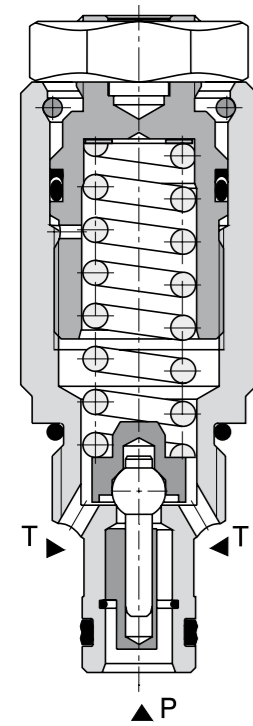


Pressure Relief Valve, Poppet Type, Direct Acting

SR1A-A2

3/4-16 UNF • Q_{max} 30 l/min (8 GPM) • p_{max} 350 bar (5100 PSI)



Technical Features

- › Excellent stability throughout flow range with rapid response to dynamic pressure changes
- › Low hysteresis, accurate pressure control and low pressure drop through CFD optimized flow paths
- › Wide pressure range up to 350 bar
- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for fast cycling with long life
- › Adjustable by allen key or hand screw
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

Functional Description

A poppet type, direct acting hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device for common hydraulic circuit protection. The spring acts on the poppet and presses it onto the valve seat. If the hydraulic pressure is below the pre-set value, the valve is closed. If the hydraulic force exceeds the pre-set value the valve opens and flow passes to the tank port until the system pressure falls below the spring pre-set value and the valve closes again.

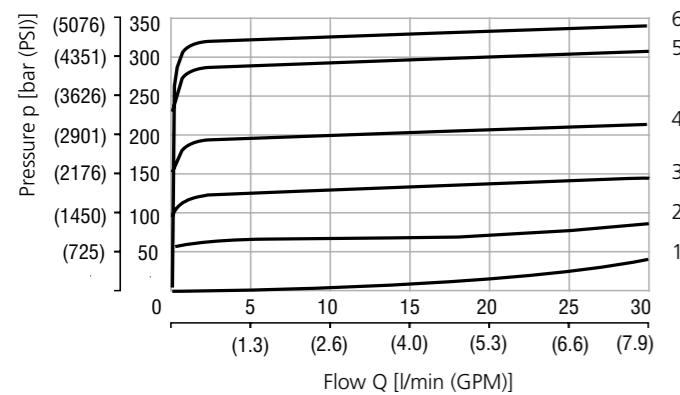


Technical Data

Valve size / Cartridge cavity		3/4-16 UNF-2A / A2
Max. flow	l/min (GPM)	30 (7.9)
Max. operating pressure	bar (PSI)	350 (5080)
Max. pressure (port T)	bar (PSI)	160 (2320)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... 212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... 248)
Mass	kg (lbs)	0.13 (0.29)
General information		Datasheet: GL_0060, Type: Products and operating conditions
Valve bodies	In-line mounted	SB_0018, SB-A2*
	Sandwich mounted	SB-04(06)_0028, SB-*A2*
Cavity details / Form tools		SMT_0019, SMT-A2*
Spare parts		SP_8010

Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate



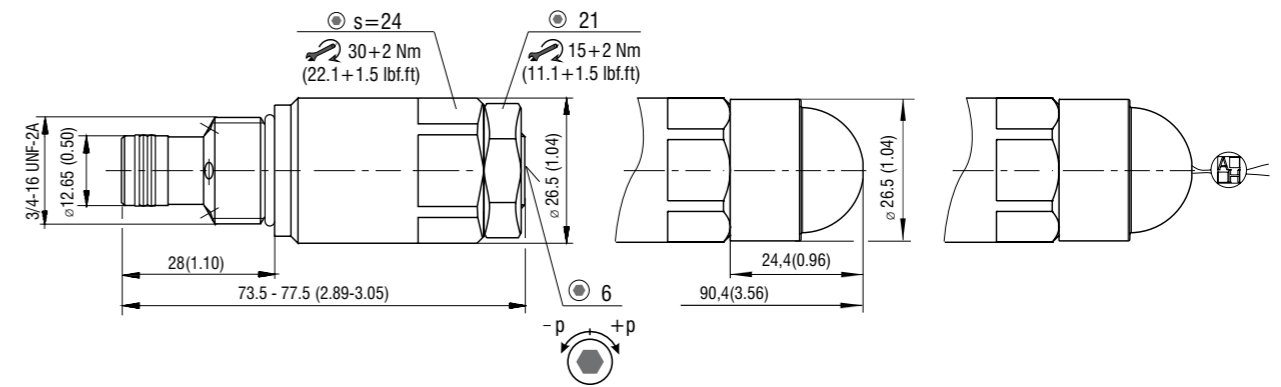
Pressure range	Setting
35	6
25	5
16	4
10	3
6	2
Min. pressure setting	1

Dimensions in millimeters (inches)

Model S

Model T

Model L



Ordering Code

SR1A-A2 / [] [] [] [] - []

Pressure relief valve, poppet type, direct acting
3/4-16 UNF

Model
Lightline L

Pressure range
up to 63 bar (914 PSI) 6
up to 100 bar (1450 PSI) 10
up to 160 bar (2320 PSI) 16
up to 250 bar (3630 PSI) 25
up to 350 bar (5080 PSI) 35

Surface treatment
A zinc-coated (ZnCr-3), ISO 9227 (240 h)
B zinc-coated (ZnNi), ISO 9227 (520 h)

Seals
No designation V
NBR
FPM (Viton)

Adjustment option
S allen key (hex. 6), without protective cap
T allen key (hex. 6), with protective cap
L allen key (hex. 6), with protective cap, sealable (lockwire holes)

Pressure Relief Valve, Poppet Type, Direct Acting

VPP2-04/S

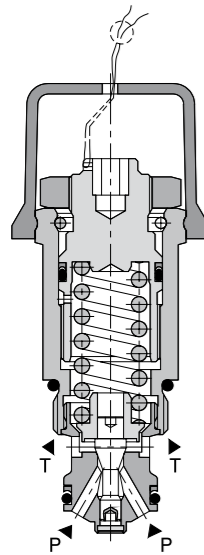
M22x1.5 • Q_{max} 40 l/min (11 GPM) • p_{max} 320 bar (4600 PSI)

Technical Features

- › Excellent stability throughout flow range with rapid response to dynamic pressure changes
- › Low hysteresis, accurate pressure control and low pressure drop
- › Wide pressure range up to 320 bar
- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for fast cycling with long life
- › Adjustable by allen key or hand screw
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

Functional Description

A poppet type, direct acting hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device for common hydraulic circuit protection. The spring acts on the poppet and presses it onto the valve seat. If the hydraulic pressure is below the pre-set value, the valve is closed. If the hydraulic force exceeds the pre-set value the valve opens and flow passes to the tank port until the system pressure falls below the spring pre-set value and the valve closes again.



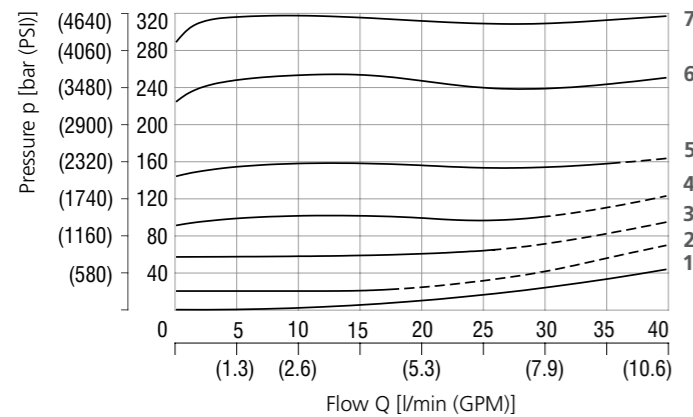
Technical Data

Valve size / Cartridge cavity		M22x1.5 / QG2
Max. flow	l/min (GPM)	40 (10.6)
Max. operating pressure	bar (PSI)	320 (4640)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... 212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... 248)
Mass	kg (lbs)	0.17 (0.37)

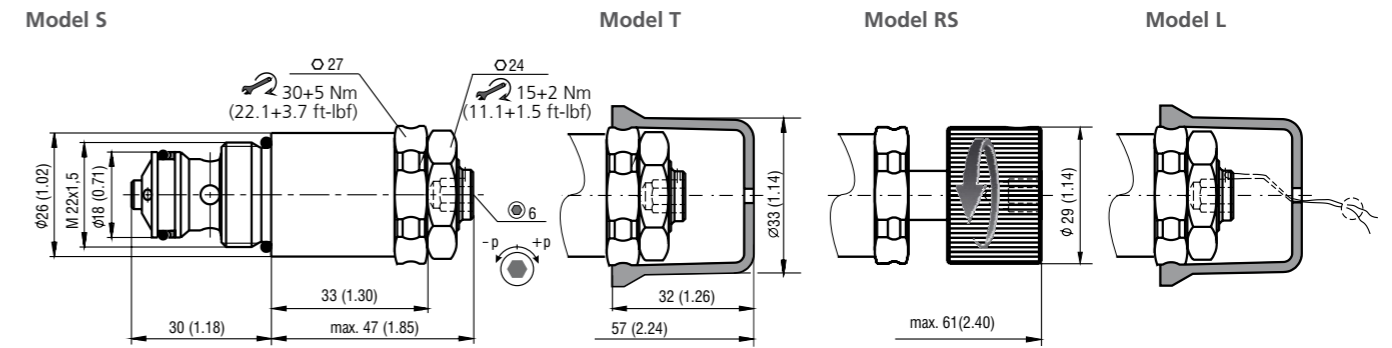
		Datasheet	Type
General information		GI_0060	Products and operating conditions
Valve bodies	In-line mounted	SB_0018	SB-QG2*
	Sandwich mounted	SB-04(06)_0028	SB-*QG2*
Cavity details		SMT_0019	SMT-QG2*
Spare parts		SP_8010	SMT-B2*

Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate



Dimensions in millimeters (inches)



Ordering Code

VPP2-04 / S - [] - [] - []

Pressure relief valve, poppet type, direct acting M22x1.5

Model screw-in cartridge S

Pressure range
 up to 25 bar (360 PSI) 2
 up to 63 bar (910 PSI) 6
 up to 100 bar (1450 PSI) 10
 up to 160 bar (2320 PSI) 16
 up to 250 bar (3630 PSI) 25
 up to 320 bar (4600 PSI) 32

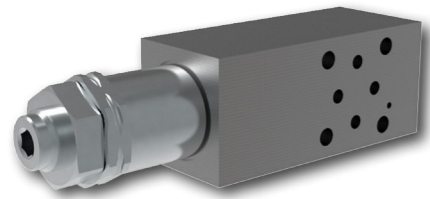
Surface treatment
 A zinc-coated (ZnCr-3), ISO 9227 (240 h)
 B zinc-coated (ZnNi), ISO 9227 (520 h)

Seals
 No designation V
 NBR
 FPM (Viton)

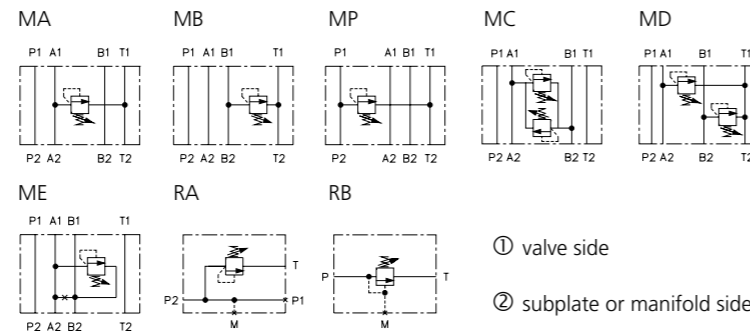
Adjustment option
 S allen key (hex. 6), without protective cap
 T allen key (hex. 6), with protective cap
 RS hand screw, metal
 L allen key (hex. 6), with protective cap, sealable (lockwire holes)

VPP2-04/M(R)

Size 04 (D02), 06 (D03) • Q_{max} 40 l/min (11 GPM) • p_{max} 320 bar (4600 PSI)



ISO 4401-02-01-0-05

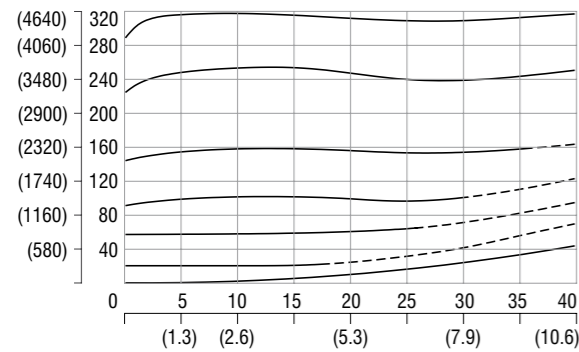


Ports P, A, B, T - max. \varnothing 4.5 mm (0.18 in)

ISO 4401-03-02-0-05

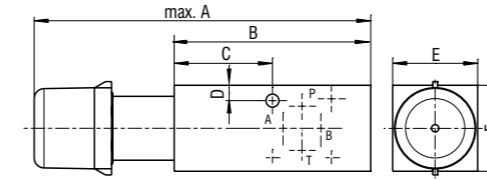
Notice: The orientation of the symbol on the name plate corresponds with the valve function.

Ports P, A, B, T - max. \varnothing 7.5 mm (0.29 in)

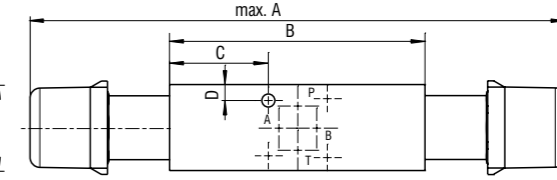


Dimensions in millimeters (inches)

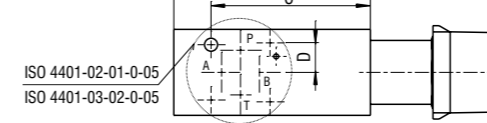
Model MA



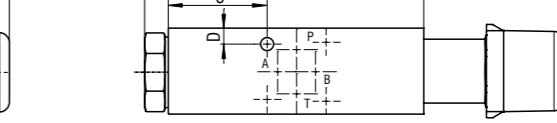
Model MC, MD



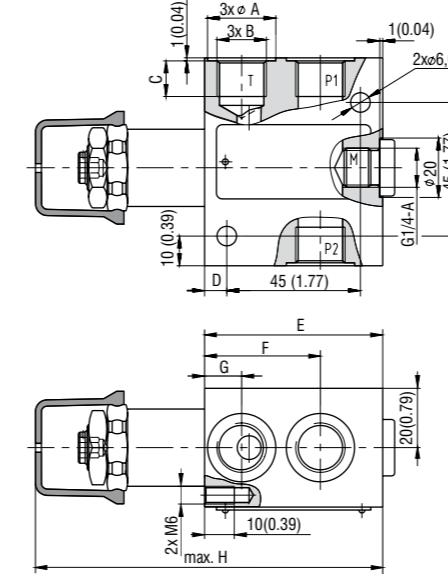
Model MB, MP



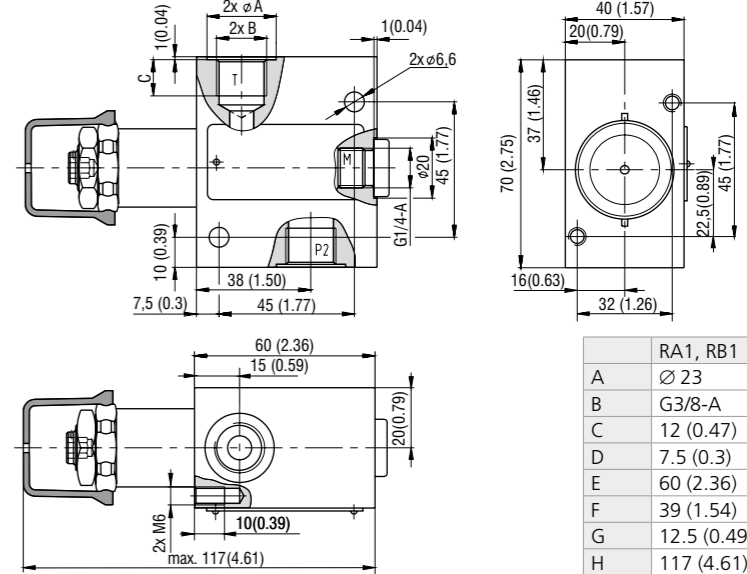
Model ME



Model RA1, RA2



Model RB1, RB2



Version	Size	04 (D02)	06 (D03)
MA (B,P)	A	137 (5.39)	208 (8.19)
MC (D)		218 (8.58)	208 (8.19)
ME	B	170.5 (6.71)	160.5 (6.32)
MA (B,P)		80 (3.15)	94 (3.70)
MC (D,E)	C	104 (4.09)	94 (3.70)
MA (C,D,E)		40 (1.57)	25.5 (1.0)
MB (P)	D	64 (2.52)	68.5 (2.7)
MA (B,C)		6.25 (0.25)	7 (0.28)
MD (E,P)	E	35 (1.38)	40 (1.57)
	F	35 (1.38)	45 (1.77)

	RA1, RB1	RA2, RB2
A	\varnothing 23	\varnothing 28
B	G3/8-A	G1/2-A
C	12 (0.47)	14 (0.55)
D	7.5 (0.3)	18 (0.71)
E	60 (2.36)	70 (2.76)
F	39 (1.54)	46 (1.81)
G	12.5 (0.49)	16 (0.63)
H	117 (4.61)	127 (5)

Ordering Code

VPP2-04 / [] - [] - [] - [] - []

Pressure relief valve, poppet type, direct acting, modular

Model
 modular, valve from A to T
 modular, valve from B to T
 modular, valve from P to T
 modular, valve from A to B and B to A
 modular, valve from A to T and B to T
 modular, valve from A to B
 in-line valve, three ports, thread G 3/8 (P1, P2, T)
 in-line valve, three ports, thread G 1/2 (P1, P2, T)
 in-line valve, two ports, thread G 3/8 (P, T)
 in-line valve, two ports, thread G 1/2 (P, T)

Modular plate size
 ISO 4401-02-01-0-05, DIN 24340 (CETOP 02), size 04 **04**
 ISO 4401-03-02-0-05, DIN 24340 (CETOP 03), size 06 **06**

Surface treatment
 No designation body phosphated, steel parts
 A zinc-coated (ZnCr-3), ISO 9227 (240 h)
 B zinc-coated (ZnNi), ISO 9227 (520 h)

Seals
 No designation NBR
 V FPM (Viton)

Adjustment option*
 S allen key (hex. 6), without protective cap
 T allen key (hex. 6), with protective cap
 RS hand screw, metal
 L allen key (hex. 6), with protective cap, sealable (lockwire holes)

Model with two pressure relief cartridges
 S/R/S A side, allen key (hex. 6), without protective cap
 B side, hand screw, metal

*for dimensions of adjustment options see data sheet No.5093

Pressure range
 2 up to 25 bar (360 PSI)
 6 up to 63 bar (910 PSI)
 10 up to 100 bar (1450 PSI)
 16 up to 160 bar (2320 PSI)
 25 up to 250 bar (3630 PSI)
 32 up to 320 bar (4600 PSI)

Model with two pressure relief cartridges
 32/10 320 bar (4600 PSI) in port A, 100 bar (1450 PSI) in port B

Pressure Relief Valve, Poppet Type, Direct Acting

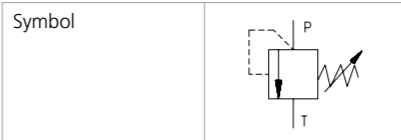
VPP1-06(08,10) M28x1.5 / M35x1.5 • Q_{max} 50 l/min (13 GPM) / 120 l/min (32 GPM) • p_{max} 320 bar (4600 PSI)

Technical Features

- ▶ Excellent stability throughout flow range with rapid response to dynamic pressure changes
- ▶ Low hysteresis, accurate pressure control and low pressure drop
- ▶ Wide pressure range up to 320 bar
- ▶ Hardened precision parts
- ▶ Sharp-edged steel seats for dirt-tolerant performance
- ▶ Leak-free closing, suitable for fast cycling with long life
- ▶ Adjustable by allen key or hand screw
- ▶ In the standard version, the cartridge valve is black oxide coated and the valve body is phosphated

Functional Description

A poppet type, direct acting hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device for common hydraulic circuit protection. The spring acts on the poppet and presses it onto the valve seat. If the hydraulic pressure is below the pre-set value, the valve is closed. If the hydraulic force exceeds the pre-set value the valve opens and flow passes to the tank port until the system pressure falls below the spring pre-set value and the valve closes again.



Technical Data

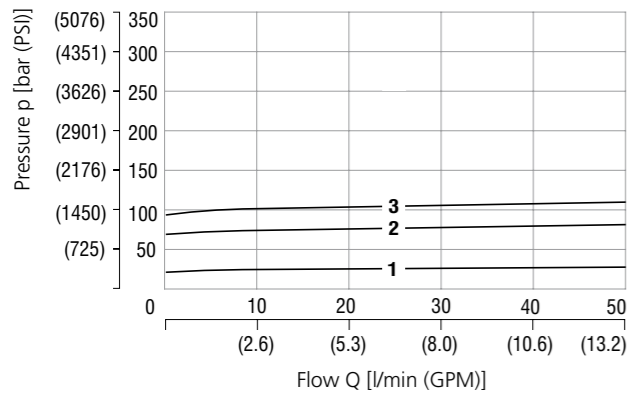
Valve size / Cartridge cavity		M28x1.5 / QP2	M35x1.5 / QT2
Max. flow	l/min (GPM)	50 (13.2)	120 (31.7)
Max. operating pressure	bar (PSI)	320 (4640)	
Fluid temperature range (NBR)	°C (°F)	-30...+100 (-22...212)	
Fluid temperature range (FPM)	°C (°F)	-20...+120 (-4...248)	
Mass	kg (lbs)	0.4 (0.88)	0.5 (1.10)

		Datasheet	Type	
General information		GI_0060	Products and operating conditions	
Valve bodies	In-line mounted	SB_0018	SB-QP2*	SB-QT2*
Cavity details		SMT_0019	SMT-QP2*	SMT-QT2*
Spare parts		SP_8010		

Characteristics measured at v = 32 mm²/s (156 SUS)

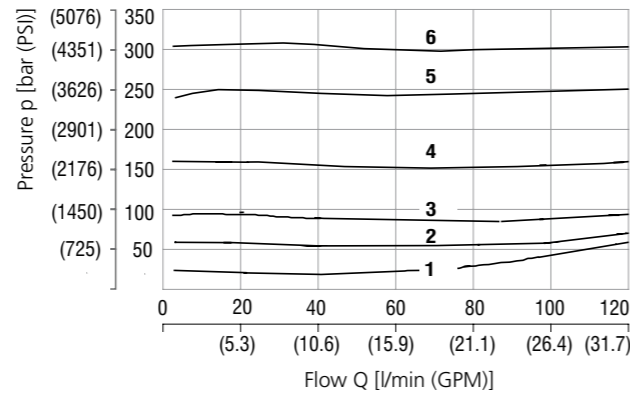
Relief pressure related to flow rate

Size 06



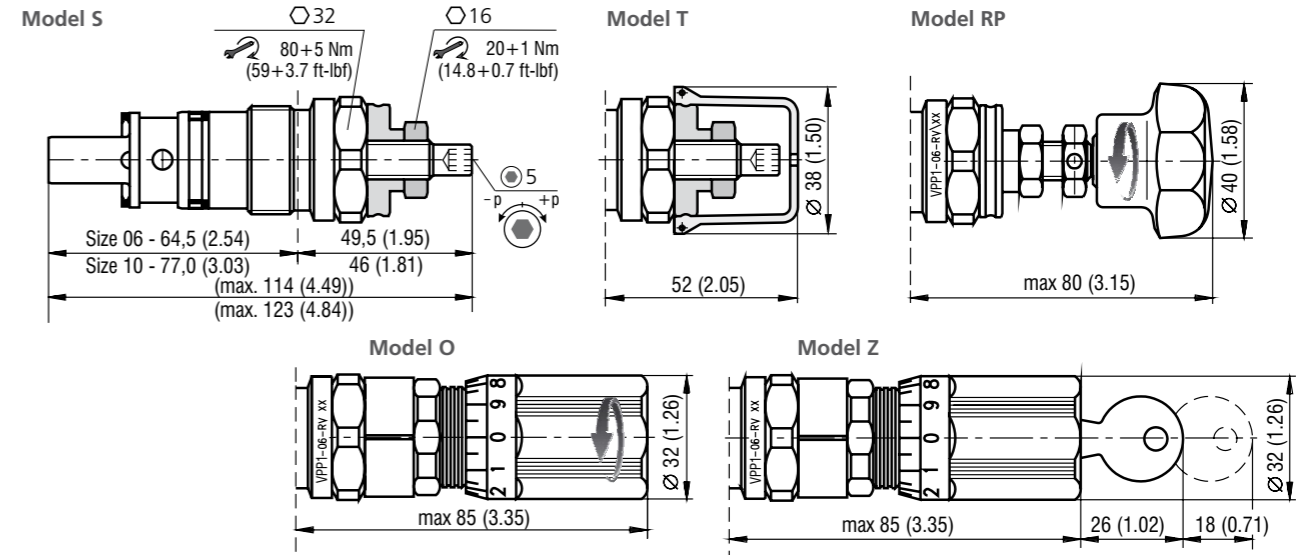
Pressure range	
3	10
2	6.3
1	2.5

Size 10



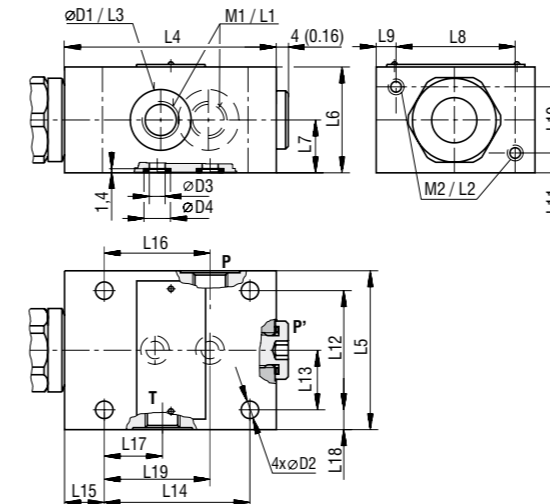
Pressure range	
6	32
5	25
4	16
3	10
2	6.3
1	2.5

Dimensions in millimeters (inches)



Dimensions in millimeters (inches)

Cartridge in threaded housing - models „M“, „G“ and „P“



Port P' (as input can be used P or P') thread M1/L1

Model	06-xM/x	06-xG/x	06-xP/x	08-xM/x	08-xG/x	10-xM/x	10-xG/x	10-xP/x
M1	M14x1.5	G1/4	G1/4	M18x1.5	G3/8	M22x1.5	G1/2	G1/4
M2	M6			M8				
∅D1	25(0.98)			30(1.18)	28(1.10)	34(1.34)		
∅D2	6.6(0.26)			9(0.35)				
∅D3			6(0.24)					10(0.39)
∅D4			10.8(0.43)					15.6(0.61)
L1	12(0.47)			16(0.63)				
L2	10(0.39)			20(0.79)				
L3	0.5(0.02)			0.5(0.02)				
L4	80(3.15)			100(3.94)				
L5	60(2.36)			80(3.15)				
L6	40(1.57)			60(2.36)				
L7	20(0.79)			30(1.18)				
L8	45(1.77)			60(2.36)				
L9	7.5(0.30)			10(0.39)				
L10	25(0.98)			40(1.57)				
L11	7.5(0.30)			10(0.39)				
L12	45(1.77)			60(2.36)				
L13	22.5(0.89)			30(1.18)				
L14	55(2.17)			70(2.76)				
L15	15(0.59)			20(0.79)				
L16	40(1.57)			49(1.93)				
L17	20(0.79)			21(0.83)				
L18	7.5(0.30)			10(0.39)				
L19			40(1.57)					45(1.77)

Ordering Code

VPP1- [] - [] / [] - []

Pressure relief valve, poppet type, direct acting M28x1.5 / M35x1.5

Nominal size
 size 06 06*
 size 08 - only models M and G 08
 size 10 10
 * VPP1-06 only available for pressure range 2.5; 6.3 and 10

Adjustment option
 allen key (hex. 5), without protective cap S
 allen key (hex. 5), with protective cap T
 hand screw, plastic RP
 non-lockable cylindrical hand screw O
 lockable cylindrical hand screw Z

Model
 screw-in cartridge V
 cartridge in threaded housing - with metric threads M
 cartridge in threaded housing - with BSP threads G
 cartridge in subplate mounted housing P

Surface treatment (cartridge valve only)
 No designation black oxide coating
 A zinc-coated (ZnCr-3), ISO 9227 (240 h)
 B zinc-coated (ZnNi), ISO 9227 (520 h)

Seals
 No designation NBR
 V FPM (Viton)

Pressure range
 2.5 up to 25 bar (360 PSI)
 6.3 up to 63 bar (910 PSI)
 10 up to 100 bar (1450 PSI)
 16 up to 160 bar (2320 PSI)
 25 up to 250 bar (3630 PSI)
 32 up to 320 bar (4600 PSI)

Pressure Relief Valve, Poppet Type, Direct Acting

VPP2-06

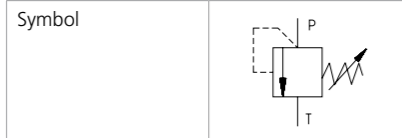
M28x1.5 • Q_{max} 50 l/min (13 GPM) • p_{max} 320 bar (4600 PSI)

Technical Features

- Excellent stability throughout flow range with rapid response to dynamic pressure changes
- Low hysteresis, accurate pressure control and low pressure drop
- Wide pressure range up to 320 bar
- Hardened precision parts
- Sharp-edged steel seats for dirt-tolerant performance
- Leak-free closing, suitable for fast cycling with long life
- Adjustable by allen key or hand screw
- In the standard version, the valve is black oxide coated

Functional Description

A poppet type, direct acting hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device for common hydraulic circuit protection. The spring acts on the poppet and presses it onto the valve seat. If the hydraulic pressure is below the pre-set value, the valve is closed. If the hydraulic force exceeds the pre-set value the valve opens and flow passes to the tank port until the system pressure falls below the spring pre-set value and the valve closes again.

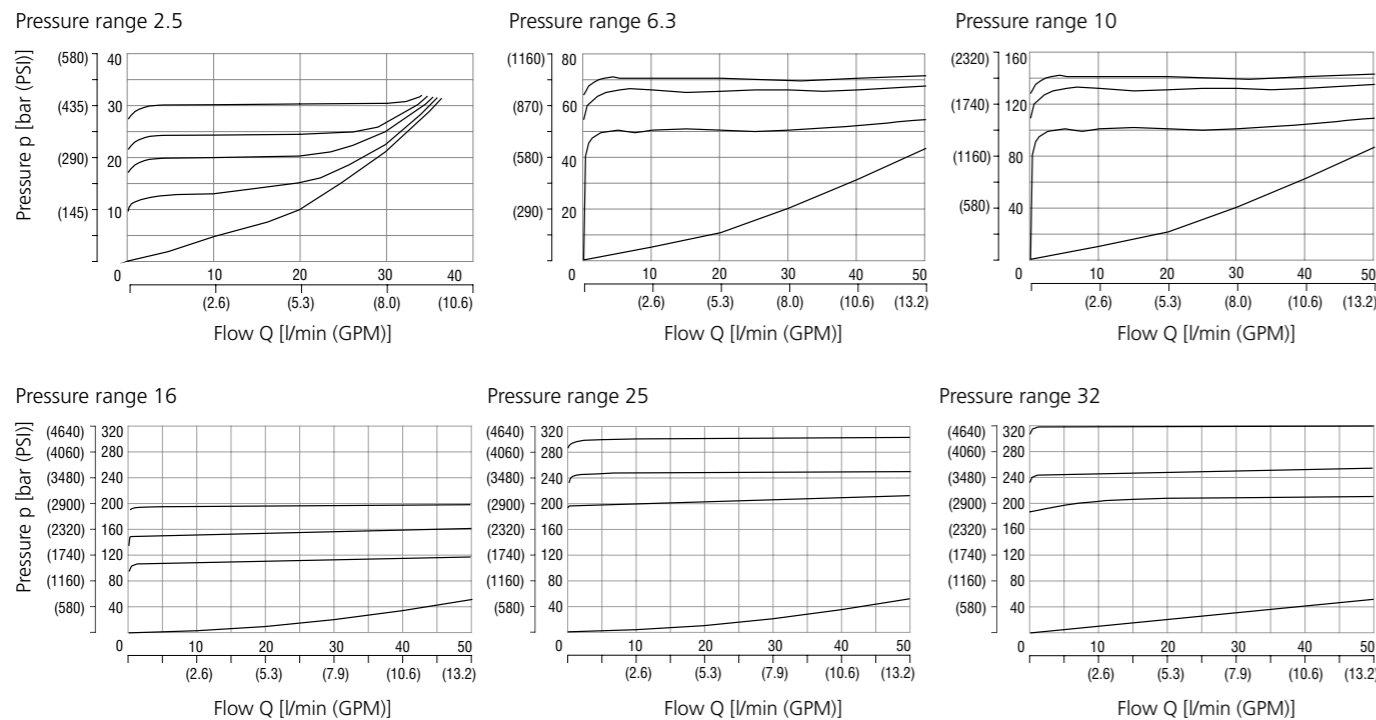


Technical Data

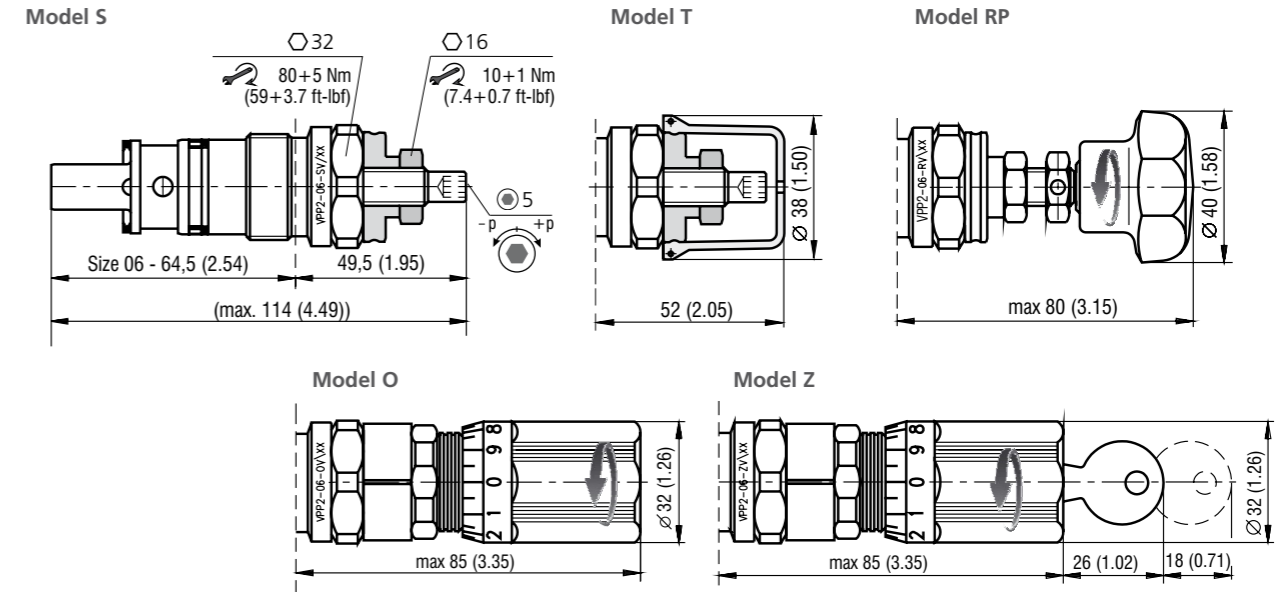
Valve size / Cartridge cavity		M28x1.5 / QP2
Max. flow	l/min (GPM)	50 (13.2)
Max. operating pressure	bar (PSI)	320 (4640)
Fluid temperature range (NBR)	°C (°F)	-30...+100 (-22...+212)
Fluid temperature range (FPM)	°C (°F)	-20...+120 (-4...+248)
Mass	kg (lbs)	0.4 (0.88)
General information		Datasheet
Valve bodies		GI_0060
Cavity details		SB_0018
Spare parts		SMT_0019
Type		Products and operating conditions
In-line mounted		SB-QP2*
SMT_0019		SMT-QP2*
SP_8010		

Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate

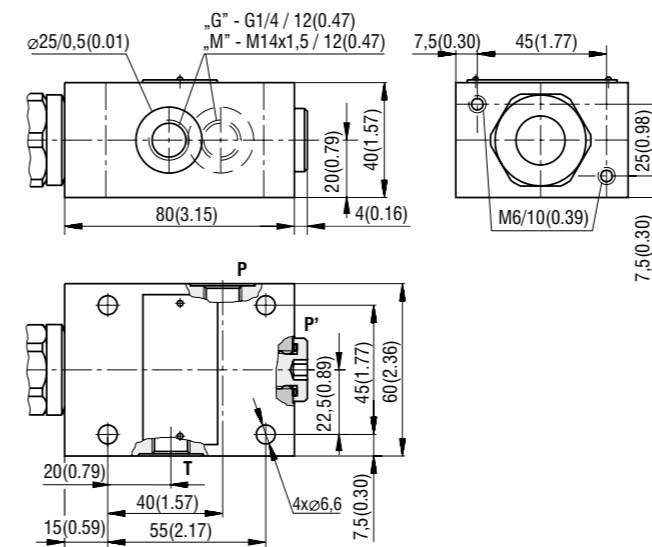


Dimensions in millimeters (inches)

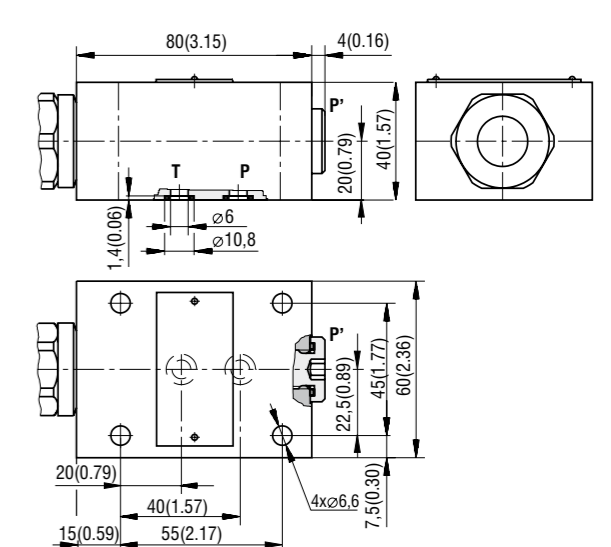


Dimensions in millimeters (inches)

Cartridge in threaded housing - models „M“ and „G“



Cartridge in subplate mounted housing - model „P“



Port P' (either P or P' can be used as input port), thread G1/4 (M14x1.5), depth 12 mm (0.47in)

Port P' (e.g. for pressure measuring), thread M14x1.5, depth 12 mm (0.47 in)
Note: subplates - see catalog HA 0002

Ordering Code

VPP2-06 - [] / [] - []

Pressure relief valve, poppet type, direct acting
M28x1.5

Adjustment option
allen key (hex. 5), without protective cap: S
allen key (hex. 5), with protective cap: T
hand screw, plastic: RP
non-lockable cylindrical hand screw: O
lockable cylindrical hand screw: Z

Model
screw-in cartridge: V
cartridge in threaded housing - metric threads: M
cartridge in threaded housing - with BSP threads: G
cartridge in subplate mounted housing: P

Surface treatment (cartridge valve only)
No designation: black oxide coating
A: zinc-coated (ZnCr-3), ISO 9227 (240 h)
B: zinc-coated (ZnNi), ISO 9227 (520 h)

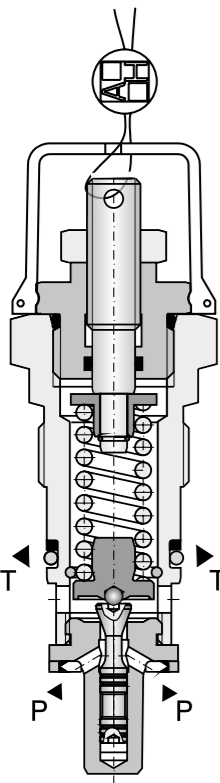
Seals
No designation: NBR
V: FPM (Viton)

Pressure range
2.5: up to 25 bar (360 PSI)
6.3: up to 63 bar (910 PSI)
10: up to 100 bar (1450 PSI)
16: up to 160 bar (2320 PSI)
25: up to 250 bar (3630 PSI)
32: up to 320 bar (4600 PSI)

Pressure Relief Valve, PED Certified, Poppet Type, Direct Acting

VPP2-06-SV/xx-CE1017

M28x1.5 • Q_{max} 50 l/min (13 GPM) • p_{max} 320 bar (4600 PSI)



Technical Features

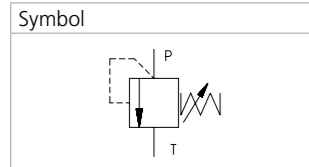
- Hydraulic safety relief valve suitable for use as a safety device in Category IV Group 2 applications acc.to European Commission (EC) Pressure Equipment Directive (PED) 2014/68/EU
- CE marked valves are supplied with "Declaration of Conformity", "Operating Instructions" and the list of residual risks
- Always follow the operating instructions supplied with the valve
- Excellent stability throughout flow range with rapid response to dynamic pressure changes
- Low hysteresis, accurate pressure control and low pressure drop through CFD optimized flow paths
- Wide pressure range up to 320 bar
- Hardened precision parts
- Sharp-edged steel seats for dirt-tolerant performance
- Leak-free closing, suitable for fast cycling with long life
- In the standard version, the valve is black oxide coated

Functional Description

A poppet type, direct acting hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device for common hydraulic circuit protection. The spring acts on the poppet and presses it onto the valve seat. If the hydraulic pressure is below the pre-set value, the valve is closed. If the hydraulic force exceeds the pre-set value the valve opens and flow passes to the tank port until the system pressure falls below the spring pre-set value and the valve closes again.

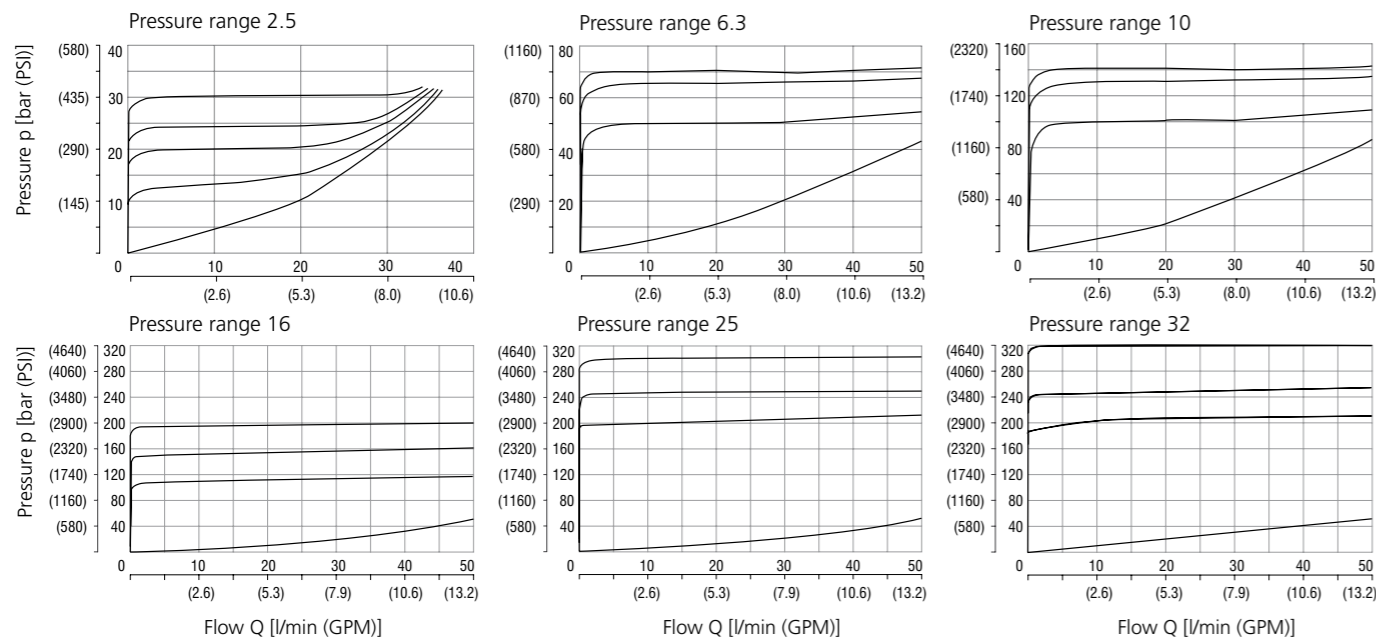
Technical Data

Valve size / Cartridge cavity		M28x1.5 / QP2
Max. flow	l/min (GPM)	50 (13.2)
Max. operating pressure	bar (PSI)	320 (4640)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22... 212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4... 248)
Viscosity range	mm ² /s (SUS)	10 ... 500 (49 ... 2450)
Mass	kg (lbs)	0.4 (0.88)
General information		Datasheet Type
Valve bodies	In-line mounted	GI_0060 Product and operating conditions
Cavity details	SMT_0019	SB_0018 SB-QP2*
Spare parts	SP_8010	SMT_0019 SMT-QP2*



Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate



Valves Adjusted at the Manufacturer

- The valves are adjusted for the specified pressure at the relevant flow rate and they are fitted with tamper-indicating seals
- The pressure and flow rate values are indicated in the valve description on the product [pressure: in bar, flow rate in l/min]
- The seals bear the company logo

Valves NOT Adjusted at the Manufacturer

- Valves have no tamper-indicating seals
- No pressure and no flow rate indicated
- After the completion of the functional test, the adjusting screw is completely loosened and the pressure is set to p = 0 bar
- To adjust the required valve pressure proceed as follows:
 - turn the adjusting screw to the right (clockwise) to increase the pressure
 - turn the adjusting screw to the left (counter-clockwise) to decrease the pressure
- The manufacturer accepts no responsibility for the adjustment, securing, and sealing of the valve

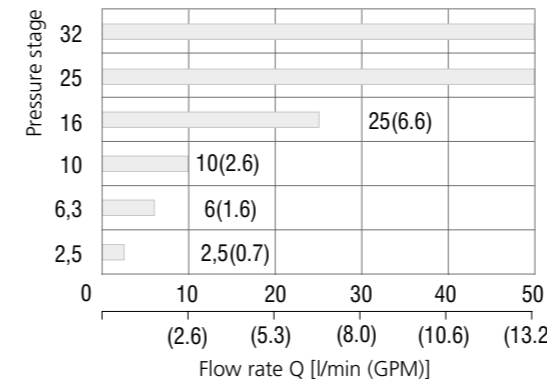
Residual Risks

Residual risks are listed and preventive measures against the occurrence of residual risk are described in the document „Operating instructions for pressure relief valve VPP2-06-SV/xx-CE1017“ which is delivered with each valve.

Operating Region

The diagram shows the operating region where the valve meets the requirements of Directive 2014/68/EU and Standard ISO 4126-1 on maximum short-time overshoot of system pressure by 10 % above the set cracking pressure when the valve opens.

The dynamics of the valve depend on the kinematic viscosity of working fluid.
Measurement conditions: oil Renolin VG 32, T = 40 °C (104 °F) , V = 0.5 l (0.132 gal US)

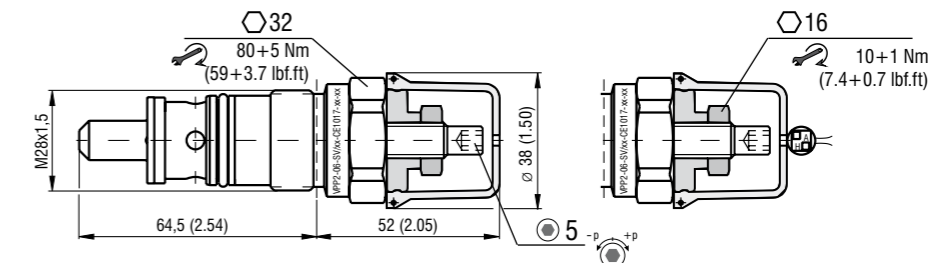


Operating region characteristics from certification of VPP2-06*CE*

Dimensions in millimeters (inches)

Model T

Model L



Ordering Code

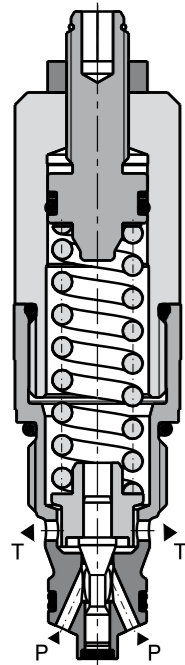
VPP2-06-	V /	- CE1017-		
Pressure relief valve, PED certified, poppet type, direct acting M28x1.5	Adjustment option: allen key (hex. 5), with protective cap (lockwire holes)	Model: screw-in cartridge	Pressure range: up to 25 bar (360 PSI), up to 63 bar (910 PSI), up to 100 bar (1450 PSI), up to 160 bar (2320 PSI), up to 250 bar (3630 PSI), up to 320 bar (4600 PSI)	Surface treatment: black oxide coating, A zinc-coated (ZnCr-3), ISO 9227 (240 h), B zinc-coated (ZnNi), ISO 9227 (520 h)
			Relief pressure and flow rate setting: 120/5.8	Certification PED: notified body number CE1017
				Seals: NBR, FPM (Viton)

If not preset valves are ordered, pressure and flow rate information is not shown.

Pressure Relief Valve, Poppet Type, Direct Acting

SR1A-B2

7/8-14 UNF • Q_{max} 60 l/min (16 GPM) • p_{max} 420 bar (6100 PSI)



Technical Features

- › Excellent stability throughout flow range with rapid response to dynamic pressure changes
- › Low hysteresis, accurate pressure control and low pressure drop through CFD optimized flow paths
- › Wide pressure range up to 420 bar
- › Hardened precision parts
- › Sharp-edged steel seats for dirt-tolerant performance
- › Leak-free closing, suitable for fast cycling with long life
- › Adjustable by allen key or hand screw
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

Functional Description

A poppet type, direct acting hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device for common hydraulic circuit protection. The spring acts on the poppet and presses it onto the valve seat. If the hydraulic pressure is below the pre-set value, the valve is closed. If the hydraulic force exceeds the pre-set value the valve opens and flow passes to the tank port until the system pressure falls below the spring pre-set value and the valve closes again.



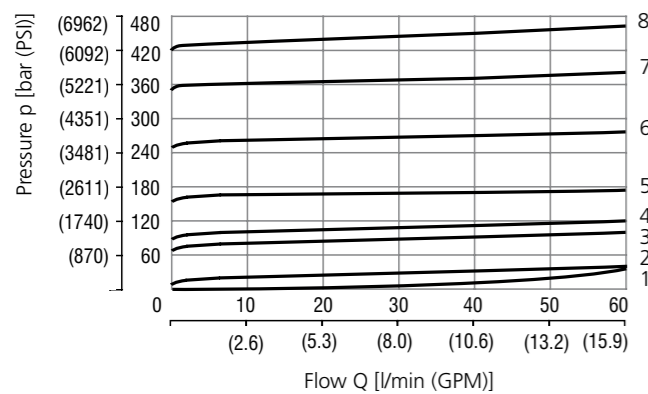
Technical Data

Valve size / Cartridge cavity		7/8-14 UNF-2A / B2
Max. flow	l/min (GPM)	60 (15.9)
Max. operating pressure	bar (PSI)	420 (6090)
Max. pressure (port T)	bar (PSI)	250 (3630)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... 212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... 248)
Mass	kg (lbs)	0.25 (0.55)

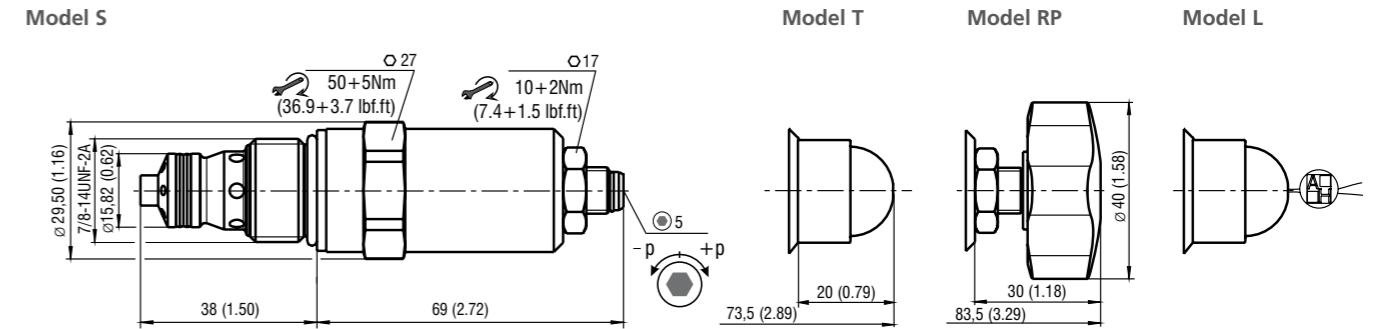
		Datasheet	Type
General information		GI_0060	Products operating conditions
Valve bodies	In-line mounted	SB_0018	SB-B2*
	Sandwich mounted	SB-04(06)_0028	SB-*B2*
Cavity details / Form tools		SMT_0019	SMT-B2*
Spare parts		SP_8010	

Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate



Dimensions in millimeters (inches)



Ordering Code

SR1A-B2 / [] [] [] [] - []

Pressure relief valve, poppet type, direct acting
7/8 -14 UNF

Model
High performance **H**

Pressure range

up to 25 bar (360 PSI)	2
up to 63 bar (910 PSI)	6
up to 100 bar (1450 PSI)	10
up to 160 bar (2320 PSI)	16
up to 250 bar (3630 PSI)	25
up to 350 bar (5080 PSI)	35
up to 420 bar (6090 PSI)	42

Surface treatment

A zinc-coated (ZnCr-3), ISO 9227 (240 h)
B zinc-coated (ZnNi), ISO 9227 (520 h)

Seals
NBR
FPM (Viton)

Adjustment option

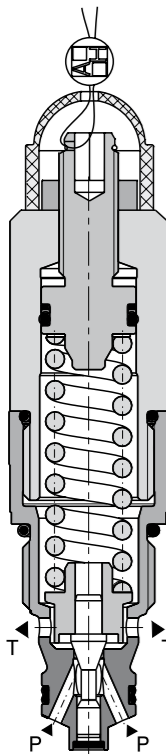
S allen key (hex. 5), without protective cap
T allen key (hex. 5), with protective cap
RP hand screw, plastic
L allen key (hex. 5), with protective cap, sealable (lockwire holes)

No designation
V

Pressure Relief Valve, PED Certified, Poppet Type, Direct Acting

SR1A-B2/HxSx-CE1017

7/8-14 UNF • Q_{max} 60 l/min (16 GPM) • p_{max} 420 bar (6100 PSI)



Technical Features

- Hydraulic safety relief valve suitable for use as a safety device in Category IV Group 2 applications acc. to European Commission (EC) Pressure Equipment Directive (PED) 2014/68/EU
- CE marked valves are supplied with "Declaration of Conformity", "Operating Instructions" and the list of residual risks
- Always follow the operating instructions supplied with the valve!
- Excellent stability throughout flow range with rapid response to dynamic pressure changes
- Low hysteresis, accurate pressure control and low pressure drop through CFD optimized flow paths
- Wide pressure range up to 420 bar
- Hardened precision parts
- Sharp-edged steel seats for dirt-tolerant performance
- Leak-free closing and suitable for fast cycling with long life
- In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

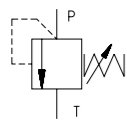
Functional Description

A poppet type, direct acting hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device for common hydraulic circuit protection. The spring acts on the poppet and presses it onto the valve seat. If the hydraulic pressure is below the pre-set value, the valve is closed. If the hydraulic force exceeds the pre-set value the valve opens and flow passes to tank port until the system pressure falls below the spring pre-set value and the valve closes back again.

Technical Data

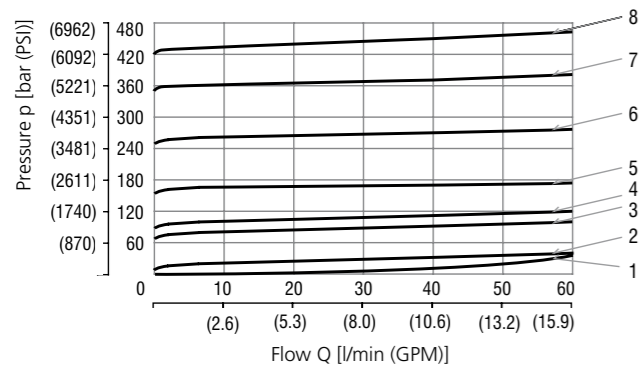
Valve size / Cartridge cavity	7/8-14 UNF-2A / B2	
Max. flow	l/min (GPM)	60 (15.9)
Max. operating pressure	bar (PSI)	420 (6090)
Max. pressure (T port)	bar (PSI)	250 (3630)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... 212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... 248)
Max. leakage of closed valve at 80 % cracking pressure	cm ³ /min	0.1
Viscosity range	mm ² /s (SUS)	10 ... 500 (49 ... 2450)
Mass	kg (lbs)	0.27 (0.60)
Datasheet		Type
General information		GI_0060
Products operating conditions		SB_0018
Valve bodies	In-line mounted	SB-B2*
	Sandwich mounted	SB-04(06)_0028
Cavity details / Form tools	SMT_0019	SMT-B2*
Spare parts	SP_8010	

Symbol



Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate



Valves Adjusted at the Manufacturer

- The valves are adjusted for the specified pressure at the relevant flow rate and they are fitted with tamper-indicating seals
- The pressure and flow rate values are indicated in the valve description on the product [pressure: in bar, flow rate in l/min]
- The seals bear the company logo

Valves NOT Adjusted at the Manufacturer

- Valves have no tamper-indicating seals
- No pressure and no flow rate indicated
- After the completion of the functional test, the adjusting screw is completely loosened and the pressure is set to p = 0 bar
- To adjust the required valve pressure proceed as follows:
 - turn the adjusting screw to the right (clockwise) to increase the pressure
 - turn the adjusting screw to the left (counter-clockwise) to decrease the pressure
- The manufacturer accepts no responsibility for the adjustment, securing, and sealing of the valve

Residual Risks

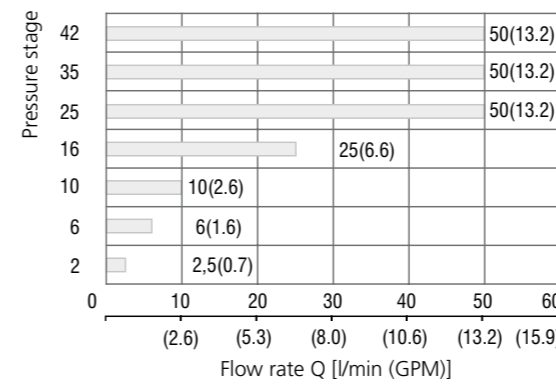
Residual risks are listed and preventive measures against the occurrence of residual risk are described in the document „Operating instructions for pressure relief valve SR1A-B2/HxSx-CE1017“ which is delivered with each valve.

Operating Region

The diagram shows the operating region where the valve meets the requirements of Directive 2014/68/EU and Standard ISO 4126-1 on maximum short-time overshoot of system pressure by 10 % above the set cracking pressure when the valve opens.

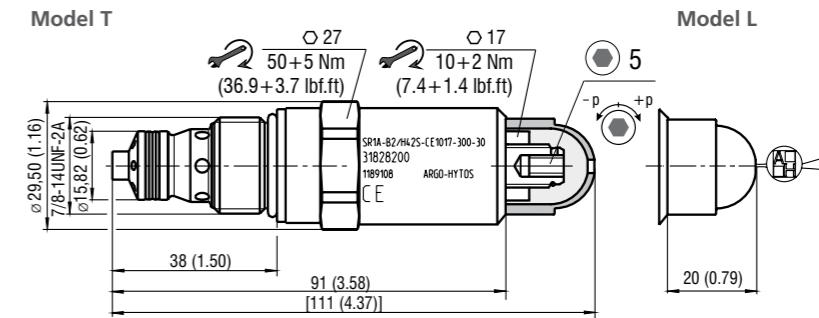
The dynamics of the valve depend on the kinematic viscosity of working fluid.

Measurement conditions: oil Renolin VG 32, T = 40 °C (104 °F), V = 0.5 l (0.132 gal US)



Operating region characteristics from certification of SR1A-B2/HxSx-CE1017*

Dimensions in millimeters (inches)



Ordering Code

SR1A-B2 / H [] [] [] - **CE1017** - [] - []

Pressure relief valve, PED certified, poppet type, direct acting 7/8-14 UNF

Model
High performance

Pressure range
up to 25 bar (360 PSI) **2**
up to 63 bar (910 PSI) **6**
up to 100 bar (1450 PSI) **10**
up to 160 bar (2320 PSI) **16**
up to 250 bar (3630 PSI) **25**
up to 350 bar (5080 PSI) **35**
up to 420 bar (6090 PSI) **42**

Surface treatment
A zinc-coated (ZnCr-3), ISO 9227 (240 h)
B zinc-coated (ZnNi), ISO 9227 (520 h)

Relief pressure and flow rate setting
120/5.8 120 bar / 5.8 l/min

Certification PED
notified body number CE1017

Seals
NBR
FPM (Viton)

Adjustment option
T allen key (hex. 5), with protective cap
L allen head (hex. 5), with protective cap, sealable (lockwire holes)

No designation V

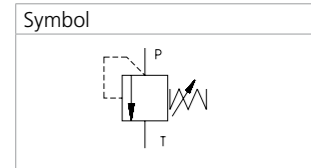
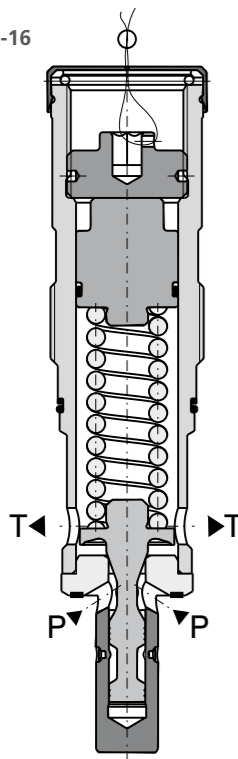
If not preset valves are ordered, pressure and flow rate information is not shown.

Pressure Relief Valve, Poppet Type, Direct Acting

VPP-R-16(25)

M36x2 / M42x2 • Q_{max} 120 / 400 l/min (32 / 106 GPM) • p_{max} 350 bar (5100 PSI)

VPP-R-16



Technical Features

- › Pressure relief valve, direct-acting, intended for installation in a manifold
- › Wide pressure range up to 350 bar
- › Large flow range
- › Low hysteresis, accurate pressure control and low pressure drop
- › Hardened precision parts
- › Leak-free closing, suitable for fast cycling with long life
- › Adjustment option with sealable allen head and a protective cap
- › In the standard version, the valve is zinc coated for 240 h protection acc. to ISO 9227

Functional Description

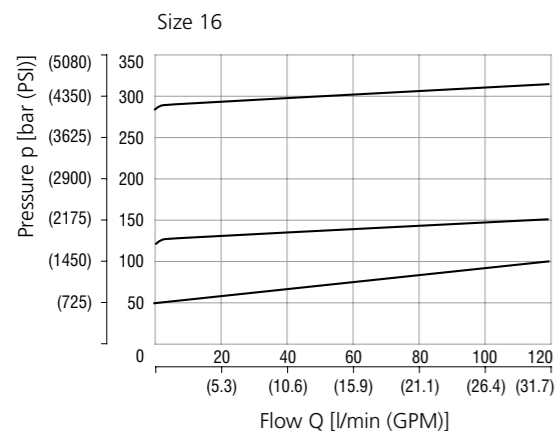
A poppet type, direct acting hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device for common hydraulic circuit protection. The spring acts on the poppet and presses it onto the valve seat. If the hydraulic pressure is below the pre-set value, the valve is closed. If the hydraulic force exceeds the pre-set value the valve opens and flow passes to the tank port until the system pressure falls below the spring pre-set value and the valve closes again.

Technical Data

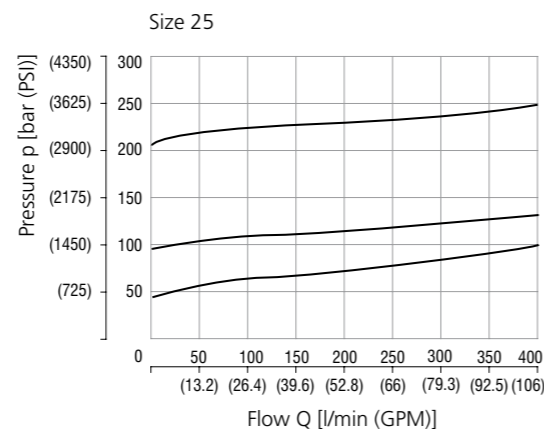
Valve size		Size 16	Size 25
Connection thread		M36x2	M42x2
Max. flow	l/min (GPM)	120 (31.7)	400 (106)
Max. inlet pressure (port P)	bar (PSI)	350 (5080)	
Max. outlet pressure (port T)	bar (PSI)	160 (2320)	
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... 212)	
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... 248)	
Kinematic viscosity range	mm ² /s (SUS)	10 ... 500 (49 ... 2450)	
Weight	valve	0.56 (1.23)	1.03 (2.27)
	valve with body	3.06 (6.75)	5.5 (12.1)
		Datasheet	Type
General information		GI_0060	Products and operating conditions
Spare parts		SP_8010	

Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate

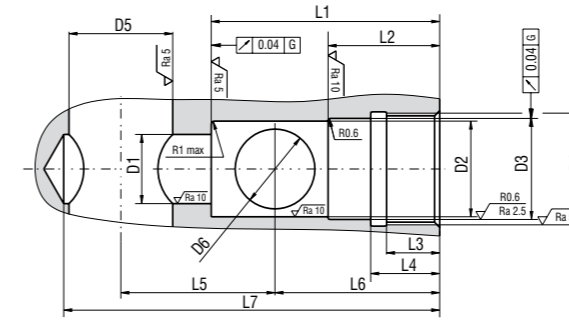


Pressure stage	Pressure range bar (PSI)
3	280 - 350 (4060 - 5080 PSI)
2	130 - 280 (1890 - 4060 PSI)
1	50 - 130 (730 - 1890 PSI)



Pressure stage	Pressure range bar (PSI)
3	200 - 350 (2900 - 5080 PSI)
2	100 - 200 (1450 - 2900 PSI)
1	50 - 100 (730 - 1450 PSI)

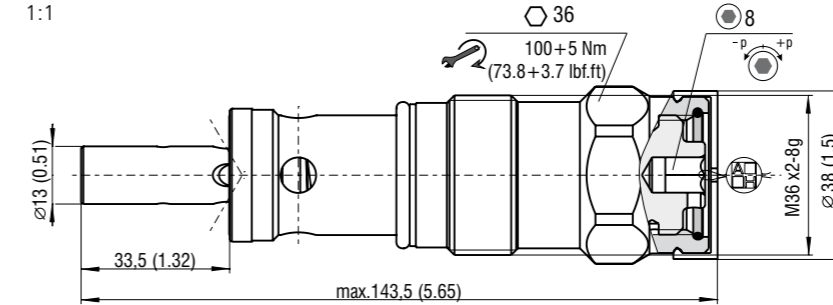
Cavity dimensions in millimeters (inches)



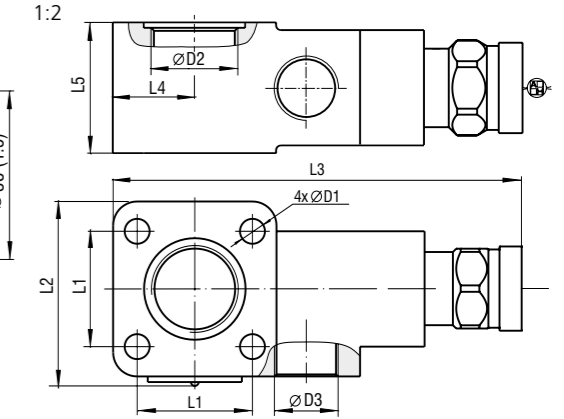
Size	∅ D1	∅ D2	∅ D3	∅ D4	∅ D5	∅ D6	Dimensions in mm (in)
16	20 H14 (0.79)	30 H11 (1.18)	32.6 H10 (1.28)	M36x2-7H	30 (1.18)	25 (0.98)	
25	26 H14 (1.02)	36 H11 (1.42)	38 H10 (1.50)	M42x2-7H	34 (1.34)	31 (1.22)	
Size	L1	L2	L3	L4	L5	L6	L7
16	66 (2.6 / 2.61)	31 (1.22 / 1.22)	18 (0.71 / 0.73)	21 (0.83 / 0.85)	46 (1.81)	44 (1.73 / 1.75)	105 (4.13)
25	86 (3.4)	44 (1.73)	20 (0.79)	26 (1.02)	58 (2.29)	62 (2.44)	135 (5.32)

Dimensions in millimeters (inches)

VPP-R-16
1:1



VPPB-R
1:2



Size	∅ D1	∅ D2	∅ D3	L1	L2	L3	L4	L5
16	10.5 (0.41)	M33x2	M27x2	48 (1.89)	66 (2.60)	168 (6.61)	33 (1.30)	57 (2.24)
25	13 (0.51)	M42x2	M33x2	60 (2.36)	85 (3.35)	218 (8.58)	42.5 (1.67)	68 (2.68)

Ordering Code

VPP -R- [] - [] - [] - [] - []

Pressure relief valve, poppet type, direct acting

Design of valve
screw-in cartridge valve with a body

Valve size
size 16: 16
size 25: 25

Range of adjustable pressure - pressure stage size 16
50 - 130 bar (730 - 1890 PSI) 5
130 - 280 bar (1890 - 4060 PSI) 13
280 - 350 bar (4060 - 5080 PSI) 28

Range of adjustable pressure - pressure stage size 25
50 - 100 bar (730 - 1450 PSI) 5
100 - 200 bar (1450 - 2900 PSI) 10
200 - 350 bar (2900 - 5080 PSI) 20

Surface treatment
A zinc-coated (ZnCr-3), ISO 9227 (240 h)
B zinc-coated (ZnNi), ISO 9227 (520 h)

Seals
No designation: NBR
V: FPM (Viton)

Adjustment option
S: allen key (hex. 8), without protective cap
T: allen key (hex. 8), with protective cap
L: allen key (hex. 8), with protective cap, sealable (lockwire holes)

Pressure Relief Valve, PED Certified, Poppet Type, Direct Acting

VPP-R-16-xx-L-CE1017

M36x2 • Q_{max} 120 l/min (32 GPM) • p_{max} 350 bar (5100 PSI)

Technical Features

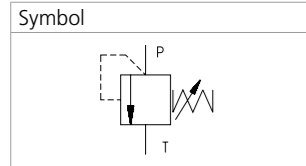
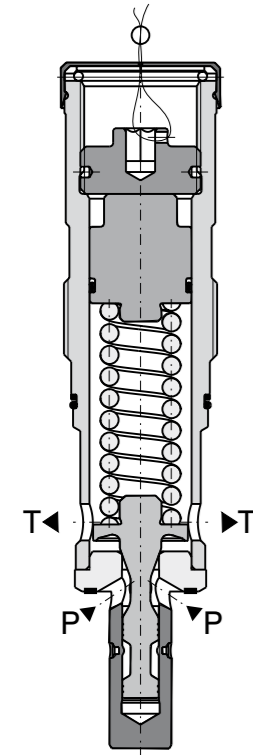
- Hydraulic safety relief valve suitable for use as a safety device in Category IV Group 2 applications acc.to European Commission (EC) Pressure Equipment Directive (PED) 2014/68/EU
- CE marked valves are supplied with "Declaration of Conformity", "Operating Instructions" and the list of residual risks
- Always follow the operating instructions supplied with the valve!
- Large flow range and pressure up to 350 bar
- Low hysteresis, accurate pressure control and low pressure drop through CFD optimized flow paths
- Hardened precision parts
- Leak-free closing, suitable for fast cycling with long life
- Adjustment option with allen head, adjustable hand knob or sealing (Lockwire holes)
- In the standard version, the valve is zinc coated for 240 h protection acc. to ISO 9227

Functional Description

A poppet type, direct acting hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device for common hydraulic circuit protection. The spring acts on the poppet and presses it onto the valve seat. If the hydraulic pressure is below the pre-set value, the valve is closed. If the hydraulic force exceeds the pre-set value the valve opens and flow passes to the tank port until the system pressure falls below the spring pre-set value and the valve closes again.

Technical Data

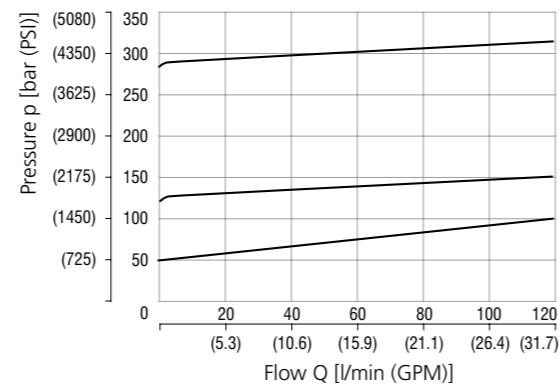
Valve size		M36x2
Max. flow	l/min (GPM)	120 (31.7)
Max. inlet pressure (port P)	bar (PSI)	350 (5080)
Max. outlet pressure (port T)	bar (PSI)	250 (3630)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... 212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... 248)
Max. leakage of closed valve at the input pressure set on 80 % of cracking pressure	cm ³ /min	0.2
Kinematic viscosity range	mm ² /s (SUS)	10 ... 500 (49 ... 2450)
Weight	valve	kg (lbs)
	valve with body	0.56 (1.22) / 3.05 (6.73)
	Datasheet	Type
General information	GI_0060	Products and operating conditions
Spare parts	SP_8010	



Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate

Pressure stage	Pressure range (PSI)
3	280 - 350
2	130 - 280
1	50 - 130



Valve adjusted at the manufacturer

- The valve is adjusted for the specified cracking pressure at the relevant flow rate and it is fitted with tamper-indicating seal.
- The pressure and flow rate values are indicated in the valve description [in bar, or liters per min respectively].
- The seal bear the ARGO-HYTOS logo.

Unadjusted valve

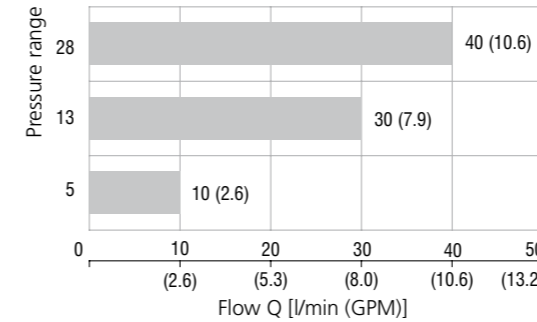
- The valve have no tamper-indicating seal.
- No adjusted pressure and flow rate are indicated for unadjusted valve - VPP-R-16-xx-L-CE1017.
- The adjusting screw is completely loosened. Pressure p = 0 bar
- For the adjustment of the valve required pressure, proceed as follows:
 - Turn right = higher pressure
 - Turn left = lower pressure
- Producer ARGO-HYTOS (CZ) takes no responsibility for the adjustment, securing and sealing the valve.

Residual risks

Residual risks are listed and preventive measures against the occurrence of residual risk are described in the document „Operating instructions for pressure relief valve VPP-R-16-xx-L-CE1017“ which is delivered with each valve.

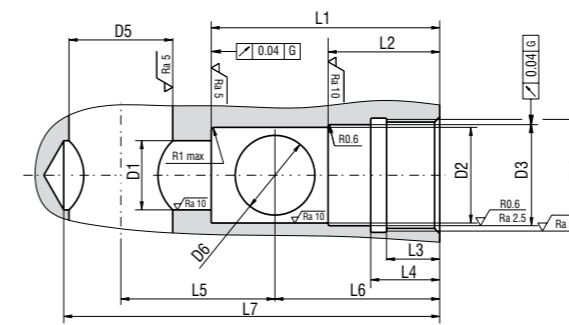
Application area

The diagram shows the area of the valve application meets the requirement of Directive 2014/68/EU and Standard ISO 4126-1 on maximal short-time overshooting of system pressure 10 % above the set cracking pressure when the valve opens. The dynamics of the valves depends on the kinematic viscosity of working fluid. Measurement conditions: oil Renolin VG 32, T = 40 °C (104 °F), V = 0.5 l (0.132 gallon US)



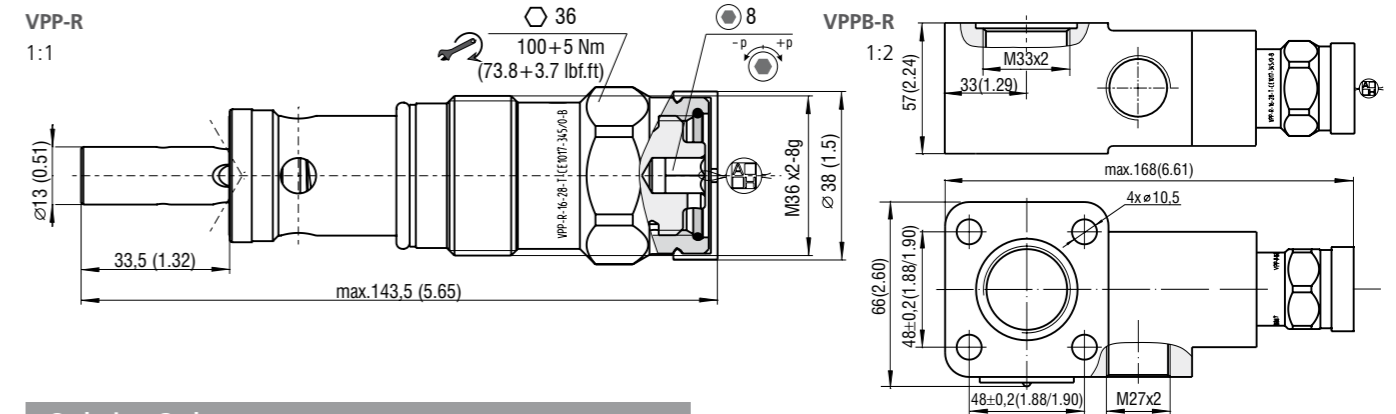
Operating region characteristics from certification of VPP-R-16*CE1017*

Cavity dimensions in millimeters (inches)



Dimensions in mm (in)			
∅ D1	20 H14 (0.79)	L1	66 (2.6 / 2.61)
∅ D2	30 H11 (1.18)	L2	31 (1.22 / 1.22)
∅ D3	32,6 H10 (1.28)	L3	18 (0.71 / 0.73)
∅ D4	M36x2-7H	L4	21 (0.83 / 0.85)
∅ D5	30 (1.18)	L5	46 (1.81)
∅ D6	25 max (0.98 max)	L6	44 (1.73 / 1.75)
		L7	105 (4.13)

Dimensions in millimeters (inches)



Ordering Code

VPP -R-16- - L - - CE1017- -

- Pressure relief valve PED certified, direct acting M36x2
- Design of valve screw-in cartridge valve with a body B
- Valve size
- Range of adjustable pressure - pressure stage: 50 - 130 bar (730 - 1890 PSI) 5; 130 - 280 bar (1890 - 4060 PSI) 13; 280 - 350 bar (4060 - 5080 PSI) 28
- Surface treatment: A zinc-coated (ZnCr-3), ISO 9227 (240 h); B zinc-coated (ZnNi), ISO 9227 (520 h)
- Preset cracking pressure at defined flow 120/5.8 (example) 120 bar / 5.8 l/min
- Certification PED notified body number CE1017
- Seals: NBR; FPM (Viton)
- Adjustment option: allen head HEX 8 with protective cap and sealing (Lockwire holes)

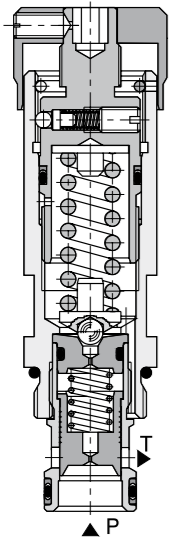
If not preset valves are ordered, pressure and flow rate information is not shown.

Pressure Relief Valve, Spool Type, Pilot Operated, External Pilot and Drain

VPN1-06/S

M22x1.5 • Q_{max} 70 l/min (18.5 GPM) • p_{max} 320 bar (4600 PSI)

Model S



Technical Features

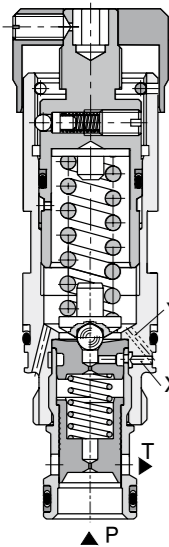
- ▶ Excellent stability throughout flow range with rapid response to dynamic pressure changes
- ▶ Low hysteresis, accurate pressure control and low pressure drop
- ▶ Wide pressure range up to 320 bar
- ▶ High flow capacity
- ▶ Hardened precision parts
- ▶ Ideal for use as control valve where accuracy and repeatability is required
- ▶ External pilot and drain option
- ▶ Adjustable by allen key or hand screw, optionally sealable (lockwire holes)
- ▶ In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

Functional Description

A pilot operated, spool type hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device. Fast-acting with low hysteresis. Because of the absence of any internal seals, the valve shows excellent reseating and repeatability characteristics. It may be used as a main pressure control element but due to its two stage design it is not recommended for safety applications where operating speed is critical. Version SX has an external pilot line, version SY allows a separate drain connection.

Model	S	SX	SY
Symbol			

Model SX (SY)



Technical Data

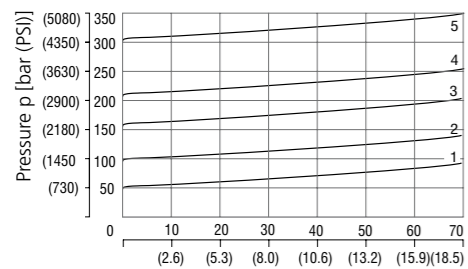
Valve size / Cartridge cavity	M22x1.5 / QG2	M22x1.5 / RD3
Model	S	SX, SY
Max. flow	l/min (GPM)	70 (18.5)
Max. operating pressure	bar (PSI)	320 (4640)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... 212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... 248)
Mass	kg (lbs)	0.25 (0.55)

General information	Datasheet	Type
Valve bodies	In-line mounted SB_0018 Sandwich mounted SB-04(06)_0028	SB-QG2* SB-*QG2*
Cavity details	SMT_0019	SMT-QG2* SMT-RD3*
Spare parts	SP_8010	

Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate

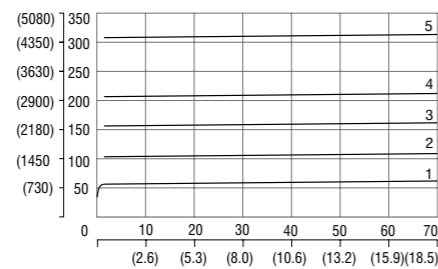
Model S, SX



Flow Q [l/min (GPM)]	Pressure range
5	32
4	21
3	16
2	10
1	6

Relief pressure related to flow rate

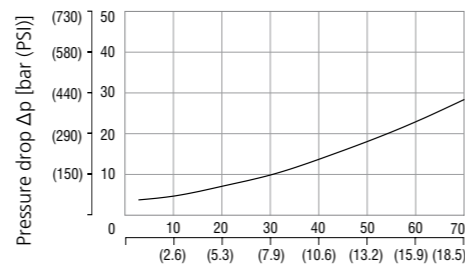
Model SY



Flow Q [l/min (GPM)]	Pressure range
5	32
4	21
3	16
2	10
1	6

Minimum set and circulation pressure

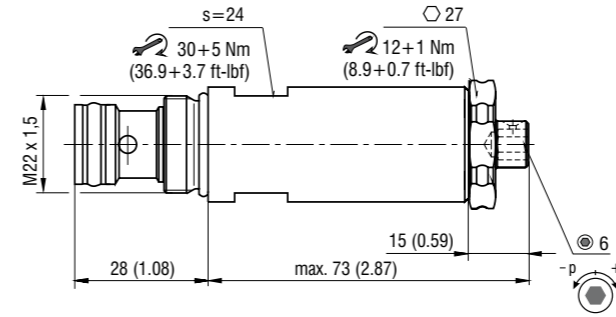
Model S, SX, SY



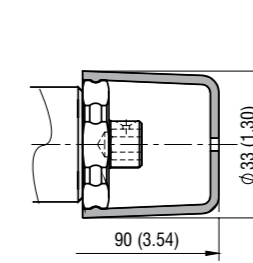
Dimensions in millimeters (inches)

VPN1-06/S

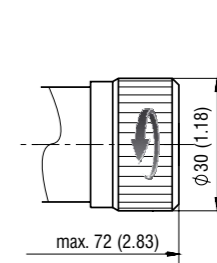
Model S



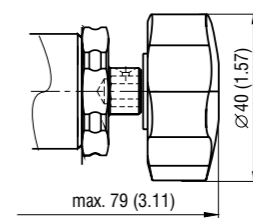
Model T



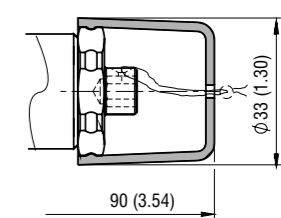
Model RS



Model RP

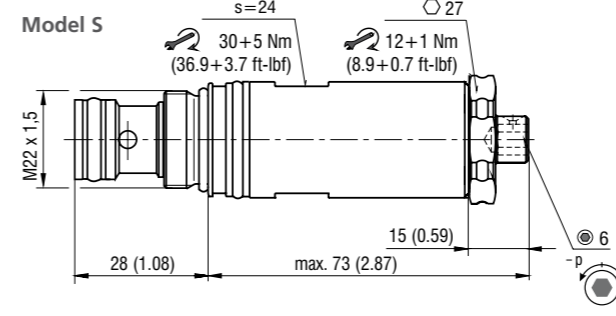


Model L

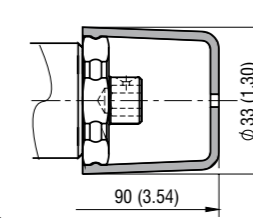


VPN1-06/SX (SY)

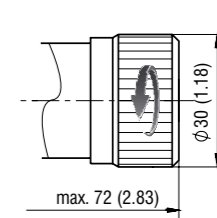
Model S



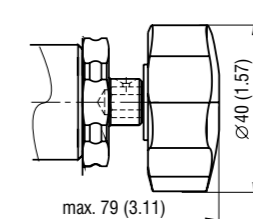
Model T



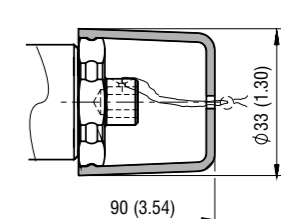
Model RS



Model RP



Model L



Ordering Code

VPN1-06 / [] - [] - [] - []

Pressure relief valve, spool type, pilot operated, external pilot and drain M22x1.5

Model
internal pilot and drain S
external pilot, internal drain SX
internal pilot, external drain SY

Pressure range
up to 63 bar (910 PSI) 6
up to 100 bar (1450 PSI) 10
up to 160 bar (2320 PSI) 16
up to 210 bar (3050 PSI) 21
up to 320 bar (4600 PSI) 32

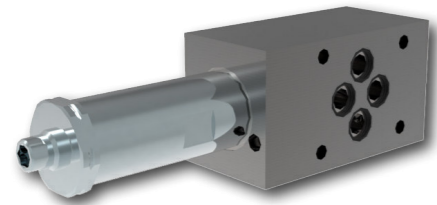
Surface treatment
A zinc-coated (ZnCr-3), ISO 9227 (240 h)
B zinc-coated (ZnNi), ISO 9227 (520 h)

Seals
No designation NBR
V FPM (Viton)

Adjustment option
S allen key (hex. 6), without protective cap
T allen key (hex. 6), with protective cap
RS hand screw, metal
RP hand screw, plastic
L allen key (hex. 6), with protective cap, sealable (lockwire holes)

VPN1-06/M(R)

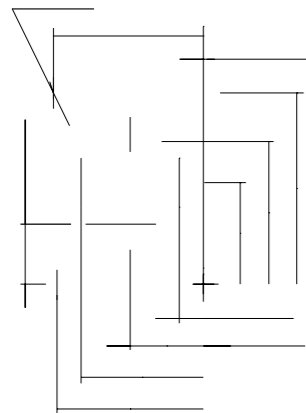
Size 04 (D02), 06 (D03) • Q_{max} 70 l/min (18.5 GPM) • p_{max} 320 bar (4600 PSI)



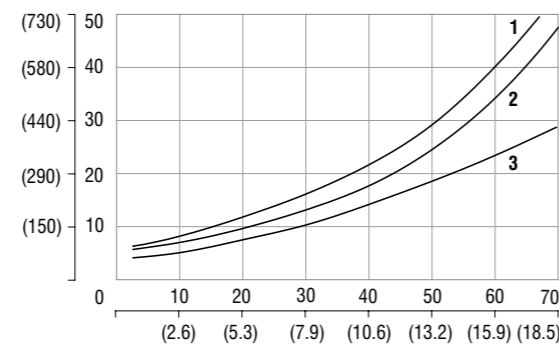
ISO 4401-02-01-0-05

ISO 4401-03-02-0-05

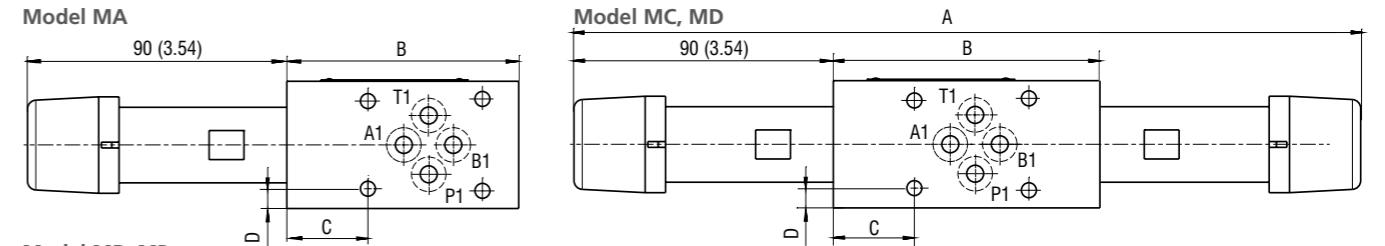
Ports P, A, B, T - max Ø4.5 mm (0.18 in)



Ports P, A, B, T - max Ø7.5 mm (0.29 in)

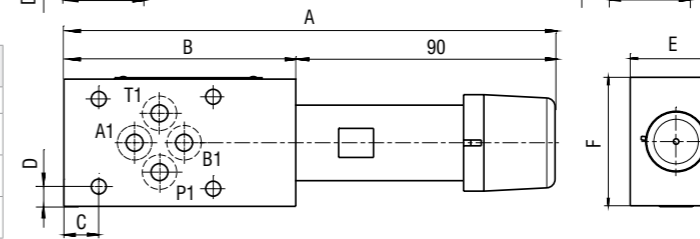


Dimensions in millimeters (inches)



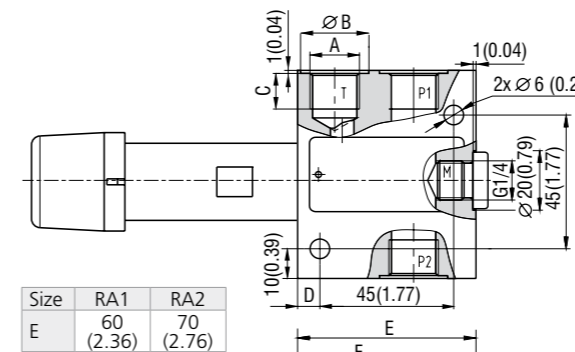
Model MB, MP

Size	04 (D02)	06 (D03)
MA, MB, MC, MD, MP	7	7
D	6.25 (0.25)	7 (0.28)
E	34.6 (1.36)	40 (1.57)
F	35 (1.38)	45 (1.77)



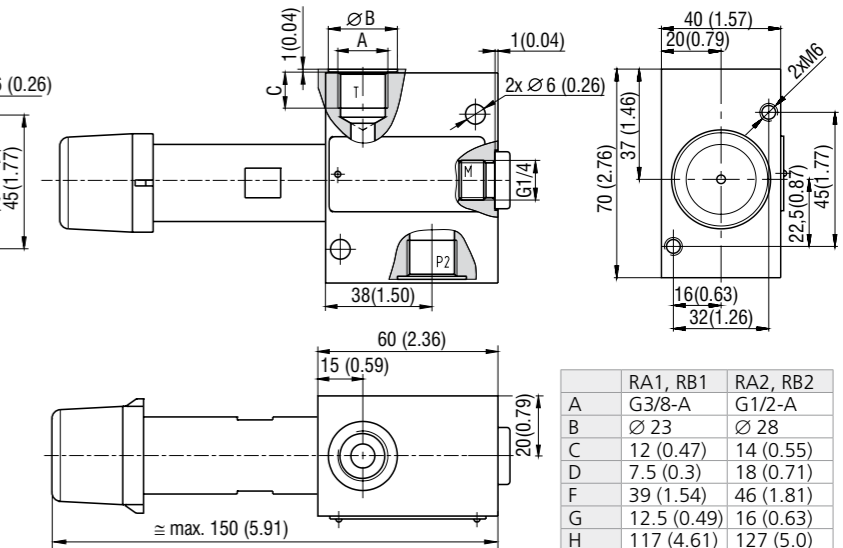
Version	Size	04 (D02)	06 (D03)
MA (B,P)	A	170 (6.70)	284 (11.18)
	MC (D)	274 (10.79)	
MA (B,P)	B	80 (3.15)	94 (3.70)
	MC (D)	104 (4.09)	94 (3.70)
MA (C,D)	C	40 (1.57)	25.5 (1.0)
	MB (P)	16 (0.63)	11.5 (0.45)

Model RA1, RA2



Size	RA1	RA2
E	60 (2.36)	70 (2.76)

Model RB1, RB2



	RA1, RB1	RA2, RB2
A	G3/8-A	G1/2-A
B	Ø 23	Ø 28
C	12 (0.47)	14 (0.55)
D	7.5 (0.3)	18 (0.71)
F	39 (1.54)	46 (1.81)
G	12.5 (0.49)	16 (0.63)
H	117 (4.61)	127 (5.0)

Ordering Code

VPN1-06 / [] - [] - [] - [] - []

Pressure relief valve, spool type, pilot operated, modular

Model

- modular, valve from A to T **MA**
- modular, valve from B to T **MB**
- modular, valve from P to T **MP**
- modular, valve from A to B and B to A **MC**
- modular, valve from A to T and B to T **MD**
- in-line valve, three ports, thread G 3/8 (P1, P2, T) **RA1**
- in-line valve, three ports, thread G 1/2 (P1, P2, T) **RA2**
- in-line valve, two ports, thread G 3/8 (P, T) **RB1**
- in-line valve, two ports, thread G 1/2 (P, T) **RB2**

Modular plate size

- ISO 4401-02-01-0-05, DIN 24340 (CETOP 02), size 04 **04**
- ISO 4401-03-02-0-05, DIN 24340 (CETOP 03), size 06 **06**

Surface treatment
No designation body phosphated, steel parts
 zinc-coated (ZnCr-3), ISO 9227 (240 h)
A zinc-coated (ZnCr-3), ISO 9227 (240 h)
B zinc-coated (ZnNi, ISO 9227 (520 h)

Seals
No designation NBR
V FPM (Viton)

Adjustment option*
S allen key (hex. 6), without protective cap
T allen key (hex. 6), with protective cap
RS hand screw, metal
RP hand screw, plastic
L allen key (hex. 6), with protective cap, sealable (lockwire holes)
Model with two pressure relief cartridges
S/RS A side, allen key (hex. 6), without protective cap
 B side, hand screw, metal

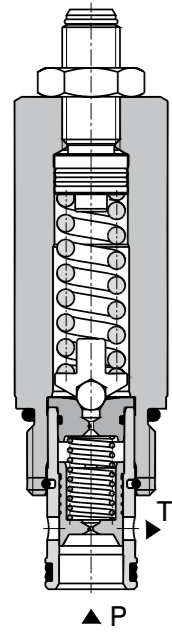
*for dimensions of adjustment options see data sheet No.5161

Pressure range
6 up to 63 bar (910 PSI)
10 up to 100 bar (1450 PSI)
16 up to 160 bar (2320 PSI)
21 up to 210 bar (3050 PSI)
32 up to 320 bar (4600 PSI)

Pressure Relief Valve, Spool Type, Pilot Operated

SR4A-B2

7/8-14 UNF • Q_{max} 100 l/min (26 GPM) • p_{max} 350 bar (5100 PSI)



Technical Features

- › Low hysteresis, accurate pressure control and low pressure drop through CFD optimized flow paths
- › Wide pressure range up to 350 bar
- › High flow capacity
- › Hardened precision parts
- › Ideal for use as control valve where accuracy and repeatability is required
- › Adjustable by allen key hand screw
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

Functional Description

A pilot operated, spool type hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device. Fast-acting with low hysteresis. Because of the absence of any internal seals, the valve shows excellent reseating and repeatability characteristics. It may be used as a main pressure control element but due to its two stage design it is not recommended for safety applications where operating speed is critical.



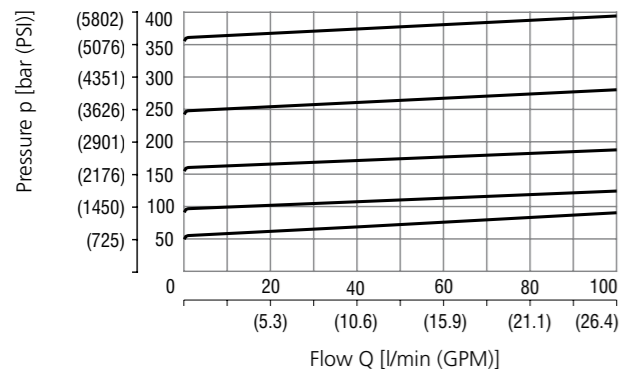
Technical Data

Valve size / Cartridge cavity		7/8-14 UNF-2A / B2
Max. flow	l/min (GPM)	100 (26)
Max. operating pressure	bar (PSI)	350 (5080)
Max. pressure (T port)	bar (PSI)	100 (1450)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... 212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... 248)
Mass	kg (lbs)	0.24 (0.53)

		Datasheet	Type
General information		GP_0060	Products and operating conditions
Valve bodies	In-line mounted	SB_0018	SB-B2*
	Sandwich mounted	SB-04(06)_0028	SB-*B2*
Cavity details / Form tools		SMT_0019	SMT-B2*
Spare parts		SP_8010	

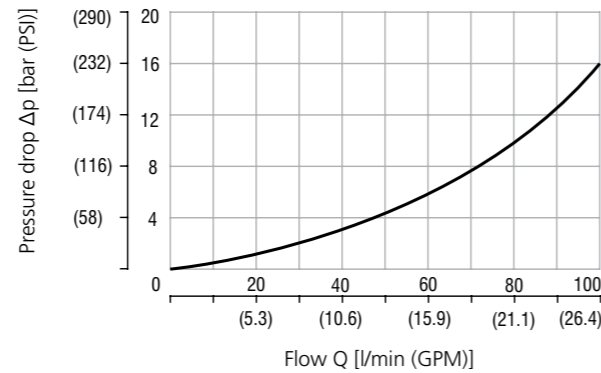
Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate



Pressure range
5
4
3
2
1

Minimum set and circulation pressure

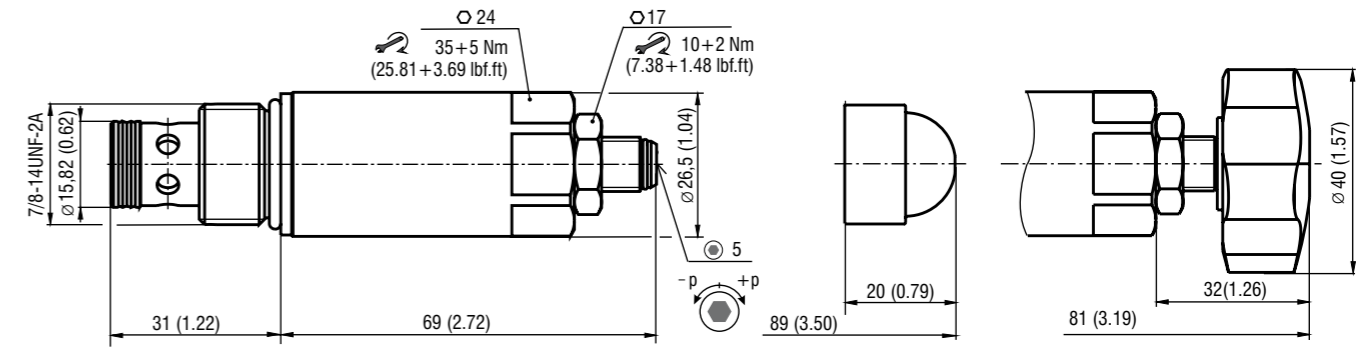


Dimensions in millimeters (inches)

Model S

Model T

Model RP



Ordering Code

SR4A-B2 / [] [] [] [] - []

Pressure relief valve, spool type, pilot operated 7/8-14 UNF

Model
High performance **H**

Pressure range
up to 63 bar (910 PSI) **6**
up to 100 bar (1450 PSI) **10**
up to 160 bar (2320 PSI) **16**
up to 250 bar (3630 PSI) **25**
up to 350 bar (5080 PSI) **35**

Surface treatment
A zinc-coated (ZnCr-3), ISO 9227 (240 h)
B zinc-coated (ZnNi), ISO 9227 (520 h)

Seals
V No designation
NBR
FPM (Viton)

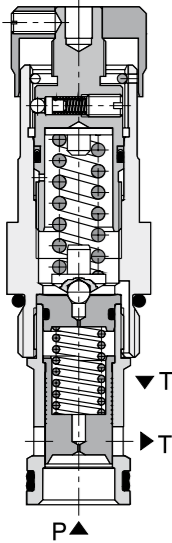
Adjustment option
allen key (hex. 5), without protective cap
allen key (hex. 5), with protective cap
hand screw, plastic

Pressure Relief Valve, Spool Type, Pilot Operated, External Pilot and Drain

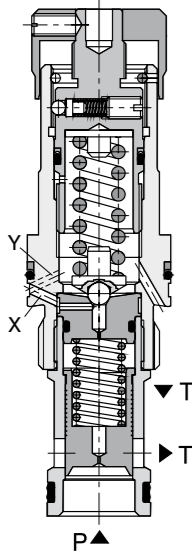
VPN2-10/S

M27x2 • Q_{max} 150 l/min (40 GPM) • p_{max} 350 bar (5100 PSI)

Model S



Model SX (SY)



Technical Features

- › Excellent stability throughout flow range with rapid response to dynamic pressure changes
- › Low hysteresis, accurate pressure control and low pressure drop
- › Wide pressure range up to 350 bar
- › High flow capacity
- › Hardened precision parts
- › Ideal for use as control valve where accuracy and repeatability is required
- › External pilot and drain option
- › Adjustable by allen key or hand screw, optionally sealable (lockwire holes)
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

Functional Description

A pilot operated, spool type hydraulic relief valve in the form of a screw-in cartridge intended for use as a pressure limiting device. Fast-acting with low hysteresis. Because of the absence of any internal seals, the valve shows excellent reseating and repeatability characteristics. It may be used as a main pressure control element but due to its two stage design it is not recommended for safety applications where operating speed is critical. Version SX has an external pilot line, version SY allows a separate drain connection.

Model	S	SX	SY
Symbol			

Technical Data

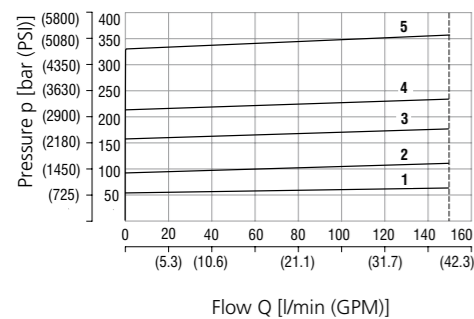
Valve size / Cartridge cavity		M27x2 / QK2	M27x2 / QL3
Model		S	SX, SY
Max. flow	l/min (GPM)	150 (39.6)	
Max. operating pressure	bar (PSI)	350 (5080)	
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... 212)	
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... 248)	
Mass	kg (lbs)	0.3 (0.66)	

General information		Datasheet	Type
Valve bodies		GI_0060	Products operating conditions
In-line mounted		SB_0018	SB-QK2*
Sandwich mounted		SB-04(06,10)_0028	-
Cavity details		SMT_0019	SMT-QK2*
Spare parts		SP_8010	SMT-QL3*

Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate

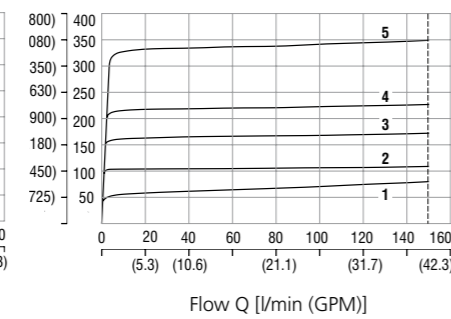
Model S, SX



Pressure range	Flow Q [l/min (GPM)]
5	32
4	21
3	16
2	10
1	6

Relief pressure related to flow rate

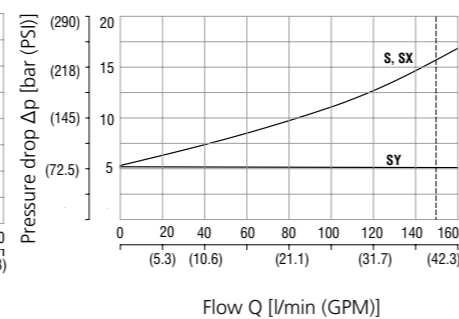
Model SY



Pressure range	Flow Q [l/min (GPM)]
5	32
4	21
3	16
2	10
1	6

Minimum set and circulation pressure

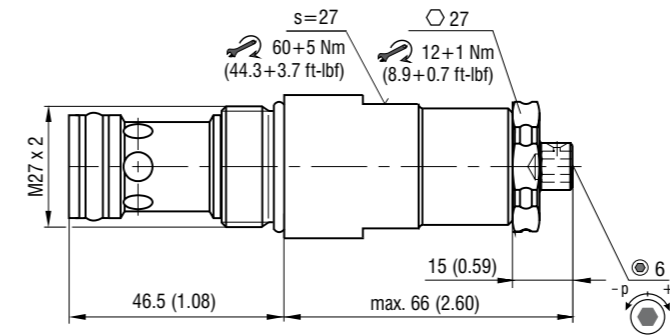
Model S, SX, SY



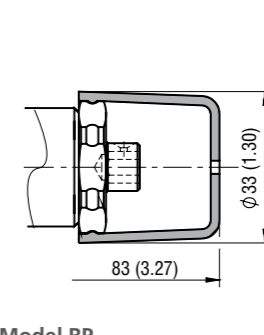
Dimensions in millimeters (inches)

VPN2-10/S

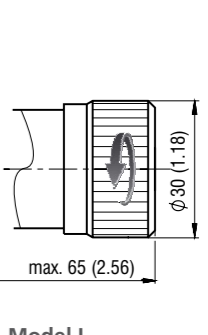
Model S



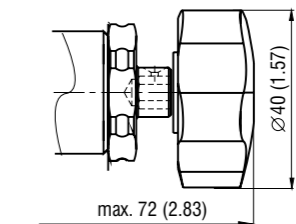
Model T



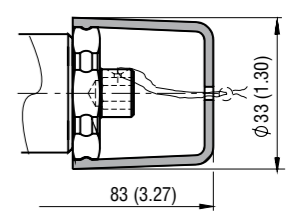
Model RS



Model RP

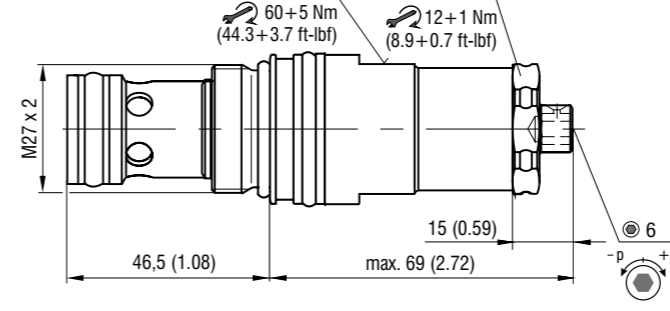


Model L

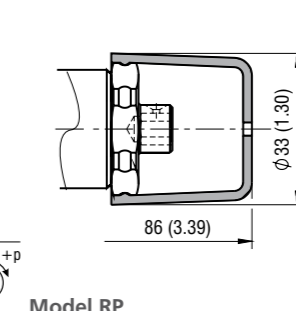


VPN2-10/SX (SY)

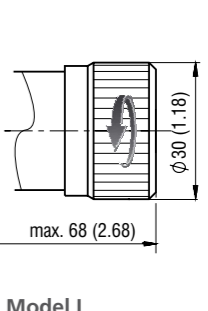
Model S



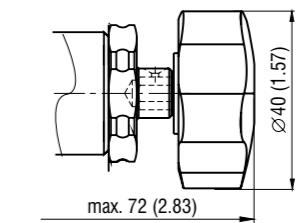
Model T



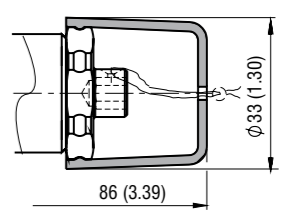
Model RS



Model RP



Model L



Ordering Code

VPN2-10 / [] - [] - [] - []

Pressure relief valve, spool type, pilot operated, external pilot and drain M27x2

Model
internal pilot and drain S
external pilot, internal drain SX
internal pilot, external drain SY

Pressure range
up to 63 bar (910 PSI) 6
up to 100 bar (1450 PSI) 10
up to 160 bar (2320 PSI) 16
up to 210 bar (3050 PSI) 21
up to 320 bar (4600 PSI) 32

Surface treatment
A zinc-coated (ZnCr-3), ISO 9227 (240 h)
B zinc-coated (ZnNi, ISO 9227 (520 h))

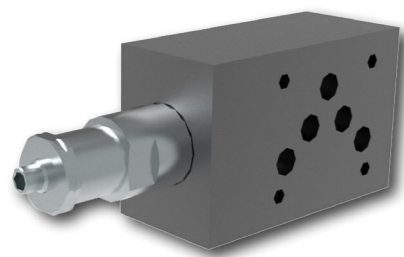
Seals
No designation NBR
V FPM (Viton)

Adjustment option
S allen key (hex. 6), without protective cap
T allen key (hex. 6), with protective cap
RS hand screw, metal
RP hand screw, plastic
L allen key (hex. 6), with protective cap, sealable (lockwire holes)

Pressure Relief Valve, Spool Type, Pilot Operated, Modular

VPN2-10/M(R)

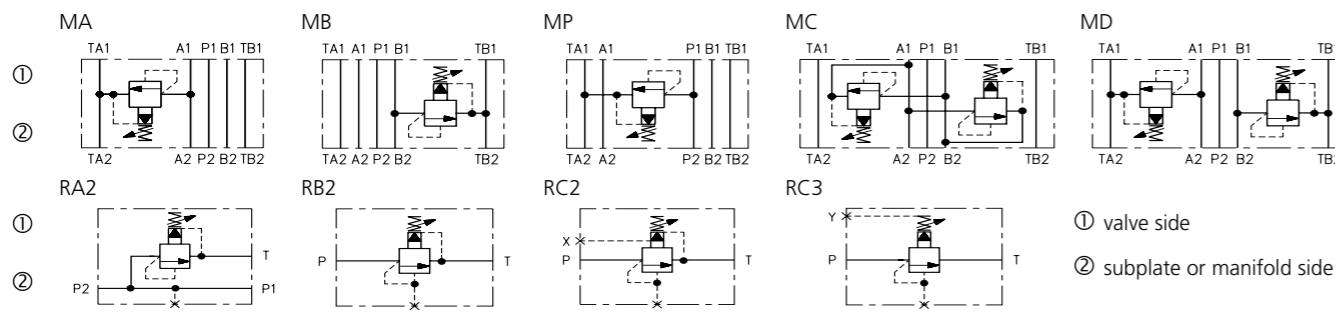
Size 10 (D05) • Q_{max} 150 l/min (40 GPM) • p_{max} 350 bar (5100 PSI)



Technical Features

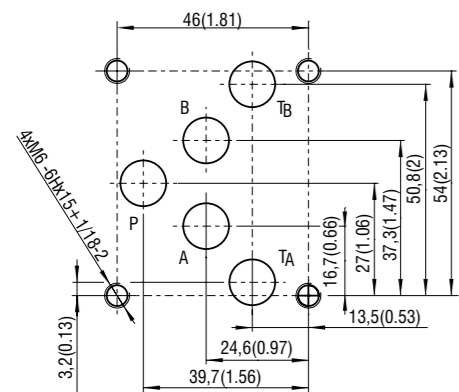
- › Pressure relief valve, spool type, pilot operated, with mounting interface acc. to ISO 4401, DIN 24340 (CETOP 05) or in-line design
- › Low hysteresis, accurate pressure control and low pressure drop
- › Wide pressure range up to 350 bar
- › High flow capacity
- › Hardened precision parts
- › Ideal for use as control valve where accuracy and repeatability is required
- › Adjustable by allen key or hand screw, optionally sealable (lockwire holes)
- › In the standard version, the valve housing is phosphated and steel parts are zinc-coated for 240 h protection acc. to ISO 9227

Functional Symbols



Notice: The orientation of the symbol on the name plate corresponds with the valve function.

ISO 4401-05-04-0-05



Ports P, A, B, T - max. Ø11.2 mm (0.44 in)

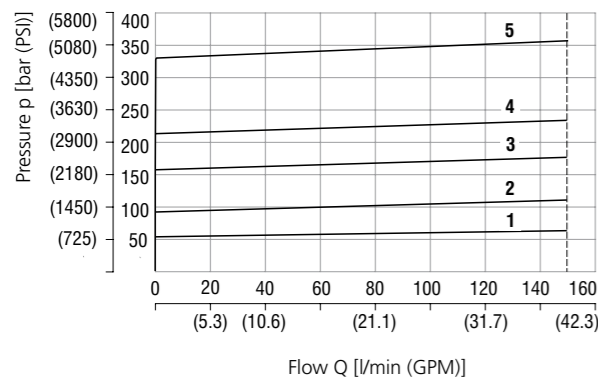
Technical Data

Valve size	10 (D05)	
Max. flow	l/min (GPM)	150 (40)
Max. operating pressure	bar (PSI)	350 (5080)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... 212)
Fluid temperature range (FPM)	°C (°F)	-20 ... +120 (-4 ... 248)
Mass		
- models MA (B, P) 10	kg (lbs)	2.15 (4.74)
- models MC (D) 10		3.0 (6.61)
- models RA2, RB2, RC2 (3)		2.7 (5.95)

	Datasheet	Type
General information	GI_0060	Products and operating conditions
Mounting interface	SMT_0019	Size 10
Spare parts	SP_8010	

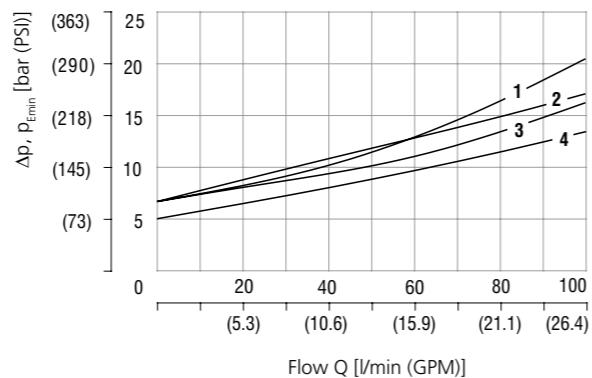
Characteristics measured at v = 32 mm²/s (156 SUS)

Relief pressure related to flow rate



Pressure range	6	10	16	21	32
	1	2	3	4	5

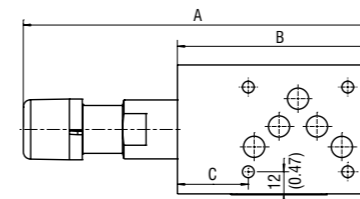
Minimum set and circulation pressure



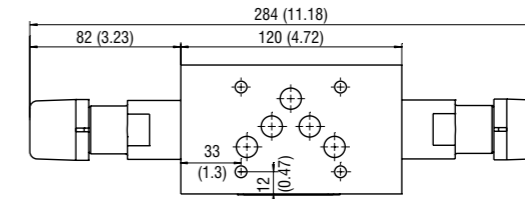
Models	MC	MP	MA, MB	RA, RB, RC
	1	2	3	4

Dimensions in millimeters (inches)

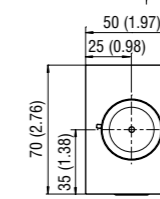
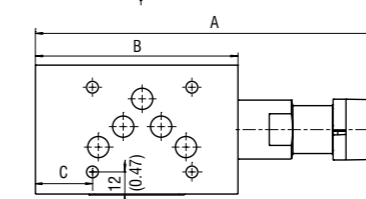
Model MA, MP



Model MC, MD

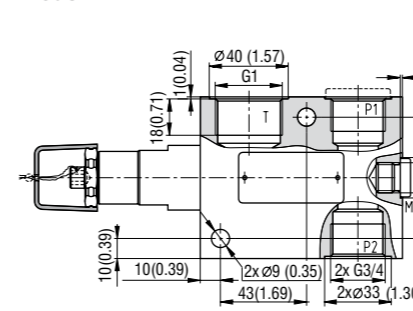


Model MB

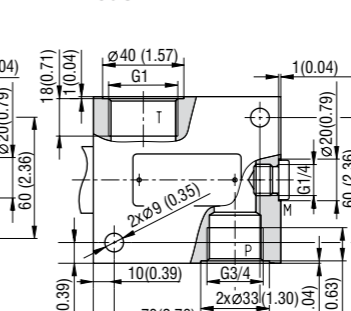


Size 10	A	B	C
MA	187 (7.36)	105 (4.13)	33 (1.30)
MB			38.5 (1.52)
MP	192 (7.56)	110 (4.33)	18 (0.71)

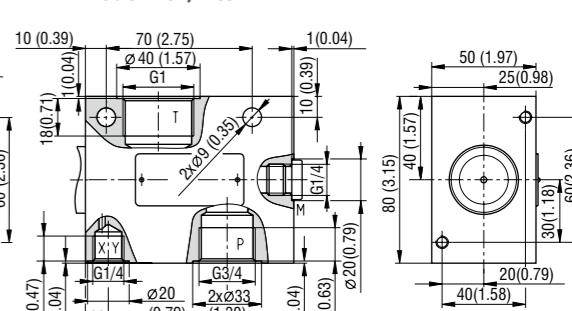
Model RA2



Model RB2



Model RC2, RC3



Ordering Code

VPN2-10 / [] - [] - [] - [] - []

Pressure relief valve, spool type, pilot operated, modular

Surface treatment
No designation body phosphated, steel parts zinc-coated (ZnCr-3), ISO 9227 (240 h)
A zinc-coated (ZnCr-3), ISO 9227 (240 h)
B zinc-coated (ZnNi, ISO 9227 (520 h)

Seals
No designation NBR
V FPM (Viton)

Adjustment option*
S allen key (hex. 6), without protective cap
T allen key (hex. 6), with protective cap
RS hand screw, metal
RP hand screw, plastic
L allen key (hex. 6), with protective cap, sealable (lockwire holes)
Model with two pressure relief cartridges
S/RS A side, allen key (hex. 6), without protective cap
B side, hand screw, metal

*for dimensions of adjustment options see data sheet No.5163

Model
modular, valve from A to TA MA
modular, valve from B to TB MB
modular, valve from P to TA MP
modular, valve from A to B and B to A MC
modular, valve from A to TA and B to TB MD
in-line valve, three ports, thread P1, P2-G3/4, T-G1 RA2
in-line valve, two ports, thread P-G3/4, T-G1 RB2
in-line valve, two ports, thread P-G3/4, T-G1, X-G1/4 RC2
in-line valve, two ports, thread P-G3/4, T-G1, Y-G1/4 RC3

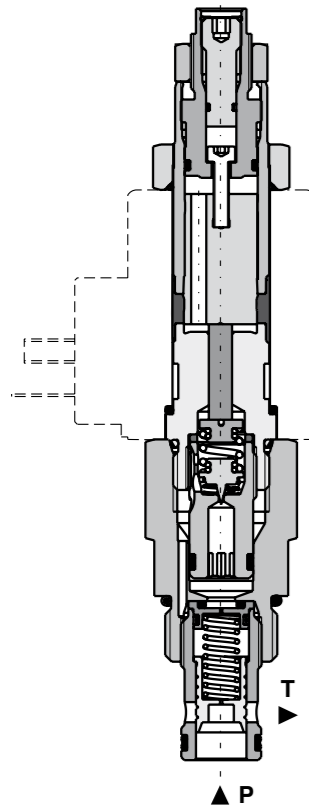
Modular plate size
ISO 4401-05-04-0-05, DIN 24340 (CETOP 05), size 10 10

Pressure range
6 up to 63 bar (910 PSI)
10 up to 100 bar (1450 PSI)
16 up to 160 bar (2320 PSI)
21 up to 210 bar (3050 PSI)
32 up to 320 bar (4600 PSI)
Model with two pressure relief cartridges
32/10 320 bar (4600 PSI) in port A, 100 bar (1450 PSI) in port B

Pressure Relief Valve, Solenoid Operated, Spool Type, Piloted

SR4E-B2

7/8-14 UNF • Q_{max} 60 l/min (16 GPM) • p_{max} 350 bar (5100 PSI)



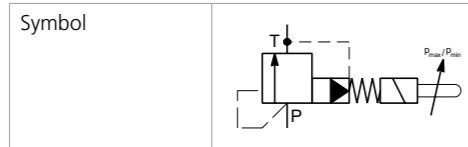
Technical Features

- Combines the functionality of a normally-open solenoid valve with a pressure relief valve
- Designed for cost-efficient and compact installation, typically used for motor control circuit
- Two-stage pressure valve for ON/OFF function
- Excellent stability throughout flow range with rapid response to dynamic pressure changes
- Low hysteresis, accurate pressure control and low pressure drop through CFD optimized flow paths
- Wide pressure range up to 350 bar
- High flow capacity
- Cartridges are voltage interchangeable
- Coils interchangeable across SD*-B* product line
- In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227

Functional Description

The valve is used as an integrated two-stage pressure valve for unloading the flow passage. It supports the setting of two pressure values, p_{min} and p_{max}. When energized the valve blocks the low-pressure passage and allows the pressure to rise at most to the circuit relief pressure (p_{max}). Both p_{min} and p_{max} are manually adjustable.

Any pressure at port T is additive to the valve setting, therefore port T should preferably be connected directly to tank. Unobstructed air venting is necessary for proper function of the valve. It is therefore recommended to install the valve in a vertical position with the solenoid facing downwards.

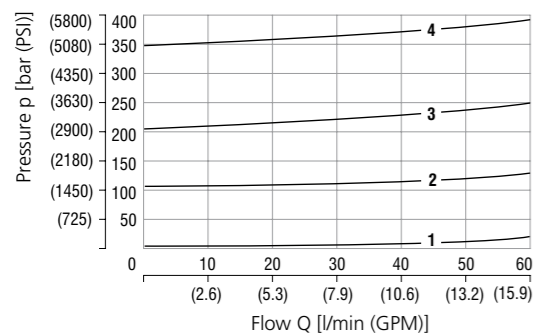


Technical Data

Valve size / Cartridge cavity		7/8-14 UNF-2A / B2
Max. flow	l/min (GPM)	60 (15.9)
Max. operating pressure	bar (PSI)	350 (5080)
Max. pressure (port T)	bar (PSI)	100 (1450)
Min. set pressure	bar (PSI)	7 (102)
Fluid temperature range (FPM)	°C (°F)	-20 ... +80 (-4 ... 176)
Ambient temperature range	°C (°F)	-20 ... +50 (-4 ... 122)
Supply voltage tolerance	%	AC, DC ± 10
Max. switching frequency	1/h	5 000
Mass	kg (lbs)	0.57 (1.23)
Mounting position: If possible, the valve should be mounted with the coil vertically downward.		
General information		Datasheet Type
Coil types		GI_0060 Products and operating conditions
Valve bodies		C_8007
In-line mounted	SB_0018	SB-B2*
Sandwich mounted	SB-04(06)_0028	SB-*B2*
Cavity details / Form tools		SMT_0019
Spare parts		SMT-B2*
		SP_8010

Characteristics measured at v = 32 mm²/s (156 SUS)

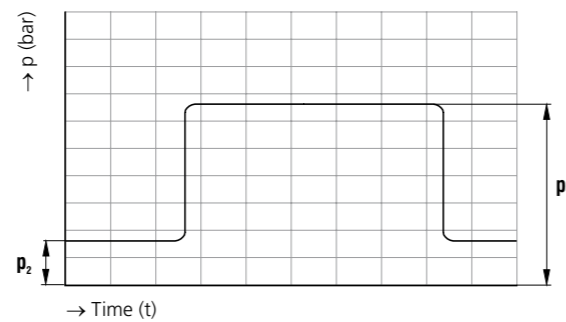
Relief pressure related to flow rate



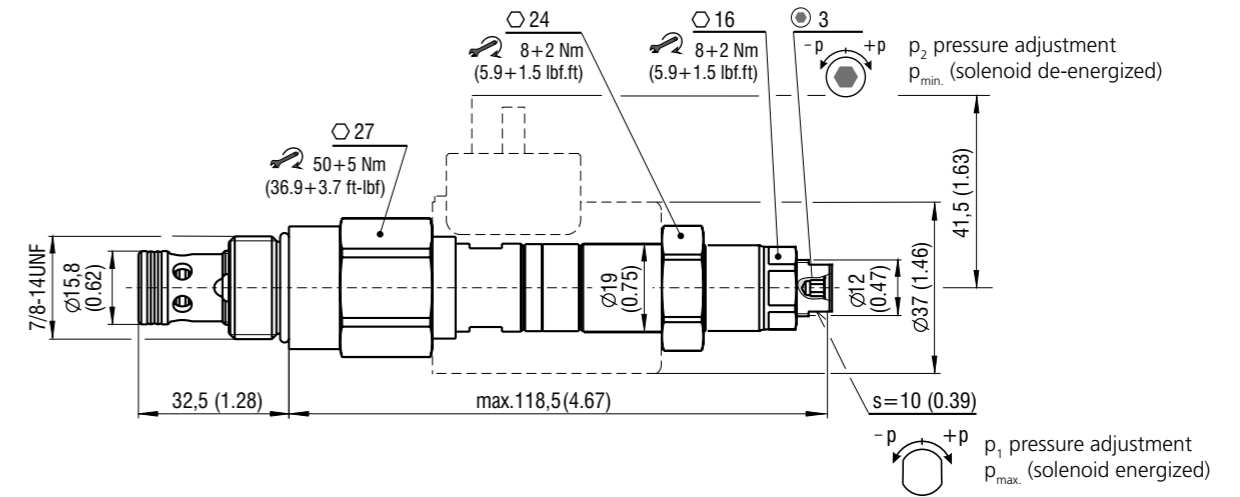
Example showing the adjustable pressures p₁ and p₂ (p₁ ≥ p₂)

p₁ (p_{max}, relief pressure) is set as the higher working pressure (solenoid energized)

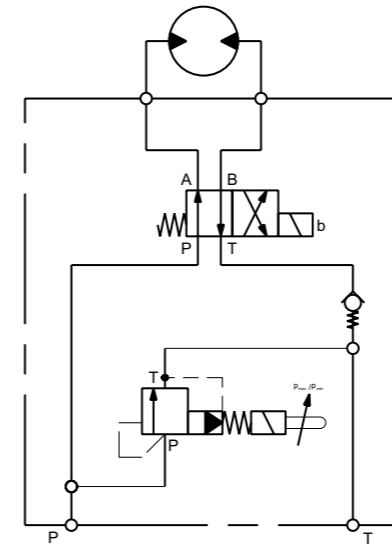
p₂ (p_{min}, vented pressure) is set as a lower working pressure (solenoid de-energized)



Dimensions in millimeters (inches)



Application example



The valve is used to unload a pump to tank with a very low pressure drop. This results in less heating of the oil and therefore lower energy costs for the user.

p₁ (p_{max}) must be set before p₂ (p_{min}). To set p₁, the solenoid is energized and the pressure adjusted with a flat wrench (size 10). The solenoid is then de-energized and the lower pressure adjusted with an allen key (hex. 3).

Ordering Code

SR4E2-B2 / [] [] [] - []		
Pressure relief valve, solenoid operated, spool type, piloted 7/8-14 UNF		
Model High performance	H	
Pressure ranges up to 120 bar (1740 PSI) up to 210 bar (3050 PSI) up to 350 bar (3080 PSI)	12 21 35	
		Surface treatment A zinc-coated (ZnCr-3), ISO 9227 (240 h) B zinc-coated (ZnNi), ISO 9227 (520 h)
		Seals NBR FPM (Viton)
		No designation V