CATALOGUE

Flow control pressure compensated 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

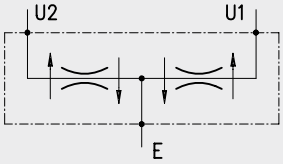
Installation:make sure to provide suitable gasket lubrication with clean oil before screwing the cartridge on the valve body . Also make sure to screw the cartridge manually in to reach against the gaskets in the valve body.
Material:internal components made out of high grade steel duly treated and fabricated.
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 $\frac{mm}{in}$

Index

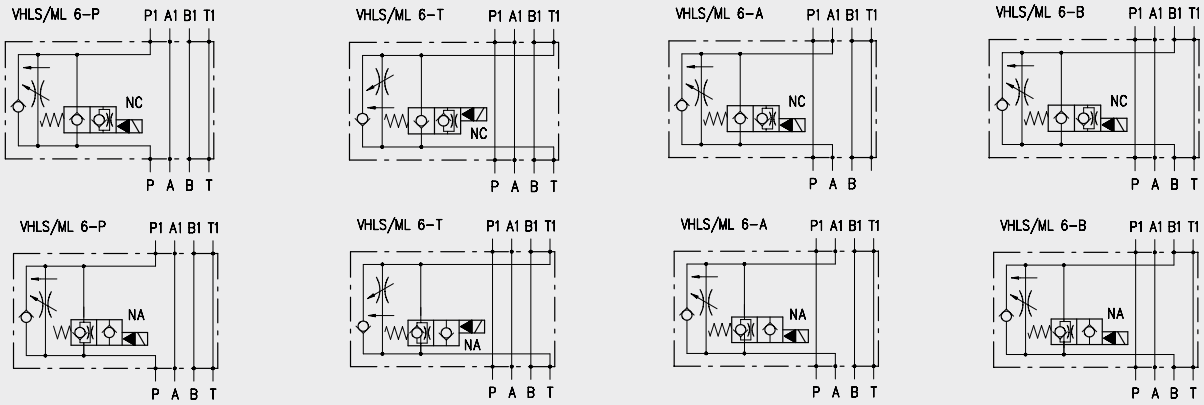
Index

Index

Index

Hydraulic diagram	Type	Description	Maximum flow up to		Maximum pressure		Page
			l/min	*US gpm*	bar	*psi*	
	**VDFR**	Flow dividers/ combiners	250	*66*	350	*5100*	103
	PD...		150	*40*	210	*3050*	

Hydraulic diagrams

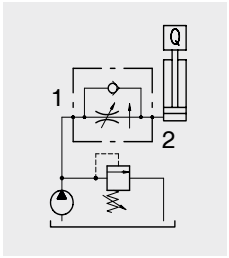


Type	Description	Maximum flow up to		Maximum pressure		Page
		l/min	*US gpm*	bar	*psi*	
VHLS/ML...	High-low speed valves, sandwich mounting NG6	35	*9.2*	210	*3050*	113

Index

Operation

The valve is designed to provide flow adjustment from E (1) to C (2) by a variation of the oil flow section. Free oil flow is allowed from C (2) to E (1). Best performance of the valve is assured when the flow in E (1) is at least 10% bigger than in C (2). Pressure variations in C (2) do not alter the checked oil flow.



Performance

Body Valves

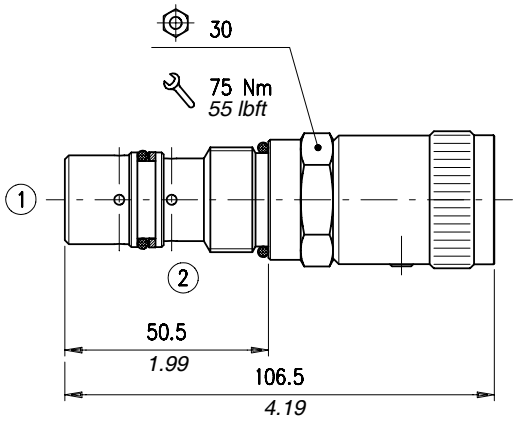
Type VPR/2/RL/	Max. adjusted flow Qc		Max. pressure	Cavities and tools	Weight	
	l/min	*US gpm*			kg	*lb*
VPR/2/RL/C 38	25	*6.6*	210 bar *-3050 psi-*	see page 132 VPRL/2/RL/C 38	0,35 (steel)	*0,77 (steel)*
VPR/2/RL/C/B 38			210 bar *-3050 psi-* (aluminium body)		0,72 (steel)	*1,59 (steel)*
VPR/2/RL/EX 14	15	*3.9*	210 bar *-3050 psi-*	-	0,22 (steel)	*0,48 (steel)*
VPR/2/RL/EX 38	25	*6.6*			0,34 (steel)	*0,75 (steel)*
VPR/2/RL/EX 12	45	*12*			0,47 (steel)	*1,04 (steel)*
VPR/2/RL/38	30	*7.9*	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body)	see page 132 VPRL/2/RL/C 38	1,09 (aluminium) 0,35 (steel)	*2,40 (aluminium) 0,77 (steel)*
VPR/2/RL/12	50	*13*			1,06 (aluminium) 2,27 (steel)	*2,34 (aluminium) 5 (steel)*
VPR/2/RL 34	90	*24*		-	2,15 (aluminium) 4,52 (steel)	*4,73 (aluminium) 9,96 (steel)*
VPR/2/RL 100	150	*39*			5,20 (aluminium)	*11,46 (aluminium)*

Cartridges

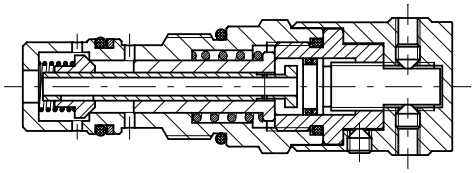
Type PW	Flow		Max. pressure bar	Cavities and tools	Weight	
	l/min.	*US gpm*			kg	*lb*
PW08A	10	*2.64*	350 bar *-5100 psi-*	see page SAE 8/2	*0,22	*0.48*
PW10A	30	*7.92*		see page SAE 10/2	*0,30	*2.20*
PW12A	50	*13.2*		see page SAE 12/2	*0,72	*1.58*
PW16A	90	*23.77*		see page SAE 16/2	*0,98	*2.16*

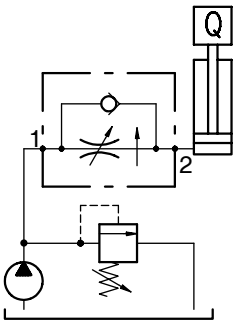
*the cavity have to report also the features of variation “A” see page 129

Dimensions and hydraulic circuit



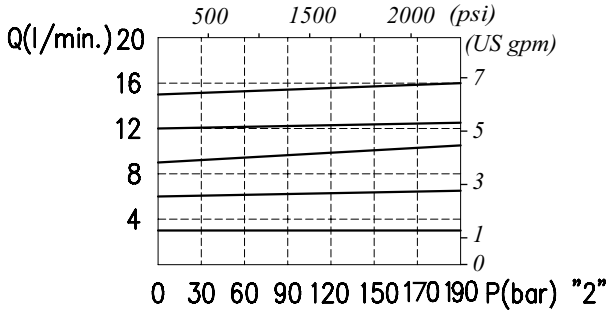
Cross section



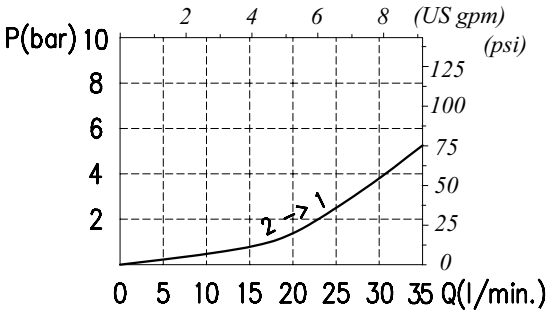


Rating diagrams

Pressure compensation diagram 1→2



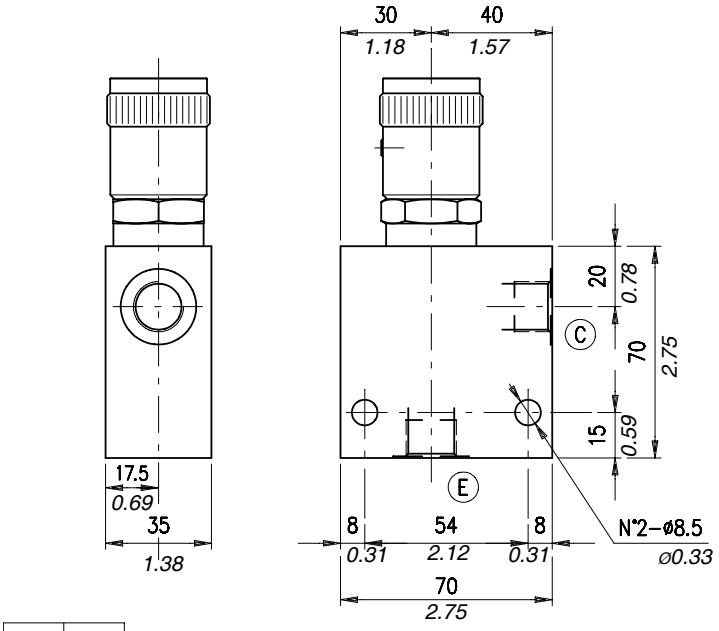
Pressure drop diagram 1→2



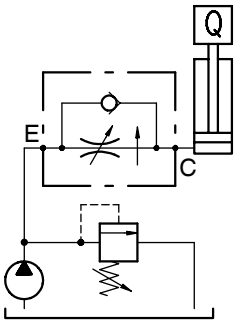
Order code

VPR /2 /RL /C 38

Dimensions and hydraulic circuit

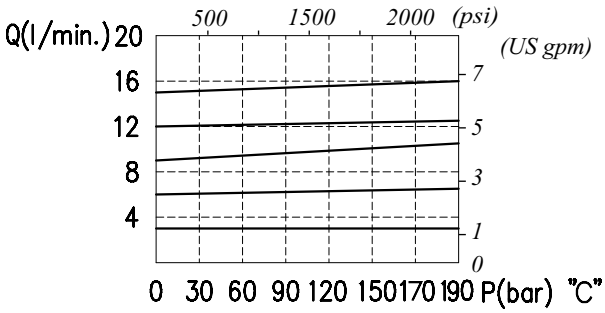


E	C
G 3/8	G 3/8

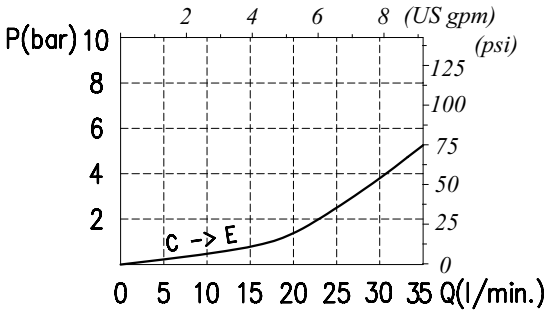


Rating diagrams

Pressure compensation diagram E→C



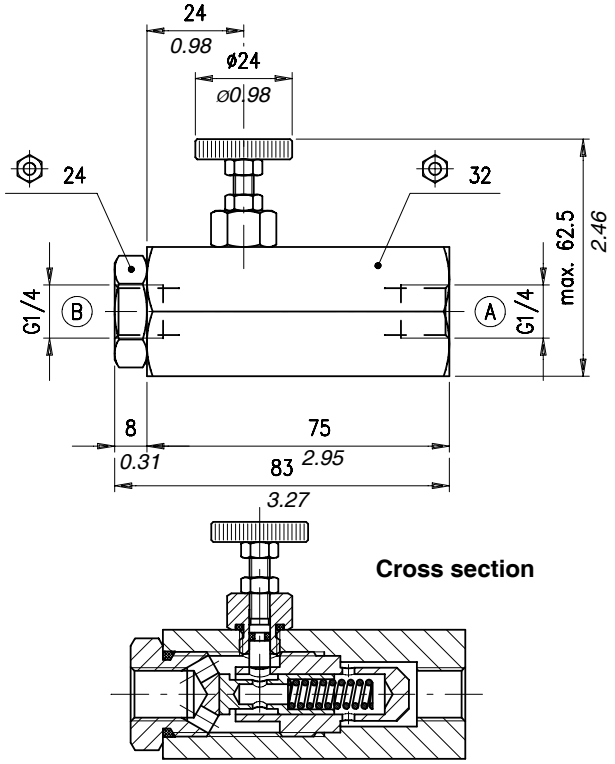
Pressure drop diagram E→C

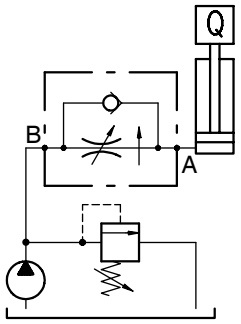


Order code

VPR /2 /RL /C /B 38

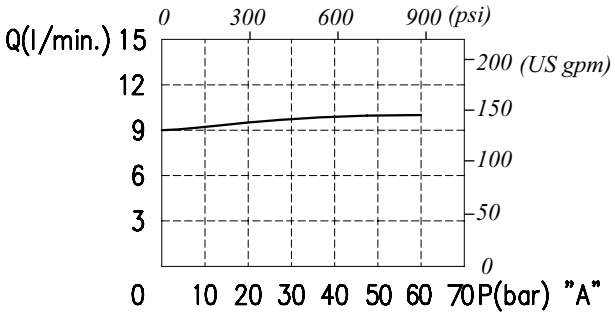
Dimensions and hydraulic circuit



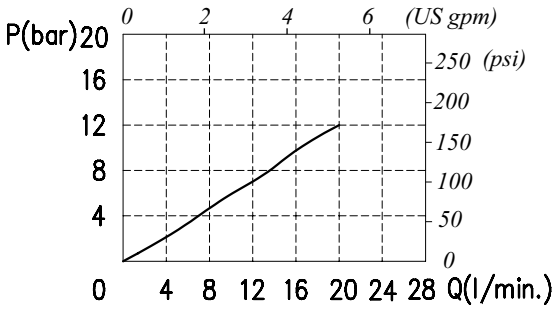


Rating diagrams

Pressure compensation diagram B→A



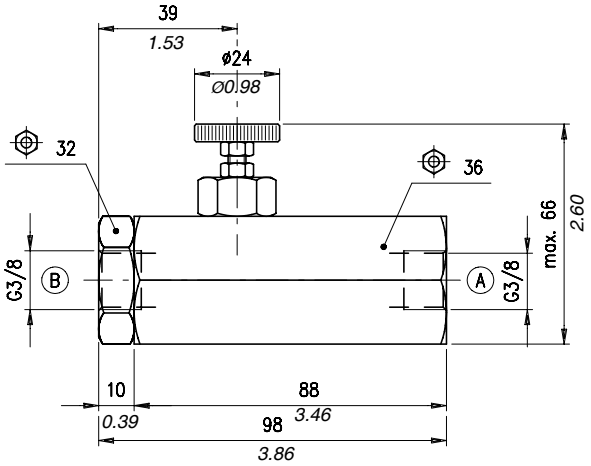
Pressure drop diagram A→B

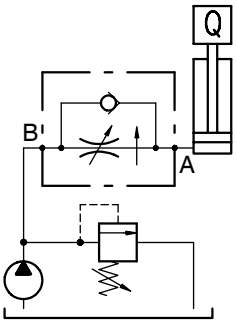


Order code

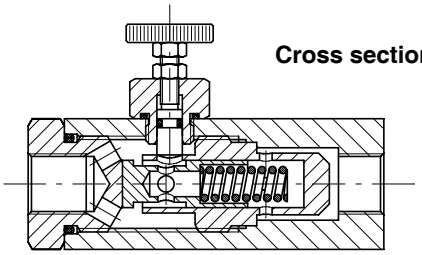
VPR /2 /RL /EX 14 /V

Dimensions and hydraulic circuit



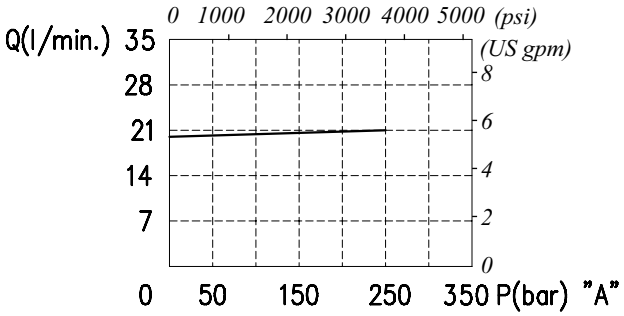


Cross section

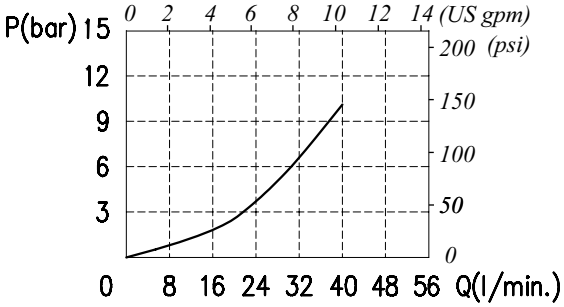


Rating diagrams

Pressure compensation diagram B→A



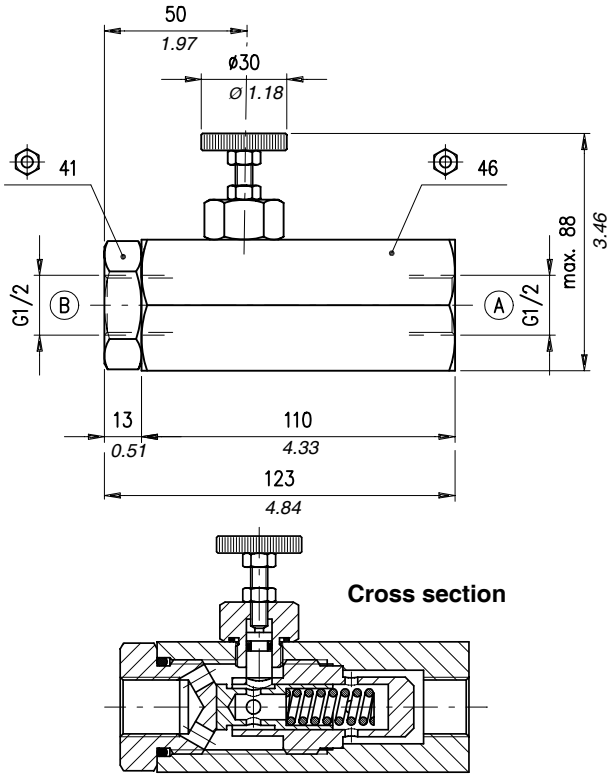
Pressure drop diagram A→B

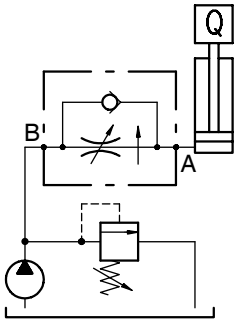


Order code

VPR /2 /RL /EX 38 /V

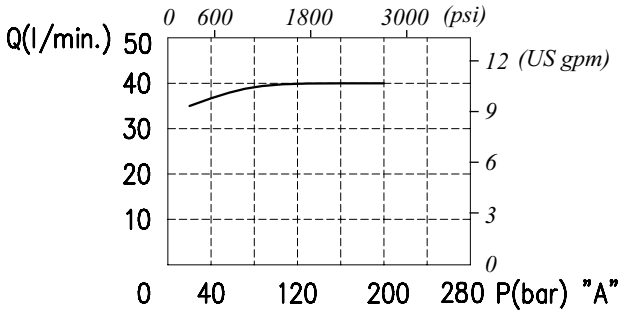
Dimensions and hydraulic circuit



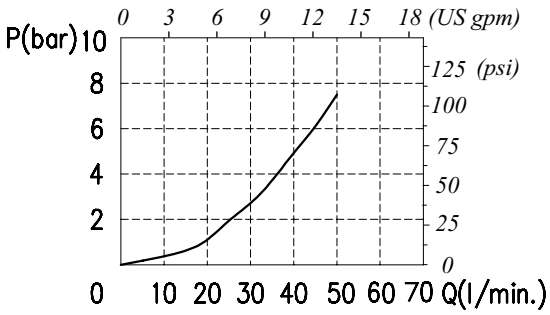


Rating diagrams

Pressure compensation diagram B→A



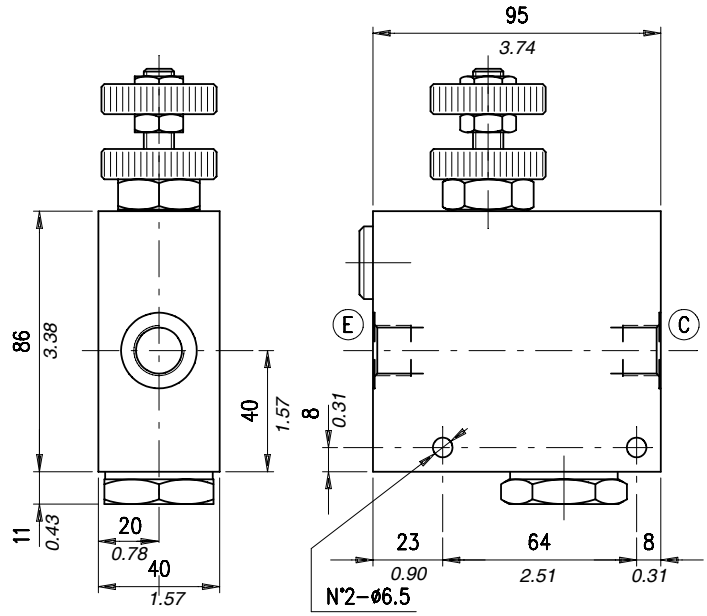
Pressure drop diagram A→B



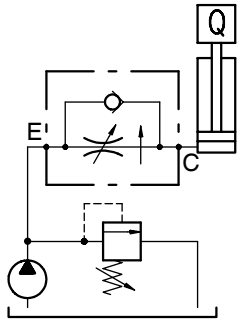
Order code

VPR /2 /RL /EX 12 /V

Dimensions and hydraulic circuit

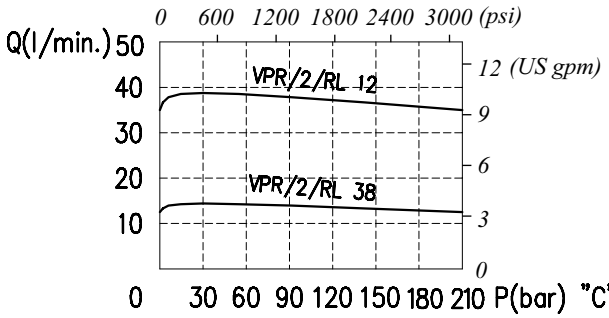


VPR/2/RL	E	C
38	G 3/8	G 3/8
12	G 1/2	G 1/2

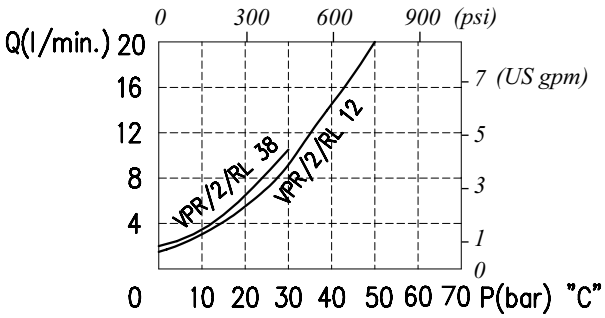


Rating diagrams

Pressure compensation diagram E→C



Pressure drop diagram C→E



Order code

VPR /2 /RL □ / □ / □

Port size

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

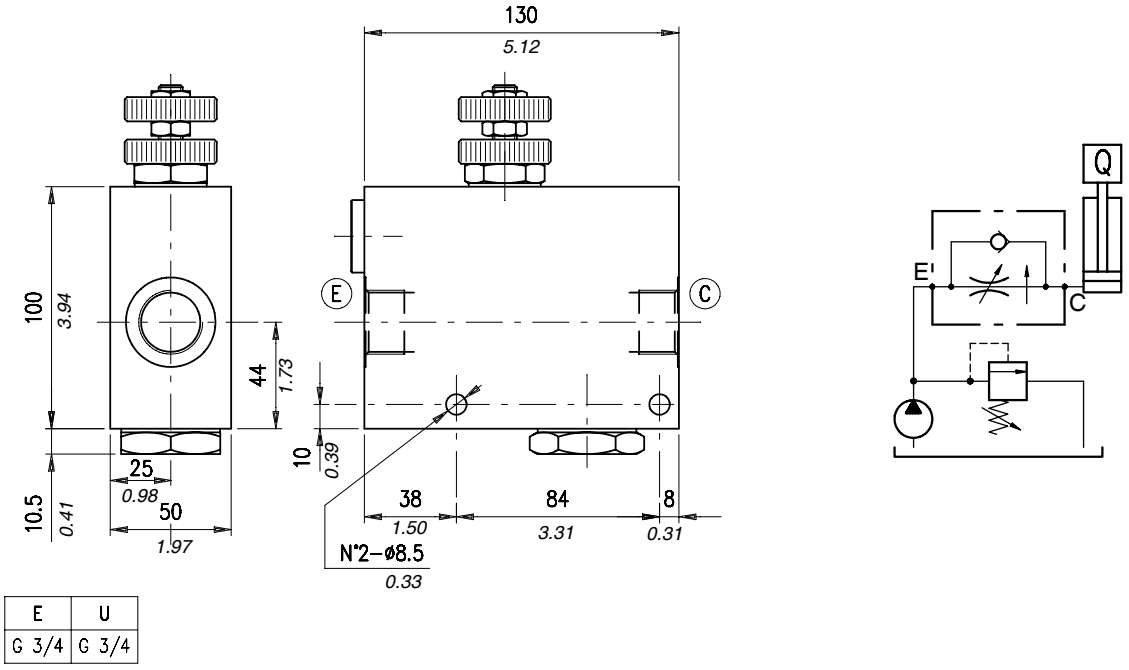
Adjustments
(see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Body material

_Aluminium
ac Steel

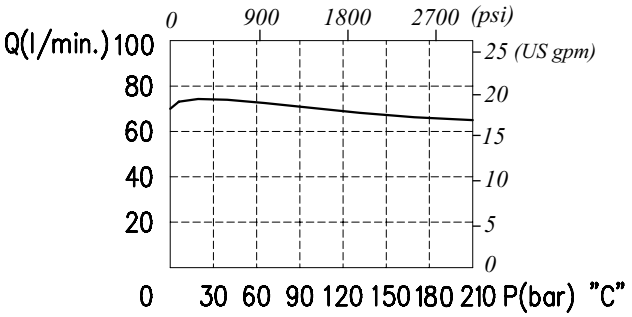
Dimensions and hydraulic circuit



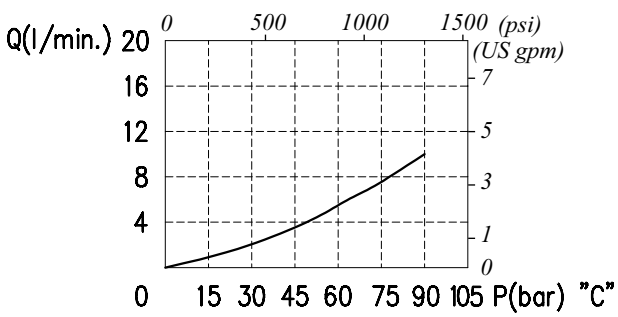
E	U
G 3/4	G 3/4

Rating diagrams

Pressure compensation diagram E→C



Pressure drop diagram C→E



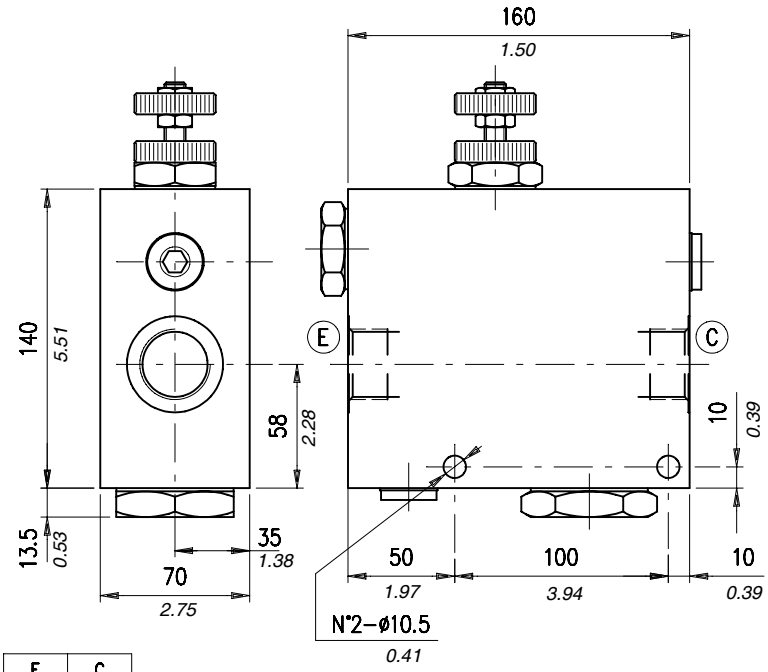
Order code

VPR /2 /RL 34 / □ / □

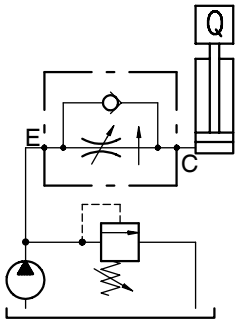
Adjustments
(see page 122)
- **S** (screw)
- **V** (handknob)
- **L** (lever)
- **MG** (handknob calibrated *m.a*)
- **MGB** (handknob calibrated *f.a*)

Body material
- _ Aluminium
- **ac** Steel

Dimensions and hydraulic circuit

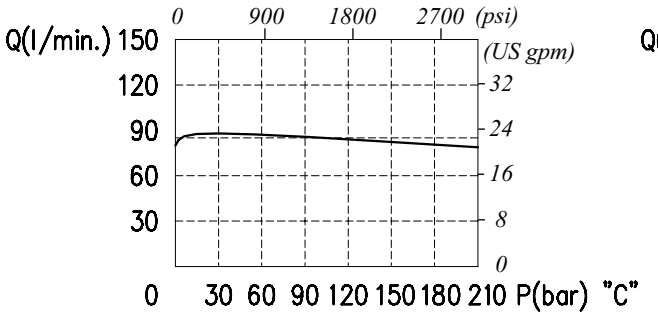


E	C
G 1	G 1

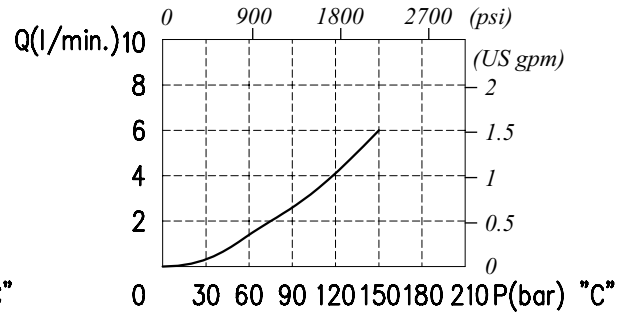


Rating diagrams

Pressure compensation diagram E→C



Pressure drop diagram C→E



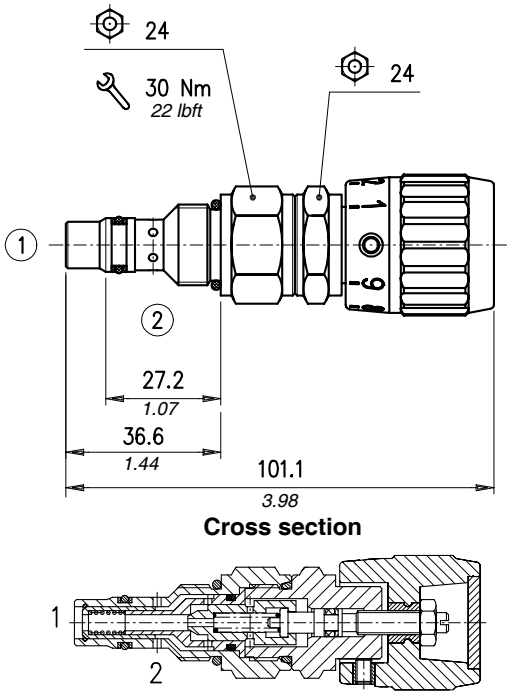
Order code

VPR /2 /RL 100 / □ / □

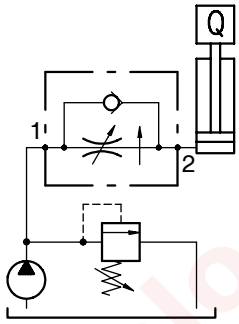
Adjustments
(see page 122)
S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Body material
_Aluminium
ac Steel

Dimensions and hydraulic circuit

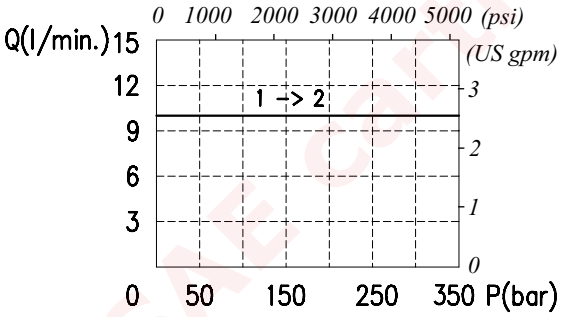


Cross section

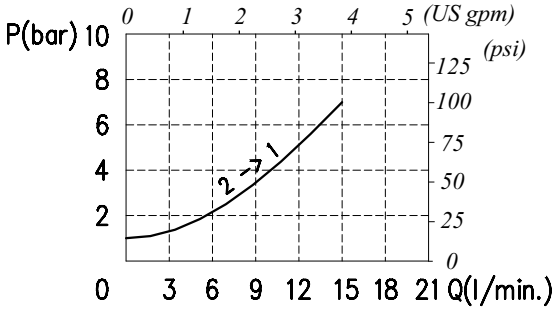


Rating diagrams

Pressure compensation diagram 1→2



Pressure drop diagram 2→1

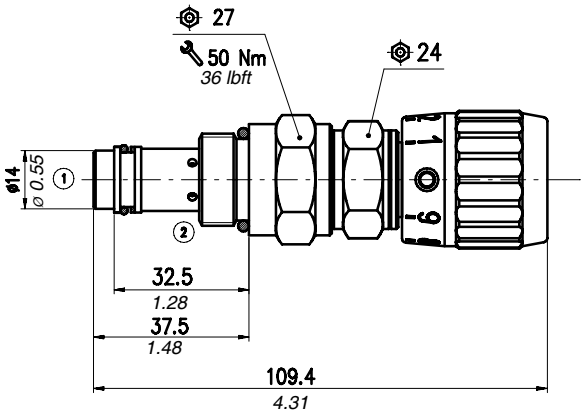


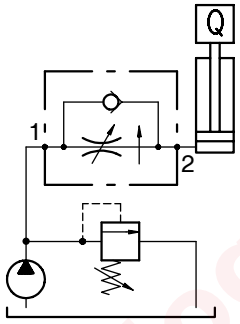
Order code

PW08A / ☐ -☐ -☐ -☐

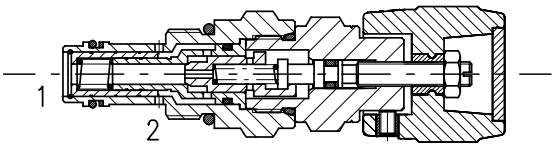
Pressure drop from 1 to 2	Adjustments (see page 122)	Pressure drop from 2 a 1	Seals
A) 12 bar (*170 psi*)	**S**(screw) **M**(handknob)	**1)** 0,5 bar (*7.3 psi*)	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



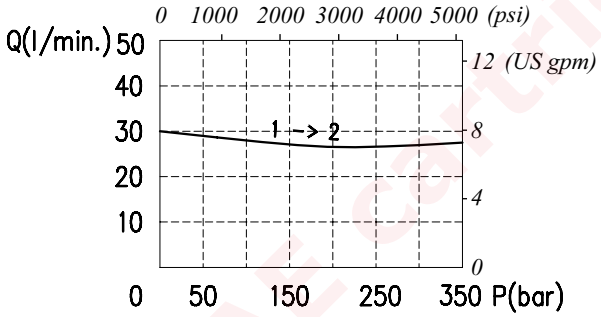


Cross section

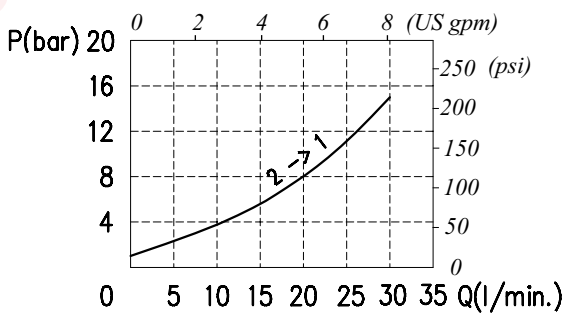


Rating diagrams

Pressure compensation diagram 1→2



Pressure drop diagram 2→1

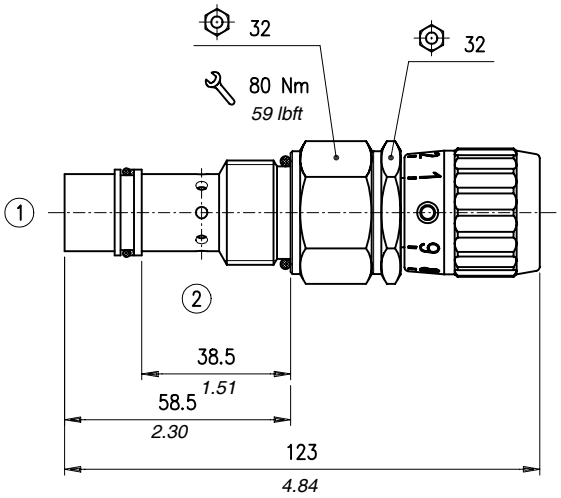


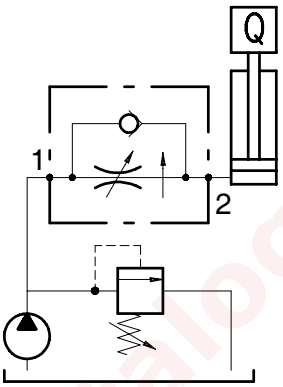
Order code

PW10A / ☐ -☐ -☐ -☐

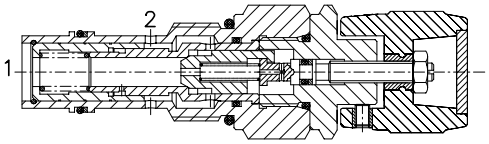
Pressure drop from 1 to 2	Adjustments (see page 122)	Pressure drop from 2 a 1	Seals
A) 12 bar (*170 psi*)	**S** (screw) **M** (handknob)	**1)** 0,5 bar (*7.3 psi*)	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



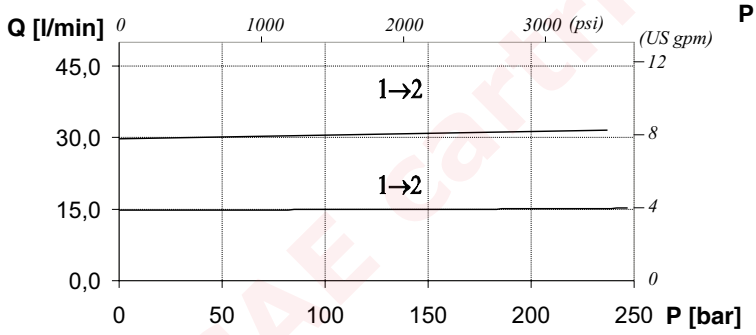


Cross section

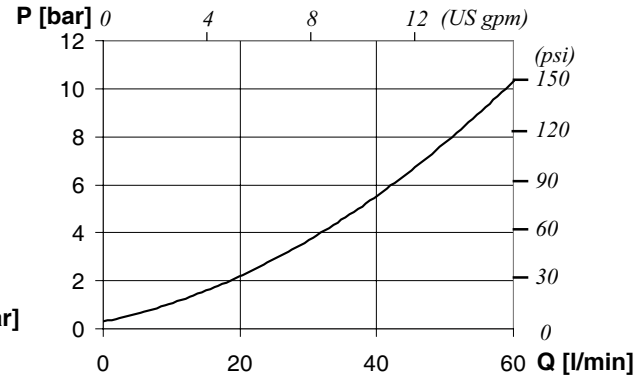


Rating diagrams

Pressure compensation diagram 1→2



Pressure drop diagram 2→1



Order code

PW12A / ☐ -☐ -☐ -☐

Pressure drop from 1 to 2

A) 12 bar (*170 psi*)

Adjustments
(see page 122)

S (screw)
M (handknob)

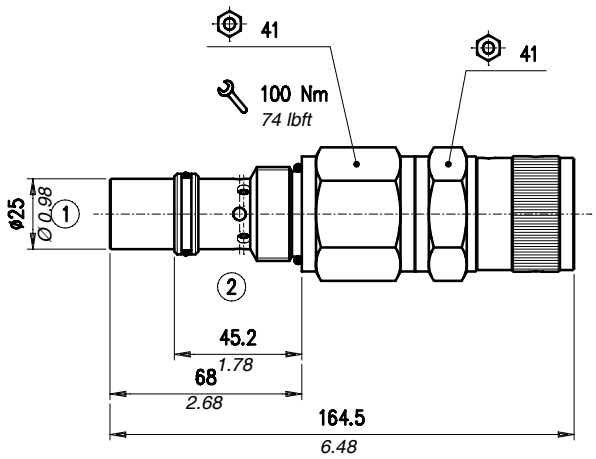
Pressure drop from 2 a 1

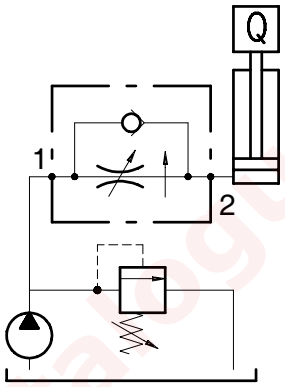
1) 0,5 bar (*7.3 psi*)

Seals

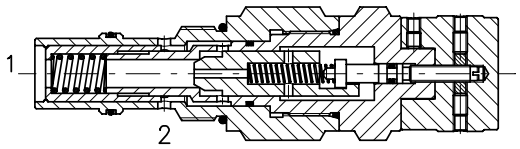
B) Buna
V) Viton

Dimensions and hydraulic circuit



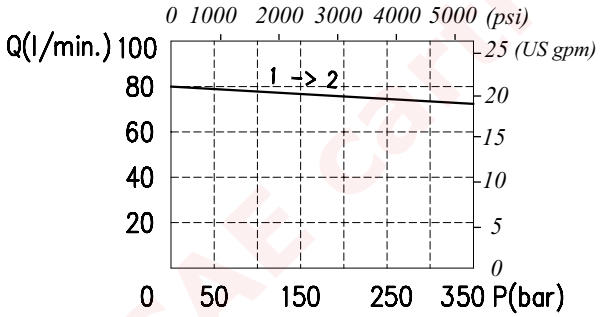


Cross section

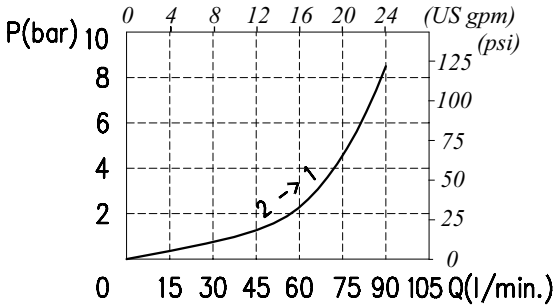


Rating diagrams

Pressure compensation diagram 1→2



Pressure drop diagram 2→1

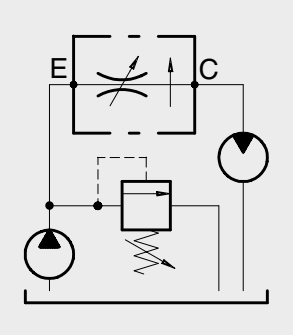


Order code

PW16A / ☐ -☐ -☐ -☐

Pressure drop from 1 to 2	Adjustments (see page 122)	Pressure drop from 2 a 1	Seals
A) 12 bar (*170 psi*)	**S** (screw) **M** (handknob)	**1)** 0,5 bar (*7.3 psi*)	**B)** Buna **V)** Viton

Operation



These valves are designed for adjustment of the oil flow from (E) 1 to (C) 2, by means of variations of the oil flowing section. To assure top performance, 10% higher flow should be available in (E) 1 more than in 2. The oil flow doesn't change when pressure in C (2) increases/decreases.

Performance

Body Valves

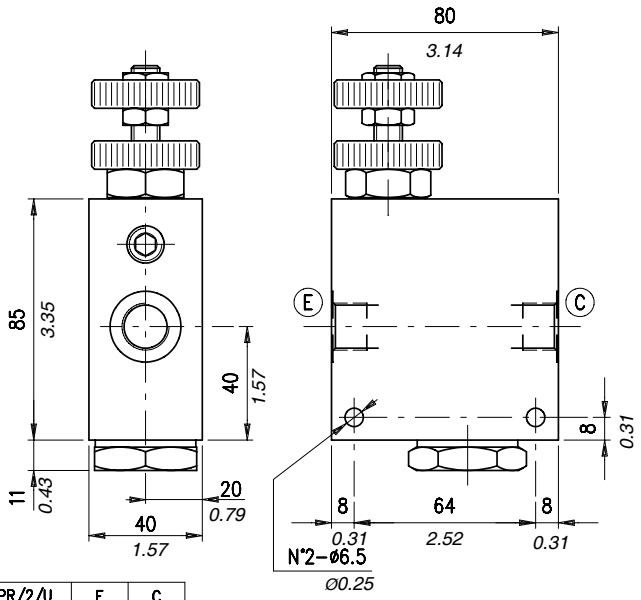
Type VPR/2/U..	Max. adjusted flow Qc		Max. pressure	Weight	
	l/min.	*US gpm*		kg	*lb*
VPR/2/U/38	30	*7.9*	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body)	0,87 (aluminium) 1,92 (steel)	*1.91 (aluminium) 4,23 (steel)*
VPR/2/U/12	50	*13*		0,90 (aluminium) 1,95 (steel)	*1.98 (aluminium) 4.3 (steel)*
VPR/2/U/34	90	*24*		1,70 (aluminium) 3,55 (steel)	*3.75 (aluminium) 7.83 (steel)*
VPR/2/U/100	150	*40*		3,92 (aluminium) 8,34 (steel)	*8.64 (aluminium) 18,39 (steel)*

Cartridges

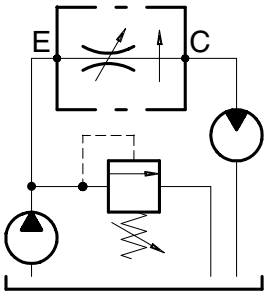
Type PU...	Flow		Max. pressure bar	Cavities and tools	Weight	
	l/min.	*US gpm*			kg	*lb*
PU08A	15	*3.9*	350 bar *-5100 psi-*	*see page 129 SAE 8/2	0,18	*0.40*
PU10A	25	*6.6*		*see page 129 SAE 10/2	0,20	*0.44*
PU12A	50	*13*		*see page 129 SAE 12/2	0,30	*0.66*
PU16A	90	*24*		*see page 129 SAE 16/2	0,55	*1.21*

*the cavity have to report also the features of variation "A" see page 129

Dimensions and hydraulic circuit

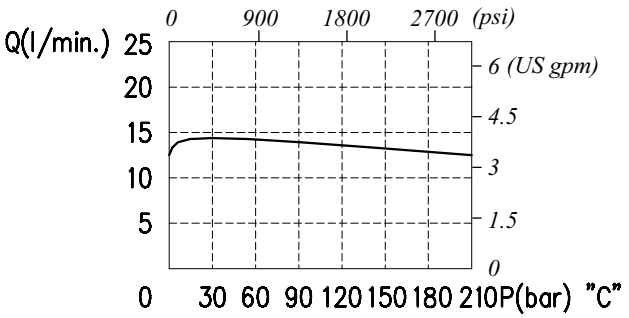


VPR/2/U	E	C
38	G 3/8	G 3/8
12	G 1/2	G 1/2

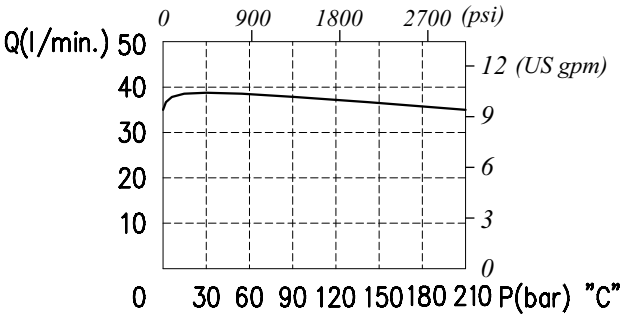


Rating diagrams

Pressure compensation diagram E→C - VPR/2/U 38



Pressure compensation diagram E→C - VPR/2/U 12



Order code

VPR /2 /U □ / □ / □

Port size

38 G 3/8
12 G 1/2

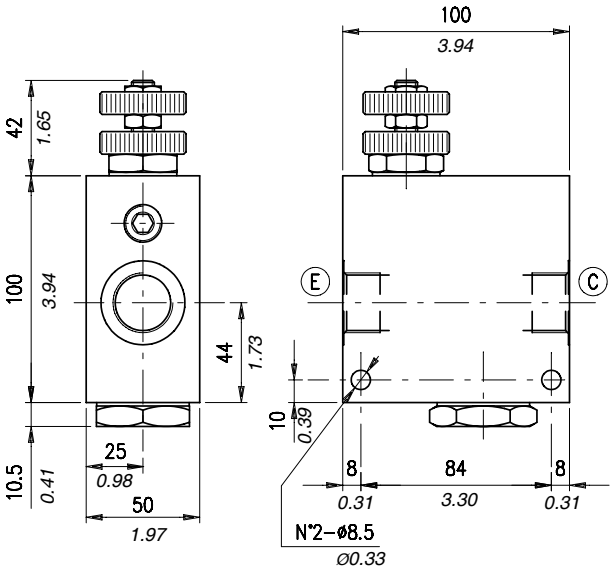
Adjustments (see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

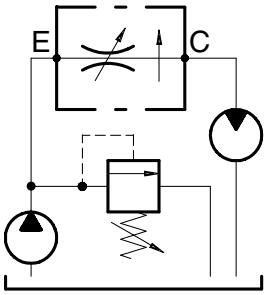
Body material

_Aluminium
ac Steel

Dimensions and hydraulic circuit

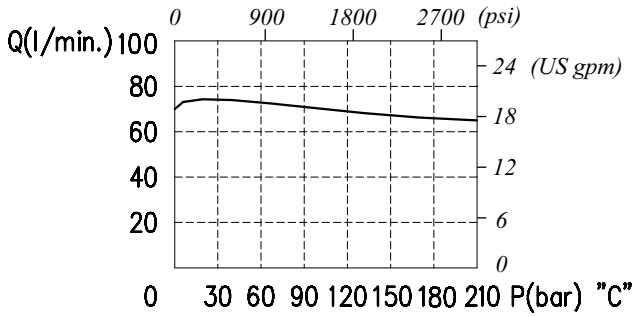


E	C
G 3/4	G 3/4



Rating diagrams

Pressure compensation diagram E→C



Order code

VPR /2 /U 34 / □ / □

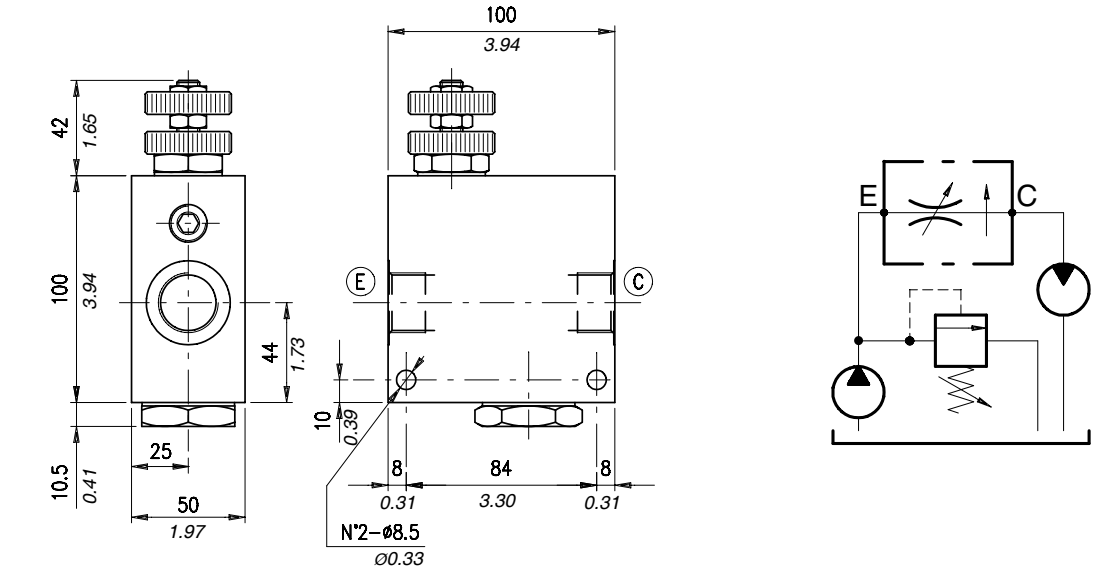
Adjustments
(see page 122)

- **S** (screw)
- **V** (handknob)
- **L** (lever)
- **MG** (handknob calibrated *m.a*)
- **MGB** (handknob calibrated *f.a*)

Body material

- _ Aluminium
- **ac** Steel

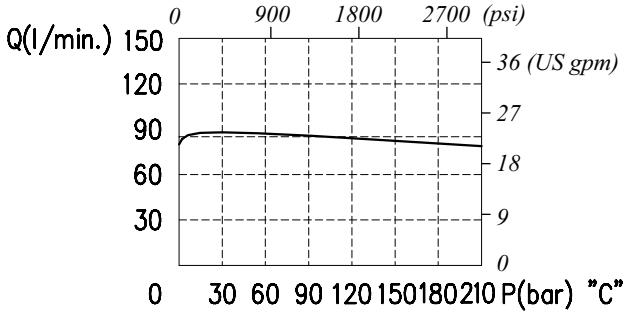
Dimensions and hydraulic circuit



E	C
G 3/4	G 3/4

Rating diagrams

Pressure compensation diagram E→C



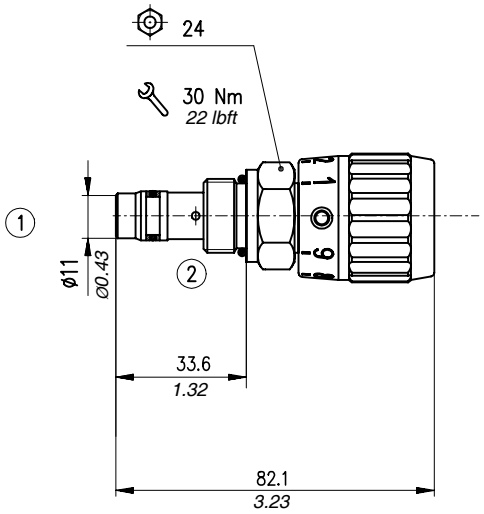
Order code

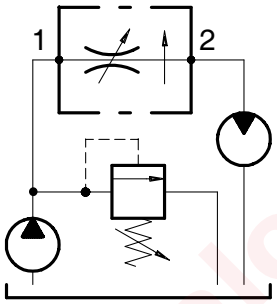
VPR /2 /U 100 / □ / □

Adjustments (see page 122)
- **S** (screw)
- **V** (handknob)
- **L** (lever)
- **MG** (handknob calibrated *m.a*)
- **MGB** (handknob calibrated *f.a*)

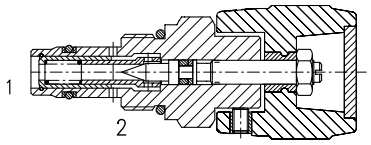
Body material
- _Aluminium
- **ac** Steel

Dimensions and hydraulic circuit



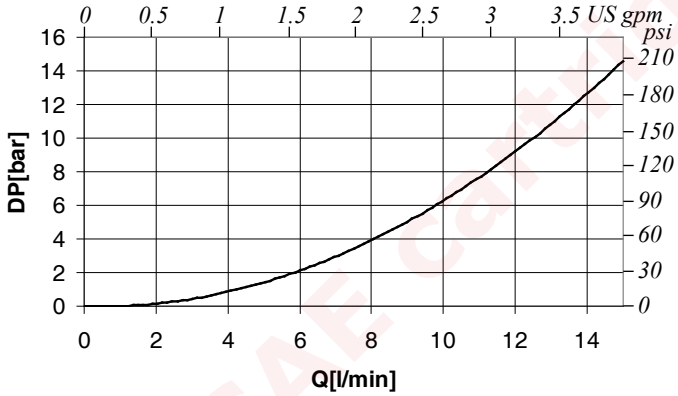


Cross section

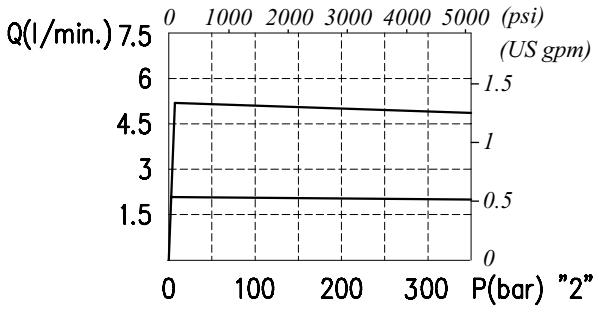


Rating diagrams

Typical pressure drop vs. flow characteristic 1->2 with regulator open



Pressure compensation diagram 1→2

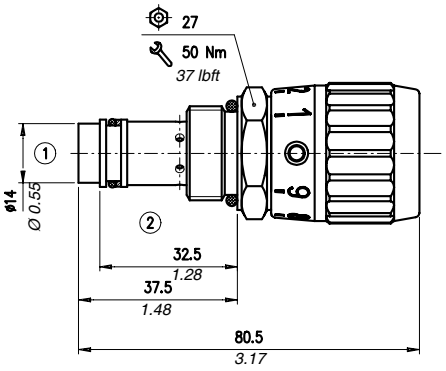


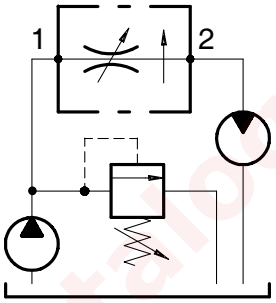
Order code

PU08A / ☐ -☐ -0 -☐

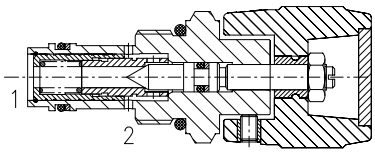
Pressure drop from 1 to 2	Adjustments (see page 122)	Seals
A) 12 bar (*170 psi*)	**S** (screw) **M** (handknob)	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



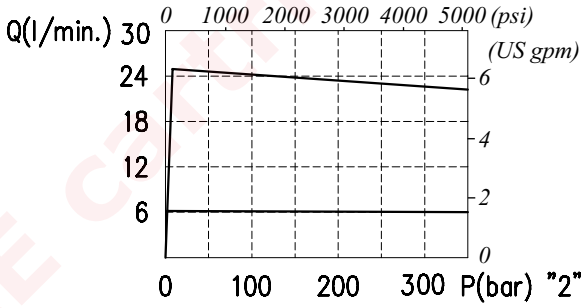


Cross section



Rating diagrams

Pressure compensation diagram 1→2

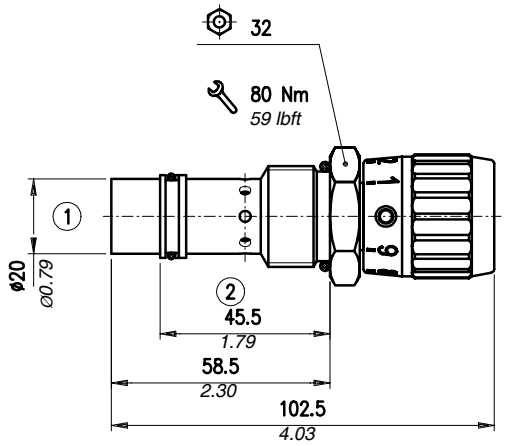


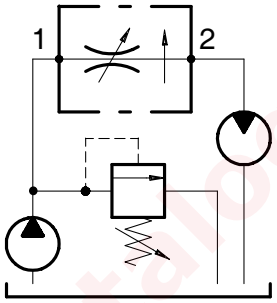
Order code

PU10A / ☐ -☐ -0 -☐

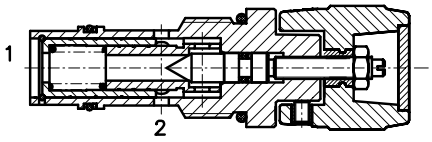
Pressure drop from 1 to 2	Adjustments (see page 122)	Seals
A) 12 bar (*170 psi*)	**S** (screw) **M** (handknob)	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



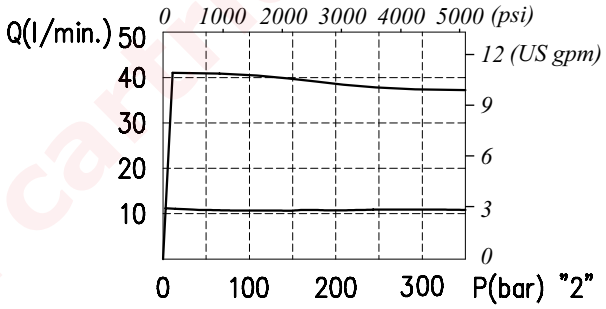


Cross section



Rating diagrams

Pressure compensation diagram 1→2



Order code

PU12A / □ -□ -0 -□

Pressure drop from 1 to 2

A) 12bar (*170 psi)*

Adjustments
(see page 122)

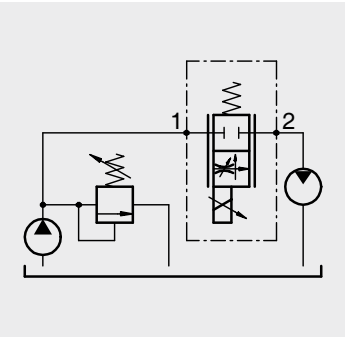
S(screw)
M(handknob)

Seals

B) Buna
V) Viton

Operation

This valve is normally closed when coil is de-energized;the PU08W regulates flow out of port2 proportionally to the input solenois current, regardless of system working pressure regulated flow is virtually indipendent of pressure drop fluctuation across the valve.
Button manual override available.



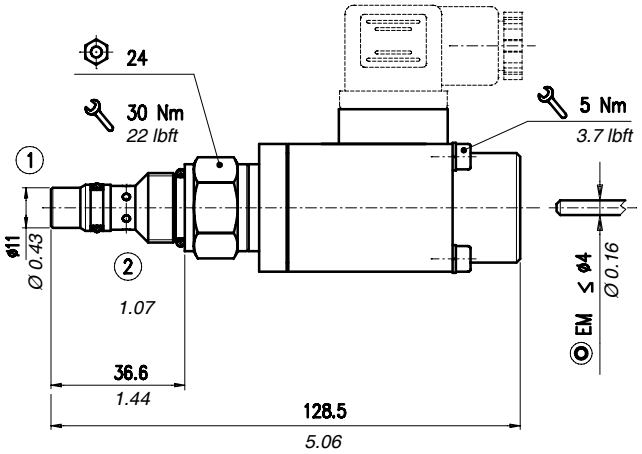
Performance

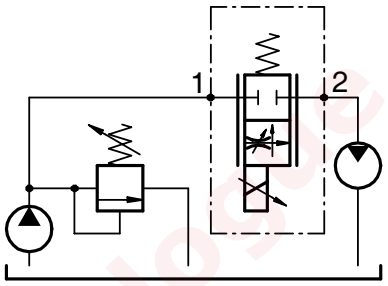
Cartridges

Type PU..W	Max. Flow		Max. pressure	Threshold current	Max. control current	Dither (Hz)	Hystersis with 150 Hz dither	Internal leakage with valve fully closed	Weight	Cavities and tools
	l/min.	*US gpm*							kg *lb*	
PU08W	12	*3.2*	210 bar *-3050 psi-* (alum. body) 350 bar *-5100 psi-* (steel body)	400 ±70 mA for solenoid 12V 200 ±35 mA for solenoid 24V	1100 ±200 mA for solenoid 12V 600 ±100 mA for solenoid 24V	150	8%	30 cm^3min *-1.83 in^3/min-* at 210 bar *-3050 psi-*	0,65 *1,43*	*see page 129 SAE 8-2
PU10W	30	*7.9*								*see page 129 SAE 10-2
PU12W	50	*13*						50 ccm^3min *-3.05 in^3/min-* at 210 bar *-3050 psi-*	please ask our technical office	*see page 129 SAE 12-2
PU16W	90	*24*			1500 ±200 mA for solenoid 12V 700 ±100 mA for solenoid 24V			70 cm^3min at *-4.27 in^3/min-* at 210 bar *-3050 psi-*	1,3 *2.87*	*see page 129 SAE 16-2

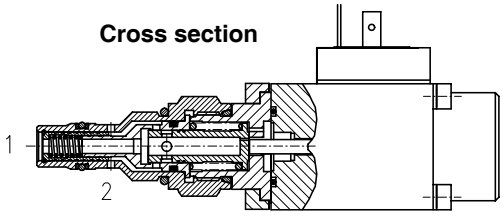
*the cavity have to report also the features of variation “A” see page 129

Dimensions and hydraulic circuit



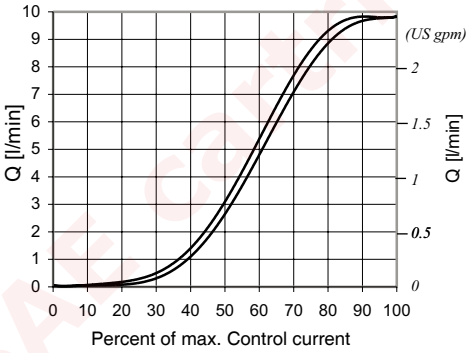


Cross section

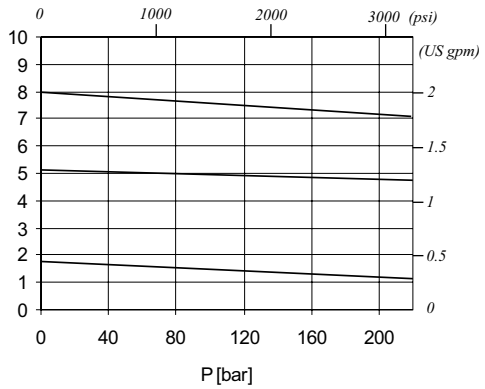


Rating diagrams

Flow vs current
Voltage supply 12/24 Volt

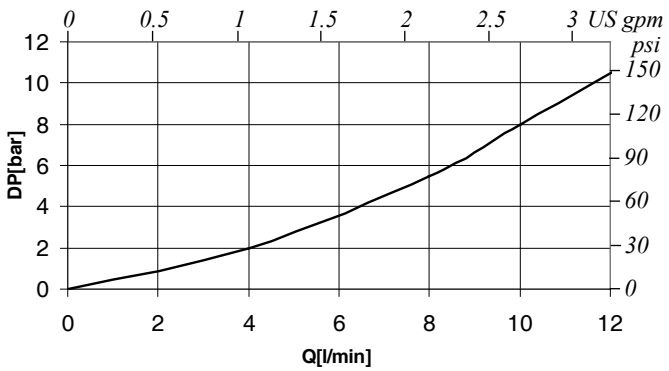


Flow regulating performance from 1-->2
Voltage supply 12/24 Volt



Order code

Typical Pressure drop vs.flow characteristics
at the max rated current Voltage supply 12/24 Volt

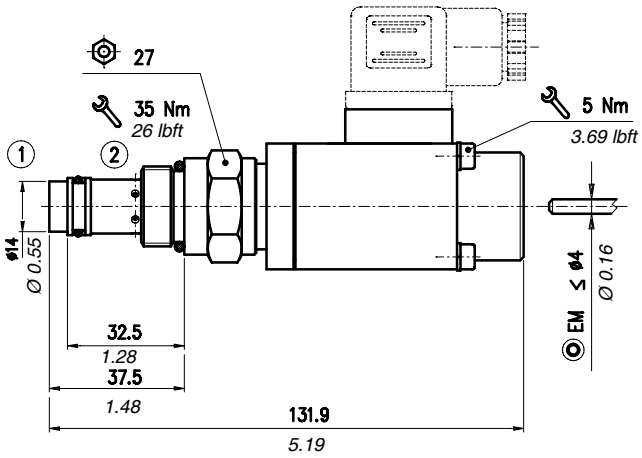


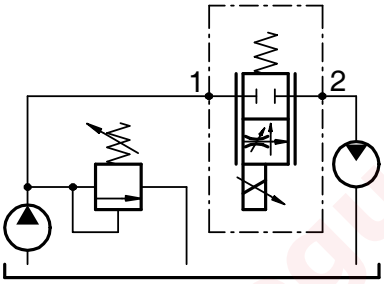
Order code

PU08W / □ -□ -0 -□

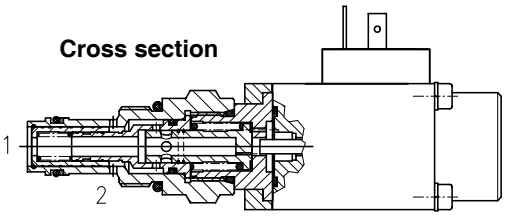
Pressure drop from 1 to 2	Voltage (Volt)	Seals
A) 12 bar (*175 psi*)	**2)** 12 Vcc **4)** 24 Vcc	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit

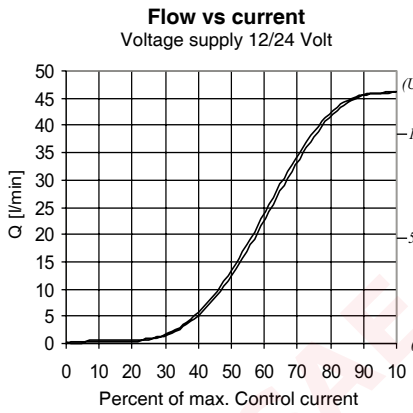


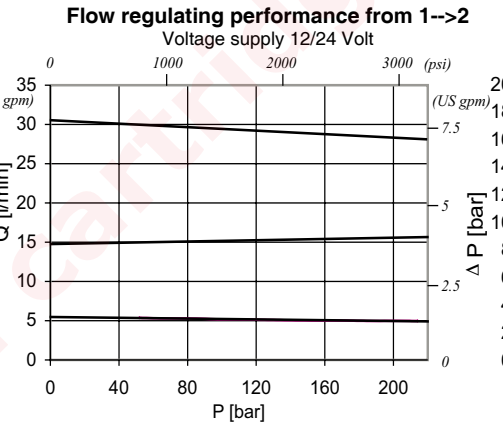


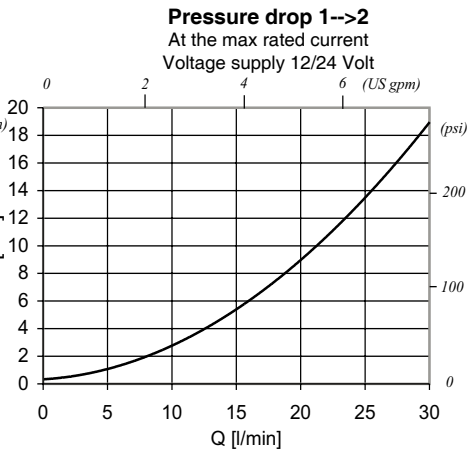
Cross section



Rating diagrams





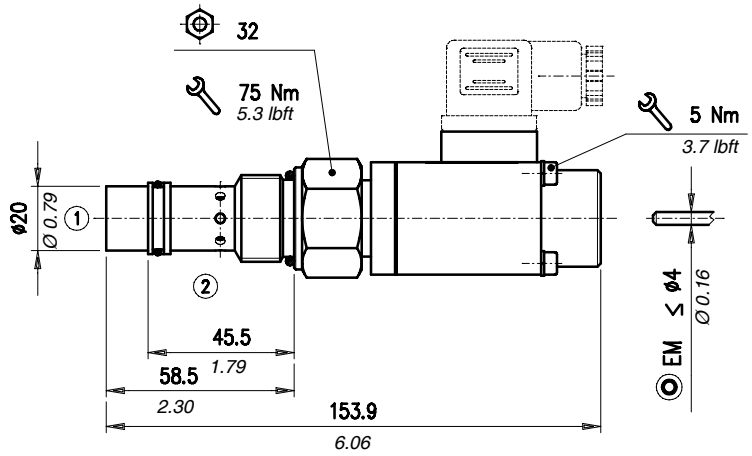


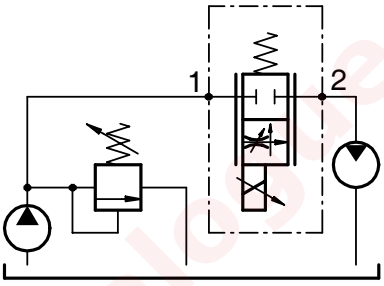
Order code

PU10W / ☐ -☐ -0 -☐

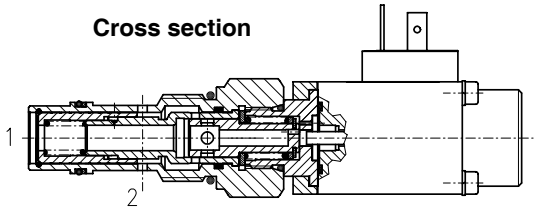
Pressure drop from 1 to 2	Voltage (Volt)	Seals
A) 12 bar (*174 psi*)	**2)** 12 Vcc **4)** 24Vcc	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



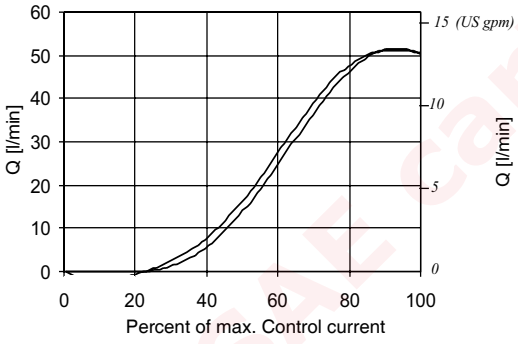


Cross section

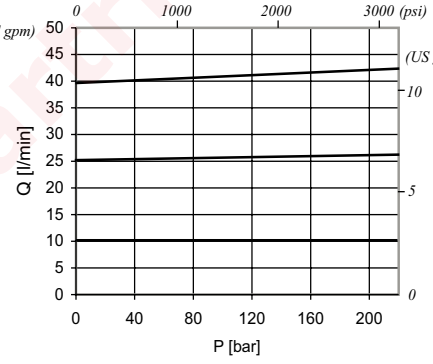


Rating diagrams

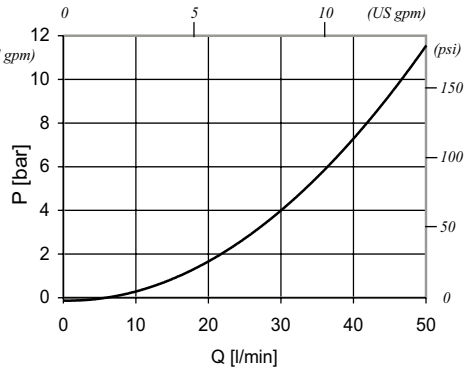
Flow vs current
Voltage supply 12/24 Volt



Flow regulating performance from 1-->2
Voltage supply 12/24 Volt



Pressure drop 1-->2
At the max rated current
Voltage supply 12/24 Vol

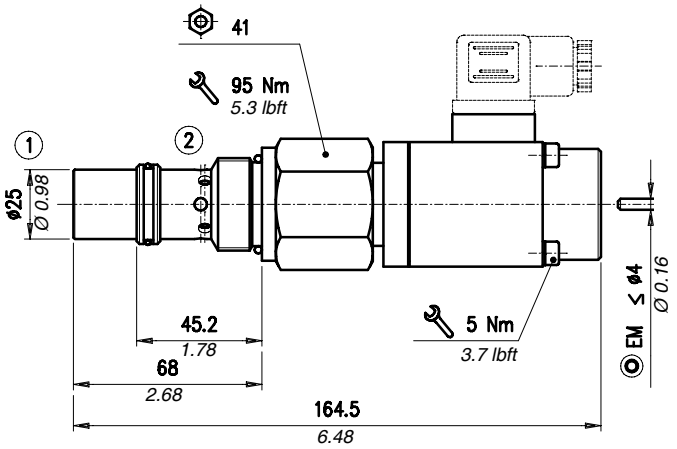


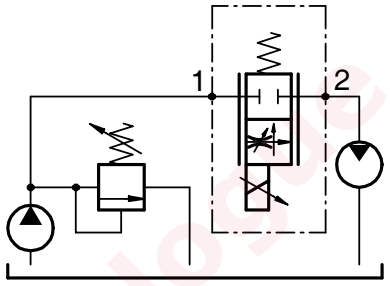
Order code

PU12W / ☐ -☐ -0 -☐

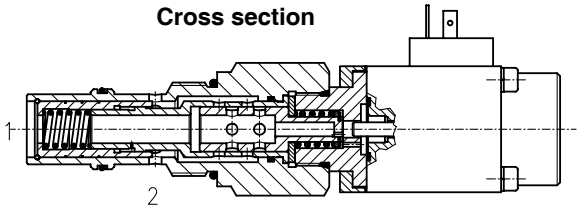
Pressure drop from 1 to 2	Voltage (Volt)	Seals
A) 12 bar (*174 psi*)	**2)** 12 Vcc **4)** 24 Vcc	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



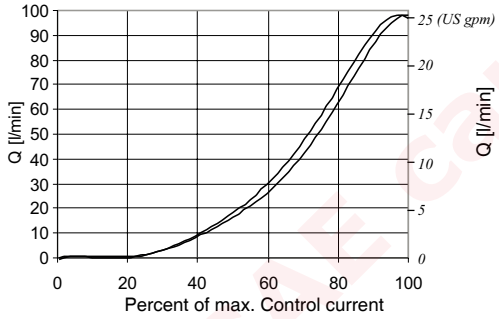


Cross section

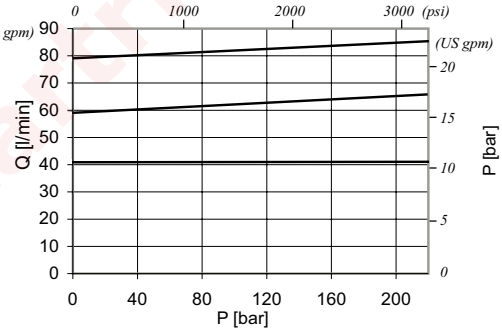


Rating diagrams

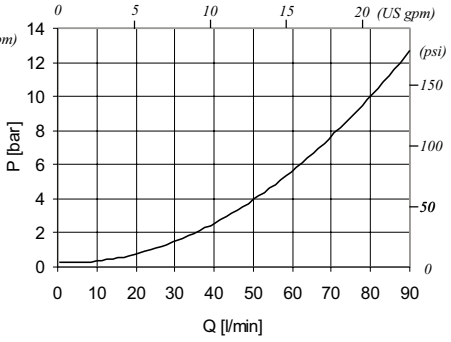
Flow vs current
Voltage supply 12/24 Volt



Flow regulating performance from 1-->2
Voltage supply 12/24 Volt



Pressure drop 1-->2
At the max rated current
Voltage supply 12/24 Vol



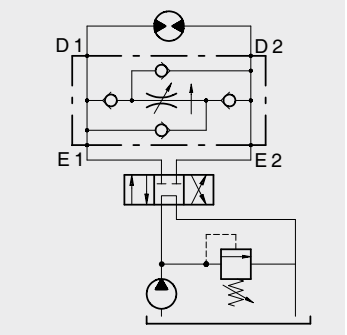
Order code

PU16W / ☐ -☐ -0 -☐

Pressure drop from 1 to 2	Voltage (Volt)	Seals
A) 12 bar (*175 psi*)	**2)** 12 Vcc	**B)** Buna
	4) 24 Vcc	**V)** Viton

Operation

The valve is designed to provide flow adjustment from D1(E1) to D2(E2) by a variation of the oil flow section. Best performance of the valve is assured when the flow on pressure side is at least 10% bigger than on the tank side. Pressure variations on the tank side do not alter the checked oil flow.

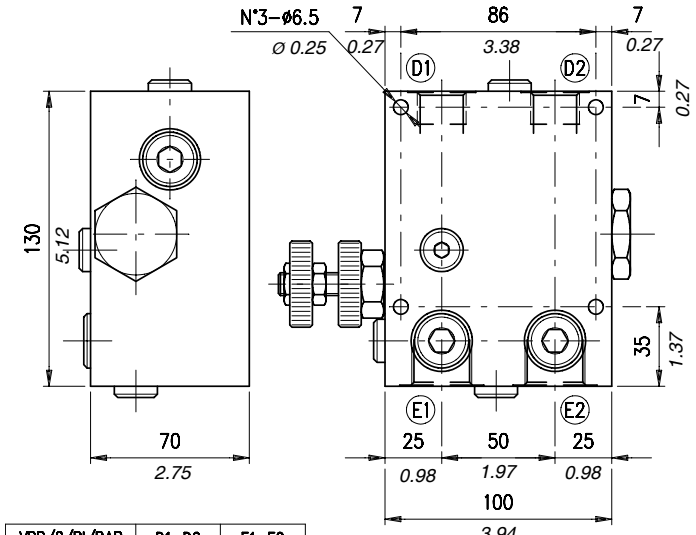


Performance

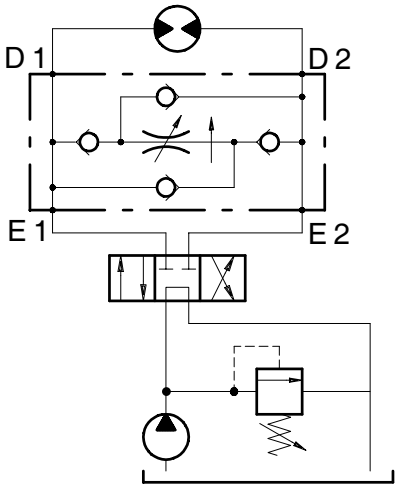
Body Valves

Type VPR/2/BI/RAB..	Flow		Max. pressure bar	Weight	
	l/min	*US gpm*		kg	*lb*
VPR/2/BI/RAB 38	40	*10*	210 *-3050 psi-* (aluminium body) 350 *-5100 psi-* (steel body)	2,5 (aluminium) 6,1 (steel)	*5,6 (aluminium) 13 (steel)*
VPR/2/BI/RAB 12					
VPR/2/BI/RAB 34	80	*21*		5,30	*11.7*
VPR/2/BI/RAB 100	140	*37*		15,7 (aluminium)	*35 (aluminium)*

Dimensions and hydraulic circuit

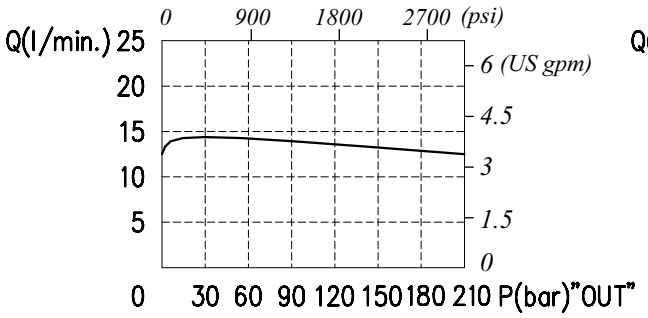


VPR/2/BI/RAB	D1-D2	E1-E2
38	G 3/8	G 1/2
12	G 1/2	G 3/4

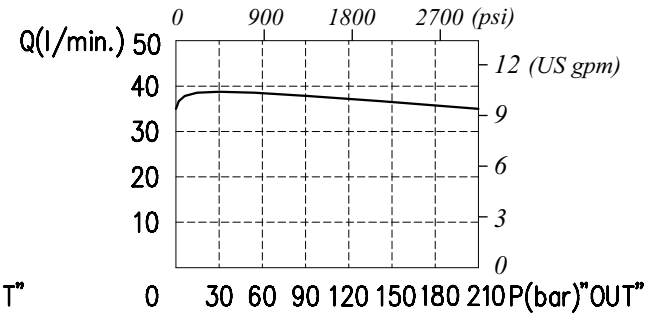


Rating diagrams

Pressure compensation diagram (38) D1-->D2



Pressure compensation diagram (12) D1-->D2



Order code

VPR /2 /BI /RAB □ / □ / □

Port size

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

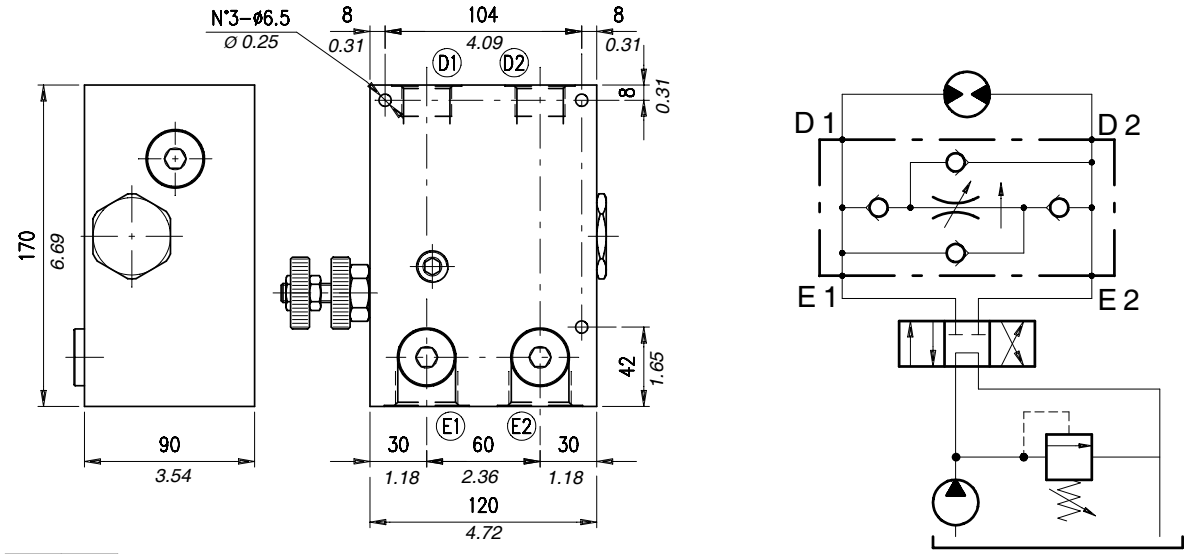
Adjustments
(see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Body material

_Aluminium
ac Steel

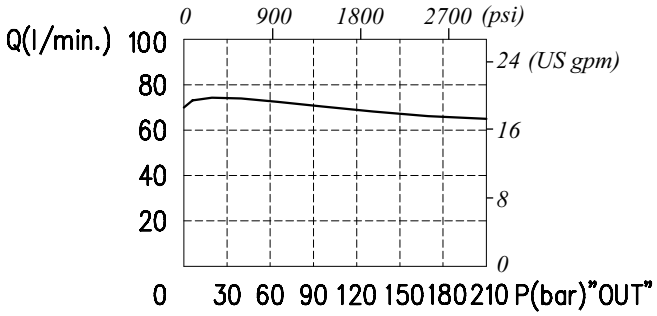
Dimensions and hydraulic circuit



D1-D2	E1-E2
G 3/4	G 1

Rating diagrams

Pressure compensation diagram D1-->D2



Order code

VPR /2 /BI /RAB 34 / □ / □

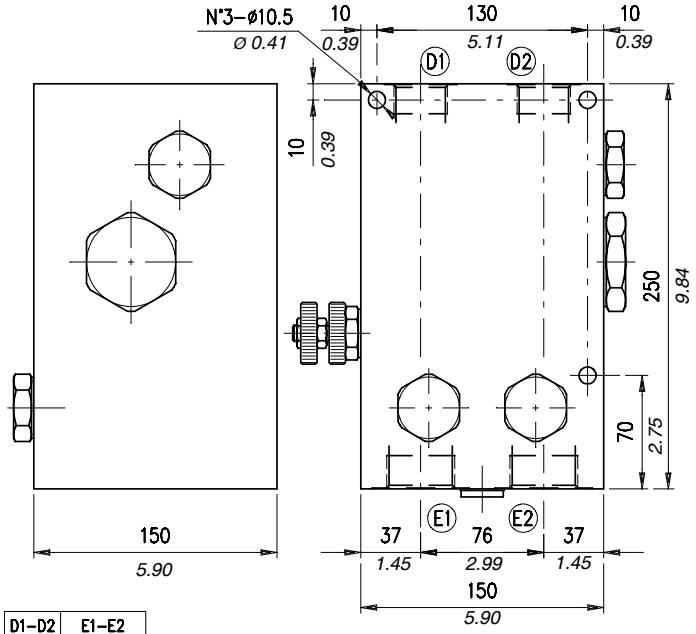
Adjustments
(see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

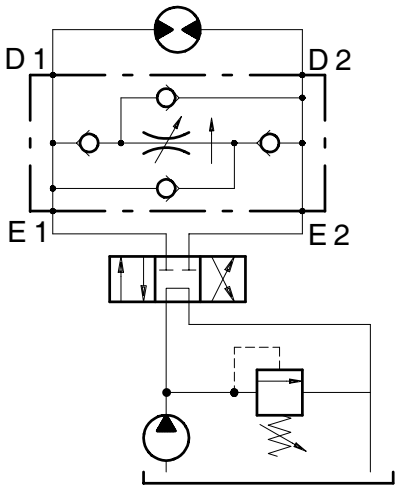
Body material

_Aluminium
ac Steel

Dimensions and hydraulic circuit

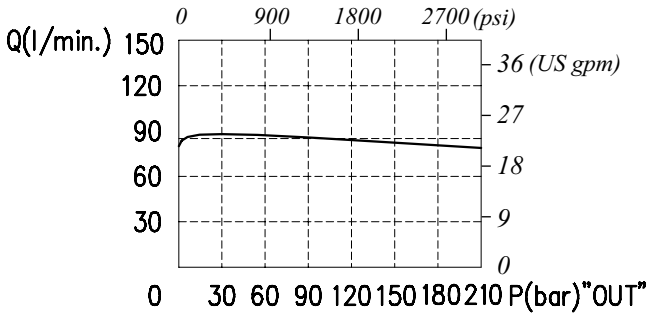


D1–D2	E1–E2
G 1	G 1 1/4



Rating diagrams

Pressure compensation diagram D1-->D2



Order code

VPR /2 /BI /RAB 100 / □ / □

Adjustments
(see page 122)

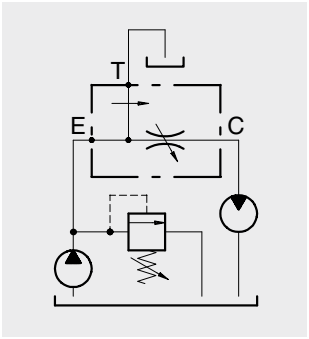
- **S** (screw)
- **V** (handknob)
- **L** (lever)
- **MG** (handknob calibrated *m.a*)
- **MGB** (handknob calibrated *f.a*)

Body material

- _Aluminium
- **ac** Steel

Operation

The valve is designed to provide flow adjustment from E to C by a variation of the oil flow section. Exceeding flow is concurrently sent to tank T. Best performance of the valve is assured when the flow in E is at least 10% bigger than in C. Pressure variations in C do not alter the checked oil flow. On the contrary, eventual back pressure in T may cause inconstant capacity in C. Use of a pressure relief valve between the pump and the flow regulator is strictly recommended.

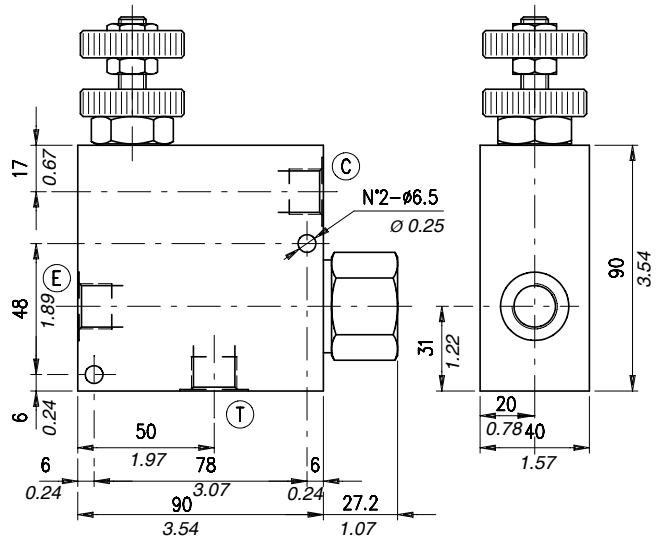


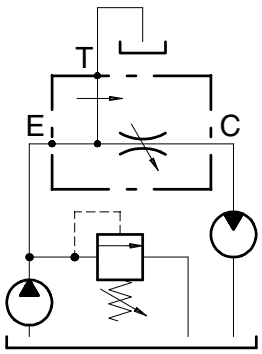
Performance

Body Valves

Type VPR/3/ET..	Flow		Max. pressure	Weight	
	l/min	*US gpm*		kg	*lb*
VPR/3/ET 38	E=50 C=30	*E=13 C=7.9*	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body)	1,07 (aluminium) 2,48 (steel)	*2,36 (aluminium) 5,47 (steel)*
VPR/3/ET 12	E=90 C=50	*E=24 C=13*		1,02 (aluminium) 2,43 (steel)	*2,25 (aluminium) 5,36 (steel)*
VPR/3/ET 34	E=150 C=90	*E=40 C=24*		2,22 (aluminium) 4,42 (steel)	*4,89 (aluminium) 9,74 (steel)*
VPR/3/ET 100	E=240 C=150	*E=63 C=40*		4,00 (aluminium) 9,00 (steel)	*8,82 (aluminium) 19,84 (steel)*
VPR/3/ET 114	E=350 C=250	*E=92 C=66*		9,50 (aluminium) 23,90 (steel)	*20,94 (aluminium) 52,69 (steel)*

Dimensions and hydraulic circuit

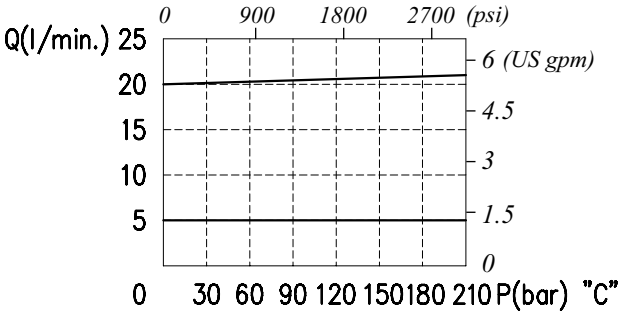




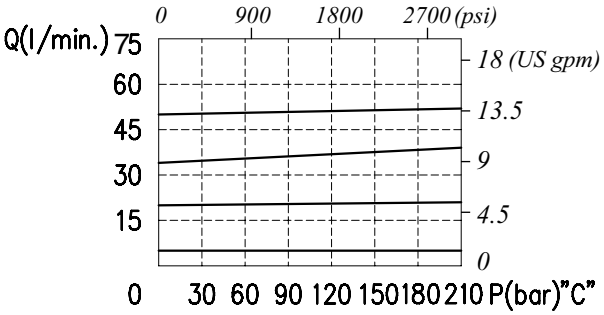
VPR/3/ET	E	T	C
38	G 3/8	G 3/8	G 3/8
12	G 1/2	G 1/2	G 1/2

Rating diagrams

Pressure compensation diagram (38) E-->C



Pressure compensation diagram (12) E-->C



Order code

VPR /3 /ET □ / □ / □

Port size

38 G 3/8
12 G 1/2

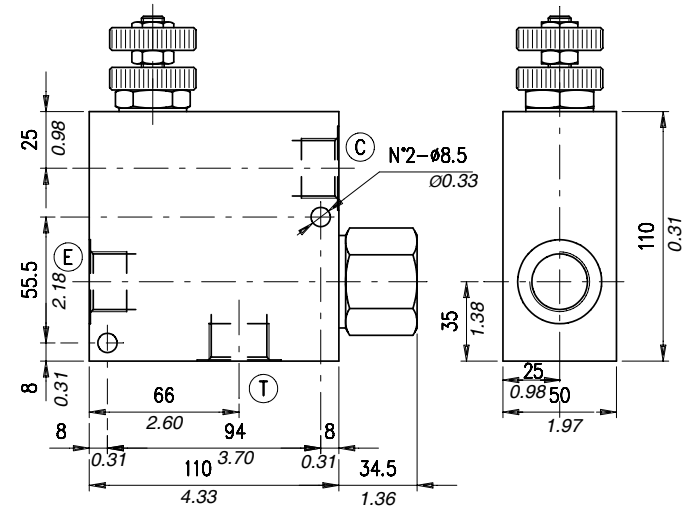
Adjustments (see page 122)

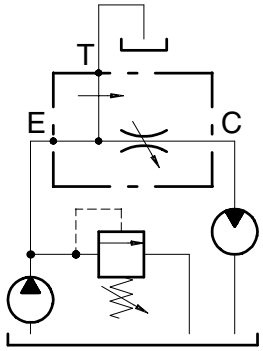
S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Body material

_Aluminium
ac Steel

Dimensions and hydraulic circuit

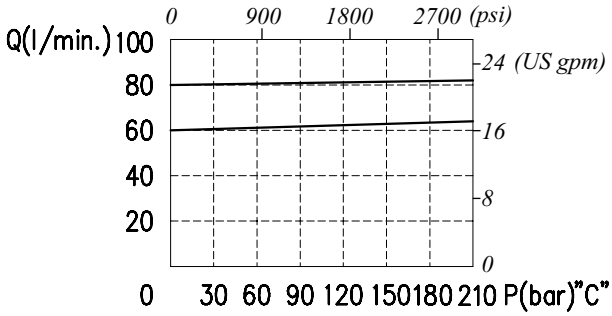




E	T	C
G 3/4	G 3/4	G 3/4

Rating diagrams

Pressure compensation diagram E-->C



Order code

VPR /3 /ET 34 / □ / □

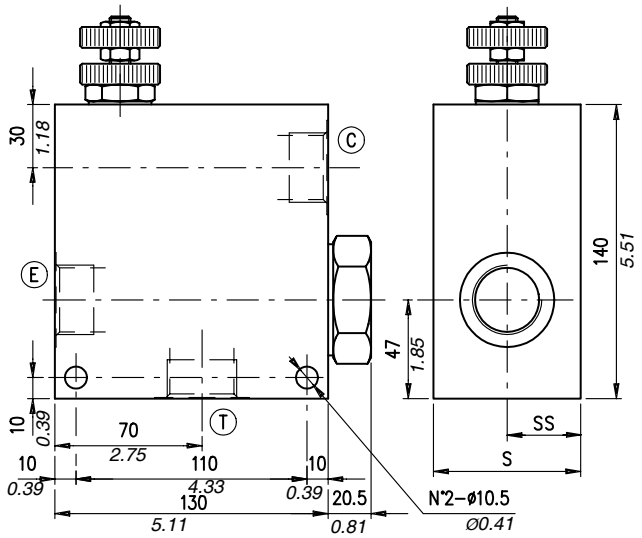
Adjustments
(see page 122)

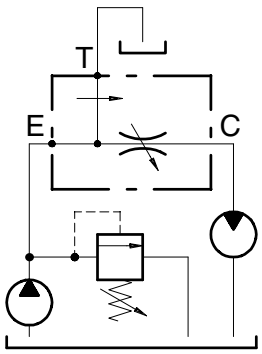
S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Body material

_Aluminium
ac Steel

Dimensions and hydraulic circuit





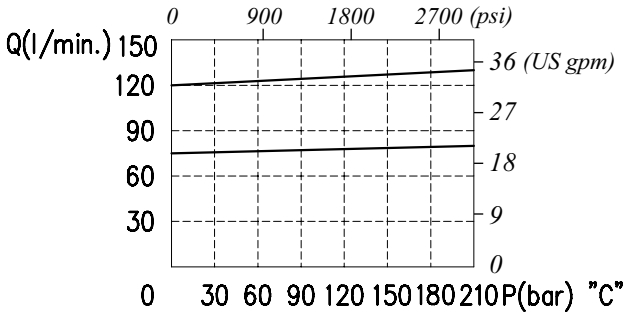
E	T	C
G 1	G 1	G 1

S	SS	Material
70 - *2.75*	35 - *1.38*	Aluminium
65 - *2.56*	32.5 - *1.28*	Steel

Dimensions are in mm - *in*

Rating diagrams

Pressure compensation diagram E-->C



Order code

VPR /3 /ET 100 / ☐ / ☐

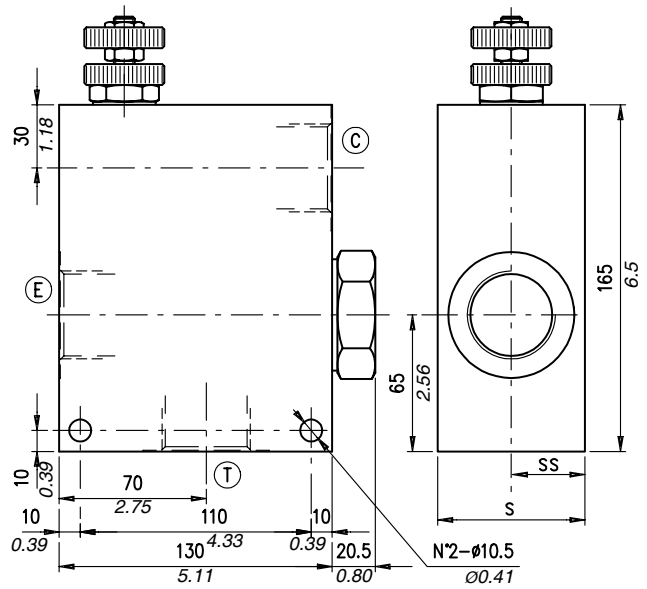
Adjustments
(see page 122)

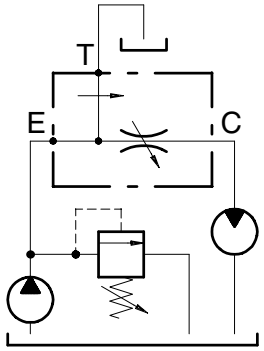
- **S** (screw)
- **V** (handknob)
- **L** (lever)
- **MG** (handknob calibrated *m.a*)
- **MGB** (handknob calibrated *f.a*)

Body material

- _Aluminium
- **ac** Steel

Dimensions and hydraulic circuit





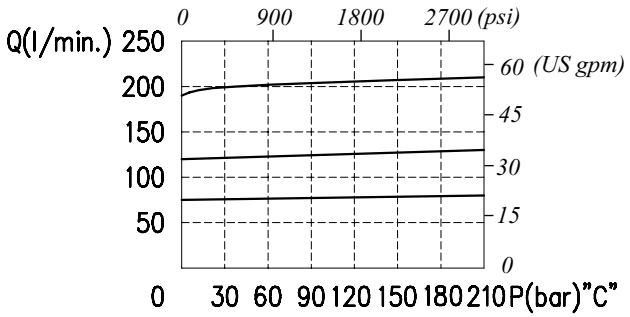
E	T	C
G 1 1/4	G 1 1/4	G 1 1/4

S	SS	Material
70 - *2.75*	35 - *1.38*	Aluminium
65 - *2.56*	32.5 - *1.28*	Steel

Dimensions are in mm - *in*

Rating diagrams

Pressure compensation diagram E-->C



Order code

VPR /3 /ET 114 / □ / □

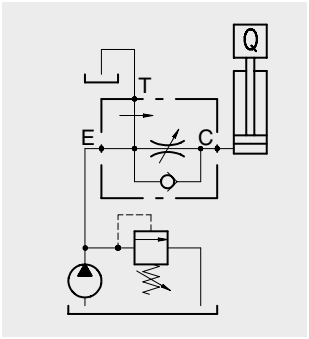
Adjustments
(see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Body material

_ Aluminium
ac Steel

Operation



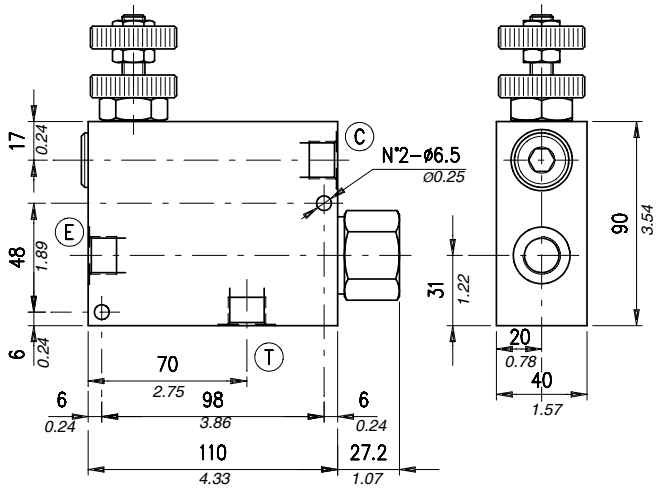
The valve is designed to provide flow adjustment from E to C by a variation of the oil flow section. Exceeding flow is concurrently sent to tank T while free oil flow is allowed from C to E.. Best performance of the valve is assured when the flow in E is at least 10% bigger than in C. Pressure variations in C do not alter the checked oil flow. On the contrary, eventual back pressure in T may cause inconstant capacity in C. Use of a pressure relief valve between the pump and the flow regulator is strictly recommended.

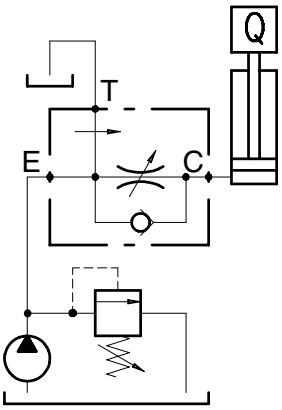
Performance

Body Valves

Type VPR/3/ET/RL..	Flow		Max. pressure	Weight	
	l/min	*US gpm*		kg	*lb*
VPR/3/ET/RL 38	E=50 C=30	*E=13 C=7.9*	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body)	1,30 (aluminium) 2,86 (steel)	*2,86 (aluminium) 6,30 (steel)*
VPR/3/ET/RL 12	E=90 C=50	*E=24 C=13*		1,25 (aluminium) 2,72 (steel)	*2,75 (aluminium) 6,00 (steel)*
VPR/3/ET/RL 34	E=150 C=90	*E=40 C=24*		2,75 (aluminium) 5,95 (steel)	*6,06 (aluminium) 13,12 (steel)*

Dimensions and hydraulic circuit

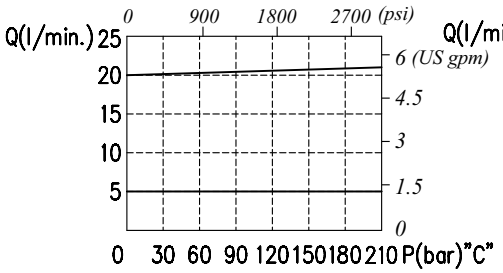




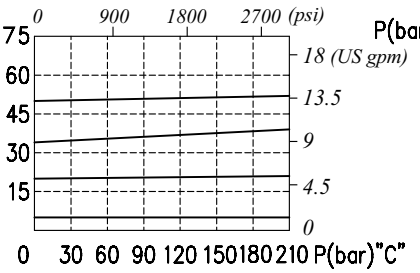
VPR/3/ET/RL	E	T	C
38	G 3/8	G 3/8	G 3/8
12	G 1/2	G 1/2	G 1/2

Rating diagrams

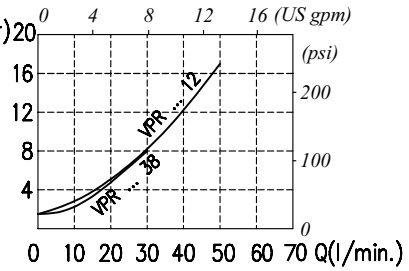
Pressure compensation diagram (38) E-->C



Pressure compensation diagram (12) E-->C



Pressure drop diagram E



Order code

VPR /3 /ET /RL □ / □ / □

Port size

38 G 3/8
12 G 1/2

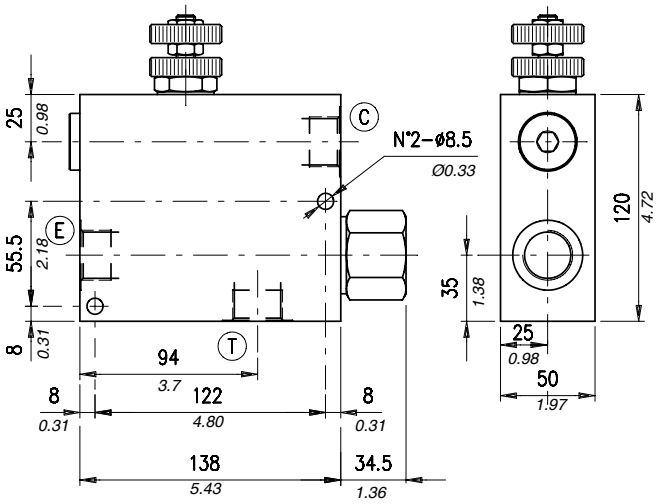
Adjustments
(see page 122)

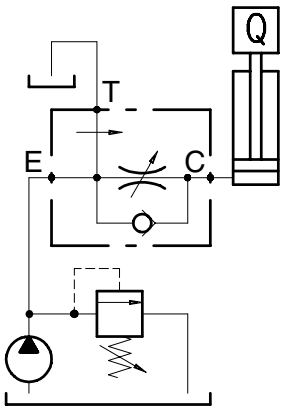
S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Body material

_Aluminium
ac Steel

Dimensions and hydraulic circuit

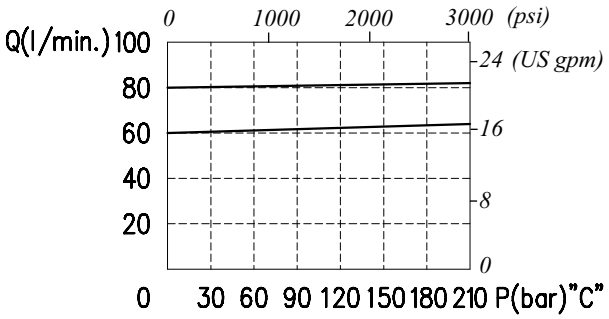




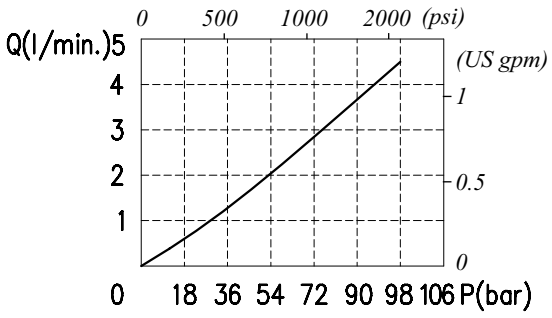
E	T	C
G 3/4	G 3/4	G 3/4

Rating diagrams

Pressure compensation diagram E-->C



Pressure drop diagram C E



Order code

VPR /3 /ET /RL 34 / □ / □

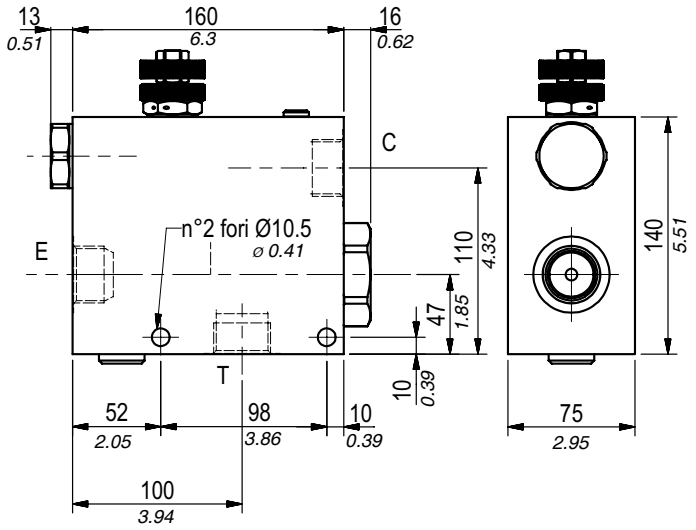
Adjustments
(see page 122)

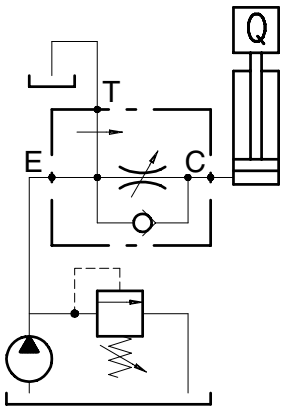
S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Body material

_Aluminium
ac Steel

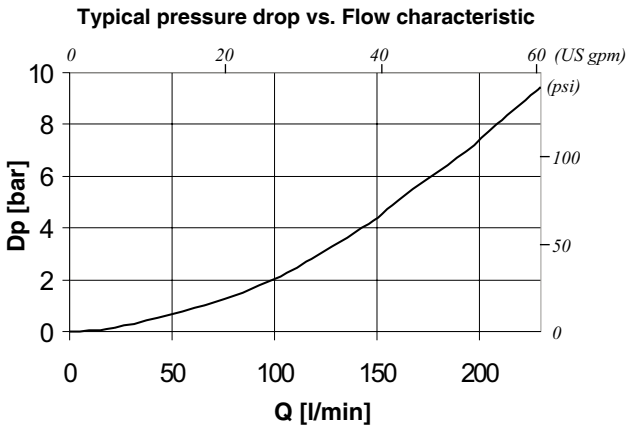
Dimensions and hydraulic circuit

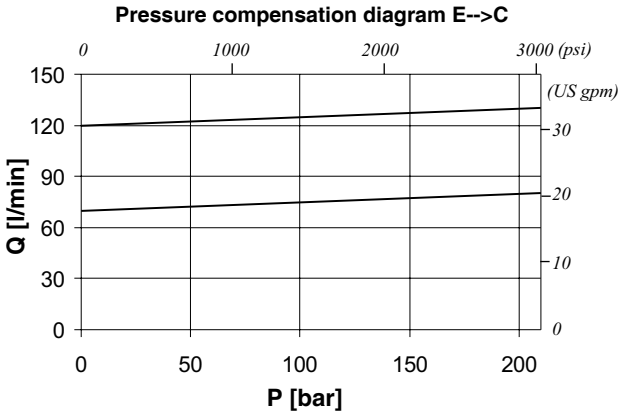




E	T	C
G 1	G 1	G 1

Rating diagrams





Order code

VPR /3 /ET /RL 100 / ☐ / ☐

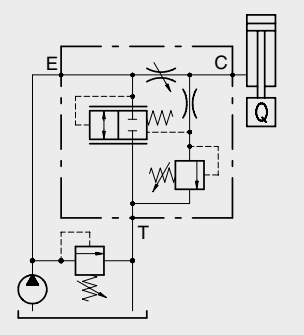
Adjustments
(see page 122)

- **S** (screw)
- **V** (handknob)
- **L** (lever)
- **MG** (handknob calibrated *m.a*)
- **MGB** (handknob calibrated *f.a*)

Body material

- _Aluminium
- **ac** Steel

Operation



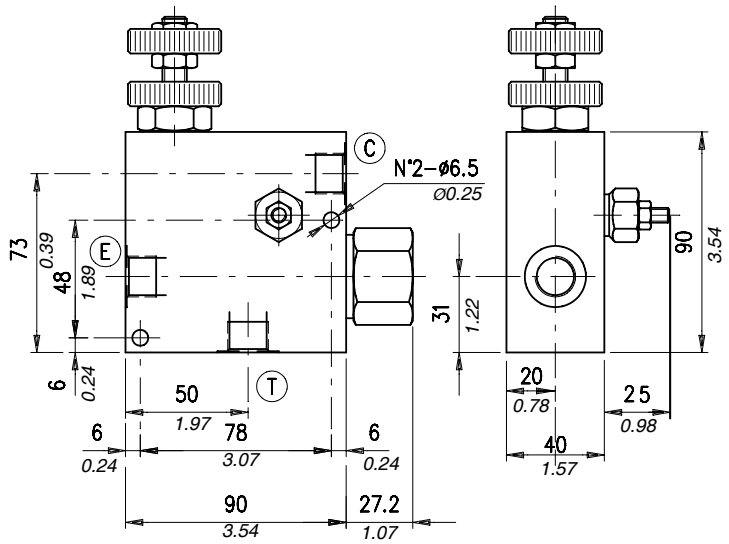
The valve is designed to provide flow adjustment from E to C by a variation of the oil flow section. Exceeding flow is concurrently discharged in T while a pressure built-in relief valve provides operative pressure control in C. Best performance of the valve is assured when the flow in E is at least 10% bigger than in C. Pressure variations in C do not alter the checked oil flow. On the contrary, eventual back pressure in T may cause inconstant capacity in C.

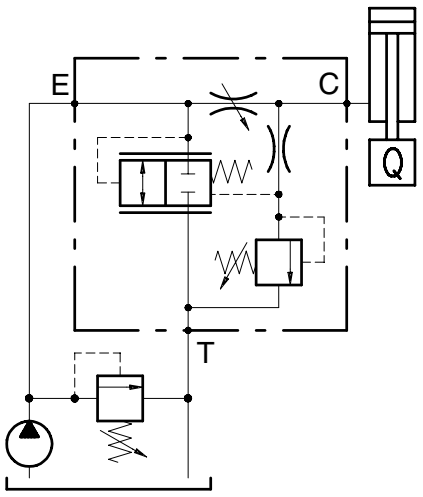
Performance

Body Valves

Type VPR/3/ET/VMP../.../..	Flow		Max. pressure	Weight		Relief cartridge valve
	l/min	*US gpm*		kg	*lb*	
VPR/3/ET/VMP 38	E = 50 C = 30	*E=13* *C=7.9*	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body)	1,10 (aluminium) 2,31 (steel)	*2,42* *(aluminium)* *5,09* *(steel)*	VMP02
VPR/3/ET/VMP 12	E = 90 C = 50	*E=24* *C=14*		1,20 (aluminium) 2,42 (steel)	*2,64* *(aluminium)* *5,33* *(steel)*	
VPR/3/ET/VMP 34/.../.02	E=150 C=90	*E=40* *C=24*	210 bar *-3050 psi-*(aluminium body)	2,10 (aluminium)	*4,62* *(aluminium)*	VMP02
VPR/3/ET/VMP 34/.../.03	E=150 C=90	*E=40* *C=24*	350 *-5100 psi-* (steel body)	4,37 (steel)	*9,63* *(steel)*	MC08A
VPR/3/ET/VMP 100	E=240 C=150	*E=63* *C=40*	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body)	4,10 (aluminium) 8,25 (steel)	*9,04* *(aluminium)* *18,19* *(steel)*	MC08A
VPR/3/ET/VMP 114	E=350 C=250	*E=92* *C=66*		9,45 (aluminium) 23,64 (steel)	*20,83* *(aluminium)* *52,11* *(steel)*	MC08A

Dimensions and hydraulic circuit

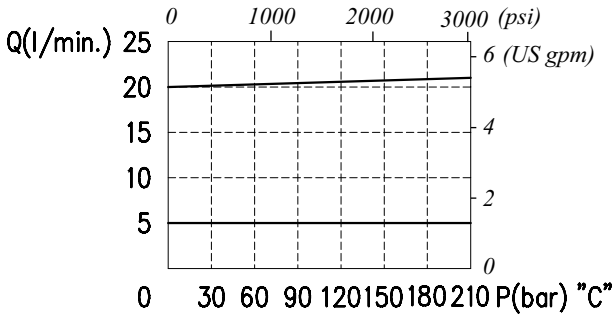




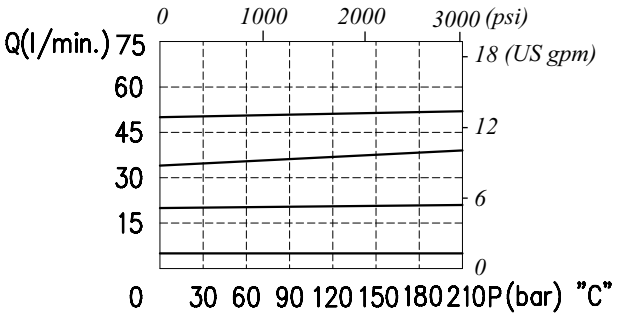
VPR/3/ET/VMP	E	T	C
38	G 3/8	G 3/8	G 3/8
12	G 1/2	G 1/2	G 1/2

Rating diagrams

Pressure compensation diagram (38) E-->C



Pressure compensation diagram (12) E-->C



Order code

VPR /3 /ET /VMP ☐ / ☐ /02 . ☐ / ☐

Port size

38 G 3/8
12 G 1/2

Adjustments (see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

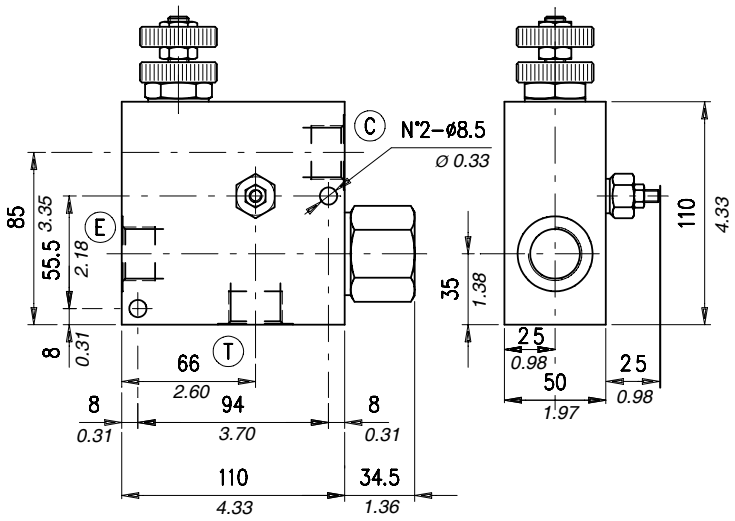
Pressure settings (bar)

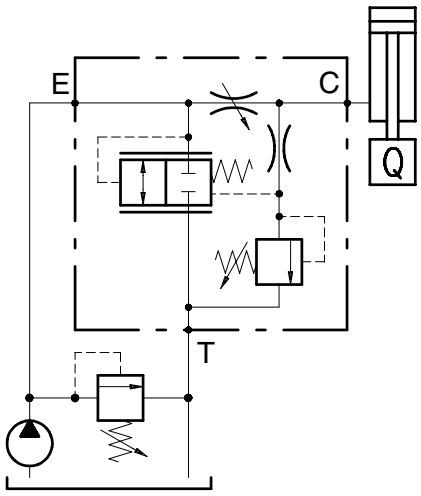
TV 0÷80 *(0÷1150 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷350 *(2600÷5100 psi)*

Body material

_Aluminium
ac Steel

Dimensions and hydraulic circuit

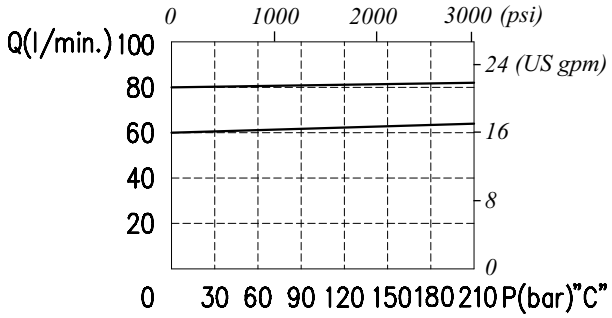




E	T	c
G 3/4	G 3/4	G 3/4

Rating diagrams

Pressure compensation diagram E-->C



Order code

VPR /3 /ET /VMP 34 / □ / 02 . □ /

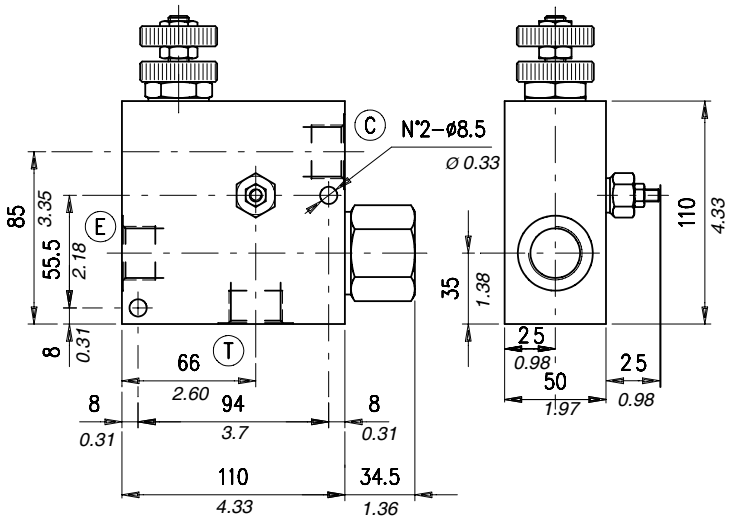
Pressure settings (bar)

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

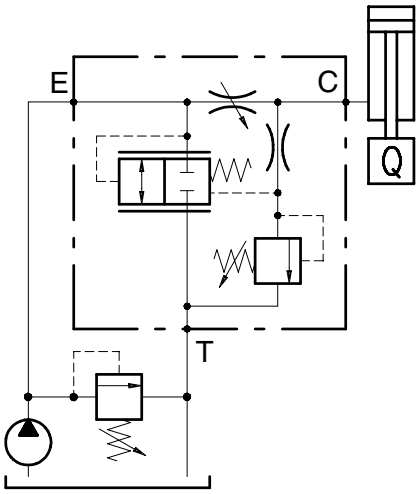
Adjustments

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Dimensions and hydraulic circuit

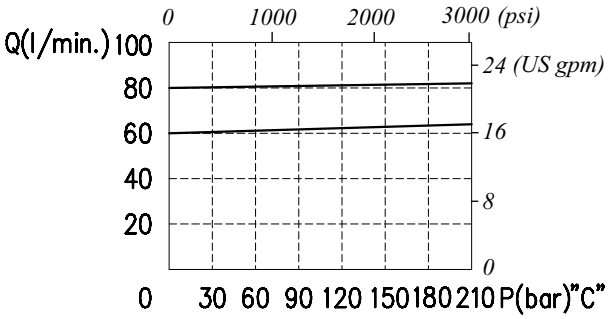


E	T	C
G 3/4	G 3/4	G 3/4



Rating diagrams

Pressure compensation diagram E-->C



Order code

VPR /3 /ET /VMP 34 / □ / 03 . □ / ac

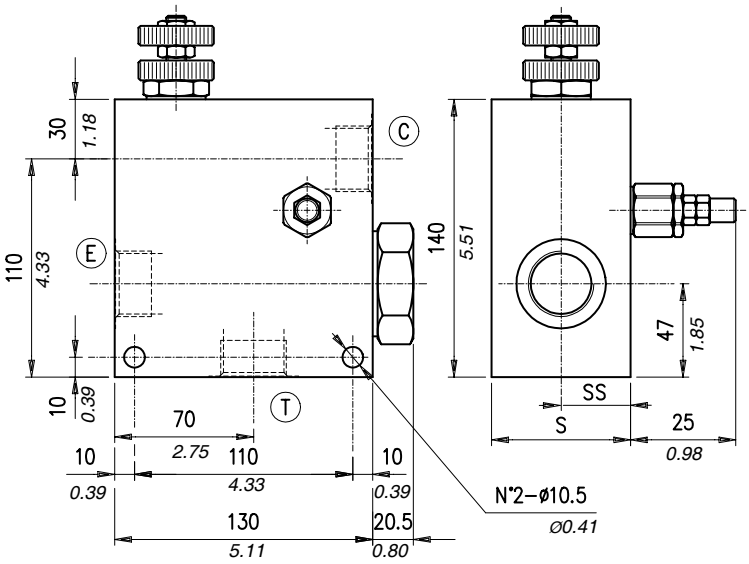
Pressure settings (bar)

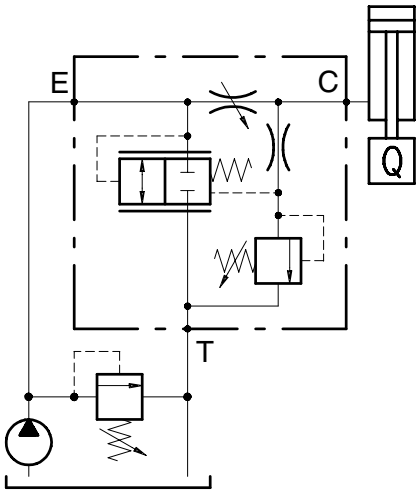
TB 0÷50 *(0÷725 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷400 *(2600÷5800 psi)*

Adjustment
(see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Dimensions and hydraulic circuit





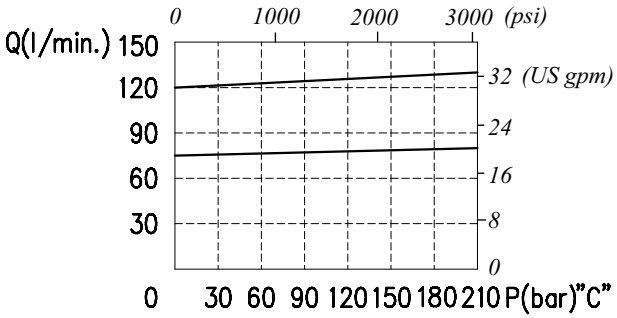
E	T	C
G 1	G 1	G 1

S	SS	Material
70 -2.75	35 -1.38	Aluminium
65 -2.56	32.5 -1.28	Steel

Dimensions are in mm - *in*

Rating diagrams

Pressure compensation diagram E-->C



Order code

VPR /3 /ET /VMP 100 / ☐ /03 . ☐ / ☐

Adjustments
(see page 122)

- **S** (screw)
- **V** (handknob)
- **L** (lever)
- **MG** (handknob calibrated *m.a*)
- **MGB** (handknob calibrated *f.a*)

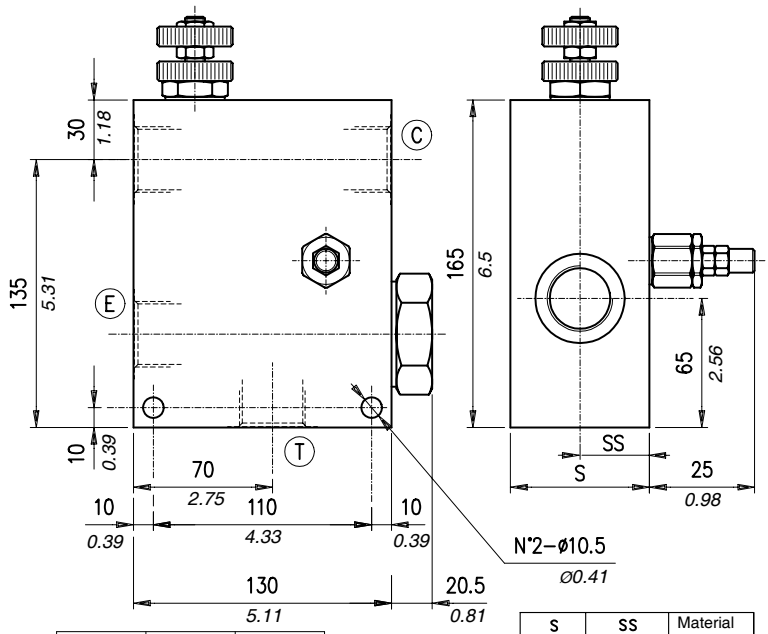
Pressure settings (bar)

- **TB** 0÷50 *(0÷725 psi)*
- **TS** 50÷220 *(725÷3200 psi)*
- **TR** 180÷400 *(2610÷5800 psi)*

Body material

- _Aluminium
- **ac** Steel

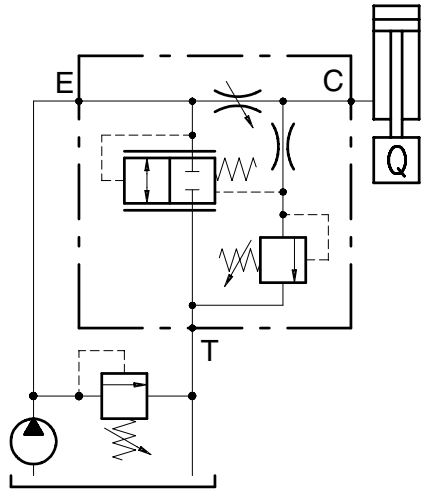
Dimensions and hydraulic circuit



E	T	C
G 1 1/4	G 1 1/4	G 1 1/4

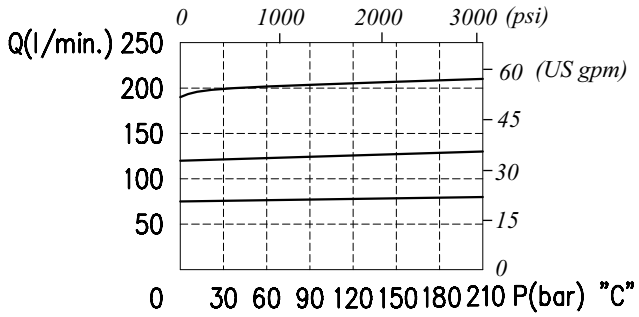
S	SS	Material
70- *2.75*	35 - *1.38*	Aluminium
65- *2.56*	32.5 - *1.28*	Steel

Dimensions are in mm - *in*



Rating diagrams

Pressure compensation diagram E-->C



Order code

VPR /3 /ET /VMP 114 / □ /03 . □ / □

Adjustments
(see page 122)

- **S** (screw)
- **V** (handknob)
- **L** (lever)
- **MG** (handknob calibrated *m.a*)
- **MGB** (handknob calibrated *f.a*)

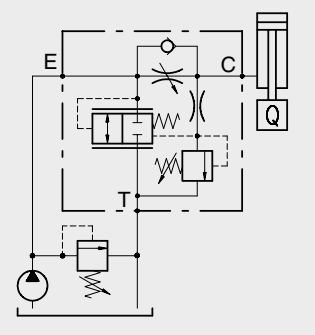
Pressure settings (bar)

- **TB** 0÷50 *(0÷725 psi)*
- **TS** 50÷220 *(725÷3200 psi)*
- **TR** 180÷400 *(2600÷5800 psi)*

Body material

- _Aluminium
- **ac** Steel

Operation



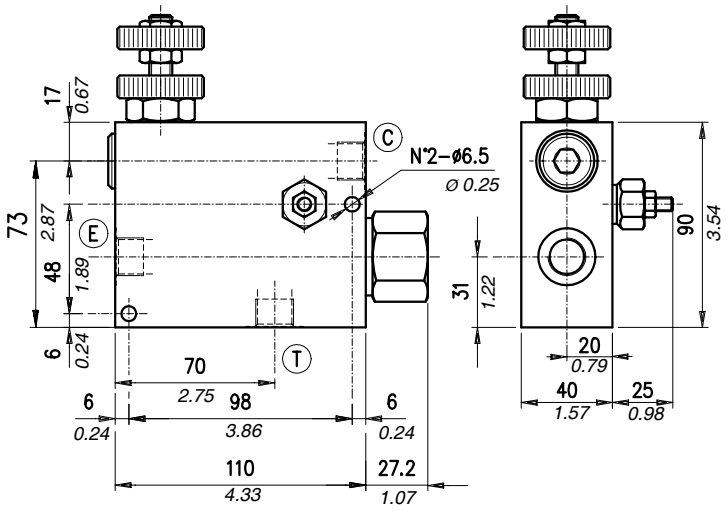
The valve is designed to provide flow adjustment from E to C by a variation of the oil flow section. Exceeding flow is concurrently discharged in T while a pressure built-in relief valve provides operative pressure control in C. Best performance of the valve is assured when the flow in E is at least 10% bigger than in C. Pressure variations in C do not alter the checked oil flow. On the contrary, eventual back pressure in T may cause inconstant capacity in C.

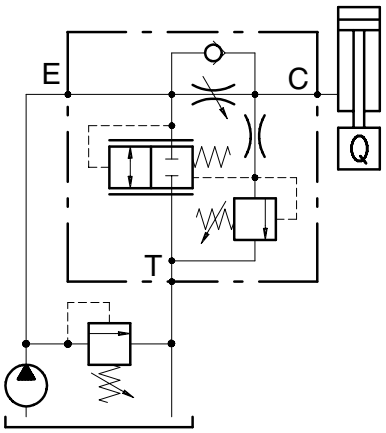
Performance

Body Valves

Type VPR/3/ET/RL/VMP../.../..	Flow		Max. pressure	Weight		Relief cartridge valve
	l/min	*US gpm*		kg	*lb*	
VPR/3/ET/RL/VMP 38	E = 50 C = 30	*E=13* *C=7.9*	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body)	1,30 (aluminium) 2,78 (steel)	*2,87* *(aluminium)* *6,13* *(steel)*	VMP02
VPR/3/ET/RL/VMP 12	E = 90 C = 50	*E=24* *C=13*		1,25 (aluminium) 2,68 (steel)	*2,75* *(aluminium)* *5,9* *(steel)*	
VPR/3/ET/RL/VMP 34/.../.02	E=150 C=90	*E=40* *C=24*		2,83 (aluminium) 6,00 (steel)	*6,24* *(aluminium)* *13,22* *(steel)*	VMP02
VPR/3/ET/RL/VMP 34/.../.03	E=150 C=90	*E=40* *C=24*	350 *-5100 psi-* (aluminium body)	6,00 (steel)	*13,22* *(steel)*	MC08A

Dimensions and hydraulic circuit

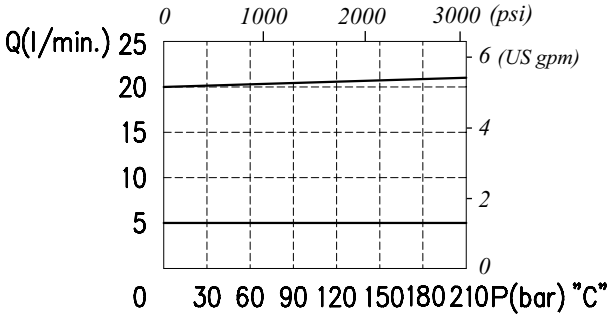




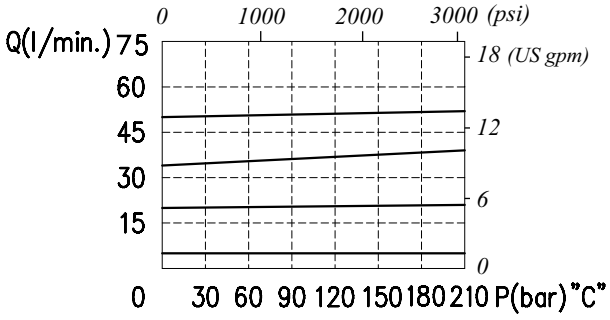
VPR/3/ET/RL/VMP	E	T	C
38	G 3/8	G 3/8	G 3/8
12	G 1/2	G 1/2	G 1/2

Rating diagrams

Pressure compensation diagram (38) E-->C



Pressure compensation diagram (12) E-->C



Order code

VPR /3 /ET /RL /VMP □ / □ / □ /02 . □ / □

Port size

38 G 3/8
12 G 1/2

Adjustments (see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

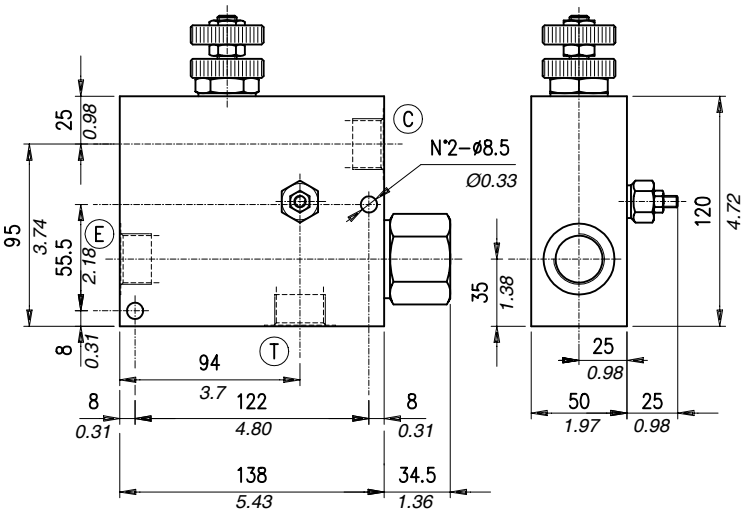
Pressure settings (bar)

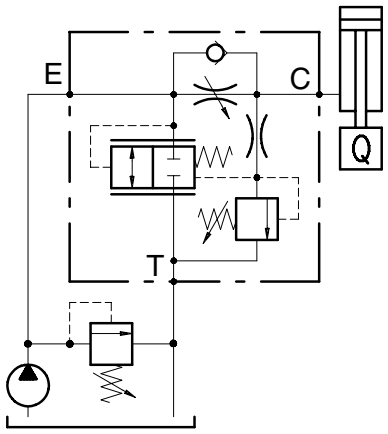
TV 0÷80 *(0÷1150 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷350 *(2600÷5100 psi)*

Body material

_Aluminium
ac Steel

Dimensions and hydraulic circuit

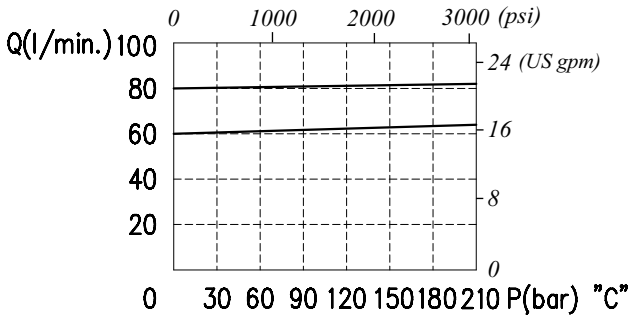




E	T	C
G 3/4	G 3/4	G 3/4

Rating diagrams

Pressure compensation diagram E-->C



Order code

VPR/3/ET/RL/VMP 34/ □/02.□ /□

Pressure settings (bar)

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

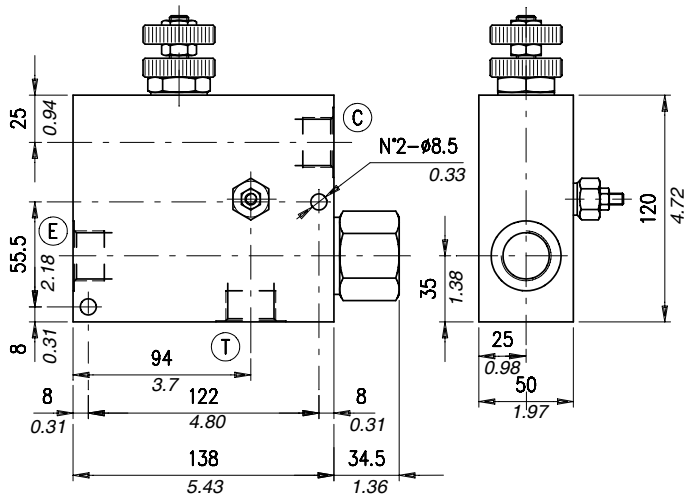
Adjustments
(see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

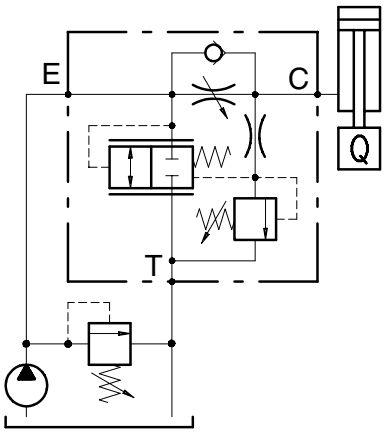
Body material

_Aluminium
ac Steel

Dimensions and hydraulic circuit

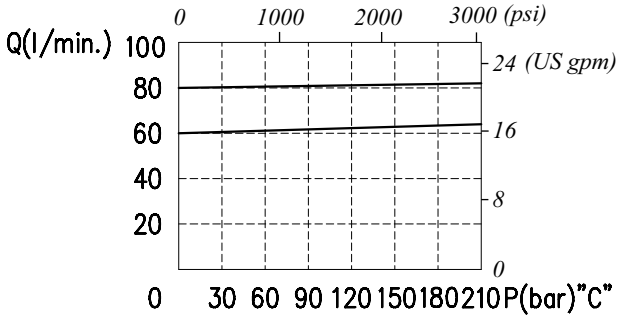


E	T	C
G 3/4	G 3/4	G 3/4



Rating diagrams

Pressure compensation diagram E-->C



Order code

VPR /3 /ET /RL /VMP 34 / □ / 03 . □ / ac

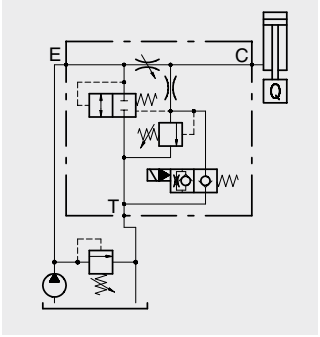
Pressure settings (bar)

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

Adjustments
(see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Operation



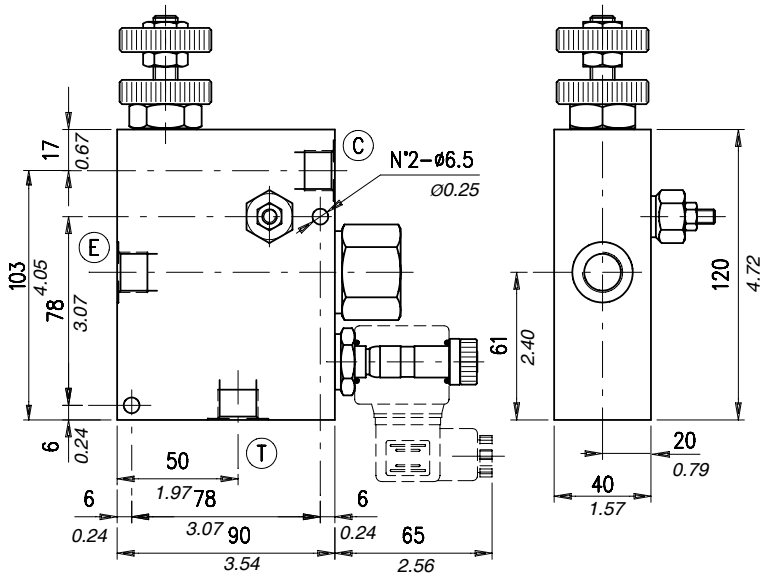
The valve is designed to provide flow adjustment from E to C by a variation of the oil flow section. Exceeding flow is concurrently discharged in T. A pressure built-in relief valve provides operative pressure control in C while the solenoid allows oil discharge of the checked flow. Best performance of the valve is assured when the flow in E is at least 10% bigger than in C. Pressure variations in C do not alter the checked oil flow. On the contrary, eventual back pressure in T may cause inconstant capacity in C.

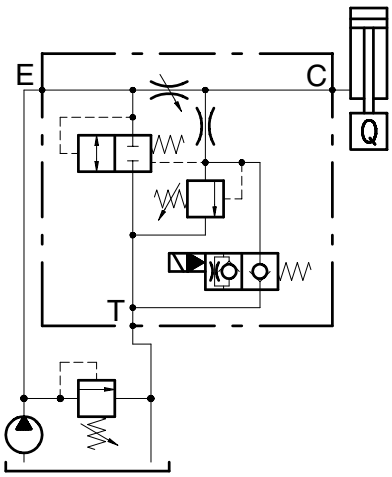
Performance

Body Valves

Type VPR/3/ET..+VMP+VE	Flow		Max pressure	Coils	Weight		Relief cartridge valve
	l/min	*US gpm*			kg	*lb*	
VPR/3/ET 38 (12)+VMP+VE	(38) E=50 C=30 (12) E=90 C=50	*(38)* *E=13* *C=7.9* *(12)* *E=24* *C=13*	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body)	BE/ … (210 bar *-3050 psi-*) see page 116 BT/ … (350 bar *-5100 psi-*) see page 119	1,45 (alum.) 3,08 (steel)	*3,19* *(alum.)* *6,79* *(steel)*	VMP02 electic valve (210 bar *-3050 psi-*) EC08A electic valve (350 bar *-5100 psi-*) EC08B
VPR/3/ET/34+VMP+VE	E=150 C=90	*E=40* *C=24*			2,61 (alum.) 5,54 (steel)	*5,75* *(alum.)* *12,21* *(steel)*	
VPR/3/ET/100+VMP+VE	E=240 C=150	*E=63* *C=40*			5,70 (alum.) 12,21 (steel)	*12,56* *(alum.)* *26,92* *(steel)*	

Dimensions and hydraulic circuit

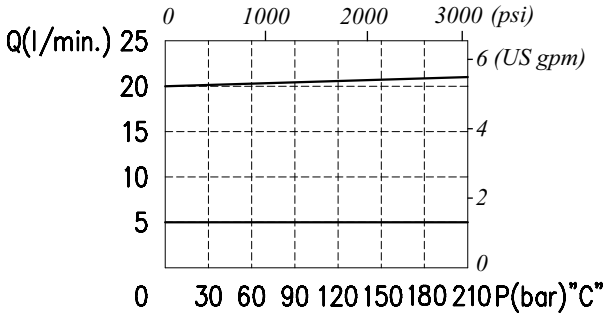




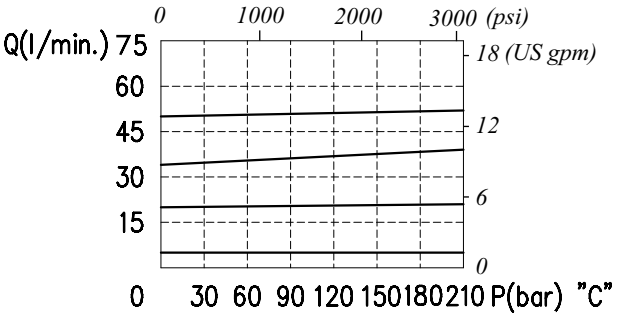
VPR/3/ET ...+VMP+VE	E	T	C
38	G 3/8	G 3/8	G 3/8
12	G 1/2	G 1/2	G 1/2

Rating diagrams

Pressure compensation diagram (38) E-->C



Pressure compensation diagram (12) E-->C



Order code

VPR /3 /ET □ +VMP +VE . □ / □ /02 . □ / □

Port size

38 G 3/8
12 G 1/2

Assembly scheme

NA) Normally opened
NC) Normally closed

Adjustments (see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

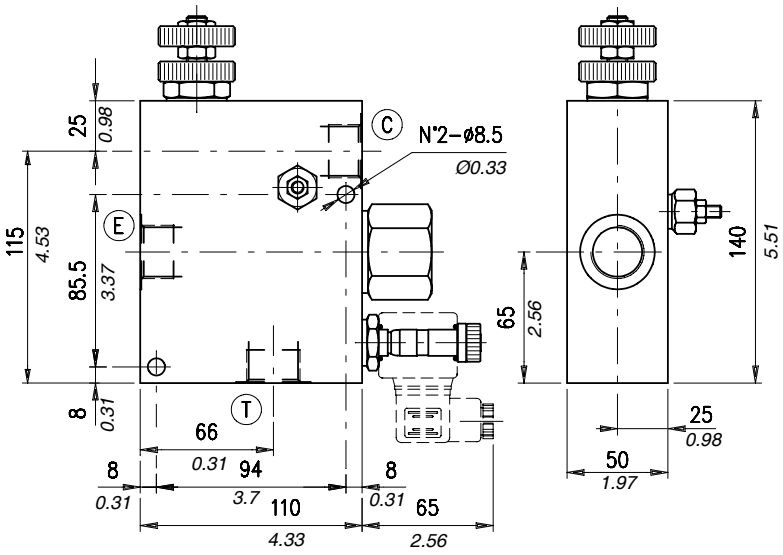
Pressure settings (bar)

TV 0÷80 *(0÷1150 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷350 *(2600÷5100 psi)*

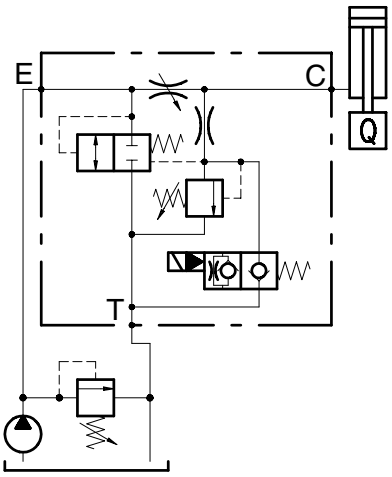
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

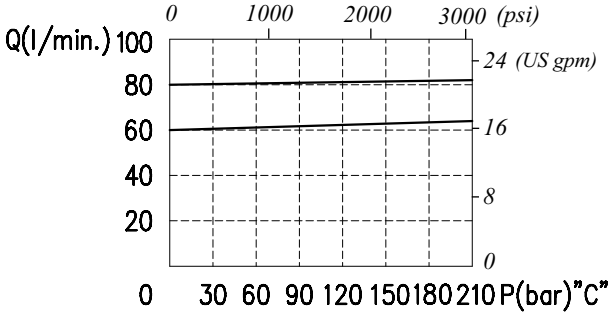


E	T	C
G 3/4	G 3/4	G 3/4



Rating diagrams

Pressure compensation diagram E-->C



Order code

VPR /3 /ET 34 +VMP +VE . ☐ / ☐ /02 . ☐ / ☐

Assembly scheme

NA) Normally opened
NC) Normally closed

Adjustments (see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

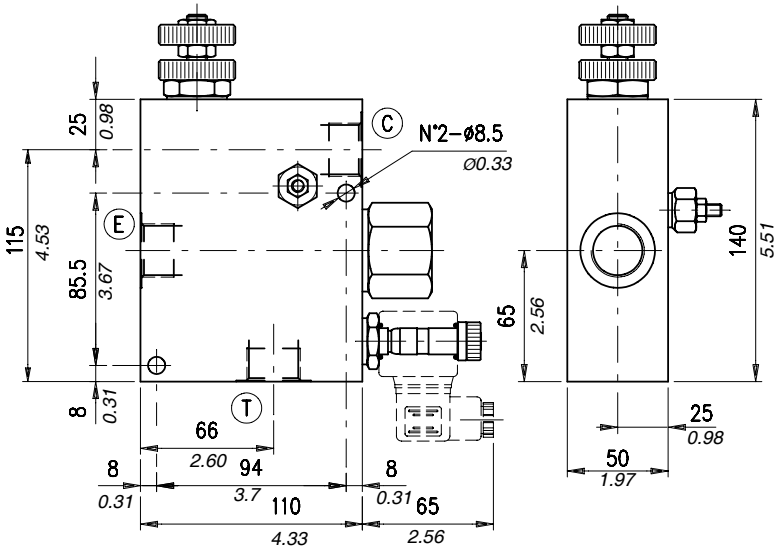
Pressure settings (bar)

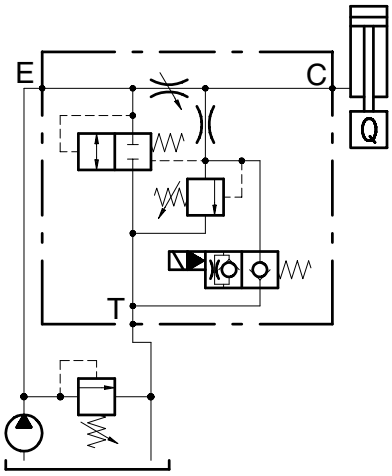
TV 0÷80 *(0÷1150 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷350 *(2600÷5100 psi)*

Body material

_ Aluminium
acSteel

Dimensions and hydraulic circuit

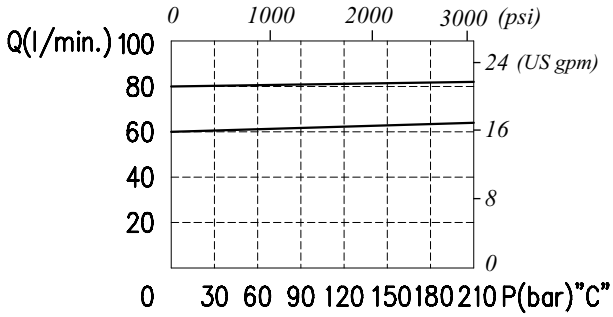




E	T	C
G 3/4	G 3/4	G 3/4

Rating diagrams

Pressure compensation diagram E-->C



Order code

VPR /3 /ET 100 +VMP +VE . ☐ / ☐ /03 . ☐ / ☐

Assembly scheme

NA) Normally opened
NC) Normally closed

Adjustments (see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Pressure settings (bar)

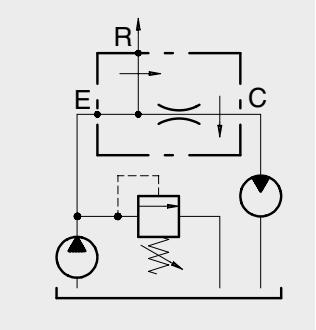
TV 0÷80 *(0÷1150 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷350 *(2600÷5100 psi)*

Body material

_ Aluminium
acSteel

Operation

The valve is designed to keep constant flow in C and concurrently discharge exceeding flow in R for other applications. Best performance of the valve is assured when the flow in E is at least 10% bigger than in C. Pressure variations in C and R do not alter the constant flow in C. Make sure that a pressure relief valve is always used between the pump and the valve.



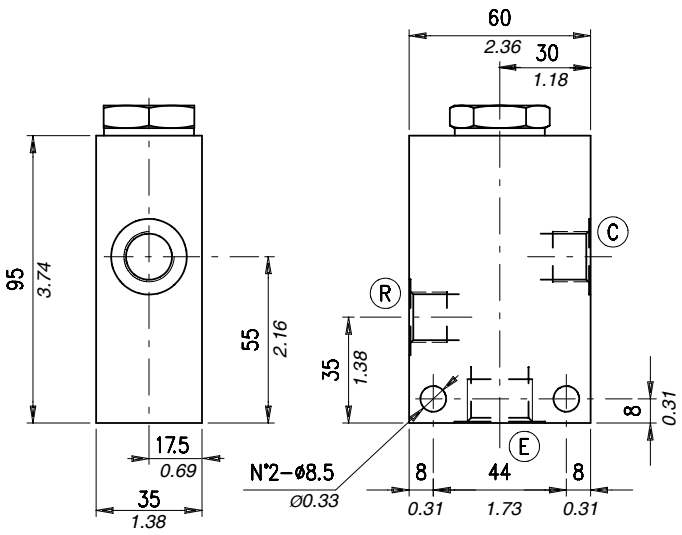
Performance

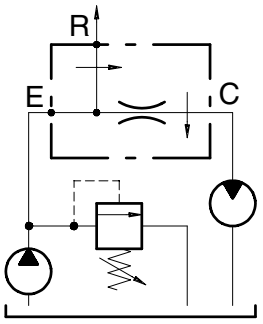
Body Valves

Type VPF/3/EP..	Max flow in E		Flow regolated in C (l/min.) depending on the fixed orifice size														
	l/min	*US gpm*	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
			mm	1	1,5	2	2,5	2,8	3	3,5	3,8	4	4,5	5	5,5	6	6,5	7
			in	*0.040*	*0.059*	*0.079*	*0.098*	*0.11*	*0.12*	*0.14*	*0.15*	*0.16*	*0.18*	*0.20*	*0.21*	*0.24*	*0.25*	*0.27*
VPF/3/EP38	60	*16*	**l/min**	1,2	2,8	5	7,5	9,5	11	16	20	23	-	-	-	-	-	-
			US gpm	*0.3*	*0.7*	*1.3*	*2*	*2.5*	*2.9*	*4.2*	*5.3*	*6*	-	-	-	-	-	-
VPF/3/EP12	100	*26*	**l/min**	1,1	2,5	4	6,5	8	9,5	13	16	18	25	32	41	-	-	-
			US gpm	*0.3*	*0.7*	*1*	*1.7*	*2.1*	*2.5*	*3.4*	*4.2*	*4.7*	*6.6*	*8.4*	*11*	-	-	-
VPF/3/EP34	150	*40*	**l/min**	1,3	3	5	7,5	-	11	15	-	20,5	26,5	33	42	52	63	77
			US gpm	*0.3*	*0.8*	*1.3*	*2*	-	*2.9*	*4*	-	*5.4*	*7*	*8.7*	*11*	*14*	*17*	*20*

Type VPF/3/EP..	Values have been pointed out a the following cond.	Max. Press.	Weight	
			kg	*lb*
VPF/3/EP38	flow in E: 40 l/min *(11 US gpm)* no load on both, R and C ports	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body)	0,60 (alum.) 1,35 (steel)	1,32 (alum.) 2,98 (steel)
VPF/3/EP12	flow in E: 80 l/min *(21 US gpm)* no load on both, R and C ports		0,85 (alum.) 1,97 (steel)	1,87 (alum.) 4,34 (steel)
VPF/3/EP34	flow in E: 100 l/min *(26 US gpm)* no load on both, R and C ports		1,67 (alum.) 3,58 (steel)	3,68 (alum.) 7,89 (steel)

Dimensions and hydraulic circuit

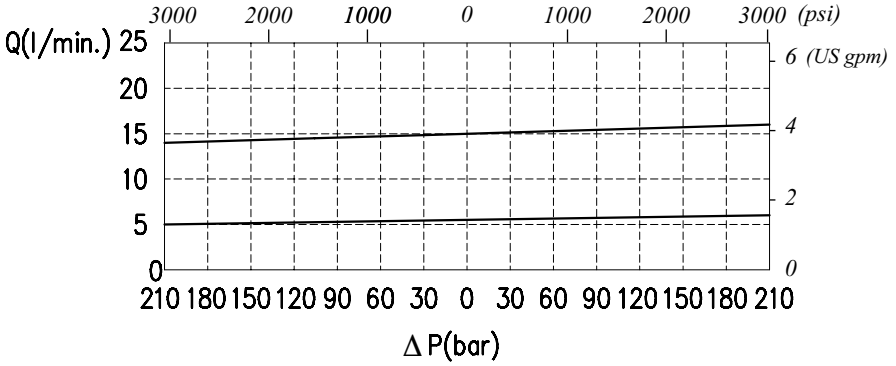




VPF/3/EP	E	R–C
38	G 1/2	G 3/8

Rating diagrams

Compensation diagram in C changing the Δp between E and R



Order code

VPF /3 /EP 38 /DS ☐ / ☐

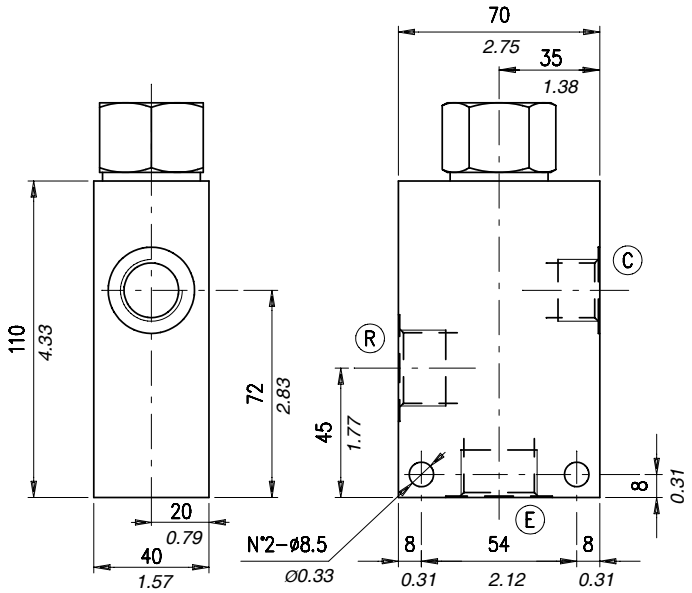
Fixed Orifice Size (mm)

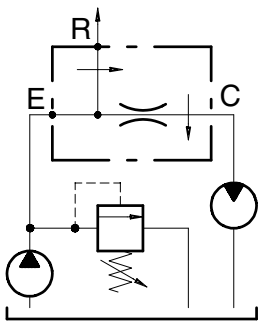
1 *(3,93x10² in)* **3** *(11,81x10² in)*
1,5 *(5,90x10² in)* **3,5** *(13,77x10² in)*
2 *(7,87x10² in)* **3,8** *(14,96x10² in)*
2,5 *(9,84x10² in)* **4** *(15,74x10² in)*
2,8 *(11,02x10² in)*

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

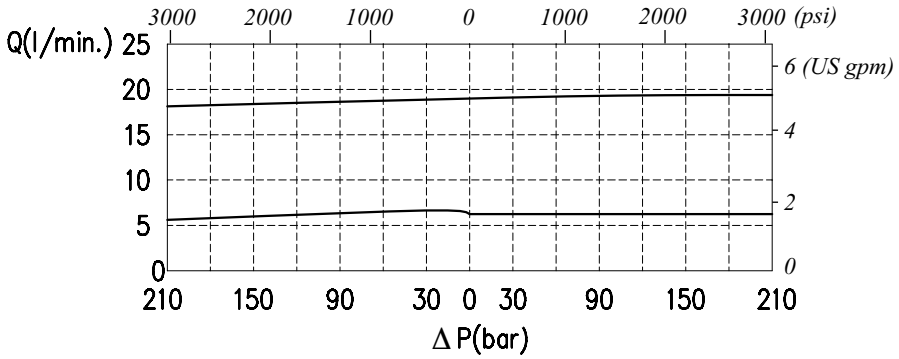




E–R	C
G 3/4	G 1/2

Rating diagrams

Compensation diagram in C changing the Δp between E and R



Order code

VPF /3 /EP 12 /DS □ / □

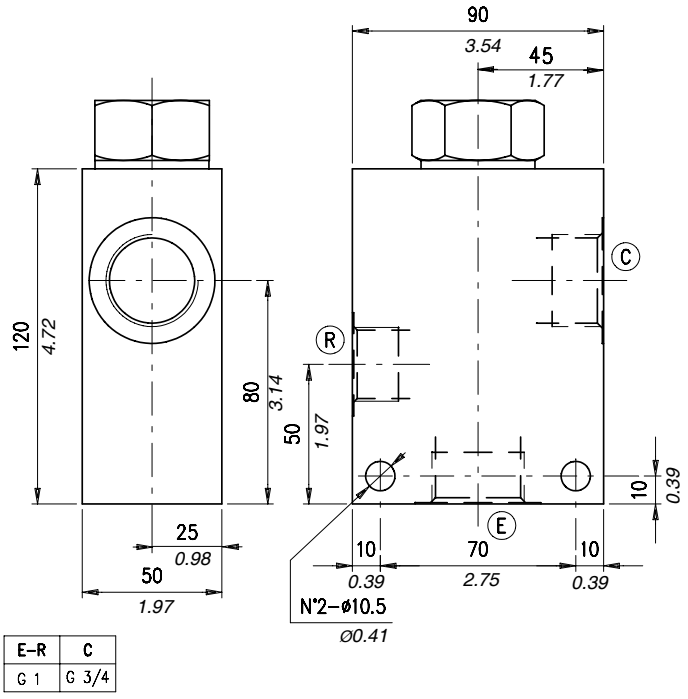
Fixed Orifice Size (mm)

1 *(3,93x10² in)* **3,5** *(13,77x10² in)*
1,5 *(5,90x10² in)* **3,8** *(14,96x10² in)*
2 *(7,87x10² in)* **4** *(15,74x10² in)*
2,5 *(9,84x10² in)* **4,5** *(17,71x10² in)*
2,8 *(11,02x10² in)* **5** *(19,68x10² in)*
3 *(11,81x10² in)* **5,5** *(19,68x10² in)*

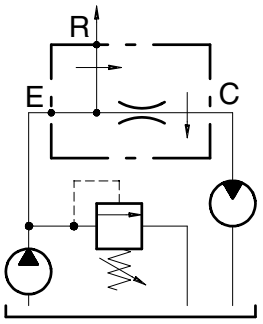
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

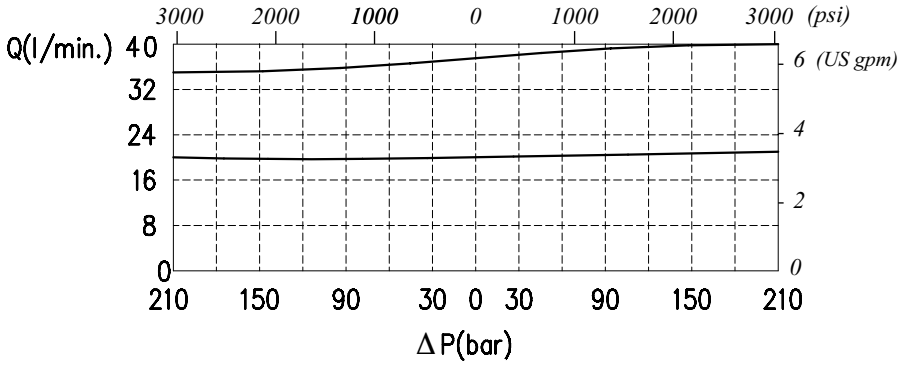


E–R	C
G 1	G 3/4



Rating diagrams

Compensation diagram in C changing the Δp between E and R



Order code

VPF /3 /EP 34 /DS □ / □

Fixed Orifice Size (mm)

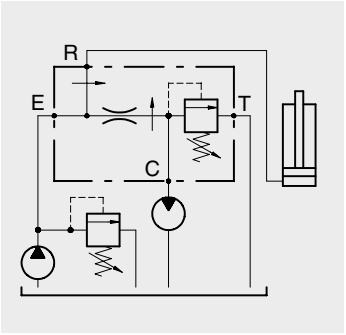
1 *(3,93x10² in)*
1,5 *(5,90x10² in)*
2 *(7,87x10² in)*
2,5 *(9,84x10² in)*
3 *(11,81x10² in)*
3,5 *(13,77x10² in)*
4 *(15,74x10² in)*
4,5 *(17,71x10² in)*
5 *(19,68x10² in)*
5,5 *(19,68x10² in)*
6 *(23,62x10² in)*
6,5 *(25,59x10² in)*
7 *(27,55x10² in)*

Body material

_ Aluminium
ac Steel

Operation

The valve is designed to keep constant flow in C and concurrently discharge exceeding flow in R for other applications. Best performance of the valve is assured when the flow in E is at least 10% bigger than in C. Pressure variations in C and R do not alter the constant flow in C. Make sure that a pressure relief valve is always used between the pump and the valve.



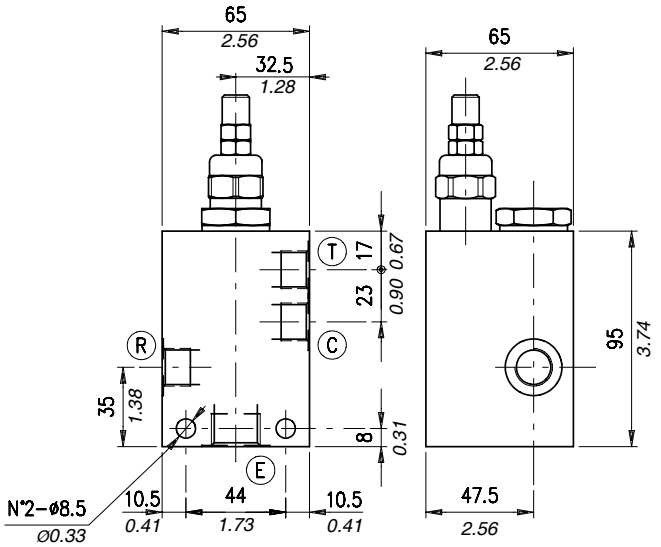
Performance

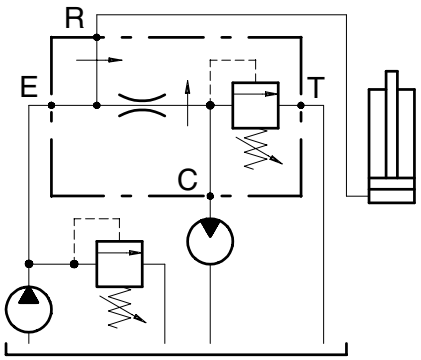
Body Valves

Type VPF/3/ EP..+VMP	Max flow in E		Flow regolated in C (l/min.) depending on the fixed orifice size														
			Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
	l/min	*US gpm*	mm	1	1,5	2	2,5	2,8	3	3,5	3,8	4	4,5	5	5,5	6	6,5	7
			in	*0.040*	*0.059*	*0.079*	*0.098*	*0.11*	*0.12*	*0.14*	*0.15*	*0.16*	*0.18*	*0.20*	*0.21*	*0.24*	*0.25*	*0.27*
VPF/3/EP38 +VMP	60	*16*	l/min	1,5	2,8	5	7,5	9,8	10,3	15	22	26	-	-	-	-	-	-
			US gpm	*0.4*	*0.7*	*1.3*	*2*	*2.6*	*2.7*	*4*	*5.8*	*6.9*	-	-	-	-	-	-
VPF/3/EP12 +VMP	100	*26*	l/min	1,1	2,5	4	6	8,8	9,5	13	18	19,5	26	33	46	-	-	-
			US gpm	*0.29*	*0.66*	*1*	*1.6*	*2.3*	*2.5*	*3.4*	*4.7*	*5.1*	*6.9*	*8.7*	*12*	-	-	-
VPF/3/EP34 +VMP	150	*40*	l/min	1,7	3	5	7,5	-	11	16	-	20,5	26,5	38	43	55	68	88
			US gpm	*0.45*	*0.79*	*1.3*	*2*	-	*2.9*	*4.2*	-	*5.4*	*7*	*10*	*11*	*14*	*18*	*23*

Type VPF/3/ EP..+VMP	Values have been pointed out a the following cond.	Max. Press.	Weight	
			kg	*lb*
VPF/3/EP38 +VMP	flow in E: 40 l/min *(11 US gpm)* no load on both, R and C ports	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body)	1,30 (alum.) 2,94 (steel)	2,87 (alum.) 6,48 (steel)
VPF/3/EP12 +VMP	flow in E: 80 l/min *(21 US gpm)* no load on both, R and C ports		1,90 (alum.) 4,38 (steel)	4,19 (alum.) 9,66 (steel)
VPF/3/EP34 +VMP	flow in E: 100 l/min *(26 US gpm)* no load on both, R and C ports		3,12 (alum.) 6,77 (steel)	6,88 (alum.) 14,92 (steel)

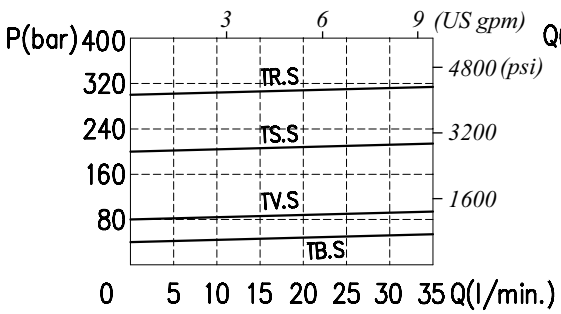
Dimensions and assembly diagram



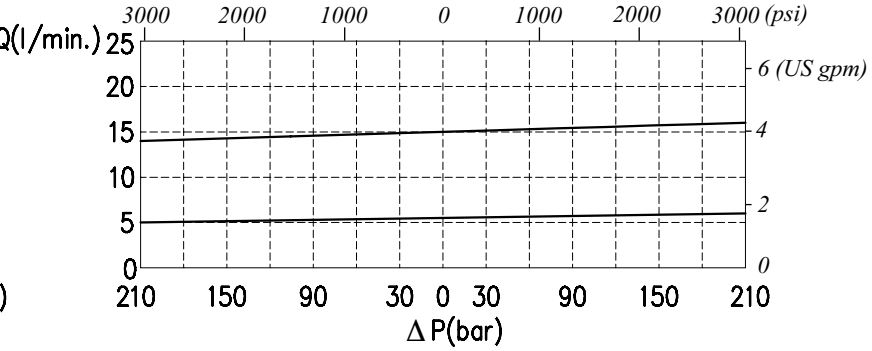


Rating diagrams

VMP operating diagram according to setting range



Compensation diagram in C changing the Δp between E and R



Order code

VPF /3 /EP 38 + VMP /DS □ / 5 .□ /□

Fixed Orifice Size (mm)

- **1** *(3,93x10² in)*
- **1,5** *(5,90x10² in)*
- **2** *(7,87x10² in)*
- **2,5** *(9,84x10² in)*
- **2,8** *(11,02x10² in)*
- **3** *(11,81x10² in)*
- **3,5** *(13,77x10² in)*
- **3,8** *(14,96x10² in)*
- **4** *(15,74x10² in)*

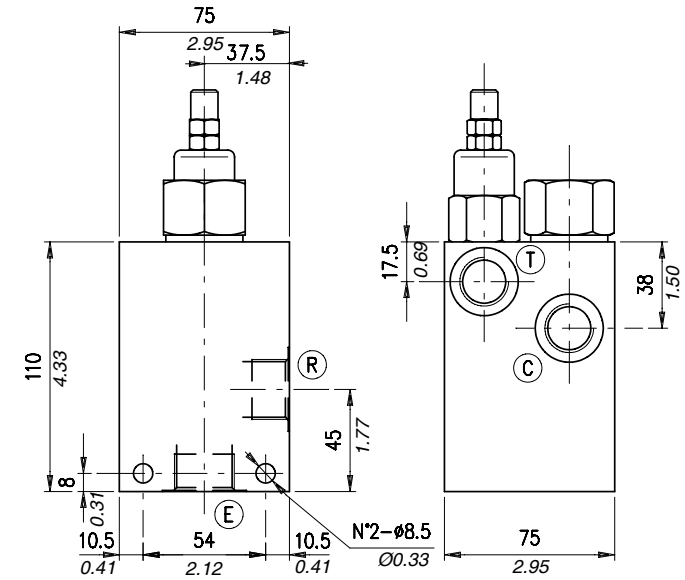
Pressure settings (bar)

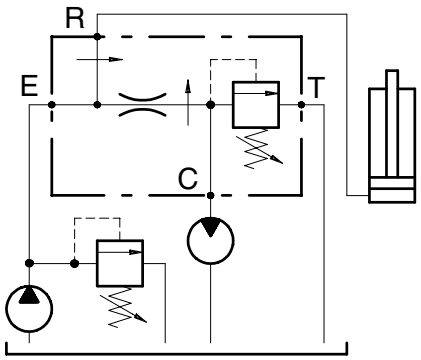
- **TB** 0÷40 *(0÷580)*
- **TV** 20÷80 *(290÷1150 psi)*
- **TS** 50÷220 *(725÷3200 psi)*
- **TR** 180÷400 *(2600÷5800 psi)*

Body material

- _ Aluminium
- **ac** Steel

Dimensions and hydraulic circuit

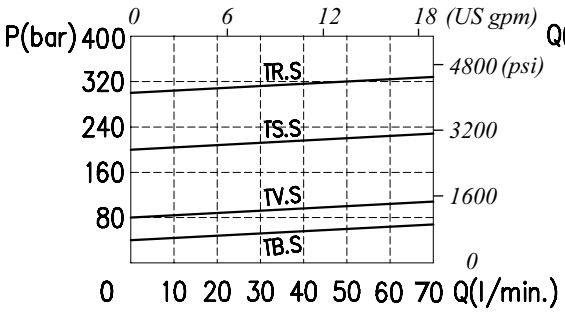




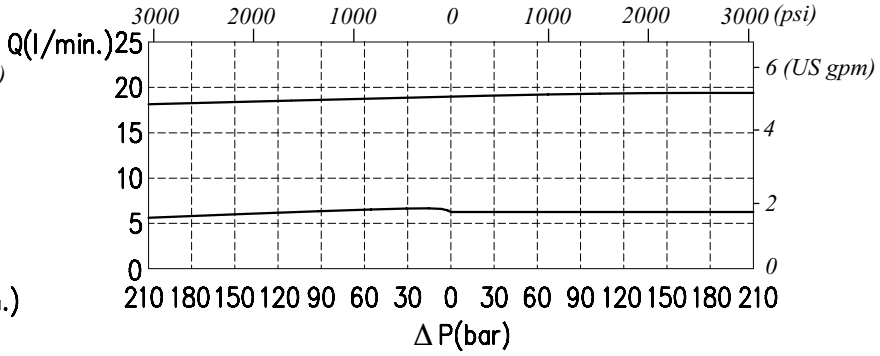
E–R	T–C
G 3/4	G 1/2

Rating diagrams

VMP operating diagram according to setting range



Compensation diagram in C changing the Δp between E and R



Order code

VPF /3 /EP 12 + VMP /DS □ / 10 .□ /□

Fixed Orifice Size

1 *(3,93x10² in)*
1,5 *(5,90x10² in)*
2 *(7,87x10² in)*
2,5 *(9,84x10² in)*
2,8 *(11,02x10² in)*
3 *(11,81x10² in)*
3,5 *(13,77x10² in)*
3,8 *(14,96x10² in)*
4 *(15,74x10² in)*
4,5 *(17,71x10² in)*
5 *(19,68x10² in)*
5,5 *(19,68x10² in)*

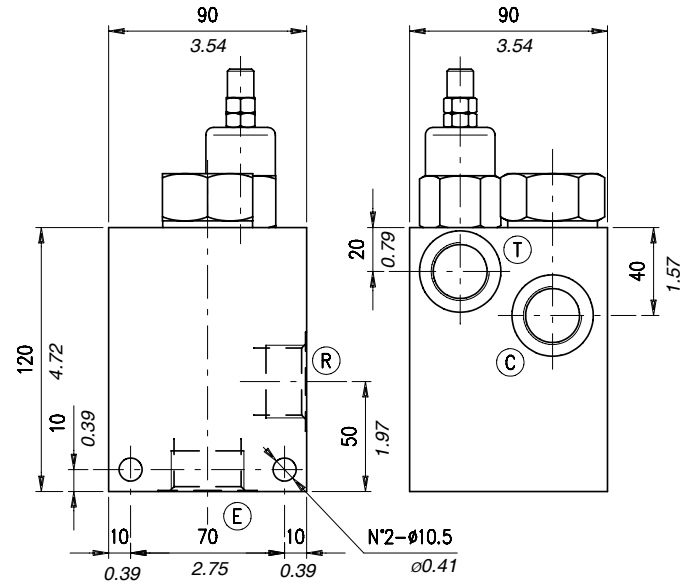
Pressure settings (bar)

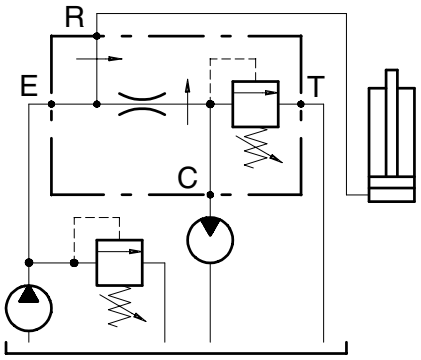
TB 0÷40 *(0÷580 psi)*
TV 20÷80 *(290÷1150 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷400 *(2600÷5800 psi)*

Body material

_ Aluminium
acSteel

Dimensions and hydraulic circuit

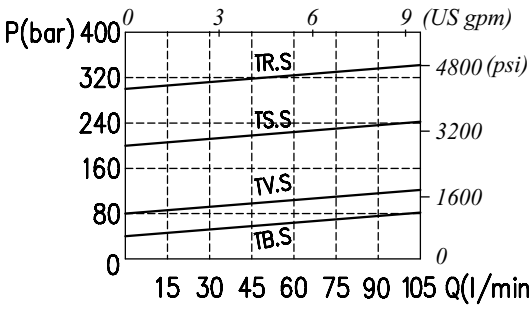




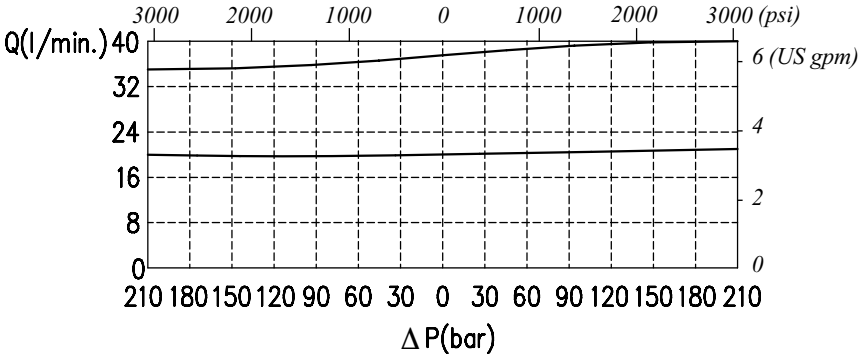
E–R	T–C
G 1	G 3/4

Rating diagrams

VMP operating diagram according to setting range



Compensation diagram in C changing the Δp between E and R



Order code

VPF /3 /EP 34 + VMP /DS □ / 20 .□ /□

Fixed Orifice Size

1 *(3,93x10² in)*
1,5 *(5,90x10² in)*
2 *(7,87x10² in)*
2,5 *(9,84x10² in)*
3 *(11,81x10² in)*
3,5 *(11,81x10² in)*
4 *(15,74x10² in)*
4,5 *(17,71x10² in)*
5 *(19,68x10² in)*
5,5 *(19,68x10² in)*
6 *(23,62x10² in)*
6,5 *(25,59x10² in)*
7 *(27,55x10² in)*

Pressure settings (bar)

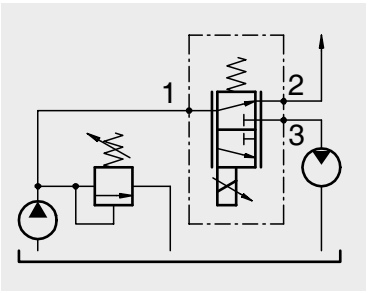
TB 0÷40 *(0÷580 psi)*
TV 20÷80 *(290÷1150 psi)*
TS 50÷220 *(725÷3190 psi)*
TR 180÷400 *(2610÷5800 psi)*

Body material

_ Aluminium
ac Steel

Operation

This valve is normally closed when coil is de-energized;the PP08W regulates flow out of port3 proportionally to the input solenois current, regardless of system working pressure regulated flow is virtually indipendent of pressure drop fluctuation across the valve.
Coil include a standard manual override button.

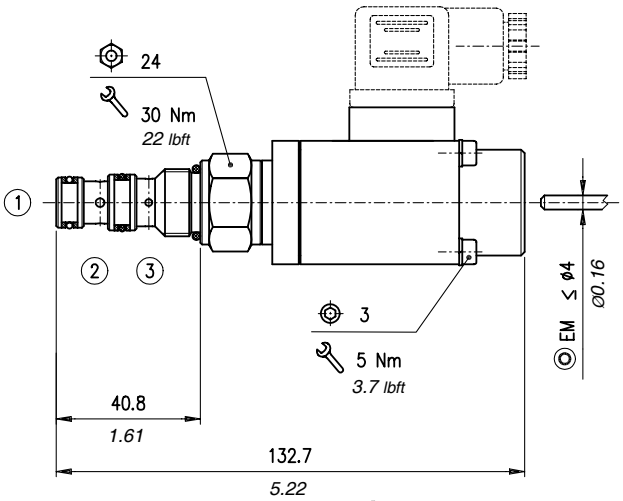


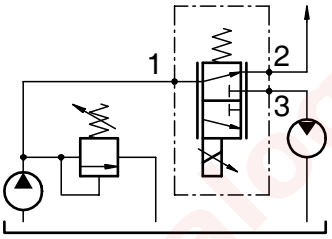
Performance

Cartridges

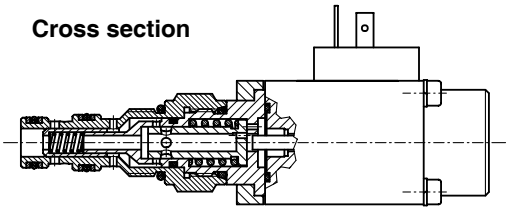
Type PP..W	Flow l/min	Flow *US gpm*	Max. pressure	Threshold current	Max control current	Dither (Hz)	Hystersis with 150 Hz dither	Internal leakage from 1 to 2 with valve fully closed	Weight kg *lb*	Cavities and tools
PP08W	12	*3.2*	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body	400 ±70 mA for coils 12V 200 ±35 mA for coils 24V	1100 ±200 mA for coils 12V 600 ±100 mA for coils 24V	150	8%	30 cm³min *-1.83 in³/min-* at 210 bar *-3050 psi-*	0,81 *1.78*	see page 130 SAE 8/3
PP10W	30	*7.9*								see page 130 SAE 10/3
PP12W	50	*14*						50 ccm³min *-3.05 in³/min-* at 210 bar *-3050 psi-*		see page 130 SAE 12/3
PP16W	90	*24*			1500 ±200 mA for coils 12V 700 ±100 mA for coils 24V			70 cm³min at *-4.27 in³/min-* at 210 bar *-3050 psi-*	1,3 *2.87*	see page 130 SAE 16/3

Dimensions and hydraulic circuit



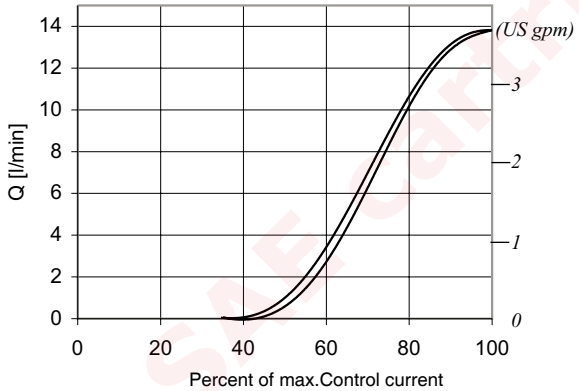


Cross section

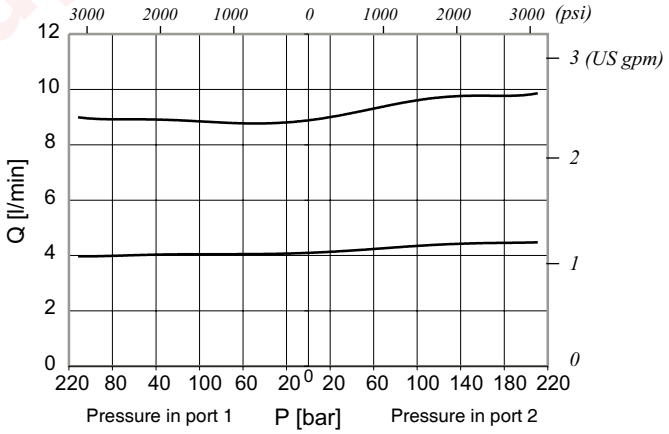


Rating diagrams

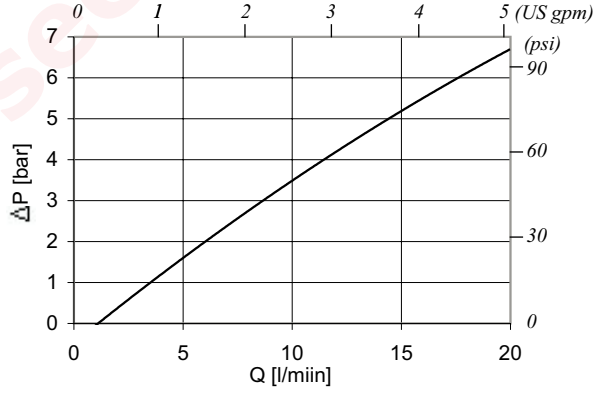
Flow vs current
Voltage supply 12/24Volt



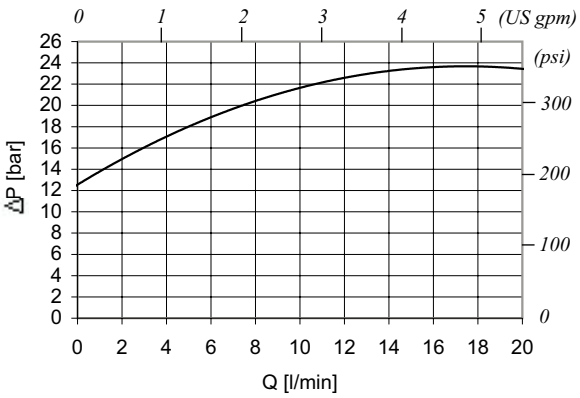
Flow regulating performance from1-->2
Voltage supply 12/24Volt



Pressure drop1-->3
At the max rated current
Voltage supply 12/24Volt



Pressuredrop1-->2
coil is de-energized

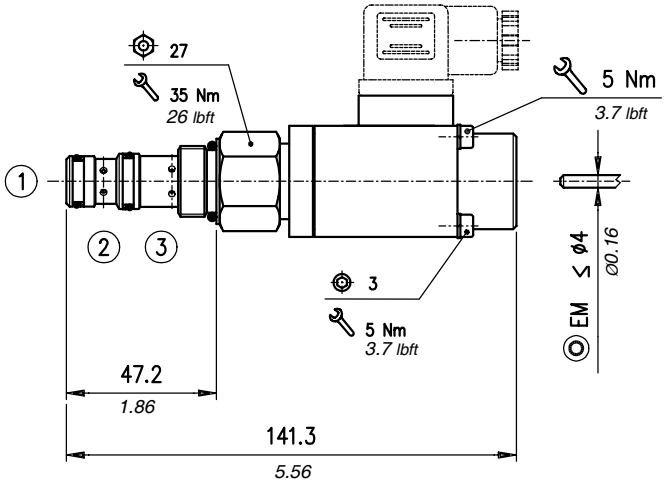


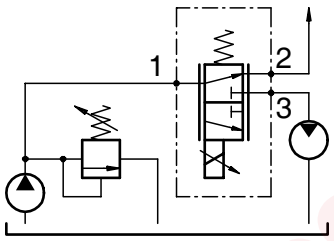
Order code

PP08W / □ -□ -0 -□

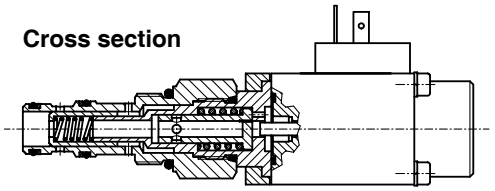
Pressure drop from 1 to 3	Voltage (Volt)	Seals
A) 12 bar *(175 psi)*	**2)** 12 Vcc **4)** 24Vcc	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



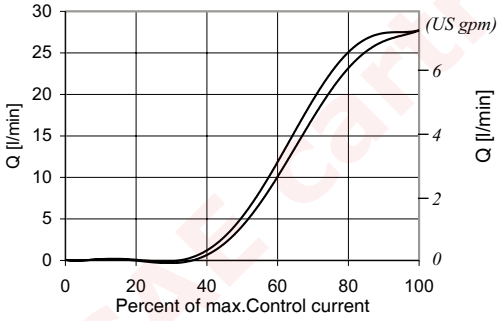


Cross section

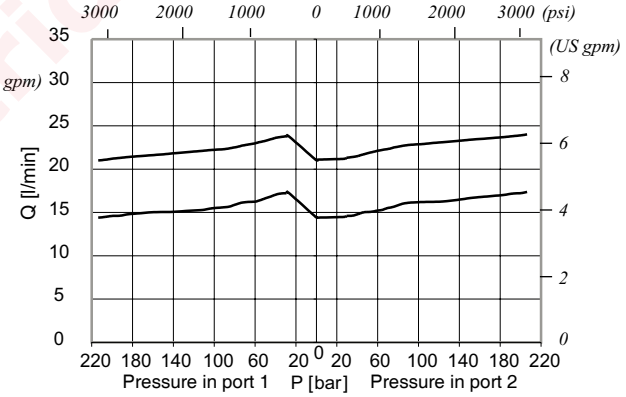


Rating diagrams

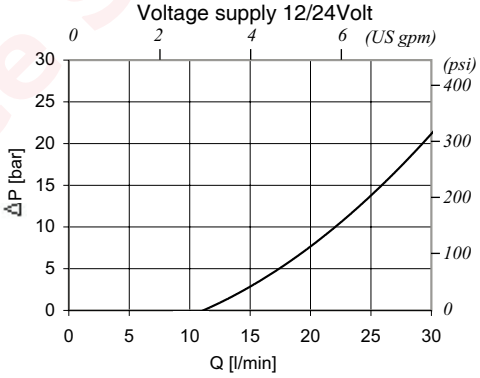
Flow vs current
Voltage supply 12/24Volt



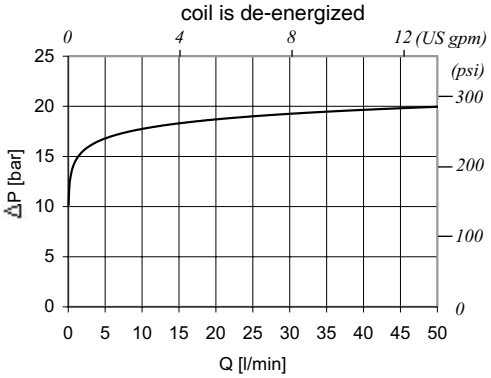
Flow regulating performance from1-->2
Voltage supply 12/24Volt



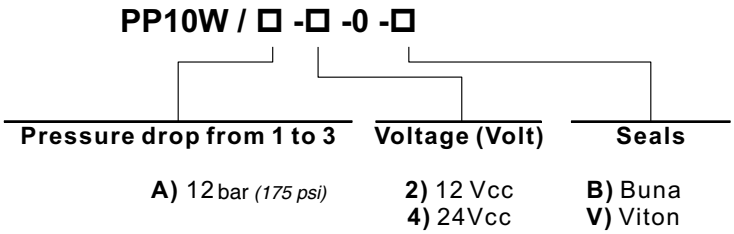
Pressure drop1-->3
At the max rated current
Voltage supply 12/24Volt



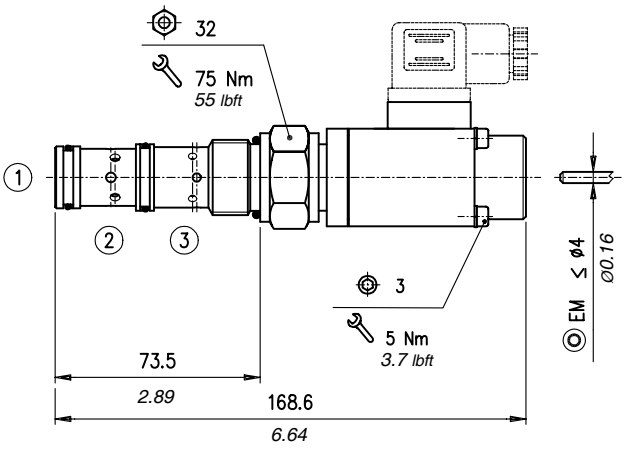
Pressuredrop1-->2
coil is de-energized

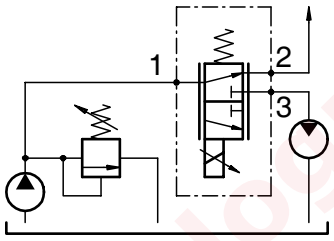


Order code

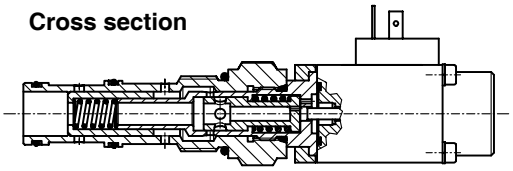


Dimensions and hydraulic circuit



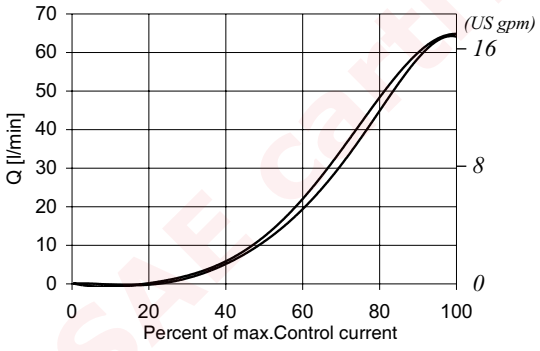


Cross section

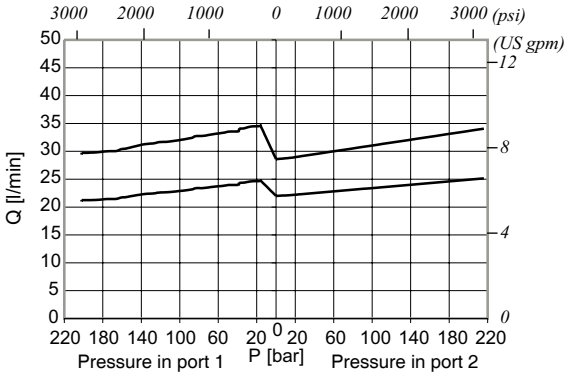


Rating diagrams

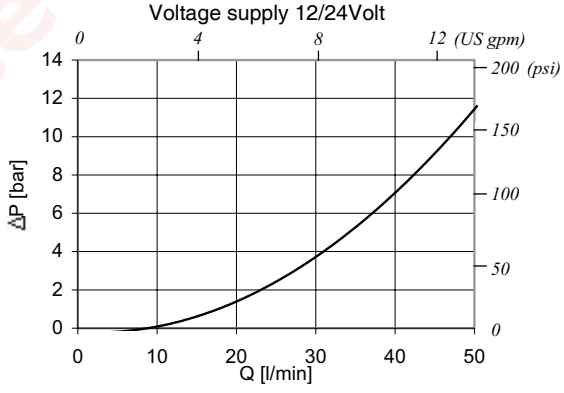
Flow vs current
Voltage supply 12/24Volt



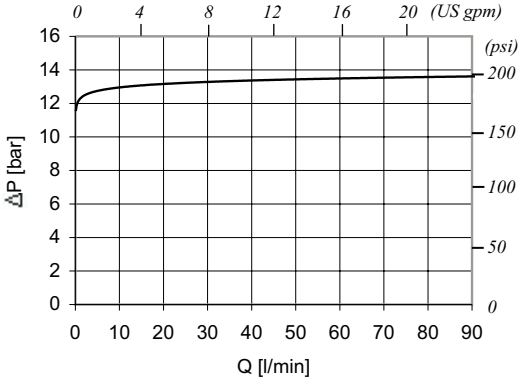
Flow regulating performance from1-->2
Voltage supply 12/24Volt



Pressure drop1-->3
At the max rated current
Voltage supply 12/24Volt



Pressure drop1-->2
coil is de-energized

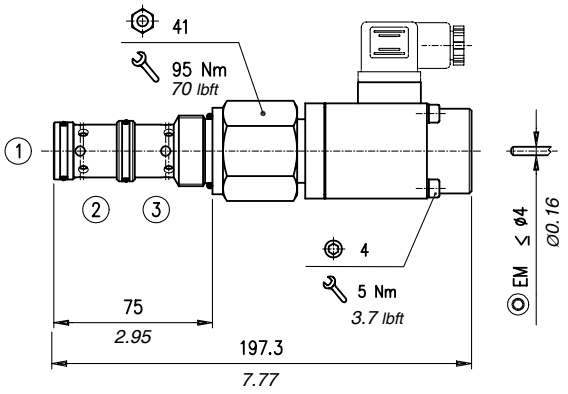


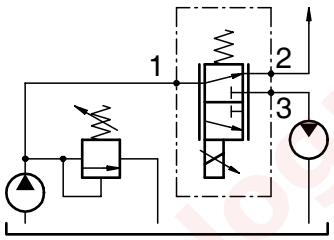
Order code

PP12W / □ -□ -0 -□

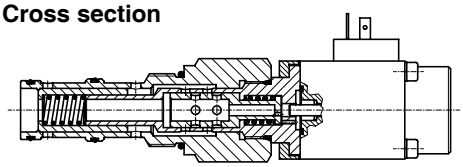
Pressure drop from 1 to 3	Voltage (Volt)	Seals
A) 12 bar *(175 psi)*	**2)** 12 Vcc **4)** 24Vcc	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



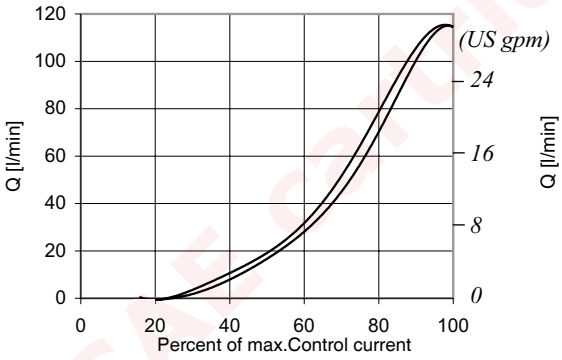


Cross section

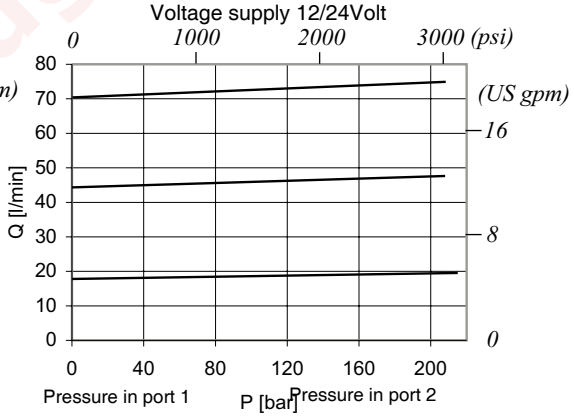


Rating diagrams

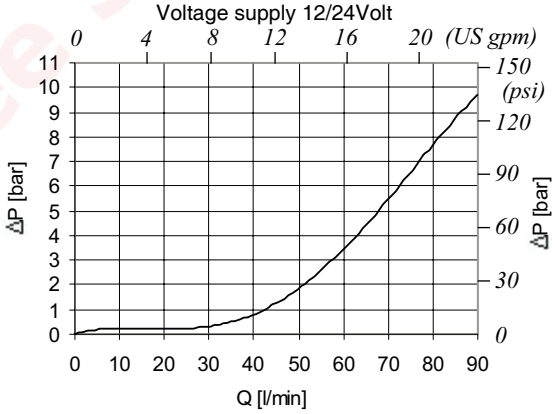
Flow vs current
Voltage supply 12/24Volt



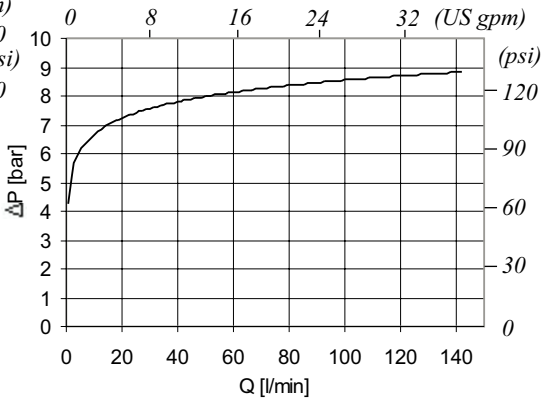
Flow regulating performance from1-->2
Voltage supply 12/24Volt



Pressure drop1-->3
At the max rated current
Voltage supply 12/24Volt



Pressure drop1-->2
coil is de-energized

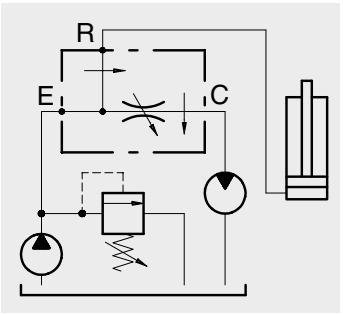


Order code

PP16W / □ -□ -0 -□

Pressure drop from 1 to 3	Voltage (Volt)	Seals
A) 12bar *(175 psi)*	**2)** 12 Vcc **4)** 24Vcc	**B)** Buna **V)** Viton

Operation



The valve is designed to keep constant flow in C (3) and concurrently discharge exceeding flow in R (2) for other applications. Best performance of the valve is assured when the flow in E (1) is at least 10% bigger than in C (3).
Pressure variations in C (3) and R (2) do not alter the constant flow in C (3).
Make sure that a pressure relief valve is always used between the pump and the valve.

Performance

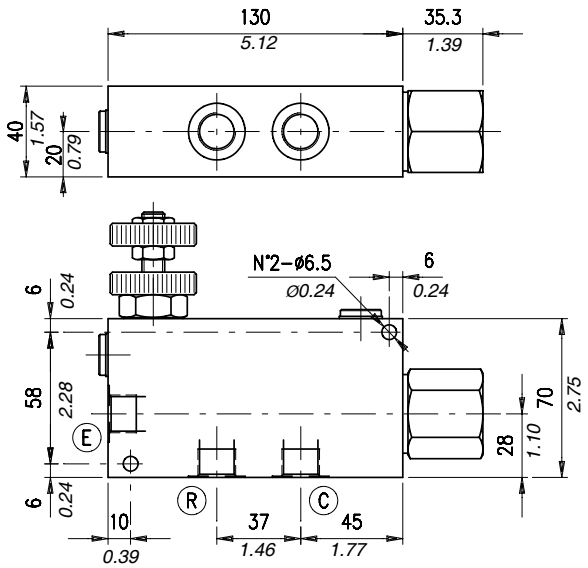
Body Valves

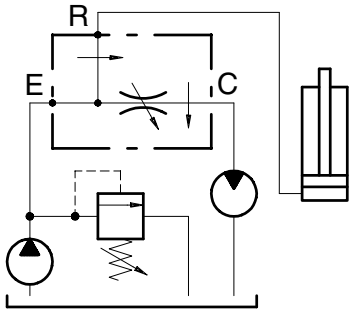
Type VPR/3/EP	Flow		Max. pressure	Weight	
	l/min	*US gpm*		kg	*lb*
VPR/3/EP 38	E = 50 Qmax. in C=30	*E = 13 Qmax. in C =7.9*	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body	1,25 (alum.) 2,85 (steel)	*2,75 (alum.) 6,28 (steel)*
VPR/3/EP 12	E = 90 Qmax in C=50	*E = 24 Qmax. in C=13*		1,35 (alum.) 2,80 (steel)	*2,98 (alum.) 6,17 (steel)*
VPR/3/EP 34	E=150 C=90	*E=40 C=24*		2,46 (alum.) 4,95 (steel)	*5,42 (alum.) 10,91 (steel)*
VPR/3/EP 100	E=240 C=150	*E=63 C=40*		5,15 (alum.) 9,45 (steel)	*11,35 (alum.) 20,83 (steel)*
VPR/3/EP 114	E=450 C=250	*E=119 C=66*		7,45 (alum.) 15,80 (steel)	*16,42 (alum.) 34,83 (steel)*

Cartridges

Type PP...A	Flow		Max. pressure	Weight kg *lb*	Cavities and tools
	l/min	*US gpm*			
PP08A	"1"=20 "3"=10	*"1"=5.3 "3"=2.6*	350 bar *-5100 psi-*	0,15 *0.33*	see page 130 SAE 8/3
PP10A	"1"=50 "3"=30	*"1"=13 "3"=8*		0,20 *0.44*	see page 130 SAE 10/3
PP12A	"1"=90 "3"=50	*"1"=24 "3"=13*		0,42 *0.92*	see page 130 SAE 12/3
PP16A	"1"=150 "3"=90	*"1"=40 "3"=24*		0,57 *1.26*	see page 130 SAE 16/3

Dimensions and hydraulic circuit

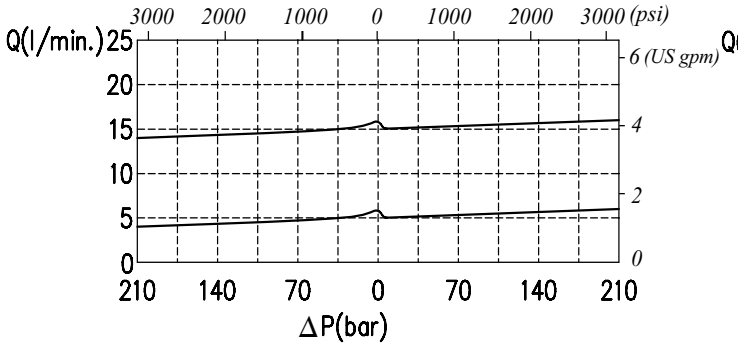




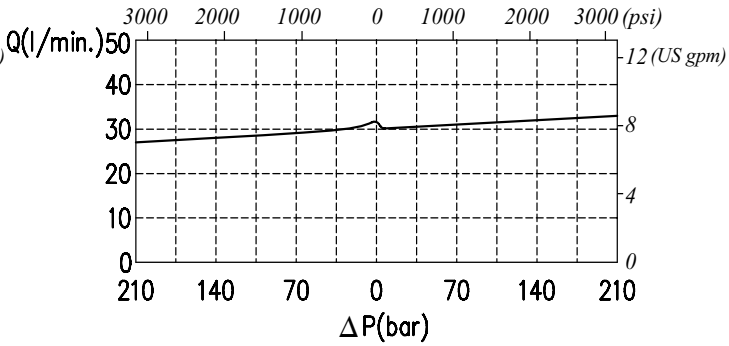
VPR/3/EP	E	R	U
38	G 3/8	G 3/8	G 3/8
12	G 1/2	G 1/2	G 1/2

Rating diagrams

Compensation diagram (38) in C changing the Δp between E and R



Compensation diagram (12) in C changing the Δp between E and R



Order code

VPR /3 /EP □ / □ / □

Port size

38 G 3/8
12 G 1/2

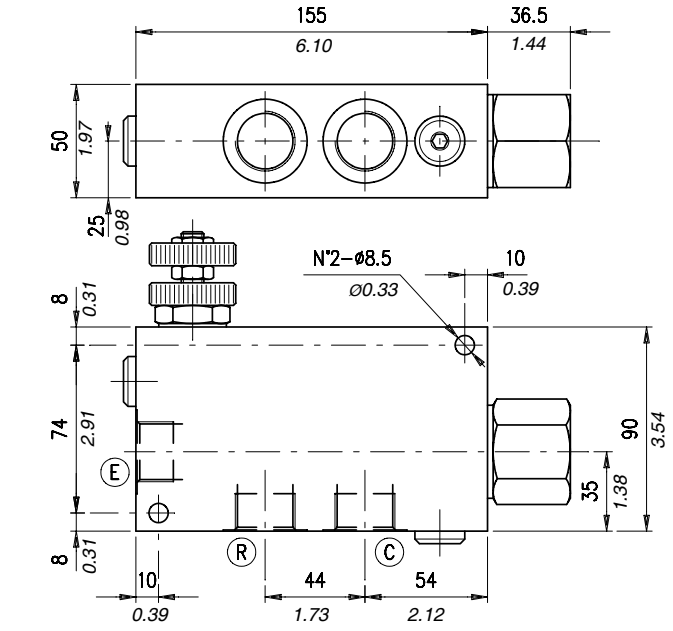
Adjustments
(see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

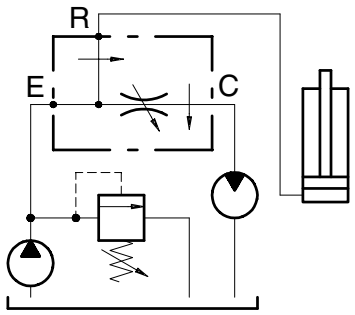
Body material

_Aluminium
ac Steel

Dimensions and hydraulic circuit

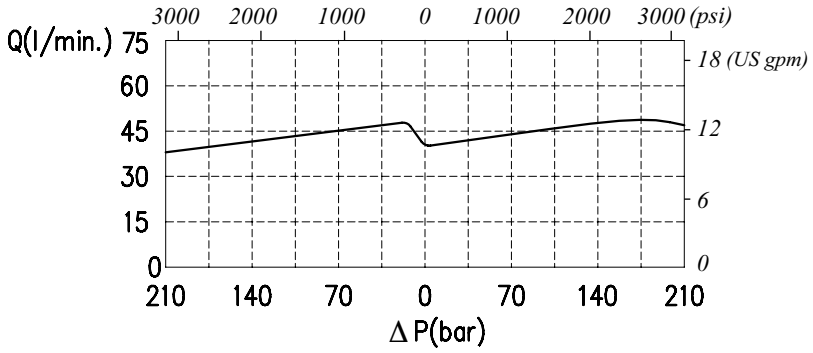


E	R	U
G 3/4	G 3/4	G 3/4



Rating diagrams

Compensation diagram in C changing the Δp between E and R



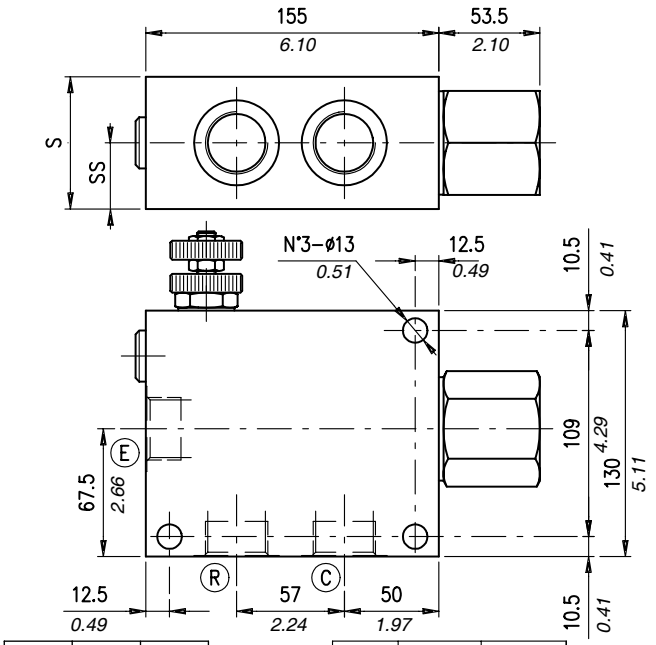
Order code

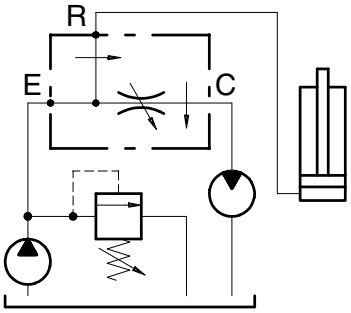
VPR /3 /EP 34 / □ / □

Adjustments
(see page 122)
S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Body material
_Aluminium
ac Steel

Dimensions and hydraulic circuit





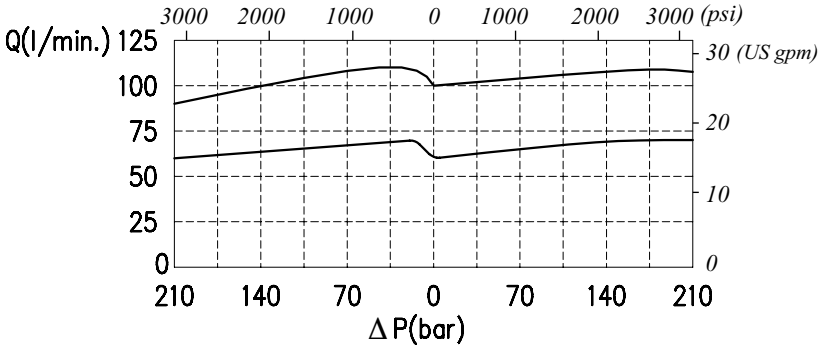
E	R	U
G 1	G 1	G 1

S	SS	Material
70 -2.75	35 - 1.38	Aluminium
65 -2.56	32.5 - 1.28	Steel

Dimensions are in mm - *in*

Rating diagrams

Compensation diagram in C changing the Δp between E and R



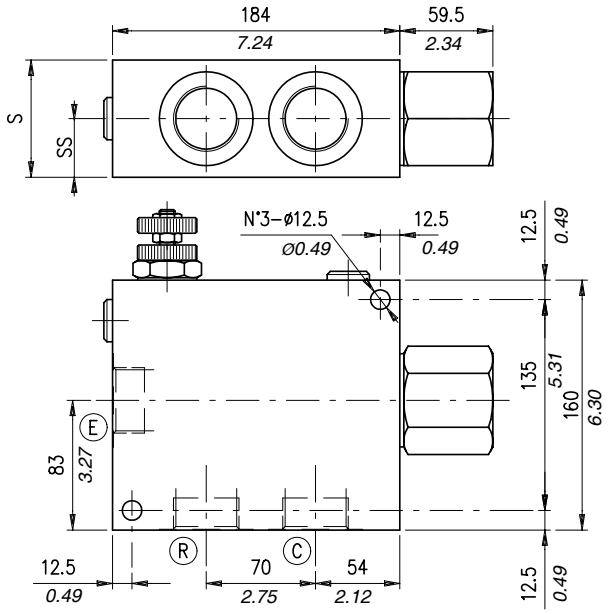
Order code

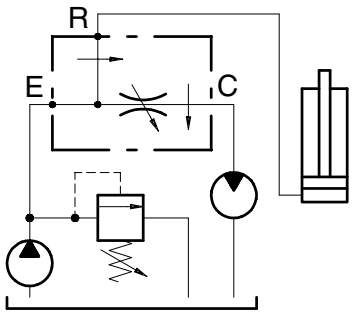
VPR /3 /EP 100 / □ / □

Adjustments
(see page 122)
S (screw)
V (handknob)
L (lever)
MG (handknob calibrated *m.a*)
MGB (handknob calibrated *f.a*)

Body material
_Aluminium
ac Steel

Dimensions and hydraulic circuit





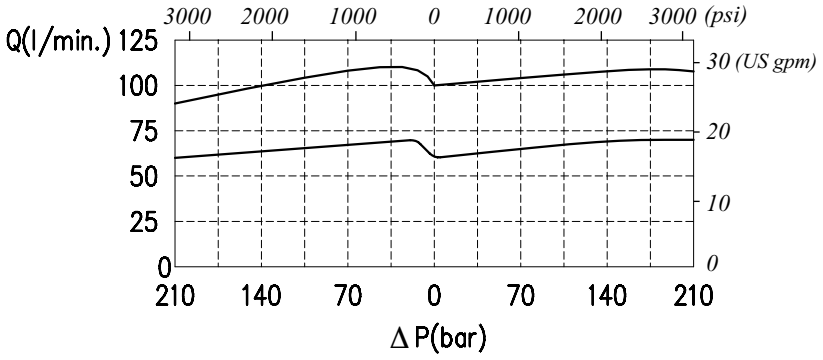
E	R	U
G 1 1/4	G 1 1/4	G 1 1/4

S	SS	Material
70-*2.75*	35 -*1.38*	Aluminium
65-*2.56*	32.5-*1.28*	Steel

Dimensions are in mm - *in*

Rating diagrams

Compensation diagram in C changing the Δp between E and R



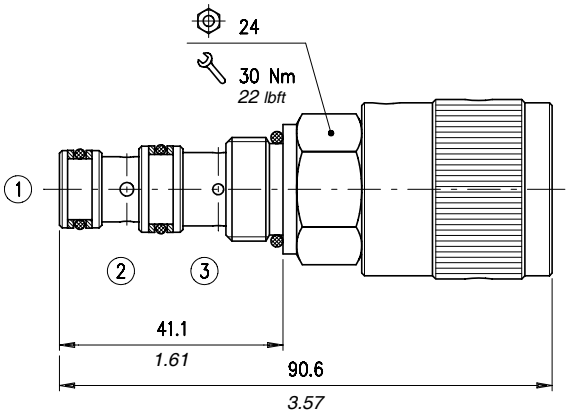
Order code

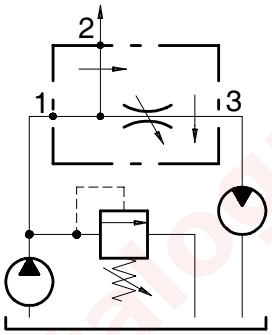
VPR /3 /EP 114 / □ / □

Adjustments (see page 122)
- **S** (screw)
- **V** (handknob)
- **L** (lever)
- **MG** (handknob calibrated *m.a*)
- **MGB** (handknob calibrated *f.a*)

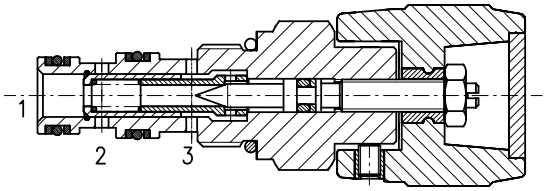
Body material
- _ Aluminium
- **ac** Steel

Dimensions and hydraulic circuit



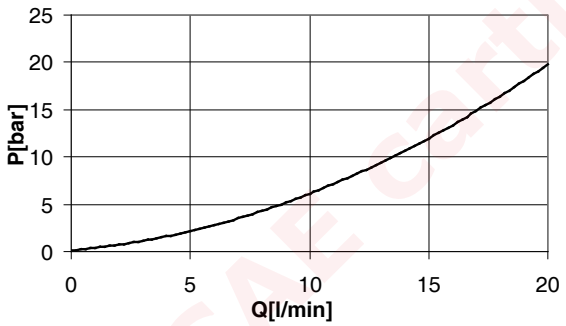


Cross section

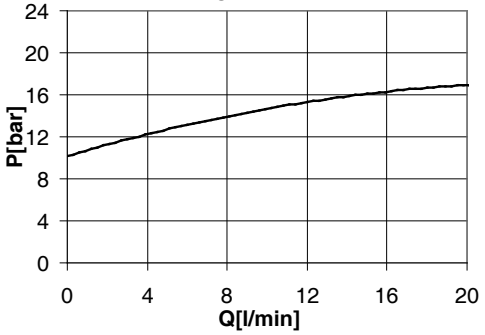


Rating diagrams

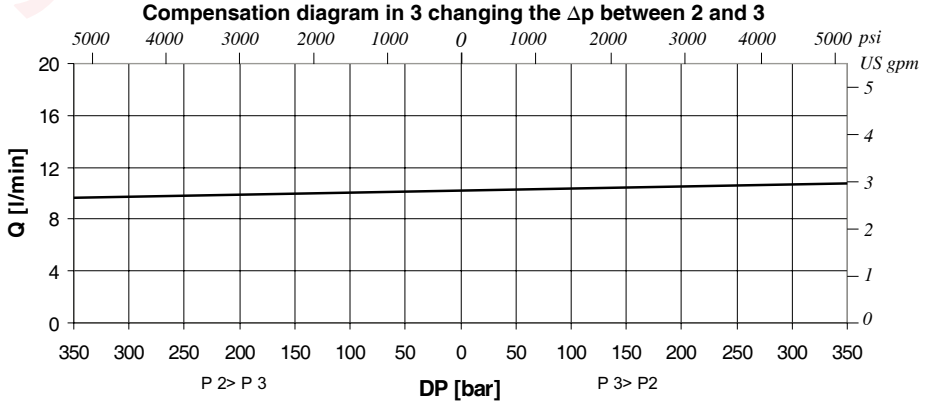
Typical Pressure drop vs. Flow characteristic 1-->3 with regulator open



Typical Pressure drop vs. Flow characteristic 1-->2 with regulator closed



Compensation diagram in 3 changing the Δp between 2 and 3



Order code

PP08A / □ -□ -0 -□

Pressure drop from 1 to 3

A) 12 bar *(175 psi)*

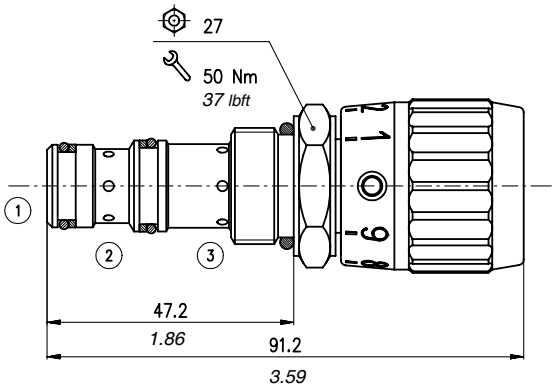
Adjustments
(see page122)

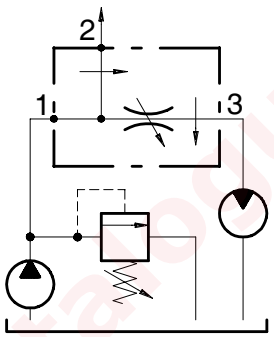
S (screw)
M (handknob calibrated)

Seals

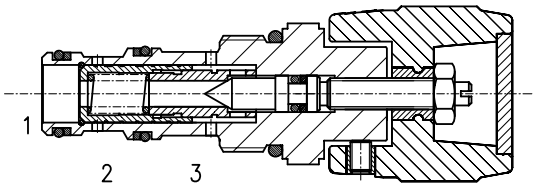
B) Buna
V) Viton

Dimensions and hydraulic circuit



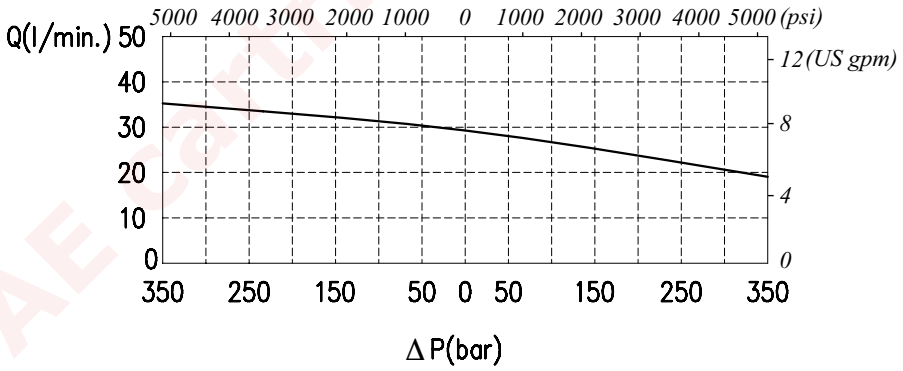


Cross section



Rating diagrams

Compensation diagram in 3 changing the Δp between 2 and 3



Order code

PP10A / ☐ -☐ -0 -☐

Pressure drop from 1 to 3

A) 12 bar *(175 psi)*

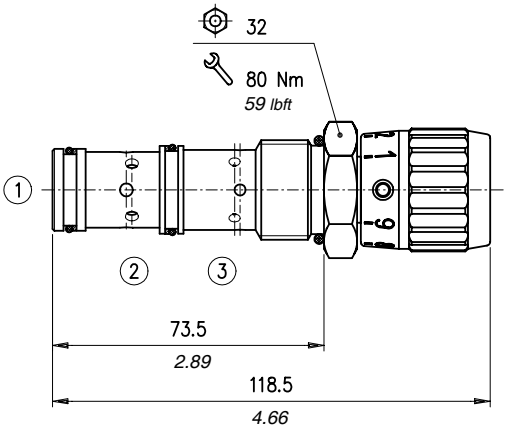
Adjustments
(see page122)

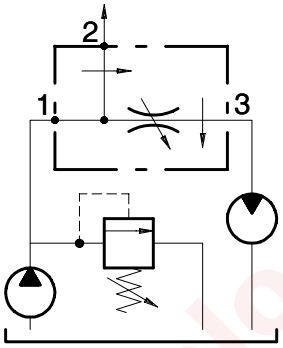
S (screw)
M (handknob calibrated)

Seals

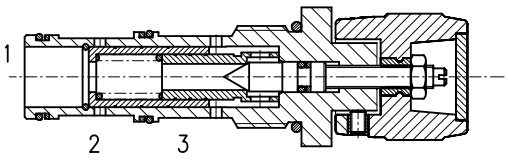
B) Buna
V) Viton

Dimensions and hydraulic circuit



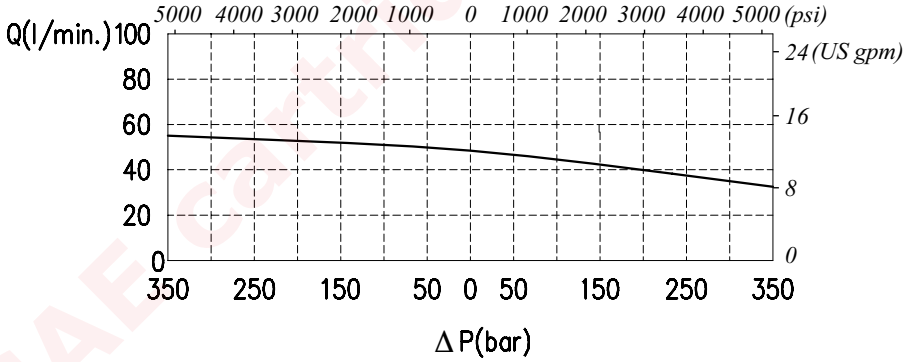


Cross section



Rating diagrams

Compensation diagram in 3 changing the Δp between 2 and 3

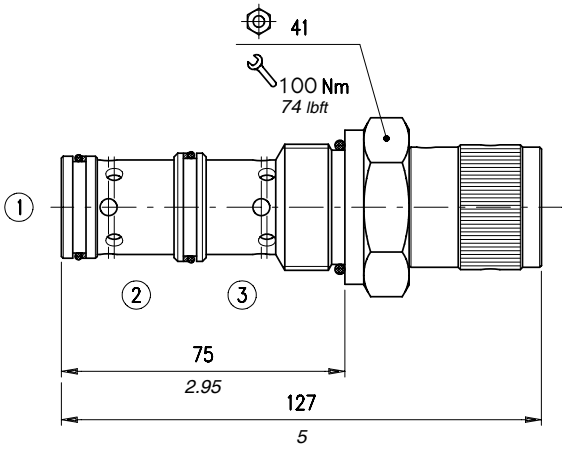


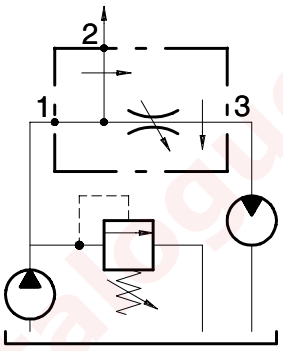
Order code

PP12A / □ -□ -0 -□

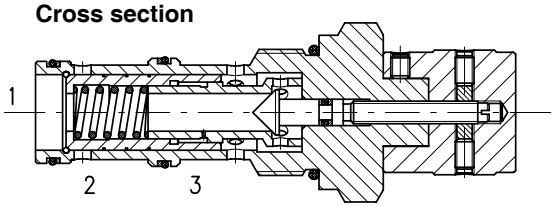
Pressure drop from 1 to 3	Adjustments (see page122)	Seals
A) 12 bar *(175 psi)*	**S** (screw) **M** (handknob calibrated)	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



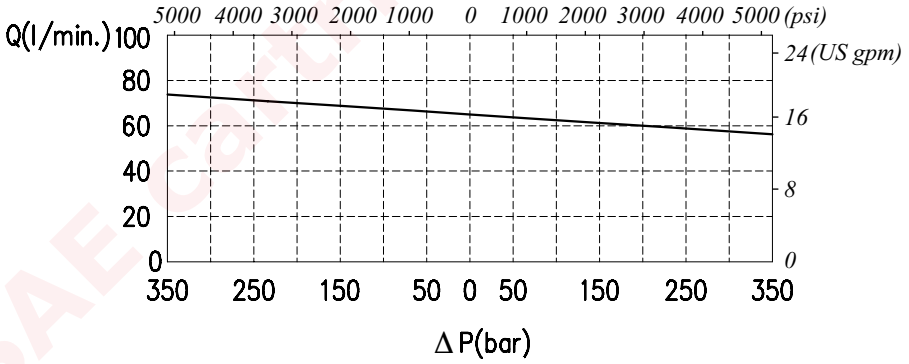


Cross section



Rating diagrams

Compensation diagram in 3 changing the Δp between 2 and 3



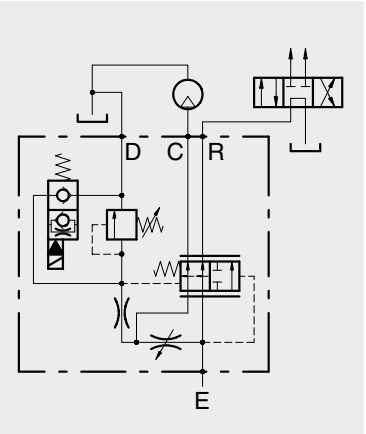
Order code

PP16A / ☐ -☐ -0 -☐

Pressure drop from 1 to 3	Adjustments (see page122)	Seals
A) 12 bar *(175 psi)*	**S** (screw) **M** (handknob calibrated)	**B)** Buna **V)** Viton

Operation

The valve is designed to provide flow adjustment in C and concurrently discharge exceeding flow in R for other applications. A pressure relief valve provides control of the working pressure in C, while the solenoid allows for checked flow cut-off in C and retrieving in R. Best performance of the valve is assured when the flow in E is at least 10% bigger than in C and a minimum pressure of 7-10 bar (100-145 psi) is available in C or R. Pressure variations in C do not alter the checked flow. Working pressure in R can not exceed the rating value of the pressure relief valve in C, or else the whole E flow would end into R. When cutting-off in C, a crossing load loss of 7 bar (100 psi) and a constant few liters drain occur in D due to the working pressure in R. Make sure that a pressure relief valve is always used between the pump and the valve. The steel body version is recommended for use to control hydraulic hammers.



Performance

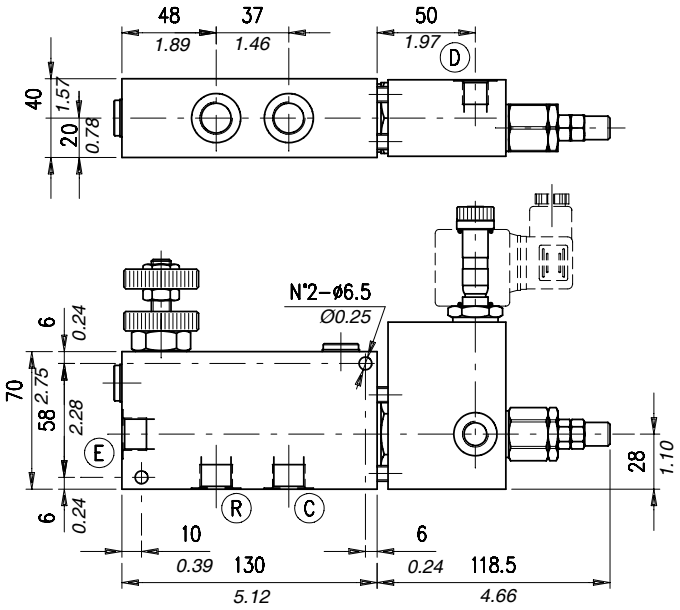
Body Valves

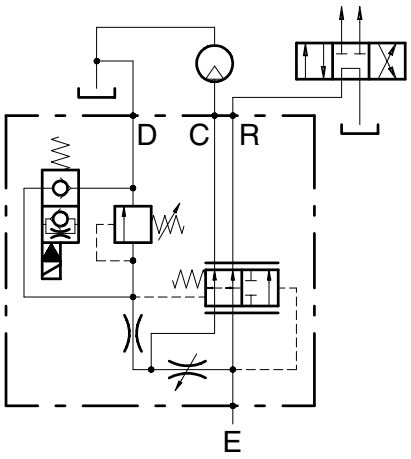
Type VPR/3/EP	Flow		Max. pressure	Coils	Weight kg *lb*	Relief cartridge valve
	l/min.	*US gpm*				
VPR/3/EP 38/VMP+VE	E=50 C=30	*E=13* *C=8*	210 bar *-3050 psi-* (aluminium body) 350 bar *-5100 psi-* (steel body)	BE/ … (210 bar *-3050 psi-*) see page 118 BT/ … (350 bar *-5100 psi-*) see page 119	2,10 (alum.) 4,05 (steel) *4,63 (alum.)* *8,05 (steel)*	VMP02 electicvalve (210 bar *-3050 psi-*) EC08A electicvalve (350 bar *-5100 psi-*) EC08B on request
VPR/3/EP 12/VMP+VE	E=90 C=50	*E=24* *C=13*				
VPR/3/EP/34/VMP+VE	E=150 C=90	*E=40* *C=24*			3,63 (alum.) 7,00 (steel) *8 (alum.)* *15,43 (steel)*	
VPR/3/EP/100/VMP+VE	E=240 C=150	*E=63* *C=40*			5,60 (alum.) 11,15 (steel) *12,34 (alum.)* *24,58 (steel)*	
VPR/3/EP/114/VMP+VE	E=450 C=250	*E=119* *C=66*			8,15 (alum.) 18 (steel) *17,97 (alum.)* *39.68 (steel)*	

Type VPR/3/EP 38 (12)/VMP+VE

3 ways flow regulator, pressure compensated, exceeding flow to pressure. Pressure relief valve and electrical cut-off on the checked way

Dimensions and hydraulic circuit

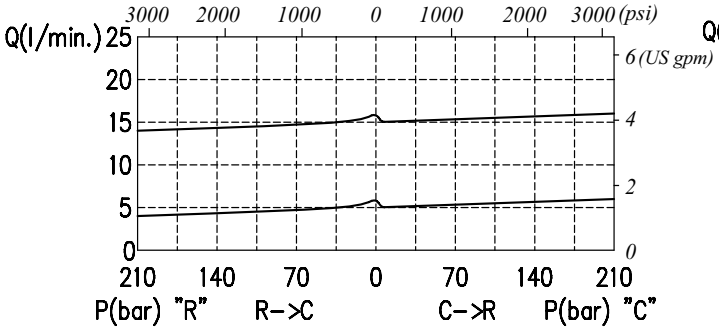




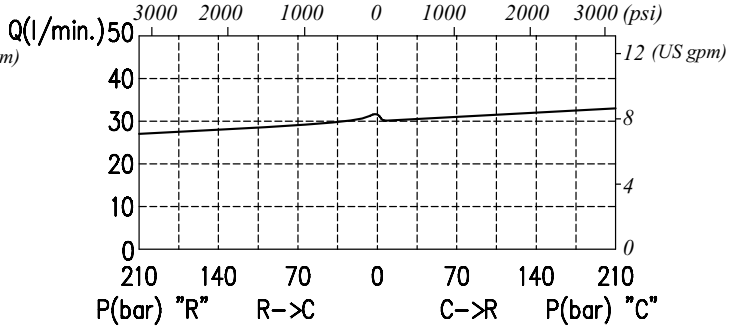
VPR/3/EP ... VMP+VE	E	R	C	D
38	G 3/8	G 3/8	G 3/8	G 1/4
12	G 1/2	G 1/2	G 1/2	G 1/4

Rating diagrams

Pressure compensation diagram (38)



Pressure compensation diagram (12)



Order code

VPR /3 /EP ☐ /VMP + VE . ☐ / ☐ /03 . ☐ / ☐

Port size

38 G 3/8
12 G 1/2

Assembly scheme

NA) Normally opened
NC) Normally closed

Adjustments (see page122)

S (screw)
V (handknob)
L (lever)
MG (handknob calib.*m.a*)
MGB (handknob calibrated *f.a*)

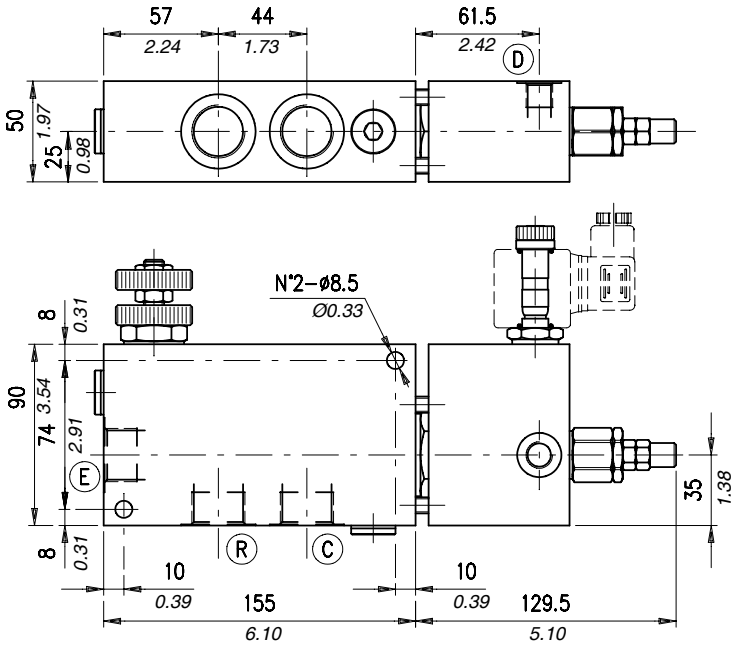
Pressure Settings (bar)

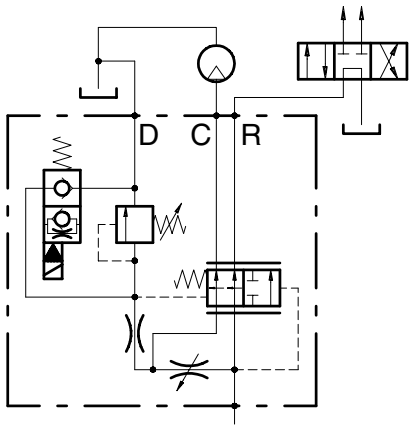
TB 0÷50 *(0÷725 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷400 *(2600÷5800 psi)*

Body material

_Aluminium
ac Steel

Dimensions and hydraulic circuit

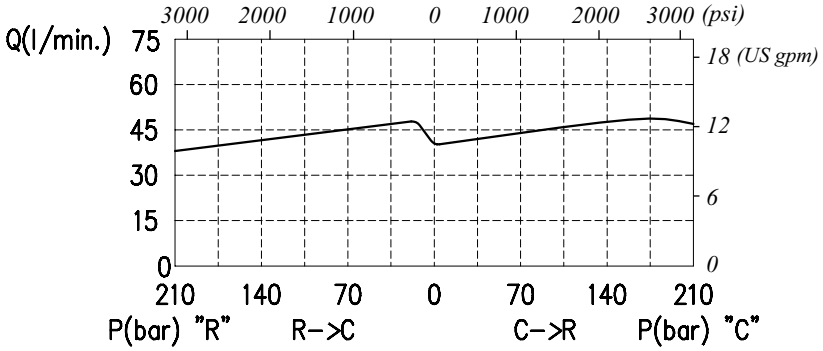




E	R	C	D
G 3/4	G 3/4	G 3/4	G 1/4

Rating diagrams

Pressure compensation diagram



Order code

VPR /3 /EP 34 /VMP + VE . ☐ / ☐ /03 . ☐ / ☐

Assembly scheme

NA) Normally opened
NC) Normally closed

Adjustments
(see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calib.*m.a*)
MGB (handknob calibrated *f.a*)

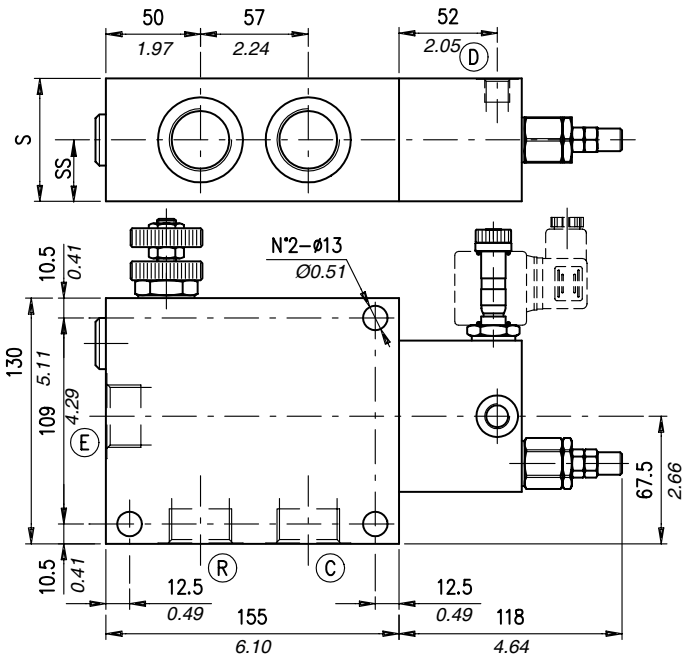
Pressure settings (bar)

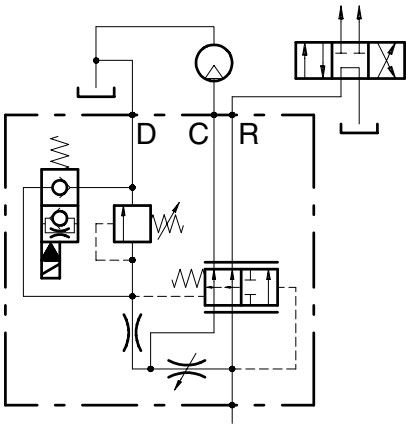
TB 0÷50 *(0÷725 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷400 *(2600÷5800 psi)*

Body material

_Aluminium
acSteel

Dimensions and hydraulic circuit





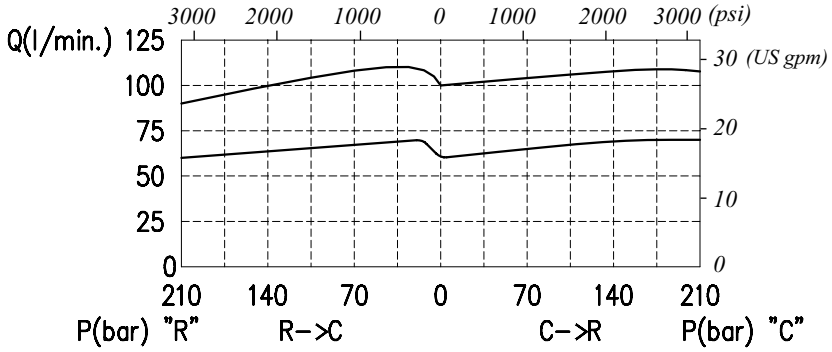
E	R	C	D
G 1	G 1	G 1	G 1/4

S	SS	Material
70 - *2.75*	35 - *1.38*	Aluminium
65 - *2.60*	32.5 - *1.28*	Steel

Dimensions are in mm - *in*

Rating diagrams

Pressure compensation diagram



Order code

VPR /3 /EP 100 /VMP + VE . ☐ / ☐ /03 . ☐ / ☐

Assembly scheme

NA) Normally opened
NC) Normally closed

Adjustments
(see page 122)
S (screw)
V (handknob)
L (lever)
MG (handknob calib.*m.a*)
MGB (handknob calibrated *f.a*)

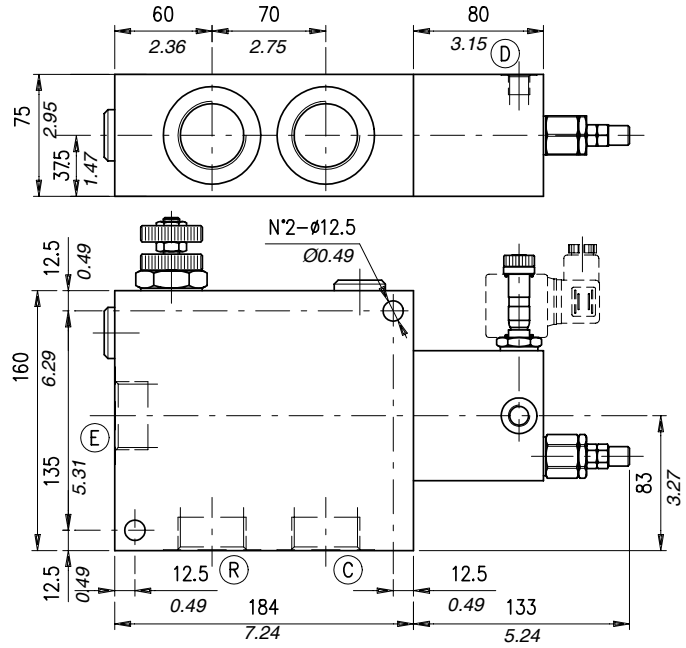
Pressure settings (bar)

TB 0÷50 *(0÷725 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷400 *(2600÷5800 psi)*

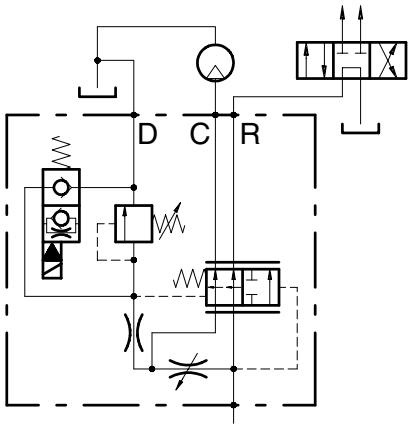
Body material

_Aluminium
acSteel

Dimensions and hydraulic circuit

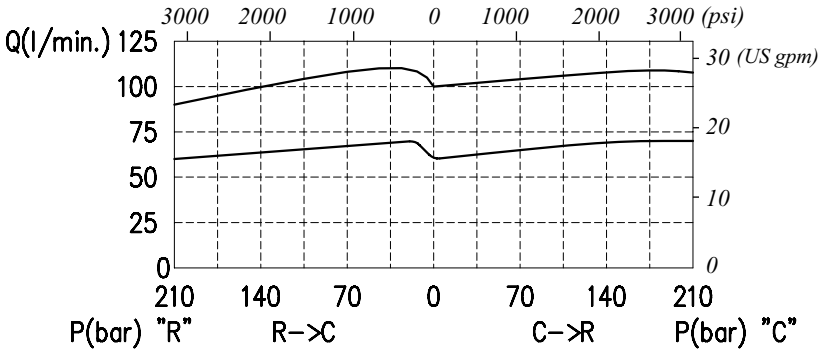


E	R	C	D
G 1 1/4	G 1 1/4	G 1 1/4	G 1/4



Rating diagrams

Pressure compensation diagram



Order code

VPR /3 /EP 114 /VMP + VE . ☐ / ☐ /03 . ☐ / ☐

Assembly scheme

NA) Normally opened
NC) Normally closed

Adjustments (see page122)

S (screw)
V (handknob)
L (lever)
MG (handknob calib.*m.a*)
MGB (handknob calibrated *f.a*)

Pressure settings (bar)

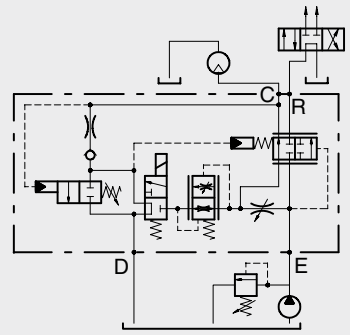
TB 0÷50 *(0÷725 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷400 *(2600÷5800 psi)*

Body material

_Aluminium
acSteel

Operation

The valve is designed to provide flow adjustment in C and concurrently discharge exceeding flow in R for other applications. A pressure relief valve provides control of the working pressure in C, while the solenoid allows for checked flow cut-off in C and retrieving in R. Best performance of the valve is assured when the flow in E is at least 10% bigger than in C. Pressure variations in C do not alter the checked flow. Working pressure in R exceeding the rating value of the pressure relief valve in C, is admissible. Cut-off in C is accompanied by a crossing load loss of 2 bar (30 psi), a constant very low drain in D and complete retrieving of all drains in C. Make sure that a pressure relief valve is always used between the pump and the valve.

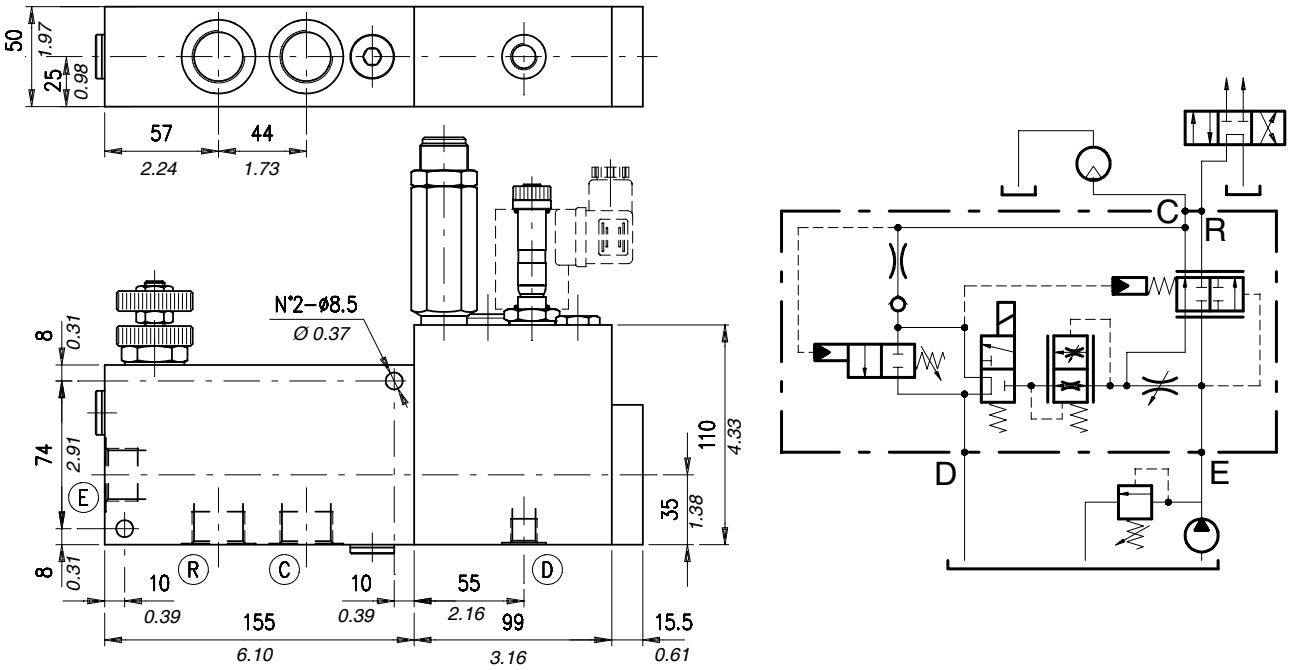


Performance

Body Valves

Type VPR/3/EP ../VMP+VE/LPD	Flow		Max. pressure	Coils	Weight	
	l/min	*US gpm*			kg	*lb*
VPR/3/EP 34/VMP+VE/LPD	E=150 C=90	*E=40* *C=24*	350 bar *-5100 psi-*	BT/ … see page 119	9,15	*20,17*
VPR/3/EP 100/VMP+VE/LPD	E=240 C=150	*E=54* *C=40*			19	*41,89*
VPR/3/EP 114/VMP+VE/LPD	E=450 C=250	*E=119* *C=66*			28	*61,73*

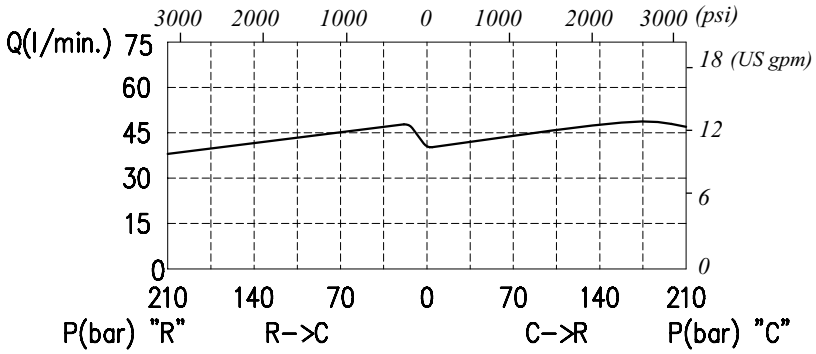
Dimensions and hydraulic circuit



E–C	R	D
G 3/4	G 3/4	G 1/4

Rating diagrams

Pressure compensation diagram



Order code

VPR /3 /EP 34 /VMP + VE . ☐ / LPD /☐ /VDS ☐ / ac

Assembly scheme

NA) Normally opened
NC) Normally closed

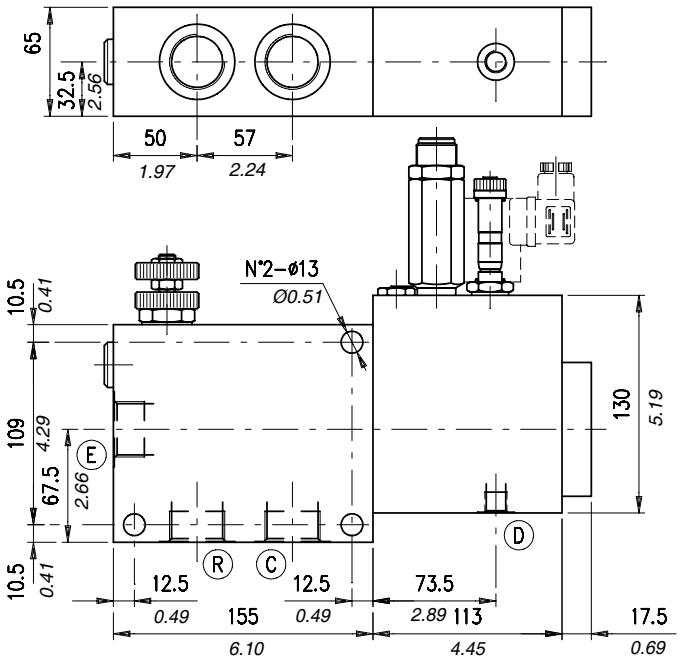
Adjustments
(see page 122)

S (screw)
V (handknob)
L (lever)
MG (handknob calib.*m.a*)
MGB (handknob calibrated *f.a*)

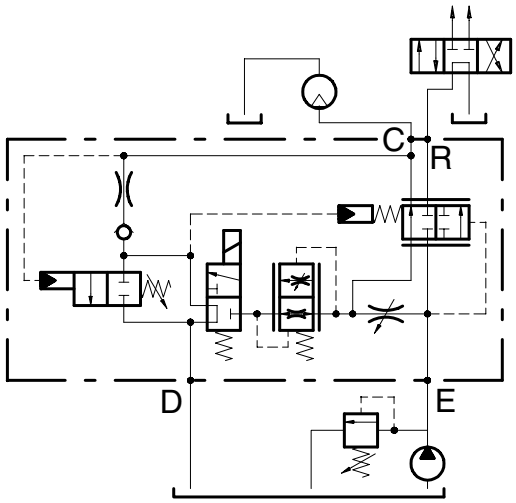
Pressure settings (bar)

TB 0÷50 *(0÷725 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷400 *(2600÷5800 psi)*

Dimensions and hydraulic circuit

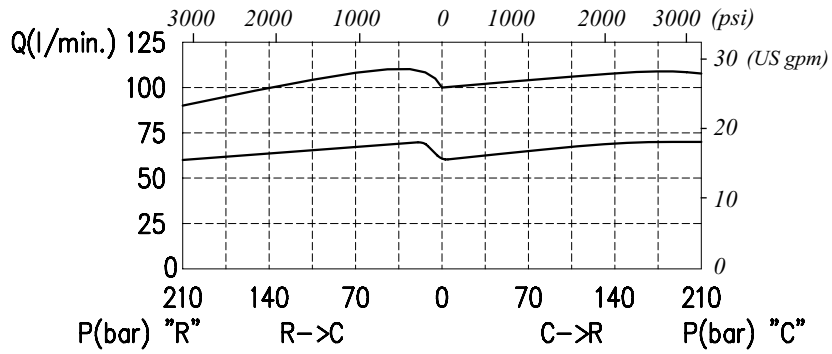


E–C	R	D
G 1	G 1	G 1/4



Rating diagrams

Pressure compensation diagram



Order code

VPR /3 /EP 100 /VMP + VE . ☐ / LPD /☐ /VDS ☐ / ac

Assembly scheme

NA) Normally opened
NC) Normally closed

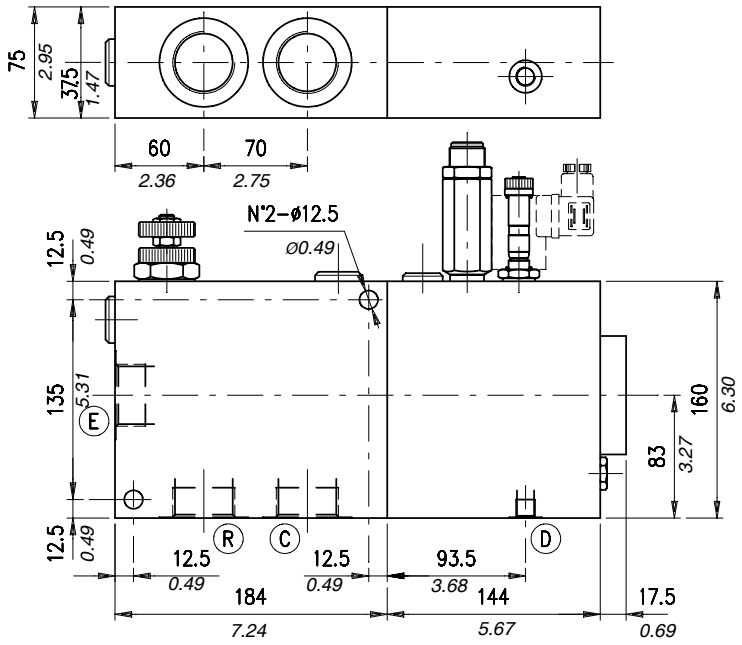
Adjustments
(see page 122)

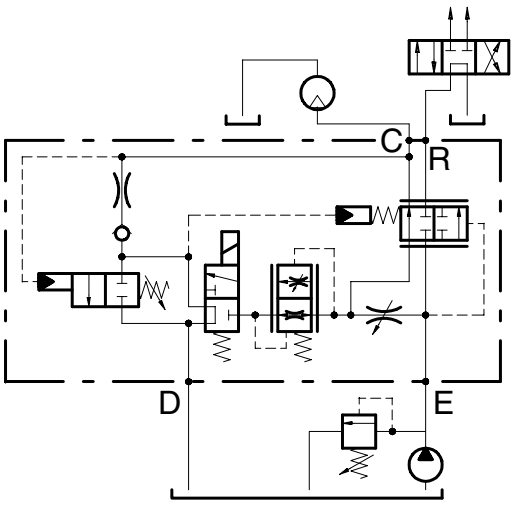
S (screw)
V (handknob)
L (lever)
MG (handknob calib.*m.a*)
MGB (handknob calibrated *f.a*)

Pressure settings (bar)

TB 0÷50 *(0÷725 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷400 *(2600÷5800 psi)*

Dimensions and hydraulic circuit

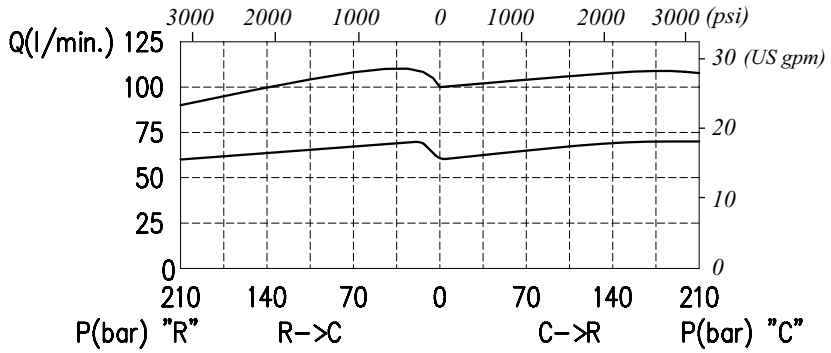




E–C	R	D
G 1 1/4	G 1 1/4	G 1/4

Rating diagrams

Pressure compensation diagram



Order code

VPR /3 /EP 114 /VMP + VE . ☐ / LPD /☐ /VDS ☐ / ac

Assembly scheme

NA) Normally opened
NC) Normally closed

Adjustments
(see page 122)

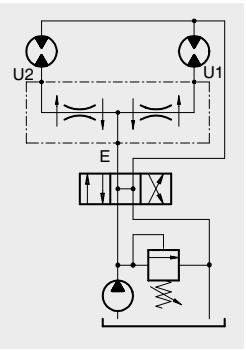
S (screw)
V (handknob)
L (lever)
MG (handknob calib.*m.a*)
MGB (handknob calibrated *f.a*)

Pressure settings (bar)

TB 0÷50 *(0÷725 psi)*
TS 50÷220 *(725÷3200 psi)*
TR 180÷400 *(2600÷5800 psi)*

Operation

The valve is designed to divide the incoming flow in E (2) into two separate deliveries U1 and U2 (1 e 3) depending on the valve divide ratio. Pressure variations in U1 and U2 (1 e 3) do not alter the outlet delivery. In the opposite direction, the valve works combining together the inlet flows U1 and U2 (1 e 3).



Performance

Body Valves

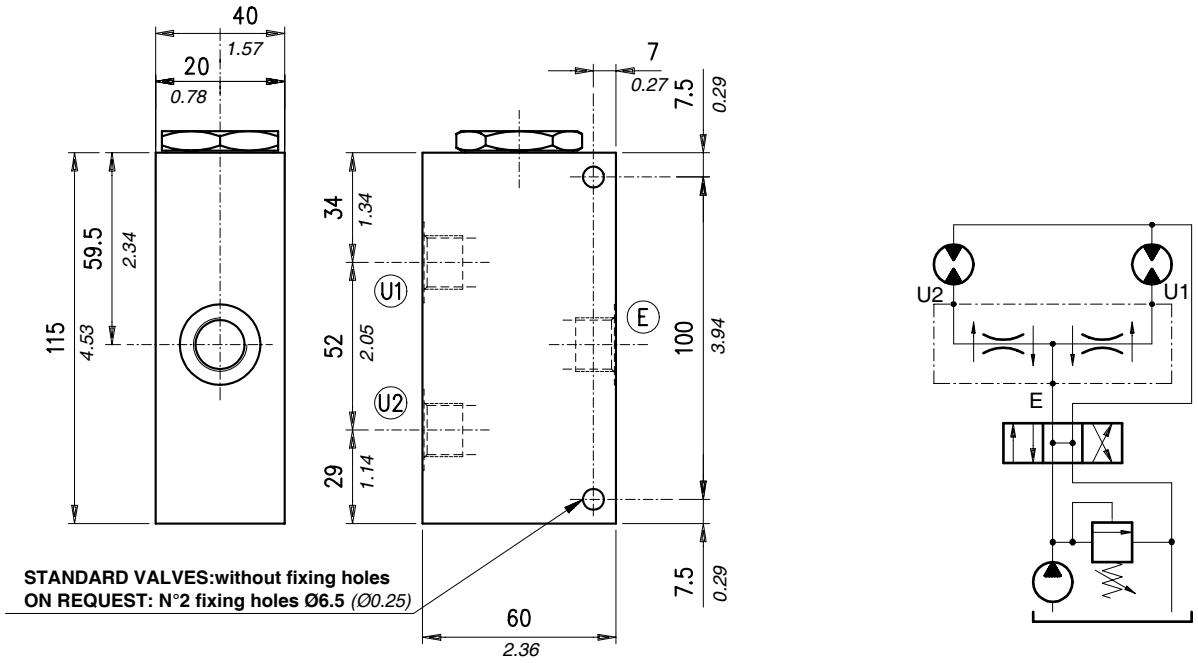
Type VDFR	Flow		Max. pressure (bar)	Standard division ratio	On request division ratio	Maximum division error	Weight kg *lb*	
	l/min	*US gpm*					alum.	steel
VDFR 38-12	4÷12	*1÷3.1*	210 *-3050 psi-* (aluminium body) 350 *-5100 psi-* (steel body	50%÷50%	33%÷66% 30%÷70% 20%÷80% 25%÷75% 40%÷60%	± 5% of the oil flow in U1 or U2 and 120 bar *-1750 psi-* pressure difference between U1 and U2. (Division rate 50%÷50%)	0,85 *1.87*	1,86 *4.1*
VDFR 38-24	12÷24	*3.2÷6.3*					0,85 *1.87*	1,86 *4.1*
VDFR 12-40	24÷40	*6.3÷10*					0,85 *1.87*	1,86 *4.1*
VDFR 34-90	40÷90	*11÷24*					2,10 *4.63*	4,42 *9.74*
VDFR 100-150	90÷150	*24÷40*			33%÷66% 40%÷60%		2,07 *4.56*	4,27 *9.41*
VDFR 114-250	200÷250	*53÷66*			*		2 *4.41*	5.6 *12.34*

*Please contact our sales dept.

Cartridges

Type PD	Flow		Max. pressure (bar)	Standard division ratio	Maximum division error	Cavities and tools	Weight	
	l/min	*US gpm*					kg	*lb*
PD10B/□1□□			210 *-3050 psi-*	50%÷50%	± 5% of the oil flow in 1 or 3 and 120 bar *-1750 psi-* pressure difference between 1 and 3. (Division rate 50%÷50%)	see page 131 SAE 10-4	0,20	*0,44*
PD10B/□2□□	12÷24	*3.2÷6.3*						
PD10B/□3□□	24÷40	*6.3÷11*						
PD10B/□4□□	40÷90	*11÷24*						
PD10B/□5□□	90÷150	*24÷40*						
PD12B	40÷75	*11÷20*				see page 131 SAE 12-4	0,30	*0,66*
PD16C	75÷150	*20÷40*				see page 131 SAE 16-4	0,55	*1,21*

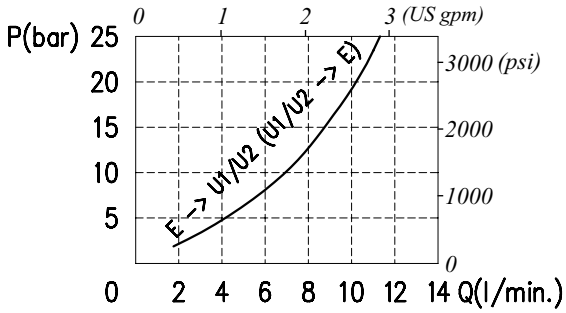
Dimensions and hydraulic circuit



E	U1–U2
G 3/8	G 3/8

Rating diagrams

Pressure drop diagram from E-->U1&U2 and from U1&U2-->E



Order code

VDFR 38-12 / ☐ / ☐

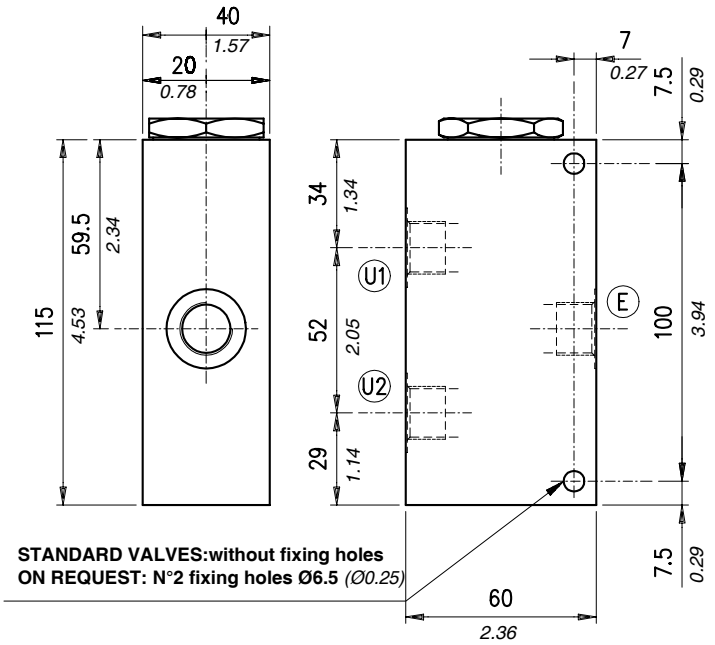
Flow Division Ratio between U1 and U2 (%)

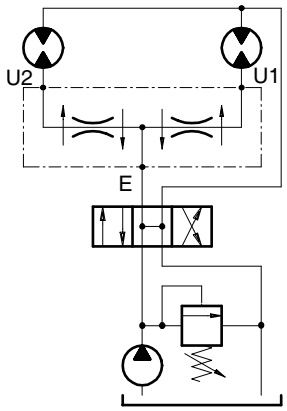
_ standard division ratio 50 -50
33 - 66
30 - 70
20 - 80
25 - 75
40 - 60

Body material

_ Aluminium
AcSteel

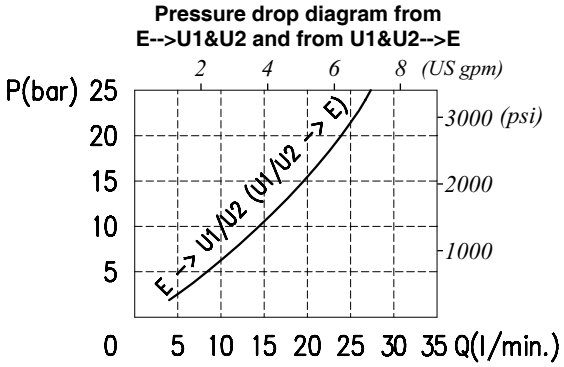
Dimensions and hydraulic circuit





E	U1–U2
G 3/8	G 3/8

Rating diagrams



Order code

VDFR 38-24 / □ / □

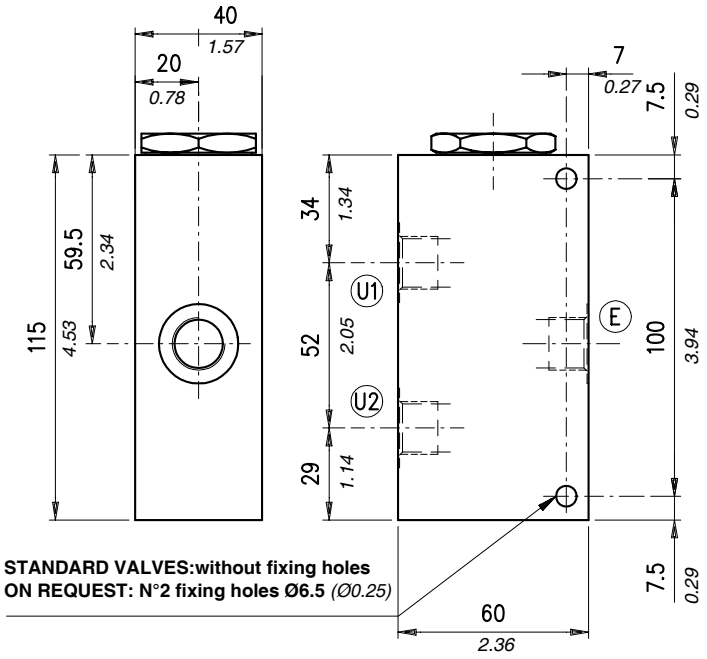
Flow Division Ratio between U1 and U2 (%)

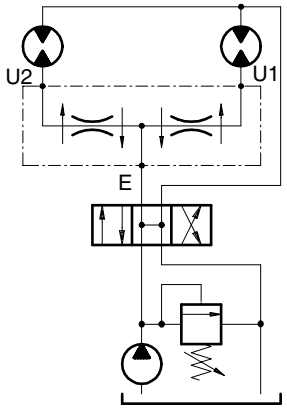
_ standard division ratio 50 -50
33 - 66
30 - 70
20 - 80
25 - 75
40 - 60

Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

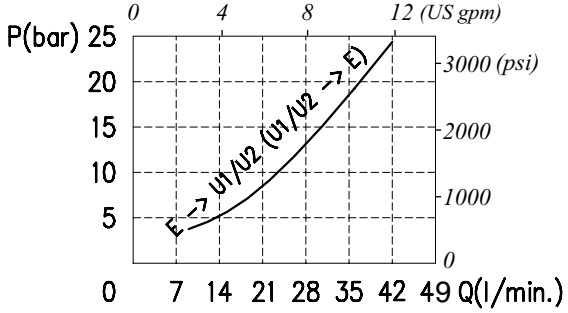




E	U1–U2
G 1/2	G 3/8

Rating diagrams

Pressure drop diagram from E-->U1&U2 and from U1&U2-->E



Order code

VDFR 12-40 / ☐ / ☐

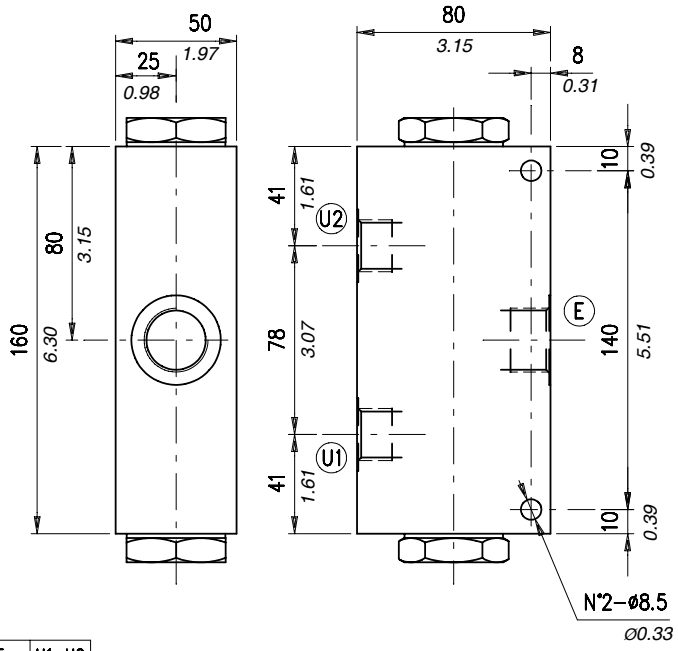
Flow Division Ratio between U1 and U2 (%)

_ standard division ratio 50 -50
33 - 66
30 - 70
20 - 80
25 - 75
40 - 60

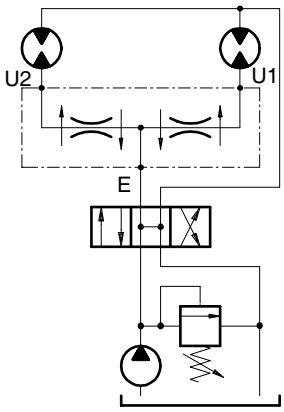
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

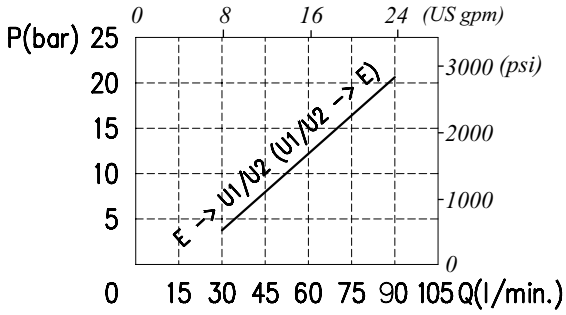


E	U1–U2
G 3/4	G 1/2



Rating diagrams

Pressure drop diagram from E-->U1&U2 and from U1&U2-->E



Order code

VDFR 34-90 / ☐ / ☐

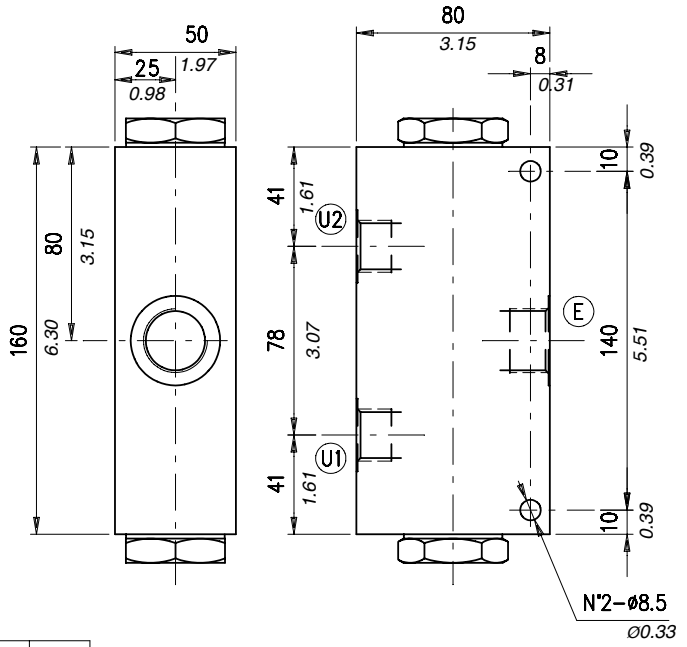
Flow Division Ratio between U1 and U2 (%)

_ standard division ratio 50 -50
33 - 66
30 - 70
20 - 80
25 - 75
40 - 60

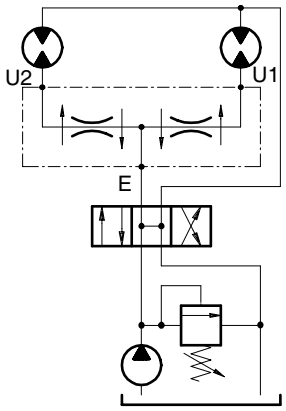
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

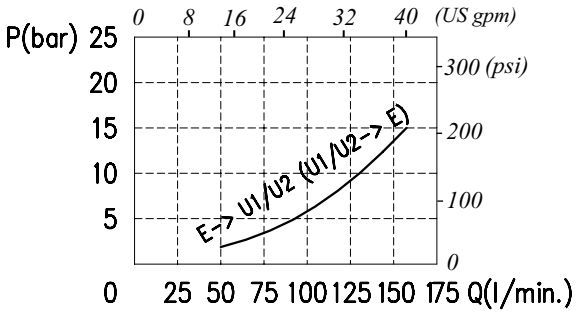


E	U1–U2
G 1	G 3/4



Rating diagrams

Pressure drop diagram from E-->U1&U2 and from U1&U2-->E



Order code

VDFR 100-150 / ☐ / ☐

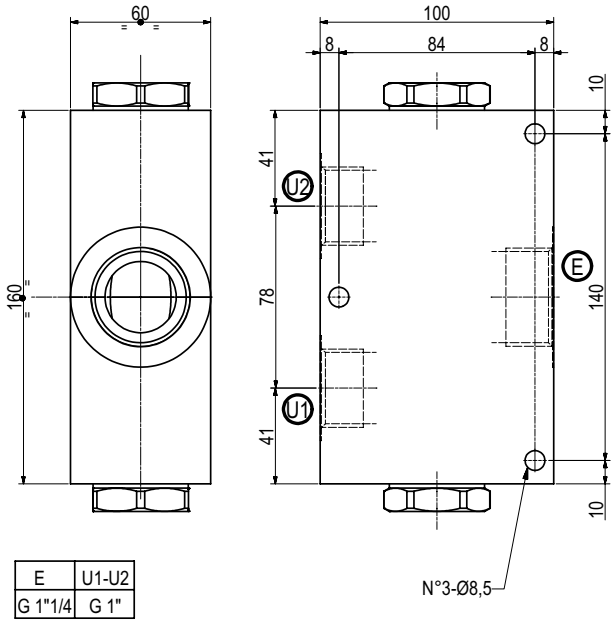
Flow Division Ratio between U1 and U2 (%)

_ standard division ratio 50 -50
33 - 66
40 - 60

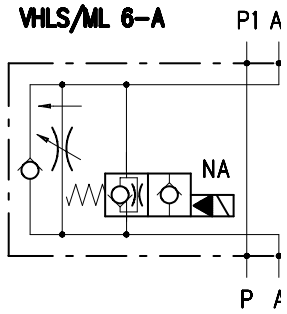
Body material

_ Aluminium
ac Steel

Dimensions and hydraulic circuit

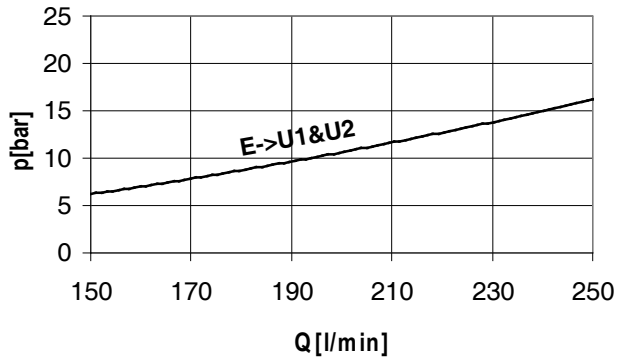


E	U1-U2
G 1"1/4	G 1"

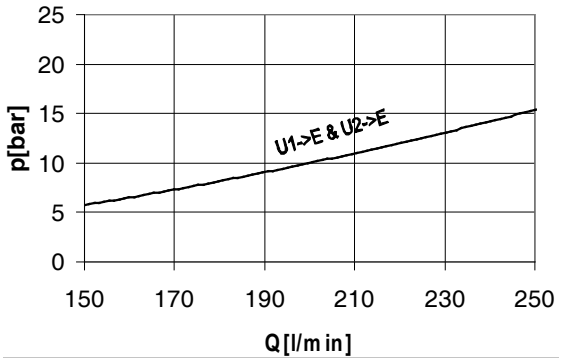


Rating diagrams

Pressure drop diagram from E-->U1&U2



Pressure drop diagram from U1->E & U2->E



Order code

VDFR 114-250 / □ / □

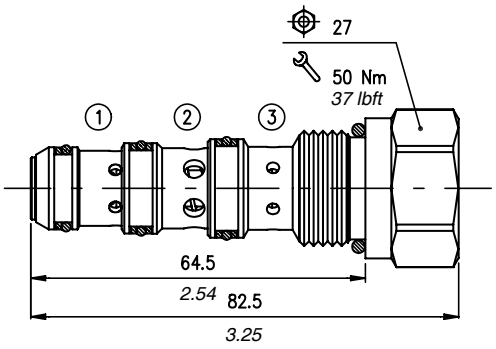
Flow Division Ratio between U1 and U2 (%)

_ standard division ratio 50 -50

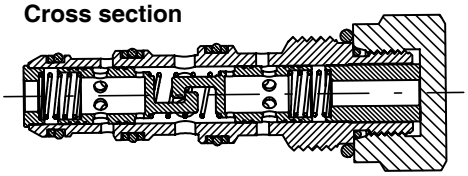
Body material

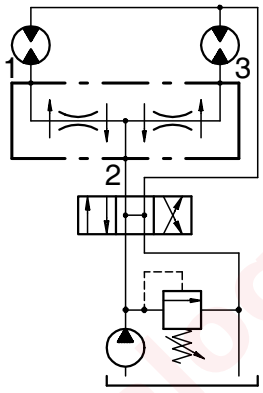
_ Aluminium
ac Steel

Dimensions and hydraulic circuit



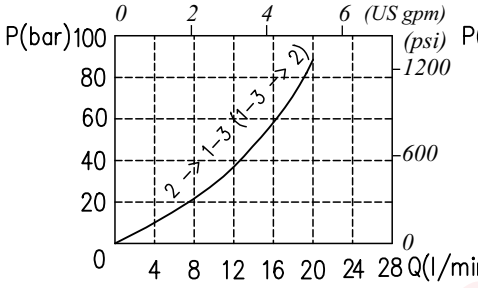
Cross section



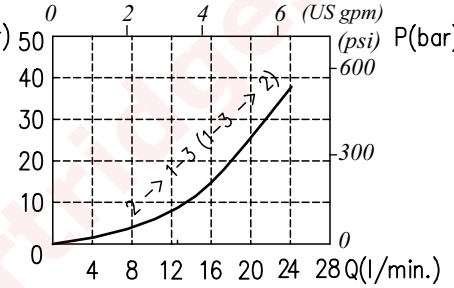


Rating diagrams

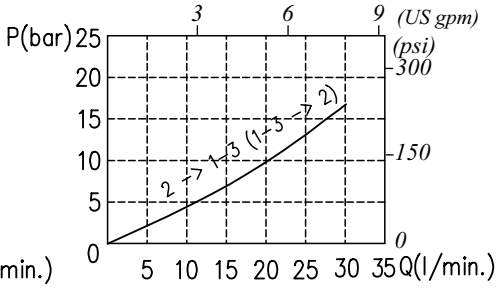
Pressure drop diagram from 2-->1&3 and from 1&3-->2



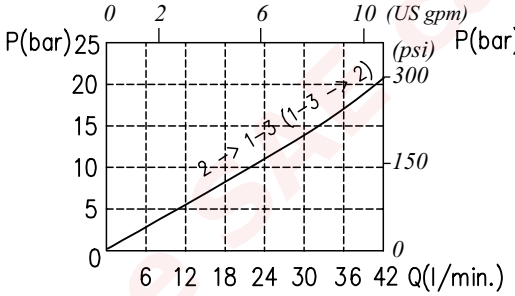
Pressure drop diagram from 2-->1&3 and from 1&3-->2



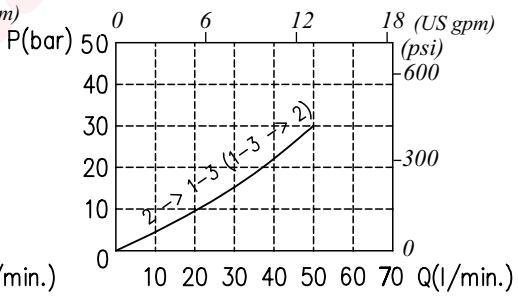
Pressure drop diagram from 2-->1&3 and from 1&3-->2



Pressure drop diagram from 2-->1&3 and from 1&3-->2



Pressure drop diagram from 2-->1&3 and from 1&3-->2



Order code

PD10B / ☐ -☐ -0 -☐

Dividing-Combining ratio%

1) 50÷50

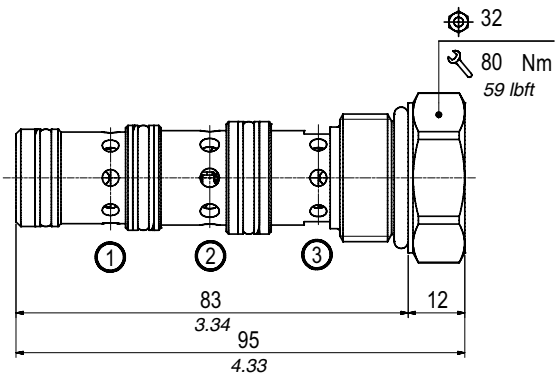
Flow Range (l/min.) *(us gpm)*

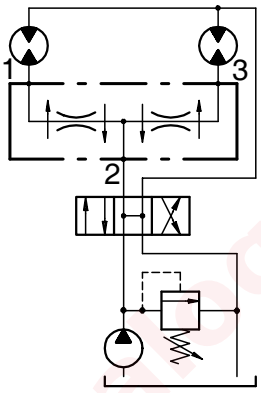
1) 4÷12 *(1÷3.2)*
2) 12÷20 *(3.2÷5.3)*
3) 20÷28 *(5.3÷7.4)*
4) 28÷36 *(7.4÷9.6)*
5) 36÷44 *(9.6÷12)*

Seals

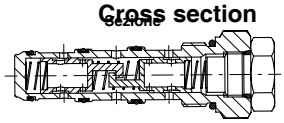
B) Buna
V) Viton

Dimensions and hydraulic circuit



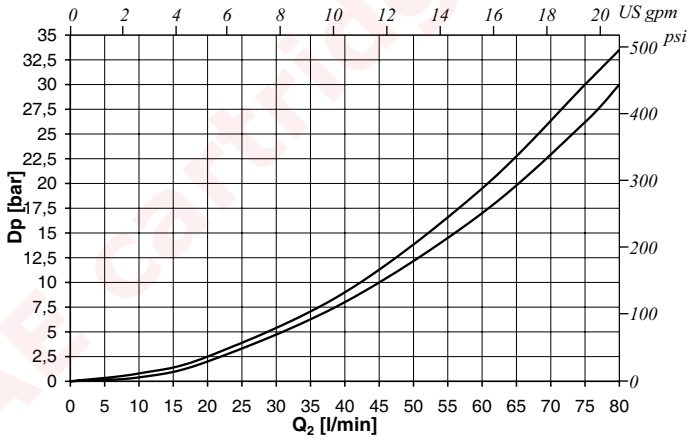


Cross section



Rating diagrams

Pressure drop diagram from 2-->1&3 and from 1&3-->2

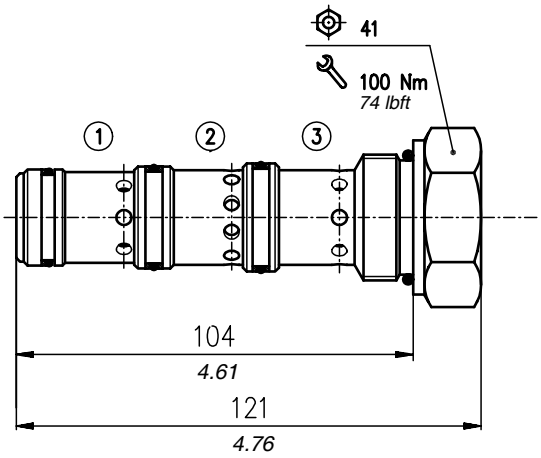


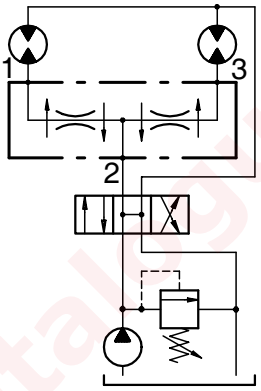
Order code

PD12B/ □ -□ -0 -□

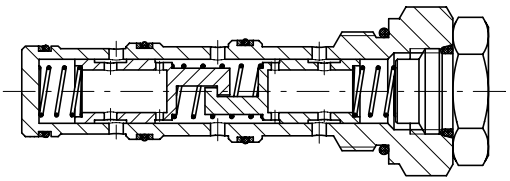
Dividing-Combining ratio	Flow Range (l/min.) (us gpm)	Seals
1) 50÷50	**0)** 40÷75 (10.5÷20)	**B)** Buna **V)** Viton

Dimensions and hydraulic circuit



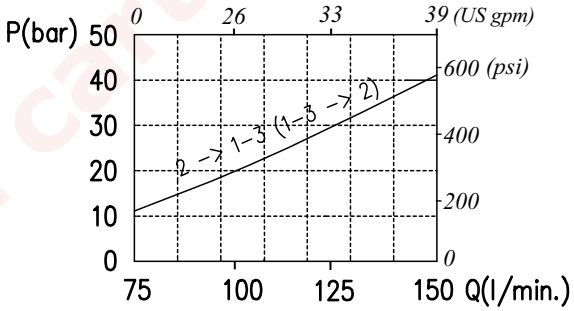


Cross section



Rating diagrams

Pressure drop diagram from 2-->1&3 and from 1&3-->2



Order code

PD16C / ☐ -☐ -0 -☐

Dividing-Combining ratio	Flow Range (l/min.)	Seals
1) 50÷50	**0)** 75÷150 *(20÷40 us gpm)*	**B)** Buna **V)** Viton

Operation

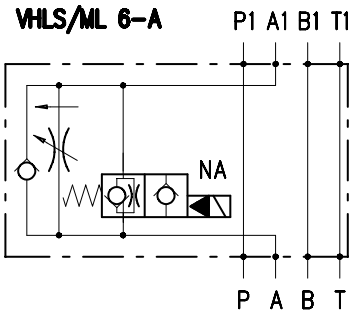
The valve is designed to divide the incoming flow in E (2) into two separate deliveries U1 and U2 (1 e 3) depending on the valve divide ratio. Pressure variations in U1 and U2 (1 e 3) do not alter the outlet delivery. In the opposite direction, the valve works combining together the inlet flows U1 and U2 (1 e 3).

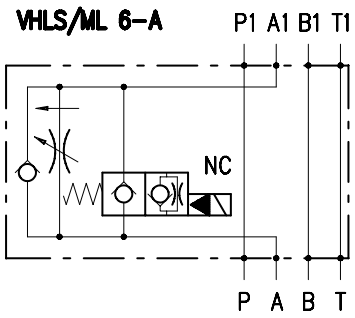
Performance

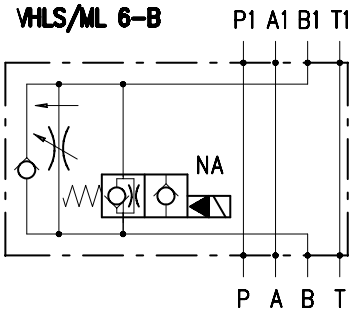
Body Valves

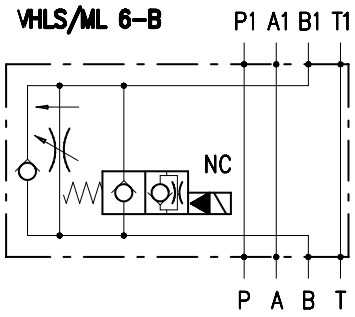
Tipo VHLS/ML	Flow		Max. pressure bar	Coils	Weight		Cartridge used
	l/min	*US gpm*			kg	*lb*	
VHLS/ML 6-38	max=35 reg.=25	*max=9.2* *reg.=6.6*	210 *-3050 psi-* (aluminium body)	BE/... see page 118	2,45	*5,40*	Pressure adjustment cartridge VPR/2/RL/C 38 Electric valve EC08A

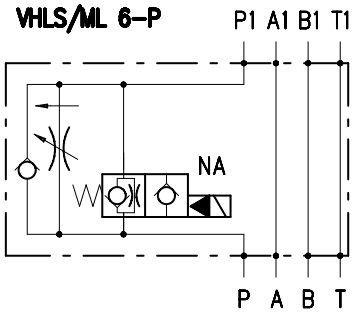
Hydraulic circuits

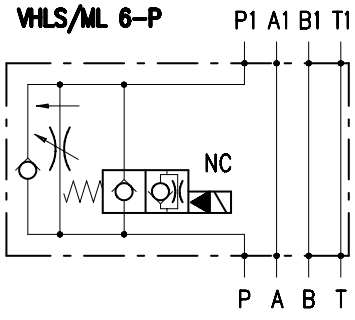


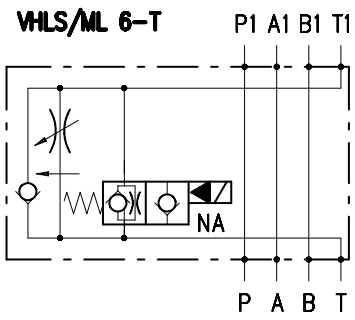


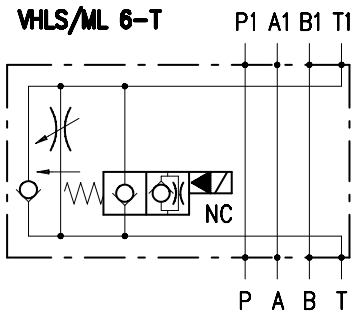




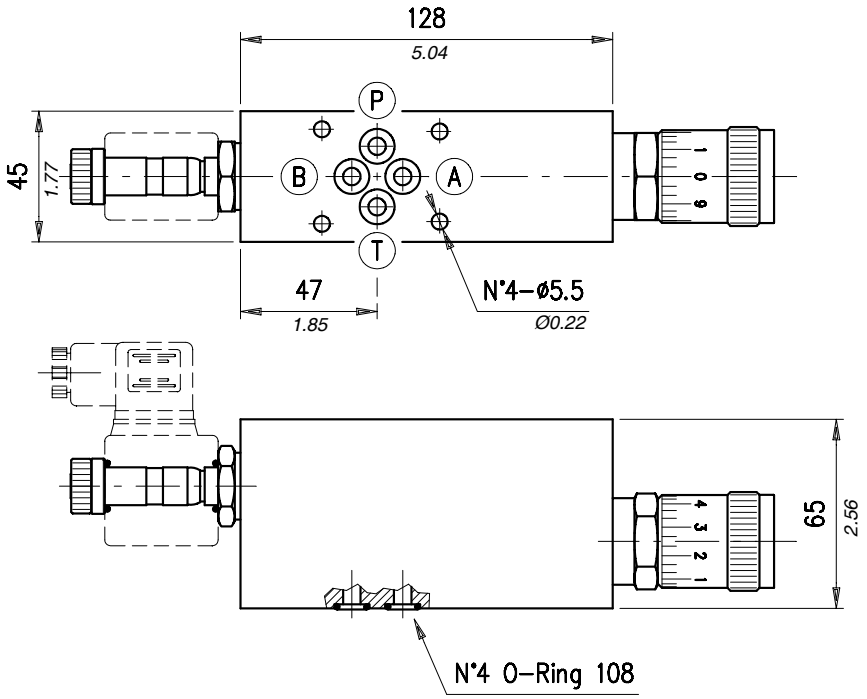






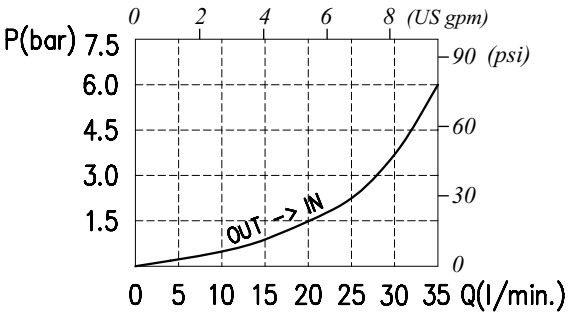


Dimensions and hydraulic circuit

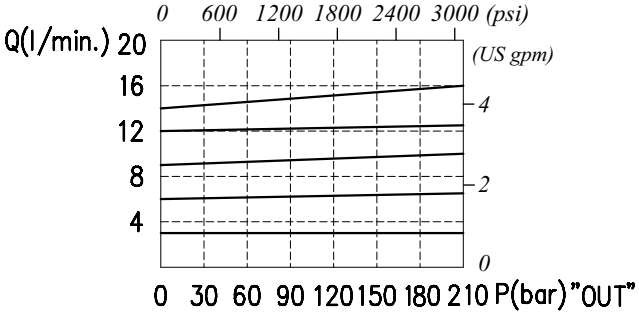


Rating diagrams

Pressure drop diagram OUT-->IN with IN-->OUT closed



Pressure compensation diagram IN-->OUT



Order code

VHLS /ML 6-38 □ / □ / □

Adjusted line

A
B
P
T

Assembly scheme

NA) Normally opened
NC) Normally closed

Body material

_ Aluminium
ac Steel

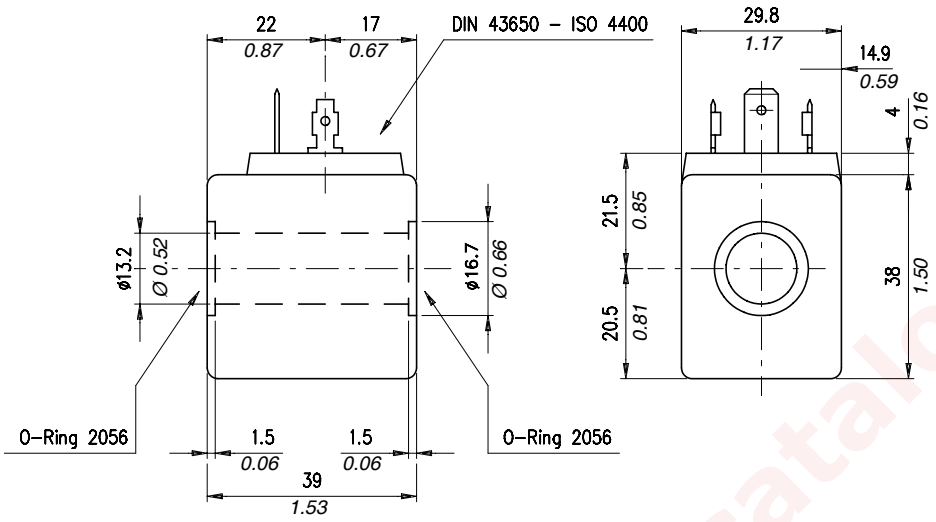
Operation

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*

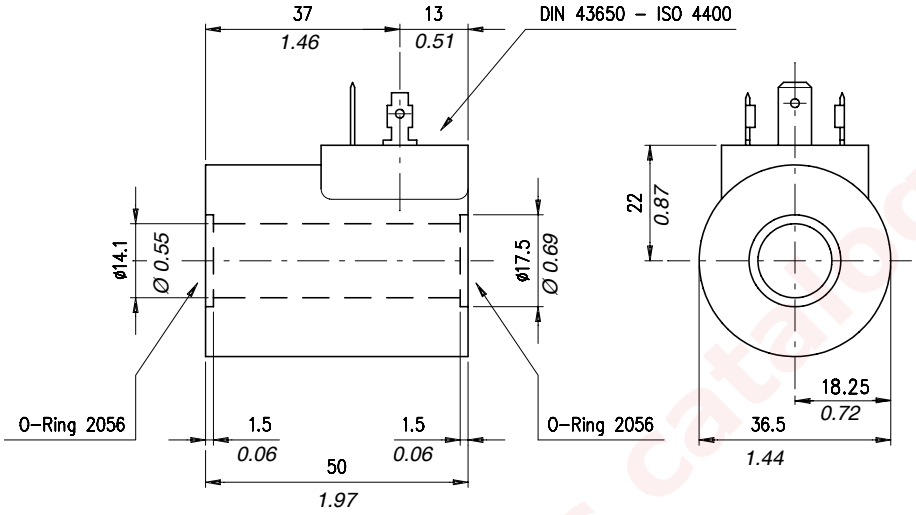
Dimensions



Order code

Type	Ordering code	Ordering code with standard connector	Standard connector code	Connector page
BE 12 Vcc	4SL1000120	5SL1000120	4CN1009990	Page 121 (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 121 (CL)
BE 110 RAC	4SL1031100	5SL1031100	4CN1011100	
BE 220 RAC	4SL1032200	5SL1032200	4CN1012200	

Dimensions and assembly diagram



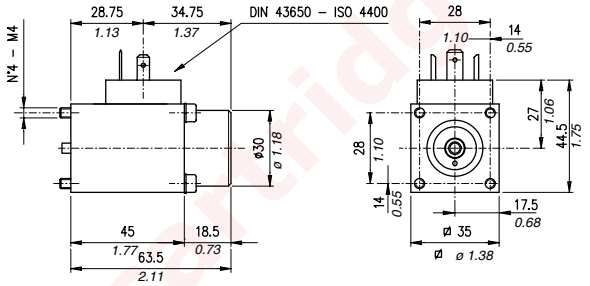
Order code

Type	Ordering code	Ordering code with standard connector	Standard connector code	Connector page
BT 12 Vcc	4SL3000120	5SL3000120	4CN1009990	Page 121 (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 121 (CP)
BT 48 RAC	4SL3030480	5SL3030480	4CN3010480	
BT 110 RAC	4SL3031100	5SL3031100	4CN3011100	
BT 220 RAC	4SL3032200	5SL3032200	4CN3012200	

Operation

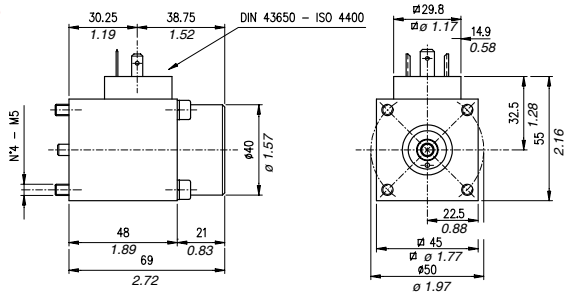
Proportional coil. 12 and 24 coils direct voltage, supply a force proportional to the current amount.
thermal insulation class: F (TMAX = 155 °C-*303°F*-) - (VDE 0580).
Relative duty cycle: ED = 100 % (VDE 0580).
To assure ED=100% and perform continuous coil operation, the following conditions should 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 121 (CC-CA)
35x35 24 Vcc	4SL4000240	5SL4000240		



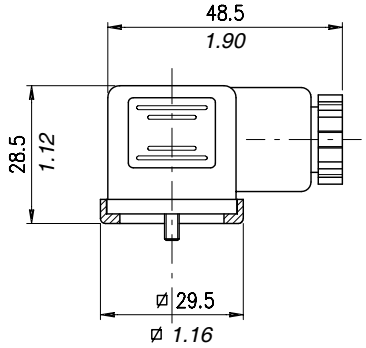
P.C. 45X45

Type	Ordering code	Ordering code with standard connector	Standard connector code	Connector page
45x45 12 Vcc	4SL4000243	5SL4000243	4CN1009990	see page 121 (CC-CA)
45x45 24 Vcc	4SL4000241	5SL4000241		

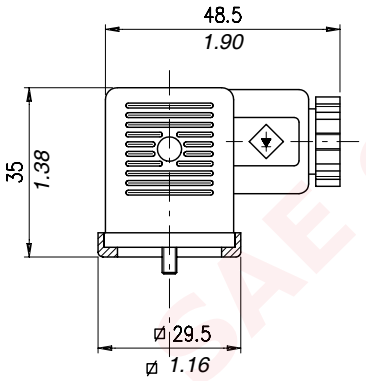
Operation

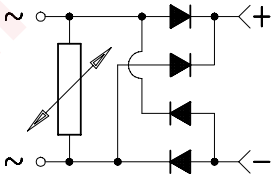
There are 3 types of different solenoid connectors:
"CC-CA" 2-poles + GROUND electric connectors in compliance with DIN and A/ISO standards 43650 and 4400.
Electric connectors suitable for connection of DC and AC current coils. Type of current must be same as for the coil used**.**
"CL" 2-poles + rectifier + 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								

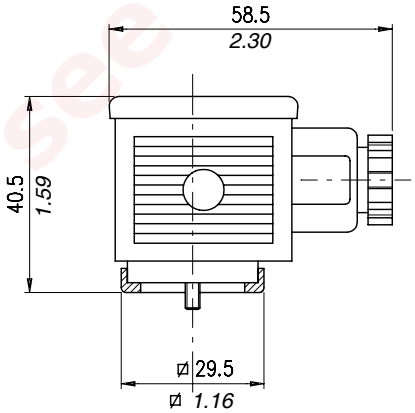


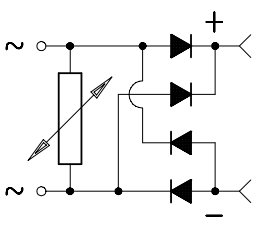
Order code: CC-CA Connector





Order code: CL Connector





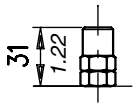
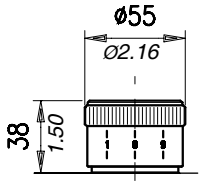
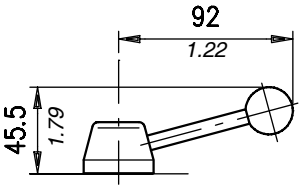
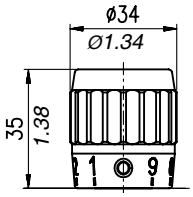
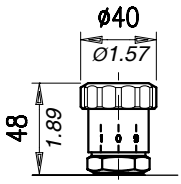
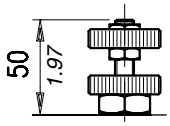
Order code: CP Connector

Adjustments

Description and operation

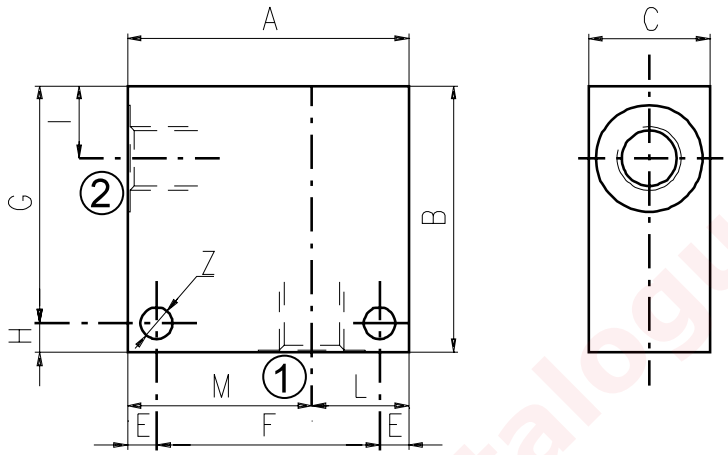
This chapter show main adjusting devices for the valves listed in this catalog.
These regulations are used to adjust flow rate between inlet and working ports.

Performance

	**Screw “S”**		**Handknob calibrated “MGB” (fine adjusting)**
	**Lever “L” (rotation=180°)**		**Handknob calibrated “M”**
	**Handknob calibrated “MG” (medium adjusting)**		**Handknob “V”**

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

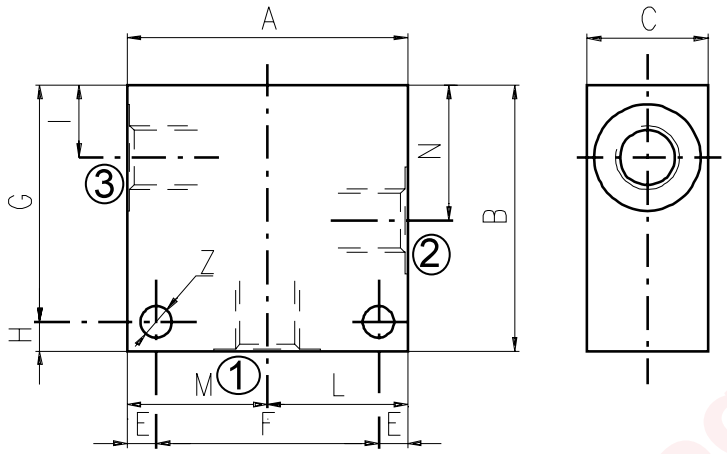
Cavity
08
10
12
16

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*

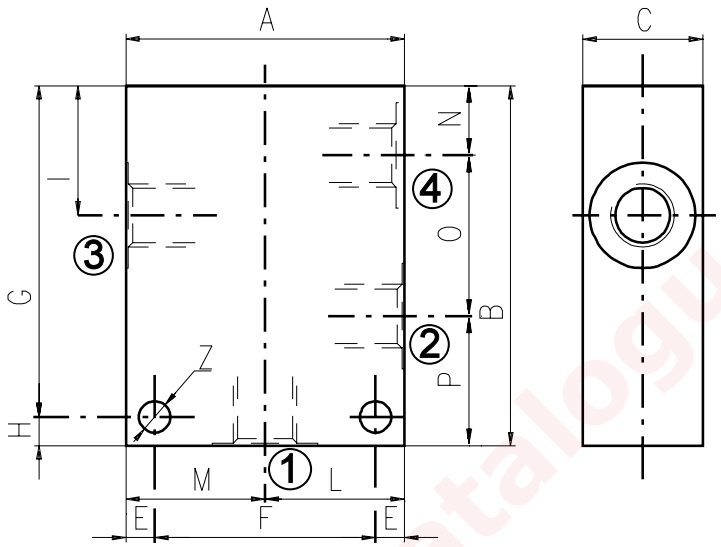
Order code

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*



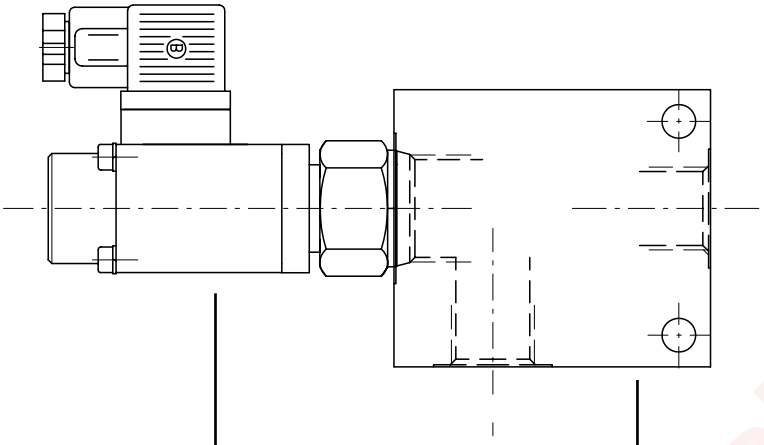
Cavity	Ports		A	B	C	E	F	G	H	I	L	M	N	O	P	Z
SAE 8/4	G 1/4	mm	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	*2.36*	*2.95*	*1.18*	*0.27*	*1.81*	*2.48*	*0.47*	*1.14*	*1.18*	*1.18*	*0.58*	*1.14*	*1.22*	*0.25*
	SAE6	mm	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	*2.36*	*2.95*	*1.18*	*0.27*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



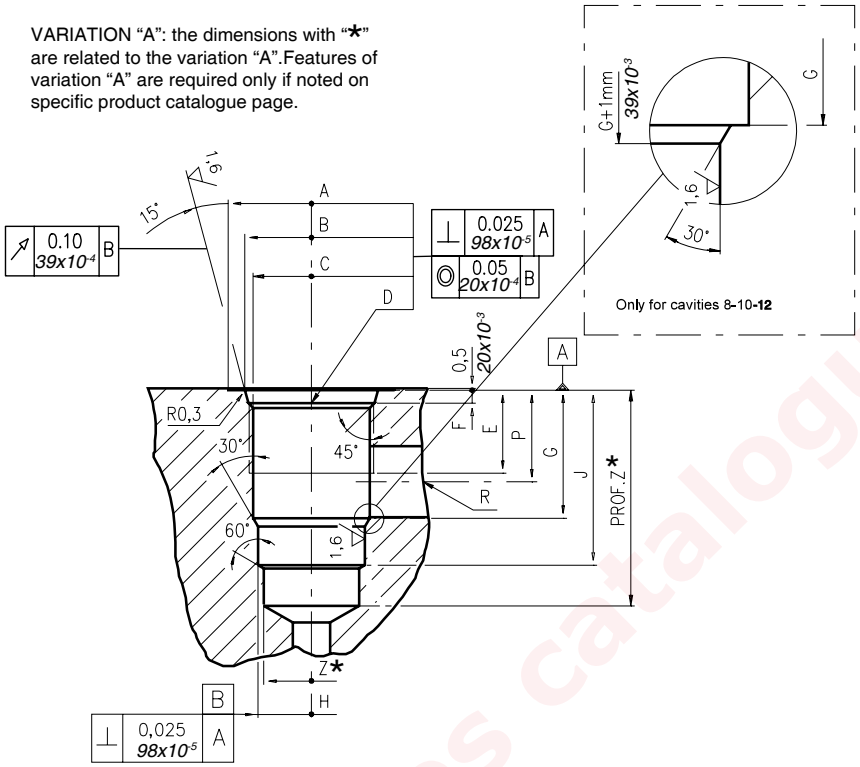
CARTRIDGE CODE **PU-10-W/A-2-0B/**

BILLET CODE **K- 1-1**

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

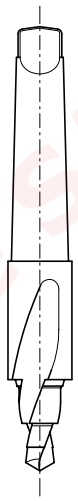
Dimensions

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



\		A	B ±0,05	C ±0,05	D	E	F	G	H ±0,02	J	K ±0,02	L	M ±0,02	N	P	R øMAX	S	T øMAX	U	V øMAX	X øMAX	Z * øMIN	Prof.Z MIN*
08/2	mm	27	20,66	17,42	3/4-16 UNF	12,50	2,50	18,20	12,72	29,50	-	-	-	-	14,00	8,00	-	-	-	-	-	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

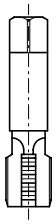


Cavity	Code number
08/2	3UT00053190
10/2	3UT00056610
12/2	3UT00054090
16/2	3UT00054510

Finisher tool

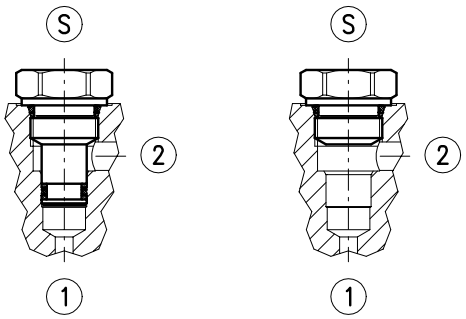
Cavity	Code number
08/2	3UT06A1270N
10/2	3UT00054580
12/2	3UT00054670
16/2	3UT00054520

Tap



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

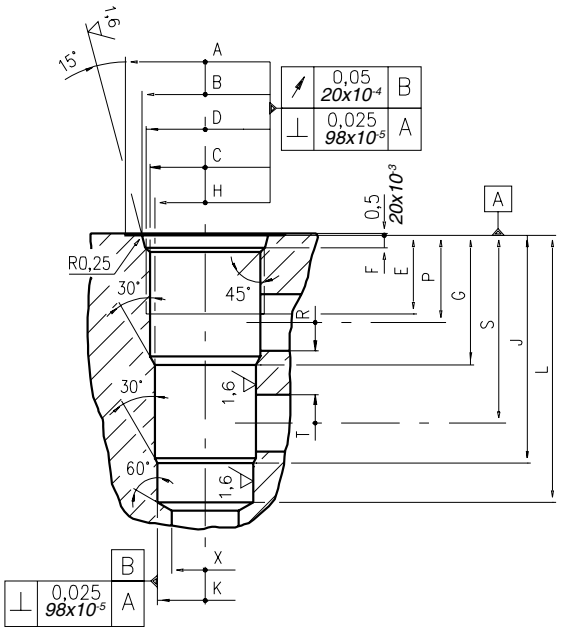
Cavity plugs



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

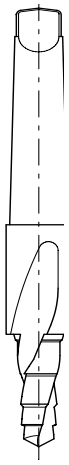
X=Closed 0=Open

Dimensions



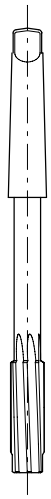
\		A	B ±0,05	C ±0,05	D	E	F	G	H ±0,02	J	K ±0,02	L	M ±0,02	N	P	R øMAX	S	T øMAX	U	V øMAX	X øMAX	Z øMIN	Prof. Z MIN
08/3	mm	27	20,66	17,42	3/4-16 UNF	12,50	2,5	19,10	15,90	33,30	14,30	43,30	-	-	14,30	5,50	28,60	5,50	-	-	12,50	-	-
	in	*1.06*	*0.81*	*0.68*		*0.49*	*0.10*	*0.75*	*0.62*	*1.31*	*0.56*	*1.70*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



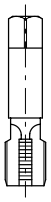
Cavity	Code number
08/3	3UT00052190
10/3	3UT00054170
12/3	3UT00054290
16/3	3UT00054470

Finisher tool



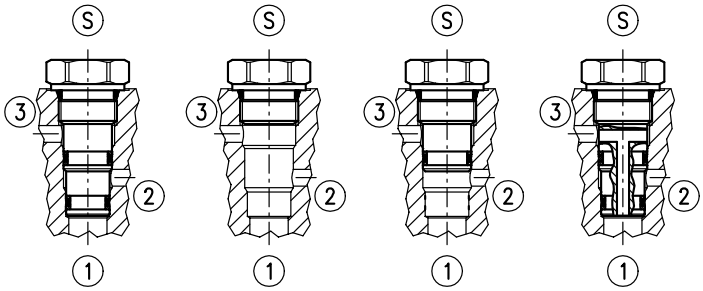
Cavity	Code number
08/3	3UT00052740
10/3	3UT00054180
12/3	3UT00054300
16/3	3UT00054480

Tap



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

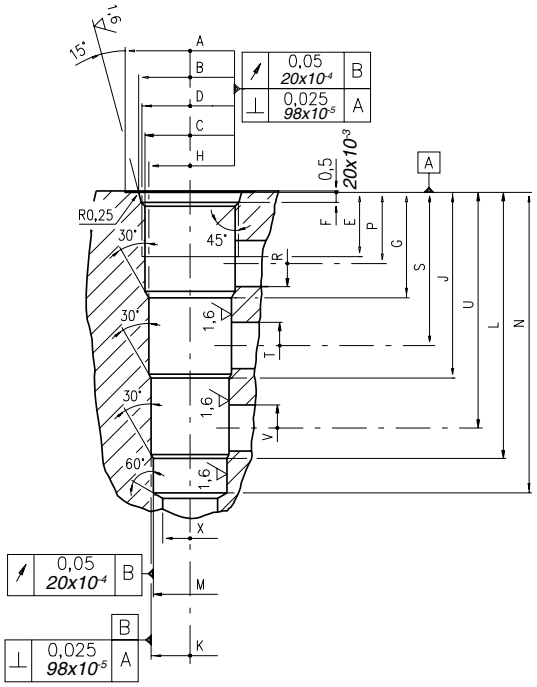
Cavity plugs



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

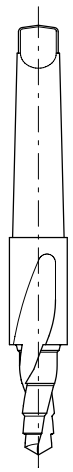
X=Closed 0=Open

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

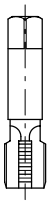


Cavity	Code number
08/4	3UT00052040
10/4	3UT00054250
12/4	3UT00054410
16/4	3UT00054820

Finisher

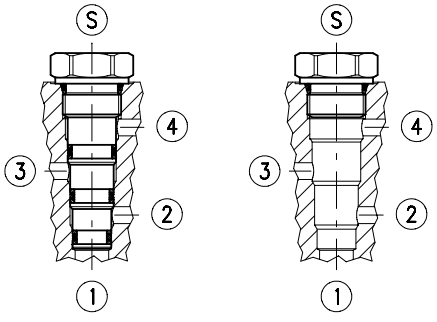
Cavity	Code number
08/4	3UT00052020
10/4	3UT00054260
12/4	3UT00054420
16/4	3UT00054830

Tap



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

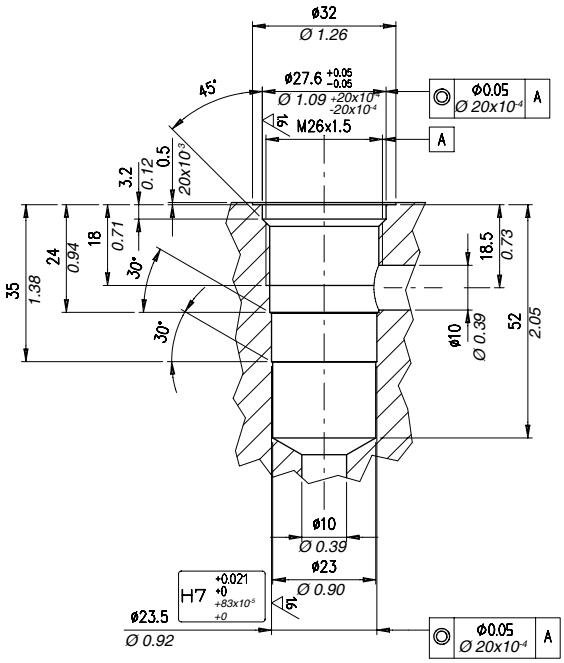
Cavity plugs



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

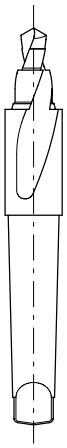
X=Closed 0=Open

Dimensions



Rougher tool

Code 3UT00050140

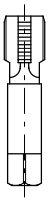


Finisher

Code 3UT00055020

Cavity plugs

Code 3UT08A26F150



Notes

1st edition May 2010

WWW.WALVOIL.COM

walvoil
HYDRAULIC CONTROL SYSTEMS

D1WWEU01E