

**CROSS-LINE, RELIEF VALVES FOR MOTION CONTROL,
ANTI-SHOCK AND ANTI-CAVITATION, LINE MOUNTING,
CARTRIDGE CONSTRUCTION**

Operation

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

Use the following formula to assert the applicable pilot pressure:

$$(\text{valve setting} - \text{load pressure}) \div \text{pilot ratio} = \text{pilot pressure}$$

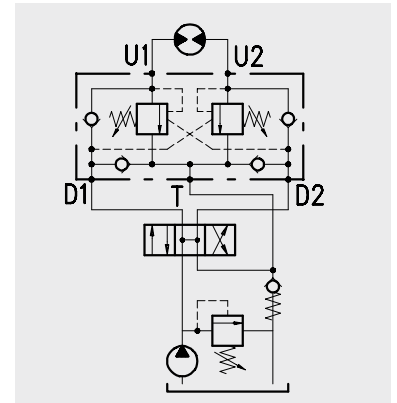
For example:

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

Counterpressure in D1 (D2) increase the setting value (1:1 ratio) of the poppet spring and negatively affect the pilot pressure (1:1 ratio).

Use of two check-valves between D1 (D2) and T avoids cavitation on the pressure line during relief operation. To obtain immediate valve response and no pressure drop, preferably mount this valve next to the application to check.

Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action.

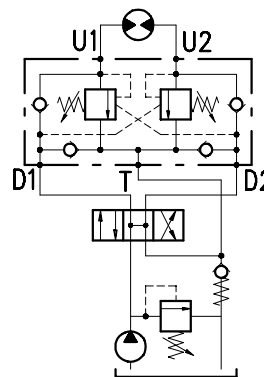
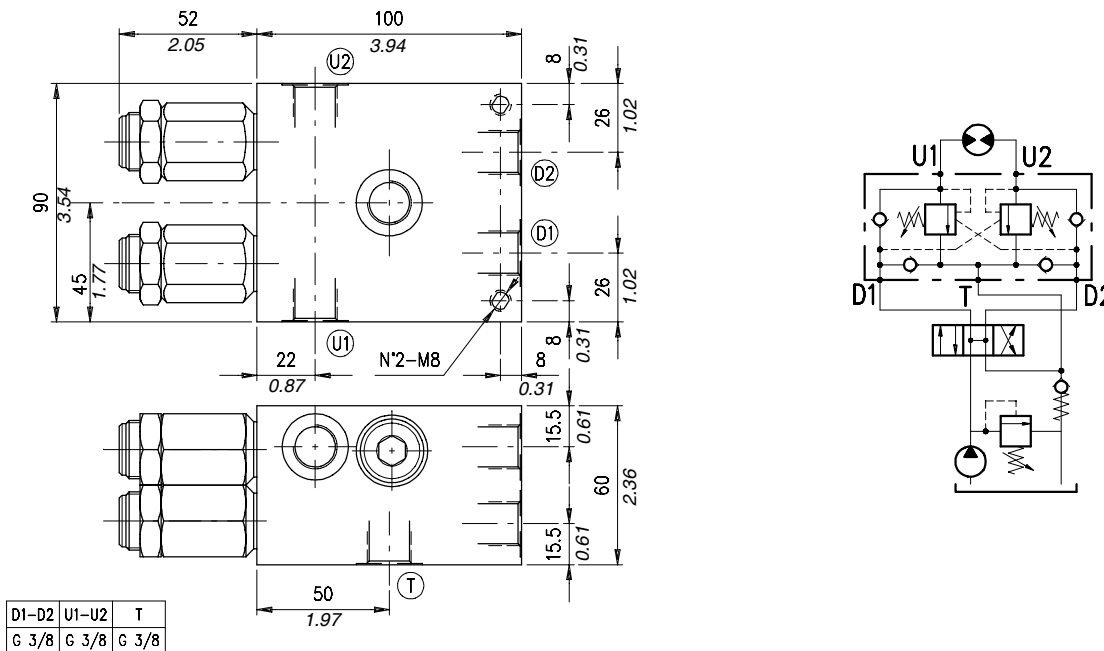


Performance

Body valves

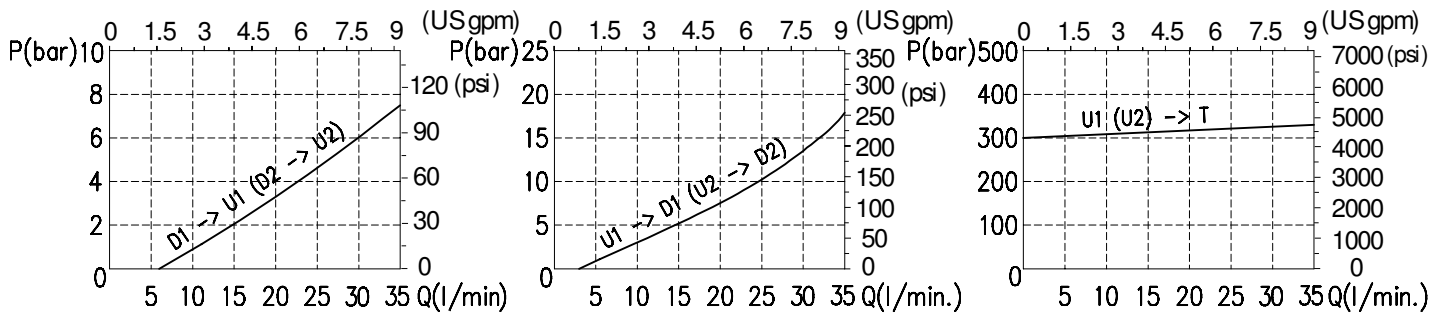
Type	Maximum flow		Maximum pressure		Application range with standard springs	Oil leakage from A1 (B1) to A (B)	Pilot ratio	Weight		Overcenter cartridge
	l/min	US gpm	bar	psi				kg	lb	
VABAL 38	35	9.2	210 (alum.) 350 (steel)	3050 (alum.) 5100 (steel)	5÷210 bar -72.5÷3050 psi (test setting 170 bar-2500 psi at 5 l/min.-1.3 US gpm)	0,25 cm ³ /min -15x10 ⁻³ in ³ /min (5 drops) at 210 bar -3050 psi and 80% of the spring setting value with oil viscosity of 46 cSt.	1:4 (standard type) 1:3 (on request only)	1,95	4.30	VMPD 38
aluminium		4,01			8.84					
steel										
VABAL 12	70	18					50÷350 bar -725÷5100 psi (test setting 280 bar-4060 psi at 5 l/min.-1.3 US gpm)	1:7 (standard type) 1:3 (on request only)	2,45	5.40
aluminium		5,05	11.13							
steel										
VABAL 34	100	26			100÷700 bar- 1450÷10150 psi (test setting 350 bar-5100 psi at 5 l/min.-1.3 US gpm)		1:7 (standard type) 1:3 (on request only)	4,42	9.74	VMPD 34
aluminium		8,73	19.25							
steel										
VABAL 100	180	46						4,42	9.74	
aluminium		8,73	19.25							
steel										

Dimensions and hydraulic circuit



Rating diagrams

Typical pressure drop vs. flow characteristics



Order code

VABAL 38 / . S . . . /

Pressure settings

Pilot ratio

Type of pilot

Check valve seat

Body material

TS) 5÷210 bar (72.5÷3050 psi)

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

TG) 100÷700 bar (1450÷10150 psi)

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

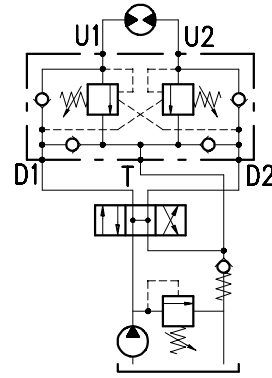
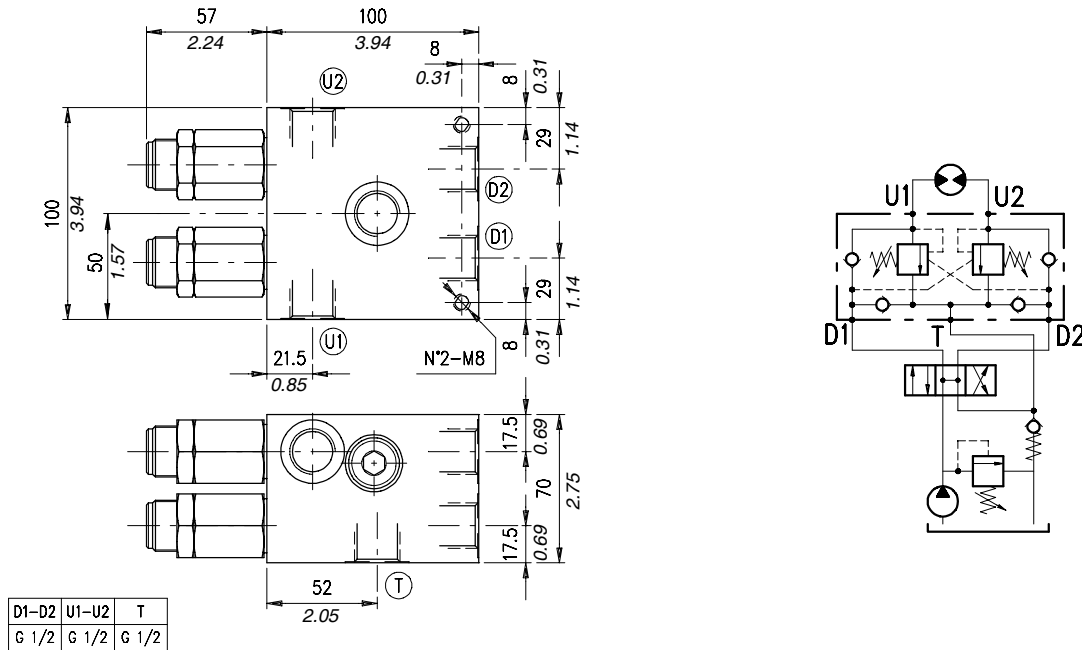
Without damper (Standard)
PG) With damper

See body
VRR) Hardened steel

Aluminium
ac) Steel

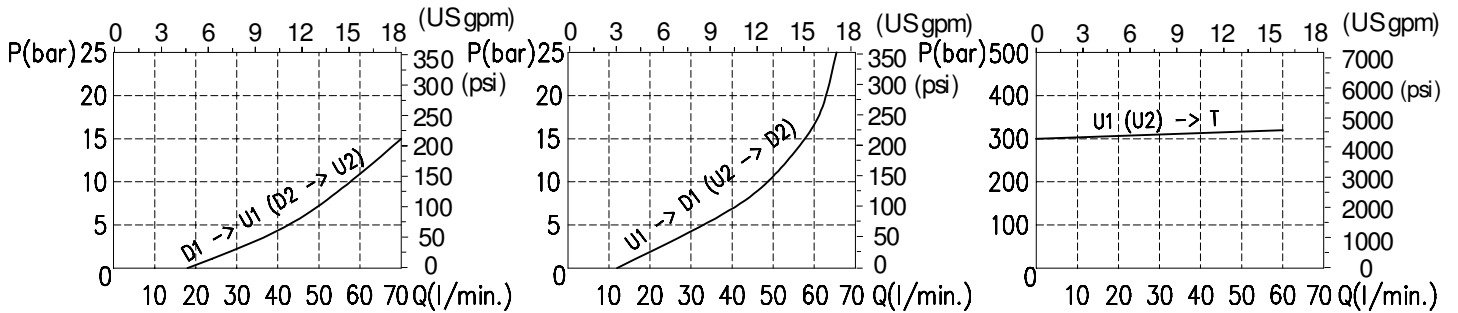
Cross-line, relief valve for motion control, anti-shock and anti-cavitation, line mounting, cartridge construction

Dimensions and hydraulic circuit



Rating diagrams

Typical pressure drop vs. flow characteristics



Order code

VABAL 12 / . S . . . /

Pressure settings

Pilot ratio

Type of pilot

Check valve seat

Body material

TS) 5÷210 bar (72.5÷3050 psi)

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

TG) 100÷700 bar (1450÷10150 psi)

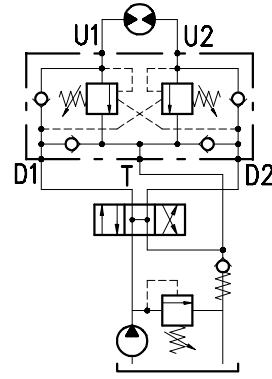
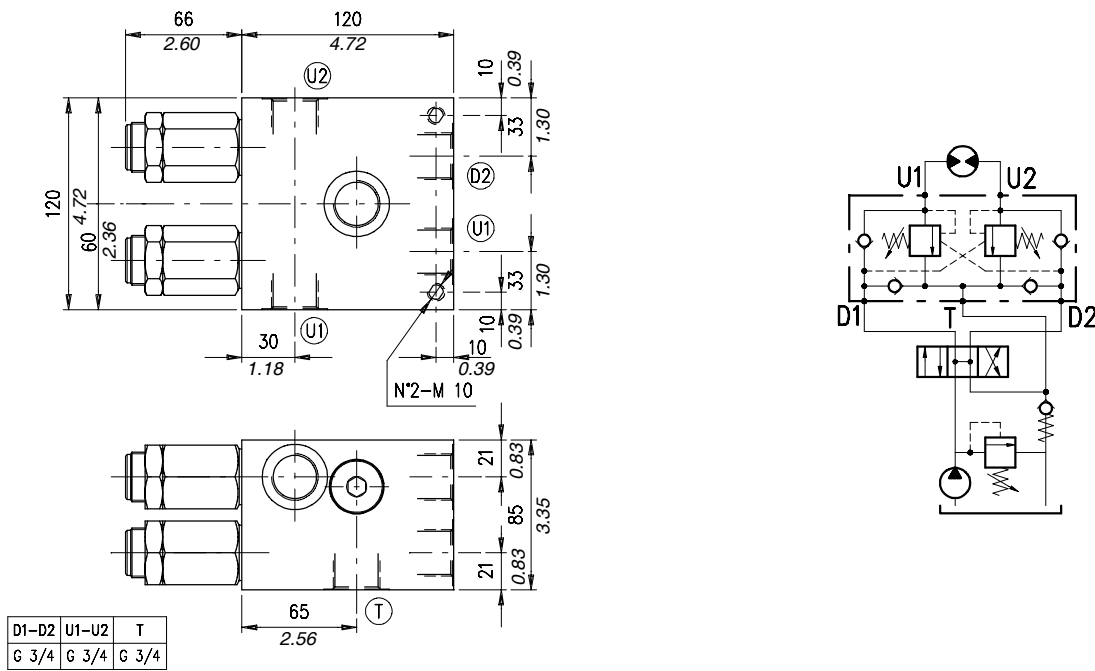
p3) 1:3
p7) 1:7
(Standard)

Without damper (Standard)
PG) With damper

See body
VRR) Hardened steel

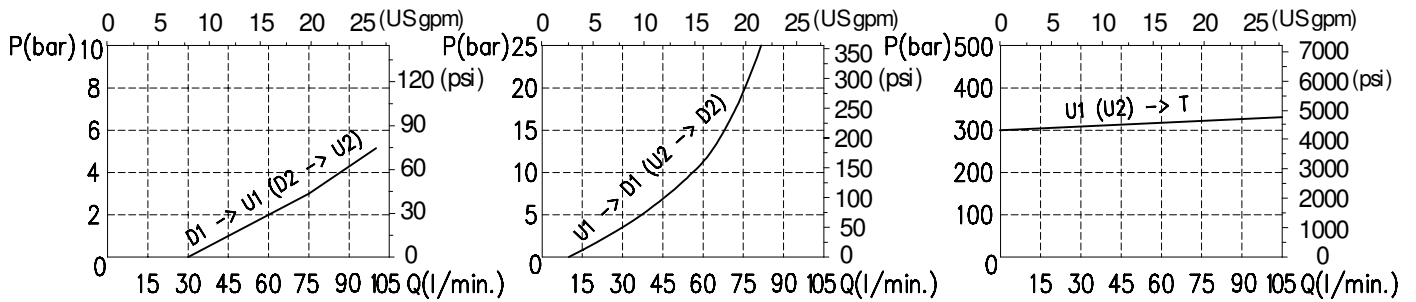
Aluminium
ac Steel

Dimensions and hydraulic circuit



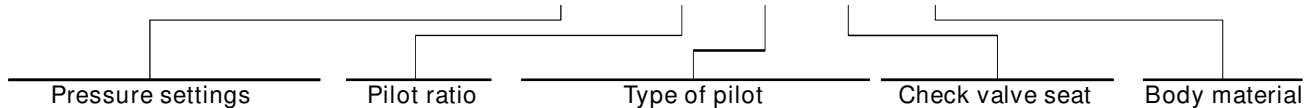
Rating diagrams

Typical pressure drop vs. flow characteristics



Order code

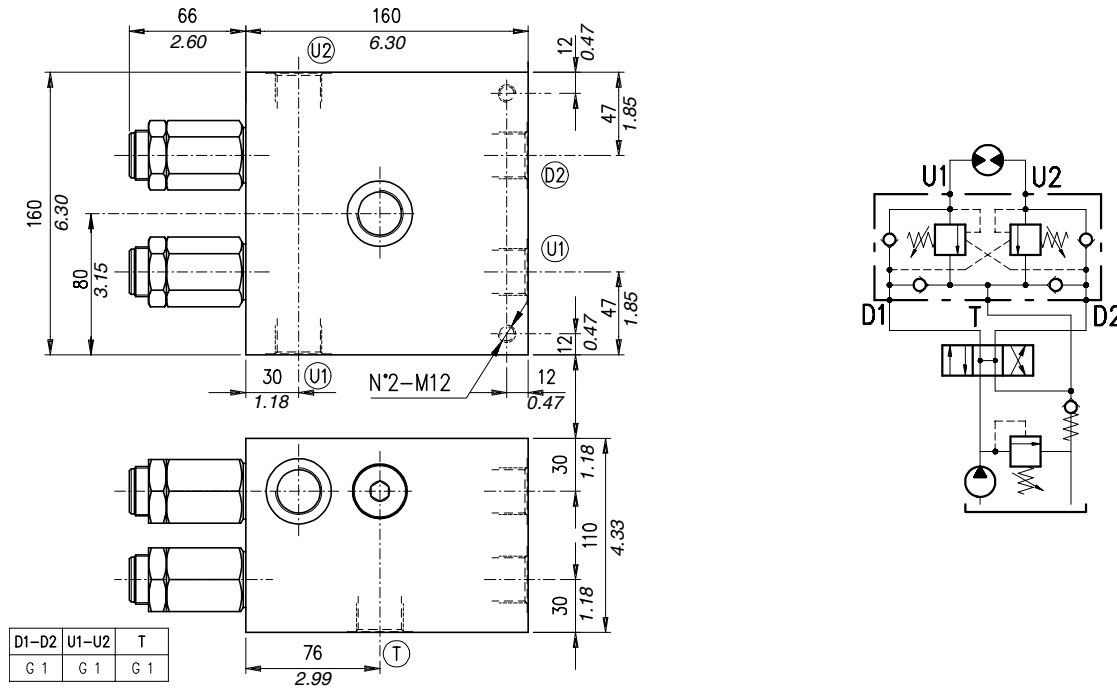
VABAL 34 / □□ . S . □□ . □□ . □□ / □□



- TS) 5÷210 bar (72.5÷3050 psi)
- TR) 50÷350 bar (725÷5100 psi) (Standard)
- TG) 100÷700 bar (1450÷10150 psi)
- p3) 1:3
- p7) 1:7 (Standard)
- Without damper (Standard)
- PG) With damper
- See body
- VRR) Hardened steel
- Aluminium
- acSteel

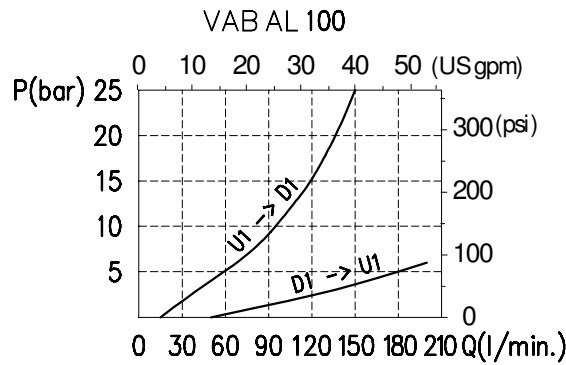
Cross-line, relief valve for motion control, anti-shock and anti-cavitation, line mounting, cartridge construction

Dimensions and hydraulic circuit



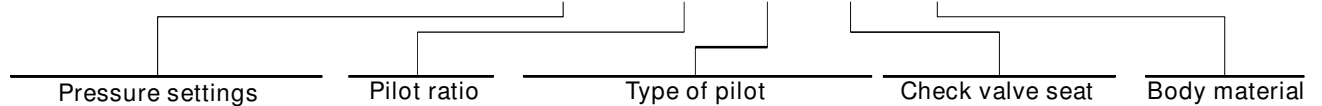
Rating diagrams

Typical pressure drop vs. flow characteristics



Order code

VABAL 100 / □□ . S . □□ . □□ . □□ / □□



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

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

Without damper (Standard)
 PG) With damper

See body
 VRR) Hardened steel

Aluminium
 acSteel