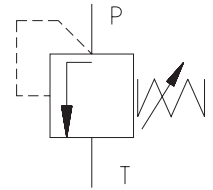


- Screw-in cartridge, modular and in-line design
- Six pressure ranges
- Pressure adjustment option:  
- screw with internal hexagon



## Functional Description

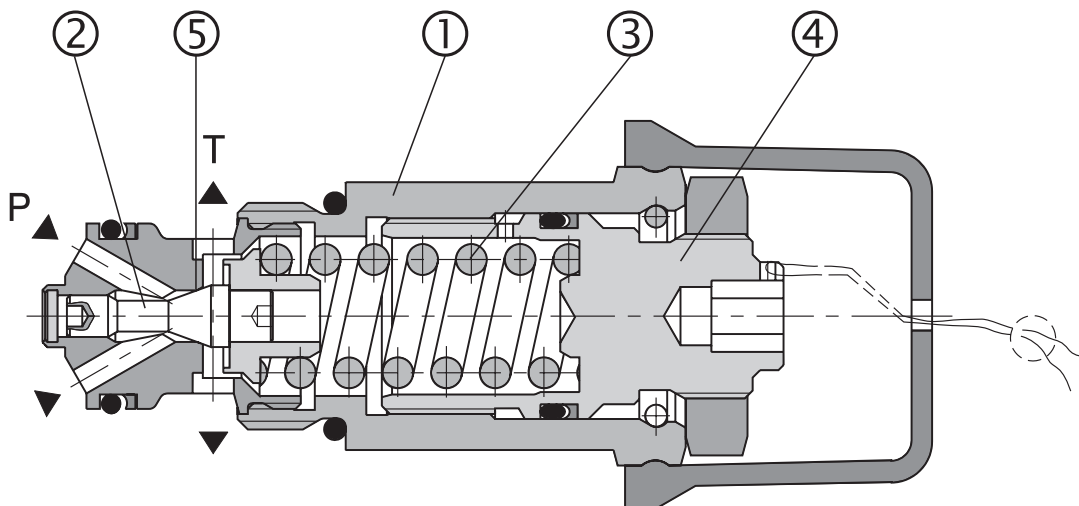
Pressure relief valves VPP2-04 were designed for applications requiring a safety valve or a pressure regulating valve working over a wide range of pressures and flow rates.

The valve basically consists of the valve body (1), poppet with damping spool (2) and compression spring (3). The spring pushes the poppet onto the seat (5) holding the valve in its normally closed position. When the force, caused by the pressure acting on the exposed surface area of the poppet, exceeds the spring force, the valve

opens and the flow passes from port P to port T.

To optimize the valve performance, six pressure ranges are available. Choosing the closest range is recommended. The design enables the valve to be used as a screw-in cartridge for manifold mounting, or in a subplate and/or in-line mounted housing.

The valve body and the adjustment screw are zinc coated. With models M and R the valve bodies are phosphate coated.



# Ordering Code

VPP2-04/  -

Directly operated pressure relief valve

**Model**

screw in cartridge  
 modular valve, connection A - T  
 modular valve, connection B - T  
 modular valve, connection P - T  
 modular valve, connection A - B and B - A  
 modular valve, connection A - T and B - T  
 modular valve, connection A - T  
 modular valve, connection B - T  
 modular valve, connection P - T  
 modular valve, connection A - B and B - A  
 modular valve, connection A - T and B - T  
 in-line valve, thread G3/8 - P1, P2, T  
 in-line valve, thread G1/2 - P1, P2, T  
 in-line valve, thread G3/8 - P, T  
 in-line valve, thread G1/2 - P, T

**S**

MA04  
 MB04  
**MP04**  
 MC04  
 MD04  
 MA06  
 MB06  
**MP06**  
 MC06  
 MD06  
 RA1  
**RA2**  
 RB1  
 RB2

without designation  
**V**

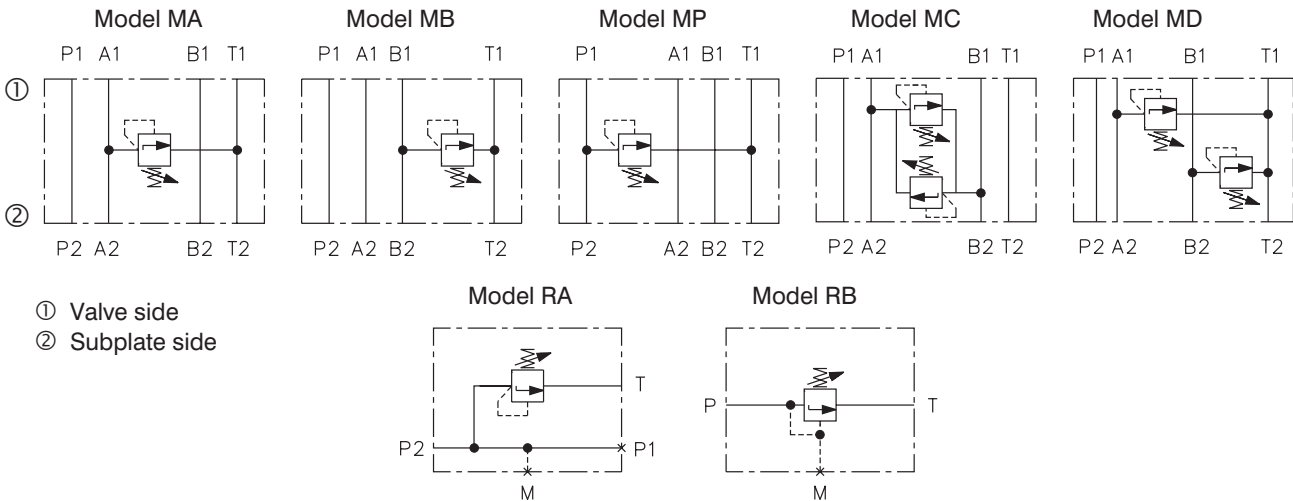
**Seals**  
 NBR  
 Viton

2  
 6  
**10**  
 16  
 25  
 32

**Pressure range**  
 up to 25 bar  
 up to 63 bar  
 up to 100 bar  
 up to 160 bar  
 up to 250 bar  
 up to 320 bar

**FOR PREFERRED TYPES SEE BOLD TYPING IN ORDERING CODE AND TABLE OF PREFERRED TYPES ON PAGE 11**

# Functional Symbols



# Ordering Numbers of Sandwich / Valve Bodies (without screw-in cartridge)

Valve body for modular valve - NBR	Ordering number	Valve body for modular valve - Viton	Ordering number
MA04-VP	513-0350	MA04-VP/V	513-0360
MB04-VP	513-0351	MB04-VP/V	513-0361
MP04-VP	513-0352	MP04-VP/V	513-0362
MC04-VP	513-0353	MC04-VP/V	513-0363
MD04-VP	513-0354	MD04-VP/V	513-0364
Valve body for modular valve - NBR	Ordering number	Valve body for modular valve - Viton	Ordering number
MA06-VP	556-0330	MA06-VP/V	556-0430
MB06-VP	556-0331	MB06-VP/V	556-0431
MP06-VP	556-0332	MP06-VP/V	556-0432
MC06-VP	556-0333	MC06-VP/V	556-0433
MD06-VP	556-0334	MD06-VP/V	556-0434

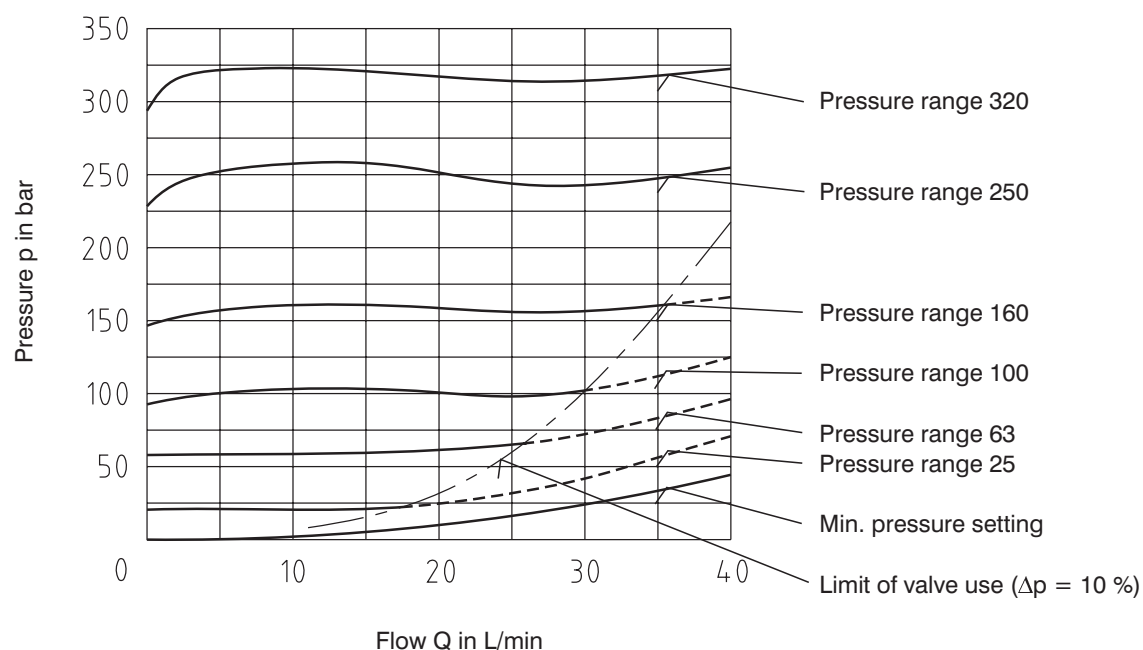
## Ordering Numbers of Sandwich / Valve Bodies (without screw-in cartridge)

Valve body for in-line valve - NBR	Ordering number	Valve body for in-line valve - Viton	Ordering number
RA1-06-VP	556-0336	RA1-06-VP/V	556-0436
RA2-06-VP	556-0337	RA2-06-VP/V	556-0437
RB1-06-VP	556-0338	RB1-06-VP/V	556-0438
RB2-06-VP	556-0339	RB2-06-VP/V	556-0439

### Technical Data for Model S

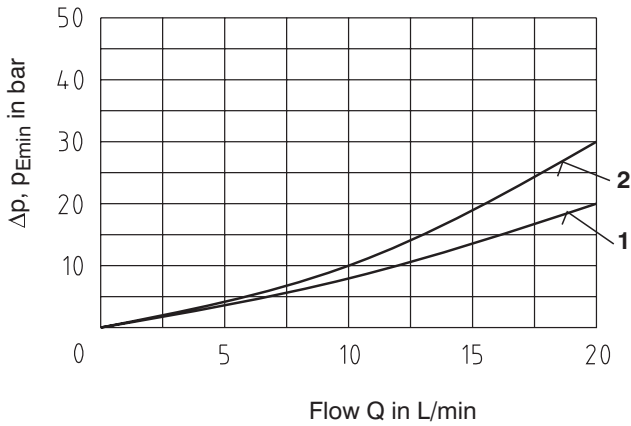
Nominal size	mm	04
Max. flow rate	L/min	40
Max. input pressure (ports P, A, B)	bar	25 63 100 160 250 320
Max. output pressure (port T)	bar	320
Working pressure related to flow	bar	see p-Q characteristics
Hydraulic fluid		Hydraulic oils of power classes HM, HV to CETOP - RP 91H in viscosity classes ISO VG 32, 46 and 68.
Fluid temperature range for standard sealing (NBR)	°C	-30 ... +80
Fluid temperature range for Viton sealing (FPM)	°C	-20 ... +80
Viscosity range	mm <sup>2</sup> /s	20 ... 400
Max. degree of fluid contamination		Class 21/18/15 according to ISO 4406 (1999).
Weight	kg	0.17
Mounting position		optional
Weight - models MA04, MB04, MP04		0.82
- models MC04, MD04		1.32
- models MA06, MB06, MP06	kg	1.12
- models MC06, MD06		1.42
- models RA1, RA2, RB1, RB2		1.17

### p-Q Characteristics for Model S Measured at $v = 35 \text{ mm}^2/\text{s}$ and $t = 40 \text{ °C}$

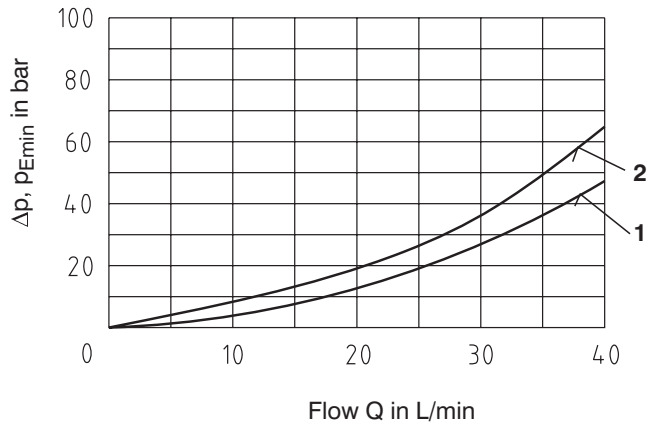


**Δp-Q Characteristics, min. pressure setting**

Measured at  $v = 35 \text{ mm}^2/\text{s}$  and  $t = 40^\circ\text{C}$



1 - MA04, MB04, MP04, MD04  
2 - MC04

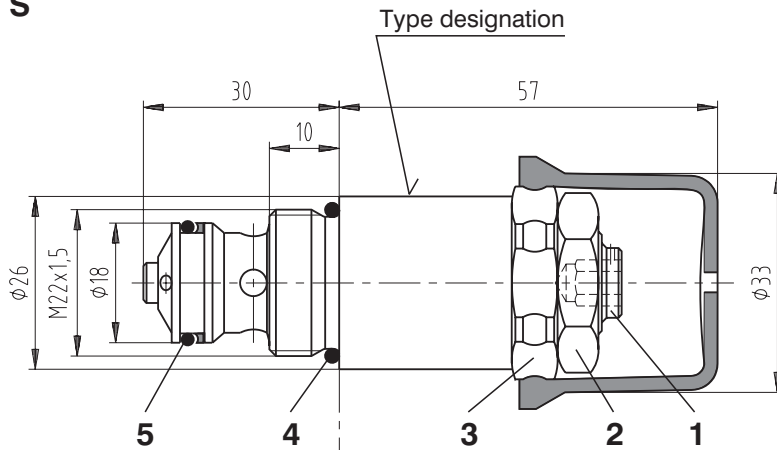


1 - MA06, MB06, MP06, MD06  
2 - MC06

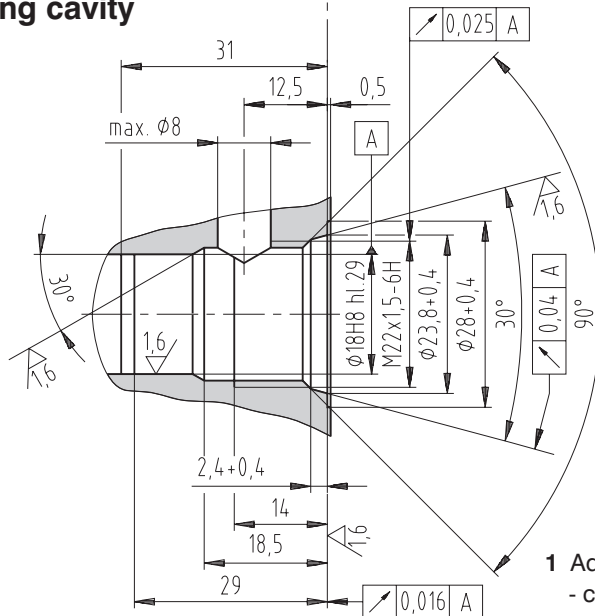
**Valve Dimensions**

Dimensions in millimetres

**Model S**



**Mounting cavity**



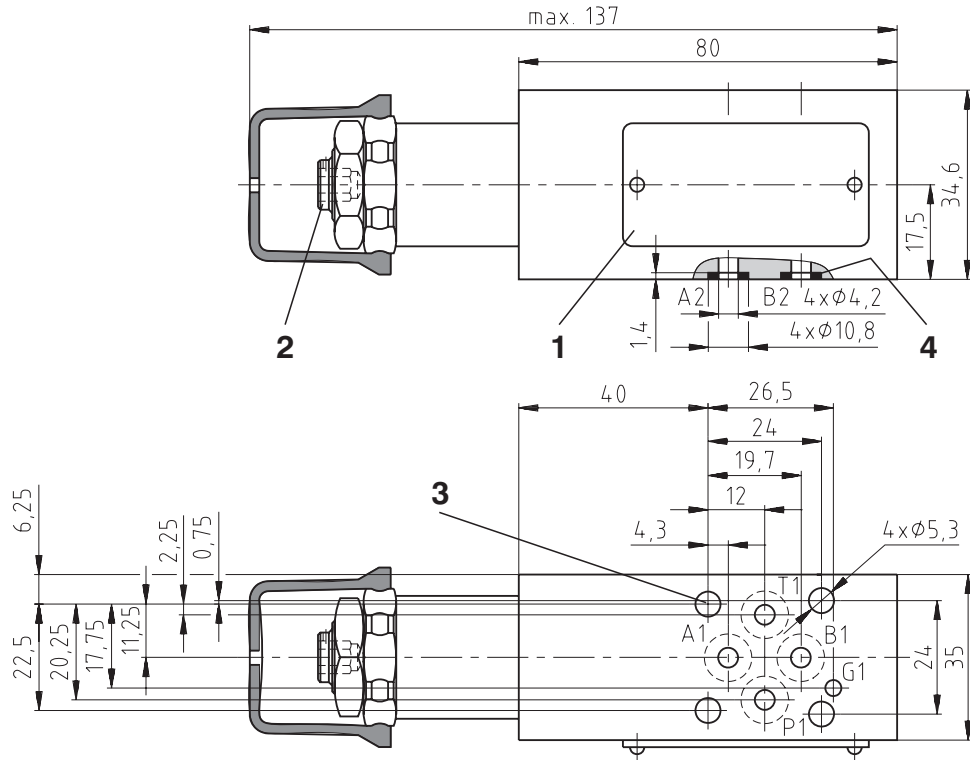
- 1 Adjustment element (screw with internal hexagon 6 mm)  
- clockwise rotation - pressure increase  
- anticlockwise rotation - pressure decrease
- 2 Locknut hex. 24 mm
- 3 Wrench flats  $s = 27 \text{ mm}$  - tightening torque 30 Nm
- 4 O-ring 19.4 x 2.1 (1 pc.), supplied with valve
- 5 Combined sealing:  
O-ring 14 x 1.78 (1 pc.)  
Back-up ring BBP80B015-N9 = 14.73 x 17.43 x 1.14 (1 pc.)  
supplied with valve

# Valve Dimensions

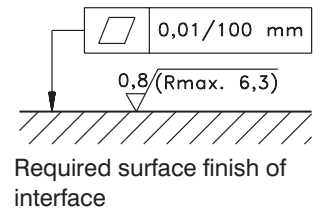
Dimensions in millimetres

## Size 04 (Installation dimensions to ISO 4401, CETOP - RP 121H)

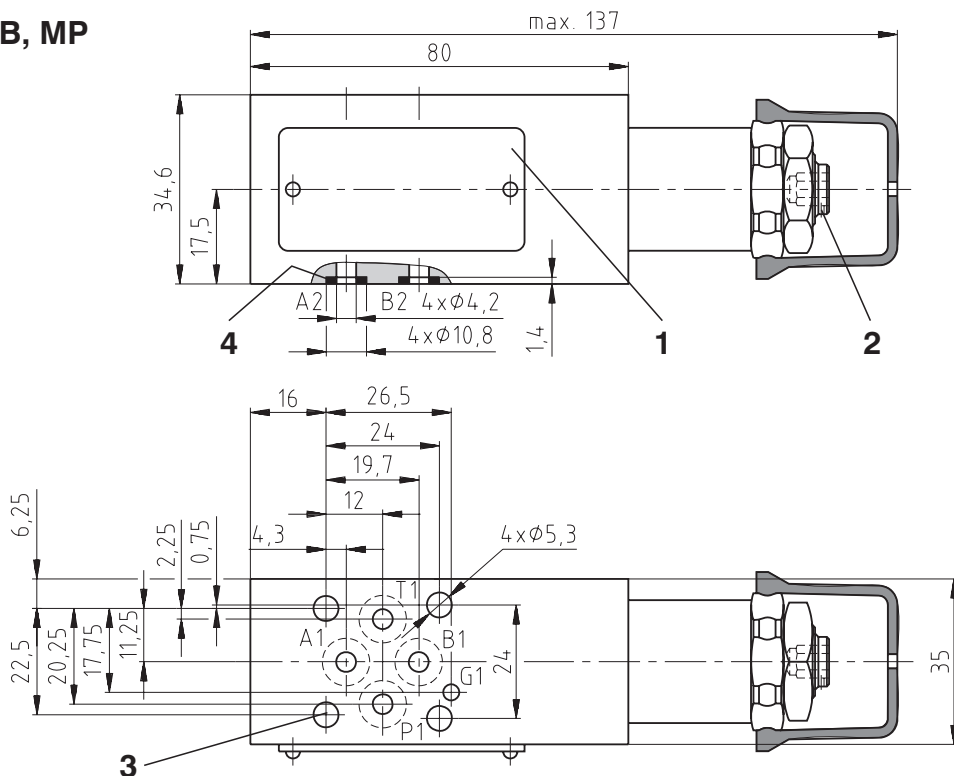
### Model MA



- 1 Name plate
- 2 Adjustment element for pressure setting
- 3 4 through mounting holes
- 4 Square rings 7.65 x 1.68 (4 pcs.) supplied with valve



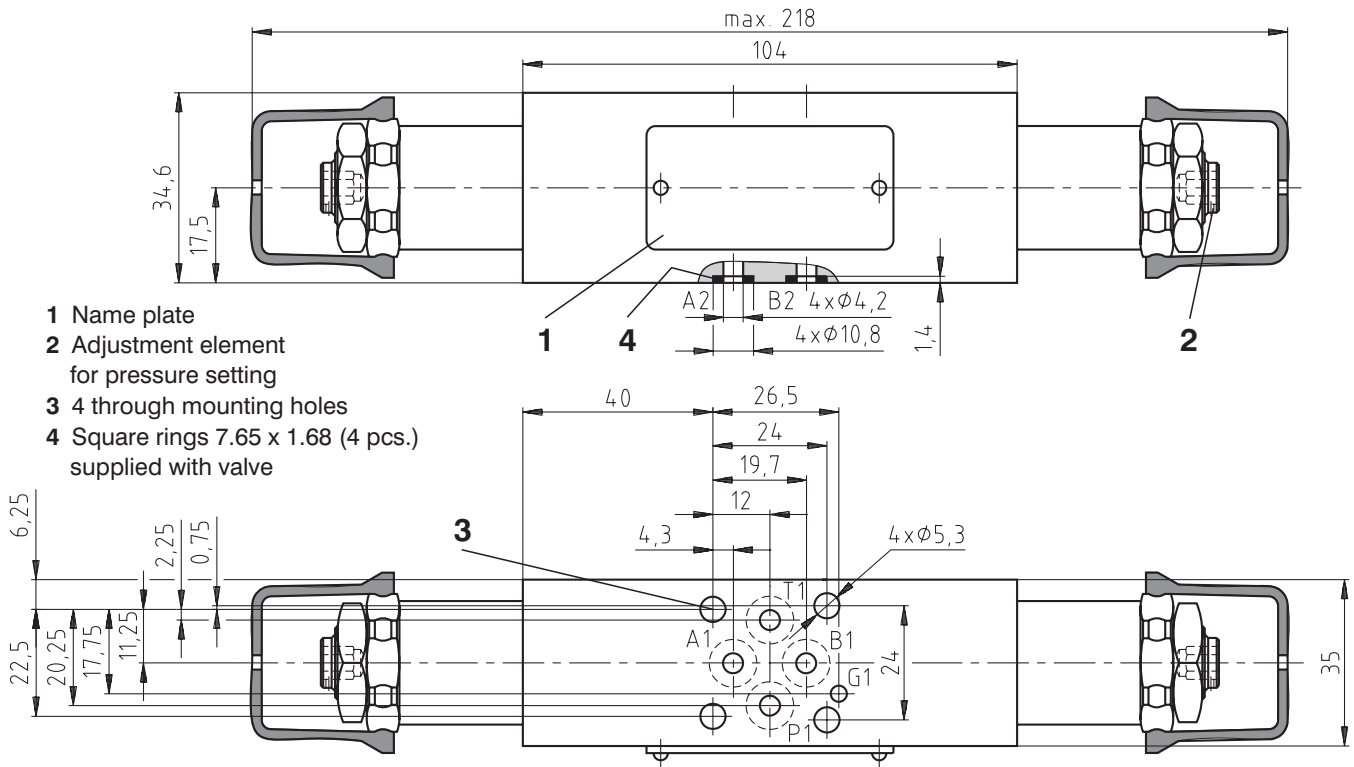
### Models MB, MP



# Valve Dimensions

Dimensions in millimetres

## Models MC, MD



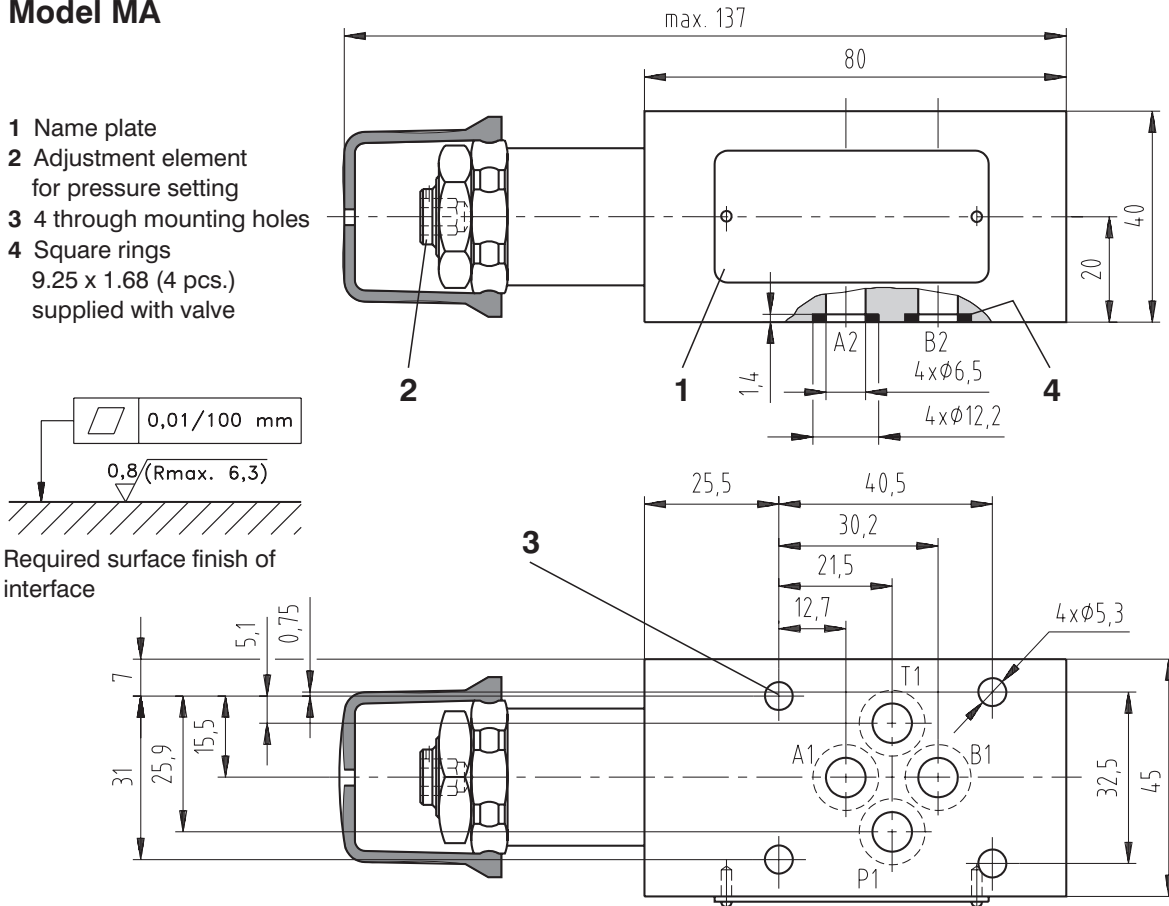
# Valve Dimensions

Dimensions in millimetres

## Size 06 (Installation dimensions to ISO 4401, DIN 24 340)

### Model MA

- 1 Name plate
- 2 Adjustment element for pressure setting
- 3 4 through mounting holes
- 4 Square rings 9.25 x 1.68 (4 pcs.) supplied with valve

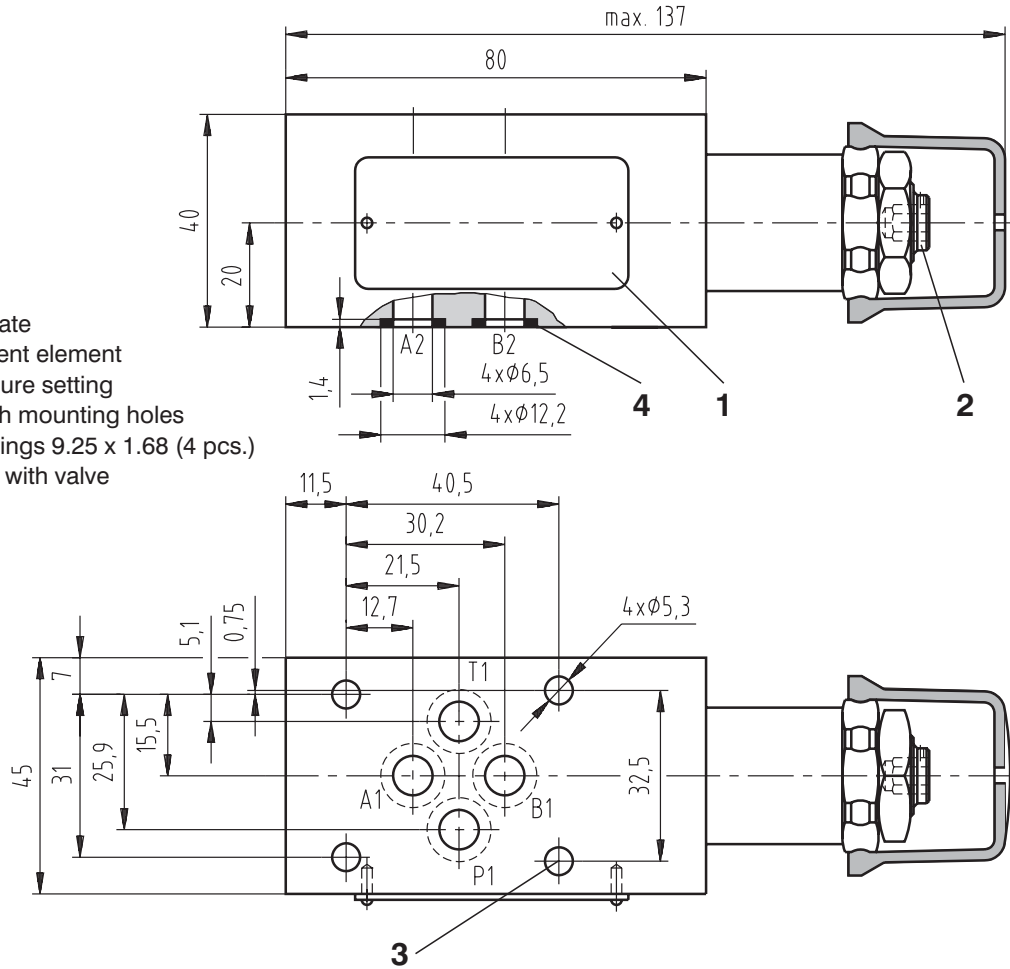


# Valve Dimensions

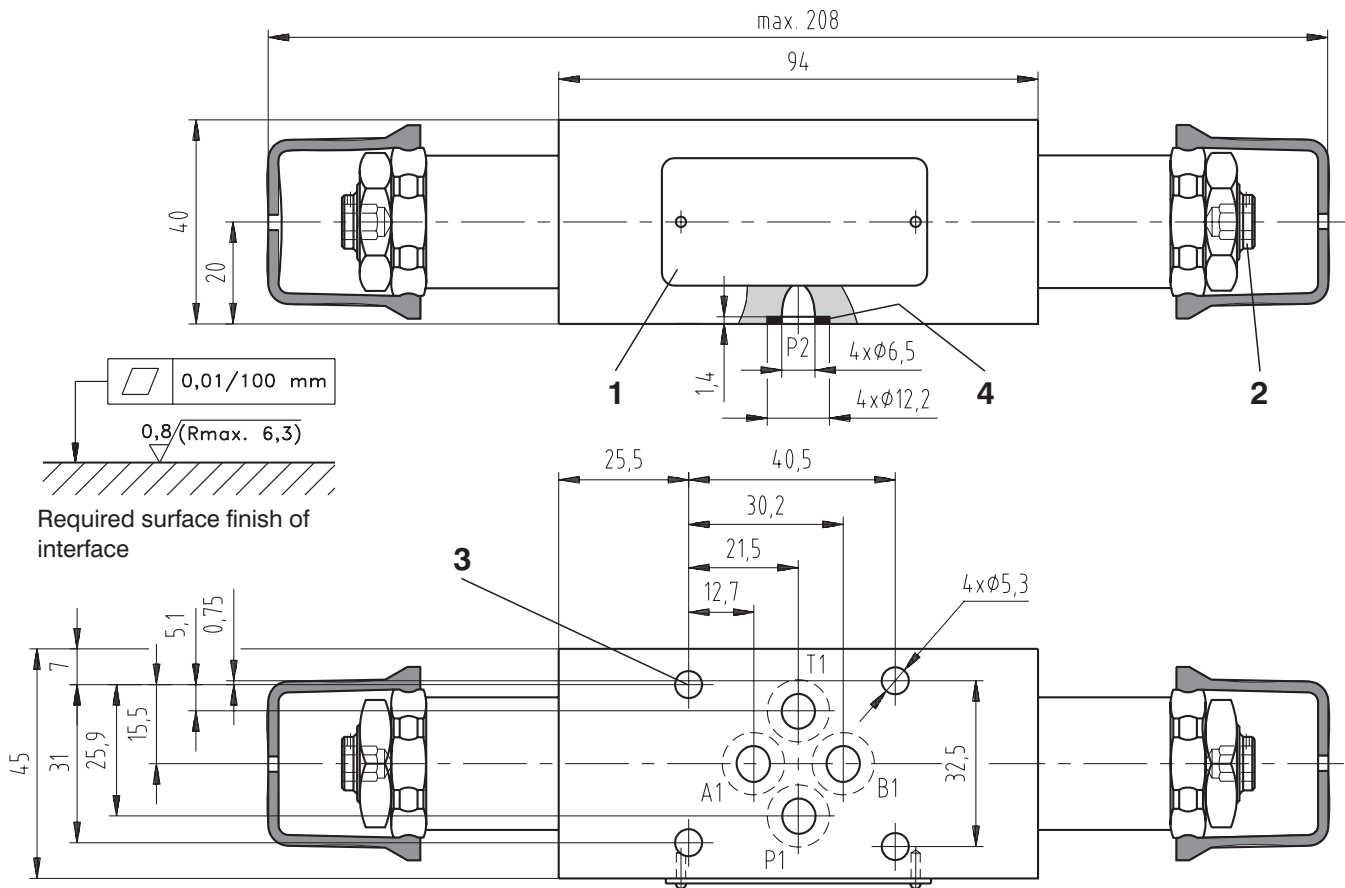
Dimensions in millimetres

## Models MB, MP

- 1 Name plate
- 2 Adjustment element for pressure setting
- 3 4 through mounting holes
- 4 Square rings 9.25 x 1.68 (4 pcs.) supplied with valve



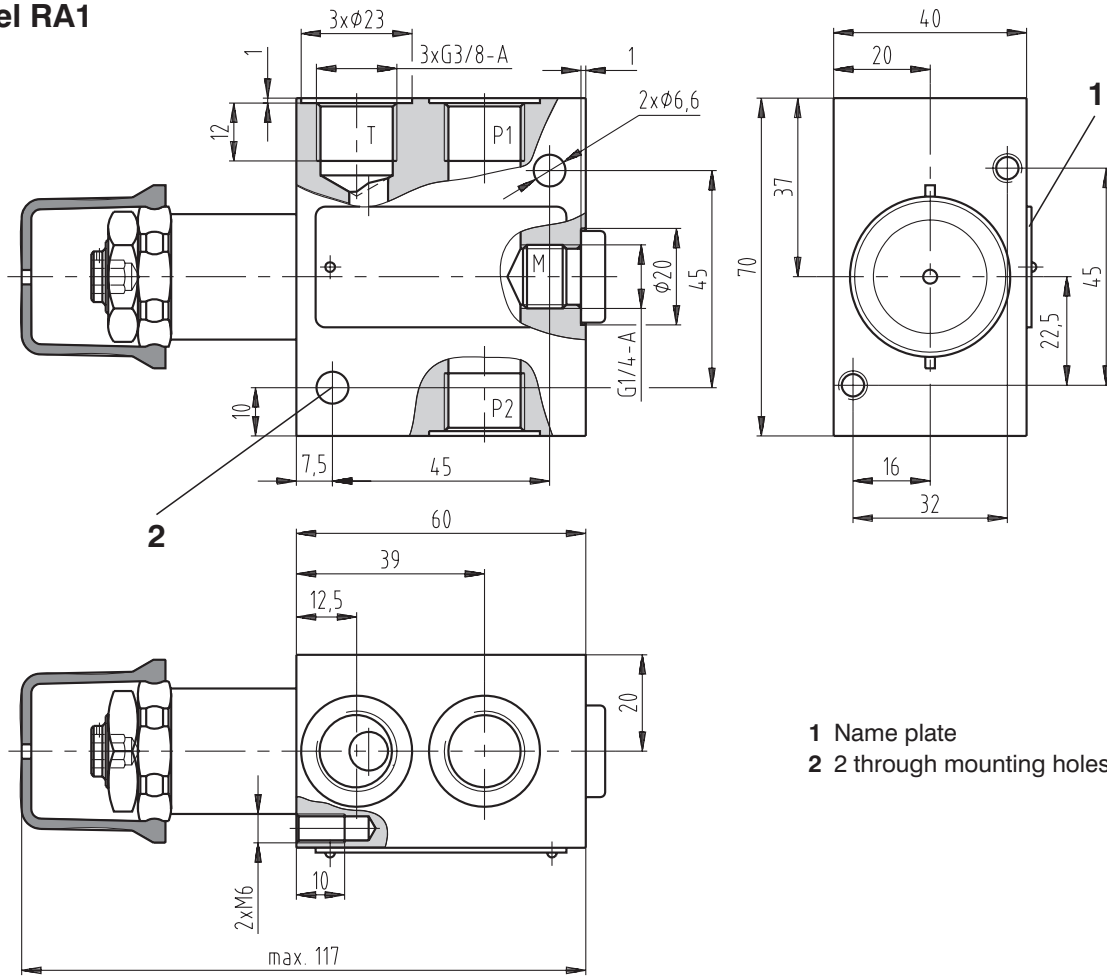
## Models MC, MD



# Valve Dimensions

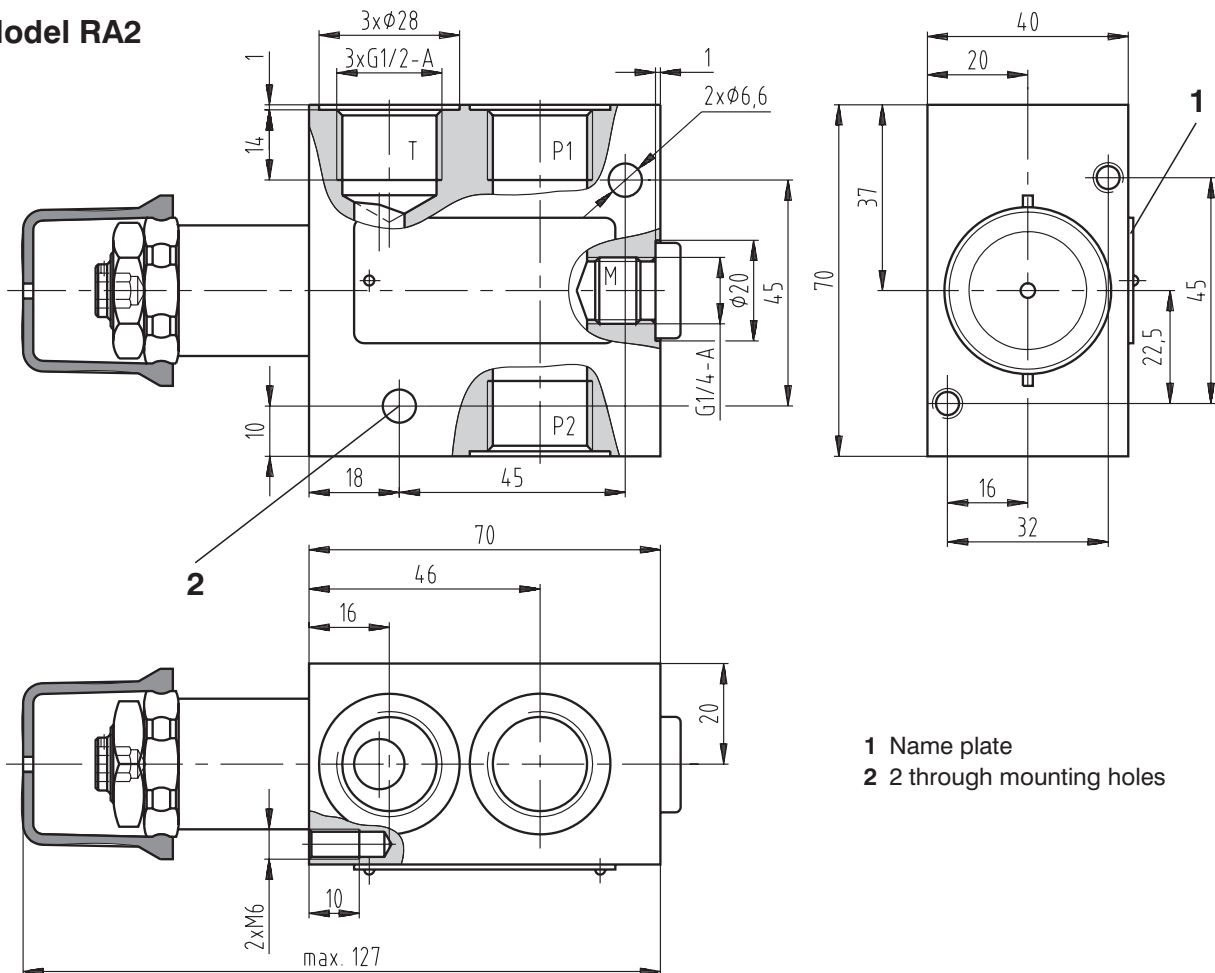
Dimensions in millimetres

## Model RA1



- 1 Name plate
- 2 2 through mounting holes

## Model RA2



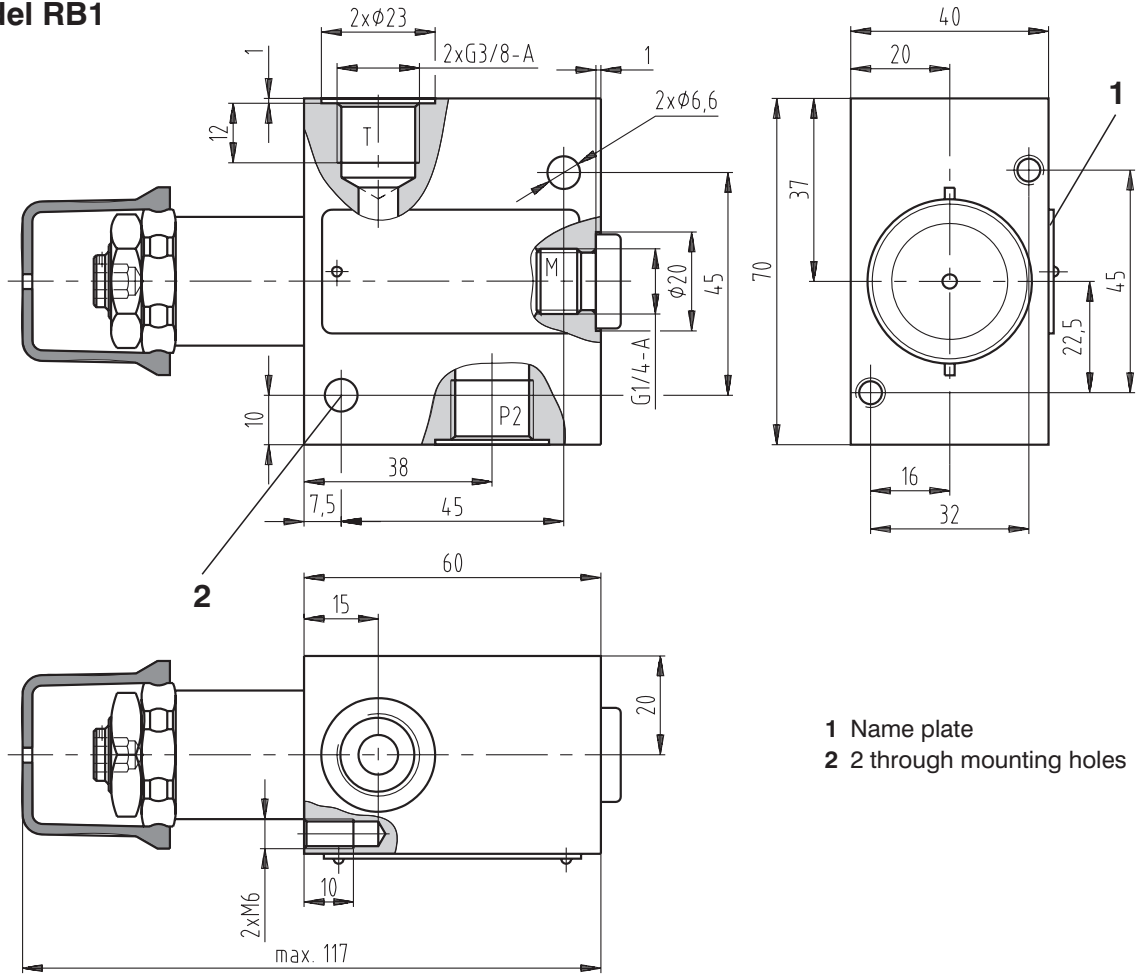
- 1 Name plate
- 2 2 through mounting holes



# Valve Dimensions

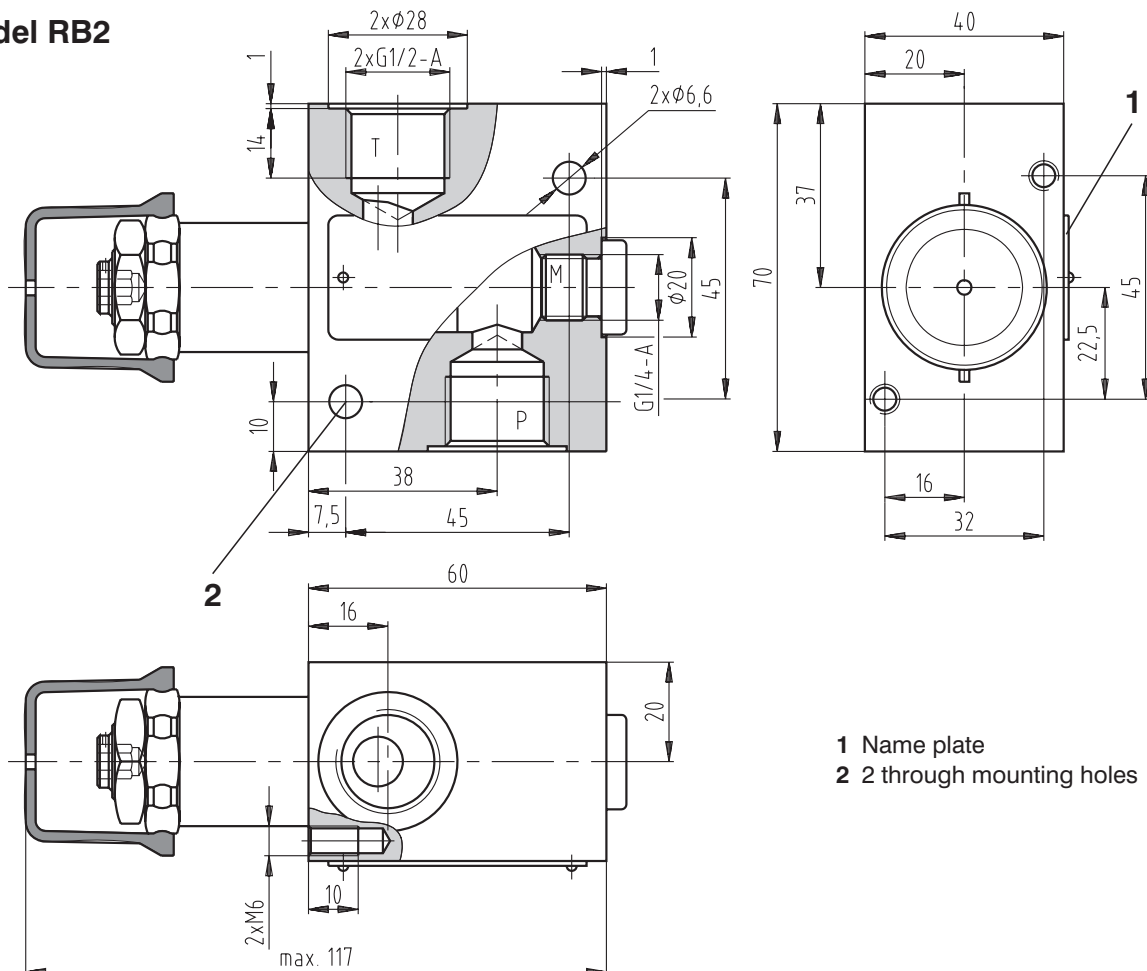
Dimensions in millimetres

## Model RB1



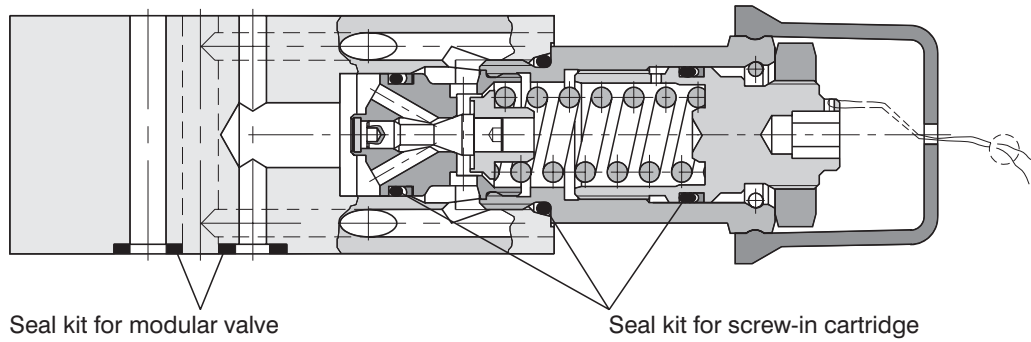
- 1 Name plate
- 2 2 through mounting holes

## Model RB2



- 1 Name plate
- 2 2 through mounting holes

## Spare Parts



Model	Dimensions, quantity	Ordering number
Screw-in cartridge - NBR	O-ring 14 x 1.78 NBR 90 (1 pc.)	513-0396
	O-ring 17 x 1.8 NBR 70 (1 pc.)	
	O-ring 19.4 x 2.1 NBR 80 (1 pc.)	
	Back-up ring BBP80B015-N9 14.73 x 17.43 x 1.14 (1 pc.)	
	Back-up ring BBP80B016-N9 16.33 x 19.03 x 1.14 (1 pc.)	
Screw-in cartridge - Viton	O-ring 14 x 1.78 (1 pc.)	513-0397
	O-ring 17.17 x 1.78 (1 pc.)	
	O-ring 19.4 x 2.1 (1 pc.)	
	Back-up ring BBP80B015 14.73 x 17.43 x 1.14 (1 pc.)	
	Back-up ring BG1300174-PT00 17.4 x 1.3 (1 pc.)	
Model	Dimensions, quantity	Ordering number
Modular valve size 04 - NBR	Square ring 7.65 x 1.68 (4 pcs.)	513-0398
Modular valve size 04 - Viton	O-ring 7.65 x 1.78 (4 pcs.)	513-0399
Modular valve size 06 - NBR	Square ring 9.25 x 1.68 (4 pcs.)	556-0397
Modular valve size 06 - Viton	O-ring 9.25 x 1.78 (4 pcs.)	556-0396
Model	Typ, quantity	Ordering number
In-line valve RA1 - NBR	VSTI R1/4-ED (1 pc.)	556-0395
	VSTI R3/8-ED (1 pc.)	
In-line valve RA2 - NBR	VSTI R1/4-ED (1 pc.)	556-0393
	VSTI R1/2-ED (1 pc.)	
In-line valve RB1 - NBR	VSTI R1/4-ED (1 pc.)	556-0394
In-line valve RB2 - NBR		
In-line valve RA1 - Viton	VSTI R1/4-ED - Viton (1 pc.)	556-0392
	VSTI R3/8-ED - Viton (1 pc.)	
In-line valve RA2 - Viton	VSTI R1/4-ED - Viton (1 pc.)	556-0390
	VSTI R1/2-ED - Viton (1 pc.)	
In-line valve RB1 - Viton	VSTI R1/4-ED - Viton (1 pc.)	556-0391
In-line valve RB2 - Viton		

## Preferred Types of Valves

Type	Ordering Number	Type	Ordering Number
VPP2-04/S-10	513-0302	VPP2-04/MP06-10	513-0435
VPP2-04/S-25	513-0304	VPP2-04/MP06-25	513-0463
VPP2-04/S-32	513-0305	VPP2-04/MP06-32	513-0477
VPP2-04/MP04-10	513-0430	VPP2-04/RA2-10	513-0439
VPP2-04/MP04-25	513-0458	VPP2-04/RA2-25	513-0467
VPP2-04/MP04-32	513-0472	VPP2-04/RA2-32	513-0481

## Caution!

- The packing foil is recyclable.
- The protecting plate can be returned to the manufacturer.
- Mounting studs must be ordered separately. Tightening torques are: size 04 - 5 Nm, size 06 - 8.9 Nm.
- The technical information regarding the product presented in this catalogue is for descriptive purposes only. It should not be construed in any case as a guaranteed representation of the product properties in the sense of the law.

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