

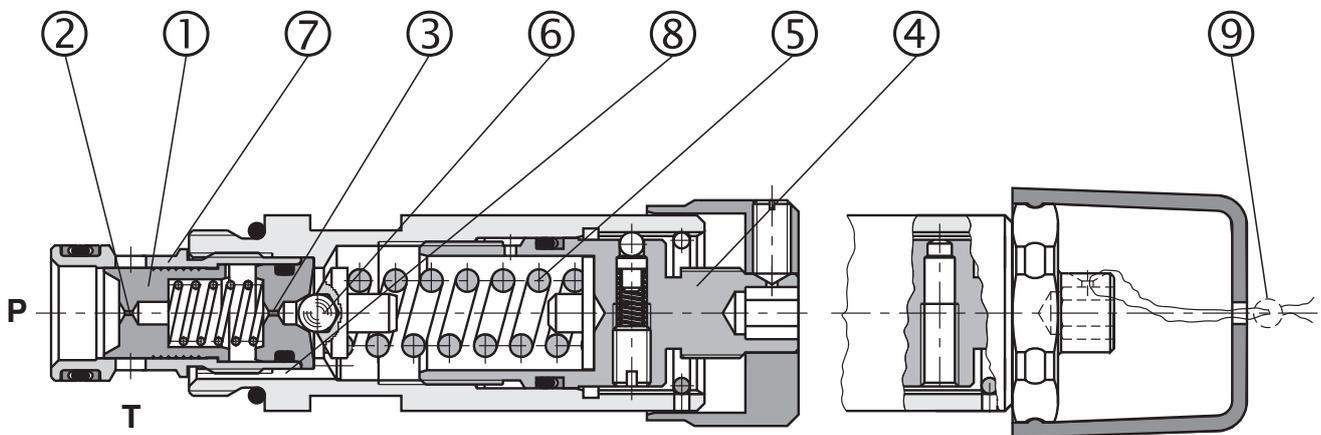
- Cartridge, modular and in-line design
- Five pressure ranges
- Two pressure adjustment options:
 - screw with internal hexagon
 - hand knob with arrestment



Functional Description

Pressure relief valves VPN1 are pilot operated pressure valves designed for system pressure limitation. The pressure adjustment provides the adjustment screw (4). In its basic state, the valve is closed. The pressure acts on the face area of the control spool (1) and at the same time through orifice (2) on the control spool rear side, which is preloaded by a spring and further on through orifice (3) on the pilot valve ball (6). When the increasing system pressure reaches the value, which is preset by spring (5), the valve opens and

the control flow passes through the pilot valves. The spool area which is preloaded by the spring becomes relieved, the spool control edge opens the radial bores in bushing (7) and the fluid passes from port P to T. The control flow is routed through groove (8) to channel T. Valve adjustment can be lockwired (9). The valve body and the adjustment screw are zinc coated. With models M and R the valve bodies are phosphate coated.



Ordering Code

VPN1-06/ -

Pilot Operated Pressure Relief Valve

Nominal size

Model

- screw in cartridge
- modular valve, flow from A to T
- modular valve, flow from B to T
- modular valve, flow from P to T
- modular valve, flow from A to B and B to A
- modular valve, flow from A and B to T
- in-line valve, thread G3/8
- in-line valve, thread G1/2
- in-line valve, thread G3/8
- in-line valve, thread G1/2

- S**
- MA
- MB
- MP
- MC
- MD
- RA1
- RA2**
- RB1
- RB2

without designation
V

Sealing
NBR
FPM (Viton)

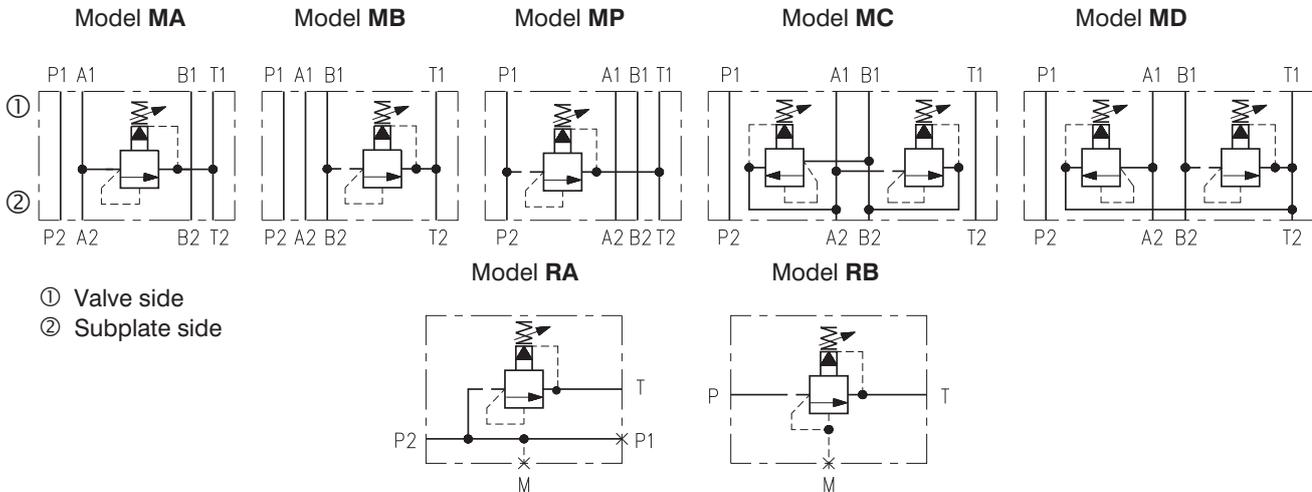
Adjustment element
screw with internal hexagon
hand knob

Pressure range

6	up to 63 bar
10	up to 100 bar
16	up to 160 bar
21	up to 210 bar
32	up to 320 bar

FOR PREFERRED TYPES SEE BOLD TYPING IN ORDERING CODE AND TABLE OF PREFERRED TYPES ON PAGE 10

Functional Symbols



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

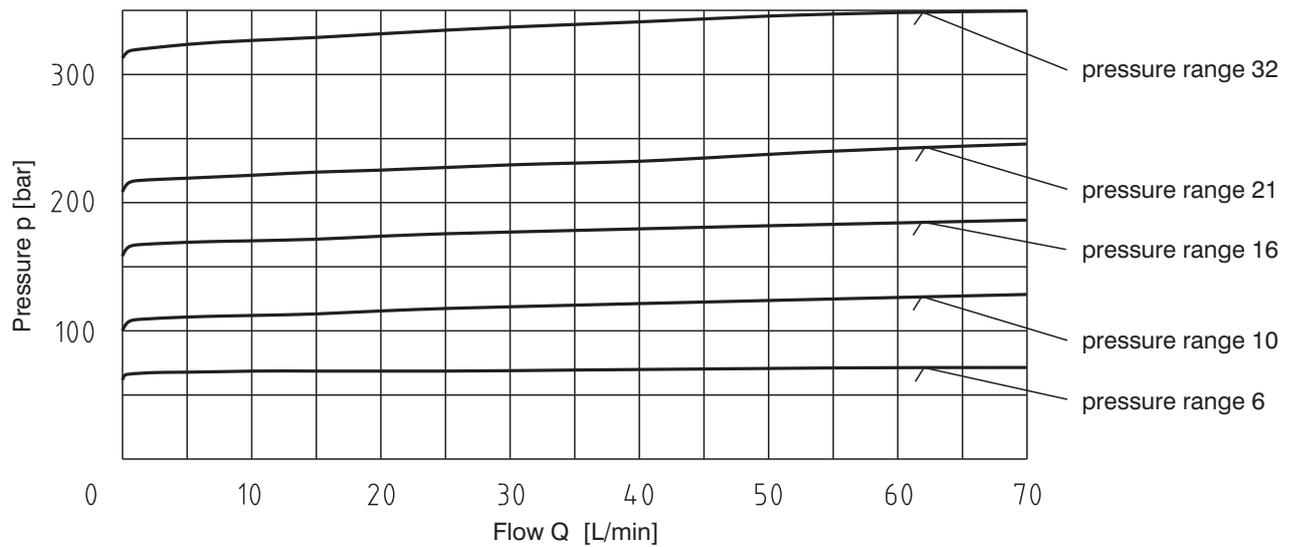
Valve body for modular valve - NBR	Ordering number	Valve body for modular valve - Viton	Ordering number
MA06-VP	15988600	MA06-VP/V	22949600
MB06-VP	15988800	MB06-VP/V	16661700
MP06-VP	15989000	MP06-VP/V	22949800
MC06-VP	15989200	MC06-VP/V	16758800
MD06-VP	15989300	MD06-VP/V	22950100
Valve body for in-line valve - NBR	Ordering number	Valve body for in-line valve - Viton	Ordering number
RA1-06-VP	15989800	RA3-06-VP/V	22939200
RA2-06-VP	15989900	RA4-06-VP/V	22939300
RB1-06-VP	15990000	RB3-06-VP/V	22939400
RB2-06-VP	15990100	RB4-06-VP/V	22939500

Technical Data

Nominal size	mm	06
Max. flow rate	L/min	70
Max. control flow	L/min	0.35
Max. service pressure ports (P, T, A, B)	bar	350
Working pressure related to flow	bar	see p-Q characteristics
Hydraulic fluid		Hydraulic oils of power classes (HL, HLP) to DIN 51524
Fluid temperature range for standard sealing (NBR)	°C	-30 ... +100
Fluid temperature range for Viton sealing (FPM)	°C	-20 ... +120
Viscosity range	mm ² /s	20 ... 400
Max. degree of fluid contamination		Class 21/18/15 according to ISO 4406
Weight	kg	0.25
Weight - models MA, MB, MP		1.2
- models MC, MD	kg	1.5
- models RA1, RA2, RB1, RB2		1.25
Mounting position		unrestricted

p-Q Characteristics for Model S

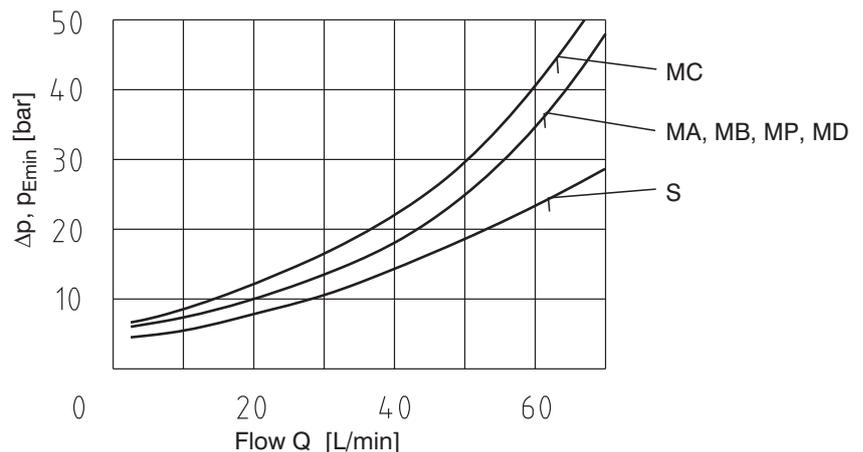
Measured at $v = 32 \text{ mm}^2/\text{s}$



Δp -Q Characteristics

Measured at $v = 32 \text{ mm}^2/\text{s}$

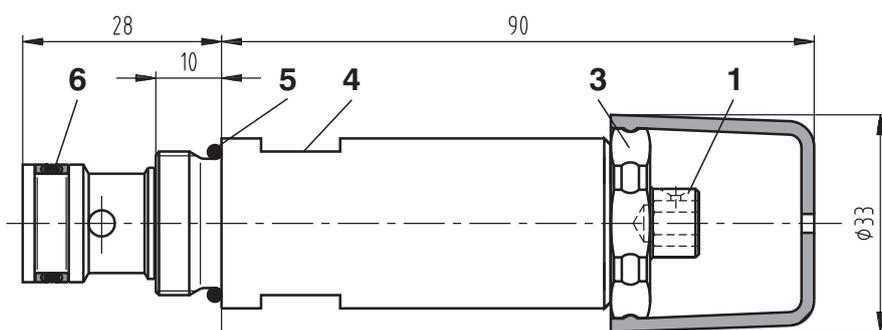
Pressure drop Δp related to flow rate.



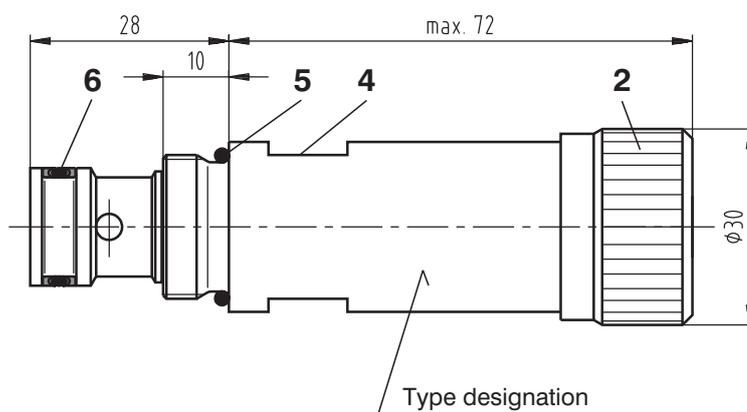
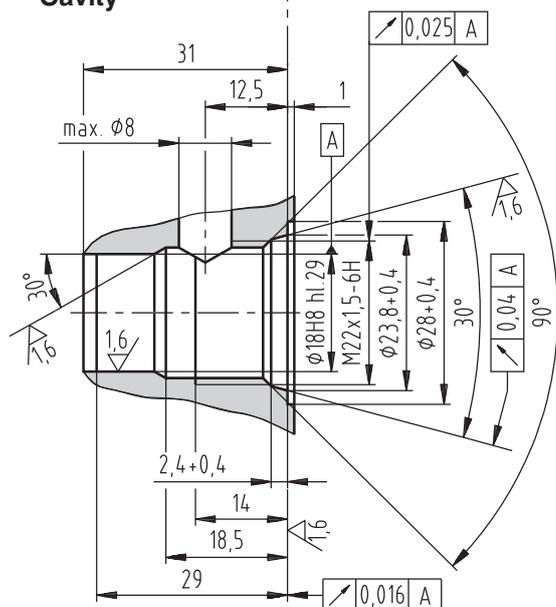
Valve Dimensions

Dimensions in millimetres

Model S



Cavity

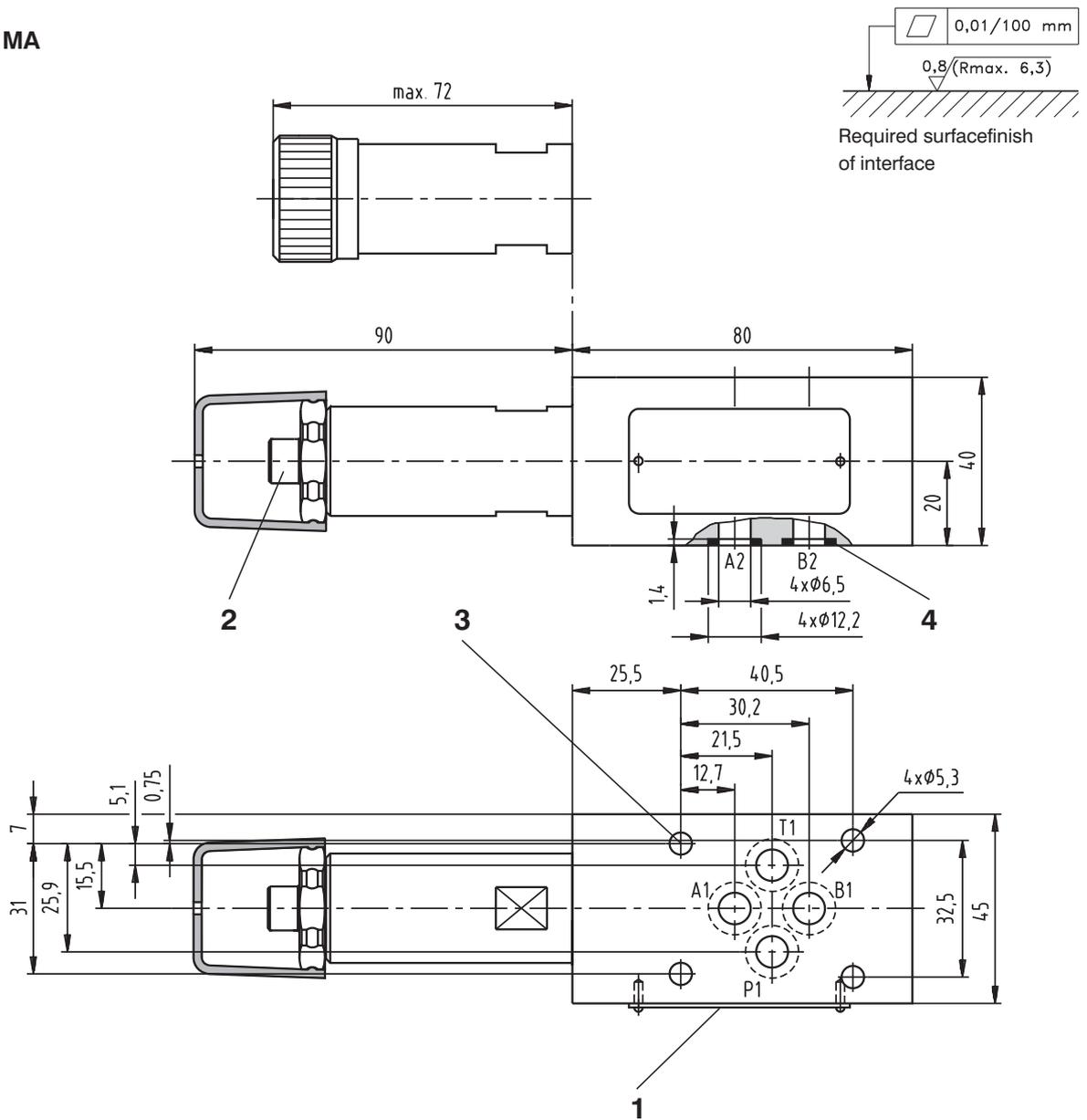


- 1 Adjustment element (screw with internal HEX 6)
 - 2 Adjustment element R (hand knob)
- With all adjustment elements:**
- clockwise rotation - pressure increase
 - anticlockwise rotation - pressure decrease
- 3 Locknut HEX 27
 - 4 Wrench flats (s=24 mm) - tightening torque 30 Nm
 - 5 O-ring 19.4 x 2.1 NBR 80 (1 pc.)
supplied with valve
 - 6 Combined sealing:
O-ring 14 x 1.78 NBR 90 (1 pc.)
Back-up ring BBP80B015-N9 14.73 x 17.43 x 1.14 (2 pcs.)
supplied with valve

Valve Dimensions

Dimensions in millimetres

Model MA

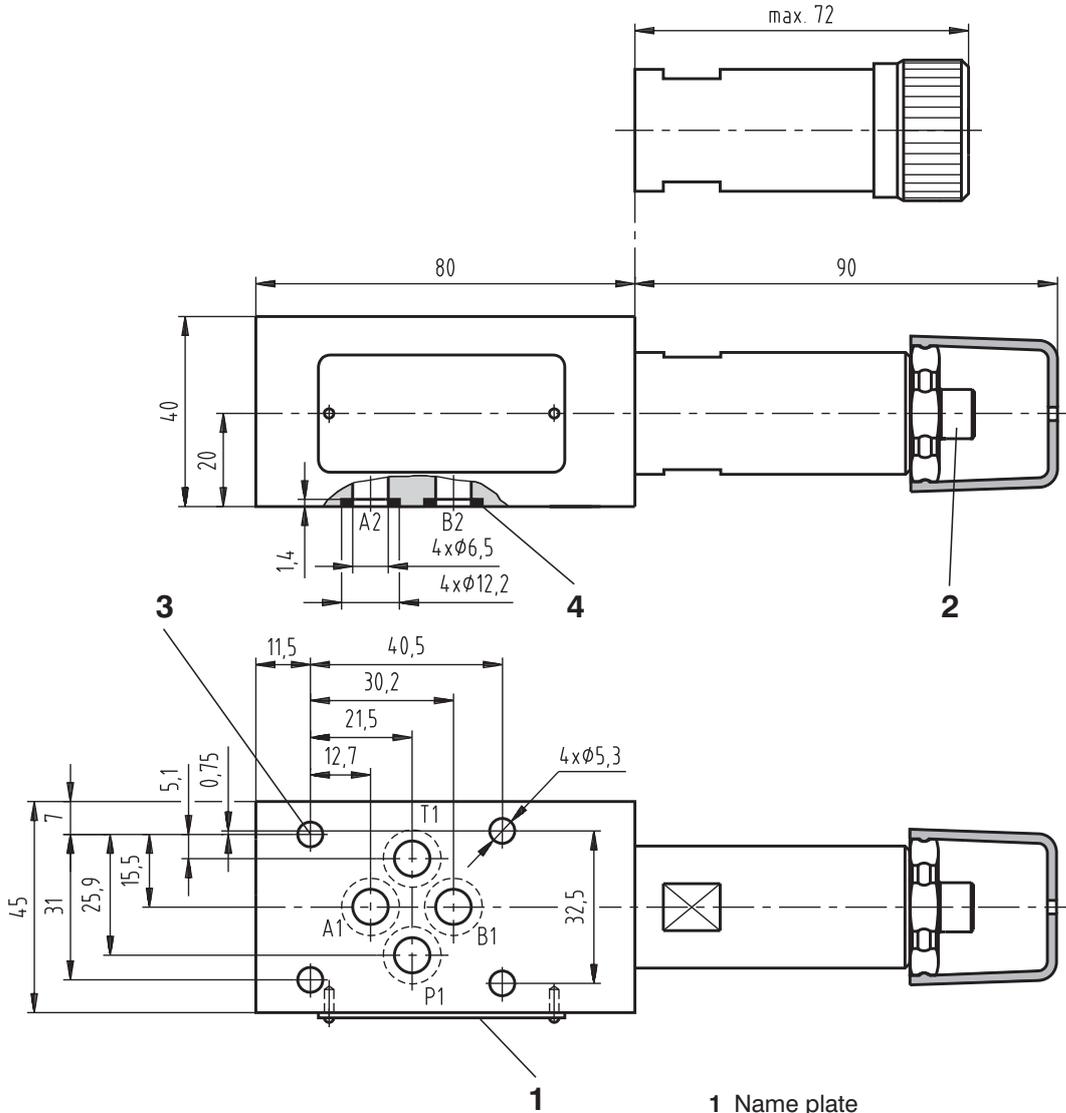
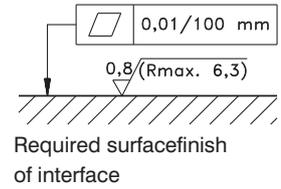


- 1 Name plate
- 2 Adjustment element for pressure setting
- 3 4 through mounting holes
- 4 Square rings 9.25 x 1.68 (4 pcs.) supplied with valve

Valve Dimensions

Dimensions in millimetres

Models MB and MP

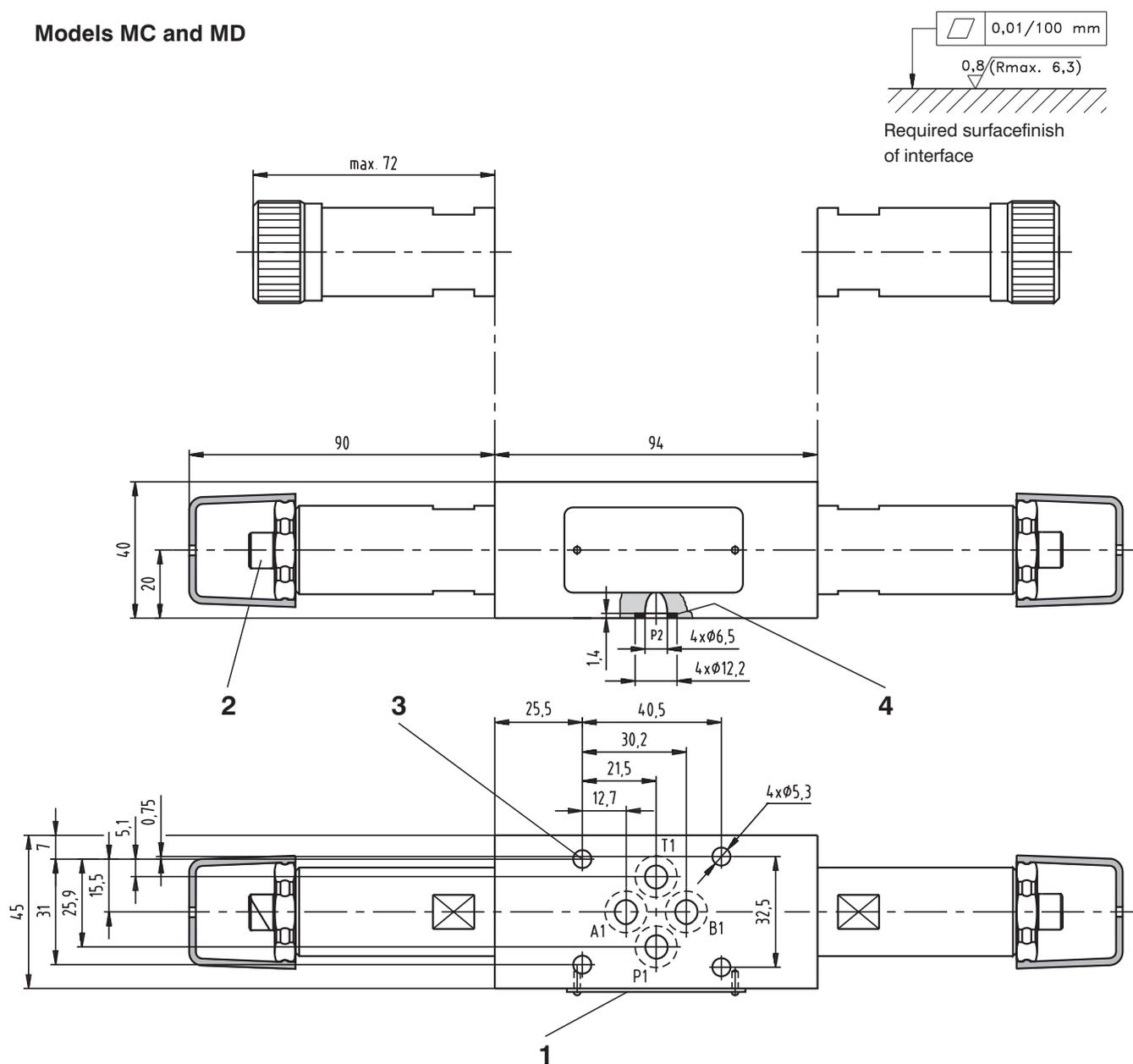


- 1 Name plate
- 2 Adjustment element for pressure setting
- 3 4 through mounting holes
- 4 Square rings 9.25 x 1.68 (4 pcs.)
supplied with valve

Valve Dimensions

Dimensions in millimetres

Models MC and MD



- 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

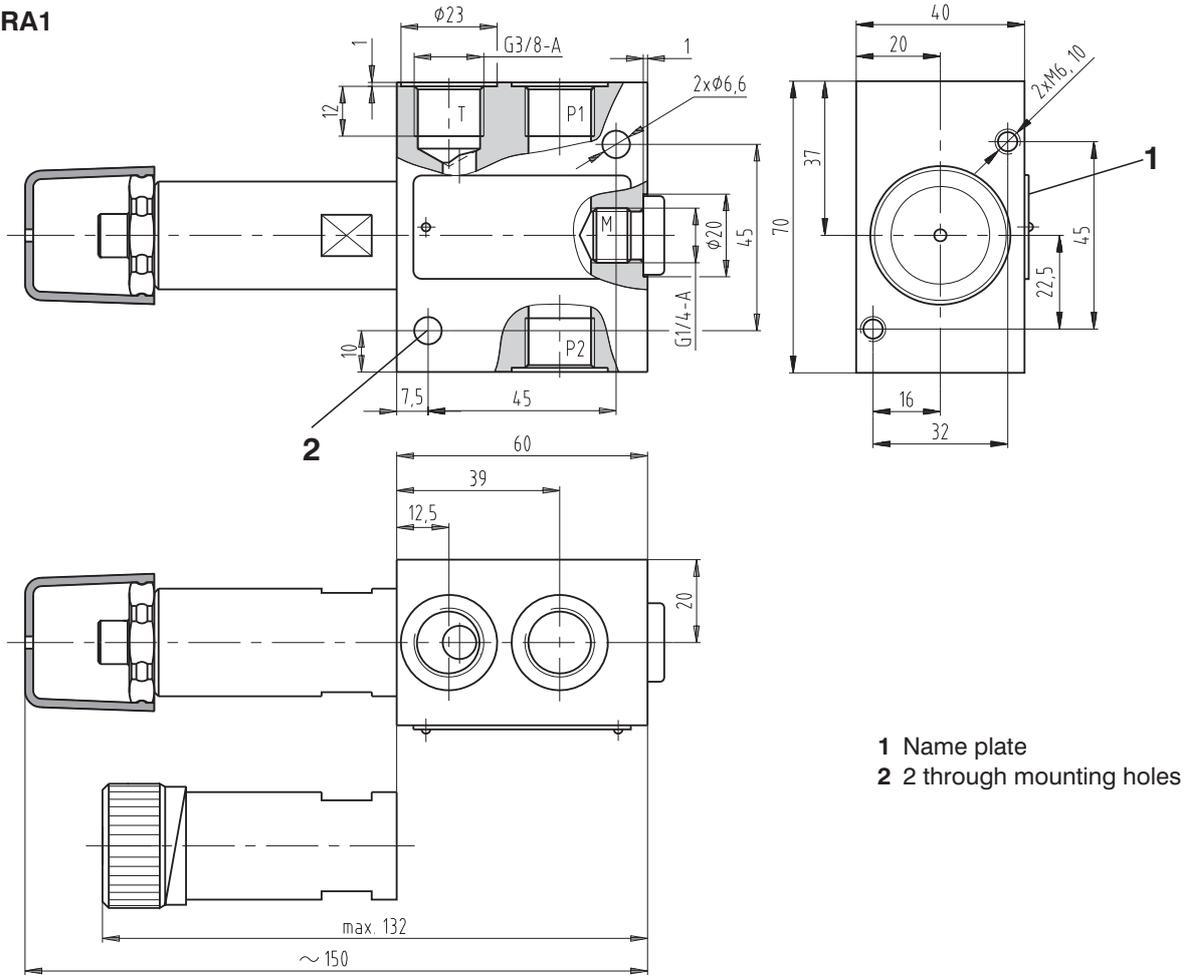
Caution!

- The packing foil is recyclable.
- The protecting plate can be returned to the manufacturer.
- Mounting studs must be ordered separately. Tightening torque is 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

Valve Dimensions

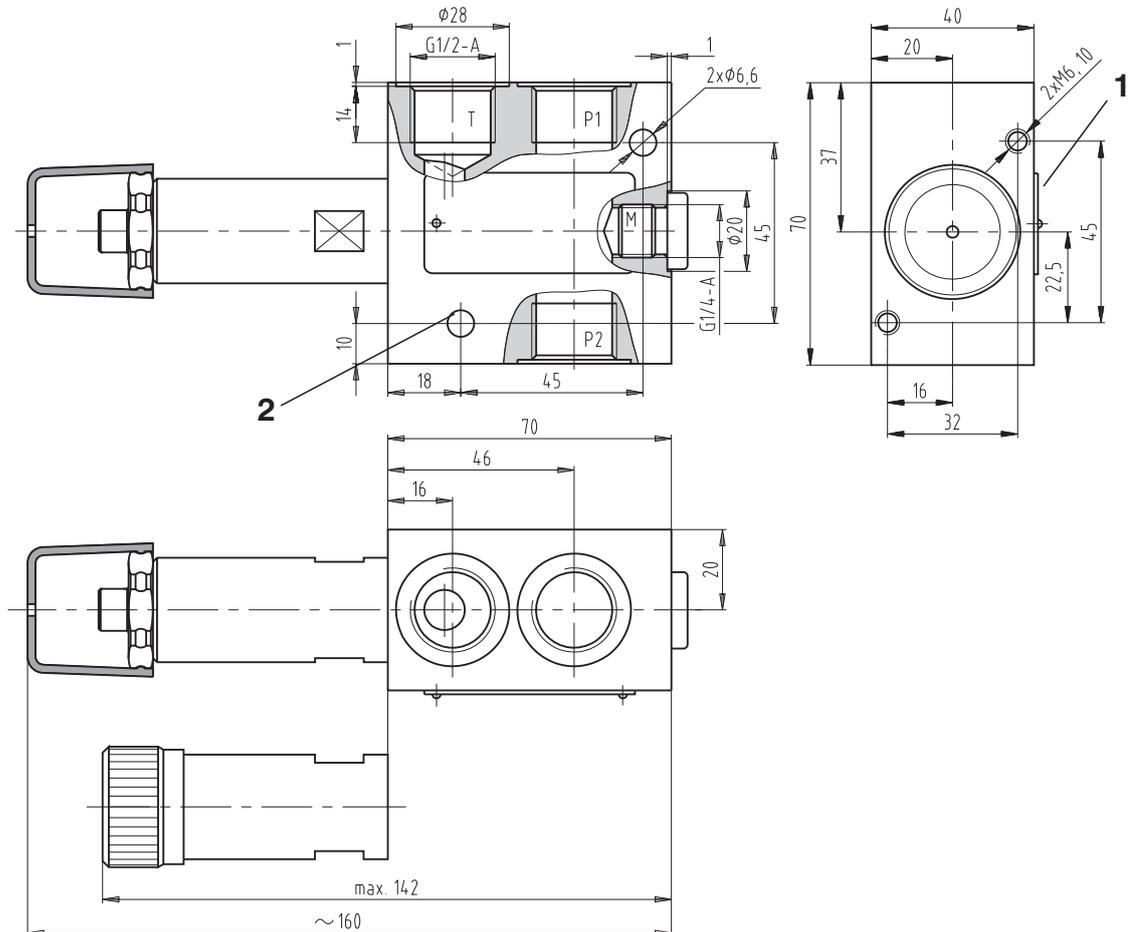
Dimensions in millimetres

Model RA1

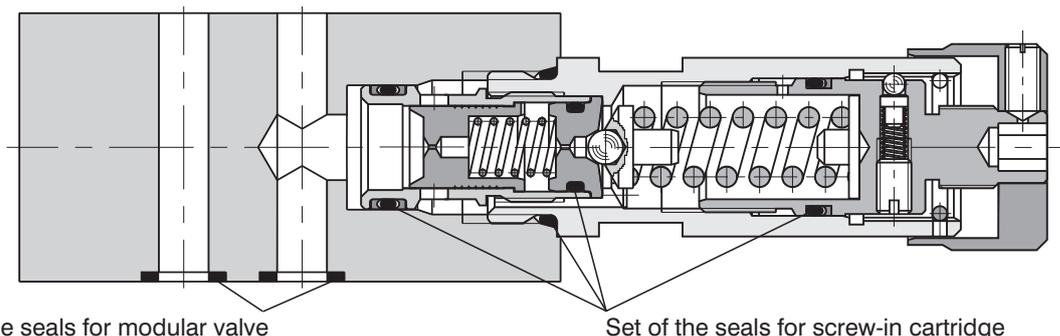


- 1 Name plate
- 2 2 through mounting holes

Model RA2



Spare Parts



Model	Dimensions, number	Ordering number
Screw-in cartridge - NBR	O-ring 14 x 1.78 NBR 90 (1 pc.)	15991900
	O-ring 17 x 1.8 NBR 70 (1 pc.)	
	O-ring 19.4 x 2.1 NBR 80 (1 pc.)	
	O-ring 9.25 x 1.78 NBR 90 (1 pc.)	
	Back-up ring BBP80B015-N9 14.73 x 17.43 x 1.14 (2 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.)	15991800
	O-ring 17 x 1.8 (1 pc.)	
	O-ring 19.4 x 2.1 (1 pc.)	
	O-ring 9.25 x 1.78 (1 pc.)	
	Back-up ring BBP80B015 14.73 x 17.43 x 1.14 (2 pc.)	
	Back-up ring BBP80B016 16.33 x 19.03 x 1.14 (1 pc.)	
Model	Dimensions, number	Ordering number
Modular valve - NBR	Square-Ring 9.25 x 1.68 (4 pcs.)	15991700
Modular valve - Viton	O-ring 9.25 x 1.78 (4 pcs.)	22944700
Model	Typ, number	Ordering number
In-line valve RA1 - NBR	VSTI R1/4-ED (1 pc.)	22944200
	VSTI R3/8-ED (1 pc.)	
In-line valve RA2 - NBR	VSTI R1/4-ED (1 pc.)	22944400
	VSTI R1/2-ED (1 pc.)	
In-line valve RB1 - NBR	VSTI R1/4-ED (1 pc.)	22944600
In-line valve RB2 - NBR		
In-line valve RA1 - Viton	VSTI R1/4-ED - Viton (1 pc.)	22944100
	VSTI R3/8-ED - Viton (1 pc.)	
In-line valve RA2 - Viton	VSTI R1/4-ED - Viton (1 pc.)	22944300
	VSTI R1/2-ED - Viton (1 pc.)	
In-line valve RB1 - Viton	VSTI R1/4-ED - Viton (1 pc.)	22944500
In-line valve RB2 - Viton		

Preferred Types of Valves

Type	Ordering number	Type	Ordering number
VPN1-06/S-10S	15987800	VPN1-06/MP-32S	15992800
VPN1-06/S-21S	15988000	VPN1-06/RA2-10S	22964100
VPN1-06/S-32S	15988100	VPN1-06/RA2-21S	22964300
VPN1-06/MP-10S	22947800	VPN1-06/RA2-32S	22964500
VPN1-06/MP-21S	15992600		

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