



# CVM3

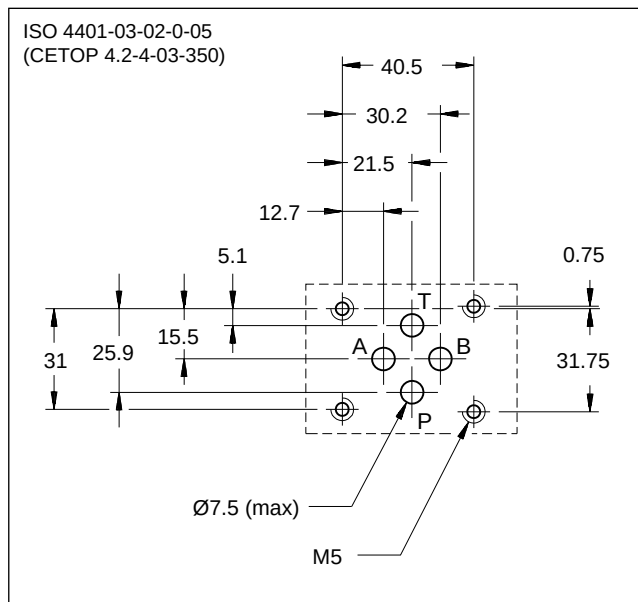
## CHECK VALVE, DIRECT OPERATED

### SERIES 10

#### MODULAR VERSION ISO 4401-03

**p** max **350** bar  
**Q** max (see table of performances)

#### MOUNTING INTERFACE



#### OPERATING PRINCIPLE

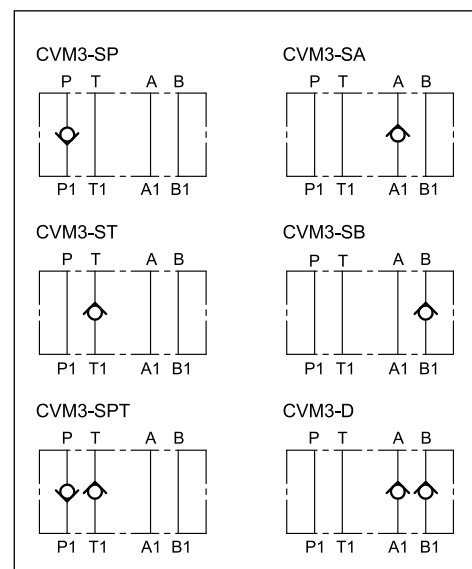
- The CVM3 valve is a direct operated check valve made as a modular version with mounting surface according to the ISO 4401 standards.
- It is used to avoid oil backflows and self-emptying of lines, or to generate backpressures.
- It can be assembled quickly under the ISO 4401-03 directional solenoid valves without the use of pipes, using suitable tie-rods or bolts.
- It is available in versions with the check valve only on single line (P, T, A or B) or on both lines (P and T or A and B).

#### PERFORMANCES

(measured with mineral oil of viscosity 36cSt at 50 °C)

|                                                                              |                                              |             |
|------------------------------------------------------------------------------|----------------------------------------------|-------------|
| Maximum operating pressure                                                   | bar                                          | 350         |
| Check valve cracking pressure                                                | bar                                          | 0,5 - 3 - 5 |
| Maximum flow rate in controlled lines<br>Maximum flow rate in the free lines | l/min                                        | 50<br>75    |
| Ambient temperature range                                                    | °C                                           | -20 / +60   |
| Fluid temperature range                                                      | °C                                           | -20 / +80   |
| Fluid viscosity range                                                        | cSt                                          | 10 ÷ 400    |
| Fluid contamination degree                                                   | According to ISO 4406:1999<br>class 20/18/15 |             |
| Recommended viscosity                                                        | cSt                                          | 25          |
| Mass                                                                         | kg                                           | 1           |

#### HYDRAULIC SYMBOLS



### 1 - IDENTIFICATION CODE

|          |          |          |          |          |  |  |          |           |  |  |
|----------|----------|----------|----------|----------|--|--|----------|-----------|--|--|
| <b>C</b> | <b>V</b> | <b>M</b> | <b>3</b> | <b>-</b> |  |  | <b>/</b> | <b>10</b> |  |  |
|----------|----------|----------|----------|----------|--|--|----------|-----------|--|--|

Check valve ————

Modular version ————

ISO 4401-03 size ————

**SP** = check valve on line P  
**SA** = check valve on line A  
**SB** = check valve on line B  
**ST** = check valve on line T  
**SPT** = check valves on lines P and T  
**D** = check valves on lines A and B

Option: **/W7** = zinc-nickel surface treatment. Omit if not required (**NOTE**)

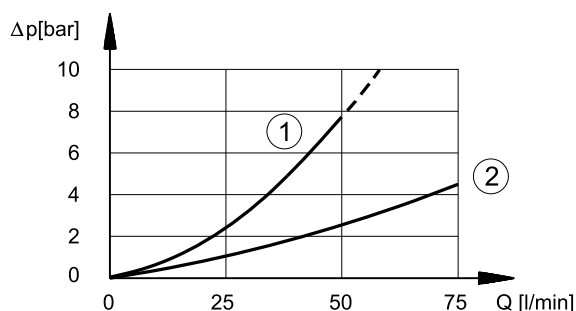
Seals:  
**N** = NBR seals for mineral oils (**standard**)  
**V** = FPM seals for special fluids

Series No. (the overall and mounting dimensions remain unchanged from 10 to 19)

Cracking pressure:  
**0.5** = 0.5 bar    **3** = 3 bar    **5** = 5 bar

**NOTE:** The standard valve is supplied with surface treatment of phosphating black.  
The zinc-nickel finishing on the valve body makes the valve suitable to ensure a salt spray resistance up to **600** hours.  
(test operated according to UNI EN ISO 9227 standards and test evaluation operated according to UNI EN ISO 10289 standards).

### 2 - CHARACTERISTIC CURVES (viscosity of 36 cSt at 50 °C)



- 1) pressure drops on controlled lines
- 2) pressure drops on free lines

**NOTE:** check valve cracking pressure must be added to the values indicated in the curve 1 in the diagram.

### 3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals. For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department.

Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics. The fluid must be preserved in its physical and chemical characteristics.

### 4 - OVERALL AND MOUNTING DIMENSIONS

①

dimensions in mm

|   |                                                                               |
|---|-------------------------------------------------------------------------------|
| 1 | Mounting surface with sealing rings:<br>4 OR type 2037 (9.25x1.78) - 90 Shore |
|---|-------------------------------------------------------------------------------|

# CVM5

## DIRECT CHECK VALVE

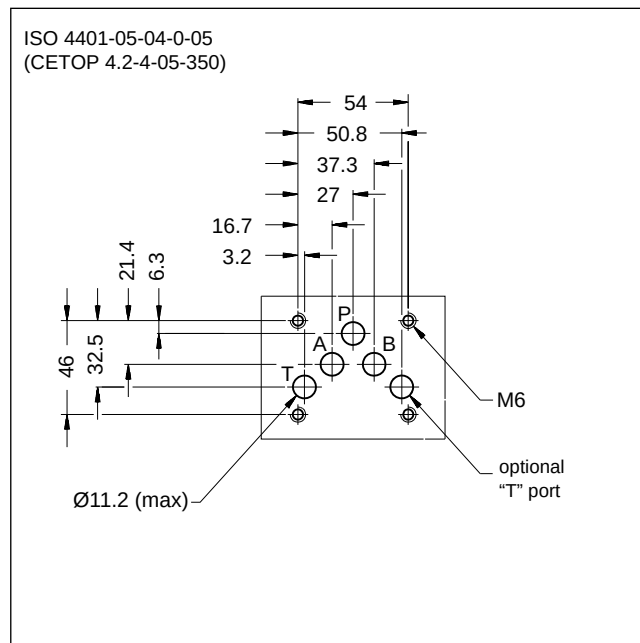
### SERIES 10



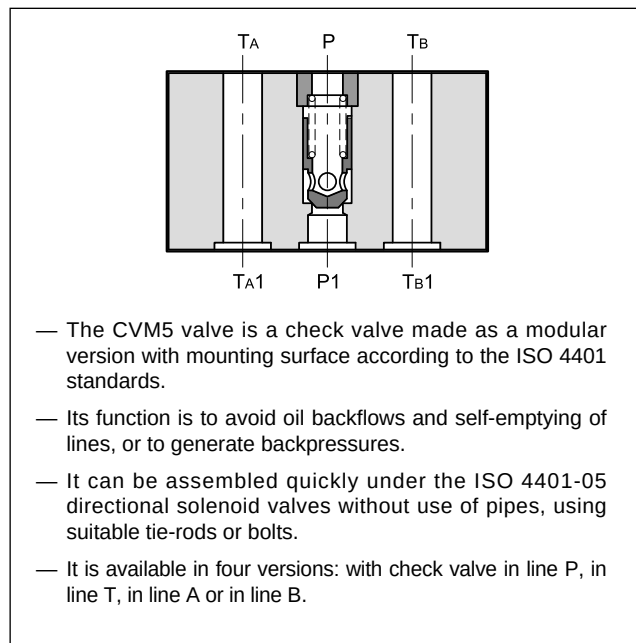
## MODULAR VERSION ISO 4401-05

**p** max **350** bar  
**Q** max **100** l/min

### MOUNTING INTERFACE



### OPERATING PRINCIPLE

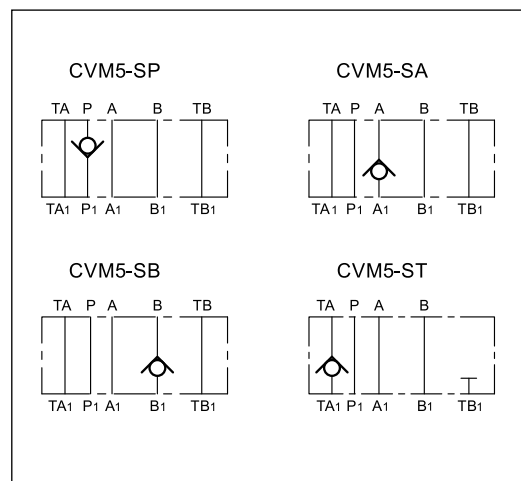


### PERFORMANCES

(measured with mineral oil of viscosity 36 cSt at 50°C)

|                                                                 |                                           |           |
|-----------------------------------------------------------------|-------------------------------------------|-----------|
| Maximum operating pressure                                      | bar                                       | 350       |
| Check valve cracking pressure                                   | bar                                       | 0.5 - 8   |
| Maximum flow rate in the controlled lines and in the free lines | l/min                                     | 100       |
| Ambient temperature range                                       | °C                                        | -20 / +60 |
| Fluid temperature range                                         | °C                                        | -20 / +80 |
| Fluid viscosity range                                           | cSt                                       | 10 ÷ 400  |
| Degree of fluid contamination                                   | According to ISO 4406:1999 class 20/18/15 |           |
| Recommended viscosity                                           | cSt                                       | 25        |
| Mass                                                            | kg                                        | 2.3       |

### HYDRAULIC SYMBOLS

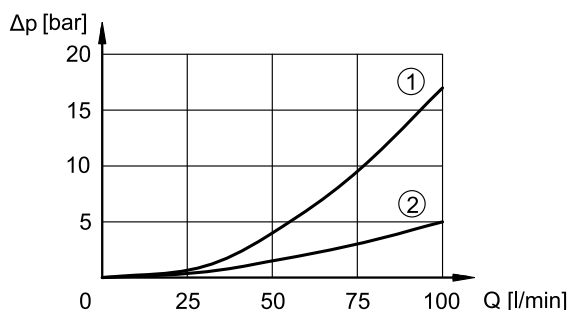


### 1 - IDENTIFICATION CODE

|                                                                                                                                              |  |                            |  |                            |  |                            |  |                                                                                 |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------|--|----------------------------|--|----------------------------|--|---------------------------------------------------------------------------------|--|
| <div> <div>C</div> <div>V</div> <div>M</div> <div>5</div> <div>-</div> <div></div> <div></div> <div>/</div> <div>10</div> <div></div> </div> |  |                            |  |                            |  |                            |  |                                                                                 |  |
| Check valve                                                                                                                                  |  | Modular version            |  | ISO 4401-05 size           |  | Seals:                     |  | Series No. (the overall and mounting dimensions remain unchanged from 10 to 19) |  |
| SP = check valve on line P                                                                                                                   |  | SA = check valve on line A |  | SB = check valve on line B |  | ST = check valve on line T |  | Cracking pressure:                                                              |  |
|                                                                                                                                              |  |                            |  |                            |  |                            |  | 0.5 = 0,5 bar                                                                   |  |
|                                                                                                                                              |  |                            |  |                            |  |                            |  | 8 = 8 bar                                                                       |  |

### 2 - CHARACTERISTIC CURVES

(values obtained with viscosity of 36 cSt at 50°C)



1) pressure drops of controlled lines

2) pressure drops of free lines

**NOTE:** Add the valve cracking pressure to the values shown by the curve 1 of the diagram

### 3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals. For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department.

Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics. The fluid must be preserved in its physical and chemical characteristics.

### 4 - OVERALL AND MOUNTING DIMENSIONS

|              |  |                                                                                                                      |  |
|--------------|--|----------------------------------------------------------------------------------------------------------------------|--|
| <div> </div> |  | dimensions in mm                                                                                                     |  |
| <div> </div> |  | <div> <div>1</div> <div>Mounting surface with sealing rings:<br/>5 OR type 2050 (12.42x1.78) - 90 Shore</div> </div> |  |
|              |  | <div> <div>2</div> <div>Only for CVM5-ST: TB non-through hole</div> </div>                                           |  |



# MVR-RS/P

## DIRECT CHECK VALVE WITH FLOW RESTRICTOR

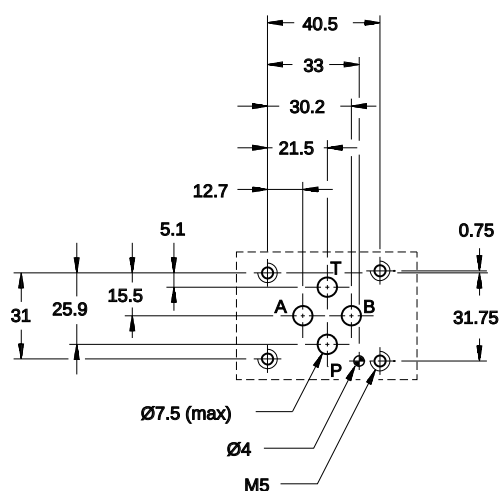
### SERIES 50

#### MODULAR VERSION ISO 4401-03

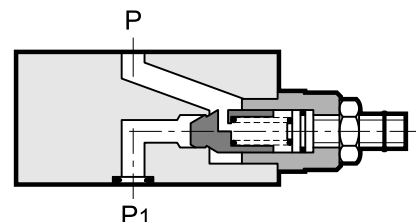
**p** max **350** bar  
**Q** max (see table of performances)

#### MOUNTING INTERFACE

ISO 4401-03-02-0-05  
(CETOP 4.2-4-03-350)



#### OPERATING PRINCIPLE

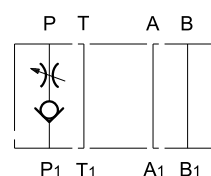


- The MVR-RS/P valve is a check valve that incorporates also the function of flow restriction.
- It is made as a modular version with mounting surface according to the ISO 4401-03 standards.
- It can be quickly assembled under the ISO 4401-03 directional solenoid valves and modular valves, without use of pipes and using suitable tie-rods or bolts.
- It is used when it is necessary to control the flow in a direction and to avoid backflows or the self-emptying of the lines in the opposite direction.
- Control of the flow is obtained with a socket hex screw with locking nut.

#### PERFORMANCES (measured with mineral oil of viscosity 36cSt at 50°C)

|                                       |                                              |           |
|---------------------------------------|----------------------------------------------|-----------|
| Maximum operating pressure            | bar                                          | 350       |
| Check valve cracking pressure         |                                              | 1         |
| Maximum flow rate in controlled lines | l/min                                        | 50        |
| Maximum flow rate in the free lines   |                                              | 75        |
| Ambient temperature range             | °C                                           | -20 / +60 |
| Fluid temperature range               | °C                                           | -20 / +80 |
| Fluid viscosity range                 | cSt                                          | 10 ÷ 400  |
| Fluid contamination degree            | According to ISO 4406:1999<br>class 20/18/15 |           |
| Recommended viscosity                 | cSt                                          | 25        |
| Mass                                  | kg                                           | 1,1       |

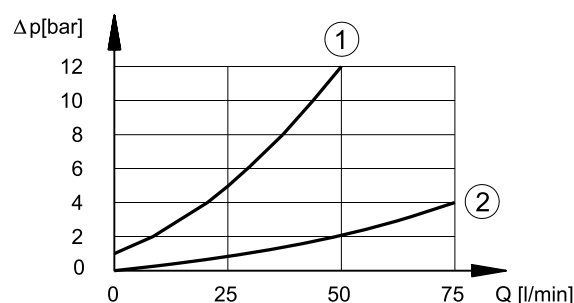
#### HYDRAULIC SYMBOL



### 1 - IDENTIFICATION CODE

|                                 |   |   |   |   |   |   |   |   |   |    |                                                                                 |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------|---|---|---|---|---|---|---|---|---|----|---------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|
|                                 | M | V | R | - | R | S | / | P | / | 50 | /                                                                               |  |  |  |  |  |  |  |  |  |  |  |
| ISO 4401-03 size                |   |   |   |   |   |   |   |   |   |    |                                                                                 |  |  |  |  |  |  |  |  |  |  |  |
| Modular version                 |   |   |   |   |   |   |   |   |   |    |                                                                                 |  |  |  |  |  |  |  |  |  |  |  |
| Check valve                     |   |   |   |   |   |   |   |   |   |    |                                                                                 |  |  |  |  |  |  |  |  |  |  |  |
| Flow restrictor valve on line P |   |   |   |   |   |   |   |   |   |    |                                                                                 |  |  |  |  |  |  |  |  |  |  |  |
| Check valve on line P           |   |   |   |   |   |   |   |   |   |    |                                                                                 |  |  |  |  |  |  |  |  |  |  |  |
|                                 |   |   |   |   |   |   |   |   |   |    | Seals: omit for mineral oils<br>V = viton for special fluids                    |  |  |  |  |  |  |  |  |  |  |  |
|                                 |   |   |   |   |   |   |   |   |   |    | Series No. (the overall and mounting dimensions remain unchanged from 50 to 59) |  |  |  |  |  |  |  |  |  |  |  |

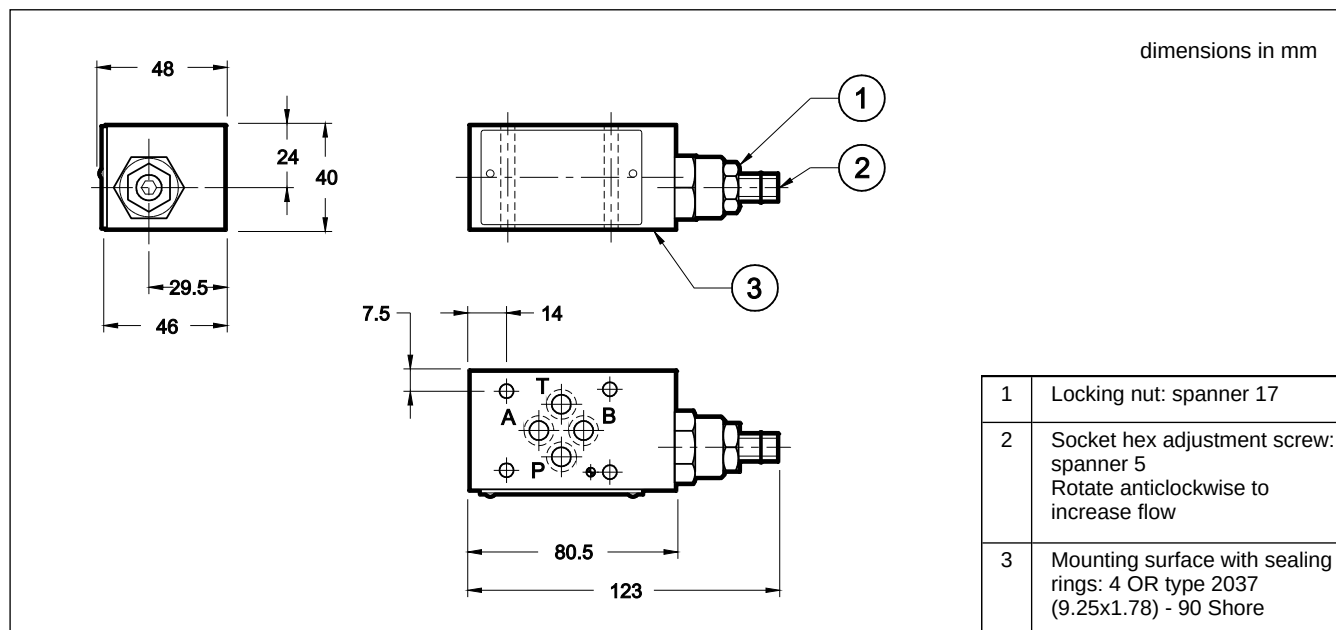
### 2 - CHARACTERISTIC CURVES (values obtained with viscosity of 36 cSt at 50°C)



### 3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals. For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department. Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics. The fluid must be preserved in its physical and chemical characteristics.

### 4 - OVERALL AND MOUNTING DIMENSIONS



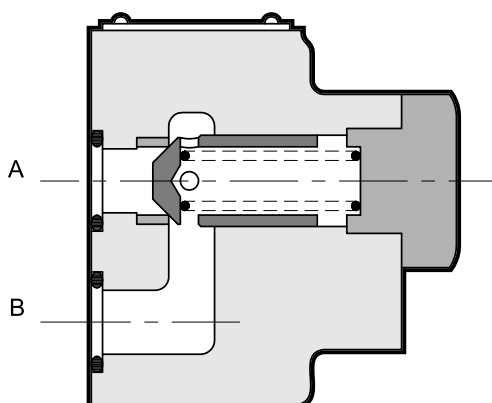


## VR\*-P CHECK VALVES

### SUBPLATE MOUNTING

**p** max (see table of performances)  
**Q** max (see table of performances)

### OPERATING PRINCIPLE



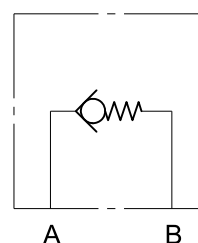
- VR\*-P valves are one-way check valves constructed in the subplate mounting version.
- In rest conditions, the valve poppet, which is a cone on edge seal type, is kept closed by a spring with fixed setting.
- The shutter opens when the pressure in the intake line "A" exceeds the set value of the spring, added to any pressure in the outlet line "B".
- Available in three sizes for flow rates up to 400 l/min and with three different cracking pressures.

### TECHNICAL SPECIFICATIONS

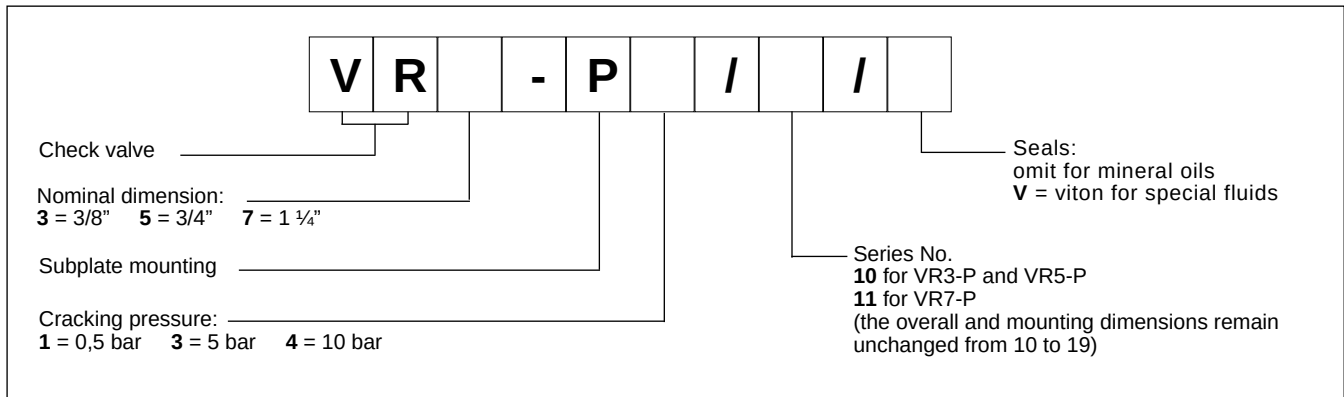
| Valve code | Nominal dimension | Maximum flow rate [l/min] | Mass [kg] | Max. operating pressure [bar] |
|------------|-------------------|---------------------------|-----------|-------------------------------|
| VR3 - P    | 3/8"              | 100                       | 2,3       | 350                           |
| VR5 - P    | 3/4"              | 200                       | 4,8       | 350                           |
| VR7 - P    | 1 1/4"            | 400                       | 9         | 250                           |

|                            |                                           |           |
|----------------------------|-------------------------------------------|-----------|
| Ambient temperature range  | °C                                        | -20 / +60 |
| Fluid temperature range    | °C                                        | -20 / +80 |
| Fluid viscosity range      | cSt                                       | 10 ÷ 400  |
| Fluid contamination degree | According to ISO 4406:1999 class 20/18/15 |           |
| Recommended viscosity      | cSt                                       | 25        |

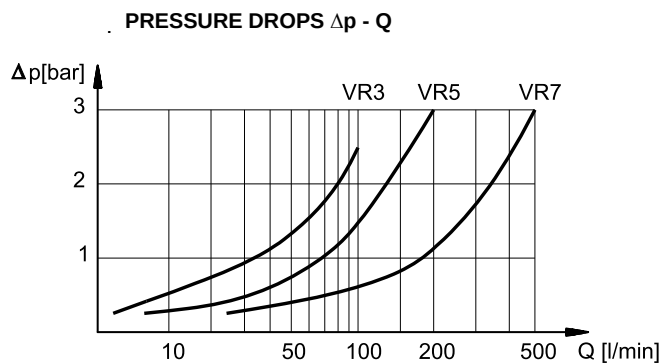
### HYDRAULIC SYMBOL



## 1 - IDENTIFICATION CODE



## 2 - CHARACTERISTIC CURVES (values obtained with viscosity 36 cSt at 50°C)



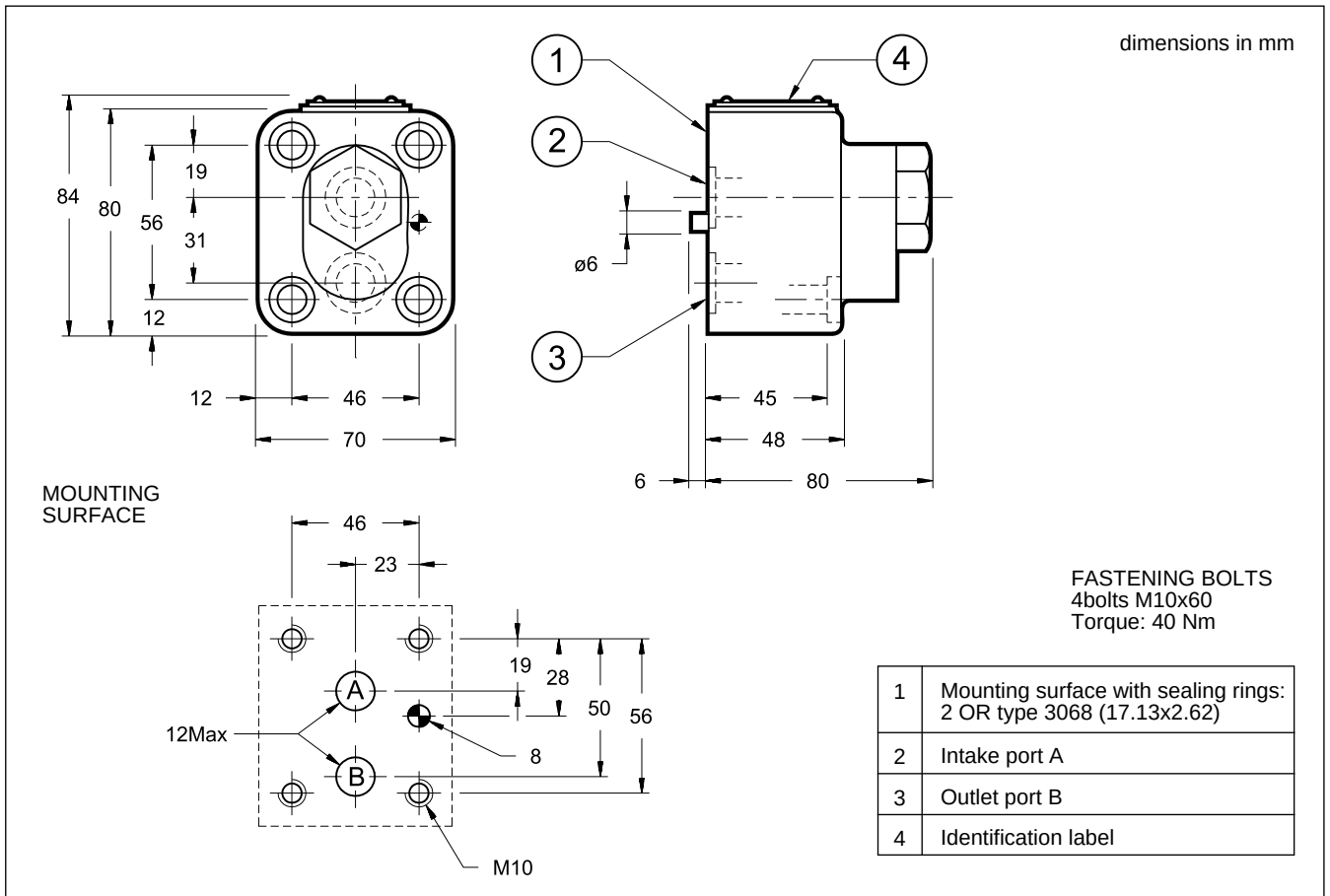
**NOTE:** Add the cracking pressure to the values shown in the diagram.

## 3 - HYDRAULIC FLUIDS

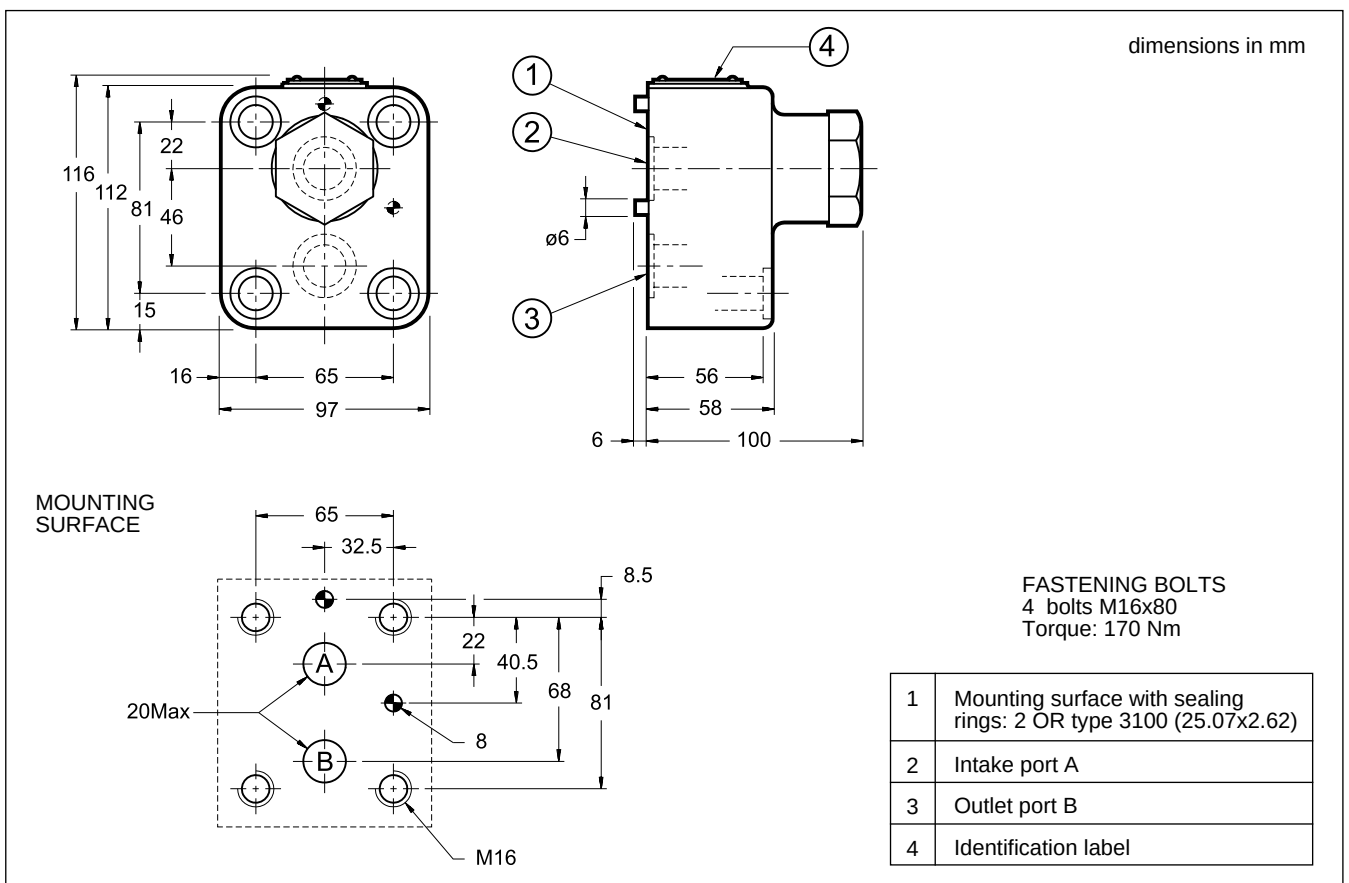
Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals. For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department. Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics.

The fluid must be preserved in its physical and chemical characteristics.

## 4 - VR3-P OVERALL AND MOUNTING DIMENSIONS



## 5 - VR5-P OVERALL AND MOUNTING DIMENSIONS



## 6 - VR7-P OVERALL AND MOUNTING DIMENSIONS

