

B6R: Three-way valve with inside thread (nominal pressure 16 bar)

For continuous control of warm and cold water or of air. Valve body of bronze (RG 5). Valve seat of bronze; spindle of stainless steel; plug of either stainless steel or brass; metallic sealing. Stuffing box of brass with O-ring seal. Valve curve is either equal percentage or linear. When spindle is extracted, passage A-AB is closed.

| Type | Nominal diameter DN | k_{VS} -value [m ³ /h] | Valve plug material | Weight [kg] |
|-------------|---------------------|-------------------------------------|---------------------|-------------|
| B6R 15 F330 | 15 | 1 | stainless steel | 1.2 |
| B6R 15 F320 | 15 | 1.6 | stainless steel | 1.2 |
| B6R 15 F310 | 15 | 2.5 | brass | 1.2 |
| B6R 15 F300 | 15 | 4 | brass | 1.2 |
| B6R 25 F310 | 25 | 6.3 | brass | 1.6 |
| B6R 25 F300 | 25 | 10 | brass | 1.6 |
| B6R 40 F310 | 40 | 16 | brass | 3.4 |
| B6R 40 F300 | 40 | 25 | brass | 3.4 |
| B6R 50 F300 | 50 | 35 | brass | 4.6 |

| | | | |
|-------------------------------------|--|---------------------------------|-----------|
| Operating temperature ¹⁾ | -15...130 °C | Valve stroke | 14 mm |
| Operating pressure | up to 120 °C 16 bar up to 130 °C 13 bar | Dimension drawing | 7M100 |
| Valve curve | equal percent | Fitting instructions | MV 505574 |
| Control ratio | 50 (typical) | AVP142 Complete regulating unit | MV 505766 |
| Leakage rate | | AV43 Regulating unit | MV 43190 |
| Control flow A-AB | ≤ 0.05% of k_{VS} -value | AV43 Montage | MV 40.136 |
| Mixing flow B-AB | ≤ 1% of k_{VS} -value | | |

Variants

F2 . . With linear valve curve (available from DN 15 k_{VS} 4 m³/h onwards only)

Accessories

0217268 . . . Stuffing-box heating 15 W; specify when ordering: 24V = /001, 230V = /004, MV 505498

0360391 . . . Union piece incl. asbestos-free seal, 3 pieces required; specify when ordering: DN 15 = /015, DN 25 = /025 etc.
DN 15 25 40 50

0378034 001 Valve with packing box, silicon-free; synthetic lubricant; max. 130 °C

Combination with pneumatic drive AVP142, AV43

| Drive reversible max. pressure p_{stat} Operating time ²⁾ | AVP142 F001 ≤ 16 bar 7 s | | AVP142 F002, F003 ≤ 6 bar 7 s | | AV43 P15 ≤ 16 bar 14 s | |
|--|--------------------------------|--------------|-------------------------------------|--------------|------------------------------|--------------|
| | Δp_{max} | Δp_s | Δp_{max} ³⁾ | Δp_s | Δp_{max} | Δp_s |
| Valve | | | | | | |
| B6R 15 F300 | 4.0 | 22.3 | 4.0 | 52.1 | 4.0 | 16.0 |
| B6R 25 F300 | 4.0 | 13.5 | 4.0 | 31.6 | 4.0 | 13.0 |
| B6R 40 F300 | 2.4 | 3.1 | 1.0 | 7.3 | 2.9 | 2.9 |
| B6R 50 F300 | 2.0 | 2.3 | 0.8 | 5.5 | 2.0 | 2.2 |

Complete type designation: Valve and drive each with F-variant
 Valve: F-variant, technical data and accessories, see valve type table
 Drive: F-variant, technical data, accessories and fitting position, see Sect. 71
 Example: B6R 15 F300 / AVP142 F001

Δp_{max} [bar]= Max. permissible pressure difference across the valve at which the drive can still safely open and close the valve.

Δp_s [bar]= Max. permissible pressure difference across the valve during malfunction at which the drive can close the valve.

p_{stat} [bar]= Dormant press. at valve when pump is inactive. Takes into account the fluidic level of the plant and the press. increase caused by the press. tank or the steam press.

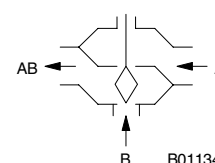
- At temperatures under 0 °C, use stuffing-box heating (accessory)
- Based on the Centair air capacity (400 l_v/h) and a line of 20 m in length and 4 mm in diameter
- When used with an XSP 31 or 31 G positioner, the Δp_{max} values are seven times bigger; observe the Δp_v value (see additional technical details).



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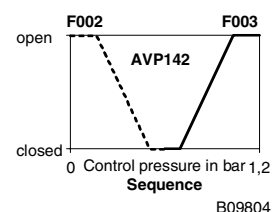
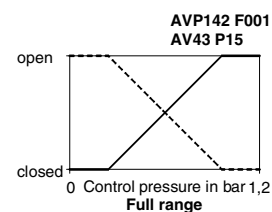


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Pressure-stroke curve
(with valve fitted)



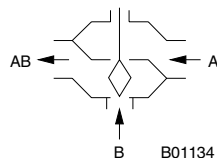
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— As delivered ex works
 - - Fitting variant A

Operation

Using a pneumatic drive, the valve can be moved to any position. When the spindle is extracted, control passage A-AB is closed. Where pneumatic drives are used, the valves should not close with the pressure, otherwise pressure surges ensue.

Used as a mixing valve



Engineering and fitting notes

Can be fitted in any position except facing downwards.

The ingress of condensate, dripping water etc., along the stem and into the drive should be prevented. When fitting the drive to the valve, care must be taken not to turn the valve plug on the two stops (seat), thus damaging the seal.

The drive can be equipped with the XSP 31 or XSP 31G positioner should any of the following be demanded: a split range; an improvement in the setting accuracy; an increase in positional speed or air capacity; reversible direction of action (see Section 79).

Additional technical details

| Type | Δp_v |
|---------------|--------------|
| B6R 15 F . 30 | 4 |
| B6R 15 F . 20 | 4 |
| B6R 15 F . 10 | 4 |
| B6R 15 F . 00 | 4 |
| B6R 25 F . 10 | 4 |
| B6R 25 F . 00 | 4 |
| B6R 40 F . 10 | 3 |
| B6R 40 F . 00 | 3 |
| B6R 50 F . 00 | 2 |

Δp_v in bar = max. pressure difference across the valve in any stroke position, limited by the noise level and erosion (max. values without being limited by the force of the drive).

Additional details on accessories

0217268/ . . . Heating for stuffing box 15 W; housing of light metal; connecting cable $3 \times 0.75 \text{ mm}^2$, earth connection, 1 m in length, cable end sleeves; degree of protection IP 54.

Additional details on model types

Valve body with female thread. Flat seal of copper at the body. Stuffing box with O-ring of ethylene-propylene.

Material numbers as per DIN

| | Material no. | Description | DIN norm |
|---------------------------|--------------|------------------------|------------|
| Valve body | 2.1096.01 | G-Cu Sn 5 Zn Pb (Rg 5) | 1705 |
| Valve seat | 2.1096.01 | G-Cu Sn 5 Zn Pb (Rg 5) | 1705 |
| Spindle | 1.4305 | X 8 CrNiS 18 9 | EN 10088-3 |
| Plug | 2.0402.26 | Cu Zn 40 Pb 2 F43 | 17 672 |
| Plug B6R 15 F. 20...F. 30 | 1.4305 | X 8 CrNiS 18 9 | EN 10088-3 |
| Stuffing box | 2.0401.10 | Cu Zn 39 Pb 3 F36 | 17 672 |

Explanation of terms used **Δp_v :**

Maximum permissible pressure difference across the valve in any stroke position, limited by the noise level and erosion.

The valve as a traversed element is defined by this parameter specifically in its hydraulic behaviour. By monitoring cavitation, erosion and the noise thus produced, improvements can be achieved in both life expectancy and durability.

 Δp_{max} :

Maximum permissible pressure difference across the valve at which the drive can firmly open and close the valve.

Static pressure and fluidic influences are taken into account. This value helps to maintain smooth stroke action and valve sealing. In doing so, the valve's Δp_v value is not exceeded.

 Δp_s :

Maximum permissible pressure difference across the valve in the event of a malfunction (e.g. power failure) at which the drive can firmly close the valve and, if necessary, hold the full operating pressure against atmospheric pressure. Since this is a safety function with 'fast' stroke, Δp_s can be larger than Δp_{max} or, respectively, Δp_v . The resultant fluidic disturbances are soon overcome and play a minor rôle here.

On the three-way valves, the values apply only for the control passage.

 Δp_{stat} :

Line pressure behind the valve. This corresponds largely to the dead pressure when the pump is switched off, e.g. due to the level of liquid in the plant, an increase in pressure via the pressure store, steam pressure etc.

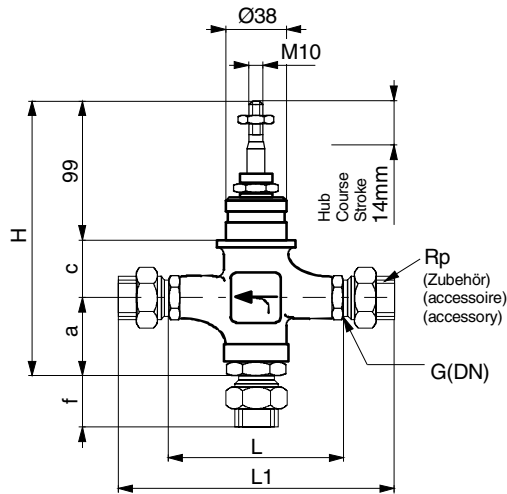
Where the valves close with the pressure, the static pressure plus the pump pressure should be used.

Technical information

- Pressure and temperature specifications DIN 2401
- Flow parameters VDI/VDE 2173
- Sauter slide rule for valve sizing 7 090011 003
- Slide rule manual 7 000129 003
- PC program "Valvedim" for Sauter valve sizing 7 000675 003
- Technical manual 'Manipulating units': 7 000477 003
Parameters, Notes on installation, Control,
Pneumatic manipulating units, General information

Dimension drawings 7M100

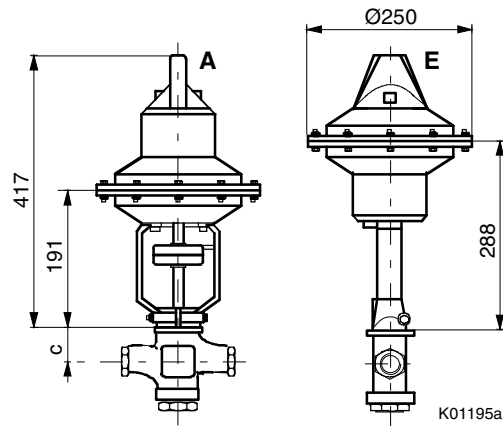
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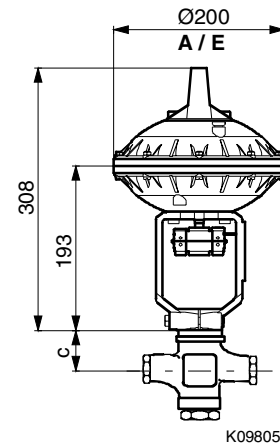
| DN | a | c | f | H | L | L1 | G | Rp |
|----|--------|----|----|----|-----|-----|-----|-------|
| 15 | 1/2" | 59 | 29 | 37 | 187 | 85 | 159 | 1/2 |
| 25 | 1" | 69 | 33 | 43 | 201 | 110 | 196 | 1 |
| 40 | 1 1/2" | 76 | 47 | 53 | 222 | 150 | 256 | 1 1/2 |
| 50 | 2" | 98 | 57 | 57 | 254 | 180 | 294 | 2 |

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AV43



AVP142



E: No pressure: CLOSED (as delivered ex works),
 A: No pressure OPEN (fitting variant)
 Take measurement 'c' from valve dimension drawing