

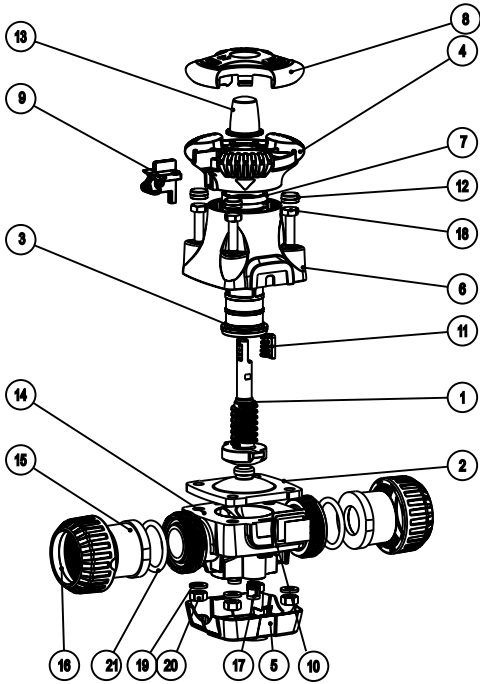
1. DEFINITION

Diaphragm valve for regulating flow in liquid handling systems. The valve is available with a PVC-U, CPVC or PP-H body and with EPDM or FPM membranes. The choice of materials will depend on the type of liquid handled by the system and the operating temperature. See the chemical resistance chart available at our website and the pressure/temperature diagram contained in this manual (G4.1) for further information. The colour of the indicator at the end of the stem indicates the membrane material: blue = EPDM, green = FPM.

2. WARNINGS

- Carefully read these instructions before handling the valve and follow the recommendations. Damage caused by failure to read these instructions is not covered by the warranty.
- Connections and handling operations must be carried out by qualified personnel.
- The maximum useful life of the valve is as specified in EN ISO 16138.
- Correct installation and handling of the valve, as well as adherence to the maximum pressure and temperature conditions specified in this manual are essential for preserving the useful life of the valve.
- The liquid handled by the system must meet the chemical resistance requirements set out in the chart provided by Cepex in its technical catalogue.
- We do not recommend the use of tools on the handwheel when opening and closing the valve. Operate the handwheel manually, using a cloth if necessary.
- Before carrying out any maintenance operations on the pipe or valve, ensure that the system is depressurised by releasing the pressure and emptying the pipes.
- Turning the handwheel when the safety lock is in place could damage the valve.
- Avoid shocks during transport, since they may damage the body and mechanism of the valve. Keep the valve stored in the original packaging, protected from damp and from direct exposure to sunlight.
- Before installation, check that the valve displays no signs of damage and that all parts required for installation are present.

3. COMPONENTS



N	PART	MATERIAL	Q
1	Stem	PPO+GF	1
2	Diaphragm	EPDM/FPM	1
3	Guide	POM	1
4	Handwheel	PP+GF	1
5	Lower cover	PP	2
6	Cover	PP+GF	1
7	Washer	POM	1
8	Top cover	PP	1
9	Safety lock	PP+GF	1
10	Label holder	ABS	1
11	Indicator	PP	1
12	Screw cap	PP	4
13	Indicator cap	PC	1
14	Body	PVC-U/CPVC/PP	1
15	End connector	PVC-U/CPVC/PP	2
16	Union nut	PVC-U/CPVC/PP	2
17	Insert	Brass	2
18	DIN 931 screw	Stainless steel	4
19	DIN 127 grower washer	Stainless steel	4
20	DIN 934 nut	Stainless steel	4
21	O-ring	EPDM/FPM	2

4. TECHNICAL SPECIFICATIONS

Pressure /temperature diagram. (G4.1)

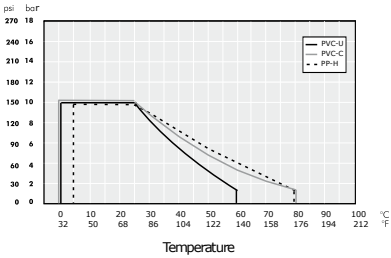


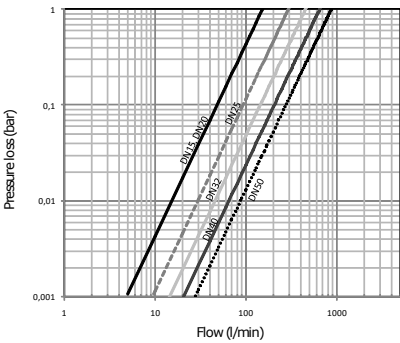
Table of maximum and minimum temperatures for each material.(T4.1)

	Minimum temperature	Maximum temperature
PVC-U	0 °C	60 °C
CPVC	0 °C	80 °C
PP-H	5 °C	80 °C

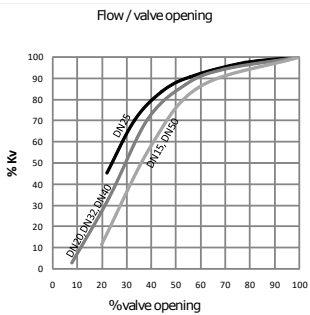
Head losses table (T4.2)

	Kv	Cv
DN15	155	10,85
DN20	158	11,06
DN25	292	20,45
DN32	454	31,76
DN40	648	45,41
DN50	871	61

Pressure loss diagram (G4.2)



Kv according to valve aperture.(G4.3)



Maximum valve operating torque at nominal pressure for the various diaphragm materials.

The values quoted for the maximum operating torque required on the handwheel to completely close the valve are approximate and are determined to ensure that the valve is completely closed with water at nominal pressure and at a temperature of 20 °C.

Nut tightening torques for the various diaphragm materials (20-G 3.1).

The torque values are approximate and are determined with no pressure in the valve. Due to wear on the diaphragm, nuts may need to be retightened with a higher torque value.

Handwheel tightening torque N·m	Valve size					
	D20	D25	D32	D40	D50	D63
Diaphragm material	EPDM	3,5	3,5	6,5	6,5	12-13
	FPM	4,5	4,5	6,5	6,5	12-13

T4.3

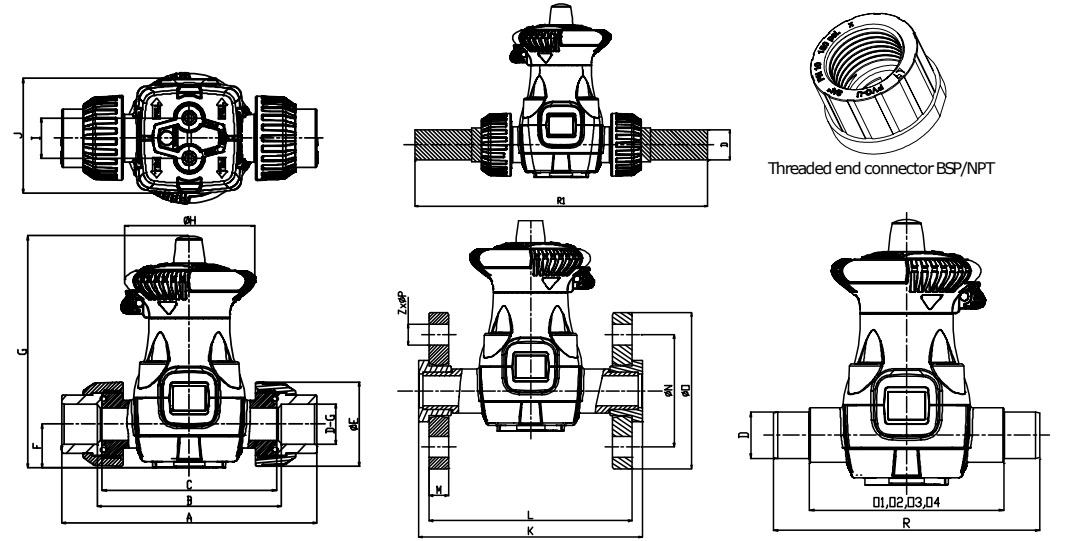
Nut tightening torque N·m	Valve size					
	D20	D25	D32	D40	D50	D63
Diaphragm material	EPDM	4	4	6,5-7	6,5-7	9-10
	FPM	4	4	6,5-7	6,5-7	9-10

T4.4



5. DIMENSIONS. CONNECTION TYPES.

Table of dimensions for all sizes. Connection types: PVC-U and CPVC: metric male for solvent socket, US size male for solvent socket, f anges and 3-pieces connector with seal and thread (BSP and NPT) connection coupling. PP-H: metric male thermofusion, US size male thermofusion, f anges, 3-pieces connector with thermofusion, threaded (BSP and NPT) and PE-100 and PP-H butt welded connection coupling.



DN	A	B	C	DG	E	F	G	H	I	J	K	L	M	N	*O1	*O2	*O3	*O4
DN15	133	96	90	20-1/2	41	27	144	81	25(M)	71	130	118	12	65	90	87	93	80
DN20	159	116	108	25-3/4	52	27	144	81	25(M)	71	150	136	13	75	105	105	110	93
DN25	166	122	116	32-1"	60	38	189	96	26(M)	85	161	145	15	85	108	106	116	96
DN32	192	140	134	40-1/4"	74	38	189	96	45(M)	95	181	163	16	100	120	120	131	110
DN40	222	160	154	50-1/2"	80	51	252	130	45(M)	115	200	184	17	110	130	135	144	123
DN50	265	190	184	63-2"	100	51	252	130	45(M)	115	230	212	18	125	147	162	166	147

*O1: PVC-U / CPVC metric.
*O2: PVC-U / CPVC USsize.
*O3: PP-H metric.
*O4: PP-H USsize.
*R1: PP-H body with PE-100 and PP-H butt welded connection coupling.

T 5.1

6. INSTALLATION AND COMMISSIONING

Before commencing the installation process, check that you have all the parts needed for the assembly of the valve and that the materials, the connection type and the nominal pressure rating are suitable for the installation. For solvent socket or weld connections, you will also need to check that the materials to be connected are the same and that the solvent or welding tools are suitable. Test the correct operation of the valve's regulation system both before and after installation. To install the valve, follow the best installation practice recommendations provided on the Cepex website, paying particular attention to the thermal dilation and alignment of pipes. The base of the valve's body has two threaded holes, allowing the valve to act as one of the installation's fixed points. The Cepex website also contains instructions for connecting the different types of valve connections: male solvent socket or 3-piece connector, thermofusion, butt welded, threaded with 3-piece connector and flanged connector. When filling the pipes with liquid, check that all the air is purged from the system and that the initial pressure does not exceed the nominal pressure of the valve or of the system element with the lowest nominal pressure rating.

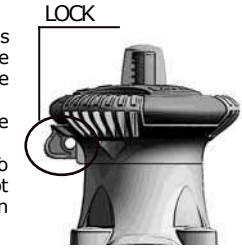
7. OPERATION AND MAINTENANCE INSTRUCTIONS

We recommend checking the condition of the diaphragm on a regular basis, since it may display signs of mechanical wear due to pressure, operation and contact with the liquid. With the valve closed, the diaphragm may become loose and therefore need to be retightened to the torque value specified in table T4.3. We also recommend that you regularly check that the fixing nuts are tightened correctly, in accordance with the recommended torque value specified in this manual (T4.4). The valve's degree of aperture can be set to a fixed position using the safety lock on the handwheel. To activate it, simply pull the lock outwards until it fits into one of the set positions. If the safety lock does not fit into any of the set positions, slightly rotate the wheel and pull the lock outwards again until the hole on the lock is completely free. It is possible to use a padlock to secure the position.

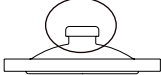
8. REPLACING THE DIAPHRAGM

Before starting the diaphragm replacement process, first release all the pressure from the pipes that connect to the valve. Then follow the steps set out below:

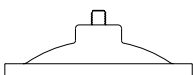
- Fully open the valve by rotating the handwheel anti-clockwise.
- Remove both of the valve's lower covers (5): press on the sides and pull, as shown in the diagram.
- Release the 4 fixing screws (20) and remove the nuts and washers (19).
- Pull on the top part of the valve by the handwheel to remove it from the body. This part will contain the fixing screws (18).
- We recommend that you remove the threaded stem (1) and the diaphragm (2) together from the upper body by rotating the handwheel clockwise.
- For D20 and D25 valves, you can remove the diaphragm by pulling on it carefully, ensuring that it is removed in one piece.
- For D32, 40, 50 and 63 valves, unscrew the diaphragm in an anti-clockwise direction, supporting the stem until the diaphragm is fully removed.
- For D20 and D25 valves, replace the diaphragm by pressing it into the shaft. Grease the button on the diaphragm with a silicon based lubricant to facilitate assembly.
- For D32, 40, 50 and 63, screw the new diaphragm in place.
- Re-assemble the stem inside the upper body by screwing it anti-clockwise and ensuring the anti-rotation wings and diaphragm are correctly positioned.
- Assemble the body, replacing the four washers and tightening the four nuts using the torque value specified in the relevant table.
- Replace the lower covers by introducing them sideways.



D20-25



D32-40 D50-63



9. TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
The valve does not open fully.	The diaphragm is damaged in the threaded stem seating area.	Remove the valve and replace the diaphragm and the stem if necessary.
Liquid passes through the valve when it is closed.	Solid particles are preventing the valve from dosing completely.	Remove the upper body of the valve and clean the diaphragm.
	The valve is not completely closed.	Turn the handwheel clockwise with the specified torque until the valve is completely closed.
A leak has been detected in the diaphragm area between the upper and lower body.	The fixing screws have become loose or have not been tightened using the appropriate tightening torque.	Re-tighten the fixing nuts with the recommended torque value.
	The diaphragm has split due to fatigue.	Replace the seal as specified in this manual.