

EPDM diaphragms

Ethylene propylene diene monomer rubber is a synthetic rubber, i.e. elastomer, with a wide range of applications. The main reason for this is to be found in its excellent resistance to the influences of temperature and ozone, as well as its overall capacity to withstand the effects of weathering. Such diaphragms also display a good degree of resistance to polar substances and steam.

Properties

EPDM can cope very easily with both hot and cold water, alkaline media and weak acids. This means that diaphragms of this material are especially well suited for applications in the area of hygienic processing, where steam sterilisation and oxidising media are required.

We recommend not using these diaphragms in connection with media such as mineral and vegetable oils, vegetable and animal fats, aromatic or aliphatic carbohydrates, halogenated solvents or concentrated acids, because these substances damage the diaphragm structure and can lead to leakage. You will find further relevant information in our "Chemical Resistance Chart" brochure.

Temperature range

EPDM (AD):

-10 to +143 °C (steam sterilisation +150 °C for 60 min) for single-weir diaphragms
+5 to +130 °C (steam sterilisation +140 °C for 60 min) for two-weir diaphragms for Robolux Multiport valves, type 2036

Diaphragm size

8 (standard: DN8, 1/4") to 100 (standard: DN100, 4")

Approvals

FDA: CFR21 Part 177.2600

EC Regulation 1935/2004

USP Class VI Chapters <87> and <88> at +121 °C

3-A Sanitary Standards 18-03



Single-weir diaphragm



Two-weir diaphragm for type 2036 (Robolux)

FKM diaphragms

FKM refers to types of fluoroelastomer according to DIN ISO 1629 and ASTM D1418. All types of fluoroelastomer contain vinylidene (di)fluoride (VDF) as one of their monomers. Fluoroelastomers are of higher grade and therefore more expensive than neoprene rubber or nitrile rubber, amongst other factors because it provides greater resistance to heat and chemicals. The high degree of chemical resistance of fluoroelastomers makes for a broader range of applications for the FKM diaphragms in comparison with EPDM diaphragms.

Properties

Diaphragms made of FKM display a high degree of resistance to many solvents and other chemicals. For instance, they provide excellent resistance towards aliphatic hydrocarbons, aromatic and chlorinated chemicals and also withstand acids and alkalis with oxidation agents well. They are not suitable for use in connection with ether and bases. Therefore FKM diaphragms are predestined for use in water treatment on the one hand, but on the other hand we do not recommend them for steam sterilisation applications. You will find further relevant information in our "Chemical Resistance Chart" brochure.

Temperature range

FKM (FF) 0 to +130 °C (not recommended for steam)

Diaphragm size

8 (standard: DN8, 1/4") to 100 (standard: DN100, 4")

Spare parts with ID number

To provide optimal support with regard to the maintenance and servicing of your diaphragm valves, we have a broad range of spare parts as presented on the following pages. Your diaphragms are supplied to you packed individually and dust-proof.

		EPDM spare parts Code AD	GYLON® spare parts Code ER
Diaphragm size	Connector	ID number	ID number
08	Button	688421	693175
15		688422	-
20		688423	-
15	Bayonet	693163	693176
20		693166	693177
25	Thread	688424	693178
32		688425	693179
40		688426	693180
50		688427	693181
65		688428	586616
80		688429	586617
100		688430	-

		PTFE spare parts Code EA	Advanced PTFE spare parts Code EU
Diaphragm size	Connector	ID number	ID number
08	Button	677674	679540
15	Bayonet	677675	679541
20		677676	679542
25		677677	679543
32		677678	679544
40		584378	584379
50		584386	584387
65		677681	679743
80		677682	679744
100		677683	679745

The table features standard one-weir diaphragms.
For two-weir, please refer to the manual or contact us.



Practical testing – the multi-medium testing facility

When the simulations using compression and flow models (see also page 13) have been completed, the diaphragms and valves have to go through extremely severe practical testing.

The conditions required are generated in Bürkert's multi-medium testing facility (see figure below). It can subject a number of valves to alternating cold and hot water, steam, vacuum and air stresses. The tests cover a very large number of switching cycles and are fully automated. This makes it possible to mirror important processes such as CIP (Cleaning in Place) and SIP (Sterilisation in Place) just as they are carried out in the field. It is also possible to set up customer-specific, individual testing for special requirements.

