482
DN 25-65

The 482 diaphragm valve is particularly suitable for shutting off and regulating abrasive or dirty fluids. The new internal geometry of the body optimises fluid dynamic efficiency by increasing the flow rate and ensuring an optimum linearity of the flow adjustment curve. The 482 is extremely compact and very light.

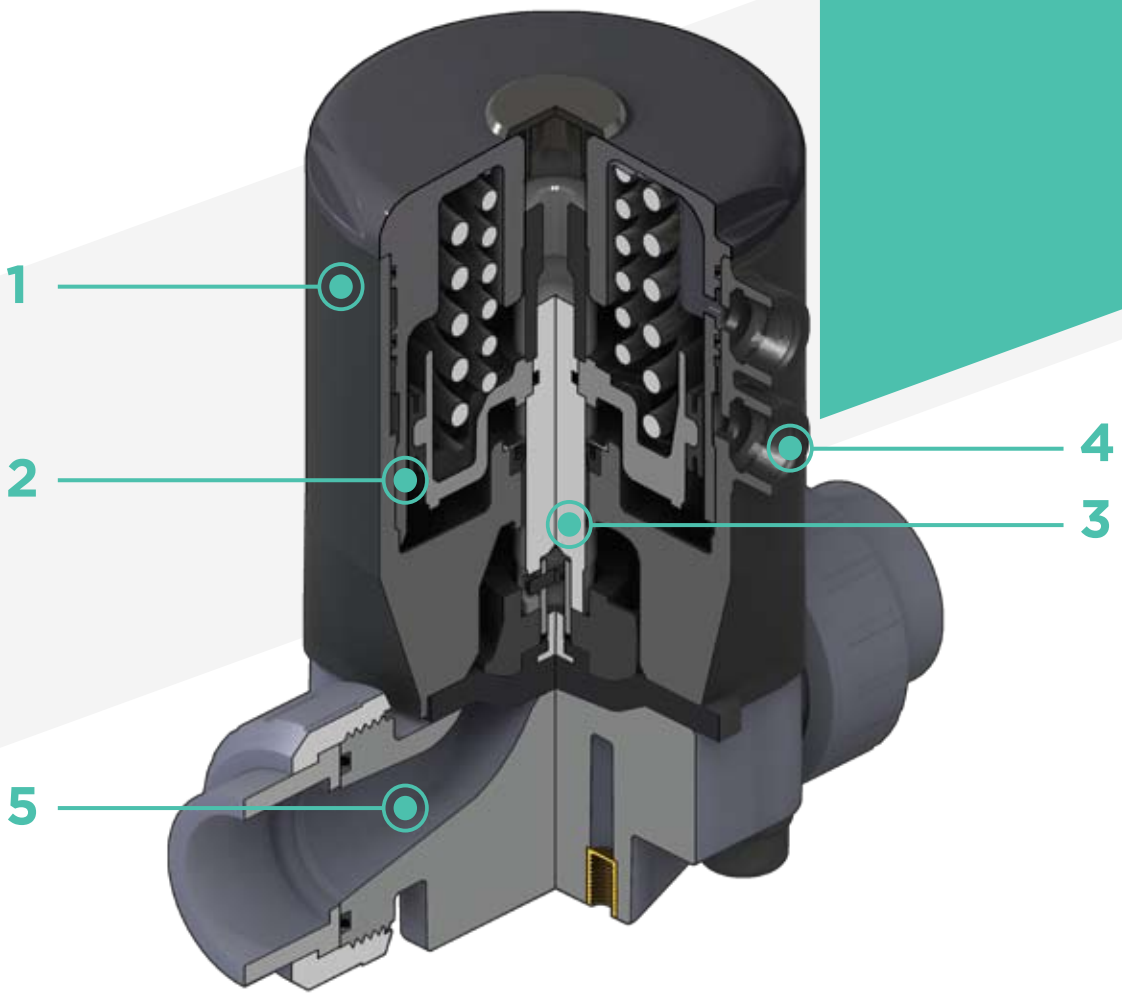
PNEUMATICALLY ACTUATED 2-WAY DIAPHRAGM VALVE

- Connection system for solvent weld, threaded and flanged joints
- **Optimised fluid dynamic design:** maximum output flow rate thanks to the optimised efficiency of the fluid dynamics that characterise the new internal geometry of the body
- **Light and compact actuator piston in IXEF®** ideal for use in harsh environmental Conditions
- **High performance internal components:** piston in high mechanical strength IXEF® with main gasket and lubrication system
- **Modularity of the range:** only 3 actuators and diaphragms for 5 different valve sizes
- Bonnet fastening screws in stainless steel protected against the external environment by PE plugs. Absence of metal parts exposed to the external environment to prevent any risk of corrosion
- **CDSA** (Circular Diaphragm Sealing Angle) system that, thanks to the uniform distribution of shutter pressure on the diaphragm seal, offers the following advantages:
  - reduction in the tightening torque of the screws fixing the actuator to the valve body
  - reduced mechanical stress on all valve components (actuator, body and diaphragm)
  - easy to clean valve interior
  - low risk of the accumulation of deposits, contamination or damage to the diaphragm due to crystallisation

Technical specifications	
Construction	Pneumatically actuated diaphragm valve at optimized flow rate
Size range	DN 25 - 65
Nominal pressure	PN 10 with water at 20 °C
Temperature range	**PVC-U:** 0 °C - 60 °C - **PVC-C:** 0 °C - 100 °C **PP-H:** 0 °C - 100 °C - **PVDF:** -20 °C - 120 °C **ABS:** -20 °C - 80 °C
Coupling standards	**Solvent welding:** EN ISO 1452, EN ISO 15493, EN ISO 15494, EN ISO 10931, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, ASTM F 439. Can be coupled to pipes according to EN ISO 1452, EN ISO 15493, EN ISO 15494, EN ISO 10931, DIN 8062, NF T54-016, ASTM D 1785, ASTM F 441
	Thread: ISO 228-1, DIN 2999, ASTM D 2464
	Flanging system: ISO 7005-1, EN ISO 1452, EN ISO 15493, EN 1092-1, EN ISO 15494, EN ISO 10931, EN 558-1, DIN 2501, ANSI B16.5 Cl.150, JIS B2220
Reference standards	**Construction criteria:** EN ISO 16138, EN ISO 1452, EN ISO 15493, EN ISO 15494, EN ISO 10931
	Test methods and requirements: ISO 9393
	Installation criteria: DVS 2204, DVS 2221, DVS 2202-1, DVS 2201-1, DVS 2207-11, DVS 2207-15, DVS 2208-1, UNI 11242, UNI 11318
Valve material	PVC-U / PP-H (PVDF and PVC-C available on request) ABS
Diaphragm material	EPDM, FPM, PTFE (on request NBR)
Control options	Pneumatic actuator

The compact and light piston actuator in IXEF® makes the 482 the ideal choice for applications requiring very frequent valve operation and a long valve lifetime.

Technical specifications - pneumatic actuator	
Construction	Single-acting (NC-NO) and double-acting (DA) pneumatic piston actuator
Actuator Material	**Body and bonnet:** IXEF® (PA-GR)
Control air pressure	**Minimum:** according to the working pressure and operation of the actuator (see detailed graphs) **Maximum:** NC: 6 bar - NO: 5 bar - DA: 5 bar
Power supply	Dry or lubricated filtered compressed air. If using other fluids, contact the FIP service centre
Control fluid temperature	Max 40 °C
Working temperature	-20 °C - 50 °C
Accessories	• Optical position indicator • Stroke limiter with position indicator • Stroke limiter with position indicator and emergency manual override • Limit switch boxes • Electro-pneumatic positioner • Pilot solenoid valves 3-5/2 ways for direct or manifold mounting • Distance plate



1 **Light and compact actuator piston in IXEF®** with a diaphragm perimeter containment system that ensures the perfect compression of the rubber without any lateral expansion

2 **Piston in high strength IXEF®** equipped with main gasket with lubrication system that allows up to 1 million valve operations to be performed without showing any signs of wear

3 High strength **stainless steel stem** with floating pin connection between the actuator stem and diaphragm to prevent concentrated loads, improve the seal and extend its lifetime

4 Easy to install, even in confined spaces: **compressed air inlets with G 1/4" threaded metal connections,** can be supplied in line with the piping

5 **New design of valve body interior.**

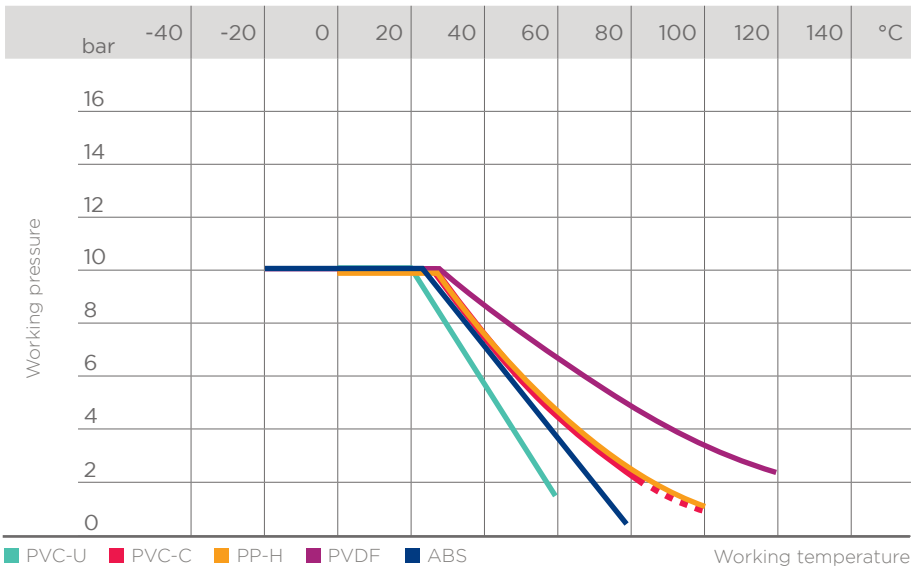
Substantially increased flow coefficient and reduced pressure drop. The degree of efficiency reached has also enabled the size and weight **of the valve to be reduced.**

Adjustment linearity: the internal profiles of the valve also greatly improve its characteristic curve, resulting in **extremely sensitive and precise adjustment** along the entire stroke of the shutter.

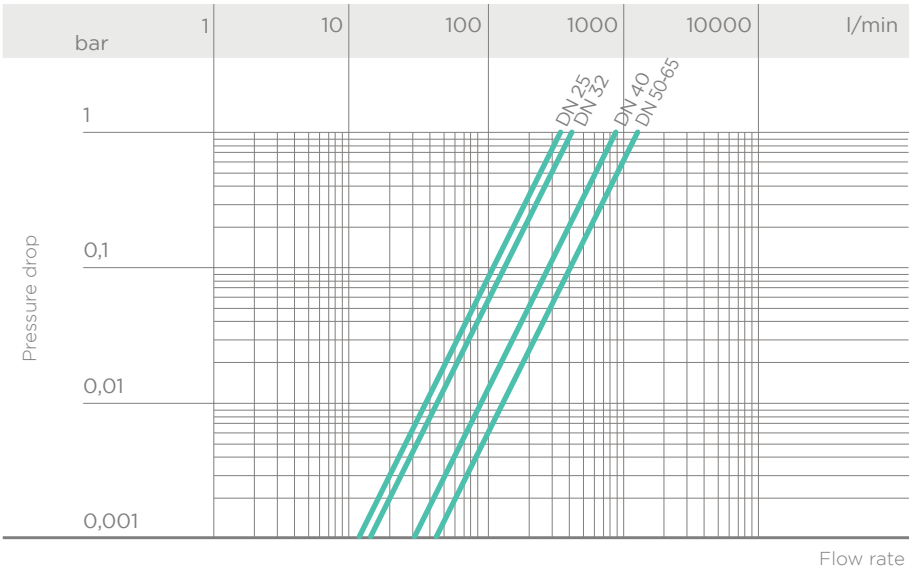
TECHNICAL DATA

PRESSURE VARIATION ACCORDING TO TEMPERATURE

For water and harmless fluids to which the material is classified as CHEMICALLY RESISTANT. In other cases, a reduction of the nominal pressure PN is required (25 years with safety factor).



PRESSURE DROP GRAPH



K_v100 FLOW COEFFICIENT

The K_v100 flow coefficient is the Q flow of litres per minute of water at a temperature of 20°C that will generate Δp= 1 bar pressure drop at a certain valve position.

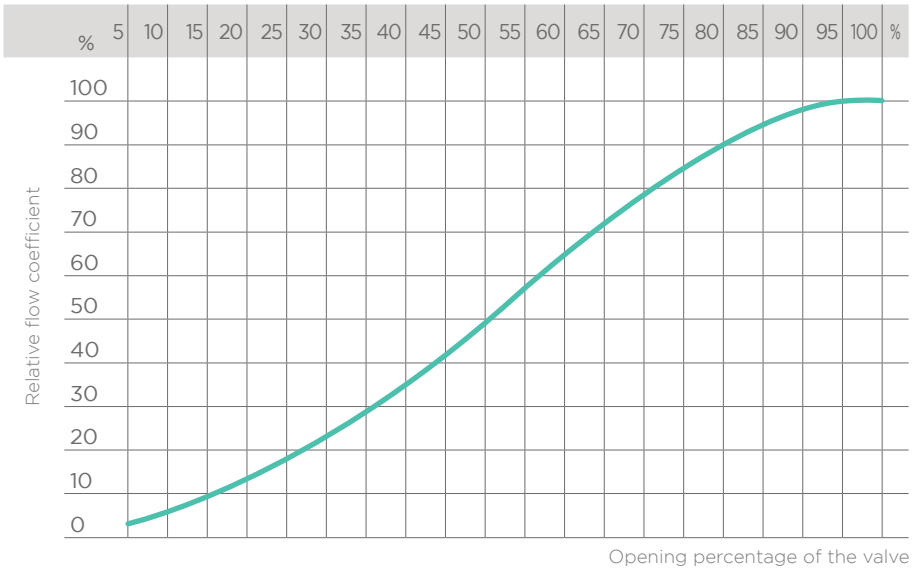
The K_v100 values shown in the table are calculated with the valve completely open.

DN	25	32	40	50	65
K_v100 l/min	333	396	869	1359	1320

TECHNICAL DATA

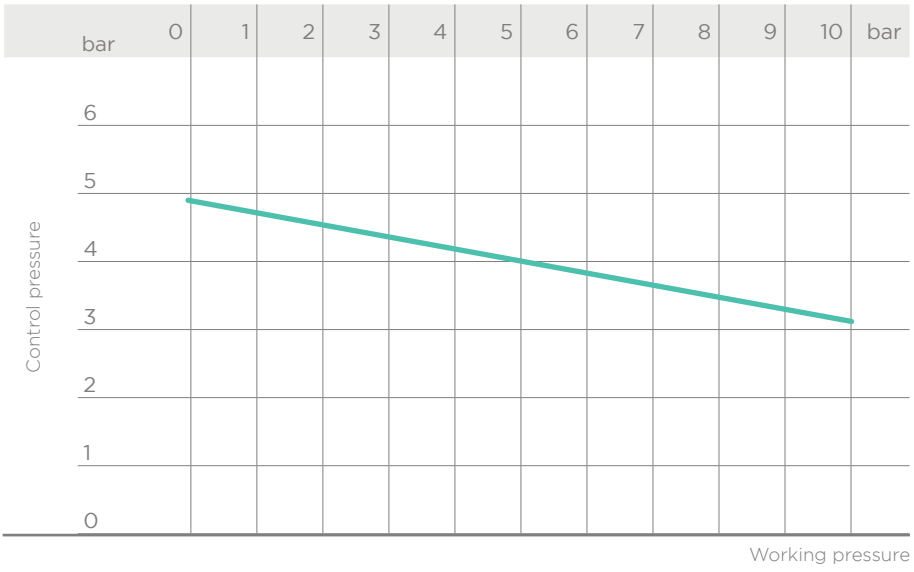
RELATIVE FLOW COEFFICIENT GRAPH

The relative flow coefficient refers to the variation in the flow rate as a function of the valve opening stroke.



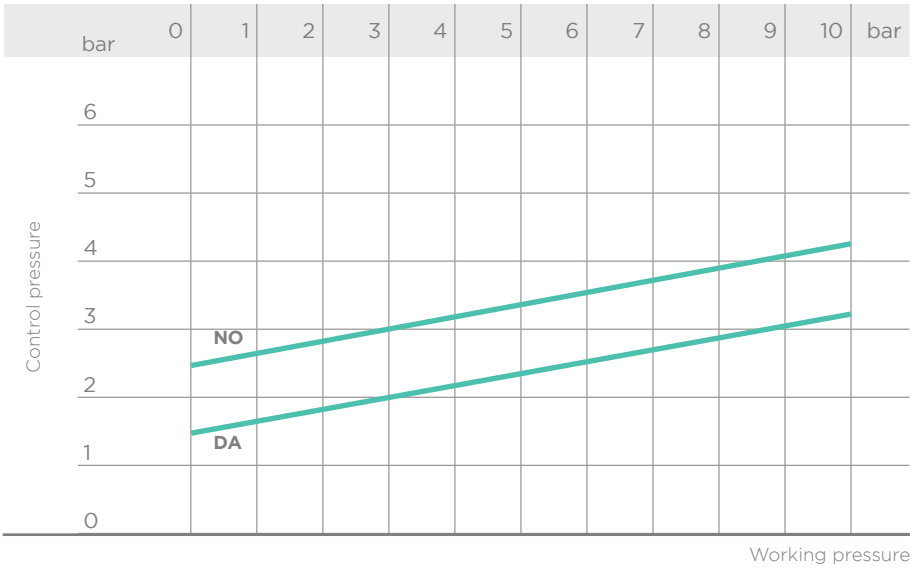
CONTROL PRESSURE ACCORDING TO WORKING PRESSURE 482 NC

Minimum control pressure according to working pressure with EPDM/ FPM diaphragm



CONTROL PRESSURE ACCORDING TO WORKING PRESSURE 482 NO-DA

Minimum control pressure according to working pressure with EPDM/ FPM diaphragm



FUNCTIONAL CHARACTERISTICS

	Double-acting (DA)	Single-acting (SA)	
Function type	double-acting	normally closed (NC)	normally open (NO)
Valve opening	air	air	spring
Valve closing	air	spring	air

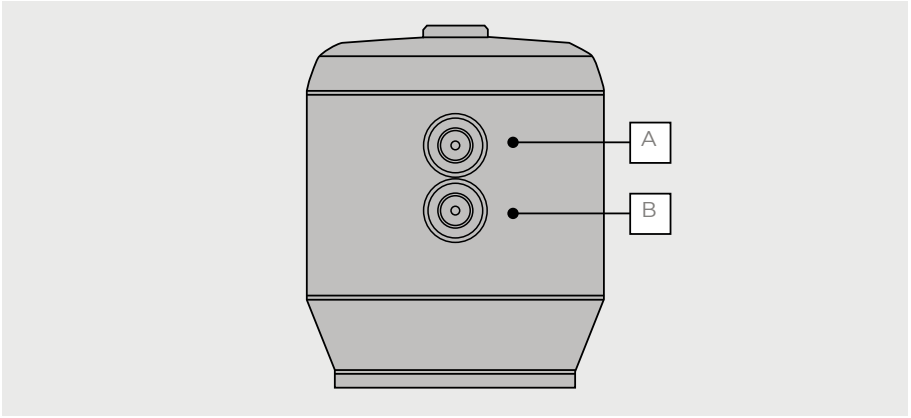
ACTUATOR CAPACITY

Nl: Normal-liter
Volume at atmospheric pressure

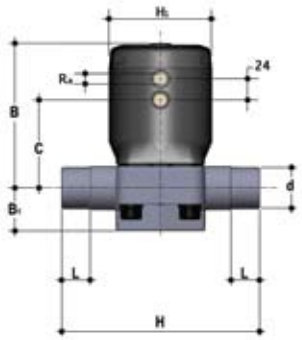
DN	25	32	40	50	65
NC	0.17 Nl	0.17 Nl	0.31 Nl	0.68 Nl	0.68 Nl
NO	0.19 Nl	0.19 Nl	0.33 Nl	0.79 Nl	0.79 Nl
DA	0.20 Nl	0.20 Nl	0.34 Nl	0.80 Nl	0.80 Nl

COMPRESSED AIR CONNECTIONS

Function type	Normally closed (NC)	Normally open (NO)	Double-acting (DA)
Valve opening	Inlet B	-	Inlet B
Valve closing	-	Inlet A	Inlet A



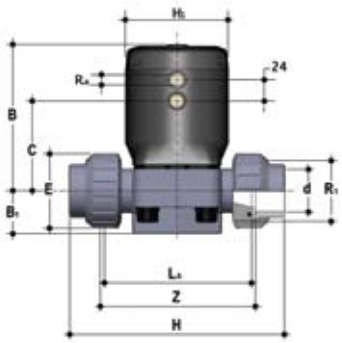
DIMENSIONS - 482



Pneumatically actuated diaphragm valve with **male ends**, **metric series**, code 39, PVC-U, PP-H, PVDF, PVC-C

DN	MA	PN	B	B_1	C	H	H_1	L	Ra	Weight (g)		
										NC	NO	DA
25	25	10	140	33	90	154	95	22	1/4"	1344	1208	1098
32	25	10	142	30	92	174	95	26	1/4"	1388	1252	1142
40	40	10	169	35	101	194	114	31	1/4"	2444	1809	1699
50	50	10	211	46	140	224	144	38	1/4"	4354	3265	3068
65	65	10	211	46	140	284	144	44	1/4"	4484	3395	3198

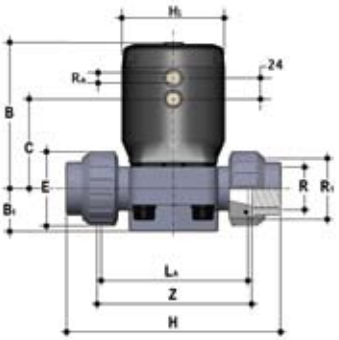
Figures for PVC-U version



Pneumatically actuated diaphragm valve with **female union ends** for solvent respectively socket welding, **metric series**, code 30, PVC-U, PP-H, PVDF, PVC-C

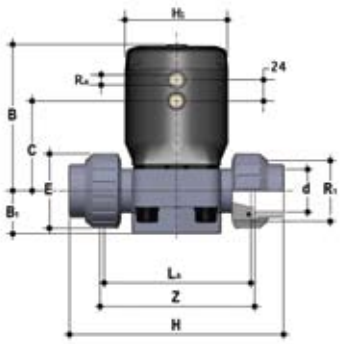
DN	MA	PN	B	B_1	C	E	H	H_1	La	R_1	Z	Weight (g)		
												NC	NO	DA
25	25	10	140	33	90	58	168	95	116	1" 1/2	124	1452	1316	1206
32	25	10	142	30	92	72	192	95	134	2"	140	1578	1442	1332
40	40	10	169	35	101	79	222	114	154	2" 1/4	160	2656	2021	1911
50	50	10	211	46	140	98	266	144	184	2" 3/4	190	4750	3661	3464

Figures for PVC-U version



Pneumatically actuated diaphragm valve with **BSP threaded female union ends**, code 33, PVC-U, PVC-C

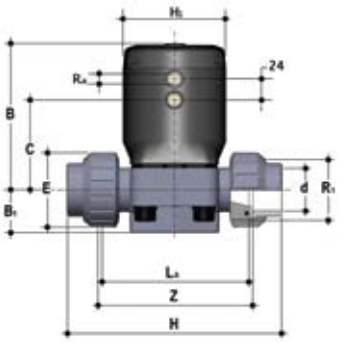
DN	MA	PN	B	B_1	C	E	H	H_1	La	R_1	Ra	Z	Weight (g)		
													NC	NO	DA
25	25	10	140	33	90	58	165	95	116	1" 1/2	1/4"	127	1452	1316	1206
32	25	10	142	30	92	72	188	95	134	2"	1/4"	145	1578	1442	1332
40	40	10	169	35	101	79	208	114	154	2" 1/4	1/4"	165	2656	2021	1911
50	50	10	211	46	140	98	246	144	184	2" 3/4	1/4"	195	4750	3661	3464



Pneumatically actuated diaphragm valve with **female union ends** for solvent respectively socket welding, **ASTM series**, code 32, PVC-U, PVC-C

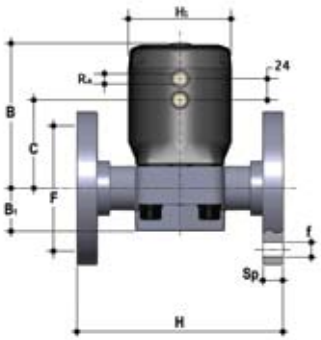
DN	MA	PN	B	B_1	C	E	H	H_1	La	R_1	Ra	Z	Weight (g)		
													NC	NO	DA
25	25	10	140	33	90	58	180	95	116	1" 1/2	1/4"	122	1452	1316	1206
32	25	10	142	30	92	72	208	95	134	2"	1/4"	144	1578	1442	1332
40	40	10	169	35	101	79	234	114	154	2" 1/4	1/4"	164	2656	2021	1911
50	50	10	211	46	140	98	272	144	184	2" 3/4	1/4"	195	4750	3661	3464

Figures for PVC-U version



Pneumatically actuated diaphragm valve with **female union ends** for solvent welding, **BS series**, code 31, PVC-U

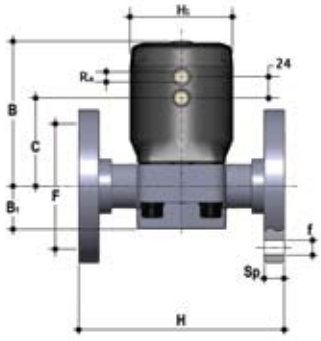
DN	MA	PN	B	B_1	C	E	H	H_1	La	R_1	Ra	Z	Weight (g)		
													NC	NO	DA
25	25	10	140	33	90	58	166	95	116	1" 1/2	1/4"	121	1452	1316	1206
32	25	10	142	30	92	72	194	95	134	2"	1/4"	142	1578	1442	1332
40	40	10	169	35	101	79	222	114	154	2" 1/4	1/4"	162	2656	2021	1911
50	50	10	211	46	140	98	266	144	184	2" 3/4	1/4"	194	4750	3661	3464



Pneumatically actuated diaphragm valve with **fixed flanges drilled PN10/16**. Face to face according to EN 558-1, code 81, PVC-U, PP-H, PVDF, PVC-C

DN	MA	PN	B	B_1	C	F	Øf	H	H_1	Ra	U	Sp	Weight (g)		
													NC	NO	DA
25	25	10	140	33	90	85	14	160	95	1/4”	4	14	1634	1498	1388
32	25	10	142	30	92	100	18	180	95	1/4”	4	14	1848	1712	1602
40	40	10	169	35	101	110	18	200	114	1/4”	4	16	3019	2384	2274
50	50	10	211	46	140	125	18	230	144	1/4”	4	16	5124	4035	3838
65	65	10	211	46	140	145	18	290	144	1/4”	4	21	5584	4495	4298

Figures for PVC-U version

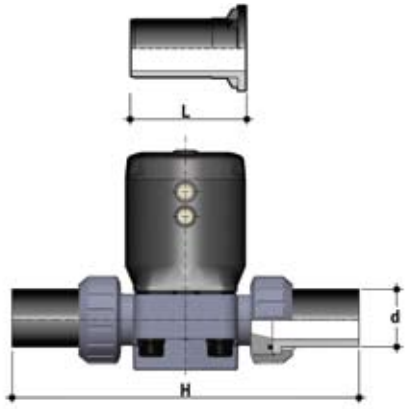


Pneumatically actuated diaphragm valve with **fixed flanges, drilled ANSI B16.5 cl. 150 #FF**. Face to face according to EN 558-1, code 88, PVC-U, PP-H, PVDF, PVC-C

DN	MA	PN	B	B_1	C	F	Øf	H	H_1	Ra	U	Sp	Weight (g)		
													NC	NO	DA
25	25	10	140	33	90	79,4	15,9	160	95	1/4”	4	14	1634	1498	1388
32	25	10	142	30	92	88,9	15,9	180	95	1/4”	4	14	1848	1712	1602
40	40	10	169	35	101	98,4	15,9	200	114	1/4”	4	16	3019	2384	2274
50	50	10	211	46	140	120,7	19,1	230	144	1/4”	4	16	5124	4035	3838
65	65	10	211	46	140	139,7	19,1	290	144	1/4”	4	21	5584	4495	4298

Figures for PVC-U version

ACCESSORIES



Long spigot PE100 end connectors for electrofusion or butt welding, code 36

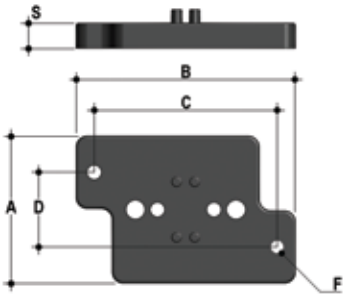
d	DN	L	H	SDR
32	25	95	306	11
40	32	95	324	11
50	40	95	344	11
63	50	95	374	11

Long spigot PP-H end connectors for butt welding, code 35

d	DN	L	H	SDR
32	25	95	306	11
40	32	95	324	11
50	40	95	344	11
63	50	95	374	11

Short spigot PP-H end connectors for butt welding

d	DN	L	H	SDR
32	25	55	226	11
40	32	55	244	11
50	40	55	264	11
63	50	55	294	11



Wall mounting plate

d	DN	A	B	C	D	F	S
32	25	65	97	81	33	5.5	11
40	32	65	97	81	33	5.5	11
50	40	65	144	130	33	6.5	11
63	50	65	144	130	33	6.5	11
75	65	65	144	130	33	6.5	11

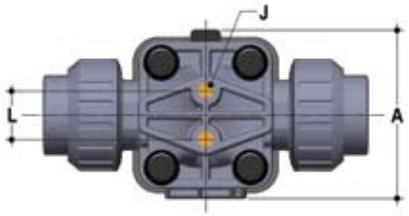
FASTENING AND SUPPORTING

All valves, whether manual or actuated, must be adequately supported in many applications.

The valve series is therefore provided with an integrated bracket that permits direct anchoring of the valve body without the need of other components.

For wall installation, dedicated wall mounting plates which are available as accessories can be used. These plates should be fastened to the valve before wall installation.

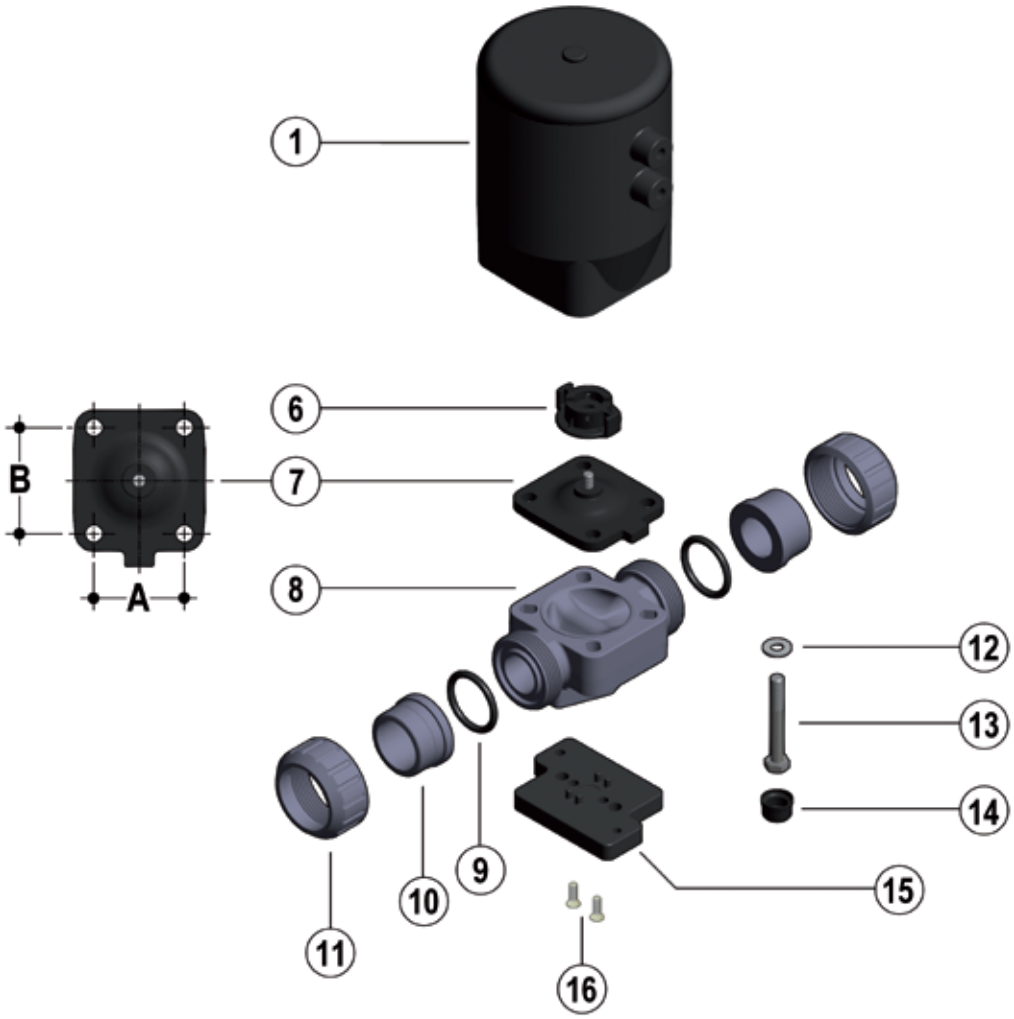
The wall plate also allows the valve to be aligned with pipe clips.



d	DN	h	l	j
32	25	10	25	M6
40	32	10	25	M6
50	40	13	44,5	M8
63	50	13	44,5	M8
75	65	13	44,5	M8

COMPONENTS

EXPLODED VIEW DN 25-65



DN	25	32	40	50	65
A	46	46	65	78	78
B	54	54	70	82	82

1 · Actuator (IXEF® - 1)*
6. Compressor (IXEF® - 1)
7. Diaphragm seal (EPDM, FPM, PTFE - 1)*
8. Valve body (PVC-U, PVCC, PPH, PVDF - 1)*
9. Socket seal O-ring (EPDM-FPM - 2)*
10. End connector (PVC-U, PVCC, PPH, PVDF - 2)*
11. Union nut (PVC-U, PVCC, PPH, PVDF - 2)*
12. Washer (Stainless steel - 4)
13. Bolt (Stainless steel - 4)
14. Protection plug (PE - 4)
15. Distance plate (PP-GR - 1)**
16. Screw (Stainless steel - 2)**

* Spare parts
** Accessories
The material of the component and the quantity supplied are indicated between brackets

DISASSEMBLY

1) Isolate the valve from the line (release the pressure and empty the pipeline).
2) Open the valve with compressed air (NC-DA) to drain any residual liquid from the valve.
3) Disconnect the valve from the pneumatic and electrical connections.
4) Fully unscrew the union nuts (11) and extract the valve sideways.
5) Remove the protection plugs (14) and bolts (13) with the relative washers (12). This operation will be made easier if the actuator is pressurised (NC).
6) Separate the valve body (8) from the actuator (1).
7) Unscrew the diaphragm (7) and remove the compressor (6). This operation will be made easier if the actuator is not pressurised (NC).

ASSEMBLY

1) Insert the compressor (6) on the actuator stem (1) aligning it correctly in its housing (fig. 1).
2) Screw the diaphragm (7) onto the stem, aligning it correctly with its housing on the actuator.
3) Fit the actuator (1) on the valve body (8) and tighten the bolts (13) with the relative washers (12). This operation will be made easier if the actuator is pressurised (NC).
4) Tighten the bolts (13) evenly (diagonally) to the tightening torque suggested on the relative instruction sheet.
5) Replace the protection plugs (14)
6) Position the valve between the end connectors (10) and tighten the union nuts (11), making sure that the socket seal O-rings (9) do not exit their seats.
7) Reconnect the valve to the pneumatic and electrical connections

⚠ **Note:** All operations on equipment under pressure or containing compressed springs must be carried out under safe conditions for the operator.

Fig. 1

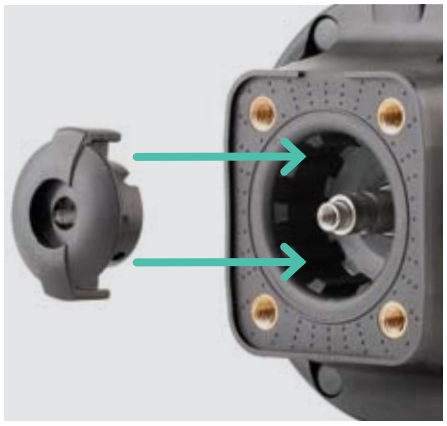


Fig. 2

INSTALLATION

Before proceeding with installation. please follow these instructions carefully: (these instructions refer to union ends versions). The valve can be installed in any position and in any direction.

1) Check that the pipes to be connected to the valve are aligned in order to avoid mechanical stress on the threaded joints.
2) Unscrew the union nuts (11) and insert them on the pipe segments.
3) Solvent weld or screw the end connectors (10) onto the pipe ends.
4) Position the valve body between the end connectors, making sure that the socket seal O-rings (9) do not exit their seats.
5) Fully tighten the union nuts (11).
6) If necessary, support the pipework with pipe clips or by means of the carrier built into the valve itself (see paragraph “Fastening and supporting”).
7) Connect the compressed air as indicated in paragraph “Compressed air connections”. For valves with electric accessories, refer to the specific technical manual supplied with the accessory.

When installing in confined spaces, a version is available with the connections oriented in line with the piping (fig. 2).

⚠ **Note:** before putting the valve into service, check that the bolts on the valve body (8) are tightened correctly at the suggested torque.