

VD121, VD131

Two-port and three-port control valves



Summary

The valves series VD121 and VD131 are control valves of a compact construction with external threaded coupling connection. The valves excel with minimum dimensions and weight, quality control function and a high tightness in closed position. Thanks to an unique LDMspline® flow characteristic which has been optimized for thermodynamic processes control, the valves are ideal for applications in heating and air-conditioning.

A screw joint enabling quick and easy installation to an appliance is part of delivery.

Assembled with electromechanic actuators, the valve can be controlled with 3-point or continuous signal. Part of delivery is also a hand wheel which can be used for the valve control until assembling with an actuator.

Application

Used materials for throttling trim which consist of plug made of high-quality stainless steel and soft sealing elements ensure hermetic tightness in both ports and enable the valves to be used not only in common warm-water and hot-water regulation circuits in heating but also in applications such as in refrigerating industry and air-conditioning.

Process media

VD121 and VD131 valves are suitable for applications where process medium is water or air. Further they can be used for refrigerating media and other non-aggressive liquids or gases with temperature ranging from +2°C to +150°C. The valves are not applicable to conditions with cavitation. Sealing surfaces of control trim are resistant to common sludge or water impurities, however, it is recommended to pipe a strainer in front of valve to ensure a reliable function and tightness in case there are abrasive particles present.

Installation

The valves can be installed in any position except position when the actuator is below the valve body. The flow direction is indicated on the valve body - A and B for inlet ports, AB for the outlet port.

Technical data

Nominal size range	DN15 to DN40
Nominal pressure	PN16
Body material	grey cast iron EN-JL 1030
Plug material	stainless steel 1.4021
Type of plug	contoured or V-ported, with soft seat sealing
Operating temperature range	+2 to +150°C
Connection	externally threaded coupling + screw joints
Dimensions	see below
Flow characteristics	VD121: LDMspline® , linear VD131: Linear / linear
Kvs value	VD121: 0.16 to 25 m ³ /h VD131: 0.25 to 25 m ³ /h
Rangeability	min. 50:1
Leakage rate	class IV. - S1 acc. to ČSN-EN 1349 (5/2001) (<0.0005 % Kvs)
Packing	O - ring EPDM

Two-port range

Type	DN [mm]	Kvs [m ³ /h]	Δ_{pmax} [kPa]	Flow characteristics
VD121 15-0.16	15	0.16	400	LDM spline
VD121 15-0.25	15	0.25	400	LDM spline
VD121 15-0.4	15	0.4	400	LDM spline
VD121 15-0.63	15	0.63	400	LDM spline
VD121 15-1.0	15	1	400	LDM spline
VD121 15-1.6	15	1.6	400	LDM spline
VD121 15-2.5	15	2.5	400	LDM spline
VD121 15-4	15	4	400	LDM spline
VD121 20-6.3	20	6.3	350	LDM spline
VD121 25-10	25	10	200	LDM spline
VD121 32-16	32	16	110	linear
VD121 40-25	40	25	60	linear

Three-port range

Type	DN [mm]	Kvs [m ³ /h]	Δ_{pmax} [kPa]	Flow characteristics
VD131 15-0.25	15	0.25	400	linear
VD131 15-0.4	15	0.4	400	linear
VD131 15-0.63	15	0.63	400	linear
VD131 15-1.0	15	1	400	linear
VD131 15-1.6	15	1.6	400	linear
VD131 15-2.5	15	2.5	400	linear
VD131 15-4	15	4	400	linear
VD131 20-6.3	20	6.3	350	linear
VD131 25-10	25	10	200	linear
VD131 32-16	32	16	110	linear
VD131 40-25	40	25	60	linear

Detailed Kvs calculation and valve authority determination sheets available on request.

Actuators

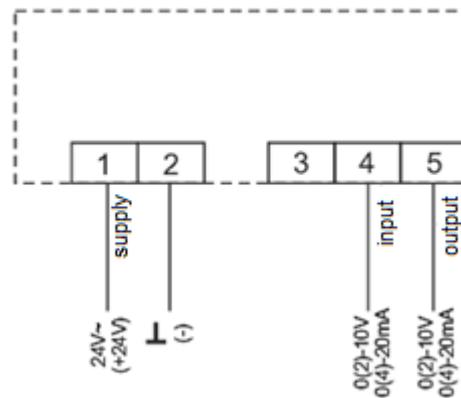
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The valves are delivered with standard motoric actuators. Their connection to the valve ensures zero clearance between the stem of the actuator and the valve so precise regulating ability is ensured even for minimal position changes. The actuators are self-adaptive. The limit positions are limited by the valve stroke. To communicate with a control system, the actuators are equipped with either standard 3-position control or direct control (options: 0..10 V, 2..10 V, 0..20 mA or 4..20 mA). All the types of actuators are equipped with hand wheel for manual operation.

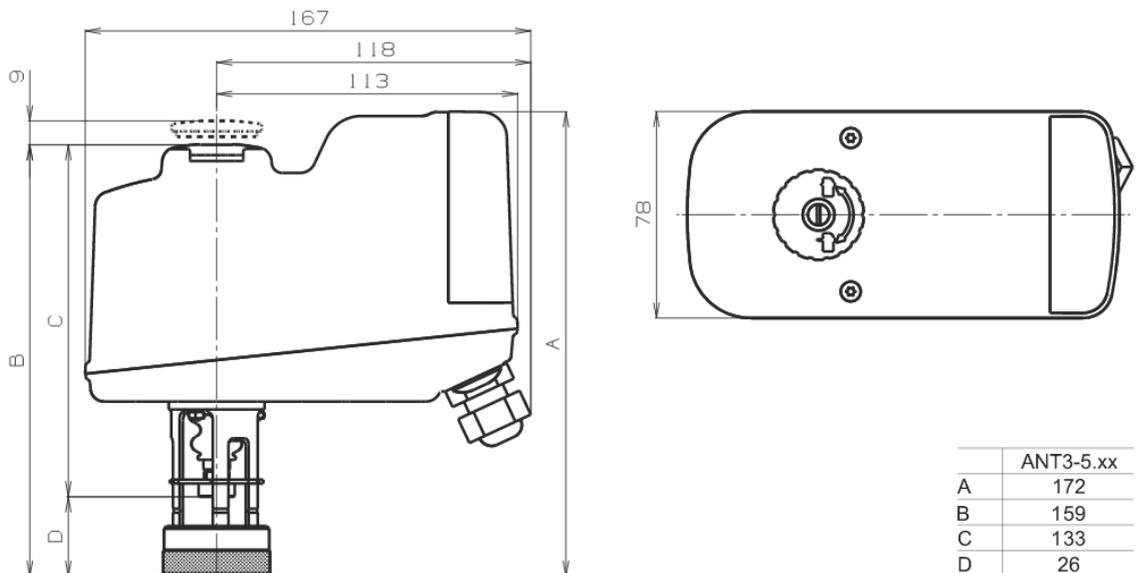
Technical data

Power supply	24 V AC/DC \pm 10%, 50 Hz
Consumption	7 VA
Control signal	0...10 V
Nominal force	300 N +30%
Nominal stroke	5,5 mm
Dimensions	see below
Run time 0...100%	0 s
Control input impedance	> 10 kOhm (V) 250 Ohm (mA)
Operating / storage conditions	-5..55°C, 5..95 %rH non-condensing / -15 ... 55°C

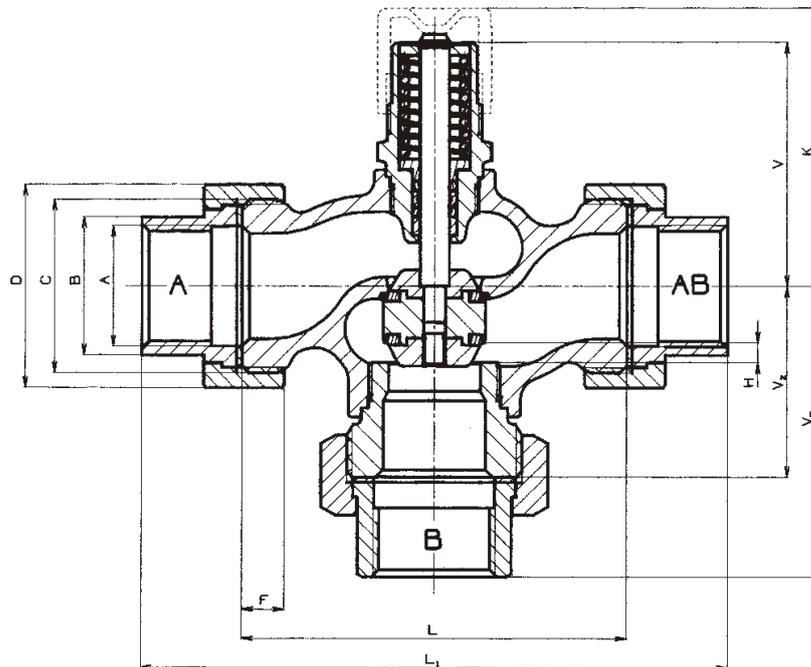
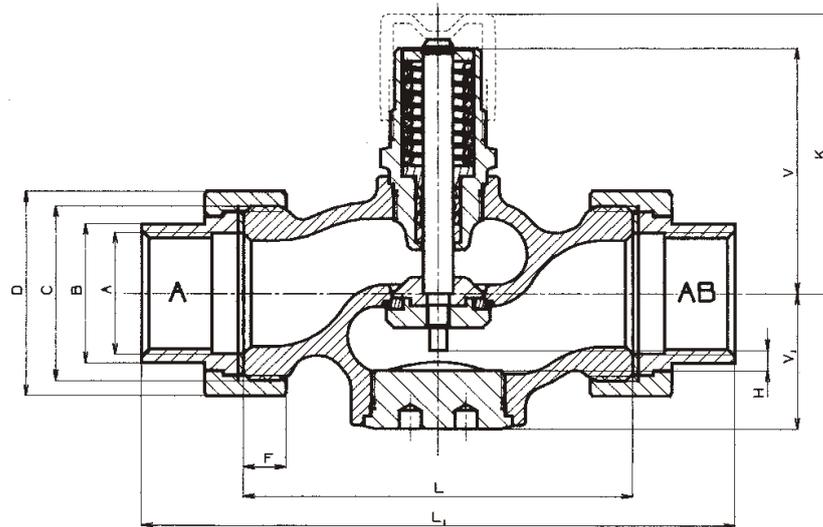
Terminals



Actuator dimensions



Dimensions



DN	L	L ₁	V	V ₁	V ₂	V ₃	K	A	B	C	D	ØM	ØN	F	H	m	
																2-port	3-port
	mm	mm	mm	mm	mm	mm	mm		mm		mm	mm	mm	mm	mm	kg	kg
15	100	146	67	36.5	50	73	77	Rp 1/2	25	G 1	41	16.1	21.3	9	5.5	1.15	1.35
20	100	149	67	36.5	50	74.5	77	Rp 3/4	32	G 1 1/4	51	21.7	26.9	10		1.45	1.75
25	105	160	67	37	52.5	80	77	Rp 1	38	G 1 1/2	56	29.5	33.7	11		1.7	2.15
32	130	193	78	49	65	96.5	88	Rp 1 1/4	47	G 2	71	37.2	42.4	12		3.0	3.8
40	140	207	78	49	70	103.5	88	Rp 1 1/2	53	G 2 1/4	76	43.1	48.3	14		3.5	4.4

08/2013 Subject to technical changes.