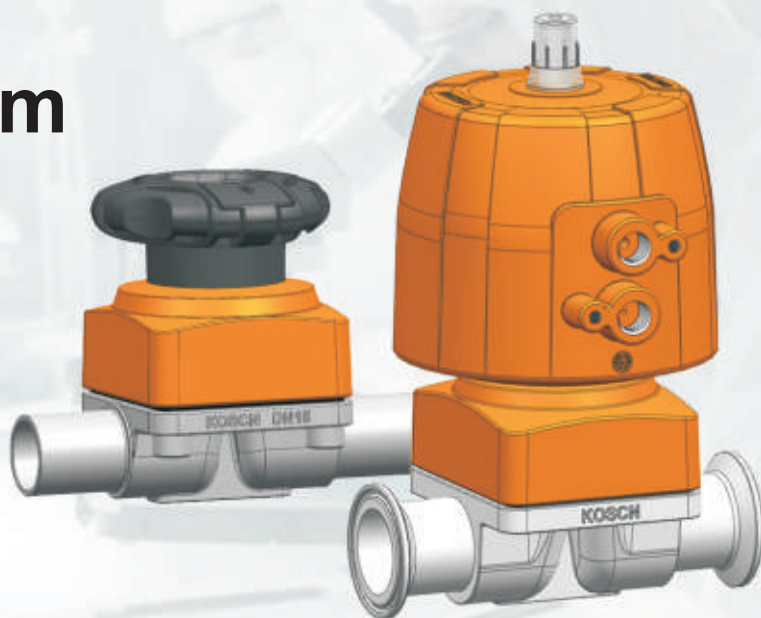


Metal diaphragm valves

SMV 321 Manual

SMV 323 Pneumatic



KOSCN Control Valves DV is a miniaturized and compact control valve with excellent corrosion resistance, heat resistance, and a wide range of applications. The inner wall is smooth and the ion extraction is low, which is especially suitable for occasions with high cleanliness requirements. Different material options are closer to application scenarios and application costs, making them more cost-effective.

Easy installation and maintenance

- *Independent actuator, replaceable and easy to disassemble
- * The pneumatic actuator is equipped with a pilot solenoid valve mounting base for quick installation
- * The pneumatic actuator has excellent lubrication performance and maintenance free
- * All plastic appearance structure, beautiful and corrosion-resistant
- * Superior lubrication performance, maintenance free
- * The handwheel has a locking groove every 22.5° for accurate opening and closing management
- * The welded valve seat is convenient for disassembly and reassembly

High safety performance

- * The embedded design of air nozzle thread is suitable for various installation strengths
- * The overpressure margin design of pneumatic actuator ensures safe application
- * The diameter of the elastic diaphragm is in contact with the weir surface of the valve body, with small area and zero leakage
- * The handwheel adjustment module is equipped with an integrated locking switch, which can be padlocked

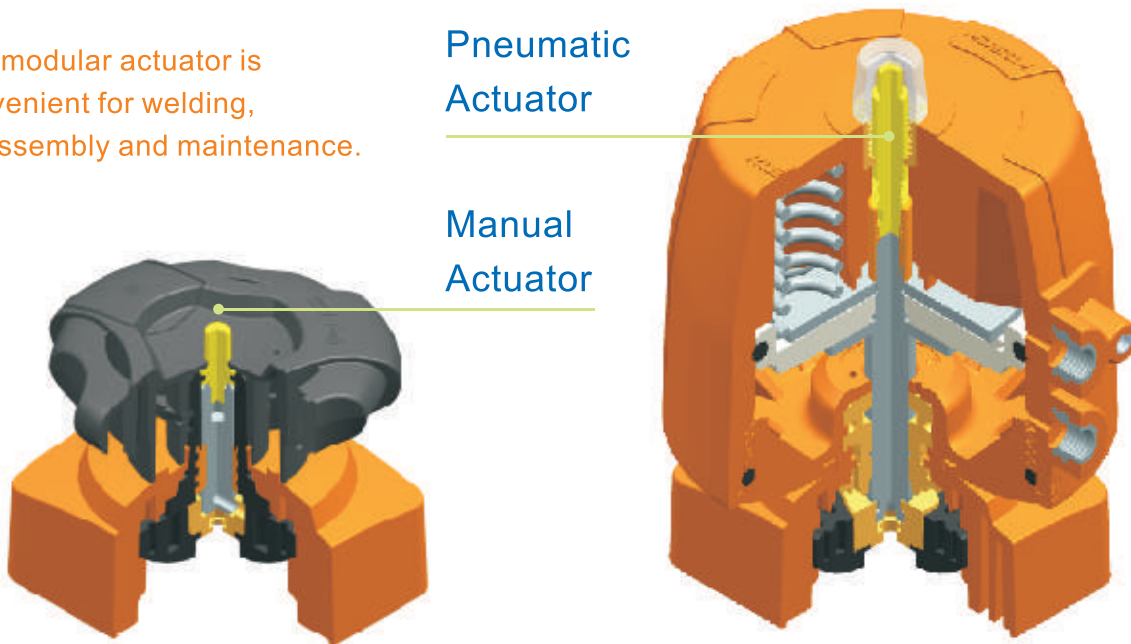
High Flexibility

- * Welded connection, sanitary clamp connection
- * Connection standard DIN 11850, ISO 1127, ASME-BPE
- * Diaphragm EPDM, EPDM-PTFE
- * Valve body SUS316L

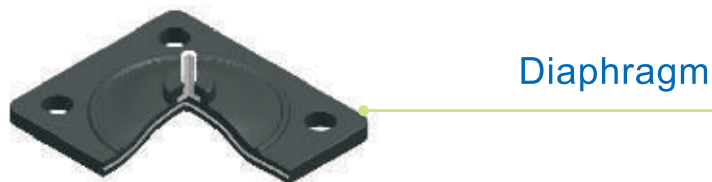
+ Product mix

The standard diaphragm valve is composed of valve body, diaphragm and actuator. Because of its unique characteristics, diaphragm valves have been widely used in industrial process piping systems.

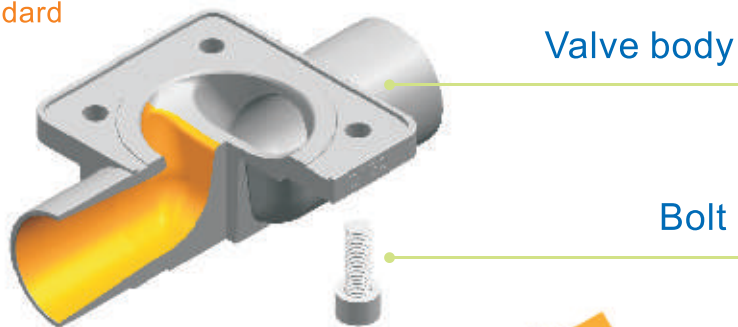
The modular actuator is convenient for welding, disassembly and maintenance.



- EPDM single diaphragm with fiber reinforcement
- EPDM preloading + PTFE double diaphragm
- Comply with FDA 177.1600 standard



Diaphragm



Valve body

When one side of the valve is connected with liquid and under pressure

The situation when both sides of the valve are connected with liquid and under pressure.

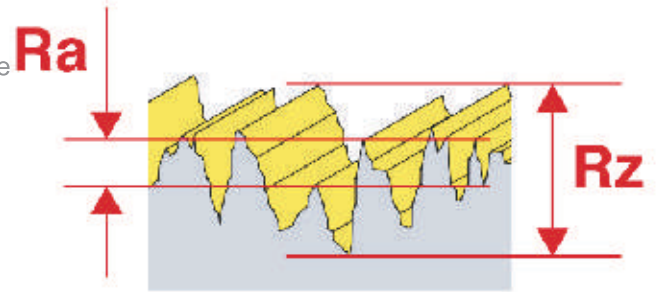


Bolt

Smooth flow passage

Roughness value

- The average roughness Ra value is regarded as a reliable data to confirm the surface treatment of the valve body.
- Lt5.6mm passing length / measuring range.
- The roughness is measured five times every 1c0.8mm on the polished surface to obtain the average Ra value.



Classification code

Classification according to DIN 11866

Ra MAX	Standard	Polishing	CODE
$\leq 1.0 \mu\text{m}$	Industrial Grade	● Mechanical ● Chemical	Standard
$\leq 0.4 \mu\text{m}$	Hygienic Grade	● ●	Standard + F

Inspection standard

- Diaphragm rubber FDA 177.2600
- All negative synthetic resin FDA 177.1550
- Safety of machinery EN ISO 16138:2006
- Airtight seal test DIN EN 12266-1
- Roughness standard DIN 11866-2008
- Industrial grade GB 2828 sampling inspection,
- sanitary 100% full inspection
- Material inspection GB 11170



Self emptying requirements

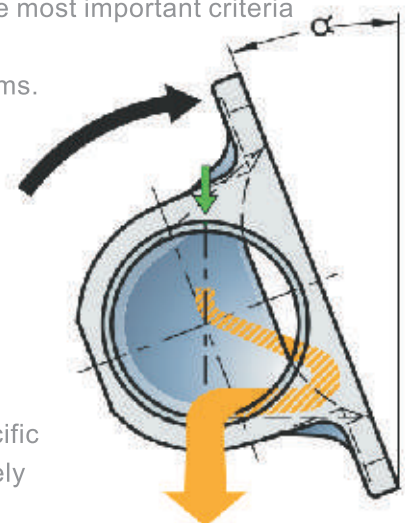
All valves used in both industrial and sanitary systems should meet one of the most important criteria That is, the valve has the function of self emptying.

Because of this feature, diaphragm valve is widely preferred in various systems.

For diaphragm valves installed horizontally, in order to obtain the best self emptying effect, the following requirements should be paid attention to:

- Correct valve design and treatment of internal contour of valve body
- Surface quality of valve body
- Space for free installation of valves
- Installation preset plan for Self emptying
- Connection mode
- Inclination angle of valve installation

It is important to point out that the installation of the valve should have a specific inclination with the horizontal line to ensure that the medium can be completely emptied when the valve is opened.



Flow capacity

All data are for 20°C water with 1 bar pressure difference

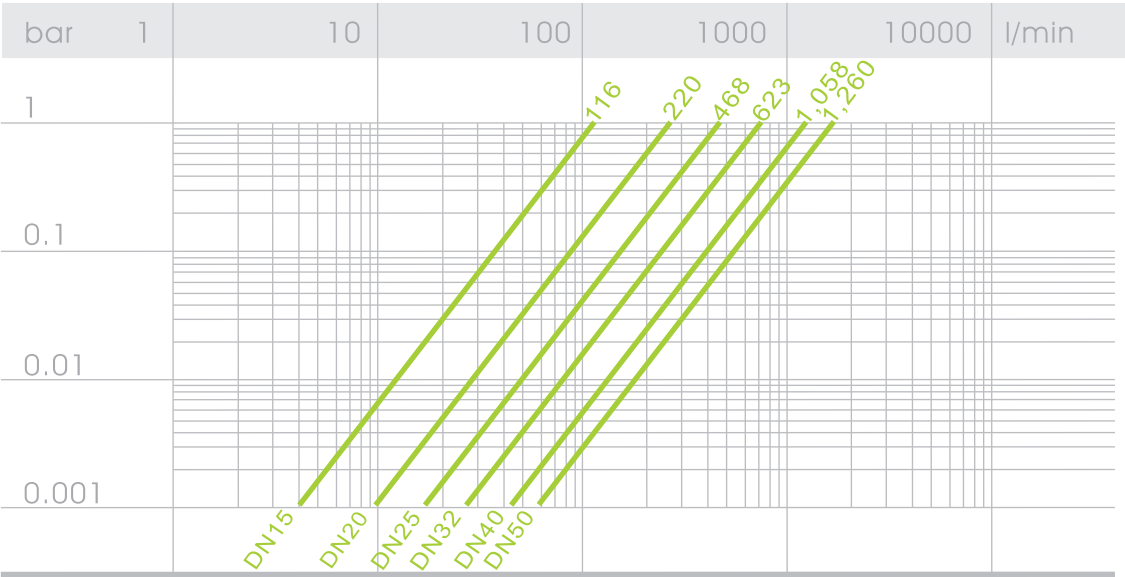
$C_v = k_v \times 0,07$

$F_v = k_v \times 0,0585$

$K_v \text{ (l/min)}$

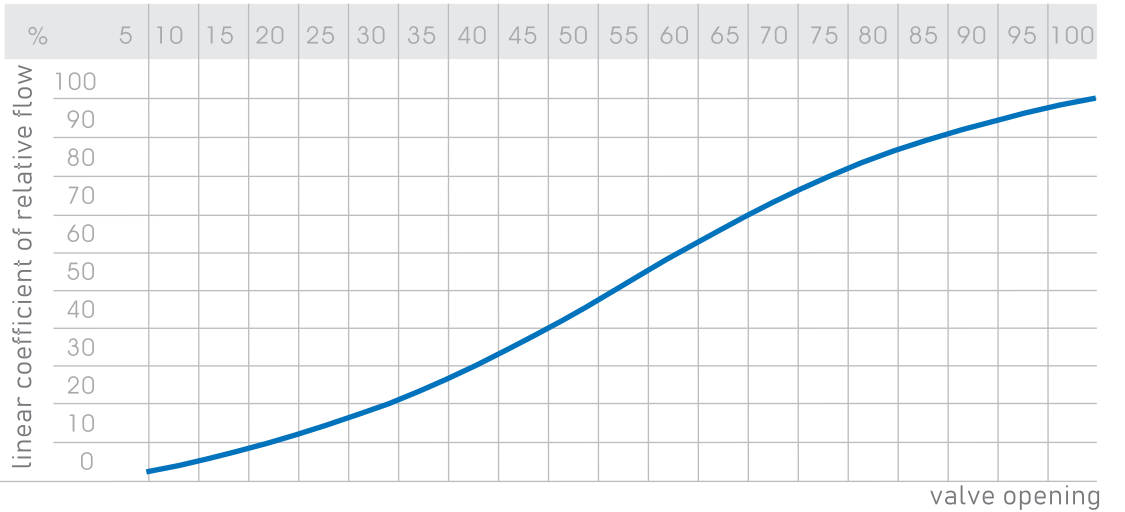
$C_v \text{ (gal/min) US}$

$F_v \text{ (gal/min) GB}$



Line chart for relative flow rate

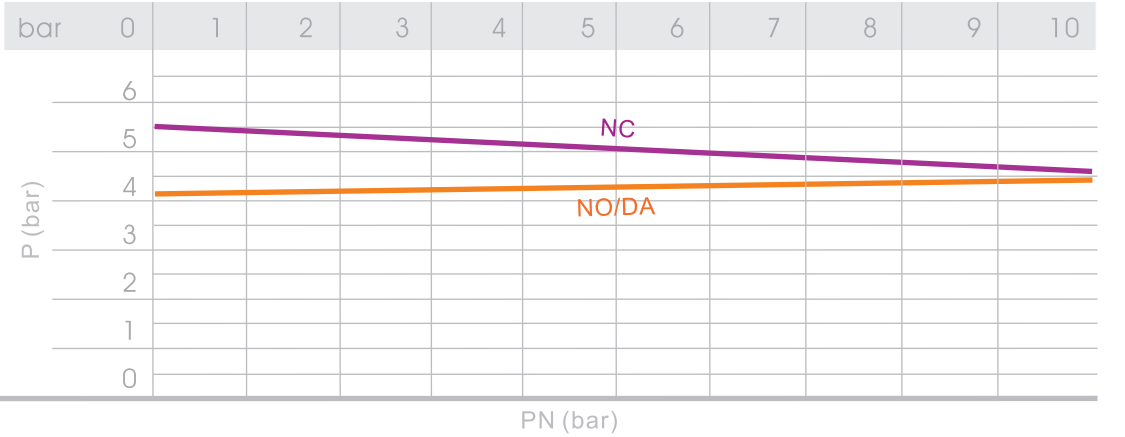
The linear coefficient of relative flow refers to the flow change as a function of valve opening stroke



Working pressure of pneumatic mechanism

EPDM, PTFE diaphragm
Maximum control pressure required

Actual drive data by caliber
See the maintenance manual for details



Long term maximum temperature

Plastic actuator with pneumatic and manual control modes, with standard design maximum temperature of 80°C (176°F)

Actuator functional characteristics

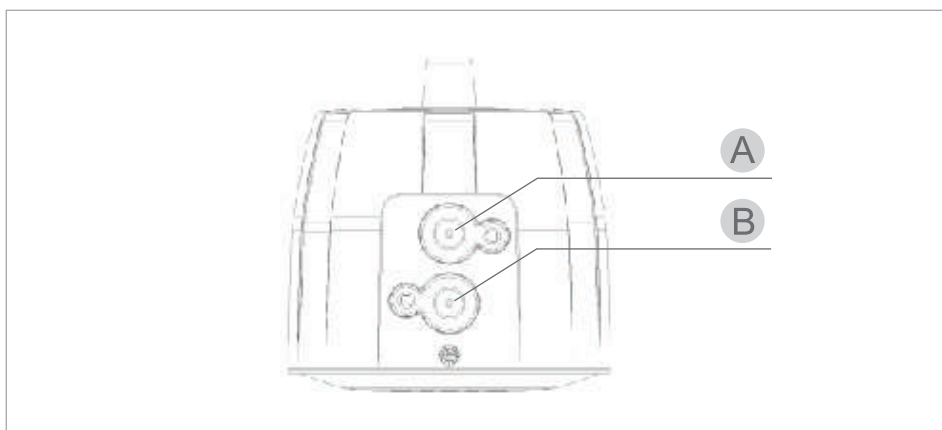
Control function	DA	SR	
	DA	NC	NO
valves open	Air	Air	Spring
valve closed	Air	Spring	Air

Gas consumption for actuators

Under the required drive pressure, the compressed air required to fully open or close the valves

		Dm ³						
d		20	25	32	40	50	63	75
NC		0,12	0,12	0,24	0,24	0,44	0,44	0,44
NO		0,20	0,20	0,44	0,44	0,88	0,88	0,88
DA	Open	0,12	0,12	0,24	0,24	0,44	0,44	0,44
	Closed	0,20	0,20	0,44	0,44	0,88	0,88	0,88

Connection of the drive air supply



Air source interface size: A air inlet G1/4 threaded

B air inlet G1/4 threaded

NC: control pressure connects air inlet B, valves open

NO: control pressure connects air inlet A, valves close

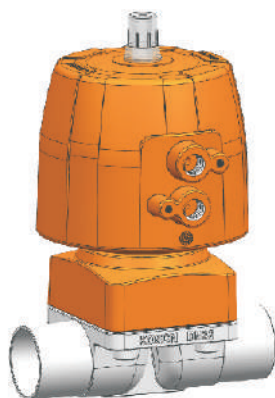
DA: control pressure connects air inlet A, valves close; control pressure connects air inlet B, valves open

NC/NO pilot-operated valve: with 3/2 solenoid valve

DA pilot-operated valve: with 5/2 solenoid valve

Note:

The driving pressure of all actuators cannot be higher than the upper limit to ensure safe use and achieve optimal functions. If the control pressure exceeds the limits, a malfunction may occur. In this case, a new actuator configuration is required.



Butt welding DIN 11850

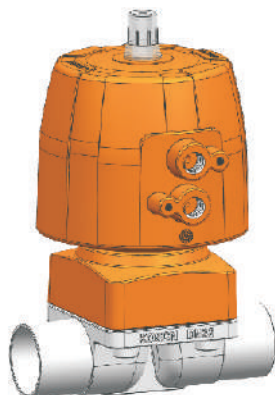
<i>d</i> (Mm)	<i>DN</i> (mm)	<i>PN</i> (bar)	<i>EPDM(per)</i>	<i>EPDM-PTFE</i>	<i>Sanitary Type</i>
NC					
1/2	15	10	323.922.5020	323.972.5020	323.972.5020F
3/4	20	10	323.922.5025	323.972.5025	323.972.5025F
1	25	10	323.922.5032	323.972.5032	323.972.5032F
1-1/4	32	10	323.922.5040	323.972.5040	323.972.5040F
1-1/2	40	10	323.922.5050	323.972.5050	323.972.5050F
2	50	10	323.922.5063	323.972.5063	323.972.5063F
2-1/2	65	10	323.922.5075	323.972.5075	323.972.5075F

NO

1/2	15	10	323.924.5020	323.974.5020	323.974.5020F
3/4	20	10	323.924.5025	323.974.5025	323.974.5025F
1	25	10	323.924.5032	323.974.5032	323.974.5032F
1-1/4	32	10	323.924.5040	323.974.5040	323.974.5040F
1-1/2	40	10	323.924.5050	323.974.5050	323.974.5050F
2	50	10	323.924.5063	323.974.5063	323.974.5063F
2-1/2	65	10	323.924.5075	323.974.5075	323.974.5075F

DA

1/2	15	10	323.926.5020	323.976.5020	323.976.5020F
3/4	20	10	323.926.5025	323.976.5025	323.976.5025F
1	25	10	323.926.5032	323.976.5032	323.976.5032F
1-1/4	32	10	323.926.5040	323.976.5040	323.976.5040F
1-1/2	40	10	323.926.5050	323.976.5050	323.976.5050F
2	50	10	323.926.5063	323.976.5063	323.976.5063F
2-1/2	65	10	323.926.5075	323.976.5075	323.976.5075F



Butt welding ISO 1127

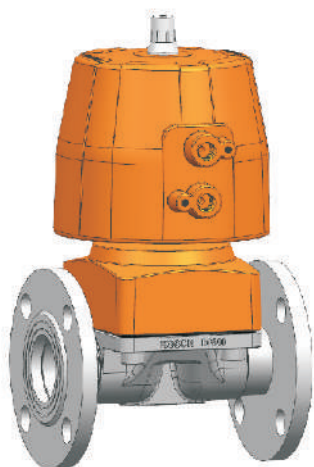
<i>d</i> (Mm)	<i>DN</i> (mm)	<i>PN</i> (bar)	<i>EPDM(per)</i>	<i>EPDM-PTFE</i>	<i>Sanitary Type</i>
NC					
1/2	15	10	323.922.5120	323.972.5120	323.972.5120F
3/4	20	10	323.922.5125	323.972.5125	323.972.5125F
1	25	10	323.922.5132	323.972.5132	323.972.5132F
1-1/4	32	10	323.922.5140	323.972.5140	323.972.5140F
1-1/2	40	10	323.922.5150	323.972.5150	323.972.5150F
2	50	10	323.922.5163	323.972.5163	323.972.5163F
2-1/2	65	10	323.922.5175	323.972.5175	323.972.5175F

NO

1/2	15	10	323.924.5120	323.974.5120	323.974.5120F
3/4	20	10	323.924.5125	323.974.5125	323.974.5125F
1	25	10	323.924.5132	323.974.5132	323.974.5132F
1-1/4	32	10	323.924.5140	323.974.5140	323.974.5140F
1-1/2	40	10	323.924.5150	323.974.5150	323.974.5150F
2	50	10	323.924.5163	323.974.5163	323.974.5163F
2-1/2	65	10	323.924.5175	323.974.5175	323.974.5175F

DA

1/2	15	10	323.926.5120	323.976.5120	323.976.5120F
3/4	20	10	323.926.5125	323.976.5125	323.976.5125F
1	25	10	323.926.5132	323.976.5132	323.976.5132F
1-1/4	32	10	323.926.5140	323.976.5140	323.976.5140F
1-1/2	40	10	323.926.5150	323.976.5150	323.976.5150F
2	50	10	323.926.5163	323.976.5163	323.976.5163F
2-1/2	65	10	323.926.5175	323.976.5175	323.976.5175F



Flange DIN

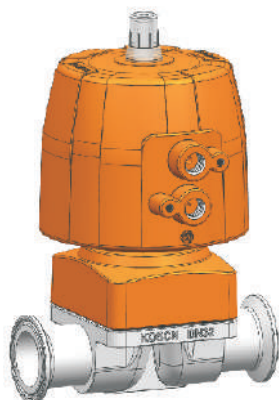
<i>d</i> (Mm)	<i>DN</i> (mm)	<i>PN</i> (bar)	<i>EPDM(per)</i>	<i>EPDM-PTFE</i>	<i>Sanitary Type</i>
NC					
1/2	15	10	323.922.7020	323.972.7020	323.972.7020F
3/4	20	10	323.922.7025	323.972.7025	323.972.7025F
1	25	10	323.922.7032	323.972.7032	323.972.7032F
1-1/4	32	10	323.922.7040	323.972.7040	323.972.7040F
1-1/2	40	10	323.922.7050	323.972.7050	323.972.7050F
2	50	10	323.922.7063	323.972.7063	323.972.7063F
2-1/2	65	10	323.922.7075	323.972.7075	323.972.7075F

NO

1/2	15	10	323.924.7020	323.974.7020	323.974.7020F
3/4	20	10	323.924.7025	323.974.7025	323.974.7025F
1	25	10	323.924.7032	323.974.7032	323.974.7032F
1-1/4	32	10	323.924.7040	323.974.7040	323.974.7040F
1-1/2	40	10	323.924.7050	323.974.7050	323.974.7050F
2	50	10	323.924.7063	323.974.7063	323.974.7063F
2-1/2	65	10	323.924.7075	323.974.7075	323.974.7075F

DA

1/2	15	10	323.926.7020	323.976.7020	323.976.7020F
3/4	20	10	323.926.7025	323.976.7025	323.976.7025F
1	25	10	323.926.7032	323.976.7032	323.976.7032F
1-1/4	32	10	323.926.7040	323.976.7040	323.976.7040F
1-1/2	40	10	323.926.7050	323.976.7050	323.976.7050F
2	50	10	323.926.7063	323.976.7063	323.976.7063F
2-1/2	65	10	323.926.7075	323.976.7075	323.976.7075F

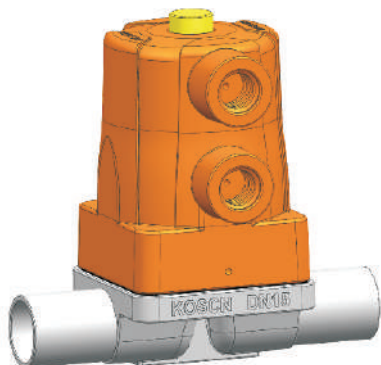


Clamp DIN 11850

<i>d</i> (Mm)	<i>DN</i> (mm)	<i>PN</i> (bar)	<i>EPDM(per)</i>	<i>EPDM-PTFE</i>	<i>Sanitary Type</i>
NC					
1/2	15	10	323.922.8020	323.972.8020	323.972.8020F
3/4	20	10	323.922.8025	323.972.8025	323.972.8025F
1	25	10	323.922.8032	323.972.8032	323.972.8032F
1-1/2	40	10	323.922.8050	323.972.8050	323.972.8050F
2	50	10	323.922.8063	323.972.8063	323.972.8063F
NO					
1/2	15	10	323.924.8020	323.974.8020	323.974.8020F
3/4	20	10	323.924.8025	323.974.8025	323.974.8025F
1	25	10	323.924.8032	323.974.8032	323.974.8032F
1-1/2	40	10	323.924.8050	323.974.8050	323.974.8050F
2	50	10	323.924.8063	323.974.8063	323.974.8063F
DA					
1/2	15	10	323.926.8020	323.976.8020	323.976.8020F
3/4	20	10	323.926.8025	323.976.8025	323.976.8025F
1	25	10	323.926.8032	323.976.8032	323.976.8032F
1-1/2	40	10	323.926.8050	323.976.8050	323.976.8050F
2	50	10	323.926.8063	323.976.8063	323.976.8063F

Clamp ASME-BPE

<i>d</i> (Mm)	<i>DN</i> (mm)	<i>PN</i> (bar)	<i>EPDM(per)</i>	<i>EPDM-PTFE</i>	<i>Sanitary Type</i>
NC					
1/2	15	10	323.922.8420	323.972.8420	323.972.8420F
3/4	20	10	323.922.8425	323.972.8425	323.972.8425F
1	25	10	323.922.8432	323.972.8432	323.972.8432F
1-1/2	40	10	323.922.8450	323.972.8450	323.972.8450F
2	50	10	323.922.8463	323.972.8463	323.972.8463F
NO					
1/2	15	10	323.924.8420	323.974.8420	323.974.8420F
3/4	20	10	323.924.8425	323.974.8425	323.974.8425F
1	25	10	323.924.8432	323.974.8432	323.974.8432F
1-1/2	40	10	323.924.8450	323.974.8450	323.974.8450F
2	50	10	323.924.8463	323.974.8463	323.974.8463F
DA					
1/2	15	10	323.926.8420	323.976.8420	323.976.8420F
3/4	20	10	323.926.8425	323.976.8425	323.976.8425F
1	25	10	323.926.8432	323.976.8432	323.976.8432F
1-1/2	40	10	323.926.8450	323.976.8450	323.976.8450F
2	50	10	323.926.8463	323.976.8463	323.976.8463F



Butt welding DIN 11850

<i>d</i> (Mm)	<i>DN</i> (mm)	<i>PN</i> (bar)	<i>EPDM(per)</i>	<i>EPDM-PTFE</i>	<i>Sanitary Type</i>
NC					
1/2	15	6	323.922.5020C	323.972.5020C	323.972.5020CF
NO					
1/2	15	6	323.924.5020C	323.974.5020C	323.974.5020CF
DA					
1/2	15	6	323.926.5020C	323.976.5020C	323.976.5020CF

Butt welding ISO 1127

<i>d</i> (Mm)	<i>DN</i> (mm)	<i>PN</i> (bar)	<i>EPDM(per)</i>	<i>EPDM-PTFE</i>	<i>Sanitary Type</i>
NC					
1/2	15	6	323.922.5120C	323.972.5120C	323.972.5120CF
NO					
1/2	15	6	323.924.5120C	323.974.5120C	323.974.5120CF
DA					
1/2	15	6	323.926.5120C	323.976.5120C	323.976.5120CF

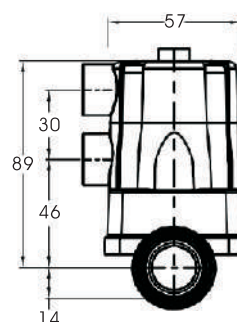
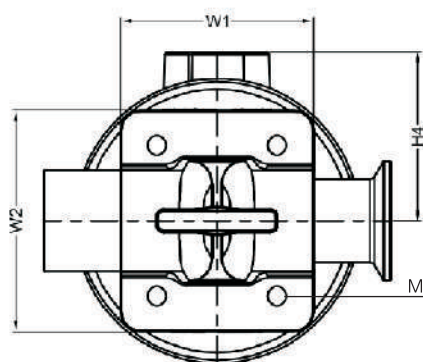
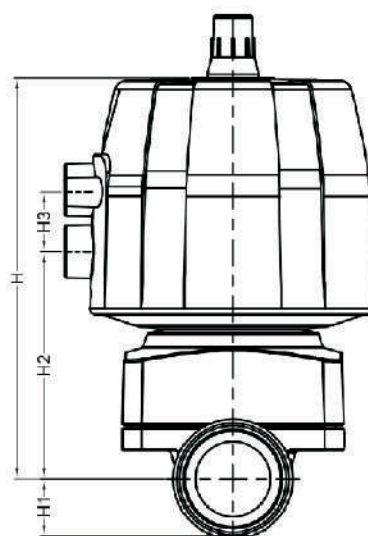
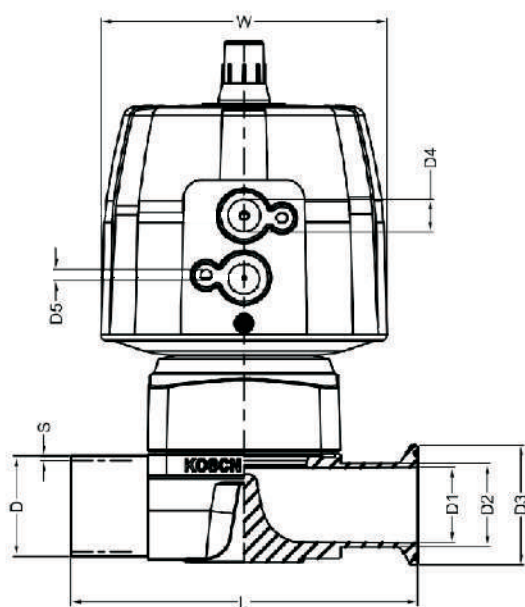
Clamp DIN 11850

<i>d</i> (Mm)	<i>DN</i> (mm)	<i>PN</i> (bar)	<i>EPDM(per)</i>	<i>EPDM-PTFE</i>	<i>Sanitary Type</i>
NC					
1/2	15	6	323.922.8020C	323.972.8020C	323.972.8020CF
NO					
1/2	15	6	323.924.8020C	323.974.8020C	323.974.8020CF
DA					
1/2	15	6	323.926.8020C	323.976.8020C	323.976.8020CF

Clamp ASME-BPE

<i>d</i> (Mm)	<i>DN</i> (mm)	<i>PN</i> (bar)	<i>EPDM(per)</i>	<i>EPDM-PTFE</i>	<i>Sanitary Type</i>
NC					
1/2	15	6	323.922.8420C	323.972.8420C	323.972.8420CF
NO					
1/2	15	6	323.924.8420C	323.974.8420C	323.974.8420CF
DA					
1/2	15	6	323.926.8420C	323.976.8420C	323.976.8420CF

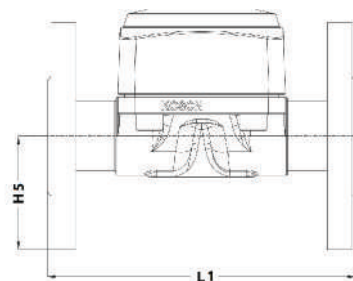
MV323 , SIZE DATA



Unit: mm

Inch	DN	W	D4_G	DIN 11850-2			ISO 1127			DIN 11850				ASME BPE (DIN EN 558-1)			
				D	S	L	D	S	L	D1	D2	D3	L	D1	D2	D3	L
1/2	15	96	1/4	19,0	1,5	108	21,3	1,6	108	16,0	19,0	34,0	108	9,40	12,7	25,0	108
3/4	20	96	1/4	23,0	1,5	117	26,9	1,6	117	20,0	23,0	34,0	117	15,75	19,0	25,0	117
1	25	120	1/4	29,0	1,5	127	33,7	2,0	127	26,0	29,0	50,5	127	22,10	25,4	50,5	127
1-1/4	32	120	1/4	35,0	1,5	146	42,4	2,0	146	32,0	35,0	50,5	146				
1-1/2	40	150	1/4	41,0	1,5	159	48,3	2,0	159	38,0	41,0	50,5	159	34,80	50,8	50,5	159
2	50	150	1/4	53,0	1,5	190	60,3	2,0	190	50,0	53,0	64,0	190	47,50	63,5	64,0	190
2-1/2	65	150	1/4				76,1	2,0	216								

Inch	DN	W	H	H1	H2	H3	H4	W1	W2	M	L1	H5-DIN
1/2	15	M5	129	13	69	24	58	57	57	5	132	47,5
3/4	20	M5	134	16	74	24	58	70	70	6	147	52,5
1	25	M5	169	19	94	24	71	82	94	8	157	57,5
1-1/4	32	M5	173	24	96	24	71	82	94	8	177	70,0
1-1/2	40	M5	218	26	125	32	88	109	122	10	191	75,0
2	50	M5	224	33	131	32	88	109	122	10	212	82,5
2-1/2	65	M5	232	41	139	32	88	109	122	10	220	87,5





Butt welding DIN 11850

<i>d</i> (Mm)	<i>DN</i> (mm)	<i>PN</i> (bar)	<i>EPDM(per)</i>	<i>EPDM-PTFE</i>	<i>Sanitary Type</i>
1/2	15	10	321.920.5020	321.970.5020	321.970.5020F
3/4	20	10	321.920.5025	321.970.5025	321.970.5025F
1	25	10	321.920.5032	321.970.5032	321.970.5032F
1-1/4	32	10	321.920.5040	321.970.5040	321.970.5040F
1-1/2	40	10	321.920.5050	321.970.5050	321.970.5050F
2	50	10	321.920.5063	321.970.5063	321.970.5063F
2-1/2	65	10	321.920.5075	321.970.5075	321.970.5075F

Butt welding ISO 1127

1/2	15	10	321.920.5120	321.970.5120	321.970.5120F
3/4	20	10	321.920.5125	321.970.5125	321.970.5125F
1	25	10	321.920.5132	321.970.5132	321.970.5132F
1-1/4	32	10	321.920.5140	321.970.5140	321.970.5140F
1-1/2	40	10	321.920.5150	321.970.5150	321.970.5150F
2	50	10	321.920.5163	321.970.5163	321.970.5163F
2-1/2	65	10	321.920.5175	321.970.5175	321.970.5175F



Clamp DIN 11850

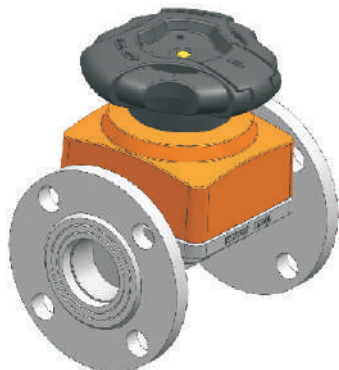
1/2	15	10	321.920.8020	321.970.8020	321.970.8020F
3/4	20	10	321.920.8025	321.970.8025	321.970.8025F
1	25	10	321.920.8032	321.970.8032	321.970.8032F
1-1/2	40	10	321.920.8050	321.970.8050	321.970.8050F
2	50	10	321.920.8063	321.970.8063	321.970.8063F
2-1/2	65	10	321.920.8075	321.970.8075	321.970.8075F

Clamp ASME-BPE

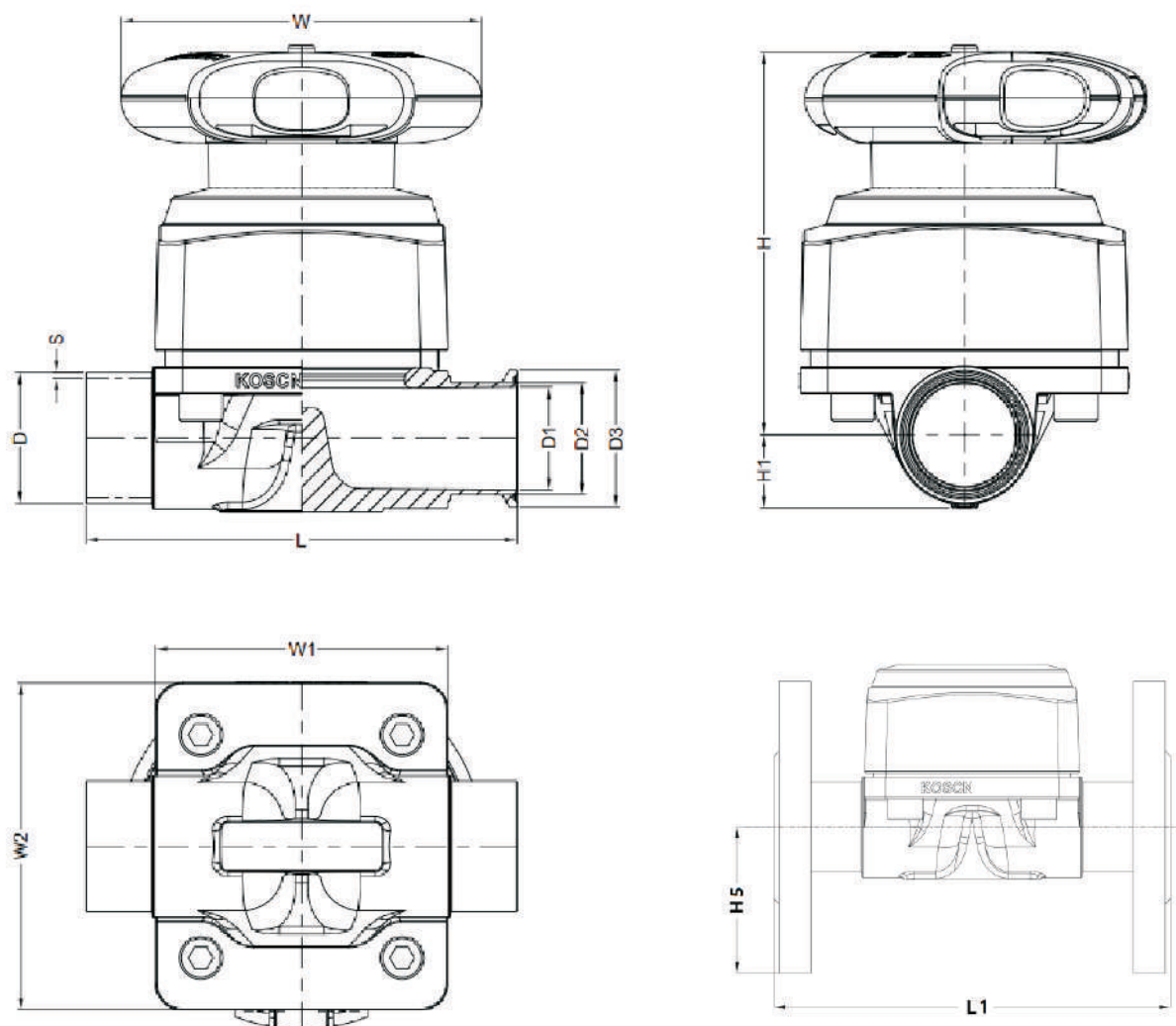
1/2	15	10	321.920.8420	321.970.8420	321.970.8420F
3/4	20	10	321.920.8425	321.970.8425	321.970.8425F
1	25	10	321.920.8432	321.970.8432	321.970.8432F
1-1/2	40	10	321.920.8450	321.970.8450	321.970.8450F
2	50	10	321.920.8463	321.970.8463	321.970.8463F
2-1/2	65	10	321.920.8475	321.970.8475	321.970.8475F

Flange DIN

1/2	15	10	321.920.7020	321.970.7020	321.970.7020F
3/4	20	10	321.920.7025	321.970.7025	321.970.7025F
1	25	10	321.920.7032	321.970.7032	321.970.7032F
1-1/4	32	10	321.920.7040	321.970.7040	321.970.7040F
1-1/2	40	10	321.920.7050	321.970.7050	321.970.7050F
2	50	10	321.920.7063	321.970.7063	321.970.7063F
2-1/2	65	10	321.920.7075	321.970.7075	321.970.7075F



MV321 , SIZE DATA



Unit: mm

Inch	DN	D	DIN 11850-2			ISO 1127			DIN 11850				ASME BPE (DIN EN 558-1)			
			D	S	L	D	S	L	D1	D2	D3	L	D1	D2	D3	L
1/2	15	65	19,0	1,5	108	21,3	1,6	108	16,0	19,0	34,0	108	9,40	12,7	25,0	108
3/4	20	65	23,0	1,5	117	26,9	1,6	117	20,0	23,0	34,0	117	15,75	19,0	25,0	117
1	25	87	29,0	1,5	127	33,7	2,0	127	26,0	29,0	50,5	127	22,10	25,4	50,5	127
1-1/4	32	87	35,0	1,5	146	42,4	2,0	146	32,0	35,0	50,5	146				
1-1/2	40	135	41,0	1,5	159	48,3	2,0	159	38,0	41,0	50,5	159	34,80	50,8	50,5	159
2	50	135	53,0	1,5	190	60,3	2,0	190	50,0	53,0	64,0	190	47,50	63,5	64,0	190
2-1/2	65	135				76,1	2,0	216								

Inch	DN	H	H1	W1	W2	L1	H5-DIN
1/2	15	70	13	57	57	132	47,5
3/4	20	75	16	70	70	147	52,5
1	25	101	19	82	94	157	57,5
1-1/4	32	106	24	82	94	177	70,0
1-1/2	40	138	26	109	122	191	75,0
2	50	144	33	109	122	212	82,5
2-1/2	65	152	41	109	122	220	87,5

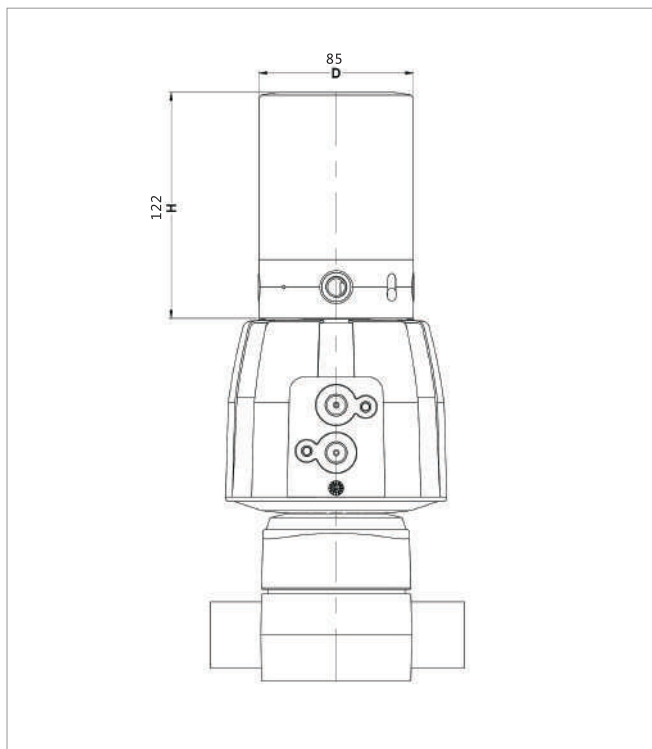
Intelligent electrical locator MA600



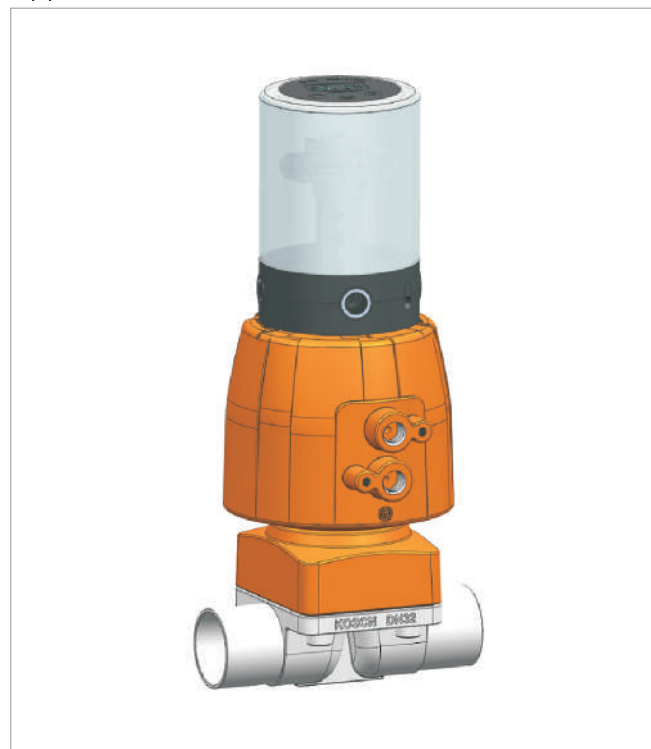
- * Control accuracy of valve position 0.5%
- * It has good static and dynamic tracking characteristics
- * Powerful software self-learning function, for the movement characteristics of the valve, develop the best control algorithm
- * Easy to install snap and threaded structures
- * Plastic base, Stainless steel case, Environmental corrosion resistance, flame retardant, anti - UV aging

Power Voltage	24V/DC $\pm$ 10%, power ripple < 200mV
Power consumption	SR $\leq$ 2W, DA $\leq$ 4W
Electrical connections	M12 Waterproof Conn
The input signal	4-20mA, 0-5V, 0-10V, 0-20mA
The input impedance	Current series $\leq$ 180 Ω , Voltage series $\leq$ 20K Ω
Accuracy of the input	$\pm$ 1%
Output type	4-20mA
A digital signal	2-wire binary output
Protection grade	IP 66
Shell material	PA66+SUS304
Environment temperature	-10 $^{\circ}$ C $\sim$ +50 $^{\circ}$ C
Control medium	Air, DIN ISO 8573-1, Granularity Class 5
Control pressure	0.5-0.6 Mpa

Size



Appearance



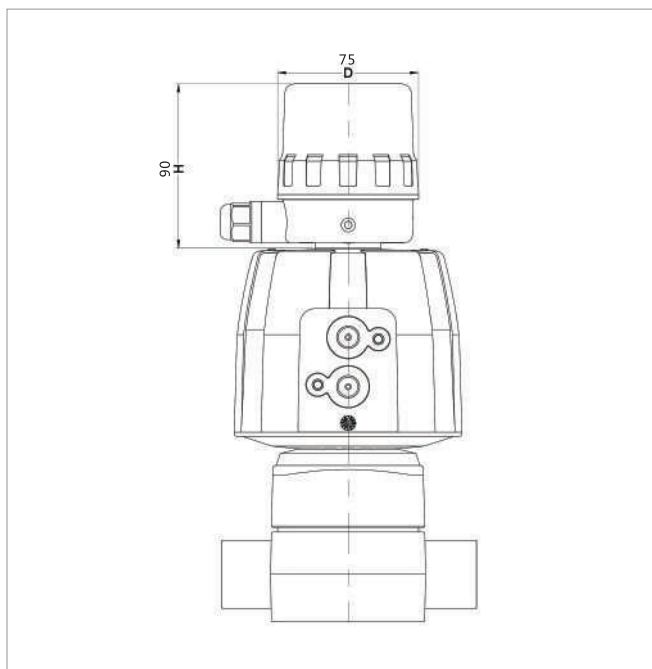
Limit switch MA610



- * Easy to install snap and threaded structures
- * Two-color LED working indicator light
- * Imported micro switch, high reliability
- * Suitable for DN15-100 caliber

Power voltage	24V/DC $\pm$ 10%, Single loop current Max50mA
Power consumption	$\leq$ 0.05W
Electrical connections	M12 Waterproof Conn
The input signal	Switch quantity DC24V or Passive contact
Protection grade	IP 66
Shell material	PA66+PC
Environment temperature	-20°C ~ +80°C

Size



Appearance



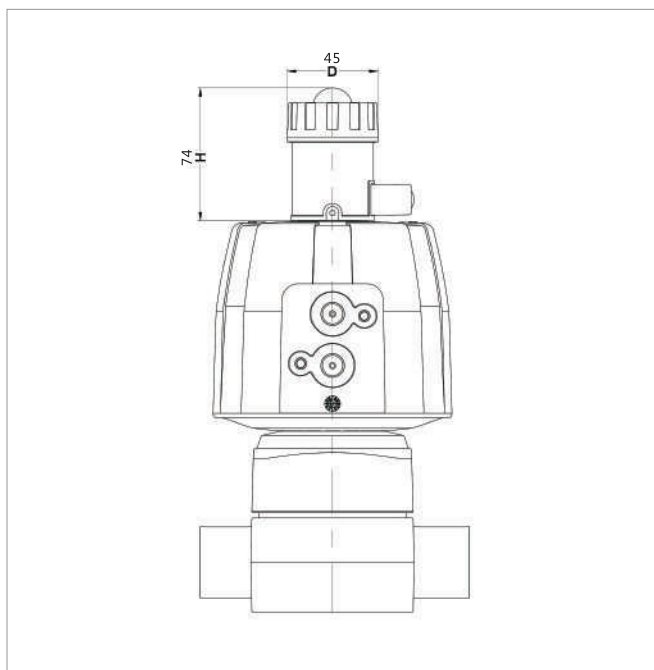
Compact limit switch MA611



- * Easy to install snap and threaded structures
- * Two-color LED working indicator light
- * Imported micro switch, high reliability
- * Suitable for DN15-50 caliber
- * Can not be used in high magnetic environment

Power voltage	24V/DC $\pm$ 10%, Single loop current Max50mA
Power consumption	$\leq$ 0.05W
Electrical connections	M12 Waterproof Conn
The input signal	Switch quantity DC24V or Passive contact
Protection grade	IP 65
Shell material	PA66+PC
Environment temperature	-20°C ~ +70°C

Size



Appearance



