

Product Group Valves & Ball Valves.

Product Category Gas Transport.





Series L/PV-1

Ball Valves Series L/PV-1

Versions 2-, 3-, 4-, 5-way,
Type 2L/PV-1, 3L/PV-1, 4L/PV-1, 5L/PV-1

Special Features

- Corrosion-resistant
- Compact design
- Gas-tight
- Maintenance-free
- Easy to operate
- Easy mounting
- Position monitoring optionally

Application

The compact ball valves of the L/PV-1 series are suitable for shutting off gases and liquids in the temperature range up to +80 °C [176 °F]. The ball valves are specially designed for problems encountered in analytical technology and they are mainly used for shutting off and switching over sample-, test- and reference gases.

They have excellent chemical resistance to flue gases, SO₂, etc. In the case of solvents, please contact us.

Description

The ball valves of the L/PV-1 series are gas-tight, maintenance-free and easy to operate with the large T-handle.

Four versions are available as 2-, 3-, 4- and 5-way ball valves type 2L/PV-1, 3L/PV-1, 4L/PV-1 and 5L/PV-1 made of PVDF with 4 mm nominal diameter.

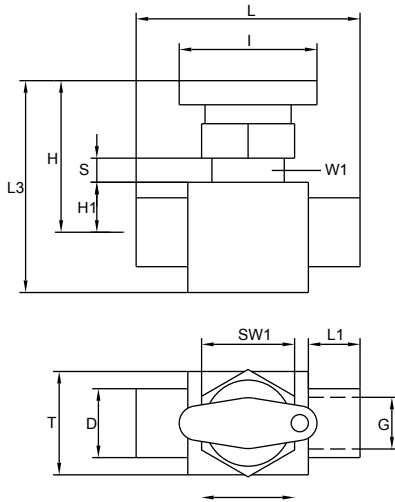
The ball sealing is ensured with adjustable pressure fittings and FKM O-rings. The ball valves are equipped with a G 1/4" female thread for flexible connection. An appropriate range of fittings is available for connecting hoses or tubes. - See data sheets "Flexible and rigid tube fittings, plugs and connectors with barbed fitting" and "Sample Lines Type SL1-8 DN" -

The ball valves are fixed by a lock nut which allows an easy system assembly with the connections being positioned as requested.

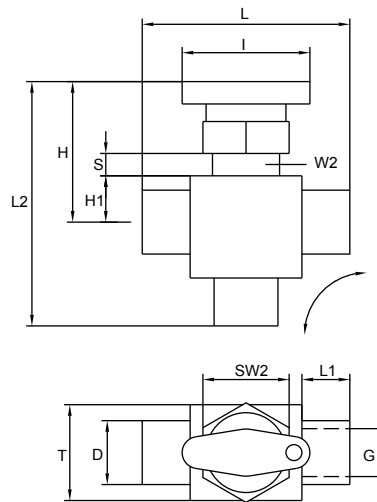
For monitoring a fixed position, e.g. when switching from sample gas to test gas, a micro-spring contact /K including position plate, mounting bracket, connection terminals and complete mounting on all 4 ball valve variants is optionally available. A potential-free change-over contact is provided for the status alarm.

Dimensions

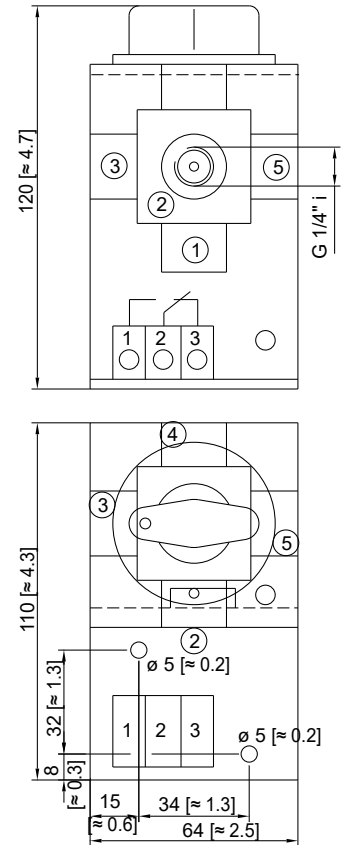
2-way-ball valve 2L/PV-1



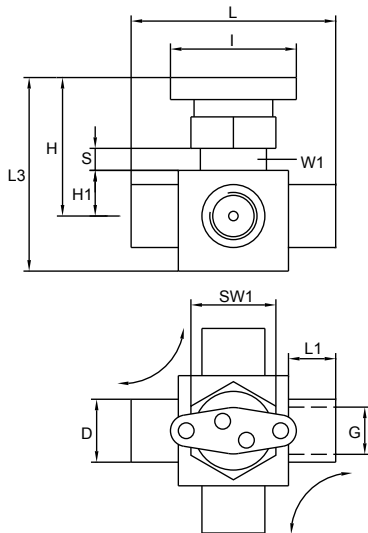
3-way-ball valve 3L/PV-1



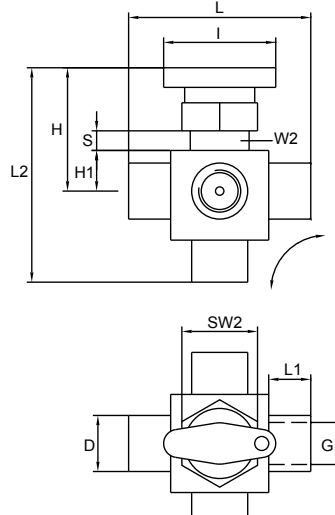
5-way-ball valve 5L/PV-1/K with status contact



4-way-ball valve 4L/PV-1

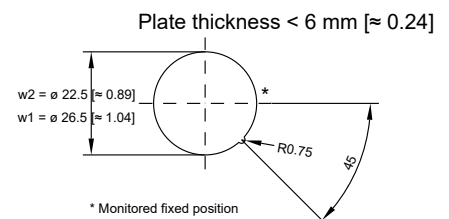


5-way-ball valve 5L/PV-1



- ① Central connection/outlet
- ② Monitored connection, e.g. sample gas
- ③ E.g. zero gas
- ④ E.g. test gas 1
- ⑤ E.g. test gas 2

Drilling diagram

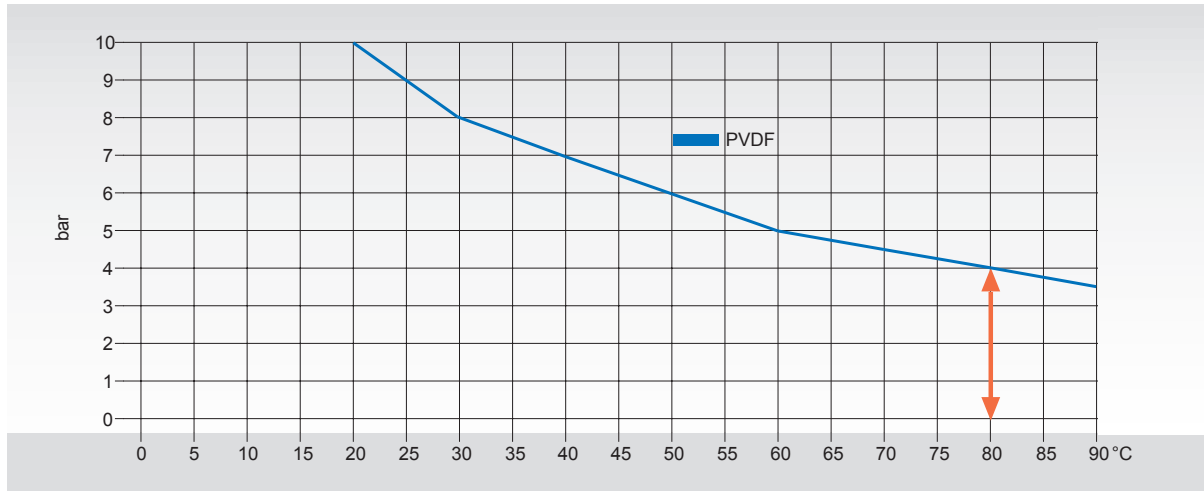


Dimensions in mm [Inches]

	D	G	H	H1	I	L	L1	L2	L3	S	SW1	SW2	T	W1	W2
2-way	ø 20 [≈ 0.79]	G 1/4" i	45 [≈ 1.77]	12.5 [≈ 0.49]	45.8 [≈ 1.80]	65 [≈ 2.56]			61 [≈ 2.40]	Max. 6 [≈ 0.24]	32 [≈ 1.26]		32 [≈ 1.26]	26 [≈ 1.02]	
3-way	ø 20 [≈ 0.79]	G 1/4" i	46.7 [≈ 1.84]	14 [≈ 0.55]	45.8 [≈ 1.80]	65 [≈ 2.56]	15 [≈ 0.59]	79.2 [≈ 3.12]		Max. 7 [≈ 0.28]		27 [≈ 1.06]	32 [≈ 1.26]		22 [≈ 0.87]
4-way	ø 20 [≈ 0.79]	G 1/4" i	45 [≈ 1.77]	12.5 [≈ 0.49]	45.8 [≈ 1.80]	65 [≈ 2.56]			61 [≈ 2.40]	Max. 6 [≈ 0.24]	32 [≈ 1.26]			26 [≈ 1.02]	
5-way	ø 20 [≈ 0.79]	G 1/4" i	≈ 49 [≈ 1.93]	14 [≈ 0.55]	ø 25 [≈ 0.98]	65 [≈ 2.56]	15 [≈ 0.59]	≈ 81.5 [≈ 3.21]		Max. 7 [≈ 0.28]		27 [≈ 1.06]			22 [≈ 0.87]

Dimensions in mm [Inches]

Max. operating pressure depending on the operating temperature



The max. operating pressure decreases with increasing temperature.
The reference temperature of 20 °C [68 °F] is based on air at 65 % humidity (DIN 50014).

Technical Data

Ball valves series L	Type 2L/PV1	Type 3L/PV1	Type 4L/PV1	Type 5L/PV1	Contact /K
Part No.	01V3000	01V3050	01V3100	01V3150	01V2005
Ball hole	I-shaped	L-shaped vertical	2 x L-shaped	L-shaped vertical	
Nominal width	NW 4*				
Max. operating pressure at 20 °C [68 °F]	PN10, 10 bar				
Flow coefficient	0.43*				
Operating and ambient temperature	-20 to +80 °C* [-4 to 176 °F]				-10 to +60 °C [14 to 140 °F]
Storage temperature	-30 to +110 °C [-22 to 230 °F]				-25 to +70 °C [-13 to 158 °F]
Operation	Manually				Manually
Type of mounting	Front plate Option for wall-mounting: mounting brackets as /K, Part No.: 01V2006 01V2004 01V2006 01V2004				Wall-mounting
Material of sample-contacting parts	PVDF, FKM*				
Connections G 1/4" i DIN ISO 228/1*	2 x	3 x	4 x	5 x	
Controlled position					1x
Electrical connection					Terminals 3 x 4 mm ²
Protection					IP20 EN 60529
Max. contact rating of change-over contact					48 V, 0.5 A, 24 W
Weight	0.07 kg [≈ 0.15 lb]	0.08 kg [≈ 0.18 lb]	0.09 kg [≈ 0.2 lb]	0.1 kg [≈ 0.22 lb]	0.14 kg [≈ 0.31 lb]

* Standard version ex stock; different designs, materials, nominal width or connections upon request.



RV-11

Needle Valve Series RV-11

with shutting-off and fine-adjusting function

Special Features

- Corrosion-resistant
- Compact design
- Gas-tight
- Maintenance-free
- Easy to operate
- Simple system assembly

Application

In an analysis system, gas flow rates must be precisely adjustable according to the application-specific requirements. This adjustment is carried out reliably and accurately with the compact M&C fine-adjusting needle valves RV-11-P, RV-11-T and RV-11-PK due to the optimally designed valve control system. The use of corrosion-resistant materials also guarantees analytical neutrality.

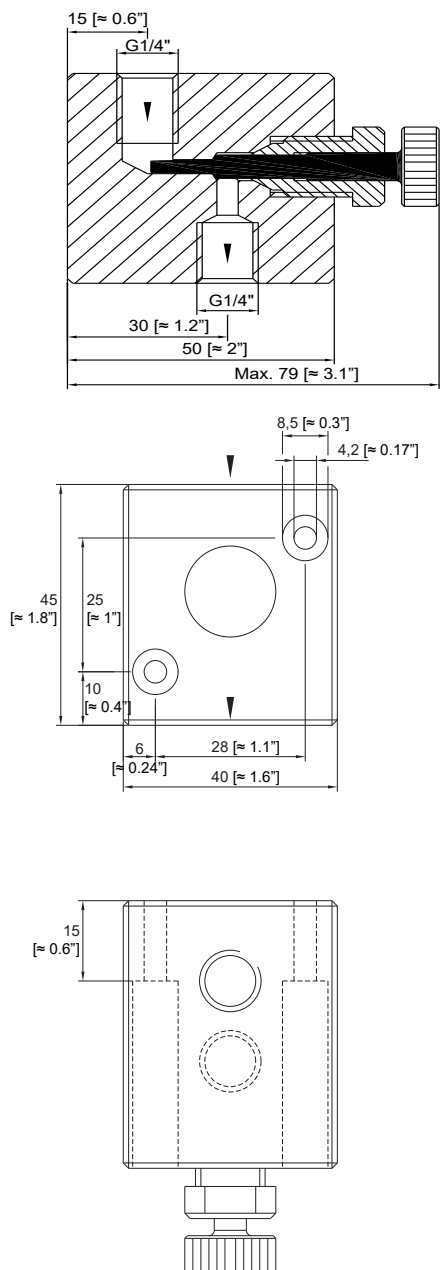
Description

Special features of the M&C needle valves of the series RV-11 are compact design, exact control characteristics with shut-off function, valve bodies made of different materials as well as the mounting option integrated into the valve body for the easy installation of tubed systems.

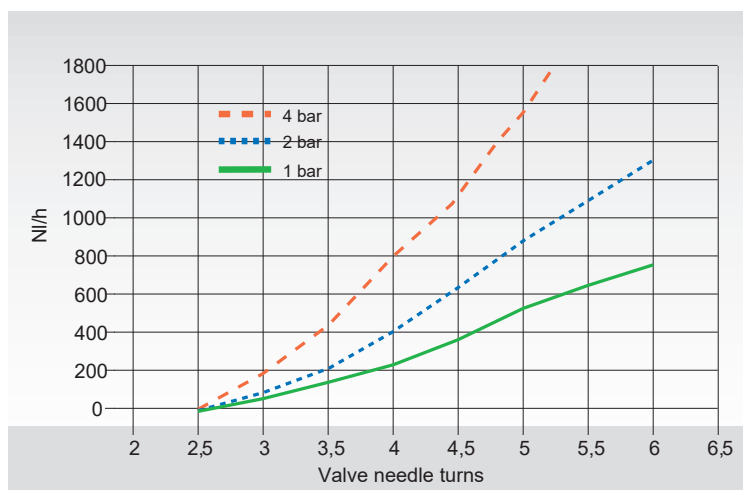
Gas inlet and outlet are arranged vertically to the valve needle. The gas inlet is located at the tip of the valve needle. The valve needle is reliably sealed and fixed in the valve body by the single-piece or, depending on the material, two-piece seal packing pressure screw, without O-rings. Approx. 2 1/2 needle turns are used for the shut-off function. A further 3 1/2 turns are required to carry out fine flow adjustment. The valve needle has no end stop and should only be actuated according to the control characteristic.

When installed on site, flexible adaptation to local conditions is possible by positioning the connections as requested. Tube connection fittings are optionally available.

Needle valve RV-11



Flow rate in NI/h of air and valve needle turns at 4, 2 and 1 bar upstream pressure.



Dimensions in mm [Inches]

Technical Data

Needle valve	RV-11-P	RV-11-T	RV-11-PK
Part No.	02V1000	02V1200	02V1300
Type of design	Straight-way type		
Typ of mounting	Wall-mounting		
Connections	G 1/4" i, DIN ISO 228/1		
Internal dead volume	2 ml		
Pressure, max.	4 bar		
Sample temperature, max.	80 °C [176 °F]	100 °C [212 °F]	150 °C [302 °F]
Ambient temperature, max.	80 °C [176 °F]	100 °C [212 °F]	150 °C [302 °F]
Material of sample-conducting parts			
Body	PVDF	PTFE	PEEK
Valve needle	PVDF	PCTFE	PEEK
Seal packing pressure screw	PTFE	PTFE	PTFE/PEEK
Weight	150 g [≈ 0.33 lb]	190 g [≈ 0.42 lb]	150 g [≈ 0.33 lb]

Please note: NI/h and NI/min refer to the German standard DIN 1343 and are based on these standard conditions: 0 °C [32 °F], 1013 mbar.



MV3/2-H

Electrically Heated Valves

Series V3/2-H, MV3/2-H

Version V3/2-H /PE: 3/2-way ball valve, electrically heated up to 180 °C;

Version MV3/2-H: 3/2-way solenoid valve, electrically heated up to 180 °C

Special Features

- Electrically heated up to max. 180 °C [356 °F]
- Integrated thermostat
- Status contact output
- Reliable connection technique
- No cold bridges
- Easy maintenance
- Optionally ball valve with position indicator

Application

In analytical technology, temperatures must often be maintained above the sample gas dew point. Therefore, it is absolutely necessary to avoid cold bridges. In order to ensure this, the temperature-controlled M&C three-way valves V3/2-H and MV3/2-H are used for shutting off or switching over sample gases and test gases up to an operating temperature of 180 °C [356 °F].

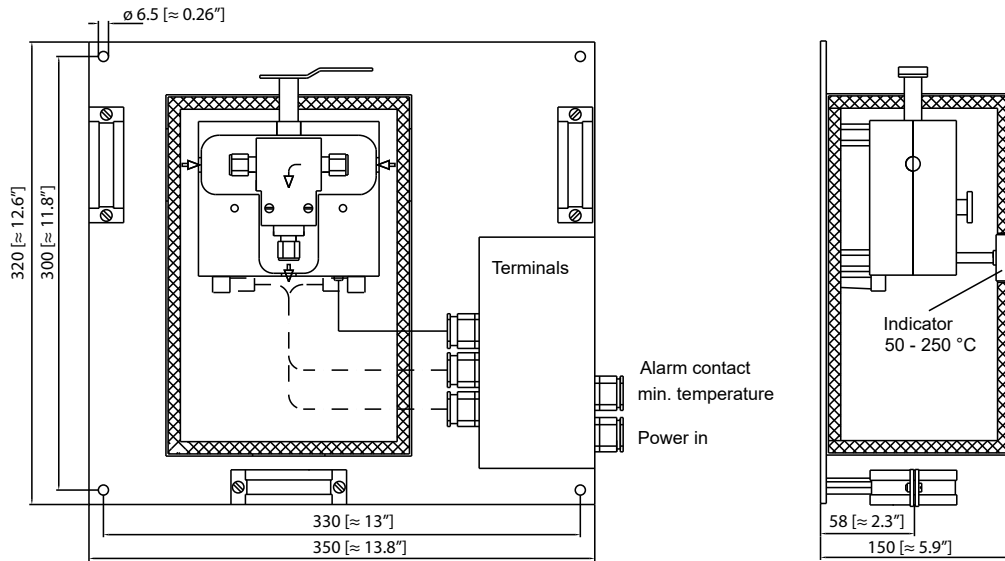
Description

The M&C 3/2-way ball valves V3/2-H and V3/2-H/PE including position indicator and the 3/2-way solenoid valve MV3/2-H are fixed on a heat-decoupled mounting plate. Heating is provided by a high-performance heating element. The control temperature can be adjusted up to 180 °C [356 °F] on the integrated control thermostat with high-temperature limiter and low-temperature alarm contact.

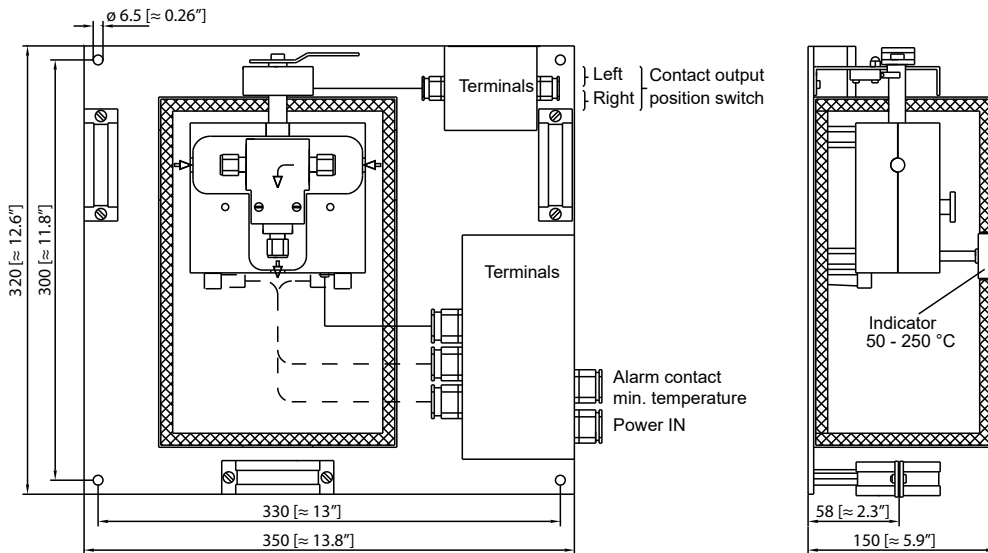
The thermally insulated cover with an opening for the dial thermometer is equipped with quick-release clamps. The connection terminals and the thermostat for temperature control are located in the electrical connection box. An additional connection box is used for the contact output of the position indicator for version V3/2-H/PE and in the case of version MV3/2-H, for the solenoid valve supply 24 V DC.

To avoid cold bridges, the connection fittings are also heated by means of heat-conducting jaws. Mounting brackets are available for fixing the electrically heated sample lines 3/4/5-N/M/H - see data sheet "Electrically Heated Sample Lines Type 3/4/5-N/M/H, Type 3 with PTFE tube, non-replaceable, Type 4 with PTFE tube, replaceable Type 5 with stainless steel tube, non-replaceable".

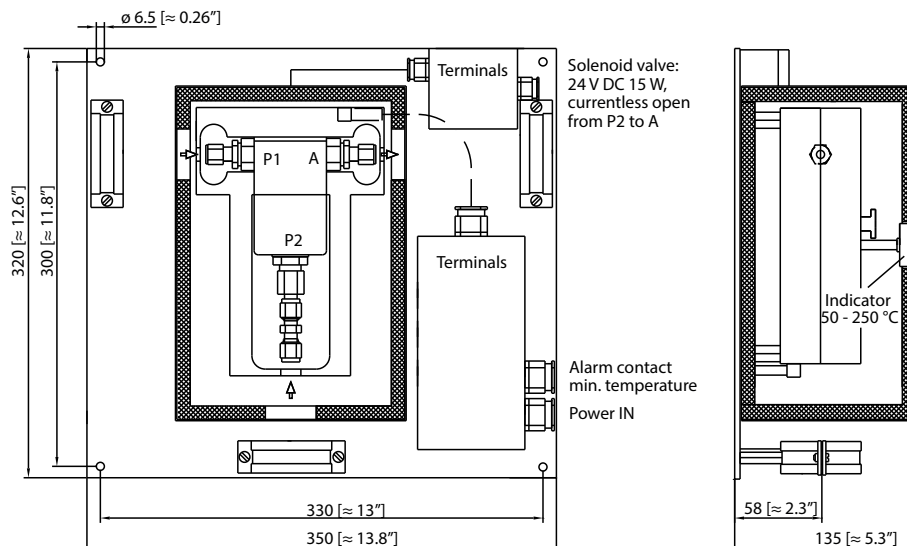
Electrically heated 3/2-way ball valve, version V3/2-H



Electrically heated 3/2-way ball valve with position identification, version V3/2-H/PE



Electrically heated 3/2-way solenoid valve, version MV3/2-H



Dimensions in mm [Inches]

Technical Data



	V3/2-H	V3/2-H/PE	MV2/2-H	MV3/2-H
Part No.	03V3000(a)*	03V3010(a)*	03V1500(a)*	03V2000(a)*
Position indicator	No	Yes	No	
Nominal width/C _v -value	DN 7, C _v 1.7	DN 7, C _v 1.7	DN 4, C _v 0.4	
Operating pressure	Max. 30 bar		Max. 2 bar	
Sample gas temperature	Max. +180 °C [356 °F]			
Ambient temperature	-25 to +60 °C [-13 to 140 °F]			
Storage temperature	-25 to +80 °C [-13 to 176 °F]			
Gas connections	Tube connectors ø 6 mm, optional ø 1/4" type Swagelok			
Temperature controller	Capillary thermostat with high-temperature limiter and low-temperature alarm integrated in electrical connection box			
Operating temperature	Adjustable from 0 to 180 °C [32 to 356 °F], factory-set to 180 °C [356 °F]			
Dial thermometer	Indicating range from 50 to 250 °C [122 to 482 °F]			
Low temperature alarm contact	Alarm point ΔT 30 °C, change over contact, voltage free; contact rating 250 V, 3 A~, 0.25 A=			
Position identification	Change-over contact Voltage-free, Contact rating 250 V AC 1 A			
Power supply solenoid valves			24 V DC 15 W	
Power supply	230 V/50 Hz, 350 VA or Part No. with (a)*: 115 V/60 Hz			
Electrical connections	Terminals 4 mm ² , 2x cable glands PG13 (3x with V3/2-H/PE, MV3/2-H)			
Degree of protection/electrical standard	IP54 EN 60529/EN 61010, EN 60519-1			
Dimensions (W x H x D)	350 x 320 x 150 mm [≈ 13.8" x 12.6" x 5.9"]		350 x 320 x 135 mm [≈ 13.8" x 12.6" x 5.3"]	
Weight	7.5 kg [≈ 16.5 lbs]		8 kg [≈ 17.6 lbs]	
Stagnant volume	Approx. 5 cm ³		Approx. 5 cm ³	
Materials of sample-contacting parts	SS 316Ti, PTFE		SS 316Ti, FFKM, FKM	
Type of Mounting	Wall-mounting			

* (a) is an addition to the Part No. for 115 V versions.

Please note: NI/h and NI/min refer to the German standard DIN 1343 and are based on these standard conditions: 0 °C [32 °F], 1013 mbar.