



MANUAL VALVES PVC-U

The PVC-U manual valves line consists of a comprehensive range of ball valves, butterfly valves, diaphragm valves, check valves, sediment strainers, air release valves, foot valves and angle seat valves for use in the construction of process and service lines for conveying pressurised industrial fluids and for maximum operating temperatures of no more than 60°C

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MANUAL VALVES IN PVC-U

PVC-U

GENERAL CHARACTERISTICS

Developed in 1930 in Germany, PVC-U (rigid polyvinyl chloride – unplasticized) is obtained through the polymerization of a vinyl chloride monomer.

The presence of chlorine in the PVC-U molecule results in a high performance resin, in terms of thermal stability and chemical and mechanical resistance, up to temperatures of 60° C.

The different formulations obtained by adding suitable additives and stabilizers render the PVC-U the most versatile of all plastic materials, allowing it to be adapted to many applications involving fluids under pressure.

PVC-U represents one of the more economic solutions in the field of thermoplastic and metal materials for resolving problems in the transport of corrosive chemical fluids, and in the distribution and treatment of water in general.

The main reasons for this preference are the unique characteristics of the resin, which include:

- **Good chemical resistance:** PVC-U resins have excellent chemical resistance to most acids and alkalis, paraffin/aliphatic hydrocarbons and saline solutions. It is not recommended for the transport of polar organic compounds, including some types of chlorinated and aromatic solvents. PVC-U resins are also fully compatible with the transport of foodstuffs, demineralised water, potable water and unconditioned water, as provided for by current national and international standards.
- **Good thermal stability:** PVC-U resins have good thermal stability in the temperature range between 20°C and 50°C and are typically used in industrial and water supply applications, guaranteeing excellent mechanical strength, sufficient rigidity for the purpose, reduced thermal expansion coefficients and high factors of safety in service. PVC-U compounds are also resistant to combustion with a flash point of 399°C. The flame, in fact, only persists if the oxygen concentration is twice that of atmospheric or in the presence of a flame from an external source. Flash point: 399° C. Oxygen index: 45%. UL 94 class: V0. Thanks to the reduced coefficient of thermal conductivity ($\lambda = 0.15 \text{ W/m } ^\circ\text{C}$ according to ASTM C177) the use of PVC-U resin for transporting hot fluids reduces heat loss and virtually eliminates condensation problems.
- **Good mechanical strength:** PVC-U resins are characterised by their low permeability to oxygen and reduced water absorption (0.1% at 23°C according to ASTM D 570). The thermal stability of the material leads to good impact resistance and the capacity to support service pressures of 4 – 6 – 10 – 16 bar at 20°C.
- **Resistance to ageing:** PVC-U resins have a high circumferential breaking strength (Minimum Required Strength MRS $\geq 25.0 \text{ MPa}$ at 20°C) and allow long installation lifetimes without showing any signs of significant physical-mechanical deterioration.

Density

Test method	ISO 1183 - ASTM D792
Unit of measurement	g/cm ³
Value	1.38

Modulus of elasticity

Test method	ISO 527
Unit of measurement	MPa = N/mm ²
Value	3200

IZOD notched impact strength at 23°C

Test method	ASTM D256
Unit of measurement	J/m
Value	50

Ultimate elongation

Test method	ISO 527
Unit of measurement	%
Value	50

Shore hardness

Test method	ISO 868
Unit of measurement	Shore D
Value	80

Tensile strength

Test method	ISO 527
Unit of measurement	MPa = N/mm ²
Value	50

VICAT softening point (B/50)

Test method	ISO 306
Unit of measurement	°C
Value	76

Heat distortion temperature HDT (0.46 N/mm²)

Test method	ASTM D648
Unit of measurement	°C
Value	86

Thermal conductivity at 23° C

Test method	DIN 52612-1 - ASTM C177
Unit of measurement	W/(m °C)
Value	0.16

Coefficient of linear thermal expansion

Test method	DIN 53752 - ASTM D696
Unit of measurement	m/(m °C)
Value	8 x 10 ⁻⁵

Limiting Oxygen Index

Test method	ISO 4859-1 - ASTM D2863
Unit of measurement	%
Value	45

REFERENCE STANDARDS

Production of the PVC-U lines is carried out according to the highest quality standards and in full compliance with the environmental restrictions set by the applicable laws in force and in accordance with **ISO 14001**. All products are made in accordance with the quality guarantee system in compliance with **ISO 9001**.

- **ANSI B16.5**
Pipe flanges and flanged fittings-NPS 1/2 to NPS 24 mm / inch
- **ASTM D 2464**
Standard Specification for Threaded Poly Vinyl Chloride (PVC) Plastic Pipe Fittings
- **ASTM D 2467**
Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 80
- **BS 10**
Specification for flanges and bolts for pipes, valves and fittings
- **BS 1560**
Flanges for pipes, valves and fittings (Class designated). Steel, cast iron and copper alloy flanges. Specification for steel flanges
- **BS 4504**
Flanges for pipes, valves and fittings (PN designated).
- **DIN 2501**
Flanges, dimensions
- **DIN 2999**
Whitworth thread for threaded pipes and fittings
- **DIN 3202**
Overall valve dimensions
- **DIN 3441-2**
Dimensions of PVC-U ball valves
- **DIN 8062**
Dimensions of PVC-U pipes
- **DIN 8063**
Dimensions of PVC-U fittings
- **DIN 16962**
PVC-C fittings for butt-welding or socket fusion, dimensions
- **DIN 16963**
Pipe connections and pipe components for pressurised fluids in HDPE
- **DVS 2204 - 2221**
Solvent welding of thermoplastic materials PVC-U
- **EN 558-1**
Industrial valves - face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems - Part 1: PN designated valves
- **EN 1092-1**
Flanges and their joints - Circular flanges for pipes, valves and accessories - Part 1: Steel flanges, PN designated
- **EN ISO 1452**
Characteristics of fittings and pipes in PVC-U for piping systems intended for water supply

- **EN ISO 15493**
Specifications for components and the system (Pipes, Fittings and Valves) in ABS, PVC-U, PVC-C for industrial applications
- **EN ISO 16135**
Industrial valves - Ball valves of thermoplastic material
- **EN ISO 16136**
Industrial valves - Butterfly valves of thermoplastic material
- **EN ISO 16137**
Industrial valves - Check valves of thermoplastic material
- **EN ISO 16138**
Industrial valves - Diaphragm valves of thermoplastic material
- **ISO 7**
PVC-U fittings with threaded connections for pressure-tight joints
- **ISO 161-1**
Dimensions of PVC-U pipes and fittings - metric series
- **ISO 228-1**
PVC-U fittings with threaded connections
- **ISO 727**
PVC-U pipes and fittings. Dimensions and tolerances - metric series
- **ISO 5211**
Part-turn actuator attachments
- **ISO 5752**
Metal valves for use in flanged pipe systems; Face-to-face and centre-to-face dimensions
- **ISO 7005-1**
Metal flanges; part 1: steel flanges
- **ISO 9393**
Thermoplastics valves - pressure test methods and requirements
- **JIS B 2220**
Flanges for metal pipes
- **JIS K 6743**
Polyvinyl chloride (PVC-U) pipe fittings for water supply
- **UNI 11242**
Solvent welding of PVC-U pipes, fittings and valves

APPROVALS AND QUALITY MARKS



- **ABS**

FIP PVC-U valves have been recognised as suitable for conveying, treating domestic and air conditioning waters on board ships and other units classified by the American Bureau of Shipping (ABS)



- **ACS**

FIP PVC-U ball valves are certified as suitable for coming into contact with water intended for human consumption according to the Attestation de conformité sanitaire (ACS)



- **Bureau Veritas**

FIP PVC-U valves have been recognised as suitable for conveying, treating domestic and air conditioning waters on board ships and other units classified by the Bureau Veritas - Marine Division



- **DIBt**

FIP PVC-U valves have been tested and certified by DIBt (Deutsches Institut für Bautechnik)



- **GOST-R - EAC**

FIP PVC-U valves are GOST-R and EAC certified in accordance with Russian regulations on Safety, Hygiene and Quality



- **NSF**

FIP PVC-U ball valves are listed according to the NSF/ANSI Standard 61 - Drinking Water System Components - Health Effects

TA-Luft

- **TA-Luft**

FIP PVC-U valves have been tested and certified according to “TA-Luft” by MPA Stuttgart in compliance with the Technical Instruction on Air Quality Control TA-Luft/ VDI 2440



- **UKR SEPRO**

FIP PVC-U valves are certified in accordance with Ukrainian regulations on Safety and Quality



- **WRAS**

FIP PVC-U valves are recognised by the WRAS (Water Regulation Advisory Scheme - UK)

SOLVENT WELDING INSTRUCTIONS

Solvent welding, or cement jointing, is the longitudinal joining system for connecting rigid PVC-U pipes and fittings.

The "cementing" is carried out using adhesives/cements obtained by dissolving PVC-U polymer in a solvent mixture. This solvent liquefies the walls of the pipe and/or fitting, allowing the constituent material to chemically combine and be subsequently welded. Chemical welding allows permanent joints to be achieved possessing chemical and mechanical strength characteristics identical to those of the pipes and fittings joined. The adhesives/solvent cements must be selected according to the type of thermoplastic resin to weld, in that the nature of the solvents vary, as does the weld material contained in them. It must be remembered, therefore, that all the solvent cements designed for joining thermoplastic pipes and fittings must be used to join pipes, fittings and valves of the same material.

Before starting any solvent welding operations, the efficiency and condition of the equipment used and the pieces to be assembled must be verified, in particular the uniformity, fluidity and expiry date of the solvent cement.

- 1) Cut the pipe perpendicular to its axis to obtain a clean square section, preferably using a wheeled pipe cutter designed specifically for thermoplastic pipes (fig. 1).
- 2) Chamfer the outer edges of the pipe in order to ensure that it enters the socket of the fitting at an angle of 15°. The chamfering operation must be carried out at all costs, otherwise the lack of chamfer can lead to the solvent being scraped off the surface of the fitting, thus compromising the effectiveness of the joint. The chamfering must be carried out using the appropriate chamfering tool (fig. 2).
- 3) Measure the depth of the socket of the fitting to the internal shoulder and mark the corresponding distance on the end of the pipe (fig. 3 and 4). For more details, refer to the "Socket depth, cement and chamfer length" table.
- 4) Using a clean paper towel or applicator soaked in Cleaner-Primer, remove any traces of dirt or grease from the outer surface of the pipe for the entire cementing length. Repeat the same operation on the internal surface of the socket of the fitting: leaving the surfaces softened (fig. 5).

Leave the surfaces to dry for a few minutes before applying the solvent cement. Remember that, in addition to cleaning the joint surfaces, the Cleaner-Primer also performs the important role of softening and preparing the surface to receive the solvent, an operation that enables a perfect joint to be obtained.

- 5) Apply the solvent cement in a uniform manner longitudinally over both parts to be assembled (outer surface of the pipe and internal coupling surface of the fitting) using an applicator or suitably sized coarse brush.

For more detailed information, refer to the "Brush-applicator characteristics and dimensions" table.

Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



It is advisable to use an applicator/brush of dimension not less than half the diameter of the pipe. The solvent cement must be applied along the entire length of the joining surface of both the pipe and the fitting:

- for the entire joint length of the pipe previously marked on the outer surface (fig. 6)
 - for the entire depth of the socket as far as the internal shoulder (fig.7)
- 6) Fully insert the pipe into the fitting immediately and without any rotation. Only after this operation will it be possible to slightly rotate both ends (max. 1/4 of a turn between pipe and fitting). This rotation movement will render the layer of applied solvent cement more uniform (fig. 8)
 - 7) The pipe must be inserted in the fitting as soon and as quick as possible (after no more than 20-25 seconds is recommended). Depending on the external diameter of the pipe and, as a result, possible handling difficulties, the insertion of the pipe into the fitting must be carried out:
 - manually by one person for external diameters < 90 mm.
 - manually by two people for external diameters from d 90 to d < 160 mm.
 - using mechanical pipe-pullers for external diameters > 160 mm.
 - 8) Immediately after fully inserting the pipe in the fitting, apply pressure to the joined parts for a few seconds. Then use crepe paper or a clean cloth to remove any excess solvent cement from the outer surfaces, and from internal surfaces where possible (fig. 9).
 - 9) Solvent cement drying: the joined parts must be left to stand in order to allow the solvent cement to set naturally without generating any unnecessary stress. The setting time depends on the amount of stress that the joint will be placed under.

In particular, the following minimum setting times must be respected according to the ambient temperature:

- before handling the joint:
 - from 5 to 10 minutes for ambient T. > 10°C
 - from 15 to 20 minutes for ambient T. < 10°C
- for repair joints on pipes of any size or pressure not subject to hydraulic testing:
 - 1 hour for each atm of applied pressure
- for joints in pipes and fittings of any diameter subject to pressure testing up to PN 16:
 - minimum 24 hours

The solvent cement setting times indicated are valid at ambient temperature (approx. 25°C.). For particular climatic conditions (humidity, temperature, etc...), we recommend you contact our technical services department and/or the solvent cement manufacturer for more information (fig. 10 and 11).

Fig. 6



Fig. 7



Fig. 8

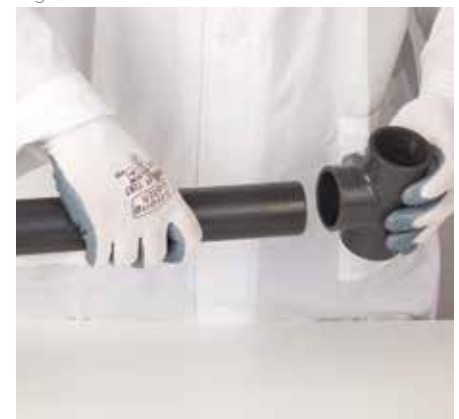


Fig. 11

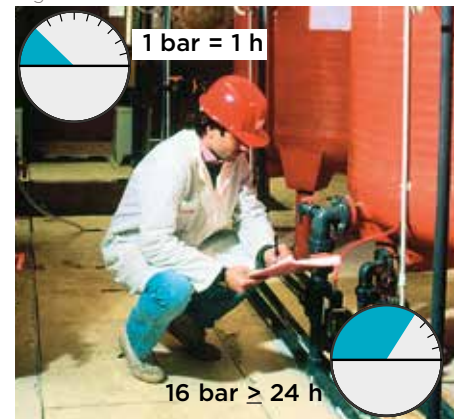
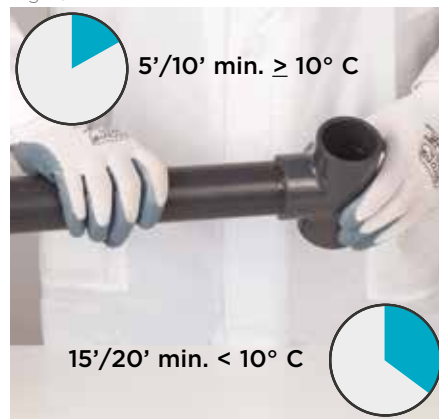


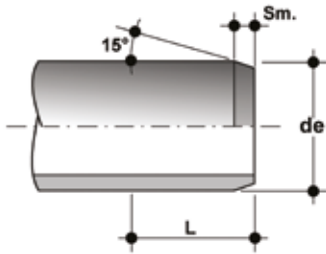
Fig. 9



Fig. 10



SOCKET DEPTH, CEMENT AND CHAMFER LENGTH



Metric series de (mm)	External diameter de (mm)		Cementing length L (mm)		Chamfer Sm (mm)
	BS series (inches)	Metric series	BS series	Metric series	
16	3/8"	14	14.5		
20	1/2"	16	16.5		1.5
25	3/4"	18.5	19.5		3
32	1"	22	22.5		3
40	1" 1/4	26	27		3
50	1" 1/2	31	30		3
63	2"	37.5	36		5
75	2" 1/2	43.5	43.5		5
90	3"	51	50.5		5
110	4"	61	63		5
125	-	68.5	-		5
140	5"	76	76		5
160	6"	86	90		5
180	-	96	-		5÷6
200	-	106	-		5÷6
225	8"	118.5	115.5		5÷6
250	-	131	-		5÷6
280	10"	146	142.5		5÷6
315	12"	163.5	168		5/6

CHARACTERISTICS AND DIMENSIONS OF BRUSHES- APPLICATORS

de (mm)	External diameter (inches)	Type and dimensions of Brush or Applicator
16 - 25	3/8" - 3/4"	Round (8 - 10 mm)
32 - 63	1" - 2"	Round (20 - 25 mm)
75 - 160	2" 1/2 - 6"	Rectangular / round (45 - 50 mm)
>160	>6"	Rectangular / cylindrical (45 - 50 mm)
>160 - 315	>6" - 12"	Rectangular / cylindrical (60 - 65 mm)

WARNINGS

- In the case where the external diameter of the pipe and the internal diameter of the fitting are at opposite extremes of their tolerance values, the dry pipe cannot be inserted in the dry socket of the fitting. Insertion will only be possible after having applied the Cleaner and Solvent Cement to both parts to be joined.
- The solvent cement is manufactured from the same PVC resin used for the production of the pipes, fittings and valves. Unless otherwise specified, the solvent cement used on the surfaces to join must also be usable with the following tolerances:
 - maximum interference 0.2 mm.
 - maximum clearance 0.6 mm.
- When using the Cleaner and Solvent Cement, the following precautions should be adopted:
 - Use gloves and safety glasses to protect hands and eyes.
 - Use the Cleaner and Solvent Cement in a working environment with sufficient ventilation to avoid the formation of pockets of air containing concentrations of evaporated solvent, which can irritate the respiratory tract and eyes.
 - Due to the volatile nature of the solvents in the cleaner and cement, the containers must be closed immediately after use.
 - Solvents in the gaseous phase tend to form flammable mixtures. Therefore, remove any ignition sources such as welding operations, accumulation of electrostatic charges, etc. from the work area, and do not smoke. In all cases, it is advisable to adhere strictly to the solvent cement manufacturer's instructions written on the packaging.
 - In order to prevent a deterioration in the performance of the cleaner and solvent cement, the joining operations should be carried out within an ambient temperature range of between + 5 and + 40° C.
- The amount of solvent cement used on the joints depends on a number of factors (environmental conditions, pipe size, cement viscosity, operator experience, etc.) which are often difficult to quantify. In this respect, Table "Rigid PVC-U pipes and fittings. Theoretical solvent cement consumption" reports the approximate quantities of cement normally used for joining various diameter pipes and fittings.
- After having completed all the joints and prior to putting the lines into service, make sure that the insides of the pipes and fittings are completely free of any solvent traces/vapours. This will prevent contamination of the fluids conveyed.
- Table "Most common defects" reports the most common types of defect found if the correct solvent welding procedure is not followed.

RIGID PVC-U PIPES AND FITTINGS THEORETICAL SOLVENT CEMENT CONSUMPTION

d (mm)	Pipe/Fitting diameter		Number of joints per kg of solvent cement
	d (mm)	d (inches)	
16		3/8"	550
20		1/2"	500
25		3/4"	450
32		1"	400
40		1" 1/4	300
50		1" 1/2	200
63		2"	140
75		2" 1/2	90
90		3"	60
110		4"	40
125		-	30
140		5"	25
160		6"	15
180		-	12
200		-	10
225		8"	6
250		-	4
280		10"	2
315		12"	2

MOST COMMON DEFECTS

Solvent cement too fluid (incorrect diluent addition)

Immediate effect	Cementing failure.
Consequence	Joint separation or leaks from between the pipe and fitting.

Excess solvent cement

Immediate effect	Internal and external runs beyond the joint zone.
Consequence	Weakening of the outer surface of the joint area and formation of bubbles with micro-cracks/sources of fracture in the base material.

Excessively dense solvent cement due to evaporated solvent

Immediate effect	Cementing failure.
Consequence	Joint separation or leaks from between the pipe and fitting. Possible surface cracks triggering cracks in the base material.

Insufficient and/or incorrect distribution of solvent cement

Immediate effect	Cementing failure or local weakness.
Consequence	Joint separation or leaks from between the pipe and fitting.

Incorrect pipe insertion (incomplete, excessive, misaligned)

Immediate effect	Imperfect joint.
Consequence	Transmission of mechanical stresses from the pipe to the fitting and/or leaks from the joint.

Impurities and/or humidity on the surfaces of the parts to join

Immediate effect	Imperfect joint.
Consequence	Joint separation or leaks (fluid seepage) from between the pipe and fitting.



VKD DN 10÷50
PVC-U

DUAL BLOCK® 2-way ball valve

VKD DN 10÷50

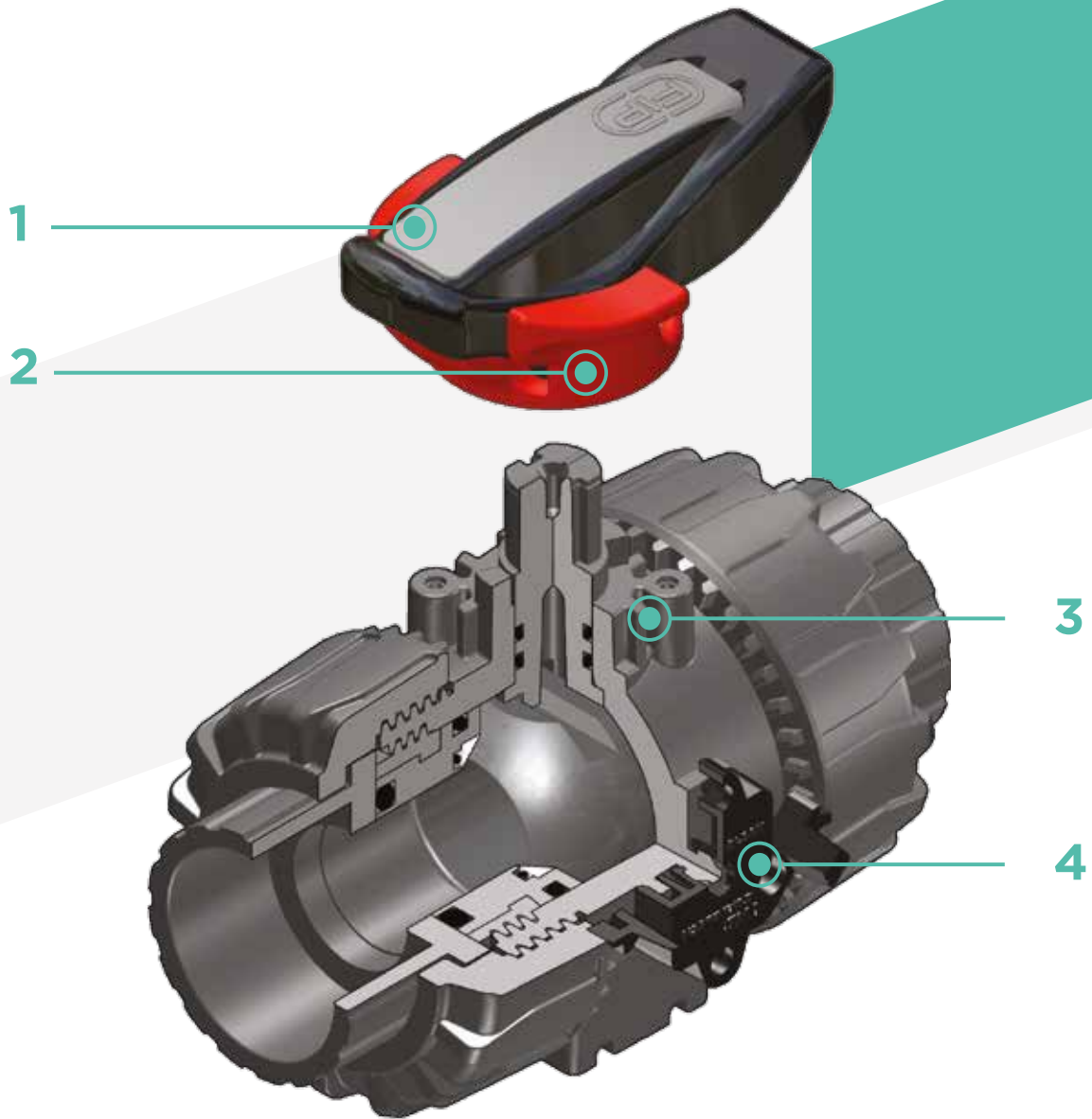
FIP has developed a VKD DUAL BLOCK® ball valve to introduce a high reference standard in thermosplastic valve design. VKD is a True Union ball valve that meets the most stringent needs required by industrial applications.



DUAL BLOCK® 2-WAY BALL VALVE

- Connection system for solvent weld, threaded and flanged joints
- Patented **SEAT STOP®** ball carrier system that lets you micro-adjust ball seats and minimise the axial force effect
- Easy radial dismounting allowing quick replacement of O-rings and ball seats without any need for tools
- **PN16 True Union valve body** made for rigid PVC-U injection moulding equipped with built-in bores for actuation. ISO 9393 compliant test requisites
- Option of dismounting downstream pipes with the valve in the closed position
- Floating **full bore ball** with high surface finish
- **Integrated bracket** for valve anchoring
- Ball seat carriers can be adjusted using the **Easytorque adjustment kit**

Technical specifications	
Construction	2-way True Union ball valve with locked carrier and union nuts.
Size range	DN 10 ÷ 50
Nominal pressure	PN 16 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Pipe coupling as per EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741</p> <p>Thread: ISO 228-1, DIN 2999, ASTM D 2464, JIS B 0203</p> <p>Flanging system: ISO 7005-1, EN ISO 1452, EN ISO 15493, EN 558-1, DIN 2501, ANSI B.16.5 cl. 150, JIS B 2220</p>
Reference standards	<p>Construction criteria: EN ISO 16135, EN ISO 1452, EN ISO 15493</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p> <p>Actuator couplings: ISO 5211</p>
Valve material	PVC-U
Seal material	EPDM, FPM (standard size O-Ring); PTFE (ball seats)
Control options	Manual control; electric actuator; pneumatic actuator



- 1** Ergonomic HIPVC handle equipped with **removable tool to adjust the ball seat carrier.**
- 2** **Handle lock 0°- 90° SHKD** (available as an accessory) ergonomically operable during service and padlockable

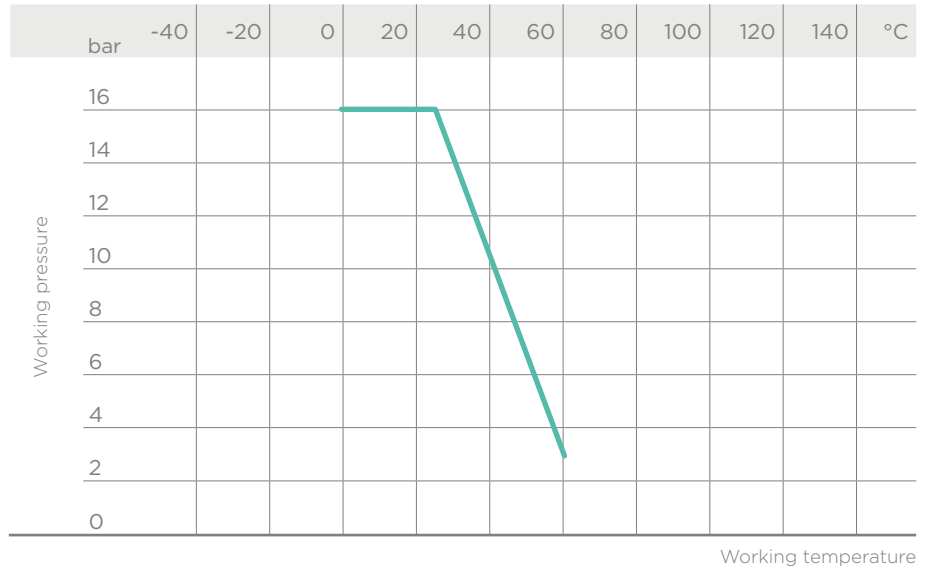
3 Robust **integrated bracket for valve anchoring**, for easy and quick automation even after valve installation on the system via the Power Quick module (optional)

4 **DUAL BLOCK®** patented lock system that ensures union nut tightening hold even in severe conditions such as vibrations or heat dilation

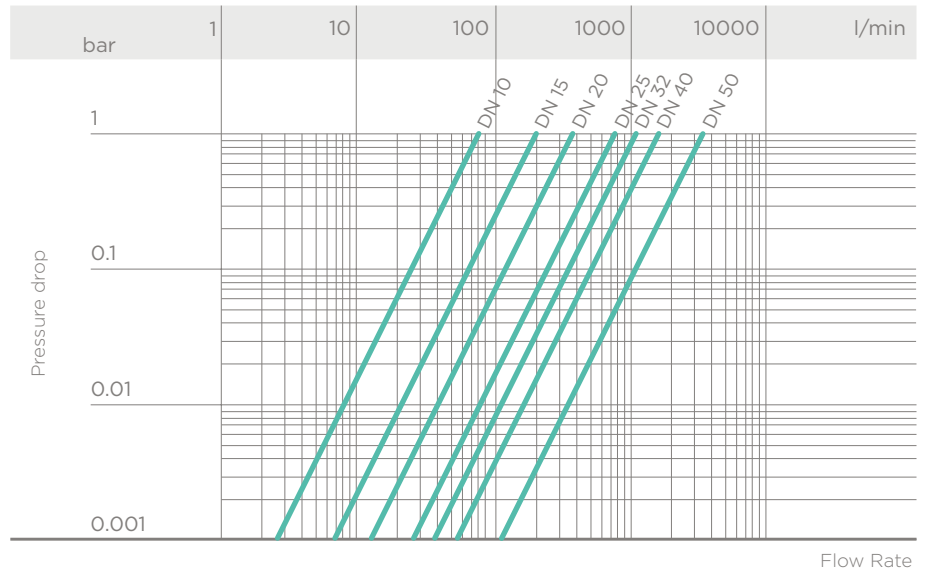
TECHNICAL DATA

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 PN pressure is required (25 years with safety factor).



PRESSURE DROP GRAPH



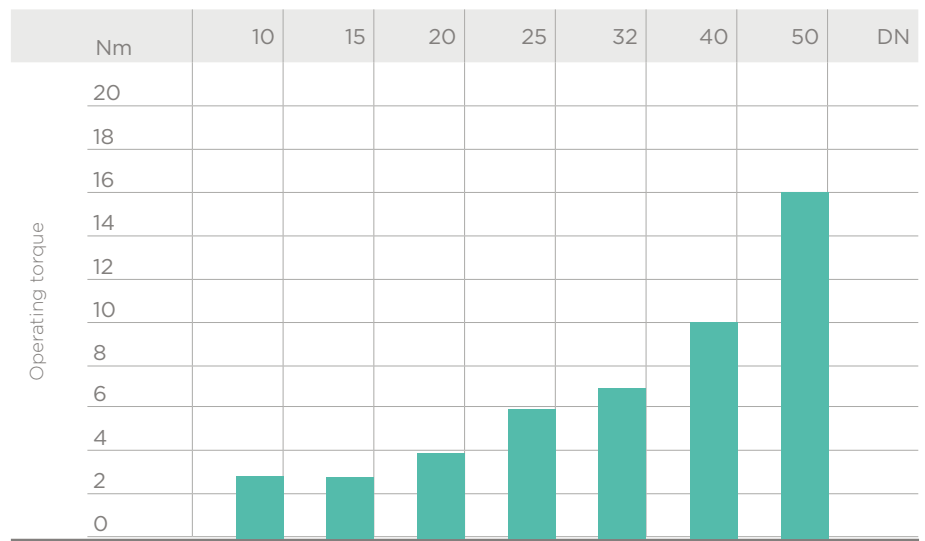
K_v100 FLOW COEFFICIENT

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.

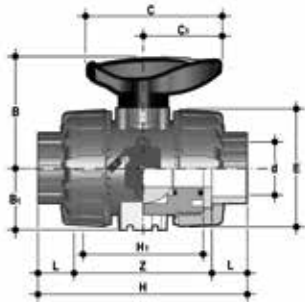
DN	10	15	20	25	32	40	50
K _v 100 l/min	80	200	385	770	1100	1750	3400

OPERATING TORQUE AT MAXIMUM WORKING PRESSURE



The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

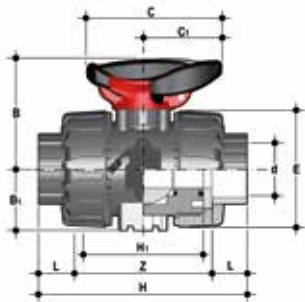
DIMENSIONS



VKDIV

DUAL BLOCK® 2-way ball valve with female ends for solvent welding, metric series

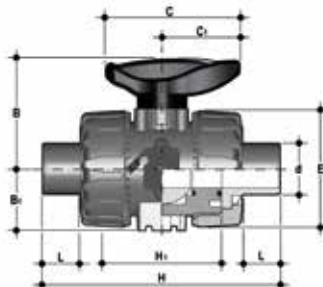
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
16	10	16	54	29	67	40	54	103	65	14	75	215	VKDIV016E	VKDIV016F
20	15	16	54	29	67	40	54	103	65	16	71	205	VKDIV020E	VKDIV020F
25	20	16	65	34.5	85	49	65	115	70	19	77	330	VKDIV025E	VKDIV025F
32	25	16	69.5	39	85	49	73	128	78	22	84	438	VKDIV032E	VKDIV032F
40	32	16	82.5	46	108	64	86	146	88	26	94	693	VKDIV040E	VKDIV040F
50	40	16	89	52	108	64	98	164	93	31	102	925	VKDIV050E	VKDIV050F
63	50	16	108	62	134	76	122	199	111	38	123	1577	VKDIV063E	VKDIV063F



VKDIV/SHX

DUAL BLOCK® 2-way ball valve with handle lock and STAINLESS steel threaded inserts with female ends for solvent welding, metric series

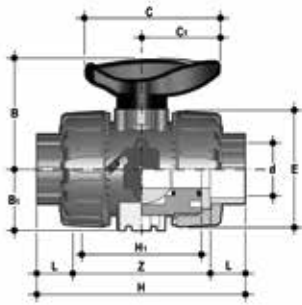
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
16	10	16	54	29	67	40	54	103	65	14	75	225	VKDIVSHX016E	VKDIVSHX016F
20	15	16	54	29	67	40	54	103	65	16	71	215	VKDIVSHX020E	VKDIVSHX020F
25	20	16	65	34.5	85	49	65	115	70	19	77	340	VKDIVSHX025E	VKDIVSHX025F
32	25	16	69.5	39	85	49	73	128	78	22	84	448	VKDIVSHX032E	VKDIVSHX032F
40	32	16	82.5	46	108	64	86	146	88	26	94	703	VKDIVSHX040E	VKDIVSHX040F
50	40	16	89	52	108	64	98	164	93	31	102	935	VKDIVSHX050E	VKDIVSHX050F
63	50	16	108	62	134	76	122	199	111	38	123	1587	VKDIVSHX063E	VKDIVSHX063F



VKDDV

DUAL BLOCK® 2-way ball valve with male ends for solvent welding, metric series

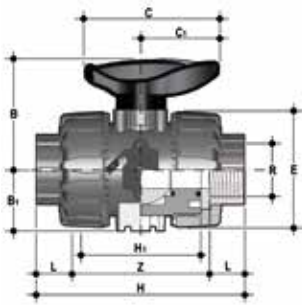
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	g	EPDM Code	FPM Code
16	10	16	54	29	67	40	54	149	65	14	215	VKDDV016E	VKDDV016F
20	15	16	54	29	67	40	54	124	65	16	220	VKDDV020E	VKDDV020F
25	20	16	65	34.5	85	49	65	144	70	19	340	VKDDV025E	VKDDV025F
32	25	16	69.5	39	85	49	73	154	78	22	443	VKDDV032E	VKDDV032F
40	32	16	82.5	46	108	64	86	174	88	26	693	VKDDV040E	VKDDV040F
50	40	16	89	52	108	64	98	194	93	31	945	VKDDV050E	VKDDV050F
63	50	16	108	62	134	76	122	224	111	38	1607	VKDDV063E	VKDDV063F



VKDLV

DUAL BLOCK® 2-way ball valve with female ends for solvent welding, BS series

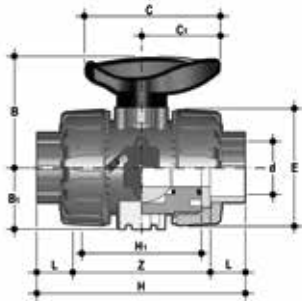
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	29	67	40	54	103	65	14.5	74	210	VKDLV038E	VKDLV038F
1/2"	15	16	54	29	67	40	54	103	65	16.5	70	205	VKDLV012E	VKDLV012F
3/4"	20	16	65	34.5	85	49	65	115	70	19	77	335	VKDLV034E	VKDLV034F
1"	25	16	69.5	39	85	49	73	128	78	22.5	83	433	VKDLV100E	VKDLV100F
1" 1/4	32	16	82.5	46	108	64	86	146	88	26	94	703	VKDLV114E	VKDLV114F
1" 1/2	40	16	89	52	108	64	98	164	93	30	104	925	VKDLV112E	VKDLV112F
2"	50	16	108	62	134	76	122	199	111	36	127	1647	VKDLV200E	VKDLV200F



VKDFV

DUAL BLOCK® 2-way ball valve with BSP threaded female ends

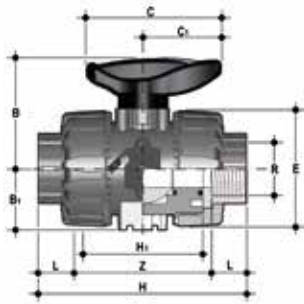
R	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	29	67	40	54	103	65	12**	80	215	VKDFV038E	VKDFV038F
1/2"	15	16	54	29	67	40	54	110	65	15	80	210	VKDFV012E	VKDFV012F
3/4"	20	16	65	34.5	85	49	65	116	70	16	83	335	VKDFV034E	VKDFV034F
1"	25	16	69.5	39	85	49	73	134	78	19	96	448	VKDFV100E	VKDFV100F
1" 1/4	32	16	82.5	46	108	64	86	153	88	21	110	678	VKDFV114E	VKDFV114F
1" 1/2	40	16	89	52	108	64	98	156	93	21	113	955	VKDFV112E	VKDFV112F
2"	50	16	108	62	134	76	122	186	111	26	135	1667	VKDFV200E	VKDFV200F



VKDAV

DUAL BLOCK® 2-way ball valve with female ends for solvent welding, ASTM series

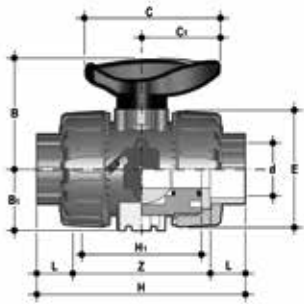
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	29	67	40	54	117	65	19.5	78	230	VKDAV038E	VKDAV038F
1/2"	15	16	54	29	67	40	54	117	65	22.5	72	215	VKDAV012E	VKDAV012F
3/4"	20	16	65	34.5	85	49	65	129	70	25.5	78	345	VKDAV034E	VKDAV034F
1"	25	16	69.5	39	85	49	73	142	78	28.7	84.6	448	VKDAV100E	VKDAV100F
1" 1/4	32	16	82.5	46	108	64	86	162	88	32	98	718	VKDAV114E	VKDAV114F
1" 1/2	40	16	89	52	108	64	98	172	93	35	102	975	VKDAV112E	VKDAV112F
2"	50	16	108	62	134	76	122	199	111	38.2	122.6	1712	VKDAV200E	VKDAV200F



VKDNV

DUAL BLOCK® 2-way ball valve with female ends, NPT thread

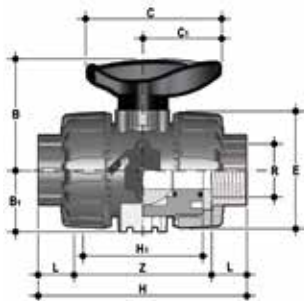
R	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	29	67	40	54	103	65	13.7	75.6	215	VKDNV038E	VKDNV038F
1/2"	15	16	54	29	67	40	54	111	65	17.8	75.4	210	VKDNV012E	VKDNV012F
3/4"	20	16	65	34.5	85	49	65	117	70	18	81	335	VKDNV034E	VKDNV034F
1"	25	16	69.5	39	85	49	73	135	78	22.6	89.8	448	VKDNV100E	VKDNV100F
1" 1/4	32	16	82.5	46	108	64	86	153	88	25.1	102.8	678	VKDNV114E	VKDNV114F
1" 1/2	40	16	89	52	108	64	98	156	93	24.7	106.6	955	VKDNV112E	VKDNV112F
2"	50	16	108	62	134	76	122	186	111	29.6	126.8	1667	VKDNV200E	VKDNV200F



VKDJV

DUAL BLOCK® 2-way ball valve with female ends for solvent welding, JIS series

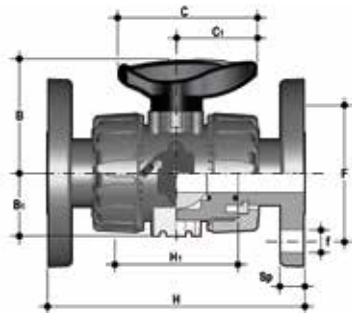
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	29	67	40	54	131	65	30	71	225	VKDJV012E	VKDJV012F
3/4"	20	16	65	34.5	85	49	65	147	70	35	77	335	VKDJV034E	VKDJV034F
1"	25	16	69.5	39	85	49	73	164	78	40	84	448	VKDJV100E	VKDJV100F
1" 1/4	32	16	82.5	46	108	64	86	182	88	44	94	728	VKDJV114E	VKDJV114F
1" 1/2	40	16	89	52	108	64	98	212	93	55	102	1015	VKDJV112E	VKDJV112F
2"	50	16	108	62	134	76	122	248	111	63	122	1727	VKDJV200E	VKDJV200F



VKDGV

DUAL BLOCK® 2-way ball valve with female ends, JIS thread

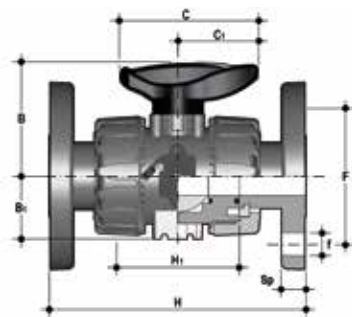
R	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	29	67	40	54	103	65	16	71	210	VKDGV012E	VKDGV012F
3/4"	20	16	65	34.5	85	49	65	115	70	19	77	330	VKDGV034E	VKDGV034F
1"	25	16	69.5	39	85	49	73	128	78	22	84	438	VKDGV100E	VKDGV100F
1" 1/4	32	16	82.5	46	108	64	86	146	88	25	96	678	VKDGV114E	VKDGV114F
1" 1/2	40	16	89	52	108	64	98	164	93	26	112	975	VKDGV112E	VKDGV112F
2"	50	16	108	62	134	76	122	199	111	31	137	1627	VKDGV200E	VKDGV200F



VKDOV

DUAL BLOCK® 2-way ball valve with EN/ISO/DIN PN 10/16 fixed flanges, Face to face according to EN 558-1

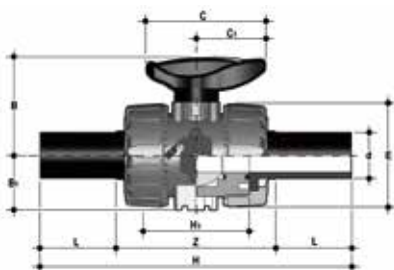
d	DN	PN	B	B ₁	C	C ₁	F	f	H	H ₁	Sp	U	g	EPDM Code	FPM Code
20	15	16	54	29	67	40	65	14	130	65	11	4	375	VKDOV020E	VKDOV020F
25	20	16	65	34.5	85	49	75	14	150	70	14	4	590	VKDOV025E	VKDOV025F
32	25	16	69.5	39	85	49	85	14	160	78	14	4	713	VKDOV032E	VKDOV032F
40	32	16	82.5	46	108	64	100	18	180	88	14	4	1108	VKDOV040E	VKDOV040F
50	40	16	89	52	108	64	110	18	200	93	16	4	1485	VKDOV050E	VKDOV050F
63	50	16	108	62	134	76	125	18	230	111	16	4	2347	VKDOV063E	VKDOV063F



VKDOAV

DUAL BLOCK® 2-way ball valve with fixed flange, drilled ANSI B16.5 cl.150#FF

d	DN	PN	B	B ₁	C	C ₁	F	f	H	H ₁	Sp	U	g	EPDM Code	FPM Code
1/2"	15	16	54	29	67	40	60.3	15.9	143	65	11	4	460	VKDOAV012E	VKDOAV012F
3/4"	20	16	65	34.5	85	49	69.9	15.9	172	70	14	4	632	VKDOAV034E	VKDOAV034F
1"	25	16	69.5	39	85	49	79.4	15.9	187	78	14	4	853	VKDOAV100E	VKDOAV100F
1" 1/4	32	16	82.5	46	108	64	88.9	15.9	190	88	14	4	1313	VKDOAV114E	VKDOAV114F
1" 1/2	40	16	89	52	108	64	98.4	15.9	212	93	16	4	1669	VKDOAV112E	VKDOAV112F
2"	50	16	108	62	134	76	120.7	19.1	234	111	16	4	2577	VKDOAV200E	VKDOAV200F

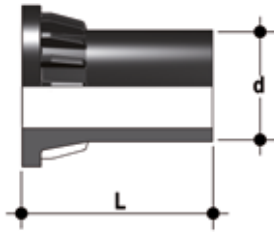


VKDBEV

DUAL BLOCK® 2-way ball valve with PE100 SDR 11 male end connectors for butt welding or electrofusion (CVDE)

d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
20	15	16	54	29	67	40	54	175	65	41	94	220	VKDBEV020E	VKDBEV020F
25	20	16	65	34.5	85	49	65	210	70	52	106	340	VKDBEV025E	VKDBEV025F
32	25	16	69.5	39	85	49	73	226	78	55	117	443	VKDBEV032E	VKDBEV032F
40	32	16	82.5	46	108	64	86	243	88	56	131	693	VKDBEV040E	VKDBEV040F
50	40	16	89	52	108	64	98	261	93	58	145	945	VKDBEV050E	VKDBEV050F
63	50	16	108	62	134	76	122	293	111	66	161	1607	VKDBEV063E	VKDBEV063F

ACCESSORIES



CVDE

Long spigot PE100 end connectors for joints with electrofusion fittings or for butt welding

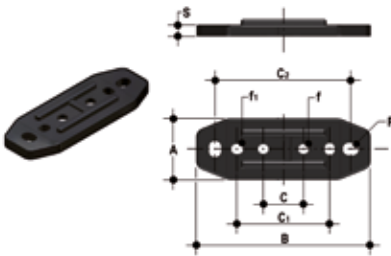
d	DN	PN	L	SDR	Code
20	15	16	55	11	CVDE11020
25	20	16	70	11	CVDE11025
32	25	16	74	11	CVDE11032
40	32	16	78	11	CVDE11040
52	40	16	84	11	CVDE11050
63	50	16	91	11	CVDE11063



SHKD

Handle block kit 0° - 90° lockable

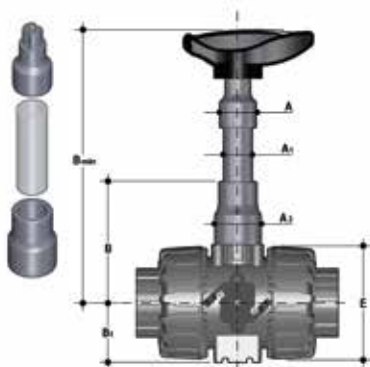
d	DN	Code
16 - 20	10 - 15	SHKD020
25 - 32	20 - 25	SHKD032
40 - 50	32 - 40	SHKD050
63	50	SHKD063



PMKD

Mounting plate

d	DN	A	B	C	C ₁	C ₂	F	f	f ₁	S	Code
16	10	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD1
20	15	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD1
25	20	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD1
32	25	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD1
40	32	40	122	30	72	102	6.5	6.3	6.5	6	PMKD2
50	40	40	122	30	72	102	6.5	6.3	6.5	6	PMKD2
63	50	40	122	30	72	102	6.5	6.3	6.5	6	PMKD2



PSKD

Stem extension

d	DN	A	A ₁	A ₂	E	B	B ₁	B min	Code
16	10	32	25	32	54	70	29	139.5	PSKD020
20	15	32	25	32	54	70	29	139.5	PSKD020
25	20	32	25	40	65	89	34.5	164.5	PSKD025
32	25	32	25	40	73	93.5	39	169	PSKD032
40	32	40	32	50	86	110	46	200	PSKD040
50	40	40	32	50	98	116	52	206	PSKD050
63	50	40	32	59	122	122	62	225	PSKD063

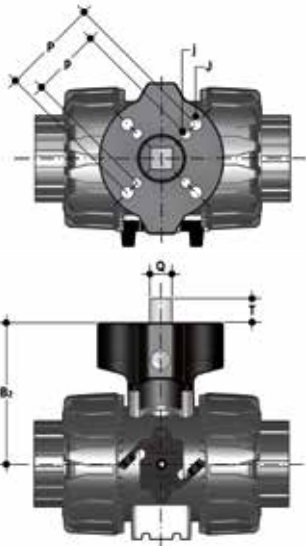


EASYTORQUE KIT

Kit for ball seat carrier tightening adjustment for DUAL BLOCK® DN 10÷50 series valves

d	DN	Tightening torque recommended*	Code
3/8"-1/2"	10-15	3 N m - 2,21 Lbf ft	KETO1
3/4"	20	4 N m - 2,95 Lbf ft	KETO1
1"	25	5 N m - 3,69 Lbf ft	KETO1
1" 1/4	32	5 N m - 3,69 Lbf ft	KETO1
1" 1/2	40	7 N m - 5,16 Lbf ft	KETO1
2"	50	9 N m - 6,64 Lbf ft	KETO1

*calculated in ideal installation conditions

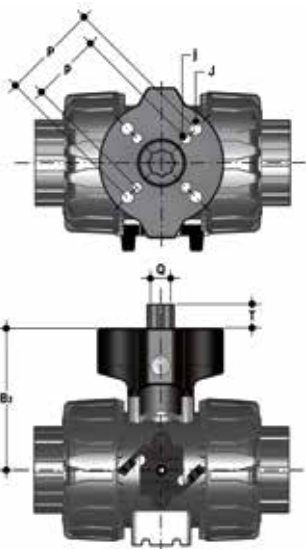


POWER QUICK CP

The valve can be equipped with pneumatic actuators, using the PP-GR module reproducing the drilling pattern foreseen by ISO 5211

d	DN	B ₂	Q	T	p x j	P x J	Code
16	10	58	11	12	F03 x 5,5	F04 x 5,5	PQCP020
20	15	58	11	12	F03 x 5,5	F04 x 5,5	PQCP020
25	20	69	11	12	*F03 x 5,5	F05 x 6,5	PQCP025
32	25	74	11	12	*F03 x 5,5	F05 x 6,5	PQCP032
40	32	91	14	16	F05 x 6,5	F07 x 8,5	PQCP040
50	40	97	14	16	F05 x 6,5	F07 x 8,5	PQCP050
63	50	114	14	16	F05 x 6,5	F07 x 8,5	PQCP063

*F04 x 5.5 on request

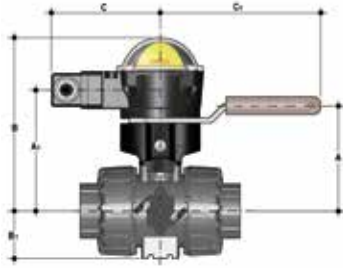


POWER QUICK CE

The valve can be equipped with electric actuators, using the PP-GR module reproducing the drilling pattern foreseen by ISO 5211

d	DN	B ₂	Q	T	p x j	P x J	Code
16	10	58	14	16	F03 x 5,5	F04 x 5,5	PQCE020
20	15	58	14	16	F03 x 5,5	F04 x 5,5	PQCE020
25	20	69	14	16	*F03 x 5,5	F05 x 6,5	PQCE025
32	25	74	14	16	*F03 x 5,5	F05 x 6,5	PQCE032
40	32	91	14	16	F05 x 6,5	F07 x 8,5	PQCE040
50	40	97	14	16	F05 x 6,5	F07 x 8,5	PQCE050
63	50	114	14	16	F05 x 6,5	F07 x 8,5	PQCE063

*F04 x 5.5 on request

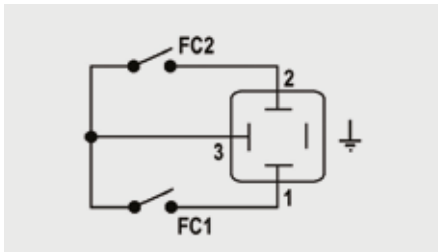


MSKD

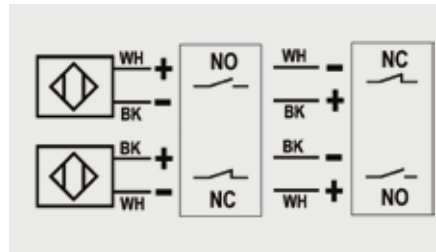
MSKD is a limit switch box with electromechanical or inductive micro switches to remotely signal the valve position. Manual valve installation is possible using the Power Quick actuation module.

The box can be assembled on the VKD valve even if already installed on the system.

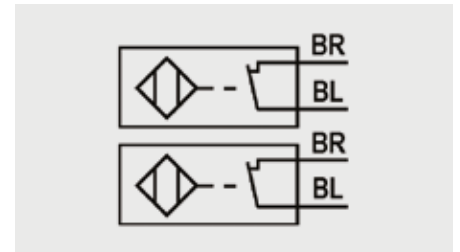
d	DN	A	A ₁	B	B ₁	C	C ₁	Code electromechanical	Code inductive	Code. Namur
16	10	58	85	132.5	29	88.5	134	MSKD1M	MSKD1I	MSKD1N
20	15	58	85	132.5	29	88.5	134	MSKD1M	MSKD1I	MSKD1N
25	20	70.5	96	143.5	34.5	88.5	134	MSKD1M	MSKD1I	MSKD1N
32	25	74	101	148.5	39	88.5	134	MSKD1M	MSKD1I	MSKD1N
40	32	116	118	165.5	46	88.5	167	MSKD2M	MSKD2I	MSKD2N
50	40	122	124	171.5	52	88.5	167	MSKD2M	MSKD2I	MSKD2N
63	50	139	141	188.5	62	88.5	167	MSKD2M	MSKD2I	MSKD2N



Electromechanical



Inductive



Namur

WH = white; BK = black; BL = blue; BR = brown

Switch type	Flow rate	Lifetime [drives]	Operating voltage	Nominal voltage	Working pressure	Voltage drop	No-load supply current	Protection rate
Electromechanical	250 V - 5 A	3 x 10 ⁷	-	-	-	-	-	IP65
Inductive	-	-	5 ÷ 36 V	-	4 ÷ 200 mA	< 4,6 V	< 0,8 mA	IP65
Namur*	-	-	7,5 ÷ 30 V DC**	8,2 V DC	< 30 mA**	-	-	IP65

* To be used with an amplifier

** Outside areas with explosion risks

FASTENING AND SUPPORTING

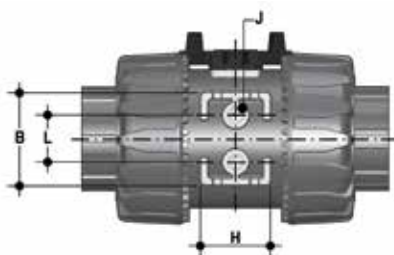


All valves, whether manual or actuated, must be adequately supported in many applications.

The VKD 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 PMKD mounting plates which are available as accessories can be used. These plates should be fastened to the valve before wall installation.

PMKD plates also allow VKD valve alignment with FIP ZIKM pipe clips as well as allowing different sizes of valves to be aligned.

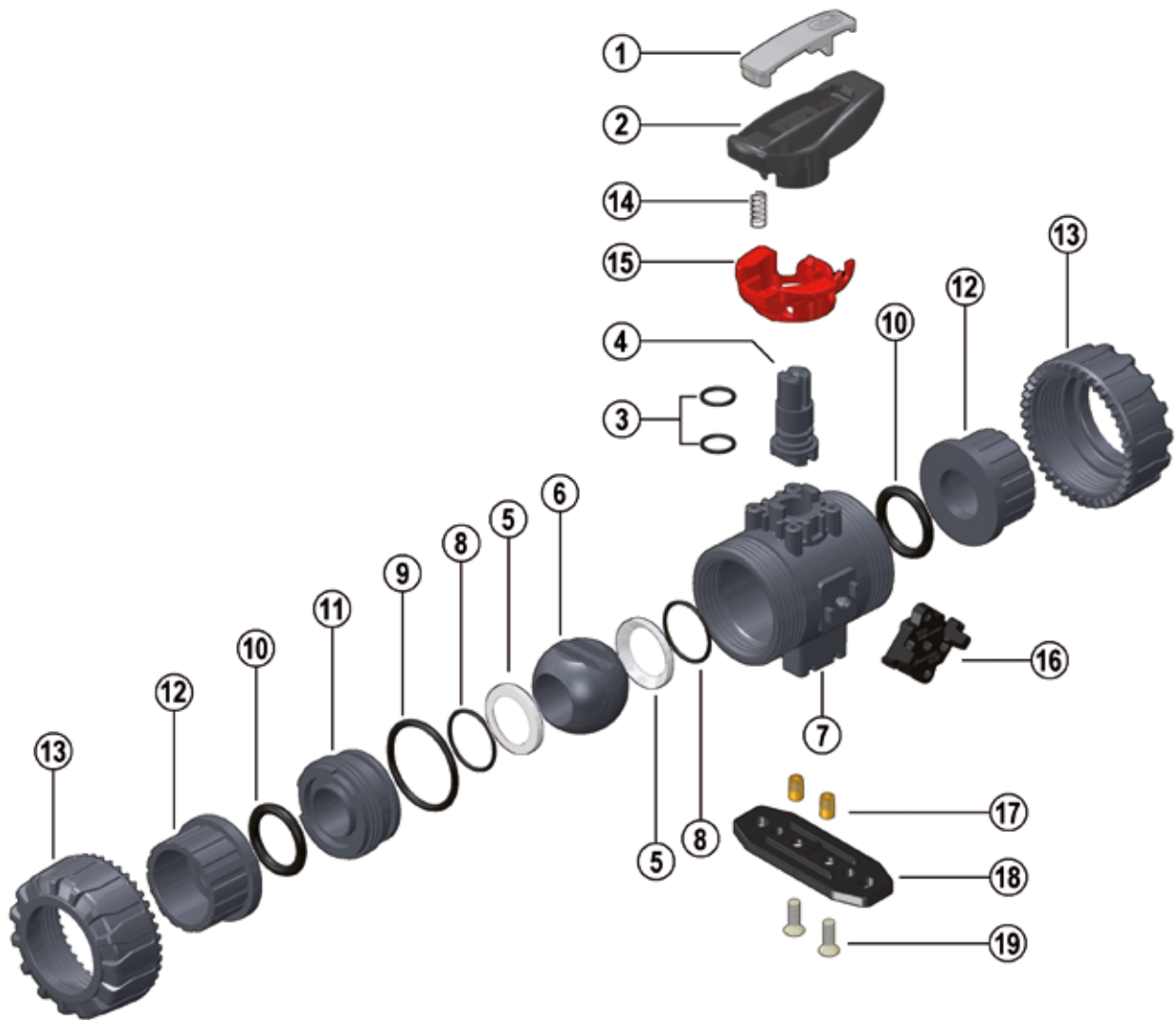


d	DN	B	H	L	J*
16	10	31.5	27	20	M4 x 6
20	15	31.5	27	20	M4 x 6
25	20	40	30	20	M4 x 6
32	25	40	30	20	M4 x 6
40	32	50	35	20	M6 x 10
50	40	50	35	20	M6 x 10
63	50	60	40	20	M6 x 10

* With threaded inserts

COMPONENTS

EXPLODED VIEW



1 · Handle insert (PVC-U - 1)

2 · Handle (HIPVC - 1)

3 · Stem O-rings
(EPDM-FPM - 2)*

4 · Stem (PVC-U - 1)

5 · Ball seat
(PTFE - 2)*

6 · Ball (PVC-U - 1)

7 · Body (PVC-U - 1)

8 · Ball seat O-Rings
(EPDM-FPM - 2)*

9 · Radial seal O-Ring
(EPDM-FPM - 1)

10 · Socket seal O-Ring
(EPDM-FPM - 2)

11 · Ball seat carrier
(PVC-U - 1)

12 · End connector (PVC-U - 2)

13 · Union nut (PVC-U - 2)

14 · Spring (STAINLESS steel - 1)**

15 · Handle safety
block (PP-GR - 1)**

16 · DUAL BLOCK® (POM - 1)

17 · Threaded inserts
(STAINLESS steel or Brass - 2)**

18 · Distance plate (PP-GR - 1)**

19 · Screw (STAINLESS steel - 2)**

* Spare parts

** Accessories

The component material and quantity supplied are indicated in the parentheses.

DISMOUNTING

- 1) Isolate the valve from the line (release the pressure and empty the pipeline).
- 2) Unlock the union nuts by pressing the lever on the DUAL BLOCK® (16) along the axis and separate it from the union nut (fig. 1-2). It is also possible to completely remove the block device from the body of the valve.
- 3) Fully unscrew the union nuts (13) and extract the body sideways.
- 4) Before dismantling, hold the valve in a vertical position and open it 45° to drain any liquid that might remain.
- 5) After closing the valve, remove the special insert (1) from the handle (2) and push the two projecting ends into the corresponding recesses on the ball seat carrier (11). Rotate the stop ring anti-clockwise to extract it (fig. 3-4).
- 6) Pull the handle (2) upwards to remove it from the valve stem (4).
- 7) Press on the ball from the side opposite the "REGULAR - ADJUST" label, being sure not to scratch it, until the ball seat carrier exits (11), then extract the ball (6).
- 8) Press the stem (4) inwards until it exits the body.
- 9) Remove the O-Ring (3, 8, 9, 10) and PTFE ball seats (5) extracting them from their grooves, as illustrated in the exploded view.

ASSEMBLY

- 1) All the O-rings (3, 8, 9, 10) must be inserted in their grooves as shown in the exploded view.
- 2) Insert the stem (4) from inside the valve body (7).
- 3) Place the PTFE ball seats (5) in the housings in the body (7) and in the ball seat ball seat carrier (11).
- 4) Insert the ball (6) rotating it to the closed position.
- 5) Screw the carrier (11) into the body and tighten up in the clockwise direction using the handle (2) to limit stop.
- 6) Insert the valve between the end connectors (12) and tighten the union nuts (13) making sure that the socket seal O-rings (10) do not exit their seats.
- 7) The handle (2) should be placed on the valve stem (4).



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

Fig. 1



Fig. 2



Fig. 3



Fig. 4



INSTALLATION

Before proceeding with installation, please follow these instructions carefully:

- 1) Check that the pipes to be connected to the valve are aligned in order to avoid mechanical stress on the threaded joints.
- 2) Check that the DUAL BLOCK® union nut locking device (16) is fitted to the valve body.
- 3) To release the union nuts, axially press the release lever to separate the lock and then unscrew it in the counter-clockwise direction.
- 4) Unscrew the union nuts (13) and insert them on the pipe segments.
- 5) Solvent weld or screw the end connectors (12) onto the pipe ends.
- 6) Position the valve body between the end connectors and fully tighten the union nuts (13) manually by rotating clockwise without using wrenches or other tools that could damage the union nut surface.
- 7) Lock the union nuts by returning the DUAL BLOCK® to its housing, pressing on it until the hinges lock on the union nuts.

8) If necessary, support the pipework with FIP pipe clips or by means of the carrier built into the valve itself (see paragraph "fastening and carriers").

The VKD valve can be equipped with a handle lock to prevent ball rotation (supplied separately).

When the handle safety block (14, 15) is installed, lift the lever (15) and rotate the handle (fig. 6-7).

A lock can also be installed on the handle to protect the system against tampering (fig. 8).

Seal can be adjusted using the extractable insert on the handle (fig. 3-4).

The seals can be adjusted later with the valve installed on the pipe by simply tightening the union nuts. This "micro adjustment", only possible with FIP valves thanks to the patented "Seat stop system", allows the seal to be recovered where PTFE ball seats are worn due to a high number of operations.

The Easytorque kit can also be used for micro adjustments (fig. 5).

WARNINGS

- If volatile liquid such as Hydrogen Peroxide (H₂O₂) or Sodium Hypochlorite (NaClO) are used, for safety reasons we recommend you contact the service centre. These liquids, upon vaporising, could create hazardous over pressures in the area between the body and ball.
- Always avoid sudden closing operations and protect the valve from accidental operations.

Fig. 5



Fig. 6



Fig. 7



Fig. 8





VKD DN 65÷100
PVC-U

DUAL BLOCK® 2-way ball valve

VKD DN 65÷100

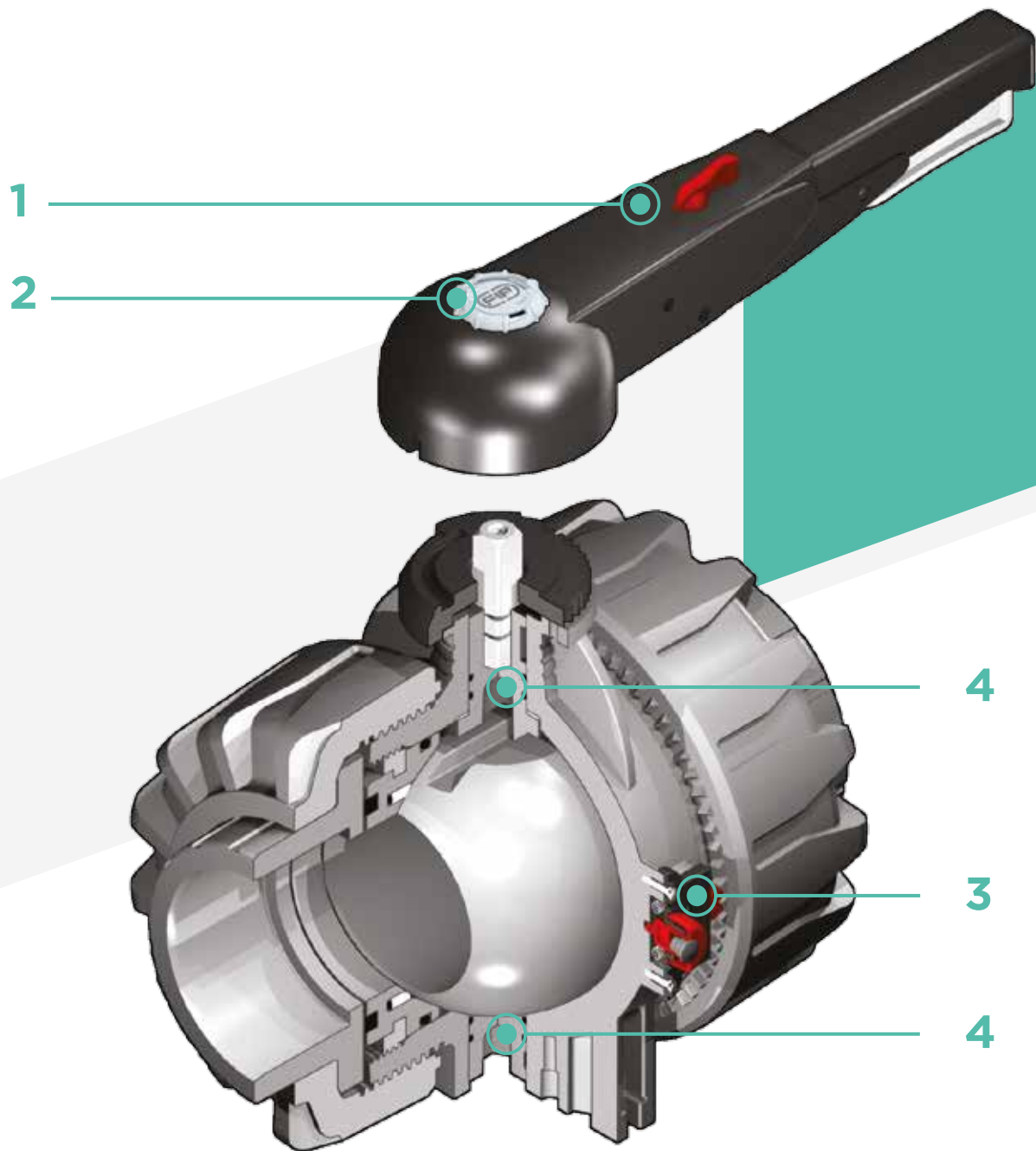
FIP has developed a VKD DUAL BLOCK® ball valve to introduce a high reference standard in thermosplastic valve design. VKD is a True Union ball valve that meets the most stringent needs required by industrial applications. This valve is also equipped with a customisable Labelling System.



DUAL BLOCK® 2-WAY BALL VALVE

- Connection system for solvent weld, threaded and flanged joints
- Patented **SEAT STOP®** ball carrier system that lets you micro-adjust seals and minimise axial force effects
- Easy radial dismounting allowing quick replacement of O-rings and ball seats without any need for tools
- **PN16 True Union valve body** made for rigid PVC-U injection moulding equipped with built-in bores for actuation. ISO 9393 compliant test requirements
- Option of dismounting downstream pipes with the valve in the closed position
- **Full bore ball** with high surface finish
- **Integrated bracket** for valve anchoring
- Possibility of installing a manual reducer or pneumatic and/or electric actuators by applying an ISO standard bore PP-GR flange
- **STAINLESS steel co-moulded stem**, with square section as per ISO 5211

Technical specifications	
Construction	2-way True Union ball valve with locked carrier and union nuts.
Size range	DN 65 ÷ 100
Nominal pressure	PN 16 with water at 20° C
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Pipe coupling as per EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741</p> <p>Thread: ISO 228-1, DIN2999, ASTM D 2467, JIS B 0203</p> <p>Flanging system: ISO 7005-1, EN ISO 1452, EN ISO 15493, EN 588-1, DIN 2501, ANSI B.16.5 cl.150, JIS B 2220</p>
Reference standards	<p>Construction criteria: EN ISO 16135, EN ISO 1452, EN ISO 15493</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p> <p>Actuator couplings: ISO 5211</p>
Valve material	PVC-U
Seal material	EPDM, FPM; PTFE (ball seats)
Control options	Manual control; electric actuator; pneumatic actuator



1 HIPVC ergonomic multifunctional handle for quick operation, **lock and graduated adjustment in 10 positions.** Possibility of inhibiting rotation with a lock

2 Customisable Labelling System: LCE module made of a transparent protection plug and **customisable tag holder** using the LSE set (available as accessory). The customisation lets you identify the valve on the system according to specific needs

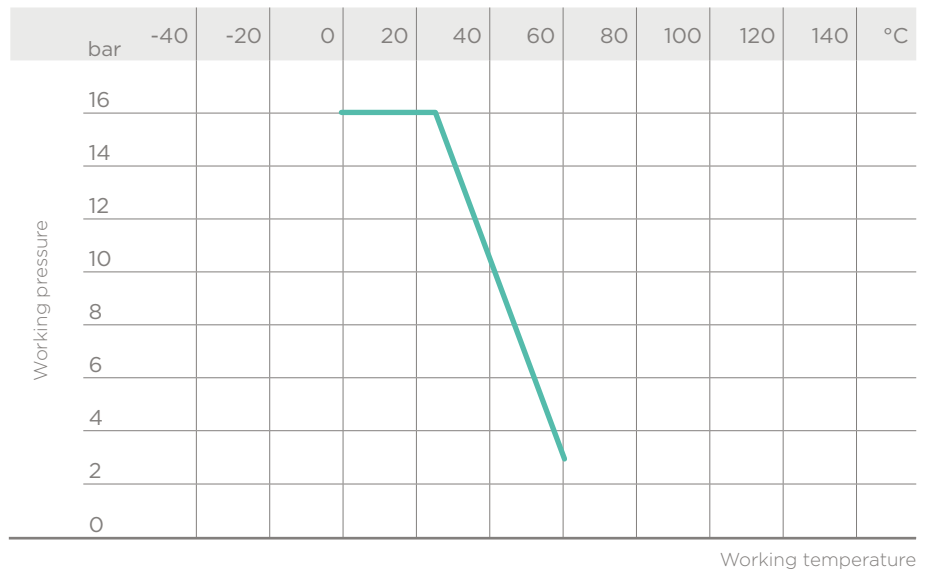
3 **DUAL BLOCK®** patented lock system that ensures union nut tightening hold even in severe conditions such as vibrations or heat dilation

4 **Double stem** with double O-Rings for ball centring and operating torque reduction

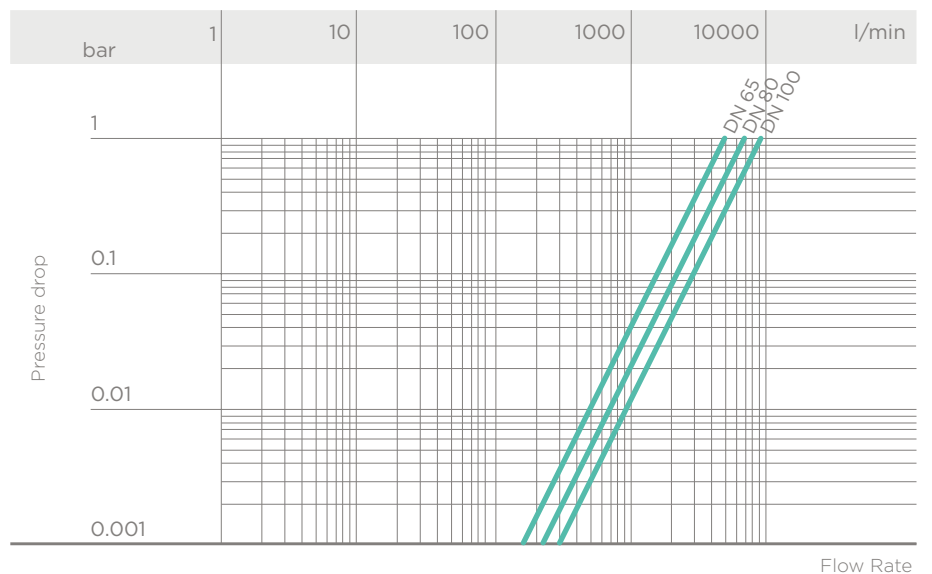
TECHNICAL DATA

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 PN pressure is required (25 years with safety factor).



PRESSURE DROP GRAPH



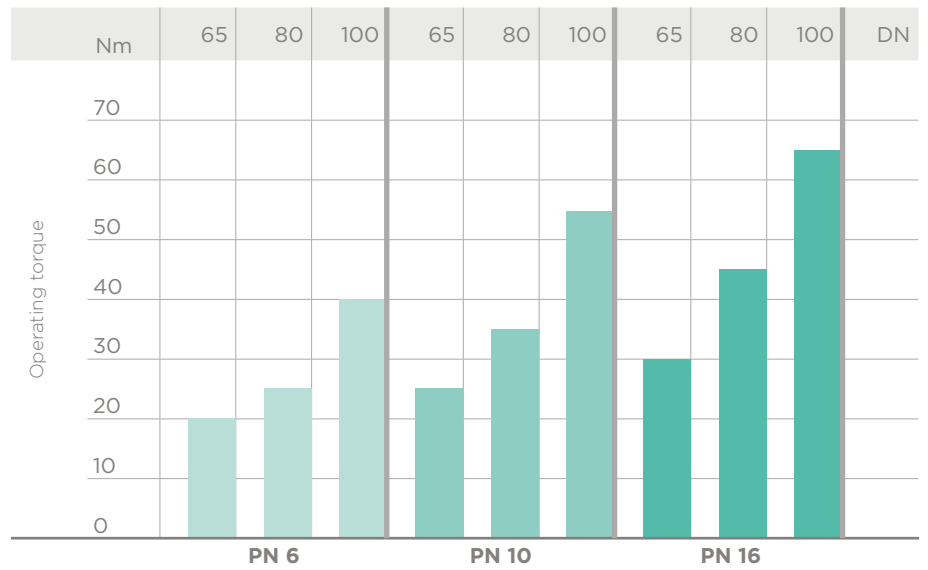
K_v100 FLOW COEFFICIENT

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 $\Delta p = 1$ bar pressure drop at a certain valve position.

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

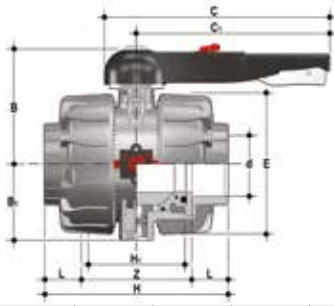
DN	65	80	100
K _v 100 l/min	5250	7100	9500

OPERATING TORQUE AT MAXIMUM WORKING PRESSURE



The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

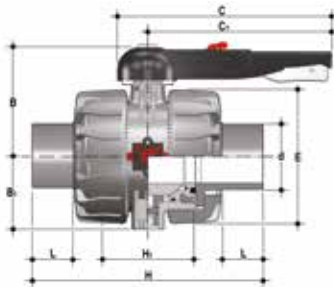
DIMENSIONS



VKDIV

DUAL BLOCK® 2-way ball valve with female ends, metric series

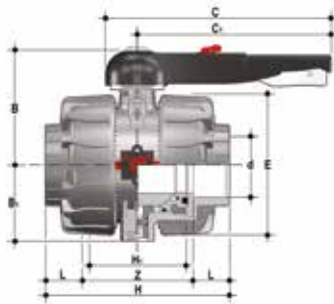
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
75	65	16	164	87	225	175	164	235	133	44	147	4380	VKDIV075E	VKDIV075F
90	80	16	177	105	327	272	203	270	149	51	168	7200	VKDIV090E	VKDIV090F
110	100	16	195	129	385	330	238	308	167	61	186	11141	VKDIV110E	VKDIV110F



VKDDV

DUAL BLOCK® 2-way ball valve with male ends for solvent welding, metric series

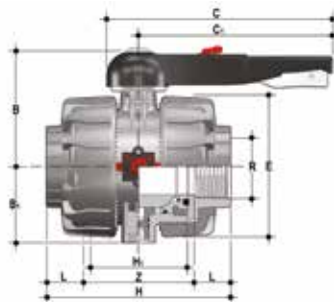
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	g	EPDM Code	FPM Code
75	65	16	164	87	225	175	164	284	133	44	4420	VKDDV075E	VKDDV075F
90	80	16	177	105	327	272	203	300	149	51	6930	VKDDV090E	VKDDV090F
110	100	16	195	129	385	330	238	340	167	61	10950	VKDDV110E	VKDDV110F



VKDLV

DUAL BLOCK® 2-way ball valve with female ends for solvent welding, BS series

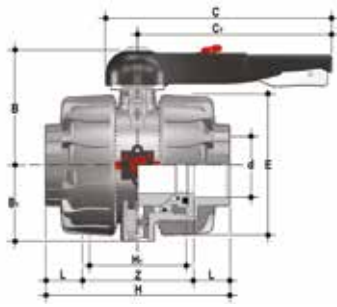
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	164	87	225	175	164	235	133	44	147	4380	VKDLV212E	VKDLV212F
3"	80	16	177	105	327	272	203	270	149	51	168	7250	VKDLV300E	VKDLV300F
4"	100	16	195	129	385	330	238	308	167	63	182	10995	VKDLV400E	VKDLV400F



VKDFV

DUAL BLOCK® 2-way ball valve with BSP threaded female ends

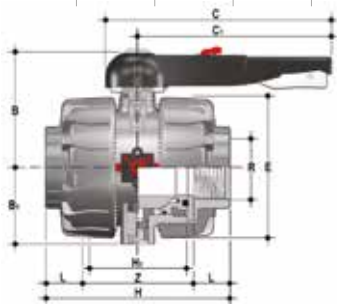
R	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	164	87	225	175	164	235	133	30	175	4395	VKDFV212E	VKDFV212F
3"	80	16	177	105	327	272	203	270	149	34	203	7260	VKDFV300E	VKDFV300F
4"	100	16	195	129	385	330	238	308	167	40	229	11100	VKDFV400E	VKDFV400F



VKDAV

DUAL BLOCK® 2-way ball valve with female ends for solvent welding, ASTM series

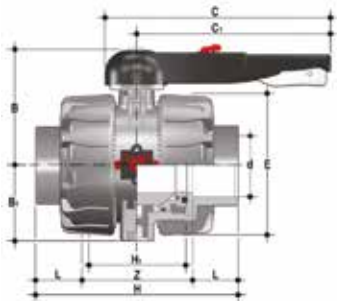
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	164	87	225	175	164	235	133	44,5	146	4390	VKDAV212E	VKDAV212F
3"	80	16	177	105	327	272	203	270	149	48	174	7210	VKDAV300E	VKDAV300F
4"	100	16	195	129	385	330	238	308	167	57,5	193	11065	VKDAV400E	VKDAV400F



VKDNV

DUAL BLOCK® 2-way ball valve with female ends, NPT thread

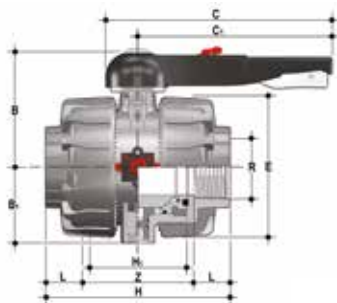
R	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	164	87	225	175	164	235	133	33,2	168,6	4395	VKDNV212E	VKDNV212F
3"	80	16	177	105	327	272	203	270	149	35,5	199	7260	VKDNV300E	VKDNV300F
4"	100	16	195	129	385	330	238	308	167	37,6	232,8	11100	VKDNV400E	VKDNV400F



VKDJV

DUAL BLOCK® 2-way ball valve with female ends for solvent welding, JIS series

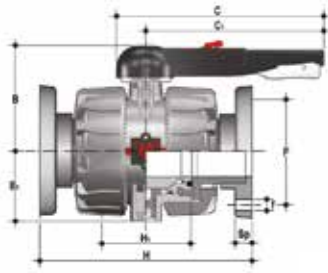
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	164	87	225	175	164	267	133	61	145	4435	VKDJV212E	VKDJV212F
3"	80	16	177	105	327	272	203	294	149	64,5	165	7250	VKDJV300E	VKDJV300F
4"	100	16	195	129	385	330	238	370	167	84	202	11580	VKDJV400E	VKDJV400F



VKDGV

DUAL BLOCK® 2-way ball valve with female ends, JIS thread

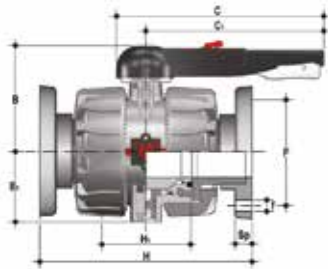
R	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	164	87	225	175	164	235	133	35	165	4400	VKDGV212E	VKDGV212F
3"	80	16	177	105	327	272	203	270	149	40	190	7270	VKDGV300E	VKDGV300F
4"	100	16	195	129	385	330	238	308	167	45	218	11115	VKDGV400E	VKDGV400F



VKDOV

DUAL BLOCK® 2-way ball valve with fixed flanges, drilled PN10/16. Face to face according to EN 558-1

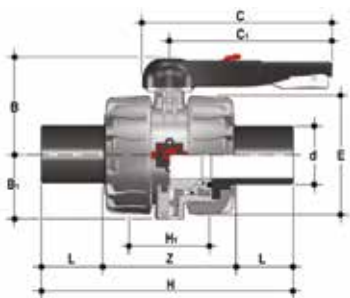
d	DN	PN	B	B ₁	C	C ₁	F	f	H	H ₁	Sp	U	g	EPDM Code	FPM Code
75	65	16	164	87	225	175	145	17	290	133	21	4	6610	VKDOV075E	VKDOV075F
90	80	16	177	105	327	272	160	17	310	149	21.5	8	9330	VKDOV090E	VKDOV090F
110	100	16	195	129	385	330	180	17	350	167	21.5	8	13815	VKDOV110E	VKDOV110F



VKDOAV

DUAL BLOCK® 2-way ball valve with fixed flanges, drilled ANSI B.16.5 cl.150 #FF. Face to face according to EN 558-1

d	DN	PN	B	B ₁	C	C ₁	F	f	H	H ₁	Sp	U	g	EPDM Code	FPM Code
2" 1/2	65	16	164	87	225	175	139.7	18	290	133	21	4	6610	VKDOAV075E	VKDOAV075F
3"	80	16	177	105	327	272	152.4	18	310	149	21.5	8	9330	VKDOAV090E	VKDOAV090F
4"	100	16	195	129	385	330	190.5	18	350	167	21.5	8	13815	VKDOAV110E	VKDOAV110F

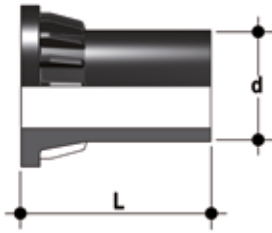


VKDBEV

DUAL BLOCK® 2-way valve with PE100 SDR 11 male end connectors for butt welding or electrofusion (CVDE)

d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
75	65	16	164	87	225	175	162	356	133	71	214	4400	VKDOV075E	VKDOV075F
90	80	16	177	105	327	272	202	390	149	88	214	7100	VKDOV090E	VKDOV090F
110	100	16	195	129	385	330	236	431	167	92	247	10800	VKDOV110E	VKDOV110F

ACCESSORIES



CVDE

Long spigot PE100 end connectors for joints with electrofusion fittings or for butt welding

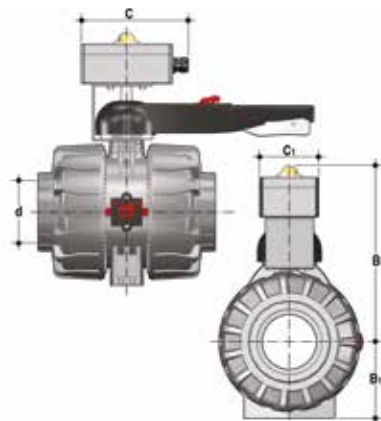
d	DN	PN	L	SDR	Code
75	65	16	111	11	CVDE11075
90	80	16	118	11	CVDE11090
110	100	16	132	11	CVDE11110



LSE

Customisation and label printing set for Easyfit handle made up of pre-cut adhesive sheets and software for guided label creation.

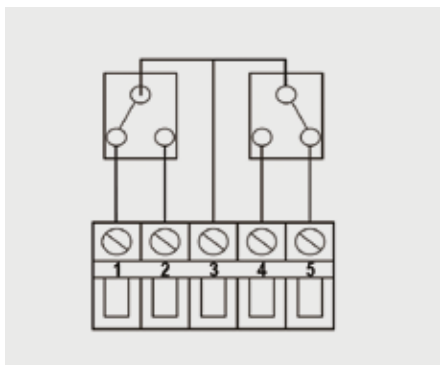
d	DN	Code
75	65	LSE040
90	80	LSE040
110	100	LSE040



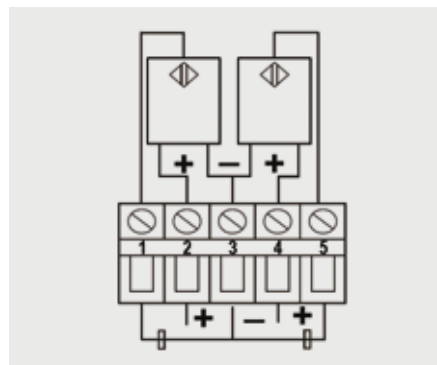
VKD-MS

The MS kit lets you install a limit switch valve with electromechanical or inductive micro switches on a manual VKD valve to remotely signal the valve position (open-closed). The kit can be assembled on the valve even if already installed on the system.

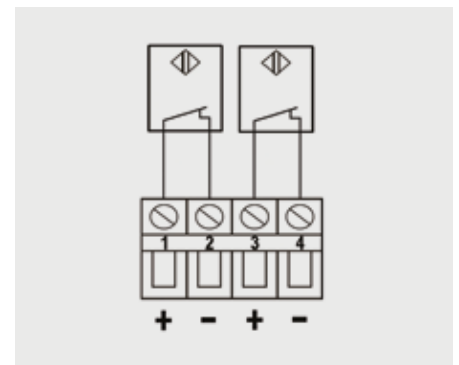
d	DN	B	B ₁	C	C ₁	Protection rate	Code. electromechanical	Code inductive	Code Namur
75	65	266	87	150	80	IP67	FKMS1M	FKMS1I	FKMS1N
90	80	279	105	150	80	IP67	FKMS1M	FKMS1I	FKMS1N
110	100	297	129	150	80	IP67	FKMS1M	FKMS1I	FKMS1N



Electromechanical

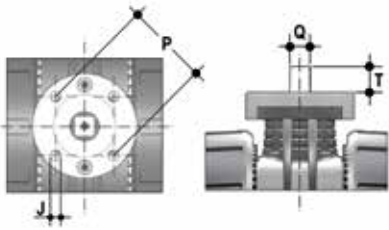


Inductive



Namur*

* To be used with an amplifier



ACTUATOR MOUNTING FLANGE

The valve can be equipped with pneumatic or electric standard actuators and handwheel reduces for heavy-duty operations, using the PP-GR module reproducing the drilling pattern foreseen by ISO 5211 F07.

d	DN	P x J	T	Q
75	65	F07 x 9	16	14
90	80	F07 x 9	16	14
110	100	F07 x 9	19	17

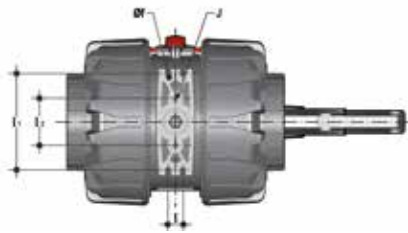
FASTENING AND SUPPORTING



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

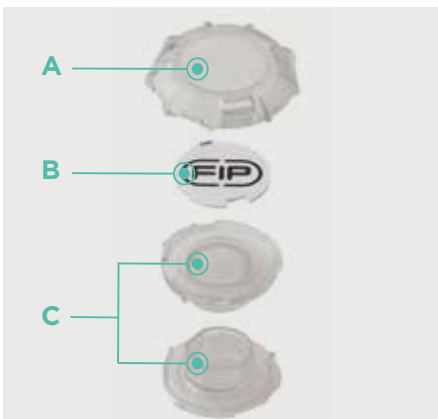
The VKD DN 65÷100 valve series is therefore provided with an integrated bracket that permits direct anchoring on the valve body without the need of other components.

Using standard threaded nuts (not included) made of stainless steel, you can anchor the valve on 4 fastening points.



d	DN	J	f	l	l ₁	l ₂
75	65	M6	6.3	17.4	90	51.8
90	80	M6	8.4	21.2	112.6	63
110	100	M8	8.4	21.2	137	67

CUSTOMISATION



The VKD DN 65÷100 valve is equipped with the customisable Labelling System.

This system lets you create special labels to insert in the handle. This makes it extremely easy to apply company logos, identification serial numbers or service indications such as, for example, the valve function in the system, the transported fluid, but also specific information for customer service, such as the customer name or installation date or location on the valves.

The specific LCE module is a standard supply and is made up of a rigid transparent water-resistant PVC plug (A-C) and white tag holder (B) made of the same material, one side of which bears the FIP logo.

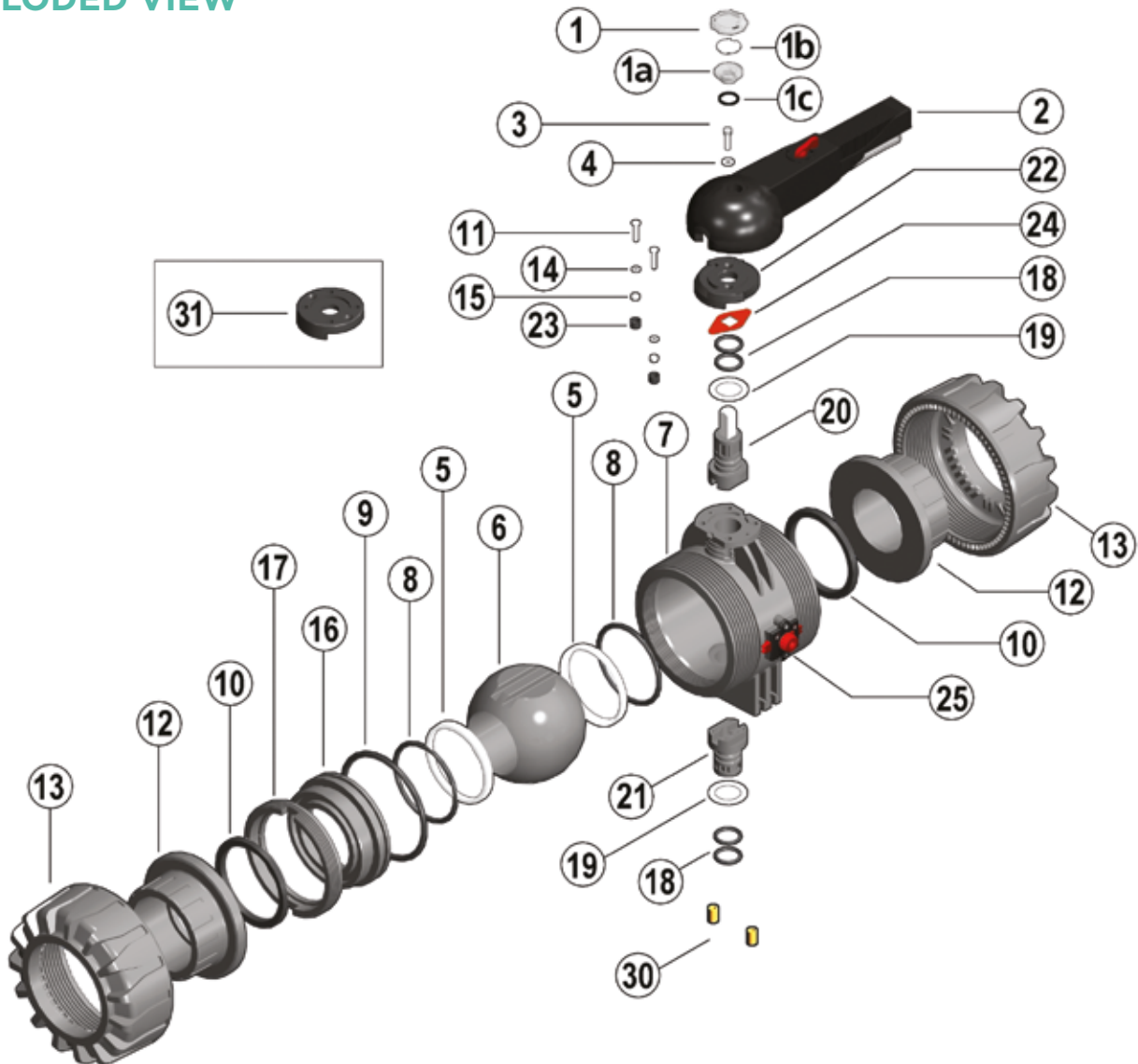
The holder, inserted in the plug, can be removed and, once overturned, used for customisation by applying labels printed with the software supplied with the LSE set.

Proceed as follows to apply the label on the valve:

- 1) Remove the upper part of the transparent plug (A) rotating it counter-clockwise as indicated by the "Open" label on the plug and remove it.
- 2) Extract the tag holder from its housing on the lower part of the plug (C)
- 3) Apply the adhesive label on the tag holder (B) to align the profiles matching the tab position.
- 4) Reinsert the tag holder in its housing at the bottom of the plug
- 5) Reposition the top of the plug in the housing rotating it clockwise; this way the label is protected against the elements.

COMPONENTS

EXPLODED VIEW



1-1a · Transparent protection plug (PVC - 1)

1b · Tag holder (PVC - 1)

1c · O-Ring (NBR - 1)

2 · Handle (HIPVC - 1)

3 · Screw (STAINLESS steel - 1)

4 · Washer (STAINLESS steel - 1)

5 · Ball seat (PTFE - 2)*

6 · Ball (PVC-U - 1)

7 · Body (PVC-U - 1)

8 · Ball seat O-ring (EPDM-FPM - 2)*

9 · Radial seal O-Ring (EPDM- FPM - 1)*

10 · Socket seal O-Ring (EPDM-FPM - 2)*

11 · Screw (STAINLESS steel - 2)

12 · End connector (PVC-U - 2)

13 · Union nut (PVC-U - 2)

14 · Washer (STAINLESS steel - 2)

15 · Nut (STAINLESS steel - 2)

16 · Ball seat carrier (PVC-U - 1)

17 · Threaded ring (PVC-U - 1)

18 · Stems O-Ring (EPDM-FPM - 4)

19 · Anti-friction disk (PTFE - 2)*

20 · Upper stem (PVC/Stainless steel- 1)

21 · Lower stem (PVC-U - 1)

22 · Plate (PP-GR - 1)

23 · Protection plug (PE - 2)

24 · Position indicator (PA - 1)

25 · DUAL BLOCK® (PP-GR + various- 1)

30 · Threaded inserts (Brass - 2)**

31 · Actuation plate (PP-GR - 1)**

* Spare parts

** Accessories

The component material and quantity supplied are indicated in the parentheses.

DISMOUNTING

- 1) Isolate the valve from the line (release the pressure and empty the pipeline).
- 2) Release the union nuts by rotating the button (25) to the left, pointing the arrow on the open lock (fig. 1).
- 3) Unscrew the union nuts (13) and extract the body (7) (fig. 2).
- 4) Before dismounting, hold the valve in a vertical position and open it 45° to drain any liquid that might remain.
- 5) Open the valve.
- 6) Remove the protection plug on the handle (2) and unscrew the screw (3) with the washer (4).
- 7) Remove the handle (2).
- 8) Remove the screws (11) and plate (22) from the body (7).
- 9) Insert the two supplied wrench protrusions in the corresponding apertures on the threaded ring (17), extracting it by rotating counter-clockwise with the ball seat carrier (16) (fig. 3).
- 10) Press on the ball (6), being careful not to scratch it, and remove it from the body.
- 11) Press the upper stem (20) inwards and extract it from the body and remove the lower stem (21). Remove the anti-friction disks (19).
- 12) Remove the O-Ring (8, 9, 10, 18) and PTFE ball seats (5) extracting them from their housings, as illustrated in the exploded view.

ASSEMBLY

- 1) All the O-rings (8, 9, 10, 18) must be inserted in their grooves as shown in the exploded view.
- 2) Place the anti-friction disks (19) on the stems (20-21) and insert the stems in their housings in the body.
- 3) Place the PTFE ball seats (5) in the housings in the valve body (7) and in the carrier (16).
- 4) Insert the ball (6) rotating it to the closed position.
- 5) Insert the carrier with threaded ring (17) into the body and tighten up in the clockwise direction using the supplied tool, to limit stop.
- 6) Position the plate (22) with rack on the body, and screw in the screws (11) washers (14) and nuts (15).
- 7) The handle (2) with protection plug (1, 1a, 1b, 1c) should be placed on the stem (20) (fig. 4).
- 8) Screw in the screw (3) with the washer (4) and position the protection plug (1, 1a, 1b, 1c).
- 9) Insert the valve between the end connectors (12) and tighten the union nuts (13), making sure that the socket seal O-rings (10) do not exit their seats.
- 10) Release the union nuts by rotating the button (25) to the right, pointing the arrow on the closed lock (fig. 1).



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

INSTALLATION

Before proceeding with installation, please follow these instructions carefully:

- 1) Check that the pipes to be connected to the valve are aligned in order to avoid mechanical stress on the threaded joints.
- 2) Make sure the DUAL BLOCK® union nut lock system (25) is in the FREE position.
- 3) Unscrew the union nuts (13) and insert them on the pipe segments.
- 4) Solvent weld or screw the end connectors (12) onto the pipe ends.
- 5) Position the valve body between the end connectors and fully tighten the union nuts (13) clockwise with an appropriate wrench.
- 6) Lock the union nuts rotating the button (25) clockwise (see paragraph "union nut lock").
- 7) If necessary, support the piping with FIP pipe clips or by means of the carrier built into the valve itself (see paragraph "fastening and supporting").

Adjust the ball seat carriers using the supplied tool (fig. 3).

The seals can be installed later with the valve installed on the pipe by simply tightening the union nuts. This "micro adjustment", only possible with FIP valves thanks to the patented "Seat stop system", allows the seal to be recovered where PTFE ball seats are worn due to a high number of operations.

Fig. 1



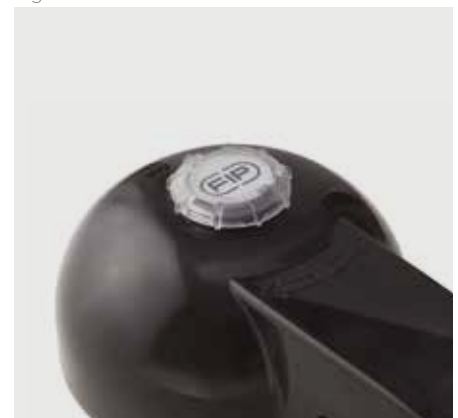
Fig. 2



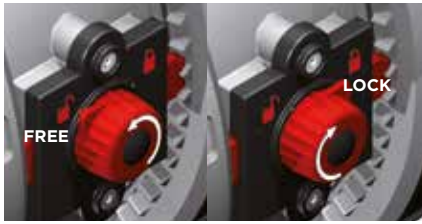
Fig. 3



Fig. 4



UNION NUT LOCK



Rotate the button to the left, pointing the arrow on the open lock to unlock DUAL BLOCK®: the valve union nuts are free to rotate clockwise and counter-clockwise. Rotate the button to the right, pointing the arrow on the closed lock to lock DUAL BLOCK®: the valve union nuts are blocked in the desired position.

HANDLE LOCK



Thanks to the multifunctional handle and the red manoeuvre button on the lever, you can perform a 0°-90° operation and a graduated operation by means of the 10 intermediate positions and a stop lock: the handle can be locked in each of the 10 positions by simply pressing the Free-lock button. A lock can also be installed on the handle to protect the system against tampering.

The valve is two-way and can be installed in any position. It can also be installed at end line or tank.

WARNINGS

- If volatile liquid such as Hydrogen Peroxide (H₂O₂) or Sodium Hypochlorite (NaClO) are used, for safety reasons we recommend you contact the service centre. These liquids, upon vaporising, could create hazardous over pressures in the area between the body and ball.
- Always avoid sudden closing operations and protect the valve from accidental operations.



VKR DN 10÷50
PVC-U

DUAL BLOCK® regulating ball valve

VKR DN 10÷50

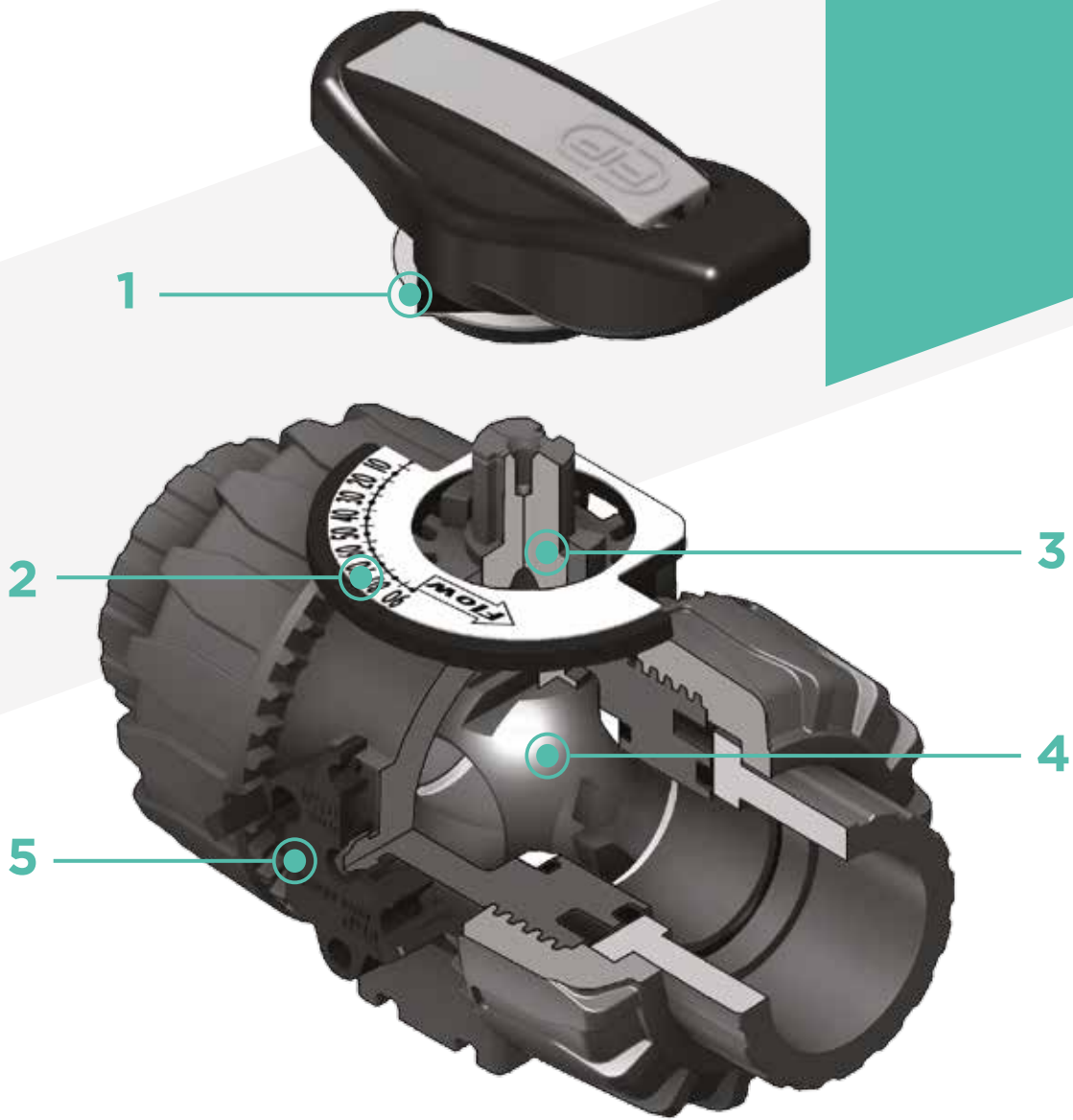
The VKR DUAL BLOCK® valve combines high reliability and safety aspects typical of VKD full bore ball valves with the new flow adjustment function with typical linear curve that meets the most stringent needs typical of industrial applications.



DUAL BLOCK® REGULATING BALL VALVE

- Connection system for solvent weld, threaded and flanged joints
- Patented **SEAT STOP®** ball carrier system that lets you micro-adjust seals and minimise the axial force effect
- Easy radial dismounting allowing quick replacement of O-rings and ball seats without any need for tools
- **PN16 True Union valve body** made for rigid PVC-U injection moulding equipped with built-in bores for actuation. ISO 9393 compliant test requisites
- Option of dismounting downstream pipes with the valve in the closed position
- High surface finish stem with double O-Ring and double connection key to ball
- **Integrated bracket** for valve anchoring
- Ball seat carrier can be adjusted using the **Easytorque adjustment kit**
- Actuation option: version with electric modulating actuator with 4-20 mA / 0-10 V inlet and 4-20 mA / 0-10 V outlet to monitor the position
- Valve suitable for carrying fluids that are clean and free of suspended particles

Technical specifications	
Construction	2-way True Union adjusting ball valve with locked carrier and union nuts.
Size range	DN 10 ÷ 50
Nominal pressure	PN 16 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Pipe coupling as per EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741</p> <p>Thread: ISO 228-1, DIN 2999, ASTM D 2464, JIS B 0203</p> <p>Flanging system: ISO 7005-1, EN ISO 1452, EN ISO 15493, EN 558-1, DIN 2501, ANSI B.16.5 cl. 150, JIS B 2220</p>
Reference standards	<p>Construction criteria: EN ISO 16135, EN ISO 1452, EN ISO 15493</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p> <p>Actuator couplings: ISO 5211</p>
Valve material	PVC-U
Seal material	EPDM, FPM (standard size O-Ring); PTFE (ball seats)
Control options	Manual control; electric actuator



1 HIPVC ergonomic multifunctional handle with **position indicator** and tool to adjust the ball seat carrier

2 Flow direction indication plate and opening angle with **graduated scale with 5° detail** for clear and accurate readings

3 90° operating angle that permits **the use of standard quarter turn actuators**

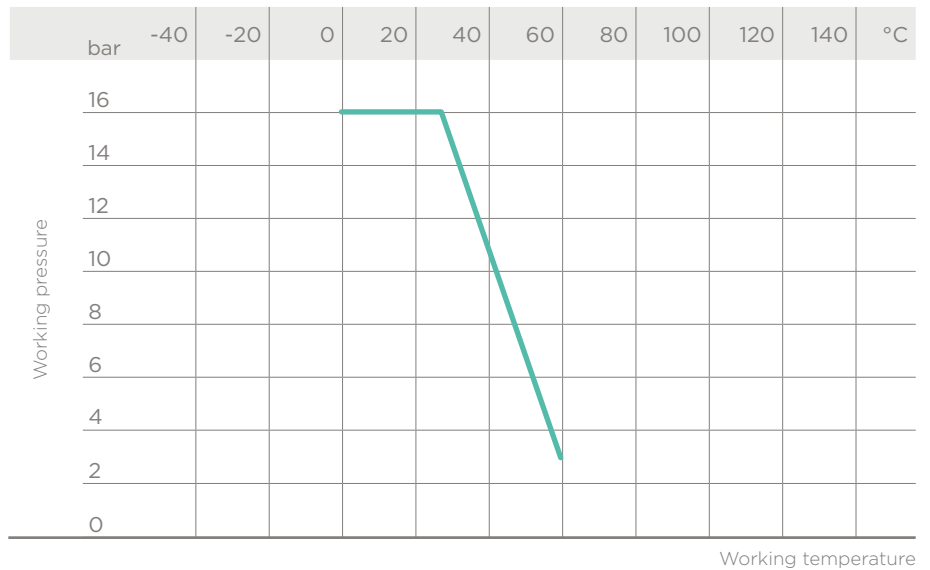
4 The patented ball design provides **linear flow adjustment** throughout its range of operation even when the valve is open just a few degrees and guarantees minimum pressure drops

5 Patented **DUAL BLOCK®** system: prevents union nuts from loosening even under extreme operating conditions: e.g. vibration or thermal expansion

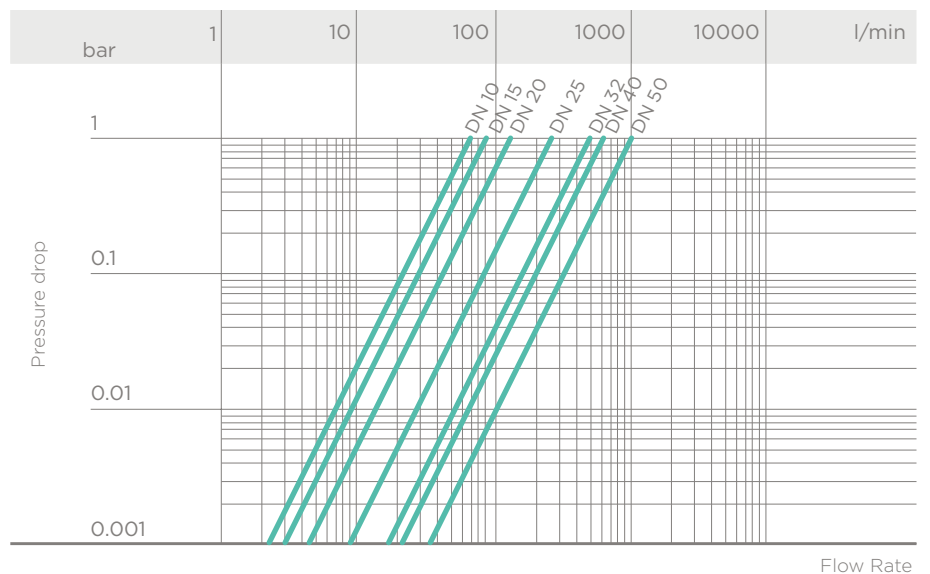
TECHNICAL DATA

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 PN pressure is required (25 years with safety factor).



PRESSURE DROP GRAPH



K_v100 FLOW COEFFICIENT

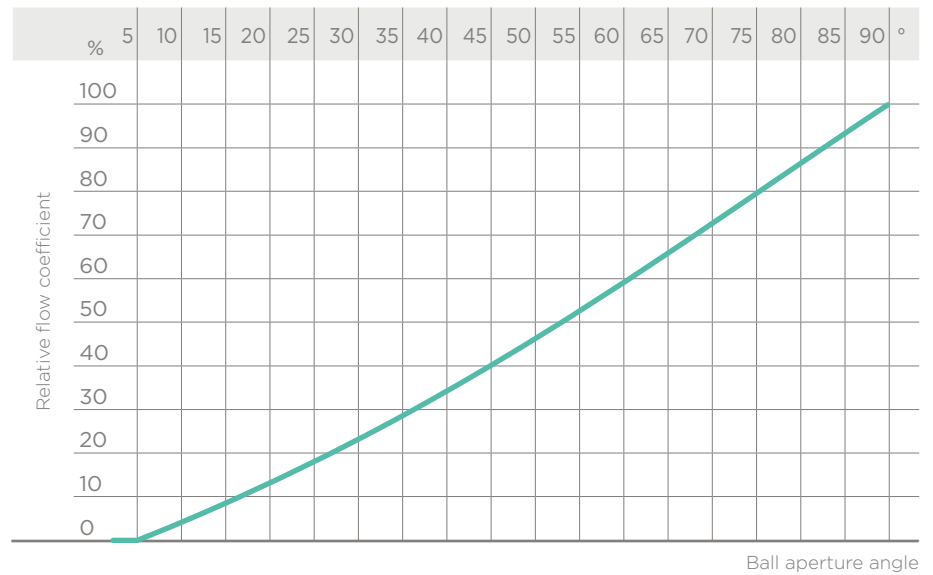
The K_v100 flow coefficient is the Q flow rate of litres per minute of water at a temperature of 20°C that will generate Δp= 1 bar pressure drop at a certain valve position.

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

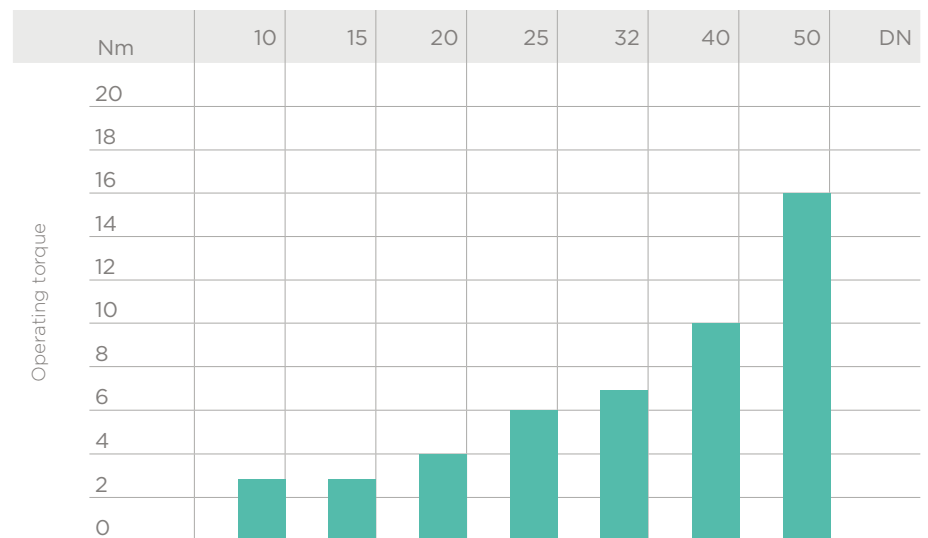
DN	10	15	20	25	32	40	50
K _v 100 l/min	83	88	135	256	478	592	1068

RELATIVE FLOW COEFFICIENT DIAGRAM

The relative flow coefficient is the flow rate through the valve as a function of the degree of valve aperture.

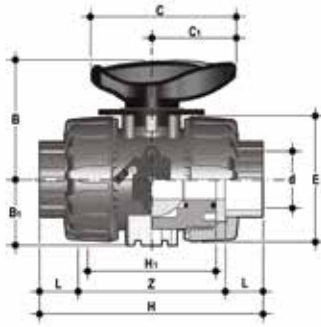


OPERATING TORQUE AT MAXIMUM WORKING PRESSURE



The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

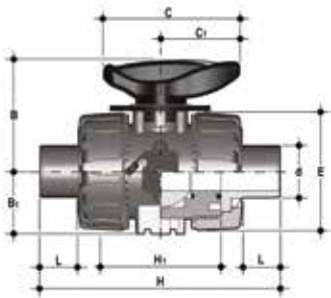
DIMENSIONS



VKRIV

DUAL BLOCK® regulating ball valve with female ends for solvent welding, metric series

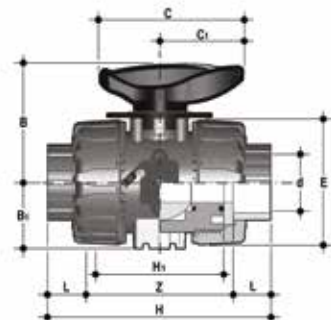
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
16	10	16	54	29	67	40	54	103	65	14	75	215	VKRIV016E	VKRIV016F
20	15	16	54	29	67	40	54	103	65	16	71	205	VKRIV020E	VKRIV020F
25	20	16	65	34.5	85	49	65	115	70	19	77	330	VKRIV025E	VKRIV025F
32	25	16	69.5	39	85	49	73	128	78	22	84	438	VKRIV032E	VKRIV032F
40	32	16	82.5	46	108	64	86	146	88	26	94	693	VKRIV040E	VKRIV040F
50	40	16	89	52	108	64	98	164	93	31	102	925	VKRIV050E	VKRIV050F
63	50	16	108	62	134	76	122	199	111	38	123	1577	VKRIV063E	VKRIV063F



VKRDV

DUAL BLOCK® regulating ball valve with male ends for solvent welding, metric series

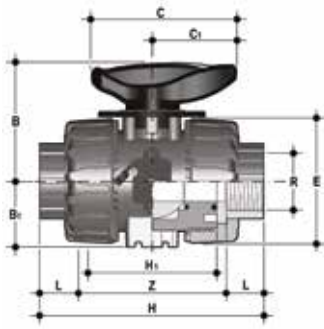
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	g	EPDM Code	FPM Code
16	10	16	54	29	67	40	54	149	65	14	215	VKRDV016E	VKRDV016F
20	15	16	54	29	67	40	54	124	65	16	220	VKRDV020E	VKRDV020F
25	20	16	65	34.5	85	49	65	144	70	19	340	VKRDV025E	VKRDV025F
32	25	16	69.5	39	85	49	73	154	78	22	443	VKRDV032E	VKRDV032F
40	32	16	82.5	46	108	64	86	174	88	26	693	VKRDV040E	VKRDV040F
50	40	16	89	52	108	64	98	194	93	31	945	VKRDV050E	VKRDV050F
63	50	16	108	62	134	76	122	224	111	38	1607	VKRDV063E	VKRDV063F



VKRLV

DUAL BLOCK® regulating ball valve with female ends for solvent welding, ASTM series

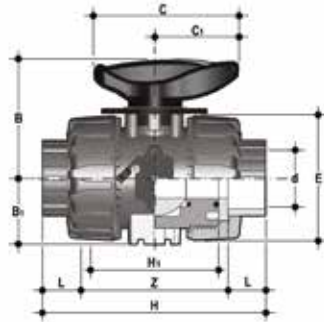
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	29	67	40	54	103	65	14.5	74	210	VKRLV038E	VKRLV038F
1/2"	15	16	54	29	67	40	54	103	65	16.5	70	205	VKRLV012E	VKRLV012F
3/4"	20	16	65	34.5	85	49	65	115	70	19	77	335	VKRLV034E	VKRLV034F
1"	25	16	69.5	39	85	49	73	128	78	22.5	83	433	VKRLV100E	VKRLV100F
1" 1/4	32	16	82.5	46	108	64	86	146	88	26	94	703	VKRLV114E	VKRLV114F
1" 1/2	40	16	89	52	108	64	98	164	93	30	104	925	VKRLV112E	VKRLV112F
2"	50	16	108	62	134	76	122	199	111	36	127	1647	VKRLV200E	VKRLV200F



VKRFV

DUAL BLOCK® regulating ball valve with BSP threaded female ends

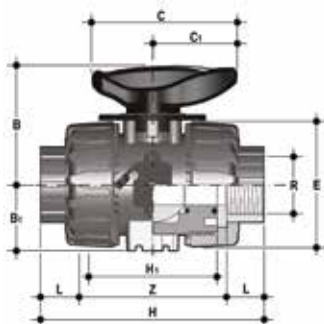
R	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	29	67	40	54	103	65	12	80	215	VKRFV038E	VKRFV038F
1/2"	15	16	54	29	67	40	54	110	65	15	80	210	VKRFV012E	VKRFV012F
3/4"	20	16	65	34.5	85	49	65	116	70	16	83	335	VKRFV034E	VKRFV034F
1"	25	16	69.5	39	85	49	73	134	78	19	96	448	VKRFV100E	VKRFV100F
1" 1/4	32	16	82.5	46	108	64	86	153	88	21	110	678	VKRFV114E	VKRFV114F
1" 1/2	40	16	89	52	108	64	98	156	93	21	113	955	VKRFV112E	VKRFV112F
2"	50	16	108	62	134	76	122	186	111	26	135	1667	VKRFV200E	VKRFV200F



VKRAV

DUAL BLOCK® regulating ball valve with female ends for solvent welding, ASTM series

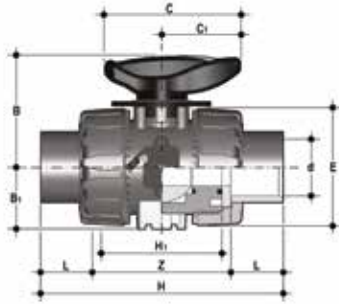
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	29	67	40	54	117	65	19.5	78	230	VKRAV038E	VKRAV038F
1/2"	15	16	54	29	67	40	54	117	65	22.5	72	215	VKRAV012E	VKRAV012F
3/4"	20	16	65	34.5	85	49	65	129	70	25.5	78	345	VKRAV034E	VKRAV034F
1"	25	16	69.5	39	85	49	73	142	78	28.7	84.6	448	VKRAV100E	VKRAV100F
1" 1/4	32	16	82.5	46	108	64	86	162	88	32	98	718	VKRAV114E	VKRAV114F
1" 1/2	40	16	89	52	108	64	98	172	93	35	102	975	VKRAV112E	VKRAV112F
2"	50	16	108	62	134	76	122	199	111	38.2	122.6	1712	VKRAV200E	VKRAV200F



VKRNV

DUAL BLOCK® regulating ball valve with female ends, NPT thread

R	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	29	67	40	54	103	65	13.7	75.6	215	VKRNV038E	VKRNV038F
1/2"	15	16	54	29	67	40	54	111	65	17.8	75.4	210	VKRNV012E	VKRNV012F
3/4"	20	16	65	34.5	85	49	65	117	70	18	81	335	VKRNV034E	VKRNV034F
1"	25	16	69.5	39	85	49	73	135	78	22.6	89.8	448	VKRNV100E	VKRNV100F
1" 1/4	32	16	82.5	46	108	64	86	153	88	25.1	102.8	678	VKRNV114E	VKRNV114F
1" 1/2	40	16	89	52	108	64	98	156	93	24.7	106.6	955	VKRNV112E	VKRNV112F
2"	50	16	108	62	134	76	122	186	111	29.6	126.8	1667	VKRNV200E	VKRNV200F



VKRJV

DUAL BLOCK® regulating ball valve with female ends for solvent welding, JIS series

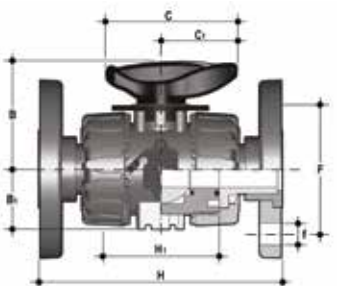
d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	29	67	40	54	131	65	30	71	225	VKRJV012E	VKRJV012F
3/4"	20	16	65	34.5	85	49	65	147	70	35	77	335	VKRJV034E	VKRJV034F
1"	25	16	69.5	39	85	49	73	164	78	40	84	448	VKRJV100E	VKRJV100F
1" 1/4	32	16	82.5	46	108	64	86	182	88	44	94	728	VKRJV114E	VKRJV114F
1" 1/2	40	16	89	52	108	64	98	212	93	55	102	1015	VKRJV112E	VKRJV112F
2"	50	16	108	62	134	76	122	248	111	63	122	1727	VKRJV200E	VKRJV200F



VKRGV

DUAL BLOCK® regulating ball valve with female ends, JIS thread

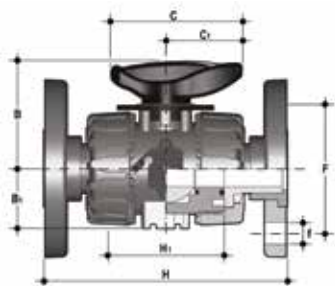
R	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	29	67	40	54	103	65	16	71	210	VKRGV012E	VKRGV012F
3/4"	20	16	65	34.5	85	49	65	115	70	19	77	330	VKRGV034E	VKRGV034F
1"	25	16	69.5	39	85	49	73	128	78	22	84	438	VKRGV100E	VKRGV100F
1" 1/4	32	16	82.5	46	108	64	86	146	88	25	96	678	VKRGV114E	VKRGV114F
1" 1/2	40	16	89	52	108	64	98	164	93	26	112	975	VKRGV112E	VKRGV112F
2"	50	16	108	62	134	76	122	199	111	31	137	1627	VKRGV200E	VKRGV200F



VKROV

DUAL BLOCK® regulating ball valve with EN/ISO/DIN fixed flange, drilled PN10/16. Face to face according to EN 558-1

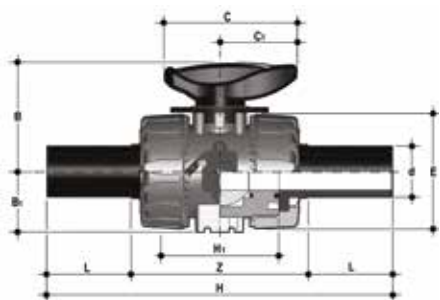
d	DN	PN	B	B ₁	C	C ₁	F	H	H ₁	U	f	Sp	g	EPDM Code	FPM Code
20	15	16	54	29	67	40	65	130	65	4	14	11	375	VKROV020E	VKROV020F
25	20	16	65	34.5	85	49	75	150	70	4	14	14	590	VKROV025E	VKROV025F
32	25	16	69.5	39	85	49	85	160	78	4	14	14	713	VKROV032E	VKROV032F
40	32	16	82.5	46	108	64	100	180	88	4	18	14	1108	VKROV040E	VKROV040F
50	40	16	89	52	108	64	110	200	93	4	18	16	1485	VKROV050E	VKROV050F
63	50	16	108	62	134	76	125	230	111	4	18	16	2347	VKROV063E	VKROV063F



VKROAV

DUAL BLOCK® regulating ball valve with ANSI B16.5 cl.150#FF fixed flange

d	DN	PN	B	B ₁	C	C ₁	F	H	H ₁	U	f	Sp	g	EPDM Code	FPM Code
1/2"	15	16	54	29	67	40	60.3	143	65	4	15.9	11	460	VKROAV012E	VKROAV012F
3/4"	20	16	65	34.5	85	49	69.9	172	70	4	15.9	14	632	VKROAV034E	VKROAV034F
1"	25	16	69.5	39	85	49	79.4	187	78	4	15.9	14	853	VKROAV100E	VKROAV100F
1" 1/4	32	16	82.5	46	108	64	88.9	190	88	4	15.9	14	1313	VKROAV114E	VKROAV114F
1" 1/2	40	16	89	52	108	64	98.4	212	93	4	15.9	16	1669	VKROAV112E	VKROAV112F
2"	50	16	108	62	134	76	120.7	234	111	4	19.1	16	2577	VKROAV200E	VKROAV200F

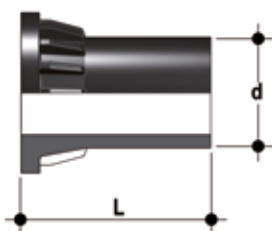


VKRBEV

Dual Block® regulating ball valve with PE100 SDR 11 male end connectors for butt welding or electrofusion (CVDE)

d	DN	PN	B	B ₁	C	C ₁	E	H	H ₁	L	Z	g	EPDM Code	FPM Code
20	15	16	54	29	67	40	54	175	65	41	94	220	VKRBEV020E	VKRBEV020F
25	20	16	65	34.5	85	49	65	210	70	52	106	340	VKRBEV025E	VKRBEV025F
32	25	16	69.5	39	85	49	73	226	78	55	117	443	VKRBEV032E	VKRBEV032F
40	32	16	82.5	46	108	64	86	243	88	56	131	693	VKRBEV040E	VKRBEV040F
50	40	16	89	52	108	64	98	261	93	58	145	945	VKRBEV050E	VKRBEV050F
63	50	16	108	62	134	76	122	293	111	66	161	1607	VKRBEV063E	VKRBEV063F

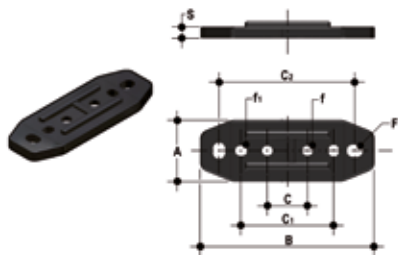
ACCESSORIES



CVDE

Long spigot PE100 end connectors for joints with electrofusion fittings or for butt welding

d	DN	PN	L	SDR	Code
20	15	16	55	11	CVDE11020
25	20	16	70	11	CVDE11025
32	25	16	74	11	CVDE11032
40	32	16	78	11	CVDE11040
52	40	16	84	11	CVDE11050
63	50	16	91	11	CVDE11063



PMKD

Mounting plate

d	DN	A	B	C	C ₁	C ₂	F	f	f ₁	S	Code
16	10	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD1
20	15	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD1
25	20	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD1
32	25	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD1
40	32	40	122	30	72	102	6.5	5.3	5.5	5	PMKD2
50	40	40	122	30	72	102	6.5	5.3	5.5	5	PMKD2
63	50	40	122	30	72	102	6.5	5.3	5.5	5	PMKD2



EASYTORQUE KIT

Kit for ball seat carrier tightening adjustment for DUAL BLOCK® DN 10÷50 series valves

d	DN	Tightening torque recommended*	Code
3/8"-1/2"	10-15	3 N m - 2,21 Lbf ft	KET01
3/4"	20	4 N m - 2,95 Lbf ft	KET01
1"	25	5 N m - 3,69 Lbf ft	KET01
1" 1/4	32	5 N m - 3,69 Lbf ft	KET01
1" 1/2	40	7 N m - 5,16 Lbf ft	KET01
2"	50	9 N m - 6,64 Lbf ft	KET01

*calculated in ideal installation conditions

FASTENING AND SUPPORTING

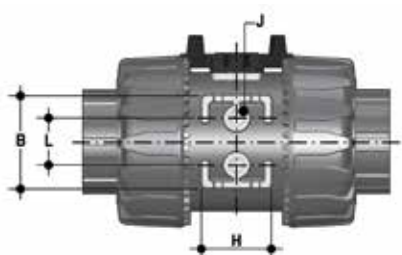


All valves, whether manual or driven, must be adequately supported in many applications.

The VKR 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 PMKD mounting plates which are available as accessories can be used. These plates should be fastened to the valve before wall installation.

PMKD plates also allow VKD valve alignment with FIP ZIKM pipe clips as well as allowing different sizes of valves to be aligned.

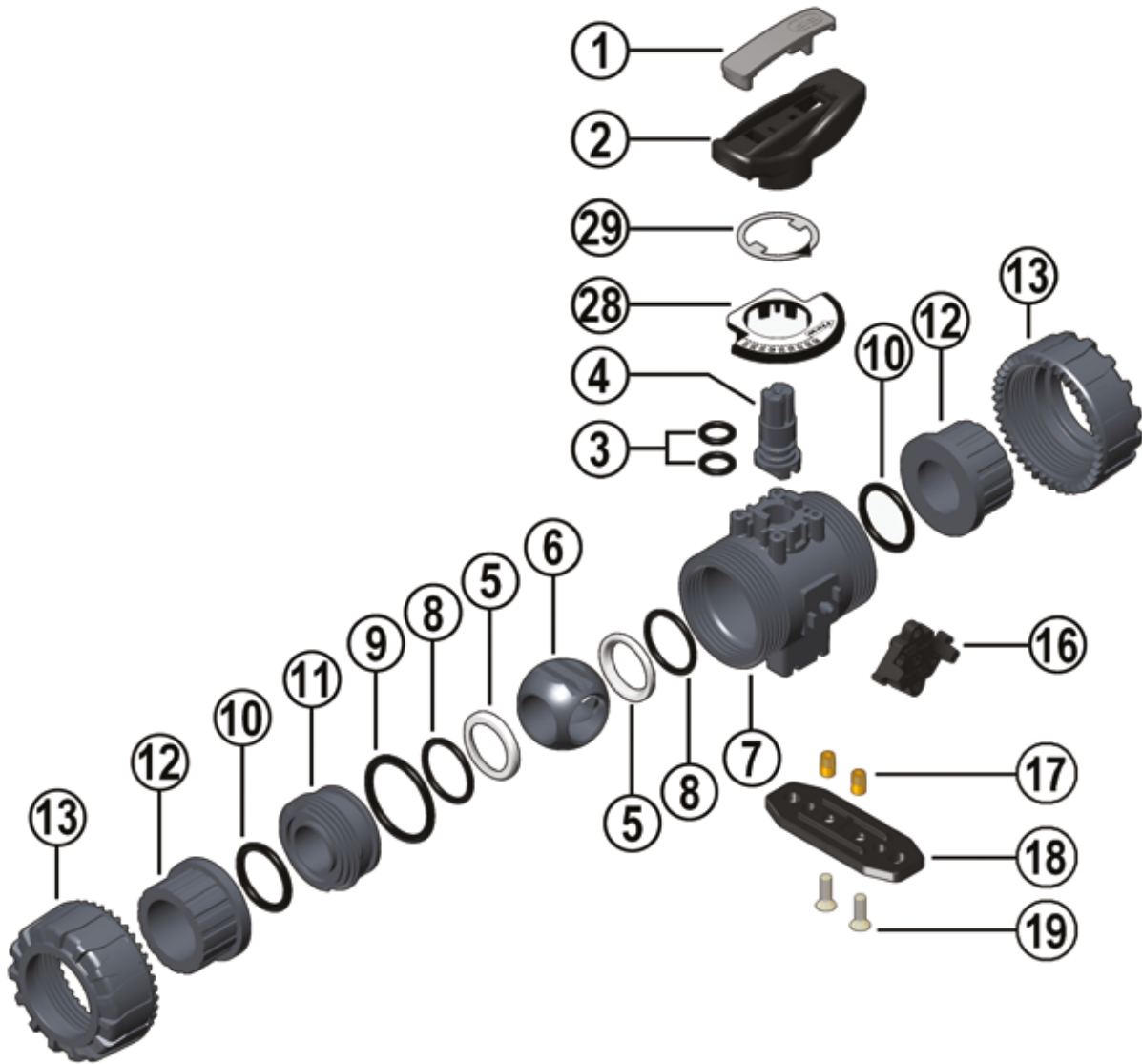


d	DN	B	H	L	J*
16	10	31.5	27	20	M4 x 6
20	15	31.5	27	20	M4 x 6
25	20	40	30	20	M4 x 6
32	25	40	30	20	M4 x 6
40	32	50	35	20	M6 x 10
50	40	50	35	20	M6 x 10
63	50	60	40	20	M6 x 10

* With threaded inserts

COMPONENTS

EXPLODED VIEW



1 · Handle insert (PVC-U - 1)

2 · Handle (HIPVC - 1)

3 · Stem O-ring
(EPDM-FPM - 2)*

4 · Stem (PVC-U - 1)

5 · Ball seat (PTFE - 2)*

6 · Patented ball design
(PVC-U - 1)

7 · Body (PVC-U - 1)

8 · Ball seat O-ring
(EPDM-FPM - 2)*

9 · Radial seal O-Ring
(EPDM, FPM - 1)

10 · Socket seal O-Ring
(EPDM, FPM - 2)

11 · Ball seat carrier
(PVC-U - 1)

12 · End connector (PVC-U - 2)

13 · Union nut (PVC-U - 2)

16 · DUAL BLOCK® (POM - 1)

17 · Threaded inserts
(STAINLESS steel or Brass - 2)**

18 · Distance plate
(PP-GR - 1)**

19 · Screw (STAINLESS steel - 2)**

28 · Graduated plate
(POM-PVC - 1)

29 · Indicator (PVC - 1)

* Spare parts

** Accessories

The component material and quantity supplied are indicated in the parentheses.

DISMOUNTING

- 1) Isolate the valve from the line (release the pressure and empty the pipeline).
- 2) Unlock the union nuts by pressing the lever on the DUAL BLOCK® (16) along the axis and separate it from the union nut (fig. 1). It is also possible to completely remove the block device from the body of the valve.
- 3) Fully unscrew the union nuts (13) and extract the body sideways.
- 4) Before dismantling, hold the valve in a vertical position and open it 45° to drain any liquid that might remain.
- 5) After closing the valve, remove the special insert (1) from the handle (2) and push the two projecting ends into the corresponding recesses on the ball seat carrier (11). Rotate the stop ring anti-clockwise to extract it.
- 6) Pull the handle (2) upwards to remove it from the valve stem (4).
- 7) Make sure that the position indicator (29) remains properly fastened to the handle (2).
- 8) Press on the ball from the side opposite the "REGULAR - ADJUST" label, being sure not to scratch it, until the ball seat carrier exits (11), then extract the ball (6).
- 9) Press the stem (4) inwards until it exits the valve body.
- 10) All the O-rings (3, 8, 9, 10) and PTFE ball seats (5) must be removed from their grooves, as shown in the exploded view.

ASSEMBLY

- 1) All the O-rings (3, 8, 9, 10) must be inserted in their grooves as shown in the exploded view.
- 2) Insert the stem (4) from inside the body (7).
- 3) Place the PTFE ball seats (5) in the housings in the body (7) and in the ball seat carrier (11).
- 4) Insert the ball (6) in the body as shown in Fig. 3
- 5) Screw the carrier (11) into the body and tighten up in the clockwise direction using the special insert (1) to limit stop.
- 6) Position the indicator (29) on the handle with the pointer set to 0 on the graduated scale while making sure that the valve is in the closed position (fig. 2-3).
- 7) Insert the handle (2) with the insert (1) in its housing on the stem (4).
- 8) Insert the valve between the end connectors (12) making sure that they match the direction of flow shown on the plate (fig. 2) then tighten the union nuts (13) making sure that the socket seal O-rings (10) do not come out of their grooves.



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

Fig. 1



Fig. 2



Fig. 3



Fig. 4



INSTALLATION

Before proceeding with installation, please follow these instructions carefully:

- 1) Check that the pipes to be connected to the valve are aligned in order to avoid mechanical stress on the threaded joints.
- 2) Check that the DUAL BLOCK® union nut locking device (16) is fitted to the valve body.
- 3) To release the union nuts (13), axially press the release lever to separate the lock and then unscrew it in the counter-clockwise direction.
- 4) Unscrew the union nuts (13) and insert them on the pipe segments.
- 5) Solvent weld or screw the end connectors (12) onto the pipe ends.
- 6) Position the valve between the pipe end connectors making sure that the direction of flow is the same as shown on the plate (Fig.4). Hand tighten the union nuts in the clockwise direction. Do not use a wrench or other tools which might damage the surface.
- 7) Lock the union nuts by returning the DUAL BLOCK® to its housing, pressing on it until the hinges lock on the nuts.

8) If necessary, support the pipework with FIP pipe clips or by means of the carrier built into the valve itself (see paragraph "fastening and supporting").

Seals can be adjusted using the removable insert on the handle.

The seals can be installed later with the valve installed on the pipe by simply tightening the union nuts. This "micro adjustment", only possible with FIP valves thanks to the patented "Seat stop system", allows the seal to be recovered where PTFE ball seats are worn due to a high number of operations.

The Easytorque kit can also be used for micro adjustments (fig. 5).

Fig. 5



WARNINGS

- Always avoid sudden closing operations and protect the valve from accidental operations.



TKD DN 10÷50
PVC-U

DUAL BLOCK® 3-way ball valve

TKD DN 10÷50

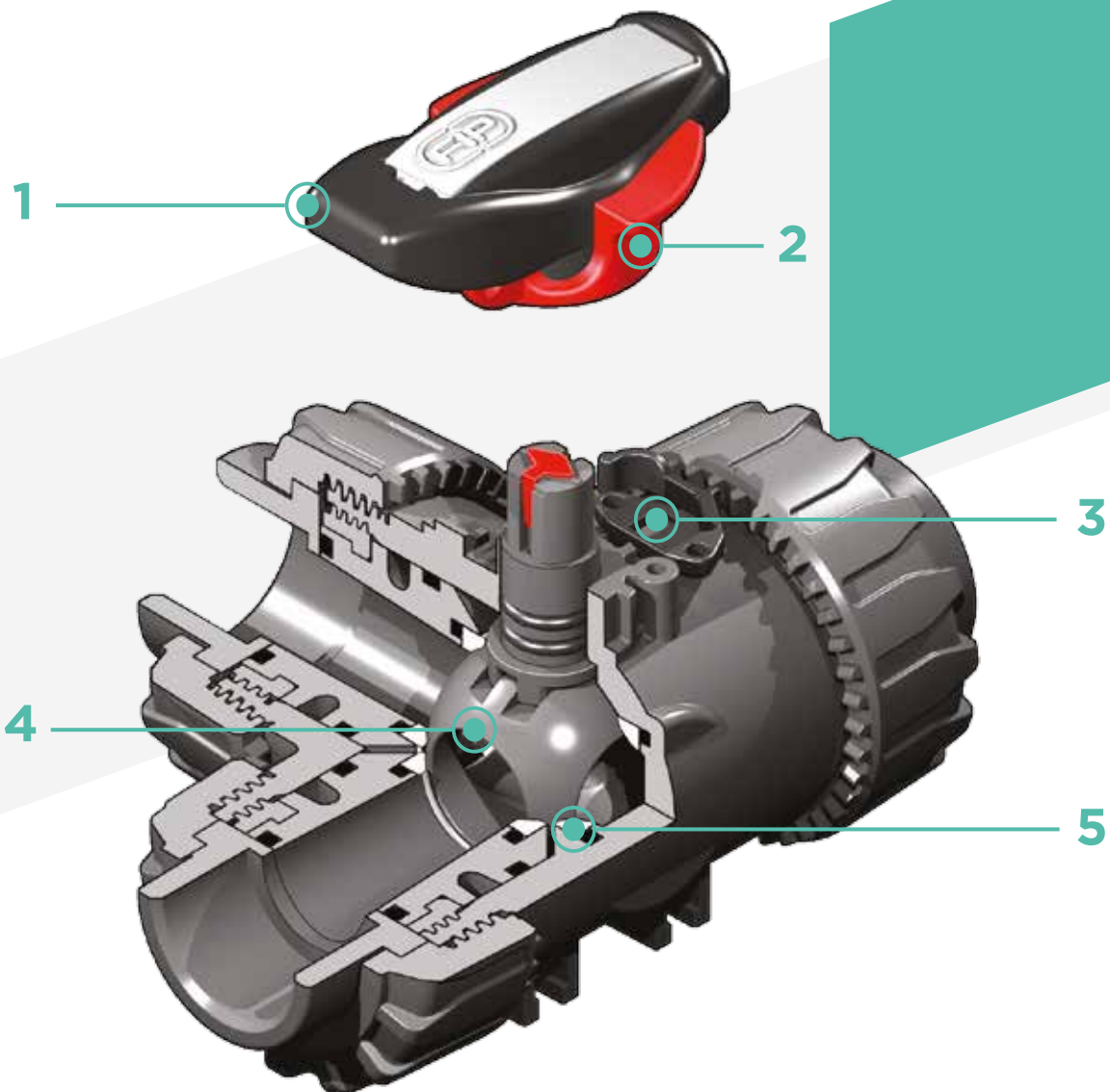
FIP has developed a TKD DUAL BLOCK® ball valve to introduce a high reference standard in thermosplastic valve design. TKD is a True Union diverting and mixing ball valve that meets the most stringent needs required in industrial applications.



DUAL BLOCK® 3-WAY BALL VALVE

- Connection system for solvent weld, threaded and flanged joints
- Patented **SEAT STOP®** ball carrier system that lets you micro-adjust ball seats and minimise axial force effects
- Easy radial dismounting allowing quick replacement of O-rings and ball seats without any need for tools
- **PN16 True Union valve body** made for rigid PVC-U injection moulding equipped with built-in bores for actuation. ISO 9393 compliant test requisites
- Option of dismounting downstream pipes with the valve in the closed position
- High surface finish stem with double O-Ring and double connection key to the ball, equipped with **visual ball position indicator** for correct handle installation
- **Integrated bracket** for valve anchoring
- Possibility of installing pneumatic and/or electric actuators thanks to the robust anchor tower for easy and quick automation using the **Power Quick module** (optional)

Technical specifications	
Construction	3-way True Union ball valve with locked carrier and union nuts
Size range	DN 10 ÷ 50
Nominal pressure	PN 16 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Pipe coupling capacity according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741</p> <p>Thread: ISO 228-1, DIN 2999, ASTM D 2467, JIS B 0203.</p> <p>Flanging system: ISO 7005-1, EN ISO 1452, EN ISO 15493, DIN 2501, ANSI B16.5 cl.150, JIS B 2220.</p>
Reference standards	<p>Construction criteria: EN ISO 16135, EN ISO 1452, EN ISO 15493</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p> <p>Actuator couplings: ISO 5211</p>
Valve material	PVC-U
Seal material	EPDM, FPM (standard size O-Ring); PTFE (ball seats)
Control options	Manual control; electric actuator; pneumatic actuator



1 Ergonomic HIPVC handle equipped with removable tool to adjust the ball seat carrier. Possibility of installing the **LTKD stroke limiter** (available as an accessory) that permits ball and handle rotation only for set opening and closing angles at 90° or 180°

2 **Handle lock 0°- 90° SHKD** (available as an accessory) ergonomically operable during service and padlockable

3 **DUAL BLOCK®** patented lock system that ensures union nut tightening hold even in severe conditions such as vibrations or heat dilation

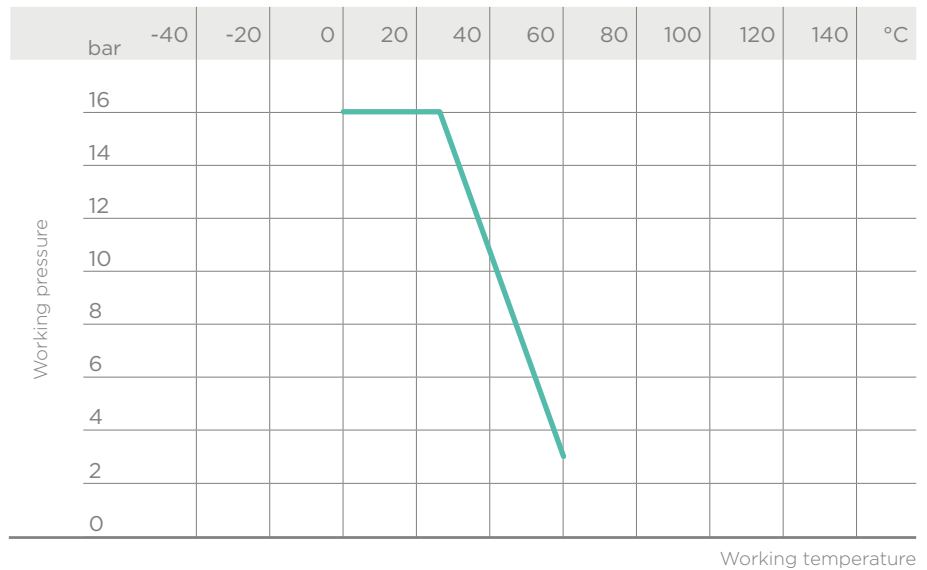
4 **Ball shutter** high surface finish with floating type full passage with **T or L port**

5 **4 PTFE ball seat system** that compensates axial force guaranteeing optimal manageability and long working life

TECHNICAL DATA

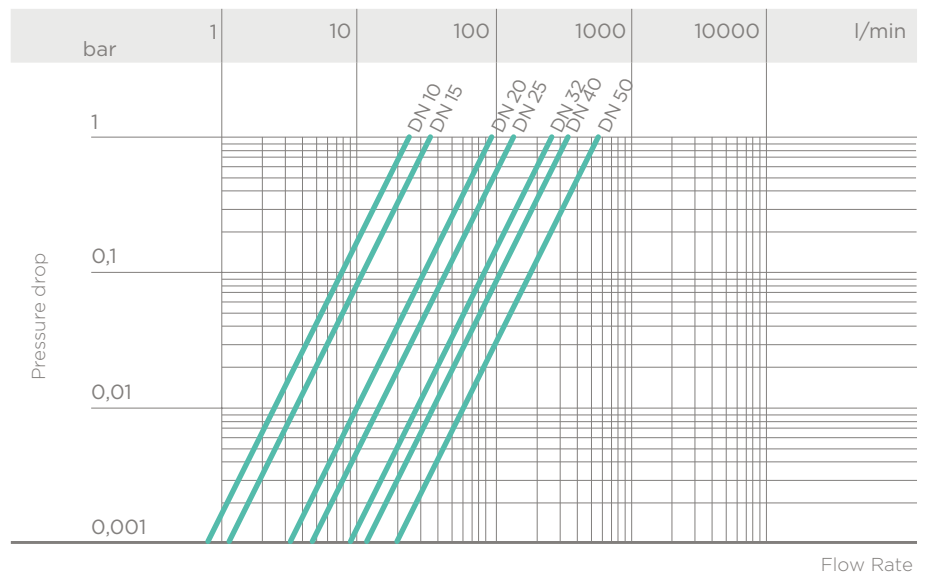
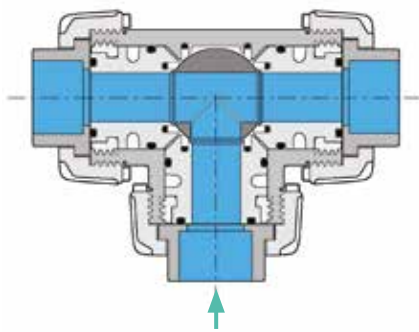
PRESSURE VARIATION ACCORDING TO TEMPERATURE

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

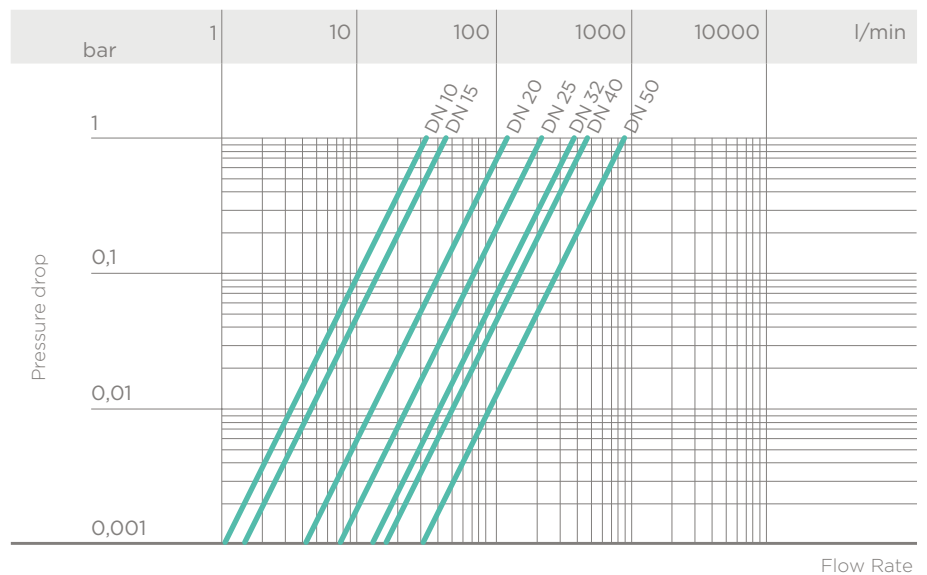
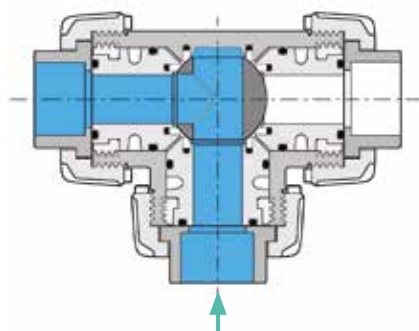


PRESSURE DROP GRAPH AND WORK POSITIONS

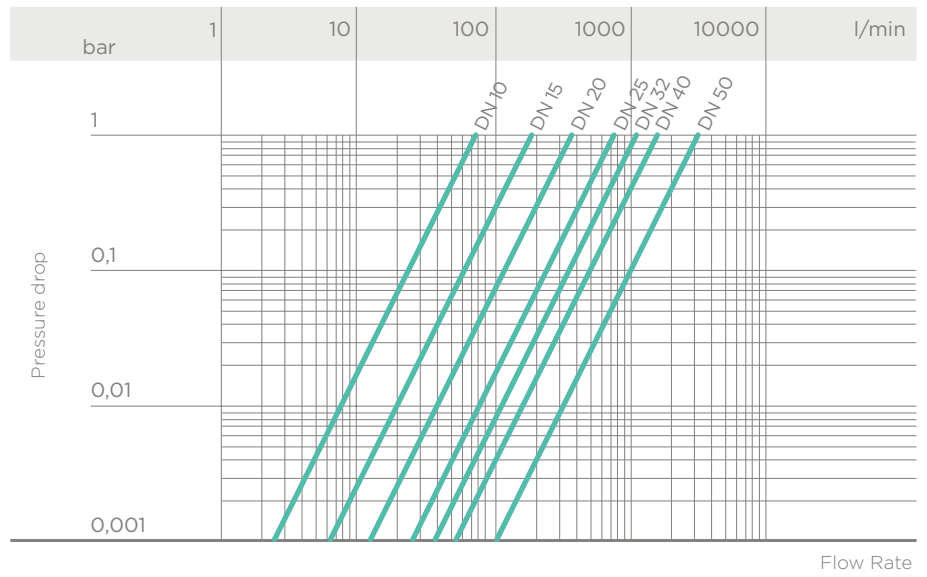
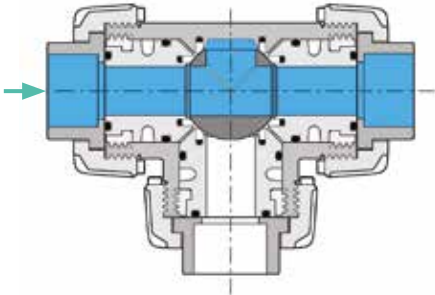
A - T-port ball valve:
0° - Mixing



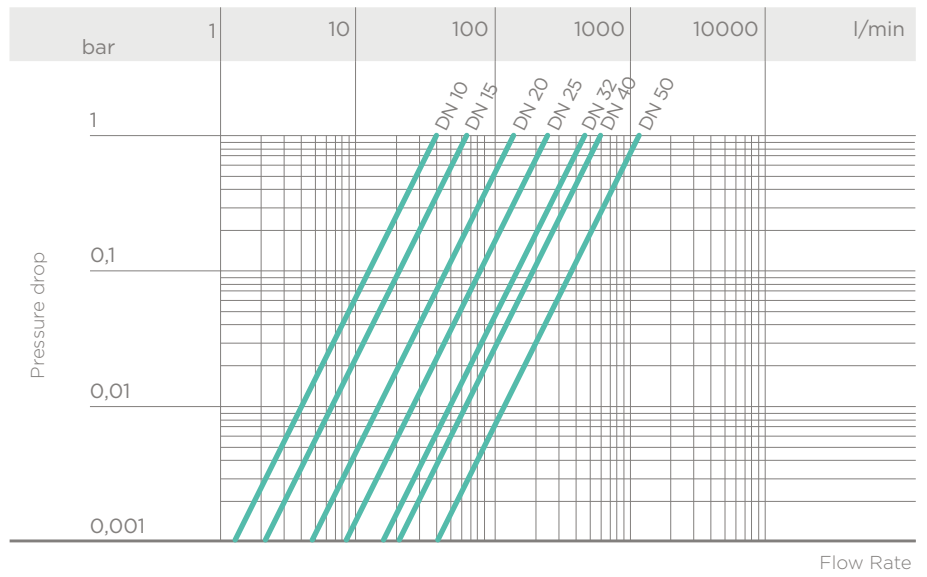
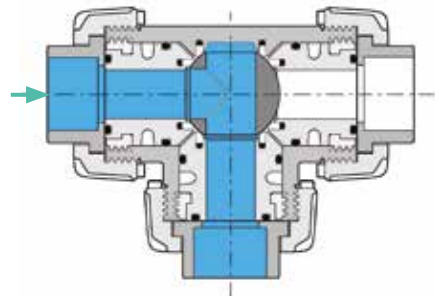
B - T-port ball valve:
90° - Diverting



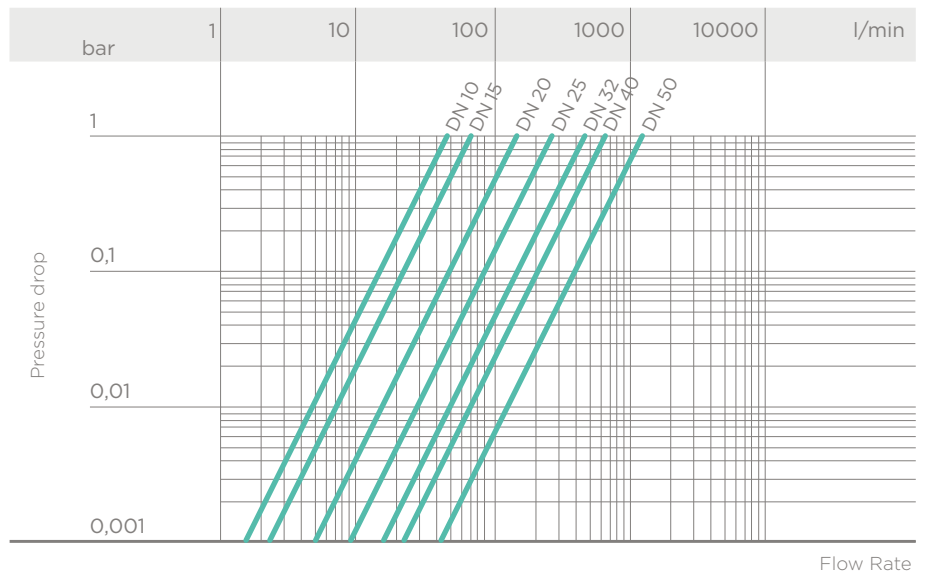
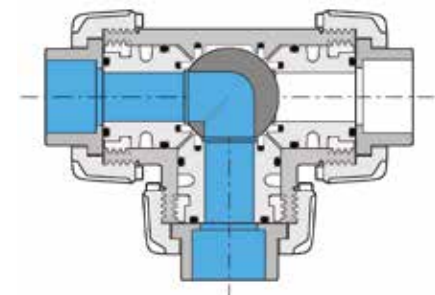
C - T-port ball valve:
180° - Branch closed/direct
flow



D - T-port ball valve:
270° - Diverting



E - L-port ball valve:
0°/270° - Diverting



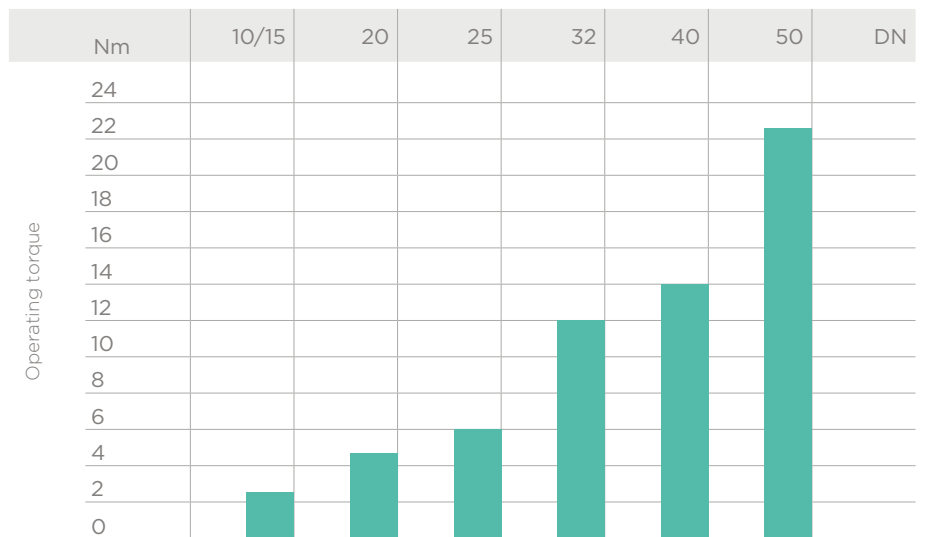
K_v100 FLOW COEFFICIENT

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.

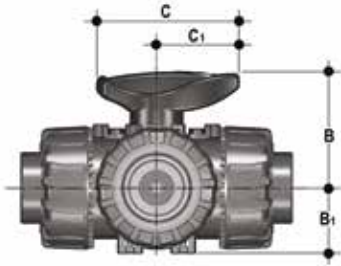
The K_v100 values shown in the table are calculated with the valve completely open.

	DN	10	15	20	25	32	40	50
K _v 100 l/min	A	25	35	95	140	270	330	620
	B	37	55	135	205	390	475	900
	C	78	195	380	760	1050	1700	3200
	D	40	65	145	245	460	600	1200
	E	48	73	150	265	475	620	1220

OPERATING TORQUE AT MAXIMUM WORKING PRESSURE

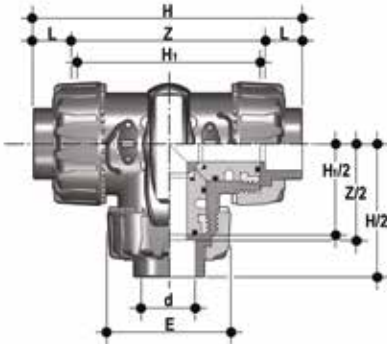


DIMENSIONS



Dimensions shared by all versions

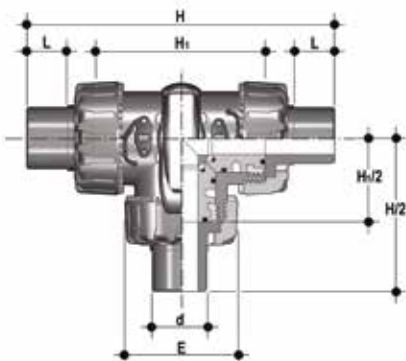
d	DN	B	B ₁	C	C ₁
16	10	54	29	67	40
20	15	54	29	67	40
25	20	65	34.5	85	49
32	25	69.5	39	85	49
40	32	82.5	46	108	64
50	40	89	52	108	64
63	50	108	62	134	76



TKDIV - LKDIV

DUAL BLOCK® 3-way ball valve with female ends for solvent welding, metric series
TKDIV - T-port ball/ LKDIV - L-port ball

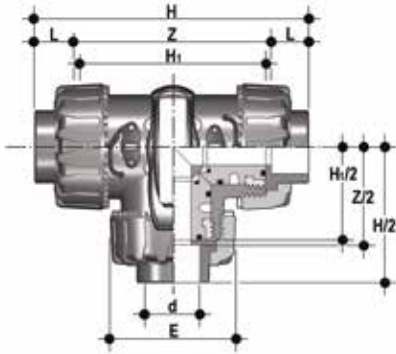
d	DN	PN	E	H	H ₁	L	Z	g	TKDIV EPDM Code	TKDIV FPM Code	LKDIV EPDM Code	LKDIV FPM Code
16	10	16	54	118	80	14	90	310	TKDIV016E	TKDIV016F	LKDIV016E	LKDIV016F
20	15	16	54	118	80	16	86	310	TKDIV020E	TKDIV020F	LKDIV020E	LKDIV020F
25	20	16	65	145	100	19	107	550	TKDIV025E	TKDIV025F	LKDIV025E	LKDIV025F
32	25	16	73	160	110	22	116	790	TKDIV032E	TKDIV032F	LKDIV032E	LKDIV032F
40	32	16	86	188.5	131	26	136.5	1275	TKDIV040E	TKDIV040F	LKDIV040E	LKDIV040F
50	40	16	98	219	148	31	157	1660	TKDIV050E	TKDIV050F	LKDIV050E	LKDIV050F
63	50	16	122	266.5	179	38	190.5	2800	TKDIV063E	TKDIV063F	LKDIV063E	LKDIV063F



TKDDV - LKDDV

DUAL BLOCK® 3-way ball valve with male ends for solvent welding, metric series
TKDDV - T-port ball/ LKDDV - L-port ball

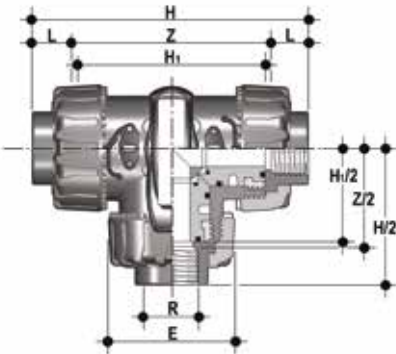
d	DN	PN	E	H	H ₁	L	g	TKDDV EPDM Code	TKDDV FPM Code	LKDDV EPDM Code	LKDDV FPM Code
20	15	16	54	140	80	16	320	TKDDV020E	TKDDV020F	LKDDV020E	LKDDV020F
25	20	16	65	175	100	19	565	TKDDV025E	TKDDV025F	LKDDV025E	LKDDV025F
32	25	16	73	188	110	22	810	TKDDV032E	TKDDV032F	LKDDV032E	LKDDV032F
40	32	16	86	220	131	26	1305	TKDDV040E	TKDDV040F	LKDDV040E	LKDDV040F
50	40	16	98	251	148	31	1700	TKDDV050E	TKDDV050F	LKDDV050E	LKDDV050F
63	50	16	122	294	179	38	2850	TKDDV063E	TKDDV063F	LKDDV063E	LKDDV063F



TKDLV - LKDLV

DUAL BLOCK® 3-way ball valve with female ends for solvent welding, BS series
TKDLV - T-port ball/ LKDLV - L-port ball

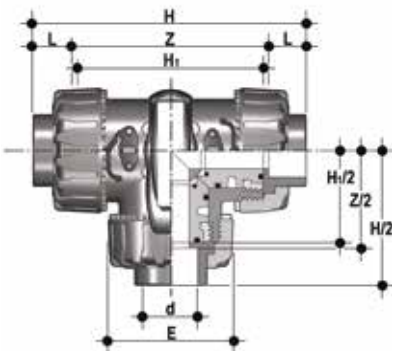
d	DN	PN	E	H	H ₁	L	Z	g	TKDLV EPDM Code	TKDLV FPM Code	LKDLV EPDM Code	LKDLV FPM Code
3/8"	10	16	54	118	80	14.7	88.6	310	TKDLV038E	TKDLV038F	LKDLV038E	LKDLV038F
1/2"	15	16	54	118	80	17	85	310	TKDLV012E	TKDLV012F	LKDLV012E	LKDLV012F
3/4"	20	16	65	144.8	100	19	106.8	550	TKDLV034E	TKDLV034F	LKDLV034E	LKDLV034F
1"	25	16	73	160	110	22.5	115	790	TKDLV100E	TKDLV100F	LKDLV100E	LKDLV100F
1" 1/4	32	16	86	188.6	131	26	136.6	1275	TKDLV114E	TKDLV114F	LKDLV114E	LKDLV114F
1" 1/2	40	16	98	219.4	148	30.2	159	1660	TKDLV112E	TKDLV112F	LKDLV112E	LKDLV112F
2"	50	16	122	266.6	179	36.2	194.2	2800	TKDLV200E	TKDLV200F	LKDLV200E	LKDLV200F



TKDFV - LKDFV

DUAL BLOCK® 3-way ball valve with BSP threaded female ends
TKDFV - T-port ball/ LKDFV - L-port ball

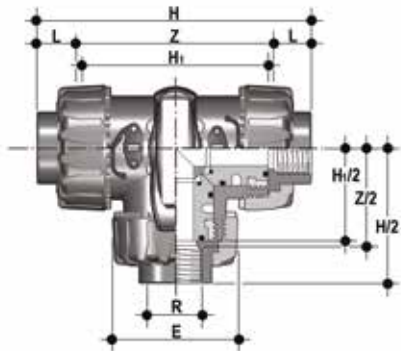
R	DN	PN	E	H	H ₁	L	Z	g	TKDFV EPDM Code	TKDFV FPM Code	LKDFV EPDM Code	LKDFV FPM Code
3/8"	10	16	54	118	80	11.4	95	310	TKDFV038E	TKDFV038F	LKDFV038E	LKDFV038F
1/2"	15	16	54	125	80	15	95	310	TKDFV012E	TKDFV012F	LKDFV012E	LKDFV012F
3/4"	20	16	65	146	100	16.3	114	550	TKDFV034E	TKDFV034F	LKDFV034E	LKDFV034F
1"	25	16	73	166	110	19.1	129	790	TKDFV100E	TKDFV100F	LKDFV100E	LKDFV100F
1" 1/4	32	16	86	195.5	131	21.4	151	1275	TKDFV114E	TKDFV114F	LKDFV114E	LKDFV114F
1" 1/2	40	16	98	211	148	21.4	166	1660	TKDFV112E	TKDFV112F	LKDFV112E	LKDFV112F
2"	50	16	122	253.5	179	25.7	199	2800	TKDFV200E	TKDFV200F	LKDFV200E	LKDFV200F



TKDAV - LKDAV

DUAL BLOCK® 3-way ball valve with female ends for solvent welding, ASTM series
TKDAV - T-port ball/ LKDAV - L-port ball

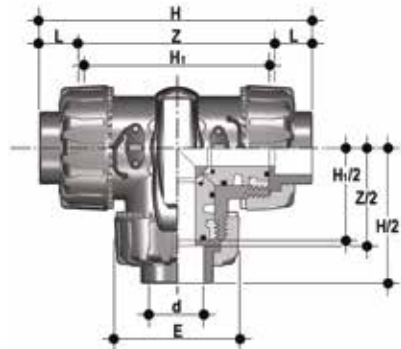
d	DN	PN	E	H	H ₁	L	Z	g	TKDAV EPDM Code	TKDAV FPM Code	LKDAV EPDM Code	LKDAV FPM Code
3/8"	10	16	54	132.2	80	19.5	93.2	310	TKDAV038E	TKDAV038F	LKDAV038E	LKDAV038F
1/2"	15	16	54	132.2	80	23	87.2	310	TKDAV012E	TKDAV012F	LKDAV012E	LKDAV012F
3/4"	20	16	65	159.2	100	25.5	108.2	550	TKDAV034E	TKDAV034F	LKDAV034E	LKDAV034F
1"	25	16	73	174	110	28.7	116.6	790	TKDAV100E	TKDAV100F	LKDAV100E	LKDAV100F
1" 1/4	32	16	86	205	131	32	141	1275	TKDAV114E	TKDAV114F	LKDAV114E	LKDAV114F
1" 1/2	40	16	98	227.6	148	35	157.6	1660	TKDAV112E	TKDAV112F	LKDAV112E	LKDAV112F
2"	50	16	122	267	179	38.2	190.6	2800	TKDAV200E	TKDAV200F	LKDAV200E	LKDAV200F



TKDNV - LKDNV

DUAL BLOCK® 3-way ball valve with female ends, NPT thread
TKDNV - T-port ball/ LKDNV - L-port ball

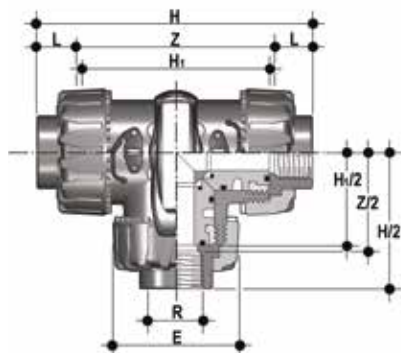
R	DN	PN	E	H	H ₁	L	Z	g	TKDNV EPDM Code	TKDNV FPM Code	LKDNV EPDM Code	LKDNV FPM Code
3/8"	10	16	54	118	80	13.7	90.6	310	TKDNV038E	TKDNV038F	LKDNV038E	LKDNV038F
1/2"	15	16	54	126	80	18	90.4	310	TKDNV012E	TKDNV012F	LKDNV012E	LKDNV012F
3/4"	20	16	65	146.4	100	18	110.4	550	TKDNV034E	TKDNV034F	LKDNV034E	LKDNV034F
1"	25	16	73	166.6	110	22.6	121.4	790	TKDNV100E	TKDNV100F	LKDNV100E	LKDNV100F
1" 1/4	32	16	86	195.8	131	25.1	145.6	1275	TKDNV114E	TKDNV114F	LKDNV114E	LKDNV114F
1" 1/2	40	16	98	211.4	148	24.7	162	1660	TKDNV112E	TKDNV112F	LKDNV112E	LKDNV112F
2"	50	16	122	253.8	179	29.6	194.6	2800	TKDNV200E	TKDNV200F	LKDNV200E	LKDNV200F



TKDJV - LKDJV

DUAL BLOCK® 3-way ball valve with female ends for solvent welding, JIS series
TKDJV - T-port ball/ LKDJV - L-port ball

d	DN	PN	E	H	H ₁	L	Z	g	TKDJV EPDM Code	TKDJV FPM Code	LKDJV EPDM Code	LKDJV FPM Code
1/2"	15	16	54	146	80	30	86	310	TKDJV012E	TKDJV012F	LKDJV012E	LKDJV012F
3/4"	20	16	65	177	100	35	107	550	TKDJV034E	TKDJV034F	LKDJV034E	LKDJV034F
1"	25	16	73	196	110	40	116	790	TKDJV100E	TKDJV100F	LKDJV100E	LKDJV100F
1" 1/4	32	16	86	225	131	44	137	1275	TKDJV114E	TKDJV114F	LKDJV114E	LKDJV114F
1" 1/2	40	16	98	267.2	148	55	157.2	1660	TKDJV112E	TKDJV112F	LKDJV112E	LKDJV112F
2"	50	16	122	316	179	63	190	2800	TKDJV200E	TKDJV200F	LKDJV200E	LKDJV200F

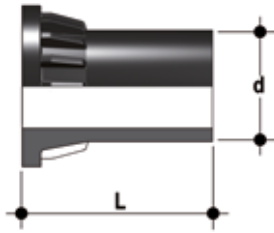


TKDGV - LKDGV

DUAL BLOCK® 3-way ball valve with female ends, JIS thread
TKDGV - T-port ball/ LKDGV - L-port ball

R	DN	PN	E	H	H ₁	L	Z	g	TKDGV EPDM Code	TKDGV FPM Code	LKDGV EPDM Code	LKDGV FPM Code
1/2"	15	16	54	118	80	16	86	310	TKDGV012E	TKDGV012F	LKDGV012E	LKDGV012F
3/4"	20	16	65	144.8	100	19	106.8	550	TKDGV034E	TKDGV034F	LKDGV034E	LKDGV034F
1"	25	16	73	160	110	22	116	790	TKDGV100E	TKDGV100F	LKDGV100E	LKDGV100F
1" 1/4	32	16	86	188.6	131	25	138.6	1275	TKDGV114E	TKDGV114F	LKDGV114E	LKDGV114F
1" 1/2	40	16	98	219.4	148	26	167.4	1660	TKDGV112E	TKDGV112F	LKDGV112E	LKDGV112F
2"	50	16	122	266.6	179	31	204.6	2800	TKDGV200E	TKDGV200F	LKDGV200E	LKDGV200F

ACCESSORIES



CVDE

Long spigot PE100 end connectors for joints with electrofusion fittings or for butt welding

d	DN	PN	L	SDR	Code
20	15	16	55	11	CVDE11020
25	20	16	70	11	CVDE11025
32	25	16	74	11	CVDE11032
40	32	16	78	11	CVDE11040
52	40	16	84	11	CVDE11050
63	50	16	91	11	CVDE11063



SHKD

Handle block kit 0° - 90° lockable

d	DN	Code
16 - 20	10 - 15	SHKD020
25 - 32	20 - 25	SHKD032
40 - 50	32 - 40	SHKD050
63	50	SHKD063



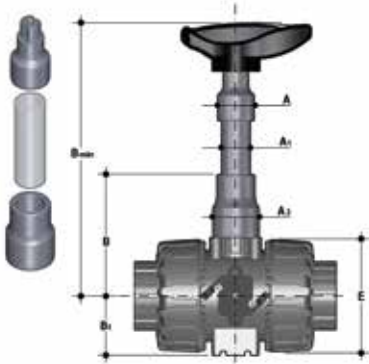
LTKD

The LTKD stroke limiter specifically permits handle and ball rotation only at set opening and closing angles. The LTKD090 version permits operations for 90° angles while the LTKD180 version for 180° angles. The LTKD stroke limiter is made up of a single removable plate made of technopolymer. Designed for ISO 5211 bore and specifically designed to be directly housed on the valve body mounting flange. It is secured to the valve body by self-tapping screws or plastic rivets.



d	DN	Code 90°	Code 180°
16 - 20	10 - 15	LTKD090020	LTKD180020
25 - 32	20 - 25	LTKD090032	LTKD180032
40 - 50	32 - 40	LTKD090050	LTKD180050
63	50	LTKD090063	LTKD180063

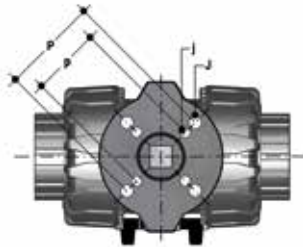




PSKD

Stem extension

d	DN	A	A ₁	A ₂	E	B	B ₁	B min	Code
16	10	32	25	32	54	70	29	139.5	PSKD020
20	15	32	25	32	54	70	29	139.5	PSKD020
25	20	32	25	40	65	89	34.5	164.5	PSKD025
32	25	32	25	40	73	93.5	39	169	PSKD032
40	32	40	32	50	86	110	46	200	PSKD040
50	40	40	32	50	98	116	52	206	PSKD050
63	50	40	32	59	122	122	62	225	PSKD063



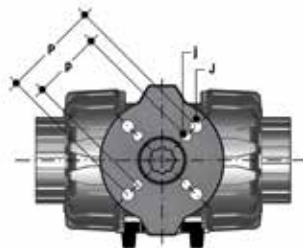
POWER QUICK CP

The valve can be equipped with pneumatic actuators, using the PP-GR module reproducing the drilling pattern foreseen by ISO 5211 regulations



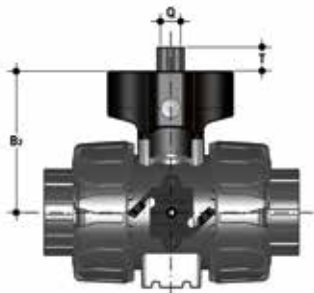
d	DN	B ₂	Q	T	p x j	P x J	Code
16	10	58	11	12	F03 x 5,5	F04 x 5,5	PQCP020
20	15	58	11	12	F03 x 5,5	F04 x 5,5	PQCP020
25	20	69	11	12	*F03 x 5,5	F05 x 6,5	PQCP025
32	25	74	11	12	*F03 x 5,5	F05 x 6,5	PQCP032
40	32	91	14	16	F05 x 6,5	F07 x 8,5	PQCP040
50	40	97	14	16	F05 x 6,5	F07 x 8,5	PQCP050
63	50	114	14	16	F05 x 6,5	F07 x 8,5	PQCP063

*F04 x 5.5 upon request



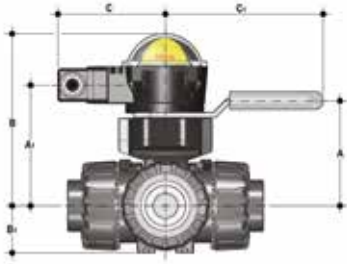
POWER QUICK CE

The valve can be equipped with electric actuators, using the PP-GR module reproducing the drilling pattern foreseen by ISO 5211 regulations



d	DN	B ₂	Q	T	p x j	P x J	Code
16	10	58	14	16	F03 x 5,5	F04 x 5,5	PQCE020
20	15	58	14	16	F03 x 5,5	F04 x 5,5	PQCE020
25	20	69	14	16	*F03 x 5,5	F05 x 6,5	PQCE025
32	25	74	14	16	*F03 x 5,5	F05 x 6,5	PQCE032
40	32	91	14	16	F05 x 6,5	F07 x 8,5	PQCE040
50	40	97	14	16	F05 x 6,5	F07 x 8,5	PQCE050
63	50	114	14	16	F05 x 6,5	F07 x 8,5	PQCE063

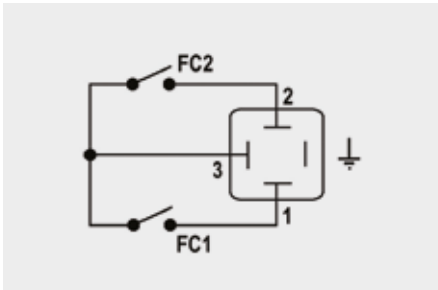
*F04 x 5.5 upon request



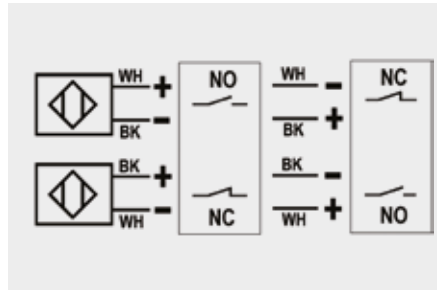
MSKD

MSKD is a limit switch box with electromechanical or inductive micro switches to remotely signal the valve position (maximum 90° rotation). Manual valve installation is possible using the Power Quick actuation module. The box can be assembled on the TKD valve even if already installed on the system.

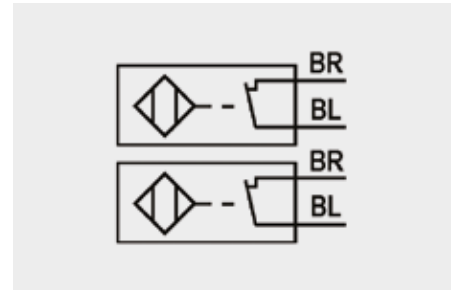
d	DN	A	A ₁	B	B ₁	C	C ₁	Code electromechanical	Code inductive	Code Namur
16	10	58	85	132.5	29	88.5	134	MSKD1M	MSKD1I	MSKD1N
20	15	58	85	132.5	29	88.5	134	MSKD1M	MSKD1I	MSKD1N
25	20	70.5	96	143.5	34.5	88.5	134	MSKD1M	MSKD1I	MSKD1N
32	25	74	101	148.5	39	88.5	134	MSKD1M	MSKD1I	MSKD1N
40	32	116	118	165.5	46	88.5	167	MSKD2M	MSKD2I	MSKD2N
50	40	122	124	171.5	52	88.5	167	MSKD2M	MSKD2I	MSKD2N
63	50	139	141	188.5	62	88.5	167	MSKD2M	MSKD2I	MSKD2N



Electromechanical



Inductive



Namur

WH = white; BK = black; BL = blue; BR = brown

Switch type	Flow Rate	Lifetime [drives]	Operating voltage	Nominal voltage	Working pressure	Voltage drop	No-load supply current	Protection rate
Electromechanical	250 V - 5 A	3 x 10 ⁷	-	-	-	-	-	IP65
Inductive	-	-	5 ÷ 36 V	-	4 ÷ 200 mA	< 4,6 V	< 0,8 mA	IP65
Namur*	-	-	7,5 ÷ 30 V DC**	8,2 V DC	< 30 mA**	-	-	IP65

* To be used with an amplifier

** Outside areas with explosion risks

FASTENING AND SUPPORTING



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

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

Using standard threaded nuts (not included) made of stainless steel, you can anchor the valve on 4 fastening points.

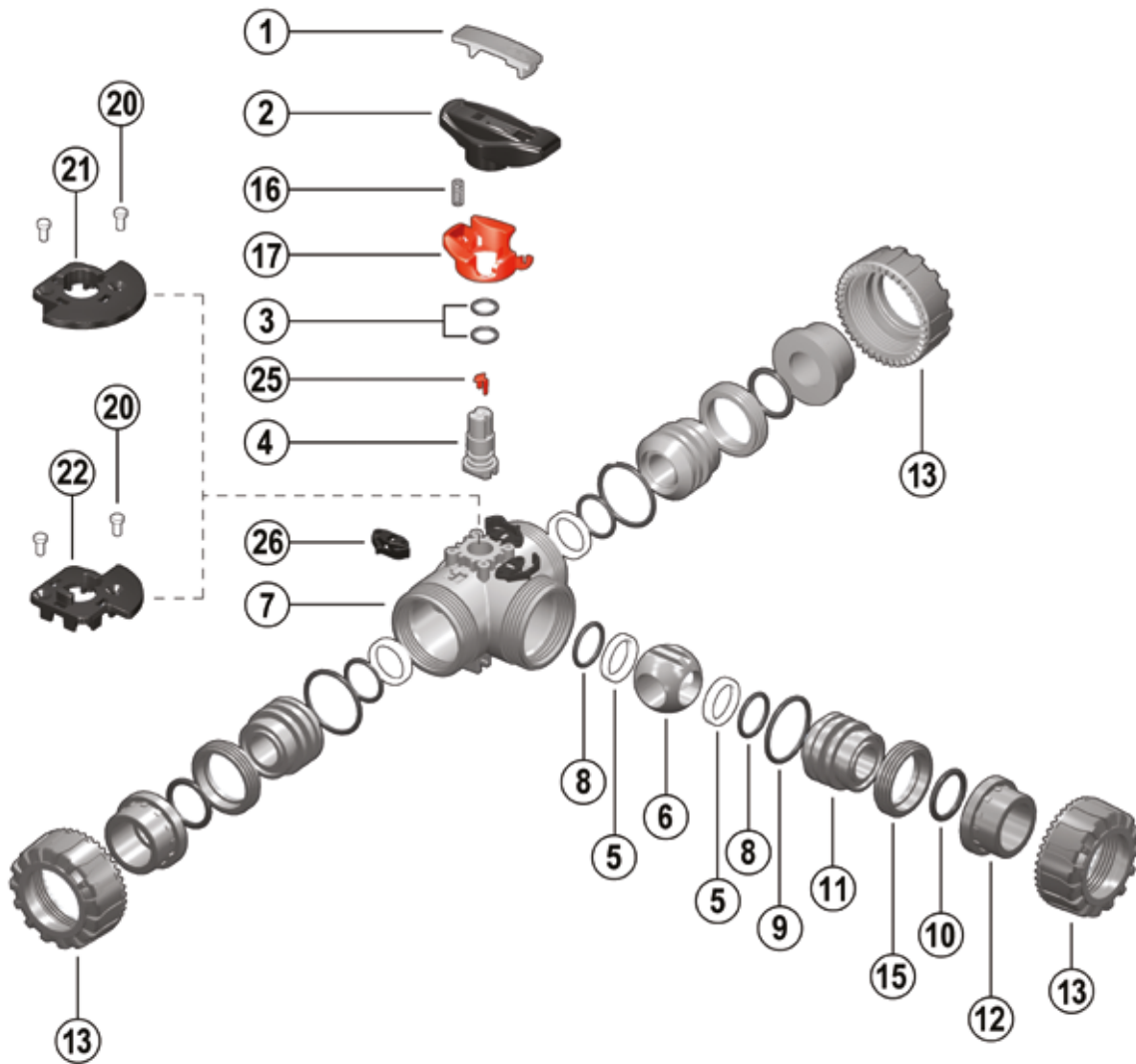


d	DN	B	H	L	J*
16	10	31.5	27	20	M4 x 6
20	15	31.5	27	20	M4 x 6
25	20	40	30	20	M4 x 6
32	25	40	30	20	M4 x 6
40	32	50	35	20	M6 x 10
50	40	50	35	20	M6 x 10
63	50	60	40	20	M6 x 10

* With threaded inserts

COMPONENTS

EXPLODED VIEW



- 1 · Handle insert (PVC-U - 1)
- 2 · Handle (HIPVC - 1)
- 3 · Stem O-rings (EPDM-FPM - 2)*
- 4 · Stem (PVC-U - 1)
- 5 · Ball seat (PTFE - 4)*
- 6 · Ball (PVC-U - 1)
- 7 · Body (PVC-U - 1)
- 8 · Ball seat O-ring (EPDM-FPM - 4)*

- 9 · Radial seal O-Ring (EPDM-FPM - 3)
- 10 · Socket seal O-Ring (EPDM-FPM - 3)
- 11 · Ball seat carrier (PVC-U - 3)
- 12 · End connector (PVC-U - 3)
- 13 · Union nut (PVC-U - 3)
- 15 · Threaded ring (PVC-U - 3)
- 16 · Spring - SHKD accessory (STAINLESS steel - 1)**

- 17 · Safety handle block - SHKD accessory (PP-GR - 1)**
- 20 · Rivet for LTKD (POM - 2)**
- 21 · LTKD 180° (POM - 1)**
- 22 · LTKD 90° (POM - 1)**
- 25 · Position indicator (POM - 1)
- 26 · DUAL BLOCK® (POM - 3)

* Spare parts

** Accessories

The component material and quantity supplied are indicated in the parentheses.

DISMOUNTING

- 1) Isolate the valve from the line (release the pressure and empty the pipeline).
- 2) Unlock the union nuts by pressing the lever on the DUAL BLOCK® (26) along the axis and separate it from the union nut (fig. 1). It is also possible to completely remove the block device from the body of the valve.
- 3) Unscrew the union nuts (13) and extract the body (7).
- 4) After turning the handle (2) to the position with the three arrows pointing at the three ports (for L-port ball with two arrows facing the ports a and b), extract the insert (1) from the handle (2) and insert the two protrusions in the corresponding apertures in the threaded rings (15), extracting the carriers (11) by turning counter-clockwise.
- 5) Extract the ball (6) from the central port being careful not to damage the seat surface.
- 6) Remove the PTFE ball seats (5) and O-Rings (8, 9, 10) from the carriers (11).
- 7) Pull the handle (2) upwards to remove it from the stem (4).
- 8) Press the stem (4) into the body and extract it.
- 9) Remove the PTFE ball seat (5) with relevant O-ring (8) from inside the valve body.
- 10) Remove the stem (4) O-rings (3) from their seats.

ASSEMBLY

- 1) Insert the O-rings (3) on the stem (4).
- 2) Insert the O-ring (8) in the seat in the valve body and, next, the PTFE ball seat (5).
- 3) Insert the stem (4), from the interior, in the body, being sure the three marks on the socket correspond to the three outlets.
- 4) Insert the ball (6) from the central port b, being careful that the three bores match the three outlets (for L-port ball, the two bores must match the a and b outlets).
- 5) Insert the O-rings (8), PTFE ball seats (5), socket seal O-rings (10) and radial seal O-rings (9) in their seats on the carriers (11).
- 6) Insert the three carriers (11) with the relevant threaded rings (15), screwing in clockwise with the handle insert (1) and starting from the one on the central outlet b.
- 7) Press the handle (2) on the stem (4), being careful to match the printed arrows with the lines on the stem (fig. 2-3).
- 8) Return the insert (1) in the handle (2)
- 9) Insert the valve between the end connectors (12) and tighten the union nuts (13), making sure that the socket seal O-rings (10) do not exit their seats.



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

Fig. 1



Fig. 2



Fig. 3



Fig. 4



INSTALLATION

Before proceeding with installation, please follow these instructions carefully:

- 1) Check that the pipes to be connected to the valve are aligned in order to avoid mechanical stress on the threaded joints.
- 2) Check that the DUAL BLOCK® union nut locking device (26) is fitted to the valve body.
- 3) To release the union nuts (13), axially press the release lever to separate the lock and then unscrew it in the counter-clockwise direction.
- 4) Unscrew the three union nuts (13) and insert them on the pipe segments.
- 5) Solvent weld or screw the end connectors (12) onto the pipe ends.
- 6) Position the valve body between the end connectors (12) and fully tighten the union nuts (13) manually by rotating clockwise, without using wrenches or other tools that could damage the union nut surface.
- 7) Lock the union nuts by returning the DUAL BLOCK® to its housing, pressing on it until the hinges lock on the union nuts.
- 8) If necessary, support the pipework with FIP pipe clips or by means of the carrier built-into the valve itself (see paragraph “fastening and supporting”).

The TKD valve can be equipped with a handle lock to prevent ball rotation (available as an accessory). When the block (16, 17) is installed, lift the lever (17) and rotate the handle.

A padlock can also be installed on the handle to protect the system against tampering (fig. 4).

Seals can be adjusted using the extractable insert on the handle (fig. 5-6). After positioning the ball as in figure 7-8, using this insert as a tool you can adjust the seals by screwing in the carriers following the indicated sequence (fig. 7-8).

A further fine-tuning of the seals can be done with the valve installed on the pipe by simply tightening the union nuts.

This "micro adjustment", only possible with FIP valves thanks to the patented "Seat stop system", allows the seal to be recovered where PTFE ball seats are worn due to high number of operations.

Fig. 5



Fig. 6



Fig. 7

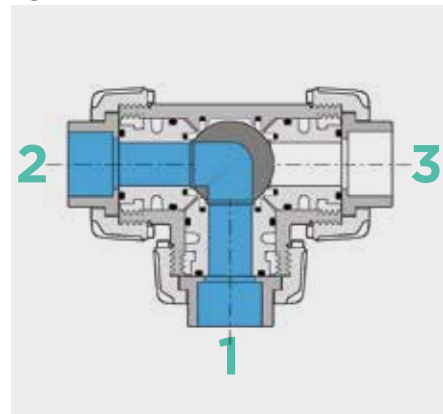
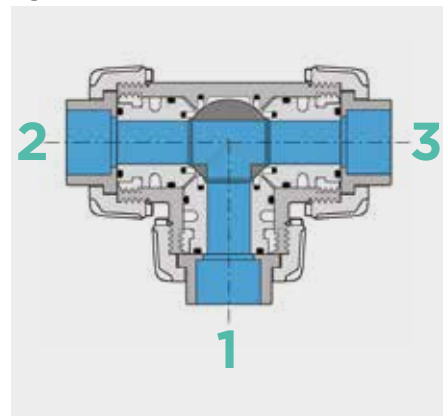


Fig. 8



WARNINGS

Always avoid sudden closing manoeuvres and protect the valve from accidental operations.



VXE DN 10÷50
PVC-U

Easyfit 2-way ball valve

VXE DN 10÷50

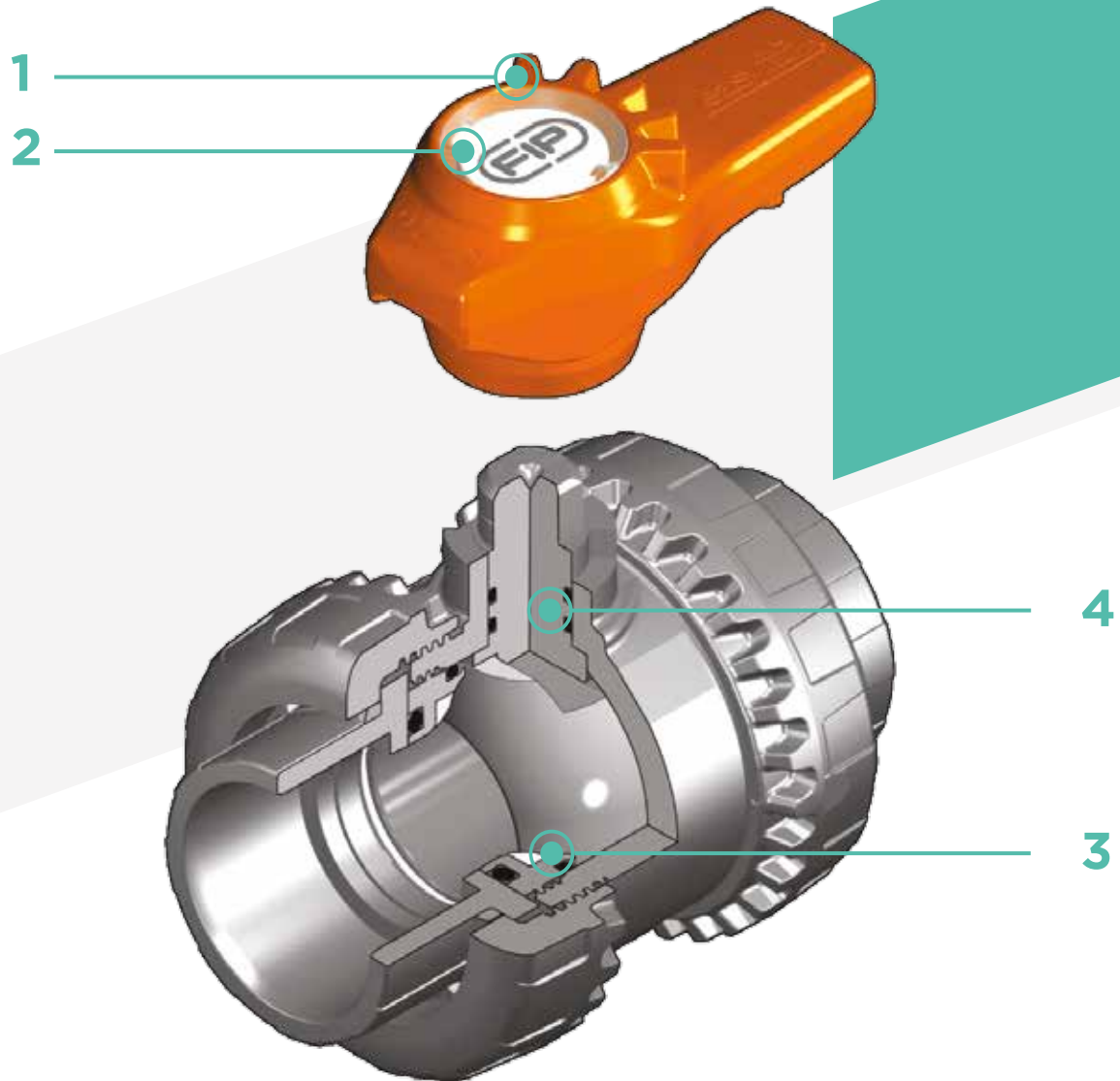
FIP and Giugiaro Design designed and developed VXE Easyfit, the innovative True Union ball with union nut tightening control that permits simple and safe installation for reliable service in time. This valve is also equipped with the customisable Labelling System.



EASYFIT 2-WAY BALL VALVE

- **Patented Easyfit system:** innovative mechanism based on the principle of the bevel gear pair that controls valve union nut rotation during installation
- Connection system for solvent weld and threaded joints
- **Valve material compatibility** (PVC-U) and elastomer **seal elements** (EPDM or FPM), with water, drinking water and other food substances as per **current regulations**
- Easy radial dismounting allowing quick replacement of O-rings and ball seats without any need for tools
- **PN16 True Union valve body** made for PVC-U injection moulding and European Directive 97/23/EC compliant for PED pressurised equipment. ISO 9393 compliant test requirements
- **Short face to face dimension** according to international regulation ISO 7508 series III and European regulation EN 1452 "short" and fully interchangeable with previous VX Ergo series models
- Option of dismounting downstream pipes with the valve in the closed position
- Floating **full bore ball** with high surface finish made in CNC work stations to achieve precise dimensional tolerance and high surface finish

Technical specifications	
Construction	Easyfit 2-way True Union ball valve with locked carrier
Size range	DN 10 ÷ 50
Nominal pressure	PN 16 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Pipe coupling capacity according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741</p> <p>Thread: ISO 228-1, DIN 2999, ASTM D 2467, JIS B 0203</p>
Reference standards	<p>Construction criteria: EN ISO 16135, EN ISO 1452, EN ISO 15493</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p>
Valve material	PVC-U
Seal material	EPDM, FPM (standard size O-Ring); PTFE (ball seats)
Control options	Manual control

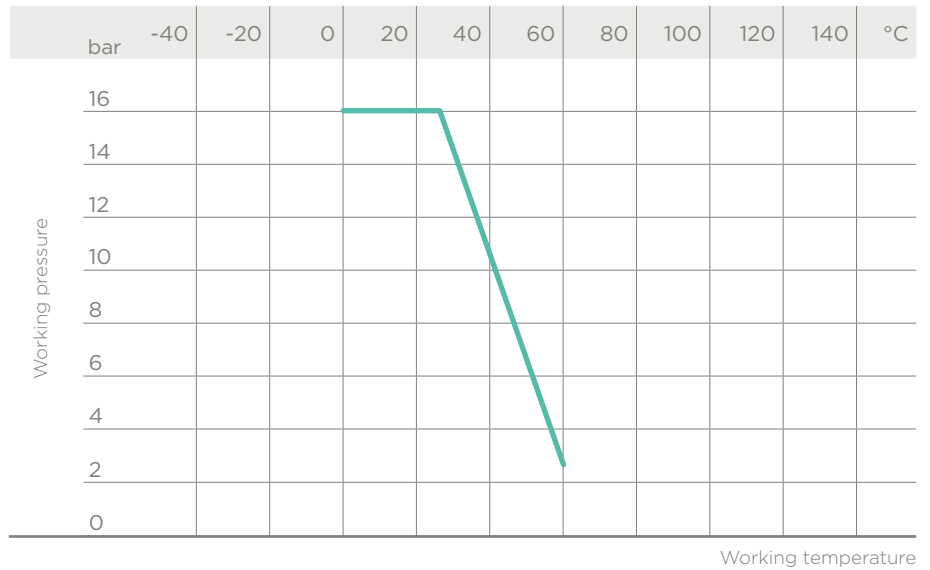


- 1** Two position **Easyfit ergonomic multifunctional handle with union nut tightening control** which can be used to **adjust ball seat carriers**. Handle use is especially indicated for **maintenance** work where **space is limited** and hard to access
- 2** **Customisable Labelling System: built-in LCE module** on the handle made up of a transparent protection plug and customisable tag holder with LSE set (available as accessory). The customisation potential lets you **identify the valve on the system** according to specific needs
- 3** **The PTFE ball seat system with locked carrier** adjustable via Easyfit multifunctional handle or Easytorque adjustment kit (available as an accessory)
- 4** High surface finish **valve stem with double O-Ring**, produced in CNC work stations to achieve precise dimensional tolerance and high surface finish

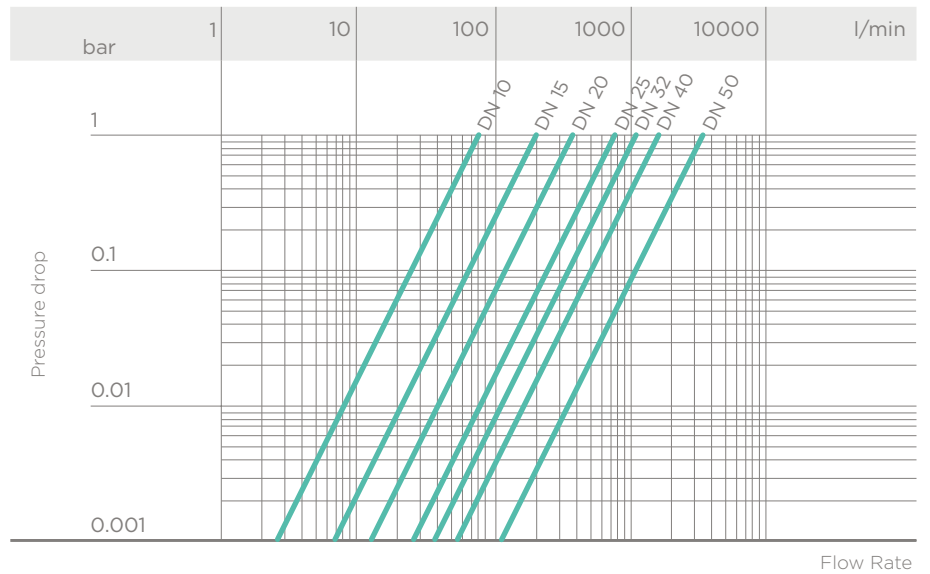
TECHNICAL DATA

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 PN pressure is required (25 years with safety factor).



PRESSURE DROP GRAPH



K_v100 FLOW COEFFICIENT

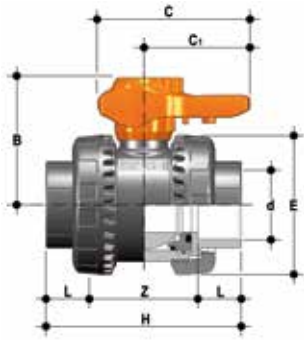
The K_v100 flow coefficient is the Q flow rate of litres per minute of water at a temperature of 20°C that will generate Δp= 1 bar pressure drop at a certain valve position.

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

DN	10	15	20	25	32	40	50
K _v 100 l/min	80	200	385	770	1100	1750	3400

The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

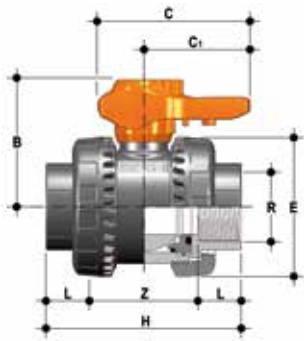
DIMENSIONS



VXEIV

Easyfit 2-way ball valve with female ends for solvent welding, metric series

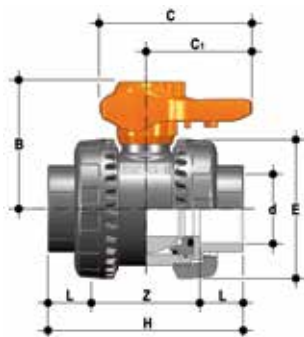
d	DN	PN	B	C	C ₁	E	H	L	Z	g	EPDM Code	FPM Code
16	10	16	49	64	44	54	82	14	54	180	VXEIV016E	VXEIV016F
20	15	16	49	64	44	54	82	16	50	175	VXEIV020E	VXEIV020F
25	20	16	62	78	55	63	91	19	53	260	VXEIV025E	VXEIV025F
32	25	16	71	87	60	72	103	22	59	365	VXEIV032E	VXEIV032F
40	32	16	82	102	72	85	120	26	68	565	VXEIV040E	VXEIV040F
50	40	16	92	109	76	100	139	31	77	795	VXEIV050E	VXEIV050F
63	50	16	110	133	94	118	174	38	98	1325	VXEIV063E	VXEIV063F



VXEFV

Easyfit 2-way ball valve with BSP threaded female ends

R	DN	PN	B	C	C ₁	E	H	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	49	64	44	54	82	11.4	59.2	180	VXEFV038E	VXEFV038F
1/2"	15	16	49	64	44	54	90	15	60	175	VXEFV012E	VXEFV012F
3/4"	20	16	62	78	55	63	93	16.3	60.4	260	VXEFV034E	VXEFV034F
1"	25	16	71	87	60	72	110	19.1	71.8	365	VXEFV100E	VXEFV100F
1" 1/4	32	16	82	102	72	85	127	21.4	84.2	565	VXEFV114E	VXEFV114F
1" 1/2	40	16	92	109	76	100	131	21.4	88.2	795	VXEFV112E	VXEFV112F
2"	50	16	110	133	94	118	161	25.7	109.6	1325	VXEFV200E	VXEFV200F



VXELV

Easyfit 2-way ball valve with female ends for solvent welding, BS series

d	DN	PN	B	C	C ₁	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	49	64	44	54	82	16.5	49	175	VXELV012E	VXELV012F
3/4"	20	16	62	78	55	63	91	19	53	260	VXELV034E	VXELV034F
1"	25	16	71	87	60	72	103	22.5	58	365	VXELV100E	VXELV100F
1" 1/4	32	16	82	102	72	85	120	26	68	565	VXELV114E	VXELV114F
1" 1/2	40	16	92	109	76	100	139	30	79	795	VXELV112E	VXELV112F
2"	50	16	110	133	94	118	174	36	102	1325	VXELV200E	VXELV200F



VXEAV

Easyfit 2-way ball valve with female ends for solvent welding, ASTM series

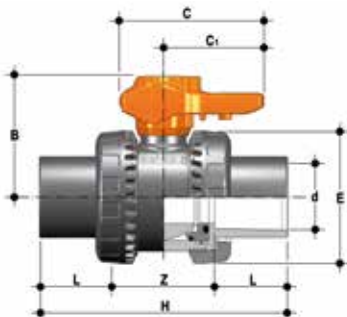
d	DN	PN	B	C	C ₁	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	49	64	44	54	96	22.5	51	175	VXEAV012E	VXEAV012F
3/4"	20	16	62	78	55	63	105	25.5	54	260	VXEAV034E	VXEAV034F
1"	25	16	71	87	60	72	117	28.7	59.5	365	VXEAV100E	VXEAV100F
1" 1/4	32	16	82	102	72	85	136	32	72	565	VXEAV114E	VXEAV114F
1" 1/2	40	16	92	109	76	100	147	35	77	795	VXEAV112E	VXEAV112F
2"	50	16	110	133	94	118	174	38.2	97.6	1325	VXEAV200E	VXEAV200F



VXENV

Easyfit 2-way ball valve with female ends, NPT thread

R	DN	PN	B	C	C ₁	E	H	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	49	64	44	54	82	13.7	54.6	180	VXENV038E	VXENV038F
1/2"	15	16	49	64	44	54	90	17.8	54.4	175	VXENV012E	VXENV012F
3/4"	20	16	62	78	55	63	93	18	57	260	VXENV034E	VXENV034F
1"	25	16	71	87	60	72	110	22.6	64.8	365	VXENV100E	VXENV100F
1" 1/4	32	16	82	102	72	85	127	25.1	76.8	565	VXENV114E	VXENV114F
1" 1/2	40	16	92	109	76	100	131	24.7	81.6	795	VXENV112E	VXENV112F
2"	50	16	110	133	94	118	161	29.6	101.8	1325	VXENV200E	VXENV200F



VXEJV

Easyfit 2-way ball valve with female ends for solvent welding, JIS series

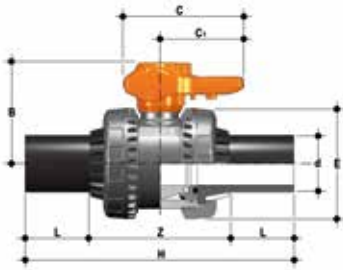
d	DN	PN	B	C	C ₁	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	49	64	44	54	110	30	50	195	VXEJV012E	VXEJV012F
3/4"	20	16	62	78	55	63	123	35	53	285	VXEJV034E	VXEJV034F
1"	25	16	71	87	60	72	139	40	59	395	VXEJV100E	VXEJV100F
1" 1/4	32	16	82	102	72	85	156	44	68	600	VXEJV114E	VXEJV114F
1" 1/2	40	16	92	109	76	100	187	55	77	835	VXEJV112E	VXEJV112F
2"	50	16	110	133	94	118	228	63	102	1375	VXEJV200E	VXEJV200F



VXEGV

Easyfit 2-way valve with female ends, JIS thread

R	DN	PN	B	C	C ₁	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	49	64	44	54	82	16	50	175	VXEGV012E	VXEGV012F
3/4"	20	16	62	78	55	63	91	19	53	260	VXEGV034E	VXEGV034F
1"	25	16	71	87	60	72	103	22	59	365	VXEGV100E	VXEGV100F
1" 1/4	32	16	82	102	72	85	120	25	70	565	VXEGV114E	VXEGV114F
1" 1/2	40	16	92	109	76	100	139	26	87	795	VXEGV112E	VXEGV112F
2"	50	16	110	133	94	118	174	31	112	1325	VXEGV200E	VXEGV200F

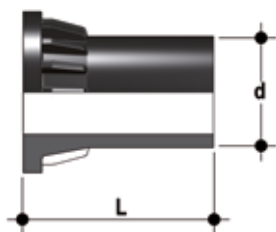


VXEBEV

Easyfit 2-way ball valve with PE100 SDR 11 male end connectors for butt welding or electrofusion (CVDE)

d	DN	PN	B	C	C ₁	E	H	L	Z	g	EPDM Code	FPM Code
20	15	16	49	64	44	54	154	41	72	180	VXEBEV020E	VXEBEV020F
25	20	16	62	78	55	63	186	52	82	269	VXEBEV025E	VXEBEV025F
32	25	16	71	87	60	72	199	54.5	90	379	VXEBEV032E	VXEBEV032F
40	32	16	82	102	72	85	217	56	105	591	VXEBEV040E	VXEBEV040F
50	40	16	92	109	76	100	236	58	120	851	VXEBEV050E	VXEBEV050F
63	50	16	110	133	94	118	268	66	136	1407	VXEBEV063E	VXEBEV063F

ACCESSORIES



CVDE

Long spigot PE100 end connectors for joints with electrofusion fittings or for butt welding

d	DN	PN	L	SDR	Code
20	15	16	55	11	CVDE11020
25	20	16	70	11	CVDE11025
32	25	16	74	11	CVDE11032
40	32	16	78	11	CVDE11040
52	40	16	84	11	CVDE11050
63	50	16	91	11	CVDE11063



EASYTORQUE KIT

Kit for union nut tightening adjustment and ball seat carrier for Easyfit DN 10÷50 valves.

d	DN	Union nut tightening torque*	Seat carrier tightening torque*	Code
3/8"-1/2"	10-15	5 N m - 3,69 Lbf ft	3 N m - 2,21 Lbf ft	KET01
3/4"	20	5 N m - 3,69 Lbf ft	3 N m - 2,21 Lbf ft	KET01
1"	25	6 N m - 4,43 Lbf ft	4 N m - 2,95 Lbf ft	KET01
1" 1/4	32	7 N m - 5,16 Lbf ft	4 N m - 2,95 Lbf ft	KET01
1" 1/2	40	8 N m - 5,90 Lbf ft	5 N m - 3,69 Lbf ft	KET01
2"	50	10 N m - 7,38 Lbf ft	6 N m - 4,43 Lbf ft	KET01

*calculated in ideal installation conditions



LCE

Transparent protection plug with tag holder

d	DN	Code
16	10	LCE020
20	15	LCE020
25	20	LCE025
32	25	LCE032
40	32	LCE040
50	40	LCE050
63	50	LCE063



LSE

Customisation and label printing set for Easyfit handle made up of precut adhesive sheets and software for guided label creation.

d	DN	Code
16	10	LSE020
20	15	LSE020
25	20	LSE025
32	25	LSE032
40	32	LSE040
50	40	LSE050
63	50	LSE063

CUSTOMISATION

The VXE DN 10÷50 Easyfit valve is equipped with the customisable Labelling System. This system lets you create special labels to insert in the handle. This makes it extremely easy to apply company logos, identification serial numbers or service indications such as, for example, the valve function in the system, the transported fluid, but also specific information for customer service, such as the customer name or installation date or location on the valves.

The specific LCE module is a standard supply and is made up of a rigid transparent water-resistant PVC plug (A) and white tag holder (B) made of the same material, one side of which bears the FIP logo (fig. 1).

The holder, inserted in the plug, can be removed and, once overturned, used for customisation by applying labels printed with the software supplied with the LSE set.

Proceed as follows to apply the label on the valve:

- 1) Extract the handle from the valve body and extract the transparent plug.
- 2) Extract the tag holder from the transparent plug (fig. 2).
- 3) Apply the adhesive label on the tag holder to align the profiles matching the tab position.
- 4) Re-insert the tag holder in the transparent plug so that the label is protected from the elements.
- 5) Apply the transparent plug on the handle matching the two fittings (one narrow and one wide) with their housings (fig. 3).

Fig. 1



Fig. 2

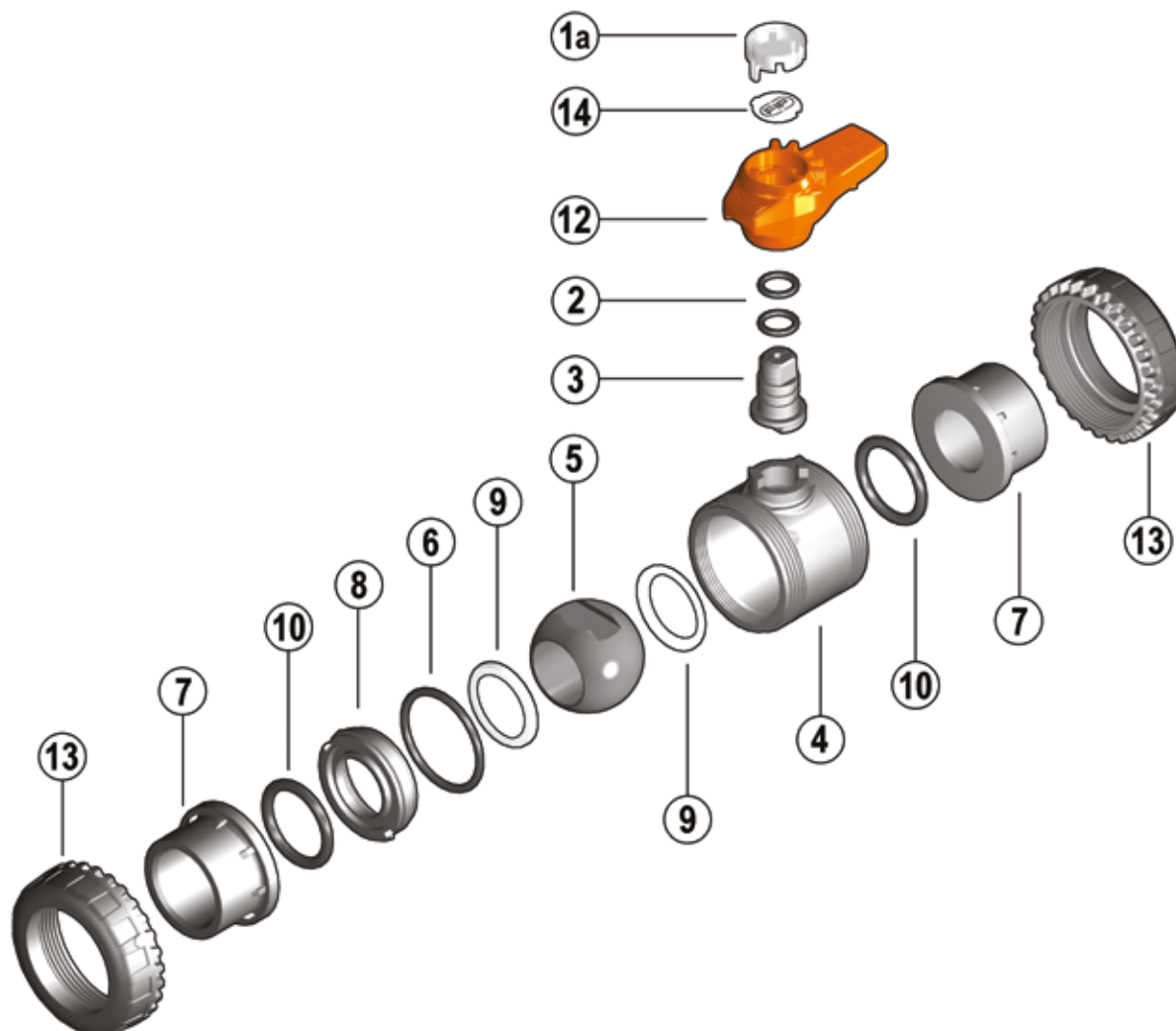


Fig. 3



COMPONENTS

EXPLODED VIEW



1a · Transparent protection plug (PVC - 1)

2 · Stem O-Ring (EPDM - FPM 2)*

3 · Stem (PVC-U - 1)

4 · Body (PVC-U - 1)

5 · Ball (PVC-U - 1)

6 · Radial seal O-Ring (EPDM-FPM - 1)

7 · End connector (PVC-U - 2)

8 · Ball seat carrier (PVC-U - 1)

9 · Ball seat (PTFE - 2)*

10 · Socket seal O-Ring (EPDM-FPM - 2)

12 · Handle (HIPVC - 1)

13 · Union nut (PVC-U - 2)

14 · Tag holder (PVC-U - 1)

* Spare parts

The component material and quantity supplied are indicated in the parentheses.

DISMOUNTING

- 1) Isolate the valve from the line (release the pressure and empty the pipeline).
- 2) Fully unscrew the union nuts (13) from the valve body and slide the body out sideways (fig. 4-5).
To do this, we recommend you use the Easyfit handle as a tool (fig. 8-9)
- 3) Before dismounting, hold the valve in a vertical position and open it 45° to drain any liquid that might remain.
- 4) After closing the valve, remove the handle (12) (fig. 6) and insert the two protrusions in the lower side in the two apertures and in the carrier passage bore (8) extracting it by turning counter-clockwise (fig. 7).
- 5) Press on the ball from the side opposite the "REGULAR" label, being sure not to scratch it, until the ball seat exits (9), then extract the ball (5).
- 6) Press the stem (3) inwards until it exits the body.
- 7) Remove the O-Rings (2, 6, 10) and ball seats (9) extracting them from their seats, as illustrated in the exploded view.

ASSEMBLY

- 1) All the O-Rings (2, 6, 10) must be inserted in their grooves as shown in the exploded view.
- 2) Insert the stem (3) from inside the body (4).
- 3) Place the ball seats (9) in the housings in the body (4) and in the carrier (8).
- 4) Insert the ball (5) rotating it to the closed position.
- 5) Screw the carrier (8) into the body and tighten up in the clockwise direction using the handle (12) to limit stop.
- 6) Position the valve between the end connectors (7) and tighten the union nuts (13) clockwise using the Easyfit multifunctional handle, being sure the socket seal O-Rings (10) do not exit the seats.
- 7) Position the handle (12) on the stem (3).



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

Fig. 4



Fig. 5



Fig. 6



Fig. 7



INSTALLATION

Before proceeding with installation, please follow these instructions carefully:

- 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 from the valve body (4) and slide them onto the pipe.
- 3) Solvent weld or screw the end connectors (7) onto the pipe segments.
- 4) Position the valve body between the end connectors (fig. 5).
Warning: if a high pressure test is required, always position the body with the "REGULAR" label upstream from the fluid direction.
- 5) Fit the union nuts on the valve body and manually tighten clockwise until they become hard to turn; do not use wrenches or other tools that can damage the union nut surfaces.
- 6) Extract the handle (12) from the valve body and extract the transparent plug (1a).
- 7) Overturn the handle and insert it on the valve stem matching the handle teeth (A) with the union nut teeth (B) (fig. 8-9).
- 8) Turn the handle counter-clockwise to fully tighten the union nut. The rotation directions to tighten (TIGHTEN) and loosen (UNTIGHTEN) the union nuts are indicated on the handle (fig. 10). Generally, if pipes are not offset, one turn is sufficient for correct tightening.

9) Repeat point 7 for the other union nut.

Note: A small force applied on the handle develops a torque much higher than manual tightening.

You can also, using the Easytorque kit (fig. 11), supplied as an accessory, tighten union nuts using a torque wrench to quantify the force and thus monitor the stress applied to the thermoplastic threads according to the installation indications in the instructions enclosed with the kit.

10) Apply the plug (1a) on the handle (12) matching the two fittings (one narrow and one wide) with the relevant housings on the handle (fig. 3).

11) Install the handle (12) on the stem (3) again.

12) If necessary, support the pipe with FIP pipe clip model ZIKM and DSM distance plates.

WARNINGS

- If volatile liquid such as Hydrogen Peroxide (H₂O₂) or Sodium Hypochlorite (NaClO) is used, for safety reasons we recommend you contact the service centre. These liquids, upon vaporising, could create hazardous over pressures in the area between the body and ball.
- Do not use compressed air or other gases to test thermoplastic lines.
- Always avoid sudden closing manoeuvres and protect the valve from accidental manoeuvres.

Fig. 8



Fig. 9

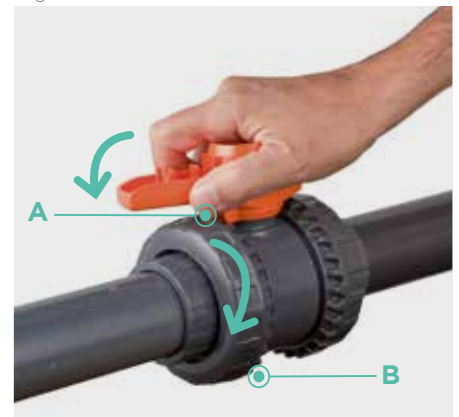


Fig. 10



Fig. 11





VXE DN 65÷100
PVC-U

Easyfit 2-way ball valve

VXE DN 65÷100

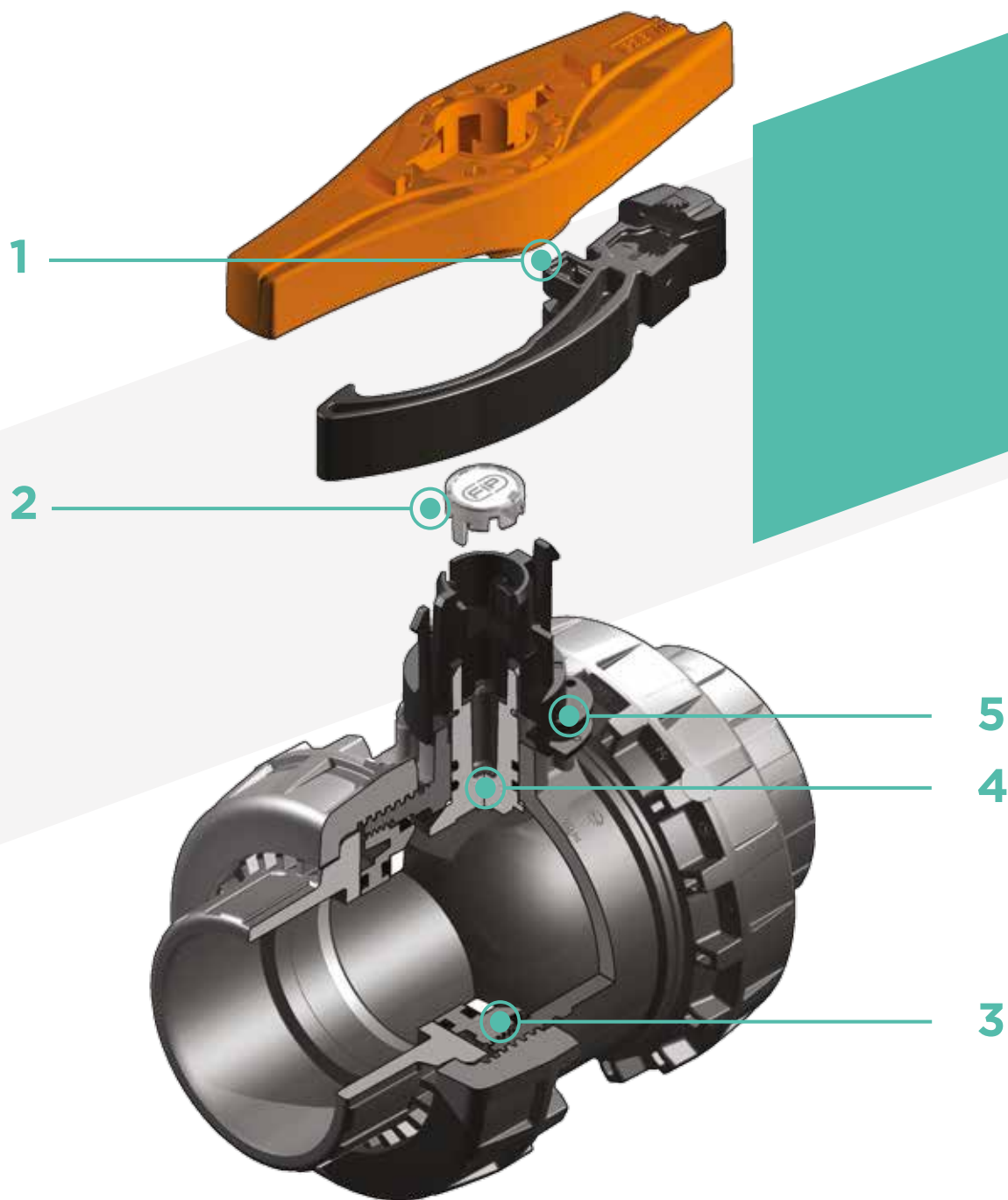
FIP and Giugiaro Design designed and developed VXE Easyfit, the innovative True Union ball valve with union nut tightening control system that permits simple and safe installation for reliable service in time. This valve is also equipped with the customisable Labelling System.



EASYFIT 2-WAY BALL VALVE

- **Patented Easyfit system:** innovative mechanism based on the multifunctional handle quick release mechanism that permits union nut rotation during valve installation and ball carrier adjustment
- Connection system for solvent weld and threaded joints
- **Valve material compatibility** (PVC-U) and elastomer **seal elements** (EPDM or FPM), with water, drinking water and other food substances as per **current regulations**
- Easy radial dismounting allowing quick replacement of O-rings and ball seats without any need for tools
- **PN16 True Union valve body** made for PVC-U injection moulding and European Directive 97/23/EC compliant for PED pressurised equipment. ISO 9393 compliant test requirements
- Valve body with built in anchoring frame for the special **Power Quick module** dedicated to accessory or pneumatic and electric actuator installation
- Option of dismounting downstream pipes with the valve in the closed position
- Floating **full bore ball** with high surface finish made in CNC work stations to achieve precise dimensional tolerance and high surface finish

Technical specifications	
Construction	Easyfit 2-way True Union ball valve with locked carrier
Size range	DN 65 ÷ 100
Nominal pressure	PN 16 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Pipe coupling capacity according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741</p> <p>Thread: ISO 228-1, DIN 2999, ASTM D 2467, JIS B 0203</p>
Reference standards	<p>Construction criteria: EN ISO 16135, EN ISO 1452, EN ISO 15493</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p> <p>Actuator couplings: ISO 5211</p>
Valve material	PVC-U
Seal material	EPDM, FPM (standard size O-Ring); PTFE, PE (ball seats)
Control options	Manual control, electric actuator, pneumatic actuator



1 Innovative Easyfit quick release handle made up of a central hub firmly coupled with the stem valve and **dual spoke grip** that can be released from the hub with a simple operation and used as a **ball seat adjustment tool** and as a **union nut tightening tool** thanks to the hooked insert that, perfectly adapting to their external profile, allows the handle to transform into a wrench to control union nut rotation

2 Customisable Labelling System: built-in LCE module in the hub made up of transparent protection plug and customisable tag holder using the LSE set (available as accessory). The customisation potential lets you **identify the valve on the system** according to specific needs

3 PTFE ball seat system with locked carrier adjustable via the Easyfit quick release handle

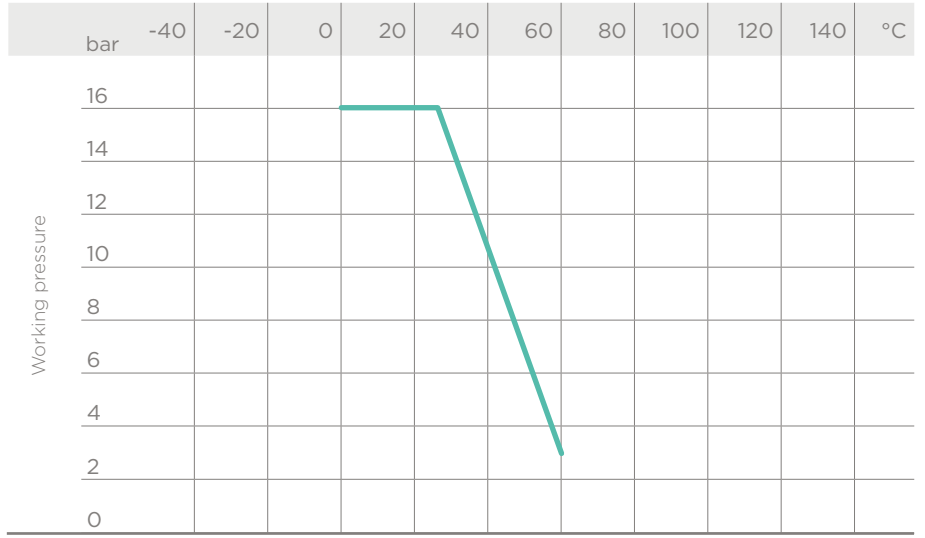
4 Stem with high surface finish and **double O-Ring** and **PTFE anti-friction disk** that limits friction to a minimum and grants excellent operating torque

5 Locking device in closing and opening via lock

TECHNICAL DATA

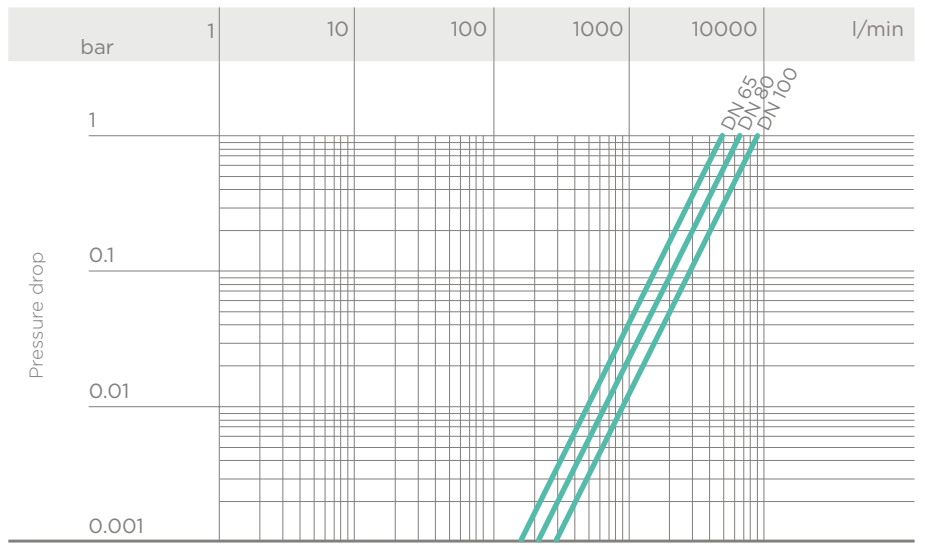
PRESSURE VARIATION ACCORDING TO TEMPERATURE

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



Working temperature

PRESSURE DROP GRAPH



Flow Rate

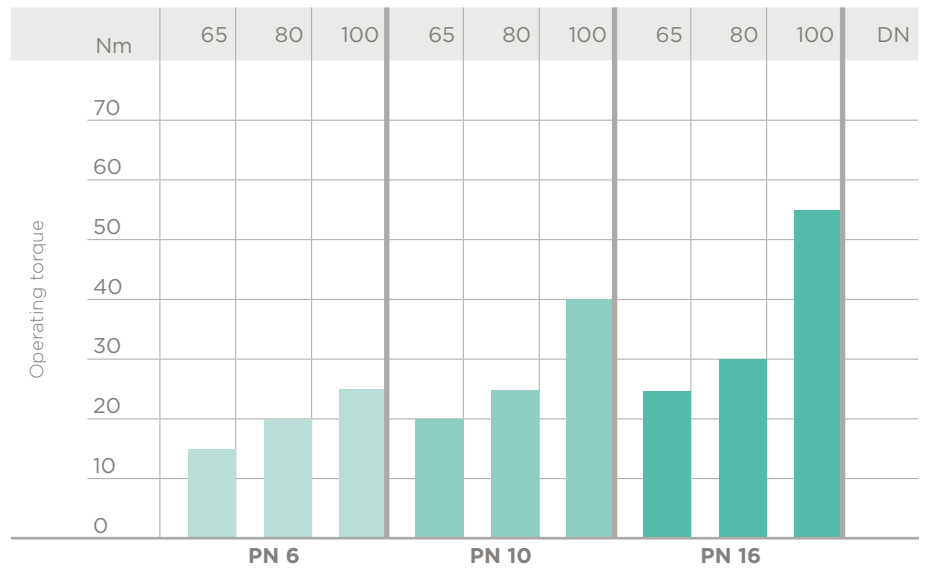
K_v100 FLOW COEFFICIENT

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	65	80	100
K _v 100 l/min	5000	7000	9400

OPERATING TORQUE AT MAXIMUM WORKING RPESSURE



The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

DIMENSIONS



VXEIV

Easyfit 2-way ball valve with female ends for solvent welding, metric series

d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code PTFE - EPDM	Code PTFE - FPM	Code PE - EPDM
75	65	16	142	214	115	157	211	44	123	2750	VXEIV075E	VXEIV075F	VXEIV075M
90	80	16	151	239	126	174	248	51	146	3432	VXEIV090E	VXEIV090F	VXEIV090M
110	100	16	174.5	270	145	212	283	61	161	5814	VXEIV110E	VXEIV110F	VXEIV110M



VXEFV

Easyfit 2-way ball valve with BSP threaded female ends

R	DN	PN	B	C	C ₁	E	H	L	Z	g	Code PTFE - EPDM	Code PTFE - FPM	Code PE - EPDM
2" 1/2	65	16	142	214	115	157	211	30.2	150.6	2750	VXEFV212E	VXEFV212F	VXEFV212M
3"	80	16	151	239	126	174	248	33.3	181.4	3432	VXEFV300E	VXEFV300F	VXEFV300M
4"	100	16	174.5	270	145	212	283	39.3	204.4	5814	VXEFV400E	VXEFV400F	VXEFV400M



VXELV

Easyfit 2-way ball valve with female ends, BS series

d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code PTFE - EPDM	Code PTFE - FPM	Code PE - EPDM
2" 1/2	65	16	142	214	115	157	211	44	123	2750	VXELV212E	VXELV212F	VXELV212M
3"	80	16	151	239	126	174	248	51	146	3432	VXELV300E	VXELV300F	VXELV300M
4"	100	16	174.5	270	145	212	283	63	157	5814	VXELV400E	VXELV400F	VXELV400M



VXEAV

Easyfit 2-way ball valve with female ends, ASTM series

d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code PTFE - EPDM	Code PTFE - FPM	Code PE - EPDM
2" 1/2	65	16	142	214	115	157	211	44.5	122	2750	VXEAV212E	VXEAV212F	VXEAV212M
3"	80	16	151	239	126	174	248	48	152	3432	VXEAV300E	VXEAV300F	VXEAV300M
4"	100	16	174.5	270	145	212	283	57.5	168	5814	VXEAV400E	VXEAV400F	VXEAV400M



VXENV

Easyfit 2-way ball valve with female ends, NPT thread

R	DN	PN	B	C	C ₁	E	H	L	Z	g	Code PTFE - EPDM	Code PTFE - FPM	Code PE - EPDM
2" 1/2	65	16	142	214	115	157	211	33.2	144.6	2750	VXENV212E	VXENV212F	VXENV212M
3"	80	16	151	239	126	174	248	35.5	177	3432	VXENV300E	VXENV300F	VXENV300M
4"	100	16	174.5	270	145	212	283	37.6	207.8	5814	VXENV400E	VXENV400F	VXENV400M



VXEJV

Easyfit 2-way ball valve with female ends, JIS series

d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code PTFE - EPDM	Code PTFE - FPM	Code PE - EPDM
2" 1/2	65	16	142	214	115	157	243	61	121	2750	VXEJV212E	VXEJV212F	VXEJV212M
3"	80	16	151	239	126	174	272	64.5	143	3432	VXEJV300E	VXEJV300F	VXEJV300M
4"	100	16	174.5	270	145	212	332	84	164	5814	VXEJV400E	VXEJV400F	VXEJV400M



VXEGV

Easyfit 2-way ball valve with female ends, JIS thread

R	DN	PN	B	C	C ₁	E	H	L	Z	g	Code PTFE - EPDM	Code PTFE - FPM	Code PE - EPDM
2" 1/2	65	16	142	214	115	157	211	35	141	2750	VXEGV212E	VXEGV212F	VXEGV212M
3"	80	16	151	239	126	174	248	40	168	3432	VXEGV300E	VXEGV300F	VXEGV300M
4"	100	16	174.5	270	145	212	283	45	193	5814	VXEGV400E	VXEGV400F	VXEGV400M

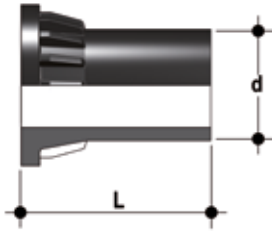


VXEBEV

Easyfit 2-way ball valve with PE100 SDR 11 male connectors for butt welding or electro-fusion (CVDE)

d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code PTFE - EPDM	Code PTFE - FPM	Code PE - EPDM
75	65	16	141.5	214	115	157	331	71	189	2286	VXEBEV075E	VXEBEV075F	VXEBEV075M
90	80	10	151	239	126	174	367	88	191	3059	VXEBEV090E	VXEBEV090F	VXEBEV090M
110	100	10	174.5	270	145	212	407	92	223	5473	VXEBEV110E	VXEBEV110F	VXEBEV110M

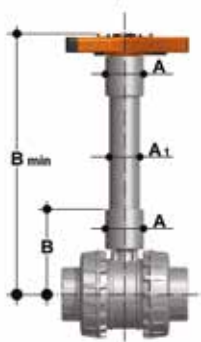
ACCESSORIES



CVDE

Long spigot PE100 end connectors for joints with electrofusion fittings or for butt welding

d	DN	PN	L	SDR	Code
75	65	16	111	11	CVDE11075
90	80	16	118	11	CVDE11090VXE
110	100	16	127	11	CVDE11110VXE



PSE

Stem extension

d	inch	DN	A	A ₁	B	B min	Code ISO pipe	Code ASTM-BS pipe
75	2" 1/2	65	76	63	159	364	PSE090	PSE300
90	3"	80	76	63	166	371	PSE090	PSE300
110	4"	100	76	63	186	433	PSE110	PSE400



LCE

Transparent protection plug with tag holder

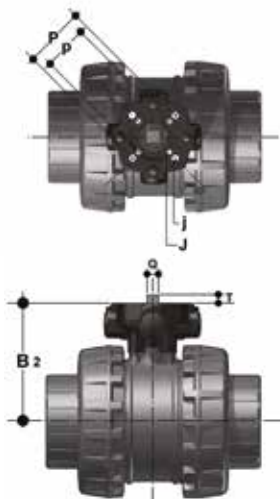
d	DN	Code
75	65	LCE040
90	80	LCE040
110	100	LCE040



LSE

Customisation and label printing set for Easyfit handle made up of pre-cut adhesive sheets and software for guided label creation.

d	DN	Code
75	65	LSE040
90	80	LSE040
110	100	LSE040



POWER QUICK EASYFIT

The valve can be equipped with pneumatic or electric standard actuators and gearbox for heavy-duty operations, using the PP-GR module reproducing the drilling pattern foreseen by ISO 5211.

d	DN	B ₂	Q	T	p x j	P x J	Code
75	65	129	14	16	F05 x 6,5	F07 x 8,5	PQE090
90	80	136	14	16	F05 x 6,5	F07 x 8,5	PQE090
110	100	156	17	19	F05 x 6,5	F07 x 8,5	PQE110

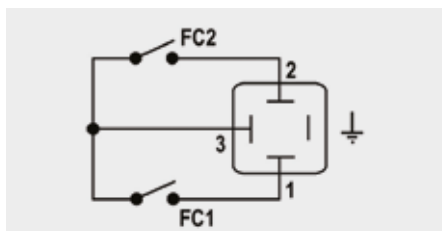


MSE

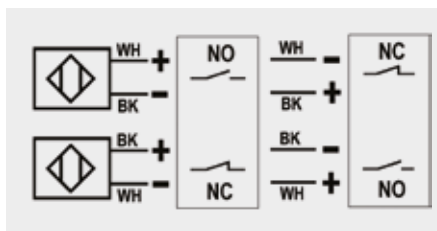
MSE is a limit switch box with electromechanical or inductive micro switches to remotely signal the valve position. Manual valve installation is possible using the Power Quick Easyfit actuation module.

The box can be assembled on the VXE valve even if already installed on the system.

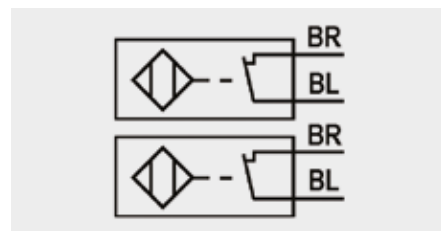
d	DN	A	B	B ₁	Code electromechanical	Code inductive	Code Namur
75	65	139	203	79	MSE1M	MSE1I	MSE1N
90	80	146	210	87	MSE1M	MSE1I	MSE1N
110	100	166	231	106	MSE2M	MSE2I	MSE2N



Electromechanical



Inductive



Namur

WH = white; BK = black; BL = blue; BR = brown

Switch type	Flow Rate	Lifetime [drives]	Operating voltage	Nominal voltage	Working pressure	Voltage drop	No-load supply current	Protection rate
Electromechanical	250 V - 5 A	3 x 10 ⁷	-	-	-	-	-	IP65
Inductive	-	-	5 ÷ 36 V	-	4 ÷ 200 mA	< 4,6 V	< 0,8 mA	IP65
Namur*	-	-	7,5 ÷ 30 V DC**	8,2 V DC	< 30 mA**	-	-	IP65

* To be used with an amplifier

** Outside areas with explosion risks

CUSTOMISATION

The VXE DN 65÷100 Easyfit valve is equipped with the customisable Labelling System.

This system lets you create special labels to insert in the handle. This makes it extremely easy to apply company logos, identification serial numbers or service indications such as, for example, the valve function in the system, the transported fluid, but also specific information for customer service, such as the customer name or installation date or location on the valves.

The specific LCE module is a standard supply and is made up of a rigid transparent water-resistant PVC plug (A) and white tag holder (B) made of the same material, one side of which bears the FIP logo (fig. 1).

The holder, inserted in the plug, can be removed and, once overturned, used for customisation by applying labels printed with the software supplied with the LSE set.

Proceed as follows to apply the label on the valve:

- 1) Release the handle from the central hub (C) and extract the transparent plug.
- 2) Extract the tag holder from the transparent plug (fig. 2).
- 3) Apply the adhesive label on the tag holder to align the profiles matching the tab position.
- 4) Re-insert the tag holder in the transparent plug so that the label is protected from the elements.
- 5) Apply the transparent plug on the central hub matching the two fittings (one narrow and one wide) with the relevant housings.

Fig. 1

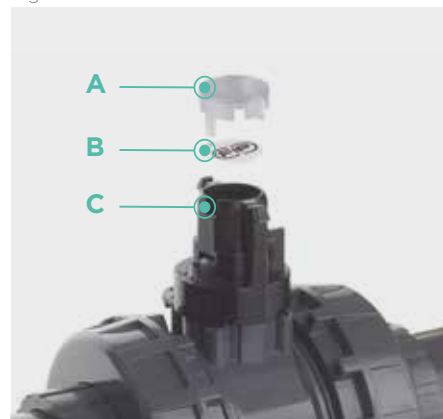
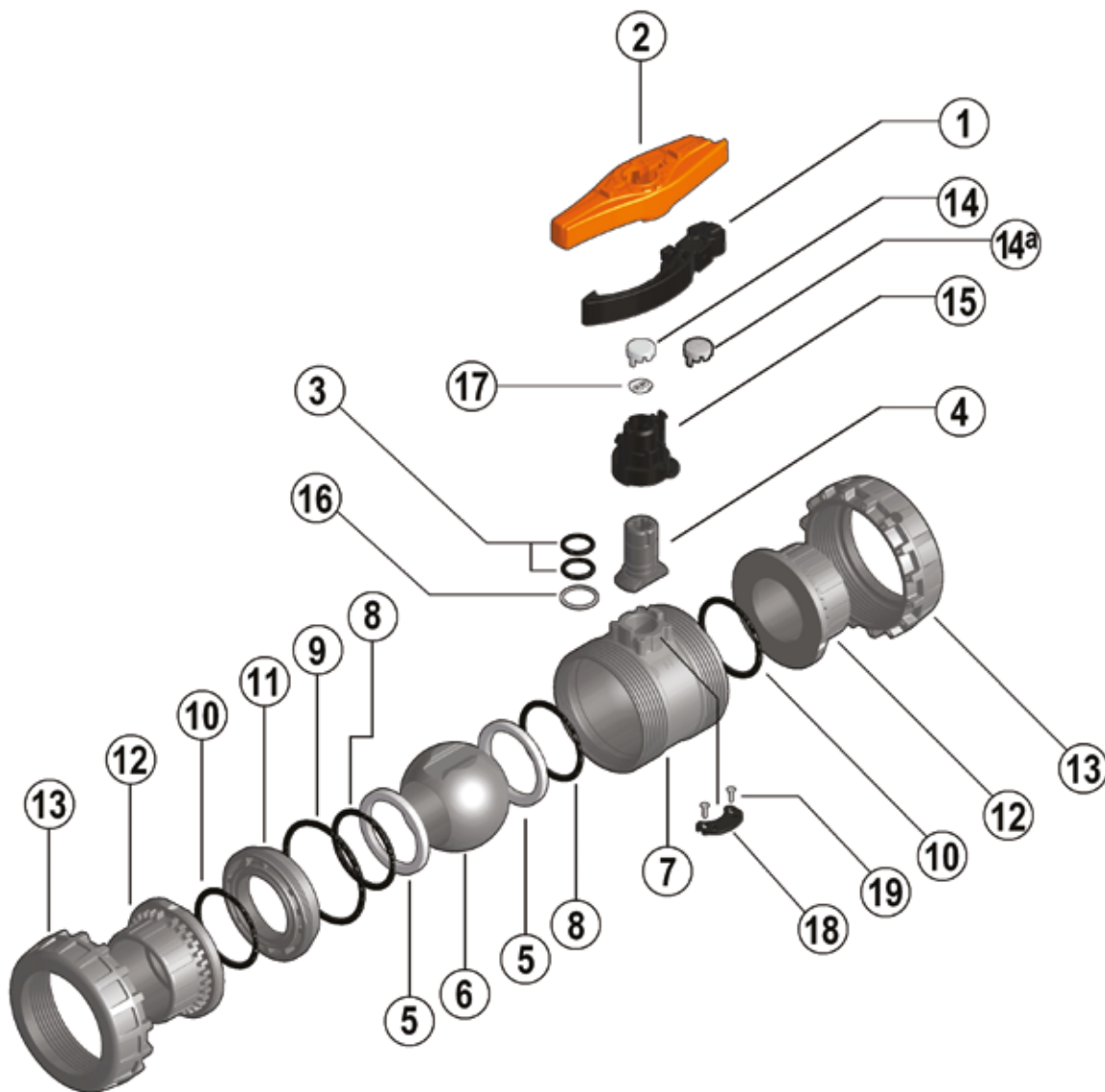


Fig. 2



COMPONENTS

EXPLODED VIEW



- 1 · Hooked Easyfit multifunctional handle insert (PP-GR - 1)
- 2 · Easyfit multifunctional handle (HIPVC - 1)
- 3 · Stem O-Ring (FPM, EPDM** - 2)*
- 4 · Stem (PVC-U - 1)
- 5 · Ball seat (PTFE, PE** - 2)*
- 6 · Ball (PVC-U - 1)*

- 7 · Body (PVC-U - 1)
- 8 · Ball seat O-Ring (FPM, EPDM** - 2)*
- 9 · Radial seal O-Ring (FPM, EPDM** - 1)*
- 10 · Socket seal O-Ring (FPM, EPDM** - 2)*
- 11 · Ball seat carrier (PVC-U - 1)
- 12 · End connector (PVC-U - 2)
- 13 · Union nut (PVC-U - 2)

- 14 · Transparent protection plug (PVC - 1)
- 14a · Grey protection plug for VXE-PE version (PVC - 1)
- 15 · Central hub (HIPVC - 1)
- 16 · Anti-friction disk (PTFE - 1)*
- 17 · Tag holder (PVC-U - 1)
- 18 · Locking device plate (HIPVC - 1)
- 19 · Self-tapping screw (STAINLESS steel - 2)

* Spare parts

** For the VXE-PE version: EPDM O-ring (3, 8, 9, 10), PE ball seat (5)

The component material and quantity supplied are indicated in the parentheses.

DISMOUNTING

- 1) Isolate the valve from the line (release the pressure and empty the pipeline).
- 2) Extract the Easyfit multifunctional handle from the central hub pressing on the centre of the hub hinges (fig. 5) and use it as a wrench to fully unscrew the union nuts (13) from the valve body and slide the body out sideways (fig. 5).
- 3) Reposition the handle on the central hub.
- 4) Before dismounting, hold the valve in a vertical position and open it 45° to drain any liquid that might remain.
- 5) Open the valve.
- 6) Remove the ball seat carrier (11) using the Easyfit quick release handle. Insert the two protrusions at the top of the handle in the seat carriers (11) and unscrew, extracting it by turning counter-clockwise (fig. 6).
- 7) Press on the ball from the side opposite the "REGULAR" label, being sure not to scratch it, until the ball seat exits (5), then extract the ball (6).
- 8) Remove the central hub (15) firmly sliding it off the stem (4). Press the stem inwards and extract it from the body and remove the anti-friction disk (16).
- 9) Remove the O-Ring (3, 8, 9, 10) and ball seats (5) extracting them from their seats, as illustrated in the exploded view.

ASSEMBLY

- 1) All the O-rings (3, 8, 9, 10) must be inserted in their grooves as shown in the exploded view.
- 2) Place the anti-friction disk (16) on the stem (4) and insert it in the body (7).
- 3) Place the ball seats (5) in the housings in the body (7) and in the carrier (11).
- 4) Insert the ball (6) rotating it to the closed position.
- 5) Screw the carrier (11) into the body and tighten up in the clockwise direction using the handle (2) to limit stop.
- 6) Place the central hub (15) on the stem (4) firmly pressing down to match the internal hub key with one of the two seats on the stem.
- 7) Position the valve between the end connectors (12) and tighten the union nuts clockwise (13) using the Easyfit multifunctional handle (fig. 9) and being sure the socket seal O-rings (10) do not exit the seats.
- 8) Re-insert the hooked insert (1) in the housing on the handle (2).
- 9) Reposition the handle on the central hub making sure the two grooves in the central handle bore match the two grooves on the side of the hub and slightly press down until the two hinges click.



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

INSTALLATION

Before proceeding with installation, please follow these instructions carefully:

- 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 (13) from the body (7) and insert them in the pipe segments.
- 3) Solvent weld or screw the end connectors (12) onto the pipe segments.
- 4) Position the valve body between the end connectors.
Warning: if a high pressure test is required, always position the body with the "REGULAR" label upstream from the fluid direction.
- 5) Place the union nuts on the valve body and start tightening manually clockwise until they are hard to turn. To complete tightening, extract the Easyfit quick release multifunctional handle (2) pushing on the centre of the central hub hinges (15) (fig. 3 and 4)

Fig. 3



Fig. 4



Fig. 5



Fig. 6



- 6) Extract the hooked insert (1) in the handle (fig. 7) overturn it and fit it in the seat on the lower part of the handle (fig. 8).
- 7) Fit the tool (fig. 8) on the external union nut profile until firmly and safely secured, allowing for adequate torque without damaging the union nut in any way (fig. 9).
- 8) Repeat point 7 for the other union nut.
- 9) When tightened, remove the hooked insert and replace it in its seat in the handle.
- 10) Reposition the handle on the central hub making sure the two grooves in the central handle bore match the two grooves on the side of the hub and slightly press down until the two hinges click.
- 11) If necessary, support the pipe with FIP pipe clip model ZIKM and DSM distance plates.

The VXE valve is equipped with a locking device to protect the system against tampering (fig. 10).

WARNINGS

- If volatile liquid such as Hydrogen Peroxide (H₂O₂) or Sodium Hypochlorite (NaClO) are used, for safety reasons we recommend you contact the service centre. These liquids, upon vaporising, could create hazardous over pressures in the area between the body and ball.
- Always avoid sudden closing manoeuvres and protect the valve from accidental manoeuvres.

Fig. 7



Fig. 8



Fig. 9



Fig. 10





VEE DN 10÷50
PVC-U

Easyfit 2-way ball valve

VEE DN 10÷50

FIP and Giugiaro Design designed and developed VEE Easyfit, the innovative True Union ball valve with union nut tightening control, that permits simple and safe installation for reliable service in time.

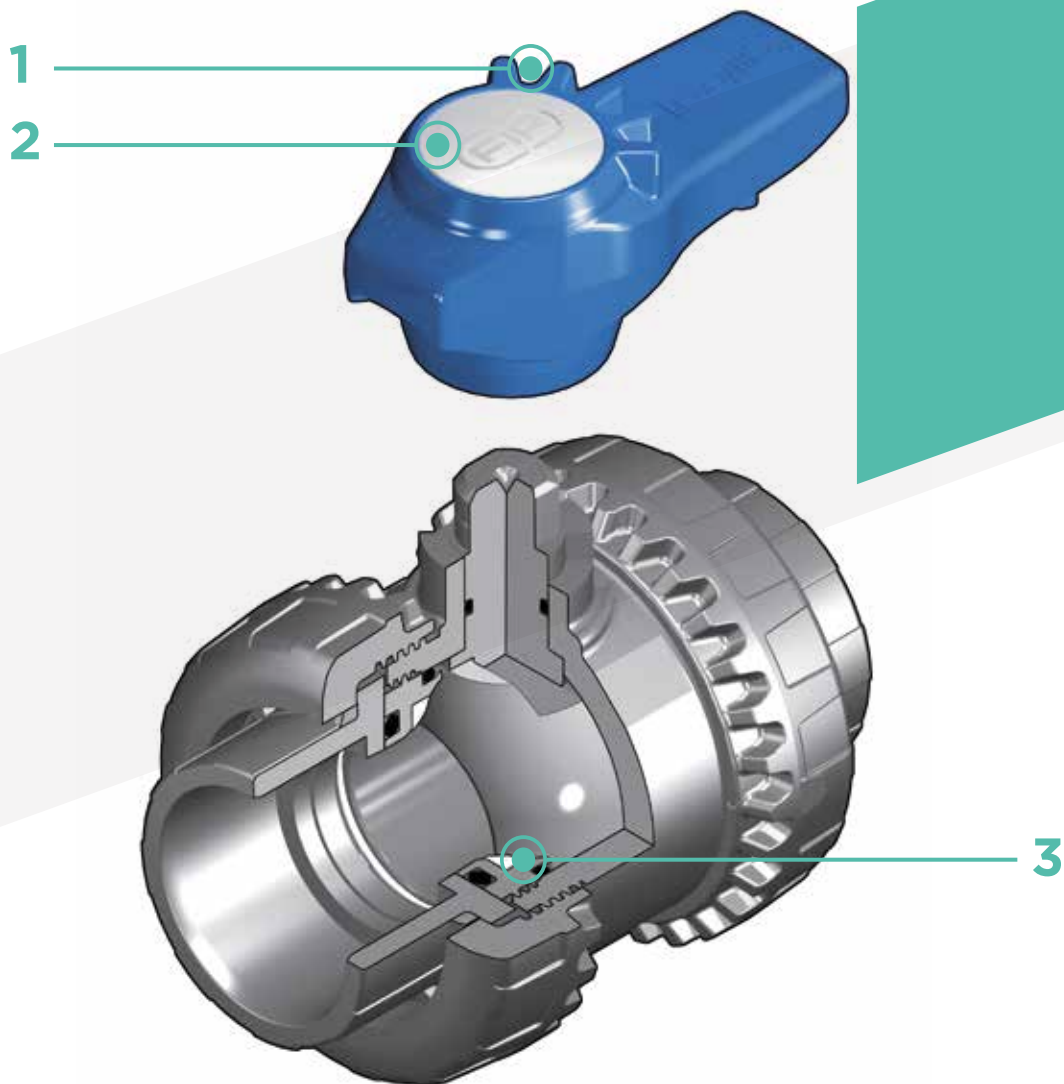


EASYFIT 2-WAY BALL VALVE

- **Patented Easyfit system:** innovative mechanism based on the principle of the bevel gear pair that controls valve union nut rotation during installation.
- Connection system for solvent weld and threaded joints
- **Valve material compatibility** (PVC-U) with water, drinking water and other food substance conveyance according to **current regulations**
- Easy radial dismounting allowing quick replacement of O-rings and ball seats without any need for tools
- **PN16 True Union valve body** made for PVC-U injection moulding and European Directive 97/23/EC compliant for PED pressurised equipment. ISO 9393 compliant test requirements
- **Short face to face dimension** according to international regulation ISO 7508 series III and European regulation EN 1452 "short" and fully interchangeable with previous VE series models
- Option of dismounting downstream pipes with the valve in the closed position
- Floating **full bore ball** with high surface finish made in CNC work stations to achieve precise dimensional tolerance and high surface finish

Technical specifications

Construction	Easyfit 2-way True Union ball valve with locked carrier
Size range	DN 10 ÷ 50
Nominal pressure	PN 16 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Pipe coupling capacity according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741</p> <p>Thread: ISO 228-1, DIN 2999, ASTM D 2467, JIS B 0203.</p>
Reference standards	<p>Construction criteria: EN ISO 16135, EN ISO 1452, EN ISO 15493</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p> <p>Actuator couplings: ISO 5211</p>
Valve material	PVC-U
Seal material	EPDM (standard size O-Ring); PE (ball seats)
Control options	Manual control



1 Two position **Easyfit ergonomic multifunctional handle with union nut tightening control which can be used to adjust ball seat carriers**. Handle use is especially indicated for **maintenance** work where **space is limited** and hard to access

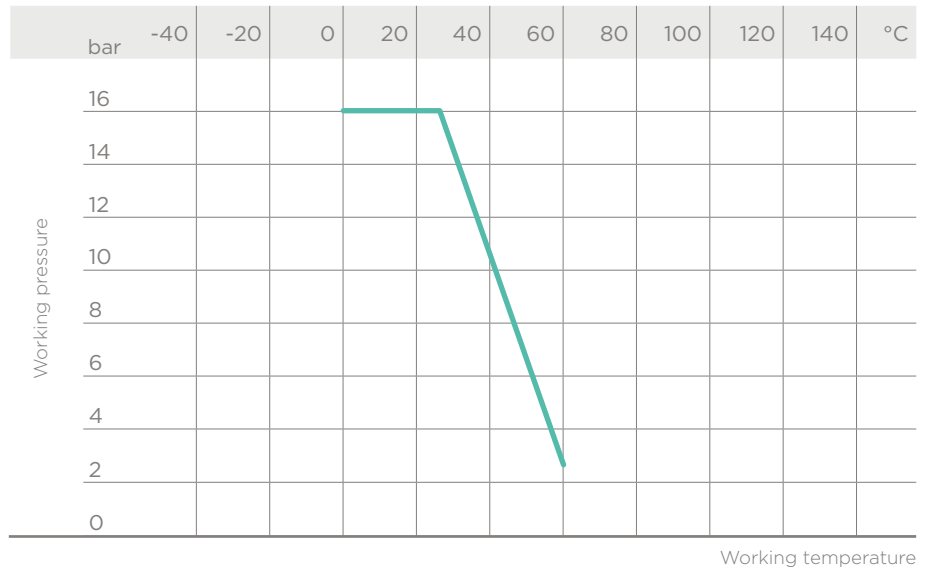
2 Settings for the customisable Labelling System using the LCE module (available as an accessory). The grey protection plug housed on the handle can be replaced with the transparent plug and customisable tag holder with the LSE set (available as an accessory). The **customisation** lets you **identify the valve on the system** according to specific needs

3 **The PE ball seat system with locked carrier** adjustable via Easyfit multifunctional handle or Easytorque adjustment kit (available as an accessory)

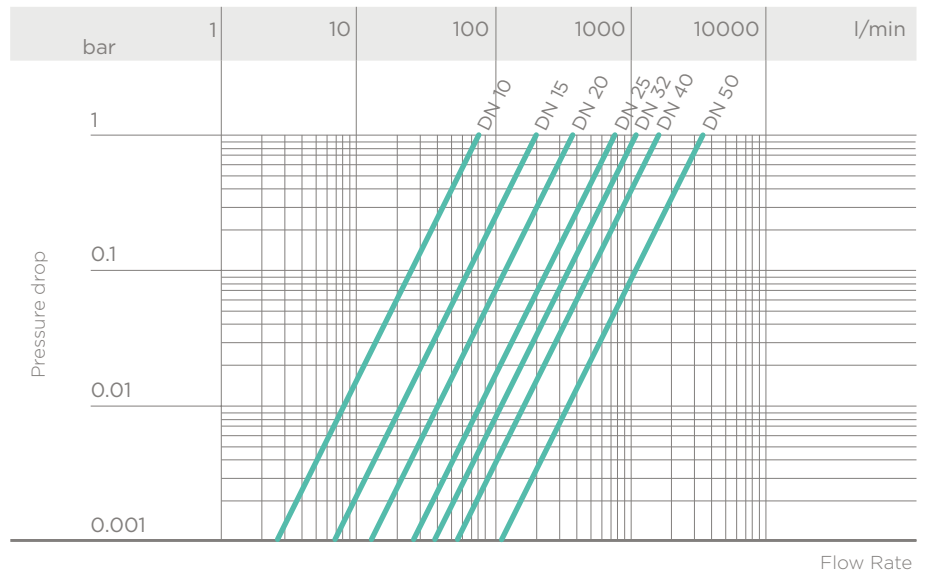
TECHNICAL DATA

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 PN pressure is required (25 years with safety factor).



PRESSURE DROP GRAPH



K_v100 FLOW COEFFICIENT

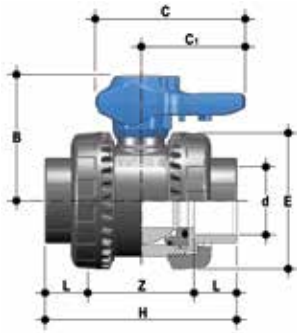
The K_v100 flow coefficient is the Q flow rate of litres per minute of water at a temperature of 20°C that will generate Δp= 1 bar pressure drop at a certain valve position.

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

DN	10	15	20	25	32	40	50
K _v 100 l/min	80	200	385	770	1100	1750	3400

The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

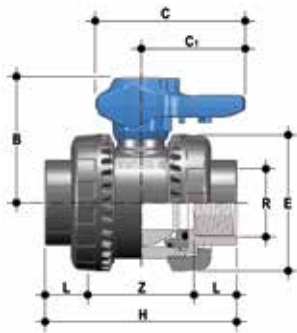
DIMENSIONS



VEEIV

Easyfit 2-way ball valve with female ends for solvent welding, metric series

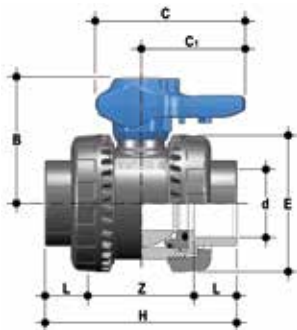
d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
16	10	16	49	64	44	54	82	14	54	180	VEEIV016E
20	15	16	49	64	44	54	82	16	50	175	VEEIV020E
25	20	16	62	78	55	63	91	19	53	260	VEEIV025E
32	25	16	71	87	60	72	103	22	59	365	VEEIV032E
40	32	16	82	102	72	85	120	26	68	565	VEEIV040E
50	40	16	92	109	76	100	139	31	77	795	VEEIV050E
63	50	16	110	133	94	118	174	38	98	1325	VEEIV063E



VEEFV

Easyfit 2-way ball valve with BSP threaded female ends

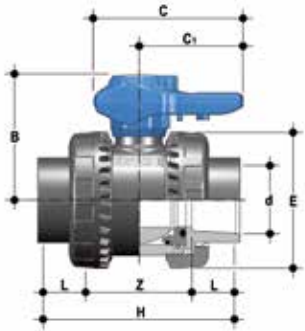
R	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
3/8"	10	16	49	64	44	54	82	11.4	59.2	180	VEEFV038E
1/2"	15	16	49	64	44	54	90	15	60	175	VEEFV012E
3/4"	20	16	62	78	55	63	93	16.3	60.4	260	VEEFV034E
1"	25	16	71	87	60	72	110	19.1	71.8	365	VEEFV100E
1" 1/4	32	16	82	102	72	85	127	21.4	84.2	565	VEEFV114E
1" 1/2	40	16	92	109	76	100	131	21.4	88.2	795	VEEFV112E
2"	50	16	110	133	94	118	161	25.7	109.6	1325	VEEFV200E



VEELV

Easyfit 2-way ball valve with female ends for solvent welding, BS series

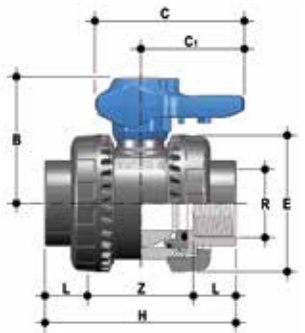
d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
1/2"	15	16	49	64	44	54	82	16.5	49	175	VEELV012E
3/4"	20	16	62	78	55	63	91	19	53	260	VEELV034E
1"	25	16	71	87	60	72	103	22.5	58	365	VEELV100E
1" 1/4	32	16	82	102	72	85	120	26	68	565	VEELV114E
1" 1/2	40	16	92	109	76	100	139	30	79	795	VEELV112E
2"	50	16	110	133	94	118	174	36	102	1325	VEELV200E



VEEAV

Easyfit 2-way ball valve with female ends for solvent welding, ASTM series

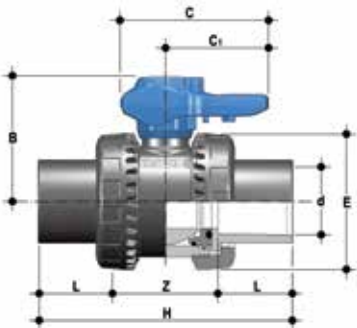
d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
1/2"	15	16	49	64	44	54	96	22.5	51	175	VEEAV012E
3/4"	20	16	62	78	55	63	105	25.5	54	260	VEEAV034E
1"	25	16	71	87	60	72	117	28.7	59.5	365	VEEAV100E
1" 1/4	32	16	82	102	72	85	136	32	72	565	VEEAV114E
1" 1/2	40	16	92	109	76	100	147	35	77	795	VEEAV112E
2"	50	16	110	133	94	118	174	38.2	97.6	1325	VEEAV200E



VEENV

Easyfit 2-way ball valve with female ends, NPT thread

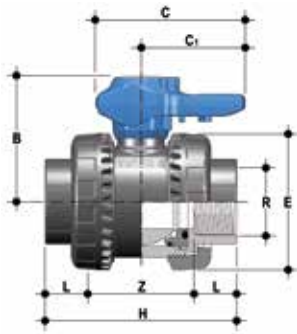
R	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
3/8"	10	16	49	64	44	54	82	13.7	54.6	180	VEENV038E
1/2"	15	16	49	64	44	54	90	17.8	54.4	175	VEENV012E
3/4"	20	16	62	78	55	63	93	18	57	260	VEENV034E
1"	25	16	71	87	60	72	110	22.6	64.8	365	VEENV100E
1" 1/4	32	16	82	102	72	85	127	25.1	76.8	565	VEENV114E
1" 1/2	40	16	92	109	76	100	131	24.7	81.6	795	VEENV112E
2"	50	16	110	133	94	118	161	29.6	101.8	1325	VEENV200E



VEEJV

Easyfit 2-way ball valve with female ends for solvent welding, JIS series

d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
1/2"	15	16	49	64	44	54	110	30	50	195	VEEJV012E
3/4"	20	16	62	78	55	63	123	35	53	285	VEEJV034E
1"	25	16	71	87	60	72	139	40	59	395	VEEJV100E
1" 1/4	32	16	82	102	72	85	156	44	68	600	VEEJV114E
1" 1/2	40	16	92	109	76	100	187	55	77	835	VEEJV112E
2"	50	16	110	133	94	118	228	63	102	1375	VEEJV200E

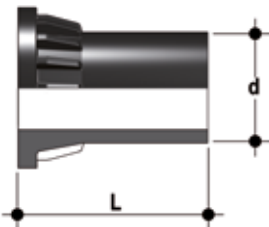


VEEGV

Easyfit 2-way ball valve with female ends, JIS thread

R	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
1/2"	15	16	49	64	44	54	82	16	50	175	VEEGV012E
3/4"	20	16	62	78	55	63	91	19	53	260	VEEGV034E
1"	25	16	71	87	60	72	103	22	59	365	VEEGV100E
1" 1/4	32	16	82	102	72	85	120	25	70	565	VEEGV114E
1" 1/2	40	16	92	109	76	100	139	26	87	795	VEEGV112E
2"	50	16	110	133	94	118	174	31	112	1325	VEEGV200E

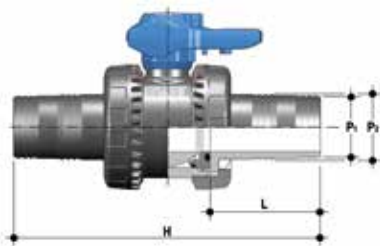
ACCESSORIES



CVDE

Long spigot PE100 end connectors for joints with electrofusion fittings or for butt welding

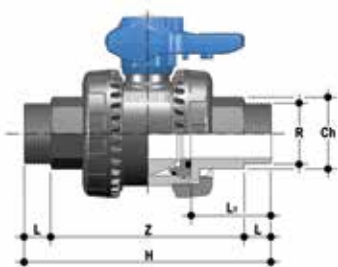
d	DN	PN	L	SDR	Code
20	15	16	55	11	CVDE11020
25	20	16	70	11	CVDE11025
32	25	16	74	11	CVDE11032
40	32	16	78	11	CVDE11040
52	40	16	84	11	CVDE11050
63	50	16	91	11	CVDE11063



CVPV

Hose adaptor for ball valves

DN	PN	H	P ₁	P ₂	g	Code
40	16	246	50	52	840	CVPV050
50	16	273	60	64	1350	CVPV063



CVRV

Threaded male end connectors for ball valves

DN	R	PN	CH	H	L	LT	Z	g	Code
40	1" 1/2	16	52	196	21.4	63.4	153.2	795	CVRV112
50	2"	16	62	226	25.7	69.2	174.6	1325	CVRV200



EASYTORQUE KIT

Kit for union nut tightening adjustment and ball seat carrier for Easyfit DN 10÷50 valves.

d	DN	*Union nut tightening torque	*Seat carrier tightening torque	Code
3/8"-1/2"	10-15	5 N m - 3,69 Lbf ft	3 N m - 2,21 Lbf ft	KET01
3/4"	20	5 N m - 3,69 Lbf ft	3 N m - 2,21 Lbf ft	KET01
1"	25	6 N m - 4,43 Lbf ft	4 N m - 2,95 Lbf ft	KET01
1" 1/4	32	7 N m - 5,16 Lbf ft	4 N m - 2,95 Lbf ft	KET01
1" 1/2	40	8 N m - 5,90 Lbf ft	5 N m - 3,69 Lbf ft	KET01
2"	50	10 N m - 7,38 Lbf ft	6 N m - 4,43 Lbf ft	KET01

*calculated in ideal installation conditions



LCE

Transparent protection plug with tag holder

d	DN	Code
16	10	LCE020
20	15	LCE020
25	20	LCE025
32	25	LCE032
40	32	LCE040
50	40	LCE050
63	50	LCE063



LSE

Customisation and label printing set for Easyfit handle made up of precut adhesive sheets and software for guided label creation.

d	DN	Code
16	10	LSE020
20	15	LSE020
25	20	LSE025
32	25	LSE032
40	32	LSE040
50	40	LSE050
63	50	LSE063

CUSTOMISATION

The Easyfit VEE DN 10+50 valve is set for the customisable Labelling System.

This system lets you create special labels to insert in the handle. This makes it extremely easy to apply company logos, identification serial numbers or service indications such as, for example, the valve function in the system, the transported fluid, but also specific information for customer service, such as the customer name or installation date or location on the valves.

The grey protection plug (A) housed on the handle can be replaced with the specific LCE accessory module.

This module is made up of a rigid transparent water-resistant PVC plug (B) and white tag holder (C) made of the same material, one side of which bears the FIP logo (fig. 2).

The holder, inserted in the plug, can be removed and, once overturned, used for customisation by applying labels printed with the software supplied with the LSE set.

Proceed as follows to apply the label on the valve:

- 1) Extract the handle from the valve body and extract its grey plug (fig. 1)
- 2) Apply the adhesive label on tag holder included in the LCE set to align the profiles matching the tab position.
- 3) Insert tag holder in the transparent plug so that the label is protected from the elements.
- 4) Apply the transparent plug on the handle matching the two fittings (one narrow and one wide) with their housings (fig. 3).

Fig. 1



Fig. 2



Fig. 3

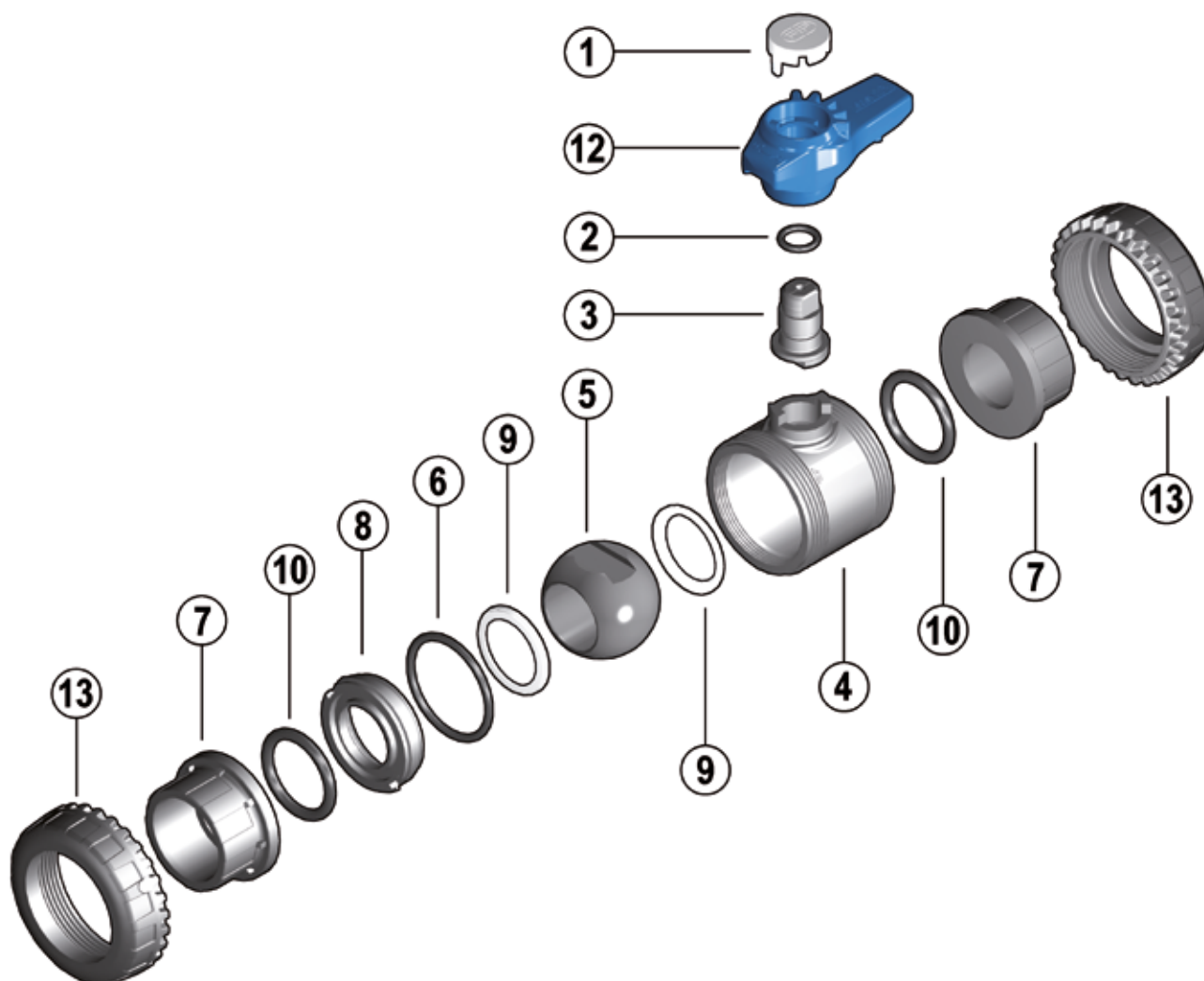


Fig. 4



COMPONENTS

EXPLODED VIEW



1 · Handle plug (PVC-U - 1)

2 · Stem O-Ring
(EPDM - 2)*

3 · Stem (PVC-U - 1)

4 · Body (PVC-U - 1)

5 · Ball (PVC-U - 1)

6 · Radial seal O-Ring
(EPDM - 1)*

7 · End connector (PVC-U - 2)

8 · Ball seat carrier
(PVC-U - 1)

9 · Ball seat
(PE - 2)

10 · Socket seal O-Ring
(EPDM - 2)*

12 · Handle (HIPVC - 1)

13 · Union nut (PVC-U - 2)

* Spare parts

The component material and quantity supplied are indicated in the parentheses.

DISMOUNTING

- 1) Isolate the valve from the line (release the pressure and empty the pipeline).
- 2) Fully unscrew the union nuts (13) from the valve body and slide the body out sideways (fig. 5-6).
To do this, we recommend you use the Easyfit handle as a tool (fig. 9-10)
- 3) Before dismounting, hold the valve in a vertical position and open it 45° to drain any liquid that might remain.
- 4) After closing the valve, remove the handle (12) (fig. 7) and insert the two protrusions in the lower side in the two apertures and in the carrier passage bore (8), extracting it by turning counter-clockwise (fig. 8).
- 5) Press on the ball from the side opposite the "REGULAR" label, being sure not to scratch it, until the ball seat carrier exits (8), then extract the ball (5).
- 6) Press the stem (3) inwards until it exits the body.
- 7) Remove the O-Rings (2, 6, 10) and ball seats (9) extracting them from their seats, as illustrated in the exploded view.

ASSEMBLY

- 1) All the O-Rings (2, 6, 10) must be inserted in their grooves as shown in the exploded view.
- 2) Insert the stem (3) from inside the body (4).
- 3) Place the ball seats (9) in the housings in the body (4) and in the carrier (8).
- 4) Insert the ball (5) rotating it to the closed position.
- 5) Screw the carrier (8) into the body and tighten up in the clockwise direction using the handle (12) to limit stop.
- 6) Position the valve between the end connectors (7) and tighten the union nuts (13) clockwise using the Easyfit multi-functional handle, being sure the socket seal O-Rings (10) do not exit the seats.
- 7) Position the handle (12) on the stem (3).



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

Fig. 5



Fig. 6



Fig. 7



Fig. 8



INSTALLATION

Before proceeding with installation, please follow these instructions carefully:

- 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 (13) and slide them onto the pipe.
- 3) Solvent weld or screw the end connectors (7) onto the pipe segments.
- 4) Position the valve between the end connectors (fig. 6).
Warning: if a high pressure test is required, always position the body with the "REGULAR" label upstream from the fluid direction.
- 5) Fit the union nuts on the valve body and manually tighten clockwise until they become hard to turn; do not use wrenches or other tools that can damage the union nut surfaces.
- 6) Extract the handle (12) from the valve body and extract its grey plug (1) (fig. 2)
- 7) Overturn the handle and insert in on the valve stem matching the handle teeth (A) with the union nut teeth (B) (fig. 9-10).
- 8) Turn the handle counter-clockwise to fully tighten the union nut. The rotation directions to tighten (TIGHTEN) and loosen (UNTIGHTEN) the union nuts are indicated on the handle (fig. 11). Generally, if pipes are not offset, one turn is sufficient for correct tightening.

9) Repeat point 7 for the other union nut.

Note: A small force applied on the handle develops a torque much higher than manual tightening.

You can also, using the Easytorque kit (fig. 12), supplied as an accessory, tighten union nuts using a torque wrench to quantify the force and thus monitor the stress applied to the thermoplastic threads according to the installation indications in the instructions enclosed with the kit.

10) Apply the plug (1) on the handle (12) matching the two fittings (one narrow and one wide) with the relevant housings on the handle (fig. 3).

11) Install the handle (12) on the stem (3) again.

12) If necessary, support the pipe with FIP pipe clip model ZIKM and DSM distance plates.

WARNINGS

- If volatile liquid such as Hydrogen Peroxide (H₂O₂) or Sodium Hypochlorite (NaClO) is used, for safety reasons we recommend you contact the service centre. These liquids, upon vaporising, could create hazardous over pressures in the area between the body and ball.
- Do not use compressed air or other gases to test thermoplastic lines.
- Always avoid sudden closing manoeuvres and protect the valve from accidental manoeuvres.

Fig. 9



Fig. 10

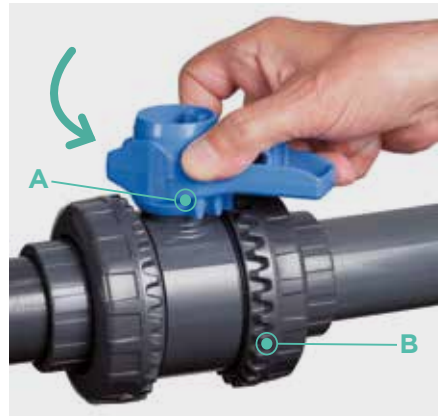


Fig. 11

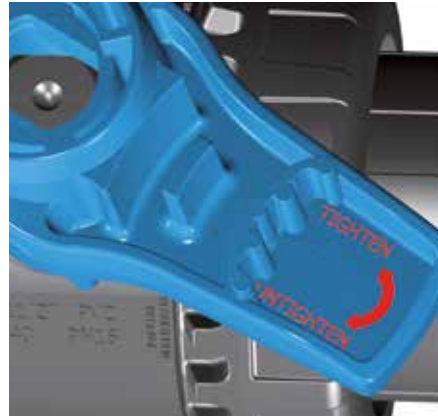


Fig. 12





VEE DN 65÷100
PVC-U

Easyfit 2-way ball valve

VEE DN 65÷100

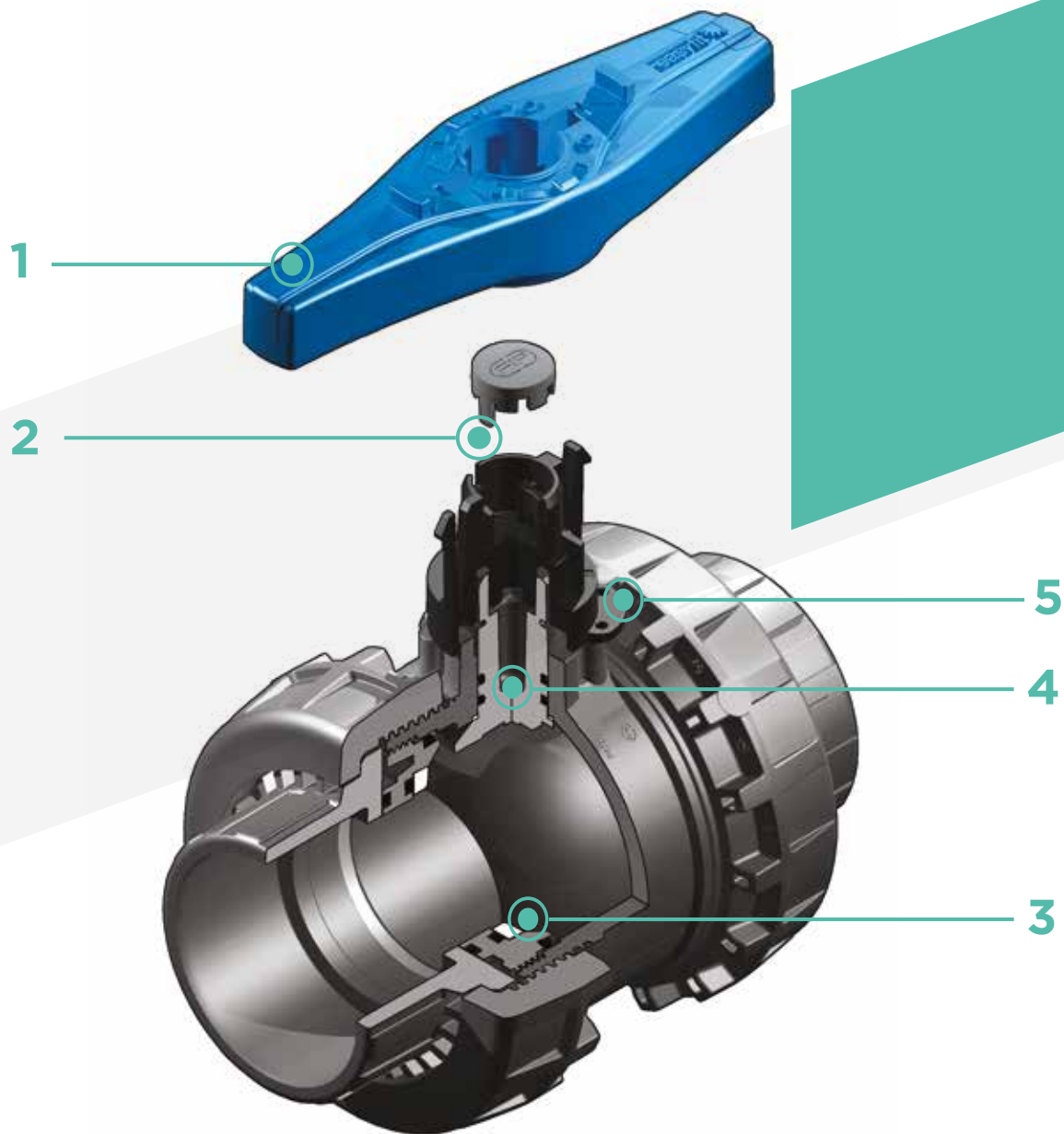
FIP and Giugiaro Design designed and developed VEE Easyfit, the innovative True Union ball valve that permits simple and safe installation for reliable service over time.



EASYFIT 2-WAY BALL VALVE

- **Patented Easyfit system:** innovative mechanism that lets you use the quick release handle to adjust the ball carrier
- Connection system for solvent weld and threaded joints
- **Valve material compatibility** (PVC-U) with water, drinking ware and other food substances according to **current regulations**
- Easy radial dismounting allowing quick replacement of O-rings and ball seats without any need for tools
- **PN16 True Union valve body** made for PVC-U injection moulding and European Directive 97/23/EC compliant for PED pressurised equipment. ISO 9393 compliant test requirements
- Valve body with built-in anchoring frame for the special **Power Quick Easyfit module** dedicated to the installation of pneumatic and electric actuators or accessories
- Option of dismounting downstream pipes with the valve in the closed position
- Floating **full bore ball** with high surface finish made in CNC work stations to achieve precise dimensional tolerance and high surface finish

Technical specifications	
Construction	Easyfit 2-way True Union ball valve with locked carrier
Size range	DN 65 ÷ 100
Nominal pressure	PN 16 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346/1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Pipe coupling capacity according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741</p> <p>Thread: ISO 228-1, DIN 2999, ASTM D 2467, JIS B 0203</p>
Reference standards	<p>Construction criteria: EN ISO 16135, EN ISO 1452, EN ISO 15493</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p> <p>Actuator couplings: ISO 5211</p>
Valve material	PVC-U
Seal material	EPDM (standard size O-Ring); PE (ball seats)
Control options	Manual control



1 Innovative quick release Easyfit handle made up of a central hub firmly coupled with the stem by a **dual spoke grip** that can be released from the hub with a simple operation and used as a **ball seat adjustment tool**

2 Settings for the customisable Labelling System using the LCE module (available as an accessory). The grey protection plug housed on the central hub can be replaced with the transparent plug and customisable tag holder with

the LSE set (available as an accessory). The **customisation lets you identify the valve on the system** according to specific needs

3 PE seal system with locked carrier adjustable via the Easyfit quick release handle

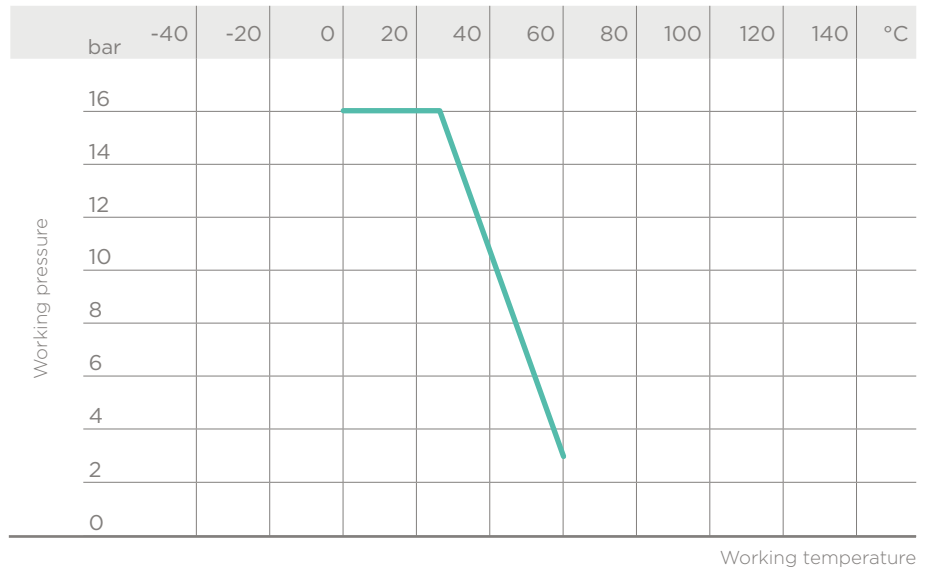
4 Stem with high surface finish and **double O-Ring and PTFE anti-friction disk** that limits friction to a minimum and grants excellent operating torque

5 Valve body set for SHE kit installation (available as an accessory) that blocks the closing and opening manoeuvres with a lock

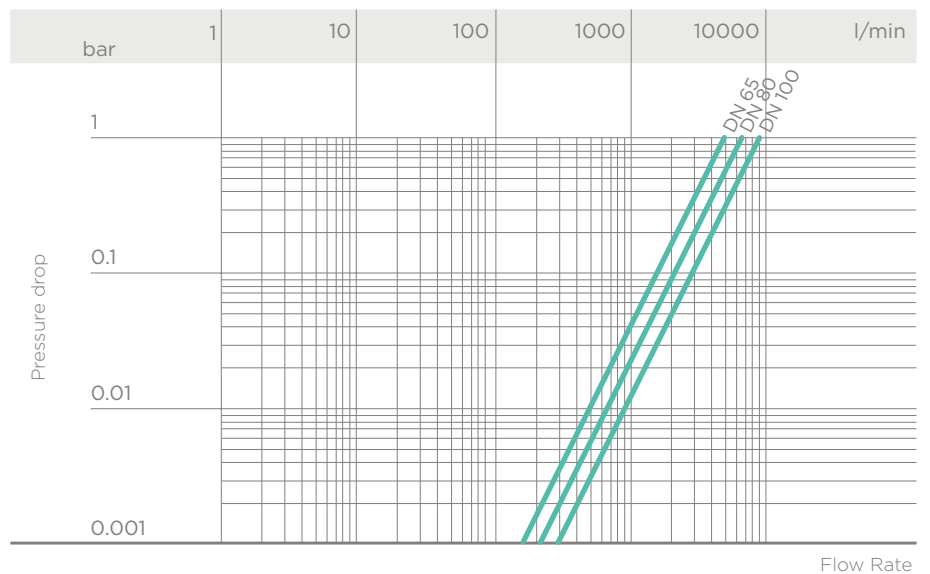
TECHNICAL DATA

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 PN pressure is required (25 years with safety factor).



PRESSURE DROP GRAPH



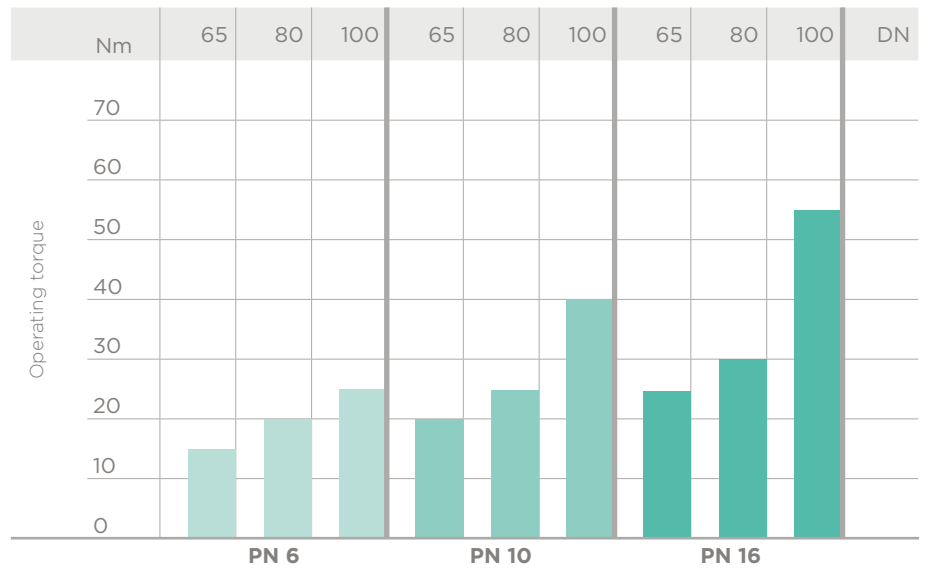
K_v100 FLOW COEFFICIENT

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	65	80	100
K _v 100 l/min	5000	7000	9400

OPERATING TORQUE AT MAXIMUM WORKING RPESSURE



The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

DIMENSIONS



VEEIV

Easyfit 2-way ball valve with female ends for solvent welding, metric series

d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
75	65	16	142	214	115	157	211	44	123	2750	VEEIV075E
90	80	16	151	239	126	174	248	51	146	3432	VEEIV090E
110	100	16	174.5	270	145	212	283	61	161	5814	VEEIV110E



VEEFV

Easyfit 2-way ball valve with BSP threaded female ends

R	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
2" 1/2	65	16	142	214	115	157	211	30.2	150.6	2750	VEEFV212E
3"	80	16	151	239	126	174	248	33.3	181.4	3432	VEEFV300E
4"	100	16	174.5	270	145	212	283	39.3	204.4	5814	VEEFV400E



VEELV

Easyfit 2-way ball valve with female ends, BS series

d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
2" 1/2	65	16	142	214	115	157	211	44	123	2750	VEELV212E
3"	80	16	151	239	126	174	248	51	146	3432	VEELV300E
4"	100	16	174.5	270	145	212	283	63	157	5814	VEELV400E



VEEAV

Easyfit 2-way ball valve with female ends, ASTM series

d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
2" 1/2	65	16	142	214	115	157	211	44.5	122	2750	VEEAV212E
3"	80	16	151	239	126	174	248	48	152	3432	VEEAV300E
4"	100	16	174.5	270	145	212	283	57.5	168	5814	VEEAV400E



VEENV

Easyfit 2-way ball valve with female ends, NPT thread

R	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
2" 1/2	65	16	142	214	115	157	211	33.2	144.6	2750	VEENV212E
3"	80	16	151	239	126	174	248	35.5	177	3432	VEENV300E
4"	100	16	174.5	270	145	212	283	37.6	207.8	5814	VEENV400E



VEEJV

Easyfit 2-way ball valve with female ends, JIS series

d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
2" 1/2	65	16	142	214	115	157	243	61	121	2750	VEEJV212E
3"	80	16	151	239	126	174	272	64.5	143	3432	VEEJV300E
4"	100	16	174.5	270	145	212	332	84	164	5814	VEEJV400E



VEEGV

Easyfit 2-way ball valve with female ends, JIS thread

R	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
2" 1/2	65	16	142	214	115	157	211	35	141	2750	VEEGV212E
3"	80	16	151	239	126	174	248	40	168	3432	VEEGV300E
4"	100	16	174.5	270	145	212	283	45	193	5814	VEEGV400E

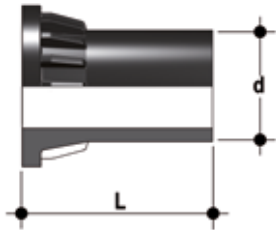


VEEBEV

Easyfit 2-way ball valve with PE100 SDR 11 male end connectors for butt welding or electrofusion (CVDE)

d	DN	PN	B	C	C ₁	E	H	L	Z	g	Code
75	65	16	141.5	214	115	157	331	71	189	2286	VEEBEV075E
90	80	10	151	239	126	174	367	88	191	3059	VEEBEV090E
110	100	10	174.5	270	145	212	407	92	223	5814	VEEBEV110E

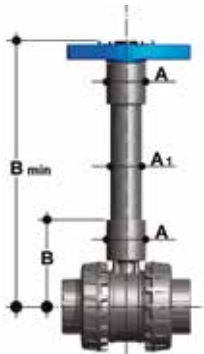
ACCESSORIES



CVDE

Long spigot PE100 end connectors for joints with electrofusion fittings or for butt welding

d	DN	PN	L	SDR	Code
75	65	16	111	11	CVDE11075
90	80	16	118	11	CVDE11090VXE
110	100	16	127	11	CVDE11110VXE



PSE

Stem extension

d	inch	DN	A	A ₁	B	B min	Code ISO pipe	Code ASTM-BS pipe
75	2" 1/2	65	76	63	159	364	PSE090	PSE300
90	3"	80	76	63	166	371	PSE090	PSE300
110	4"	100	76	63	186	433	PSE110	PSE400



LCE

Transparent protection plug with tag holder

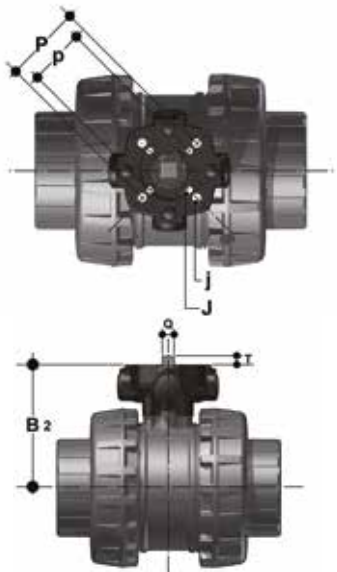
d	DN	Code
75	65	LCE040
90	80	LCE040
110	100	LCE040

LSE

Customisation and label printing set for Easyfit handle made up of precut adhesive sheets and software for guided label creation.



d	DN	Code
75	65	LSE040
90	80	LSE040
110	100	LSE040



POWER QUICK EASYFIT

The valve can be equipped with pneumatic or electric standard actuators and gearbox for heavy-duty operations, using the PP-GR module reproducing the drilling pattern foreseen by ISO 5211.

d	DN	B ₂	Q	T	p x j	P x J	Code
75	65	129	14	16	F05 x 6,5	F07 x 8,5	PQE090
90	80	136	14	16	F05 x 6,5	F07 x 8,5	PQE090
110	100	156	17	19	F05 x 6,5	F07 x 8,5	PQE110



SHE

Anti-tampering lock kit

d	DN	Code
75	65	SHE090
90	80	SHE090
110	100	SHE110

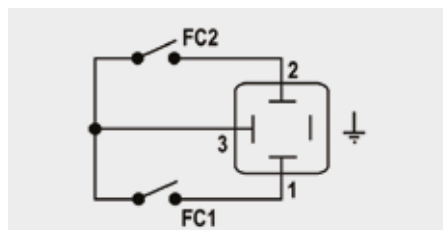


MSE

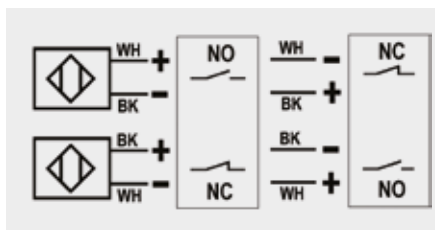
MSE is a limit switch box with electromechanical or inductive micro switches to remotely signal the valve position. Manual valve installation is possible using the Power Quick Easyfit actuation module.

The box can be assembled on the VEE valve even if already installed on the system.

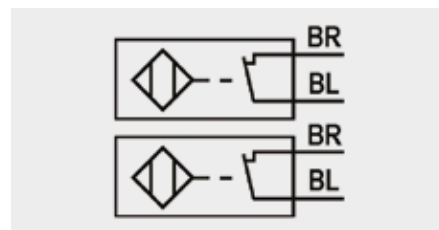
d	DN	A	B	B ₁	Code electromechanical	Code inductive	Code Namur
75	65	139	203	79	MSE1M	MSE1I	MSE1N
90	80	146	210	87	MSE1M	MSE1I	MSE1N
110	100	166	231	106	MSE2M	MSE2I	MSE2N



Electromechanical



Inductive



Namur

WH = white; BK = black; BL = blue; BR = brown

Switch type	Flow Rate	Lifetime [drives]	Operating voltage	Nominal voltage	Working pressure	Voltage drop	No-load supply current	Protection rate
Electromechanical	250 V - 5 A	3 x 10 ⁷	-	-	-	-	-	IP65
Inductive	-	-	5 ÷ 36 V	-	4 ÷ 200 mA	< 4,6 V	< 0,8 mA	IP65
Namur*	-	-	7,5 ÷ 30 V DC**	8,2 V DC	< 30 mA**	-	-	IP65

* To be used with an amplifier

** Outside areas with explosion risks

CUSTOMISATION

The Easyfit VEE DN 65÷100 valve is set for the customisable Labelling System.

This system lets you create special labels to insert in the handle. This makes it extremely easy to apply company logos, identification serial numbers or service indications such as, for example, the valve function in the system, the transported fluid, but also specific information for customer service, such as the customer name or installation date or location on the valves.

The grey protection plug (A) housed on the handle can be replaced with the specific LCE accessory module.

This module is made up of a rigid transparent water-resistant PVC plug (B) and white tag holder (C) made of the same material, one side of which bears the FIP logo (fig. 2). The holder, inserted in the plug, can be removed and, once overturned, used for customisation by applying labels printed with the software supplied with the LSE set.

Proceed as follows to apply the label on the valve:

- 1) Release the handle from the central hub (D) and extract the grey plug (fig. 1).
- 2) Apply the adhesive label on tag holder included in the LCE set to align the profiles matching the tab position.
- 3) Insert tag holder in the transparent plug so that the label is protected from the elements (fig. 3).
- 4) Apply the transparent plug on the central hub matching the two fittings (one narrow and one wide) with the relevant housings.

Fig. 1



Fig. 2

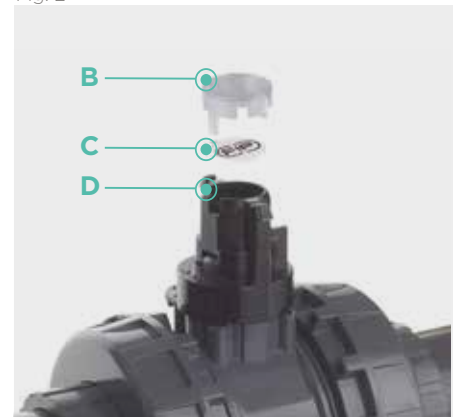


Fig. 3

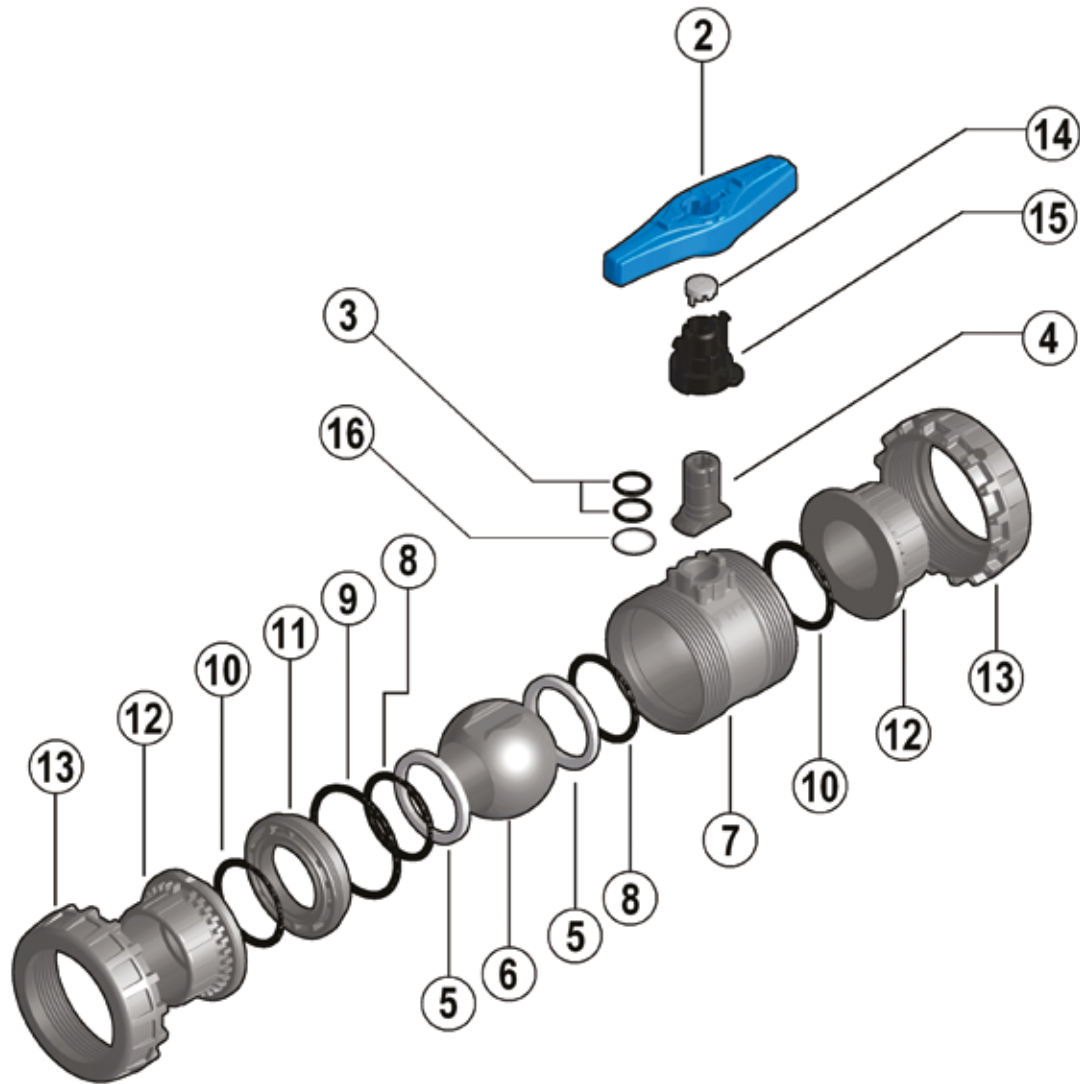


Fig. 4



COMPONENTS

EXPLODED VIEW



2 · Easyfit quick release handle (HIPVC - 1)

3 · Stem O-Ring (EPDM - 2)*

4 · Stem (PVC-U - 1)

5 · Ball seat (PE - 2)*

6 · Ball (PVC-U - 1)*

7 · Body (PVC-U - 1)

8 · Ball seat O-Ring (EPDM, FPM - 2)

9 · Radial seal O-Ring (EPDM - 1)*

10 · Socket seal O-Ring (EPDM - 2)*

11 · Ball seat carrier (PVC-U - 1)

12 · End connector (PVC-U - 2)

13 · Union nut (PVC-U - 2)

14 · Grey protection plug (PVC - 1)

15 · Central hub (HIPVC - 1)

16 · Anti-friction disk (PTFE - 1)*

* Spare parts

The component material and quantity supplied are indicated in the parentheses.

DISMOUNTING

- 1) Isolate the valve from the line (release the pressure and empty the pipeline).
- 2) Fully unscrew the union nuts (13) from the valve body and slide the body out sideways (7) (fig. 7-8).
- 3) Before dismounting, hold the valve in a vertical position and open it 45° to drain any liquid that might remain.
- 4) Open the valve.
- 5) Remove the ball seat carrier (11) using the Easyfit quick release handle (2). Extract the handle from the central hub (15) pushing towards the hub hinge centres (fig. 5-6). Insert the two protrusion at the top of the handle in the carrier seats (11) and unscrew, extracting it by turning counter-clockwise (fig. 9-10).
- 6) Press on the ball (6) from the side opposite the "REGULAR" label, being sure not to scratch it, until the ball seat exits (11) then extract the ball (6).
- 7) Remove the central hub (15) firmly sliding it off the stem (4). Press the stem inwards and extract it from the body and remove the anti-friction disk (16).
- 8) Remove the O-Ring (3, 8, 9, 10) and ball seats (5) extracting them from their seats, as illustrated in the exploded view.

ASSEMBLY

- 1) All the O-rings (3, 8, 9, 10) must be inserted in their grooves as shown in the exploded view.
- 2) Place the anti-friction disk (16) on the stem (4) and insert it in the body (7).
- 3) Place the ball seats (5) in the housings in the body (7) and in the carrier (11).
- 4) Insert the ball (6) rotating it to the closed position.
- 5) Screw the carrier (11) into the body and tighten up in the clockwise direction using the handle (2) to limit stop.
- 6) Place the central hub (15) on the stem (4) firmly pressing down to match the internal hub key with one of the two seats on the stem.
- 7) Position the valve between the end connectors (12) and tighten the union nuts (13) clockwise making sure the socket seal O-Rings (10) do not exit the seats (fig. 7-8).
- 8) Reposition the handle (2) on the central hub (15) making sure the two grooves in the central handle bore match the two grooves on the side of the hub and slightly press down until the two hinges click.



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

INSTALLATION

Before proceeding with installation, please follow these instructions carefully:

- 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 (13) from the body (7) and insert them in the pipe segments.
- 3) Solvent weld or screw the end connectors (12) onto the pipe segments.
- 4) Position the valve between the end connectors (fig. 8).
Warning: if a high pressure test is required, always position the body with the "REGULAR" label upstream from the fluid direction.
- 5) Fit the union nuts on the valve body and tighten clockwise (fig. 7).

Fig. 5



Fig. 6



Fig. 7



Fig. 8



6) If necessary, support the pipe with FIP pipe clip model ZIKM and DSM distance plates.

The VEE valve can be equipped with a simple locking device by inserting a lock to protect the system against tampering (fig. 12). The valve body and hub are, in fact, set to house a lockable plate on the valve body using two self-threading screws (see SHE accessories) (fig. 11),

WARNINGS

- If volatile liquid such as Hydrogen Peroxide (H₂O₂) or Sodium Hypochlorite (NaClO) are used, for safety reasons we recommend you contact the service centre. These liquids, upon vaporising, could create hazardous over pressures in the area between the body and ball.
- Always avoid sudden closing manoeuvres and protect the valve from accidental manoeuvres.

Fig. 9



Fig. 10



Fig. 11



Fig. 12





SXE-SSE DN 10÷50
PVC-U

Easyfit True Union ball and spring check valve

SXE-SSE DN 10÷50

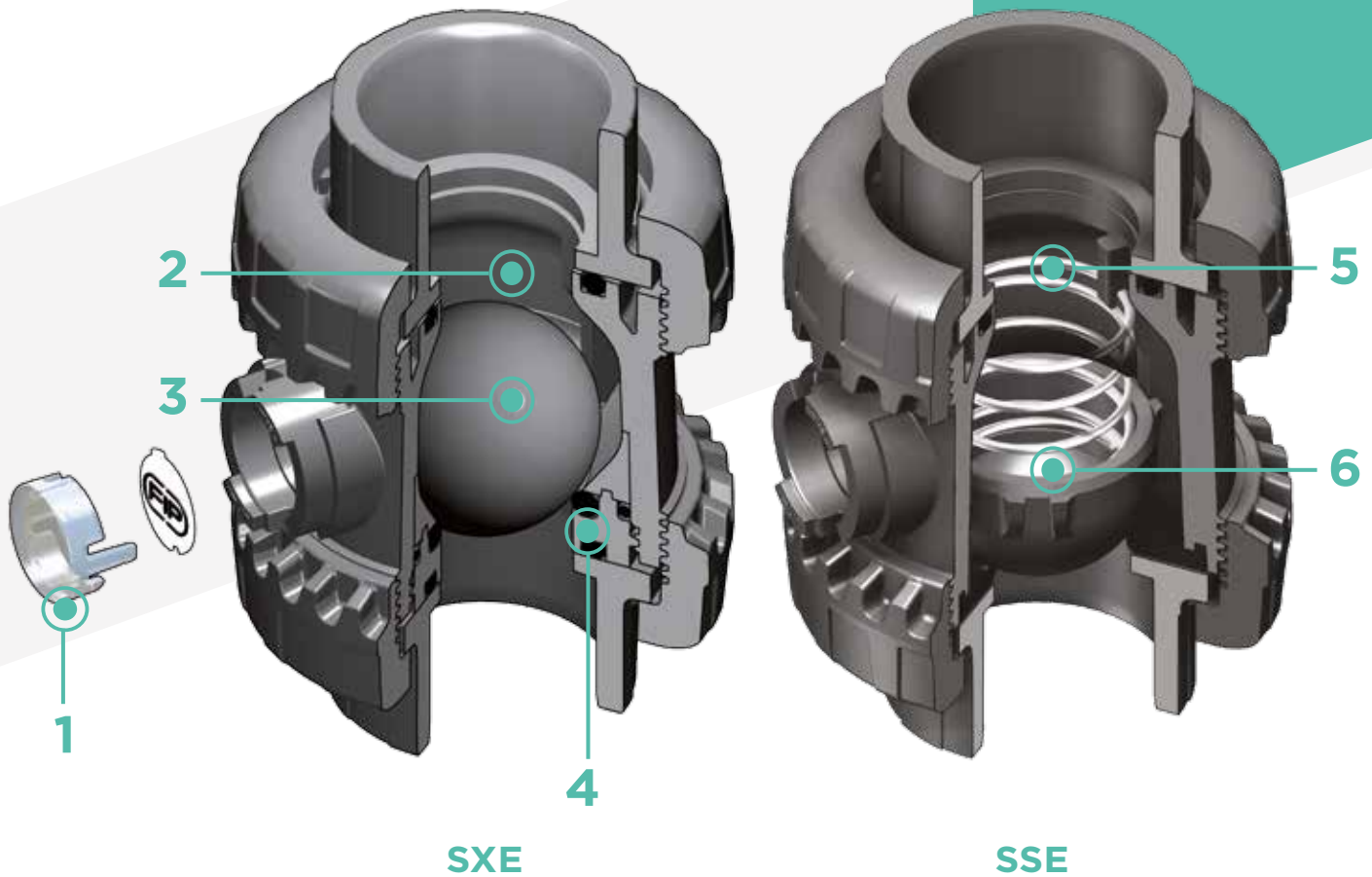
The Easyfit check valve line developed with Giugiaro Design offers two different versions: SXE with ball shutter and SSE with spring loaded shutter. Easyfit check valves stand out for the innovative installation method that guarantees reliable service over time. This valve is also equipped with the customisable Labelling System.



EASYFIT TRUE UNION BALL AND SPRING CHECK VALVE

- Connection system for solvent weld and threaded joints
- **Valve material compatibility (PVC-U)** with water conveyance, drinking water and other food substances according to **current regulations**
- **PN16 True Union valve body** made for PVC-U injection moulding and compliant with European Directive 97/23/EC for PED pressurised equipment. Test requirements compliant with ISO 9393
- **Short face to face dimension** according to international regulation ISO 7508 series III and European regulation EN 1452 "short" and fully interchangeable with VXE and VEE DN 10÷50 ball valve models
- Union nuts with rack for tightening adjustment via Easyfit handle or via Easytorque adjustment kit (available as accessories)
- **Vertical** (preferable for SXE model) and **horizontal installation** potential

Technical specifications	
Construction	SXE: Easyfit True Union ball check valve with locked carrier SSE: Easyfit True Union spring check valve
Size range	DN 10 ÷ 50
Nominal pressure	PN 16 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Pipe coupling capacity according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741 Thread: ISO 228-1, DIN 2999, ASTM D 2464, JIS B 0203
Reference standards	Construction criteria: EN ISO 16137, EN ISO 1452, EN ISO 15493 Test methods and requirements: ISO 9393 Installation criteria: DVS 2204, DVS 2221, UNI 11242
Valve material	PVC-U
Seal material	EPDM, FPM
Spring material (SSE)	Available in STAINLESS steel 316, Hastelloy C276, A316 PTFE encapsulated (DN 40 and DN 50 only)



- 1 Customisable Labelling System:** built-in LCE module on the valve body made up of transparent protection plug and customisable tag holder using the LSE set (available as accessory). The customisation potential lets you **identify the valve on the system** according to specific needs
- 2 Optimised dynamic fluid design:** energy savings thanks to the improved valve Kv value with consequent pressure drop reduction

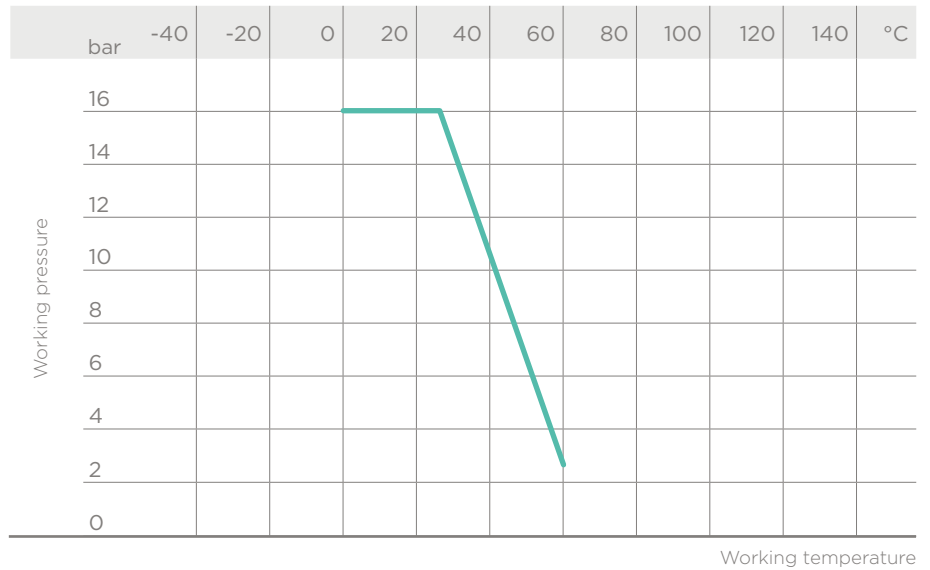
- 3 High surface finish ball shutter:** **wear reduction**, increase in working life and reduced valve maintenance. Ideal for conveying dirty fluids, even with suspended solids and filaments thanks to the special design that permits **internal valve self-cleaning**
- 4 Locked ball seat carrier:** safe dismantling for maintenance with the Easyfit multifunctional handle or Easytorque kit

- 5 Ideal for horizontal installations:** **perfect seal even with low back pressure.** **Silent** and durable even with strong vibrations and pulsating fluid
- 6 PVC-U shutter and springs** available made of STAINLESS steel 316, Hastelloy C276, A316 PTFE encapsulated: maximum reliability in a **wide field of applications** from salt water to aggressive acids

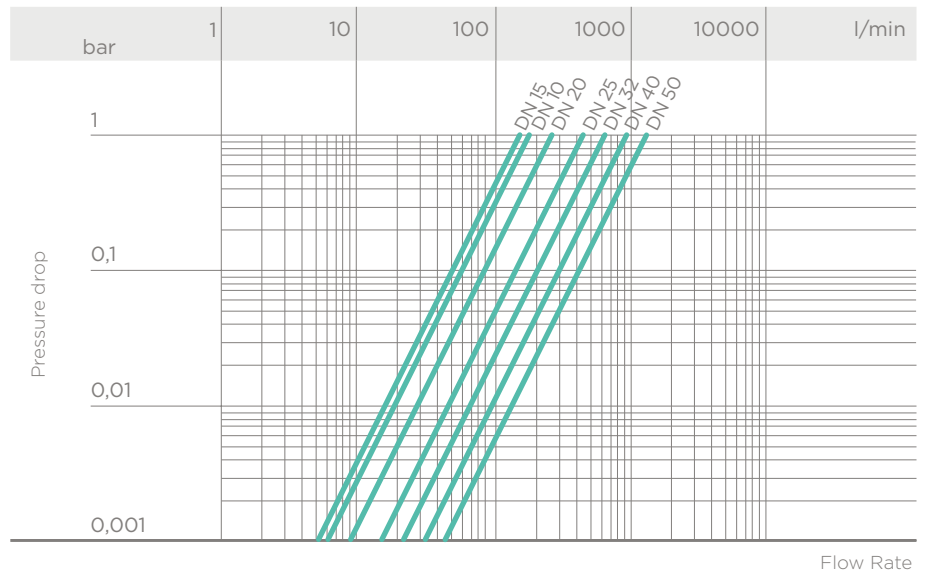
TECHNICAL DATA

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 PN pressure 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 $\Delta p = 1$ bar pressure drop at a certain valve position.

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

DN	10	15	20	25	32	40	50
K _v 100 l/min	172	152	258	433	643	928	1343

MINIMUM VALVE SEALING PRESSURE

DN	10	15	20	25	32	40	50
SXE (bar)	0,2	0,2	0,2	0,2	0,2	0,2	0,2
SSE (bar)	0,08	0,08	0,08	0,08	0,08	0,08	0,08

The PVC-U SXE valve can only be used with liquids with specific weight under 1.37g/cm³.

DIMENSIONS



SXEIV

Easyfit ball check valve with female ends for solvent welding, metric series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
16	10	16	54	82	14	54	145	SXEIV016E	SXEIV016F
20	15	16	54	82	16	50	148	SXEIV020E	SXEIV020F
25	20	16	63	91	19	53	190	SXEIV025E	SXEIV025F
32	25	16	72	103	22	59	300	SXEIV032E	SXEIV032F
40	32	16	85	120	26	68	460	SXEIV040E	SXEIV040F
50	40	16	100	139	31	77	675	SXEIV050E	SXEIV050F
63	50	16	118	174	38	98	1080	SXEIV063E	SXEIV063F



SXEFV

Easyfit ball check valve with BSP threaded female ends

R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	82	11.4	59.2	145	SXEFV038E	SXEFV038F
1/2"	15	16	54	90	15	60	148	SXEFV012E	SXEFV012F
3/4"	20	16	63	93	16.3	60.4	190	SXEFV034E	SXEFV034F
1"	25	16	72	110	19.1	71.8	300	SXEFV100E	SXEFV100F
1" 1/4	32	16	85	127	21.4	84.2	460	SXEFV114E	SXEFV114F
1" 1/2	40	16	100	131	21.4	88.2	675	SXEFV112E	SXEFV112F
2"	50	16	118	161	25.7	109.6	1080	SXEFV200E	SXEFV200F



SXELV

Easyfit ball check valve with female ends for solvent welding, BS series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	82	16.5	49	148	SXELV012E	SXELV012F
3/4"	20	16	63	91	19	53	190	SXELV034E	SXELV034F
1"	25	16	72	103	22.5	58	300	SXELV100E	SXELV100F
1" 1/4	32	16	85	120	26	68	460	SXELV114E	SXELV114F
1" 1/2	40	16	100	139	30	79	675	SXELV112E	SXELV112F
2"	50	16	118	174	36	102	1080	SXELV200E	SXELV200F



SXEAV

Easyfit ball check valve with female ends for solvent welding, ASTM series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	96	22.5	51	148	SXEAV012E	SXEAV012F
3/4"	20	16	63	105	25.5	54	190	SXEAV034E	SXEAV034F
1"	25	16	72	117	28.7	59.5	300	SXEAV100E	SXEAV100F
1" 1/4	32	16	85	136	32	72	460	SXEAV114E	SXEAV114F
1" 1/2	40	16	100	147	35	77	675	SXEAV112E	SXEAV112F
2"	50	16	118	174	38.2	97.6	1080	SXEAV200E	SXEAV200F



SXENV

Easyfit ball check valve with female ends, NPT thread

R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	82	13.7	54.6	145	SXENV038E	SXENV038F
1/2"	15	16	54	90	17.8	54.4	148	SXENV012E	SXENV012F
3/4"	20	16	63	93	18	57	190	SXENV034E	SXENV034F
1"	25	16	72	110	22.6	64.8	300	SXENV100E	SXENV100F
1" 1/4	32	16	85	127	25.1	76.8	460	SXENV114E	SXENV114F
1" 1/2	40	16	100	131	24.7	81.6	675	SXENV112E	SXENV112F
2"	50	16	118	161	29.6	101.8	1080	SXENV200E	SXENV200F



SXEJV

Easyfit ball check valve with female ends for solvent welding, JIS series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	110	30	50	160	SXEJV012E	SXEJV012F
3/4"	20	16	63	123	35	53	235	SXEJV034E	SXEJV034F
1"	25	16	72	139	40	59	325	SXEJV100E	SXEJV100F
1" 1/4	32	16	85	156	44	68	490	SXEJV114E	SXEJV114F
1" 1/2	40	16	100	187	55	77	680	SXEJV112E	SXEJV112F
2"	50	16	118	228	63	102	1150	SXEJV200E	SXEJV200F



SXEGV

Easyfit ball check valve with female ends, JIS thread

R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	82	16	50	148	SXEGV012E	SXEGV012F
3/4"	20	16	63	91	19	53	190	SXEGV034E	SXEGV034F
1"	25	16	72	103	22	59	300	SXEGV100E	SXEGV100F
1" 1/4	32	16	85	120	25	70	460	SXEGV114E	SXEGV114F
1" 1/2	40	16	100	139	26	87	675	SXEGV112E	SXEGV112F
2"	50	16	118	174	31	112	1080	SXEGV200E	SXEGV200F



SXEBEV

Easyfit ball check valve with PE100 SDR 11 male ends for butt welding or electrofusion welding (CVDE)

d	DN	E	H	L	Z	g	EPDM Code	FPM Code
20	15	54	154	41	72	150	SXEBEV020E	SXEBEV020F
25	20	63	186	52	82	225	SXEBEV025E	SXEBEV025F
32	25	72	199	54.5	90	310	SXEBEV032E	SXEBEV032F
40	32	85	217	56	105	485	SXEBEV040E	SXEBEV040F
50	40	100	236	58	120	700	SXEBEV050E	SXEBEV050F
63	50	118	268	66	136	1150	SXEBEV063E	SXEBEV063F



SSEIV

Easyfit spring check valve with female ends for solvent welding, metric series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
16	10	16	54	82	14	54	146	SSEIV016E	SSEIV016F
20	15	16	54	82	16	50	149	SSEIV020E	SSEIV020F
25	20	16	63	91	19	53	188	SSEIV025E	SSEIV025F
32	25	16	72	103	22	59	292	SSEIV032E	SSEIV032F
40	32	16	85	120	26	68	445	SSEIV040E	SSEIV040F
50	40	16	100	139	31	77	640	SSEIV050E	SSEIV050F
63	50	16	118	174	38	98	1010	SSEIV063E	SSEIV063F



SSEFV

Easyfit spring check valve with BSP threaded female ends

R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	82	11.4	59.2	146	SSEFV038E	SSEFV038F
1/2"	15	16	54	90	15	60	149	SSEFV012E	SSEFV012F
3/4"	20	16	63	93	16.3	60.4	188	SSEFV034E	SSEFV034F
1"	25	16	72	110	19.1	71.8	292	SSEFV100E	SSEFV100F
1" 1/4	32	16	85	127	21.4	84.2	445	SSEFV114E	SSEFV114F
1" 1/2	40	16	100	131	21.4	88.2	640	SSEFV112E	SSEFV112F
2"	50	16	118	161	25.7	109.6	1010	SSEFV200E	SSEFV200F



SSELV

Easyfit spring check valve with female ends for solvent welding, BS series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	82	16.5	49	149	SSELV012E	SSELV012F
3/4"	20	16	63	91	19	53	188	SSELV034E	SSELV034F
1"	25	16	72	103	22.5	58	292	SSELV100E	SSELV100F
1" 1/4	32	16	85	120	26	68	445	SSELV114E	SSELV114F
1" 1/2	40	16	100	139	30	79	640	SSELV112E	SSELV112F
2"	50	16	118	174	36	102	1010	SSELV200E	SSELV200F



SSEAV

Easyfit spring check valve with female ends for solvent welding, ASTM series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	96	22.5	51	149	SSEAV012E	SSEAV012F
3/4"	20	16	63	105	25.5	54	188	SSEAV034E	SSEAV034F
1"	25	16	72	117	28.7	59.5	292	SSEAV100E	SSEAV100F
1" 1/4	32	16	85	136	32	72	445	SSEAV114E	SSEAV114F
1" 1/2	40	16	100	147	35	77	640	SSEAV112E	SSEAV112F
2"	50	16	118	174	38.2	97.6	1010	SSEAV200E	SSEAV200F



SSENV

Easyfit spring check valve with female ends, NPT thread

R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
3/8"	10	16	54	82	13.7	54.6	146	SSENV038E	SSENV038F
1/2"	15	16	54	90	17.8	54.4	149	SSENV012E	SSENV012F
3/4"	20	16	63	93	18	57	188	SSENV034E	SSENV034F
1"	25	16	72	110	22.6	64.8	292	SSENV100E	SSENV100F
1" 1/4	32	16	85	127	25.1	76.8	445	SSENV114E	SSENV114F
1" 1/2	40	16	100	131	24.7	81.6	640	SSENV112E	SSENV112F
2"	50	16	118	161	29.6	101.8	1010	SSENV200E	SSENV200F



SSEJV

Easyfit spring check valve with female ends for solvent welding, JIS series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	110	30	50	161	SSEJV012E	SSEJV012F
3/4"	20	16	63	123	35	53	233	SSEJV034E	SSEJV034F
1"	25	16	72	139	40	59	317	SSEJV100E	SSEJV100F
1" 1/4	32	16	85	156	44	68	475	SSEJV114E	SSEJV114F
1" 1/2	40	16	100	187	55	77	645	SSEJV112E	SSEJV112F
2"	50	16	118	228	63	102	1080	SSEJV200E	SSEJV200F



SSEGV

Easyfit spring check valve with female ends, JIS thread

R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
1/2"	15	16	54	82	16	50	149	SSEGV012E	SSEGV012F
3/4"	20	16	63	91	19	53	188	SSEGV034E	SSEGV034F
1"	25	16	72	103	22	59	292	SSEGV100E	SSEGV100F
1" 1/4	32	16	85	120	25	70	445	SSEGV114E	SSEGV114F
1" 1/2	40	16	100	139	26	87	640	SSEGV112E	SSEGV112F
2"	50	16	118	174	31	112	1010	SSEGV200E	SSEGV200F

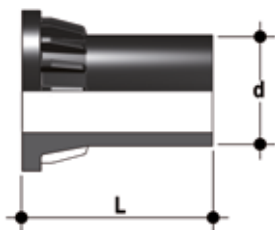


SSEBEV

Easyfit spring check valve with PE100 SDR 11 male end connectors for butt welding or electrofusion (CVDE)

d	DN	E	H	L	Z	g	EPDM Code	FPM Code
20	15	54	154	41	72	151	SSEBEV020E	SSEBEV020F
25	20	63	186	52	82	223	SSEBEV025E	SSEBEV025F
32	25	72	199	54.5	90	302	SSEBEV032E	SSEBEV032F
40	32	85	217	56	105	470	SSEBEV040E	SSEBEV040F
50	40	100	236	58	120	665	SSEBEV050E	SSEBEV050F
63	50	118	268	66	136	1080	SSEBEV063E	SSEBEV063F

ACCESSORIES



CVDE

Long spigot PE100 end connectors for joints with electrofusion fittings or for butt welding

d	DN	PN	L	SDR	Code
20	15	16	55	11	CVDE11020
25	20	16	70	11	CVDE11025
32	25	16	74	11	CVDE11032
40	32	16	78	11	CVDE11040
52	40	16	84	11	CVDE11050
63	50	16	91	11	CVDE11063



EASYFIT HANDLE DN 10÷50

Easyfit multifunctional handle for union nut tightening SXE-SSE DN 10÷50

d	DN	Code
16 - 20	10 - 15	HAVXE020
25	20	HAVXE025
32	25	HAVXE032
40	32	HAVXE040
52	40	HAVXE050
63	50	HAVXE063

EASYTORQUE KIT

Kit for union nut tightening adjustment and ball seat carrier for Easyfit DN 10÷50 valves.



d	DN	Union nuts tightening torque*	Seat carrier tightening torque*	Code
3/8"-1/2"	10-15	5 N m - 3,69 Lbf ft	3 N m - 2,21 Lbf ft	KET01
3/4"	20	5 N m - 3,69 Lbf ft	3 N m - 2,21 Lbf ft	KET01
1"	25	6 N m - 4,43 Lbf ft	4 N m - 2,95 Lbf ft	KET01
1" 1/4	32	7 N m - 5,16 Lbf ft	4 N m - 2,95 Lbf ft	KET01
1" 1/2	40	8 N m - 5,90 Lbf ft	5 N m - 3,69 Lbf ft	KET01
2"	50	10 N m - 7,38 Lbf ft	6 N m - 4,43 Lbf ft	KET01

*calculated in ideal installation conditions





LSE

Customisation set and label printing for Easyfit handle made up of pre-cut adhesive sheets and software for guided label creation.

d	DN	Code
16	10	-
20	15	-
25	20	-
32	25	LSE020
40	32	LSE025
50	40	LSE032
63	50	LSE032

CUSTOMISATION

SXE and SSE DN 10+50 Easyfit valves are equipped with a customisable Labelling System.

This system lets you create special labels to affix to the valve body. This makes it extremely easy to apply company logos, identification serial numbers or service indications such as, for example, the valve function in the system, the transported fluid, but also specific information for customer service, such as the customer name or installation date or location on the valves.

The specific LCE module is a standard supply and is made up of a rigid transparent water-resistant PVC plug and white tag holder made of the same material, one side of which bears the FIP logo (fig. 1).

The holder, inserted in the plug, can be removed and, once overturned, used for customisation by applying labels printed with the software supplied with the LSE set.

Proceed as follows to apply the label on the valve:

- 1) Extract the transparent plug from the seat on the valve body (fig. 1).
- 2) Extract the tag holder from the transparent plug (fig. 2).
- 3) Apply the adhesive label on the tag holder to align the profiles matching the tab position.
- 4) Re-insert the tag holder in the transparent plug so that the label is protected from the elements.
- 5) Replace the transparent plug in its seat on the valve body.

Fig. 1



Fig. 2

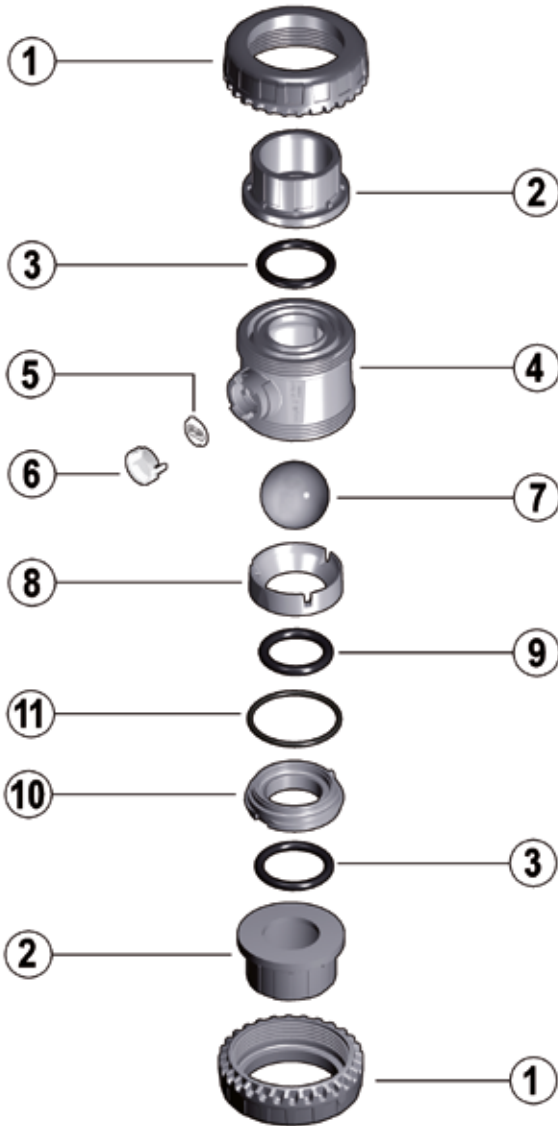


Fig. 3

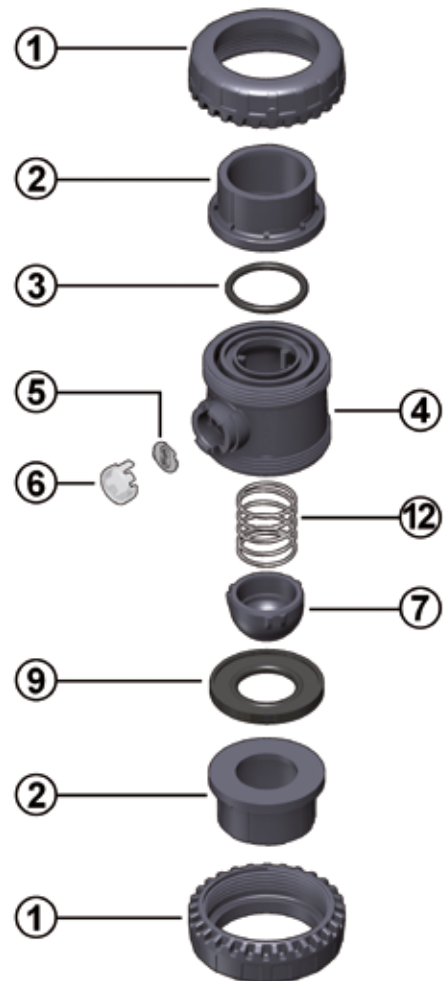


COMPONENTS

EXPLODED VIEW



SXE



SSE

- 1 · Union nut (PVC-U - 2)
- 2 · End connector (PVC-U - 2)
- 3 · Socket seal O-Ring (EPDM, FPM - 2)
- 4 · Body (PVC-U - 1)
- 5 · Tag holder (PVC - 1)

- 6 · Transparent protection plug (PVC - 1)
- 7 **SXE** · Ball (PVC-U - 1)
- 7 **SSE** · Shutter (PVC-U - 1)
- 8 · Gland packing ring (PVC-U - 1)
- 9 **SXE** · Ball seat O-Ring (EPDM, FPM - 1)

- 9 **SSE** · Shutter gasket (EPDM, FPM - 1)
- 10 · Ball seat carrier (PVC-U - 1)
- 11 · Radial seal O-Ring (EPDM, FPM - 1)
- 12 · Spring (Stainless STEEL* - 1)

* Also available made of Hastelloy C276 or A316 PTFE encapsulated (for DN 40 and DN 50 only)
The component material and quantity supplied are indicated in the parentheses.

DISMOUNTING

SXE

SXE valves do not require maintenance in normal operating conditions. In the event of leaks or wear, before performing maintenance, cut-off fluid upstream from the valve and make sure it is de-pressurised (downstream drain if necessary).

- 1) Fully drain residual liquid that could be aggressive for the operator and, if possible, circulate water to internally clean the valve.
- 2) To easily unscrew the union nuts when dismantling, use the Easyfit multifunctional handle (supplied as an accessory) (fig. 4) or Easytorque kit (fig. 5-6).
- 3) Unscrew the seal carrier (10) with the Easyfit multifunctional handle (fig. 7) or Easytorque kit (fig. 8).
- 4) Remove all internal components.

SSE

In the event of leaks or wear, before performing maintenance, cut-off fluid upstream from the valve and make sure it is de-pressurised (downstream drain if necessary).

- 1) Fully drain residual liquid that could be aggressive for the operator and, if possible, circulate water to internally clean the valve.
- 2) To easily unscrew the union nuts when dismantling, use the Easyfit multifunctional handle (supplied as an accessory) (fig. 4) or Easytorque kit (fig. 5-6).
- 3) Extract the ball seat O-ring (9).
- 4) Remove all internal components.

ASSEMBLY

SXE

- 1) Reconstruct the valve following the exploded view on the previous page
- 2) Tighten the ball seat carrier (10) using the Easyfit multifunctional handle (fig. 7) or Easytorque wrench (fig. 8) according to the torque indicated in the enclosed instructions. This way valve installation and excellent operations are guaranteed.
- 3) Position the valve between the end connectors (2) and tighten the union nuts clockwise (1) using the Easyfit multifunctional handle (fig. 4) or Easytorque kit (fig. 5-6), being sure the socket seal O-ring (3) does not exit the seats.

SSE

- 1) Reconstruct the valve following the exploded view on the previous page.
- 2) Position the valve between the end connectors (2) and tighten the union nuts clockwise (1) using the Easyfit multifunctional handle (fig. 4) or Easytorque kit (fig. 5-6), being sure the socket seal O-ring (3) does not exit the seats.



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

Fig. 4



Fig. 5



Fig. 6



Fig. 7



INSTALLATION

SXE-SSE valves can be installed both vertically (upward flow) or horizontally (SXE with a minimum 0.2 bar back pressure).

Before proceeding with installation, please follow these instructions carefully:

- 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 (1) from the body (4) and insert them in the pipe segments.
- 3) Solvent weld or screw the end connectors (2) onto the pipe segments.
- 4) Position the valve body between the end connectors (fig. 9).
- 5) Fit the union nuts on the valve body and manually tighten clockwise until they become hard to turn; do not use wrenches or other tools that can damage the union nut surfaces.
- 6) For easy union nut tightening in assembly, use the Easyfit multifunctional handle (supplied as an accessory).
- 7) Overturn the handle and insert it on the stem so the handle teeth (A) match the union nut teeth (B) (fig. 10)
- 8) Turn the handle counter-clockwise to fully tighten the union nut (fig. 10). The rotation directions to tighten (TIGHTEN) and loosen (UNTIGHTEN) the union nuts are indicated on the handle (fig. 11). Generally, if pipes are not offset, a single turn is sufficient for correct tightening.
- 9) Repeat point 7 for the other union nut.

Note: A small force applied on the handle develops a torque much higher than manual tightening.

You can also, using the Easytorque kit (fig. 5-6), supplied as an accessory, tighten union nuts using a torque wrench to quantify the force and thus monitor the stress applied to the thermoplastic threads according to the installation indications in the instructions enclosed with the kit.

- 10) If necessary, support pipes with FIP pipe clip model ZIKM and DSM distance plates.

Fig. 8



Fig. 9



Fig. 10

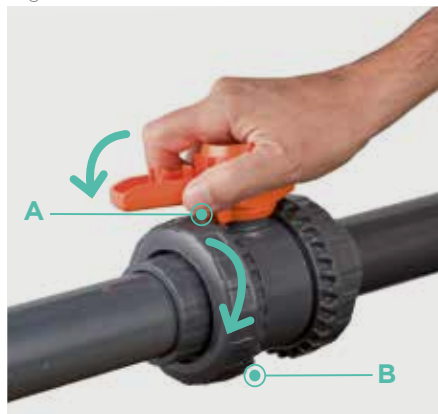


Fig. 11



⚠ WARNINGS

- Do not use compressed air or other gases to test thermoplastic lines.
- Always avoid sudden closing manoeuvres and protect the valve against accidental manoeuvres.



SXE-SSE DN 65÷100
PVC-U

Easyfit True Union ball and spring check valve

SXE-SSE DN 65÷100

The Easyfit check valve line developed with Giugiaro Design offers two different versions: SXE with ball shutter and SSE with spring loaded shutter. Easyfit check valves stand out for the innovative installation method that guarantees reliable service over time.

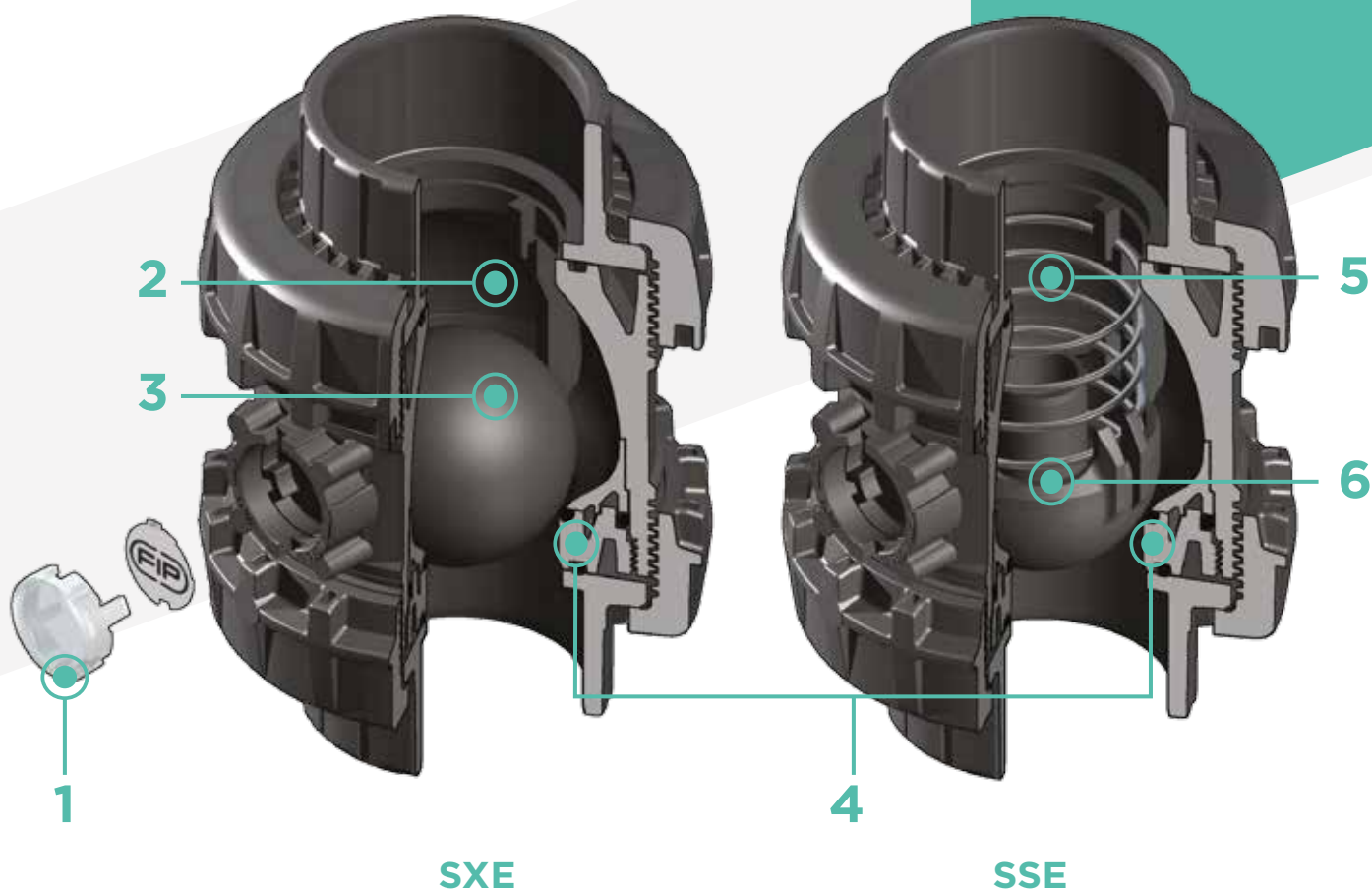
This valve is also equipped with a customisable Labelling System.



EASYFIT TRUE UNION BALL AND SPRING CHECK VALVE

- Connection system for solvent weld and threaded joints
- **Valve material compatibility** (PVC-U) with water, drinking water and other food substance conveyance according to **current regulations**
- **PN16 True Union valve body** made for PVC-U injection moulding and compliant with European Directive 97/23/EC for PED pressurised equipment. Test requirements compliant with ISO 9393
- Easy radial dismounting and fully interchangeable with VEE and VXE 65-100 valve models
- Union nut profile that perfectly adapts to the Easyfit multifunctional handle hooked insert (available as an accessory) that lets you control union nut rotation
- **Vertical** (preferable for SXE model) and **horizontal installation** potential

Technical specifications	
Construction	SXE: Easyfit True Union ball check valve with locked carrier SSE: Easyfit True Union spring check valve with locked carrier
Size range	DN 65 ÷ 100
Nominal pressure	PN 16 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Pipe coupling capacity according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741 Thread: ISO 228-1, DIN 2999, ASTM D 2464, JIS B 0203
Reference standards	Construction criteria: EN ISO 16137, EN ISO 1452, EN ISO 15493 Test methods and requirements: ISO 9393 Installation criteria: DVS 2204, DVS 2221, UNI 11242
Valve material	PVC-U
Seal material	EPDM, FPM (standard size O-Ring)
Spring material (SSE)	Available in STAINLESS Steel 316, A316 PTFE encapsulated



1 Customisable Labelling System: built-in LCE module on the valve body made up of transparent protection plug and customisable tag holder using the LSE set (available as accessory). The customisation potential lets you **identify the valve on the system** according to specific needs

2 Optimised dynamic fluid design: energy savings due to the improved valve Kv value and consequent reduced pressure drop

3 High surface finish ball shutter: **reduced wear**, longer working life and reduced valve maintenance. Ideal to convey dirty fluids, even with suspended fluids or filaments, thanks to the special design that permits **internal valve self-cleaning**

4 Locked ball seat carrier: safe dismantling for maintenance with the Easyfit multifunctional handle

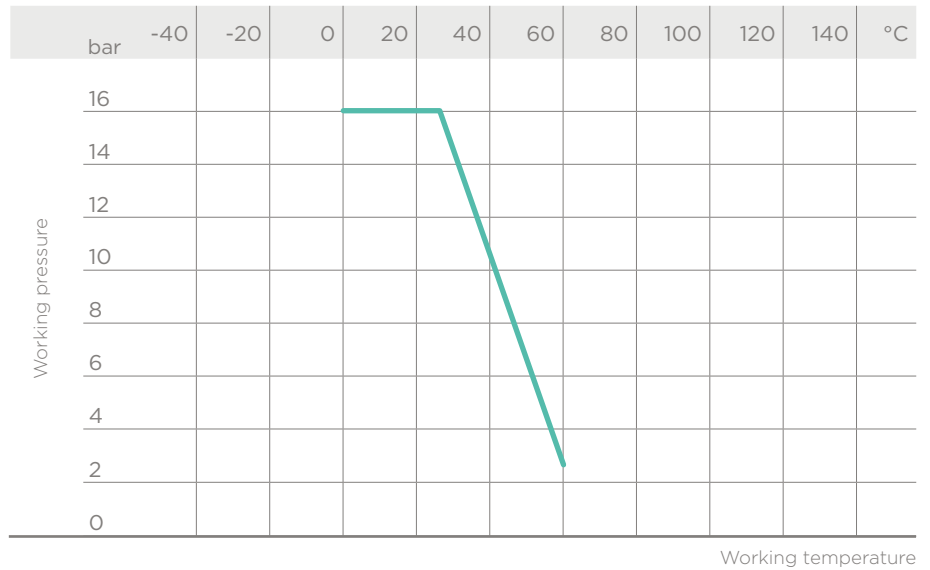
5 Ideal for horizontal installations: **perfect seal even with low back pressure.** **Silent** and durable even with strong vibrations and pulsating fluid

6 PVC-U shutter and springs available in STAINLESS Steel 316, A316 PTFE encapsulated: maximum reliability in a **wide field of applications** from salt water to aggressive acids

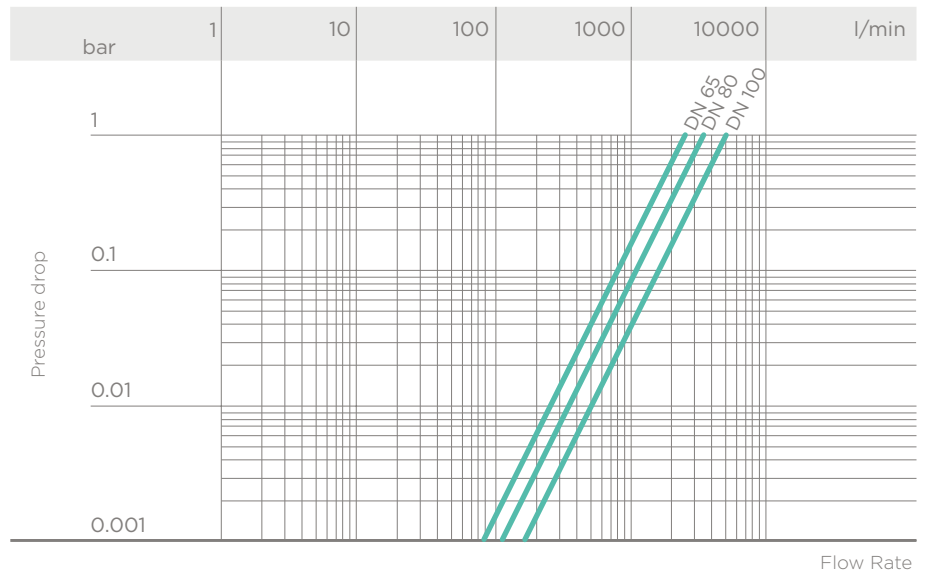
TECHNICAL DATA

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 PN pressure 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 SXE valve completely open.

DN	65	80	100
K _v 100 l/min	2586	3444	5093

MINIMUM VALVE SEALING PRESSURE

The PVC-U SXE valve can only be used with liquids with specific weight under 1,37g/cm³.

DN	65	80	100
SXE (bar)	0.2	0.2	0.2
SSE (bar)	0.08	0.08	0.08

DIMENSIONS



SXEIV

Easyfit ball check valve with female ends for solvent welding, metric series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
75	65	16	157	211	44	123	2605	SXEIV075E	SXEIV075F
90	80	16	174	248	51	146	3300	SXEIV090E	SXEIV090F
110	100	16	212	283	61	161	5770	SXEIV110E	SXEIV110F



SXEFV

Easyfit ball check valve with BSP threaded female ends

R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	211	30.2	150.6	2605	SXEFV212E	SXEFV212F
3"	80	16	174	248	33.3	181.4	3300	SXEFV300E	SXEFV300F
4"	100	16	212	283	39.3	204.4	5770	SXEFV400E	SXEFV400F



SXELV

Easyfit ball check valve with female ends for solvent welding, BS series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	211	44	123	2605	SXELV212E	SXELV212F
3"	80	16	174	248	51	146	3300	SXELV300E	SXELV300F
4"	100	16	212	283	63	157	5770	SXELV400E	SXELV400F



SXEAV

Easyfit ball check valve with female ends for solvent welding, ASTM series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	211	44.5	122	2605	SXEAV212E	SXEAV212F
3"	80	16	174	248	48	152	3300	SXEAV300E	SXEAV300F
4"	100	16	212	283	57.5	168	5770	SXEAV400E	SXEAV400F



SXENV

Easyfit ball check valve with female ends, NPT thread

R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	211	33.2	144.6	2605	SXENV212E	SXENV212F
3"	80	16	174	248	35.5	177	3300	SXENV300E	SXENV300F
4"	100	16	212	283	37.6	207.8	5770	SXENV400E	SXENV400F



SXEJV

Easyfit ball check valve with female ends for solvent welding, JIS series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	243	61	121	2605	SXEJV212E	SXEJV212F
3"	80	16	174	272	64.5	143	3300	SXEJV300E	SXEJV300F
4"	100	16	212	332	84	164	5770	SXEJV400E	SXEJV400F



SXEGV

Easyfit ball check valve with female ends, JIS thread

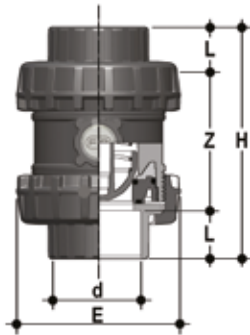
R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	211	35	141	2605	SXEGV212E	SXEGV212F
3"	80	16	174	248	40	168	3300	SXEGV300E	SXEGV300F
4"	100	16	212	283	45	193	5770	SXEGV400E	SXEGV400F



SXEBEV

Easyfit ball check valve with PE100 SDR 11 male end connectors for butt welding or electrofusion (CVDE)

d	DN	E	H	L	Z	g	EPDM Code	FPM Code
75	65	157	331	71	189	2605	SXEBEV075E	SXEBEV075F
90	80	174	367	88	191	3300	SXEBEV090E	SXEBEV090F
110	100	212	407	92	223	5770	SXEBEV110E	SXEBEV110F



SSEIV

Easyfit spring check valve with female ends for solvent welding, metric series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
75	65	16	157	211	44	123	2480	SSEIV075E	SSEIV075F
90	80	16	174	248	51	146	3090	SSEIV090E	SSEIV090F
110	100	16	212	283	61	161	5370	SSEIV110E	SSEIV110F



SSEFV

Easyfit spring check valve with BSP threaded female ends

R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	211	30.2	150.6	2480	SSEFV212E	SSEFV212F
3"	80	16	174	248	33.3	181.4	3090	SSEFV300E	SSEFV300F
4"	100	16	212	283	39.3	204.4	5370	SSEFV400E	SSEFV400F



SSELV

Easyfit spring check valve with female ends for solvent welding, BS series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	211	44	123	2480	SSELV212E	SSELV212F
3"	80	16	174	248	51	146	3090	SSELV300E	SSELV300F
4"	100	16	212	283	63	157	5370	SSELV400E	SSELV400F



SSEAV

Easyfit spring check valve with female ends for solvent welding, ASTM series

d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	211	44.5	122	2480	SSEAV212E	SSEAV212F
3"	80	16	174	248	48	152	3090	SSEAV300E	SSEAV300F
4"	100	16	212	283	57.5	168	5370	SSEAV400E	SSEAV400F



SSENV

Easyfit spring check valve with female ends, NPT thread

R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	211	33.2	144.6	2480	SSENV212E	SSENV212F
3"	80	16	174	248	35.5	177	3090	SSENV300E	SSENV300F
4"	100	16	212	283	37.6	207.8	5370	SSENV400E	SSENV400F



SSEJV

Easyfit spring check valve with female ends for solvent welding, JIS series

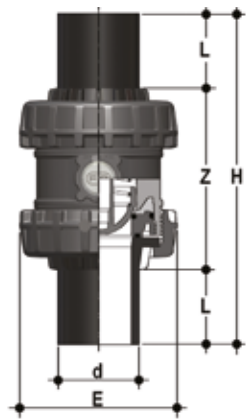
d	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	243	61	121	2480	SSEJV212E	SSEJV212F
3"	80	16	174	272	64.5	143	3090	SSEJV300E	SSEJV300F
4"	100	16	212	332	84	164	5370	SSEJV400E	SSEJV400F



SSEGV

Easyfit spring check valve with female ends, JIS thread

R	DN	PN	E	H	L	Z	g	EPDM Code	FPM Code
2" 1/2	65	16	157	211	35	141	2480	SSEGV212E	SSEGV212F
3"	80	16	174	248	40	168	3090	SSEGV300E	SSEGV300F
4"	100	16	212	283	45	193	5370	SSEGV400E	SSEGV400F

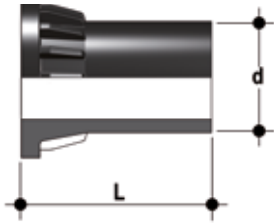


SSEBEV

Easyfit spring check valve with PE100 SDR 11 male end connectors for butt welding or electrofusion (CVDE)

d	DN	E	H	L	Z	g	EPDM Code	FPM Code
75	65	157	331	71	189	2480	SSEBEV075E	SSEBEV075F
90	80	174	367	88	191	3090	SSEBEV090E	SSEBEV090F
110	100	212	407	92	223	5370	SSEBEV110E	SSEBEV110F

ACCESSORIES



CVDE

Long spigot PE100 end connectors for joints with electrofusion fittings or for butt welding

d	DN	PN	L	SDR	Code
75	65	16	111	11	CVDE11075
90	80	16	118	11	CVDE11090VXE
110	100	16	127	11	CVDE11110VXE



EASYFIT HANDLE DN 65÷100

Easyfit multifunctional handle for union nut tightening SXE-SSE DN 65÷100

d	DN	Code
75	65	HSVXE075
90	80	HSVXE090
110	100	HSVXE110



LSE

Customisation set and label printing for Easyfit handle made up of precut adhesive sheets and software for guided label creation.

d	DN	Code
75	65	LSE063
90	80	LSE063
110	100	LSE063

CUSTOMISATION

SXE and SSE DN 65÷100 Easyfit valves are equipped with a customisable Labelling System.

This system lets you create special labels to affix to the valve body. This makes it extremely easy to apply company logos, identification serial numbers or service indications such as, for example, the valve function in the system, the transported fluid, but also specific information for customer service, such as the customer name or installation date or location on the valves.

The specific LCE module is a standard supply and is made up of a rigid transparent water-resistant PVC plug and white tag holder made of the same material, one side of which bears the FIP logo.

The holder, inserted in the plug, can be removed and, once overturned, used for customisation by applying labels printed with the software supplied with the LSE set.

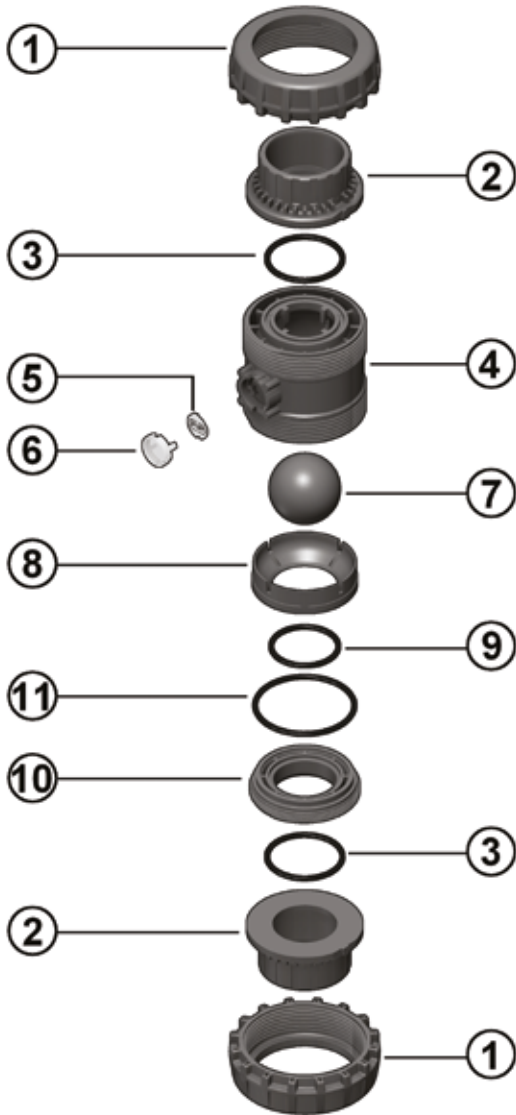
Proceed as follows to apply the label on the valve:

- 1) Remove the transparent plug from the housing on the valve body.
- 2) Extract the tag holder from the transparent plug.
- 3) Apply the adhesive label on the holder to align the profiles matching the tab position.
- 4) Reinsert the tag holder in the transparent plug so that the label is protected against the elements.
- 5) Replace the transparent plug in its seat on the valve body.

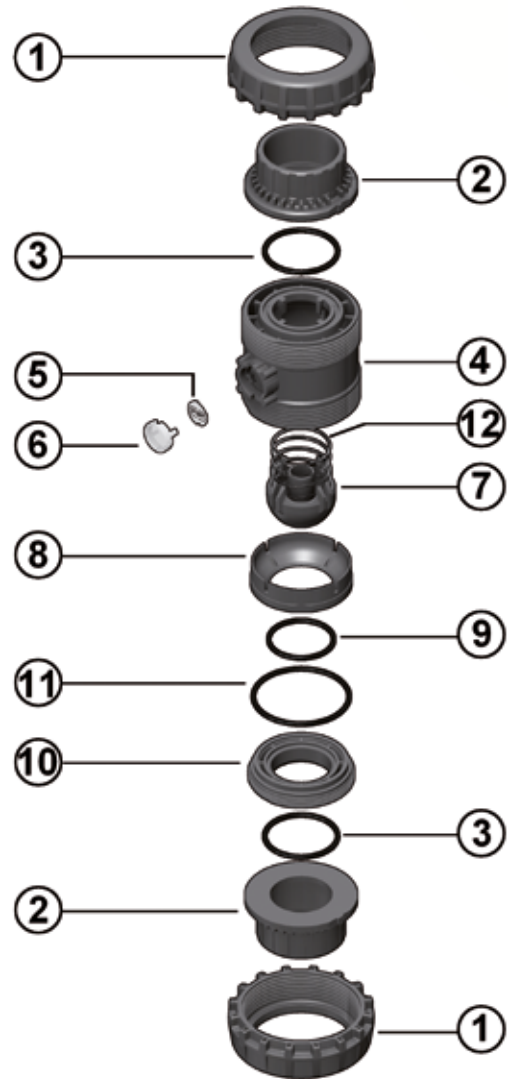


COMPONENTS

EXPLODED VIEW



SXE



SSE

- 1 · Union nut (PVC-U - 2)
- 2 · End connector (PVC-U - 2)
- 3 · Socket seal O-Ring (EPDM, FPM - 2)
- 4 · Body (PVC-U - 1)
- 5 · Tag holder (PVC - 1)

- 6 · Transparent protection plug (PVC - 1)
- 7 **SXE** · Ball (PVC-U - 1)
- 7 **SSE** · Shutter (PVC-U - 1)
- 8 · Gland packing ring (PVC-U - 1)
- 9 **SXE** · Ball seat O-Ring (EPDM, FPM - 1)

- 9 **SSE** · Shutter seat O-ring (EPDM, FPM - 1)
- 10 **SXE** · Ball seat carrier (PVC-U - 1)
- 10 **SSE** · Shutter seat carrier
- 11 · Radial seal O-Ring (EPDM, FPM - 1)
- 12 · Spring (STAINLESS steel* - 1)

* Also available made of A316 PTFE encapsulated
The component material and quantity supplied are indicated in the parentheses.

DISMOUNTING

SXE

SXE valves do not require maintenance in normal operating conditions. In the event of leaks or wear, before performing maintenance, cut-off fluid upstream from the valve and make sure it is de-pressurised (downstream drain if necessary).

- 1) Fully drain residual liquid that could be aggressive for the operator and, if possible, circulate water to internally clean the valve.
- 2) For easy union nut tightening in assembly, use the Easyfit multifunctional handle (supplied as an accessory).
- 3) Unscrew the ball seat carrier (10) with the Easyfit multifunctional handle: introduce the two protrusion on the top of the handle in the grooves in the carrier (10) and unscrew, extracting it counter-clockwise.
- 4) Remove all internal components.

SSE

In the event of leaks or wear, before performing maintenance, cut-off fluid upstream from the valve and make sure it is de-pressurised (downstream drain if necessary).

- 1) Fully drain residual liquid that could be aggressive for the operator and, if possible, circulate water to internally clean the valve.
- 2) For easy union nut tightening in assembly, use the Easyfit multifunctional handle (supplied as an accessory).
- 3) Unscrew the ball seat carrier (10) with the Easyfit multifunctional handle: introduce the two protrusion on the top of the handle in the grooves in the carrier (10) and unscrew, extracting it counter-clockwise.
- 4) Remove all internal components.

ASSEMBLY

SXE

- 1) Reconstruct the valve following the exploded view on the previous page.
- 2) Tighten the ball seat carrier (10) using the Easyfit multifunctional handle. This ensures optimal valve installation and operations (fig. 3).
- 3) Position the valve between the end connectors (2) and tighten the union nuts clockwise (1) using the Easyfit multifunctional handle (fig. 7) being sure the socket seal O-ring (3) does not exit the seats.

SSE

- 1) Reconstruct the valve following the exploded view on the previous page.
- 2) Tighten the ball seat carrier (10) using the Easyfit multifunctional handle. This ensures optimal valve installation and operations (fig. 3).
- 3) Position the valve between the end connectors (2) and tighten the union nuts clockwise (1) using the Easyfit multifunctional handle (fig. 7) being sure the socket seal O-ring (3) does not exit the seats.



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

Fig. 1



Fig. 2



Fig. 3



Fig. 4



INSTALLATION

SXE and SSE valves can be installed both vertically (upward flow) and horizontally (SXE with minimum 0.2 bar back pressure).

Before proceeding with installation, please follow these instructions carefully:

- 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 (1) from the body (4) and insert them in the pipe segments.
- 3) Solvent weld or screw the end connectors (2) onto the pipe segments.
- 4) Position the valve body between the end connectors (fig. 1).
- 5) Place the union nuts on the valve body and start tightening manually clockwise until they are hard to turn. Do not use wrenches or other tools that can damage the union nut surface (fig. 2).
- 6) For easy union nut tightening in assembly, use the Easyfit multifunctional handle (supplied as an accessory).
- 7) Extract the hooked insert in the handle (fig. 5) overturn it and fit it in the seat on the lower part of the handle (fig. 6).
- 8) Fit the tool on the external union nut profile until firmly and safely secured that allows for adequate torque without damaging the union nut in any way (fig. 7).
- 9) Repeat point 7 for the other union nut.
- 10) When tightened, remove the hooked insert and replace it in its seat in the handle.
- 11) If necessary, support the pipe with FIP pipe clip model ZIKM and DSM distance plates.

WARNINGS

- Do not use compressed air or other gases to test thermoplastic lines.
- Always avoid sudden closing manoeuvres and protect the valve against accidental manoeuvres.

Fig. 5



Fig. 6



Fig. 7



Fig. 8





FE DN 40÷200
PVC-U

Butterfly valve

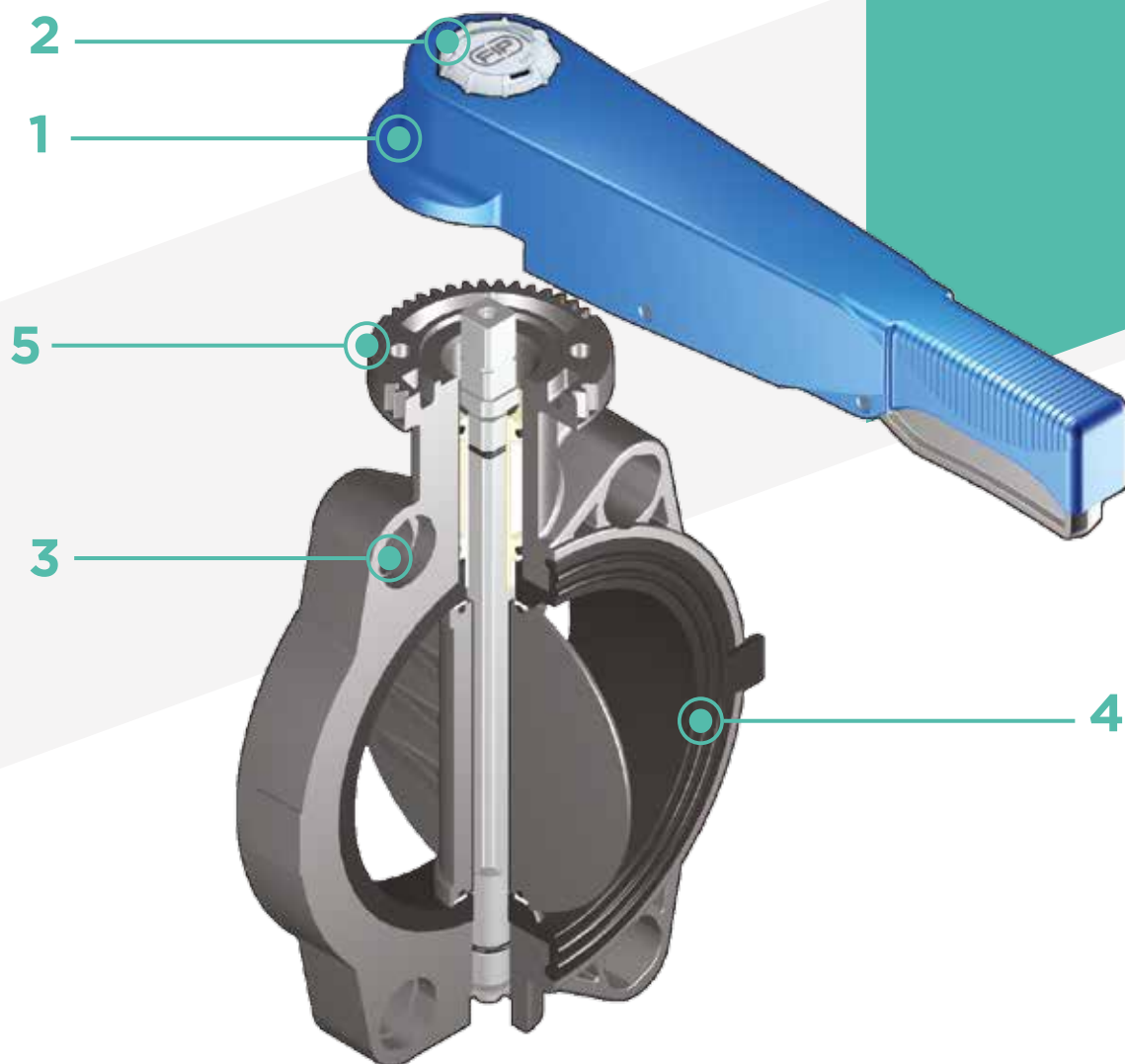
FE DN 40÷200

The FE is a butterfly valve for shutting off or regulating flow, specifically designed for water applications and equipped with a customisable Labelling System.

BUTTERFLY VALVE

- Disk in PVC-U with through shaft
- **Zinc plated square section steel stem completely isolated from the fluid** complying with standard ISO 5211:
DN 40 ÷ 65: 11 mm
DN 80 ÷ 100: 14 mm
DN 125 ÷ 150: 17 mm
DN 200: 22 mm
- Can also be installed as an end line valve, bottom discharge valve or tank dump valve
- **The wafer valve can be transformed into a one-way Lug body valve** thanks to the set of zinc plated steel inserts available as an optional extra
- **Valve material compatibility** (PVC-U) with water conveyance, drinking water and other food substances according to **current regulations**
- Possibility of directly installing a gearbox or pneumatic and/or electric actuators with a standard drilling pattern according to standard ISO 5211 F05, F07, F10

Technical specifications	
Construction	Bi-directional centric butterfly valve
Size range	DN 40 ÷ 200
Nominal pressure	Wafer version DN 40÷50: PN 16 with water at 20 °C DN 65÷200: PN 10 with water at 20 °C Lug version DN 40÷125: PN 6 with water at 20 °C DN 150÷200: PN 4 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	Flanging system: EN ISO 1452, EN ISO 15493, DIN 2501, ISO 7005-1, EN 1092-1, ASTM B16.5 Cl.150
Reference standards	Construction criteria: EN ISO 16136, EN ISO 1452, EN ISO 15493 Test methods and requirements: ISO 9393 Actuator couplings: ISO 5211
Valve material	Body: PVC-U Disk: PVC-U Stem: Zinc plated carbon steel (C45). On request STAINLESS steel AISI 316
Seal material	Liner: EPDM, FPM. On request NBR
Control options	Hand lever operated; Gearbox, pneumatic actuator, electric actuator



- 1 Ergonomic multifunctional handle in HIPVC** with the option for **quick operation, graduated adjustment** in 12 positions (every 7.5°). 180° reversible mounting
- 2 Customisable Labelling System:** integrated module, made of a transparent protection plug customisable tag holder using the LSE set (available as

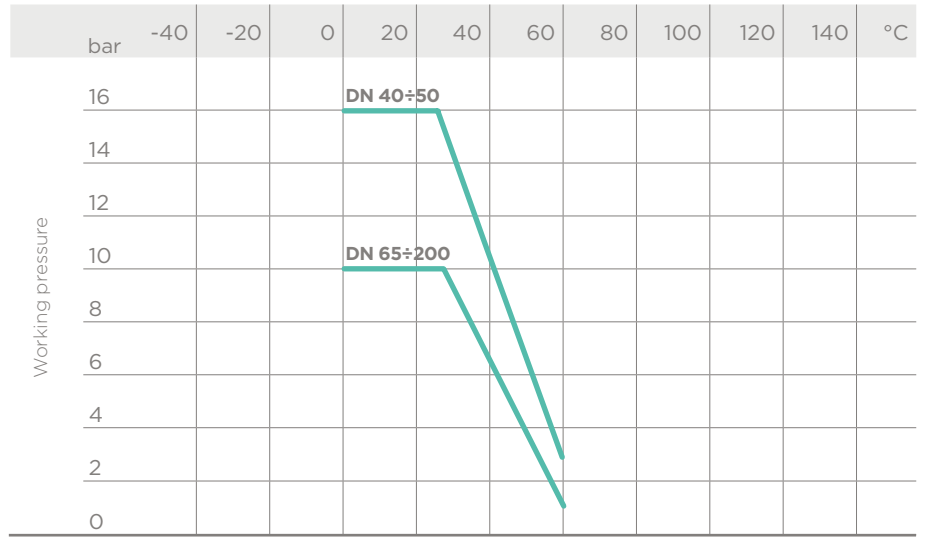
- accessory). The **customisation lets you identify the valve on the system** according to the specific needs
- 3 Drilling pattern with oval slots** that allow coupling to flanges according to numerous international standards

- 4 Interchangeable liner** with the dual function of forming a hydraulic seal and isolating the body from the fluid.
- 5 One-piece top flange with PVC-U rack.** Drilling according to standard ISO 5211 for direct drive:
 DN 40 ÷ 65: F05
 DN 80 ÷ 150: F07
 DN 200: F10

TECHNICAL DATA

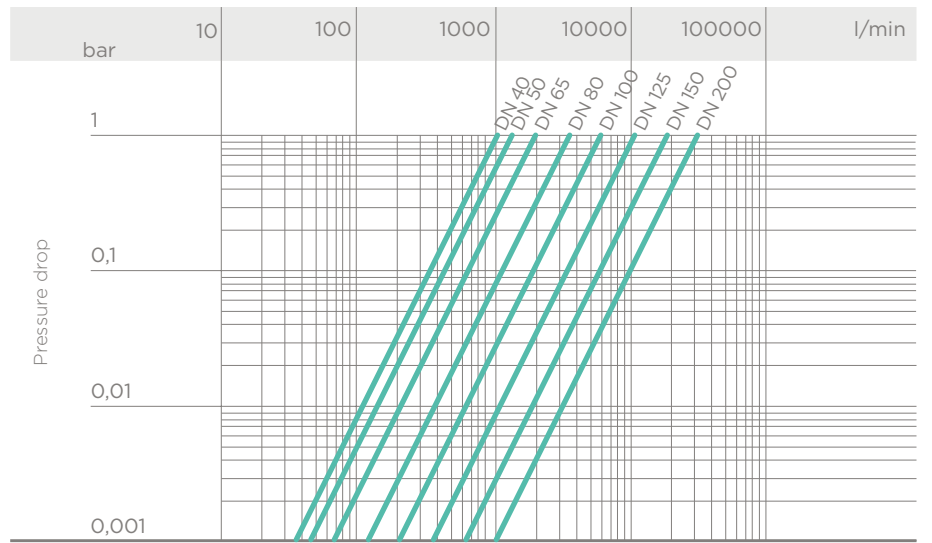
PRESSURE VARIATION ACCORDING TO TEMPERATURE

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).



Working temperature

PRESSURE DROP GRAPH



Flow Rate

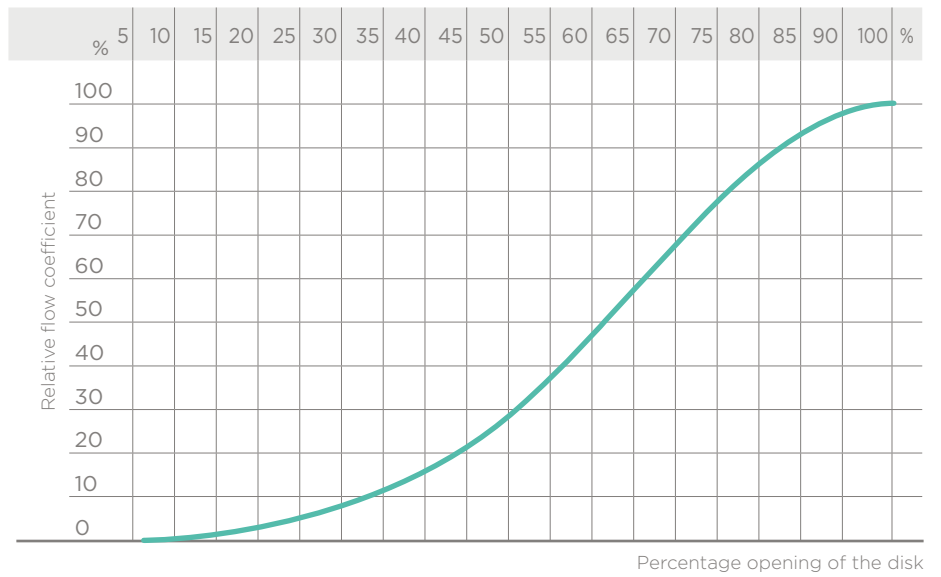
K_v100 FLOW COEFFICIENT

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 $\Delta p = 1$ bar pressure drop at a certain valve position.

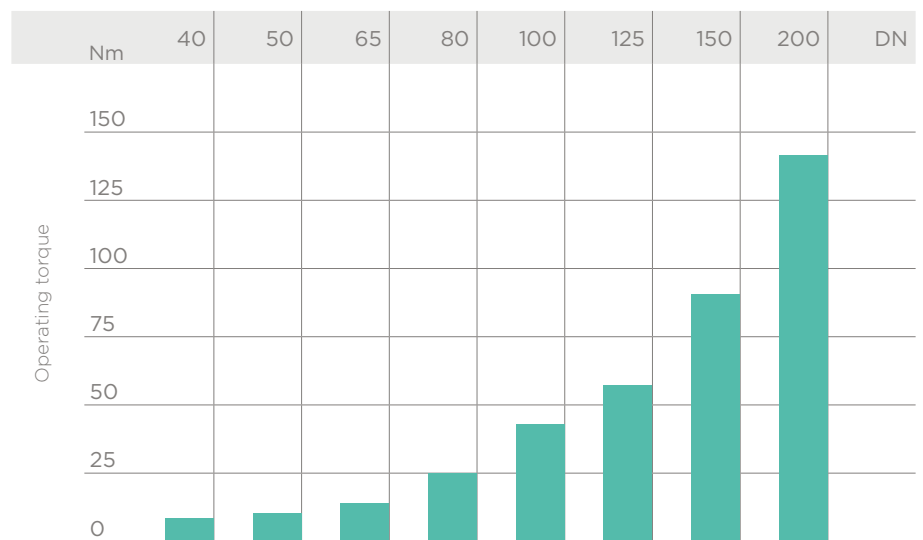
The K_v100 values shown in the table are calculated with the valve completely open.

DN	40	50	65	80	100	125	150	200
K _v 100 l/min	1000	1285	1700	3550	5900	9850	18700	30500

RELATIVE FLOW COEFFICIENT GRAPH

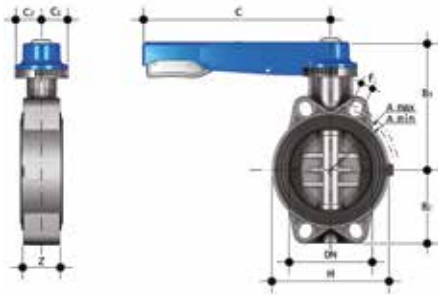


OPERATING TORQUE AT MAXIMUM WORKING PRESSURE



The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

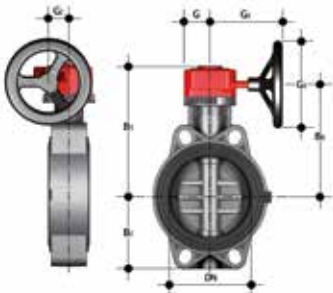
DIMENSIONS



FEOV/LM
Hand operated Butterfly valve

d	DN	PN	A _{min}	A _{max}	B ₂	B ₃	C	C ₁	C ₂	f	H	U	Z	g	EPDM Code	FPM Code
50	40	16	93.5	109	60	136	175	45	42	19	132	4	33	827	FEOVLM050E	FEOVLM050F
63	50	16	108	124	70	143	175	45	42	19	147	4	43	1012	FEOVLM063E	FEOVLM063F
75	65	10	128	144	80	168	175	45	45	19	165	4	46	1420	FEOVLM075E	FEOVLM075F
90	80	10	145	159	90	182	250	45	45	19	130	4	49	1640	FEOVLM090E	FEOVLM090F
110	100	10	165	190	105	196	250	45	45	19	150	4	56	1990	FEOVLM110E	FEOVLM110F
*125	125	10	204	215	121	215	335	45	45	23	185	4	64	3030	FEOVLM140E	FEOVLM140F
140	125	10	204	215	121	215	335	45	45	23	185	4	64	3030	FEOVLM140E	FEOVLM140F
160	150	10	230	242	132	229	335	45	45	23	210	4	70	3730	FEOVLM160E	FEOVLM160F
**200	200	10	280	298	161	309	425	65	82	23	325	8	71	8240	FEOVLM225E	FEOVLM225F
225	200	10	280	298	161	309	425	65	82	23	325	8	71	8240	FEOVLM225E	FEOVLM225F

* FEOV D140 with special adaptor stubs D125



FEOV/RM
Gearbox operated Butterfly valve

d	DN	PN	B ₂	B ₅	B ₆	G	G ₁	G ₂	G ₃	U	g	EPDM Code	FPM Code
75	65	10	80	173	145	48	135	39	125	4	2380	FEOVRM075E	FEOVRM075F
90	80	10	90	187	159	48	135	39	125	4	2600	FEOVRM090E	FEOVRM090F
110	100	10	105	201	173	48	135	39	125	4	2950	FEOVRM110E	FEOVRM110F
*125	125	10	121	220	192	48	144	39	200	4	4400	FEOVRM140E	FEOVRM140F
140	125	10	121	220	192	48	144	39	200	4	4400	FEOVRM140E	FEOVRM140F
160	150	10	132	235	207	48	144	39	200	4	5100	FEOVRM160E	FEOVRM160F
**200	200	10	161	288	257	65	175	60	200	8	9260	FEOVRM225E	FEOVRM225F
225	200	10	161	288	257	65	175	60	200	8	9260	FEOVRM225E	FEOVRM225F

* FEOV D140 with special adaptor stubs D125

ACCESSORIES



FE LUG INSERT

Size range: DN 40 ÷ 200 mm. Standard: ISO-DIN. PN: 6-4 bar with water at 20° C (used as end line). Threaded inserts are available to transform all the PVC-U butterfly valves of the FEOV series into Lug body valves.

The zinc plated steel inserts can be easily fitted before installing the valve in the system and allow the valve itself to be used as a single flange end line valve in total safety.

Lug butterfly valves are the unidirectional type when used as end line valves with a single flange, or as a connecting element for maintenance operations without needing to drain the lines

DN	PN (1)	PN Lug (2)	Code
40	12	6	KITLUG075ISO
50	1285	6	KITLUG075ISO
65	1700	6	KITLUG075ISO
80	3550	6	KITLUG090ISO
100	5900	6	KITLUG110ISO
125	9850	6	KITLUG140ISO
150	18700	4	KITLUG160ISO
200	30500	4	KITLUG225ISO

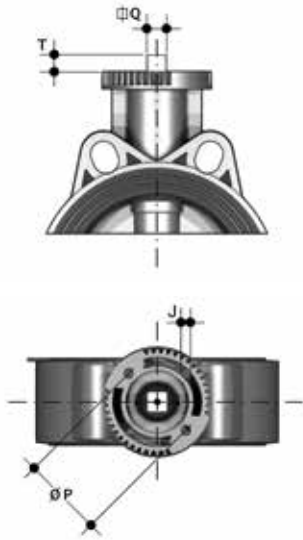
(1) installation with double flange
(2) installation with single flange



LSE

Customisation and label printing set for Easyfit handle made up of pre-cut adhesive sheets and software for guided label creation

DN	Code
40	LSE040
50	LSE040
65	LSE040
80	LSE040
100	LSE040
125	LSE040
150	LSE040
200	LSE040



ACTUATOR MOUNTING FLANGE

The valve can be equipped with standard pneumatic or electric actuators and gearbox for heavy-duty operations, using a flange in PP-GR reproducing the drilling pattern provided for by standard ISO 5211.

DN	J	P	Ø	T	Q
40	7	50	F 05	12	11
50	7	50	F 05	12	11
65	7	50	F 05	12	11
80	9	70	F 07	16	14
100	9	70	F 07	16	14
125	9	70	F 07	19	17
150	9	70	F 07	19	17
200	11	102	F 10	24	22

CUSTOMISATION

The FE valve is equipped with the customisable Labelling System.

This system lets you create special labels to insert in the handle. This makes it extremely easy to apply company logos, identification serial numbers or service information such as, for example, the valve function in the system, the transported fluid, but also specific information for customer service, such as the customer name or installation date or location on the valves.

The specific LCE module is a standard supply and is made up of a rigid transparent water-resistant PVC plug (A-C) and white tag holder (B) made of the same material, one side of which bears the FIP logo (fig. 1).

The tag holder, inserted in the plug, can be removed and, once overturned, used for customisation by applying labels printed with the software supplied with the LSE set.

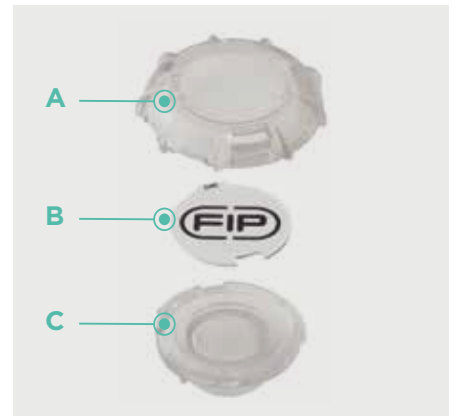
Proceed as follows to apply the label on the valve:

- 1) Remove the upper part of the transparent plug (A) rotating it counter-clockwise as indicated by the word "Open" on the plug and remove it.
- 2) Extract the tag holder from its housing on the lower part of the plug (C)
- 3) Apply the adhesive label on the holder (B) to align the profiles matching the tab position.
- 4) Reinsert the tag holder in its housing at the bottom of the plug
- 5) Reposition the top of the plug in the housing rotating it clockwise; this way the label is protected against the elements.

Fig. 1

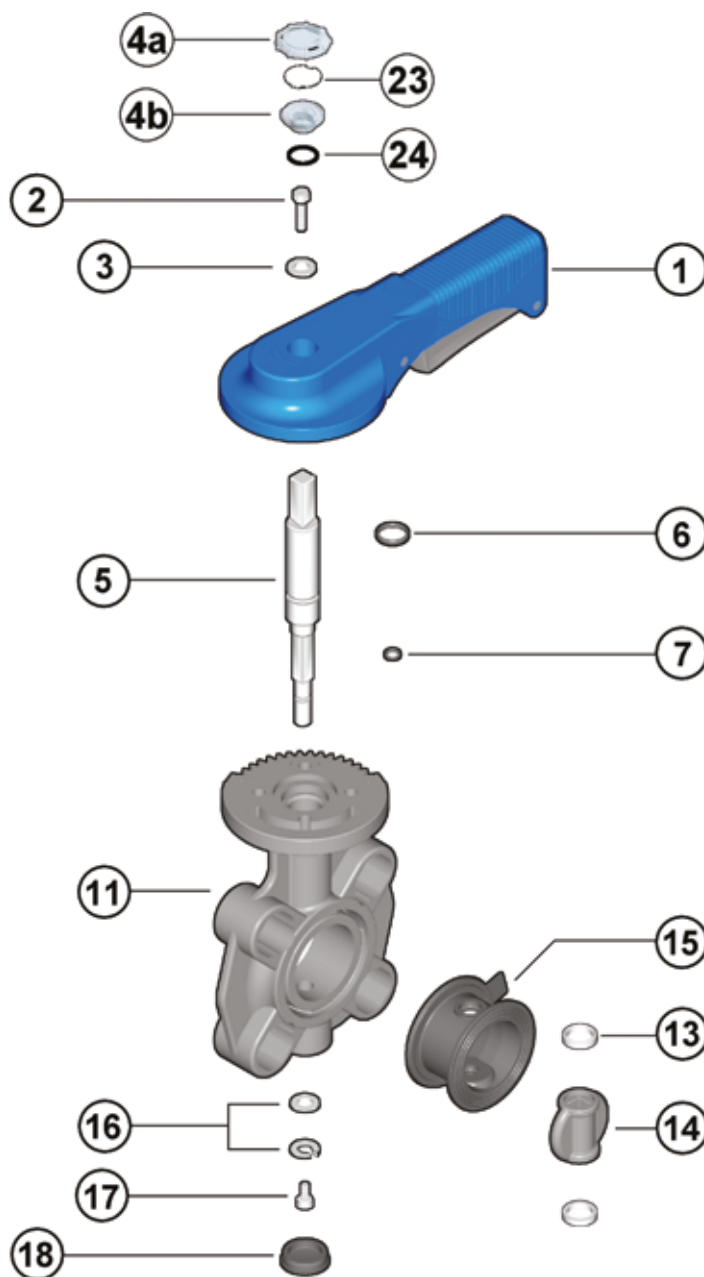


Fig. 2



COMPONENTS

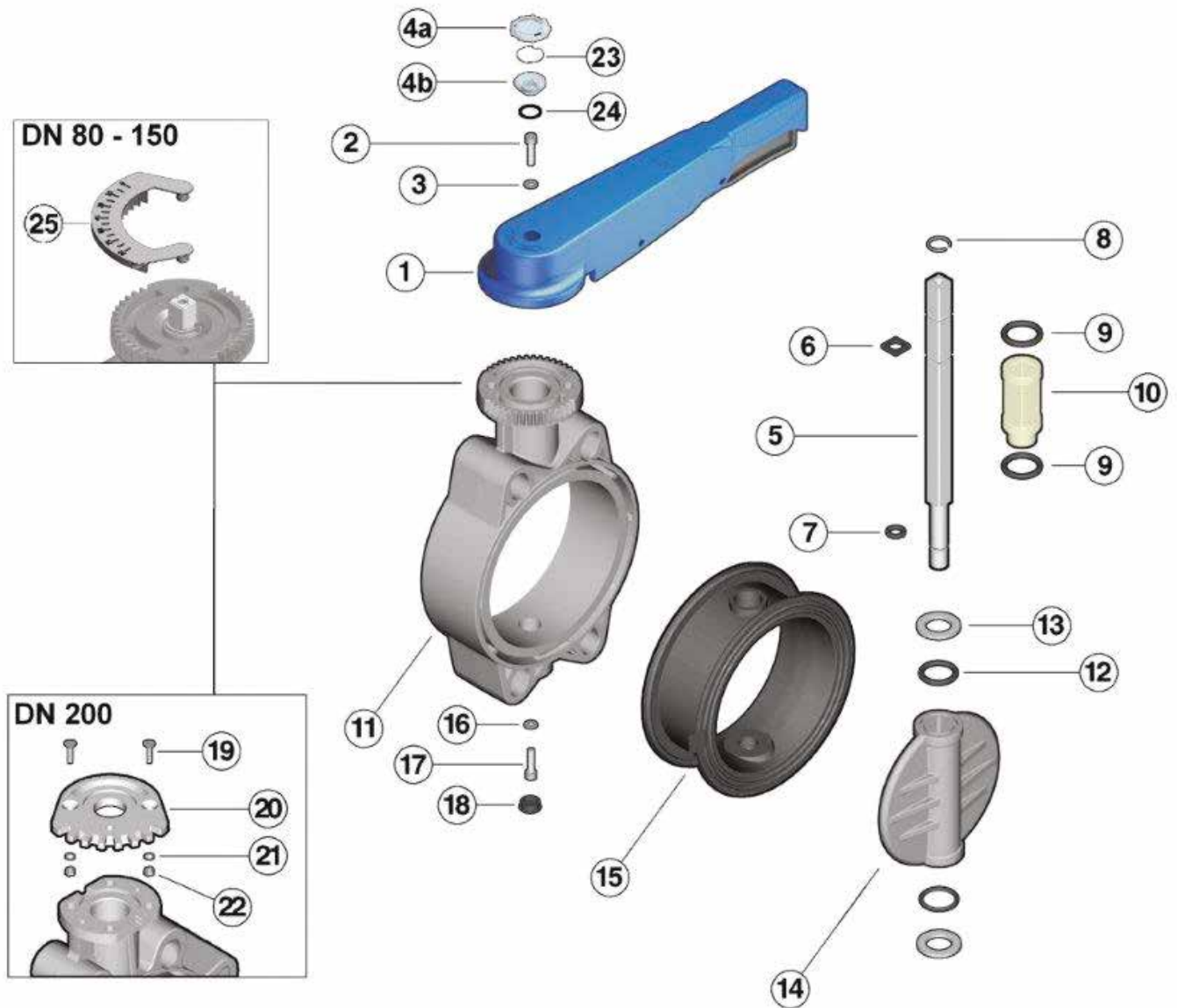
EXPLODED VIEW DN 40÷50



- | | | |
|---|------------------------------------|-------------------------------------|
| 1 • Handle (HIPVC - 1) | 10 • Bush (Nylon - 1) | 19 • Screw (STAINLESS steel - 2) |
| 2 • Screw (STAINLESS steel - 1) | 11 • Body (PVC-U - 1) | 20 • Plate (PVC-U - 1) |
| 3 • Washer (STAINLESS steel - 1) | 12 • Disk O-Ring (EPDM or FPM - 2) | 21 • Washer (STAINLESS steel - 2) |
| 4 • Transparent protection plug (PVC - 1) | 13 • Anti-friction ring (PTFE - 2) | 22 • Nut (STAINLESS steel - 2) |
| 5 • Stem (Zinc plated steel - 1) | 14 • Disk (PVC-U - 1) | 23 • Tag holder (PVC-U - 1) |
| 6 • Stem O-Ring (EPDM or FPM - 1) | 15 • Liner (EPDM or FPM - 1) | 24 • O-Ring (NBR - 2) |
| 7 • Stem O-Ring (EPDM or FPM - 1) | 16 • Washer (Steel - 1) | 25 • Position indicator (PVC-U - 1) |
| 8 • Seeger ring (STAINLESS steel - 1) | 17 • Screw (STAINLESS steel - 1) | |
| 9 • Bush O-Ring (EPDM or FPM - 2) | 18 • Protection plug (PE - 1) | |

The material of the component and the quantity supplied are indicated between brackets

EXPLODED VIEW DN 65÷200



- | | | |
|---|------------------------------------|-------------------------------------|
| 1 · Handle (HIPVC - 1) | 10 · Bush (Nylon - 1) | 19 · Screw (STAINLESS steel - 2) |
| 2 · Screw (STAINLESS steel - 1) | 11 · Body (PVC-U - 1) | 20 · Plate (PVC-U - 1) |
| 3 · Washer (STAINLESS steel - 1) | 12 · Disk O-Ring (EPDM or FPM - 2) | 21 · Washer (STAINLESS steel - 2) |
| 4 · Transparent protection plug (PVC - 1) | 13 · Anti-friction ring (PTFE - 2) | 22 · Nut (STAINLESS steel - 2) |
| 5 · Stem (Zinc plated steel - 1) | 14 · Disk (PVC-U - 1) | 23 · Tag holder (PVC-U - 1) |
| 6 · Stem O-Ring (EPDM or FPM - 1) | 15 · Liner (EPDM or FPM - 1) | 24 · O-Ring (NBR - 2) |
| 7 · Stem O-Ring (EPDM or FPM - 1) | 16 · Washer (Steel - 1) | 25 · Position indicator (PVC-U - 1) |
| 8 · Seeger ring (STAINLESS steel - 1) | 17 · Screw (STAINLESS steel - 1) | |
| 9 · Bush O-Ring (EPDM or FPM - 2) | 18 · Protection plug (PE - 1) | |

The material of the component and the quantity supplied are indicated between brackets

DISMOUNTING

- 1) Remove the LCE module consisting of the rigid transparent PVC plug (4a-4b) and white tag holder (23) and remove screw (2) and washer (3).
- 2) Remove the handle (1).
- 3) Remove the protection plug (18) and screw (17) with the washer (16).
- 4) Extract the stem (5) and disk (14).
- 5) Remove the liner (15) from the body (11).
- 6) Remove the Seeger ring (8) and guide bush (10).
- 7) Remove O-rings (6) and (7).

MOUNTING

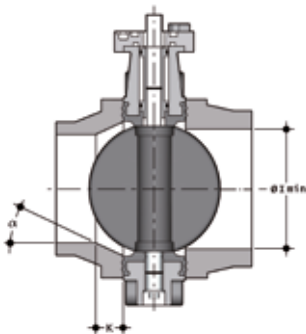
- 1) Place the liner (15) on the body (11).
- 2) Insert O-rings (6) and (7) on the stem (5).
- 3) Insert the gaskets (9) on the guide bush (10) and the bush on the stem. Lock the bush using the Seeger ring (8).
- 4) Position the O-rings (12) and then the anti-friction rings (13) on the disk (14) and the disk inside the body, after having lubricated the liner (15).
- 5) Insert the stem (5) through the body (11) and disk (14).
- 6) Tighten screw (17) with washer (16) and insert the protection plug (18).
- 7) Position the handle (1) on the stem.
- 8) Tighten screw (2) with washer (3) and replace the LCE module consisting of the rigid transparent PVC plug (4a-4b) and white tag holder protection(23).



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

INSTALLATION

JOINTS



Before proceeding with the installation of the stubs, check that the bore of the fittings has sufficient clearance to allow the valve disk to open correctly. Also check the maximum coupling distance for the liner. Before proceeding with the installation of the FE valve, check that the bore of the stubs allows the correct opening of the disk

DN	l min.
40	25
50	28
65	47
80	64
100	84
125	108
150	134
200	187

To install on PVC-U stubs, check the valve-stub-flange couplings in the following table.

	d	50	63	75	90	110	125	140	160	200	225
	DN	40	50	65	80	100	100	125	150	200	200
FK valve	50	40									
	63	50									
	75	65									
	90	80									
	110	100									
	140	125						*			
	160	150									
	225	200									**

Stub with female end for solvent welding according to EN ISO 1452 and DIN 8063- 4

* With special stub d125 DN 125 for FE d140 DN 125 and flange d140 DN 125

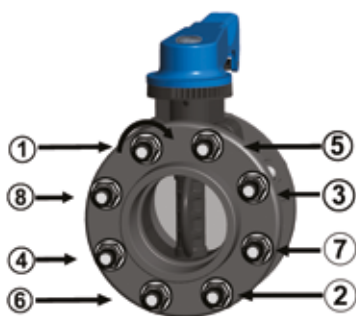
** With special stub d200 DN 200 for FE d225 DN 200 and flange d225 DN 200

For the installation of PP-PE stubs, for butt welding a short spigot or electrofusion/butt welding a long spigot, check the valve-stub couplings and the K - a chamfer dimensions where necessary according to the different SDR's in the following table.

	d	50	63	75	90	110	125	140	160	180	200	225	250	280	315
	DN	40	50	65	80	100	100	125	150	150	200	200	250	250	300
FK valve	50	40													
	63	50													
	75	65													
	90	80													
	110	100													
	140	125													
	160	150													
	225	200													
SDR	17/17.6										k=26.5 a=20°		k=15.7 a=25°		k=13.3 a=25°
	11								k=35 a=20°		k=35 a=25°	k=40 a=15°	k=32.5 a=25°	k=35 a=25°	k=34.5 a=25°
	7.4			k=10 a=35°	k=15 a=35°		k=20 a=30°	k=35 a=20°	k=15 a=35°	k=40 a=20°	k=35 a=30°	k=55 a=30°	k=35 a=30°	k=65 a=30°	

Short/long spigot stubs according to EN ISO 15494 and DIN 16962/16963 and flange

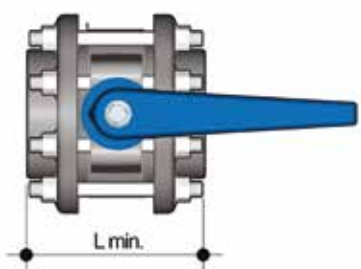
TIGHTENING THE STUD-BOLTS



Before tightening the stud-bolts, it is advisable to open the disk in order to prevent damage to the seal. Tighten the stud-bolts in a uniform manner, in the order indicated in the figure, to the operating torque value indicated in the table.

The stud-bolts do not need to be excessively tightened in order to produce a perfect hydraulic seal.

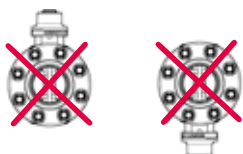
Overtightening could adversely affect the operating torque of the valve



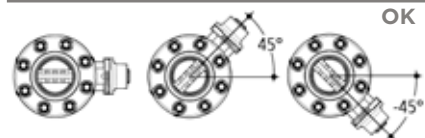
DN	L min.	*Nm
40	M16x150	9
50	M16x150	12
65	M16x170	15
80	M16x180	18
100	M16x180	20
125	M16x210	35
150	M20x240	40
200	M20x260	55

* Tightening torques for nuts and bolts on couplings with backing ring.
Values required to obtain the hydraulic test (1.5xPN at 20°C)
(new or lubricated nuts and bolts)

! WARNINGS



NO



OK

Make sure that the valves installed on the system are suitably supported for their weight.

Always avoid sudden closing manoeuvres and protect the valve from accidental manoeuvres. To this end, it is advisable to install a reduction gear, available on request.

In the case of dirty fluids or those with sediments, install the valve inclined as shown in the figure.



FK DN 40÷300
PVC-U

Butterfly valve

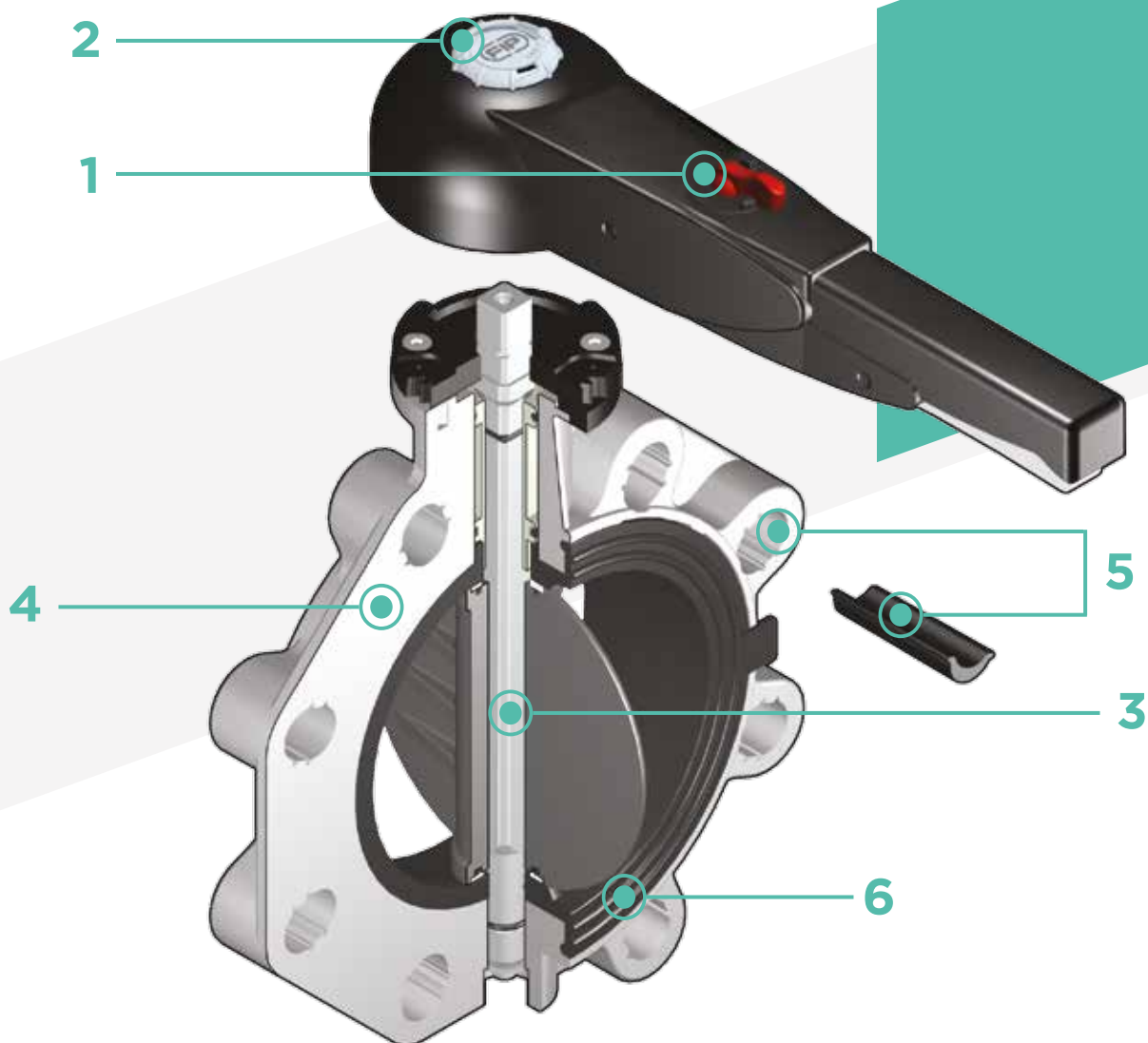
FK DN 40÷300

The FK is a butterfly valve for shutting off or regulating flow, with structural characteristics that make it ideal for industrial applications requiring high performance and long-term reliability. This valve is also equipped with the customisable Labelling System.

BUTTERFLY VALVE

- Interchangeable Disk in PVC-U with through shaft, available in different thermoplastic materials: PP-H, PVC-C, ABS, PVDF
- Overall dimensions of the valve in accordance with standard ISO 5752 (DN 40÷200 Medium Series 25, DN 250÷ 300 Long Series 16) and DIN 3202 K2 and ISO 5752 (DN 65÷200 K2, DN 250÷300 K3)
- Can also be installed as an end line valve, bottom discharge valve or tank dump valve
- **Special Lug version** PN 10 fully drilled to DIN 2501 or ANSI B16.5 cl.150 with **molded-in AISI 316 stainless steel threaded inserts**
- **Valve material compatibility** (PVC-U) with water conveyance, drinking water and other food substances according to **current regulations**
- Possibility of installing a manual reducer or pneumatic and/or electric actuators by applying an ISO standard drilling PP-GR flanges. DN 40 ÷ 200 valve fitted with plate with rack in PP-GR. For actuated versions with flange drilled according to ISO 5211 F05, F07, F10.
DN 250÷300 valve, fitted with one-piece top flange in high mechanical strength PP-GR with mounting flange for internal components drilled according to standard ISO 5211 F10, F12, F14

Technical specifications	
Construction	Bi-directional centric butterfly valve
Size range	DN 40÷300
Nominal pressure	Wafer version DN 40÷50: PN 16 with water at 20 °C DN 65÷250: PN 10 with water at 20 °C DN 300: PN 8 with water at 20 °C Lug version DN 65÷200: PN 10 with water at 20 °C DN 250÷300: PN 6 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	Flanging system: EN ISO 1452, EN ISO 15493, DIN 2501, ISO 7005-1, EN 1092-1, ASTM B16.5 Cl.150
Reference standards	Construction criteria: EN ISO 16136, EN ISO 1452, EN ISO 15493 Test methods and requirements: ISO 9393 Actuator couplings: ISO 5211
Valve material	Body: PP-GR Disk: PVC-U Stem: STAINLESS steel AISI 420. On request STAINLESS steel AISI 316
Seal material	Liner: EPDM, FPM. On request NBR
Control options	Hand Lever operated (DN 40÷200); Gearbox, pneumatic actuator, electric actuator



1 Ergonomic handle in HIPVC equipped with **locking and unlocking device, release, quick operation and graduated adjustment** in 10 intermediate positions (DN 40÷200). The operating range, starting from the first few degrees of valve opening, also guarantees extremely low pressure drops

2 Customisable Labelling System: integrated module in the handle, made of a transparent protection plug customisable tag holder using the LSE set (available as accessory). The **customisation** lets you **identify the valve on the system** according to the specific needs

3 STAINLESS steel square section stem completely isolated from the fluid complying with standard ISO 5211:
 DN 40÷65: 11 mm
 DN 80÷100: 14 mm
 DN 125÷150: 17 mm
 DN 200: 22 mm
 DN 250÷300: 27 mm

4 Body in polypropylene based compound **reinforced with fibreglass (PP-GR) resistant to UV rays** and characterised by **high mechanical strength**

5 **Drilling pattern using oval slots** that allow coupling to flanges according to numerous international standards. The

special **self-centring inserts in ABS** supplied for DN 40÷200 guarantee the **correct axial alignment** of the valve during installation.

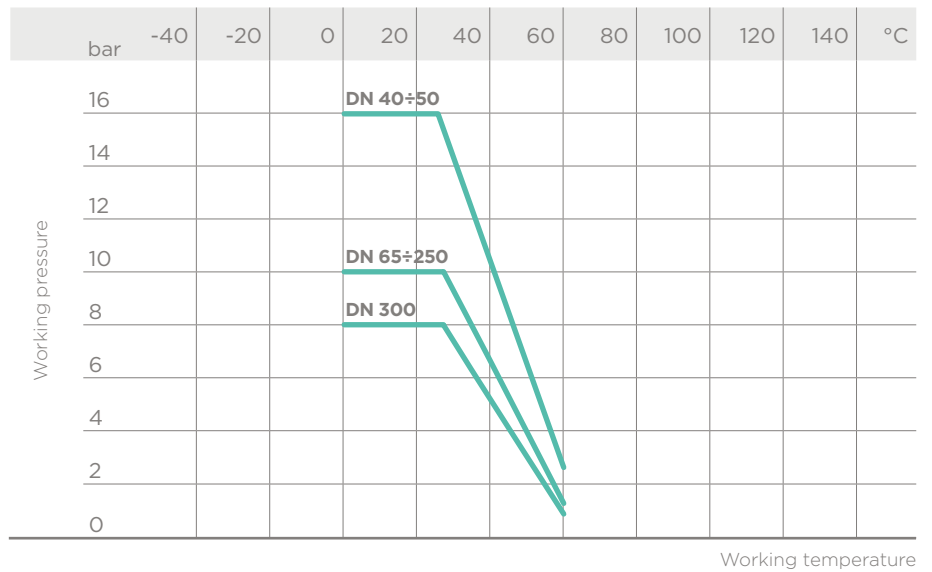
For DN 250÷300 valves, the drilling pattern for the self-centring system is of the traditional type according to DIN and ANSI standards

6 **Interchangeable liner** with the dual function of forming a hydraulic seal and isolating the body from the fluid

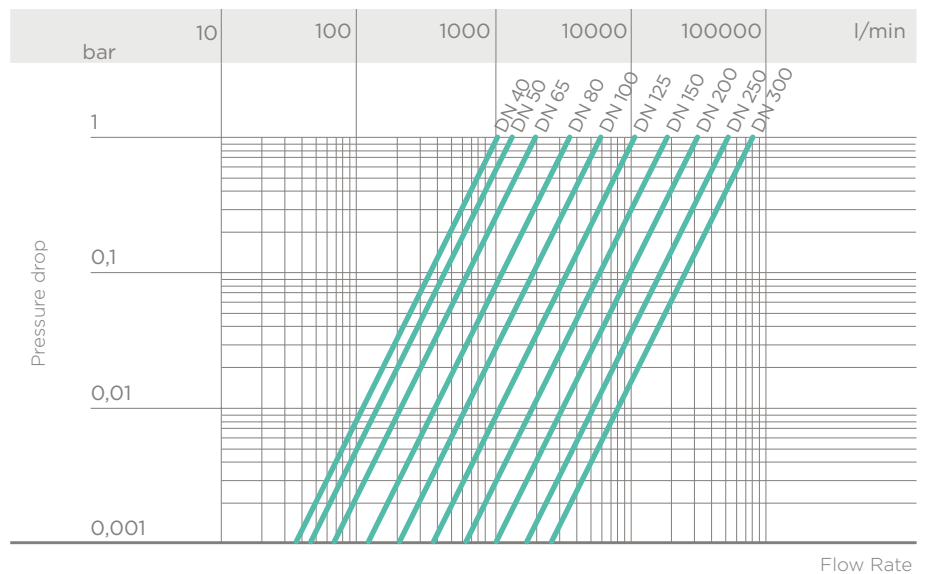
TECHNICAL DATA

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

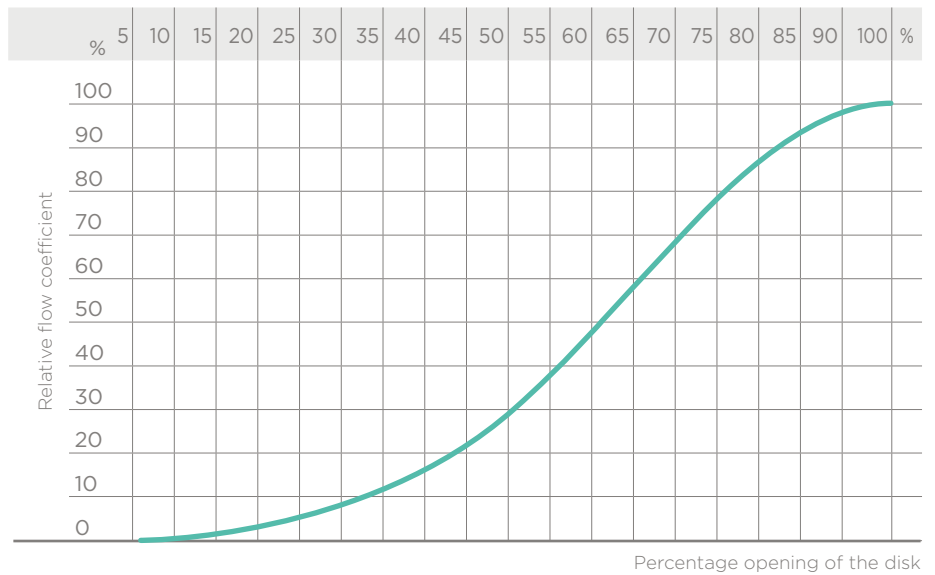
The K_v100 flow coefficient is the Q flow rate of litres per minute of water at a temperature of 20°C that will generate $\Delta p = 1$ bar pressure drop at a certain valve position.

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

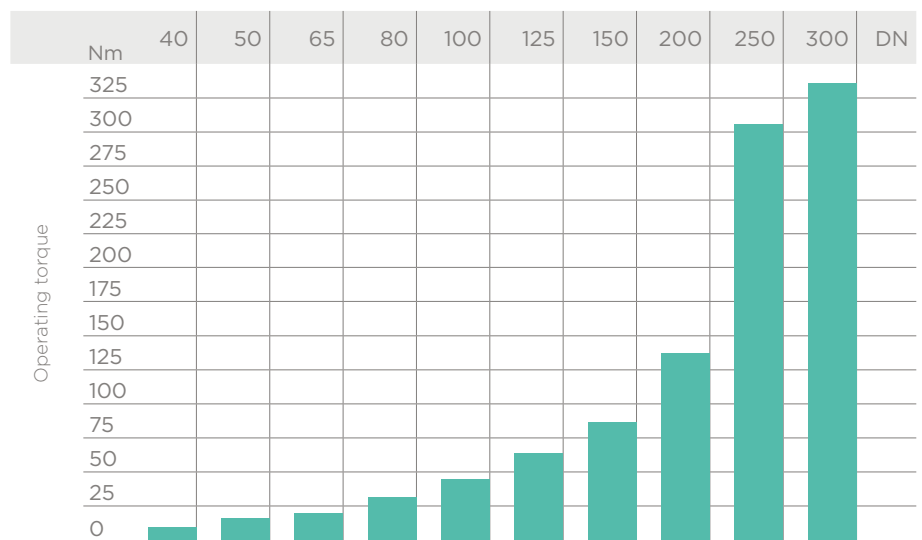
DN	40	50	65	80	100	125	150	200	250	300
K _v 100 l/min	1000	1285	1700	3550	5900	9850	18700	30500	53200	81600

RELATIVE FLOW COEFFICIENT DIAGRAM

The relative flow coefficient is the flow rate through the valve as a function of the degree of valve aperture.

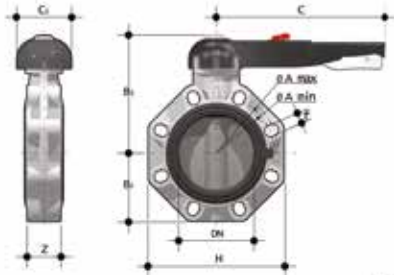


OPERATING TORQUE AT MAXIMUM WORKING PRESSURE



The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

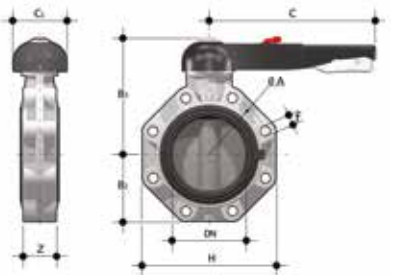
DIMENSIONS



FKOV/LM

Hand operated Butterfly valve

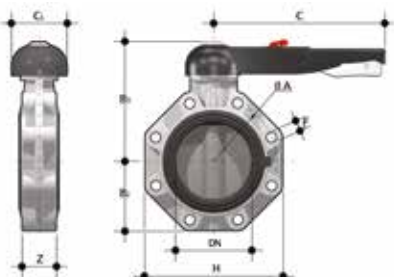
d	DN	PN	A min	A max	B ₂	B ₃	C	C ₁	H	U	Z	g	EPDM Code	FPM Code
50	40	10	99	109	60	137	175	100	132	4	33	1000	FKOVLM050E	FKOVLM050F
63	50	10	115	125.5	70	143	175	100	147	4	43	1180	FKOVLM063E	FKOVLM063F
75	65	10	128	144	80	164	175	110	165	4	46	1570	FKOVLM075E	FKOVLM075F
90	80	10	145	160	93	178	175	100	185	8	49	2020	FKOVLM090E	FKOVLM090F
110	100	10	165	190	107	192	272	110	211	8	56	2370	FKOVLM110E	FKOVLM110F
140	125	10	204	215	120	212	330	110	240	8	64	3300	FKOVLM140E	FKOVLM140F
160	150	10	230	242	134	225	330	110	268	8	70	4100	FKOVLM160E	FKOVLM160F
225	200	10	280	298	161	272	420	122	323	8	71	7050	FKOVLM225E	FKOVLM225F



FKOV/LM LUG ISO-DIN

Hand operated Butterfly valve, version Lug ISO-DIN

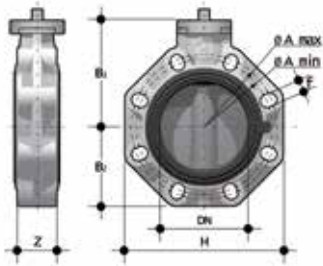
d	DN	PN	øA	B ₂	B ₃	C	C ₁	f	H	U	Z	g	EPDM Code	FPM Code
75	65	10	145	80	164	175	110	M16	165	4	46	1870	FKOLVLM075E	FKOLVLM075F
90	80	10	160	93	178	175	100	M16	185	8	49	2670	FKOLVLM090E	FKOLVLM090F
110	100	10	180	107	192	272	110	M16	211	8	56	3020	FKOLVLM110E	FKOLVLM110F
140	125	10	210	120	212	330	110	M16	240	8	64	4700	FKOLVLM140E	FKOLVLM140F
160	150	10	240	134	225	330	110	M20	268	8	70	5450	FKOLVLM160E	FKOLVLM160F
225	200	10	295	161	272	420	122	M20	323	8	71	8350	FKOLVLM225E	FKOLVLM225F



FKOV/LM LUG ANSI

Hand operated Butterfly valve, version Lug ANSI

d	DN	PN	øA	B ₂	B ₃	C	C ₁	f	H	U	Z	g	EPDM Code	FPM Code
2"1/2	65	10	139.7	119	80	175	110	5/8"	165	4	46	1970	FKOALVLM212E	FKOALVLM212F
3"	80	10	152.4	133	93	175	100	5/8"	185	8	49	2820	FKOALVLM300E	FKOALVLM300F
4"	100	10	190.5	147	107	272	110	5/8"	211	8	56	3170	FKOALVLM400E	FKOALVLM400F
5"	125	10	215.9	167	120	330	110	3/4"	240	8	64	4900	FKOALVLM500E	FKOALVLM500F
6"	150	10	241.3	180	134	330	110	3/4"	268	8	70	5700	FKOALVLM600E	FKOALVLM600F
8"	200	10	298.4	227	161	420	122	3/4"	323	8	71	8650	FKOALVLM800E	FKOALVLM800F

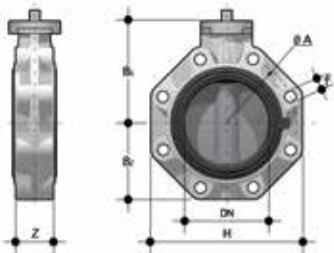


FKOV/FM

Butterfly valve with bare shaft

d	DN	PN	A min	A max	øA	B ₁	B ₂	f	H	U	Z	g	EPDM Code	FPM Code
50	40	16	99	109	-	106	60	19	132	4	33	574	FKOVFM050E	FKOVFM050F
63	50	16	115	125.5	-	112	70	19	147	4	43	754	FKOVFM063E	FKOVFM063F
75	65	10	128	144	-	119	80	19	165	4	46	1000	FKOVFM075E	FKOVFM075F
90	80	10	145	160	-	133	93	19	185	8	49	1400	FKOVFM090E	FKOVFM090F
110	100	10	165	190	-	147	107	19	211	8	56	1750	FKOVFM110E	FKOVFM110F
*125	125	10	204	215	-	167	120	23	240	8	64	2550	FKOVFM140E	FKOVFM140F
140	125	10	204	215	-	167	120	23	240	8	64	2550	FKOVFM140E	FKOVFM140F
160	150	10	230	242	-	180	134	23	268	8	70	3300	FKOVFM160E	FKOVFM160F
**200	200	10	280	298	-	227	161	23	323	8	71	6000	FKOVFM225E	FKOVFM225F
225	200	10	280	298	-	227	161	23	323	8	71	6000	FKOVFM225E	FKOVFM225F
***250	250	10	-	-	350	248	210	22	405	12	114	12000	FKOVFM280E	FKOVFM280F
***280	250	10	-	-	350	248	210	22	405	12	114	12000	FKOVFM280E	FKOVFM280F
***315	300	8	-	-	400	305	245	22	475	12	114	19000	FKOVFM315E	FKOVFM315F
****10"	250	10	-	-	362	248	210	25.4	405	12	114	12000	FKOAVFM810E	FKOAVFM810F
****12"	300	8	-	-	432	305	245	25.4	475	12	114	19000	FKOAVFM812E	FKOAVFM812F

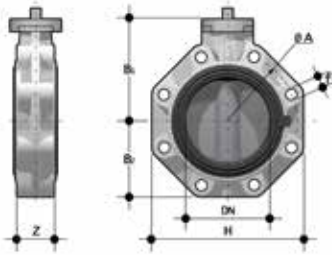
*FKOV d140 with special adaptor stubs d125 - **FKOV d225 with special adaptor stubs d200 - ***ISO-DIN - ****ANSI B16.5 cl. 150



FKOV/FM LUG ISO-DIN

Bare shaft Butterfly valve, version Lug ISO-DIN

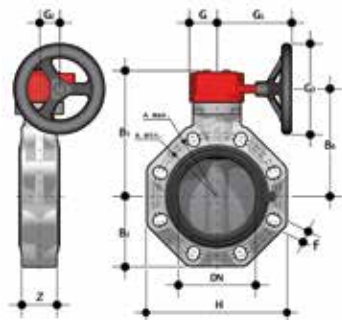
d	DN	PN	øA	B ₁	B ₂	f	H	U	Z	g	EPDM Code	FPM Code
75	65	10	145	119	80	M16	165	4	46	1400	FKOLVFM075E	FKOLVFM075F
90	80	10	160	133	93	M16	185	8	49	2200	FKOLVFM090E	FKOLVFM090F
110	100	10	180	147	107	M16	211	8	56	2550	FKOLVFM110E	FKOLVFM110F
140	125	10	210	167	120	M16	240	8	64	4150	FKOLVFM140E	FKOLVFM140F
160	150	10	240	180	134	M20	268	8	70	4900	FKOLVFM160E	FKOLVFM160F
225	200	10	295	227	161	M20	323	8	71	7600	FKOLVFM225E	FKOLVFM225F



FKOV/FM LUG ANSI

Bare shaft Butterfly valve, version Lug ANSI

d	DN	PN	øA	B ₁	B ₂	f	H	U	Z	g	EPDM Code	FPM Code
2"1/2	65	10	145	119	80	5/8"	165	4	46	1400	FKOALVFM212E	FKOALVFM212F
3"	80	10	160	133	93	5/8"	185	8	49	2200	FKOALVFM300E	FKOALVFM300F
4"	100	10	180	147	107	5/8"	211	8	56	2550	FKOALVFM400E	FKOALVFM400F
5"	125	10	210	167	120	3/4"	240	8	64	4150	FKOALVFM500E	FKOALVFM500F
6"	150	10	240	180	134	3/4"	268	8	70	4900	FKOALVFM600E	FKOALVFM600F
8"	200	10	295	227	161	3/4"	323	8	71	7600	FKOALVFM800E	FKOALVFM800F
10"	250	6	362	248	210	7/8"	405	12	114	16800	FKOALVFM810E	FKOALVFM810F
12"	300	6	431.8	305	245	7/8"	475	12	114	23800	FKOALVFM812E	FKOALVFM812F

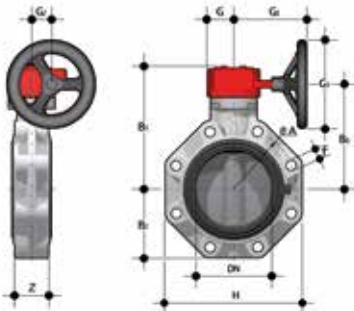


FKOV/RM

Gearbox operated Butterfly valve

d	DN	PN	A _{min}	A _{max}	øA	B ₂	B ₅	B ₆	G	G ₁	G ₂	G ₃	H	U	Z	g	EPDM Code	FPM Code
50	40	16	99	109	-	60	161	133	48	135	39	125	132	4	33	1974	FKOVRM050E	FKOVRM050F
63	40	16	115	125.2	-	70	167	139	48	135	39	125	147	4	43	2154	FKOVRM063E	FKOVRM063F
75	65	10	128	144	-	80	174	146	48	135	39	125	165	4	46	2400	FKOVRM075E	FKOVRM075F
90	80	10	145	160	-	93	188	160	48	135	39	125	185	8	49	2800	FKOVRM090E	FKOVRM090F
110	100	10	165	190	-	107	202	174	48	135	39	125	211	8	56	3150	FKOVRM110E	FKOVRM110F
*125	125	10	204	215	-	120	222	194	48	144	39	200	240	8	64	4450	FKOVRM140E	FKOVRM140F
140	125	10	204	215	-	120	222	194	48	144	39	200	240	8	64	4450	FKOVRM140E	FKOVRM140E
160	150	10	230	242	-	134	235	207	48	144	39	200	268	8	70	5200	FKOVRM160E	FKOVRM160F
**200	200	10	280	298	-	161	287	256	65	204	60	200	323	8	71	9300	FKOVRM225E	FKOVRM225F
225	200	10	280	298	-	161	287	256	65	204	60	200	323	8	71	9300	FKOVRM225E	FKOVRM225F
***250	250	10	-	-	350	210	317	281	88	236	76	250	405	12	114	18600	FKOVRM280E	FKOVRM280F
***280	250	10	-	-	350	210	317	281	88	236	76	250	405	12	114	18600	FKOVRM280E	FKOVRM280F
***315	300	8	-	-	400	245	374	338	88	236	76	250	475	12	114	25600	FKOVRM315E	FKOVRM315F
****10"	250	10	-	-	362	210	317	281	88	236	76	250	405	12	114	18600	FKOAVRM810E	FKOAVRM810F
****12"	300	8	-	-	432	245	374	338	88	236	76	250	475	12	114	25600	FKOAVRM812E	FKOAVRM812F

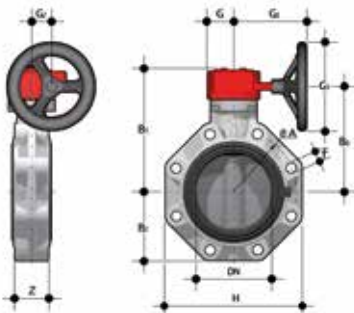
*FKOV d140 with special adaptor stubs d125 - **FKOV d225 with special adaptor stubs d200 - ***ISO-DIN - ****ANSI B16.5 cl. 150



FKOV/RM LUG ISO-DIN

Gearbox operated Butterfly valve, version Lug ISO-DIN

d	DN	PN	øA	B ₂	B ₃	B ₆	f	G	G ₁	G ₂	G ₃	H	U	Z	g	EPDM Code	FPM Code
75	65	10	145	80	174	146	M16	48	135	39	125	165	4	46	2800	FKOLVRM075E	FKOLVRM075F
90	80	10	160	93	188	160	M16	48	135	39	125	185	8	49	3600	FKOLVRM090E	FKOLVRM090F
110	100	10	180	107	202	174	M16	48	135	39	125	211	8	56	3950	FKOLVRM110E	FKOLVRM110F
140	125	10	210	120	222	194	M16	48	144	39	200	240	8	64	6050	FKOLVRM140E	FKOLVRM140F
160	150	10	240	134	235	207	M20	48	144	39	200	268	8	70	6800	FKOLVRM160E	FKOLVRM160F
225	200	10	295	161	287	256	M20	65	204	60	200	323	200	8	10900	FKOLVRM225E	FKOLVRM225F



FKOV/RM LUG ANSI

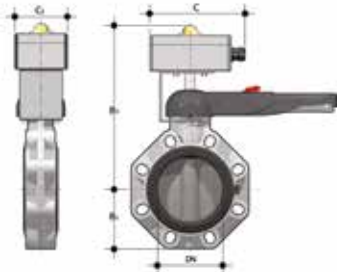
Gearbox operated Butterfly valve, version Lug ANSI

d	DN	PN	øA	B ₂	B ₃	B ₆	f	G	G ₁	G ₂	G ₃	H	U	Z	g	EPDM Code	FPM Code
2"1/2	65	10	139.7	80	174	146	5/8"	48	135	39	125	165	4	46	2800	FKOALVRM212E	FKOALVRM212F
3"	80	10	152.4	93	188	160	5/8"	48	135	39	125	185	8	49	3600	FKOALVRM300E	FKOALVRM300F
4"	100	10	190.5	107	202	174	5/8"	48	135	39	125	211	8	56	3950	FKOALVRM400E	FKOALVRM400F
5"	125	10	215.9	120	222	194	3/4"	48	144	39	200	240	8	64	6050	FKOALVRM500E	FKOALVRM500F
6"	150	10	241.3	134	235	207	3/4"	48	144	39	200	268	8	70	6800	FKOALVRM600E	FKOALVRM600F
8"	200	10	298.4	161	287	256	3/4"	65	204	60	200	323	8	71	10900	FKOALVRM800E	FKOALVRM800F
10"	250	6	362	210	317	281	7/8"	88	236	76	250	405	12	114	23400	FKOALVRM810E	FKOALVRM810F
12"	300	6	431.8	245	374	338	7/8"	88	236	76	250	475	12	114	30400	FKOALVRM812E	FKOALVRM812F

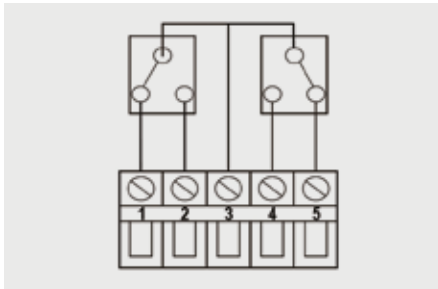
ACCESSORIES

FK MS

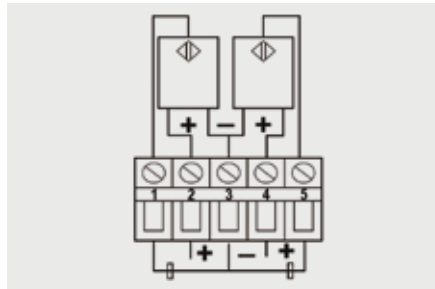
The MS kit lets you install a limit switch with electromechanical or inductive micro switches on a manual FK/LM valve to remotely signal the valve position (open-closed). The kit can be assembled on the valve even if already installed on the system.



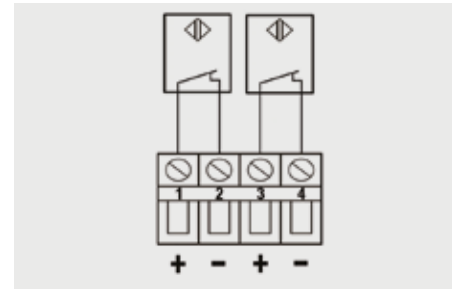
DN	B ₂	B ₃	C ₁	Protection	Code electromechanical	Code inductive	Code Namur
40	60	248	80	IP67	FKMS0M	FKMS0I	FKMS0N
50	70	254	80	IP67	FKMS0M	FKMS0I	FKMS0N
65	80	261	80	IP67	FKMS0M	FKMS0I	FKMS0N
80	93	275	80	IP67	FKMS1M	FKMS1I	FKMS1N
100	107	289	80	IP67	FKMS1M	FKMS1I	FKMS1N
125	120	309	80	IP67	FKMS1M	FKMS1I	FKMS1N
150	134	322	80	IP67	FKMS1M	FKMS1I	FKMS1N
200	161	369	80	IP67	FKMS2M	FKMS2I	FKMS2N



Electromechanical



Inductive



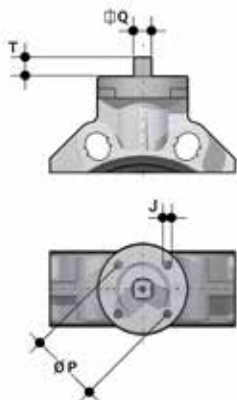
Namur

LSE

Customisation and label printing set for Easyfit handle made up of precut adhesive sheets and software for guided label creation.



DN	Code
40	LSE040
50	LSE040
65	LSE040
80	LSE040
100	LSE040
125	LSE040
150	LSE040
200	LSE040



ACTUATOR MOUNTING FLANGE

The valve can be equipped with standard pneumatic or electric actuators and gearbox for heavy-duty operations, using a flange in PP-GR reproducing the drilling pattern provided for by standard ISO 5211.

DN	J	P	Ø	T	Q
40	7	50	F 05	12	11
50	7	50	F 05	12	11
65	7/9	50/70	F 05/F 07	12	11
80	9	70	F 07	16	14
100	9	70	F 07	16	14
125	9	70	F 07	19	17
150	9	70	F 07	19	17
200	11	102	F 10	24	22
200	11	102	F 10	24	22
250	11/13/17	102/125/140	F 10/F 12/F 14	29	27
300	11/13/17	102/125/140	F 10/F 12/F 14	29	27

CUSTOMISATION

The FK valve is equipped with the customisable Labelling System.

This system lets you create special labels to insert in the handle. This makes it extremely easy to apply company logos, identification serial numbers or service information such as, for example, the valve function in the system, the transported fluid, but also specific information for customer service, such as the customer name or installation date or location on the valves.

The specific LCE module is a standard supply and is made up of a rigid transparent water-resistant PVC plug (A-C) and white tag holder (B) made of the same material, one side of which bears the FIP logo (fig. 1).

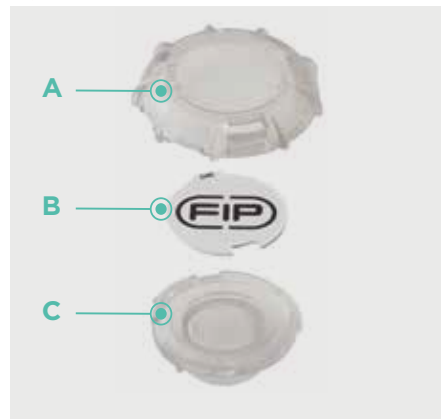
The tag holder, inserted in the plug, can be removed and, once overturned, used for customisation by applying labels printed with the software supplied with the LSE set. Proceed as follows to apply the label on the valve:

- 1) Remove the upper part of the transparent plug (A) rotating it counter-clockwise as indicated by the word "Open" on the plug and remove it.
- 2) Extract the tag holder from its housing on the lower part of the plug (C)
- 3) Apply the adhesive label on the holder (B) to align the profiles matching the tab position.
- 4) Reinsert the tag holder in its housing at the bottom of the plug
- 5) Reposition the top of the plug in the housing rotating it clockwise; this way the label is protected against the elements.

Fig. 1

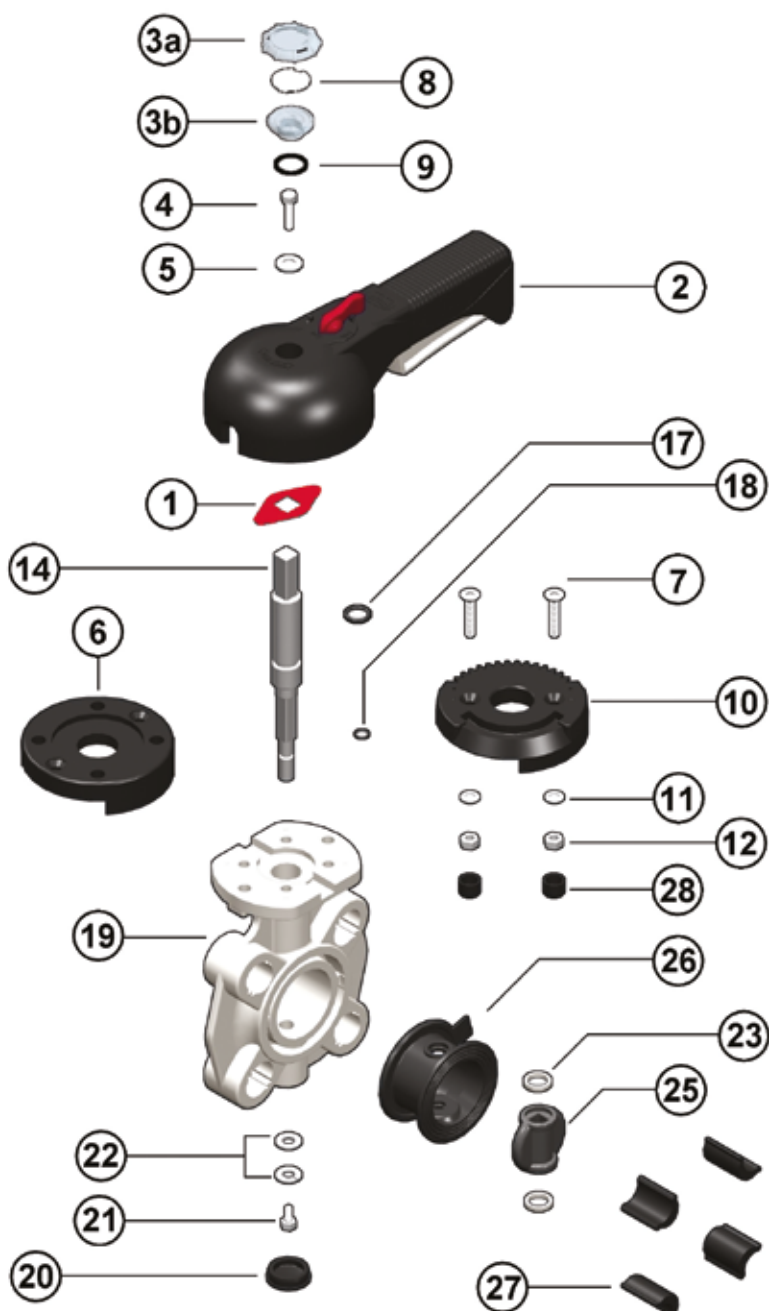


Fig. 2



COMPONENTS

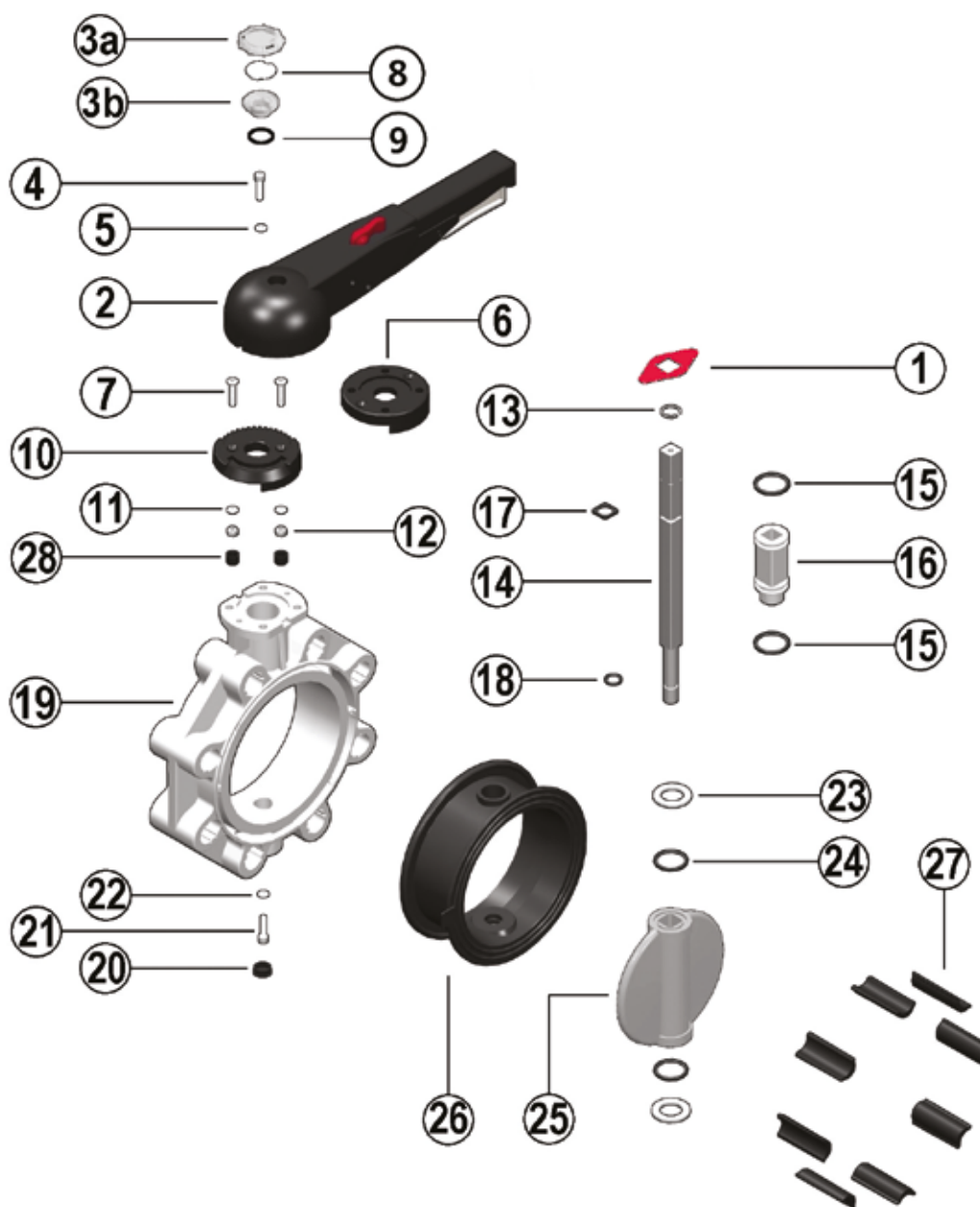
EXPLODED VIEW DN 40÷50



- | | | |
|---|---|---|
| 1 · Position indicator (PA - 1) | 9 · O-Ring (NBR - 1) | 20 · Protection plug (PE - 1) |
| 2 · Handle (HIPVC - 1) | 10 · Plate (PP-GR - 1) | 21 · Screw (STAINLESS steel - 1) |
| 3a/b · Transparent protection plug (PVC - 1) | 11 · Washer (STAINLESS steel - 2) | 22 · Washer (STAINLESS steel - 1) |
| 4 · Fastening screw (STAINLESS steel - 1) | 12 · Nut (STAINLESS steel - 2) | 23 · Anti-friction ring (PTFE - 2) |
| 5 · Washer (STAINLESS steel - 1) | 13 · Seeger ring (STAINLESS steel - 1) | 24 · Disk O-Ring (FPM - 2) |
| 6 · Flange (PP-GR - 1) | 14 · Stem (Steel AISI 420 - 1) | 25 · Disk (PVC-U- 1) |
| 7 · Screw (STAINLESS steel - 2) | 15 · Bush O-Ring (FPM - 2) | 26 · Liner (FPM - 1) |
| 8 · Tag holder (PVC-U - 1) | 16 · Bush (Nylon - 1) | 27 · Inserts (ABS - 4-8) |
| | 17 · Stem O-Ring (FPM - 1) | 28 · Plug (PE - 2) |
| | 18 · Stem O-Ring (FPM - 1) | |
| | 19 · Body (PP-GR - 1) | |

The material of the component and the quantity supplied are indicated between brackets

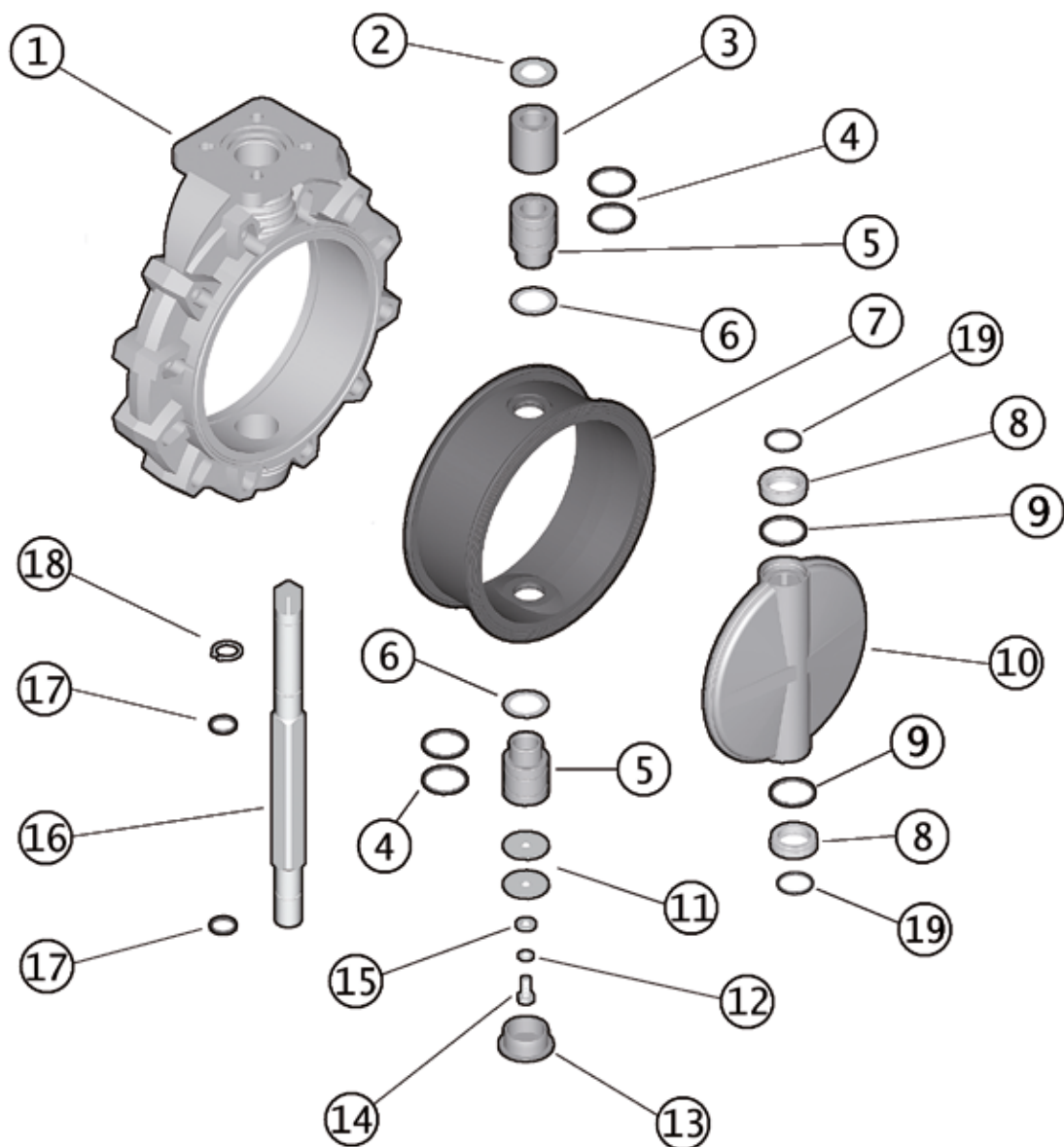
EXPLODED VIEW DN 65÷200



- | | | |
|---|---|---|
| 1 · Position indicator (PA - 1) | 9 · O-Ring (NBR - 1) | 19 · Body (PP-GR - 1) |
| 2 · Handle (HIPVC - 1) | 10 · Plate (PP-GR - 1) | 20 · Protection plug (PE - 1) |
| 3a/b · Transparent protection plug (PVC - 1) | 11 · Washer (STAINLESS steel - 2) | 21 · Screw (STAINLESS steel - 1) |
| 4 · Fastening screw (STAINLESS steel - 1) | 12 · Nut (STAINLESS steel - 2) | 22 · Washer (STAINLESS steel - 1) |
| 5 · Washer (STAINLESS steel - 1) | 13 · Seeger ring (STAINLESS steel - 1) | 23 · Anti-friction ring (PTFE - 2) |
| 6 · Flange (PP-GR - 1) | 14 · Stem (Steel AISI 420 - 1) | 24 · Disk O-Ring (FPM - 2) |
| 7 · Screw (STAINLESS steel - 2) | 15 · Bush O-Ring (FPM - 2) | 25 · Disk (PVC-U - 1) |
| 8 · Tag holder (PVC-U - 1) | 16 · Bush (Nylon - 1) | 26 · Liner (FPM - 1) |
| | 17 · Stem O-Ring (FPM - 1) | 27 · Inserts (ABS - 4-8) |
| | 18 · Stem O-Ring (FPM - 1) | 28 · Plug (PE - 2) |

The material of the component and the quantity supplied are indicated between brackets

EXPLODED VIEW DN 250÷300



- 1 • Body (PP-GR - 1)
- 2 • Washer (STAINLESS steel - 1)
- 3 • Bush (PP - 1)
- 4 • Bush O-Ring (FPM - 4)
- 5 • Bush (PP - 2)
- 6 • Washer (PTFE - 2)
- 7 • Liner (FPM - 1)
- 8 • Anti-friction ring (PTFE - 2)
- 9 • Disk O-Ring (FPM - 2)

- 10 • Disk (PVC-U - 1)
- 11 • Washer (STAINLESS steel - 2)
- 12 • Washer (STAINLESS steel - 1)
- 13 • Protection plug (PE - 1)
- 14 • Screw (STAINLESS steel - 1)
- 15 • Washer (STAINLESS steel - 1)
- 16 • Stem (Steel AISI 420 - 1)
- 17 • Stem O-Ring (FPM - 2)

- 18 • Seeger ring (STAINLESS steel - 1)
- 19 • O-Ring (FPM - 2)

The material of the component and the quantity supplied are indicated between brackets

DISMOUNTING

DN 40÷200

- 1) Remove the LCE module consisting of the rigid transparent PVC plug (3a-3b) and white tag holder (8) and remove screw (2) and washer (3) (fig.3).
- 2) Remove the handle (2).
- 3) Remove the screws (7) and plate (10) from the body (19).
- 4) Remove the protection plug (20) and screw (21) with the washer (22).
- 5) Extract the stem (14) and disk (25).
- 6) Remove the anti-friction rings (23) and (DN 65÷200 only) O-Rings (24).
- 7) Remove the liner (26) from the body (19).
- 8) Remove the Seeger ring (13) and (DN 65÷200 only) guide bush (16).
- 9) Remove (DN 65÷200 only) the O-Rings (15) and (17, 18).

DN 250÷300

- 1) Remove the protection plug (13) and screw (14) with the washers (11-15).
- 2) Extract the stem (16) and disk (10).
- 3) Remove the seal (7) from the body (1).
- 4) Remove the Seeger ring (18) and guide bushes (5-3) with washer (2).
- 5) Extract the lower bush (5).
- 6) Remove O-Rings (4) and (17).

MOUNTING

DN 40÷200

- 1) Place the liner (26) on the body (19).
- 2) Insert the O-Rings (17) and (18) on the stem (14).
- 3) Insert the O-Rings (15) on the guide bush (16) and the bush on the stem. Lock the bush using the Seeger ring (13).
- 4) Position the O-Rings (24) and then the anti-friction rings (23) on the disk (25) and the disk inside the body, after having lubricated the liner (26).
- 5) Insert the through stem (14) in the body (19) and disk (25).
- 6) Tighten screw (21) with washer (22) and insert the protection plug (20).
- 7) Position the plate (10) on the body (19) and tighten screws (7).
- 8) Position the handle (2) on the stem (14).
- 9) Tighten screw (4) with washer (5) and replace the LCE module consisting of the rigid transparent PVC plug (3a-3b) and white tag holder (8).

DN 250÷300

- 1) Place the liner (7) on the body (1).
- 2) Insert the O-Rings (4) and washer (6) on bushes (5).
- 3) Insert the O-Rings (17) on the stem (16); insert the upper bush (5), bush (3), washer (2) on the stem and fix them with Seeger ring (18).
- 4) Insert the seals (19-9) on the anti-friction washers (8).
- 5) Position the washers (8) in the seatings on the disk (10), and the disk inside the body (1) after having lubricated the liner (7).
- 6) Insert the through stem (16) in the body and disk.
- 7) Position the lower bush (5) from below.
- 8) Tighten screws (14) with washers (11-15) and insert the protection plug (13).

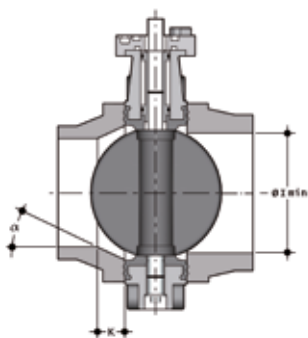
Fig. 3



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

INSTALLATION

JOINTS



Before proceeding with the installation of the stubs, check that the bore of the fittings has sufficient clearance to allow the valve disk to open correctly. Also check the maximum coupling distance for the liner. Before proceeding with the installation of the FK valve, check that the bore of the stub allows the correct opening of the disk.

DN	l min.
40	25
50	28
65	47
80	64
100	84
125	108
150	134
200	187
250	225
300	280

To install on PVC-U stubs, check the valve-stub-flange couplings in the following table.

FK valve	d	50	63	75	90	110	125	140	160	180	200	225	250	280	315
	DN	40	50	65	80	100	100	125	150	150	200	200	250	250	300
50	40	■													
63	50		■												
75	65			■											
90	80				■										
110	100					■									
140	125						*	■							
160	150								■	■					
225	200										**	■			
280	250												■	■	
315	300														■

Stub with female end for solvent welding according to EN ISO 1452 and DIN 8063- 4

* With special stub d125 DN125 for FK d140 DN125 and flange d140 DN125

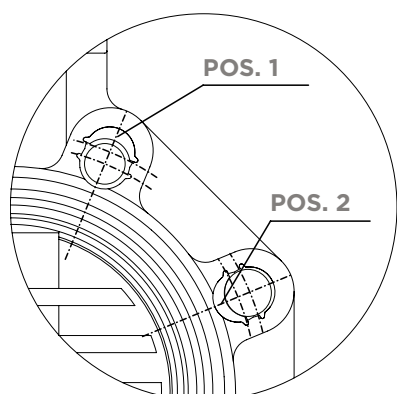
** With special stub d200 DN200 for FK d225 DN200 and flange d225 DN200

For the installation of PP-PE stubs, for butt welding a short spigot or electrofusion/
butt welding a long spigot, check the valve-stub-flange couplings and the K - a chamfer
dimensions where necessary according to the different SDR's in the following table.

	d	DN	50 40	63 50	75 65	90 80	110 100	125 100	140 125	160 150	180 150	200 200	225 200	250 250	280 250	315 300
FK valve	50	40														
	63	50														
	75	65														
	90	80														
	110	100														
	140	125														
	160	150														
	225	200														
	280	250														
	315	300														
SDR		17/17.6										k=26.5 a=20°		k=15.7 a=25°		k=13.3 a=25°
		11							k=35 a=20°		k=35 a=25°	k=40 a=15°	k=32.5 a=25°	k=35 a=25°	k=34.5 a=25°	
		7.4			k=10 a=35°	k=15 a=35°		k=20 a=30°	k=35 a=20°	k=15 a=35°	k=40 a=20°	k=35 a=30°	k=55 a=30°	k=35 a=30°	k=65 a=30°	

Short/long spigot stub according to EN ISO 15494 and DIN 16962/16963 and flange

POSITIONING THE INSERTS



Place the inserts in the holes according to the positions indicated in the table, from the side corresponding to the letters D and DN in order to facilitate the insertion of the stud-bolts and the coupling with the flanges (DN 40 ÷ 200). The self-centring inserts must be inserted in the guides in the slots in the valve body on the side with the writing, with the writing facing upwards, and positioned according to the type of flange drilling, as indicated in the following table:

DN	DIN 2501 PN6, EN 1092-1, BS 4504 PN6, DIN 8063 PN6	DIN 2501 PN10/16, EN 1092-1, BS 4504 PN 10/16, DIN 8063 PN 10/16, EN ISO 15493, EN ISO 1452	BS 10 table A-D-E Spec D-E	BS 1560 cl.150, ANSI B16.5 cl.150 *	JIS B 2220 K5	JIS 2211 K10**
DN 40	Pos. 1		Pos. 2	Pos. 1	Pos. 1	-
DN 50	Pos. 1		Pos. 2	Pos. 1	-	N/A
DN 65	Pos. 1		Pos. 2	Pos. 1	Pos. 2	Pos. 1
DN 80	Pos. 1		Pos. 2	Pos. 1	Pos. 2	Pos. 1
DN 100	Pos. 1		Pos. 2	Pos. 1	Pos. 2	Pos. 1
DN 125	Pos. 1		Pos. 2	Pos. 1	Pos. 2	Pos. 1
DN 150	Pos. 1		Pos. 2	Pos. 1	Pos. 2	Pos. 1
DN 200	Pos. 1		PN 10 Pos. 2	Pos. 2	Pos. 2	Pos. 1

* DN 50 without inserts
** DN 40, 50, 125 without inserts

POSITIONING THE VALVE

Position the valve between two flanged stubs, taking care to respect the installation tolerances Z. It is advisable to always install the valve with the disk partially closed (it must not exit the body) and avoid any misalignment of the flanges, as this would cause leaks.

Where possible comply with the following requirements:

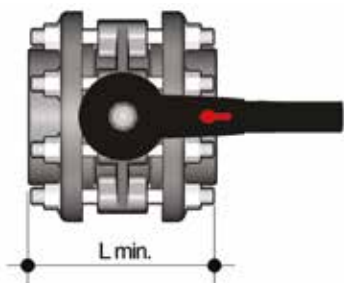
- Conveying dirty fluids: position the valve with the stem inclined at an angle of 45° to the pipe support plane.
- Conveying fluids with sediment: position the valve with the stem parallel to the pipe support plane.
- Conveying clean fluids: position the valve with the stem perpendicular to the pipe support plane.

TIGHTENING THE STUD-BOLTS



Before tightening the stud-bolts, it is advisable to open the disk in order to prevent damage to the seal. Tighten the stud-bolts in a uniform manner, in the order indicated in the figure, to the nominal operating torque value indicated in the table.

The stud-bolts do not need to be excessively tightened in order to produce a perfect hydraulic seal. Overtightening could adversely affect the operating torque of the valve.



DN	L min.	*Nm
40	M16x150	9
50	M16x150	12
65	M16x170	15
80	M16x180	18
100	M16x180	20
125	M16x210	35
150	M20x240	40
200	M20x260	55
250	M20x310	70
300	M20x340	70

* Tightening torques for nuts and bolts on flanged unions with backing rings. Values required to obtain the hydraulic test seal (1.5xPN at 20°C) (new or lubricated nuts and bolts)

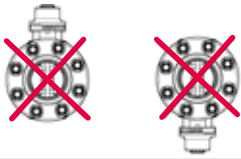
HANDLE LOCK



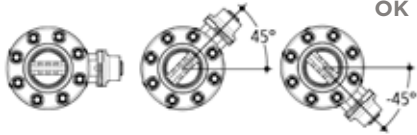
Thanks to the multifunctional handle and the red manoeuvre button on the lever, you can perform a 0°-90° manoeuvre and a graduated manoeuvre by means of the 10 intermediate positions and a stop lock: the handle can be locked in each of the 10 positions by simply pressing the Free-lock button. A padlock can also be installed on the handle to protect the system against tampering.

The valve is two-way and can be installed in any position. It can also be installed at end line or tank.

WARNINGS



NO
OK



Make sure that the valves installed on the system are suitably supported for their weight.

Always avoid sudden closing manoeuvres and protect the valve from accidental manoeuvres. To this end, it is advisable to install a reduction gear, available on request.

In the case of dirty fluids or those with sediments, install the valve inclined as shown in the figure.



DK DN 15÷65
PVC-U

DIALOCK® 2-way diaphragm valve

DK DN 15÷65

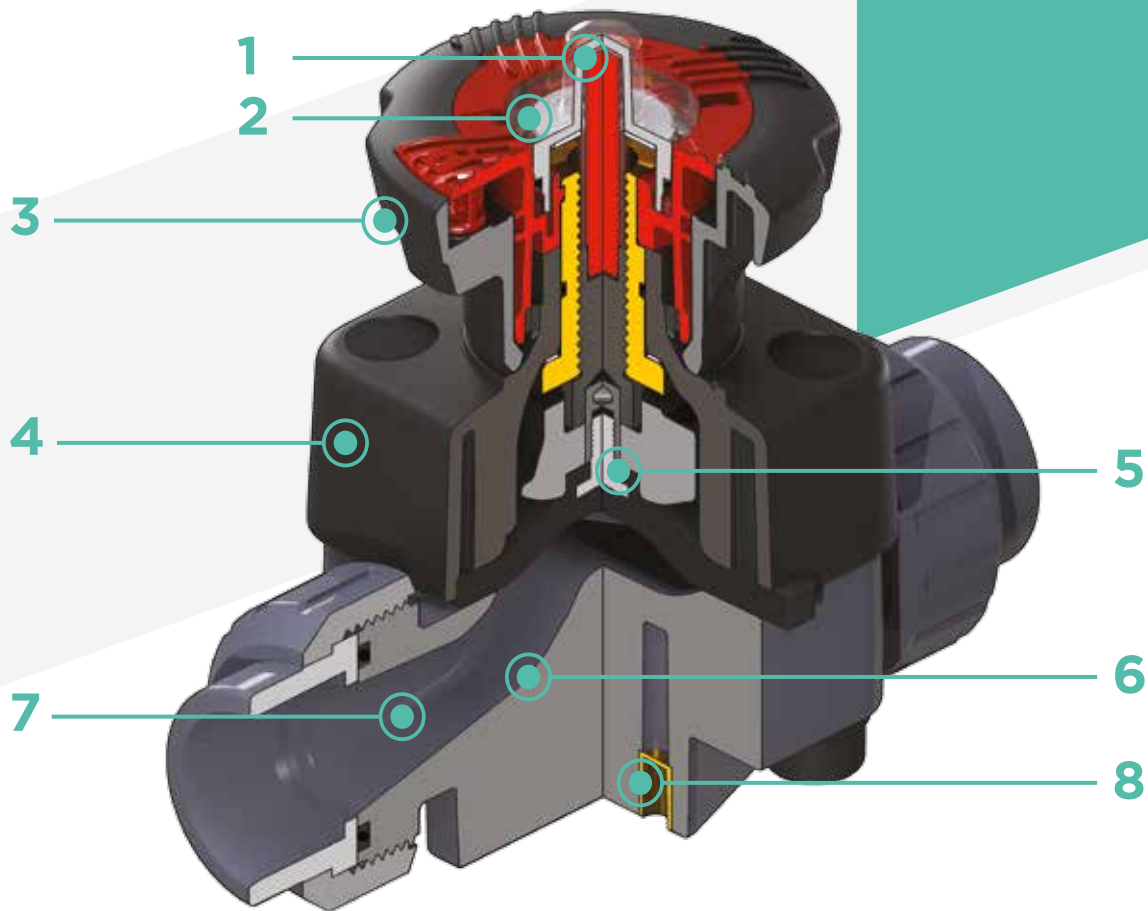
The new DK DIALOCK® diaphragm valve is particularly suitable for shutting off and regulating abrasive or dirty fluids. The new internal geometry of the body optimises fluid dynamic efficiency by increasing the flow rate and ensuring an optimum linearity of the flow adjustment curve. The DK is extremely compact and very light. The innovative handwheel is equipped with a patented immediate and ergonomic operating locking device that allows it to be adjusted and locked in any position.

Dialock®

DIALOCK® 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
- **Internal components in metal, totally isolated from the fluid** and external environment
- **Modularity of the range:** only 2 handwheel and 4 diaphragm and bonnet sizes for 7 different valve sizes
- Non-rising handwheel that stays at the same height during rotation, equipped with a graduated optical indicator protected by a transparent PVC cap with seal O-Ring
- 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
 - operating torque reduction

Technical specifications	
Construction	Diaphragm valve with maximized flow rate and DIALOCK® lockable handwheel
Size range	DN 15 ÷ 65
Nominal pressure	PN 10 with water at 20° C
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent 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</p> <p>Thread: ISO 228-1, DIN 2999, ASTM D 2464,</p> <p>Flanging system: ISO 7005-1, EN ISO 1452, EN ISO 15493, EN 558-1, DIN 2501, ANSI B16.5 Cl.150, JIS B2220</p>
Reference standards	<p>Construction criteria: EN ISO 16138, EN ISO 1452, EN ISO 15493</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p>
Valve material	<p>Body: PVC-U</p> <p>Bonnet and handwheel: PP-GR</p> <p>Position indicator cap: PVC</p>
Diaphragm material	EPDM, FPM, PTFE (on request NBR)
Control options	Manual control; pneumatic actuator

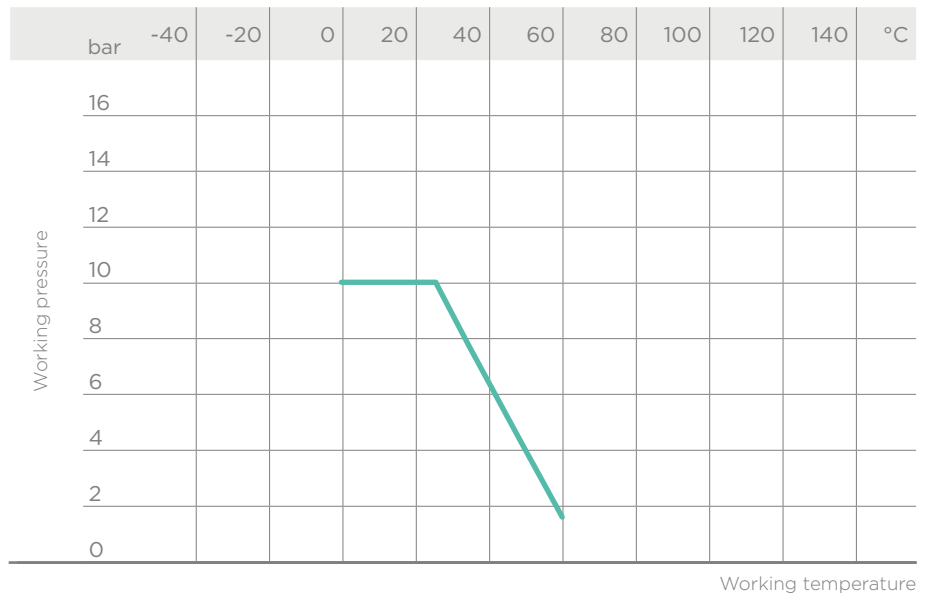


- 1 High visibility graduated optical position indicator** protected by a transparent cap with seal O-Ring
- 2 Customisation plate:** the customisation lets you identify the valve on the system according to specific needs
- 3 DIALOCK® SYSTEM:** innovative handwheel with a patented immediate and ergonomic operating locking device that allows it **to be adjusted and locked in over 300 positions**
- 4 Handwheel and bonnet** in high mechanical strength and chemically resistant **PP-GR**, providing full protection by isolating all internal metal parts from contact with external agents
- 5 Floating pin connection** between the control screw and diaphragm to prevent concentrated loads, improve the seal and extend its lifetime
- 6 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**
- 7 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
- 8 Valve anchoring** bracket **integrated in the body**, with threaded metal inserts allowing **simple panel or wall mounting** using the PMDK mounting plate (supplied as an accessory)

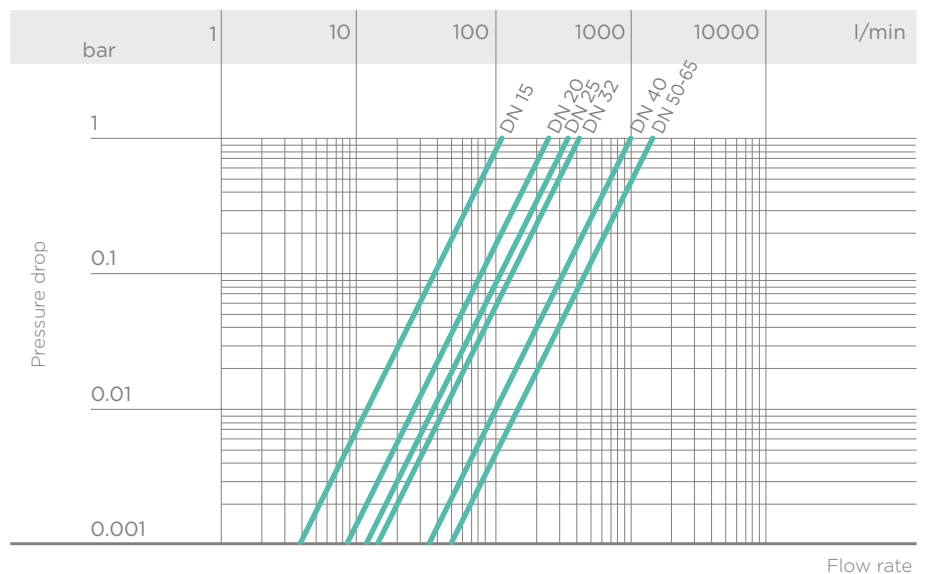
TECHNICAL DATA

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

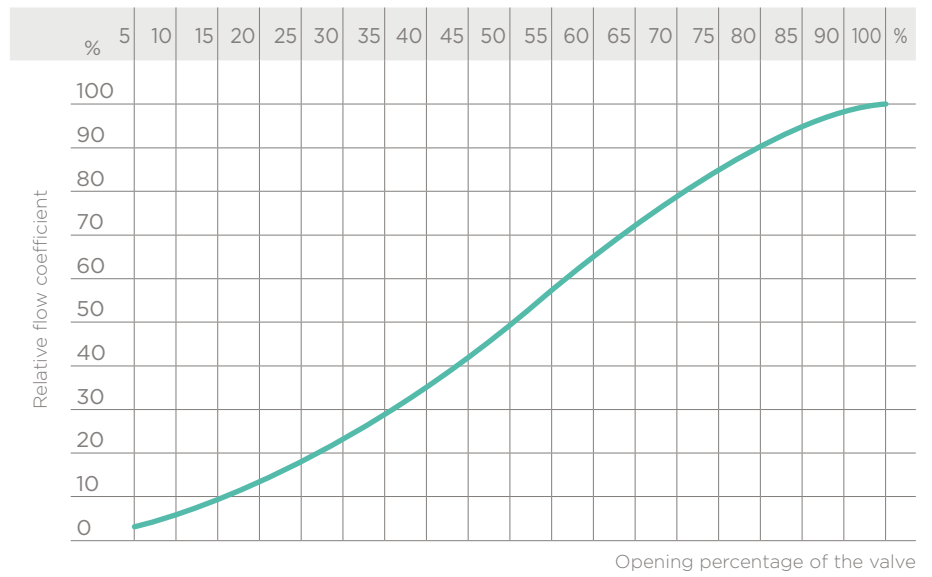
The K_v100 flow coefficient is the Q flow of litres per minute of water at a temperature of 20°C that will generate Δp= 1 bar pressure drop at a certain valve position.

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

DN	15	20	25	32	40	50	65
K _v 100 l/min	112	261	445	550	1087	1648	1600

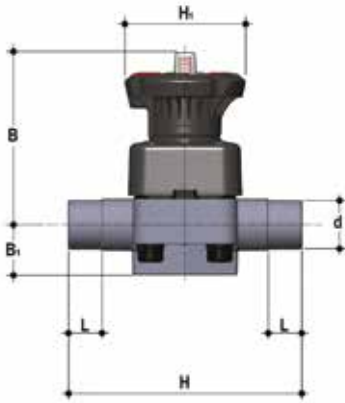
RELATIVE FLOW COEFFICIENT GRAPH

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



The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

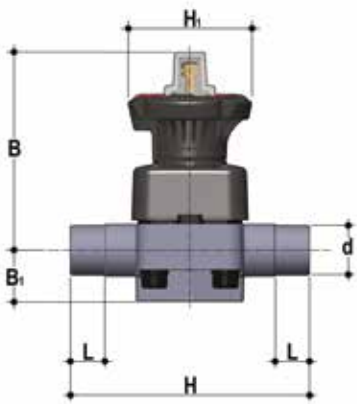
DIMENSIONS



DKDV

DIALOCK® diaphragm valve with male ends for solvent welding, metric series

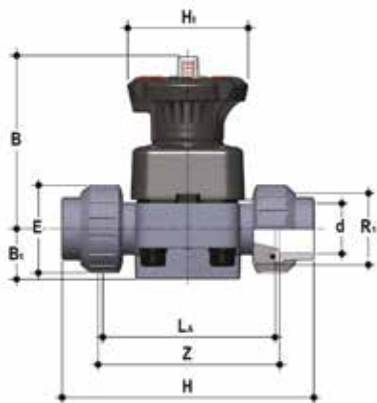
d	DN	PN	B	B ₁	H	H ₁	L	g	EPDM Code	FPM Code	PTFE Code
20	15	10	102	25	124	80	16	460	DKDV020E	DKDV020F	DKDV020P
25	20	10	105	30	144	80	19	482	DKDV025E	DKDV025F	DKDV025P
32	25	10	114	33	154	80	22	682	DKDV032E	DKDV032F	DKDV032P
40	32	10	119	30	174	80	26	726	DKDV040E	DKDV040F	DKDV040P
50	40	10	147	35	194	120	31	1525	DKDV050E	DKDV050F	DKDV050P
63	50	10	172	46	224	120	38	2389	DKDV063E	DKDV063F	DKDV063P
75	65	10	172	46	284	120	44	2519	DKDV075E	DKDV075F	DKDV075P



DKLDV

DIALOCK® diaphragm valve with stroke limiter and male ends for solvent welding, metric series

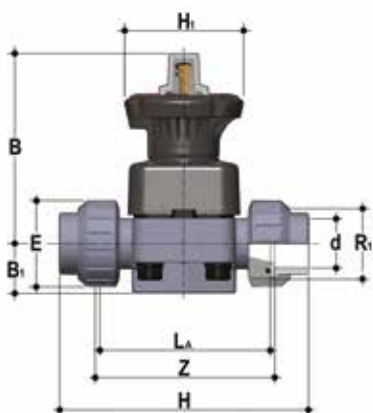
d	DN	PN	B	B ₁	H	H ₁	L	g	EPDM Code	FPM Code	PTFE Code
20	15	10	115	25	124	80	16	490	DKLDV020E	DKLDV020F	DKLDV020P
25	20	10	118	30	144	80	19	512	DKLDV025E	DKLDV025F	DKLDV025P
32	25	10	127	33	154	80	22	712	DKLDV032E	DKLDV032F	DKLDV032P
40	32	10	132	30	174	80	26	756	DKLDV040E	DKLDV040F	DKLDV040P
50	40	10	175	35	194	120	31	1585	DKLDV050E	DKLDV050F	DKLDV050P
63	50	10	200	46	224	120	38	2449	DKLDV063E	DKLDV063F	DKLDV063P
75	65	10	200	46	284	120	44	2579	DKLDV075E	DKLDV075F	DKLDV075P



DKUIV

DIALOCK® diaphragm valve with female union ends for solvent welding, metric series

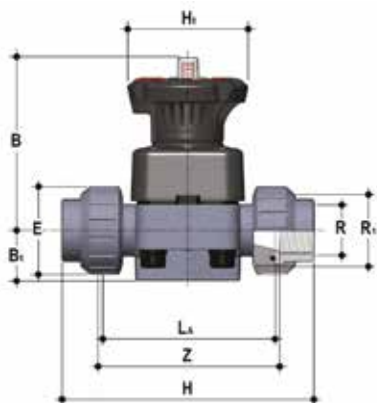
d	DN	PN	B	B ₁	E	H	H ₁	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
20	15	10	102	25	41	129	80	90	1"	100	500	DKUIV020E	DKUIV020F	DKUIV020P
25	20	10	105	30	50	154	80	108	1" 1/4	116	562	DKUIV025E	DKUIV025F	DKUIV025P
32	25	10	114	33	58	168	80	116	1" 1/2	124	790	DKUIV032E	DKUIV032F	DKUIV032P
40	32	10	119	30	72	192	80	134	2"	140	916	DKUIV040E	DKUIV040F	DKUIV040P
50	40	10	147	35	79	222	120	154	2" 1/4	160	1737	DKUIV050E	DKUIV050F	DKUIV050P
63	50	10	172	46	98	266	120	184	2" 3/4	190	2785	DKUIV063E	DKUIV063F	DKUIV063P



DKLUIV

DIALOCK® diaphragm valve with stroke limiter and female union ends for solvent welding, metric series

d	DN	PN	B	B ₁	E	H	H ₁	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
20	15	10	115	25	41	129	80	90	1"	100	490	DKLUIV020E	DKLUIV020F	DKLUIV020P
25	20	10	118	30	50	154	80	108	1" 1/4	116	512	DKLUIV025E	DKLUIV025F	DKLUIV025P
32	25	10	127	33	58	168	80	116	1" 1/2	124	712	DKLUIV032E	DKLUIV032F	DKLUIV032P
40	32	10	132	30	72	192	80	134	2"	140	756	DKLUIV040E	DKLUIV040F	DKLUIV040P
50	40	10	175	35	79	222	120	154	2" 1/4	160	1585	DKLUIV050E	DKLUIV050F	DKLUIV050P
63	50	10	200	46	98	266	120	184	2" 3/4	190	2449	DKLUIV063E	DKLUIV063F	DKLUIV063P

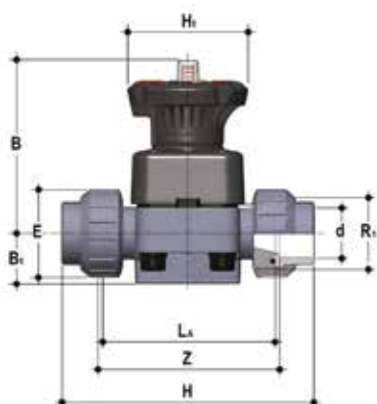


DKUFV

DIALOCK® diaphragm valve with BSP threaded female union ends

R	DN	PN	B	B ₁	E	H	H ₁	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
1/2"	15	10	102	25	41	131	80	90	1"	97	500	DKUFV012E	DKUFV012F	DKUFV012P
3/4"	20	10	105	30	50	151	80	108	1" 1/4	118	562	DKUFV034E	DKUFV034F	DKUFV034P
1"	25	10	114	33	58	165	80	116	1" 1/2	127	790	DKUFV100E	DKUFV100F	DKUFV100P
1" 1/4	32	10	119	30	72	188	80	134	2"	145	916	DKUFV114E	DKUFV114F	DKUFV114P
1" 1/2	40	10	147	35	79	208	120	154	2" 1/4	165	1737	DKUFV112E	DKUFV112F	DKUFV112P
2"	50	10	172	46	98	246	120	184	2" 3/4	195	2785	DKUFV200E	DKUFV200F	DKUFV200P

DKLUFV version available on request

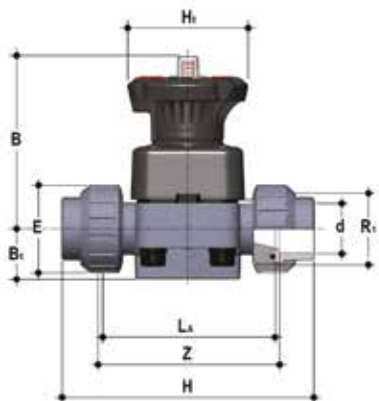


DKUAV

DIALOCK® diaphragm valve with female union ends for solvent welding, ASTM series

d	DN	PN	B	B ₁	E	H	H ₁	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
1/2"	15	10	102	25	41	143	80	90	1"	98	500	DKUAV012E	DKUAV012F	DKUAV012P
3/4"	20	10	105	30	50	167	80	108	1" 1/4	115	562	DKUAV034E	DKUAV034F	DKUAV034P
1"	25	10	114	33	58	180	80	116	1" 1/2	122	790	DKUAV100E	DKUAV100F	DKUAV100P
1" 1/4	32	10	119	30	72	208	80	134	2	144	916	DKUAV114E	DKUAV114F	DKUAV114P
1" 1/2	40	10	147	35	79	234	120	154	2" 1/4	164	1737	DKUAV112E	DKUAV112F	DKUAV112P
2"	50	10	172	46	98	272	120	184	2" 3/4	195	2785	DKUAV200E	DKUAV200F	DKUAV200P

DKLUAV version available on request

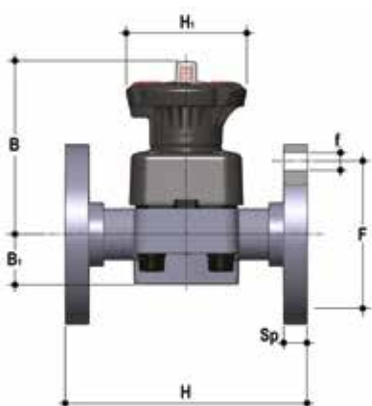


DKULV

DIALOCK® diaphragm valve with female union ends for solvent welding, BS series

d	DN	PN	B	B ₁	E	H	H ₁	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
1/2"	15	10	102	25	41	131	80	90	1"	97	500	DKULV012E	DKULV012F	DKULV012P
3/4"	20	10	105	30	50	154	80	108	1" 1/4	116	562	DKULV034E	DKULV034F	DKULV034P
1"	25	10	114	33	58	166	80	116	1" 1/2	121	790	DKULV100E	DKULV100F	DKULV100P
1" 1/4	32	10	119	30	72	194	80	134	2"	142	916	DKULV114E	DKULV114F	DKULV114P
1" 1/2	40	10	147	35	79	222	120	154	2" 1/4	162	1737	DKULV112E	DKULV112F	DKULV112P
2"	50	10	172	46	98	266	120	184	2" 3/4	194	2785	DKULV200E	DKULV200F	DKULV200P

DKLULV version available on request

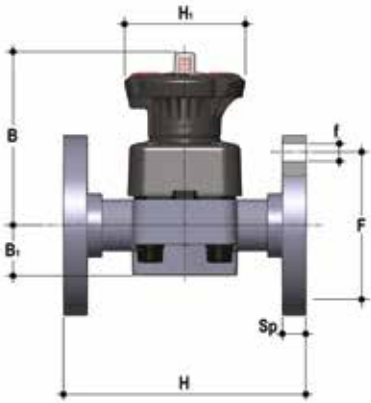


DKOV

DIALOCK® diaphragm valve with fixed flanges, drilled PN10/16. Face to face according to EN 558-1

d	DN	PN	B	B ₁	f	F	H	H ₁	Sp	U	g	EPDM Code	FPM Code	PTFE Code
20	15	10	102	25	14	65	130	80	13.5	4	690	DKOV020E	DKOV020F	DKOV020P
25	20	10	105	30	14	75	150	80	13.5	4	682	DKOV025E	DKOV025F	DKOV025P
32	25	10	114	33	14	85	160	80	14	4	972	DKOV032E	DKOV032F	DKOV032P
40	32	10	119	30	18	100	180	80	14	4	1186	DKOV040E	DKOV040F	DKOV040P
50	40	10	147	35	18	110	200	120	16	4	2100	DKOV050E	DKOV050F	DKOV050P
63	50	10	172	46	18	125	230	120	16	4	3159	DKOV063E	DKOV063F	DKOV063P
75	65	10	225	55	18	145	290	120	21	4	3619	DKOV075E	DKOV075F	DKOV075P

DKLOV version available on request



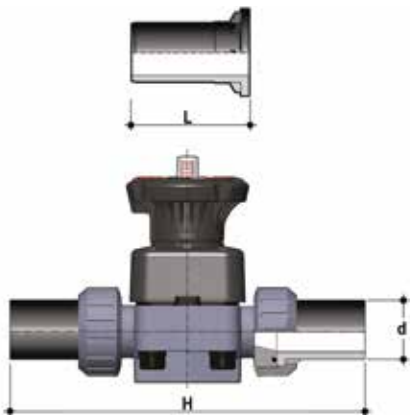
DKOAV

DIALOCK® diaphragm valve with fixed flanges, drilled ANSI B16.5 cl. 150 #FF

d	DN	PN	B	B ₁	f	F	H	H ₁	Sp	U	g	EPDM Code	FPM Code	PTFE Code
1/2"	15	10	102	25	14	60.3	108	80	13.5	4	667	DKOAV012E	DKOAV012F	DKOAV012P
3/4"	20	10	105	30	15.7	69.9	150	80	13.5	4	682	DKOAV034E	DKOAV034F	DKOAV034P
1"	25	10	114	33	15.7	79.4	160	80	14	4	972	DKOAV100E	DKOAV100F	DKOAV100P
1" 1/4	32	10	119	30	15.7	88.9	180	80	14	4	1186	DKOAV114E	DKOAV114F	DKOAV114P
1" 1/2	40	10	147	35	15.7	98.4	200	120	16	4	2100	DKOAV112E	DKOAV112F	DKOAV112P
2"	50	10	172	46	19	120.7	230	120	16	4	3159	DKOAV200E	DKOAV200F	DKOAV200P
75	65	10	172	46	19	139.7	290	120	21	4	3619	DKOV075E	DKOV075F	DKOV075P

DKLOAV version available on request

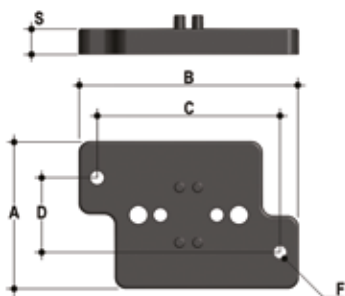
ACCESSORIES



Q/BBE-L

Long spigot PE100 end connectors for electrofusion or butt welding

d	DN	L	H	SDR	Code
20	15	95	280	11	QBBEL11020
25	20	95	298	11	QBBEL11025
32	25	95	306	11	QBBEL11032
40	32	95	324	11	QBBEL11040
50	40	95	344	11	QBBEL11050
63	50	95	374	11	QBBEL11063



PMDK

Wall Mounting plate

d	DN	A	B	C	D	F	S	Code
20	15	65	97	81	33	5.5	11	PMDK1
25	20	65	97	81	33	5.5	11	PMDK1
32	25	65	97	81	33	5.5	11	PMDK1
40	32	65	97	81	33	5.5	11	PMDK2
50	40	65	144	130	33	6.5	11	PMDK2
63	50	65	144	130	33	6.5	11	PMDK2
75	65	65	144	130	33	6.5	11	PMDK2

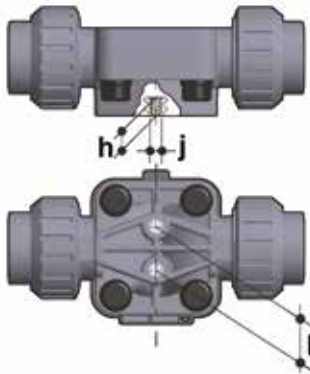
FASTENING AND SUPPORTING



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

The DK 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 PMDK mounting plates which are available as accessories can be used. These plates should be fastened to the valve before wall installation. The PMDK plate also allows the DK valve to be aligned with FIP ZIKM pipe clips.



d	DN	h	i	j
20	15	10	25	M6
25	20	10	25	M6
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

CUSTOMISATION

The DIALOCK® DK DN 15÷65 valve can be customised using a customisation plate in white PVC.

The customisation plate (B), housed in the transparent protection cap (A), can be removed and, once overturned, used for indicating identification serial numbers or service indications on the valves such as, for example, the valve function in the system, the conveyed fluid, but also specific information for customer service, such as the customer name or installation date or location on the valves. The waterproof transparent protection cap with seal O-Ring protect the customisation plate against deterioration.

To access the customisation plate, make sure that the handwheel is in the release position and proceed as follows:

- 1) Rotate the transparent protection cap fully anticlockwise (fig. 1) and remove it by pulling upwards. If necessary, insert a screwdriver in slot (C) to make the operation easier (fig. 2).
- 2) Remove the plate from inside the transparent protection cap and customise as required (fig. 3).
- 3) Re-assemble everything making sure that the transparent protection cap O-Ring remains in its seating (fig. 4).

Fig. 1



Fig. 2



Fig. 3

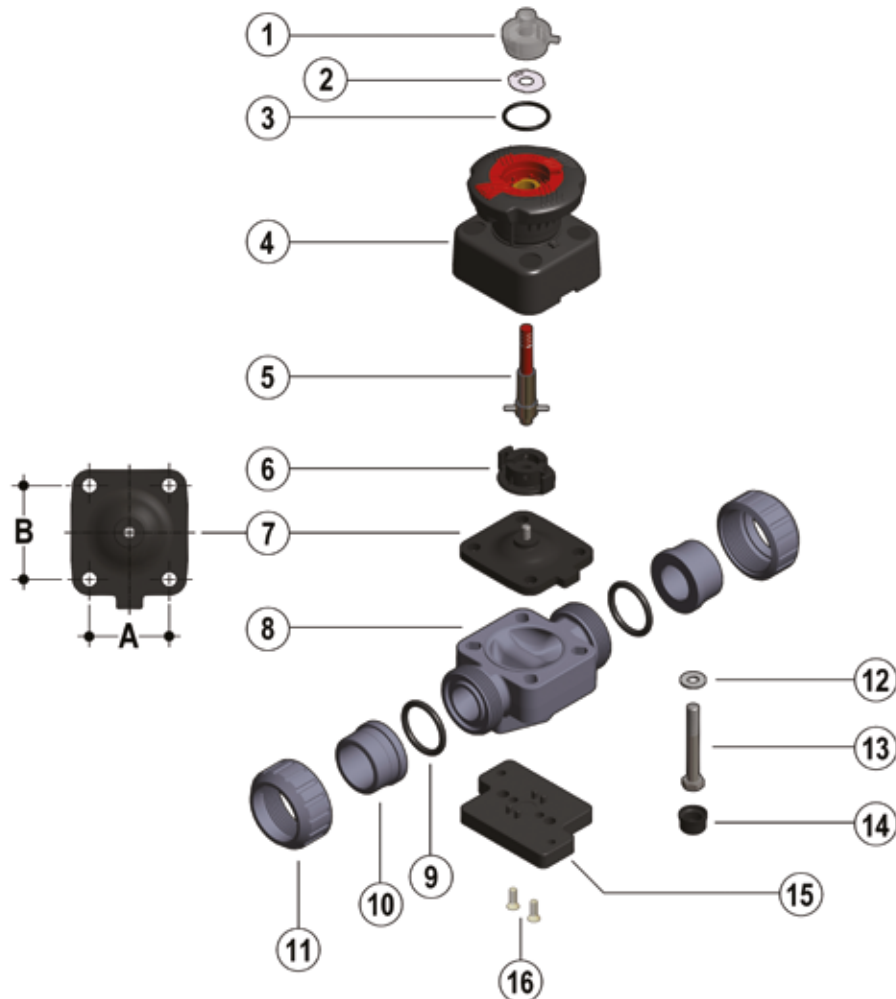


Fig. 4



COMPONENTS

EXPLODED VIEW DN 15÷50



DN	15	20	25	32	40	50	65
A	40	40	46	46	65	78	78
B	44	44	54	54	70	82	82

- 1 · Transparent protection cap (PVC - 1)*
- 2 · Customisation plate (PVC - 1)
- 3 · O-Ring (EPDM - 1)
- 4 · Operating mechanism (PP-GR / PVDF - 1)
- 5 · Threaded stem - Indicator (Stainless steel - 1)

- 6 · Compressor (IXEF® - 1)
- 7 · Diaphragm seal (EPDM, FPM, PTFE - 1)*
- 8 · Valve body (PVC-U - 1)*
- 9 · Socket seal O-ring (EPDM-FPM - 2)*
- 10 · End connector (PVC-U - 2)*
- 11 · Union nut (PVC-U - 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) If necessary, release the handwheel by pressing downwards (fig.5) and rotating anticlockwise to fully open the valve.
- 3) Unscrew the union nuts (11) and extract the valve sideways.
- 4) Remove the protection plugs (14) and bolts (13) with the relative washers (12).
- 5) Separate the valve body (8) from the internal components (4).
- 6) Rotate the handwheel clockwise to free the threaded stem (5), compressor (6) and diaphragm (7)
- 7) Unscrew the diaphragm (7) and remove the shutter (6).

ASSEMBLY

- 1) Insert the compressor (6) on the threaded stem (5) aligning it correctly with the reference pin on the stem.
- 2) Screw the diaphragm (7) on the threaded stem (5).
- 3) Lubricate the threaded stem (5), insert it in the operating mechanism (4) and rotate the handwheel anticlockwise until the stem is fully screwed in (5).
Make sure that the compressor (6) and diaphragm are correctly aligned with the housings in the operating mechanism (4) (fig. 7).
- 4) Fit the operating mechanism (4) on the valve body (8) and tighten the bolts (13) with the relative washers (12).
- 5) Tighten the bolts (13) evenly (diagonally) to the tightening torque suggested on the relative instruction sheet.
- 6) Replace the protection plugs (14)
- 7) Position the valve body 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.
- 8) If necessary, block the handwheel by grasping it and pulling it upwards (fig. 6).



Note: during assembly, it is advisable to lubricate the threaded stem. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

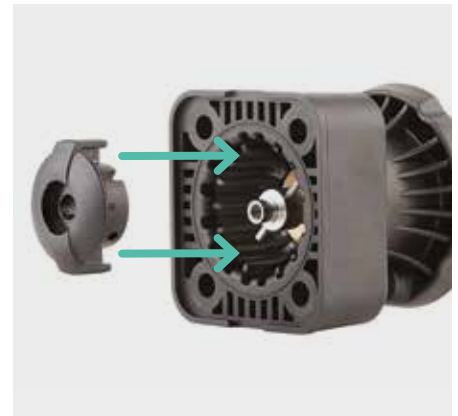
Fig. 5



Fig. 6



Fig. 7



INSTALLATION

Before proceeding with installation, please follow these instructions carefully: (these instructions refer to union end 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 FIP pipe clips or by means of the carrier built into the valve itself (see paragraph "Fastening and supporting").

⚠ Note: Before putting the valve into service, check that the bolts on the valve body (13) are tightened correctly at the suggested torque.

Fig. 9



LOCKING DEVICE



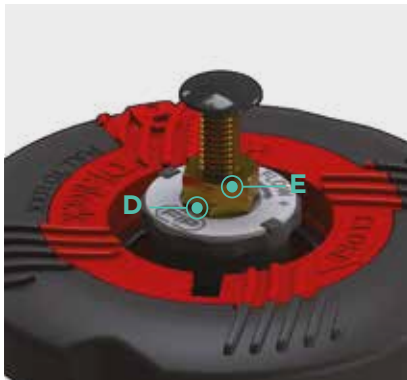
The DK valve is equipped with a DIALOCK® handwheel locking system that prevents the valve from being operated.

The system can be engaged by simply lifting the handwheel once the required position has been reached (fig. 8).

To release the operating mechanism, simply return the handwheel to its previous position by pushing it downwards (fig. 6).

When the system is in the locked position, a lock can be installed to protect the plant against unwanted interference (fig. 9).

STROKE LIMITER



The DKL version of the diaphragm valve is equipped with a handwheel stroke control system which allows the minimum and maximum flows to be preset and the diaphragm to be preserved from an excessive compression during closing.

The system allows the valve stroke to be modified using the two independent adjusting screws, which determine the mechanical limits of the valve during opening and closing. The valve is sold with the stroke limiters positioned such that does not limit the opening or closing stroke.

To access and set the adjusting screws, remove the transparent protection cap (A) as previously described (see chapter "Customisation").

Travel stop adjustment. Minimum flow rate or closed valve.

- 1) Rotate the handwheel clockwise until the required minimum flow rate is reached or the valve is closed.
- 2) Screw in nut (D) as far as it will go and lock it in this position by tightening the lock-nut (E).
To deactivate the function of limiting the closing stroke, completely unscrew nuts (D and E). In this way, the valve will fully close.
- 3) Re-assemble the transparent protection cap making sure that the seal O-Ring remains in its seating.

Stroke limiter adjustment. Maximum flow rate

- 1) Rotate the handwheel anticlockwise until the required maximum flow rate is reached.
- 2) Rotate knob (F) anticlockwise as far as the stop. The plate indicates the direction of rotation of the wheel required to obtain a higher or lower maximum flow rate. If the opening stroke does not need to be limited, rotate the knob (F) clockwise a number of times. In this way, the valve will fully open.
- 3) Re-assemble the transparent protection cap making sure that the seal O-Ring remains in its seating.



VM DN 15÷100
PVC-U

Diaphragm valve

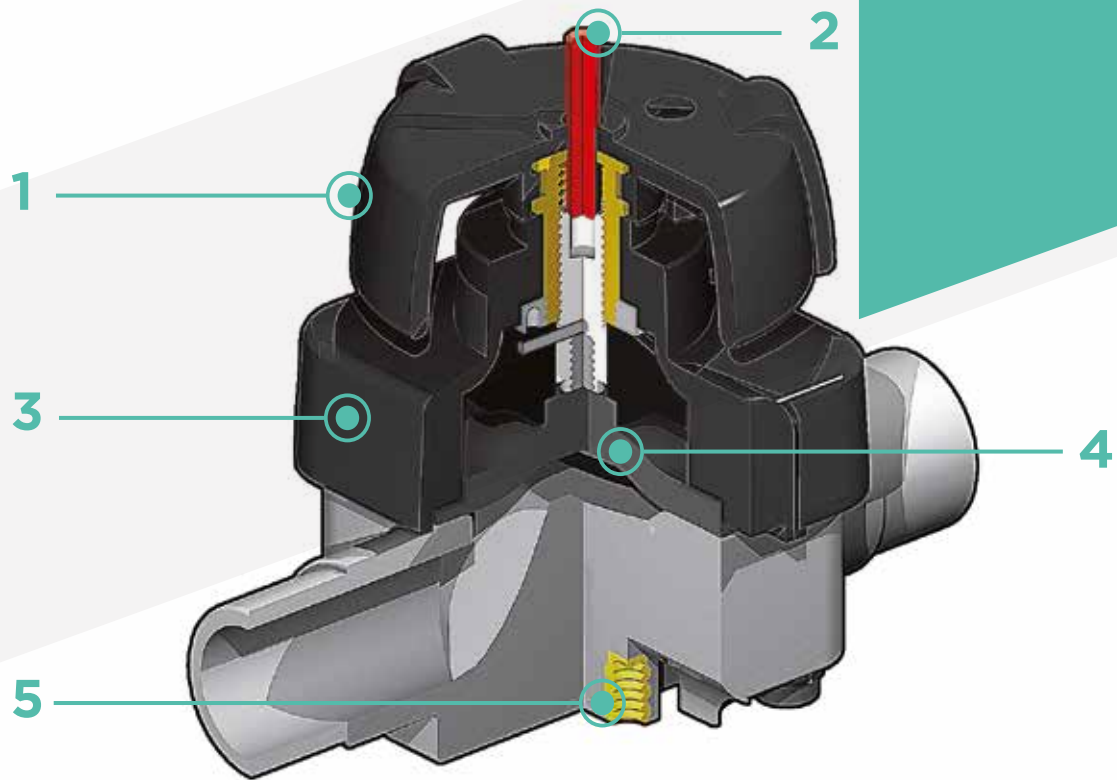
VM DN 15÷100

The VM is particularly suitable for shutting off and regulating abrasive or dirty fluids. The handwheel control and diaphragm seal provide precise and effective control, while reducing the risk of water hammer to a minimum.

DIAPHRAGM VALVE

- Connection system for solvent weld, threaded and flanged joints
- Compact and lightweight construction
- High flow coefficient and minimum pressure drop
- **Internal components in metal totally isolated from the conveyed fluid**, with anti-friction disk to reduce friction to a minimum
- **Modularity of the range:** only 5 diaphragm and bonnet sizes for 9 different valve sizes
- Handwheel that stays at the same height during rotation
- Bonnet fastening screws that screw into the built-in bush preventing the deposit of dirt or impurities
- **Innovative CDSA system** (Circular Diaphragm Sealing Angle) used up to DN50, offering the following advantages:
 - uniform distribution of shutter pressure on the diaphragm
 - 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	Single wear diaphragm valve
Size range	DN 15 ÷ 100
Nominal pressure	PN 10 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Can be coupled to pipes according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741</p> <p>Thread: ISO 228-1, DIN 2999, ASTM D 2464, JIS B 0203</p> <p>Flanging system: ISO 7005-1, EN ISO 1452, EN ISO 15493, EN 558-1, DIN 2501, ANSI B16.5 Cl.150, JIS B2220</p>
Reference standards	<p>Construction criteria: EN ISO 16138, EN ISO 1452, EN ISO 15493</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p>
Valve material	<p>Body: PVC-U</p> <p>Bonnet and handwheel: PP-GR</p>
Diaphragm material	EPDM, FPM, PTFE (on request NBR)
Control options	Manual control; pneumatic actuator



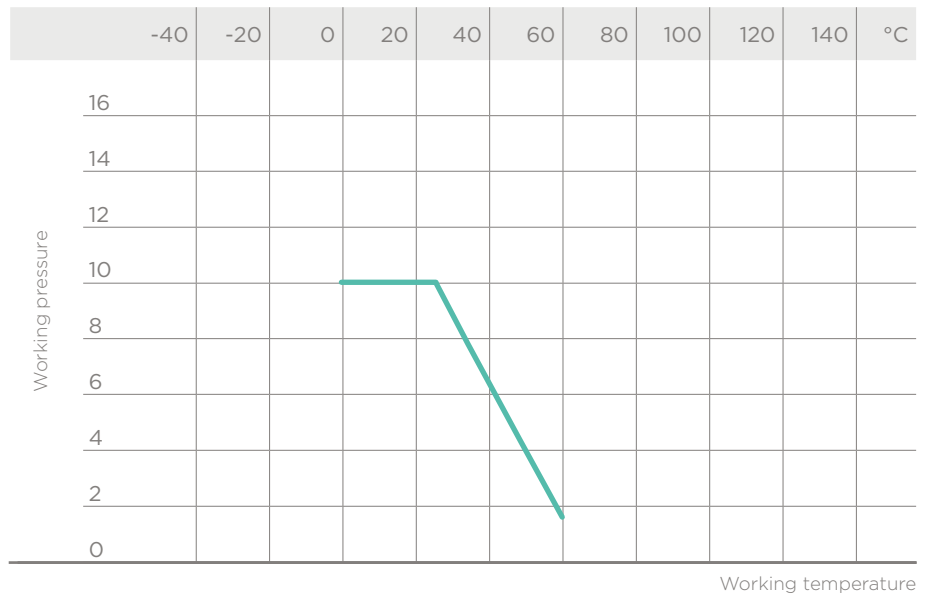
1 Handwheel ergonomic grip for optimum manageability

2 Optical position indicator **3** Full protection bonnet in PP-GR45 **4** Threaded metal inserts

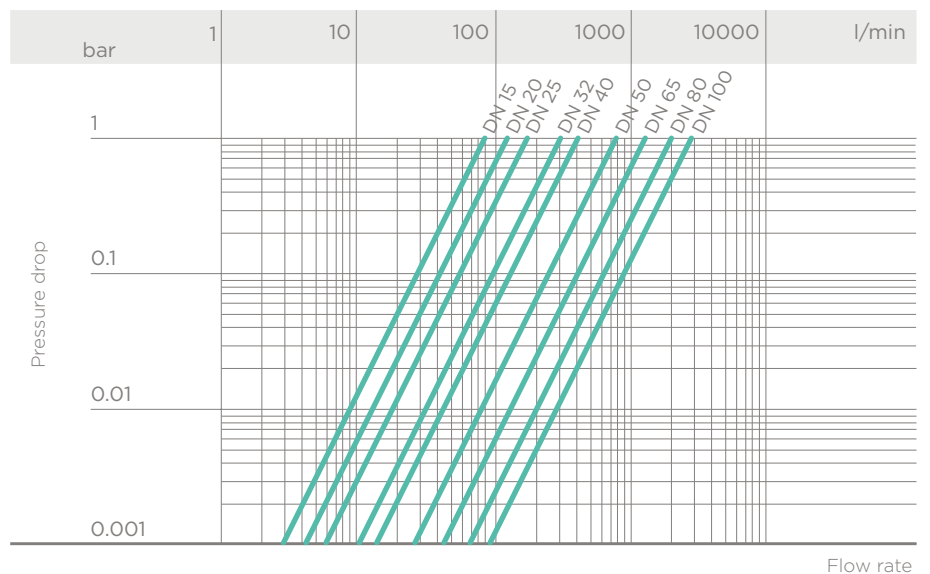
TECHNICAL DATA

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

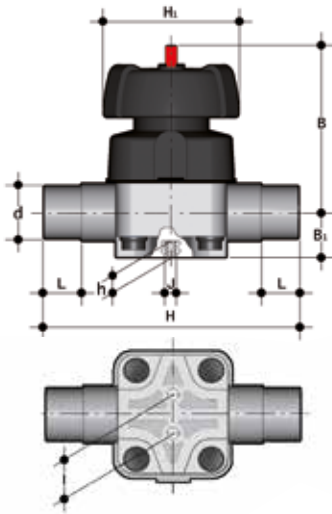
The K_v100 flow coefficient is the Q flow rate of litres per minute of water at a temperature of 20°C that will generate Δp= 1 bar pressure drop at a certain valve position.

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

DN	15	20	25	32	40	50	65	80	100
K _v 100 l/min	93	136	175	300	416	766	1300	2000	2700

The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

DIMENSIONS

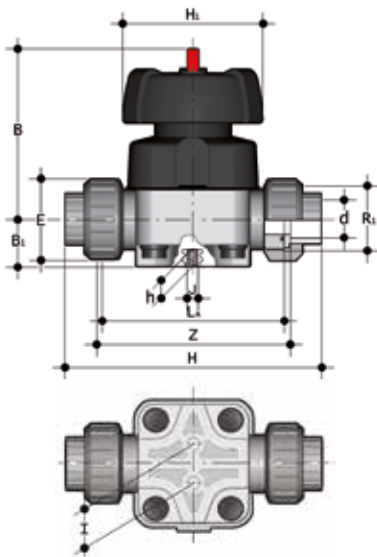


VMDV

Diaphragm valve with male ends for solvent welding, metric series

d	DN	PN	B	B ₁	H	h	H ₁	I	J	L	g	EPDM Code	FPM Code	PTFE Code
20	15	10	95	26	124	12	90	25	M6	16	700	VMDV020E	VMDV020F	VMDV020P
25	20	10	95	26	144	12	90	25	M6	19	700	VMDV025E	VMDV025F	VMDV025P
32	25	10	95	26	154	12	90	25	M6	22	700	VMDV032E	VMDV032F	VMDV032P
40	32	10	126	40	174	18	115	44.5	M8	26	1500	VMDV040E	VMDV040F	VMDV040P
50	40	10	126	40	194	18	115	44.5	M8	31	1500	VMDV050E	VMDV050F	VMDV050P
63	50	10	148	40	224	18	140	44.5	M8	38	2400	VMDV063E	VMDV063F	VMDV063P
75	65	*10	225	55	284	23	200	100	M12	44	7000	VMDV075E	VMDV075F	VMDV075P
90	80	*10	225	55	300	23	200	100	M12	51	7000	VMDV090E	VMDV090F	VMDV090P
110	100	*10	295	69	340	23	250	120	M12	61	10500	VMDV110E	VMDV110F	VMDV110P

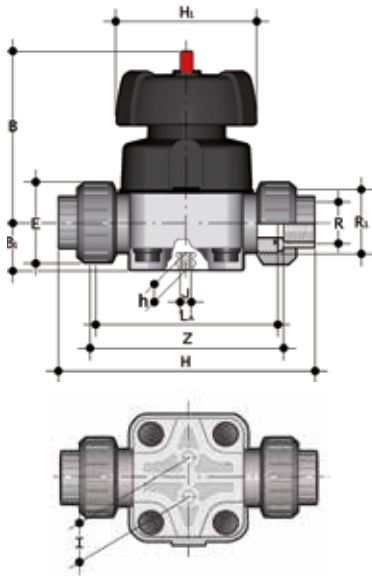
*PTFE PN6



VMUIV

Diaphragm valve with female union ends for solvent welding, metric series

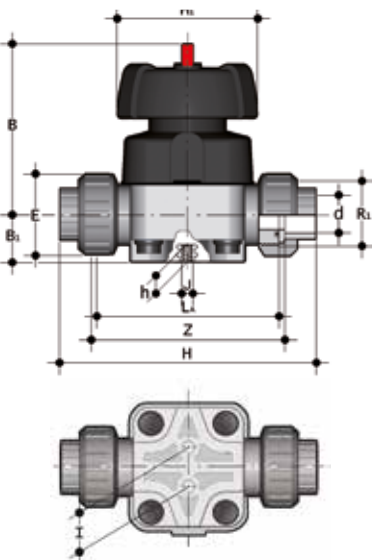
d	DN	PN	B	B ₁	E	H	h	H ₁	I	J	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
20	15	10	95	26	41	147	12	90	25	M6	108	1"	115	830	VMUIV020E	VMUIV020F	VMUIV020P
25	20	10	95	26	50	154	12	90	25	M6	108	1" 1/4	116	860	VMUIV025E	VMUIV025F	VMUIV025P
32	25	10	95	26	58	168	12	90	25	M6	116	1" 1/2	124	895	VMUIV032E	VMUIV032F	VMUIV032P
40	32	10	126	40	72	192	16	115	44.5	M8	134	2"	140	1650	VMUIV040E	VMUIV040F	VMUIV040P
50	40	10	126	40	79	222	16	115	44.5	M8	154	2" 1/4	160	1730	VMUIV050E	VMUIV050F	VMUIV050P
63	50	10	148	40	98	266	16	140	44.5	M8	184	2" 3/4	190	2800	VMUIV063E	VMUIV063F	VMUIV063P



VMUFV

Diaphragm valve with BSP threaded female union ends

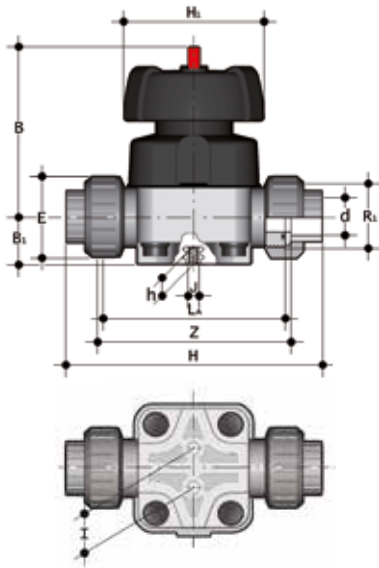
R	DN	PN	B	B ₁	E	H	h	H ₁	I	J	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
1/2"	15	10	95	26	41	148	12	90	25	M6	108	1"	118	830	VMUFV012E	VMUFV012F	VMUFV012P
3/4"	20	10	95	26	50	151	12	90	25	M6	108	1" 1/4	118	860	VMUFV034E	VMUFV034F	VMUFV034P
1"	25	10	95	26	58	165	12	90	25	M6	116	1" 1/2	127	895	VMUFV100E	VMUFV100F	VMUFV100P
1" 1/4	32	10	126	40	72	188	16	115	44,5	M8	134	2"	145	1650	VMUFV114E	VMUFV114F	VMUFV114P
1" 1/2	40	10	126	40	79	208	16	115	44,5	M8	154	2" 1/4	165	1730	VMUFV112E	VMUFV112F	VMUFV112P
2"	50	10	148	40	98	246	16	140	44,5	M8	184	2" 3/4	195	2800	VMUFV200E	VMUFV200F	VMUFV200P



VMUAV

Diaphragm valve with female union ends for solvent welding, ASTM series

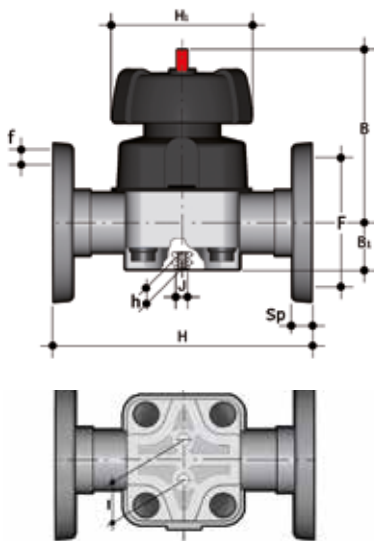
d	DN	PN	B	B ₁	E	H	h	H ₁	I	J	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
1/2"	15	10	95	26	41	160	12	90	25	M6	108	1"	115	830	VMUAV012E	VMUAV012F	VMUAV012P
3/4"	20	10	95	26	50	167	12	90	25	M6	108	1" 1/4	115	860	VMUAV034E	VMUAV034F	VMUAV034P
1"	25	10	95	26	58	180	12	90	25	M6	116	1" 1/2	122	895	VMUAV100E	VMUAV100F	VMUAV100P
1" 1/4	32	10	126	40	72	208	16	115	44,5	M8	134	2"	144	1650	VMUAV114E	VMUAV114F	VMUAV114P
1" 1/2	40	10	126	40	79	234	16	115	44,5	M8	154	2" 1/4	164	1730	VMUAV112E	VMUAV112F	VMUAV112P
2"	50	10	148	40	98	272	16	140	44,5	M8	184	2" 3/4	195	2800	VMUAV200E	VMUAV200F	VMUAV200P



VMULV

Diaphragm valve with female union ends for solvent welding, BS series

d	DN	PN	B	B ₁	E	H	h	H ₁	I	J	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
1/2"	15	10	95	26	41	147	12	90	25	M6	108	1"	114	830	VMULV012E	VMULV012F	VMULV012P
3/4"	20	10	95	26	50	154	12	90	25	M6	108	1" 1/4	116	860	VMULV034E	VMULV034F	VMULV034P
1"	25	10	95	26	58	166	12	90	25	M6	116	1" 1/2	121	895	VMULV100E	VMULV100F	VMULV100P
1" 1/4	32	10	126	40	72	194	16	115	44,5	M8	134	2"	142	1650	VMULV114E	VMULV114F	VMULV114P
1" 1/2	40	10	126	40	79	222	16	115	44,5	M8	154	2" 1/4	162	1730	VMULV112E	VMULV112F	VMULV112P
2"	50	10	148	40	98	266	16	140	44,5	M8	184	2" 3/4	194	2800	VMULV200E	VMULV200F	VMULV200P

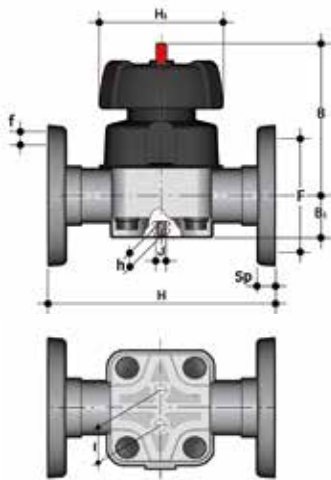


VMOV

Diaphragm valve with fixed flanges, drilled PN10/16. Face to face according to EN 558-1

d	DN	PN	B	B ₁	F	f	H	H ₁	I	J	Sp	U	g	EPDM Code	FPM Code	PTFE Code
20	15	10	95	26	65	14	130	90	25	M6	11	4	840	VMOV020E	VMOV020F	VMOV020P
25	20	10	95	26	75	14	150	90	25	M6	13,5	4	900	VMOV025E	VMOV025F	VMOV025P
32	25	10	95	26	85	14	160	90	25	M6	14	4	990	VMOV032E	VMOV032F	VMOV032P
40	32	10	126	40	100	18	180	115	44,5	M8	14	4	1960	VMOV040E	VMOV040F	VMOV040P
50	40	10	126	40	110	18	200	115	44,5	M8	16	4	2075	VMOV050E	VMOV050F	VMOV050P
63	50	10	148	40	125	18	230	140	44,5	M8	16	4	3170	VMOV063E	VMOV063F	VMOV063P
75	65	*10	225	55	145	18	290	200	100	M12	21	4	8100	VMOV075E	VMOV075F	VMOV075P
90	80	*10	225	55	160	18	310	200	100	M12	21,5	8	8500	VMOV090E	VMOV090F	VMOV090P
110	100	*10	295	69	180	18	350	250	120	M12	22,5	8	12400	VMOV110E	VMOV110F	VMOV110P

*PTFE PN6



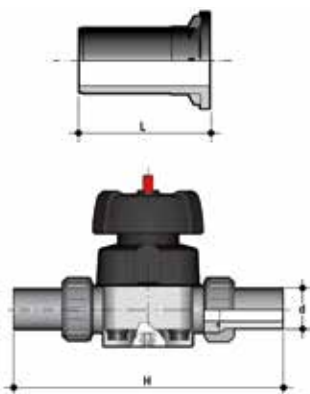
VMOAV

Diaphragm valve with fixed flanges, drilled ANSI B16.5 cl. 150 #FF

Size	PN	B	B ₁	F	f	H	H ₁	I	J	Sp	U	g	EPDM Code	FPM Code	PTFE Code
1/2"	10	95	26	60,3	15,9	130	90	25	M6	11	4	840	VMOAV012E	VMOAV012F	VMOAV012P
3/4"	10	95	26	69,9	15,9	150	90	25	M6	13,5	4	900	VMOAV034E	VMOAV034F	VMOAV034P
1"	10	95	26	79,4	15,9	160	90	25	M6	14	4	990	VMOAV100E	VMOAV100F	VMOAV100P
1" 1/4	10	126	40	88,9	15,9	180	115	44,5	M8	14	4	1960	VMOAV114E	VMOAV114F	VMOAV114P
1" 1/2	10	126	40	98,4	15,9	200	115	44,5	M8	16	4	2075	VMOAV112E	VMOAV112F	VMOAV112P
2"	10	148	40	120,7	19,1	230	140	44,5	M8	16	4	3170	VMOAV200E	VMOAV200F	VMOAV200P
2" 1/2	*10	225	55	139,7	19,1	290	200	100	M12	21	4	8100	VMOV075E	VMOV075F	VMOV075P
3"	*10	225	55	152,4	19,1	310	200	100	M12	21,5	4	8500	VMOAV300E	VMOAV300F	VMOAV300P
4"	*10	295	69	190,5	19,1	350	250	120	M12	22,5	8	12400	VMOV110E	VMOV110F	VMOV110P

*PTFE PN6

ACCESSORIES



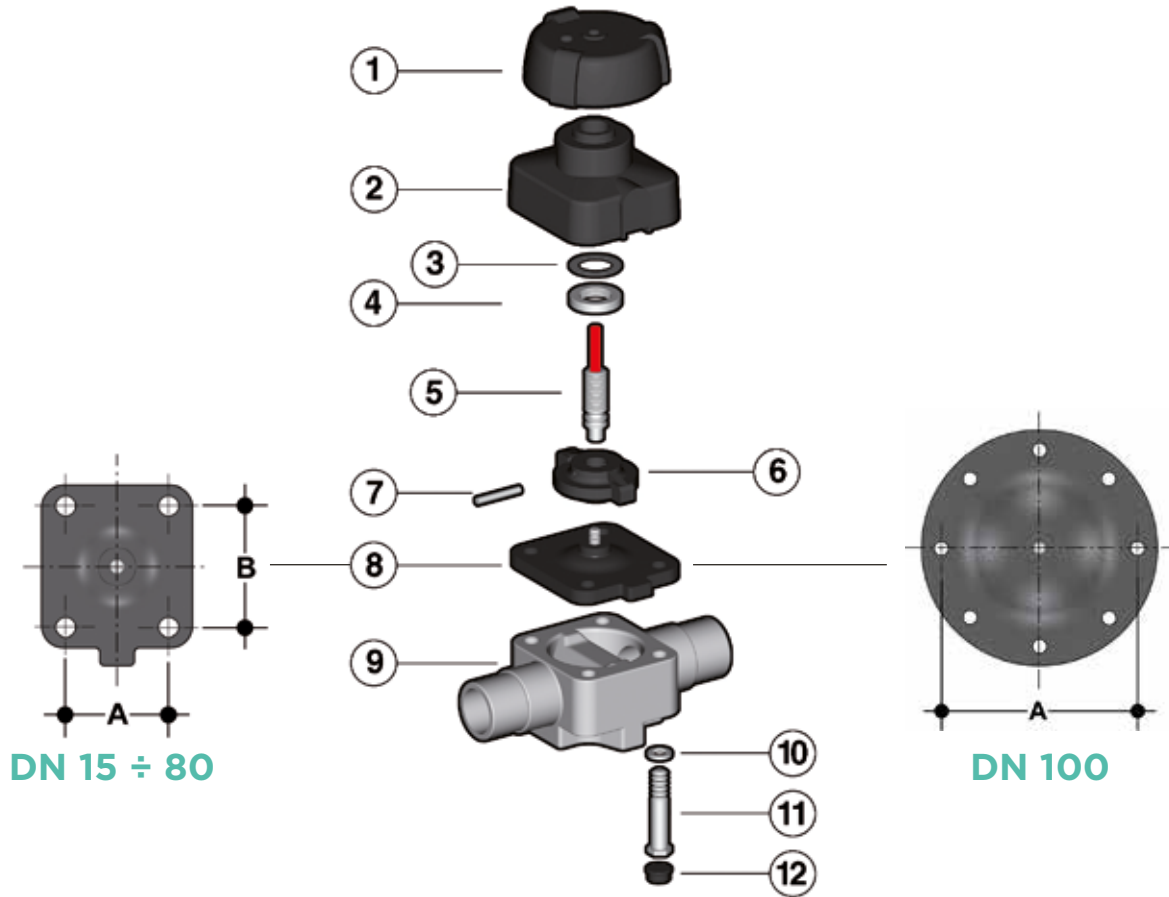
Q/BBE-L

End connectors IN PE100, long spigot, for joints with electrofusion fittings or for butt welding

d	DN	PN	L	H	SDR	Code
20	15	16	95	298	11	QBBEL11020
25	20	16	95	298	11	QBBEL11025
32	25	16	95	314	11	QBBEL11032
40	32	16	95	330	11	QBBEL11040
50	40	16	95	350	11	QBBEL11050
63	50	16	95	380	11	QBBEL11063

COMPONENTS

EXPLODED VIEW DN 15-100



DN	15	20	25	32	40	50	65	80	100
A	46	46	46	65	65	78	114	114	193
B	54	54	54	70	70	82	127	127	-

1·2·3·4 ·5 ·6·7·8·9·10·11·12 ·

The material of the component and the quantity supplied are indicated between brackets

DISMOUNTING

If the valve is already installed on the line, shut-off the fluid flow upstream and make sure that there is no pressure. If necessary, fully drain the system downstream. If there are hazardous fluids present, drain and ventilate the valve.

The diaphragm constitutes the part of the valve more subject to mechanical and chemical stress from the fluid. Consequently, the condition of the diaphragm must be checked at regular intervals in accordance with the service conditions. To do this, it must be disconnected from the handwheel and from the valve body

- 1) Unscrew the four screws (11) and separate the body (9) from the internal components.
- 2) Unscrew the diaphragm (8) from the shutter (6). Rotate the handwheel clockwise to free the stem-shutter unit.
- 3) If necessary, clean or replace the diaphragm (8).
- 4) If necessary, lubricate the stem (5).

MOUNTING

- 1) Insert the handwheel in the bonnet (2)
- 2) The anti-friction disk (3) must be positioned on the sleeve over the bonnet. Fully tighten the lock nut (4). To ensure a perfect seal, use a liquid sealing compound such as Loctite.
- 3) Subsequently, the shutter (6) must be removed from the stem (5) and fixed using the pin. Warning: the pin must be well secured in the seating hole in the stem.
- 4) The stem (5) must now be screwed to the threaded sleeve. Warning: left-hand thread. The shutter (6) must be oriented such that the guide pins correspond with the grooves in the bonnet.
- 5) The shutter (5) must be fully tightened on the bonnet by rotating the handwheel. Then, the diaphragm (8) must be screwed fully into the bonnet and then rotated in the opposite direction until the holes in the diaphragm coincides with the holes in the bonnet.
- 6) Place the bonnet with the diaphragm in the correct position in the body (9). Fix the protection plugs (12) using the hexagonal screws and washers (10). Tighten evenly (cross-like).

INSTALLATION

The valve can be installed in any position and in any direction.

When starting up the plant, make sure that there are no leaks from between the diaphragm and the valve body. If necessary, tighten the fastening screws (11).



CM DN 12÷15
PVC-U

Compact diaphragm valve

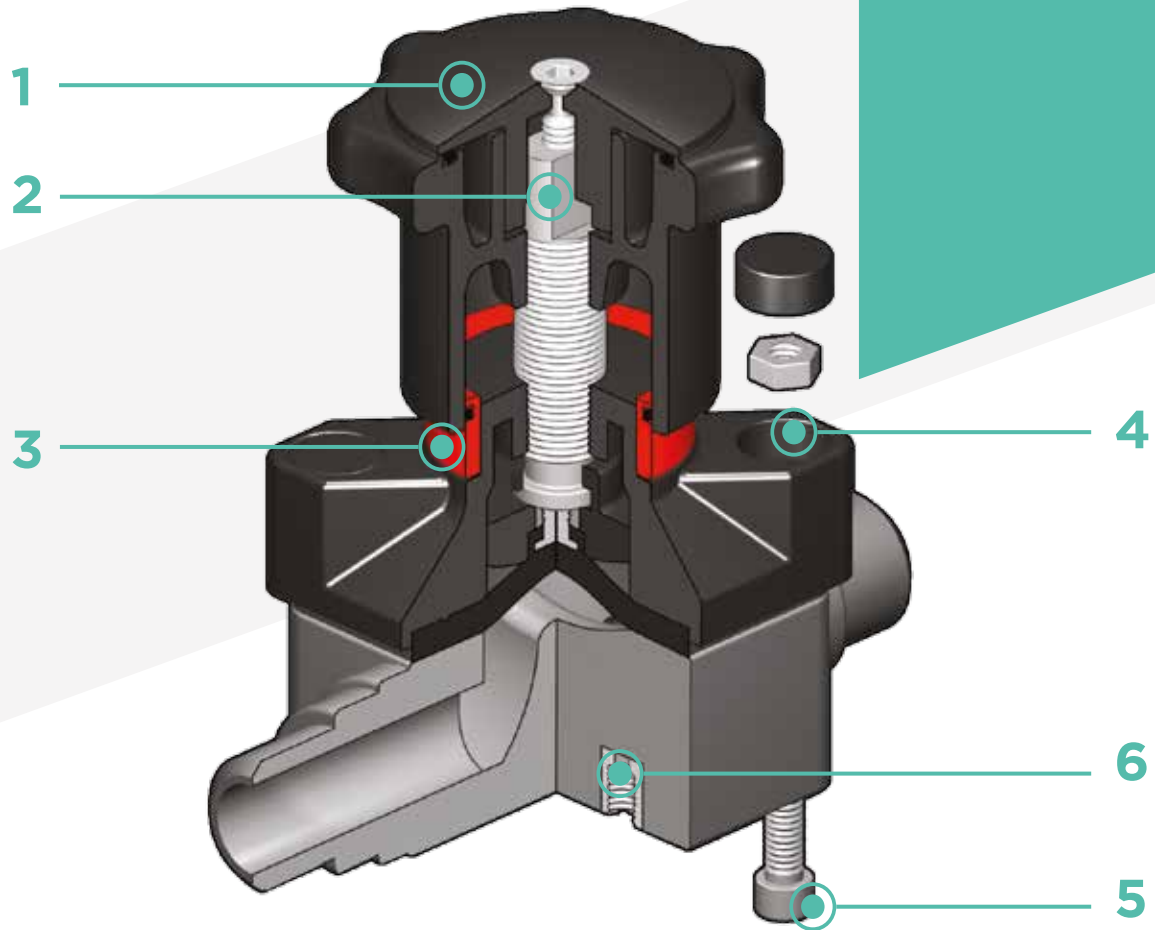
CM DN 12÷15

The CM is a manually 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
- **Compressor with floating diaphragm support**
- 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
Nominal pressure	PN 6 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Can be coupled to pipes according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM T 1785, JIS K 6741</p> <p>Thread: ISO 228-1, DIN 2999, ASTM D 2464, JIS B 0203</p>
Reference standards	<p>Construction criteria: EN ISO 16138, EN ISO 1452, EN ISO 15493</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p>
Valve material	<p>Body: PVC-U</p> <p>Bonnet and handwheel: PA-GR</p>
Diaphragm material	EPDM, FPM, PTFE
Control options	Manual control; pneumatic actuator



- 1 Handwheel in PA-GR, completely sealed**, high mechanical strength with ergonomic grip for optimum manageability
- 2 Integrated adjustable torque limiter** designed to prevent excessive compression of the diaphragm and always guarantee a minimum fluid flow

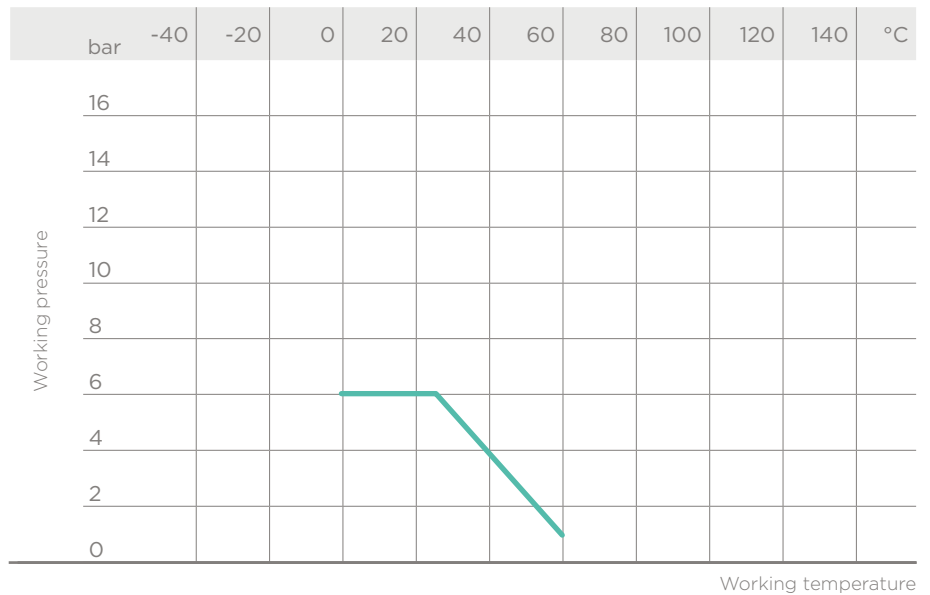
- 3 Optical position indicator** supplied as standard
- 4 Bonnet in PA-GR with STAINLESS steel nuts** fully protected by plastic plugs to eliminate zones where impurities may accumulate. Internal circular and symmetrical diaphragm sealing area

- 5 STAINLESS steel bolts**, can also be inserted from above
- 6 Threaded metal inserts** for anchoring the valve

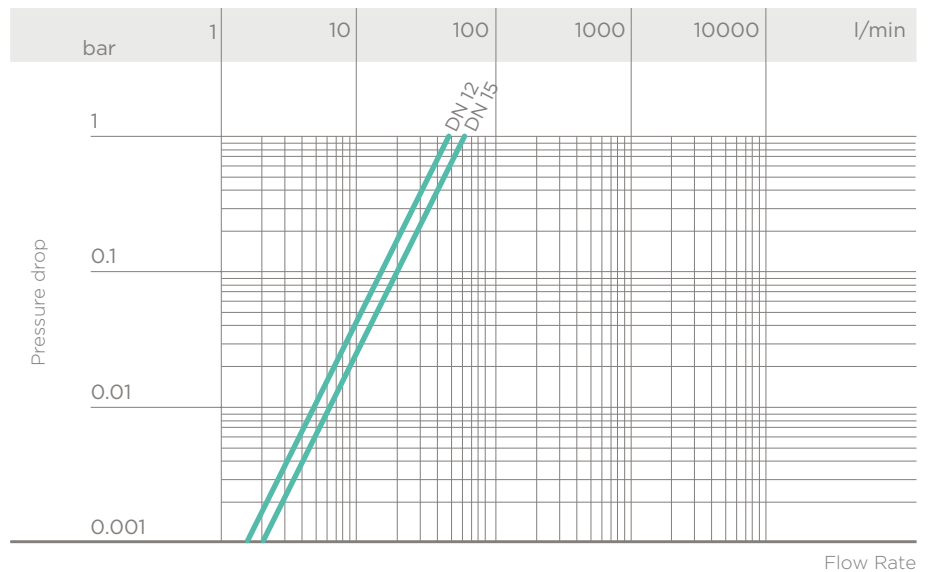
TECHNICAL DATA

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

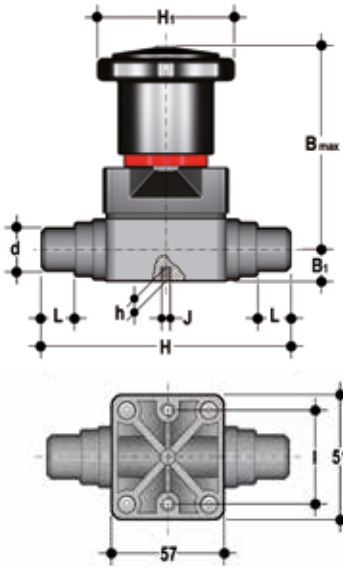
The K_v100 flow coefficient is the Q flow rate of litres per minute of water at a temperature of 20°C that will generate Δp= 1 bar pressure drop at a certain valve position.

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

DN	12	15
K _v 100 l/min	47	60

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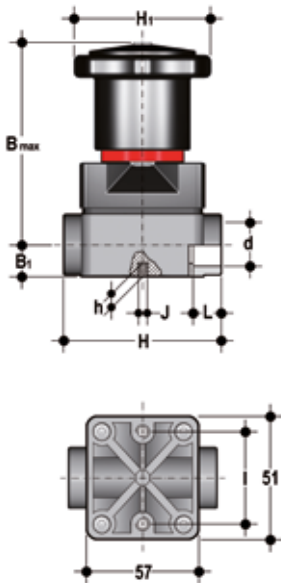
DIMENSIONS



CMDV

Compact diaphragm valve with male ends for solvent welding, metric series

d	DN	PN	B max	B ₁	H	h	H ₁	I	J	L	g	EPDM Code	FPM Code	PTFE Code
20	15	6	86	15	124	8	58.5	35	M5	17	310	CMDV020E	CMDV020F	CMDV020P

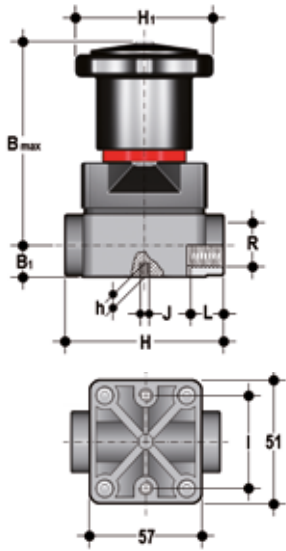


CMIV

Compact diaphragm valve with female ends for solvent welding, metric series

Flow Rate

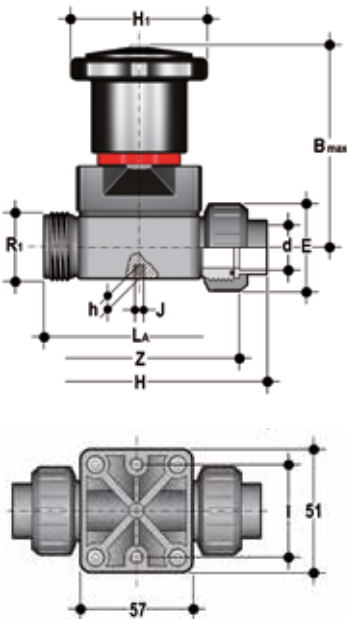
d	DN	PN	B max	B ₁	H	h	H ₁	I	J	L	g	EPDM Code	FPM Code	PTFE Code
16	12	6	86	15	75	8	58.5	35	M5	14	270	CMIV016E	CMIV016F	CMIV016P
20	15	6	86	15	75	8	58.5	35	M5	16	270	CMIV020E	CMIV020F	CMIV020P



CMFV

Compact diaphragm valve with BSP threaded female ends

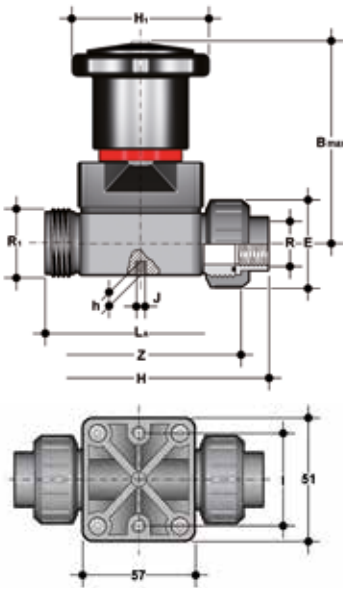
R	DN	PN	B max	B ₁	H	h	H ₁	I	J	L	g	EPDM Code	FPM Code	PTFE Code
3/8"	12	6	86	15	75	8	58.5	35	M5	11.5	270	CMFV038E	CMFV038F	CMFV038P
1/2"	15	6	86	15	75	8	58.5	35	M5	15	270	CMFV012E	CMFV012F	CMFV012P



CMUIV

Compact diaphragm valve with female union ends for solvent welding, metric series

d	DN	PN	B max	E	H	h	H ₁	I	J	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
20	15	6	86	41	129.5	8	58.5	35	M5	90	1"	97.5	285	CMUIV020E	CMUIV020F	CMUIV020P



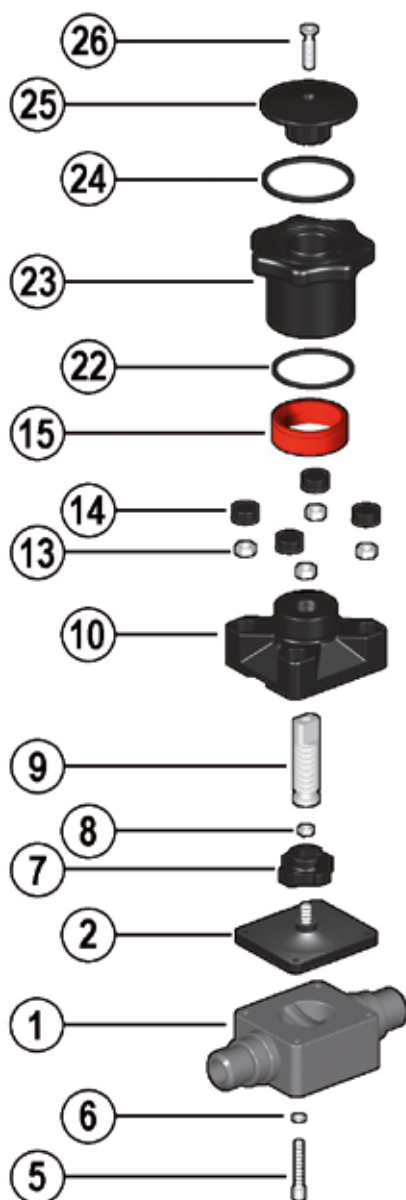
CMUFV

Compact diaphragm valve with BSP threaded female union ends unions

R	DN	PN	B _{max}	E	H	h	H ₁	I	J	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
1/2"	15	6	86	41	129.5	8	58.5	35	M5	90	1"	97.5	285	CMUFV012E	CMUFV012F	CMUFV012P

COMPONENTS

EXPLODED VIEW



- | | | |
|---|--|--|
| 1 · Body (PVC-U - 1) | 9 · Stem (STAINLESS steel - 1) | 23 · Handwheel (PA-GR - 1) |
| 2 · Diaphragm seal (EPDM, FPM, PTFE - 1) | 10 · Bonnet (PA-GR - 1) | 24 · O-Ring (NBR - 1) |
| 5 · Fastening screw (STAINLESS steel - 4) | 13 · Nut (STAINLESS steel - 4) | 25 · Bonnet (PA-GR - 1) |
| 6 · Washer (STAINLESS steel - 4) | 14 · Protection plug (POM - 4) | 26 · Fastening screw (STAINLESS steel - 1) |
| 7 · Shutter (PA-GR - 1) | 15 · Optical position indicator (PVDF - 1) | |
| 8 · Nut (STAINLESS steel - 1) | 22 · O-Ring (NBR - 1) | |

The material of the component and the quantity supplied are indicated between brackets

DISMOUNTING

If the valve is already installed on the line, shut-off the fluid flow upstream and make sure that there is no pressure. If necessary, fully drain the system downstream. If there are hazardous fluids present, drain and ventilate the valve.

The diaphragm constitutes the part of the valve more subject to mechanical and chemical stress from the fluid. Consequently, the condition of the diaphragm must be checked at regular intervals in accordance with the service conditions. To do this, it must be disconnected from the handwheel and from the valve body.

- 1) Unscrew the four screws (5) and separate the body (1) from the internal components.
- 2) Unscrew the diaphragm seal (2) from the shutter (7).
- 3) If necessary, clean or replace the diaphragm seal (2).
- 4) If necessary, lubricate the stem (9).

MOUNTING

- 1) The diaphragm seal (2) must be screwed fully into the compressor (7) in a clockwise direction. If necessary, unscrew slightly in an anticlockwise direction to line up the screw holes.
- 2) Fix the bonnet (10) to the body (1) using screws (5). Tighten the screws, making sure not to over-compress the diaphragm.

INSTALLATION

The valve can be installed in any position and in any direction.

When starting up the plant, make sure that there are no leaks from between the diaphragm and the valve body. If necessary, tighten the fastening screws (5).

SETTING

The valve is factory set to guarantee a permanent seal without requiring any further intervention. To adjust the setting, rotate the handwheel to the required minimum opening position, remove screw (26) using a hex key.

Remove the bonnet (25) and rotate the handwheel (23) clockwise until a resistance to the rotation is felt.

If necessary, replace the O-Ring (24) in its seating and re-insert the bonnet

(25) in the handwheel: the double D connection must fit over the stem (9) and, with a slight twisting action, align the ribs in the bonnet with those in the handwheel.

Tighten screw (26) to a sufficiently high torque value.

Each turn of the handwheel corresponds to 1.75mm travel.



VM/RM DN 8÷15
PVC-U

Mini-diaphragm and diaphragm cock valve

VM/RM DN 8÷15

The VM mini-valve and RM diaphragm cock valve are both used to shut-off and regulate fluid flow and are characterised by their reduced size.

MINI-DIAPHRAGM VALVE

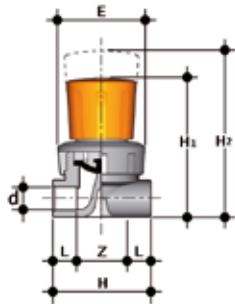
- Connection system for solvent weld and threaded joints
- **Extremely compact dimensions**
- **Can be installed in any position**
- **Valve material compatibility** (PVC-U) and elastomer seal elements (EPDM), with water, drinking water and other food substances as per **current regulations**
- Specifically designed for laboratory applications or for sampling purposes

DIAPHRAGM COCK VALVE

- Connection system for threaded joints
- **Can be installed in any position**
- Can be coupled to pipes in PVC-U, PVC-U plasticised, PE and rubber
- **Valve material compatibility** (PVC-U) with water, drinking water and other food substance conveyance according to **current regulations**
- Specifically designed for laboratory applications or for sampling purposes

Technical specifications	
Construction	VM: Mini-diaphragm valve RM: diaphragm cock valve
Size range	VM: DN 8 (1/4") RM: DN 15
Nominal pressure	VM: PN 10 with water at 20 °C RM: PN 4 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	Solvent welding: EN ISO 1452, EN ISO 15493. Can be coupled to pipes according to EN ISO 1452, EN ISO 15493 Thread: UNI ISO 228-1, DIN 2999
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	PVC-U
Diaphragm material	EPDM
Control options	Manual control

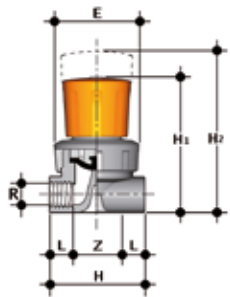
DIMENSIONS



VMIV

Mini-diaphragm valve with female ends for solvent welding, metric series

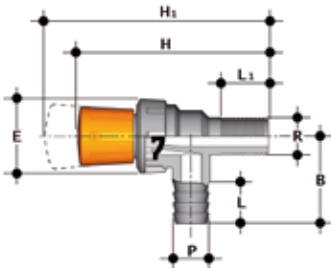
d	DN	PN	E	H	H ₁	H ₂	L	Z	g	Code
12	8	10	43	48	72	81	12	24	70	VMIV012E



VMFV

Mini-diaphragm valve with BSP threaded female ends

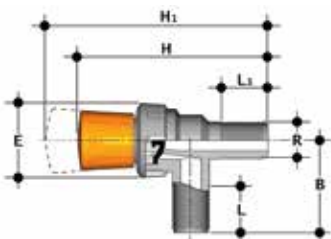
R	DN	PN	E	H	H ₁	H ₂	L	Z	g	Code
1/4"	8	10	43	48	72	81	10.5	27	70	VMFV014E



RMRPV

Diaphragm cock valve with BSP threaded male ends and hose connection

R	DN	PN	P	B	E	H	H ₁	L	L ₁	g	Code
1/2"	15	4	20	50	43	110	119	24	29	90	RMRPV012020E



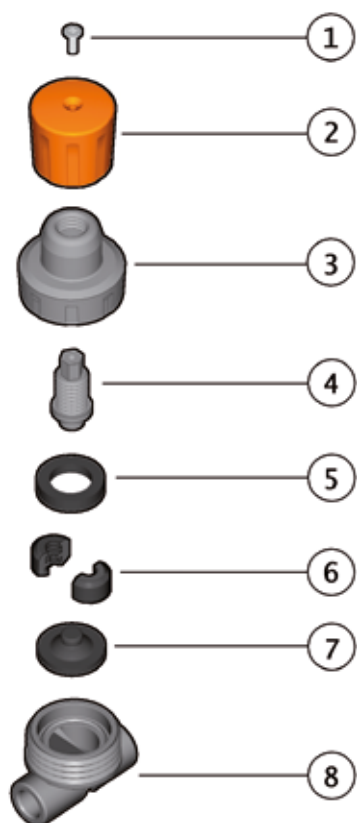
RMRV

Diaphragm cock valve with BSP threaded male ends

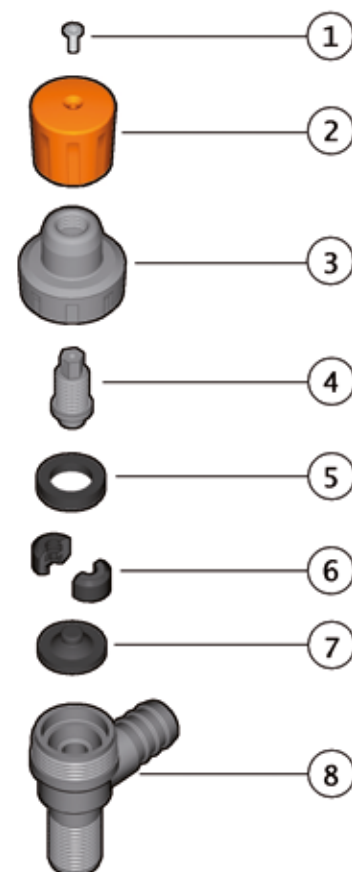
R	DN	PN	B	E	H	H ₁	L	L ₁	g	Code
1/2"	15	4	50	43	110	119	16	28	90	RMRV012E

COMPONENTS

EXPLODED VIEW



VM DN 8



RM DN 15

- 1 · Screw (STAINLESS steel - 1)
- 2 · Handwheel (PVC-U - 1)
- 3 · Bonnet (PVC-U - 1)

- 4 · Stem (PVC-U - 1)
- 5 · Sleeve (POM - 1)
- 6 · Split couplings (POM - 2)

- 7 · Diaphragm (EPDM- 1)
- 8 · Body (PVC-U - 1)

The material of the component and the quantity supplied are indicated between brackets

DISMOUNTING

- 1) Isolate the mini-valve or cock valve from the fluid.
- 2) Unscrew the bonnet (3) clockwise.
- 3) Unscrew screw (1) and remove the handwheel (2).
- 4) Remove the stem (4) to access the split couplings (6), the sleeve (5) and diaphragm (7)

MOUNTING

- 1) Assemble the two split couplings (6), the sleeve (5) and diaphragm (7) to the stem (4), making sure that the latter is inserted in the larger cavity of each half collar, while the diaphragm connection is inserted in the smaller cavity
- 2) Screw the stem (4) to the bonnet (3)
- 3) Position the handwheel (2) on the bonnet and tighten the screw (1)
- 4) Screw the bonnet to the body (8)



Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

INSTALLATION

The mini-valve and cock valve can be installed in any position. If the valve is installed in a vertical position, if the connection is solvent welded, make sure that the solvent cement does not enter inside the body, as this would damage the seating of the seal.



RV DN 10÷100
PVC-U

Sediment strainer

RV DN 10÷100

The RV Sediment strainer limits the passage of any solid particles present in the fluid by means of a strainer.

SEDIMENT STRAINER

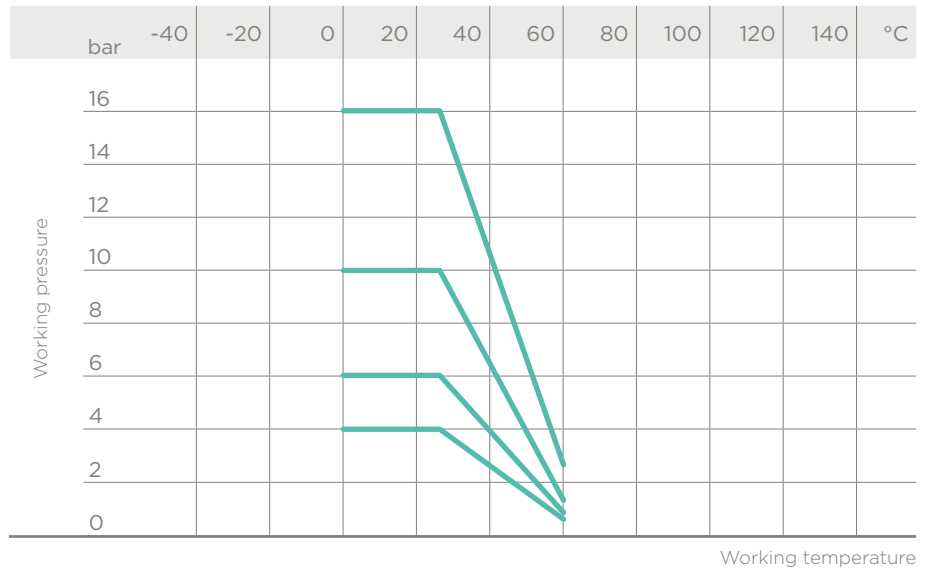
- Connection system for solvent weld, threaded and flanged joints
- **Strainer** mounted on an **easily removed** support that facilitates the cleaning or replacement
- **Valve material compatibility** (PVC-U) with water conveyance, drinking water and other food substances according to **current regulations**
- Can be maintained with the valve body installed

Technical specifications	
Construction	Sediment strainer
Size range	DN 10÷100
Nominal pressure	<p>PVC-U Grey DN 10÷50: PN 16 with water at 20 °C DN 65: PN 10 with water at 20 °C DN 80÷100: PN 6 with water at 20 °C</p> <p>PVC-U Transparent DN 10÷25: PN 16 with water at 20 °C DN 32÷50: PN 10 with water at 20 °C DN 65: PN 6 with water at 20 °C DN 80÷100: PN 4 with water at 20 °C</p>
Temperature range	0 °C ÷ 60 °C
Coupling standards	<p>Solvent welding: EN ISO 1452, EN ISO 15493, BS 43461, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Can be coupled to pipes according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741</p> <p>Thread: UNI ISO 228-1, DIN 2999, ASTM D 2467, JIS B 0203</p> <p>Flanging system:: ISO 7005-1, EN ISO 1452, EN ISO 15493, EN 558-1 (DN 10÷50), DIN 2501, ANSI B.16.5 cl.150, JIS B 2220</p>
Reference standards	<p>Construction criteria: EN ISO 1452, EN ISO 15493,</p> <p>Test methods and requirements: ISO 9393</p> <p>Installation criteria: DVS 2204, DVS 2221, UNI 11242</p>
Valve material	<p>Body: PVC-U grey or transparent</p> <p>Strainer: PVC-U or STAINLESS steel</p>
Seal material	EPDM or FPM

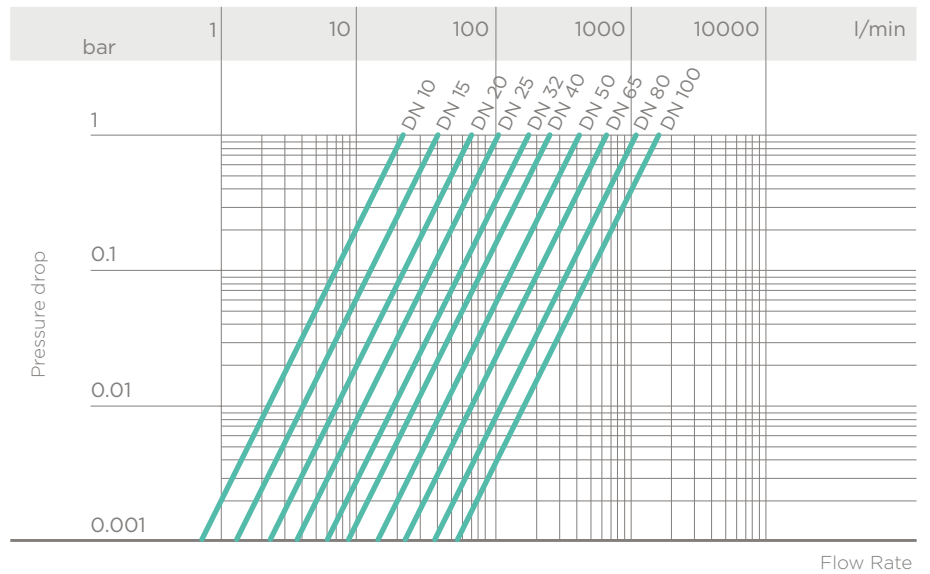
TECHNICAL DATA

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 $\Delta p = 1$ bar pressure drop at a certain valve position.

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

DN	10	15	20	25	32	40	50	65	80	100
K _v 100 l/min	22	40	70	103	188	255	410	650	1050	1700

STRAINER DIMENSIONS

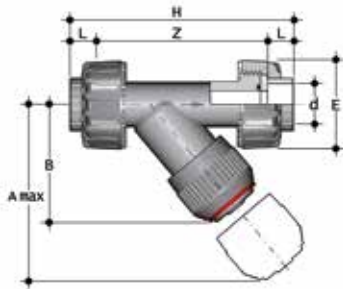
Pitch (mm)	0.7	1.0	1.5	2.0	2.5
number of holes per cm ²	240	190	100	60	35
ASTM series equivalent in strainer	35	50	35	30	18
ø equivalent hole μm	370	300	500	600	900
strainer material	STAINLESS STEEL	PVC-U	PVC-U	PVC-U	PVC-U

TOTAL STRAINER AREA A_{tot} (cm²)

DN	10	15	20	25	32	40	50	65	80	100
A_{tot}	16	16	23.5	36	53	69	101	197	247	396

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DIMENSIONS

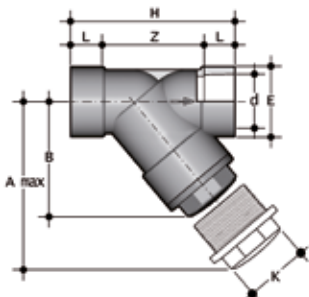


RVUIV-RVUIT

RVUIV PVC-U rigid - RVUIT PVC-U transparent
Sediment strainer with female union ends for solvent welding

d	DN	PN RVUIV	PN RVUIT	A max	B	E	H	L	Z	Fig.	g	Code RVUIV	Code RVUIT
16	10	16	16	125	72	55	135	14	107	A	203	RVUIV016E	RVUIT016E
20	15	16	16	125	72	55	135	16	103	A	211	RVUIV020E	RVUIT020E
25	20	16	16	145	84	66	158	19	120	A	358	RVUIV025E	RVUIT025E
32	25	16	16	165	95	75	176	22	132	A	526	RVUIV032E	RVUIT032E
40	32	16	10	190	111	87	207	26	155	A	733	RVUIV040E	RVUIT040E
50	40	16	10	210	120	100	243	31	181	A	1095	RVUIV050E	RVUIT050E
63	50	16	10	240	139	120	298	38	222	A	1843	RVUIV063E	RVUIT063E

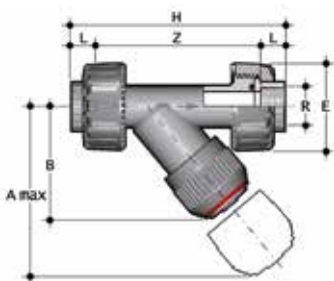
also available with standard ASTM/NPT connections



RVIV-RVIT

RVIV PVC-U rigid - RVIT PVC-U transparent
Sediment strainer with female ends for solvent welding

d	DN	PN RVIV	PN RVIT	A max	B	E	H	K	L	Z	Fig.	g	Code RVIV	Code RVIT
75	65	10	6	300	179	104	243	96	33	155	B	2385	RVIV075E	RVIT075E
90	80	6	4	325	192	116	262	105	37	160	B	2975	RVIV090E	RVIT090E
110	100	6	4	385	231	138	325	-	61	203	C	4610	RVIV110E	RVIT110E

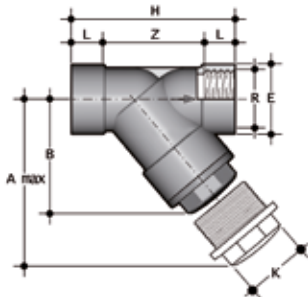


RVUFV-RVUFT

RVUFV PVC-U rigid - RVUFT PVC-U transparent
Sediment strainer with BSP threaded female union ends

R	DN	PN RVUFV	PN RVUFT	A max	B	E	H	L	Z	Fig.	g	Code RVUFV	Code RVUFT
3/8"	10	16	16	125	72	55	135	11.4	112.2	A	206	RVUFV038E	RVUFT038E
1/2"	15	16	16	125	72	55	142	15	112	A	210	RVUFV012E	RVUFT012E
3/4"	20	16	16	145	84	66	159	16.3	126.4	A	355	RVUFV034E	RVUFT034E
1"	25	16	16	165	95	75	183	19.1	144.8	A	522	RVUFV100E	RVUFT100E
1 1/4"	32	16	10	190	111	87	214	21.4	171.2	A	742	RVUFV114E	RVUFT114E
1 1/2"	40	16	10	210	120	100	235	21.4	192.2	A	1106	RVUFV112E	RVUFT112E
2"	50	16	10	240	139	120	285	25.7	233.6	A	1873	RVUFV200E	RVUFT200E

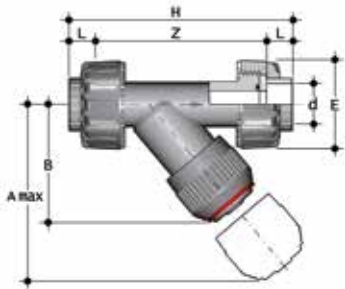
also available with standard JIS connections



RVFV-RVFT

RVFV PVC-U rigid - RVFT PVC-U transparent
Sediment strainer with BSP threaded female ends

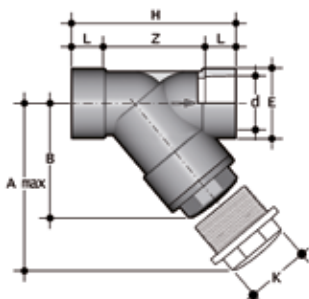
R	DN	PN RVFV	PN RVFT	A max	B	E	H	K	L	Z	Fig.	g	Code RVFV	Code RVFT
2"1/2	65	10	6	300	179	104	243	96	30.2	182.6	B	2385	RVFV212E	RVFT212E
3"	80	6	4	325	192	116	262	105	33.3	195.4	B	2965	RVFV300E	RVFT300E
4"	100	6	4	385	231	138	325	-	39.3	246.4	C	4405	RVFV400E	RVFT400E



RVUAT

PVC-U transparent
Sediment strainer with female union ends for solvent welding, series ASTM

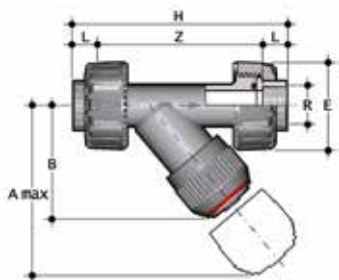
d	DN	PN	A max	B	E	H	L	Z	Fig.	g	Code
3/8"	10	16	125	72	55	149	19.5	110	A	203	RVUAT038E
1/2"	15	16	125	72	55	149	22.5	104	A	211	RVUAT012E
3/4"	20	16	145	84	66	172	25.5	121	A	358	RVUAT034E
1"	25	16	165	95	75	190	28.7	132.6	A	526	RVUAT100E
1"1/4	32	10	190	111	87	223	32	159	A	733	RVUAT114E
1"1/2	40	10	210	120	100	251	35	181	A	1095	RVUAT112E
2"	50	10	240	139	120	298	38.2	221.6	A	1843	RVUAT200E



RVAT

PVC-U transparent
Sediment strainer with female ends for solvent welding, series ASTM

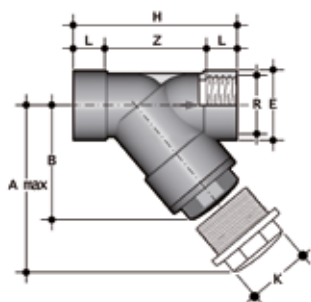
d	DN	PN	A max	B	E	H	K	L	Z	Fig.	g	Code
3"	80	4	325	192	116	262	105	47.6	166.8	B	2975	RVAT300E
4"	100	4	385	231	138	325	-	57.2	210.6	C	4610	RVAT400E



RVUNT

PVC-U transparent
Sediment strainer with NPT threaded female union ends

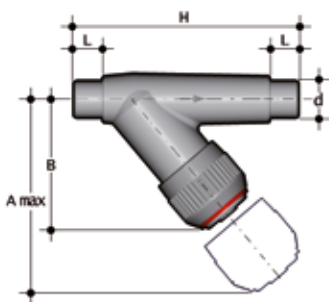
R	DN	PN	A max	B	E	H	L	Z	Fig.	g	Code
3/8"	10	16	125	72	55	135	13.7	107.6	A	206	RVUNT038E
1/2"	15	16	125	72	55	143	17.8	107.4	A	210	RVUNT012E
3/4"	20	16	145	84	66	159	18	123	A	355	RVUNT034E
1"	25	16	165	95	75	183	22.6	137.8	A	522	RVUNT100E
1 1/4"	32	10	190	111	87	214	25.1	163.8	A	742	RVUNT114E
1 1/2"	40	10	210	120	100	235	24.7	185.6	A	1106	RVUNT112E
2"	50	10	240	139	120	285	29.6	225.8	A	1873	RVUNT200E



RVNT

PVC-U transparent
Sediment strainer with NPT threaded female ends

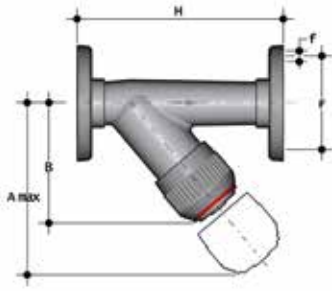
R	DN	PN	A max	B	E	H	K	L	Z	Fig.	g	Code
3"	80	4	325	192	116	262	105	51	160	B	2965	RVNT300E
4"	100	4	385	231	138	325	-	61	203	C	4405	RVNT400E



RVDV-RVDT

RVDV PVC-U rigid - RVDT PVC-U transparent
Sediment strainer with male ends for solvent welding

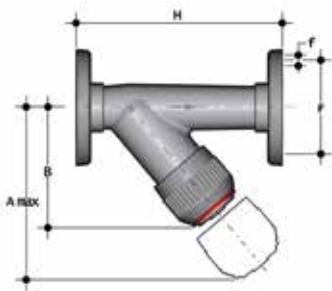
d	DN	PN RVDV	PN RVDT	A max	B	H	L	Fig.	g	Code RVDV	Code RVDT
16	10	16	10	125	72	114	14	A	110	RVDV016E	RVDT016E
20	15	16	10	125	72	124	16	A	120	RVDV020E	RVDT020E
25	20	16	10	145	84	144	19	A	190	RVDV025E	RVDT025E
32	25	16	10	165	95	154	22	A	285	RVDV032E	RVDT032E
40	32	16	10	190	111	174	26	A	400	RVDV040E	RVDT040E
50	40	16	10	210	120	194	31	A	600	RVDV050E	RVDT050E
63	50	16	10	240	139	224	38	A	945	RVDV063E	RVDT063E



RVOV-RVOT

RVOV PVC-U rigid - RVOT PVC-U transparent
Sediment strainer with fixed flanges, drilled PN10/16

d	DN	PN RVOV	PN RVOT	A max	B	F	f	H	Fig.	g	Code RVOV	Code RVOT
20	15	16	10	125	72	65	14	130	A	260	RVOV020E	RVOT020E
25	20	16	10	145	84	75	14	150	A	395	RVOV025E	RVOT025E
32	25	16	10	165	95	85	14	160	A	560	RVOV032E	RVOT032E
40	32	16	10	190	111	100	18	180	A	850	RVOV040E	RVOT040E
50	40	16	10	210	120	110	18	200	A	1170	RVOV050E	RVOT050E
63	50	16	10	240	139	125	18	230	A	1760	RVOV063E	RVOT063E
75	65	10	6	300	179	145	17	356	B	3600	RVOV075E	RVOT075E
90	80	6	4	325	192	160	17	404	B	4910	RVOV090E	RVOT090E
110	100	6	4	385	231	180	17	475	C	6790	RVOV110E	RVOT110E



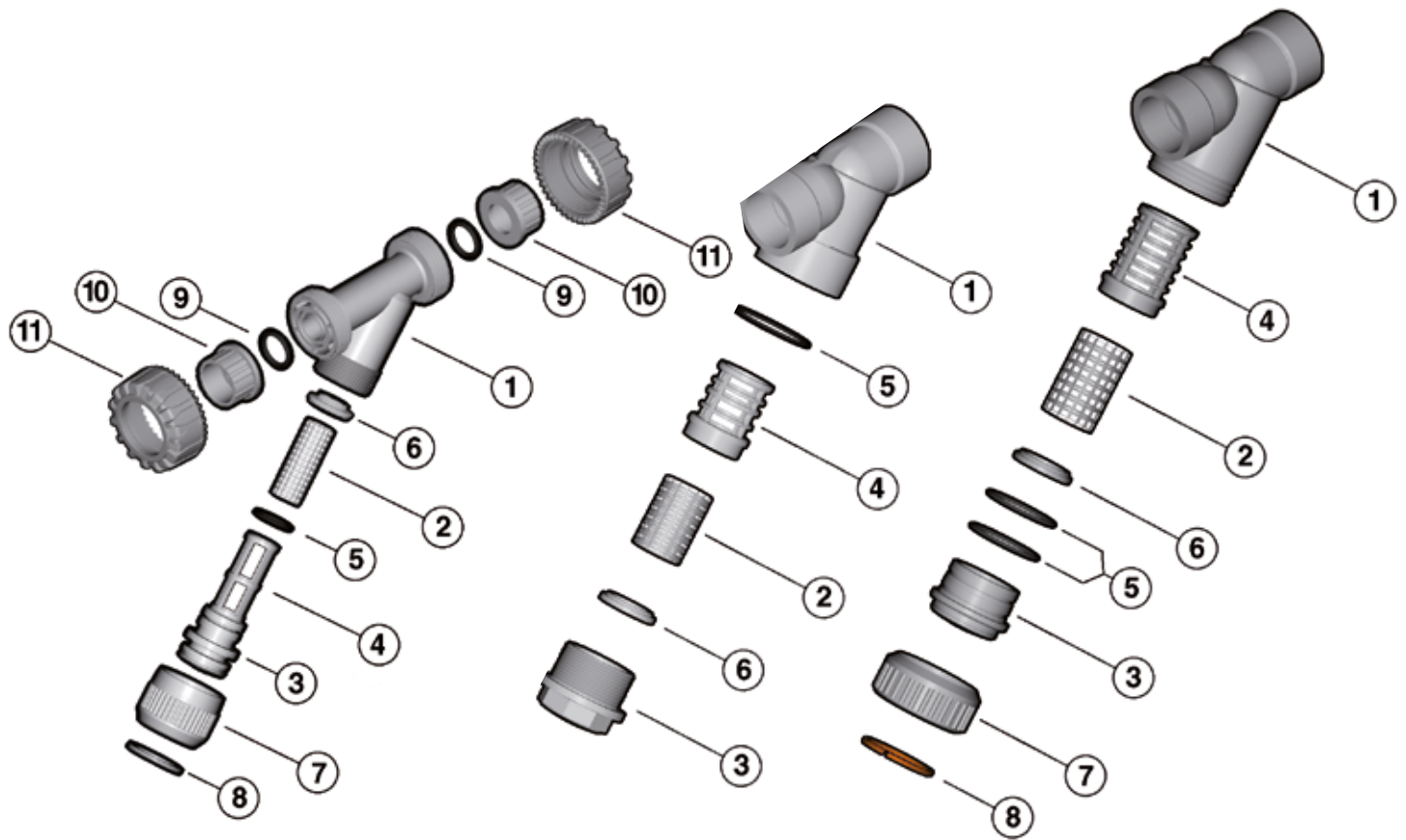
RVOAV-RVOAT

RVOAV PVC-U rigid - RVOAT PVC-U transparent
Sediment strainer with fixed flanges, drilled ANSI B16.5 cl.150 #FF

d	DN	PN RVOAV	PN RVOAT	A max	B	F	f	H	Fig.	g	Code RVOAV	Code RVOAT
1/2"	15	16	10	125	72	60.3	15.9	130	A	260	RVOAV012E	RVOAT012E
3/4"	20	16	10	145	84	69.9	15.9	150	A	395	RVOAV034E	RVOAT034E
1"	25	16	10	165	95	79.4	15.9	160	A	560	RVOAV100E	RVOAT100E
1 1/4"	32	16	10	190	111	88.9	15.9	180	A	850	RVOAV114E	RVOAT114E
1 1/2"	40	16	10	210	120	98.4	15.9	200	A	1170	RVOAV112E	RVOAT112E
2"	50	16	10	240	139	120.7	19.1	230	A	1760	RVOAV200E	RVOAT200E
2 1/2"	65	10	6	300	179	139.7	19.1	356	B	3600	RVOV075E	RVOT075E
3"	80	6	4	325	192	152.4	19.1	404	B	4910	RVOV090E	RVOT090E
4"	100	6	4	385	231	190.5	19.1	475	C	6790	RVOV110E	RVOT110E

COMPONENTS

EXPLODED VIEW



DN 15 ÷ 50

DN 65 ÷ 80

DN 100

- 1** · Body (PVC-U - 1)
- 2** · Strainer (PVC-U/STAINLESS steel - 1)*
- 3** · Bonnet (PVC-U - 1)
- 4** · Strainer support (PVC-U - 1)
- 5 A-B** · O-ring (EPDM-FPM - 1)*
- 5 C** · O-ring (EPDM-FPM - 2)
- 6** · Washer (PVC-U - 1)
- 7** · Union nut (PVC-U - 1)
- 8** · Retaining ring (PVC-U - 1)
- 9** · Socket seal O-Ring (EPDM-FPM - 2)*
- 10** · End connector (PVC-U - 2)*
- 11** · Union nut (PVC-U - 2)

* Spare parts

The material of the component and the quantity supplied are indicated between brackets

DISMOUNTING

DN 15÷50 (fig. A) - DN 100 (fig. C)

- 1) Isolate the sediment strainer from the fluid flow and empty the system upstream.
- 2) Unscrew the union nut (7) and separate the bonnet-support (3-4) from the body (1).
- 3) Remove the bottom washer (6) from the bonnet-support (3-4).
- 4) Remove the retaining ring (8) and separate the union nut (7) from the bonnet (3).
- 5) Remove the O-Ring from the bonnet (5).

DN 65÷80 (fig. B)

- 1) Isolate the sediment strainer from the fluid flow and empty the system upstream.
- 2) Unscrew the bonnet (3) and separate it from the body (1).
- 3) Remove the support (4) from the bonnet (3).
- 4) Remove the washer (6) from the bonnet (3) and the O-Ring (5) from its seating in the body.

MOUNTING

DN 15÷50 (fig. A) - DN 100 (fig. C)

- 1) Insert the O-Ring (5) in its seating in the bonnet (3).
- 2) Insert the bonnet (3) in union nut (7) and fix the two components using the retaining ring (8).
- 3) Insert the strainer (2) in the bonnet-support (3-4) and hold in place with the washer (6).
- 4) Insert the bonnet (3) in the body (1) and tighten the union nut (7).

DN 65÷80 (fig. B)

- 1) Insert the O-Ring (5) in the body (1)
- 2) Insert the washer (6) in the bonnet (3)
- 3) Insert the strainer (2) in its support (4)
- 4) Insert the support (4) in the bonnet (3)
- 5) Screw the bonnet (3) in the body (1)



Note: maintenance operations can be carried out with the valve body installed. During assembly, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

Fig. A

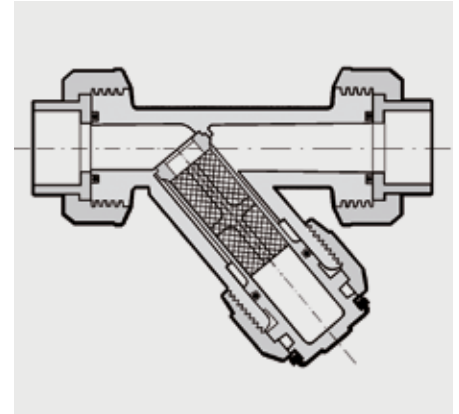


Fig. B

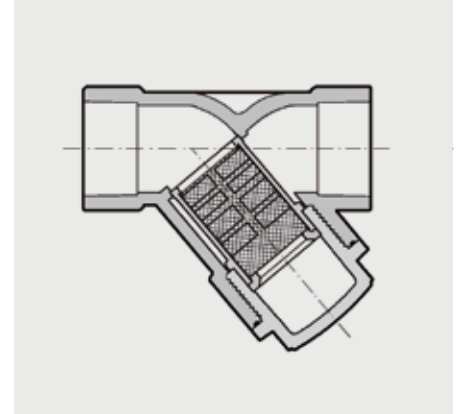
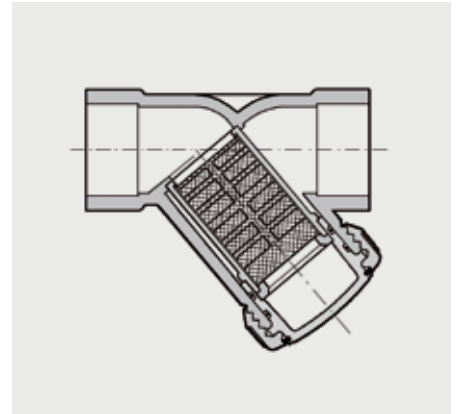


Fig. C



INSTALLATION

The sediment strainer can be installed in any position, making sure that the arrow stamped on the body indicates the direction of fluid flow and that the strainer part is facing downwards. To avoid damaging the strainer, appropriate devices must be installed on the line to prevent backflow.

DN 15÷50 (fig. A)

- 1) Unscrew the union nuts (11) and slide them onto the pipe.
- 2) Heat weld the end connectors (10) onto the pipe segments.
- 3) Position the sediment strainer between the end connectors
- 4) Tighten the union nuts.

DN 65÷80 (fig. B) and DN 100 (fig. C)

The joint must be made by solvent welding the pipe directly into the socket of the valve body.

WARNINGS

- sediment strainers with a transparent body allow the passage of light, thus promoting the internal growth of algae and micro-organisms.
- sediment strainers with a transparent body are not protected against solar rays. Use in an open-air system will accelerate the ageing process of the material and reduce its working life.
- The sediment strainers with a transparent body located near pumps should be protected against vibrations.
- Always check the cleanliness of the strainer elements.



VV DN 10÷50
PVC-U

Angle seat valve

VV DN 10÷50

The VV angle seat valve is a shutting-off and regulating valve particularly suitable for clean fluids.

ANGLE SEAT VALVE

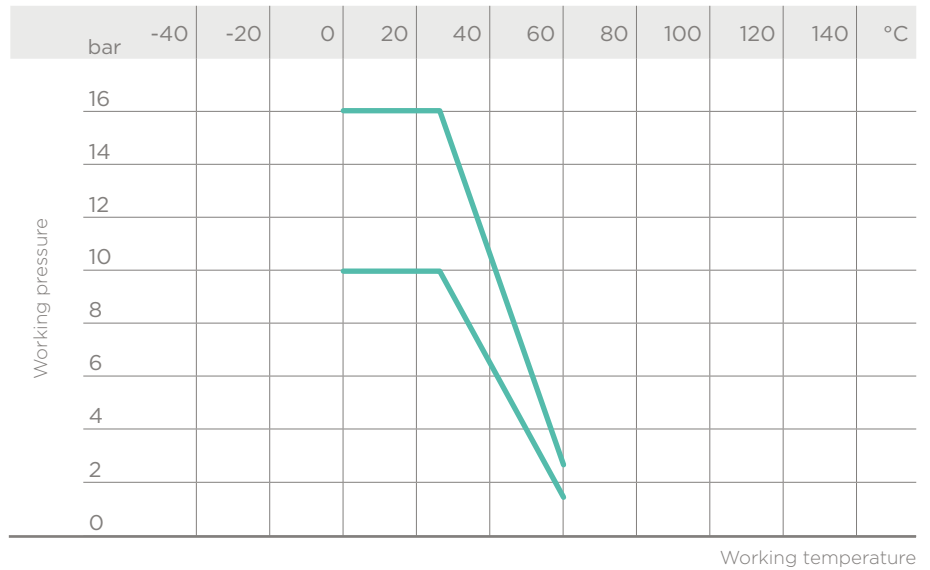
- Connection system for solvent weld, threaded and flanged joints
- Can be installed in any position
- **No metal parts in contact with the fluid**
- **Valve material compatibility** (PVC-U) with water, drinking water and other food substance conveyance according to **current regulations**
- Can be maintained with the valve body installed

Technical specifications	
Construction	Angle seat shutting-off and regulating valve
Size range	DN 10 ÷ 50
Nominal pressure	DN 10÷25: PN 16 with water at 20 °C DN 32÷50: PN 10 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Can be coupled to pipes according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741 Thread: ISO 228-1, DIN 2999, ASTM D 2467, JIS B 0203 Flanging system: ISO 7005-1, EN ISO 1452, EN ISO 15493, EN 558-1 (DN 10÷50), DIN 2501, ANSI B16.5 Cl. 150, JIS B 2220
Reference standards	Construction criteria: EN ISO 1452, EN ISO 15493 Test methods and requirements: ISO 9393 Installation criteria: DVS 2204, DVS 2221, UNI 11242
Valve material	PVC-U
Seal material	EPDM+PE (EPDM+PTFE or FPM+PTFE on request)
Control options	Manual control

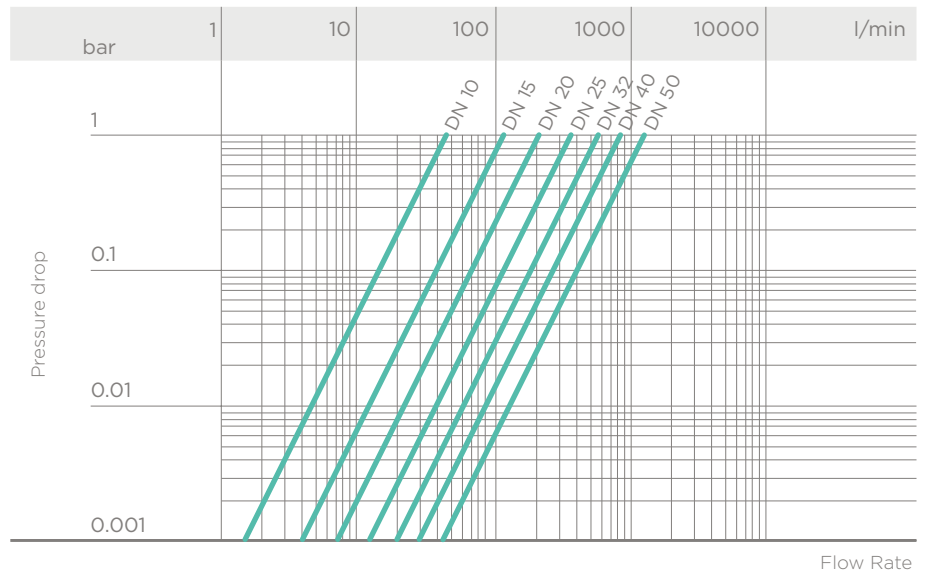
TECHNICAL DATA

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



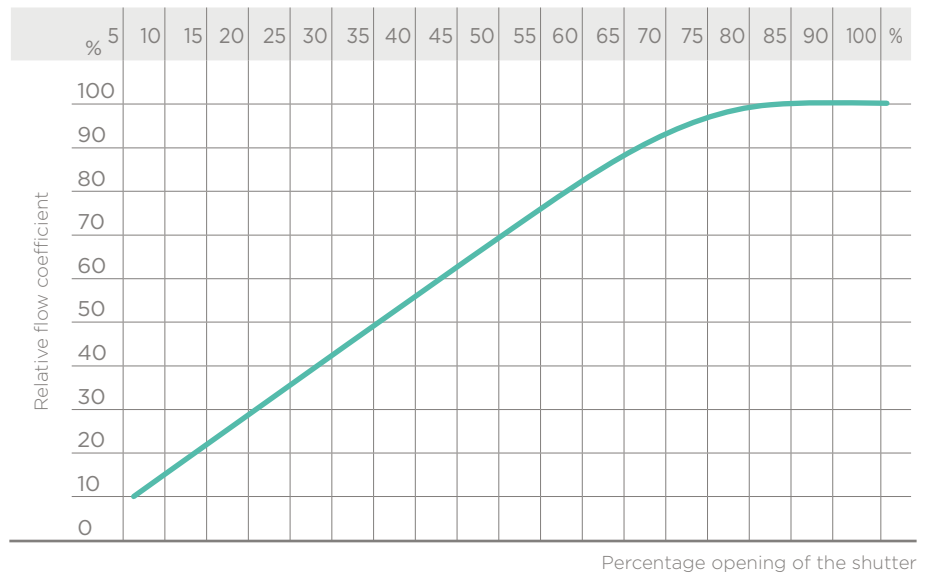
K_v100 FLOW COEFFICIENT

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.

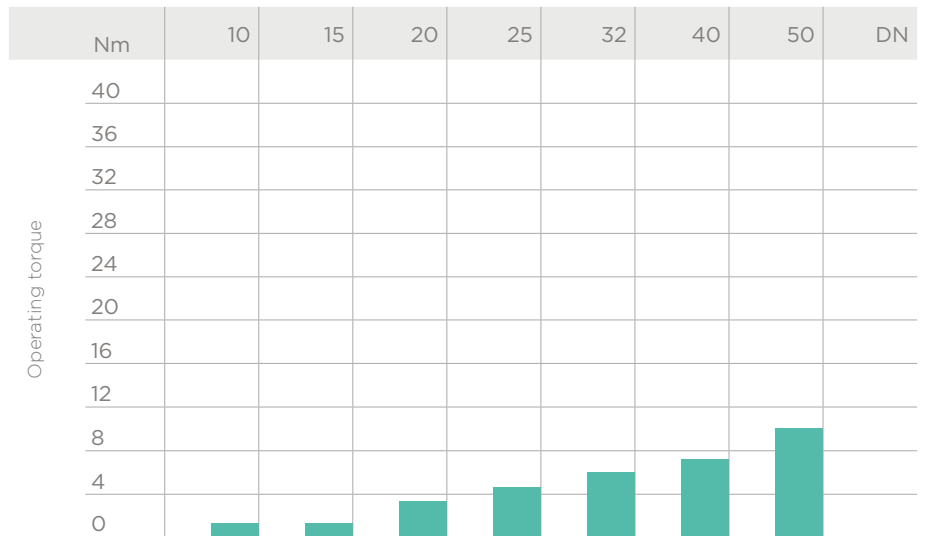
The K_v100 values shown in the table are calculated with the valve completely open.

DN	10	15	20	25	32	40	50
K _v 100 l/min	47	110	205	375	560	835	1300

RELATIVE FLOW COEFFICIENT GRAPH

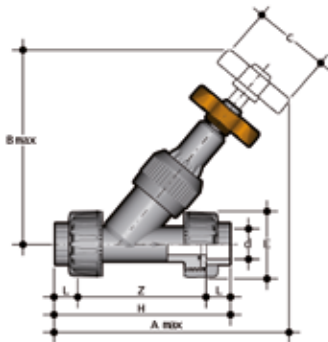


OPERATING TORQUE AT MAXIMUM WORKING PRESSURE



The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

DIMENSIONS

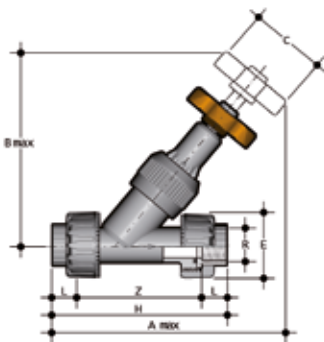


VVUIV

Angle seat valve with female union ends for solvent welding, metric series

d	DN	PN	A max	B max	C	E	H	L	Z	g	Code
16	10	16	170	124	60	55	135	14	107	238	VVUIV016E
20	15	16	173	124	60	55	135	16	103	251	VVUIV020E
25	20	16	197	146	60	66	158	19	120	413	VVUIV025E
32	25	16	223	173	70	75	176	22	132	621	VVUIV032E
40	32	16	258	195	85	87	207	26	155	903	VVUIV040E
50	40	16	295	222	105	100	243	31	181	1320	VVUIV050E
63	50	16	359	269	130	120	298	38	222	2238	VVUIV063E

other connection standards are available on request

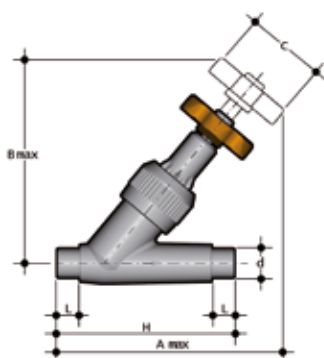


VVUFV

Angle seat valve with BSP threaded female union ends

R	DN	PN	A max	B max	C	E	H	L	Z	g	Code
3/8"	10	16	170	124	60	55	135	11.4	112.2	238	VVUFV038E
1/2"	15	16	173	124	60	55	143	15	113	251	VVUFV012E
3/4"	20	16	197	146	60	66	160	16.3	127.4	413	VVUFV034E
1"	25	16	223	173	70	75	183	19.1	144.8	621	VVUFV100E
1" 1/4	32	10	258	195	85	87	214	21.4	171.2	903	VVUFV114E
1" 1/2	40	10	295	222	105	100	235	21.4	192.2	1320	VVUFV112E
2"	50	10	359	269	130	120	285	25.7	233.6	2238	VVUFV200E

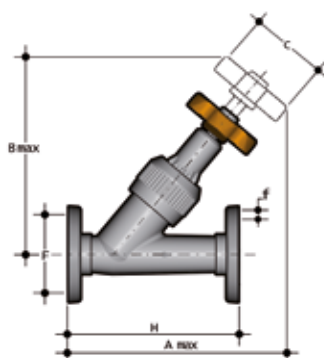
other connection standards are available on request



VVDV

Angle seat valve with male ends for solvent welding, metric series

d	DN	PN	A max	B max	C	H	L	g	Code
16	10	16	136	124	60	114	14	150	VVDV016E
20	15	16	146	124	60	124	16	160	VVDV020E
25	20	16	165	146	60	144	19	250	VVDV025E
32	25	16	188	173	70	154	22	380	VVDV032E
40	32	10	217	195	85	174	26	480	VVDV040E
50	40	10	247	222	105	194	31	820	VVDV050E
63	50	10	299	269	130	224	38	1345	VVDV063E



VVOV

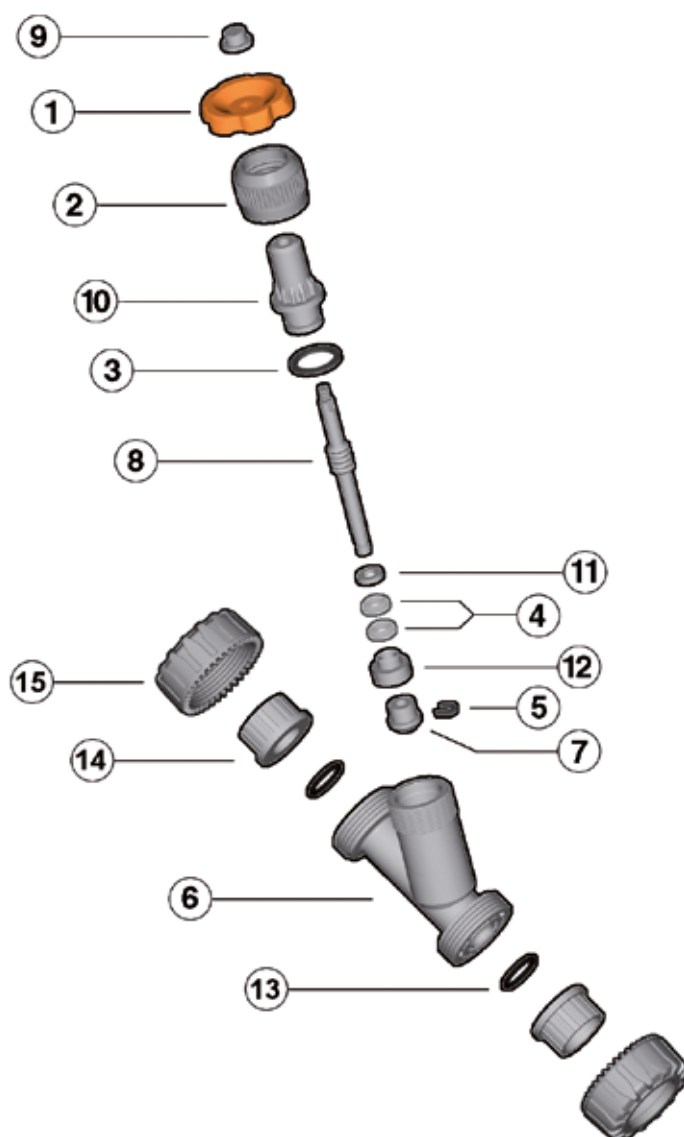
Angle seat valve with fixed flanges, drilled PN10/16

d	DN	PN	A max	B max	C	E	F	f	H	g	Code
20	15	16	146	124	60	65	65	14	130	300	VVOV020E
25	20	16	166	146	60	75	75	14	150	455	VVOV025E
32	25	16	191	173	70	85	85	14	160	655	VVOV032E
40	32	10	219	195	85	100	100	18	180	1025	VVOV040E
50	40	10	249	222	105	110	110	18	200	1390	VVOV050E
63	50	10	302	269	130	125	125	18	230	2155	VVOV063E

VVOAV version available on request with fixed flanges, drilled ANSI B 16.5 Cl. 150 #FF

COMPONENTS

EXPLODED VIEW



- 1 · Handwheel (PVC-U - 1)
- 2 · Union nut (PVC-U - 1)
- 3 · O-Ring (EPDM-FPM - 1)*
- 4 · Gland Packing (PE-PTFE - 2)*

- 5 · Locking clip (PVC-U - 1)
- 6 · Body (PVC-U - 1)
- 7 · Shutter (PVC-U - 1)
- 8 · Stem (PVC-U - 1)
- 9 · Nut (PVC-U - 1)
- 10 · Bonnet (PVC-U - 1)

- 11 · Bottom sleeve (PVC-U - 1)
- 12 · Gland (PVC-U - 1)
- 13 · Socket seal O-ring (EPDM-FPM - 2)
- 14 · End connector (PVC-U - 2)
- 15 · Union nut (PVC-U - 2)

* Spare parts

The material of the component and the quantity supplied are indicated between brackets

DISMOUNTING

- 1) Isolate the valve from the fluid flow.
- 2) Unscrew the union nut (2) anticlockwise and then remove the internal assembly, complete with all its components, from the body (6).
- 3) Remove the locking clip (5) and shutter (7).
- 4) Remove the gland (12).
- 5) Unscrew the nut (9) remove the handwheel (1) and union nut (2).
- 6) Rotate the stem (8) clockwise and remove it completely from the bonnet (10). At this point it is possible to access the gland packing (4), the bottom sleeve (11) and the O-Ring (3) which be easily removed.

MOUNTING

- 1) Insert the stem (8) in the bonnet (10) and screw anticlockwise.
- 2) Insert in order: O-Ring, (3) bottom sleeve (11) and gland packing (4).
- 3) Place the union nut (2) on the stem, screw on the handwheel (1) and nut (9).
- 4) Insert the gland (12) and shutter (7) on the stem (8), insert the locking clip (5) in its housing.
- 5) Insert the completed assembly in the body, making sure that the locating tab on the bonnet sits in its housing in the body
- 6) Lock the union nut.



Note: maintenance operations can be carried out with the valve body installed. During assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

INSTALLATION

- 1) Install the valve such that the arrow stamped on the body indicates the direction of fluid flow .
- 2) If the valve is installed in a vertical position, if the connection is solvent welded, make sure that the solvent does not enter inside the body, as this would damage the seating of the seal.
- 3) Before putting the valve into service, check the tightness of the union nut (2).

WARNINGS

- Do not used compressed air or other gases to test thermoplastic lines.
- Always avoid sudden closing manoeuvres and protect the valve from accidental manoeuvres.



VR DN 10÷100
PVC-U

Check valve

VR DN 10÷100

The VR is an angle seat check valve with weighted PVC piston that allows the passage of fluid in one direction only.

CHECK VALVE

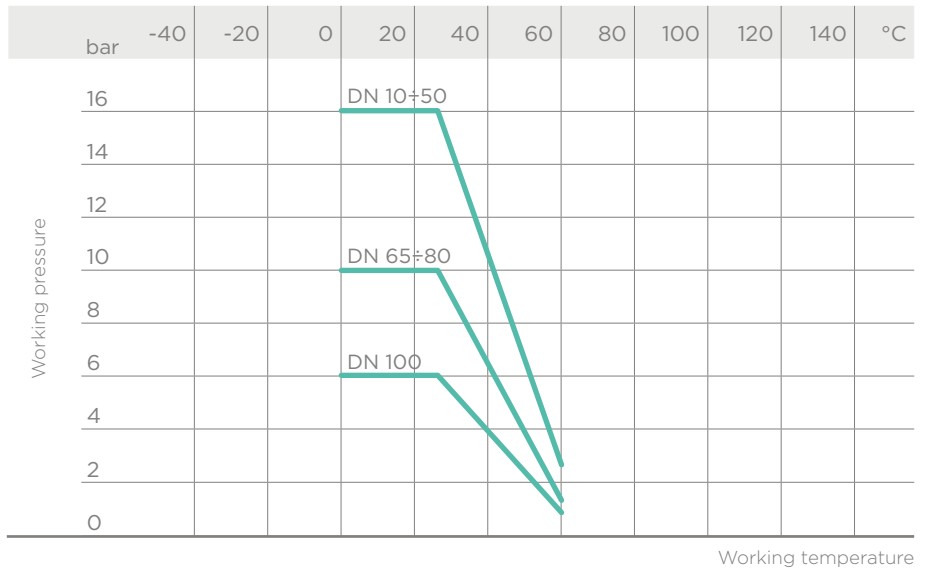
- Connection system for solvent weld, threaded and flanged joints
- **No metal parts in contact with the fluid**
- **Piston with counterweight** able to work with high intensity fluid
- Limited pressure drop. Only minimum back pressure is required for the hermetic seal
- **Valve material compatibility** (PVC-U) with water conveyance, drinking water and other food substances according to **current regulations**
- Can be maintained with the valve body installed

Technical specifications	
Construction	Angle seat check valve
Size range	DN 10 ÷ 100
Nominal pressure	DN 10÷50: PN 16 with water at 20 °C DN 65: PN 10 with water at 20 °C DN 80÷100: PN 6 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Can be coupled to pipes according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741 Thread: ISO 228-1, DIN 2999, ASTM D 2464, JIS B 0203 Flanging system: ISO 7005-1, EN ISO 1452, EN ISO 15493, EN 558-1 (DN 10÷50), DIN 2501, ANSI B.16.5 cl.150, JIS B 2220
Reference standards	Construction criteria: EN ISO 16137, EN ISO 1452, EN ISO 15493 Test methods and requirements: ISO 9393 Installation criteria: DVS 2204, DVS 2221, UNI 11242
Valve material	PVC-U
Seal material	EPDM or FPM

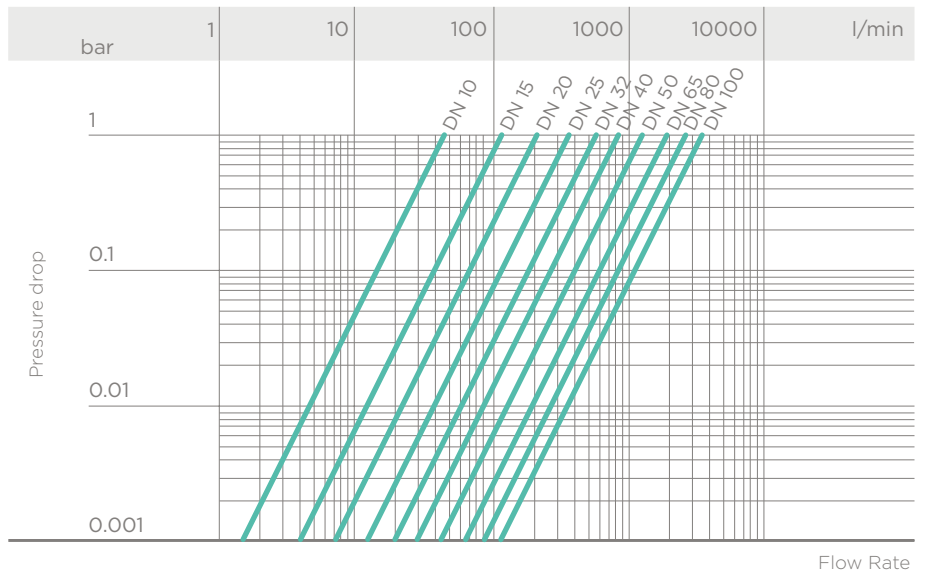
TECHNICAL DATA

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 $\Delta p = 1$ bar pressure drop at a certain valve position.

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

DN	10	15	20	25	32	40	50	65	80	100
K _v 100	47	110	205	375	560	835	1300	1950	2600	3500

MINIMUM PRESSURE REQUIRED TO LIFT THE PISTON

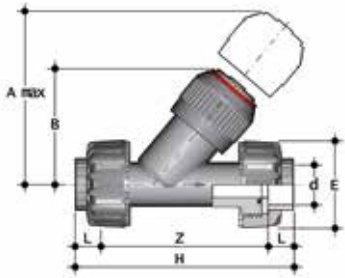
DN	10	15	20	25	32	40	50	65	80	100
bar	0.008	0.008	0.009	0.014	0.017	0.018	0.021	0.022	0.022	0.024

MINIMUM SEALING PRESSURE (PISTON IN CLOSED POSITION)

DN	10	15	20	25	32	40	50	65	80	100
mm H ₂ O	150	150	200	350	350	350	350	350	350	350

The figures refer to the seals that are not worn.

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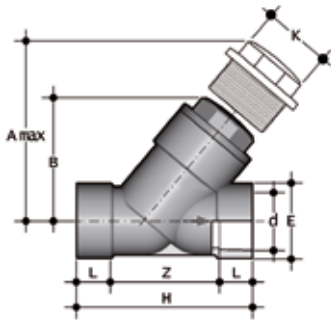


VRUIV

Check valve with female union ends for solvent welding, metric series

d	DN	PN	A max	B	E	H	L	Z	Fig.	g	EPDM Code	FPM Code
16	10	16	125	72	55	135	14	107	A	218	VRUIV016E	VRUIV016F
20	15	16	125	72	55	135	16	103	A	226	VRUIV020E	VRUIV020F
25	20	16	145	84	66	158	19	120	A	388	VRUIV025E	VRUIV025F
32	25	16	165	95	75	176	22	132	A	606	VRUIV032E	VRUIV032F
40	32	16	190	111	87	207	26	155	A	923	VRUIV040E	VRUIV040F
50	40	16	210	120	100	243	31	181	A	1335	VRUIV050E	VRUIV050F
63	50	16	240	139	120	298	38.2	221.6	A	2313	VRUIV063E	VRUIV063F

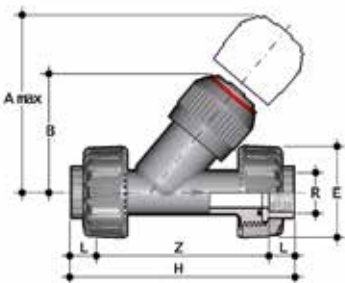
also available with standard ANSI, BS and JIS connections



VRIV

Check valve with female ends for solvent welding, metric series

d	DN	PN	A max	B	E	H	K	L	Z	Fig.	g	EPDM Code	FPM Code
75	65	10	300	179	104	243	96	44	155	B	3485	VRIV075E	VRIV075F
90	80	6	325	192	116	262	105	51	160	B	4530	VRIV090E	VRIV090F
110	100	6	385	231	138	325	-	61	203	C	7170	VRIV110E	VRIV110F

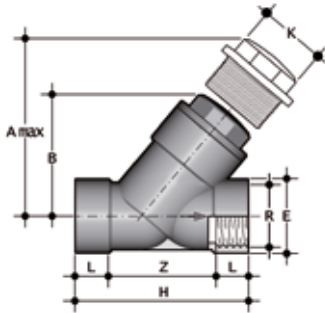


VRUFV

Check valve with BSP threaded female union ends

R	DN	PN	A max	B	E	H	L	Z	Fig.	g	EPDM Code	FPM Code
3/8"	10	16	125	72	55	135	11.4	112.2	A	221	VRUFV038E	VRUFV038F
1/2"	15	16	125	72	55	143	15	113	A	230	VRUFV012E	VRUFV012F
3/4"	20	16	145	84	66	160	16.3	127.4	A	390	VRUFV034E	VRUFV034F
1"	25	16	165	95	75	183	19.1	144.8	A	602	VRUFV100E	VRUFV100F
1 1/4"	32	16	190	111	87	214	21.4	171.2	A	932	VRUFV114E	VRUFV114F
1 1/2"	40	16	210	120	100	235	21.4	192.2	A	1341	VRUFV112E	VRUFV112F
2"	50	16	240	139	120	285	25.7	233.6	A	2348	VRUFV200E	VRUFV200F

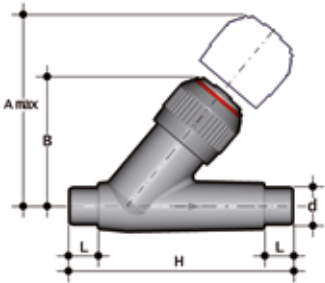
also available with standard ASTM/NPT connections



VRFV

Check valve with BSP threaded female ends

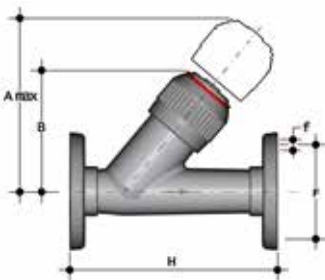
R	DN	PN	A max	B	E	H	K	L	Z	Fig.	g	EPDM Code	FPM Code
2 1/2"	65	10	300	179	104	243	96	30.2	182.6	B	3485	VRFV212E	VRFV212F
3"	80	6	325	192	116	262	105	33.3	195.4	B	4520	VRFV300E	VRFV300F
4"	100	6	385	231	138	325	-	39.3	246.4	C	6965	VRFV400E	VRFV400F



VRDV

Check valve with male ends for solvent welding, metric series

d	DN	PN	A max	B	H	L	Fig.	g	EPDM Code	FPM Code
16	10	16	125	72	114	14	A	125	VRDV016E	VRDV016F
20	15	16	125	72	124	16	A	135	VRDV020E	VRDV020F
25	20	16	145	84	144	19	A	225	VRDV025E	VRDV025F
32	25	16	165	95	154	22	A	360	VRDV032E	VRDV032F
40	32	16	190	111	174	26	A	590	VRDV040E	VRDV040F
50	40	16	210	120	194	31	A	835	VRDV050E	VRDV050F
63	50	16	240	139	224	38	A	1420	VRDV063E	VRDV063F

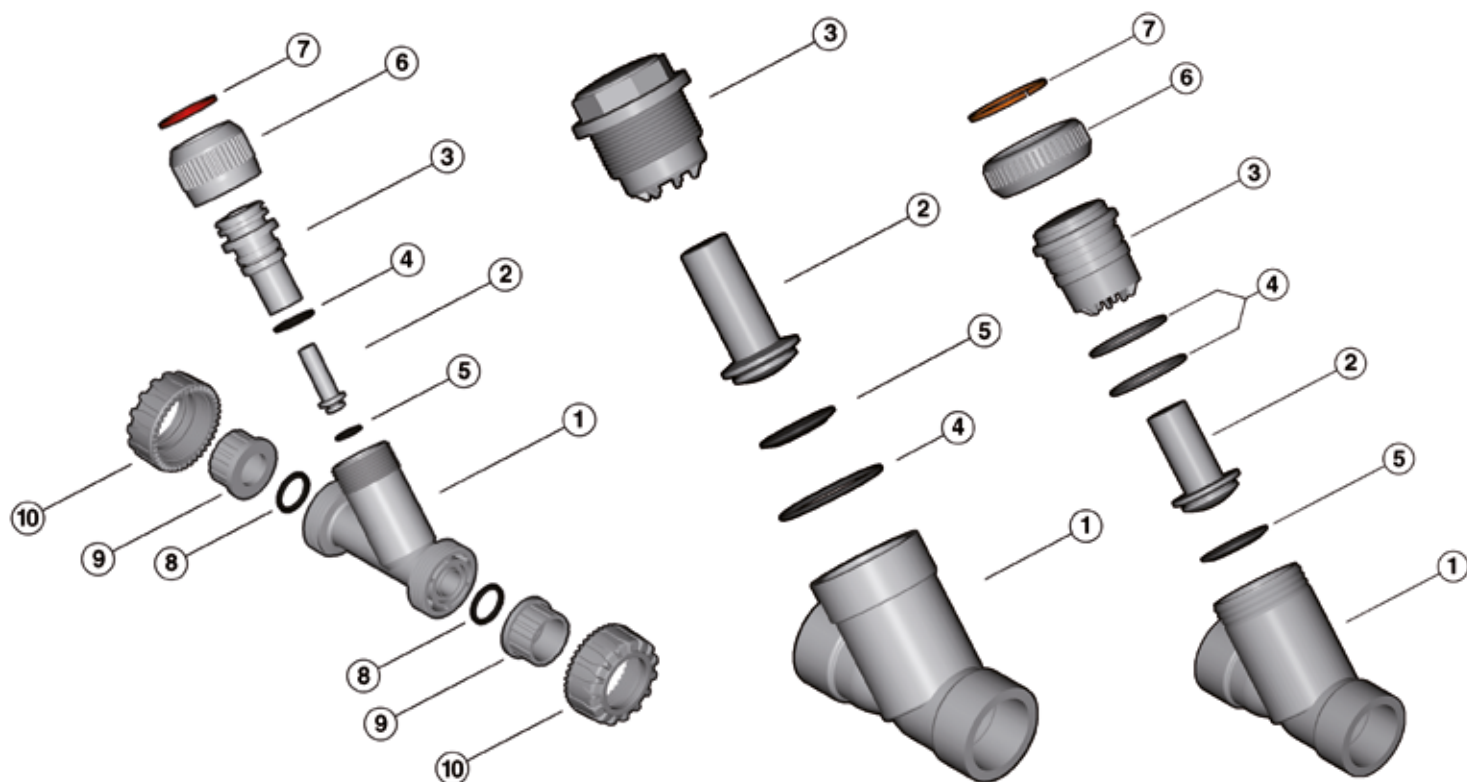


VROV

Check valve with fixed flanges, drilled PN10/16

d	DN	PN	A max	B	F	f	H	Fig.	g	EPDM Code	FPM Code
20	15	16	125	72	65	14	130	A	280	VROV020E	VROV020F
25	20	16	145	84	75	14	150	A	430	VROV025E	VROV025F
32	25	16	165	95	85	14	160	A	640	VROV032E	VROV032F
40	32	16	190	111	100	18	180	A	1035	VROV040E	VROV040F
50	40	16	210	120	110	18	200	A	1405	VROV050E	VROV050F
63	50	16	240	139	125	18	230	A	2235	VROV063E	VROV063F
75	65	10	300	179	145	17	356	B	4600	VROV075E	VROV075F
90	80	6	325	192	160	17	404	B	6300	VROV090E	VROV090F
110	100	6	385	231	180	17	475	C	9200	VROV110E	VROV110F

EXPLODED VIEW



DN 15÷50

DN 65÷80

DN 100

- 1 · Body (PVC-U - 1)
- 2 · Piston (PVC-U - 1)
- 3 · Bonnet (PVC-U - 1)
- 4 · O-Ring (EPDM-FPM - 1/2)*

- 5 · Piston flat gasket (EPDM-FPM - 1)*
- 6 · Union nut (PVC-U - 1)
- 7 · Retaining ring (PVC-U - 1)
- 8 · Socket seal O-Ring (EPDM-FPM - 2)*

- 9 · End connector (PVC-U - 2)*
- 10 · Union nut (PVC-U - 2)

* Spare parts

The material of the component and the quantity supplied are indicated between brackets

DISMOUNTING

DN 15÷50 - DN 100 (fig. A and C)

- 1) Isolate the valve from the fluid flow.
- 2) Unscrew the union nut (6) and separate the bonnet (3) from the body (1).
- 3) Remove the piston (2) and flat gasket (5).
- 4) Remove the retaining ring (7) and separate the union nut (6) from the bonnet (3).
- 5) Remove the O-Ring from the bonnet (4).

DN 65÷100 (fig. B)

- 1) Isolate the valve from the fluid flow.
- 2) Unscrew the bonnet (3) from the body (1).
- 3) Remove the O-Ring (4) from its seating in the body (1).
- 4) Remove the piston (2) and relative flat gasket (5).

MOUNTING

DN 15÷50 - DN 100 (fig. A and C)

- 1) Insert the O-Ring (4) in its seating in the bonnet (3).
- 2) Insert the bonnet (3) in union nut (6) and fix the two components using the retaining ring (7).
- 3) Insert the piston (2) complete with flat gasket (5) in the bonnet (3), then fit the bonnet on the body (1).
- 4) Screw the union nut (6) on the body (1)

DN 65÷100 (fig. B)

- 1) Insert the piston (2) complete with flat gasket (5) in the bonnet (3).
- 2) Insert the O-ring (4) in the body (1) seating.
- 3) Screw the bonnet (3) to the body (1)



Note: maintenance operations can be carried out with the valve body installed during assembly, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

Fig. A

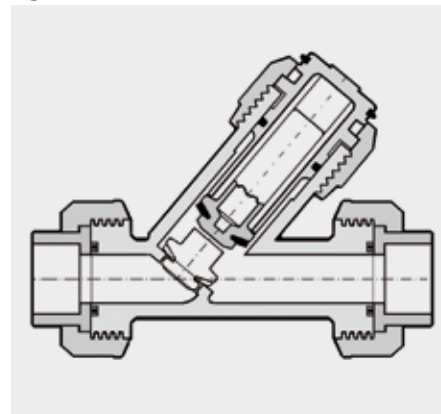


Fig. B

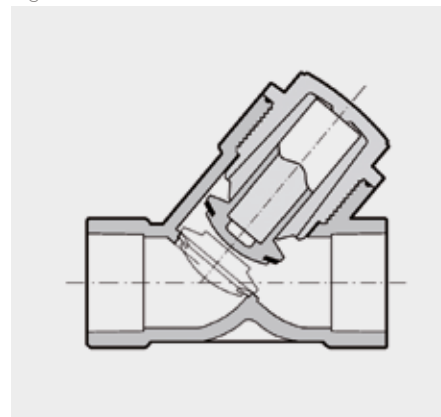
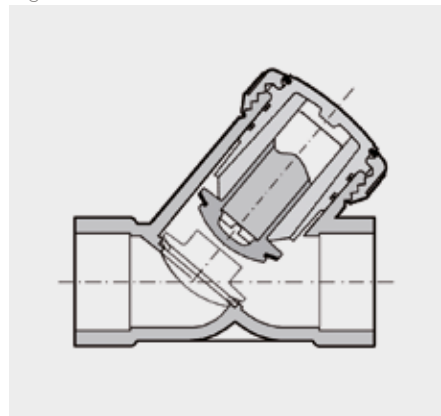


Fig. C



INSTALLATION

- 1) The check valve can be installed on vertical or horizontal axis pipes. The bonnet (3) must however always be turned upwards as the piston works by gravity.
- 2) If the valve is installed in a vertical position, if the connection is solvent welded, make sure that the solvent cement does not enter inside the body, as this would damage the seating of the seal.
- 3) Install the valve such that the arrow stamped on the body indicates the direction of fluid flow .

! WARNINGS

- Do not use compressed air or other gases to test thermoplastic lines.



VA DN 15÷50
PVC-U

Air release valve

VA DN 15÷50

The purpose of the VA air release is to eliminate any air entering the pipe with the liquid.

AIR RELEASE VALVE

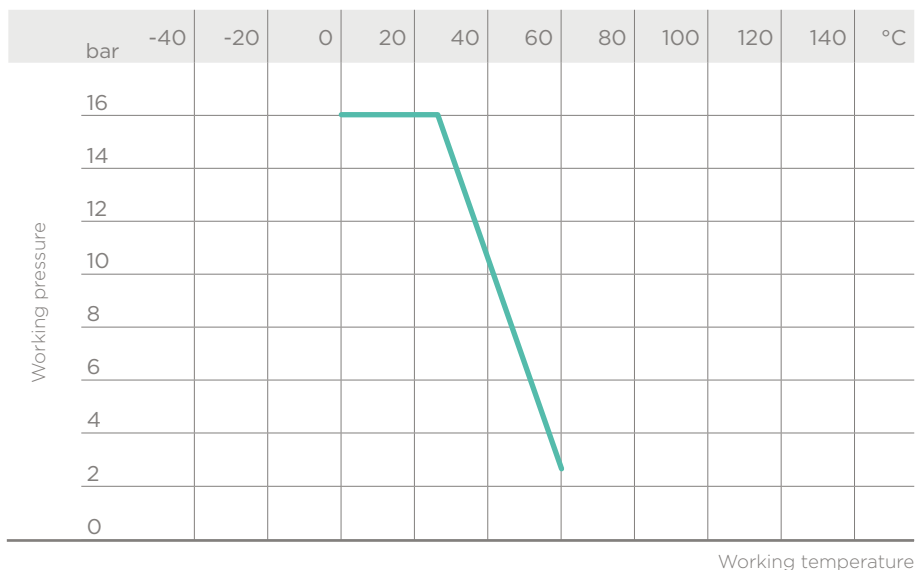
- Connection system for solvent weld and threaded joints
- **No metal parts in contact with the fluid**
- Can be used as a vacuum breaker valve when installed with the nut at the bottom
- **Valve material compatibility** (PVC-U) with water, drinking water and other food substance conveyance according to **current regulations**
- Can be maintained with the valve body installed

Technical specifications	
Construction	Air release valve
Size range	DN 15 ÷ 50
Nominal pressure	PN 16 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028. Can be coupled to pipes according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016 Thread: ISO 228-1, DIN 2999
Reference standards	Construction criteria: EN ISO 16137, EN ISO 1452, EN ISO 15493 Test methods and requirements: ISO 9393 Installation criteria: DVS 2204, DVS 2221, UNI 11242
Valve material	PVC-U
Seal material	EPDM

TECHNICAL DATA

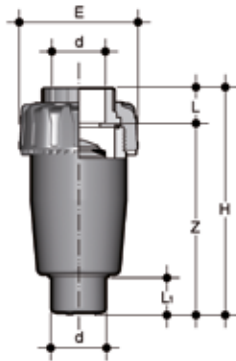
PRESSURE VARIATION ACCORDING TO TEMPERATURE

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).



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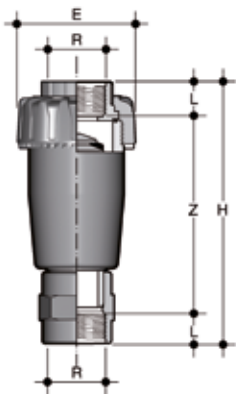
DIMENSIONS



VAIV

Air release valve with male ends for solvent welding, metric series

d	DN	PN	E	H	L	L ₁	Z	g	Code
20	15	16	55	103	16	18	87	105	VAIV020E
25	20	16	66	125	19	20	106	185	VAIV025E
32	25	16	75	150	22	24	128	280	VAIV032E
40	32	16	87	171	26	28	145	415	VAIV040E
50	40	16	100	187	31	34	156	570	VAIV050E
63	50	16	122	223	38	41	185	950	VAIV063E



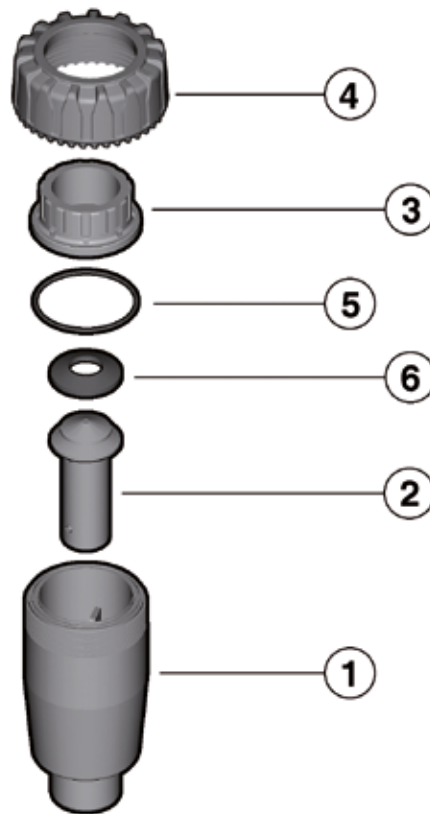
VAFV

Air release valve with BSP threaded female ends

R	DN	PN	E	H	L	Z	g	Code
1/2"	15	16	55	124	15	94	120	VAFV012E
3/4"	20	16	66	149	16.3	116.4	205	VAFV034E
1"	25	16	75	175	19.1	136.8	360	VAFV100E
1 1/4"	32	16	87	200	21.4	157.2	475	VAFV114E
1 1/2"	40	16	100	209	21.4	166.2	670	VAFV112E
2"	50	16	122	248	25.7	196.6	1130	VAFV200E

COMPONENTS

EXPLODED VIEW



- 1 • Body (PVC-U - 1)
- 2 • Piston (PVC-U - 1)
- 3 • End connector (PVC-U - 1)

- 4 • Union nut (PVC-U - 1)
- 5 • O-Ring (EPDM - 1)*

- 6 • Piston gasket (EPDM - 1)*

* Spare parts

The material of the component and the quantity supplied are indicated between brackets

DISMOUNTING

- 1) Isolate the valve from the fluid and empty the entire line upstream.
- 2) Unscrew the union nut (4).
- 3) Remove the end connector (3) and O-ring (5).
- 4) Remove the piston (2) and relative seal (6).

MOUNTING

- 1) Position the O-ring (5) and piston gasket (6) in their seatings.
- 2) Insert the piston (2) in the body (1).
- 3) Position the end connector (3).
- 4) Tighten the union nut (4).

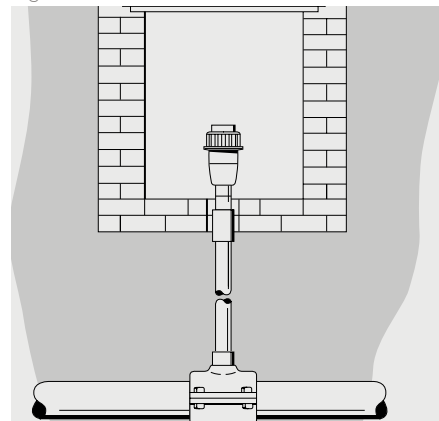


Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

INSTALLATION

The FIP air release valve must always be installed in a vertical position with the union nut at the top, as shown in fig.1.

Fig. 1





VZ DN 10÷50
PVC-U

Foot valve

VZ DN 10÷50

The VZ foot valve allows the passage of fluid in one direction only.

FOOT VALVE

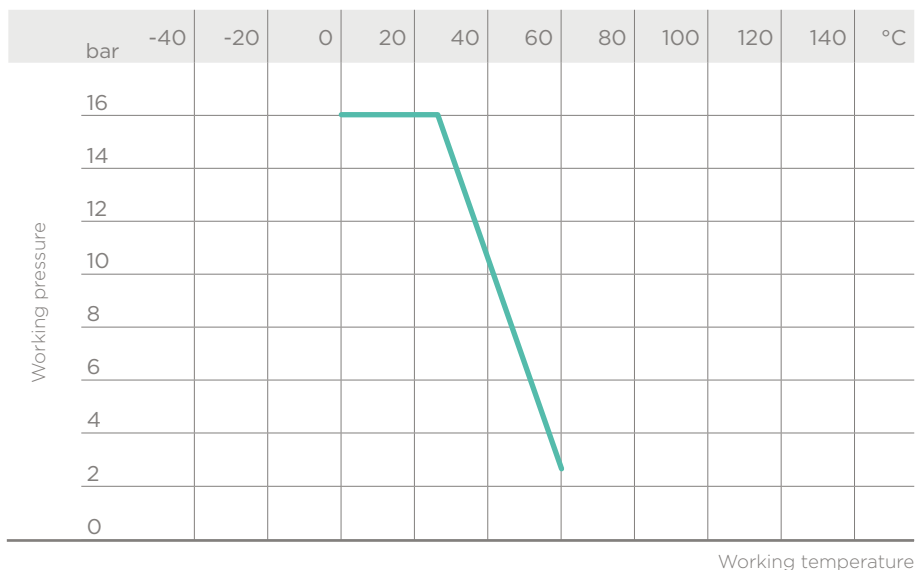
- Connection system for solvent weld and threaded joints
- **No metal parts in contact with the fluid**
- **Piston with incorporated counterweight** able to work with high intensity fluid
- Limited pressure loss. Only minimum back pressure is required for the hermetic seal
- **Valve material compatibility** (PVC-U) with water, drinking water and other food substance conveyance according to **current regulations**
- Can be maintained with the valve body installed

Technical specifications	
Construction	Foot valve
Size range	DN 10 ÷ 50
Nominal pressure	PN 16 with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	Solvent welding: EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028. Can be coupled to pipes according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016 Thread: ISO 228-1, DIN 2999
Reference standards	Construction criteria: EN ISO 16137, EN ISO 1452, EN ISO 15493 Test methods and requirements: ISO 9393 Installation criteria: DVS 2204, DVS 2221, UNI 11242
Valve material	PVC-U
Seal material	EPDM

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)



MINIMUM PRESSURE REQUIRED TO LIFT THE PISTON

DN	10	15	20	25	32	40	50
bar	0.008	0.008	0.009	0.014	0.017	0.018	0.021

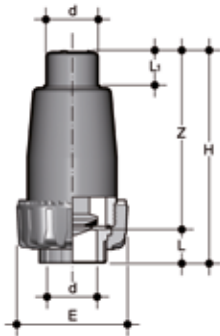
MINIMUM SEALING PRESSURE (PISTON IN CLOSED POSITION)

The figures refer to the seals that are not worn.

DN	10	15	20	25	32	40	50
mm H ₂ O	150	150	200	350	350	350	350

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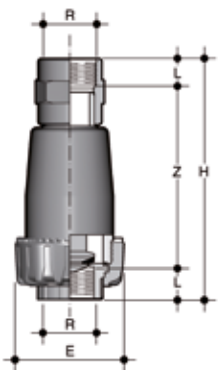
DIMENSIONS



VZIV

Foot valve with male ends for solvent welding, metric series

d	DN	PN	E	H	DN	L	L ₁	Z	g	Code
16	10	16	55	101		14	15	87	105	VZIV016E
20	15	16	55	103		16	18	87	120	VZIV020E
25	20	16	66	125		19	20	106	210	VZIV025E
32	25	16	75	150		22	24	128	350	VZIV032E
40	32	16	87	171		26	28	145	560	VZIV040E
50	40	16	100	187		31	34	156	760	VZIV050E
63	50	16	122	223		38	41	185	1340	VZIV063E

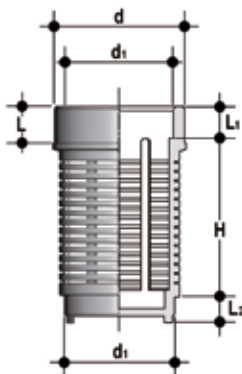


VZFBV

Foot valve with BSP threaded female ends

R	DN	PN	E	H	L	Z	g	Code
1/2"	15	16	55	124	15	94	135	VZFBV012E
3/4"	20	16	66	149	16.3	116.4	230	VZFBV034E
1	25	16	75	175	19.1	136.8	390	VZFBV100E
1 1/4	32	16	87	200	21.4	157.2	620	VZFBV114E
1 1/2	40	16	100	209	21.4	166.2	860	VZFBV112E
2	50	16	122	248	25.7	196.6	1520	VZFBV200E

ACCESSORIES



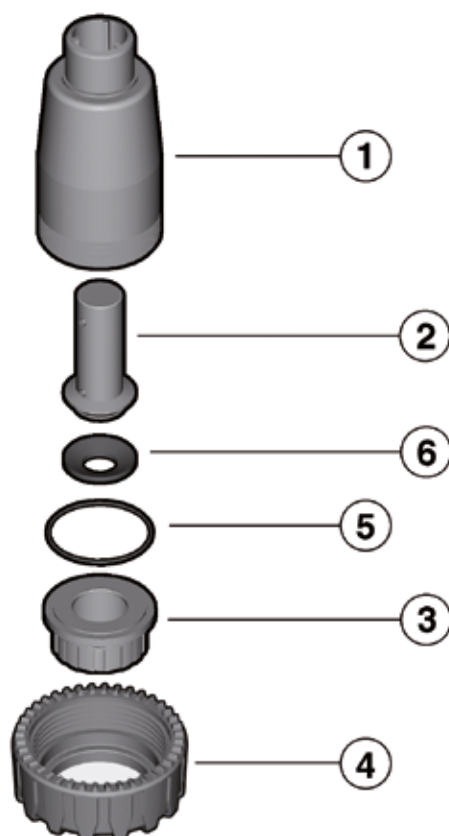
SZIV

Suction strainer with male and female ends for solvent welding to foot valve VZ

d ₁	d	H	L	L ₁	L ₂	Code
16	20	34.5	8	7.5	6.5	SZIV016
20	25	44	9.5	8.5	7.5	SZIV020
25	32	57	11	9.5	8.5	SZIV025
32	40	67	13	11	10	SZIV032
40	50	58.5	15.5	13	11.5	SZIV040
50	63	77.5	19	15	13	SZIV050
63	75	93.5	22	19	15.5	SZIV063

COMPONENTS

EXPLODED VIEW



- 1 · Body (PVC-U - 1)
- 2 · Piston (PVC-U - 1)
- 3 · End connector (PVC-U - 1)

- 4 · Union nut (PVC-U - 1)
- 5 · O-ring (EPDM - 1)*

- 6 · Piston gasket (EPDM - 1)*

* Spare parts

The material of the component and the quantity supplied are indicated between brackets

DISMOUNTING

- 1) Isolate the valve from the fluid and empty the entire line upstream.
- 2) Unscrew the union nut (4).
- 3) Remove the end connector (3) and O-ring (5).
- 4) Remove the piston (2) and relative gasket (6).

MOUNTING

- 1) Position the O-ring (5) and piston gasket (6) in their seatings.
- 2) Insert the piston (2) in the body (1).
- 3) Position the end connector (3).
- 4) Tighten the union nut (4).

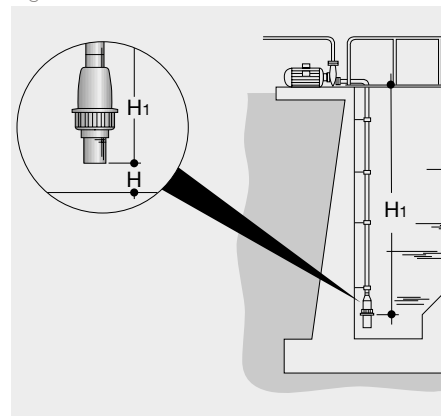


Note: during assembly operations, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

INSTALLATION

The FIP foot valve must always be installed in a vertical position with the union nut at the bottom, as shown in fig.1.

Fig. 1





D 90



CR DN 40÷300
PVC-U

Wafer check valve

CR DN 40÷300

The CR wafer check valve is designed to be installed directly between stubs and flanges in accordance with ISO/DIN standards.

WAFER CHECK VALVE

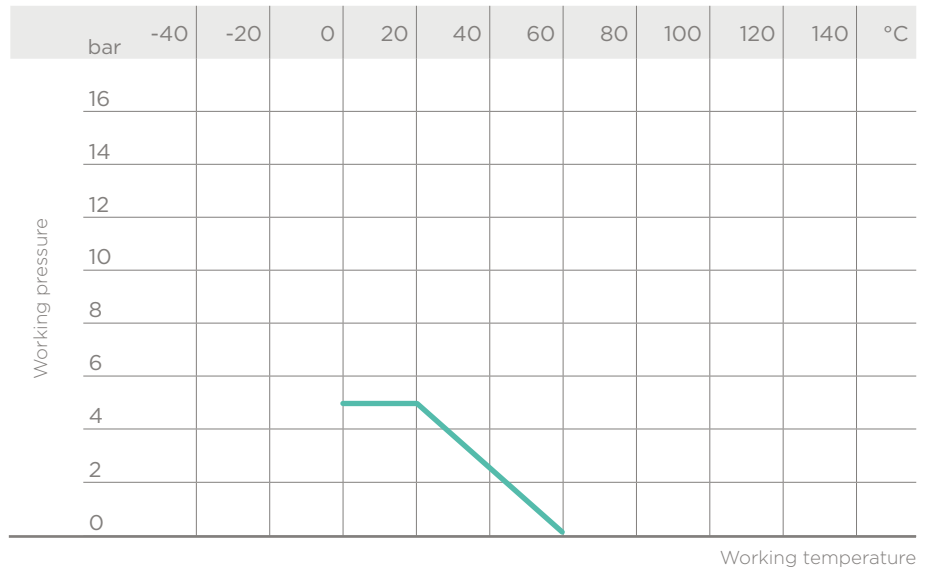
- Installed with FIP QPV (d50 - d160) stubs and QRV stubs using flat gasket QHV/Y (d225 - d315), on PVC piping class PN10 or lower with type ODV flanges
- **Metal support for easy and precise centring** of the valve during installation
- Can be installed in either a vertical or horizontal position
- **Sealing system with O-ring** for optimum sealing and installation without flat gaskets

Technical specifications	
Construction	Wafer check valve
Size range	DN 40 ÷ 300
Nominal pressure	5 bar with water at 20 °C
Temperature range	0 °C ÷ 60 °C
Coupling standards	Flanging system: DIN 2501 PN 10, EN ISO 1452, EN ISO 15493
Reference standards	Construction criteria: EN ISO 16137, EN ISO 1452, EN ISO 15493 Test methods and requirements: ISO 9393 Installation criteria: DVS 2204, DVS 2221, UNI 11242
Valve material	PVC-U
Seal material	EPDM

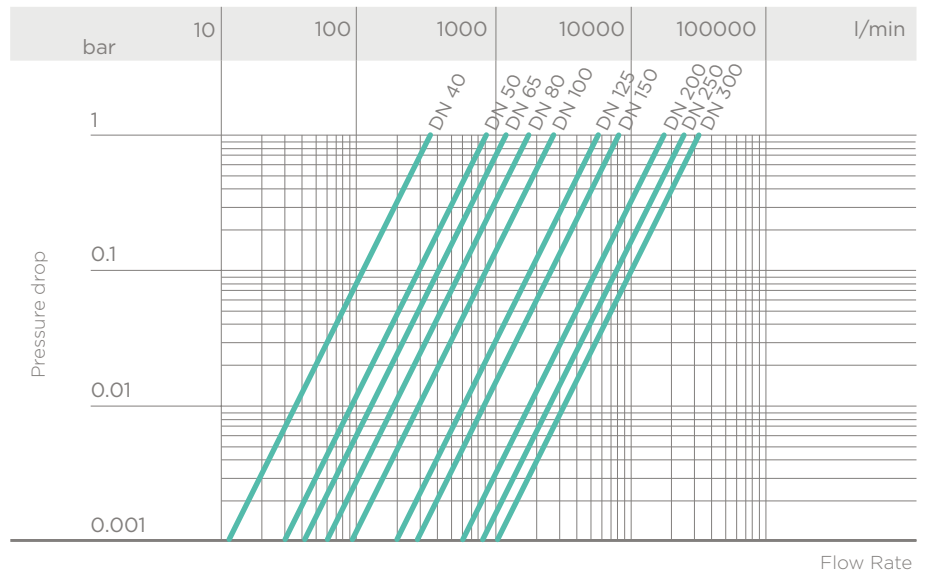
TECHNICAL DATA

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 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	40	50	65	80	100	125	150	200	250	300
K _v 100 l/min	370	900	1250	1867	2867	5700	8167	18800	25000	31900

MINIMUM PRESSURE REQUIRED TO OPEN THE VALVE IN A VERTICAL FLOW

DN	40	50	65	80	100	125	150	200	250	300
bar	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.008	0.008

MINIMUM VALVE SEALING PRESSURES

DN	40	50	65	80	100	125	150	200	250	300
bar	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2

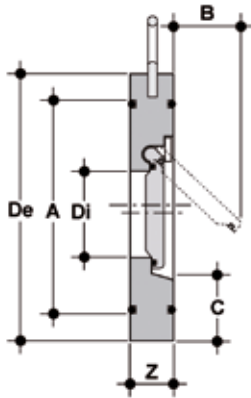
TIGHTENING TORQUE

*Tightening torques for nuts and bolts on couplings with backing rings. Values required to obtain the hydraulic test seal (1.5 x PN at 20°C) (new or lubricated nuts and bolts)

DN	40	50	65	80	100	125	150	200	250	300
Nm*	8	10	10	10	10	15	20	38	45	50

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DIMENSIONS



CROV

Wafer check valve in PVC-U/EPDM

d	DN	A	B	C	De ISO/DIN standards	Di	OP	Z	g	Code
50	40	72	25	28	95	22	0-5	16	160	CROV050E
63	50	86	37	29	109	32	0-5	20	260	CROV063E
75	65	105	50	31	129	40	0-5	20	330	CROV075E
90	80	119	61	32	144	54	0-5	20	400	CROV090E
110	100	146	77	31	164	70	0-5	22	560	CROV110E
140	125	173	94	35	195	92	0-5	23	760	CROV140E
160	150	197	100	40	220	105	0-5	25	1120	CROV160E
225	200	255	152	38	275	154	0-5	35	2130	CROV225E
280	250	312	180	41	330	192	0-5	40	3540	CROV280E
315	300	363	215	41	380	227	0-5	45	5350	CROV315E

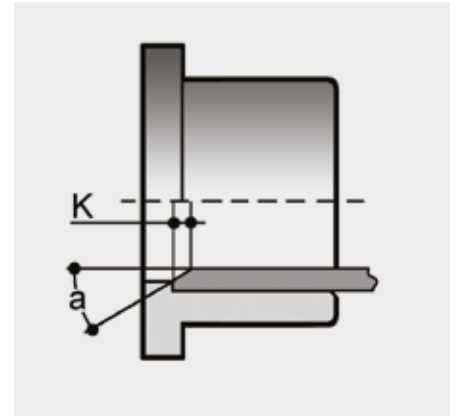
INSTALLATION

During installation, make sure that the following requirements are complied with:

- Leave a straight section of pipe of length equal to 5 times the nominal diameter before and after the valve.
- Do not install the valve directly on the pump flange. The use of flat gaskets is recommended in order to guarantee a perfect seal between the valve and stubs with serrated face.
- Do not use pipes of thickness more than that of PN10 pipes.
- The CR valve can be used on vertical pipes only if the fluid flow is upwards.
- After having aligned the valve with the stub, tighten the flange bolts in a diagonal sequence to the required torque.

For sizes d110 and d160, in order to prevent impact between the disk and pipe, insert a spacer or chamfer the pipe itself as shown in fig.1 and indicated in the table.

Fig. 1



d	Angle a for PN10 pipes	K(mm) for PN10 pipes
110	15°	5
160	30°	9

KEY ABBREVIATIONS

ABS acrylonitrile butadiene styrene

d nominal external diameter of the pipe in mm

DN nominal internal diameter of the pipe in mm

EPDM Ethylene-Propylene-Diene-Monomer

FPM (FKM) fluoroelastomer

g weight in grams

HIPVC PVC high impact

K lid key

NBR nitrile butadiene rubber

OP operating pressure

P pipe holder

PA-GR fibreglass reinforced polyamide

PBT polybutylene terephthalate

PE polyethylene

PN nominal pressure in bar (max. operating pressure at 20°C water)

POM polyoxymethylene

PP-GR fibreglass reinforced polypropylene

PP-H polypropylene homopolymer

PVC-C chlorinated polyvinyl chloride

PVC-U unplasticized polyvinylchloride

PVDF polyvinylidene difluoride

PTFE polyethrafluorethylene

R nominal thread size in inches

S pipe thickness in mm

SDR standard dimension ratio = d/s

U number of holes



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