

SMS Diaphragm valves

Model 61363 Manual diaphragm valves 982/985, SMS ends for welding - EPDM diaphragm
316L stainless steel



Specifications

Dimensions: DN25 to DN100 (1" to 4")

Connection: to be welded

MAP: 10 bar

Ambient temperature: -10°C to +80°C

Fluid temperature: -10°C to +90°C

Material: 316L stainless steel

EPDM diaphragm

Cast-iron body, lower Ra and PTFE diaphragm etc. on demand.

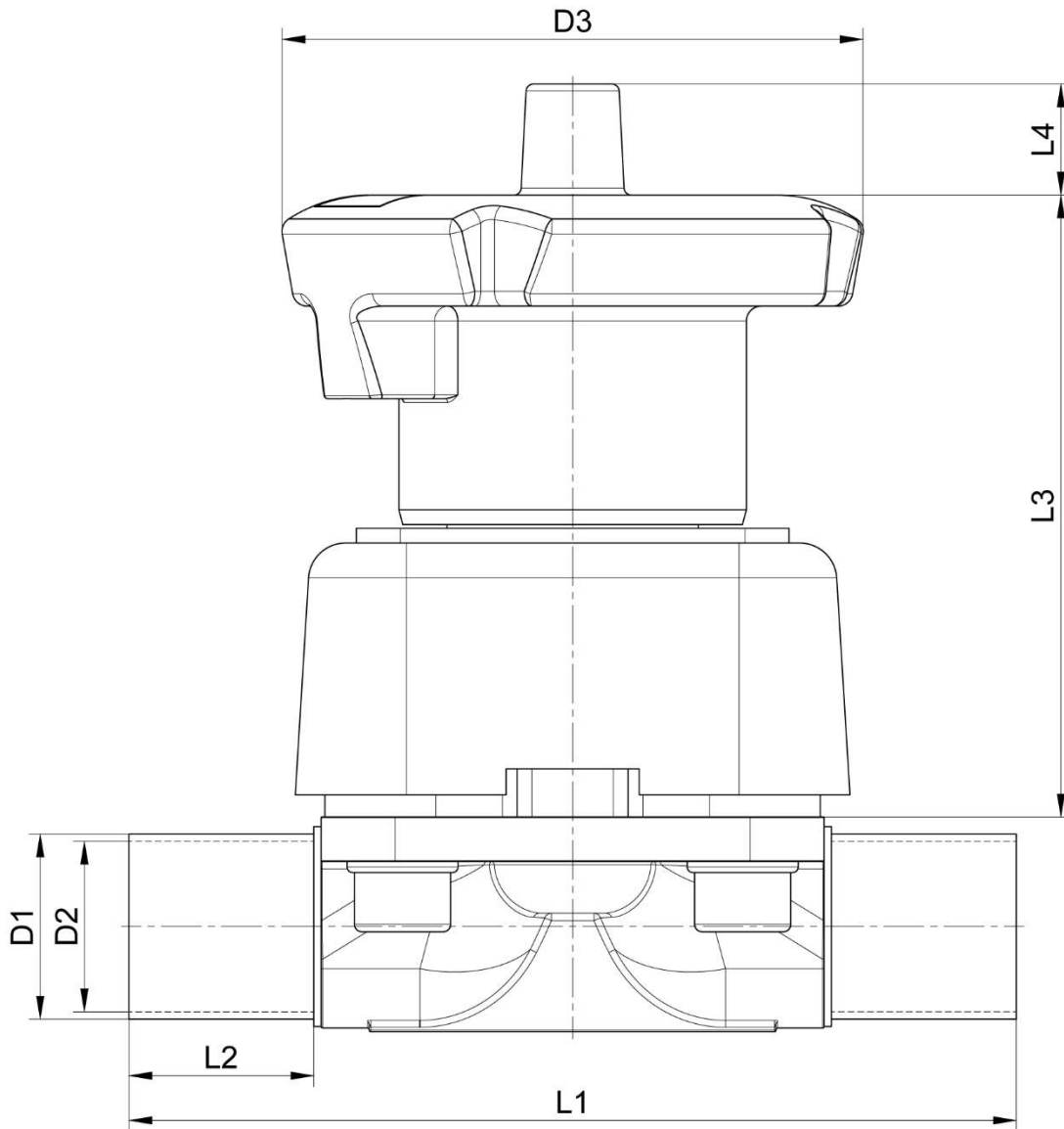


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61363-B VI124

DN25 to DN50 (982)

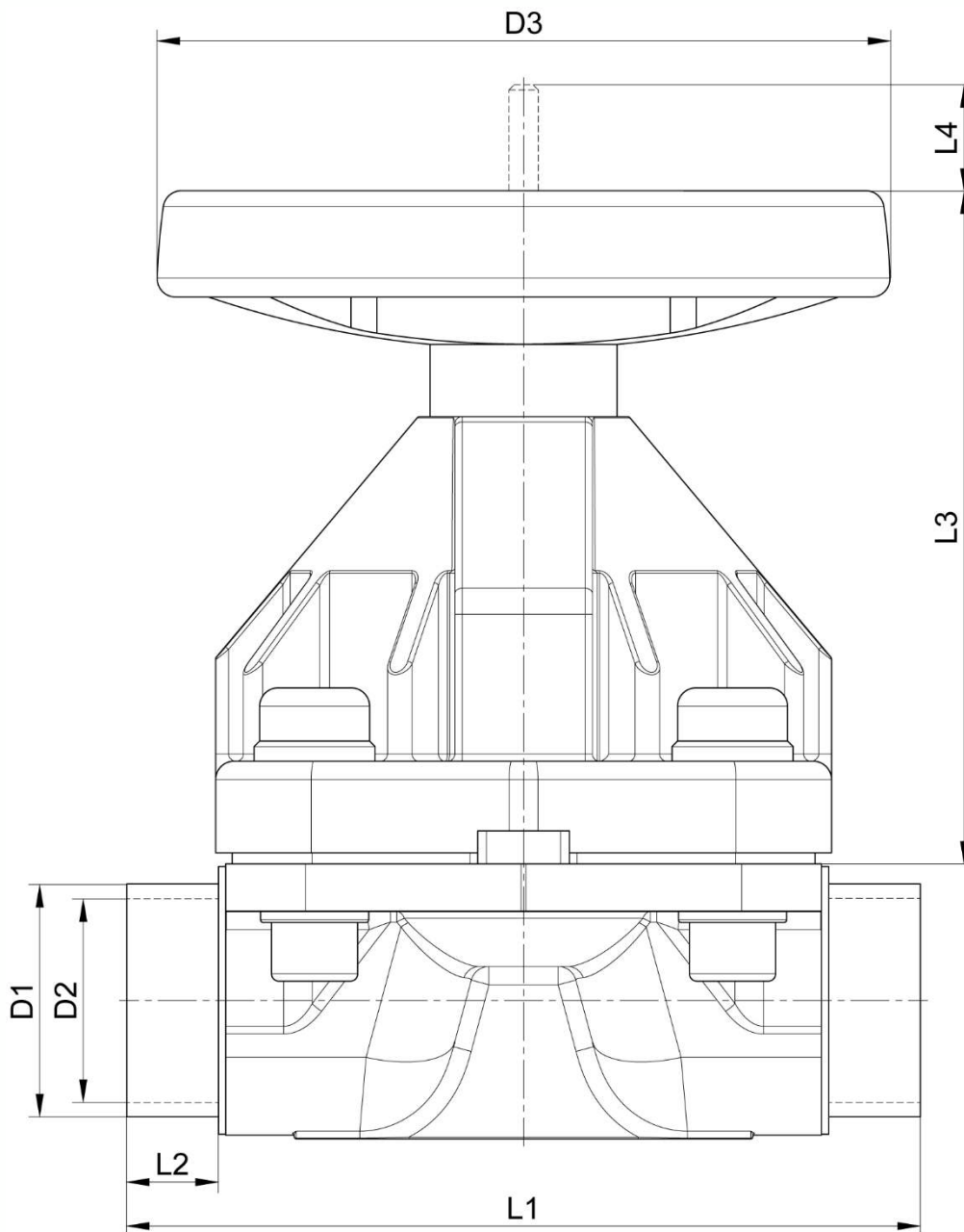


DN (mm)	NB (inches)	D1 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	Weight (kg)	Part number SS 316L
25	1"	25.0	22.6	154	120	25	85	15	0.87	661363-25
40	1"1/2	38.0	35.6	194	153	25	102	24	1.59	661363-38
50	2"	51.0	48.6	224	176	30	117	24	2.30	661363-51

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DN65 to DN100 (985)



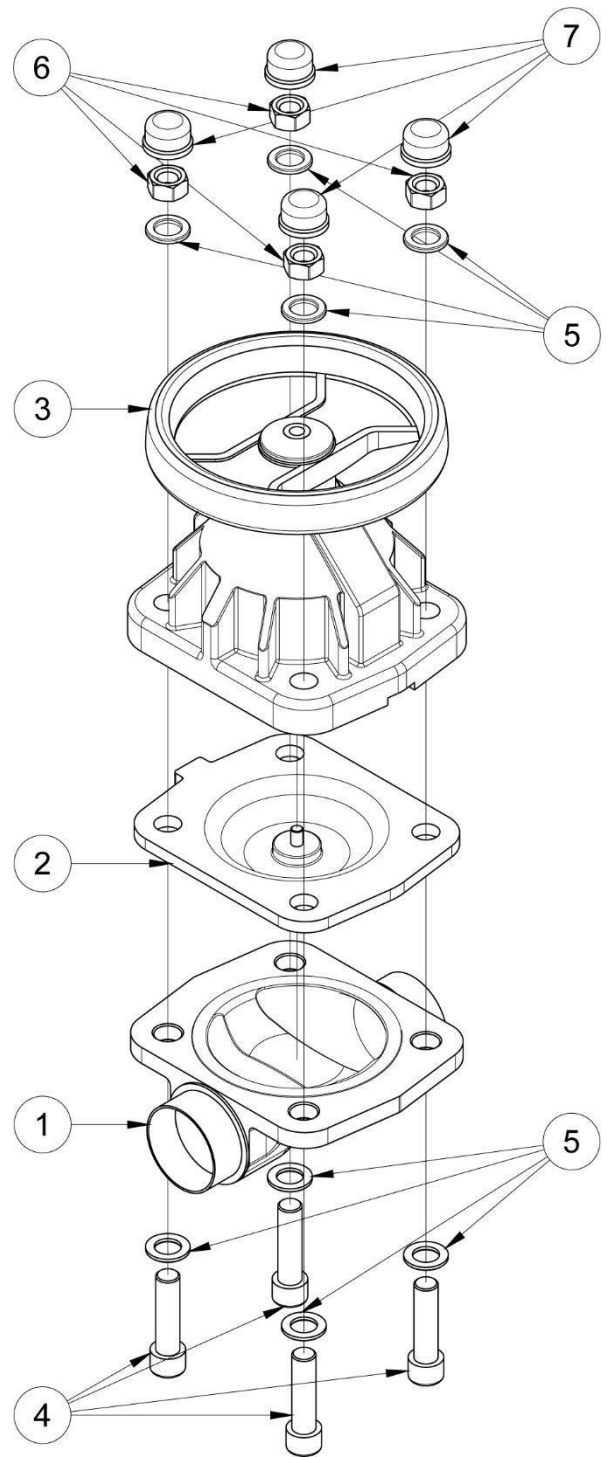
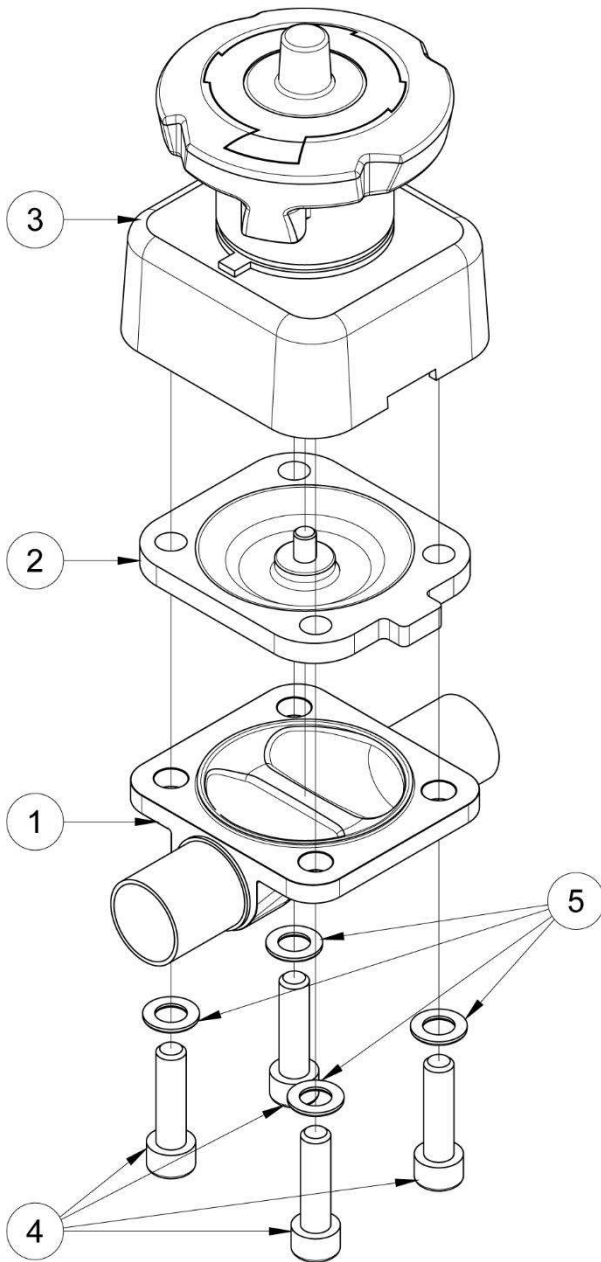
DN (mm)	NB (inches)	D1 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	Weight (kg)	Part number SS 316L
65	2"1/2	63.5	60.3	198	216	30	180	38	7.0	661363-63
80	3"	76.1	72.9	198	254	30	180	38	7.0	661363-76
100	4"	104	100	252	305	30	220	50	14.0	661363-104

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DN25 to DN50

DN65 to DN100



N°	Part Name	Material
1	BODY	AISI 316L
2	DIAPHRAGM	EPDM*
3	MANUAL HAND WHEEL	PLASTIC
4	BOLT	STAINLESS STEEL
5	WASHER	STAINLESS STEEL
6	NUT	STAINLESS STEEL
7	BOLT CAP	PLASTIC

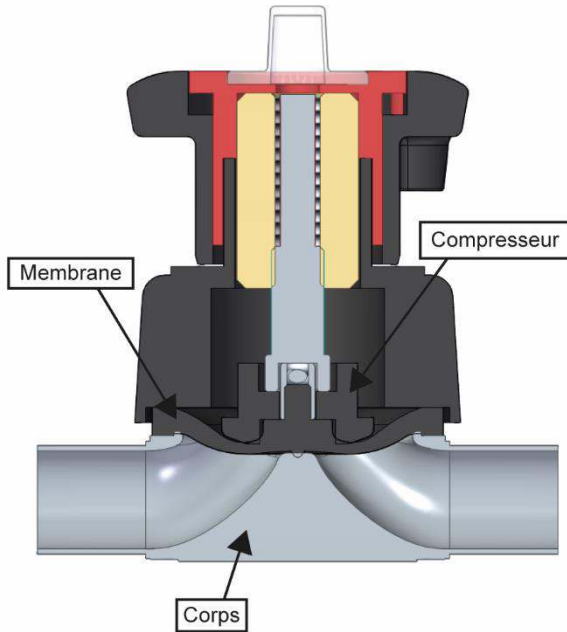
*as standard

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Use

Operating principal



A diaphragm valve is made up of a stainless steel body **1**, a diaphragm **2** and a hand wheel **3** which contains a compressor.

When the valve is closed, the compressor is in the lowest position it can be. In this position it will press on the diaphragm **2** so that it comes into contact with the valve's body **1**.

When the valve is open, the compressor is in the highest position it can be. This means that the diaphragm **2** can move away from the inside of the valve's body **1** and fluid can flow through the valve.

The inside of the valve's body is designed to minimise fluid retention zones.

You can use the visual position indicator in the middle of the hand wheel **3** to check if the valve is open or closed. When the valve is open the compressor's shaft will be visible at the top of the visual position indicator. When the valve is closed the shaft will be at the bottom of the visual position indicator.

Fluids

This valve is suitable for non-abrasive and non-coagulable fluids, as long as the fluids are chemically compatible with the valve parts that they can come into contact with.

The body and the diaphragm can come into contact with the fluid. So it is important to check that these parts are compatible with your process.



Warning: If the valve is used with fluids that have a temperature above 60°C then people could burn themselves if they touch it.

Flow coefficient and pressure loss

Dimensions	DN25	DN40	DN50	DN65	DN80	DN100
Kv (m ³ /h)	14.2	43.0	52.0	89.0	123.0	192.0

The flow coefficient Kv defines water flow rate through a device (valve, check valve etc.) for a pressure loss (ΔP) of 1 bar. Kv is expressed mathematically as:

$$\Delta P = \frac{Q^2}{Kv^2} \quad \text{so:} \quad Kv = \frac{Q}{\sqrt{\Delta P}} \quad \begin{array}{l} Q \text{ in m}^3/\text{h} \\ \Delta P \text{ in bar} \end{array} \quad \begin{array}{l} Kv \text{ in m}^3/\text{h} \\ Cv \text{ in GPM (Gallons} \\ \text{per minute - US)} \end{array} \quad Cv = 1.16 \times Kv$$

Assembly and maintenance instructions

Installation

You can install the valve in any position and direction. However, check that all fluids can flow through it freely.

Check that all piping is perfectly aligned and that the piping support structure is dimensioned so that the valve is not subject to any external stresses. The piping support structure must only support the pipes, not the valve.

Clean the installation and check that the equipment is clean and free from foreign bodies that could damage the valve.

How to install a valve with plain ends:

Welding must be carried out by qualified personnel. You need to disassemble the valve before welding it to the piping to make sure that you do not damage the valve.

You can install the valve in a self-draining position so that fluid will flow out of the valve by itself when it is not under pressure. To do this, incline the valve at an angle of α with respect to the horizon. The value of α is written on the body of each diaphragm valve.

Pressure test the installation according to the relevant standards (e.g. EN 12266-1), but do not exceed the valve's specifications.

Maintenance

The valve does not require any specific maintenance if it is used in normal operating conditions.

If the valve is never opened or closed during normal operation then you should regularly open and close the valve to check that it is still working correctly.

You may need to change some of the valve's parts due to unusual wear and tear, or if a fluid has damaged the valve and caused a leak or malfunction.

If this is the case see the "Assembly / Disassembly" section below.

Assembly / Disassembly

The maintenance and removal/reassembly of the valve must be carried out by personnel who are qualified and trained for this type of intervention.



Warning: Before you work on the valve, check that the installation has been stopped and that the piping is empty and is not pressurised.

Warning: If the valve is used with fluids that have a temperature above 60°C then people could burn themselves if they touch it.

Warning: Beware of hazardous materials - follow the instructions provided by the suppliers.

Disassembly:

Open the valve. You can check the position of the valve using the visual indicator in the middle of the handwheel **3**.

For DN 65 valves and above, first remove the bolt caps **7**. Unscrew the nuts **6** and then remove them as well as the washers **5**.

For all valve sizes, unscrew the bolts **4** and remove them along with their washers **5**.

Remove the manual handwheel **3** and the diaphragm **2** from the body **1**.

Close the valve.

Before you disassemble the diaphragm, mark its position so that you can reposition it correctly during reassembly. Unscrew the diaphragm **2** from the compressor by turning it anti-clockwise.

Clean the parts if required.

Replace the diaphragm if it shows signs of wear.

Assembly:

Open the valve.

Place the handwheel **3** and the diaphragm **2** onto the valve's body **1** making sure that these parts are the right way round.

Insert the washers **5** and bolts **4** and tighten them by hand.

For DN65 valves and above, put the washers **5** onto the ends of the bolts **4** and then tighten the nuts **6** and put the bolts caps **7** into place.

Close the valve manually.

Tighten the bolts **4** in a criss-cross pattern and adhere to the tightening torques given in the table below.

DN	Tightening torque (Nm)		Bolt sizes	Quantity
	EPDM	PTFE/EPDM		
25	5	5	M8	4
40	9	12	M10	4
50	14	14	M12	4
65-80	50	60	M16	4
100	40	50	M12	8

Pressure test the valve and check that it can be opened and closed before you put the installation back into service.

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Troubleshooting

Defect	Potential cause	Solution
The valve does not close. The valve does not close completely.	The operating pressure is too high.	Do not exceed the maximum indicated pressure. If the maximum pressure is exceeded, check that none of the valve's parts are damaged.
	The valve is blocked by a foreign body.	Disassemble the valve, remove the foreign body and check that the valve's parts have not been damaged.
	The diaphragm is damaged.	Replace the diaphragm.
The valve does not open. The valve does not open completely.	The diaphragm is not assembled correctly.	Disassemble the handwheel part of the valve's body and assemble the diaphragm correctly.
The valve is leaking around the diaphragm.	The diaphragm is not assembled correctly.	Disassemble the handwheel part of the valve's body and assemble the diaphragm correctly.
	The bolt tightening torque was not respected during assembly.	Check the connection between the handwheel and the valve's body. Tighten with the required torque.
	The diaphragm is damaged.	Replace the diaphragm.
	The manual handwheel is damaged.	Replace the manual handwheel.
	The valve's body is damaged.	Replace the valve's body.
	The operating pressure is too high.	Do not exceed the maximum indicated pressure. If the maximum pressure is exceeded, check that none of the valve's parts are damaged.
	The operating temperature is too high.	Do not exceed the maximum indicated temperature. If the maximum pressure is exceeded, check that none of the valve's parts are damaged.
The valve is leaking around its body.	The valve's body is damaged.	Replace the valve's body.

Standards and compliance

- This valve complies with European Pressure Equipment Directive (PED) 2014/68/EU Article 4 paragraph 3 (formerly 97/23/EC Article 3 paragraph 3).
- This valve complies with EC Directive 1935/2004.