



DK DN 15÷65
PP-H

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.

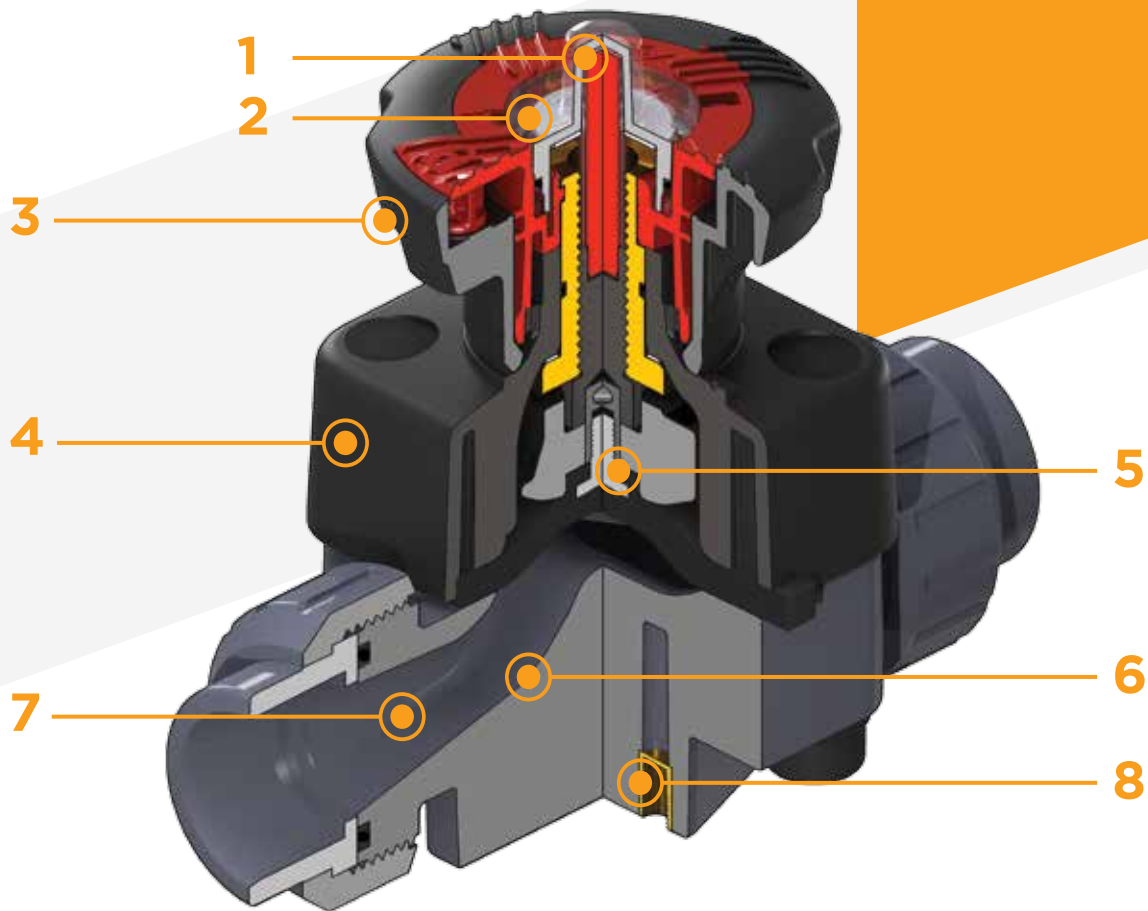
Dialock®

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 AISI 316 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 ÷ 100 °C
Coupling standards	Welding: EN ISO 15494. Can be coupled to pipes according to EN ISO 15494 Thread: ISO 228-1, DIN 2999 Flanging system: ISO 7005-1, EN 1092-1, EN ISO 15494, EN 558-1, DIN 2501, ANSI B16.5 cl.150
Reference standards	Construction criteria: EN ISO 16138, EN ISO 15494 Test methods and requirements: ISO 9393 Installation criteria: DVS 2202-1, DVS 2207-11, DVS 2208-1, UNI 11318
Valve material	Body: PP-H Bonnet and handwheel: PP-GR Position indicator cap: PVC
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**

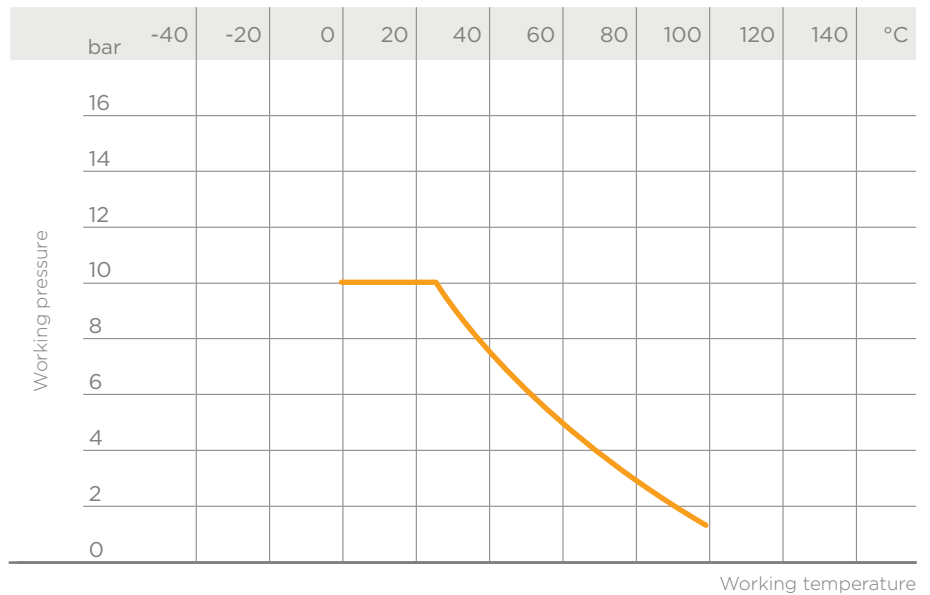
7 Adjustment linearity: the internal profiles of the valve also greatly improve its characteristic curve, resulting in **extremely sensitive and precise adjustment** along the entire stroke of the shutter

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)

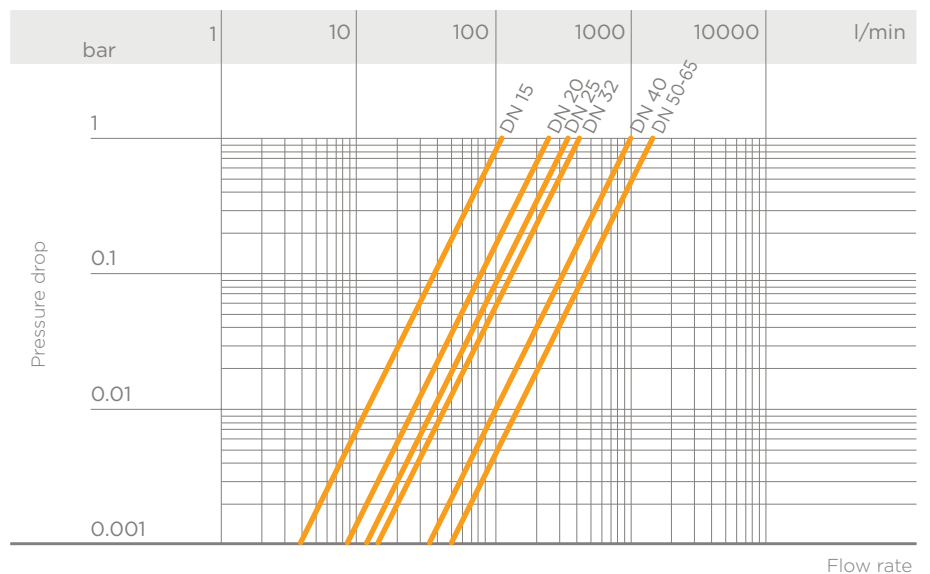
TECHNICAL DATA

PRESSURE VARIATION ACCORDING TO TEMPERATURE

For water and 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

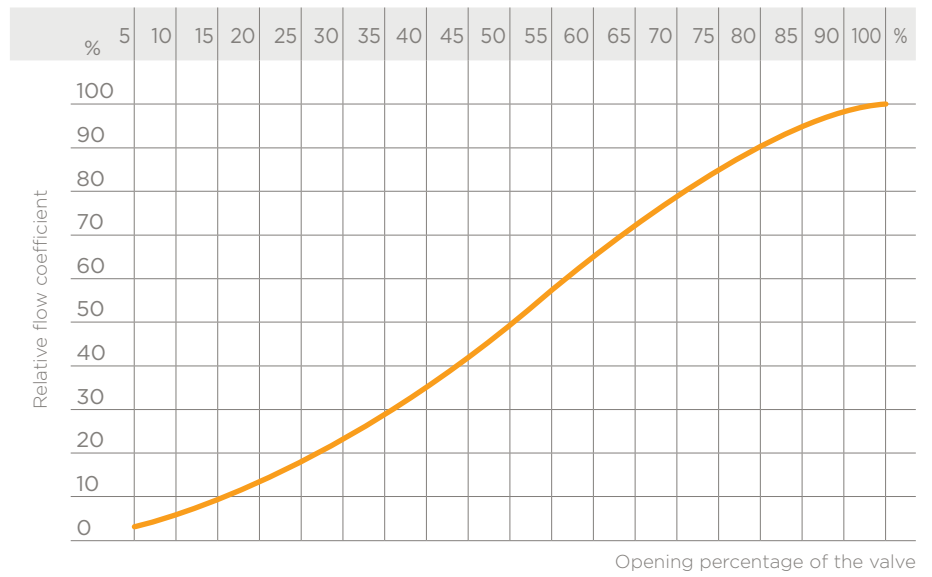
The K_v100 flow coefficient is the Q flow rate of litres per minute of water at a temperature of 20°C that will generate Δp= 1 bar pressure drop at a certain valve position.

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

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

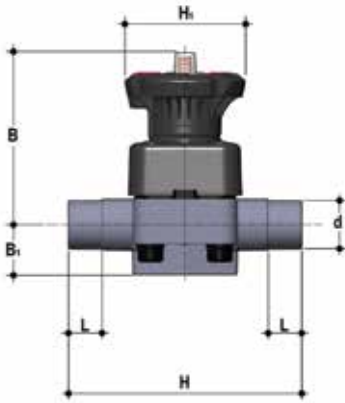
RELATIVE FLOW COEFFICIENT GRAPH

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.

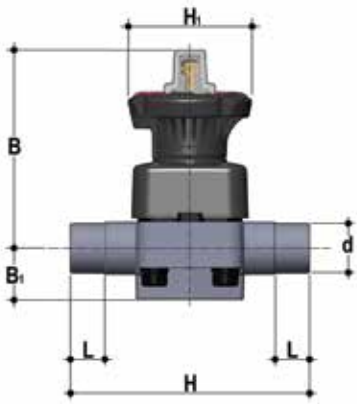
DIMENSIONS



DKDM

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

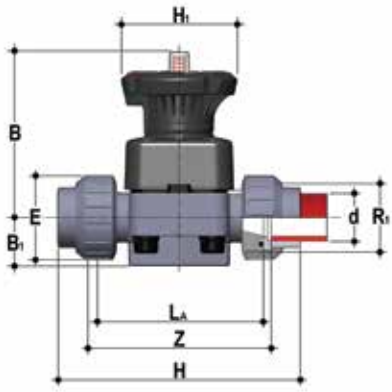
d	DN	PN	B	B ₁	H	H ₁	L	g	EPDM Code	FPM Code	PTFE Code
20	15	10	102	25	124	80	16	430	DKDM020E	DKDM020F	DKDM020P
25	20	10	105	30	144	80	19	445	DKDM025E	DKDM025F	DKDM025P
32	25	10	114	33	154	80	22	620	DKDM032E	DKDM032F	DKDM032P
40	32	10	119	30	174	80	26	650	DKDM040E	DKDM040F	DKDM040P
50	40	10	147	35	194	120	31	1380	DKDM050E	DKDM050F	DKDM050P
63	50	10	172	46	224	120	38	2135	DKDM063E	DKDM063F	DKDM063P
75	65	10	172	46	284	120	44	2225	DKDM075E	DKDM075F	DKDM075P



DKLDM

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

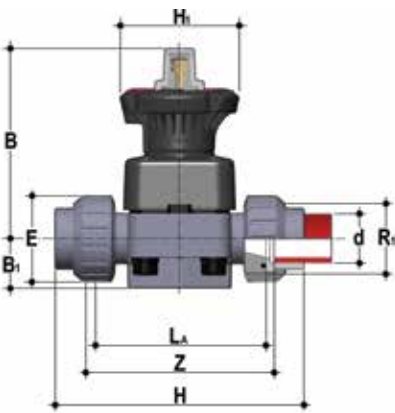
d	DN	PN	B	B ₁	H	H ₁	L	g	EPDM Code	FPM Code	PTFE Code
20	15	10	115	25	124	80	16	460	DKLDM020E	DKLDM020F	DKLDM020P
25	20	10	118	30	144	80	19	475	DKLDM025E	DKLDM025F	DKLDM025P
32	25	10	127	33	154	80	22	650	DKLDM032E	DKLDM032F	DKLDM032P
40	32	10	132	30	174	80	26	680	DKLDM040E	DKLDM040F	DKLDM040P
50	40	10	175	35	194	120	31	1440	DKLDM050E	DKLDM050F	DKLDM050P
63	50	10	200	46	224	120	38	2195	DKLDM063E	DKLDM063F	DKLDM063P
75	65	10	200	46	284	120	44	2285	DKLDM075E	DKLDM075F	DKLDM075P



DKUIM

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

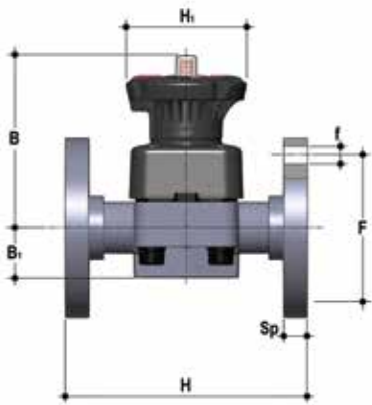
d	DN	PN	B	B ₁	E	H	H ₁	L _A	R ₁	Z	g	EPDM Code	FPM Code	PTFE Code
20	15	10	102	25	41	128	80	90	1"	101	457	DKUIM020E	DKUIM020F	DKUIM020P
25	20	10	105	30	50	150	80	108	1" 1/4	119	500	DKUIM025E	DKUIM025F	DKUIM025P
32	25	10	114	33	58	163	80	116	1" 1/2	127	695	DKUIM032E	DKUIM032F	DKUIM032P
40	32	10	119	30	72	184	80	134	2"	145	781	DKUIM040E	DKUIM040F	DKUIM040P
50	40	10	147	35	79	210	120	154	2" 1/4	165	1526	DKUIM050E	DKUIM050F	DKUIM050P
63	50	10	172	46	98	248	120	184	2" 3/4	195	2410	DKUIM063E	DKUIM063F	DKUIM063P



DKLUIM

DIALOCK® diaphragm valve with stroke limiter and female union ends for socket 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	128	80	90	1"	101	487	DKLUIM020E	DKLUIM020F	DKLUIM020P
25	20	10	118	30	50	150	80	108	1" 1/4	119	530	DKLUIM025E	DKLUIM025F	DKLUIM025P
32	25	10	127	33	58	163	80	116	1" 1/2	127	725	DKLUIM032E	DKLUIM032F	DKLUIM032P
40	32	10	132	30	72	184	80	134	2"	145	811	DKLUIM040E	DKLUIM040F	DKLUIM040P
50	40	10	175	35	79	210	120	154	2" 1/4	165	1586	DKLUIM050E	DKLUIM050F	DKLUIM050P
63	50	10	200	46	98	248	120	184	2" 3/4	195	2470	DKLUIM063E	DKLUIM063F	DKLUIM063P

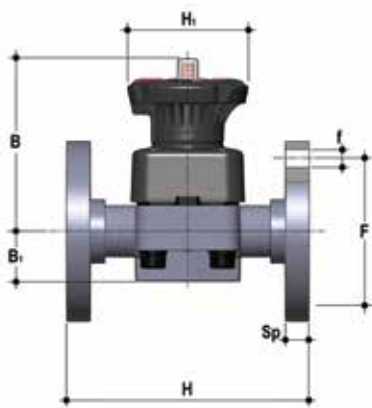


DKOM

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	588	DKOM020E	DKOM020F	DKOM020P
25	20	10	105	30	14	75	150	80	13.5	4	645	DKOM025E	DKOM025F	DKOM025P
32	25	10	114	33	14	85	160	80	14	4	910	DKOM032E	DKOM032F	DKOM032P
40	32	10	119	30	18	100	180	80	14	4	1110	DKOM040E	DKOM040F	DKOM040P
50	40	10	147	35	18	110	200	120	16	4	1955	DKOM050E	DKOM050F	DKOM050P
63	50	10	172	46	18	125	230	120	16	4	2905	DKOM063E	DKOM063F	DKOM063P
75	65	10	225	55	18	145	290	120	21	4	3325	DKOM075E	DKOM075F	DKOM075P

DKLOM version available on request



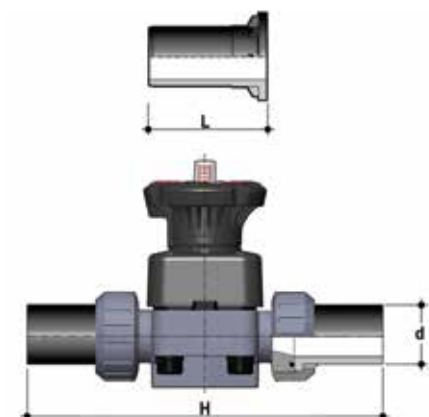
DKOAM

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

Size	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	572	DKOAM012E	DKOAM012F	DKOAM012P
3/4"	20	10	105	30	15.7	69.9	150	80	13.5	4	645	DKOAM034E	DKOAM034F	DKOAM034P
1"	25	10	114	33	15.7	79.4	160	80	14	4	910	DKOAM100E	DKOAM100F	DKOAM100P
1" 1/4	32	10	119	30	15.7	88.9	180	80	14	4	1110	DKOAM114E	DKOAM114F	DKOAM114P
1" 1/2	40	10	147	35	15.7	98.4	200	120	16	4	1955	DKOAM112E	DKOAM112F	DKOAM112P
2"	50	10	172	46	19	120.7	230	120	16	4	2905	DKOAM200E	DKOAM200F	DKOAM200P
75	65	10	172	46	19	139.7	290	120	21	4	3325	DKOM075E	DKOM075F	DKOM075P

DKLOAM version available on request

ACCESSORIES



Q/BBM-L

Long spigot PP-H end connectors for butt welding

d	DN	L	H	SDR	Code
20	15	95	280	11	QBBML11020
25	20	95	298	11	QBBML11025
32	25	95	306	11	QBBML11032
40	32	95	324	11	QBBML11040
50	40	95	344	11	QBBML11050
63	50	95	374	11	QBBML11063

Q/BBM-C

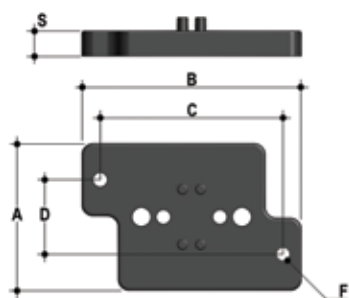
Short spigot PP-H end connectors for butt welding

d	DN	L	H	SDR	Code
20	15	55	200	11	QBBMC11020
25	20	55	218	11	QBBMC11025
32	25	55	226	11	QBBMC11032
40	32	55	244	11	QBBMC11040
50	40	55	264	11	QBBMC11050
63	50	55	294	11	QBBMC11063

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

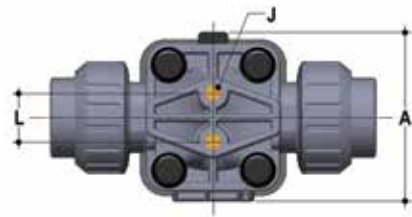


All valves, whether manual or actuated, must be adequately supported in many applications.

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	A	L	J
20	15	74	25	M6 x 10
25	20	74	25	M6 x 10
32	25	87	25	M6 x 10
40	32	87	25	M6 x 10
50	40	114	44.5	M8 x 14
63	50	136	44.5	M8 x 14
75	65	136	44.5	M8 x 14

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

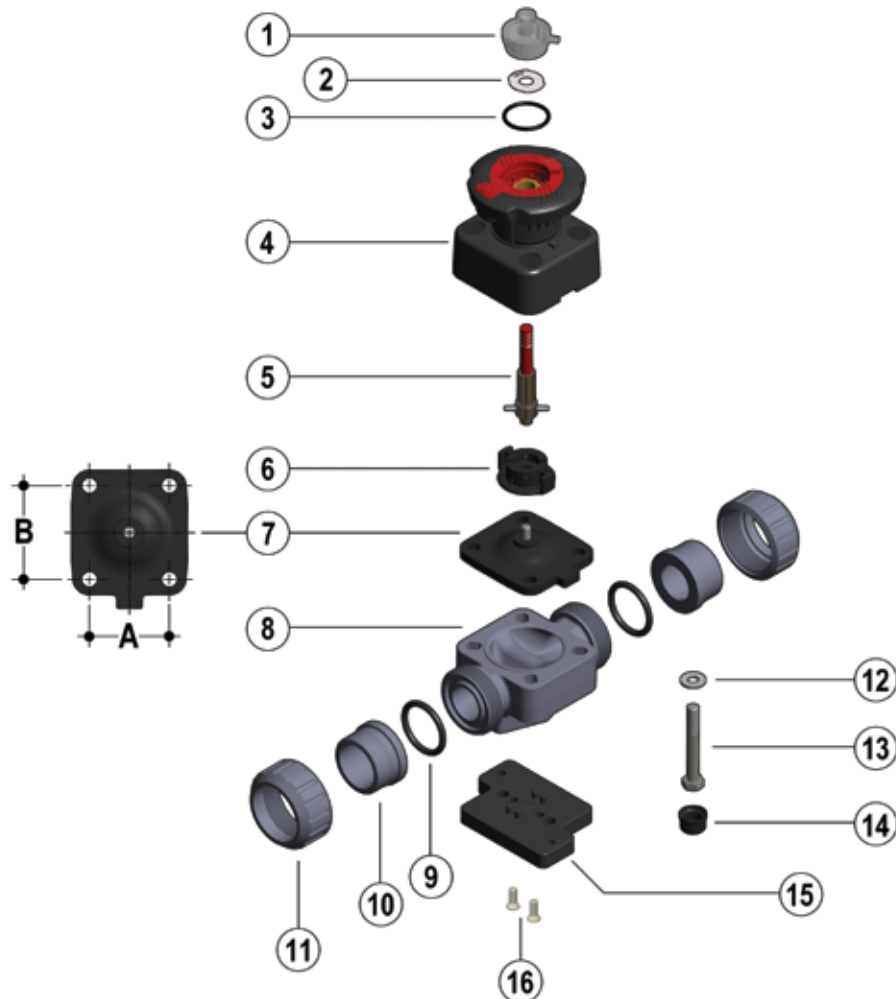


Fig. 4



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-U - 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 (PP-H - 1)*
- 9** · Socket seal O-ring (EPDM-FPM - 2)*
- 10** · End connector (PP-H - 2)*
- 11** · Union nut (PP-H - 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.

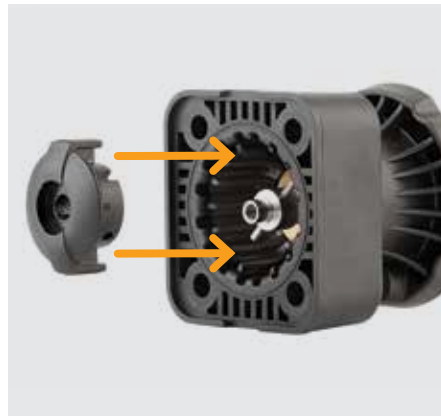
Fig. 5



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



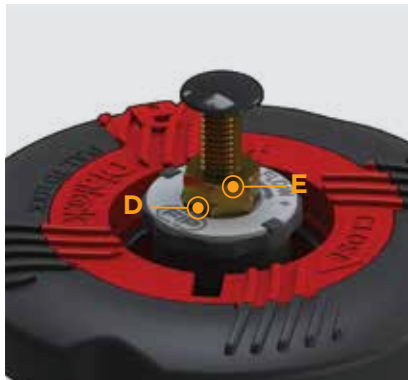
The DK valve is equipped with a DIALOCK® handwheel locking system that prevents the valve from being operated.

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.
- 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.

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