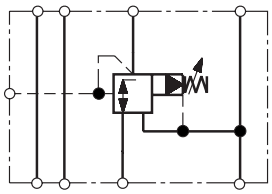
Pilot Operated Pressure Reducing Valve VRN2-06

Size 06 • p_{max} up to 320 bar • Q_{max} up to 40 L/min

HA 5153
2/2007

Replaces
HA 5153 2/2006



- **Screw-in cartridge valve for manifold mounting and stacking assemblies**
- **4 pressure ranges**
- **Two pressure adjustment options**
- **Pressure reduction in ports A or P**
- **Model MA with check valve**
- **Installation dimensions to ISO 4401-AB-03-4-A and DIN 24 340-A6**

Functional Description

The pressure valves VRN2 are pilot operated screw-in cartridge pressure reducing valves designed as 3-way-valves, i.e. with pressure protection of the secondary circuit. For the use in vertical stacking assemblies, two models of valve bodies are available, with pressure reduction in ports A and P. Incorporated into the valve bodies MA are the check valves which enable the reverse flow to pass through the valve.
The reducing valve consists of a cartridge (1) with thread M22x1.5, 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

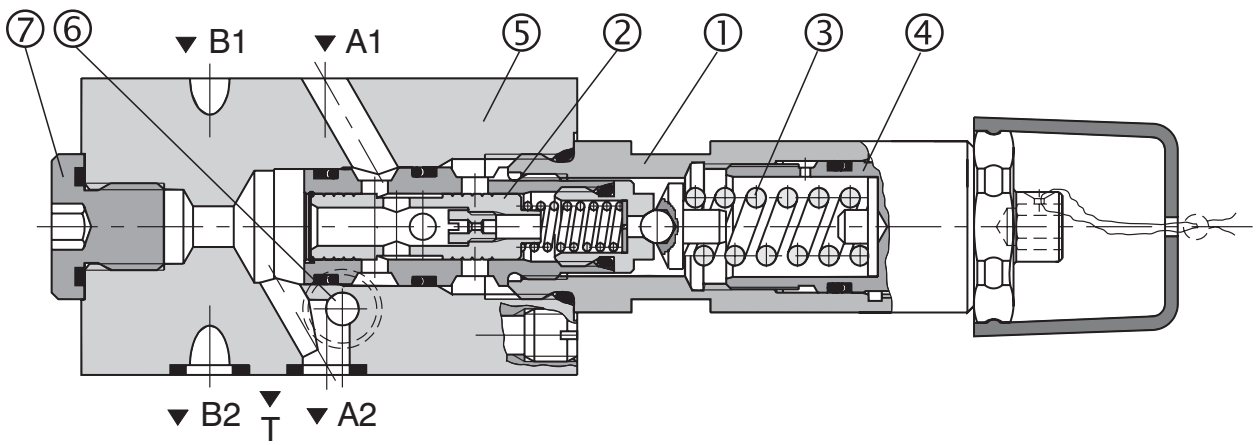
The flow from the primary circuit flows to the first metering edge, where its pressure is reduced. The reduced pressure corresponds with the adjustment of the control spring of the ball pilot valve. The reduced pressure is continuously controlled and compared with the pressure preset. If any control error appears, the respective control action takes place and the reduced pressure returns to its preset value. After the pressure reduction, the fluid flows through the spool bore and is then routed to the output port of the module valve body. 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 reducing metering edge closes and the second metering edge opens. The fluid passes through the „third way“ to port T. The control flow of the pilot valve (from the spring room) is also routed to port T.

Model MA

With this model, the flow enter into the valve body through port A1. The input pressure is reduced, routed to port A2 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 valve body and the adjustment screw are zinc coated. With model M the valve bodies are phosphate coated.



Ordering Code

VRN2-06/ ☐ **-** ☐ ☐ ☐

Pilot Operated Pressure Reducing Valve

Nominal size

Model

screw in cartridge	**S**
modular valve, pressure reduction in port A	MA
modular valve, pressure reduction in port P	**MP**

Sealing

without designation	NBR
V	Viton

Adjustment element

S	screw with internal hexagon 6 mm
R	hand knob

Pressure range

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

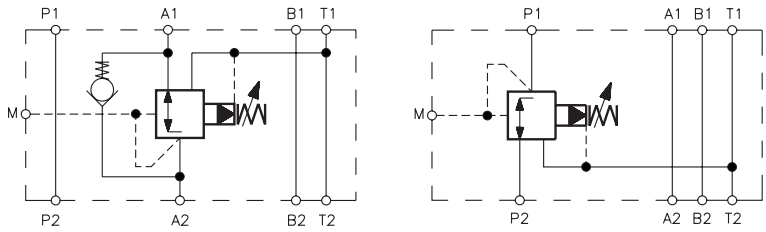
FOR PREFERRED TYPES SEE BOLD TYPING IN ORDERING CODE AND TABLE OF PREFERRED TYPES ON PAGE 6

Functional Symbols

Model MA

Model MP

Valve side



Subplate side

Technical Data

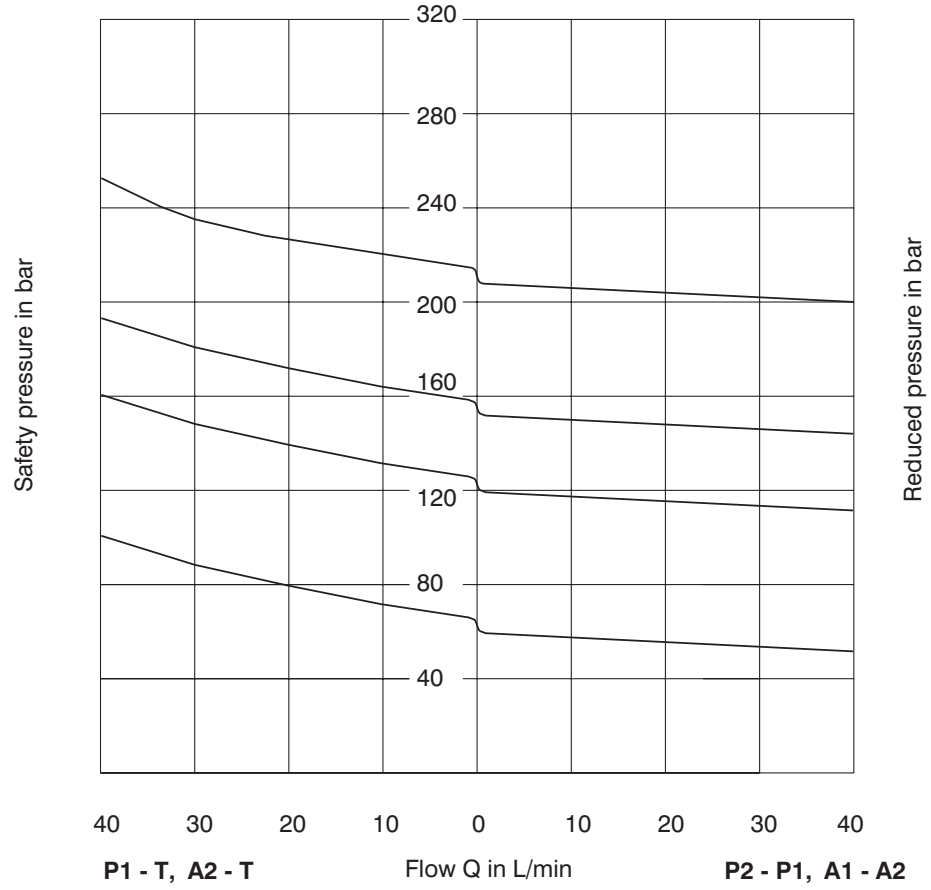
Nominal size	mm	06			
Maximal flow rate	L/min	40			
Maximum pilot flow	L/min	0.25			
Maximum input pressure	bar	320			
Reduced pressure	bar	63	100	160	210
Maximum pressure in port T	bar	160			
Hydraulic fluid		Hydraulic oils of power classes HM, HV to CETOP RP 91H in viscosity classes ISO VG 32, 46 and 68			
Fluid temperature range (NBR / Viton)	°C	-30 ... +80 / -20 ... +80			
Viscosity range	mm^2/s	20 ... 400			
Maximum degree of fluid contamination		Class 21/18/15 according to ISO 4406 (1999).			
Weight: model S model MA model MP	kg	0.22 1.20 1.10			
Mounting position		optional			

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-VRN2	556-1083	MA06-VRN2/V	556-1084
MP06-VRN2	556-1081	MP06-VRN2/V	556-1082

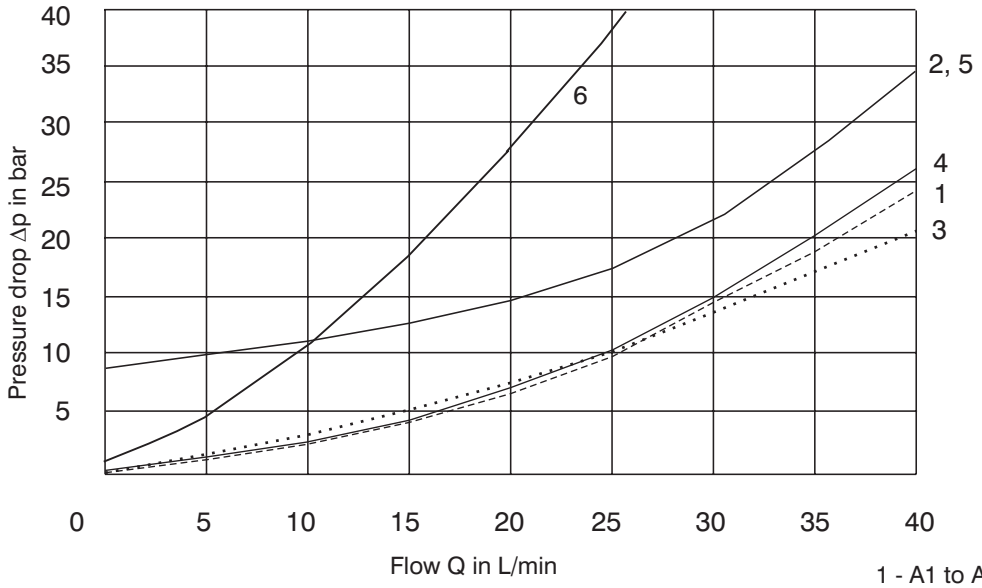
p-Q Characteristics

Measured at $\nu = 35\ mm^2/s$ and $t = 40\ °C$



Δp-Q Characteristics

Measured at $\nu = 35\ mm^2/s$ and $t = 40\ °C$

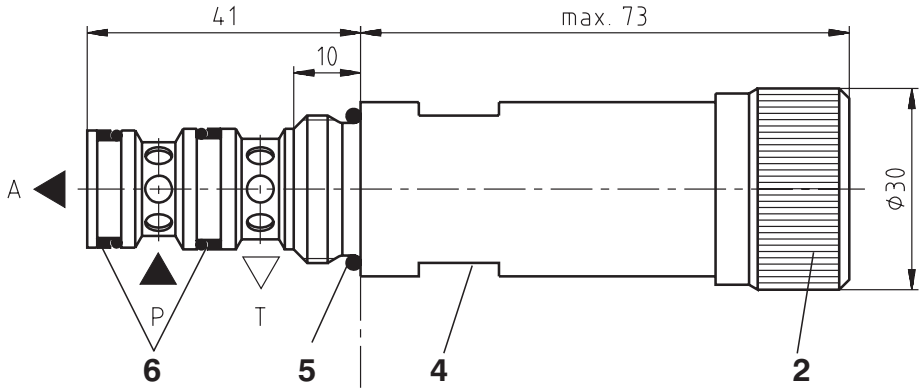


1 - A1 to A2
2 - A2 to T (3rd. direction of flow)
3 - A2 to A1 flow across check valve and the fully opened main spool
4 - P2 to P1
5 - P1 to T (3rd. Direction of flow)
6 - A2 to A1 flow only across check valve

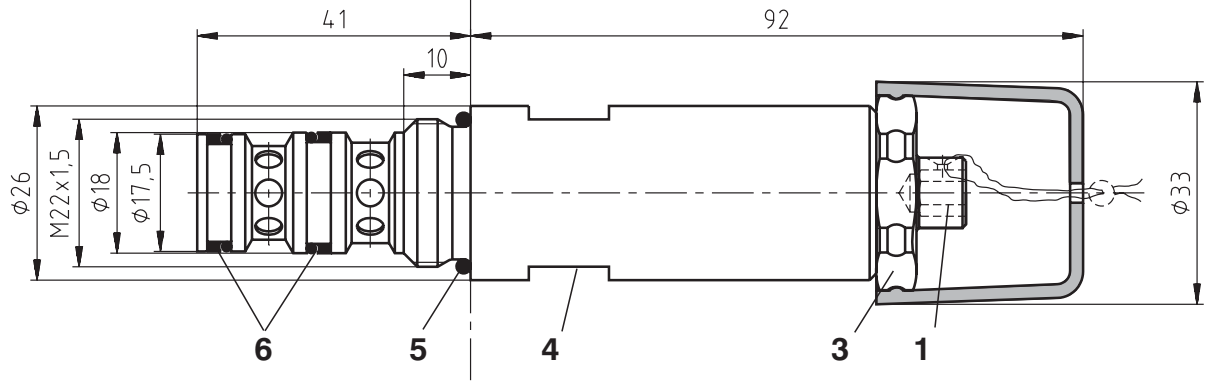
Valve Dimensions

Dimensions in millimeters

Model R

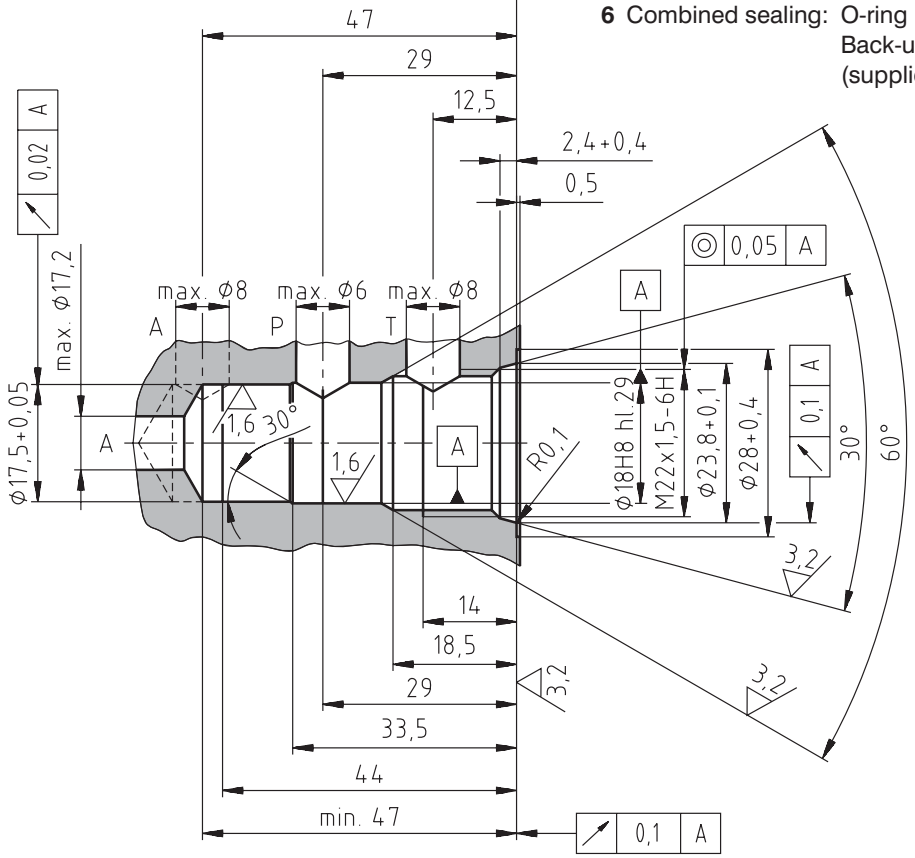


Model S



1 Adjustment element S [screw with internal hexagon 6 mm]
2 Adjustment element R (hand knob)
3 Locknut hex. 27 mm
4 Wrench flats s = 24 mm - tightening torque 60 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 (2 pcs.)
Back-up ring 14.73 x 17.43 x 1.14 (2 pcs.)
(supplied with valve)

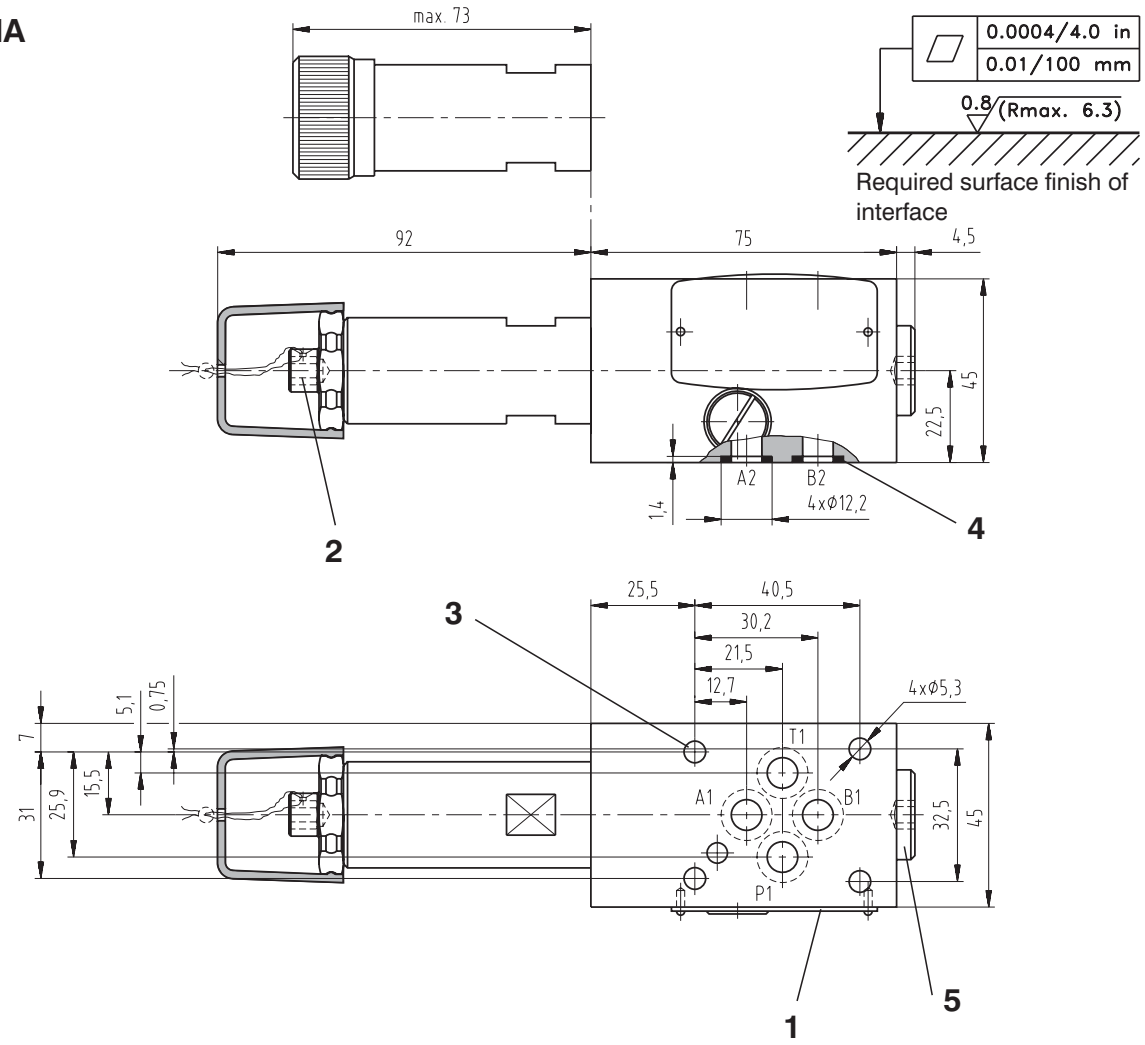
Mounting cavity



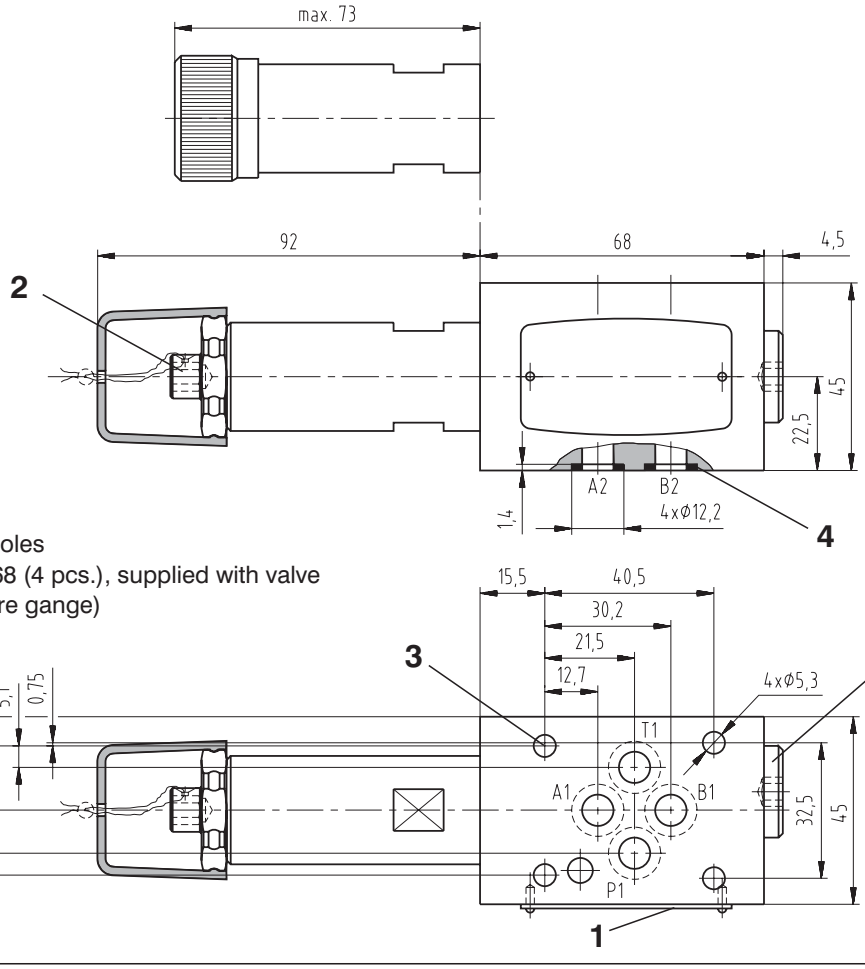
Valve Dimensions

Dimensions in millimeters

Model MA



Model MP



1 Name plate
2 Adjustment elements
3 4 through mounting holes
4 Square ring 9.25 x 1.68 (4 pcs.), supplied with valve
5 Plug G1/4 (for pressure gange)

Spare Parts

Model	Dimensions, quantity	Ordering number
Screw-in cartridge - NBR	O-ring 9 x 1.8 NBR 70 (1 pc.)	556-0234
	O-ring 14 x 1.78 NBR 90 (2 pc.)	
	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 (2 pcs.)	
	Back-up ring BBP80-B-016-N9 16.33 x 19.03 x 1.14 (1 pc.)	
Screw-in cartridge - Viton	O-ring 9.25 x 1.78 (1 pc.)	556-0236
	O-ring 14 x 1.78 (2 pcs.)	
	O-ring 17.17 x 1.78 (1 pc.)	
	O-ring 19.4 x 2.1 (1 pc.)	
	Back-up ring 14.73 x 17.43 x 1.14 (2 pcs.)	
Model	**Dimensions, quantity**	**Ordering number**
Modular valve - NBR	O-ring 9 x 1.8 (1 pc.)	556-0235
	O-ring 14 x 1.78 (2 pcs.)	
	O-ring 17 x 1.8 (1 pc.)	
	O-ring 9.75 x 1.78 (1 pc.)	
	O-ring 19.4 x 2.1 (1 pc.)	
	Back-up ring 14.73 x 17.43 x 1.14 (2 pcs.)	
	Back-up ring 16.33 x 19.03 x 1.14 (1 pc.)	
	Square ring 9.25 x 1.68 (4 pcs.)	
Modular valve - Viton	O-ring 9.25 x 1.78 (5 pcs.)	556-0237
	O-ring 14 x 1.78 (2 pcs.)	
	O-ring 17.17 x 1.78 1 pc.)	
	O-ring 19.4 x 2.1 (1 pc.)	
	Back-up ring 14.73 x 17.43 x 1.14 (2 pcs.)	
	Back-up ring 17.4 x 1.3 (1 pc.)	

Preferred Types of Valves

Type	Ordering Number
VRN2-06/S-10S	556-1002
VRN2-06/S-21S	556-1004
VRN2-06/MP-10S	556-1022
VRN2-06/MP-21S	556-1024

Caution!

- The packing foil is recyclable.
- 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.

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