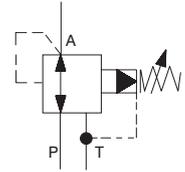


- Screw-in cartridge valve for manifold mounting and stacking assemblies
- 4 pressure ranges
- Two pressure adjustment options
- Pressure reduction in ports A, B or P
- Model MA a MB with check valve
- Installation dimensions to ISO 4401 and DIN 24 340-A10



Functional Description

The pressure valves VRN2 are pilot operated screw-in cartridge pressure reducing valves designed as 3 way valves. For the use in vertical stacking assemblies, three models of valve bodies are available, with pressure reduction in ports A, B and P. Incorporated into the valve bodies MA, MB are the check valves which enable the reverse flow to pass through the valve.

The reducing valve consists of a cartridge (1) with thread M27x2, control spool (2), spring (3) and the adjustment element (4). With the models for stacking assemblies also the respective valve body (5) and alternatively a check valve (6) complete the valve.

Screw-in cartridge valve

At rest, the valves are open, i.e. oil can flow from input line via the main spool to output line. At the same time there is pressure from output line via the main spool with bore and jets and at the spring-loaded side of the main spool and at the side opposite the spring. If pressure in output line exceeds the value set at the spring the pilot poppet opens. Oil now flows from the spring loaded side of the main spool via the jet and pilot poppet into the chamber. The main spool moves into

control position and holds the value set at the spring in output line constant. If pressure behind the valve increases due to the effect of external load acting on the user, the control spool shifts further against the spring, the input line closes and the flow from output line to port T opens. The control flow of the pilot valve (from the spring room) is also routed to port T.

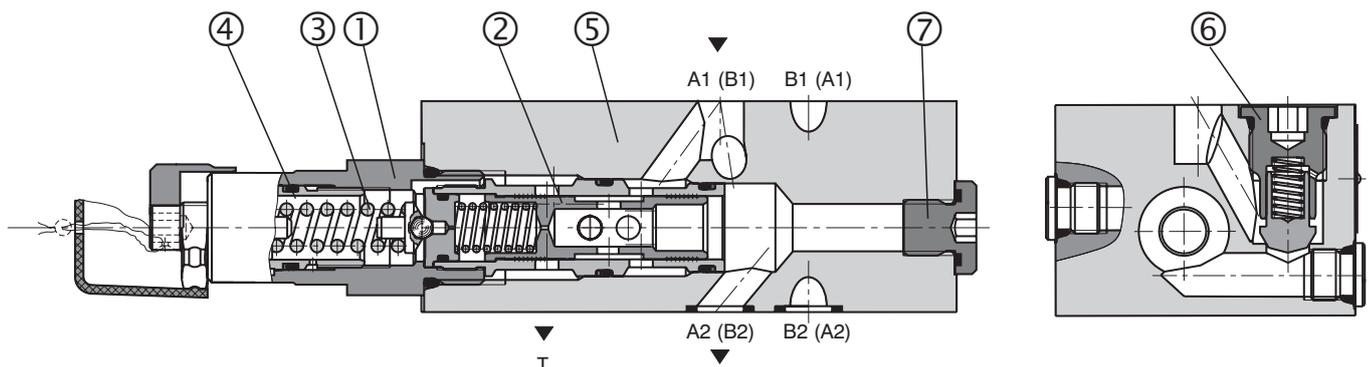
Model MA and MB

With these models, the flow enters into the valve body through port A1 (B1). The input pressure is reduced, routed to port A2 (B2) and further to the user. The reverse flow passes through a check valve which is connected parallel to the metering edge.

Model MP

With the model MP, the pressure is reduced from port P2 to port P1. With all models, a control pressure gauge can be connected to port G 1/4 (7).

The screw-in cartridge valve body and the adjustment screw are zinc coated. With models for stacking assemblies the valve bodies are phosphate coated.



Ordering Code

VRN2-10/ -

Pilot Operated Pressure Reducing Valve

Nominal size

Model

screw in cartridge
 modular valve, pressure reduction in port A
 modular valve, pressure reduction in port B
 modular valve, pressure reduction in port P

S
MA
MB
MP

6
10
16
21

without designation
V

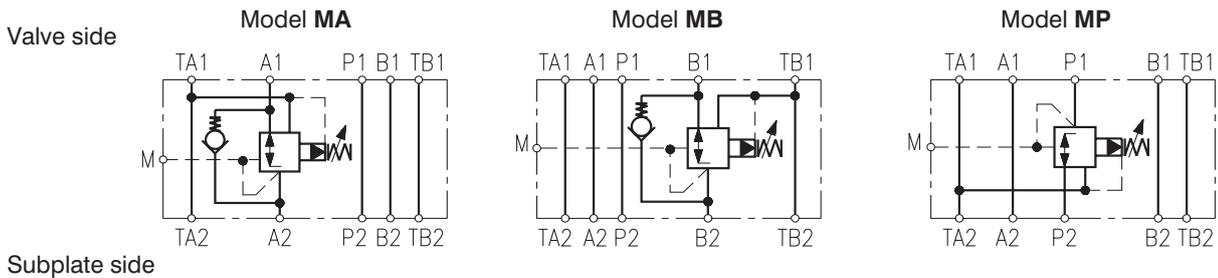
Sealing
 NBR
 Viton

Adjustment element
 screw with internal hexagon 6 mm
 hand knob

Pressure range
 up to 63 bar
 up to 100 bar
 up to 160 bar
 up to 210 bar

FOR PREFERRED TYPES SEE BOLD TYPING IN ORDERING CODE AND TABLE OF PREFERRED TYPES ON PAGE 7

Functional Symbols



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

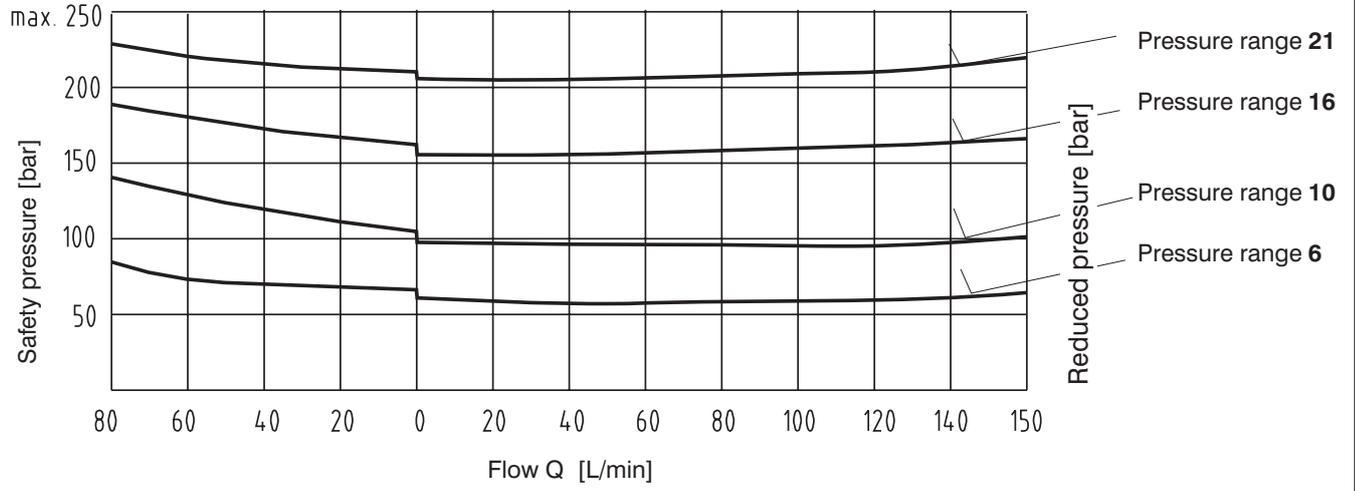
Valve body for modular valve - NBR	Ordering number	Valve body for modular valve - Viton	Ordering number
MA10-VR	15984300	MA10-VR/V	22909700
MB10-VR	15984400	MB10-VR/V	22909800
MP10-VR	15984500	MP10-VR/V	22909900

Technical Data

Nominal size	mm	10
Maximum flow rate - screw in cartridge	L/min	150
Maximum flow rate - modular valve	L/min	80
Maximum pilot flow	L/min	0.65
Max. input pressure (port P)	bar	320
Max. output pressure (port T)	bar	160
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 (NBR)	°C	-30 ... +100
Fluid temperature range (Viton)	°C	-20 ... +120
Viscosity range	mm ² /s	20 ... 400
Maximum degree of fluid contamination	Class 21/18/15 according to ISO 4406	
Weight: model S model MA, MB model MP	kg	0.35 3.20 2.85
Mounting position	unrestricted	

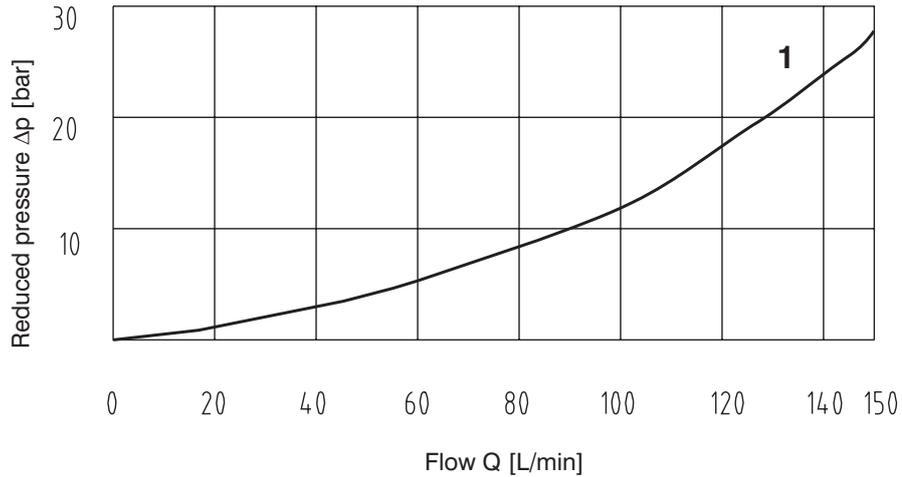
p-Q Characteristics Screw in Cartridge

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



Δp -Q Characteristics Screw in Cartridge

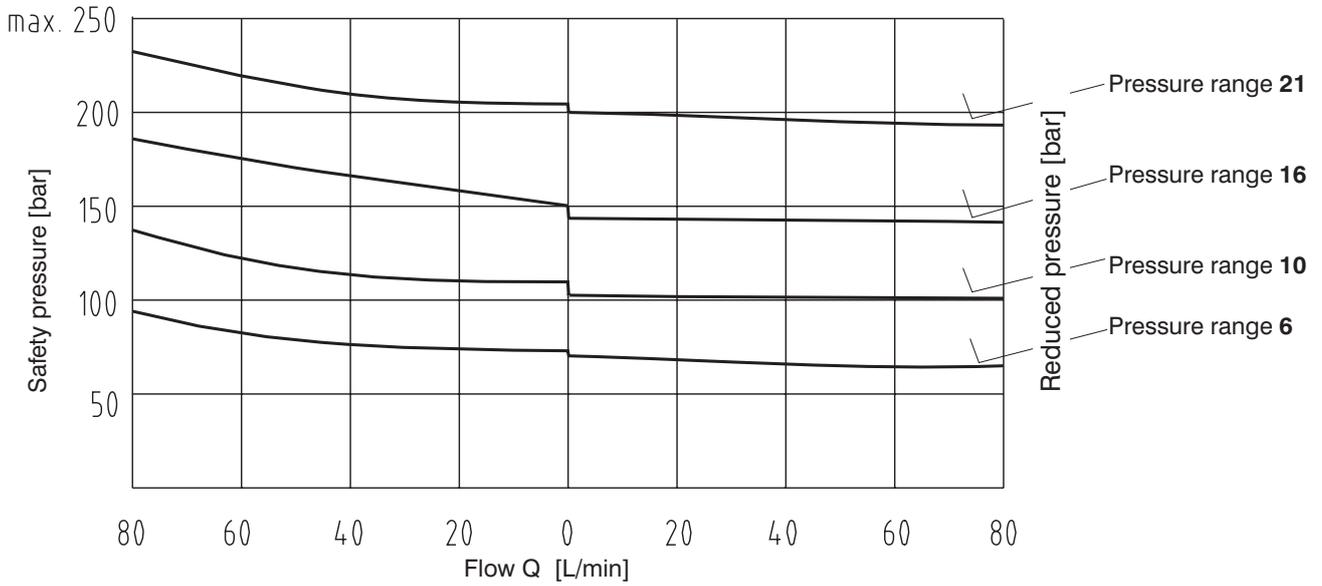
Measured at $v = 32 \text{ mm}^2/\text{s}$



	Model	Direction
1	Model S	A - P

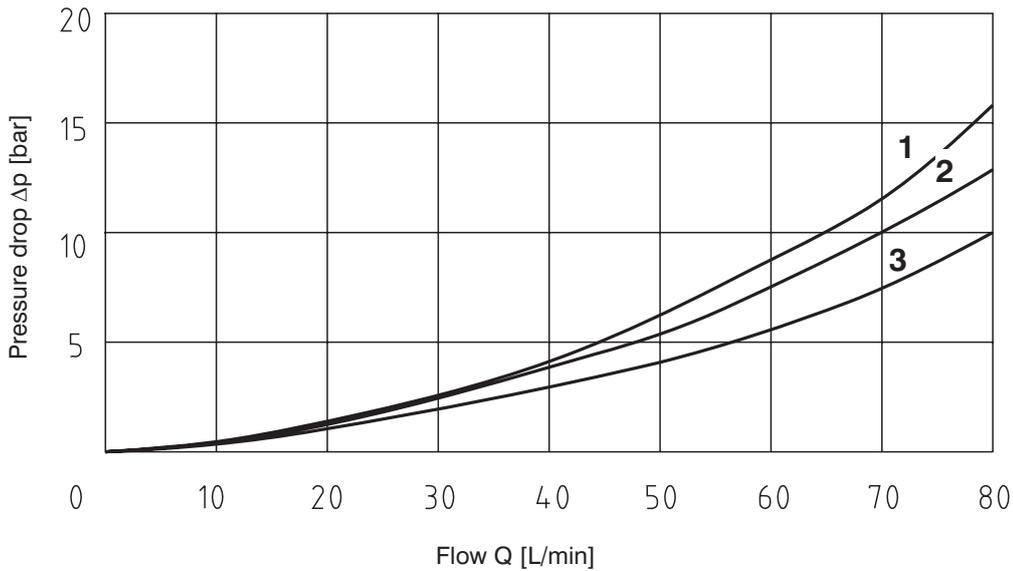
p-Q Characteristics Modular Valve

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



Δp -Q Characteristics Modular Valve

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

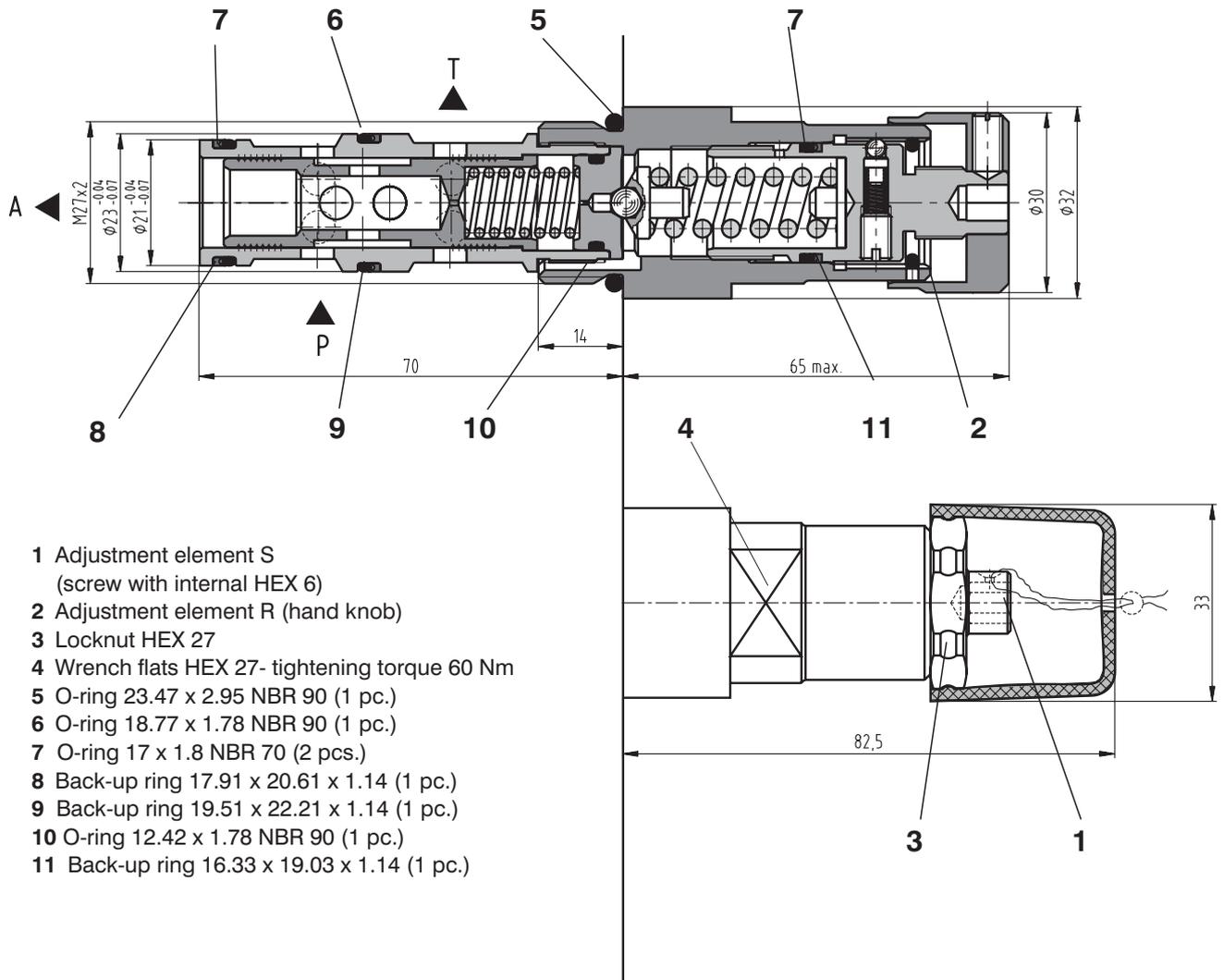


	Model	Direction
1	Model MA, MB	A1 - A2 (B1 - B2)
2	Model MP	P2 - P1
3	Model MA, MB	A2 - A1 (B2 - B1)

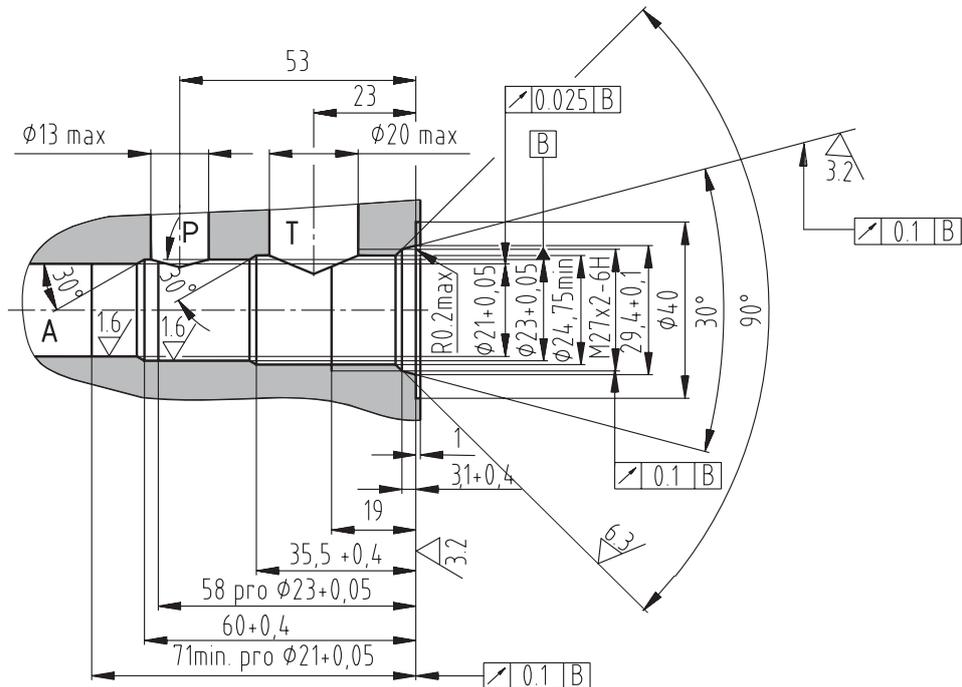
Valve Dimensions

Dimensions in millimeters

Model S

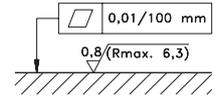


- 1 Adjustment element S
(screw with internal HEX 6)
- 2 Adjustment element R (hand knob)
- 3 Locknut HEX 27
- 4 Wrench flats HEX 27- tightening torque 60 Nm
- 5 O-ring 23.47 x 2.95 NBR 90 (1 pc.)
- 6 O-ring 18.77 x 1.78 NBR 90 (1 pc.)
- 7 O-ring 17 x 1.8 NBR 70 (2 pcs.)
- 8 Back-up ring 17.91 x 20.61 x 1.14 (1 pc.)
- 9 Back-up ring 19.51 x 22.21 x 1.14 (1 pc.)
- 10 O-ring 12.42 x 1.78 NBR 90 (1 pc.)
- 11 Back-up ring 16.33 x 19.03 x 1.14 (1 pc.)



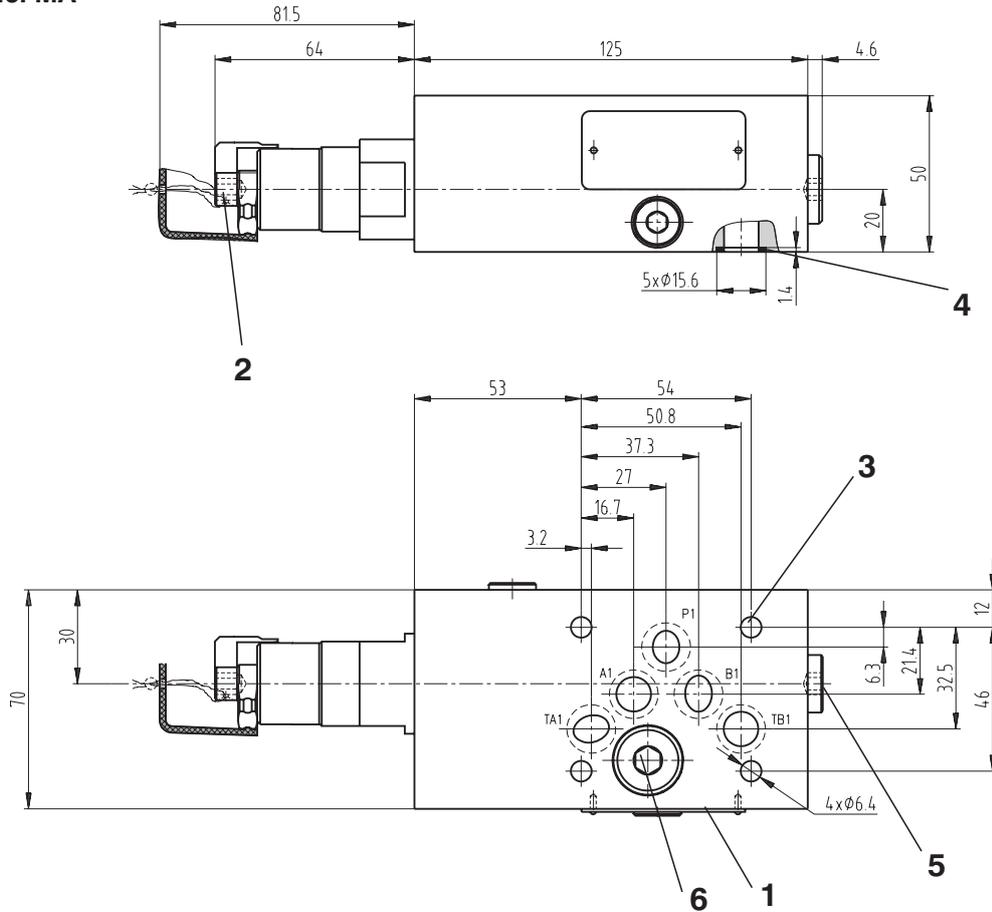
Valve Dimensions

Dimensions in millimeters

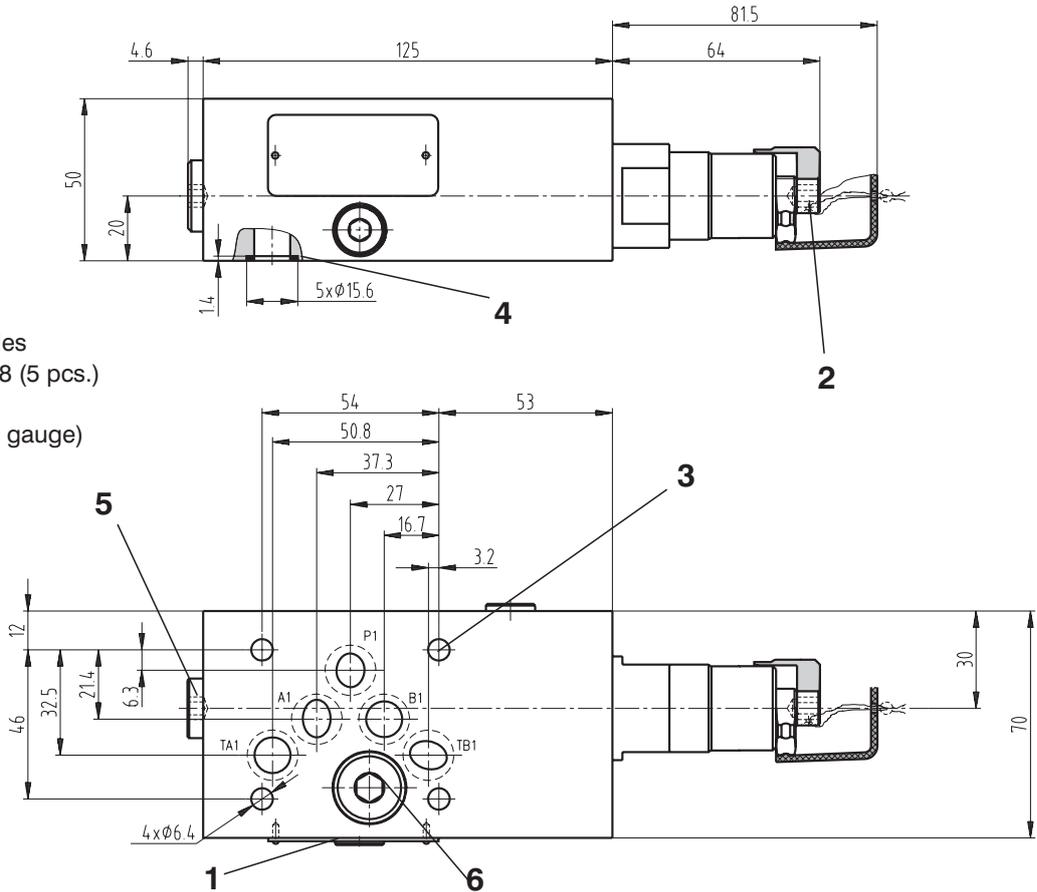


Required surface finish of interface

Model MA



Model MB

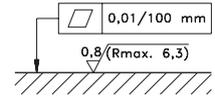


- 1 Name plate
- 2 Adjustment elements
- 3 4 through mounting holes
- 4 Square ring 12.42 x 1.68 (5 pcs.) supplied with valve
- 5 Plug G1/4 (for pressure gauge)
- 6 Check valve

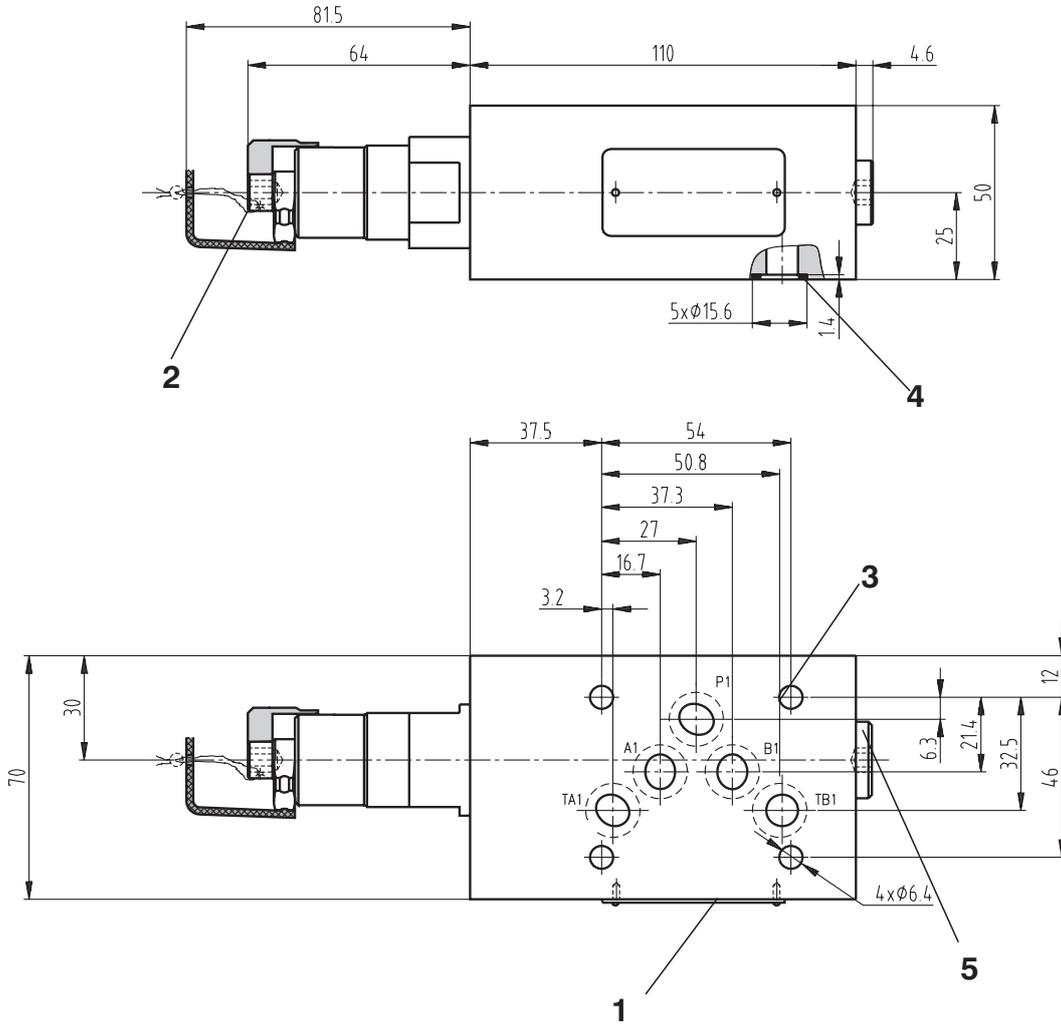
Valve Dimensions

Dimensions in millimeters

Model MP



Required surface finish of interface

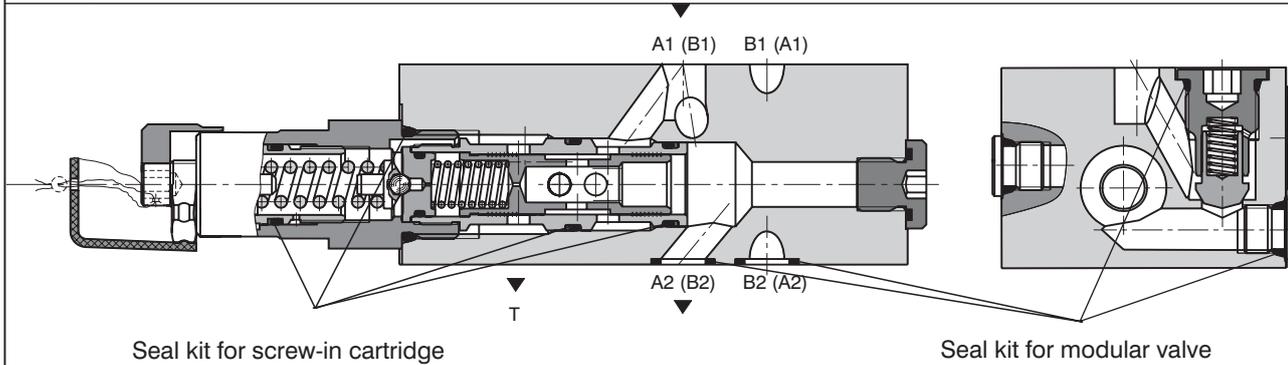


- 1 Name plate
- 2 Adjustment elements
- 3 4 through mounting holes
- 4 Square ring 12.42 x 1.68 (5 pcs.), supplied with valve
- 5 Plug G1/4 (for pressure gauge)

Preferred Types of Valves

Type	Ordering Number
VRN2-10/S-10S	15983800
VRN2-10/S-21S	15984000
VRN2-10/MP-10S	22915100
VRN2-10/MP-21S	15986200

Spare Parts - Seal Kits



Seal kit for screw-in cartridge

Seal kit for modular valve

Model	Dimensions, quantity	Ordering number
Screw-in cartridge - NBR	O-ring 17 x 1.8 NBR 70 (2 pcs.)	22916600
	O-ring 12.42 x 1.78 NBR 90 (1 pc.)	
	O-ring 18.77 x 1.78 NBR 90 (1 pc.)	
	O-ring 23.47 x 2.95 NBR 90 (1 pc.)	
	Back-up ring BBP80B018N962N 19.51 x 22.21 x 1.14 (1 pc.)	
	Back-up ring BBP80B017N962N 17.91 x 20.61 x 1.14 (1 pc.)	
Screw-in cartridge - Viton	Back-up ring BBP80B016N9 16.33 x 19.03 x 1.14 (1 pc.)	22916700
	O-ring 17.17 x 1.78 (2 pcs.)	
	O-ring 12.42 x 1.78 (1 pc.)	
	O-ring 18.77 x 1.78 (1 pc.)	
	O-ring 23.47 x 2.95 (1 pc.)	
	Back-up ring BBP80B017V96E1 17.91 x 20.61 x 1.14 (1 pc.)	
Modular valve - NBR	Back-up ring BG1300174-PT00 17.4 x 20 x 1.4 (1 pc.)	22916800
	Back-up ring BBP80B018V9 19.51 x 22.21 x 1.14 (1 pc.)	
	O-ring 15.4 x 2.1 (1 pc.)	
	O-ring 10 x 1.8 (2 pcs.)	
	O-ring 17 x 1.8 (2 pcs.)	
	O-ring 12.42 x 1.78 (1 pc.)	
	O-ring 18.77 x 1.78 (1 pc.)	
	O-ring 23.47 x 2.95 (1 pc.)	
	Back-up ring BBP80B016N9 16.33 x 19.03 x 1.14 (1 pc.)	
Modular valve - Viton	Back-up ring BBP80B018N962N 19.51 x 22.21 x 1.14 (1 pc.)	22916900
	Back-up ring BBP80B017N962N 17.91 x 20.61 x 1.14 (1 pc.)	
	Square ring 12.42 x 1.68 (5 pcs.)	
	O-ring 15.4 x 2.1 (1 pc.)	
	O-ring 9.75 x 1.78 (2 pcs.)	
	O-ring 12.42 x 1.78 (6 pcs.)	
	O-ring 17.17 x 1.78 (2 pcs.)	
	O-ring 18.77 x 1.78 (1 pc.)	
	O-ring 23.47 x 2.95 (1 pc.)	
Modular valve - Viton	Back-up ring BBP80B017V96E1 17.91 x 20.61 x 1.14 (1 pc.)	22916900
	Back-up ring BG1300174-PT00 17.4 x 20 x 1.4 (1 pc.)	
	Back-up ring BBP80B18-V9 19.51 x 22.21 x 1.14 (1 pc.)	

Caution!

- The packing foil is recyclable. The protecting plate can be returned to the manufacturer.
- 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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