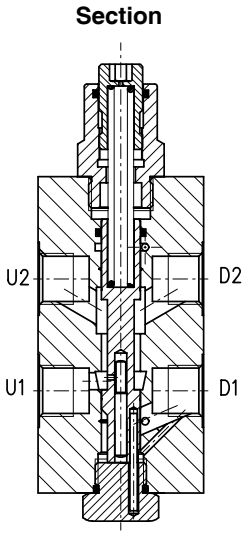


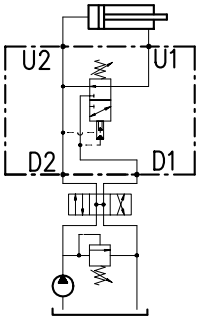
Order code

VRCL/38/gh

Dimensions and hydraulic circuit

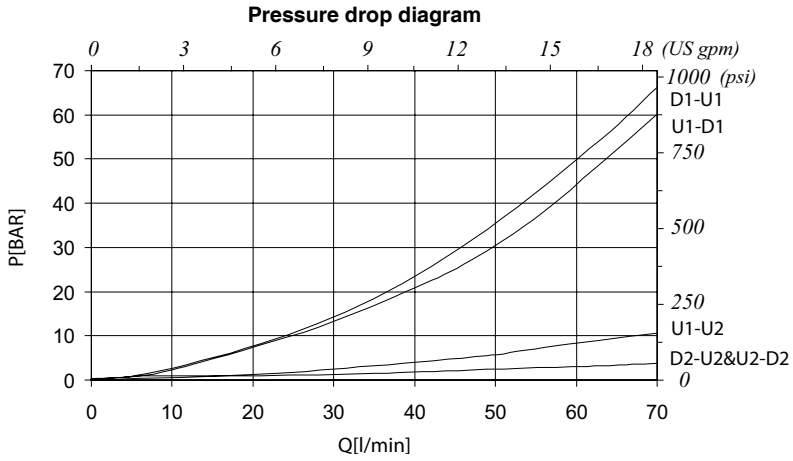






D1–D2	U1–U2
G 1/2	G 1/2

Rating diagrams

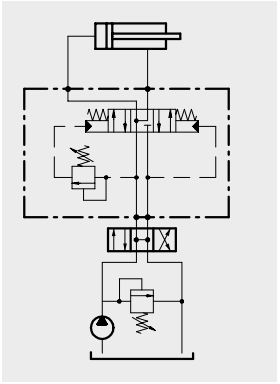


Order code

VRCL/12/gh

Operation

Feeding the valve from D2, in neutral position, the valve regenerates the return flow coming back from U1.
When you reach the pressure setting of the relief vakve, the valve cancel the regenerative function while it stays open at low pressure with an energy saving.
Feeding from D1 the cylinder is going back.

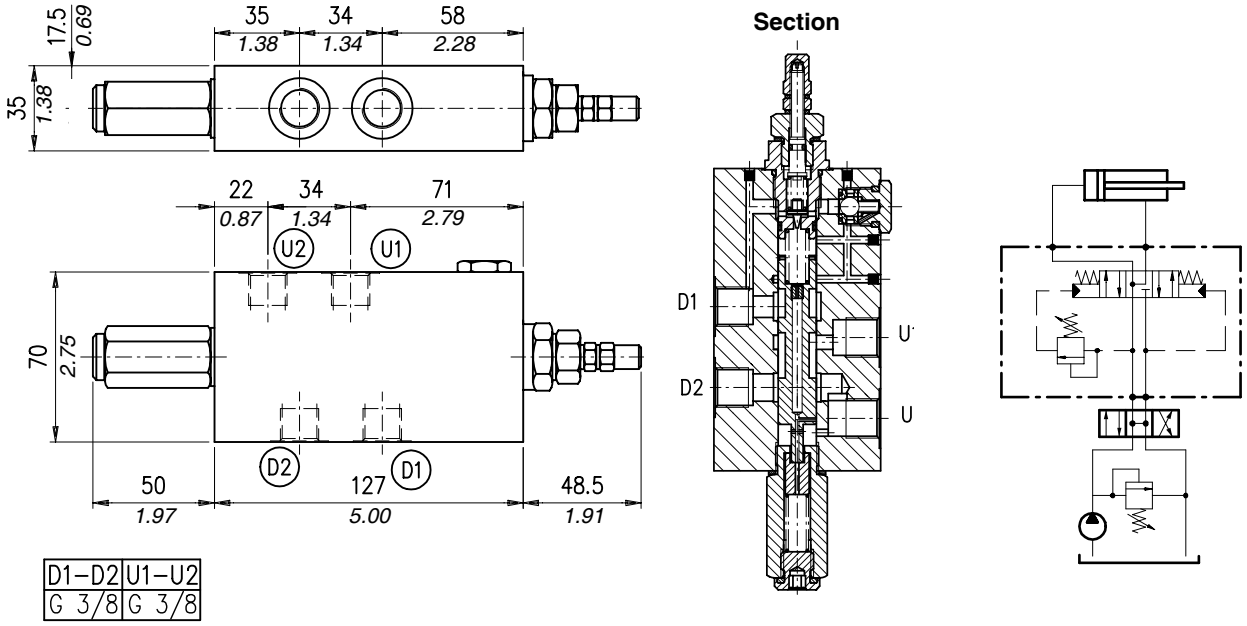


Performance

Body valves

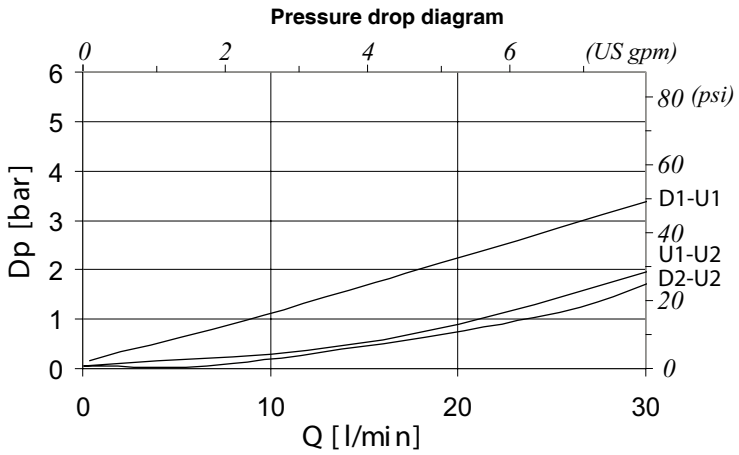
Type	Maximum flow		Maximum pressure		Application range with standard springs	weight	
	l/min	*US gpm*	bar	*psi*		kg	*lb*
VRCL/KD 38	30	*8*	350 steel body	*5100 steel body*	5÷80 bar - *72.5÷1150 psi* (test setting 30 bar - *435 psi* at 10 l/min. - *2.64 US gpm*) 50÷220 bar - *725÷3200 psi* (test setting 100 bar -*1450 psi* at 10 l/min. - *2.64 US gpm*) 180÷350 bar - *2600÷5100 psi* (test setting 200 bar - *2900 psi* at 10 l/min. - *2.64 US gpm*)	2,2	*4.85*
						steel	
VRCL/KD 12	50	*13*	350 steel body	*5100 steel body*		2,3	*5.07*
						steel	
VRCL/KD 34	90	*24*	350 cast iron body	*5100 cast iron body*	5÷50 bar -*72.5÷725 psi* (test setting 25 bar - *360 psi* at 10 l/min. - *2.64 US gpm*) 50÷220 bar - *725÷3200 psi* (test setting 100 bar - *1450 psi* at 10 l/min. - *2.64 US gpm*) 100÷350 bar - *1450÷5100 psi* (test setting 200 bar - *2900 psi* at 10 l/min. - *2.64 US gpm*)	5,5	*12.12*
						cast iron	
VRCL/KD 100	150	*40*	350 cast iron body	*5100 cast iron body*	5÷50 bar - *72.5÷725 psi* (test setting 25 bar - *360 psi* at 10 l/min. - *2.64 US gpm*) 20÷220 bar - *290÷3200 psi* (test setting 100 bar - *1450 psi* at 10 l/min. - *2.64 US gpm*) 180÷350 bar -*2600÷5100 psi* (test setting 200 bar -*2900 psi* at 10 l/min. - *2.64 US gpm*)	10,0	*22.05*
						cast iron	

Dimensions and hydraulic circuit



D1–D2	U1–U2
G 3/8	G 3/8

Rating diagrams



Order code

VRCL/KD 38 / □□ . □ / ac

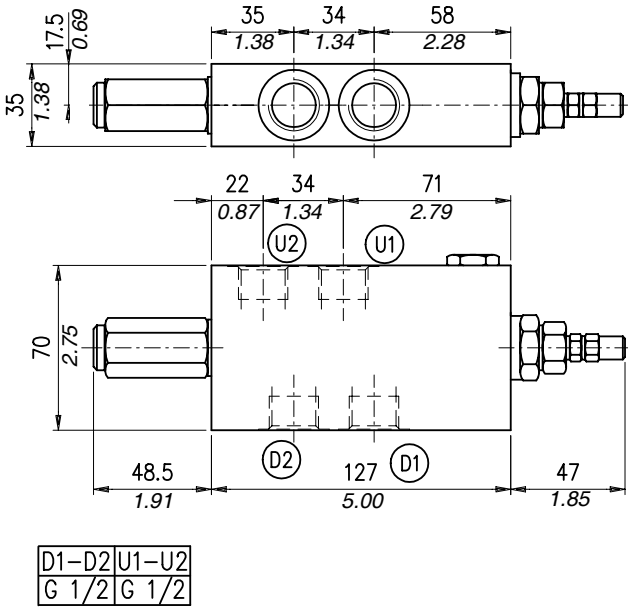
Pressure settings

TB) 5÷80 bar *(72.5÷1150 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Adjustment
(See page 80)

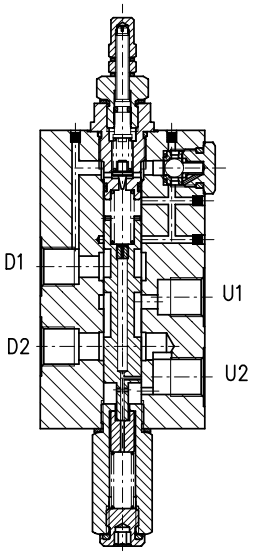
S (screw)
V (handknob)
W (copped adjustment)

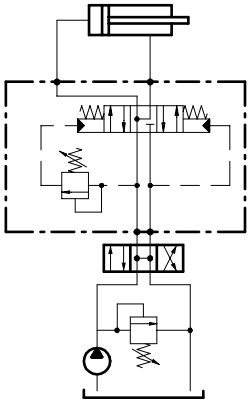
Dimensions and hydraulic circuit



D1–D2	U1–U2
G 1/2	G 1/2

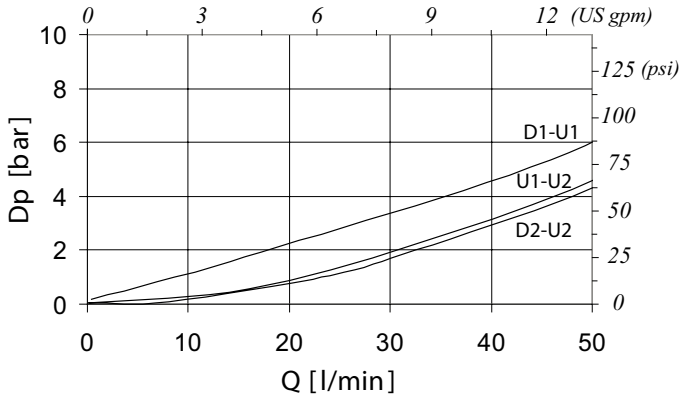
Section





Rating diagrams

Pressure drop diagram



Order code

VRCL/KD 12 / □□ . □ / ac

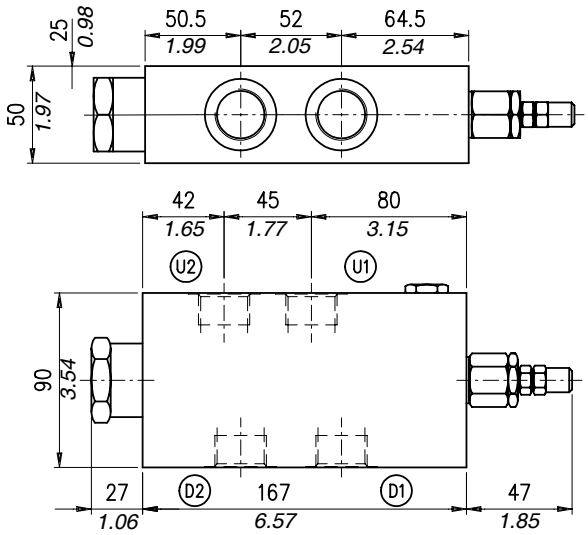
Pressure settings

TB) 5÷80 bar *(72.5÷1150 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Adjustment
(See page 80)

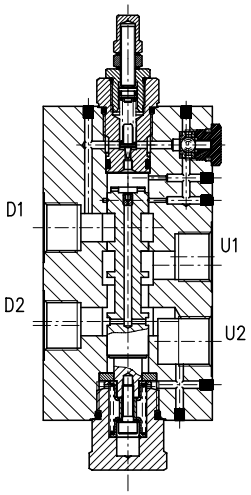
S (screw)
V (handknob)
W (copped adjustment)

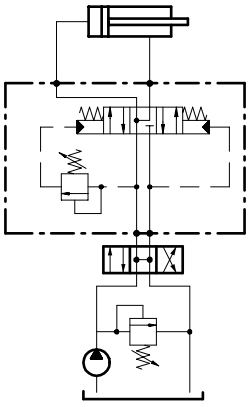
Dimensions and hydraulic circuit



D1–D2	U1–U2
G 3/4	G 3/4

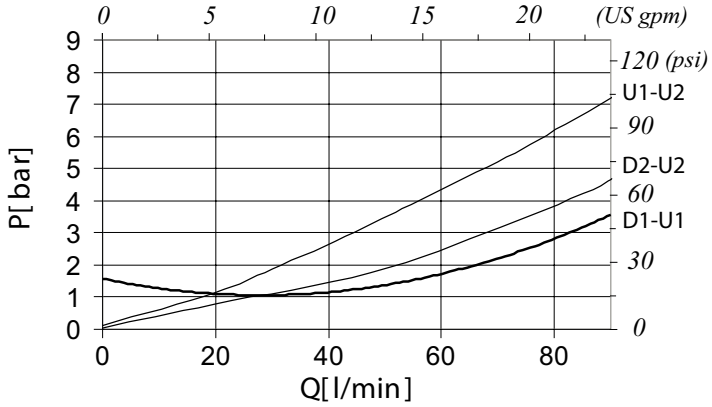
Section





Rating diagrams

Pressure drop diagram



Order code

VRCL/KD 34 / □□ . □ / ac

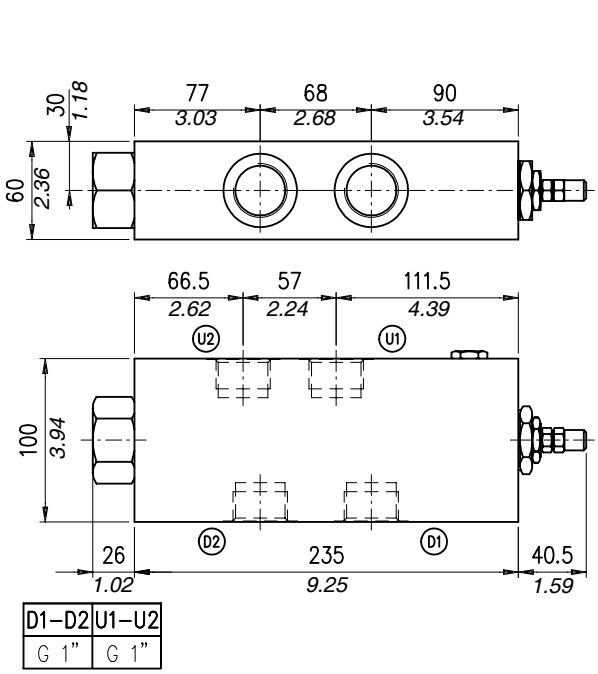
Pressure settings

TV) 5÷50 bar *(72.5÷725 psi)*
TS) 20÷220 bar *(290÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

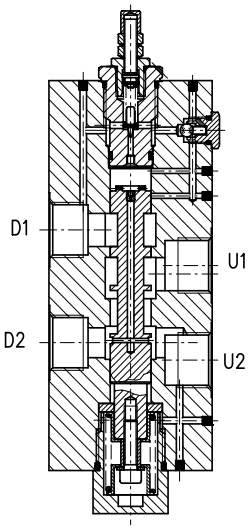
Adjustment
(See page 80)

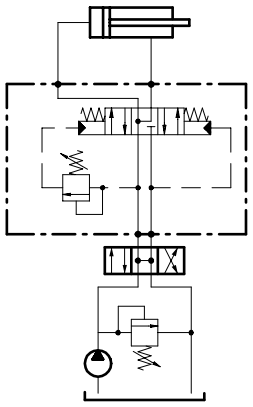
S (screw)
V (handknob)
W (copped adjustment)

Dimensions and hydraulic circuit



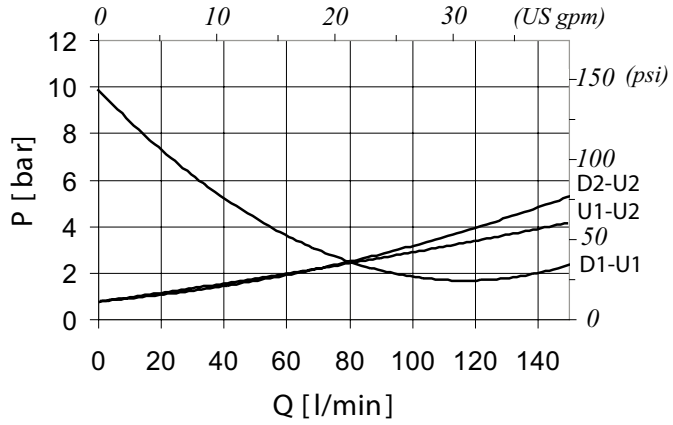
Section





Rating diagrams

Pressure drop diagram



Order code

VRCL/KD 100 / □□ . □ / ac

Pressure settings

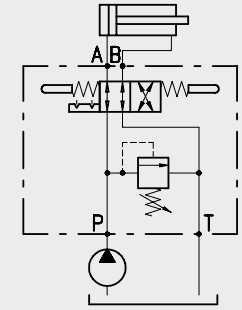
TV) 5÷50 bar *(72.5÷725 psi)*
TS) 20÷220 bar *(290÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Adjustment
(See page 80)

S (screw)
V (handknob)
W (copped adjustment)

Operation

The valve is designed to switch the oil flow from P □ A to P □ B or vice versa by means of mechanical pressure on the side spools.

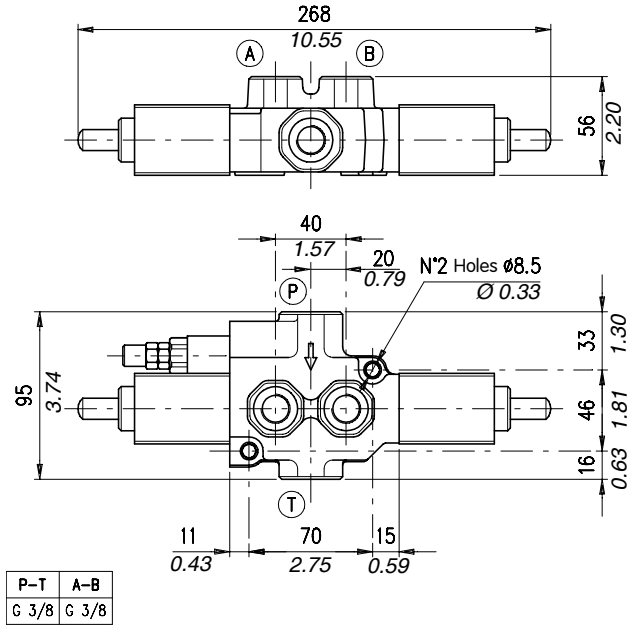


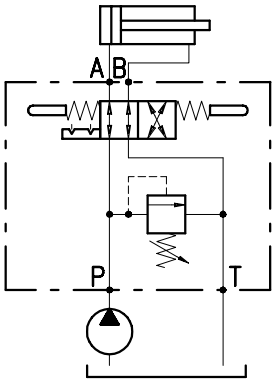
Performance

Body Valves

Type	Maximum flow		Maximum pressure		Application range with standard springs		Weight	
	l/min	*US gpm*	bar	*psi*	bar	*psi*	kg	*lb*
SD4/IAM	35	*9.2*	210	*3050*	5÷40 20÷80 50÷200	*72.5÷580* *290÷1150* *725÷2900*	2,45	*5.40*
SD11/IAM	65	*17*					6,00	*13.23*

Dimensions and hydraulic circuit

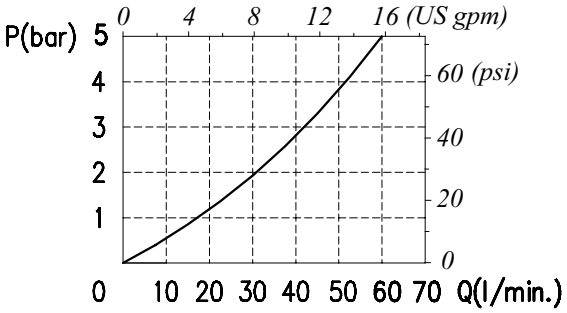




Rating diagrams

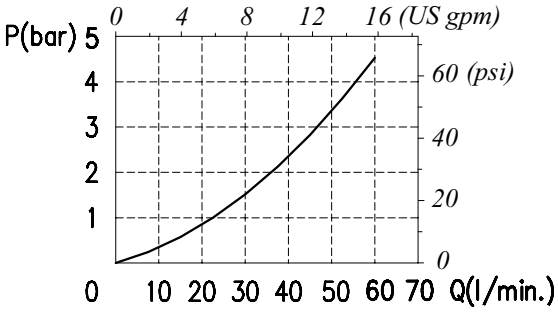
Adjustment diagram

P –> A(B)



Adjustment diagram

A(B) –> T



Order code

SD4 / IAM 38 / □ . □ . S / gh

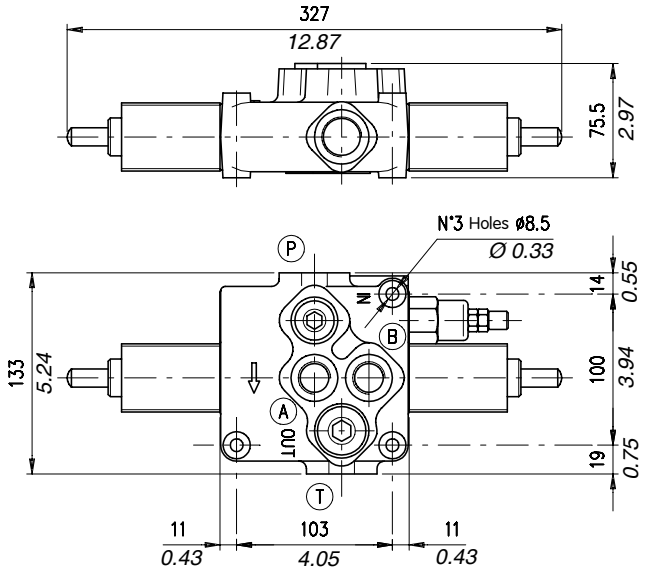
Reversing control

VMP5 = With pressure relief
SV = Without pressure relief

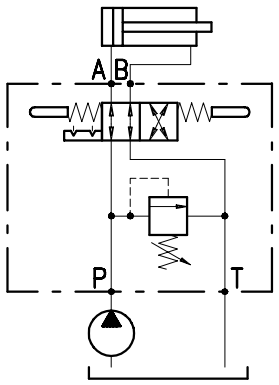
Pressure settings

TB) 5÷40 bar *(72.5÷580 psi)*
TV) 20÷80 bar *(290÷1150 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Dimensions and hydraulic circuit



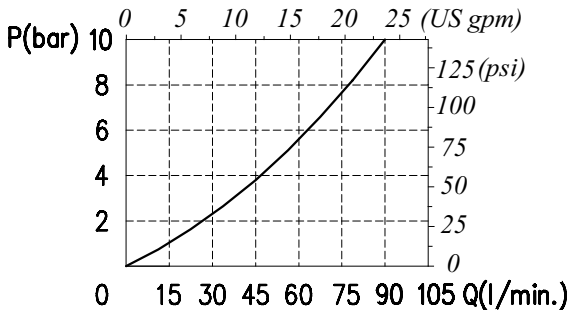
A–B	P	T
G 1/2	G 1/2	G 3/4



Rating diagrams

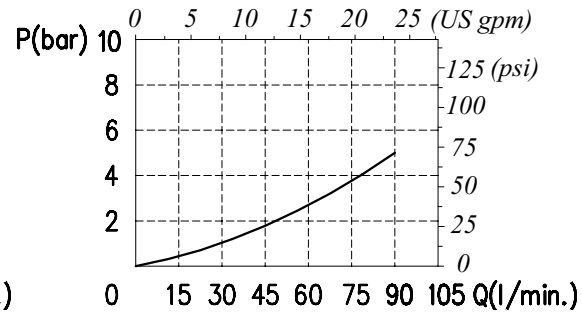
Pressure drop diagram

P –> A(B)



Pressure drop diagram

A(B) –> T



Order code

SD11 / IAM 12 / ☐ . ☐ . S / gh

Reversing control

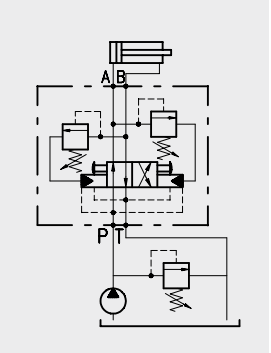
VMP10 = With pressure relief
SV = Without pressure relief

Pressure settings

TB) 5÷40 bar *(72.5÷580 psi)*
TV) 20÷80 bar *(290÷1150 psi)*
TS) 50÷220 bar *(725÷3200 psi)*
TR) 180÷350 bar *(2600÷5100 psi)*

Operation

The oil flow is automatically reversed from P in A to P in B and vice versa when the setting value of the pilot pressure relief valves is reached.

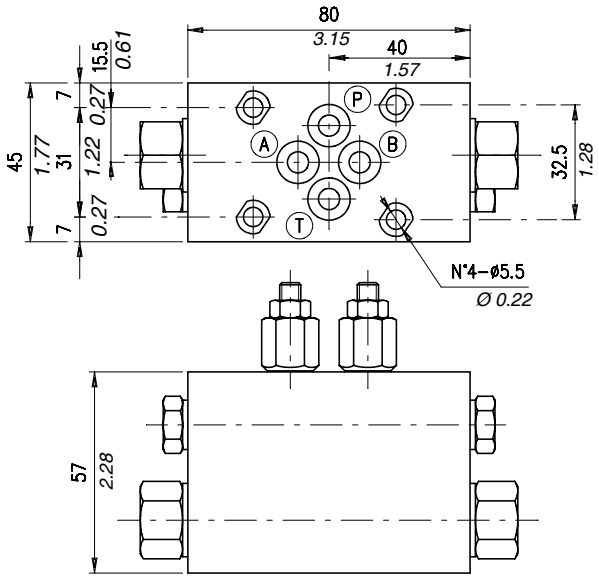


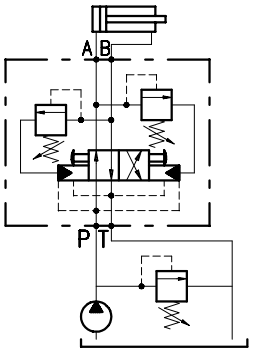
Performance

Body Valves

Type	Maximum flow		Minimum flow		Maximum pressure		Maximum reversing frequency	Application range with standard springs		Weight	
	l/min	*US gpm*	l/min	*US gpm*	bar	*psi*		bar	*psi*	kg	*lb*
VIA/AP 6-38	30	*8*	4	*1.06*	210	*3050*	30/'	5÷100 50÷200	*72.5÷1450* *725÷2900*	1,40	*3.09*
VIA/AP 10-12	60	*16*								2,26	*4.98*

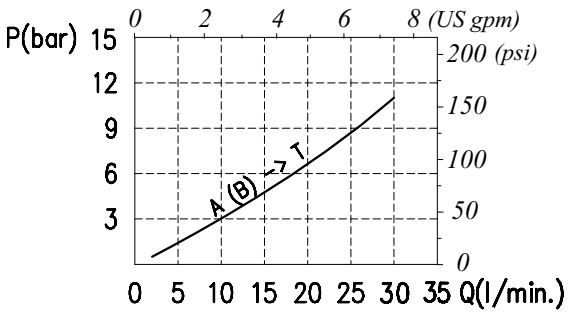
Dimensions and hydraulic circuit



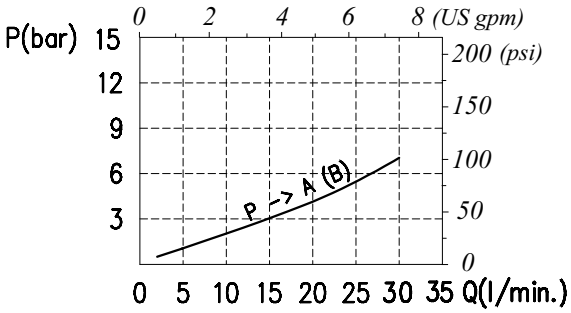


Rating diagrams

Pressure drop diagram



Pressure drop diagram



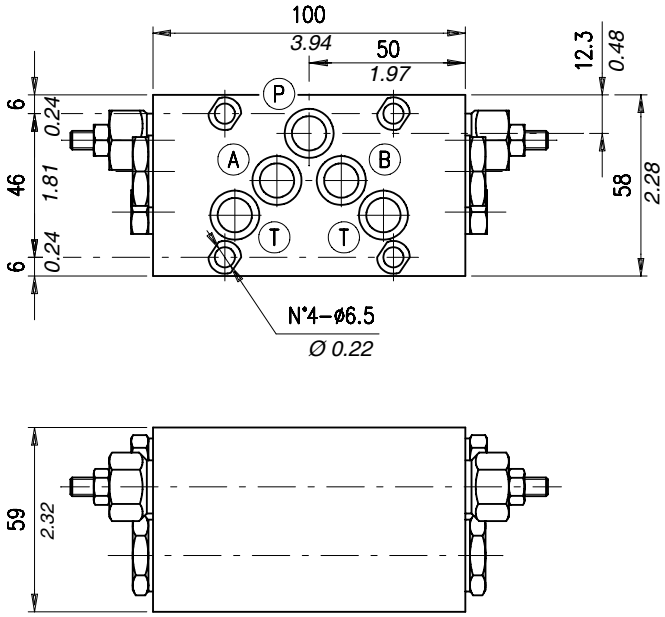
Order code

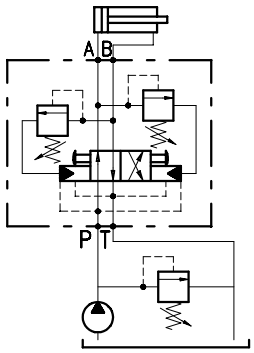
VIA /AP 6-38 /VMP 01 /□ . S /gh

Pressure settings

TV 5÷100 bar *(72.5÷1450 psi)*
TS 50÷200 bar (standard) *(725÷2900 psi)*

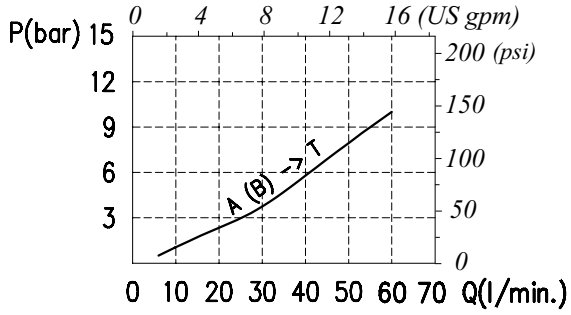
Dimensions and hydraulic circuit



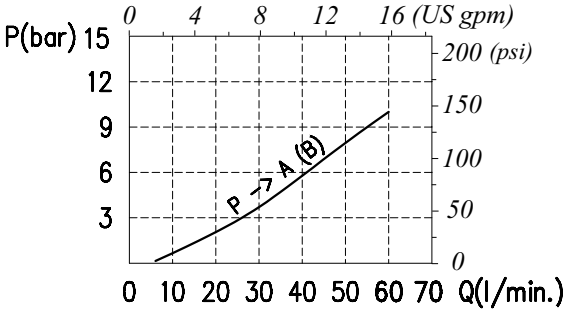


Rating diagrams

Pressure drop diagram



Pressure drop diagram



Order code

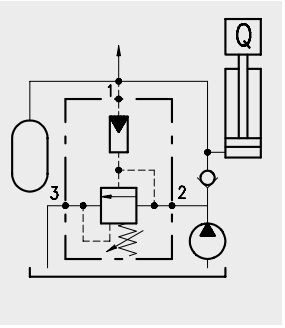
VIA /AP 10-12 /VMP 02 /□ . S /gh

Pressure settings

TV) 5÷100 bar *(72.5÷1450 psi)*
TS) 50÷220 bar *(725÷2900 psi)*

Operation

Oil flow is permitted from 2 to 3 when the pressure value in 2 is same as the spring set value. The passing between 2 and 3 is shut upon reaching a set percentage value of the setting pressure (valve differential control).
These valves are mainly designed as pilot valves to control charging of accumulators. When the accumulator is charged the flow from 1 to 2 must be to tank.

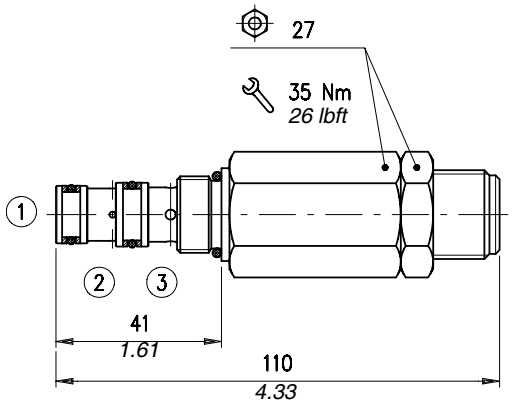


Performance

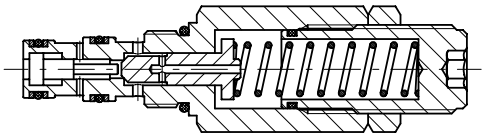
Cartridges

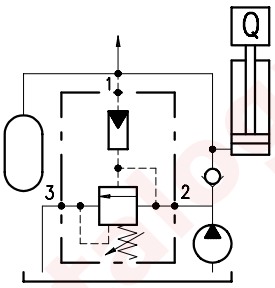
Type	Maximum flow		Maximum pressure		Application range with standard springs	Working pressure restore value	Oil leak from 2 to 3	Cavities and tools	Weight	
	l/min	*US gpm*	bar	*psi*					kg	*lb*
SE08A	5	*1.32*	210	*3050*	5÷50 bar - *72.5÷725 psi* (test setting 30 bar - *435 psi* at 1 l/min. - *0.26 US gpm*) 20÷100 bar - *290÷1450 psi* (test setting 50 bar - *725 psi* - at 1 l/min. - *0.26 US gpm*) 50÷150 bar - *725 ÷ 2200 psi* (test setting 100 bar - *1450 psi* at 1 l/min. - *0.26 US gpm*) 100÷250 bar - *1450÷3600 psi* (test setting 180 bar - *2600 psi* at 1 l/min. - *0.26 US gpm*)	15% of the valve setting value	0,10 cm^3/min. - *61x10^{-4} in^3/min.* (2 drops) at 210 bar - *3050 psi*	SAE 8-3 Page 88	0,28	*0.62*
SE10A	20	*5.3*						SAE 10-3 Page 88	0,47	*1.04*

Dimensions and hydraulic circuit



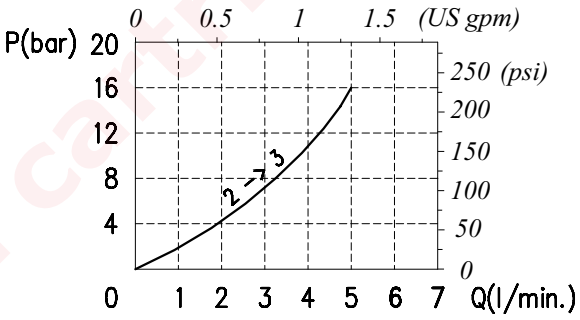
Section





Rating diagrams

Pressure drop diagram



Order code

SE08A / 1 -□ -□ -□

Adjustments
(see page 80)

S (screw)
V (handknob)
W (copped adjustment)

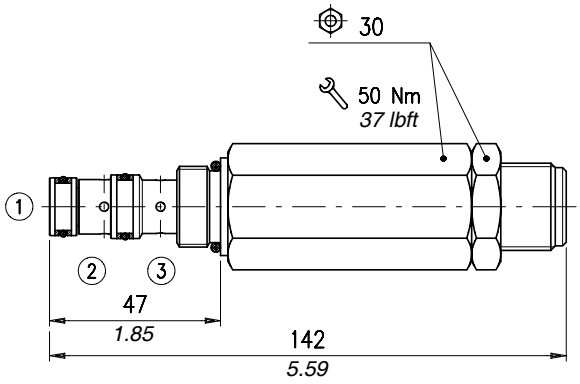
Pressure settings

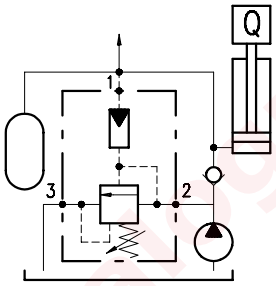
1) 5÷50 bar *(72.5÷725 psi)*
2) 20÷100 bar *(290÷1450 psi)*
3) 50÷150 bar *(725÷2200 psi)*
4) 100÷250 bar *(1450÷3600 psi)*

Seals

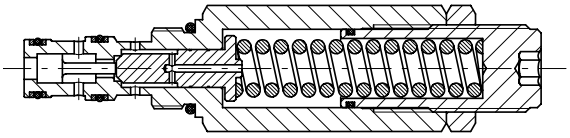
B) Buna
V) Viton

Dimensions and hydraulic circuit



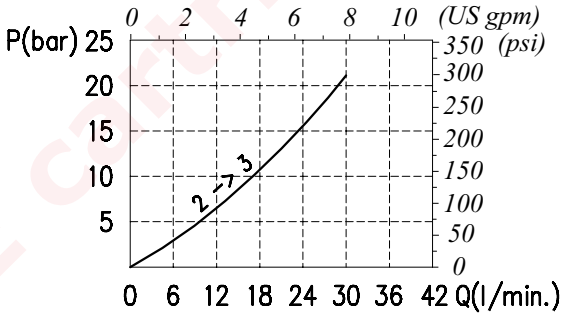


Section



Rating diagrams

Pressure drop diagram



Order code

SE10A / 1 -□ -□ -□

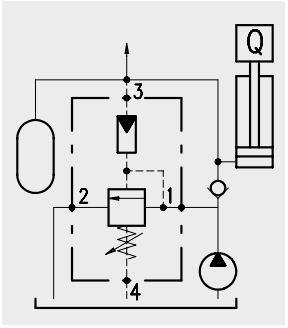
Adjustments
(see page 80)
S (screw)
V (handknob)
W (copped adjustment)

Pressure settings
1) 5÷50 bar *(72.5÷725 psi)*
2) 20÷100 bar *(290÷1450 psi)*
3) 50÷150 bar *(725÷2200 psi)*
4) 100÷250 bar *(1450÷3600 psi)*

Seals
B) Buna
V) Viton

Operation

Oil flow is permitted from 1 to 2 when the pressure value in 1 is same as the spring set value. The passing between 1 and 2 is shut upon reaching a set percentage value of the setting pressure (valve differential control).
These valves are mainly designed as pilot valves to control charging of accumulators. When the accumulator is charged, the flow can be changed from 1 to 2 for other applications.



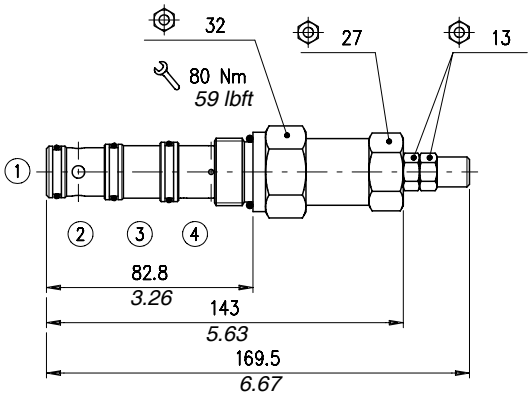
Performance

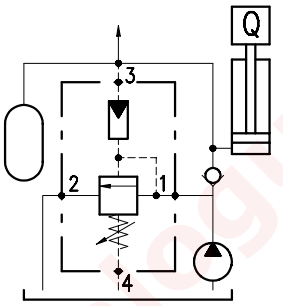
Cartridges

Type	Maximum flow		Maximum pressure		Application range with standard springs	Working pressure restore value	Oil leak from 1 to 2	Oil leak from 1 to 4	Cavities and tools	Weight	
	l/min	*US gpm*	bar	*psi*						kg	*lb*
SG12A	50	*13*	300	*4350*	20÷100 bar - *290÷1450 psi* (test setting 50 bar *-725 psi* at 1 l/min. - *0.26 US gpm*) 50÷200 bar - *725÷2900 psi* (test setting 150 bar - *2200 psi* at 1 l/min. *-0.26 US gpm*) 100÷300 bar *-1450÷4350 psi* (test setting 100 bar *-290 psi* at 1 l/min. - *0.26 US gpm*) 100÷250 bar *-1450÷3600 psi* (test setting 180 bar - *2600 psi* at 1 l/min. - *0.26 US gpm*)	***% of the valve setting value	***cc^3/min *in^3/min*	***cc^3/min *in^3/min*	see cavity SAE 12-4 page 89	0,52	*1.15*

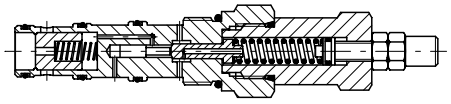
*** for information contact Sales Department.

Dimensions and hydraulic circuit



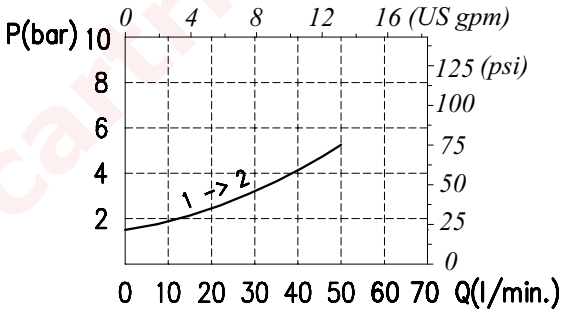


Section



Rating diagrams

Pressure drop diagram



Order code

SG12A / 0 -□ -□ -□

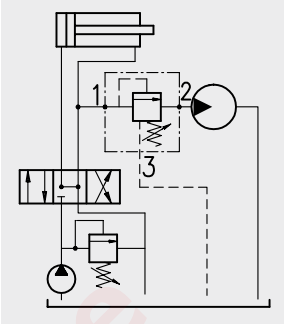
Adjustments
(see page 80)
S (screw)
V (handknob)
W (copped adjustment)

Pressure settings
1) 20÷100 bar *(72.5÷725 psi)*
2) 50÷200 bar *(725÷2900 psi)*
3) 100÷300 bar *(1450÷4350 psi)*

Seals
B) Buna
V) Viton

Operation

Allows oil flow from 1 to 2 when pressure in 1 reaches the setting of the spring.
This valve is not affected by back pressure in 2; port 3 is a drain line always connected to tank.



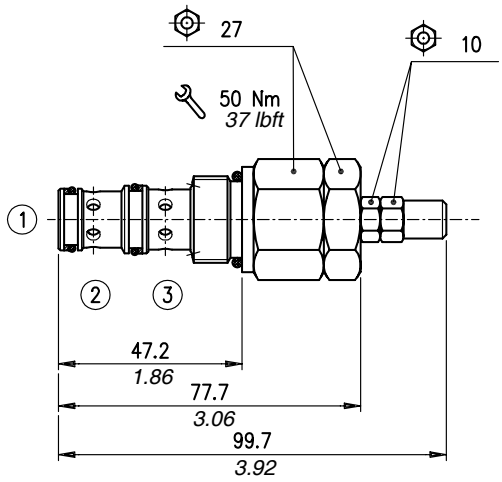
Performance

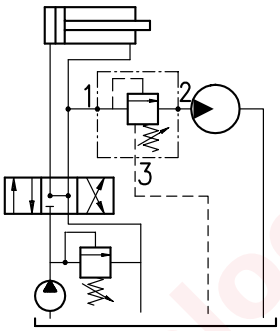
Cartridges

Type	Maximum flow		Maximum pressure		Application range with standard springs*	Hysteresis	Internal oil leaks from 2 to 1	Response time	Cavities and tools	weight	
	l/min	*US gpm*	bar	*psi*						kg	*lb*
SP10A	50	*13*	350	*5100*	10÷80 bar - *145÷1150 psi* (test setting 20 bar - *290 psi* at 5 l/min. -*1.32 US gpm*) pressure increase by steps of 10 bar -*145 psi* per screw turn 50÷220 bar - *725÷3200 psi* (test setting 150 bar - *2200 psi* at 5 l/min. - *1.32 US gpm*) pressure increase by steps of 46 bar - *660 psi* per screw turn 180÷350 bar - *2600÷5100 psi* (test setting 250 bar - *3600 psi* at 5 l/min. - *13.21 US gpm*-) pressure increase by steps of 110 bar - *1600* per screw turn	94% of the setting value for flow capacity 1 l/min. -*0.26 US gpm*-	25 cm³/min. - *1.52 in³/min.*	0,12-0,16 s	see cavity SAE 10-3 page 88	0,21	*0.46*

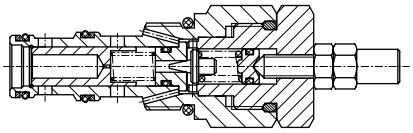
***To perform setting of the valve, see the pressure drop/flow diagram.**

Dimensions and hydraulic circuit



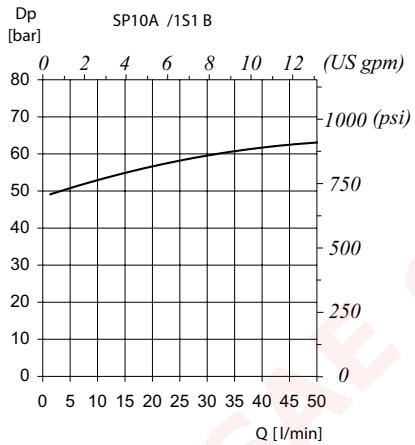


Section

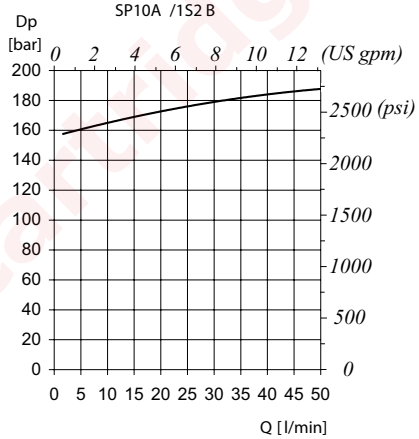


Rating diagrams

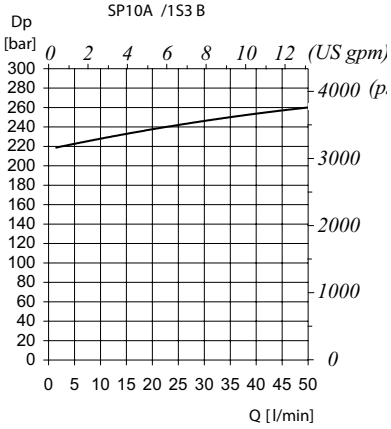
Adjustment diagram



Adjustment diagram



Adjustment diagram



Order code

SP10A/1 □ -□ -□

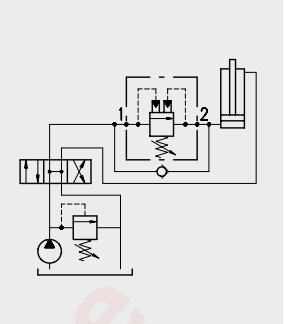
Adjustments
(see page 80)
S) screw adjustment with cover nut
W) copped adjustment

Pressure settings
1) 10-80 bar *(145÷1150 psi)*
2) 50-220 bar *(725÷3200 psi)*
3) 180-350 bar *(2600÷5100 psi)*

Seals
B) Buna
V) Viton

Operation

Oil flow is permitted from 1 to 2 when the pressure value in 1 is same as the spring set value. Once this pressure is reached, the valve fully opens and stays opened not withstanding pressure on line 2. You must stop the oil flow to close the valve again.



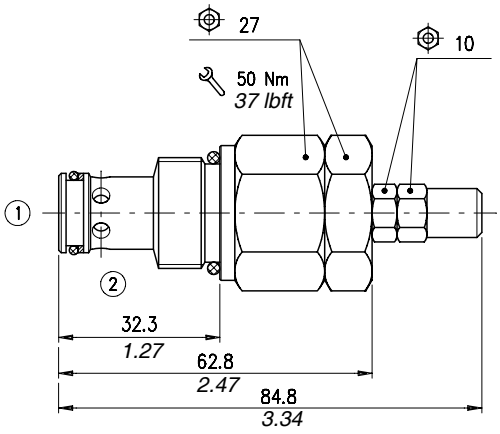
Performance

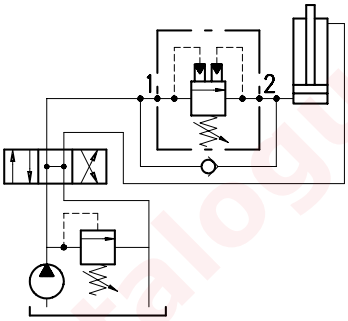
Cartridges

Type	Maximum flow		Maximum pressure		Application range with standard springs*	Oil leaks from 1 to 2	Cavities and tools	Weight	
	l/min	*US gpm*	bar	*psi*				kg	*lb*
SW10A	60	*16*	350	*5100*	5÷50 bar - *72.5÷725 psi* (test setting 30 bar - *435 psi* at 5 l/min. - *1.32 US gpm*) pressure increase by steps of 10 bar - *145 psi* per screw turn	22 cm³/min. - *1.34 in³/min.*	see cavity SAE 10-2 page 87	0,20	*0.44*
SW12A	100	*26*			50÷220 bar - *725÷3200 psi* (test setting 150 bar - *2200 psi* at 5 l/min. - *1.32 US gpm*) pressure increase by steps of 36 bar - *520 psi* per screw turn	50 cm³/min. - *3.05 in³/min.*	see cavity SAE 12-2 page 87	0,30	*0.66*
SW16A	180	*48*			150÷350 bar - *2200÷5100 psi* (test setting 250 bar - *3600 psi* at 5 l/min. - *1.32 US gpm*) pressure increase by steps of 90 bar - *1300 psi* per screw turn	100 cm³/min. - *6.1 in³/min.*	see cavity SAE 16-2 page 87	0,44	*0.97*

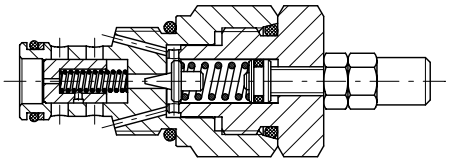
***To perform setting of the valve, see the pressure drop/flow diagram.**

Dimensions and hydraulic circuit



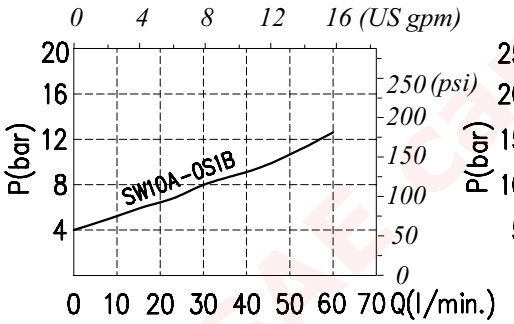


Section

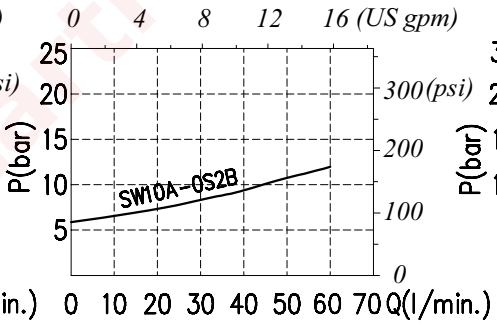


Rating diagrams

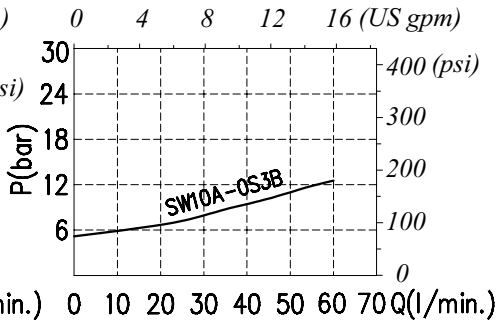
Pressure drop diagram



Pressure drop diagram



Pressure drop diagram



Order code

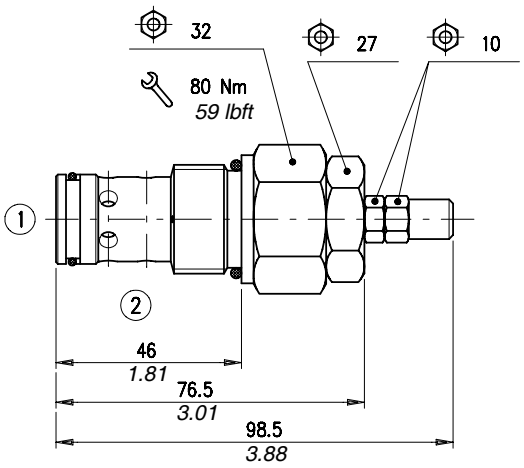
SW10A / 0 -□ -□ -□

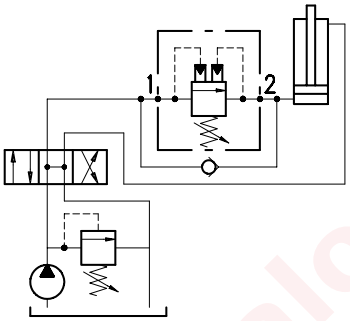
Adjustments
(see page 80)
S (screw)
V (handknob)
W (copped adjustment)

Pressure settings
1) 5÷50 bar *(72.5÷725 psi)*
2) 50÷220 bar *(725÷3200 psi)*
3) 150÷350 bar *(2200÷5100 psi)*

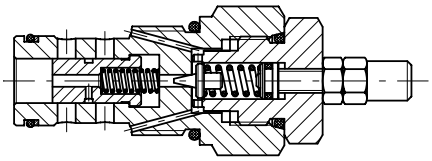
Seals
B) Buna
V) Viton

Dimensions and hydraulic circuit



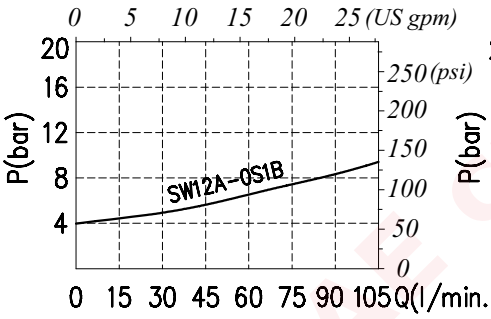


Section

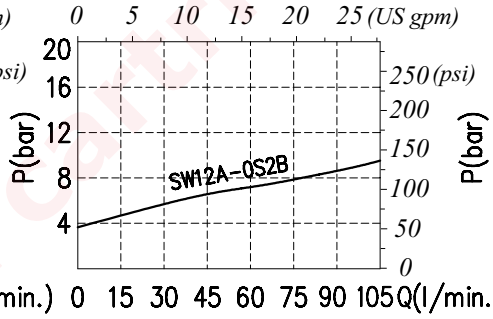


Rating diagrams

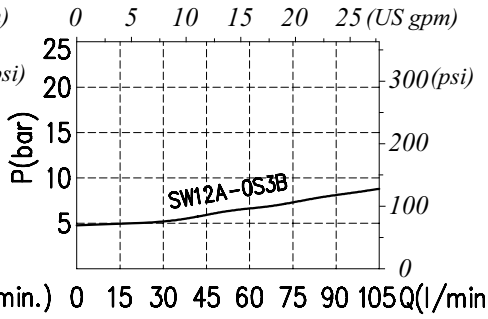
Pressure drop diagram



Pressure drop diagram



Pressure drop diagram



Order code

SW12A / 0 -□ -□ -□

Adjustments

S
V
W

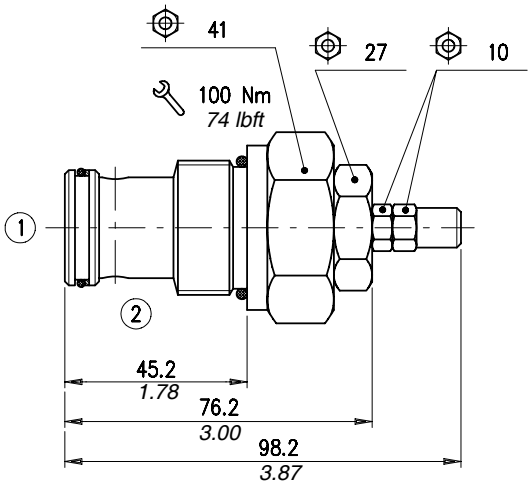
Pressure settings

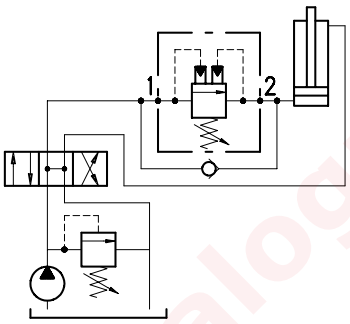
1) 5÷50 bar *(72.5÷725 psi)*
2) 50÷220 bar *(725÷3200 psi)*
3) 150÷350 bar *(2200÷5100 psi)*

Seals

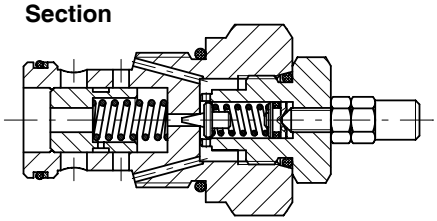
B) Buna
V) Viton

Dimensions and hydraulic circuit



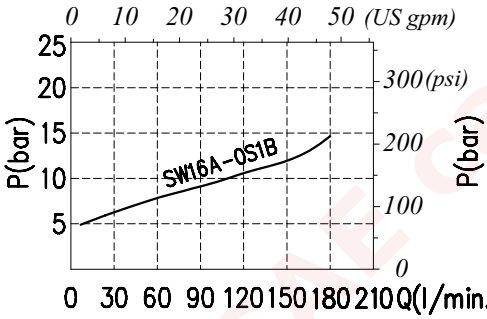


Section

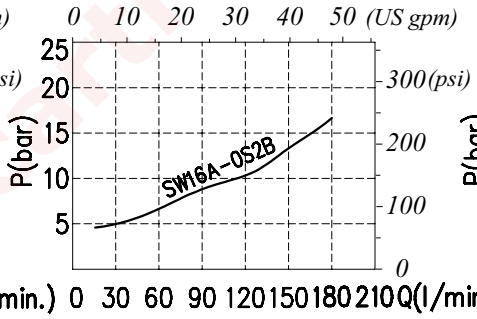


Rating diagrams

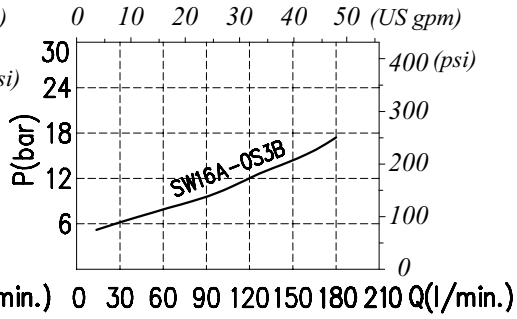
Pressure drop diagram



Pressure drop diagram



Pressure drop diagram



Order code

SW16A / 0 -□ -□ -□

Adjustments

S
V
W

Pressure settings

1) 5÷50 bar *(72.5÷725 psi)*
2) 50÷220 bar *(725÷3200 psi)*
3) 150÷350 bar *(2200÷5100 psi)*

Seals

B) Buna
V) Viton

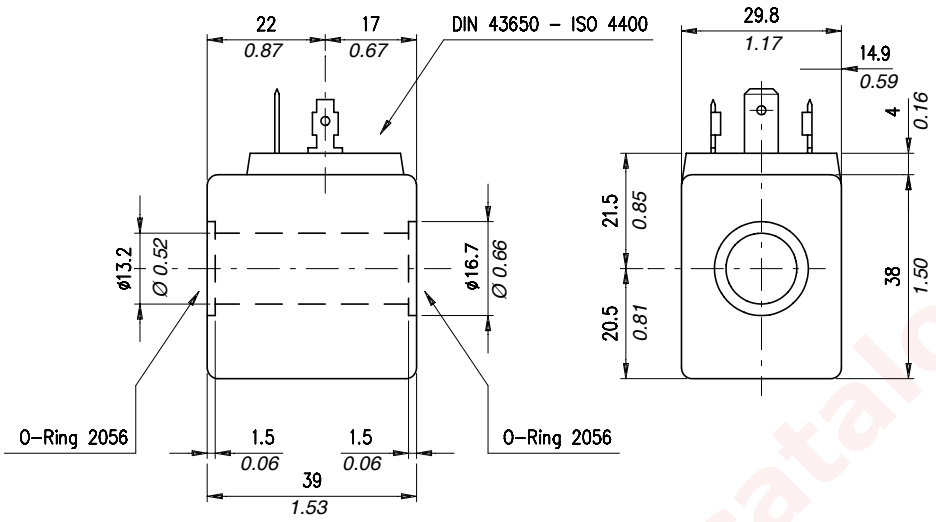
Operation

Multiple coil versions are available to allow use with direct and alternated current.
Thermal insulation class: F (Tmax = 155°C-*303°F*-) – (VDE 0580)
Relative duty cycle: ED 100% (VDE 0580)
To assure ED = 100% and perform continuous coil operation, the following conditions should be met:
TA + ΔT < Tmax
Whereas:
-TA = ambient temperature
-ΔT = temperature increase due to operation
-Tmax = maximum admissible temperature according to insulation class
We therefore recommend always checking that the maximum ambient temperature is same as Tmax - ΔT (providing no special operating requirement are there).
Safety standards (DIN 40050):IP54 without connector
IP65 with connector
Admissible voltage range for long lasting and trouble free operations life: nominal voltage ±10%

Performance

Type	Resistance Ω T_A=20°C *68°F*	Current (A) Cold	Current (A) Warm	Power (W) or (VA) Cold	ΔT After 1 hour at: -Ta=20-25°C *68-77°F* -Nominal voltage (C°)	ΔT (F°)
BE 12 Vcc	7,7	1,56	1,16	18,7 W	110	*230*
BE 24 Vcc	31	0,77	0,58	18,6 W	110	*230*
BE 48 Vcc	116	0,41	0,3	19,8 W	115	*238*
BE 110 Vcc	700	0,157	0,12	17,3 W	105	*221*
BE 24 Vca (50 Hz)	5,3	1,16	0,87	28 VA	105	*221*
BE 48 Vca (50 Hz)	21,3	0,6	0,45	28,8 VA	105	*221*
BE 110 Vca (50 Hz)	108	0,26	0,19	28,6 VA	105	*221*
BE 220 Vca (50 Hz)	438	0,13	0,09	28,6 VA	105	*221*
BE 380 Vca (50 Hz)	1400	0,09	0,06	34,2 VA	105	*221*
BE 24 RAC	27	0,8	0,6	17,3 W	105	*221*
BE 110 RAC	630	0,157	0,12	15,6 W	100	*212*
BE 220 RAC	2500	0,08	0,06	15,7 W	100	*212*
BT 12 Vcc	6,8	1,77	1,15	21 W	-	-
BT 24 Vcc	27	0,89	0,58	21 W	-	-
BT 48 Vcc	110	0,43	0,32	20,3 W	105	*221*
BT 110 Vcc	700	0,15	0,11	15,7 W	100	*212*
BT 24 Vca (50 Hz)	4,2	0,94	0,83	22,6 VA	-	-
BT 48 Vca (50 Hz)	15,3	0,73	0,54	35 VA	105	*221*
BT 110 Vca (50 Hz)	89	0,21	0,18	23,1 VA	-	-
BT 220 Vca (50 Hz)	350	0,1	0,08	22 VA	-	-
BT 24 RAC	90	0,47	0,37	20,7 W	105	*221*
BT 110 RAC	540	0,2	0,16	21,6 W	110	*230*
BT 220 RAC	2170	0,1	0,08	21,7 W	105	*221*

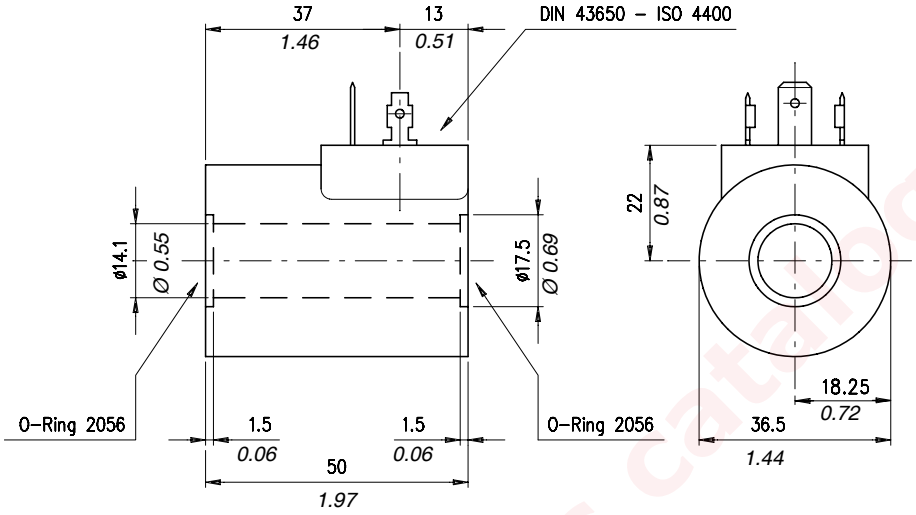
Dimensions



Order code

Type	Ordering code	Ordering code with standard connector	Standard connector code	Connector page
BE 12 Vcc	4SL1000120	5SL1000120	4CN1009990	Page 79 (CC-CA)
BE 24 Vcc	4SL1000240	5SL1000240		
BE 48 Vcc	4SL1000480	5SL1000480		
BE 110 Vcc	4SL1001100	5SL1001100		
BE 24 Vca (50 Hz)	4SL1010240	5SL1010240		
BE 48 Vca (50 Hz)	4SL1010480	5SL1010480		
BE 110 Vca (50 Hz)	4SL1011100	5SL1011100		
BE 220 Vca (50 Hz)	4SL1012200	5SL1012200		
BE 380 Vca (50 Hz)	4SL1013800	5SL1013800		
BE 24 RAC	4SL1030240	5SL1030240	4CN1010240	Page 79 (CL)
BE 110 RAC	4SL1031100	5SL1031100	4CN1011100	
BE 220 RAC	4SL1032200	5SL1032200	4CN1012200	

Dimensions



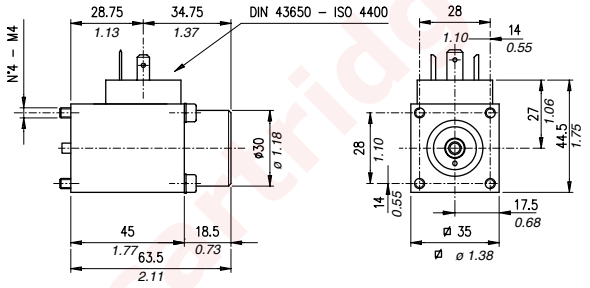
Order code

Type	Ordering code	Ordering code with standard connector	Standard connector code	Connector page
BT 12 Vcc	4SL3000120	5SL3000120	4CN1009990	Page 79 (CC-CA)
BT 24 Vcc	4SL3000240	5SL3000240		
BT 48 Vcc	4SL3000480	5SL3000480		
BT 110 Vcc	4SL3001100	5SL3001100		
BT 24 Vca (50 Hz)	4SL3010240	5SL3010240		
BT 48 Vca (50 Hz)	4SL3010480	5SL3010480		
BT 110 Vca (50 Hz)	4SL3011100	5SL3011100		
BT 220 Vca (50 Hz)	4SL3012200	5SL3012200		
BT 24 RAC	4SL3030240	5SL3030240	4CN3010240	Page 79 (CP)
BT 48 RAC	4SL3030480	5SL3030480	4CN3010480	
BT 110 RAC	4SL3031100	5SL3031100	4CN3011100	
BT 220 RAC	4SL3032200	5SL3032200	4CN3012200	

Operation

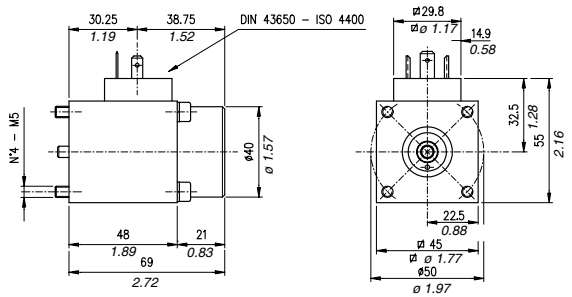
Proportional coil. 12 and 24 coils direct voltage, supply a force proportional to the current amount.
thermal insulation class: F (TMAX = 155 °C-*303°F*-) - (VDE 0580).
Relative duty cycle: ED = 100 % (VDE 0580).
To assure ED=100% and perform continuous coil operation, the following conditions should be met:
TA +ΔT < TMAX
TA= ambient temperature; ΔT = a temperature increase due to operation; TMAX = maximum admissible temperature according to insulation class.
We therefore recommend always checking that the maximum ambient temperature is same as Tmax-ΔT (providing no special operating requirement are there).
Safety standards (DIN40050): IP 54 without connector
IP 65 with connector
Admissible voltage range for long lasting and trouble free operations life: nominal voltage± 10 %
Current Hysteresis: <2,5%
Force Hysteresis: <2%

Voltage [Volt]	Resistance [Ω]	Current [A]		Power [W]		ΔT [C°] After 1 hour at: Ta=20-25°C *68-77°F* -Nominal voltage	Weight	
	Ta=20°C *68°F*	cold	warm	nom.	lim.		kg	*lb*
(35x35) 12	7,2	1,25		11,2	17,4	120	0,43	*0.95*
(35x35) 24	24,6	0,68		11,4				
(45x45) 12	4,3	1,78		13,6	20,8		0,75	*1.65*
(45x45) 24	21	0,81		13,8				



P.C. 35X35

Type	Ordering code	Ordering code with standard connector	Standard connector code	Connector page
35x35 12 Vcc	4SL4000120	5SL4000120	4CN1009990	see page 79 (CC-CA)
35x35 24 Vcc	4SL4000240	5SL4000240		



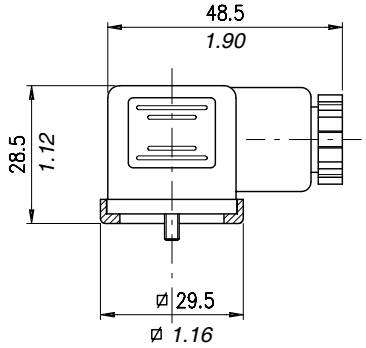
P.C. 45X45

Type	Ordering code	Ordering code with standard connector	Standard connector code	Connector page
45x45 12 Vcc	4SL4000243	5SL4000243	4CN1009990	see page 79 (CC-CA)
45x45 24 Vcc	4SL4000241	5SL4000241		

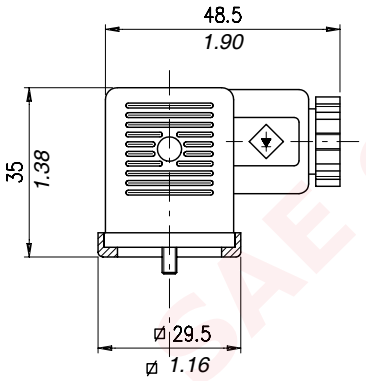
Operation

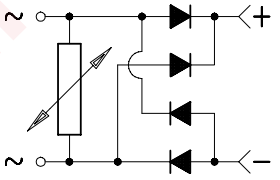
There are 3 types of different solenoid connectors:
"CC-CA" 2-poles + GROUND electric connectors in compliance with DIN and A/ISO standards 43650 and 4400.
Electric connectors suitable for connection of DC and AC current coils. Type of current must be same as for the coil used**.**
"CL" 2-poles + rectifier + GROUND electric connectors in compliance with DIN and A/ISO standards 43650 and 4400.
Electric connectors suitable for connection of DC current coils BE…RAC. AC current operation only. Use of these poles depends on the type of valve used.
"CP" 2-poles + rectifier + GROUND electric connectors in compliance with DIN and A/ISO standards 43650 and 4400.
Electric connectors suitable for connection of DC current coils BT…RAC. AC current operation only. Use of these poles depends on the type of valve used.

Type	Nominal voltage	Maximum capacity of in-built diode	Nominal poles voltage	Max poles voltage	Poles resistance	Max poles section	Cable size options	Cable diameter	Safety standards	Insulation index
CC-CA	AC max 250 V DC max 300 V	-	10 A	16 A	≤4 m Ohm	1,5 mm² *0.002in²*	Pg09	6-8 mm *0.24-0.31 in*	IP65 (DIN 40050)	VDE0110-1/89
CL		1 A								
CP		3 A								

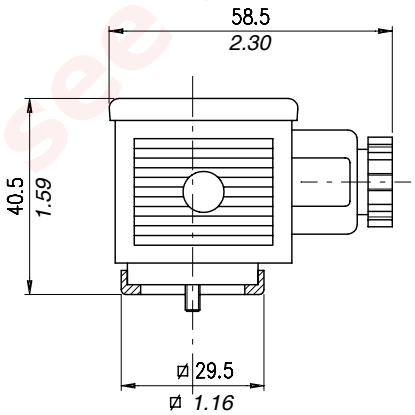


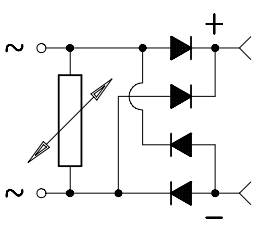
Order code: CC-CA Connector





Order code: CL Connector





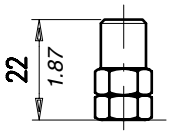
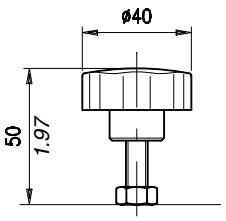
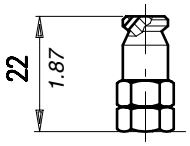
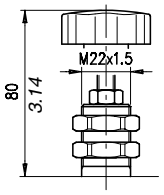
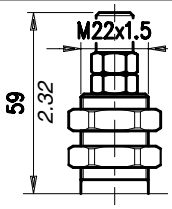
Order code: CP Connector

Adjustments

Description and operation

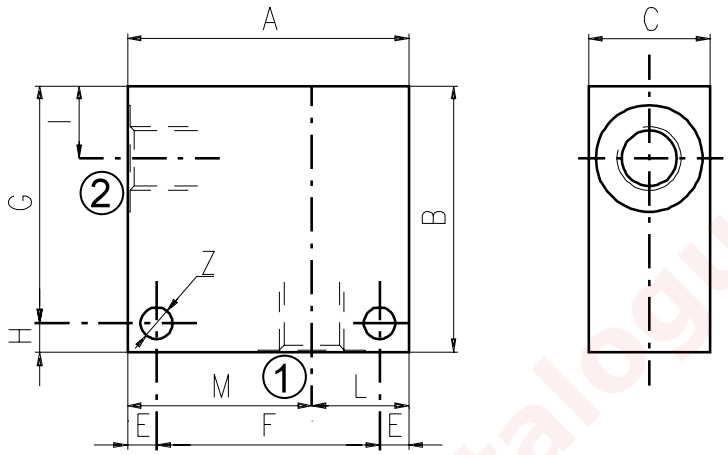
This chapter show main adjusting devices for the valves listed in this catalog.
These regulations are used to adjust flow rate between inlet and working ports.

Performance

	**Screw “S”**		**Handknob “V”**
	**Copped adjustment “W”**		**Panel mount+handknob “PV”**
	**Panel mount “P”**		

Dimensions

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



Cavità	Attacchi		A	B	C	E	F	G	H	I	L	M	Z
SAE 8/2	G 1/2	**mm**	70	65	35	7	56	53	12	14,5	35	35	6,5
		in	*2.75*	*2.56*	*1.38*	*0.27*	*2.20*	*2.09*	*0.47*	*0.57*	*1.38*	*1.38*	*0.25*
	G 1/4	**mm**	50	50	30	6	38	44	6	14,8	20	30	6,5
		in	*1.97*	*1.97*	*1.18*	*0.24*	*1.50*	*1.73*	*0.24*	*0.58*	*0.79*	*1.18*	*0.25*
	G 3/8	**mm**	50	50	30	6	38	44	6	14,8	20	30	6,5
		in	*1.97*	*1.97*	*1.18*	*0.24*	*1.50*	*1.73*	*0.24*	*0.58*	*0.79*	*1.18*	*0.25*
	SAE6	**mm**	50	50	30	6	38	44	6	14.8	20	30	6.5
		in	*1.97*	*1.97*	*1.18*	*0.24*	*1.50*	*1.73*	*0.24*	*0.58*	*0.79*	*1.18*	*0.25*
SAE 10/2	G 1/4	**mm**	60	60	35	6	48	54	6	18,8	25	35	6,5
		in	*2.36*	*2.36*	*1.38*	*0.24*	*1.89*	*2.12*	*0.24*	*0.74*	*0.98*	*1.38*	*0.25*
	G 3/8	**mm**	60	60	35	6	48	54	6	18,8	25	35	6,5
		in	*2.36*	*2.36*	*1.38*	*0.24*	*1.89*	*2.12*	*0.24*	*0.74*	*0.98*	*1.38*	*0.25*
	G 1/2	**mm**	60	60	35	6	48	54	6	18,8	25	35	6,5
		in	*2.36*	*2.36*	*1.38*	*0.24*	*1.89*	*2.12*	*0.24*	*0.74*	*0.98*	*1.38*	*0.25*
	SAE8	**mm**	60	70	35	6	48	64	6	18.8	25	35	6.5
		in	*2.36*	*2.75*	*1.38*	*0.24*	*1.89*	*2.52*	*0.24*	*0.74*	*0.98*	*1.38*	*0.25*
	SAE10	**mm**	70	70	35	6	58	64	6	18.5	35	35	6,5
		in	*2.75*	*2.75*	*1.38*	*0.24*	*2.28*	*2.52*	*0.24*	*0.73*	*1.38*	*1.38*	*0.25*
	SAE12	**mm**	70	70	40	8	54	62	8	22	30	40	8.5
		in	*2.75*	*2.75*	*1.57*	*0.31*	*2.12*	*2.44*	*0.31*	*0.87*	*1.18*	*1.57*	*0.33*
SAE 12/2	G 1/2	**mm**	70	80	40	8	54	72	8	25	30	40	8,5
		in	*2.75*	*3.15*	*1.57*	*0.31*	*2.12*	*2.83*	*0.31*	*0.98*	*1.18*	*1.57*	*0.33*
	G 3/4	**mm**	70	90	40	8	54	82	8	25	30	40	8,5
		in	*2.75*	*3.54*	*1.57*	*0.31*	*2.12*	*3.23*	*0.31*	*0.98*	*1.18*	*1.57*	*0.33*
	SAE10	**mm**	70	85	40	8	54	77	8	25	30	40	8.5
		in	*2.75*	*3.35*	*1.57*	*0.31*	*2.12*	*3.03*	*0.31*	*0.98*	*1.18*	*1.57*	*0.33*
	SAE12	**mm**	70	85	40	8	54	77	8	25	30	40	8.5
		in	*2.75*	*3.35*	*1.57*	*0.31*	*2.12*	*3.03*	*0.31*	*0.98*	*1.18*	*1.57*	*0.33*

2 way bodies

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

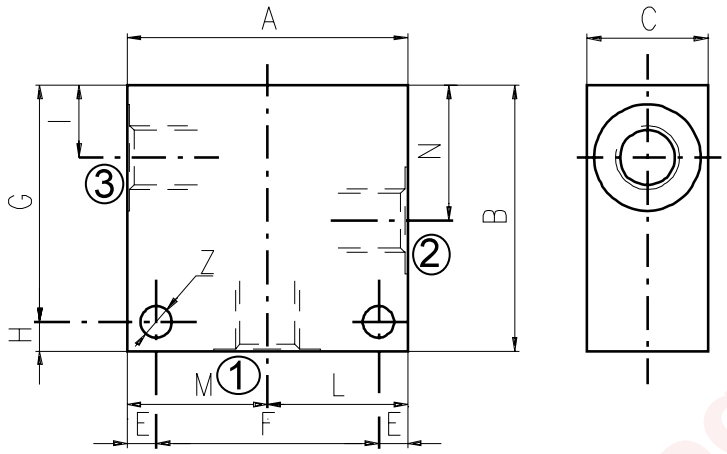
Cavity
08
10
12
16

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	
	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*

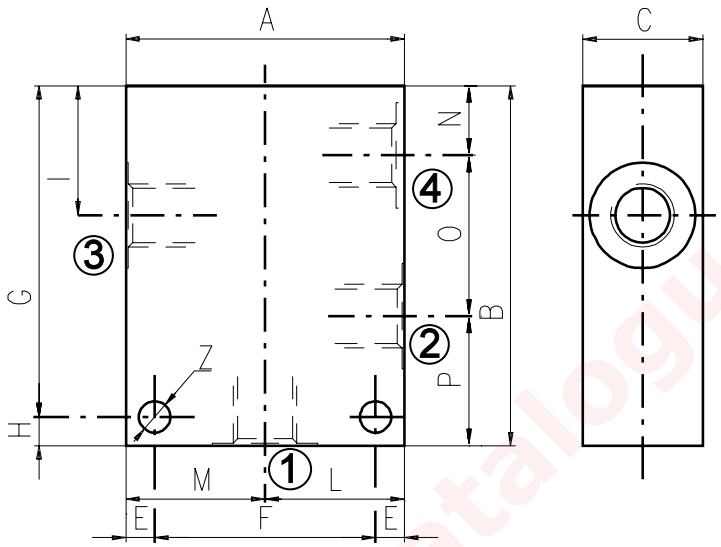
Order code

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*



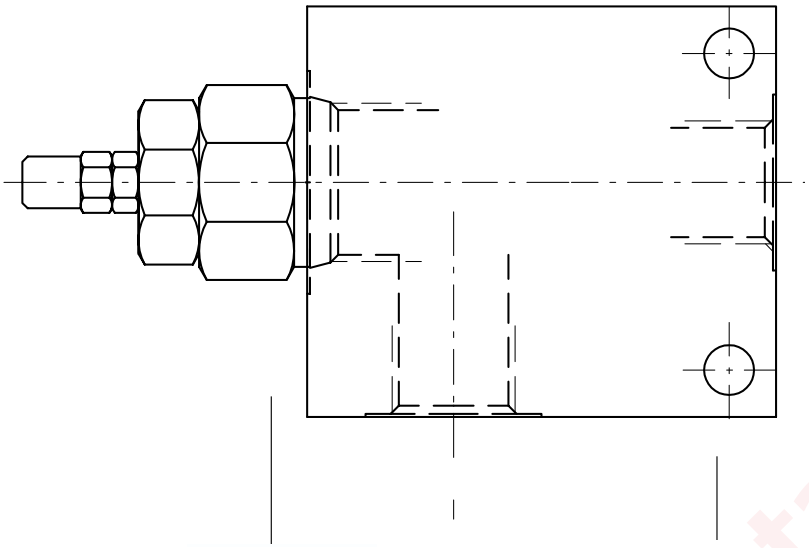
Cavity	Ports		A	B	C	E	F	G	H	I	L	M	N	O	P	Z
SAE 8/4	G 1/4	mm	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	*2.36*	*2.95*	*1.18*	*0.27*	*1.81*	*2.48*	*0.47*	*1.14*	*1.18*	*1.18*	*0.58*	*1.14*	*1.22*	*0.25*
	SAE6	mm	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	*2.36*	*2.95*	*1.18*	*0.27*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



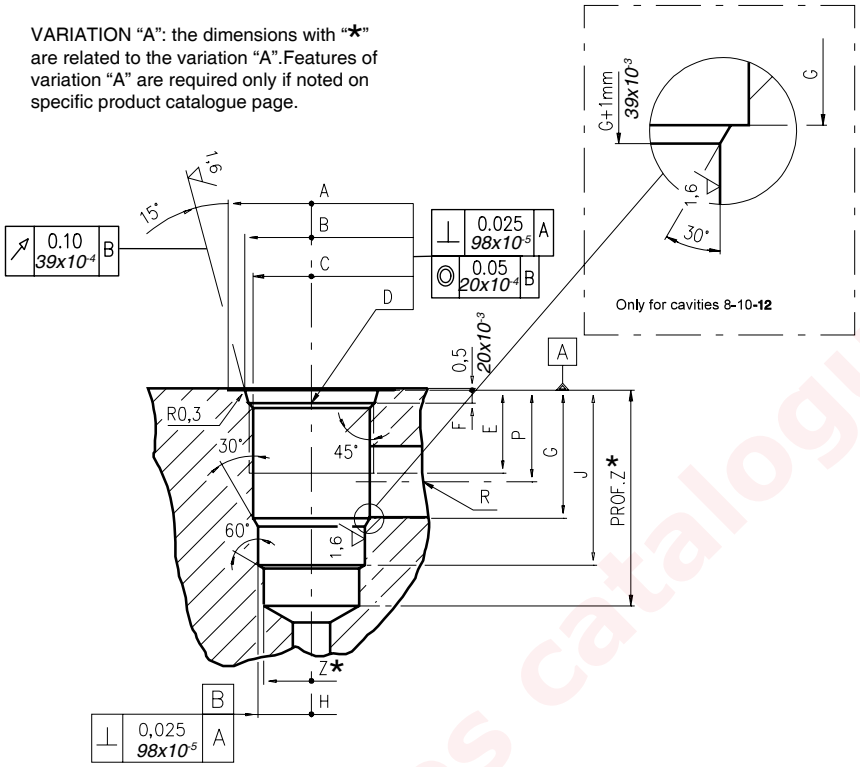
CARTRIDGE CODE **BILLET CODE**

SW-12-A/O-S-2V/ **D- 1-1**

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

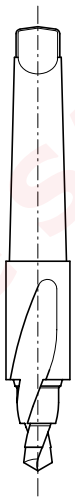
Dimensions

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



\		A	B ±0,05	C ±0,05	D	E	F	G	H ±0,02	J	K ±0,02	L	M ±0,02	N	P	R øMAX	S	T øMAX	U	V øMAX	X øMAX	Z * øMIN	Prof.Z MIN*
08/2	mm	27	20,66	17,42	3/4-16 UNF	12,50	2,50	18,20	12,72	29,50	-	-	-	-	14,00	8,00	-	-	-	-	-	12,00	39
	in	*1.06*	*0.81*	*0.68*		*0.49*	*0.10*	*0.72*	*0.50*	*1.16*					*0.55*	*0.31*						*0.47*	*1.53*
10/2	mm	30	24,00	20,62	7/8-14 UNF	16,00	2,80	24,00	15,90	33,50	-	-	-	-	18,30	11,00	-	-	-	-	-	14,50	40
	in	*1.18*	*0.94*	*0.81*		*0.63*	*0.11*	*0.94*	*0.62*	*1.32*					*0.72*	*0.43*						*0.57*	*1.57*
12/2	mm	38	29,23	24,73	1 1/16-12 UNF	19,00	3,50	34,15	22,25	46,80	-	-	-	-	24,50	19,00	-	-	-	-	-	21,50	60
	in	*1.50*	*1.15*	*0.97*		*0.75*	*0.14*	*1.34*	*0.87*	*1.84*					*0.96*	*0.75*						*0.85*	*2.36*
16/2	mm	45	35,58	31,34	1 5/16-12 UNF	22,00	3,50	34,00	28,62	47,00	-	-	-	-	24,50	19,00	-	-	-	-	-	25,50	70
	in	*1.77*	*1.40*	*1.23*		*0.87*	*0.14*	*1.34*	*1.13*	*1.85*					*0.96*	*0.75*						*1,00*	*2.75*

Rougher tool

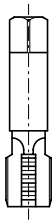


Cavity	Code number
08/2	3UT00053190
10/2	3UT00056610
12/2	3UT00054090
16/2	3UT00054510

Finisher tool

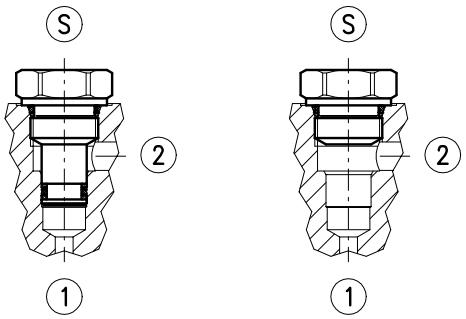
Cavity	Code number
08/2	3UT06A1270N
10/2	3UT00054580
12/2	3UT00054670
16/2	3UT00054520

Tap



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

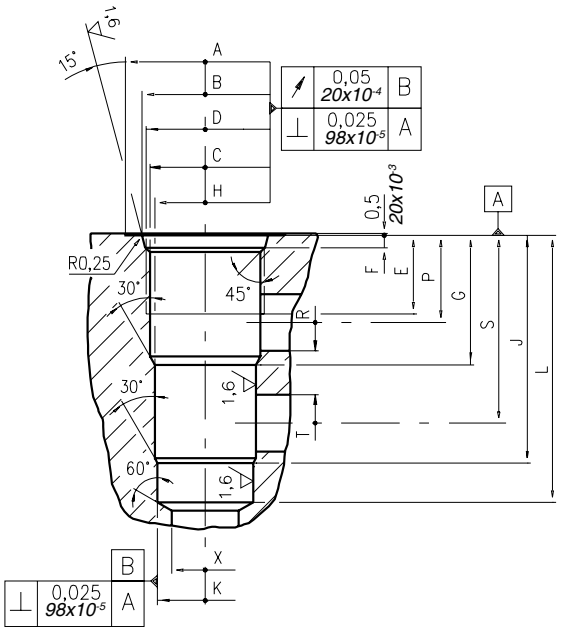
Cavity plugs



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

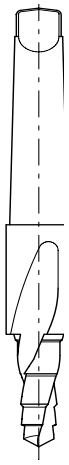
X=Closed 0=Open

Dimensions



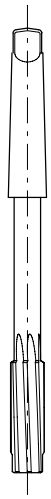
\		A	B ±0,05	C ±0,05	D	E	F	G	H ±0,02	J	K ±0,02	L	M ±0,02	N	P	R øMAX	S	T øMAX	U	V øMAX	X øMAX	Z øMIN	Prof. Z MIN
08/3	mm	27	20,66	17,42	3/4-16 UNF	12,50	2,5	19,10	15,90	33,30	14,30	43,30	-	-	14,30	5,50	28,60	5,50	-	-	12,50	-	-
	in	*1.06*	*0.81*	*0.68*		*0.49*	*0.10*	*0.75*	*0.62*	*1.31*	*0.56*	*1.70*			*0.56*	*0.22*	*1.12*	*0.22*			*0.49*		
10/3	mm	30	24,00	20,62	7/8-14 UNF	16,00	2,80	23,10	17,50	39,60	15,90	47,60	-	-	18,30	6,50	34,00	6,50	-	-	14,00	-	-
	in	*1.18*	*0.94*	*0.81*		*0.63*	*0.11*	*0.94*	*0.69*	*1.56*	*0.62*	*1.87*			*0.72*	*0.25*	*1.34*	*0.25*			*0.55*		
12/3	mm	38	29,23	24,73	1 1/16-12 UNF	19,00	3,56	36,60	23,82	63,50	22,25	75,40	-	-	24,50	16,00	53,00	16,00	-	-	19,00	-	-
	in	*1.50*	*1.15*	*0.97*		*0.75*	*0.14*	*1.44*	*0.94*	*2.5*	*0.88*	*2.97*			*0.96*	*0.63*	*2.09*	*0.63*			*0.75*		
16/3	mm	45	35,6	31,34	1 5/16-12 UNF	22,00	3,5	36,50	28,62	64,30	27.02	75,38	-	-	24,60	16,00	53,00	16,00	-	-	19,00	-	-
	in	*1.77*	*1.40*	*1.23*		0.87	0.14	1.44	1.13	2.53	1.06	2.97			*0.97*	*0.63*	*2.09*	*0.63*			*0.75*		

Rougher tool



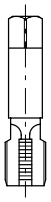
Cavity	Code number
08/3	3UT00052190
10/3	3UT00054170
12/3	3UT00054290
16/3	3UT00054470

Finisher tool



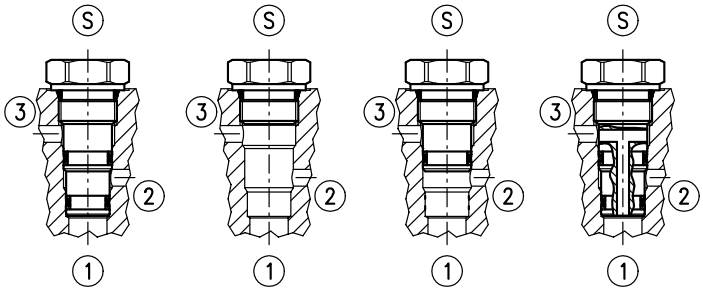
Cavity	Code number
08/3	3UT00052740
10/3	3UT00054180
12/3	3UT00054300
16/3	3UT00054480

Tap



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

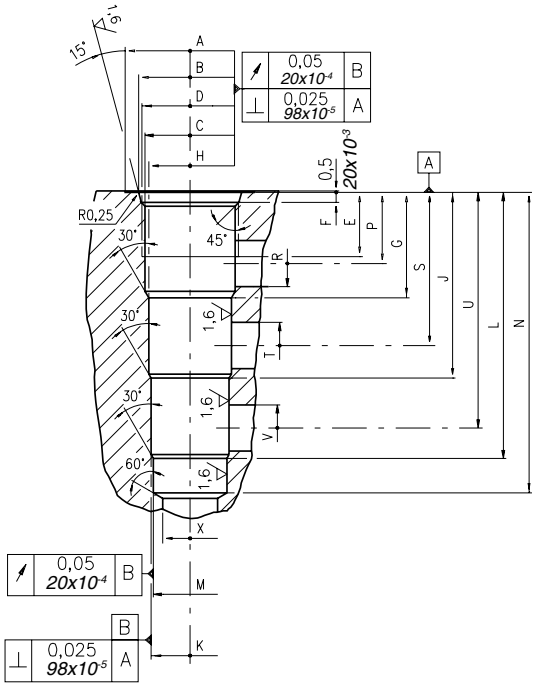
Cavity plugs



Cavity	Code number	①	②	③	Ⓢ
08/3	3XTP3535100	X	X	X	X
	4TP5531500	0	0	0	X
	3XTP3534000	0	0	X	X
	3XTP3534800	0	X	0	X
10/3	3XTP3545700	X	X	X	X
	3XTP1542300	0	0	0	X
	3XTP3545701	0	X	0	X
12/3	3XTP3558200	X	X	X	X
	3XTP1552900	0	0	0	X
	3XTP35558201	0	X	0	X
16/3	3XTP3578400	X	X	X	X
	3XTP1572900	0	0	0	X

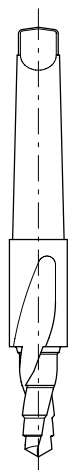
X=Closed 0=Open

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 ø MIN	Prof. Z MIN
08/4	mm	28,00	20,66	17,42	3/4-16 UNF	12,50	2,50	19,10	15,90	33,30	14,30	47,60	12,72	57,60	14,30	5,50	28,60	5,50	42,90	5,50	11,00	-	-
	in	*1.10*	*0.81*	*0.68*		*0.49*	*0.10*	*0.75*	*0.62*	*1.31*	*0.56*	*1.87*	*0.50*	*2.27*	*0.56*	*0.22*	*1.12*	*0.22*	*1.69*	*0.22*	*0.43*		
10/4	mm	30	24,00	20,62	7/8-14 UNF	16,00	2,80	23,60	19,08	39,60	17,50	55,40	15,90	63,50	18,30	6,50	34,00	6,50	50,00	6,50	14,00	-	-
	in	*1.18*	*0.94*	*0.81*		*0.63*	*0.11*	*0.93*	*0.75*	*1.56*	*0.69*	*2.18*	*0.62*	*2.50*	*0.72*	*0.26*	*1.34*	*0.25*	*1.97*	*0.25*	*0.55*		
12/4	mm	38	29,23	24,73	1 1/16-12 UNF	19,00	3,56	29,50	23,82	51,50	22,25	73,60	20,65	83,33	21,50	11,00	43,50	11,00	66,00	11,00	19,00	-	-
	in	*1.50*	*1.15*	*0.97*		*0.75*	*0.14*	*1.16*	*0.94*	*2.03*	*0.87*	*2.90*	*0.81*	*3.28*	*0.85*	*0.43*	*1.71*	*0.43*	*2.60*	*0.43*	*0.75*		
16/4	mm	45	35,60	31,34	1 5/16-12 UNF	22,00	3,50	36,50	28,62	64,30	27,02	92,07	25,45	104,00	24,60	16,00	53,00	16,00	81,50	16,00	19,00	-	-
	in	*1.77*	*1.40*	*1.23*		*0.87*	*0.14*	*1.44*	*1.13*	*2.53*	*1.06*	*3.62*	*1.00*	*4.09*	*0.97*	*0.63*	*2.09*	*0.63*	*3.21*	*0.63*	*0.75*		

Rougher tool

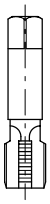


Cavity	Code number
08/4	3UT00052040
10/4	3UT00054250
12/4	3UT00054410
16/4	3UT00054820

Finisher

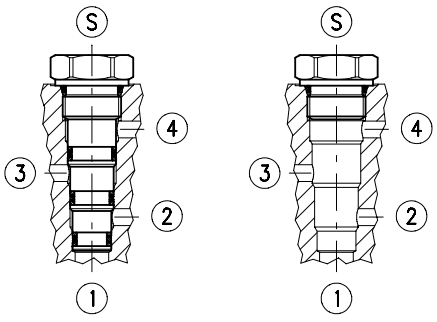
Cavity	Code number
08/4	3UT00052020
10/4	3UT00054260
12/4	3UT00054420
16/4	3UT00054830

Tap



Cavity	Code number
08/4	3UT03416UNF
10/4	3UT07814UNF
12/4	3UT111612UN
16/4	3UT0151612UN

Cavity plugs



Cavity	Code number	①	②	③	④	Ⓢ
08/4	3XTP3536500	X	X	X	X	X
	4TP5531500	0	0	0	0	X
10/4	3XTP3548301	X	X	X	X	X
	3XTP1542300	0	0	0	0	X
12/4	3XTP3559300	X	X	X	X	X
	3XTP1552900	0	0	0	0	X
16/4	3XTP357B300	X	X	X	X	X
	3XTP1572900	0	0	0	0	X

X=Closed 0=Open

Notes

1st edition May 2010

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HYDRAULIC CONTROL SYSTEMS