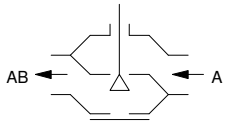
VUF: 2-way valve with male thread, PN16

Features

- Control valve for continuous control of cold water, and hot water in closed networks.
- Water quality as per VDI 2035.
- In combination with valve actuators AVM 105/115 (S) and AVF 124/125S as control unit.
- Characteristic can be set with SUT (SAUTER Universal Technology) valve actuators to linear, equal-percentage or quadratic.
- Valve body and seat made of grey cast iron.
- Stainless-steel spindle and plug, with EPDM soft seat.
- Stuffing box made of brass with EPDM O-ring seal.
- Delivery of the valves with fittings of malleable cast iron and seal.
- The valve is closed when the spindle is moved out.
- Not suitable for drinking water or potentially explosive atmospheres.

Y07544



B01133a

Type	Nominal Diameter DN	Connection	k_{VS}-Value m^3/h	Weight kg
VUF015F330	15	G 1B	1	1,15
VUF015F320	15	G 1B	1,6	1,15
VUF015F310	15	G 1B	2,5	1,15
VUF015F300	15	G 1B	4	1,15
VUF020F300	20	G 1¼B	6,3	1,45
VUF025F300	25	G 1½B	10	1,7
VUF032F200	32	G 2B	16	3,0
VUF040F200	40	G 2¼B	25	3,5

Operating temperature[1)]	+2...150 °C	Leakage rate	< 0,0005% of k_{VS}-Wert
Operating pressure	at 120 °C 16 bar at 150 °C 13 bar	Nominal stroke	5,5 mm
Valve characteristic	DN15 to 25 Splineline DN32 and 40 linear		
Control ratio	50:1 (typical)	Dimension drawing	M07424

Accessories

0372240 001*	Manual adjustment for valves VUN/BUN und VUF/BUF; MV 505813
0372249 001	Temperature adapter (>100 °C up to max. 130 °C) for AVM, DN 15...50, MV 505932
0372249 002	Temperature adapter (>130 °C up to max. 150 °C) for AVM, DN 15...50, MV 505932

*) Dimension drawing or wiring diagram available under the same number

1) Use adaptor (accessory) at temperatures above 100 °C

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.

Combination VUF with electrical drive

Drive Type: Running time: Input::	250 N pushing force AVM 105 F . . . 30 s /120 s 2pt / 3pt		AVM 105S F . . . 35 s / 60 s / 120 s 0…10 V or 2pt or 3pt
Valve	Against the pressure		
	Δp_{max}	Δp_s	close/off pressure
VUF015F330…F310	4	–	10
VUF015F300	4	–	8
VUF020F300	4	–	5,5
VUF025F300	3,5	–	3,5
VUF032F200	2,2	–	2,2
VUF040F200	1,3	–	1,3

Drive Type: Running time: Input::	500 N pushing force AVM115 F . . . 120 s 2pt / 3pt		AVM115SF . . . 60 s / 120 s 0…10 V or 2pt or 3pt
Valve	Against the pressure		
	Δp_{max}	Δp_s	close/off pressure
VUF015F330…F310	4	–	16
VUF015F300	4	–	16
VUF020F300	4	–	13
VUF025F300	4	–	8
VUF032F200	4	–	5
VUF040F200	3	–	3

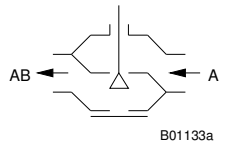
Drive Type: Running time: Input:: Spring return:	500 N pushing force AVF124 F . . . 60 s / 120 s 3pt 18 ± 10 s		AVF125SF . . . 60 s / 120 s 0…10 V or 2pt or 3pt 18 ± 10 s
Valve	Against the pressure		
	Δp_{max}	Δp_s	close/off pressure
VUF015F330…F310	4	–	16
VUF015F300	4	–	16
VUF020F300	4	–	13
VUF025F300	4	–	8
VUF032F200	4	–	5
VUF040F200	3	–	3

Valve:	Variant F, for technical data and accessories see Valve Type Table
Drive:	Variant F, for technical data, accessories and installation position see section 51
Example:	VUF015F210 / AVM115SF132

Δp_{max}[bar] =	Maximum permitted pressure difference over the valve at which the drive can still reliably open and close the valve, taking account of Δpv.
Δp_S [bar] =	Maximum permitted pressure difference over the valve in case of a fault (pipe break downstream of the valve) at which the drive can close the valve reliably with "fast" performance of the stroke.
close/off pressure	Maximum possible pressure difference over the valve in control mode, at which the drive can still open and close the valve. A reduced lifetime must be expected with this mode. Cavitation, erosion and pressure surges can damage the valve. The values are only valid for the assembled combination valve fitted on the drive.

Function
The valve can be controlled to any intermediate position using an electric drive. The valve is closed when the valve stem is extended. These valves may only be used when employing the “against the pressure” closing procedure.

Closing procedure against the pressure



Description
These control valves are characterised by being extremely reliable and accurate, and make a considerable contribution to providing environmentally friendly control. They comply with the most demanding requirements such as a quick-closing function, handling differential pressures, controlling media temperatures and providing a shut-off facility – all with a low-noise design.
The valve stem is automatically and firmly connected to the drive shaft. This allows closing against or with the operating pressure to take place. It eliminates plug fluttering in the final position and also prevents cavitation and erosion from occurring at an early stage. Since there is no spring power to counteract the closing of the valve, the full power of the drive is available for the permissible pressure difference. The tightness of the valve is ensured by the seat in the body and the O-ring seal on the plug.
The stuffing box is maintenance-free. This consists of a brass body, 2 O-rings, a scraper ring and a supply of grease. This is silicon-free, i.e. silicon oil must not be used for the stems.

Engineering and fitting notes
The valves are combined with the valve drives with or without spring return. The drive is directly attached to the valve and secured using a nut or bolts. The drive is connected to the valve stem automatically. During initial commissioning of the system the drive moves out and the lock closes automatically when it reaches the lower valve seat. The stroke of the valve is also detected by the drive, meaning that no other settings are required. The force on the seat is therefore always consistent and ensures that the leakage rate is minimal. The characteristic curve of the SUT drives can be set to linear or quadratic.
The manual operation facility (accessory) is fitted to the valve like a drive. The connection to the valve shaft takes place automatically when the valve is opened with the knob.

Installation position

The final control element can be installed in any position, but a suspended installation position is not recommended. Condensation and dripping water must be prevented from penetrating the drive.

Using with steam

The valves can be used for low-pressure steam up to 115 °C with the same Δpmax values. When using the valve, make sure that it does not operate mainly on the lower third of its stroke range. This leads to an extremely high flow speed, which greatly reduces the serviceable life of the valve.

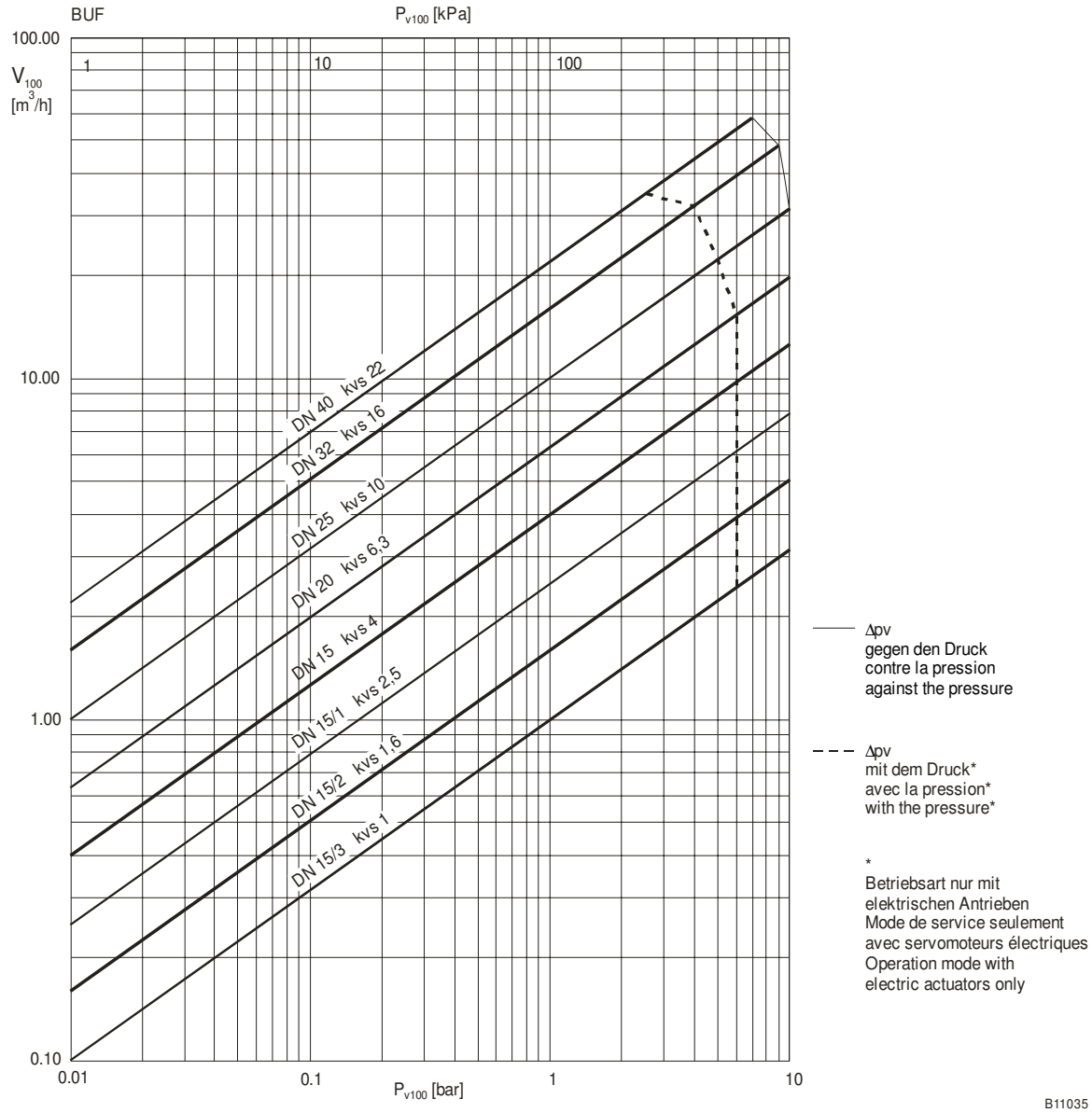
Using with water
So that impurities are retained in the water (welding beads, rust particles, etc.) and the spindle seal is not damaged, we recommend installing collecting filters, for example one for each floor or pipe run. Water requirements according to VDI 2035. When using an additive in the water, the compatibility of the materials must be checked with the manufacturer of the medium. The materials table shown below may be used. When glycol is used, we recommend using a concentration of between 20% and 55%.

Other information regarding hydraulics and noise in systems

The valves can be used in a low-noise environment. To prevent noise, the pressure differences Δpmax listed below should not be exceeded.
The pressure difference Δpv is the maximum pressure that may act on the valve regardless of the stroke position, in order that the risk of cavitation and erosion is limited. These values are irrespective of the actuator force. Cavitation accelerates wear and causes noises. To prevent cavitation, the pressure differential on the valve should not exceed the value Δpkrit:
$\Delta pkrit = (p1 - pv) \times 0.5$
p1 = upstream pressure before the valve (bar)
pv = steam pressure at operating temperature (bar)
The calculation works with absolute pressure.

For the spring return, the stated Δps values are also the permissible differential pressure up to which the actuator can guarantee that the valve is closed in the event of an incident. Because this is a quick-closing function with a “fast” stroke movement (using a spring), this value can exceed Δpmax.

Flow rate chart



Type	Δp_v Against the pressure
VUF015F330	10
VUF015F320	10
VUF015F310	10
VUF015F300	10
VUF020F300	10
VUF025F300	10
VUF032F200	9
VUF040F200	7

Additional technical data

□ Pressure and temperature data	EN 764, EN 1333
□ Flow parameters	EN 60534 Seite 3
□ SAUTER slide rule for valve sizing	P100013496
□ Technical manual on control units	7 000477 001
□ Parameters, fitting notes, control, general information	Applicable EN, DIN, AD, TRD and UVV regulations
□ Pressure Equipment Directive, fluid group II	97/23/EG
□ BUF015 to BUF040: No CE label,	article 3.3

Additional version information

Valve body made of grey cast iron as per EN 1561, code EN-GJL-200 material number EN-JL 1030 with made thread ISO 228/1 classe B, Valve body protected by matt paint RAL 9005 blue.

Material numbers as per DIN

	DIN material number	DIN Designation
Valve body	EN-JL 1030	EN-GJL-200
Valve seat	EN-JL 1030	EN-GJL-200
Spindlel	1.4305	X 8 Cr Ni S 18-9
Plug	1.4021 / 17 022.5	
Plug seal	EPDM Peroxyde verstärkt	
Stuffing box	CW 617 W	CuZn40Pb2

Additional details on the definitions of pressure difference

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 a smooth stroke action and the high level of sealing. In doing so, the valve's Δpv value is never exceeded.

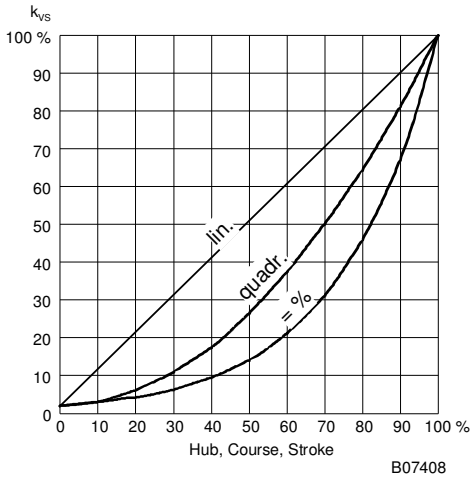
Δp_s:

Maximum permissible pressure difference across the valve in the event of a malfunction (e.g. power failure, excess temperature or pressure, burst pipe) at which the drive can firmly close the valve and, if necessary, hold the full operating pressure against atmospheric pressure. Since this is a quick-close functions with 'fast' stroke, Δps can be larger than Δpmax or, respectively, Δpv. The resultant fluidic disturbances are soon overcome and play a minor role here.
On the three-way valves, the values apply only for the control passage.

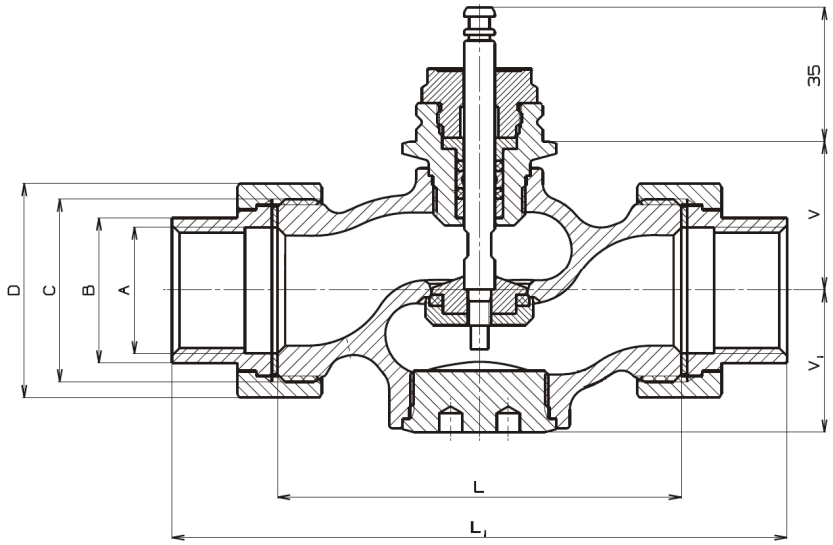
Δp_{stat}:

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 installation, an increase in pressure via the pressure store, steam pressure etc.
For valves that close with the pressure, the static pressure plus the pump pressure should be used.

Characteristic for drives with positioners
On drive AVM 105S or AVM 115S
Equal percentage / linear
On drive AVF 125S
Equal percentage / linear / quadratic



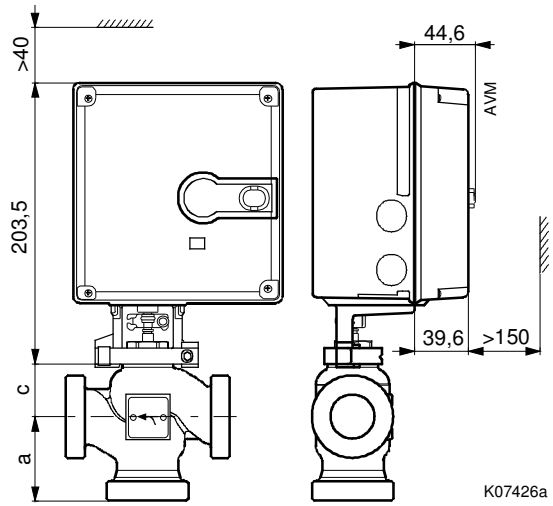
Dimension drawing



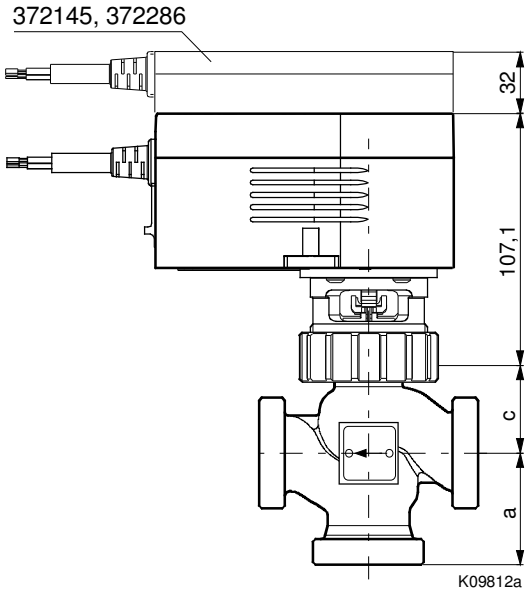
DN	L	L_1	V	V_1	A	B	C	D
15	100	146	39	36,5	1/2	25	1	41
20	100	149	39	36,5	3/4	32	1 1/4	51
25	105	160	39	37	1	38	1 1/2	56
32	130	193	50	49	1 1/4	47	2	71
40	140	207	50	49	1 1/2	53	2 1/4	76

Combinations

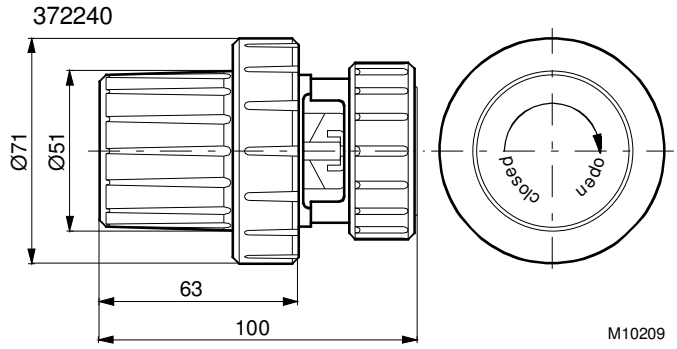
AVF 124/125S



AVM 105 and AVM 115



Accessories



Fr. Sauter AG
Im Surinam 55
CH-4016 Basel
Tel. +41 61 - 695 55 55
www.sauter-controls.com