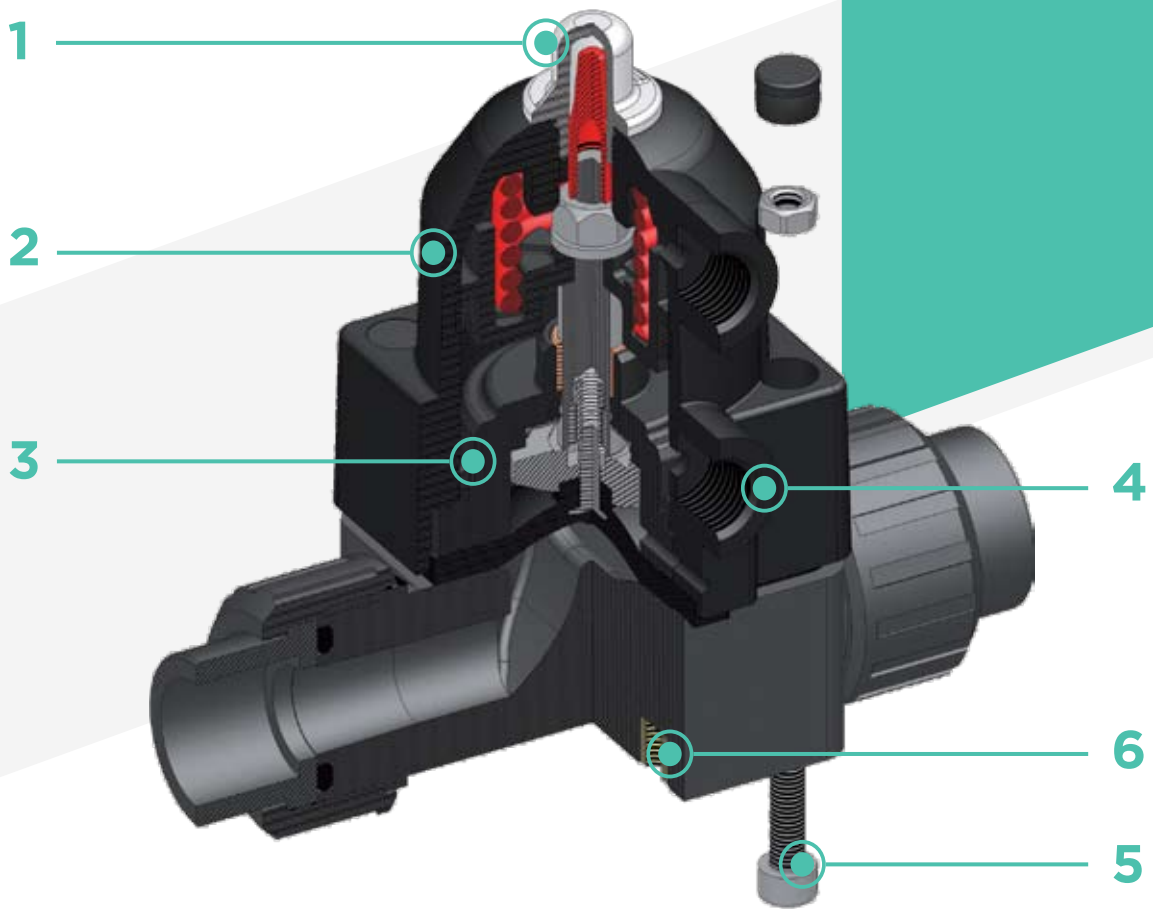
186
DN 12-15

The 186 is a pneumatically operated diaphragm valve of reduced dimensions and particularly compact structure, ideal for use in confined spaces.

COMPACT DIAPHRAGM VALVE

- Connection system for solvent weld and threaded joints
- Extremely compact construction
- **Internal operating components in metal totally isolated from the conveyed fluid**
- Valve stem in STAINLESS steel
- Easy to replace diaphragm seal
- Corrosion-proof internal components
- **CDSA** (Circular Diaphragm Sealing Angle) system offering the following advantages:
  - uniform distribution of shutter pressure on the diaphragm seal
  - 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
  - operating torque reduction

Technical specifications	
Construction	Compact single wear diaphragm valve
Size range	DN 12-15
Diaphragm size	MA 10
Nominal pressure	PN 6 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
Coupling standards	**Solvent welding / Welding:** EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467. Can be coupled to pipes according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785
	Thread: ISO 228-1, DIN 2999, ASTM D 2464,
	Flanging system: ISO 7005-1, EN ISO 1452, EN ISO 15493, 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
	Test methods and requirements: ISO 9393
	Installation criteria: DVS 2204, DVS 2221, UNI 11242
Valve material	**Body:** PVC-U / PVC-C / PP-H / PVDF
Diaphragm material	EPDM, FPM, PTFE
Control options	Pneumatic actuator; Manual control



1 **High visibility optical position indicator** protected by a transparent cover with O-Ring

2 **Light and compact piston actuator in PP-GR,** ideal for heavy-duty applications in chemically aggressive environments with a **diaphragm perimeter containment system** that ensures the perfect compression of the rubber without any lateral expansion

3 **Piston in high strength IXEF**. The high quality finish of the external surface guarantees perfect slidability over the seal and ensures a long working life without any actuator maintenance

4 Easy to install, even in confined spaces: **compressed air inlets with G 1/4" threaded adjustable connections** to enable alignment with the piping

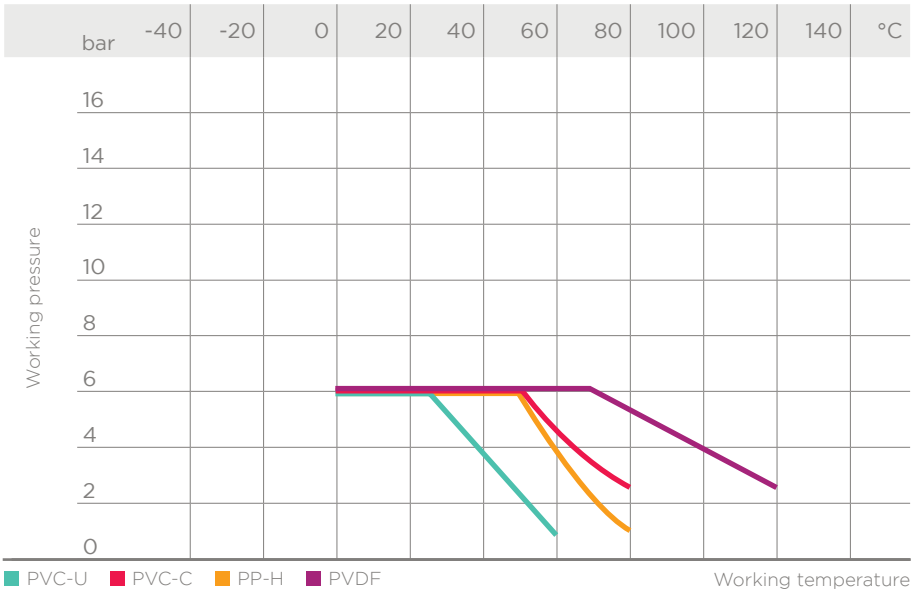
5 **STAINLESS steel bolts,** can also be inserted from above

6 **Threaded metal inserts** for anchoring the valve

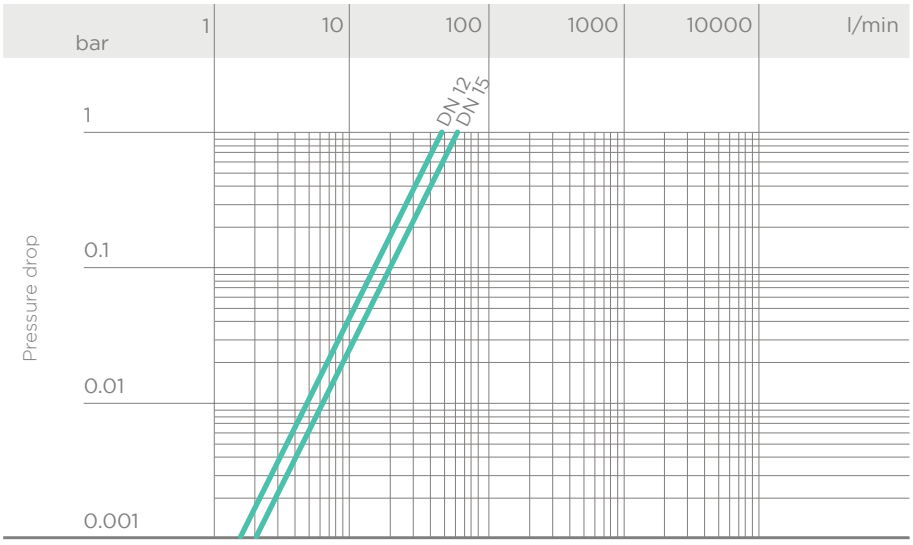
TECHNICAL DATA

PRESSURE VARIATION ACCORDING TO TEMPERATURE

For water and non-hazardous fluids with regard 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 rate 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.

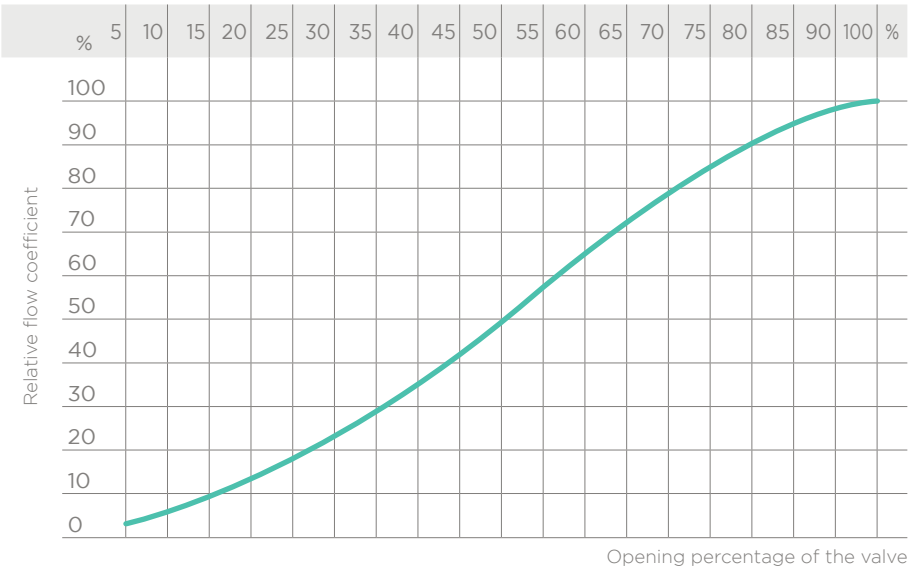
The K_v100 values shown in the table are calculated with the valve completely open.

DN	12	15
K_v100 l/min	47	60

TECHNICAL DATA

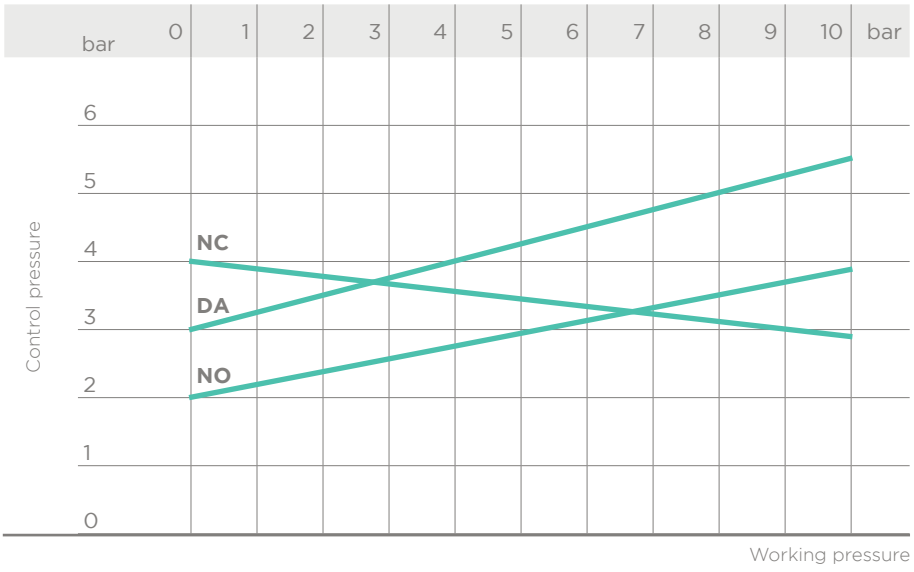
RELATIVE FLOW COEFFICIENT GRAPH

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

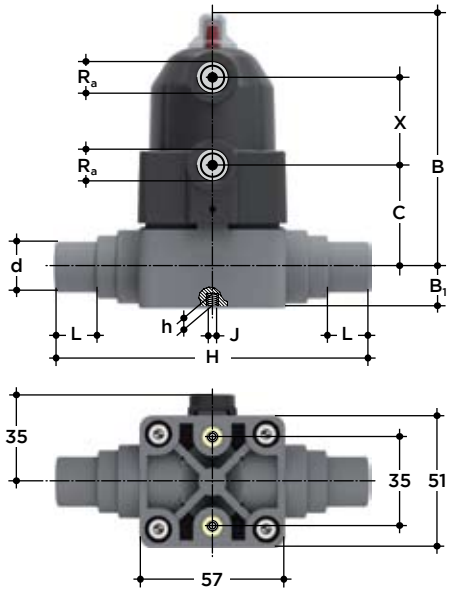


CONTROL PRESSURE ACCORDING TO WORKING PRESSURE

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



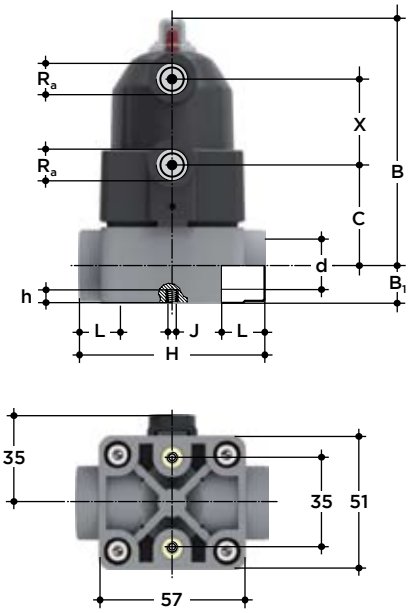
DIMENSIONS - 186



Compact diaphragm valve with **male ends** for solvent respectively socket welding, **metric series**, code 39

DN	MA	PN	B	B_1	C	X	R_a	d	L	H	h	J	Weight (g)		
													PVC-U PVC-C	PP-H	PVDF
15	10	6	98	15	38	34	1/4"	20	17	124	8	M5	410	360	390

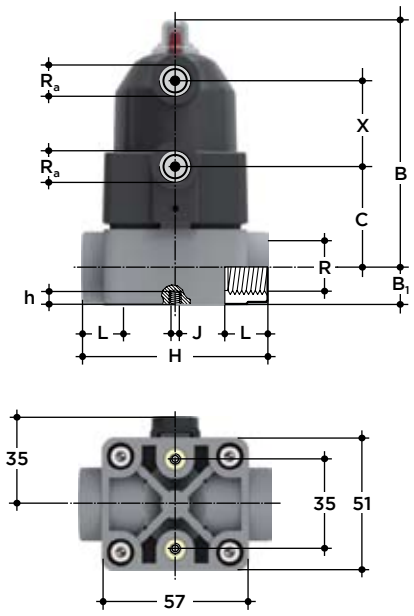
Figures for PVC-U version



Compact diaphragm valve with **female ends** for solvent respectively socket welding, **metric series**, code 2

DN	MA	PN	B	B_1	C	X	R_a	d	L	H	h	J	Weight (g)		
													PVC-U	PP-H	PVDF
12	10	6	98	15	38	34	1/4"	16	14	124	8	M5	380	350	390
15	10	6	98	15	38	34	1/4"	20	16	124	8	M5	380	350	390

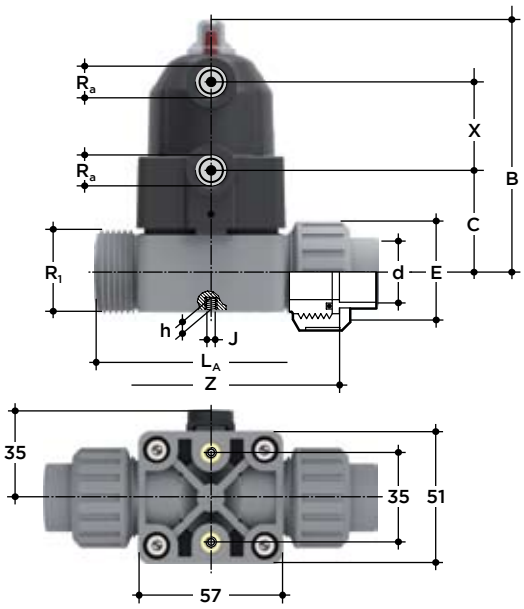
Figures for PVC-U version



Compact diaphragm valve with **BSP threaded female ends**, code 1

DN	MA	PN	B	B_1	C	X	R_a	R	L	H	h	J	Weight (g)		
													PVC-U	PP-H	PVDF
12	10	6	98	15	38	34	1/4"	3/8"	11.5	75	8	M5	380	350	390
15	10	6	98	15	38	34	1/4"	1/2"	15	75	8	M5	380	350	390

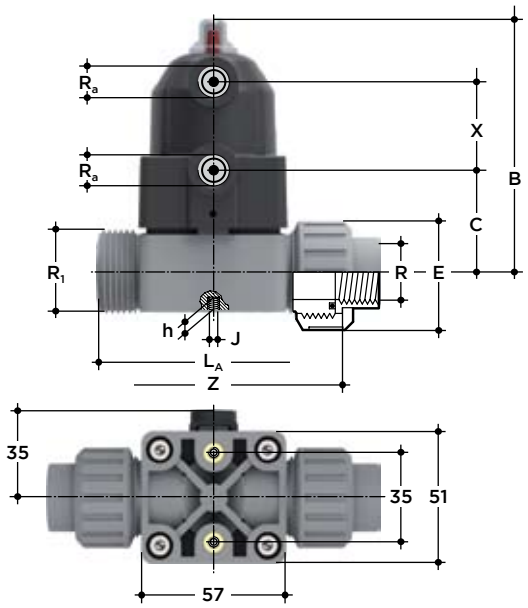
Figures for PVC-U version



Compact diaphragm valve with **female union ends** for solvent respectively socket welding, **metric series**, code 30

DN	MA	PN	B	C	d	E	R_1	X	R_a	L_A	Z	h	J	Weight (g)		
														PVC-U PVC-C	PP-H	PVDF
15	10	6	98	38	20	41	1"	34	1/4"	90	97.5	8	M5	440	400	470

Figures for PVC-U version



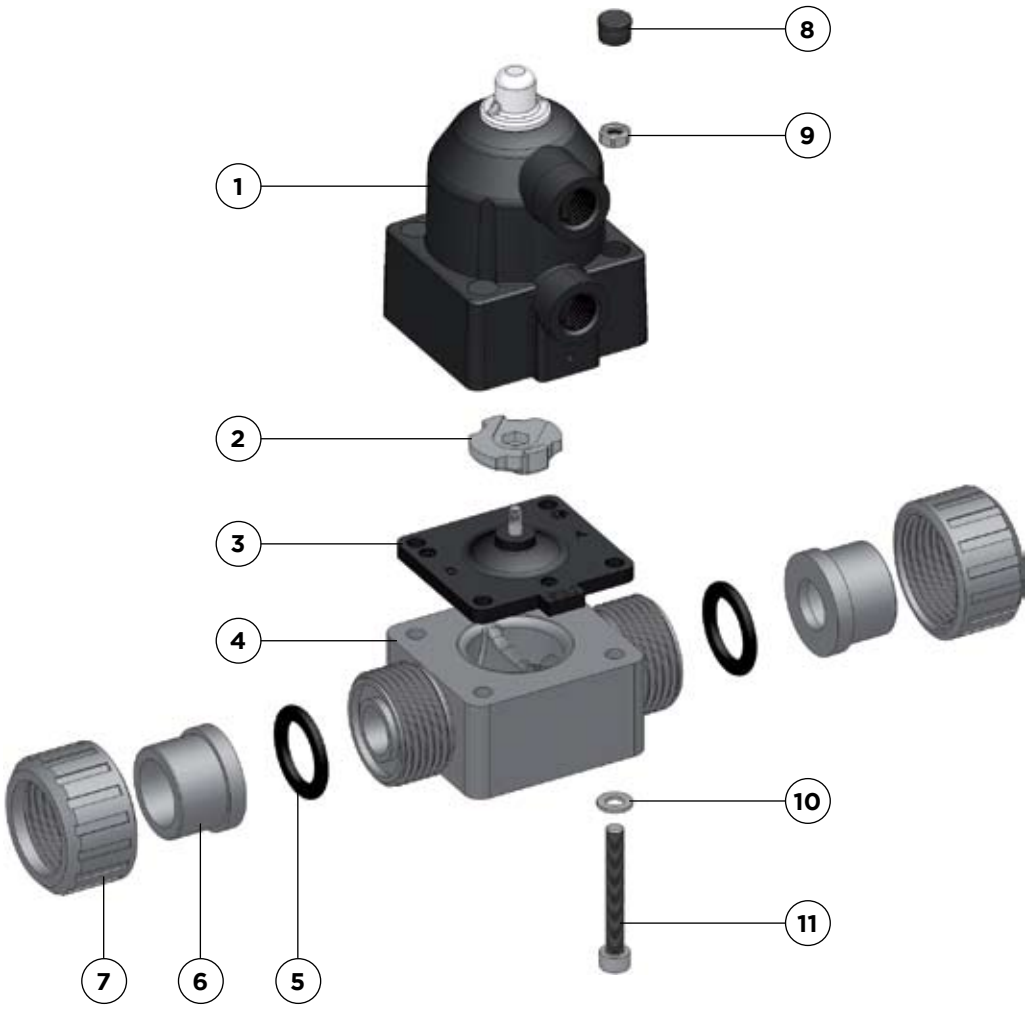
Compact diaphragm valve with **BSP threaded female union ends**, code 33

DN	MA	PN	B	C	R	E	R_1	X	R_a	L_A	Z	h	J	Weight (g)		
														PVC-U PVC-C	PP-H	PVDF
15	10	6	98	38	1/2"	41	1"	34	1/4"	90	97.5	8	M5	440	400	470

Figures for PVC-U version

COMPONENTS

EXPLODED VIEW



1 · Actuator (PP-GR - 1)
2 · Compressor (IXEF - 1)
3 · Diaphragm seal (EPDM - 1)
4 · Valve body (PVC-U - 1)
5 · Socket seal O-ring (EPDM - 2)
6 · End connector (PVC-U - 2)*
7 · Union nut (PVC-U - 2)*
8 · Protection plug (PE - 4)
9 · Nut (STAINLESS steel - 4)
10 · Washer (Stainless steel - 4)
11 · Bolt (Stainless steel - 4)

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 (7) and extract the valve sideways.
5) Remove the bolts (11) with their washers (10) (this operation will be made easier if the actuator is pressurised (NC).
6) Separate the valve body (4) from the actuator (1).
7) Unscrew the diaphragm (3) and remove the compressor (2) (this operation will be made easier if the actuator is not pressurised (NC).

ASSEMBLY

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

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 (7) and insert them on the pipe segments.
3) Solvent weld or screw the end connectors (6) onto the pipe ends.
4) Position the valve body between the end connectors, making sure that the socket seal O-rings (5) do not exit their seats.
5) Fully tighten the union nuts (7).
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.

Note: before putting the valve into service, check that the bolts on the valve body (4) are tightened correctly at the suggested torque.