

B6R: 3-way valve with female thread, PN 16 (pn.)

How energy efficiency is improved

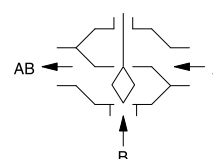
Efficiency means precise and reliable control

Features

- In combination with AVP 142 and AV 43 valve actuators
- Regulating valve free of silicone grease with female thread DIN/EN ISO 228-1 G for the control of cold/hot water in closed circuits
- Control passage A–AB closed when the spindle is moved out
- Used as a control valve
- Valve body and seat made of gunmetal
- Stainless steel spindle
- Stuffing box made of brass with wiper ring and double O-ring seal made of EPDM

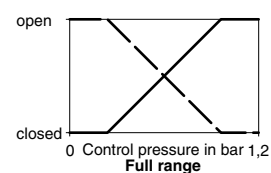


B6R25F300



Pressure-stroke characteristic
(with valve fitted)

AVP142 F001



—— Condition ex works
----- Fitting variant A

Technical data

Parameters

Control ratio	> 50:1
Nominal pressure	PN 16
Leakage rate of control passage A-AB	≤ 0.05% of k_{VS} value
Leakage rate of mixing passage B-AB	≤ 1% of k_{VS} value
Valve stroke	14 mm
Valve characteristic, mixing passage	Linear

Ambient conditions

Operating temperature ¹⁾	−15...130 °C
Operating pressure up to 120 °C	16 bar
Operating pressure up to 130 °C	13 bar

Standards and directives

Pressure and temperature data	DIN 2401
Flow parameters	VDI/DE 2173

Overview of types

Type	Nominal diameter	k_{VS} value	Valve characteristic	Materials for valve plug	Type of connection	Weight
B6R15F330	DN 15	1 m ³ /h	equal-percentage	Stainless steel	G½"	1.2 kg
B6R15F320	DN 15	1.6 m ³ /h	equal-percentage	Stainless steel	G½"	1.2 kg
B6R15F310	DN 15	2.5 m ³ /h	equal-percentage	brass	G½"	1.2 kg
B6R15F300	DN 15	4 m ³ /h	equal-percentage	brass	G½"	1.2 kg
B6R15F200	DN 15	4 m ³ /h	linear	brass	G½"	1.2 kg
B6R25F310	DN 25	6.3 m ³ /h	equal-percentage	brass	G1"	1.6 kg
B6R25F300	DN 25	10 m ³ /h	equal-percentage	brass	G1"	1.6 kg
B6R25F210	DN 25	6.3 m ³ /h	linear	brass	G1"	1.6 kg
B6R25F200	DN 25	10 m ³ /h	linear	brass	G1"	1.6 kg
B6R40F310	DN 40	16 m ³ /h	equal-percentage	brass	G1½"	3.4 kg
B6R40F300	DN 40	25 m ³ /h	equal-percentage	brass	G1½"	3.4 kg
B6R40F210	DN 40	16 m ³ /h	linear	brass	G1½"	3.4 kg
B6R40F200	DN 40	25 m ³ /h	linear	brass	G1½"	3.4 kg

¹⁾ At temperatures below 0 °C, use stuffing box heater (accessory)



Type	Nominal diameter	k_{VS} value	Valve characteristic	Materials for valve plug	Type of connection	Weight
B6R50F300	DN 50	35 m ³ /h	equal-percentage	brass	G2"	4.6 kg
B6R50F200	DN 50	35 m ³ /h	linear	brass	G2"	4.6 kg

Accessories

Type	Description
0217268001	Stuffing box heater 15 W, 24 V
0217268004	Stuffing box heater 15 W, 230 V
0378034001	Stuffing box; with synthetic lubricant; max. 130 °C
0360391015	Screw fitting, DN 15, incl. seal, 3 pcs. required
0360391025	Screw fitting, DN 25, incl. seal, 3 pcs. required
0360391040	Screw fitting, DN 40, incl. seal, 3 pcs. required
0360391050	Screw fitting, DN 50, incl. seal, 3 pcs. required

☛ **0217268***** Stuffing box heater 15 W, light alloy housing, IP 54, 3 × 0.75 mm² power cable, earth connector, length 1 m, ferrule

Combination of B6R with pneumatic actuator

- i** *Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.*
- i** *Definition of Δp_s : Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.*
- i** *Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.*
- i** *The running time is based on the centair air flow rate (400 l_r/h) and on a supply line with a length of 20 m and a diameter of 4 mm.*

Pressure differences

Actuator	AVP142F001
Admissible pressure p_{stat}	≤ 16 bar
Running time	10 s

Δp [bar]

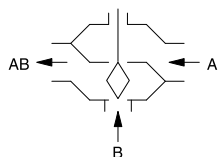
As control valve	Δp_{max}	Δp_s
B6R15F330 B6R15F320 B6R15F310 B6R15F300 B6R15F200	4.0	16.0
B6R25F310 B6R25F300 B6R25F210 B6R25F200	4.0	13.5
B6R40F310 B6R40F300 B6R40F210 B6R40F200	2.4	3.1
B6R50F300 B6R50F200	2.0	2.3

Cannot be used as distribution valve

Description of operation

The valve can be moved to any intermediate position with a pneumatic actuator. When the spindle is extended, the control passage A-AB is closed. Closing with pressure is not permitted with pneumatic actuators because this would cause pressure surges.

Used as a control valve



Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the "Description of operation" section.

All related product documents must also be adhered to. Changing or converting the product is not admissible.

Engineering and fitting notes

Can be mounted in any position except suspended.

Penetration of the actuator by condensate and dripping water, etc. along the spindle must be avoided. When mounting the actuator, make sure that the plug is not twisted in the valve seat (limit stop), as this can damage the sealing surface.

If a split range of adjustment (split-range unit), more precise adjustment, faster adjustment and increased air capacity or reversible direction of operation is required, the actuator can be equipped with an XSP 31 or XSP 31 G positioner, see section 79.

To increase the reliability of the valves, the system should comply with DIN/EN 14336 (heating systems in buildings). DIN/EN 14336 states, amongst other things, that the system has to be flushed through before being put into service. Water quality as per VDI 2035.

Additional technical data

Type	Δp_v
B6R15F*30	4
B6R15F*20	4
B6R15F*10	4
B6R15F*00	4
B6R25F*10	4
B6R25F*00	4
B6R40F*10	4
B6R40F*00	4
B6R50F*00	3

Δp_v in bar = maximum pressure difference over the valve at every stroke position, limited by noise level and erosion (maximum values without limitation by actuating force).

Technical information

SAUTER slide rule for valve sizing	7090011001
Manual on slide rule	7000129001
Valvedim software tool for sizing SAUTER valves	7000675001
Technical manual on control units Parameters, installation instructions, regulation Pneumatic control units, general information	7000477001

Version information

Valve body with female thread. Sealing surface metallic. Flat seal on body made of copper. Stuffing box with ethylene-propylene O-ring.

Material number as per DIN

	DIN material no.	DIN designation	DIN standard
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 12 Cr Ni S 18 8	EN 10088-3
Plug	2.0402.26	Cu Zn 40 Pb 2 F43	17672
Plug B6R15F*15...F*20...F*30	1.4305	X 12 Cr Ni S 18 8	EN 10088-3
Stuffing box	2.0401.10	Cu Zn 39 Pb 3 F36	17672

Additional details on the definitions of pressure difference

Δp_v :

Maximum admissible pressure difference over the valve in each stroke position, limited by noise level and erosion.

This parameter characterises the valve as a flow element with specific hydraulic behaviour. Monitoring the cavitation and erosion along with the associated noise increases the service life and the operational capacity.

Δp_{max} :

Maximum admissible pressure difference over the valve at which the actuator can reliably open and close the valve.

This takes account of: Static pressure and flow effects. This value ensures trouble-free stroke movement and closing of the valve. The value Δp_v of the valve is never exceeded.

Δp_s :

Maximum admissible pressure difference over the valve in the event of a malfunction (e.g. power failure, excessive temperature or pressure, pipe break) at which the actuator can close the valve tightly and, if necessary, maintain the full operating pressure against atmospheric pressure. Because this is a safety function with a rapid stroke movement, Δp_s can be greater than Δp_{max} or Δp_v . The disruptive flow effects that arise here are quickly passed through and are of minor importance in this mode.

For 3-way valves, the values only apply to the control passage.

Δp_{stat} :

Line pressure behind the valve. This essentially corresponds to the idle pressure when the pump is switched off, for example caused by the fluid level in the system, increased pressure due to pressure tanks, steam pressure, etc.

On valves that close under pressure, the static pressure plus the pump pressure must be used.

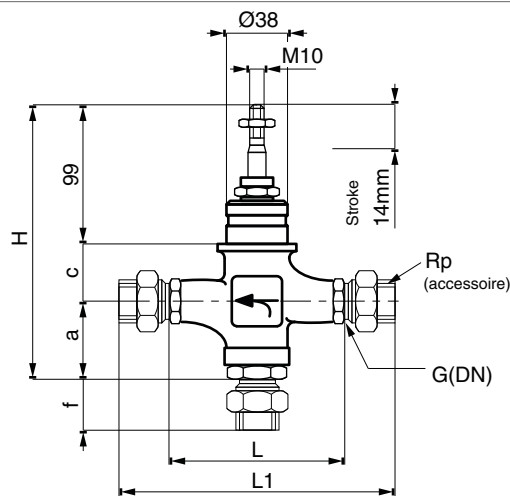
Disposal

When disposing of the product, observe the currently applicable local laws.

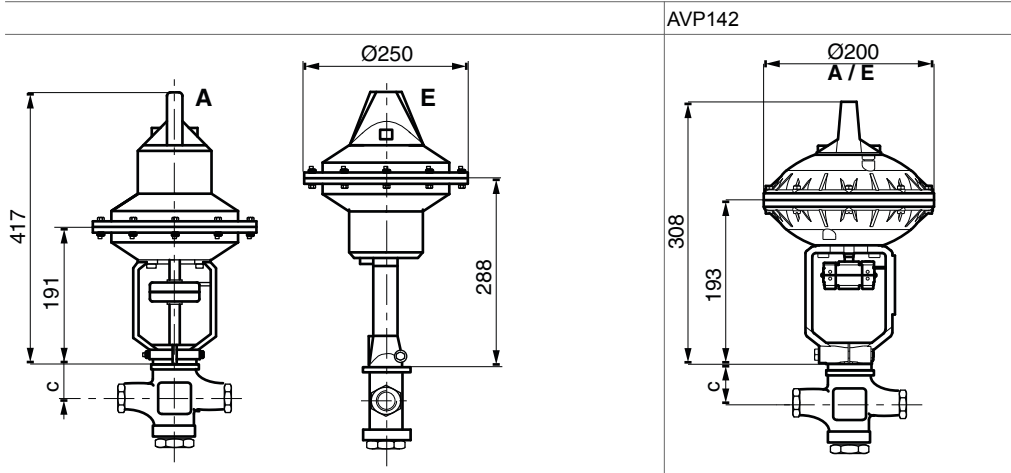
More information on materials can be found in the Declaration on materials and the environment for this product.

Dimension drawings 7M100

B6R



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



E: Normally closed (as delivered ex works)

A: Normally open (fitting variant)

Take the dimension "c" from the valve dimension drawing