Diaval®



Diaphragm Valves

www.diaval.com

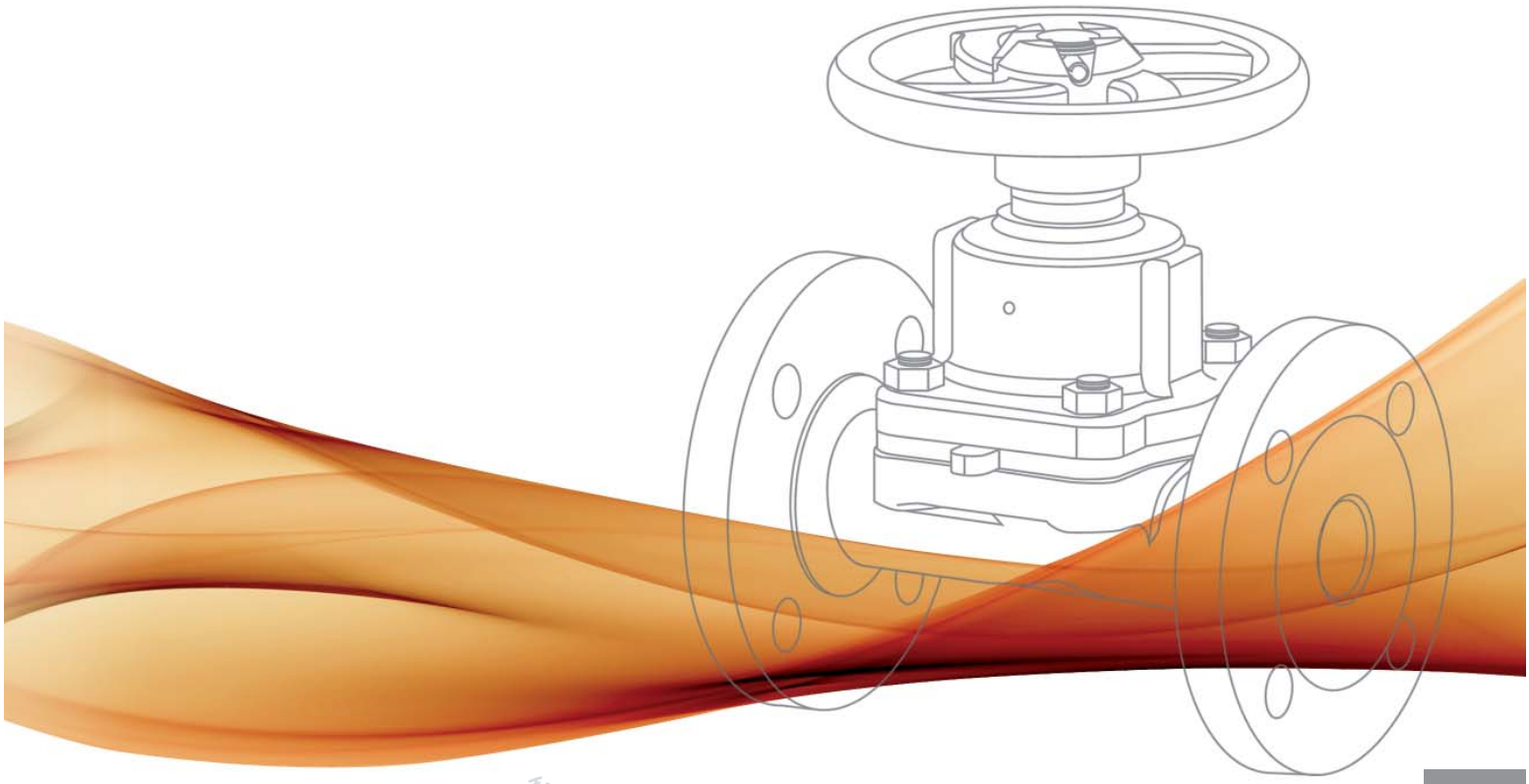


Diava © Data subject to change without prior notice

Diaval® Diaphragm Valves
Index

Diaval®
Diaphragm and Process Valves
www.diaval.com

Legal Terms	4
Valve Coding	5
Industry Applications	6-9
Weir Type Diaphragm Valves	10-39
Straight Through Type Diaphragm Valves	40-55
Commissioning, Start-up and Maintenance Instructions of Manual Valves	56–57
Brief Guide of Instructions	58-59
Pneumatic Actuators for Diaphragm Valves	60-83
Specification Data Sheet for Diaphragm Valves	84
Material Selection for Diaphragm Valves	85-90



Diaval® Diaphragm Valves

Legal Terms on Trade Marks

All trade marks used in this catalogue are registered by our company or third parties we are associated with and are proprietors of these trade marks. It is to be noticed that the wrong or unauthorised use of these registered trade marks and patents might result into legal action by our Company or the proprietors.

Our Company is authorised by the registered proprietors to use their trade marks in this web site as part of our Company business activity. In the event of some trade marks owned by third parties and whose permission of use had not been asked for, we are mentioning the property of the said trade mark (in example VITON® - is a Registered Mark of Dupont). The symbol ® or ™ is used along with the mark or product brand to identify a registration property.

Our Company turns down any responsibility on which third parties might incur by any wrong or unauthorised use of the third party proprietors marks and would highly recommend to apply authorisation to use these marks to avoid unwanted legal problems. Please refer to Manufacturing Brands and Distribution Brands to identify all registered trade marks.

Main List of Trade Marks Proprietors used in this Data Sheets Manual.
The scope of media includes documents, data sheets, catalogues and Price Lists. This is not limited, should some Marks are not hereunder listed, they would be added up on request of the proprietor who is kindly welcome to e-mail our webmaster advising so at webmaster@comeval.es Not mentioning any Trade Mark being used in this web site can only be attributed to a lack of knowledge by our side and will be mentioned on request.

VITON® TEFLON® HYPALON®
Are registered Marks of DuPont Co.

HASTELLOY®
Are registered Marks of HAYNES INTERNATIONAL.

LINATEX®
Is a registered Mark of LINATEX MALAYSIA

INCONEL® MONEL®
Are registered Marks of INCO ALLOYS INTL.

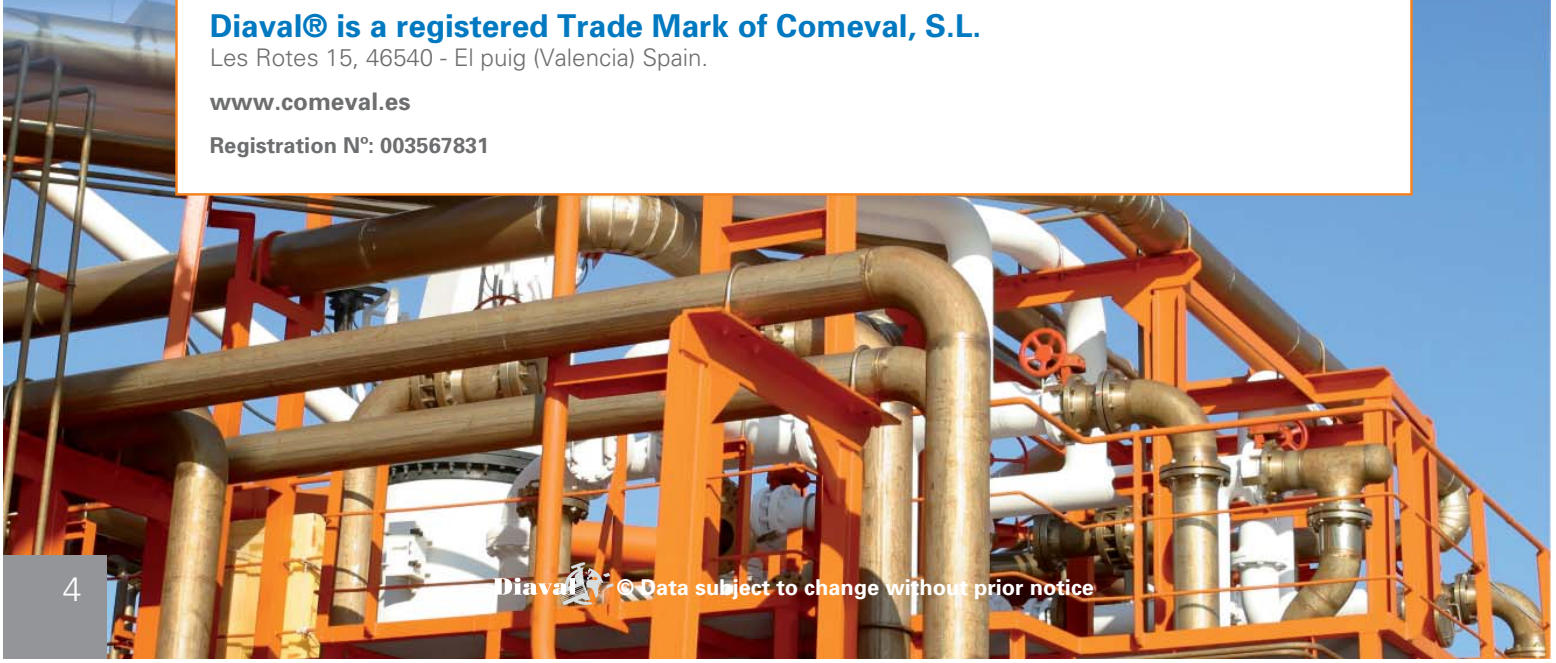
SANTOPRENE®
Is a registered Mark of ADVANCED ELASTOMER SYSTEMS LP

STELLITE®
Is a registered Mark of STOODY CO.

Diaval® is a registered Trade Mark of Comeval, S.L.
Les Rotes 15, 46540 - El puig (Valencia) Spain.

www.comeval.es

Registration Nº: 003567831



Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves

Valve Coding

W	D	0	0	D	I	1	0	D	1	0	0	5	0

Body Design
W Weir
S Straight Through
F Full Flow

Body/Bonnet Material
C Cast Iron
D Ductile Iron
A Carbon Steel
S St. Steel 316
I Chr. Iron 24%
J Chr. Iron 30%
B Bronze
K St. Steel 316L
E St. Steel 304
M Monel
H Hastelloy
X St. Steel 1.4435
Y St. Steel 1.4435 BN2

Face to Face/Drilling

DI10	DIN3202F1 PN10
AS15	BS5156 ASA 150
BS10	BS5156 PN10

Connection

015	DN15
050	DN50
100	DN100
300	DN300

Body Base Material
00 Unlined
HR Hard Rubber
SR Soft Rubber
BR Butyl Rubber
ER EPDM Rubber
NL Neoprene Rubber
PF PFA
ET ETFE
HL Halar
LN Linatex

Diaphragm / Sealing
D10 Natural Rubber
D15 White Natural Rubber
D20 EPDM
D30 Butyl
D40 NBR
D50 Neoprene
D60 Hypalon
D70 Viton
D92 PTFE/EPDM
D93 PTFE/Butyl
D97 PTFE/Viton
DLN Linatex

Special vacuum reinforced:
Example: D20 --> D2V

Diaval® Diaphragm Valves

Industry Applications

The DIAVAL range of Valves is encountered in many market sectors and process media applications.
The process engineer should observe the material of valve bodies, Diaphragm grades, seals and other selection criteria to ensure that and matches to the actual plant duties.

When deciding to use any valve of the wide DIAVAL portfolio in a process plant, the following parameters should be observed: *Fluid Temperature* Fluid properties and Concentration * Line pressure ; if checked parameters allow for the use of Diaphragm Valves, Plug Valves or Butterfly Valves, then a second check list should be considered to select the most appropriate Valve: * Clean or dirty media, pressure drop and intended valve purpose to define the Valve style * Corrosion or abrasion duties will lead to the proper choice of materials, linings and diaphragms or gaskets * Finally process end connections will define the body end style*.

DIAVAL products are encountered in many applications of today's industry, this catalogue section describes the main fields where our products have been largely sold.



Diaval © Data subject to change without prior notice

Valves for Desalination Plants

What is desalination?
Desalination is the process of removing dissolved salts from water to make it drinkable or for human use. The two leading desalination technologies are thermal and membrane technologies. A major advantage of desalination of ocean water is that water is always available even in the most severe droughts.

A thermal process or distillation involves the heating of saline water to produce water vapour that is, in turn, condensed to form fresh water or low salt water concentration.

Membrane processes rely on permeable membranes to separate salts from water. Membrane processes can either be pressure-driven (reverse osmosis) which is now the most common method, or it could be voltage-driven (electro-dialysis).






Reverse Osmosis (RO). A process of desalination where pressure is applied continuously to the feed water, forcing water molecules through a semi permeable membrane. Water that passes through the membrane leaves the unit as product water; most of the dissolved impurities remain behind and are discharged in a waste stream.

Electro-dialysis. Most of the impurities in water are present in an ionized (electrically-charged) state. When an electric current is applied, the impurities migrate towards the positive and negative electrodes. The intermediate area becomes depleted of impurities and discharges a purified stream of product water. This technology is used for brackish waters but is not currently available for desalting seawater on a commercial scale.

Corrosion Control
The major problem in the efficient functioning of a Multi Stage Flash Desalination Plant is the lost downtime due to the ravages of corrosion. Whereas pipes and fittings are relatively inexpensive to repair or replace, the cost of a pump or valve can be very high. It is for this reason that the valves and pumps used must fall under the following criteria:

1. The valve must be corrosion resistant to the aggressive media and chemicals found on a Multi Stage Desalination Plant.
2. The Valve must be easy to maintain.
3. The valve must be highly reliable under the most arduous conditions.
4. The valve must be cost effective.

DIAVAL® valves offer a wide portfolio capable to meet all the above requirements in the desalination industry either with Diaphragm, Plug, Butterfly and Check Valves. Corrosion is effectively managed with alloy materials such as **Super Duplex Stainless Steel** for unlined valves and in requirement of working pressures beyond the reach of elastomer lined valves. Should working parameters allow so, the use of Diaphragm Valves would reduce the ownership cost tremendously as can be observed from the following table:

Service	Valve Type	Body Material	Body Lining	Diaphragm	Size Range
Sea Water	Diaval Diaphragm Valve	Ductile Iron	Natural Rubber	Natural Rubber	150 mm to 350 mm
Condensate	Diaval Diaphragm Valve	Ductile Iron	Butyl Rubber	Butyl Rubber	100mm to 250mm
Brine Discharge	Diaval Diaphragm Valve	Ductile Iron	Unlined	Butyl Rubber	200mm to 300mm
Caustic Addition	Diaval Diaphragm Valve	Ductile Iron	Butyl Lined	Butyl Lined	25mm to 50mm
Chlorine Injection	Diaval Diaphragm Valve	Ductile Iron	ETFE or PFA Lined	PTFE/Viton	25mm to 50mm

Valves must be reliable and not to be affected by the water impurities and suspended solids, hence the choice of plug valves or Straight Through Diaphragm Valves takes an important role for the proper plant functioning.

The DIAVAL portfolio offers the right product for each process conditions at Desalination Plants over the World.

Valves for Hydrochloric Acid

Although not manufactured in as greater quantities as sulphuric acid, Hydrochloric acid is nevertheless an important raw material used in the chemical. petroleum and metal industries.

Hydrogen Chloride is a gas at room temperature and normal pressure and when dissolved in water is known as hydrochloric acid.

One of the major uses of hydrochloric is in the metal preparation industry where it is used to pickle steel plate to remove scale. In order to handle and control hydrochloric acid the choice of materials must be carefully chosen.

In the valve and pump applications, the use of rubber linings and 'plastic' materials are widely used.
Should all metal valves or pumps be required then the cost rises dramatically due to need to use expensive nickel alloys.

The use of Diaval Diaphragm Valves has become widely accepted as the most economic way of handling Hydrochloric acid due to the fact that the body can easily be lined with suitable 'rubbers' which resist the attack of the acid.

The diaphragm isolates the acid from the operating mechanism thus reducing the need, and cost of employing an expensive all metal bonnet assembly.

On the surface the choice of lining seems a simple choice, however consideration must be given to the impurities in the acid which are 'picked up' by virtue of its method of manufacture. It is these impurities that can attack and destroy linings that theoretically should be resistant to the acid.

Hydrochloric acid can be manufactured in a number of ways each method containing different impurities:

* In the production of organic chemicals hydrochloric acid can be produced as a by-product containing aromatics. The choice of Fluorocarbon linings and TFM (PTFE) diaphragms are required in this application.

* The Process of reacting sulphuric acid with sodium sulphate to produce hydrogen chloride gas and subsequently hydrochloric acid can introduce fluorides as the impurity which are best controlled by the use of EPDM or butyl materials. The fluorides attack glass linings.

* The manufacture of chlorinated hydrocarbons can produce hydrochloric acid containing chlorine gas. The use of natural rubber (because of the formation of the resistance layer of 'rubber hydrochloride on the natural rubber) and fluorocarbon materials are required.

Should the use of Plug Valves was the choice, it would be strongly recommended to look for Fluoropolymer coated valves in combination with the PTFE Sleeve plug.



Diaval © Data subject to change without prior notice

Valves for Sulphuric Acid

Sulphuric acid is perhaps the most widely used and most important technical products. Sulphuric acid is used in numerous industrial processes including fertiliser manufacture, metal plate, the dye stuffs industry, pharmaceuticals and countless others.

First discovered in 1831 by an Englishman whose patent for its manufacture has little changed over the years and is called the Contact Process. The Contact Process features the passing of a mixture of sulphur dioxide over a catalyst and passing the resultant sulphur trioxide into concentrated sulphuric acid. Sulphuric acid is a strong dibasic acid, with properties of an oxidising and dehydrating agent. Its dehydrating properties are important in absorbing water formed in such chemical processes as in nitration, etherification processes and saponification in the soap and detergent manufacture.
Sulphuric acid is sold in varying strengths or percentage of SO3 (sulphur trioxide) in H2SO4.The latter known as Oleums.

The commercially available strengths of sulphuric acid are as follows:

Strengths of Sulphuric Acid	Specific Gravity	% Sulphuric Acid
Battery Acid	1.250	33.3%
Fertiliser acid	1.525	62.2%
Oil of Vitriol	1.835	93.0%
Concentrated Oil Of Vitriol	1.841	98.0%
100% Sulphuric acid	1.835	100.0%
20% Oleum	1.915	105.0%
60% Oleum	1.992	114.7%

With its wide range of chemical properties the controlling of the various forms of sulphuric acid makes it extremely important that the correct material of construction for valve / pump is used.

In higher concentrations valves and pumps are often manufactured in plain cast iron or ductile iron, the chemical resistance of these materials is basically due to the fact that they contain a high content of combined carbon and a low content of free graphite. The acceptable corrosion rates must be determined by the Corrosion Engineer since these vary with increase velocity of the acid.

Temperature	% H2S04	mm per year
Ambient	65-98	<0.2
80 deg C	70-98	0.2 - 1.5
100 deg C	96-98	0.5 - 1.5

Temperature	% H2S04	mm per year
Ambient	85%	0.40
50 deg C	85%	1.03
100 deg C	98%	0.28

It can clearly be seen that above a percentage of approximately 85% the corrosion rates start to fall which allows the use of cast irons as a favourable material for the construction of valves and pumps.

The one factor NOT taken into account in the above example is the effect of velocity which is considerable when considering the choice of materials to handle sulphuric acid.

This adverse effect is known as erosion - corrosion .

In its more dilute forms there are many polymers and inert linings that will offer the engineer a economical choice in the controlling of sulphuric acid.

Diaval Diaphragm valves, with its many linings and smooth flow characteristics has been the Corrosion Engineers and Plant Managers first choice for handling and controlling sulphuric acid on the grounds of economics, safety, easy of maintenance and availability.

Diaval® Diaphragm Valves

Design Advantages and Cost Saving Benefits

Diaphragm Valves proved to be the answer to many process engineers' greatest desire of reliability at an acceptable cost of ownership. Of simple and reliable design, diaphragm valves offer secure operation with full leaktight at the plant. The maintenance, when required, is limited to the replacement of the diaphragm, the bolted bonnet design permits to dismantle the valve without removing the valve body from the pipe work.

The body seatless design eases the internal lining, which opens a broad range to inexpensive options to process engineers when selecting materials resistant to corrosion and abrasion duties. Conventional isolating valves would demand expensive exotic materials to resist the effects of severe corrosion whereas a duly linediron based material can do the job.



DIAVAL portfolio clearly meets the requirements of modern industrial processes and the needs of all engineers. Through constant product development and own polymer research technology, **DIAVAL®** Diaphragm Valves are a reliable alternative to existing costly and expensive to maintain conventional valves.



DIAVAL INTERNATIONAL manufacture one of the largestDiaphragm Valves portfolio comprehensive of body linings, diaphragm grades and actuation currently available in the international market. Your **DIAVAL®** Team is available to guide you along a great cost saving experience.

DIAVAL® range of superior design and major cost saving benefits, for secure and full leaktight operation under the most severe circumstances.
The **DIAVAL®** range is totally interchangeable with other diaphragm valves in the market thus easing the plant choice.

 # Valve stroke Indicator; a yellow position indicator gives clear and positive valve position from any angle.

 # Greased for life valve spindle; spindle chamber incorporates a grease reservoir that lubricates the spindle along operations thus avoiding valve spindle jamming. Sealed bonnet arrangements available for toxic and hazardous fluids.

 # Valve stroke stopper; the bonnet design prevents over closure of the valve thus avoiding early diaphragm rupture.

 # Ergonomically Design Hand wheel; great comfort and ease of operation. Other operation options such as actuators, padlocks, interlocking, extended spindle and others are available from **DIAVAL®**.

 # Self draining; weir valves are self draining when installed at an angle of 20° above horizontal. ST and Full Flow valves are self cleaning with an unobstructed bore.

 # Diaphragms; wide range of diaphragm materials to meet the needs of today's industrial processes and standards. Resilient diaphragms provides 100% leak-tight shut off and isolates all bonnet parts from the line fluid.

 # Safety; Optional Sealed bonnet arrangements available for toxic and hazardous fluids, Interlocking arrangement, padlocking and flange sealing coating.

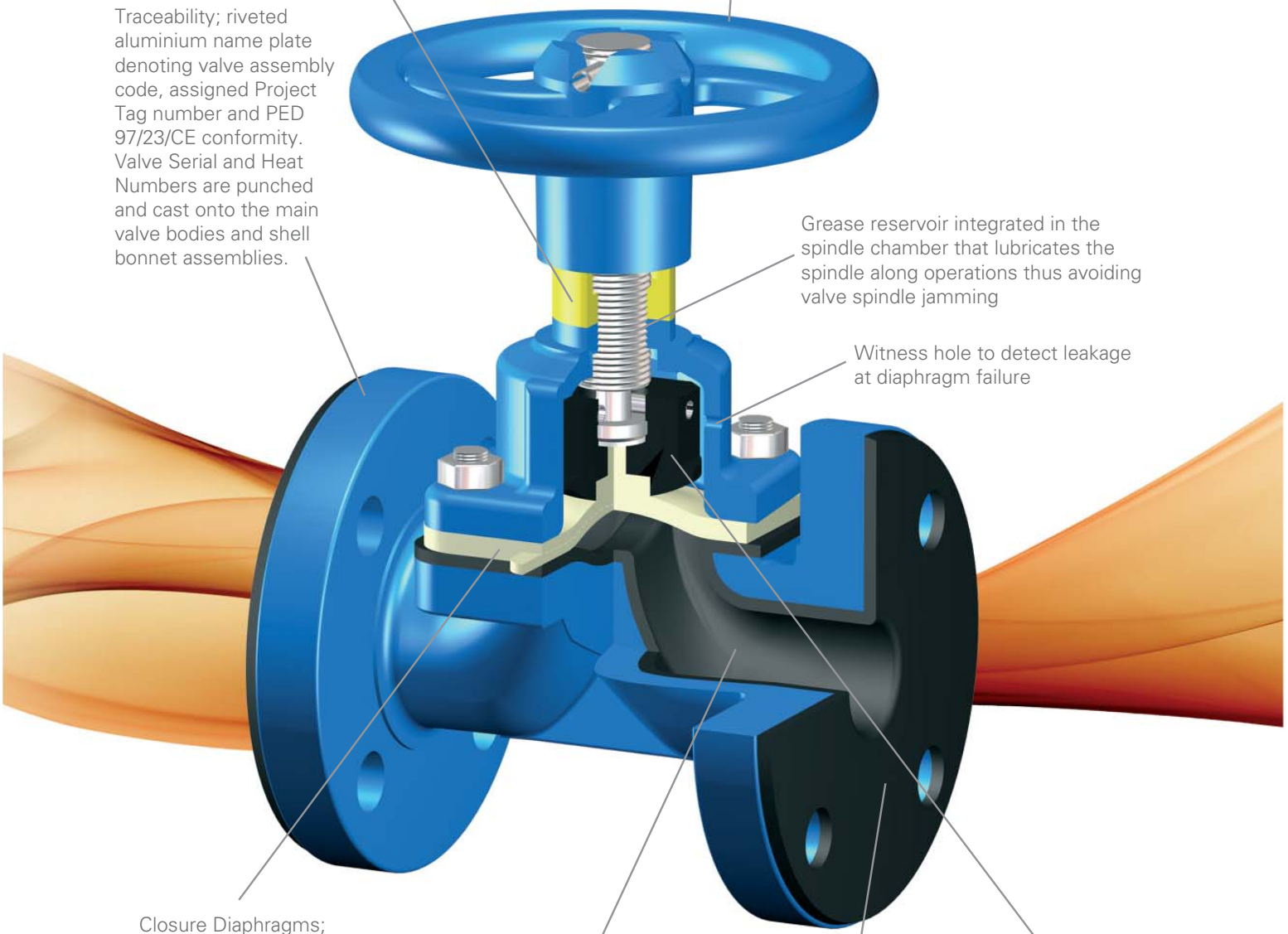
 # Linings; porous free chemically resistant linings designed to eliminate the need of expensive metals. Wide range of polymers and fluoropolymers available to match all industrial needs. Full face rubber lining removes the need for gaskets unlike spigot face lining.

 # Body end connections; flanged and screwed ends to meet all European, Imperial and American standards. Other end styles available for the aseptic range.

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves

Design Attributes of Weir Valves



Yellow position indicator, for clear and positive valve position from any angle

Ergonomic and Rugged Handwheel, great comfort and ease of operation

Valve Identification and Traceability; riveted aluminium name plate denoting valve assembly code, assigned Project Tag number and PED 97/23/CE conformity. Valve Serial and Heat Numbers are punched and cast onto the main valve bodies and shell bonnet assemblies.

Grease reservoir integrated in the spindle chamber that lubricates the spindle along operations thus avoiding valve spindle jamming

Witness hole to detect leakage at diaphragm failure

Closure Diaphragms; manufactured from elastomeric and fluorocarbon materials; provide 100% seating tightness while isolating the valve trim from fluid. Wide choice of polymers to satisfy any industrial application.

Porous less linings; provides the application engineer with a wide choice of linings of high chemical and abrasion resistance without need of expensive basic metal valve materials.

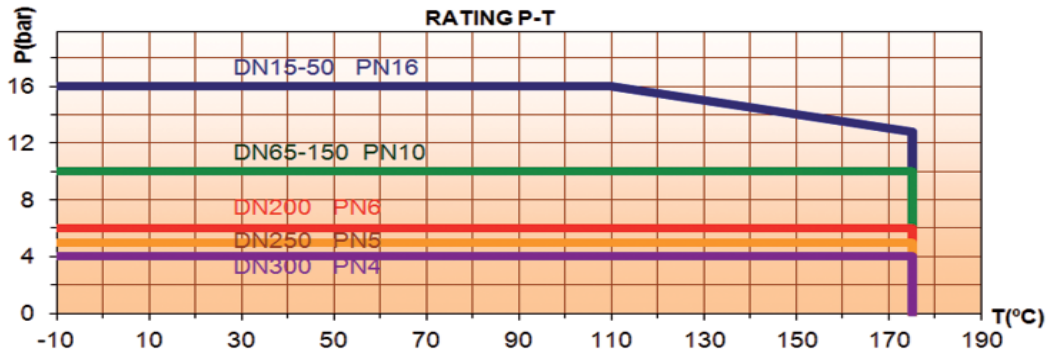
Full rubber flange face in all linedvalves as standard

Precise compressor plate; guide and operates the diaphragm up and down.

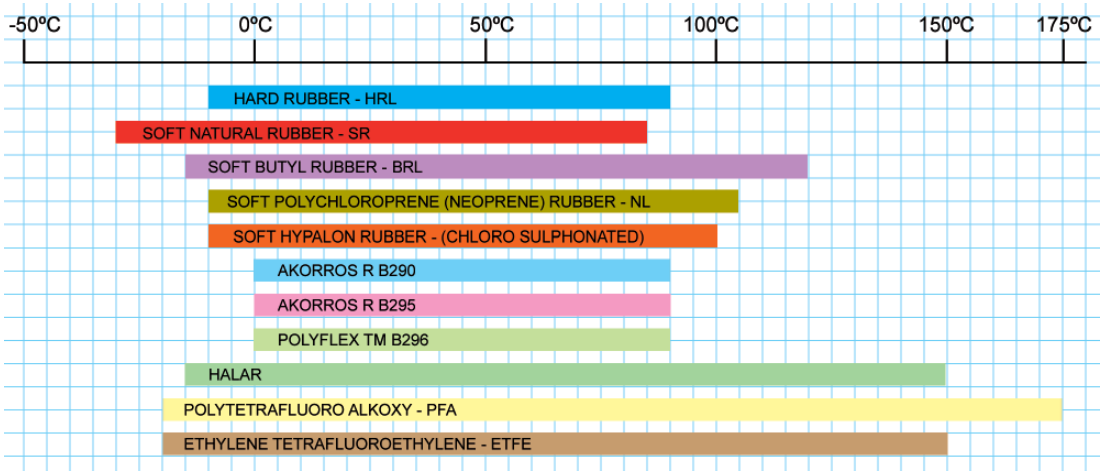
Diaval® Diaphragm Valves - W Type

Operating Parameters

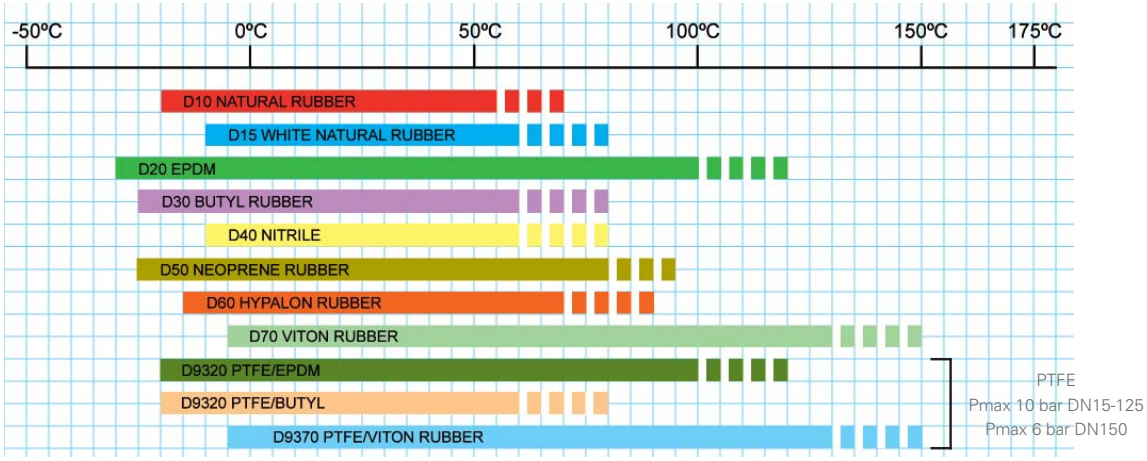
Bodies (Ductile iron)



Linings



Diaphragms



Only for shorts periods of time

Temperature Values are not plotted against any pressure parameter, the application engineer should consider that working limits are affected by the actual pressure / temperature relationship.
Temperature values also depends on medium through the valve.

Diaval © Data subject to change without prior notice

A valve flow coefficient represents the standard flow rate which flows through the valve at a given opening, referred to pre-established conditions:

* Kv value is the volume of water at 20°C, in cubic meters per hour (m3/h), that will flow through the valve at a static pressure drop of 1 bar across the valve

* Cv value is the volume of water at 60°F, in gallons per minute (gpm), that will flow through the valve at a static pressure drop of 1 psi across the valve

Conversion from Kv to Cv can be roughly calculated by means of the following expression:
Cv = Kv x 1,17

Flow rate through the valve with other liquids can be calculated with the following expressions

Kv = q (SG / dp)1/2
where
q = water flow (cubic meter per hour)
SG = specific gravity (1 for water)
dp = pressure drop (bar)

Cv = q (SG / dp)1/2
where
q = water flow (US gallons per minute)
SG = specific gravity (1 for water)
dp = pressure drop (psi)

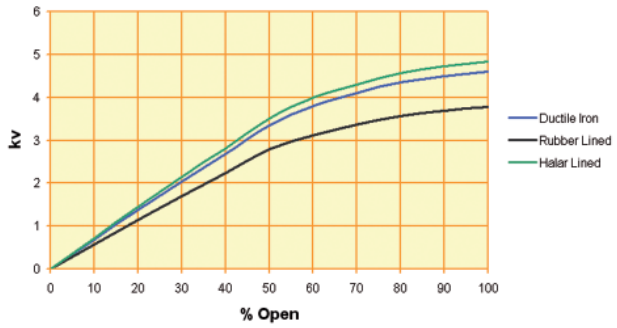
How to use the graphs:

The flow graphs in the following sheets provide the valve flow rate across the valve body at a determine opening degree.

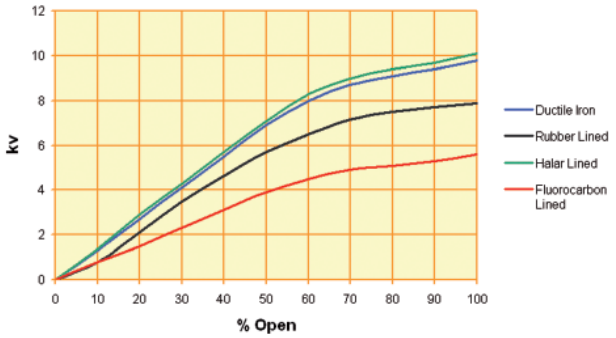
Choose the graph heading the valve Nominal Diametre which is being looked for; consider the valve inner lining features from a choice of unlined, rubber lined, ECTFE (Halar) lined or Fluoropolymer coated valve bodies and plot an intersection line upwards from the opening degree (in case of throttling) or full open to the colour representing the lining. The vertical axis will give the Kv value expressed in M3/h.

Flow Coefficients Kv (m3/h)

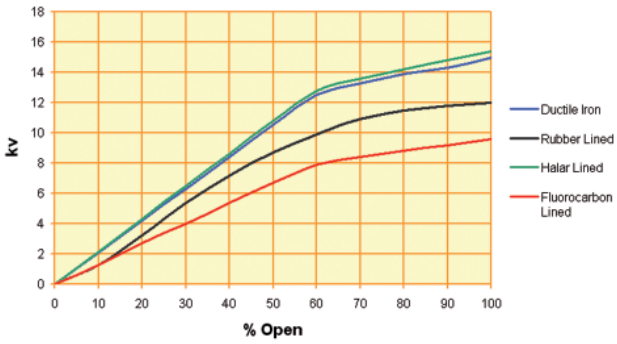
Weir Type DN 15



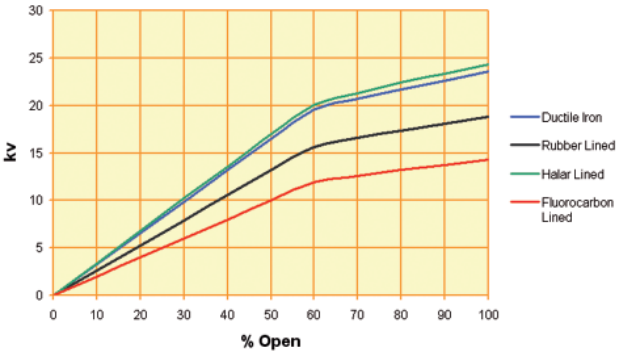
Weir Type DN 20



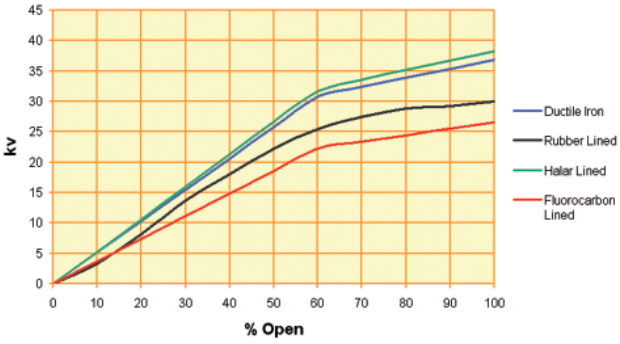
Weir Type DN 25



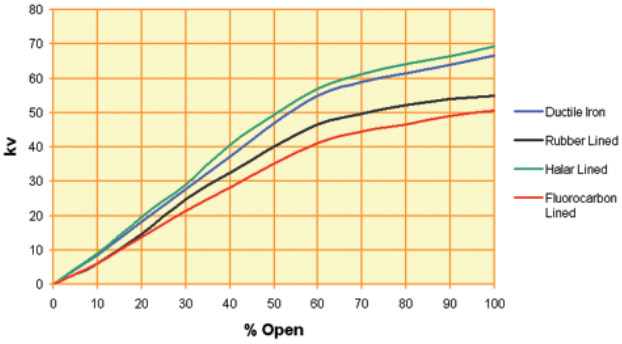
Weir Type DN 32



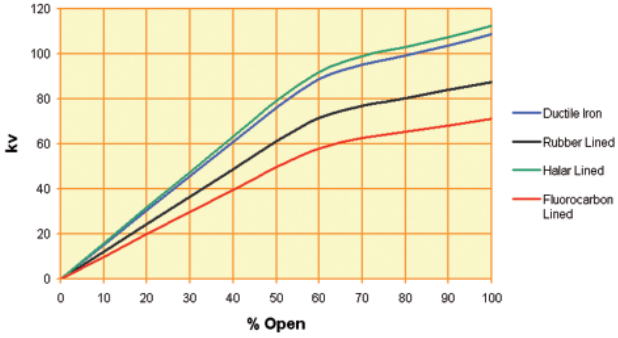
Weir Type DN 40



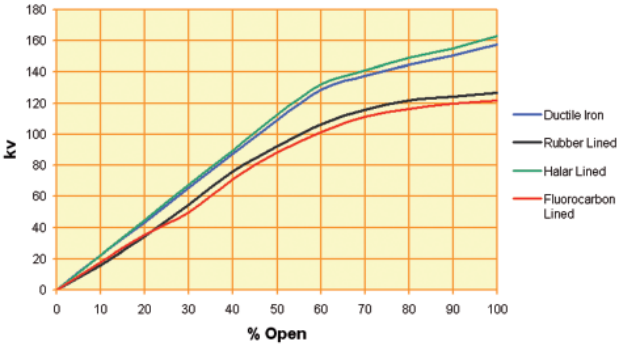
Weir Type DN 50



Weir Type DN 65



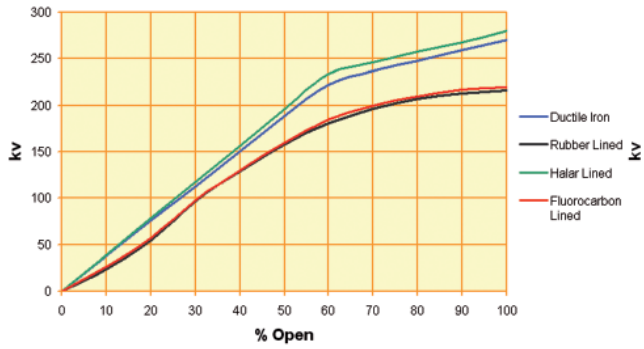
Weir Type DN 80



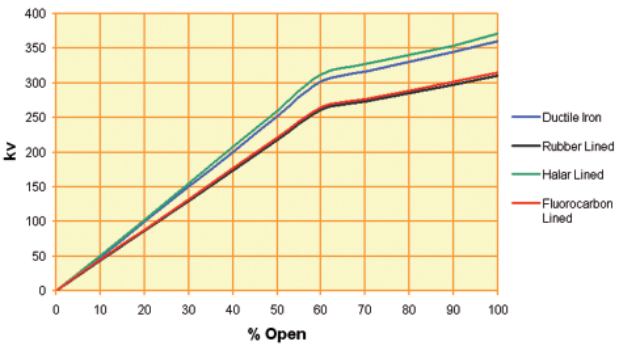
Diaval © Data subject to change without prior notice

Flow Coefficients Kv (m3/h)

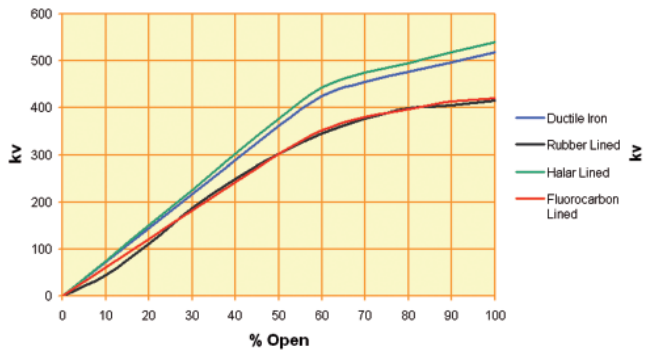
Weir Type DN 100



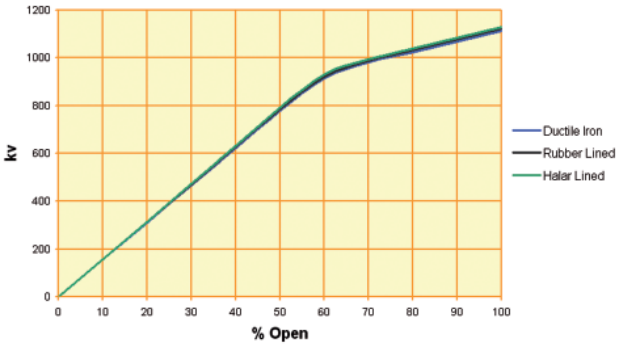
Weir Type DN 125



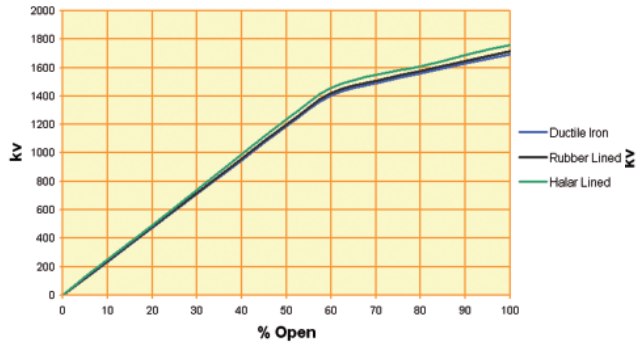
Weir Type DN 150



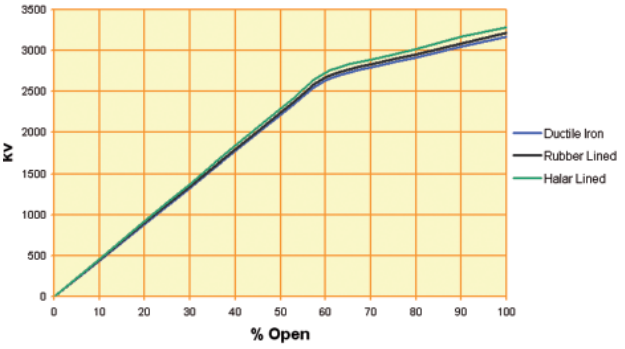
Weir Type DN 200



Weir Type DN 250



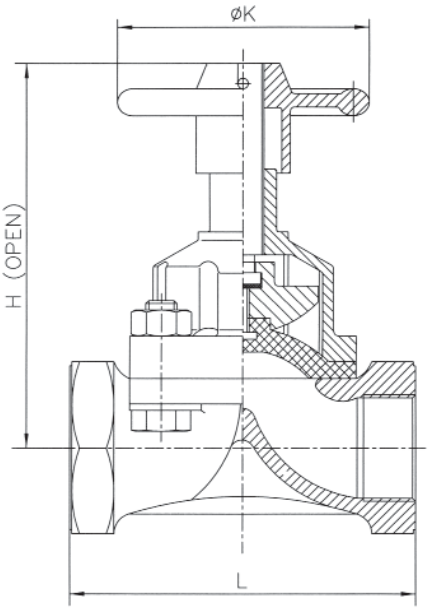
Weir Type DN 300



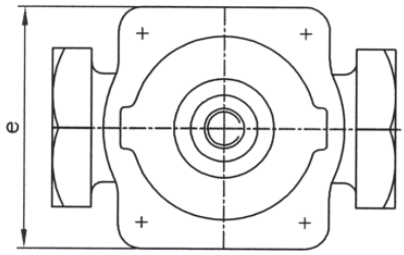
Diaval® Diaphragm Valves - Weir Type

Unlined Screwed valves

Main Dimensions







SIZE	DN	L (1)	L (2)	H (1) (open)	H (2) (open)	ØK (1)	ØK (2)	e	Weight
3/8"	10	50	-	70	-	45	-	72	1.2
1/2"	15	66	108	70	106	75	100	72	1.5
3/4"	20	85	117	105	117	75	100	72	2.0
1"	25	110	127	122	141	85	120	89	3.2
1 1/4"	32	124	146	148	152	120	120	89	4.0
1 1/2"	40	140	159	155	176	120	120	89	6.0
2"	50	165	190	183	196	120	164	115	8.0
2 1/2"	65	203	-	212	-	165	-	130	10.5
3"	80	254	-	256	-	230	-	170	17.5

* Approx. Weight in kg, based on Ductile Iron body material.
* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

(1): Standard dimensions for cast and ductile iron valves
(2): Standard dimensions for stainless steel valves

Manufacture Design Standards:

- Harmonised Standard EN13397 (November 2001), equivalent to MSS-SP-88-1993 (Reaffirmed 2001)
- QA certified to ISO 9001:2000
- According to Pressure Equipment Directive PED 97/23/EC Article 3 - Paragraph 3
- Testing standards EN12266-1 (March 2003) and BS6755 part 1 (1986)
- Marking according to EN 19 (April 2002)
- Face to face dimensions according to Diaval® standard
- Screwed ends to BSP (BS 21 parallel or taper), NPT (ANSI B1.20.1), other options on request

Operating parameters:

Valve bodies design pressure range: PN16 (DN10-50) PN10 (DN65-80)

See Data Sheet Operating Parameters for further information

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves - Weir Type

Unlined Screwed valves

Standard Materials

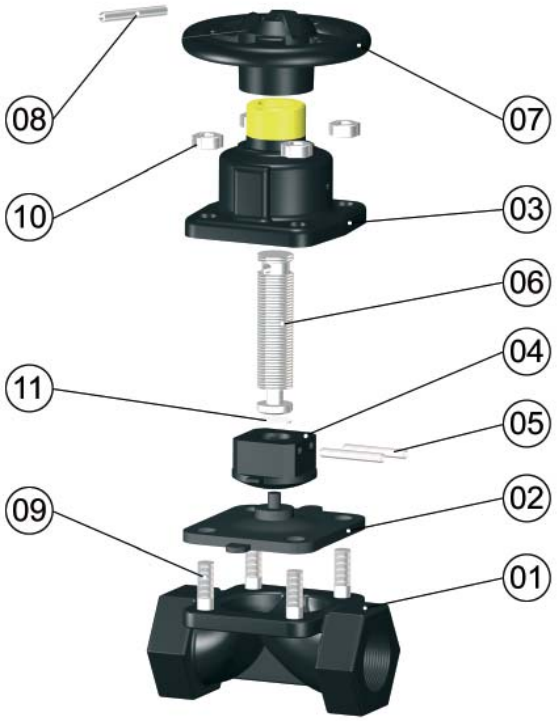
Part	Description	Material
01	Body	Ductile or Cast Iron
02	Diaphragm	Rubber
03	Bonnet	Ductile or Cast Iron
04	Compressor	Cast Iron
05	Compressor pin	Steel
06	Spindle	Steel
07	Handwheel	Cast Iron
08	Handwheel pin	Steel
09	Body studs (4 Nos)	Steel
10	Body nuts (4 Nos)	Steel
11	Thrust washer	Nylon

Body Material Options

Cast Iron (Grey)	
EN1561	EN JL1040/GJL-250 (GG-25)
ASTM	A 126 Class B
Ductile Iron (SG Iron)	
EN1563	GJS-400-15 (GGG-40)
ASTM	A536 Grade 65-45-12
Carbon Steel	
EN10213	GP240GH+N (1.0619+N)
ASTM	A 216 WCB
Stainless Steel 316	
EN10088-1	X5CrNiMo17-12-2 (1.4401)
ASTM	A 351 CF8M
Stainless Steel 316L	
EN10088-1	X2CrNiMo17-12-2 (1.4404)
ASTM	A 351 CF3M
Bronze	
EN1982	CuSn5Zn5Pb5-C (CC491K)
EN1982	CuSn7Zn2Pb3-C (CC492K)
ASTM	B62
Iron Alloys	
Chromium Iron 24%, 30%, etc.	

Other Material Options

- Body studs and nuts in St.Steel A2 or A4
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation



Diaphragm Options

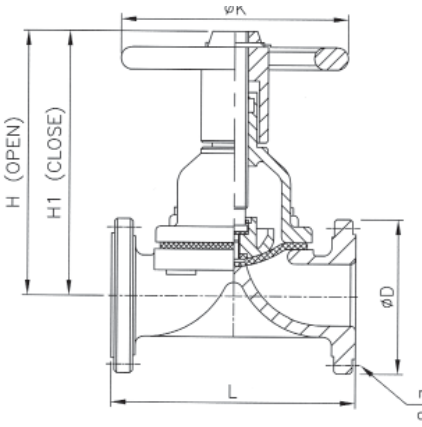
Material	Code
Natural Rubber	D10
White Natural Rubber	D15
EPDM Rubber	D20
Butyl Rubber	D30
Nitrile Rubber	D40
Neoprene® Rubber	D50
Hypalon® Rubber	D60
Viton® Rubber	D70
Linatex®	
PTFE/EPDM	D93/20
PTFE/Butyl Rubber	D93/30
PTFE/Viton®	D93/70

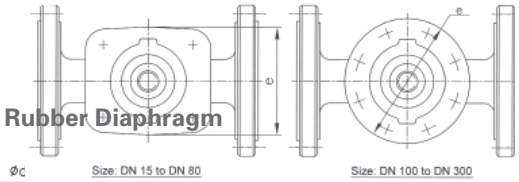
Special vacuum reinforced diaphragms
add code letter [V] e.g. D10V

Diaval® Diaphragm Valves - Weir Type

Unlined valves with flanged ends

Main Dimensions







	EN-558-1 S1 (DIN 3202F1)		EN-558-1 S7 (BS 5156)		H	H1	EN1092-1 PN10 BS 4504 T.10			ANSI 150#			ØK	e
DN	L	Weight	L	Weight	(open)	(Closed)	ØD	PCD	nxØd	ØD	PCD	nxØd		
15	130	2.7	108	2.3	109	103	95	65	4x14	89	60.3	4x16	100	52
20	150	3.5	117	3.2	117	109	105	75	4x14	98	69.8	4x16	100	67
25	160	4.4	127	4.2	140	130	115	85	4x14	108	79.4	4x16	120	75
32	180	6.6	146	6.4	143	131	140	100	4x18	117	88.9	4x16	120	88
40	200	8.5	159	7.5	172	152	150	110	4x18	127	98.4	4x16	120	110
50	230	12.5	190	12.0	190	166	165	125	4x18	152	120.6	4x19	164	127
65	290	19.0	216	18.0	230	195	185	145	4x18	178	139.7	4x19	220	146
80	310	25.0	254	23.0	242	202	200	160	8x18	191	152.4	4x19	240	188
100	350	36.0	305	34.0	326	275	220	180	8x18	229	190.5	8x19	270	Ø230
125	400	52.0	356	50.0	391	326	250	210	8x18	254	215.9	8x22	270	Ø260
150	480	75.0	406	69.0	468	390	285	240	8x22	279	241.3	8x22	360	Ø320
200	600	160.0	521	150	680	560	340	295	8x22	343	298.4	8x22	460	Ø420
250	730	235.0	635	220.0	802	657	395	350	12x22	406	361.9	12x26	600	Ø502
300	850	315.0	749	300	971	796	445	400	12x22	483	431.8	12x26	700	Ø569

* Approx. Weight in kg, based on Ductile Iron body material.
* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

Manufacture Design Standards:

- Harmonised Standard EN13397, equivalent to MSS-SP-88
- QA certified to ISO 9001
- According to Pressure Equipment Directive PED 97/23/EC Article 3 - Paragraph 3
- Testing standards EN12266-1 and BS6755 part 1
- Marking according to EN 19
- Face to face dimensions according to EN558-1 Series 1 (DIN 3202F1) or EN558-1 Series 7 (BS5156)
- Body end flanges according to EN 1092-1 PN10, BS 4504 T.10 or ANSI 150#

Operating parameters:

	Rubber Diaphragm	PTFE Diaphragm
Valve bodies design pressure range:	PN16 (DN15-50) PN10 (DN65-150) PN6 (DN200) PN5 (250) PN4 (DN300	PN10 (DN15-125) PN6 (DN150)

See Data Sheet Operating Parameters for further information

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves - Weir Type

Unlined valves with flanged ends

Standard Materials

Part	Description	Material
01	Body	Ductile or Cast Iron
A1	Body lining	Unlined
02	Diaphragm	Rubber
03	Bonnet*	Ductile or Cast Iron
04	Compressor	Cast Iron
05	Compressor pin	Steel
06	Spindle	Steel
07	Handwheel	Cast Iron
08	Handwheel pin	Steel
09	Body studs **	Steel
10	Body nuts **	Steel
11	Thrust washer	Nylon

* With eye bolts in DN 200-300 to ease handling
** DN15-80: 4 Nos / DN100-125: 8 Nos / DN150: 10 Nos / DN200-300: 14Nos

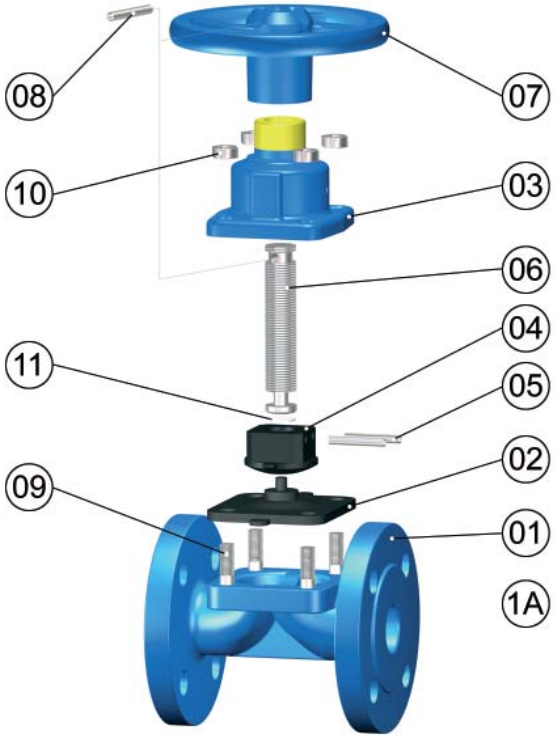
Body Material Options

Cast Iron (Grey)	
EN1561	EN JL1040/GJL-250 (GG-25)
ASTM	A 126 Class B
Ductile Iron (SG Iron)	
EN1563	EN JS1030/GJS-400-15 (GGG-40)
ASTM	A536 Grade 65-45-12
Carbon Steel	
EN10213	GP240GH+N (1.0619+N)
ASTM	A 216 WCB
Stainless Steel 316	
EN10088-1	X5CrNiMo17-12-2 (1.4401)
ASTM	A 351 CF8M
Stainless Steel 316L	
EN10088-1	X2CrNiMo17-12-2 (1.4404)
ASTM	A 351 CF3M
Bronze	
EN1982	CuSn5Zn5Pb5-C (CC491K)
EN1982	CuSn7Zn2Pb3-C (CC492K)
ASTM	B62
Iron Alloys	
Chromium Iron 24%, 30%, etc.	

a) Standard for unlined and rubber lined valves
b) Standard for fluoropolymer lined valves

Other Material Options

- Body studs and nuts in St.Steel A2 or A4
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation



Other Body Lining Material Options

Rubber Lining	Fluoropolyner Lining
Hard Rubber - Ebonite (HR)	PFA®
Butyl Rubber (BR)	ETFE®
Soft Rubber (SR)	FEP®
Neoprene® Rubber	PVDF®
Hypalon® Rubber	Halar®
White Natural	

Diaphragm Options

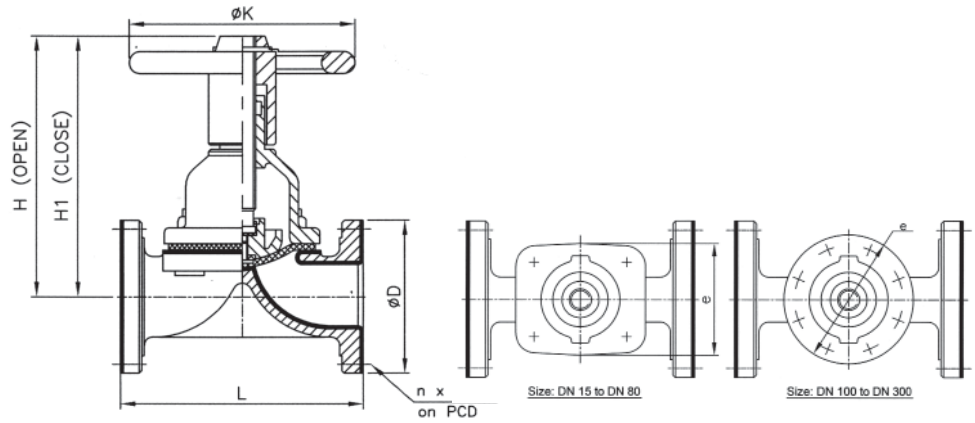
Material	Code
Natural Rubber	D10
White Natural Rubber	D15
EPDM Rubber	D20
Butyl Rubber	D30
Nitrile Rubber	D40
Neoprene® Rubber	D50
Hypalon® Rubber	D60
Viton® Rubber	D70
PTFE/EPDM	D93/20
PTFE/Butyl Rubber	D93/30
PTFE/Viton®	D93/70

Special vacuum reinforced diaphragms
add code letter [V] e.g. D10V

Diaval® Diaphragm Valves - Weir Type

Rubber lined valves with flanged ends

Main Dimensions





DN	EN-558-1 S1 (DIN 3202F1) L	EN-558-1 S1 (DIN 3202F1) Weight	EN-558-1 S7 (BS 5156) L	EN-558-1 S7 (BS 5156) Weight	H (open)	H1 (Closed)	EN1092-1 PN10 BS 4504 T.10 ØD	EN1092-1 PN10 BS 4504 T.10 PCD	EN1092-1 PN10 BS 4504 T.10 nxØd	ANSI 150# ØD	ANSI 150# PCD	ANSI 150# nxØd	ØK	e
15	130	3.0	114	2.6	112	106	95	65	4x14	89	60.3	4x16	100	52
20	150	4.0	123	3.5	120	112	105	75	4x14	98	69.8	4x16	100	67
25	160	5.5	133	5.0	143	133	115	85	4x14	108	79.4	4x16	120	75
32	180	8.0	152	7.0	143	134	140	100	4x18	117	88.9	4x16	120	88
40	200	9.5	165	8.5	175	155	150	110	4x18	127	98.4	4x16	120	110
50	230	14.5	196	13.0	193	169	165	125	4x18	152	120.6	4x19	164	127
65	290	20.0	222	19.0	233	198	185	145	4x18	178	139.7	4x19	220	146
80	310	27.0	260	25.0	245	205	200	160	8x18	191	152.4	4x19	240	188
100	350	38.0	313	36.0	330	279	220	180	8x18	229	190.5	8x19	270	Ø230
125	400	55.0	364	53.0	395	330	250	210	8x18	254	215.9	8x22	270	Ø260
150	480	79.0	414	73	472	394	285	240	8x22	279	241.3	8x22	360	Ø320
200	600	165.0	529	155	684	564	340	295	8x22	343	298.4	8x22	460	Ø420
250	730	242.0	643	227	806	661	395	350	12x22	406	361.9	12x26	600	Ø502
300	850	342.0	757	307	975	800	445	400	12x22	483	431.8	12x26	700	Ø569

* Approx. Weight in kg, based on Ductile Iron body material.
* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

Manufacture Design Standards:

- Harmonised Standard EN13397 (November 2001), equivalent to MSS-SP-88-1993 (Reaffirmed 2001)
- QA certified to ISO 9001:2000
- According to Pressure Equipment Directive PED 97/23/EC Article 3 - Paragraph 3
- Testing standards EN12266-1 (March 2003) and BS6755 part 1 (1986)
- Marking according to EN 19 (April 2002)
- Face to face dimensions according to EN558-1 Series 1 (DIN 3202F1) or EN558-1 Series 7 (BS5156)
- Body end flanges according to EN 1092-1 PN10, BS 4504 T.10 or ANSI 150#

Operating parameters:

	Rubber Diaphragm	PTFE Diaphragm
Valve bodies design pressure range:	PN16 (DN15-50) PN10 (DN65-150) PN6 (DN200) PN5 (250) PN4 (DN300)	PN10 (DN15-125) PN6 (DN150)

See Data Sheet Operating Parameters for further information

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves - Weir Type

Rubber lined valves with flanged ends

Standard Materials

Part	Description	Material
01	Body	Ductile or Cast Iron
A1	Body lining	Rubber lined
02	Diaphragm	Rubber
03	Bonnet*	Ductile or Cast Iron
04	Compressor	Cast Iron
05	Compressor pin	Steel
06	Spindle	Steel
07	Handwheel	Cast Iron
08	Handwheel pin	Steel
09	Body studs **	Steel
10	Body nuts **	Steel
11	Thrust washer	Nylon

* With eye bolts in DN 200-300 to ease handling
** DN15-80: 4 Nos / DN100-125: 8 Nos / DN150: 10 Nos / DN200-300: 14Nos

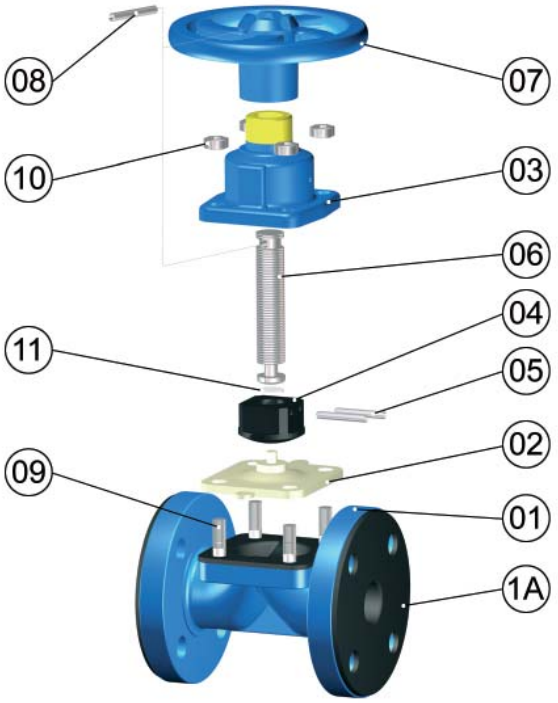
Body Material Options

Cast Iron (Grey)	
EN1561	EN JL1040/GJL-250 (GG-25)
ASTM	A 126 Class B
Ductile Iron (SG Iron)	
EN1563	EN JS1030/GJS-400-15 (GGG-40)[a]
EN1563	GJS-450-10 (GGG-40.3)[b]
ASTM	A536 Grade 65-45-12
Carbon Steel	
EN10213	GP240GH+N (1.0619+N)
ASTM	A 216 WCB
Stainless Steel 316	
EN10088-1	X5CrNiMo17-12-2 (1.4401)
ASTM	A 351 CF8M
Stainless Steel 316L	
EN10088-1	X2CrNiMo17-12-2 (1.4404)
ASTM	A 351 CF3M
Bronze	
EN1982	CuSn5Zn5Pb5-C (CC491K)
EN1982	CuSn7Zn2Pb3-C (CC492K)
ASTM	B62
Iron Alloys	
Chromium Iron 24%, 30%, etc.	

a) Standard for unlined and rubber lined valves
b) Standard for fluoropolymer lined valves

Other Material Options

- Body studs and nuts in St.Steel A2 or A4
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation



Body Rubber Lining Material Options

Material	Identification
Hard Rubber - Ebonite (HR)	Sky Blue Spot
Butyl Rubber (BR)	Dark Blue Spo
Soft Rubber (SR)	White Spot
Neoprene® Rubber	Red Spot
Hypalon® Rubber	Green Spot
White Natural	

Diaphragm Options

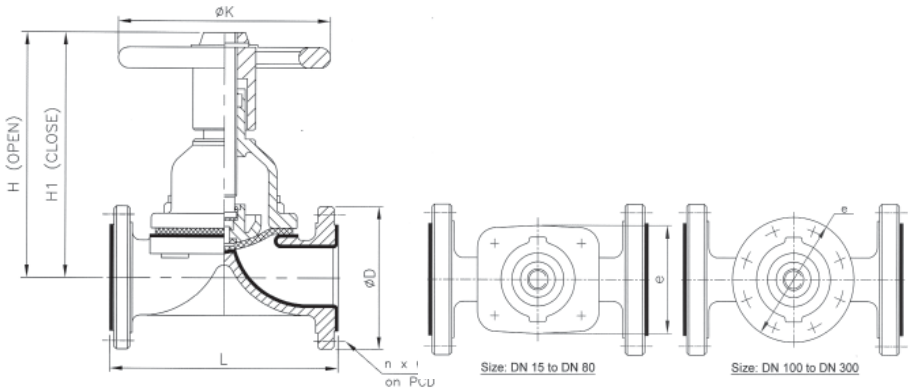
Material	Code
Natural Rubber	D10
White Natural Rubber	D15
EPDM Rubber	D20
Butyl Rubber	D30
Nitrile Rubber	D40
Neoprene® Rubber	D50
Hypalon® Rubber	D60
Viton® Rubber	D70
PTFE/EPDM	D93/20
PTFE/Butyl Rubber	D93/30
PTFE/Viton®	D93/70

Special vacuum reinforced diaphragms
add code letter [V] e.g. D10V

Diaval® Diaphragm Valves - Weir Type

Fluoropolymer lined valves with flanged ends

Main Dimensions





DN	EN-558-1 S1 (DIN 3202F1)		EN-558-1 S7 (BS 5156)		H	H1	EN1092-1 PN10 BS 4504 T.10			ANSI 150#			ØK	e
	L	Weight	L	Weight	(open)	(Closed)	ØD	PCD	nxØd	ØD	PCD	nxØd		
15	130	3.0	114	2.6	112	106	95	65	4x14	89	60.3	4x16	100	52
20	150	4.0	123	3.5	120	112	105	75	4x14	98	69.8	4x16	100	67
25	160	5.5	133	5.0	143	133	115	85	4x14	108	79.4	4x16	120	75
32	180	8.0	152	7.0	143	134	140	100	4x18	117	88.9	4x16	120	88
40	200	9.5	165	8.5	175	155	150	110	4x18	127	98.4	4x16	120	110
50	230	14.5	196	13.0	193	169	165	125	4x18	152	120.6	4x19	164	127
65	290	20.0	222	19.0	233	198	185	145	4x18	178	139.7	4x19	220	146
80	310	27.0	260	25.0	245	205	200	160	8x18	191	152.4	4x19	240	188
100	350	38.0	313	36.0	330	279	220	180	8x18	229	190.5	8x19	270	Ø230
125	400	55.0	364	53.0	395	330	250	210	8x18	254	215.9	8x22	270	Ø260
150	480	79.0	414	73.0	472	394	285	240	8x22	279	241.3	8x22	360	Ø320
200	600	165.0	529	155.0	684	564	340	295	8x22	343	298.4	8x22	460	Ø420
250	730	242.0	643	227.0	806	661	395	350	12x22	406	361.9	12x26	600	Ø502
300	850	342.0	757	307.0	975	800	445	400	12x22	483	431.8	12x26	700	Ø569

* Approx. Weight in kg, based on Ductile Iron body material.
* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

Manufacture Design Standards:

- Harmonised Standard EN13397, equivalent to MSS-SP-88
- QA certified to ISO 9001
- According to Pressure Equipment Directive PED 97/23/EC Article 3 - Paragraph 3
- Testing standards EN12266-1 and BS6755 part 1
- Marking according to EN 19
- Face to face dimensions according to EN558-1 Series 1 (DIN 3202F1) or EN558-1 Series 7 (BS5156)
- Body end flanges according to EN 1092-1 PN10, BS 4504 T.10 or ANSI 150#

Operating parameters:

Valve bodies design pressure range: PN10 (DN15-125)
PN6 (DN150)

See Data Sheet Operating Parameters for further information

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves - Weir Type

Fluoropolymer lined valves with flanged ends

Standard Materials

Part	Description	Material
01	Body	Ductile Iron
A1	Body lining	Fluoropolymer lined
02	Diaphragm	PTFE + Rubber Backing
03	Bonnet*	Ductile Iron
04	Compressor	Cast Iron
05	Compressor pin	Steel
06	Spindle	Steel
07	Handwheel	Cast Iron
08	Handwheel pin	Steel
09	Body studs **	St. Steel
10	Body nuts **	St. Steel
11	Thrust washer	Nylon

* With eye bolts in DN 200-300 to ease handling
** DN15-80: 4 Nos / DN100-125: 8 Nos / DN150: 10 Nos / DN200-300: 14Nos

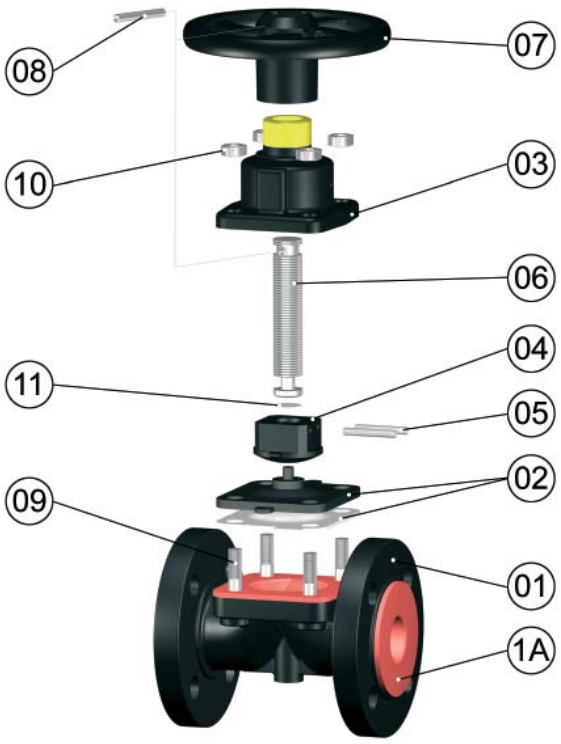
Body Material Options

Cast Iron (Grey)	
EN1561	EN JL1040/GJL-250 (GG-25)
ASTM	A 126 Class B
Ductile Iron (SG Iron)	
EN1563	EN JS1030/GJS-400-15 (GGG-40)[a]
EN1563	GJS-450-10 (GGG-40.3)[b]
ASTM	A536 Grade 65-45-12
Carbon Steel	
EN10213	GP240GH+N (1.0619+N)
ASTM	A 216 WCB
Stainless Steel 316	
EN10088-1	X5CrNiMo17-12-2 (1.4401)
ASTM	A 351 CF8M
Stainless Steel 316L	
EN10088-1	X2CrNiMo17-12-2 (1.4404)
ASTM	A 351 CF3M
Bronze	
EN1982	CuSn5Zn5Pb5-C (CC491K)
EN1982	CuSn7Zn2Pb3-C (CC492K)
ASTM	B62
Iron Alloys	
Chromium Iron 24%, 30%, etc.	

a) Standard for unlined and rubber lined valves
b) Standard for fluoropolymer lined valves

Other Material Options

- Body studs and nuts in St.Steel A2 or A4
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation



Body Fluoropolymer Linings Material Options

Material	Identification
PFA®	-
ETFE®	-
FEP®	-
PVDF®	-

Diaphragm Options

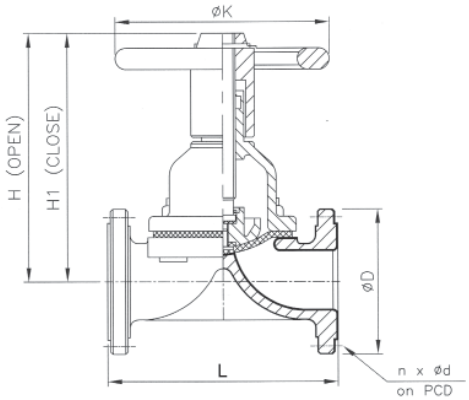
Material	Code
Natural Rubber	D10
White Natural Rubber	D15
EPDM Rubber	D20
Butyl Rubber	D30
Nitrile Rubber	D40
Neoprene® Rubber	D50
Hypalon® Rubber	D60
Viton® Rubber	D70
Linatex®	
PTFE/EPDM	D93/20
PTFE/Butyl Rubber	D93/30
PTFE/Viton®	D93/70

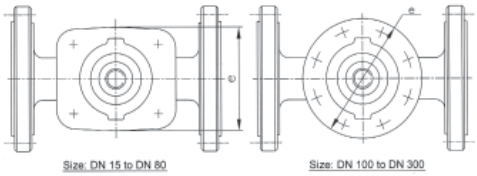
Special vacuum reinforced diaphragms
add code letter [V] e.g. D10V

Diaval® Diaphragm Valves - Weir Type

Halar ® coated valves with flanged ends

Main Dimensions







	EN-558-1 S1 (DIN 3202F1)		EN-558-1 S7 (BS 5156)		H	H1	EN1092-1 PN10 BS 4504 T.10			ANSI 150#				
DN	L	Weight	L	Weight	(open)	(Closed)	ØD	PCD	nxØd	ØD	PCD	nxØd	ØK	e
15	132	3.0	110	2.6	110	104	97	65	4x14	91	60.3	4x16	100	54
20	152	4.0	119	3.5	118	110	107	75	4x14	100	69.8	4x16	100	69
25	162	5.5	129	4.5	141	131	117	85	4x14	110	79.4	4x16	120	77
32	182	7.5	148	6.5	143	132	142	100	4x18	119	88.9	4x16	120	90
40	202	8.5	161	7.5	173	153	152	110	4x18	129	98.4	4x16	120	112
50	232	13	192	12	191	167	167	125	4x18	154	120.6	4x19	164	129
65	292	19	218	18	231	196	187	145	4x18	180	139.7	4x19	220	148
80	312	25	256	23	243	203	202	160	8x18	193	152.4	4x19	240	192
100	352	36	307	34	327	276	222	180	8x18	231	190.5	8x19	270	Ø232
125	402	52	358	50	392	327	252	210	8x18	256	215.9	8x22	270	Ø267
150	482	75	408	69	469	391	287	240	8x22	281	241.3	8x22	360	Ø322
200	602	160	523	150	681	561	342	295	8x22	345	298.4	8x22	460	Ø422
250	732	235	637	220	803	658	397	350	12x22	408	361.9	12x26	600	Ø504
300	852	315	751	300	972	797	447	400	12x22	485	431.8	12x26	700	Ø571

* Approx. Weight in kg, based on Ductile Iron body material.
* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

Manufacture Design Standards:

- Harmonised Standard EN13397, equivalent to MSS-SP-88
- QA certified to ISO 9001
- According to Pressure Equipment Directive PED 97/23/EC Article 3 - Paragraph 3
- Testing standards EN12266-1 and BS6755 part 1
- Marking according to EN 19
- Face to face dimensions according to EN558-1 Series 1 (DIN 3202F1) or EN558-1 Series 7 (BS5156)
- Body end flanges according to EN 1092-1 PN10, BS 4504 T.10 or ANSI 150#

Operating parameters:

	Rubber Diaphragm	PTFE Diaphragm
Valve bodies design pressure range:	PN16 (DN15-50) PN10 (DN65-150) PN6 (DN200) PN5 (250) PN4 (DN300)	PN10 (DN15-125) PN6 (DN150)

See Data Sheet Operating Parameters for further information

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves - Weir Type

Halar ® coated valves with flanged ends

Standard Materials

Part	Description	Material
01	Body	Ductile or Cast Iron
A1	Body lining	Halar® coated
02	Diaphragm	PTFE + Rubber Backing
03	Bonnet*	Ductile or Cast Iron
04	Compressor	Cast Iron
05	Compressor pin	Steel
06	Spindle	Steel
07	Handwheel	Cast Iron
08	Handwheel pin	Steel
09	Body studs **	St. Steel
10	Body nuts **	St. Steel
11	Thrust washer	Nylon

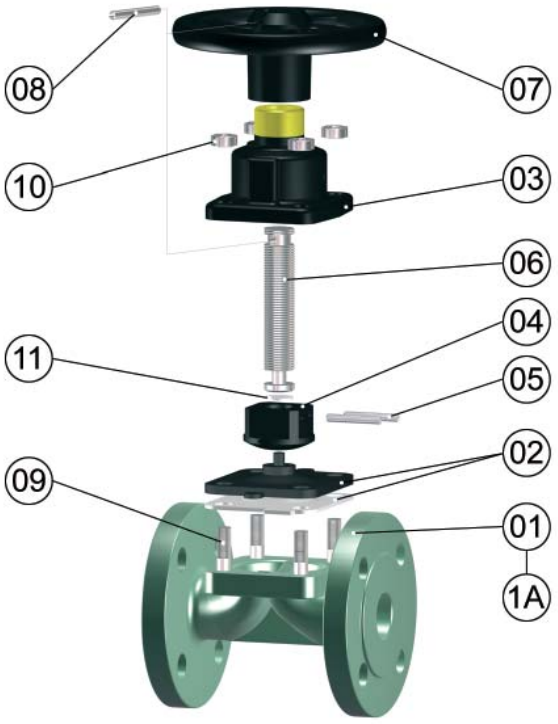
* With eye bolts in DN 200-300 to ease handling
** DN15-80: 4 Nos / DN100-125: 8 Nos / DN150: 10 Nos / DN200-300: 14Nos

Body Material Options

Cast Iron (Grey)	
EN1561	EN JL1040/GJL-250 (GG-25)
ASTM	A 126 Class B
Ductile Iron (SG Iron)	
EN1563	EN JS1030/GJS-400-15 (GGG-40)
ASTM	A536 Grade 65-45-12
Carbon Steel	
EN10213	GP240GH+N (1.0619+N)
ASTM	A 216 WCB
Stainless Steel 316	
EN10088-1	X5CrNiMo17-12-2 (1.4401)
ASTM	A 351 CF8M
Stainless Steel 316L	
EN10088-1	X2CrNiMo17-12-2 (1.4404)
ASTM	A 351 CF3M
Bronze	
EN1982	CuSn5Zn5Pb5-C (CC491K)
EN1982	CuSn7Zn2Pb3-C (CC492K)
ASTM	B62
Iron Alloys	
Chromium Iron 24%, 30%, etc.	

Other Material Options

- Body studs and nuts in St.Steel A2 or A4
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation



Other Body Lining Material Options

Material	Identification
Hard Rubber - Ebonite (HR)	PFA®
Butyl Rubber (BR)	ETFE®
Soft Rubber (SR)	FEP®
Neoprene® Rubber	PVDF®
Hypalon® Rubber	
White Natural	

Diaphragm Options

Material	Code
Natural Rubber	D10
White Natural Rubber	D15
EPDM Rubber	D20
Butyl Rubber	D30
Nitrile Rubber	D40
Neoprene® Rubber	D50
Hypalon® Rubber	D60
Viton® Rubber	D70
PTFE/EPDM	D93/20
PTFE/Butyl Rubber	D93/30
PTFE/Viton®	D93/70

Special vacuum reinforced diaphragms add code letter [V] e.g. D10V

Diaval® Diaphragm Valves - Weir Type

Rubber and Fluoropolymer Linings



Application Guide

Lining Material	Range Availability	Applications
Hard Rubber - HRL (Ebonite), sulphur cured, carbon black reinforced. Designated by a 'Sky Blue Spot' on end flange.	Weir type, flanged DN 15 to DN 300.	Used for inorganic salt solutions, dilute mineral acids, chlorine water, deionised and potable water.
Soft Natural Rubber—SR Polyisoprene, sulphur cured, carbon black reinforced. Designated by a 'white spot' on end flange.	Weir type, flanged DN 15 to DN 300.	Excellent abrasion resistance for powders, slurries such as clays, fly ash and cement products.
Soft Butyl Rubber—BL Isobutylene isoprene (IIR), sulphur cured carbon black reinforced. Designated by a 'Dark Blue Spot' on end flange.	Weir type, flanged DN 15 to DN 300.	Good for corrosive and abrasive slurries, dilute mineral acids and acidic slurries. Avoid chlorine and chorine solutions.
Soft Polychloroprene (Neoprene) Rubber Non-Sulphur cured carbon black reinforced. Designated by a 'Red Spot' on end flange. Hardness 65- +/- 5° Shore 'A'	Weir type, flanged DN 15 to DN 300.	Used on abrasives and minerals processing where small percentages of hydrocarbons are present.
Soft Hypalon® Rubber - (Chloro sulphonated polyethylene) Non-Sulphur cured carbon black reinforced. Designated by a 'Green Spot' on the end flange.	Weir type, flanged DN 15 to DN 300.	Chemical resistance to dilute / medium strength acids and chlorinated brine solutions and sodium hypochlorite
Speciality lining material for specific service		
AKORROS r B290	Weir type, flanged DN 15 to DN 300	High purity lining (low Ca, Mg) for Chlor. Alkali Plant-Membrane Type
AKORROS r B295'	Weir type, flanged DN 15 to DN 300	For High Temperature Brine with chlorine (max 90°C) for Chor. Alkali Plant-Membrane Type
POLYFLEX TM B296	Weir type, flanged DN 15 to DN 300	For High Temperature (130°C max.) for spinba-th service for Rayon/Staple fibre plant
Halar® Co-polymer of ethylene and chlorotrifluoroethylene. Electrostatically applied coating.	Weir type, flanged DN 15 to DN 300.	Used for concentrated acids and salts con-taining hydrocarbons. Not suitable for dilute acids and inorganic salt solutions near to their boiling point. Minimal resistance to abrasive services.
Polytetrafluoro alkoxy—PFA® . Natural colour.	Weir type, flanged D N 15 to DN 300.	Most suitable for concentrated mineral acids at high temperature, aromatic and aliphatic and chlorinated solvents.
Ethylene tetrafluoroethylene-ETFE® Natural colour.	Weir type, flanged DN 15 to DN 300.	Most suitable for concentrated mineral acids at high temperature, aromatic and aliphatic and chlorinated solvents
FEP & PVDF		Consult Diaval@

(DN 350 under special manufacture)

Diaval © Data subject to change without prior notice

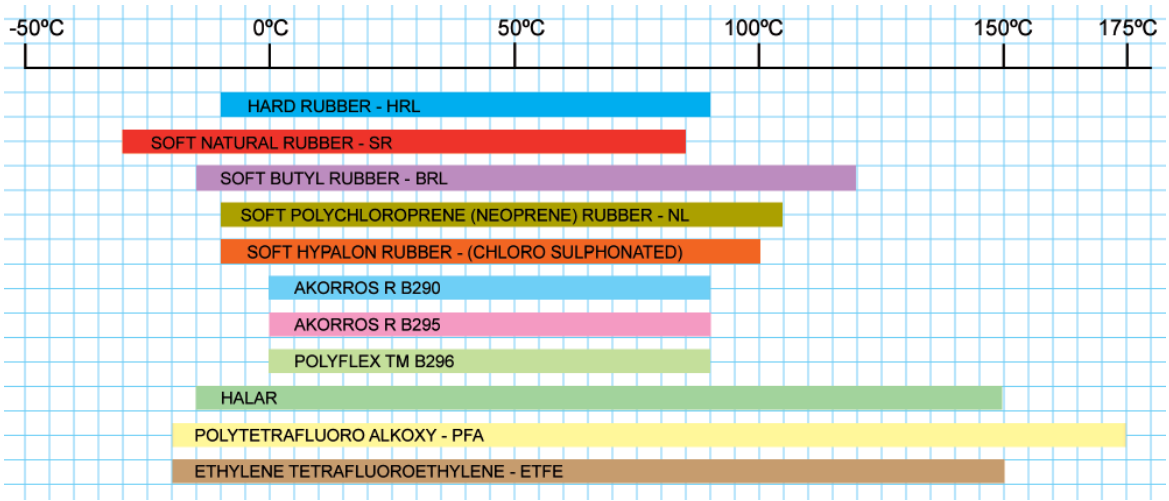
Diaval® Diaphragm Valves - Weir Type

Rubber and Fluoropolymer Linings



Operating Parameters

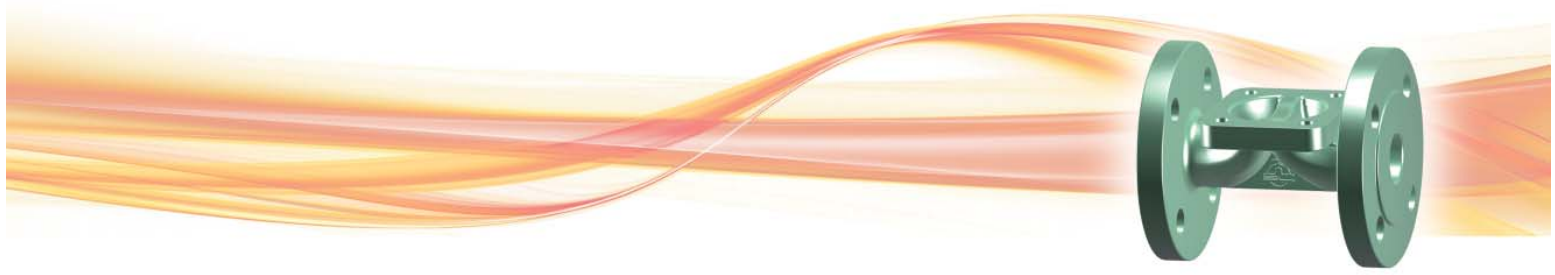
Lining Material	Valve Body Material	Temperature Range
Hard Rubber - HR	Cast Iron, Ductile Iron and Cast carbon steel	-10°C - +85°C
Soft Natural Rubber—SR	Cast Iron, Ductile Iron and Cast carbon steel	-25°C - +85°C
Soft Butyl Rubber—BR	Cast Iron, Ductile Iron and Cast carbon steel	-15°C - +120°C
Soft Polychloroprene (Neoprene) Rubber	Cast Iron, Ductile Iron and Cast carbon steel	-10°C - +105°C
Soft Hypalon® Rubber - (Chloro sulphonated polyethylene)	Cast Iron, Ductile Iron and Cast carbon steel	-10°C - +100°C
Speciality lining material for specific service		
AKORROS® B290	Ductile Iron	(0-90°C)
AKORROS® B295	Ductile Iron	(0-90°C)
POLYFLEX TM B296	Ductile Iron	(0-130°C)
Halar®	Cast Iron, Ductile Iron and Cast carbon steel	-15°C - +150°C
Polytetrafluoro alkoxy—PFA®.	Ductile Iron	-20°C - +175°C
Ethylene tetrafluoroethylene-ETFE®	Ductile Iron	-20°C - +150°C
FEP & PVDF	Ductile Iron	Consult Diaval®



Temperature Values are not plotted against any pressure parameter, the application engineer should consider that working limits are affected by the actual pressure / temperature relationship. Temperature values also depends on medium through the valve.

Diaval® Diaphragm Valves

Halar ® ECTFE



Halar® ECTFE; a versatile Fluoropolymer

Manufactured from ECTFE, is a melt processable Fluoropolymer. Halar® ECTFE is a partially fluorinated semi-crystalline polymer offering a unique combination of mechanical properties, thermal and chemical resistance with an outstanding ease of processability. It is a copolymer of ethylene and chlorotrifluoroethylene that brings advantages to valve application when compared to other Fluoropolymers. It is a very versatile polymer, available in all forms to meet processing needs. It offers excellent resistance to abrasion, harsh chemicals, and permeation. These characteristics have made of Halar® ECTFE a material of choice for several applications in the field of corrosion protection in the chemical industry. Halar® ECTFE is a high purity Fluoropolymer with a very smooth surface, which accounts for its extensive use in the semiconductor industry. Halar® meets the demands for fire-safe, non-fire propagating plastics. Halar® ECTFE powder coatings offer the greatest ease of processing, with the ability to be applied in high thickness when required.

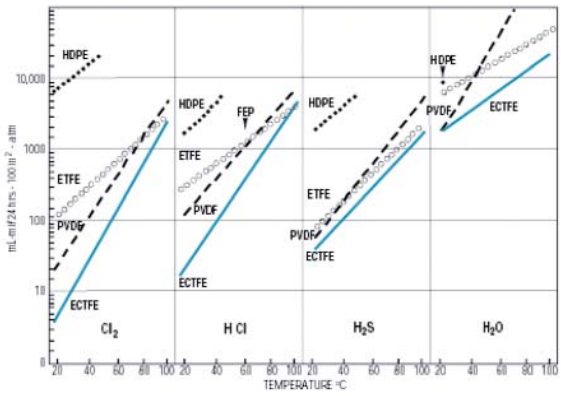
Properties of Halar® ECTFE

Halar® offers a unique combination of properties especially as a coating and a liner. Halar Fluoropolymer coatings provide outstanding chemical resistance, good electrical properties, a broad-use temperature range from cryogenic to 150 ° C, and meet the requirements of UL-94 V-O vertical flame test in thicknesses as low as .007 (7mils). Halar® is resistant to strong mineral and oxidizing acids, alkalis, metal etchants, liquid oxygen, and essentially all organic solvents except hot amines.

Halar® ECTFE the DIAVAL® choice of Fluoropolymers

It is the preferable DIAVAL® choice over other Fluoropolymers such as PVDF, PFA or PTFE in example. For those applications exceeding the capabilities of other Fluoropolymers, Halar® can be evaluated before resorting to a fully fluorinated polymer, offering a compromise between the mechanical properties of a partially fluorinated plastic (like PVDF in example) and the chemical and thermal resistance which is typical of totally fluorinated polymers.
Halar® presents many other advantages over other Fluoropolymers as in example:
-Much better permeability properties.
-Smoother surface that precludes shedding of particles whilst avoid trapping.
-Environmental resistance properties.
-Thermal Properties and Chemical resistance properties.
-Electrical properties
-Mechanical Properties.

The graph shows how Halar® is rated in comparison to other Fluoropolymers in terms of permeation resistance to corrosive media at different temperatures.

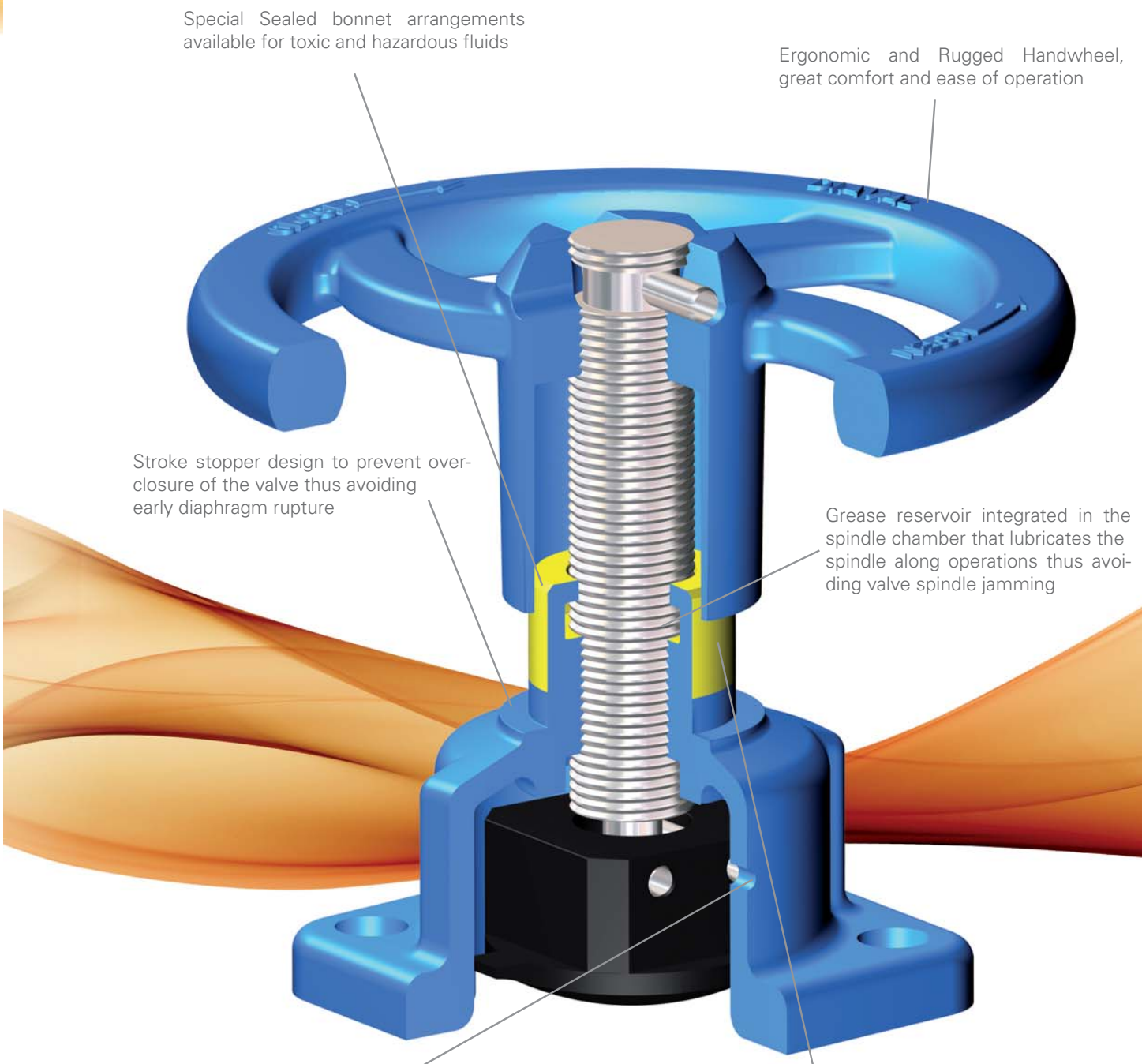


The electrostatic powder coated Halar® shows superior performance than conventional Fluoropolymers that can be shown with more information available in our Data Base on request.

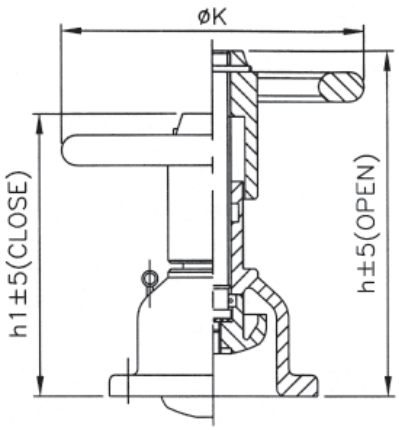
Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves

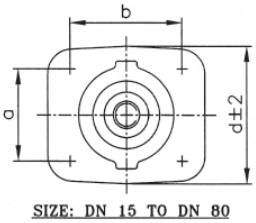
Design Attributes of Weir Type Bonnet



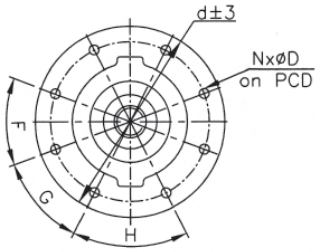
Main Dimensions



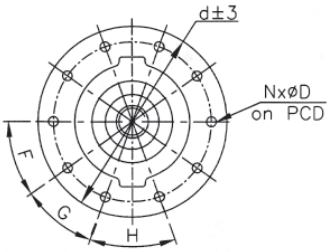




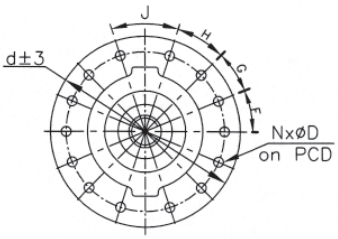
SIZE: DN 15 TO DN 80



SIZE: DN 100&125



SIZE: DN 150



SIZE: DN 200 TO DN 300

DN	b			h	h1	ØK	N° Holes	Weight	ANGLES BETWEEN THE HOLES			
	a	ØPCD	d						F	G	H	J
15	33	37	52	84	78	100	4	0,9	-	-	-	-
20	40	44	678	90	82	100	4	1,1	-	-	-	-
25	46	54	75	115	105	120	4	2,0	-	-	-	-
32	60	67	88	117	106	120	4	2,0	-	-	-	-
40	65	70	110	133	113	120	4	2,5	-	-	-	-
50	78	83	127	155	131	164	4	4,5	-	-	-	-
65	95	102	146	194	159	220	4	8,5	-	-	-	-
80	114	127	190	201	161	240	4	9,5	-	-	-	-
100		Ø194	Ø230	258	207	270	8	14,5	40°	42°	56°	-
125		Ø222	Ø265	307	243	270	8	18,5	43°20′	43°20′	50°	-
150		Ø273	Ø320	358	280	360	10	27,0	35°	35°	40°	-
200		Ø381	Ø420	549	429	460	14	63,0	22°30′	22°30′	27°	36°
250		Ø438	Ø502	697	552	600	14	90,0	22°30′	22°30′	22°30′	45°
300		Ø508	Ø569	804	629	700	14	147,0	24°	24°	36°	36°

* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves

W Type Bonnet

Standard Materials

Part	Description	Material
02	Diaphragm	Rubber
03	Bonnet*	Ductile or Cast Iron
04	Compressor	Cast Iron
05	Compressor pin	Steel
06	Spindle	Steel
07	Handwheel	Cast Iron
08	Handwheel pin	Steel
09	Body studs (4 Nos)	Steel
10	Body studs & nuts	Steel
11	Thrust washer	Nylon

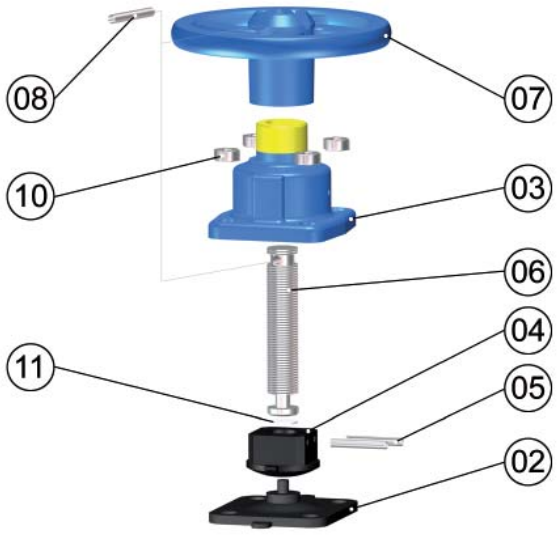
* With eye bolts in DN 200-300 to ease handling

Body Material Options

Cast Iron (Grey)	
EN1561	EN JL1040/GJL-250 (GG-25)
ASTM	A 126 Class B
Ductile Iron (SG Iron)	
EN1563	EN JS1030/GJS-400-15 (GGG-40)
ASTM	A536 Grade 65-45-12
Carbon Steel	
EN10213	GP240GH+N (1.0619+N)
ASTM	A 216 WCB
Stainless Steel 316	
EN10088-1	X5CrNiMo17-12-2 (1.4401)
ASTM	A 351 CF8M
Stainless Steel 316L	
EN10088-1	X2CrNiMo17-12-2 (1.4404)
ASTM	A 351 CF3M
Bronze	
EN1982	CuSn5Zn5Pb5-C (CC491K)
EN1982	CuSn7Zn2Pb3-C (CC492K)
ASTM	B62
Iron Alloys	
Chromium Iron 24%, 30%, etc.	

Other Material Options

- Body studs and nuts in St.Steel A2 or A4
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation



Components Options

Studs, Bolts and Nuts
-Steel (standard)
-St. Steel 304 (A2)
-St. Steel 316 (A4)
-Exotic materials

Spindle
-Steel (standard)
-St. Steel 304
-St. Steel 316
-Exotic materials

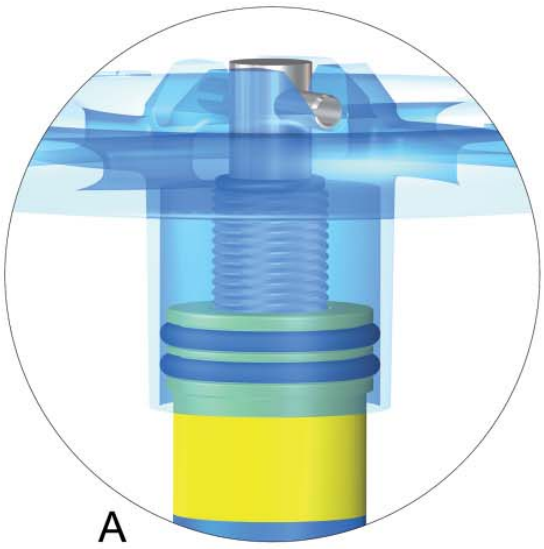
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation

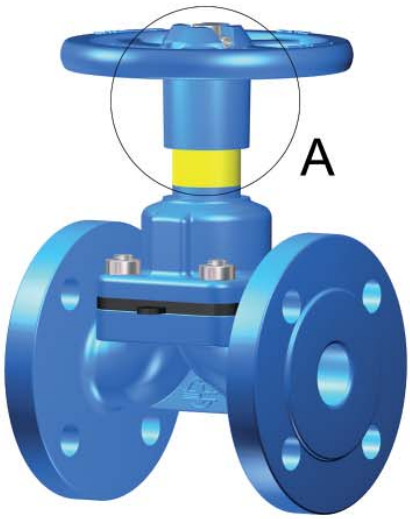
SEALED BONNET

Sealed bonnets mean an essential safety requirement when handling toxic or hazardous fluids. This design prevents fluid emissions in case of diaphragm rupture and, consequently, avoiding harmful risks to plant personnel.

The bonnet is sealed off by two VITON O-rings across the bonnet neck.

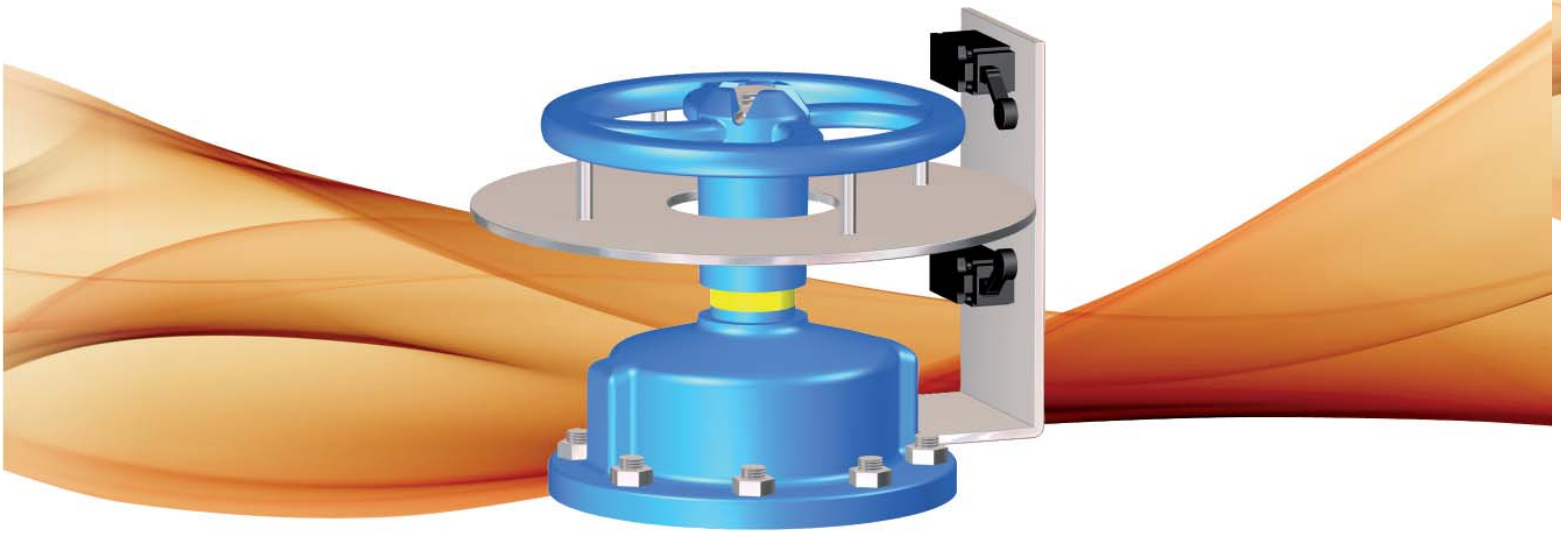
These rings are retaining the eventual leakage until a new diaphragm is mounted and thus service integrity restored.





LIMIT SWITCHES

Limit switches are often used to provide remote signal on the valve status. Electro mechanical limit switches can be provided on a special assembly consisting of a protruding rod angle plate (fix unit) where the switches are bolted and a round plate (moving unit) which moves up and down along with the hand wheel to activate the switches for open and closed position. If just a single signal is required, a single switch for open or closed signal should be mounted.



Bonnet options apply for manual operation. DIAVAL® can engineer and provide further tailor made options on request.

Diaval © Data subject to change without prior notice

PADLOCKING DEVICE

Conventional padlocking device that prevents unauthorized valve operation; the complete set consists in two empty steel rolls interconnected by a rod where the padlock is held.

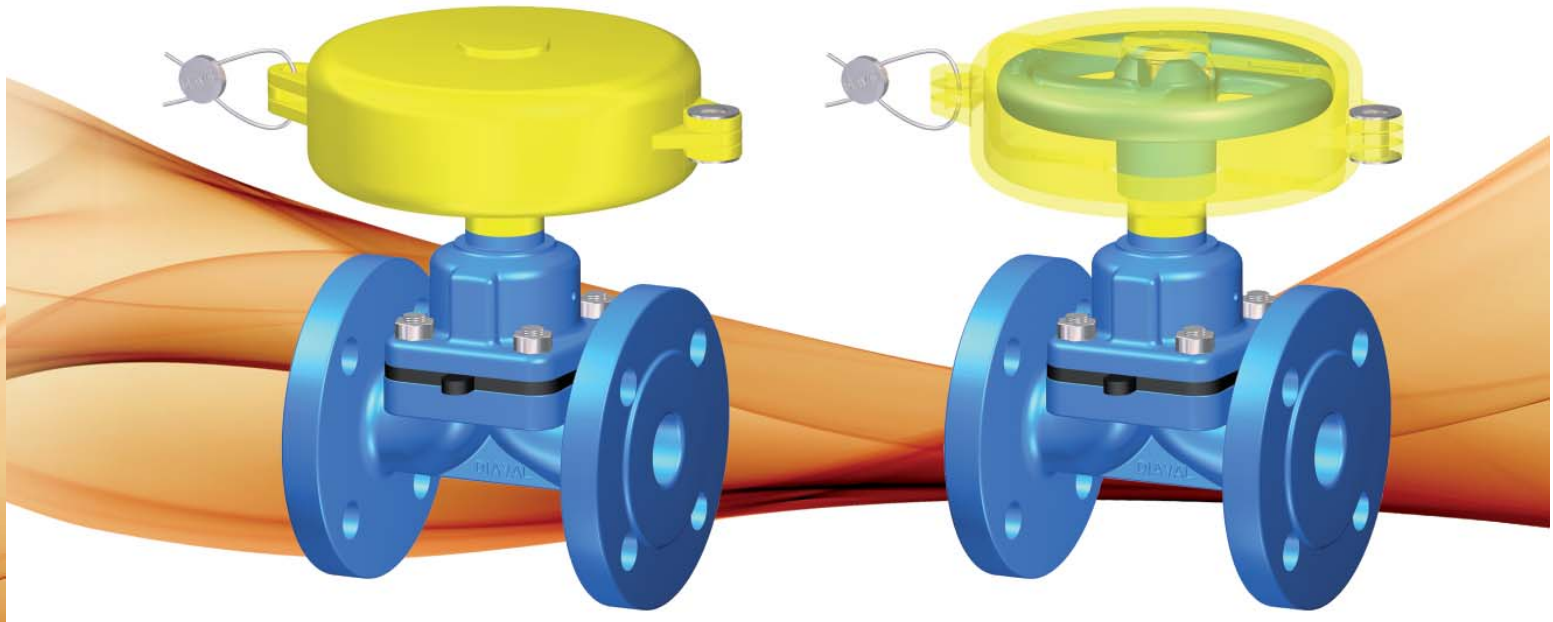
The lower roll is fitted onto one of the bonnet union bolts whilst the upper one blocks the hand wheel free turn. A chain links both rolls thus making the integral set.

The device is provided with padlock and keys which are replaceable by the plant operator. No duplicate of padlock keys are kept at DIAVAL, therefore is plant owner responsibility to create their own set of keys and keeping procedure.

This system maybe provided as an option with new valves or, alternatively, can also be assembled in field on existing DIAVAL® valves.



HAND WHEEL PROTECTING HOOD



Two halves plastic hood conveniently sealed to avoid valve operation by unauthorized personnel.

There are several hoods in accordance with the hand wheel diameter. This hoods can be provided as an option with new valves or, alternatively, can also be assembled in field on existing DIAVAL® valves.

Bonnet options apply for manual operation. DIAVAL® can engineer and provide further tailor made options on request..

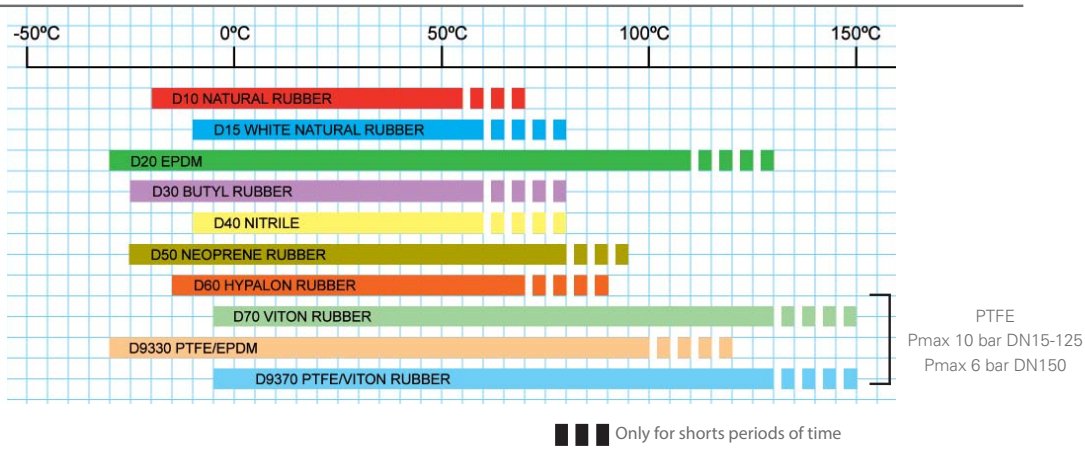
Diaval® Diaphragm Valves - Weir Type

Spare Diaphragms



Operating Parameters

GRADE	POLYMER TYPE	TEMPERATURE RANGE
D10 **Natural Rubber**	**Natural Rubber Polyisoprene/SBR** Sulphur cured and carbon black reinforced	-20 to + 55...70°C
D15 **White Natural Rubber**	**Natural Rubber Polyisoprene/SBR** Sulphur cured and white	-10 to + 60...80°C
D20 **EPDM**	**Ethylene Propylene Diene (EPDM)** Organic peroxide cured, carbon black reinforced	-30 to + 110...130°C
D30 **Butyl Rubber**	**Isobutylene Isoprene (IIR)** Sulphur cured and carbon black reinforced	-25 to + 60...80°C
D40 **Nitrile**	**Butadiene Acrylonitrile**	-10 to + 60...80°C
D50 **Neoprene ®**	**Polychloroprene** Non sulphur cured carbon black reinforced	-25 to + 80...95°C
D60 **Hypalon ®**	**Chlorosuphonated polyethylene** Non sulphur cured carbon black reinforced	-15 to + 70...90°C
D70 **Viton ®**	**Vinylidenefluoride-hexafluoro propylene copolymer** Carbon black reinforced	-5 to + 130...150°C
D9320 **PTFE/EPDM**	**Virgin PTFE + Ethylene Propylene Diene** Two piece Bayonet fitting	–30 to + 100...120°C P max: 10 bar DN15-125 P max: 6 bar DN150
D9320 **PTFE/BUTYL**	**Virgin PTFE + IIR** Two piece Bayonet fitting	-20 to + 100...130°C P max: 10 bar DN15-125 P max: 6 bar DN150
D9370 **PTFE/Viton®**	**Virgin PTFE + Vinylidenefluoride-hexafluoro propylene copolymer** Two piece Bayonet fitting	-5 to + 130...150°C P max: 10 bar DN15-125 P max: 6 bar DN150



Temperature Values are not plotted against any pressure parameter, the application engineer should consider that working limits are affected by the actual pressure / temperature relationship.
Temperature values also depends on medium through the valve.

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves - Weir Type

Spare Diaphragms



Application Guide

GRADE	POLYMER TYPE	TEMPERATURE RANGE
D10 **Natural Rubber**	**Natural Rubber Polyisoprene/SBR** Sulphur cured and carbon black reinforced	Inorganic salt solutions, dilute mineral acids, alkalies and salts. Abrasive services Not resistant to Oxidizing media, oils or most organic solvents will attack it.
D15 **White Natural Rubber**	**Natural Rubber Polyisoprene/SBR** Sulphur cured and white reinforced	Food and pharmaceuticals, toothpaste, brewing, dairy
D20 **EPDM**	**Ethylene Propylene Diene (EPDM)** Organic peroxide cured, carbon black reinforced	Salts in water, acids and alkalies, ozone, intermitten steam. Sterilisation
D30 **Butyl Rubber**	**Isobutylene Isoprene (IIR)** Sulphur cured and carbon black reinforced	Dilute mineral acids and alkalies, gases, acidic slurries,chlorine free hydrochloric acid, resistance to concentrated acids is good with some important exceptions as nitric or sulphuric acids
D40 **Nitrile**	**Butadiene Acrylonitrile**	Oily air, lubricating oil, cutting oils, fuel oils, animal and vegetable oils, aviation kerosen, LPG Generally resistant to oils and solvents.
D50 **Neoprene ®**	**Polychloroprene** Non sulphur cured carbon black reinforced	Abrasive slurries containing hydrocarbons, oily air, natural gas Resistant to attack by ozone, sunlight, oils, gasoline, and aromatic or halogenated solvents but easily permeated by water
D60 **Hypalon ®**	**Chlorosuphonated polyethylene** Non sulphur cured carbon black reinforced	Outstanding resistance to ozone and oxidizing agents except fuming nitric and sulfuric acids. Oil resistance is good. Dilute / Medium acids, sodium hypochlorite, chlorine gas
D70 **Viton ®**	**Vinylidenefluoride-hexafluoro propyleneco-polymer** Carbon black reinforced	Strong sulphuric acid, chlorine gas, oils, certain aromatic solvents
D9320 **PTFE/EPDM**	**Virgin PTFE + Ethylene Propylene Diene** Two piece Bayonet fitting	Strong acids, alkalies and salts in water at high temperature, Biopharmaceuticals
D9320 **PTFE/BUTYL**	**Virgin PTFE + IIR** Two piece Bayonet fitting	Strong acids at low-medium temperature
D9370 **PTFE/Viton ®**	**Virgin PTFE + Vinylidenefluoride-hexafluoro propylene copolymer** Two piece Bayonet fitting	Strong acids, solvents, chlorine, bromine at higher temperature

Vacuum reinforced diaphragms are available and will contain a steel stud and be designated by additional code letter (V) e.. D10V Because of the steel stud these diaphragms can be used on services where conventional bronze studs are prohibited e.g. use of D40V on acetylene.

*Other speciality customised diaphragm material available to suit individual requirement made out of various polymers

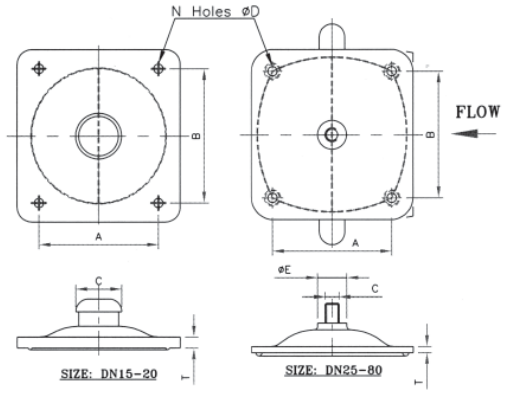
Diaval® Diaphragm Valves - Weir Type

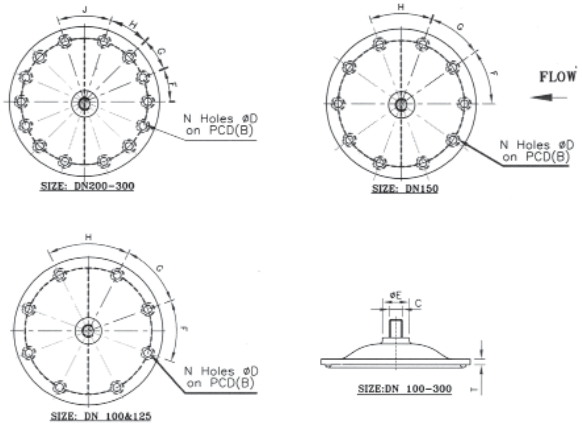
Spare Diaphragms

Main Dimensions









Diaphragm Options

Material	Code	Material	Code
Natural Rubber	D10	Hypalon® Rubber	D60
White Natural Rubber	D15	Viton® Rubber	D70
EPDM Rubber	D20		
Butyl Rubber	D30	PTFE/EPDM	D93/20
Nitrile Rubbe	D40	PTFE/Butyl Rubber	D93/30
Neoprene® Rubber	D50	PTFE/Viton®	D93/70

Polymer based diaphragms are in-house formulated and manufactured by the own DIAVAL® specialist centre, the know how is not subject to external information.

All diaphragms are internally braided with nylon reinforcement to provide diaphragms with a long life cycle at diverse plant operating conditions.

Spare Diaphragms should be stored in a dry and proper place not exposed to ozone rays - please refer to the Operation and Maintenance Manual for details.

* Special vacuum reinforced diaphragms add code letter [V] e.g. D10V
* Other speciality customised diaphragm material available to suit individual requirement.

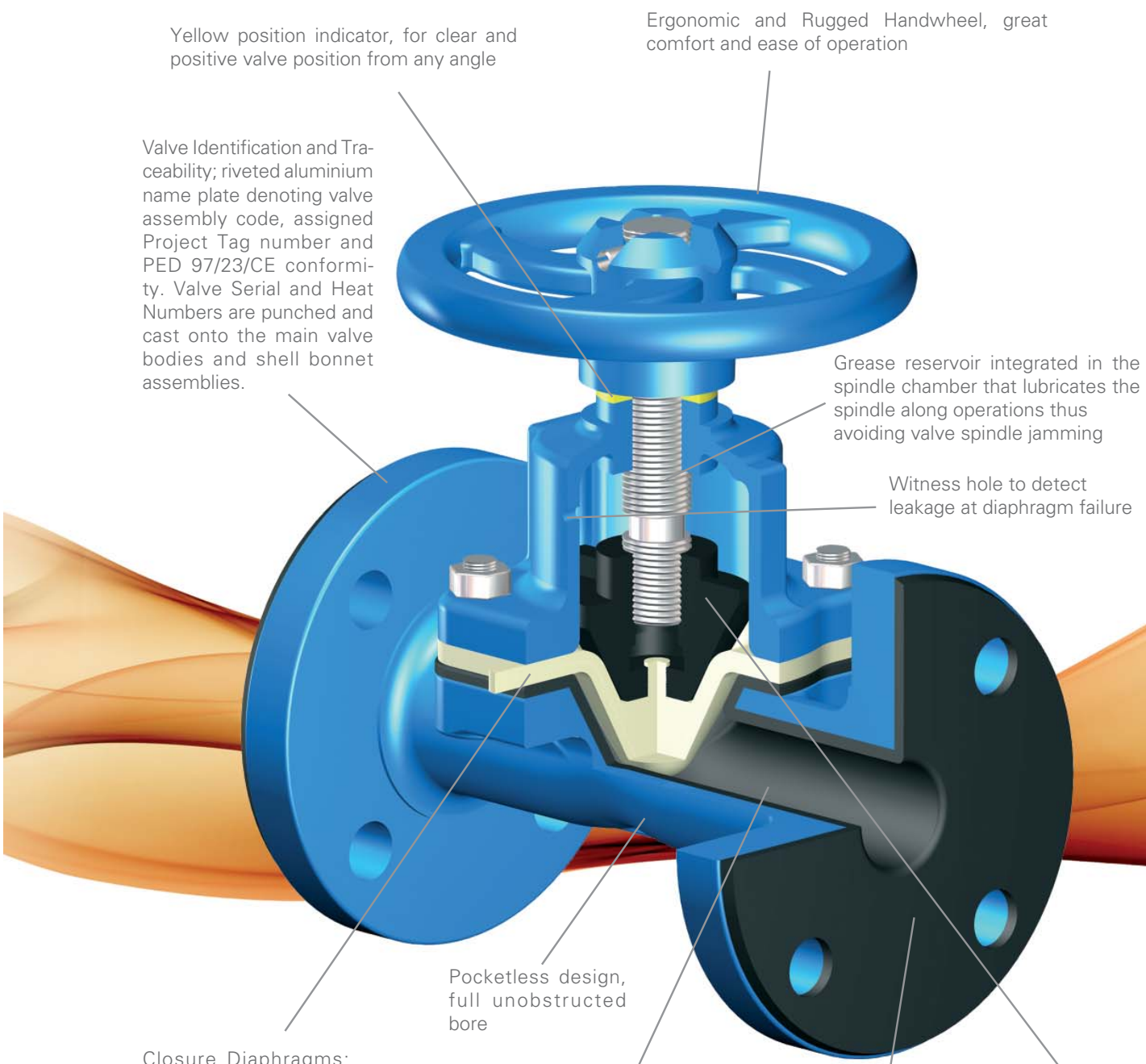
	DIMENSIONS OF DIAPHRAGM							ANGLES BETWEEN THE HOLES			
DN	A	B	C	ØE	ØD	N° Holes	T	F	G	H	J
15	33	37	Ø12.7	-	7.0	4	0,9	-	-	-	-
20	40	44	Ø12.7	-	8.5	4	1,1	-	-	-	-
25	46	54	1/4" BSW	18.0	9.5	4	2,0	-	-	-	-
32	60	67	1/4" BSW	18.0	10.0	4	2,0	-	-	-	-
40	65	70	1/4" BSW	22.2	11.5	4	2,5	-	-	-	-
50	78	83	1/4" BSW	25.6	11.5	4	4,5	-	-	-	-
65	95	102	5/16" BSW	29.0	14.0	4	8,5	-	-	-	-
80	114	127	5/16" BSW	32.0	18.0	4	9,5	-	-	-	-
100		Ø194	5/16" BSW	37.0	16.0	8	14,5	40°	42°	56°	-
125		Ø222	3/8" BSW	44.5	17.3	8	18,5	43°20'	43°20'	50°	-
150		Ø273	3/8" BSW	50.0	18.5	10	27,0	35°	35°	40°	-
200		Ø381	7/8" BSW	63.0	20.0	14	63,0	22°30'	22°30'	27°	36°
250		Ø438	7/8" BSW	76.0	22.0	14	90,0	22°30'	22°30'	22°30'	45°
300		Ø508	7/8" BSW	89.0	25.0	14	147,0	24°	24°	36°	36°

* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves

Design Attributes of Straight Through Valves



Yellow position indicator, for clear and positive valve position from any angle

Ergonomic and Rugged Handwheel, great comfort and ease of operation

Valve Identification and Traceability; riveted aluminium name plate denoting valve assembly code, assigned Project Tag number and PED 97/23/CE conformity. Valve Serial and Heat Numbers are punched and cast onto the main valve bodies and shell bonnet assemblies.

Grease reservoir integrated in the spindle chamber that lubricates the spindle along operations thus avoiding valve spindle jamming

Witness hole to detect leakage at diaphragm failure

Pocketless design, full unobstructed bore

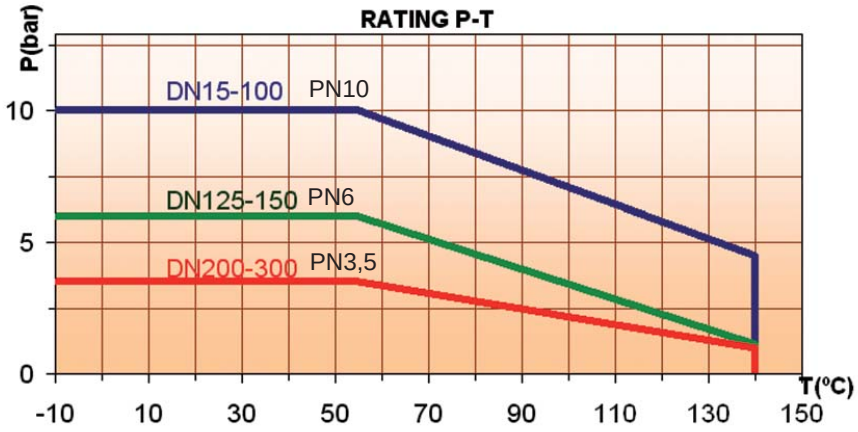
Closure Diaphragms; manufactured from elastomeric and fluorocarbon materials; provide 100% seating tightness while isolating the valve trim from fluid. Wide choice of polymers to satisfy any industrial application.

Porous less linings; provides the application engineer with a wide choice of linings of high chemical and abrasion resistance without need of expensive basic metal valve materials.

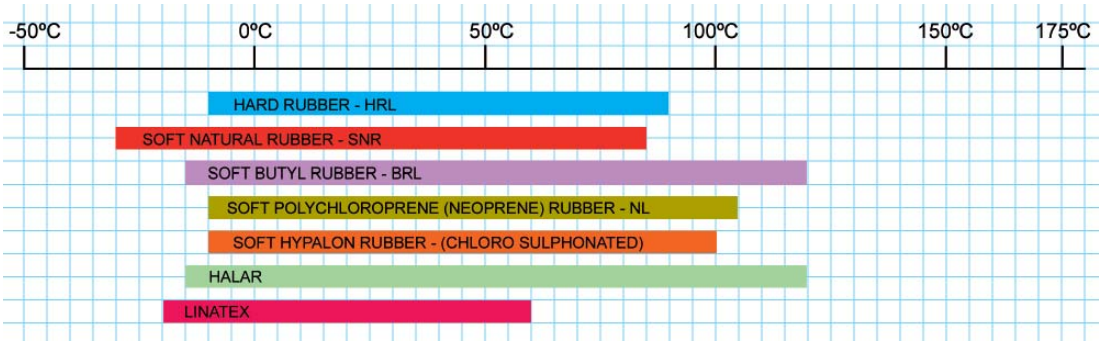
Precise compressor plate; guide and operates the diaphragm up and down.

Full rubber flange face in all linedvalves as standard

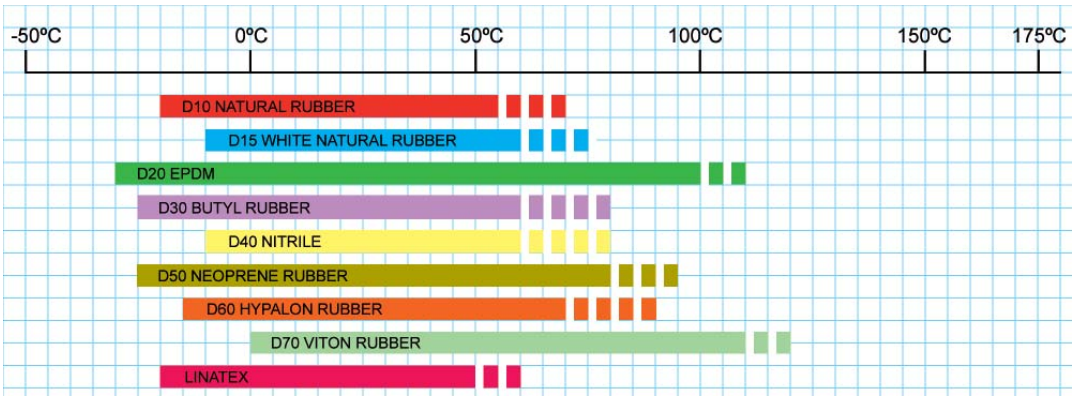
Bodies (Ductile iron)



Linings



Diaphragms



■■■ Only for short period of time

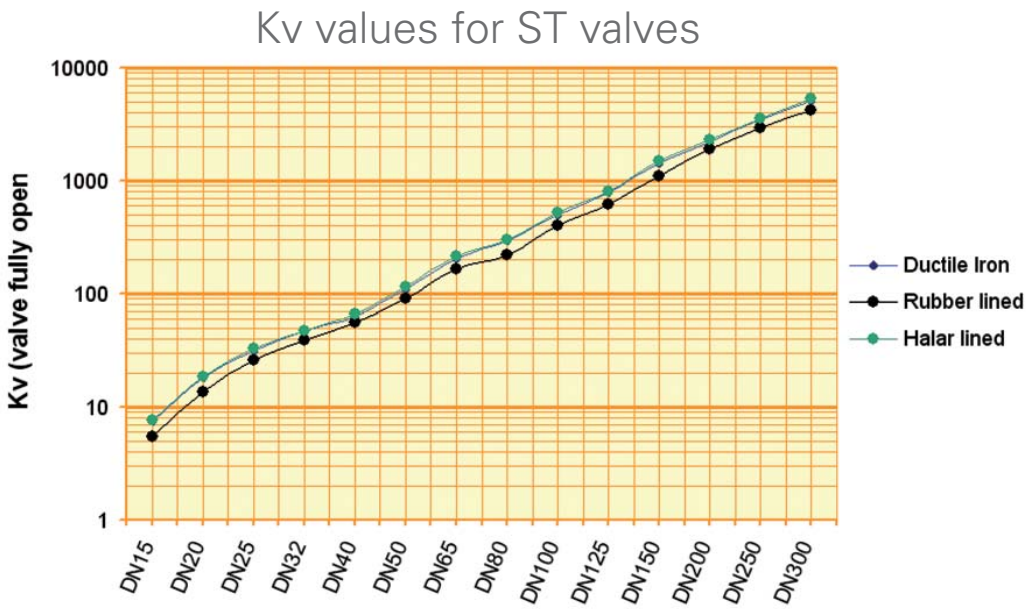
Temperature Values are not plotted against any pressure parameter, the application engineer should consider that working limits are affected by the actual pressure / temperature relationship. Temperature values also depends on medium through the valve.

Diaval © Data subject to change without prior notice

Straight Through Kv (m3/h) values with valve fully open*

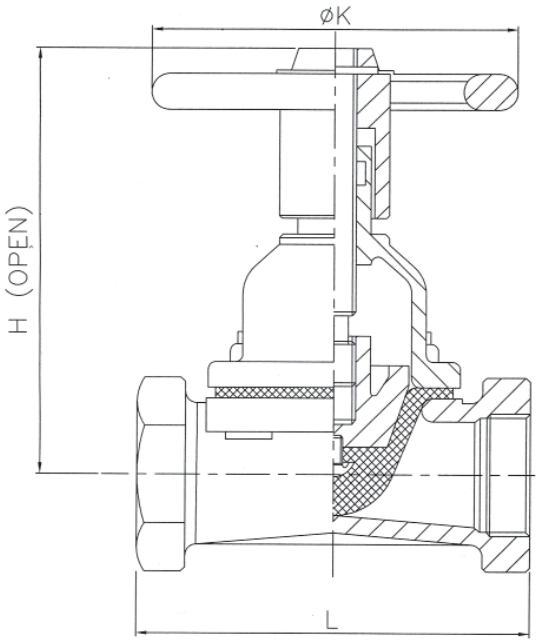
DN mm	Ductile Iron	Rubber Lined	Halar Lined
15	7,5	5,5	7,6
20	18	13,5	18,5
25	32	26	33
32	47	39	48
40	64	56	67
50	110	90	116
65	204	165	214
80	293	222	302
100	504	406	524
125	792	618	813
150	1440	1105	1510
200	2211	1895	2290
250	3446	2960	3596
300	5168	4250	5314

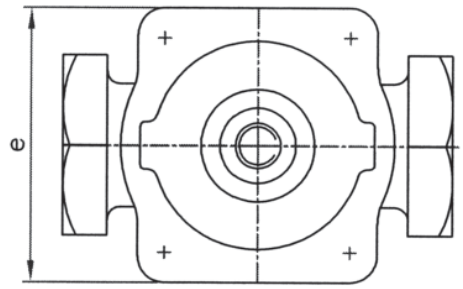
*Since Straight Through Diaphragm Valves are only suitable for on/off service we only provide Kv values for valves fully open.



Diaval® Diaphragm Valves -Straight Through Type Unlined Screwed valves

Main Dimensions







SIZE	DN	L	H(open)	ØK	e	Weight
1/2"	15	64	112	100	71	1.8
3/4"	20	83	117	100	71	2.2
1"	25	108	142	120	85	3.0
1 1/4"	32	121	142	120	85	4.0
2 1/2"	65	203	236	220	135	12,5
3"	80	254	284	240	170	19,5

* Approx. Weight in kg, based on Ductile Iron body material.
* Dimensions in mm, based on Ductile Iron body material, only orientative. Arrangement drawings for approval on request.

Manufacture Design Standards:

- Harmonised Standard EN13397, equivalent to MSS-SP-88
- QA certified to ISO 9001
- According to Pressure Equipment Directive PED 97/23/EC Article 3 - Paragraph 3
- Testing standards EN12266-1 and BS6755 part 1
- Marking according to EN 19
- Face to face dimensions according to Diaval® standard
- Screwed ends to BSP (BS 21 parallel or taper), NPT (ANSI B1.20.1), other options on request

Operating parameters:

Valve bodies design pressure range: PN10 (DN15-80)

See Data Sheet Operating Parameters for further information

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves
- Straight Through Type Unlined Screwed valves

Standard Materials

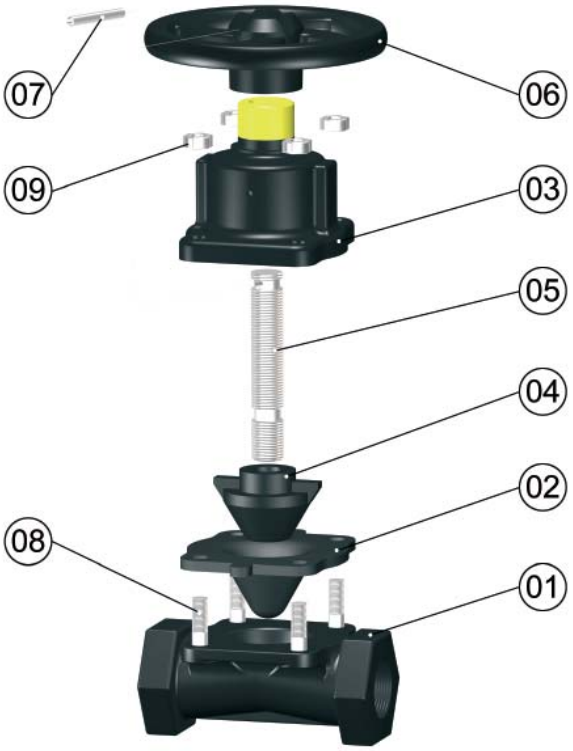
Part	Description	Material
01	Body	Ductile or Cast Iron
02	Diaphragm	Rubber
03	Bonnet	Ductile or Cast Iron
04	Compressor	Cast Iron
05	Spindle	Steel
06	Handwheel	Cast Iron
07	Handwheel pin	Steel
08	Body studs (4 Nos)	Steel
09	Body nuts (4 Nos)	Steel

Body Material Options

Cast Iron (Grey)	
EN1561	EN JL1040/GJL-250 (GG-25)
ASTM	A 126 Class B
Ductile Iron (SG Iron)	
EN1563	EN JS1030/GJS-400-15 (GGG-40)
ASTM	A536 Grade 65-45-12
Carbon Steel	
EN10213	GP240GH+N (1.0619+N)
ASTM	A 216 WCB
Stainless Steel 316	
EN10088-1	X5CrNiMo17-12-2 (1.4401)
ASTM	A 351 CF8M
Stainless Steel 316L	
EN10088-1	X2CrNiMo17-12-2 (1.4404)
ASTM	A 351 CF3M
Bronze	
EN1982	CuSn5Zn5Pb5-C (CC491K)
EN1982	CuSn7Zn2Pb3-C (CC492K)
ASTM	B62
Iron Alloys	
Chromium Iron 24%, 30%, etc.	

Other Material Options

- Body studs and nuts in St.Steel A2 or A4
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation



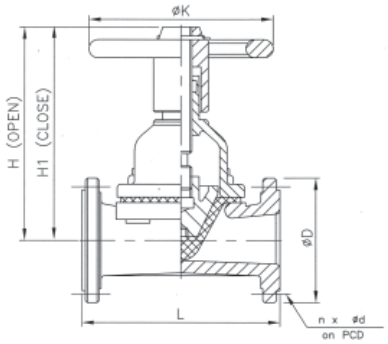
Diaphragm Options

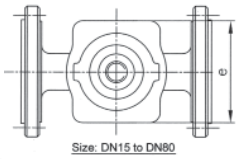
Material	Code
Natural Rubber	D10
White Natural Rubber	D15
EPDM Rubber	D20
Butyl Rubber	D30
Nitrile Rubber	D40
Neoprene® Rubber	D50
Hypalon® Rubber	D60
Viton® Rubber	D70
Linatex®	

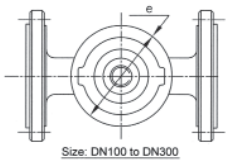
Special vacuum reinforced diaphragms
add code letter [V] e.g. D10V

Diaval® Diaphragm Valves
Straight Through Type Unlined valves with flanged ends

Main Dimensions









	EN-558-1 S1 (DIN 3202F1)		EN-558-1 S7 (BS 5156)		H	H1	EN1092-1 PN10 BS 4504 T.10			ANSI 150#				
DN	L	Weight	L	Weight	(open)	(Closed)	ØD	PCD	nxØd	ØD	PCD	nxØd	ØK	e
15	130	3.8	108	3.3	110	102	95	65	4x14	89	60.3	4x16	100	71
20	150	4.0	117	3.6	110	102	105	75	4x14	98	69.8	4x16	100	71
25	160	4.8	127	4.3	133	120	115	85	4x14	108	79.4	4x16	120	85
32	180	7.5	146	6.5	133	120	140	100	4x18	117	88.9	4x16	120	85
40	200	8.0	159	7.0	133	120	150	110	4x18	127	98.4	4x16	120	85
50	230	12	190	11	150	177	165	125	4x18	152	120.6	4x19	164	115
65	290	17	216	16	220	196	185	145	4x18	178	139.7	4x19	220	130
80	310	26	254	23	279	249	200	160	8x18	191	152.4	4x19	240	170
100	350	32	305	30	294	261	220	180	8x18	229	190.5	8x19	270	Ø200
125	400	46	356	44	310	272	250	210	8x18	254	215.9	8x22	270	Ø234
150	480	69	406	63	413	362	285	240	8x22	279	241.3	8x22	360	Ø290
200	600	126	521	112	476	413	340	295	8x22	343	298.4	8x22	460	Ø350
250	730	185	635	170	596	653	395	350	12x22	406	361.9	12x26	525	Ø430
300	850	273	749	258	748	653	445	400	12x22	483	431.8	12x26	600	Ø512

* Approx. Weight in kg, based on Ductile Iron body material.
* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

Manufacture Design Standards:

- Harmonised Standard EN13397, equivalent to MSS-SP-88
- QA certified to ISO 9001
- According to Pressure Equipment Directive PED 97/23/EC Article 3 - Paragraph 3
- Testing standards EN12266-1 and BS6755 part 1
- Marking according to EN 19
- Face to face dimensions according to EN558-1 Series 1 (DIN 3202F1) or EN558-1 Series 7 (BS5156)
- Body end flanges according to EN 1092-1 PN10, BS 4504 T.10 or ANSI 150#

Operating parameters:

Valve bodies design pressure range: PN10 (DN15-100) PN6 (DN125-150)
PN3,5 (DN200-300)

See Data Sheet Operating Parameters for further information

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves
Straight Through Type Unlined valves with flanged ends

Standard Materials

Part	Description	Material
01	Body	Ductile or Cast Iron
1A	Body lining	Unlined
02	Diaphragm	Rubber
03	Bonnet*	Ductile or Cast Iron
04	Compressor	Cast Iron
05	Spindle	Steel
06	Handwheel	Cast Iron
07	Handwheel pin	Steel
08	Body studs **	Steel
09	Body nuts **	Steel

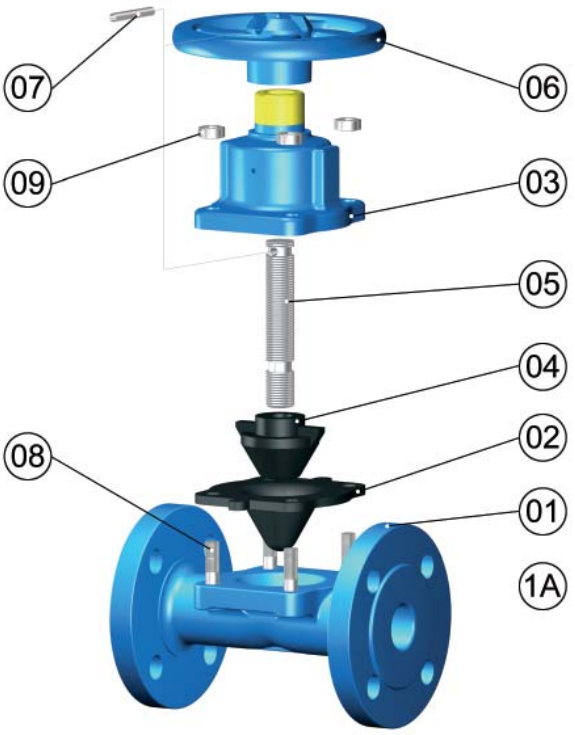
* With eye bolts in DN 200-300 to ease handling
** DN15-80: 4 Nos / DN100: 6 Nos / DN125-200: 8 Nos / DN250: 12 Nos / DN300: 16 Nos

Body Material Options

Cast Iron (Grey)	
EN1561	EN JL1040/GJL-250 (GG-25)
ASTM	A 126 Class B
Ductile Iron (SG Iron)	
EN1563	EN JS1030/GJS-400-15 (GGG-40)
ASTM	A536 Grade 65-45-12
Carbon Steel	
EN10213	GP240GH+N (1.0619+N)
ASTM	A 216 WCB
Stainless Steel 316	
EN10088-1	X5CrNiMo17-12-2 (1.4401)
ASTM	A 351 CF8M
Stainless Steel 316L	
EN10088-1	X2CrNiMo17-12-2 (1.4404)
ASTM	A 351 CF3M
Bronze	
EN1982	CuSn5Zn5Pb5-C (CC491K)
EN1982	CuSn7Zn2Pb3-C (CC492K)
ASTM	B62
Iron Alloys	
Chromium Iron 24%, 30%, etc.	

Other Material Options

- Body studs and nuts in St.Steel A2 or A4
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation



Other Body Lining Material Options

Rubber Lining	Fluoropolyner Lining
Hard Rubber - Ebonite (HR)	PFA®
Butyl Rubber (BR)	ETFE®
Soft Rubber (SR)	FEP®
Neoprene® Rubber	PVDF®
Hypalon® Rubber	Halar®
White Natural	
Linatex®	

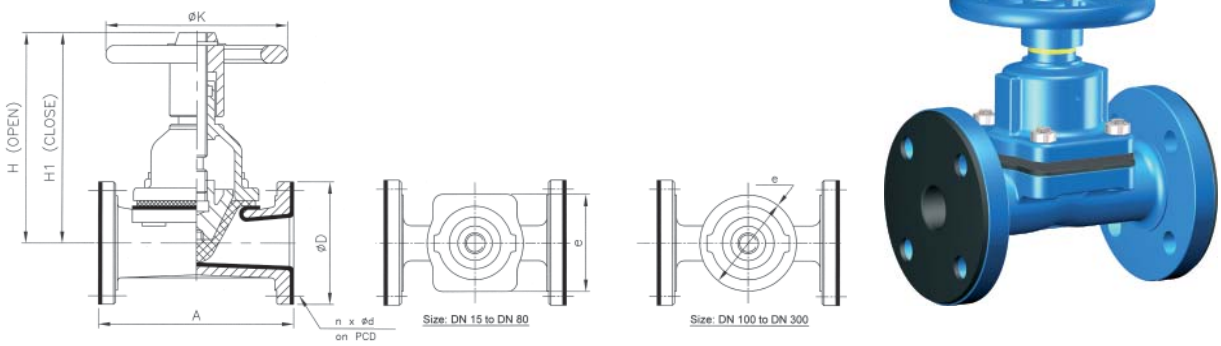
Diaphragm Options

Material	Code
Natural Rubber	D10
White Natural Rubber	D15
EPDM Rubber	D20
Butyl Rubber	D30
Nitrile Rubber	D40
Neoprene® Rubber	D50
Hypalon® Rubber	D60
Viton® Rubber	D70
Linatex®	

Special vacuum reinforced diaphragms add code letter [V] e.g. D10V

Diaval® Diaphragm Valves
Straight Through Type Rubber lined valves with flanged ends

Main Dimensions



	EN-558-1 S1 (DIN 3202F1)		EN-558-1 S7 (BS 5156)		H	H1	EN1092-1 PN10 BS 4504 T.10			ANSI 150#				
DN	L	Weight	L	Weight	(open)	(Closed)	ØD	PCD	nxØd	ØD	PCD	nxØd	ØK	e
15	130	4.1	114	3.6	113	105	95	65	4x14	89	60.3	4x16	100	71
20	150	4.5	123	4.0	113	105	105	75	4x14	98	69.8	4x16	100	71
25	160	5.0	133	4.5	136	123	115	85	4x14	108	79.4	4x16	120	85
32	180	8.0	152	7.0	136	123	140	100	4x18	117	88.9	4x16	120	85
40	200	9.0	165	8.0	136	123	150	110	4x18	127	98.4	4x16	120	85
50	230	14	196	12	198	180	165	125	4x18	152	120.6	4x19	164	115
65	290	18	222	17	223	199	185	145	4x18	178	139.7	4x19	220	130
80	310	27	260	24	282	252	200	160	8x18	191	152.4	4x19	240	170
100	350	34	313	32	298	265	220	180	8x18	229	190.5	8x19	270	Ø200
125	400	48	364	46	314	276	250	210	8x18	254	215.9	8x22	270	Ø234
150	480	71	414	65	417	366	285	240	8x22	279	241.3	8x22	360	Ø290
200	600	121	529	115	480	417	340	295	8x22	343	298.4	8x22	460	Ø350
250	730	190	643	175	600	527	395	350	12x22	406	361.9	12x26	525	Ø430
300	850	278	757	263	752	657	445	400	12x22	483	431.8	12x26	600	Ø512

* Approx. Weight in kg, based on Ductile Iron body material.
* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

Manufacture Design Standards:

- Harmonised Standard EN13397, equivalent to MSS-SP-88
- QA certified to ISO 9001
- According to Pressure Equipment Directive PED 97/23/EC Article 3 - Paragraph 3
- Testing standards EN12266-1 and BS6755 part 1
- Marking according to EN 19
- Face to face dimensions according to EN558-1 Series 1 (DIN 3202F1) or EN558-1 Series 7 (BS5156)
- Body end flanges according to EN 1092-1 PN10, BS 4504 T.10 or ANSI 150#

Operating parameters:

Valve bodies design pressure range: PN10 (DN15-100) PN6 (DN125-150)
PN3,5 (DN200-300)

See Data Sheet Operating Parameters for further information

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves
Straight Through Type Rubber lined valves with flanged ends

Standard Materials

Part	Description	Material
01	Body	Ductile or Cast Iron
1A	Body lining	Unlined
02	Diaphragm	Rubber
03	Bonnet*	Ductile or Cast Iron
04	Compressor	Cast Iron
05	Spindle	Steel
06	Handwheel	Cast Iron
07	Handwheel pin	Steel
08	Body studs **	Steel
09	Body nuts **	Steel

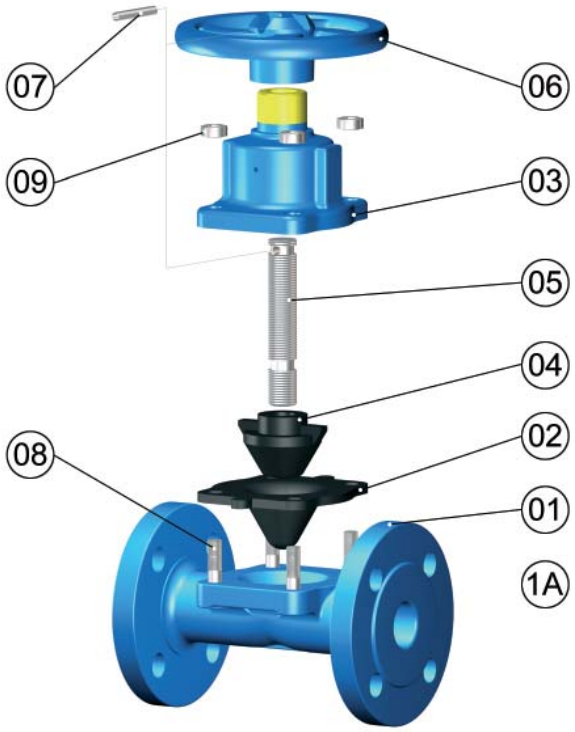
* With eye bolts in DN 200-300 to ease handling
** DN15-80: 4 Nos / DN100: 6 Nos / DN125-200: 8 Nos / DN250: 12 Nos / DN300: 16 Nos

Body Material Options

Cast Iron (Grey)	
EN1561	EN JL1040/GJL-250 (GG-25)
ASTM	A 126 Class B
Ductile Iron (SG Iron)	
EN1563	EN JS1030/GJS-400-15 (GGG-40)
ASTM	A536 Grade 65-45-12
Carbon Steel	
EN10213	GP240GH+N (1.0619+N)
ASTM	A 216 WCB
Stainless Steel 316	
EN10088-1	X5CrNiMo17-12-2 (1.4401)
ASTM	A 351 CF8M
Stainless Steel 316L	
EN10088-1	X2CrNiMo17-12-2 (1.4404)
ASTM	A 351 CF3M
Bronze	
EN1982	CuSn5Zn5Pb5-C (CC491K)
EN1982	CuSn7Zn2Pb3-C (CC492K)
ASTM	B62
Iron Alloys	
Chromium Iron 24%, 30%, etc.	

Other Material Options

- Body studs and nuts in St.Steel A2 or A4
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation



Other Body Lining Material Options

Rubber Lining	Fluoropolyner Lining
Hard Rubber - Ebonite (HR)	Sky Blue Spot
Butyl Rubber (BR)	Dark Blue Spot
Soft Rubber (SR)	White Spot
Neoprene® Rubber	Red Spot
Hypalon® Rubber	Green Spot
White Natural	
Linatex®	

Diaphragm Options

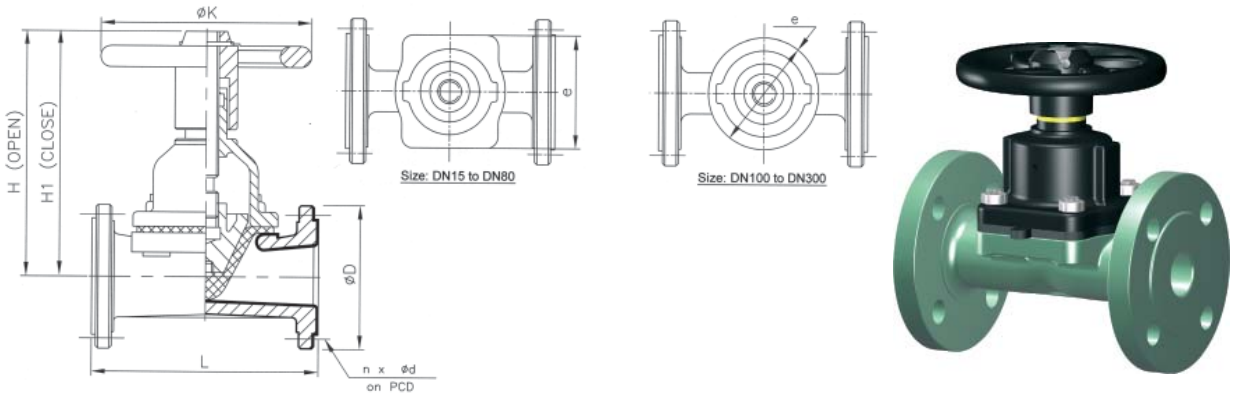
Material	Code
Natural Rubber	D10
White Natural Rubber	D15
EPDM Rubber	D20
Butyl Rubber	D30
Nitrile Rubber	D40
Neoprene® Rubber	D50
Hypalon® Rubber	D60
Viton® Rubber	D70
Linatex®	

Special vacuum reinforced diaphragms add code letter [V] e.g. D10V

Diaval® Diaphragm Valves Straight Through Type

Halar® coated valves with flanged ends

Main Dimensions



	EN-558-1 S1 (DIN 3202F1)		EN-558-1 S7 (BS 5156)		H	H1	EN1092-1 PN10 BS 4504 T.10			ANSI 150#				
DN	L	Weight	L	Weight	(open)	(Closed)	ØD	PCD	nxØd	ØD	PCD	nxØd	ØK	e
15	132	4.1	110	3.6	111	103	97	65	4x14	91	60.3	4x16	100	73
20	152	4.5	119	4.0	109	101	107	75	4x14	100	69.8	4x16	100	73
25	162	5.0	129	4.5	134	121	117	85	4x14	110	79.4	4x16	120	87
32	182	7.5	148	6.5	132	119	142	100	4x18	119	88.9	4x16	120	87
40	202	8.0	161	7.0	133	120	152	110	4x18	129	98.4	4x16	120	87
50	232	12	192	11	196	178	167	125	4x18	154	120.6	4x19	164	117
65	292	17	218	16	221	197	187	145	4x18	180	139.7	4x19	220	132
80	312	26	256	23	280	250	202	160	8x18	193	152.4	4x19	240	173
100	352	32	307	30	295	262	222	180	8x18	231	190.5	8x19	270	Ø202
125	402	46	358	44	311	273	252	210	8x18	256	215.9	8x22	270	Ø236
150	482	69	408	63	414	363	287	240	8x22	281	241.3	8x22	360	Ø292
200	602	126	523	112	477	414	342	295	8x22	345	298.4	8x22	460	Ø352
250	732	185	637	170	597	524	397	350	12x22	408	361.9	12x26	525	Ø432
300	852	273	751	258	749	654	447	400	12x22	485	431.8	12x26	600	Ø514

* Approx. Weight in kg, based on Ductile Iron body material.
* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

Manufacture Design Standards:

- Harmonised Standard EN13397, equivalent to MSS-SP-88
- QA certified to ISO 9001
- According to Pressure Equipment Directive PED 97/23/EC Article 3 - Paragraph 3
- Testing standards EN12266-1 and BS6755 part 1
- Marking according to EN 19
- Face to face dimensions according to EN558-1 Series 1 (DIN 3202F1) or EN558-1 Series 7 (BS5156)
- Body end flanges according to EN 1092-1 PN10, BS 4504 T.10 or ANSI 150#

Operating parameters:

Valve bodies design pressure range: PN10 (DN15-100) PN6 (DN125-150)
PN3,5 (DN200-300)

See Data Sheet Operating Parameters for further information

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves - Straight Through Type

Halar® coated valves with flanged ends

Standard Materials

Part	Description	Material
01	Body	Ductile or Cast Iron
1A	Body lining	Halar® coated
02	Diaphragm	Rubber
03	Bonnet*	Ductile or Cast Iron
04	Compressor	Cast Iron
05	Spindle	Steel
06	Handwheel	Cast Iron
07	Handwheel pin	Steel
08	Body studs **	Steel
09	Body nuts **	Steel

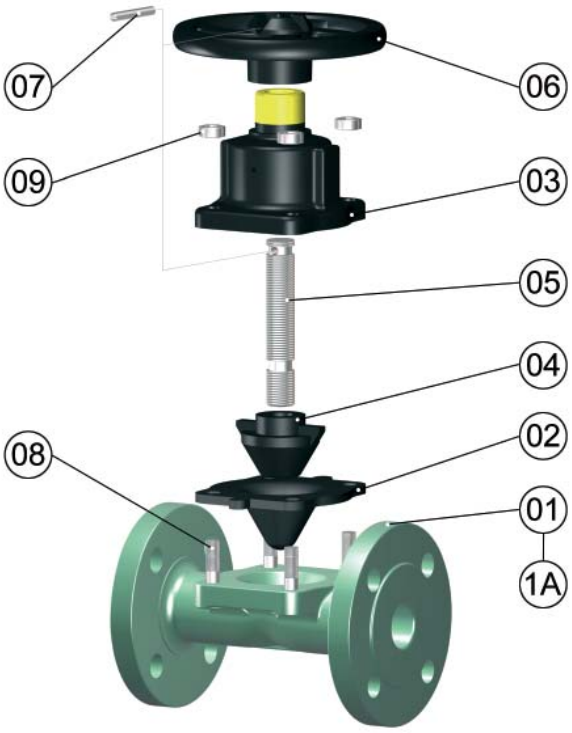
* With eye bolts in DN 200-300 to ease handling
** DN15-80: 4 Nos / DN100: 6 Nos / DN125-200: 8 Nos / DN250: 12 Nos / DN300: 16 Nos

Body Material Options

Cast Iron (Grey)	
EN1561	EN JL1040/GJL-250 (GG-25)
ASTM	A 126 Class B
Ductile Iron (SG Iron)	
EN1563	EN JS1030/GJS-400-15 (GGG-40)
ASTM	A536 Grade 65-45-12
Carbon Steel	
EN10213	GP240GH+N (1.0619+N)
ASTM	A 216 WCB
Stainless Steel 316	
EN10088-1	X5CrNiMo17-12-2 (1.4401)
ASTM	A 351 CF8M
Stainless Steel 316L	
EN10088-1	X2CrNiMo17-12-2 (1.4404)
ASTM	A 351 CF3M
Bronze	
EN1982	CuSn5Zn5Pb5-C (CC491K)
EN1982	CuSn7Zn2Pb3-C (CC492K)
ASTM	B62
Iron Alloys	
Chromium Iron 24%, 30%, etc.	

Other Material Options

- Body studs and nuts in St.Steel A2 or A4
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation



Other Body Lining Material Options

Rubber Lining	Fluoropolyner Lining
Hard Rubber - Ebonite (HR)	PFA®
Butyl Rubber (BR)	ETFE®
Soft Rubber (SR)	FEP®
Neoprene® Rubber	PVDF®
Hypalon® Rubber	
White Natural	
Linatex®	

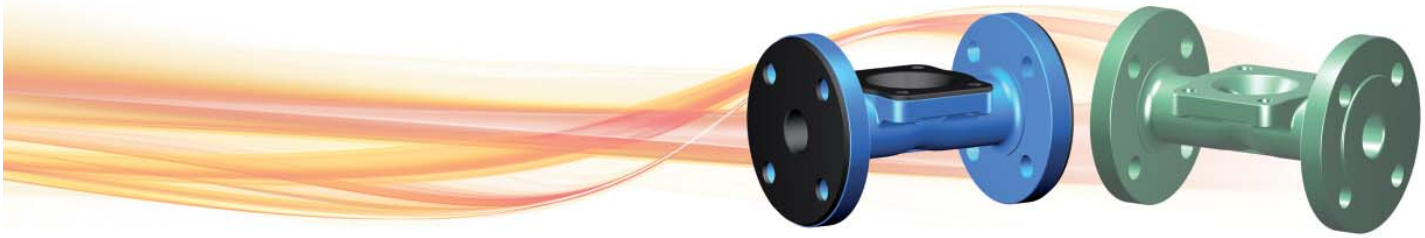
Diaphragm Options

Material	Code
Natural Rubber	D10
White Natural Rubber	D15
EPDM Rubber	D20
Butyl Rubber	D30
Nitrile Rubber	D40
Neoprene® Rubber	D50
Hypalon® Rubber	D60
Viton® Rubber	D70
Linatex®	

Special vacuum reinforced diaphragms add code letter [V] e.g. D10V

Diaval® Diaphragm Valves - St Type

Rubber and Fluoropolymer Linings



Application Guide

Lining Material	Range Availability	Applications
Hard Rubber - HR (Ebonite), sulphur cured, carbon black reinforced. Designated by a 'Sky Blue Spot' on end flange.	Straight Through type, flanged DN 15 to DN 300.	Used for inorganic salt solutions, dilute mineral acids, chlorine water, deionised and potable water.
Soft Natural Rubber—SR Polyisoprene, sulphur cured, carbon black reinforced. Designated by a 'white spot' on end flange.	Straight Through type, flanged DN 15 to DN 300.	Excellent abrasion resistance for powders, slurries such as clays, fly ash and cement products.
Soft Butyl Rubber—BR Isobutylene isoprene (IIR), sulphur cured carbon black reinforced. Designated by a 'Dark Blue Spot' on end flange.	Straight Through type, flanged DN 15 to DN 300.	Good for corrosive and abrasive slurries, dilute mineral acids and acidic slurries. Avoid chlorine and chorine solutions.
Soft Polychloroprene (Neoprene) Rubber—NL Non-Sulphur cured carbon black reinforced. Designated by a 'Red Spot' on end flange.	Straight Through type, flanged DN 15 to DN 300.	Used on abrasives and minerals processing where small percentages of hydrocarbons are present.
Soft Hypalon® Rubber - (Chloro sulphonated polyethylene) Non-Sulphur cured carbon black reinforced. Designated by a 'Green Spot' on the end	Straight Through type, flanged DN 15 to DN 300.	Chemical resistance to dilute / medium strength acids and chlorinated brine solutions and sodium hypochlorite
Halar® Co-polymer of ethylene and chlorotrifluoroethylene. Electrostatically applied coating.	Straight Through type, flanged DN 15 to DN 200.	Used for concentrated acids and salts containing hydrocarbons. Not suitable for dilute acids and inorganic salt solutions near to their boiling point. Minimal resistance to abrasive services.
Linatex® Specially compounded "RED" coloured soft lining Hardness 45 +/- 5° Shore 'A'	Straight Through type, flanged DN 15 to DN 200.	Used for "WET" slurry applications

*Other speciality customised lining material available to suit individual requirement made out of various polymers
(DN 350 under special manufacture)

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves - St Type

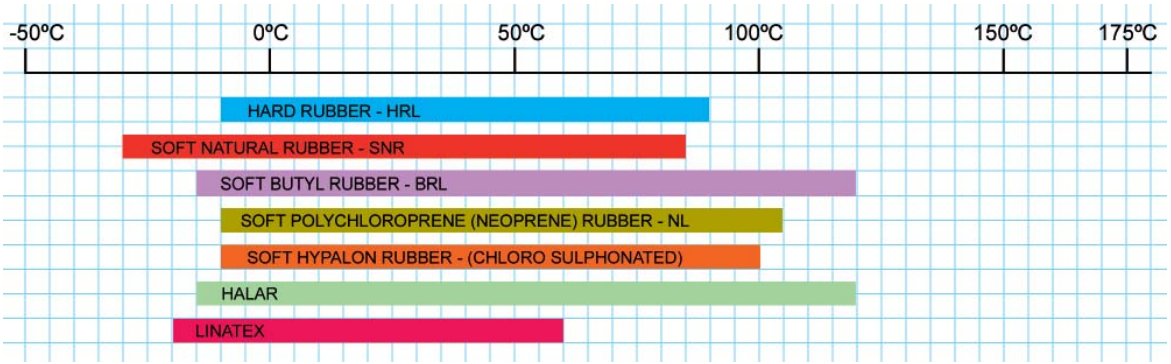
Rubber and Fluoropolymer Linings



Operating Parameters

Lining Material	Valve Body Material	Temperature Range
Hard Rubber - HR	Cast Iron, Ductile Iron and Cast carbon steel	-10°C - +85°C
Soft Natural Rubber—SR	Cast Iron, Ductile Iron and Cast carbon steel	-25°C - +85°C
Soft Butyl Rubber—BR	Cast Iron, Ductile Iron and Cast carbon steel	-15°C - +120°C
Soft Polychloroprene (Neoprene)	Cast Iron, Ductile Iron and Cast carbon steel	-10°C - +105°C
Soft Hypalon® Rubber (Chloro sulphonated polyethylene)	Cast Iron, Ductile Iron and Cast carbon steel	-10°C - +100°C
Halar®		-15°C - +120°C
Linatex®	Cast Iron, Ductile Iron and Cast carbon steel	-20°C - +60°C

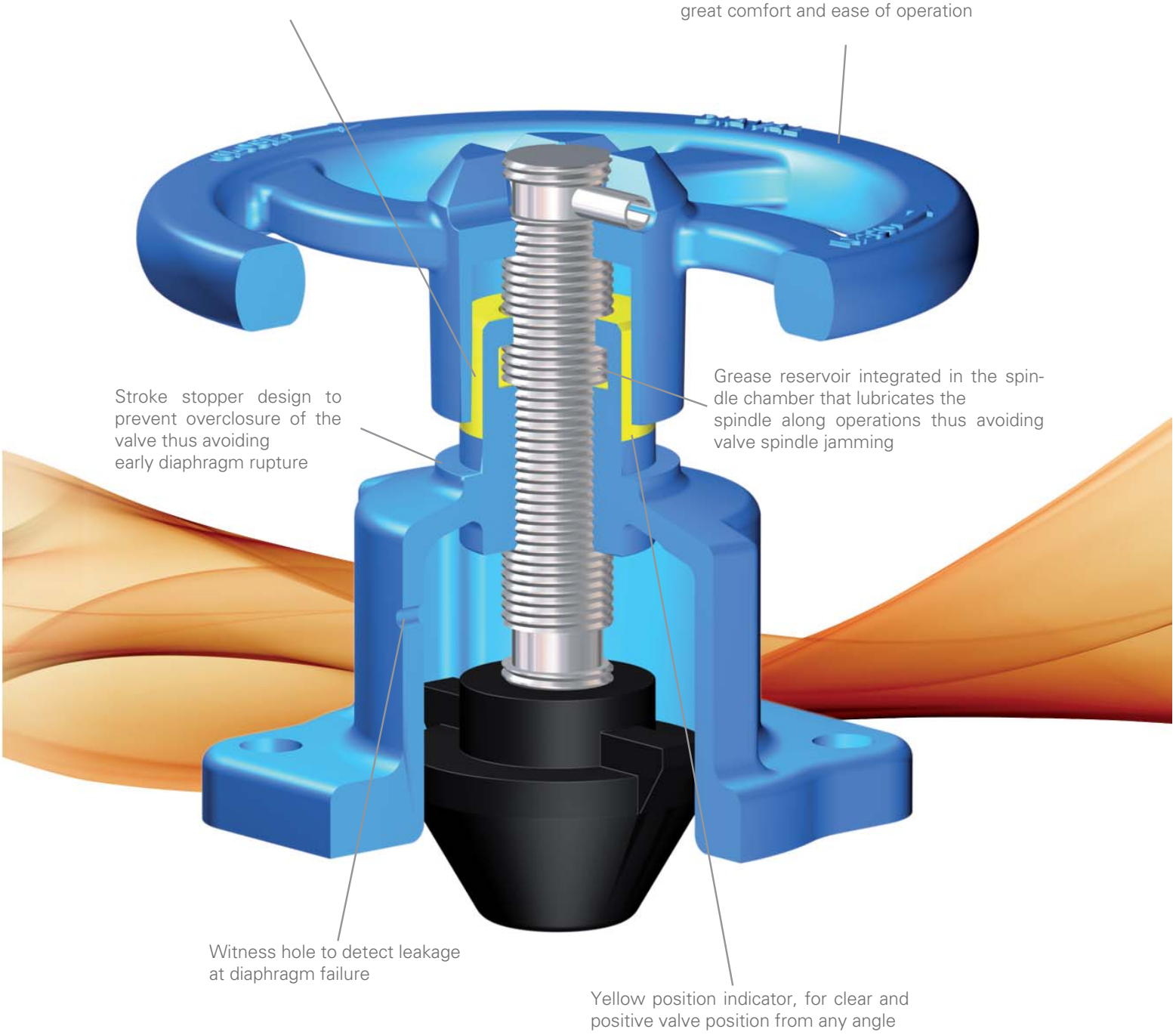
*Other speciality customised lining material available to suit individual requirement made out of various polymers



Temperature Values are not plotted against any pressure parameter, the application engineer should consider that working limits are affected by the actual pressure / temperature relationship. Temperature values also depends on medium through the valve.

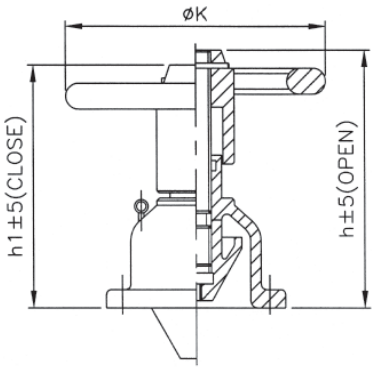
Diaval® Diaphragm Valves

Design Attributes of ST Type Bonnet

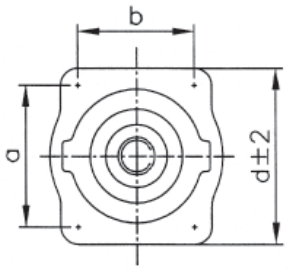


Diaval © Data subject to change without prior notice

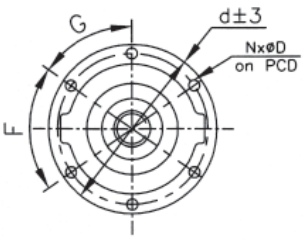
Main Dimensions



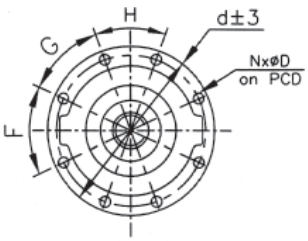




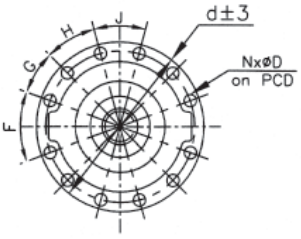
SIZE: DN 15 TO DN 80



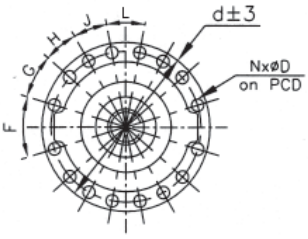
SIZE: DN 100



SIZE: DN 125 TO DN 200



SIZE: DN 250



SIZE: DN 300

DN	b							Weight	ANGLES BETWEEN THE HOLES				
	a	ØPCD	d	h	h1	ØK	N° Holes		F	G	H	J	L
15	54	30	71	93,5	86,0	100	4	1,2	-	-	-	-	-
20	54	30	71	93,5	86,0	100	4	1,2	-	-	-	-	-
25	64	51	85	105,0	93,0	120	4	2,0	-	-	-	-	-
32	64	51	85	105,0	93,0	120	4	2,0	-	-	-	-	-
40	64	51	85	105,0	93,0	120	4	2,0	-	-	-	-	-
50	89	64	115	165,0	147,5	164	4	4,5	-	-	-	-	-
65	102	83	130	185,0	161,0	220	4	7,0	-	-	-	-	-
80	137	102	171	231,0	201,0	240	4	11,0	-	-	-	-	-
100	-	Ø171	Ø200	243,0	210,5	270	6	14,5	70°	55°	-	-	-
125	-	Ø205	Ø234	264,0	226,5	270	8	18,0	50°	45°	40°	-	-
150	-	Ø254	Ø290	346,0	295,0	360	8	31,0	60°	40°	40°	-	-
200	-	Ø305	Ø350	395,0	333,0	460	8	50,0	60°	40°	40°	-	-
250	-	Ø381	Ø430	507,0	434,5	525	12	79,0	40°	25°	30°	30°	-
300	-	Ø451	Ø512	641,0	546,0	600	16	115,0	34°	24°20'	19°	19°	21°20'

* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

Diaval® Diaphragm Valves

ST Type Bonnet

Standard Materials

Part	Description	Material
02	Diaphragm	Rubber
03	Bonnet*	Ductile or Cast Iron
04	Compressor	Cast Iron
05	Spindle	Steel
06	Handwheel	Cast Iron
07	Handwheel pin	Steel
09	Body studs & nuts	Steel

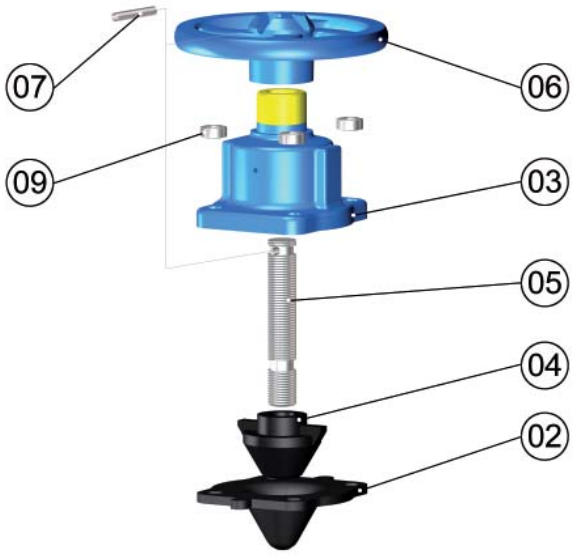
* With eye bolts in DN 200-300 to ease handling

Body Material Options

Cast Iron (Grey)	
EN1561	EN JL1040/GJL-250 (GG-25)
ASTM	A 126 Class B
Ductile Iron (SG Iron)	
EN1563	EN JS1030/GJS-400-15 (GGG-40)
ASTM	A536 Grade 65-45-12
Carbon Steel	
EN10213	GP240GH+N (1.0619+N)
ASTM	A 216 WCB
Stainless Steel 316	
EN10088-1	X5CrNiMo17-12-2 (1.4401)
ASTM	A 351 CF8M
Stainless Steel 316L	
EN10088-1	X2CrNiMo17-12-2 (1.4404)
ASTM	A 351 CF3M
Bronze	
EN1982	CuSn5Zn5Pb5-C (CC491K)
EN1982	CuSn7Zn2Pb3-C (CC492K)
ASTM	B62
Iron Alloys	
Chromium Iron 24%, 30%, etc.	

Other Material Options

- Body studs and nuts in St.Steel A2 or A4
- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation



Components Options

Studs, Bolts and Nuts
-Steel (standard)
-St. Steel 304 (A2)
-St. Steel 316 (A4)
-Exotic materials

Spindle
-Steel (standard)
-St. Steel 304
-St. Steel 316
-Exotic materials

- Further material options available on request
- Materials given to be understood as minimum standard provided under name designation

Diaval © Data subject to change without prior notice

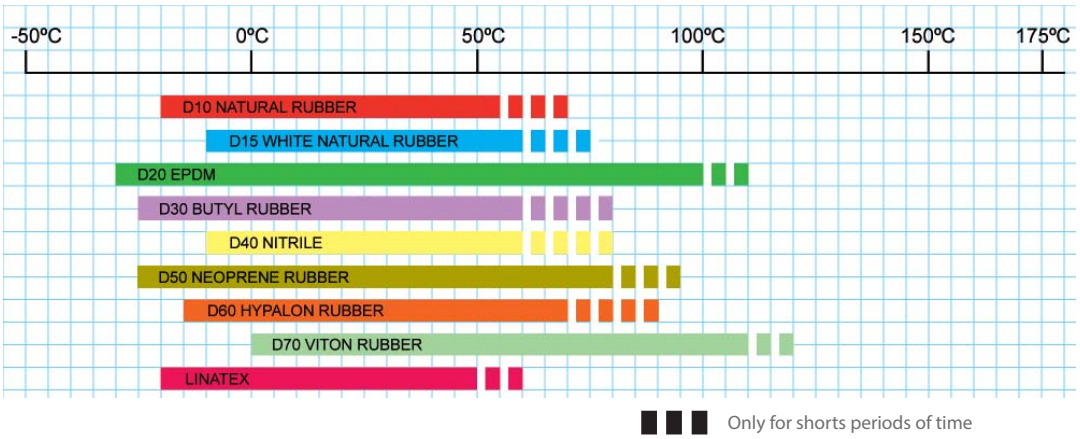
Diaval® Diaphragm Valves - St Type

Spare Diaphragms



Operating Parameters

GRADE	POLYMER TYPE	TEMPERATURE RANGE
D10 **Natural Rubber**	**Natural Rubber Polyisoprene/SBR** Sulphur cured and carbon black reinforced	-20 to + 55...70°C
D15 **White Natural Rubber**	**Natural Rubber Polyisoprene/SBR** Sulphur cured and white	-10 to + 60...75°C
D20 **EPDM**	**Ethylene Propylene Diene (EPDM)** Organic peroxide cured, carbon black reinforced	-30 to + 100...110°C
D30 **Butyl Rubber**	**Isobutylene Isoprene (IIR)** Sulphur cured and carbon black reinforced	-25 to + 60...80°C
D40 **Nitrile**	**Butadiene Acrylonitrile**	-10 to + 60...80°C
D50 **Neoprene®**	**Polychloroprene** Non sulphur cured carbon black reinforced	-25 to + 80...95°C
D60 **Hypalonr®**	**Chlorosuphonated polyethylene** Non sulphur cured carbon blackreinforced	-15 to + 70...90°C
D70 **Viton®**	**Vinylidenefluoride-hexafluoro propyleneco-polymer** Carbon black reinforced	0 to + 110...120°C
Linatex®	Specially compounded "RED" coloured soft material	-20 to + 50...60°C



Temperature Values are not plotted against any pressure parameter, the application engineer should consider that working limits are affected by the actual pressure / temperature relationship. Temperature values also depends on medium through the valve.

Diaval® Diaphragm Valves - St Type

Spare Diaphragms



Application Guide

GRADE	POLYMER TYPE	TEMPERATURE RANGE
D10 **Natural Rubber**	**Natural Rubber Polyisoprene/SBR** Sulphur cured and carbon black reinforced	Inorganic salt solutions, dilute mineral acids, alkalies and salts. Abrasive services Not resistant to oxidizing media, oils or most organic solvents will attack it.
D15 **White Natural Rubber**	**Natural Rubber Polyisoprene/SBR** Sulphur cured and white	Food and pharmaceuticals, toothpaste, brewing, dairy
D20 **EPDM**	**Ethylene Propylene Diene (EPDM)** Organic peroxide cured, carbon black reinforced	Salts in water, acids and alkalies, ozone, intermitten steam. Sterilisation
D30 **Butyl Rubber**	**Isobutylene Isoprene (IIR)** Sulphur cured and carbon black reinforced	Dilute mineral acids and alkalies, gases, acidic slurries, chlorine free hydrochloric acid, resistance to concentrated acids is good with some important exceptions as nitric or sulphuric acids
D40 **Nitrile**	**Butadiene Acrylonitrile**	Oily air, lubricating oil, cutting oils, fuel oils, animal and vegetable oils, aviation kerosen, LPG Generally resistant to oils and solvents.
D50 **Neoprene®**	**Polychloroprene** Non sulphur cured carbon black reinforced	Abrasive slurries containing hydrocarbons, oily air, natural gas Resistant to attack by ozone, sunlight, oils, gasoline, and aromatic or halogenated solvents but easily permeated by water
D60 **Hypalon®**	**Chlorosuphonated polyethylene** Non sulphur cured carbon blackreinforced	Outstanding resistance to ozone and oxidizing agents except fuming nitric and sulfuric acids. Oil resistance is good. Dilute / Medium acids, sodium hypochlorite, chlorine gas
D70 **Viton®**	**Vinylidenefluoride-hexafluoro propylene copolymer** Carbon black reinforced	Strong sulphuric acid, chlorine gas, oils, certain aromatic solvents
Linatex®	Specially compounded "RED" coloured soft material	"WET" slurry application

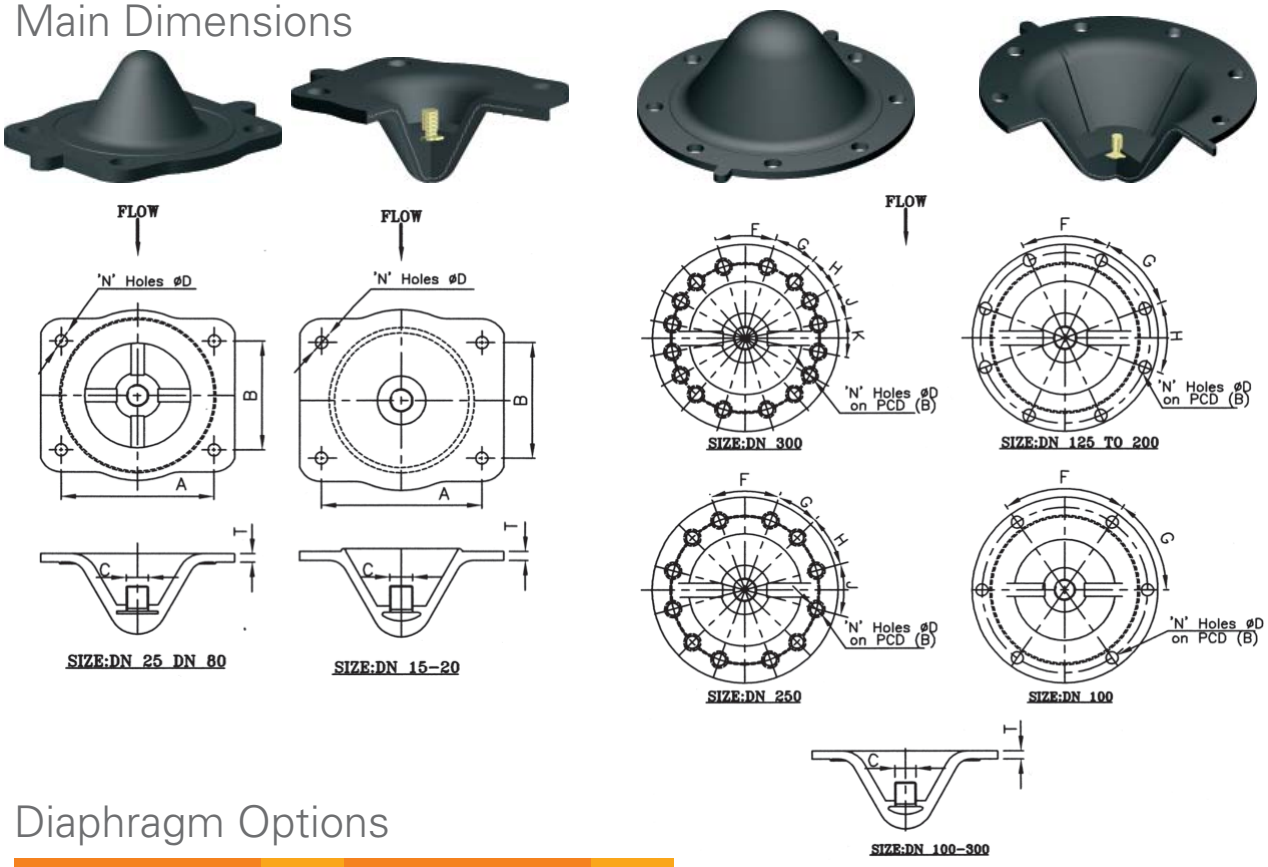
Vacuum reinforced diaphragms are available and will contain a steel stud and be designated by additional code letter (V) e.. D10

Because of the steel stud these diaphragms can be used on services where conventional bronze studs are prohibited e.g. use of D40V on acetylene.

*Other speciality customised diaphragm material available to suit individual requirement made out of various polymers

Diaval © Data subject to change without prior notice

Main Dimensions



Diaphragm Options

Material	Code	Material	Code
Natural Rubber	D10	Hypalon® Rubber	D60
White Natural Rubber	D15	Viton® Rubber	D70
EPDM Rubber	D20	Linatex®	
Butyl Rubber	D30		
Nitrile Rubbe	D40		
Neoprene® Rubber	D50		

Polymer based diaphragms are in-house formulated and manufactured by the own DIAVAL specialist centre, the know how is not subject to external information. All diaphragms are internally braided with nylon reinforcement to provide diaphragms with a long life cycle at diverse plant operating conditions.
Spare Diaphragms should be stored in a dry and proper place not exposed to ozone rays - please refer to the Operation and Maintenance Manual for details.

* Special vacuum reinforced diaphragms add code letter [V] e.g. D10V
* Other speciality customised diaphragm material available to suit individual requirement.

	DIMENSIONS OF DIAPHRAGM						ANGLES BETWEEN THE HOLES				
DN	A	B	C	ØD	N° Holes	T	F	G	H	J	K
15	54	30	3/16" BSW	7.0	4	2.5	-	-	-	-	-
20	54	30	3/16" BSW	8.5	4	2.5	-	-	-	-	-
25	64	51	1/4" BSW	9.5	4	6.0	-	-	-	-	-
32	64	51	1/4" BSW	9.5	4	6.0	-	-	-	-	-
40	64	51	1/4" BSW	9.5	4	6.0	-	-	-	-	-
50	89	64	1/4" BSW	12.0	4	5.0	-	-	-	-	-
65	102	83	5/16" BSW	14.0	4	5.5	-	-	-	-	-
80	137	102	3/8" BSW	18.0	4	5.5	-	-	-	-	-
100	-	Ø171	3/8" BSW	13.0	6	7.0	70°	55°	-	-	-
125	-	Ø205	3/8" BSW	14.0	8	7.5	50°	45°	40°	-	-
150	-	Ø254	5/8" BSW	14.0	8	8.0	60°	40°	40°	-	-
200	-	Ø305	5/8" BSW	20.0	8	8.5	60°	40°	40°	-	-
250	-	Ø381	5/8" BSW	20.0	12	10.0	40°	25°	30°	30°	-
300	-	Ø451	1" BSW	20.0	16	10.0	34°	24°20'	19°	19°	21°20'

* Dimensions in mm, only orientative. Arrangement drawings for approval on request.

Diaval® Diaphragm Valves
Commissioning, Start-up and Maintenance Instructions of Manual Valves

GENERAL INFORMATION. WORKING PRINCIPLE AND DOCUMENTATION.

DIAVAL® Diaphragm Valves Weir type and Straight Through type are devised to stop fluids. Weir type diaphragm valves can also be used for throttling purposes by keeping the handwheel at intermediate positions, although it might accelerate erosion of diaphragm and body if position is near to the closed position. Turning the handwheel clockwise lowers the compressor which moves the diaphragm toward the bottom of the body to provide bubble-tight shutoff.

- They are designed, manufactured and tested in conformity to the most strict quality standards that the DIN EN ISO 9001 standard dictates.
- All valves are subject to individual hydro and leakage tests at our QC Dept. in conformity with EN 10.204/2.2. The testing medium is water at room temperature.
- Each manufactured batch is strictly controlled by the Diaval® Quality Section at the plant before dispatch. Extensive reports as per EN-10.204/3.1B are filled out and are submitted to the Purchaser if required. Moreover, witness testing carried out by 'Notify Bodies' are arranged upon request at our modern Testing Facilities.
- Valves are in conformity with PED 97/23/CE Article 3 Paragraph 3 Table 8.

They are many Diaval® valve combinations of body/bonnet/diaphragms which are subject to working pressure/temperature parameters. All operators should be aware of these parameters before installation of the valve. This information is contained in the Diaval® Technical Handbook which is freely available from **www.diaval.com** or by calling the Technical Section at Diaval®.

GUARANTEE.

DIAVAL® Diaphragm Valves are guaranteed against any manufacturing default in accordance to the 'Sound Engineering Practice' and provided the application, installation and maintenance operations have been properly followed and bearing in mind that:

- No claims derived from incorrect handling or use of the valve outside of technical parameters are accepted.
- The guarantee coverage does not apply to damages caused by operating the valve outside of the technical parameters and service conditions stated.
- The guarantee coverage does not cover for any commissioning or in site maintenance jobs or either products proved to have been tampered or faulted by material that has under gone fair wear and tear. It is to be pointed out that diaphragms are components clearly subject to a cycling wearing down depending on duties and it is advisable to foresee diaphragms as spares, specially if high number or cycles, high velocities, abrasive or corrosive media, or throttling services are foreseen.

ESSENTIAL SAFETY GUIDELINES.

- DO NOT INSTALL the valves before having carefully read this Operating Manual together with the Technical Handbook of the valve, in order to avoid prospective damages to people and property.
- Always use the valves within the scope of intended service and operating duties as per described in the Technical Handbook, essential safety working regulations are to be strictly kept.
- Only qualified personnel should start up and regularly follow maintenance jobs at the plant.
- Any deviation from the usual installation guidelines should be notified to us for recommendation and approval.

HANDLING.

- When loading or unloading the valves ensure that all procedures for correct lifting are strictly followed.
- When loading or unloading ensure that the valves are not subjected to any severe knocks.
- With heavy valves use the correct lifting equipment and ensure the valve is secure before lifting.
- In the case where a valve is dropped or subjected to a severe knock it should be thoroughly checked for external damage and replaced if necessary.
- Try not to damage external painting used to protect the valve during handling and storage.

STORAGE

Valve Spares: Diaphragms are manufactured to give long life under operating parameters for which the valve was designed. To achieve longevity, the following simple precautions should be adhered to when storing valves and components;

- Keep diaphragms in original packing and store in black bags on wooden shelving away from strong sunlight.
- Keep all protective packaging on spare valve bodies as supplied.

Complete Valves:

- Weir Type valves should be stored in their open position.
- Straight Through valves should be stored in the nearly closed position.

When valves are to be storaged for a while, it is a good practice to air blow the valves to remove the moisture that could have been adhered during carriage and could lead to external corrosion. Exposure to outdoors conditions, specially in industrial or marine atmospheres accelerates corrosion process and ageing of bodies and components.

VALVE BUILD-UP.

- Check that correct diaphragm matches the body style, i.e. Weir diaphragm fitted into a WeirType body and Straight Through diaphragm fitted into a Straight Through body.



Straight Through



Weir Type

Diaval © Data subject to change without prior notice

IMPORTANT NOTICE FOR ASSEMBLING BODY-BONNET:

Weir Type:

1. For elastomeric diaphragm (screwed connection), screw the diaphragm to the bonnet compressor until achieving contact between diaphragm and compressor. An excesive rotation strenght could lead to break the diaphragm screwed pin by torsion. Then loose some degrees of rotation until diaphragm and bonnet holes are aligned. For PTFE diaphragm (bayonet type connection), introduce the bayonet in the compressor hole and then turn the diaphragm 90º to get diaphragm and bonnet holes aligned. Make sure that PTFE diaphragm is provided with elastomeric safe that protects PTFE from the co mpressor action.
2. Ensure that diaphragm is in stand position (valve open once mounted).
3. Tight body-bonnet bolts in a crosswise, progressive and uniform manner, according to the recommended torque values in this manual.
4. Keep the valve in open position if storaged.

- Straight Through Type:

1. Screw elastomeric diaphragm to the bonnet compressor until achieving contact between diaphragm and compressor. An excesive rotation strenght could lead to break the diaphragm screwed pin by torsion. Then loose some degrees of rotation until diaphragm and bonnet holes are aligned.
2. Ensure that diaphragm is in stand position (valve closed once mounted).
3. Always check and adjust if necessary the maximum travel by turning the stem screw of the valve in relation to the bonnet in such a way that diaphragm rubber have enough contact with body seat surface. This allows to balance and avoid anormal wear of body linings and diaphragms sealing line.
4. Tight body-bonnet bolts slight, croswise and uniformly, making sure that diaphragm remains as centered as possible.
5. Proceed to make a complete travel of opening and closing of the valves to ensure the correct centering for the diaphragm.
6. Then retighten bolts according to the recommended torque values in this manual. Make sure that the valve is not completely closed to allow the tightening of the bolts without damaging the diaphragm.
7. Keep the valve near to close position if storaged.

INSTALLATION & START-UP.

When you make the choice of Diaval® Diaphragm Valves:

- Ensure that the specification of the valve and operating parameters are correct for the service.
- Ensure that the Diaphragm and Body Material are suitable for the line media.
- Ensure that the Line Pressure is within the valve specification.
- Check that the valve specification meets any standards and codes of practice applicable to the plant.
- Check that all pipe work is well placed, supported and aligned before installing the valve in order to prevent undue stress on the system and valve.
- All systems should be flushed to remove loose particles that could damage the valve lining and diaphragm.
- Remove the protective caps if they were still fit in.
- Stem can be installed at any position, better upwards and/or pointing far away from personnel in case of dangerous media.
- Before plant commissioning check that the body / bonnet nuts are tight to the correct torque above indicated.
- During initial plant start up, the body / bonnet nuts may, in a small number of cases, need to be re-torqued to allow for expansion / contraction of the diaphragm.
- Diaphragm Valves are bi-directional and not subject to any special restrictions.
- If the valves are to be re-painted after installation ensure that the valve is in the closed position and that the colour chosen does not cause confusion with the yellow colour of the indicator stem.

IT IS THE RESPONSIBILITY OF THE INSTALLER / OPERATOR TO ENSURE THAT ALL HEALTH & SAFETY REQUIREMENTS AS LAID DOWN BY THE CONTROLLING COMPANY ARE FOLLOWED.

VALVE OPERATING INSTRUCTIONS.

- Straight Through Diaphragm Valves are designed for On/Off operation only and should not be used for throttling or control.
- All valves are designed to give bubble-tight closure without any undue force.

DO NOT USE an extended lever, wrench or any other mechanical means to close the valve. Failure to observe this recommendation could lead to damage of the diaphragm and operating mechanism.

- Never exceed the maximum allowable working pressure/temperature of the valve and never install valves within 2-3 metres of bend and minimum 5 times valve diameter, specially on abrasive applications.

MAINTENANCE.

- Valves should be checked during use for signs of seepage and the need for maintenance.
- During planned shut down it is advisable to carry out routine maintenance of the valves.
- The valves can normally be dismantled in-situ whereupon valve linings and diaphragms should be checked for wear and / or damage.
- Replace worn bodies and diaphragms with genuine replacements from Diaval®.
- All pressure in the pipeline must be relieved before dismantling the valve.
- Appropriate safety clothing and precautions must be taken when dismantling valves that have been on toxic and corrosive duties.
- After removing any valve from the line ensure that it is decontaminated and made safe to handle. e.g. if the valve was handling inorganic acids wash thoroughly with copious amounts of cold water.
- During long periods of inactivity it is advisable to operate the valve to check for its correct performance.
- Before dismantling pneumatic actuators ensure the operator is aware of the type of actuator fitted i.e. spring closing / spring opening / double acting, and ensure spring tension inside the actuator is released, where necessary, before removing the actuator cover.

IMPORTANT
For maximum operating ratings and body/bonnet diaphragm combinations, refer to Diaval® Technical Handbook on its respective chapters (Weir Type and Straight Through Type).

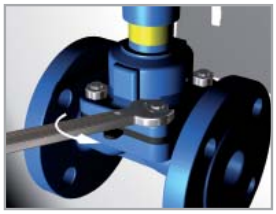
Full Technical Support is always available from the Main Office in Valencia or from any of the International Offices.

Diaval® Diaphragm Valves - Manual Valves

Brief Guide of Instructions (W Type)

W Type

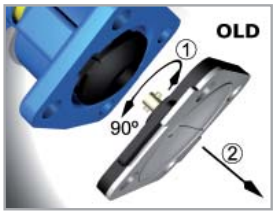








RUBBER



PTFE



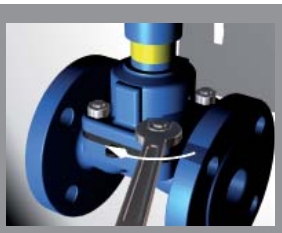


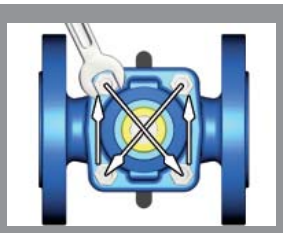
DO NOT OVERTIGHT!!



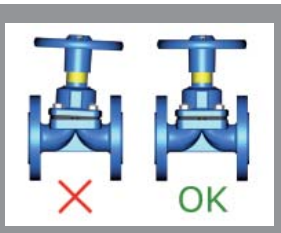








(MAX TORQUE CHART)



DN	lbs ft	Nm	DN	lbs ft	Nm	DN	lbs ft	Nm
15	4.0	5.0	**50**	18.5	26.0	**150**	60.0	81.0
20	4.0	5.0	**65**	26.0	36.0	**200**	74.0	100.5
25	4.5	6.5	**80**	37.0	50.0	**250**	82.0	111.0
32	6.0	8.2	**100**	30.0	40.0	**300**	93.0	126.0
40	10.0	12.5	**125**	34.0	45.0	**350**	93.0	126.0

STORAGE

-Keep diaphragms in original packing and protect against from sunlight.

REPLACEMENT PROCEDURE

-Select the right type of diaphragm i.e. W/ST/FF.

During valve build up:

-Check that valve & diaphragm material are compatible with the service (Check the tab on diaphragm for grade).

-Check that Body / bonnet fastenings are suitably tightened.

In case of trouble, contact your nearest dealer/distributor or **www.diaval.com**

Further operating and maintenance contractors are available at **www.diaval.com**

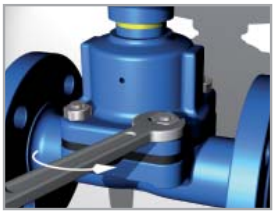
Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves - Manual Valves

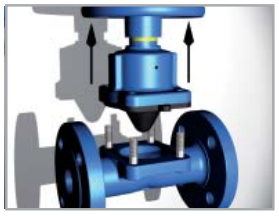
Brief Guide of Instructions (ST Type)

ST Type



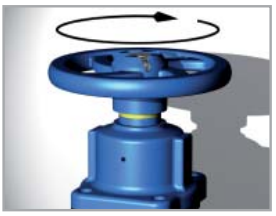




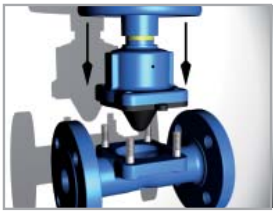








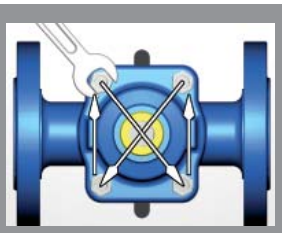
DO NOT OVERTIGHT!!



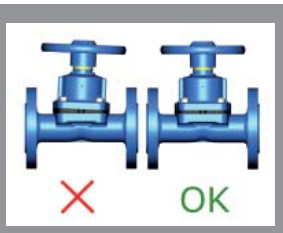








(MAX TORQUE CHART)





DN	lbs ft	Nm	DN	lbs ft	Nm	DN	lbs ft	Nm
15	4.0	5.0	**50**	19.0	26.0	**150**	60.0	81.0
20	4.0	5.0	**65**	22.0	30.0	**200**	74.0	100.5
25	8.5	11.0	**80**	34.0	45.0	**250**	82.0	111.0
32	8.5	11.0	**100**	30.0	40.0	**300**	93.0	126.0
40	9.0	12.0	**125**	30.0	40.0			

STORAGE

-Keep diaphragms in original packing and protect against from sunlight.

REPLACEMENT PROCEDURE

-Select the right type of diaphragm i.e. W/ST/FF.

During valve build up:

-Check that valve & diaphragm material are compatible with the service (Check the tab on diaphragm for grade).

-Check that Body / bonnet fastenings are suitably tightened.

In case of trouble, contact your nearest dealer/distributor or **www.diaval.com**

Further operating and maintenance contractors are available at **www.diaval.com**

Diaval © Data subject to change without prior notice

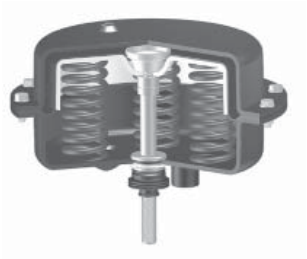
Diaval® Diaphragm Valves
- Pneumatic Actuators - Series DP
Direct and Reverse Acting

Main Features

- For DIAVAL manufactured valves in weir and straight through type, with rubber diaphragms and PTFE / rubber backed diaphragms.
- Rugged & compact design, long life span at the plant. Favourable size / performance ratio.
- Rolling diaphragm design, allowing long cycle operations.
- Single acting (Direct and reverse actions)
- Burnished stem protected by bellow
- High quality spring, large thrust.
- Visual position indicator for open / close.
- Burnished stem protected by bellow.
- Maintenance-free O-ring sealing with flexible guiding. Possibility of assembly of additional devices / accessories.
- Operating ambient temperatures -40°C to +100°C.
- Fully traceable at the manufacture facility, identified by aluminum riveted plates.
- Optional top mounted emergency hand wheels for manual operation.









DP Direct Acting

DP Reverse Acting

Working Principle

Direct Acting actuator is designed to operate from a normally open position. Air pressure on the top side of actuator diaphragm closes the valve and the spring opens the valve when the air is released from the actuator.

Reverse Acting actuator is designed to operate from a normally closed position. Air pressure on the bottom side of the actuator diaphragm opens the valve. When air is released spring closes the valve.

Control Accesories

There is a number of control accessories available to be assembled on to the DIAVAL actuators. These accessories are comprehensive of Limit Switches (mechanical or inductive type), proximity sensors, solenoid valves, air speed regulator, positioner, air gauge set… and many other customized solutions.
Control accessories may be specified and provided by the customer or by DIAVAL, however, only those accessories installed and tested at any DIAVAL facilities are covered by a performance guarantee.

Tests - After Market

All actuators are tested after assembly and before dispatch. Tests are comprehensive of visual and functional tests as per DIN 3230 P.3 - EN.10.204/2.2
Actuators can be serviced at DIAVAL facilities where a stock of common spares is permanently available. Off site service engineers are available on demand and against usual service rates.

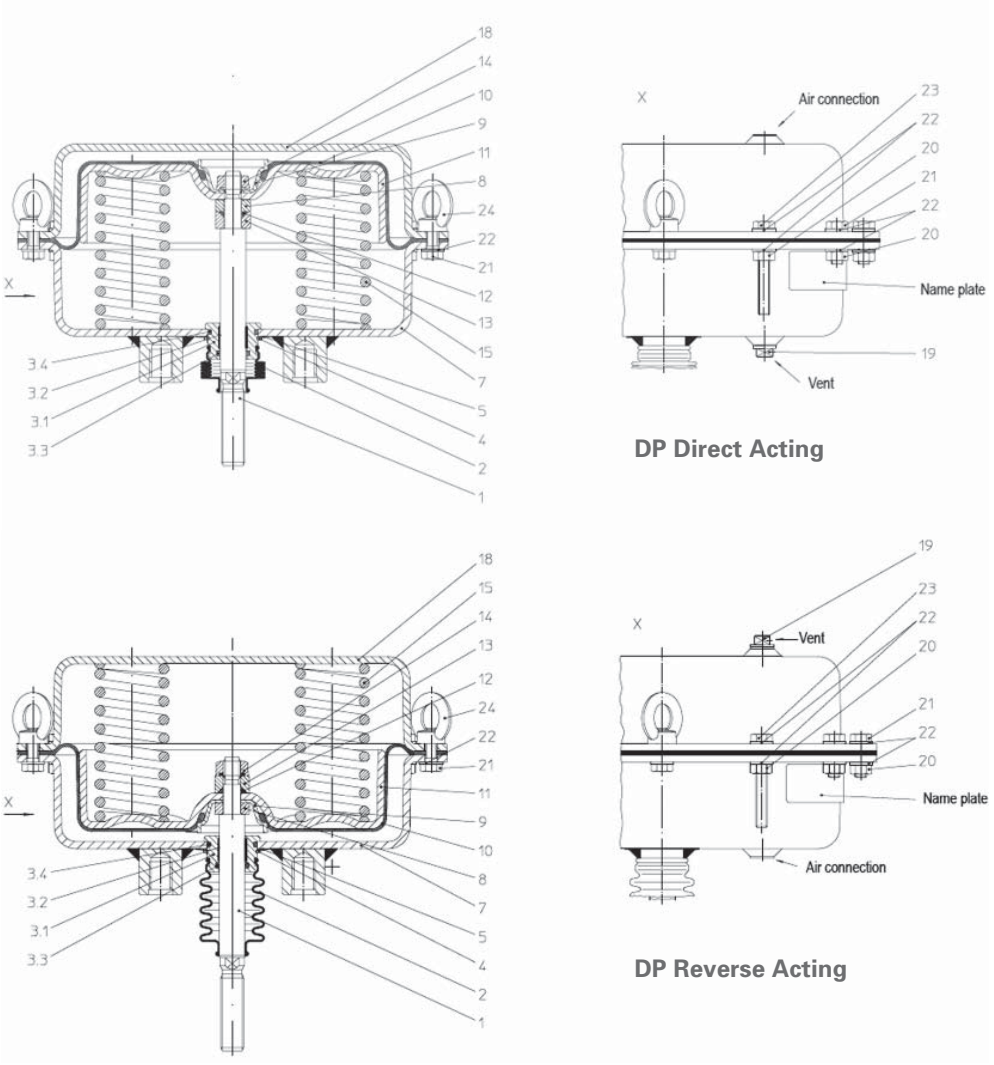
Operating and Maintenance Instructions

Please ensure that the DIAVAL Operating and Maintenance Instructions are provided by your supplier along with the valves. Do not try to start maintenance without having read and understood the Essential Safety Guidelines. Please consult us for further information.

Diaval © Data subject to change without prior notice

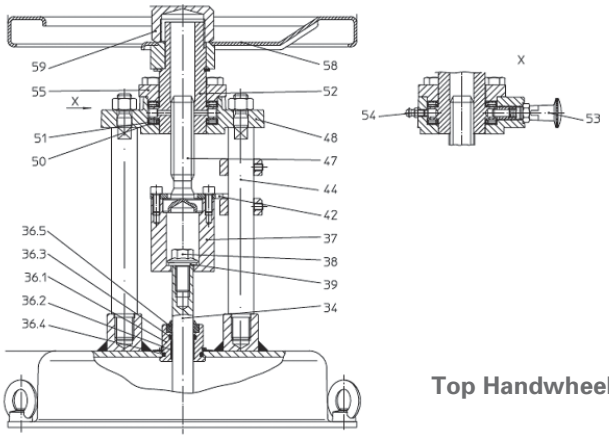
Standard Materials

Only the best quality materials are incorporated to the DIAVAL manufacturing process and are subject to a strict quality control by our DIAVAL engineers at the assembly plant.



DP Direct Acting

DP Reverse Acting



Top Handwheel (Optional)

Standard Materials

Pos.	Description	Material
1	Stem	X20Cr13+QT, 1.4021+QT
2	Bellow seal	EPDM50 or 42CR
3	Stem guiding *	X20Cr13+QT, 1.4021+QT
3.1	Stem guiding *	X20Cr13+QT, 1.4021+QT
3.2	Guiding band *	PTFE + 25%C
3.3	O-ring (stem) *	NBR
3.4	O-ring (guiding) *	NBR
3.5	Scraper *	NBR
4	Retaining ring	FSt - A3B
5	Spring plate	FSt (Fe/Zn12B)
6 / 7	Lower diaphragm casing (DP32-34Tri)	DD13+QT, 1.0335+QT (powder coated)
7	Lower diaphragm casing (DP35)	P265GH, 1.0425 / S235JR, 1.0037
8	Bushing	X20Cr13+QT, 1.4021+QT
9	Diaphragm flange	DD13+QT, 1.0335+QT (Fe/Zn12B) or X20Cr13+QT,
10	Rolling diaphragm *	1.4021+QT
11	Diaphragm plate (DP32-34Tri)	NBR + webbing
11	Diaphragm plate (DP35) *	DD13+QT, 1.0335+QT (Fe/Zn12B)
12	O-ring	St 52-3 G 03 g, 1.0570 G 03 g
13	Bushing	NBR
14	Flange nut	X20Cr13+QT, 1.4021+QT
15	Compression spring *	8 - A4G
16	Spring centring	FDSiCr
17	Spring centring	DC01, 1.0330 (Fe/Zn12B)
18	Upper diaphragm casing (DP32-34Tri)	St 52-3 G 03 g, 1.0570 G 03 g
18	Upper diaphragm casing (DP35)	DD13+QT, 1.0335+QT (powder coated)
19	Screwed cap	P265GH, 1.0425 / S235JR, 1.0037
20	Hexagon nut (DP32-34Tri) 1)	Polyäthylen
20	Hexagon nut (DP35) 1)	8 - A4G
21	Hexagon screw (DP32-34Tri) 1)	C35E, 1.1181
21	Hexagon screw (DP35) 1)	8.8 - A4G
22	Washer	8.8 - A4G
23	Hexagon screw (DP32-34Tri) 1)	St - A4G
23	Hexagon screw (DP35) 1)	8.8 - A4G
24	Eye nut 1)	10.9 - A2G
26	Exhaust silencer G1" (DP35)	C15, 1.0401 - A4G
27	Usit-ring	SINT/BZ
28	Stem extension	St / NBR
29	Slotted nut	X20Cr13+QT, 1.4021+QT
30.1	Bellow seal *	St
30.2	Guiding band *	X20Cr13+QT, 1.4021+QT
30.3	O-ring *	PTFE 25%C
30.4	O-ring *	NBR
30.5	Scraper *	NBR
31	Intermediate housing	NBR
33	Hexagon nut	DD13+QT, 1.0335+QT (powder coated)
34	Stem extension	8-A4G
36.1	Bellow seal *	X20Cr13+QT, 1.4021+QT
36.2	Guiding band *	X14CrMoS17+QT, 1.4104+QT
36.3	O-ring *	PTFE +25%C
36.4	O-ring *	NBR
36.5	Scraper *	NBR
37	Bushing	NBR
38	Hexagon screw	X20Cr13+QT, 1.4021+QT
39	Washer	8.8 - A4G
40	Nut	St - A4G
42	Torsion lock	X20Cr13+QT, 1.4021+QT
43	Cylinder screw	S235JR, 1.0037
44 1	Distance column	8.8 - A4G
47	Stem	1SMn30+C, 1.0715+C (Fe/Zn12B)
48	Traverse	X20Cr13+QT, 1.4021+QT
50	Axial-washer	EN-JS1049, EN-GJS-400-18U-LT (Fe/Zn12B)
51	Axial-dial ring	St
52	Threaded bush	St
53	Catch pin	CuZn35Ni3Mn2AlPb-R490, CW710RR490
54	Lubricating nipple	St, Cu
55	Covering for traverse	5.8 - A4G
58	Handwheel	S235JR, 1.0037 (Fe/Zn12B)
59	Safety cap	Fe P01, 1.0330 (epoxy coating)
64	Worm gear	11SMn30+C, 1.0715+C (epoxy coating)
92	Plug	G1" C35E, 1.1181
150	Limit stopper	X20Cr13+QT, 1.4021+QT
151	Spring *	FDSiCr
152	Diaphragm flange	X20Cr13+QT, 1.4021+QT
153	Stem ring	X20Cr13+QT, 1.4021+QT
154	Quadring	EPDM
155	Clamp screw	X20Cr13+QT, 1.4021+QT
156	Clamping sleeve	X20Cr13+QT, 1.4021+QT
157	Spacer disc	X20Cr13+QT, 1.4021+QT
158	Grooved pin	A2
159	Slotted nut	17H - A2G
160	Ring bolt	C15E, 1.1141

Diaval © Data subject to change without prior notice

Actuator Selection Chart

Direct Acting (actuator opens at air failure, springs to open/air to close)
For Weir Type Diaphragm Valves - Rubber diaphragm

Valve Size	Actuator Type	Max. Closing Pressure 100% △ P (bar)	Max. Closing Pressure 0% △P (bar)	Air Supply To Close (bar)
DN15	DP32021020NA	10	10	1,5-2,0
DN20	DP32021020NA	10	10	1,5-2,0
DN25	DP32021020NA	10	10	2,0-2,5
DN32	DP32021020NA	10	10	2,0-2,5
DN40	DP32021020NA	10	10	2,0-2,5
DN50	DP32021020NA	10	10	2,0-2,5
DN65	DP32021020NA	8	8	3,0-3,5
DN80	DP32021030NA	8	8	3,5-4,0
DN100	DP34021050NA	8	8	2,5-3,5
DN125	DP34021050NA	8	8	3,5-4,5
DN150	DP34021065NA	6	6	4,0-5,0

Reverse Acting (actuator closes at air failure, air to open/springs to close)
For Weir Type Diaphragm Valves - Rubber diaphragm

Valve Size	Actuator Type	Max. Closing Pressure 100% △ P (bar)	Max. Closing Pressure 0% △P (bar)	Air Supply To Open (bar)
DN15	DP32041220	10	9	2,0-2,5
DN20	DP32041220	10	9	2,0-2,5
DN25	DP32082420	10	9	3,0,3,5
DN32	DP32082420	10	9	3,0,3,5
DN40	DP32082420	9	7	3,0-3,5
DN50	DP32082420	8	6	3,0-3,5
DN65	DP32152520	8	6	3,0-3,5
DN80	DP33153030	8	6	4,0-4,5
DN100	DP34153050	8	6	4,0-4,5
DN125	DP34204050	7	4	5,0-5,5
DN150	DP34204065	6	3	5,0-5,5

Direct Acting (actuator opens at air failure, springs to open/air to close)
For Weir Type Diaphragm Valves - PTFE diaphragm

Valve Size	Actuator Type	Max. Closing Pressure 100% △ P (bar)	Max. Closing Pressure 0% △P (bar)	Air Supply To Close (bar)
DN15	DP32021020NA	6	6	2,0-2,5
DN20	DP32021020NA	6	6	2,0-2,5
DN25	DP32021020NA	6	6	2,5-3,0
DN32	DP32021020NA	6	6	2,5-3,0
DN40	DP32021020NA	6	6	3,0-3,5
DN50	DP32021020NA	6	6	3,5-4,0
DN65	DP32021020NA	6	5	4,5-5,0
DN80	DP32021030NA	6	4	5,0-5,5
DN100	DP34021050NA	6	4	4,5-5,0
DN125	DP34021065NA	6	4	4,5-5,0
DN150	DP34021065NA	5	3	5,0-5,5

Diaval © Data subject to change without prior notice

Actuator Selection Chart

Reverse Acting (actuator closes at air failure, air to open/springs to close)
For Weir Type Diaphragm Valves - PTFE diaphragm

Valve Size	Actuator Type	Max. Closing Pressure 100% △ P (bar)	Max. Closing Pressure 0% △P (bar)	Air Supply To Open (bar)
DN15	DP32041220	6	6	2,0-2,5
DN20	DP32041220	6	6	2,0-2,5
DN25	DP32082420	6	6	3,0,3,5
DN32	DP32082420	6	6	3,0,3,5
DN40	DP32152520	6	4	3,0-3,5
DN50	DP32152520	6	4	3,5-4,0
DN65	DP33153030	6	4	4,0-4,5
DN80	DP33204030	6	4	4,5-5,0
DN100	DP34204050	6	4	5,0-5,5
DN125	DP34204065	6	4	5,0-5,5
DN150	DP34204065	5	3	5,0-5,5

Direct Acting (actuator opens at air failure, springs to open/air to close)
For Straight Through Type Diaphragm Valves - Rubber diaphragm

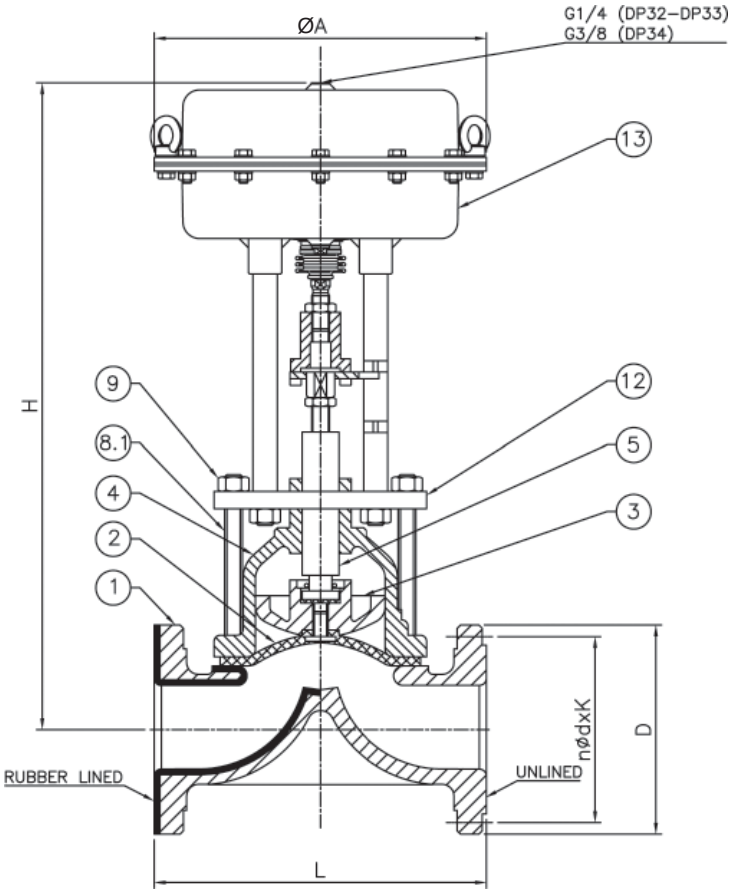
Valve Size	Actuator Type	Max. Closing Pressure 100% △ P (bar)	Max. Closing Pressure 0% △P (bar)	Air Supply To Close (bar)
DN15	DP32021020NA	8	8	2,0-2,5
DN20	DP32021020NA	8	8	2,5-3,0
DN25	DP32021030NA	8	8	2,5-3,0
DN32	DP32021030NA	8	8	2,5-3,0
DN40	DP32021030NA	8	7	2,5-3,0
DN50	DP32021030NA	8	6	4,0-4,5
DN65	DP34021050NA	8	6	2,5-3,0
DN80	DP34021065NA	8	6	3,0-3,5
DN100	DP34021065NA	8	6	3,5-4,0
DN125	DP34021065NA	6	4	4,0-4,5

Reverse Acting (actuator closes at air failure, air to open/springs to close)
For Straight Through Type Diaphragm Valves - Rubber diaphragm

Valve Size	Actuator Type	Max. Closing Pressure 100% △ P (bar)	Max. Closing Pressure 0% △P (bar)	Air Supply To Open (bar)
DN15	DP32041220	8	8	2,0-2,5
DN20	DP32082420	8	8	3,0-3,5
DN25	DP32082430	8	8	3,0,3,5
DN32	DP32082430	8	7	3,5,4,0
DN40	DP32082430	8	6	3,5-4,0
DN50	DP33153030	8	6	4,0-4,5
DN65	DP34082450	8	6	3,5-4,0
DN80	DP34102065	8	6	3,5-4,0
DN100	DP34204065	8	6	5,0-5,5
DN125	DP34204065	6	4	5,0-5,5

Diaval © Data subject to change without prior notice

Main Dimensions assembled with Weir Type Diaphragm Valves - Rubber Diaphragm





DN	L DIN* 3202F1 UL/RL	L BS5156 UL	L BS5156 RL	H	ØA
15	130	108	114	415	250
20	150	117	123	427	250
25	160	127	133	434	250
32	180	146	152	444	250
40	200	159	165	476	250
50	230	190	196	471	250
65	290	216	222	503	250
80	310	254	260	520	250
100	350	305	313	736	405
125	400	356	364	786	405
150	480	406	414	856	405

Certified Drawings

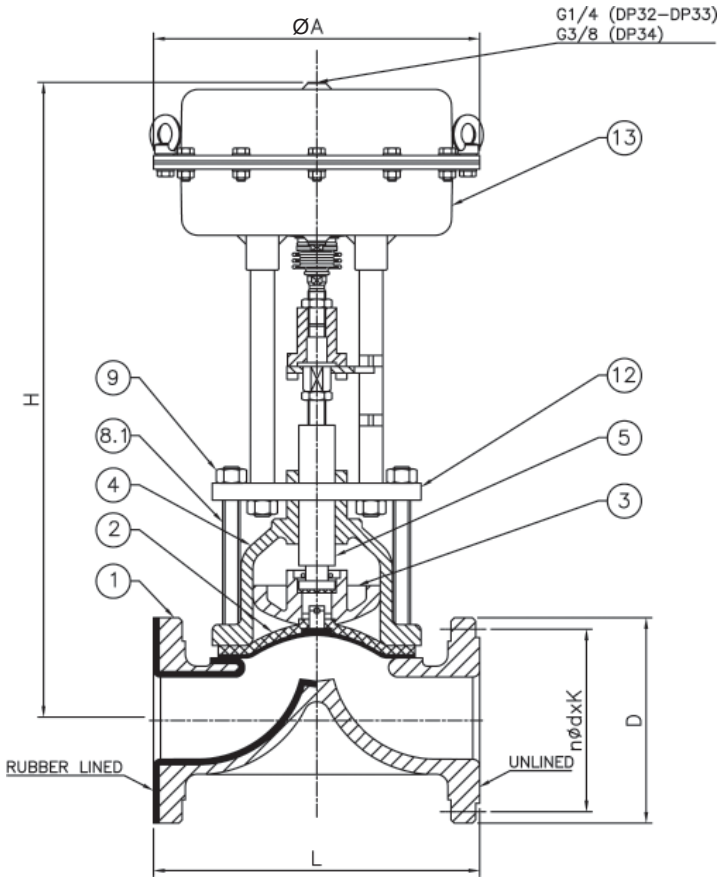
Dimensions are based on the serialized manufacture and should be taken as preliminary.

Our engineering section can issue certified drawings if required and on specific projects.

Please bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

* DIN 3202 F1: EN 558-1 Series 1
BS 5156: EN 558-1 Series 7

Main Dimensions assembled with Weir Type Diaphragm Valves - PTFE Diaphragm





DN	L DIN* 3202F1 UL/RL	L BS5156 UL	L BS5156 RL	H	ØA
15	130	108	114	415	250
20	150	117	123	427	250
25	160	127	133	434	250
32	180	146	152	444	250
40	200	159	165	476	250
50	230	190	196	471	250
65	290	216	222	503	250
80	310	254	260	520	250
100	350	305	313	736	405
125	400	356	364	786	405
150	480	406	414	856	405

Certified Drawings

Dimensions are based on the serialized manufacture and should be taken as preliminary.

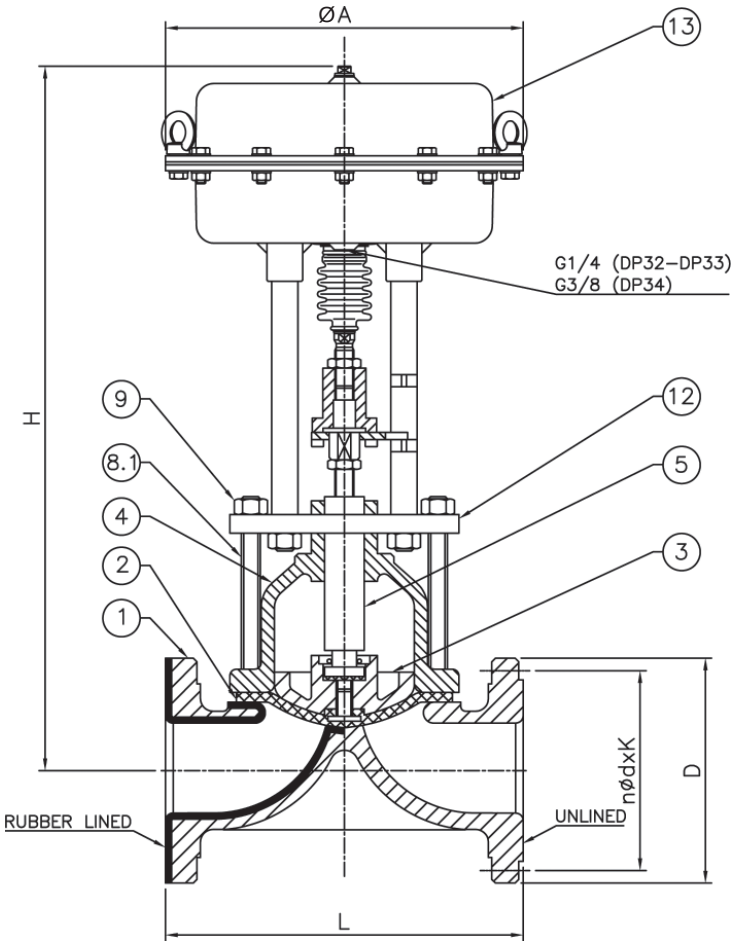
Our engineering section can issue certified drawings if required and on specific projects.

Please bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

* DIN 3202 F1: EN 558-1 Series 1
BS 5156: EN 558-1 Series 7

Diaval © Data subject to change without prior notice

Main Dimensions assembled with Weir Type Diaphragm Valves - Rubber Diaphragm





DN	L DIN* 3202F1 UL/RL	L BS5156 UL	L BS5156 RL	H	ØA
15	130	108	114	415	250
20	150	117	123	427	250
25	160	127	133	434	250
32	180	146	152	444	250
40	200	159	165	476	250
50	230	190	196	471	250
65	290	216	222	503	250
80	310	254	260	520	250
100	350	305	313	736	405
125	400	356	364	786	405
150	480	406	414	856	405

Certified Drawings

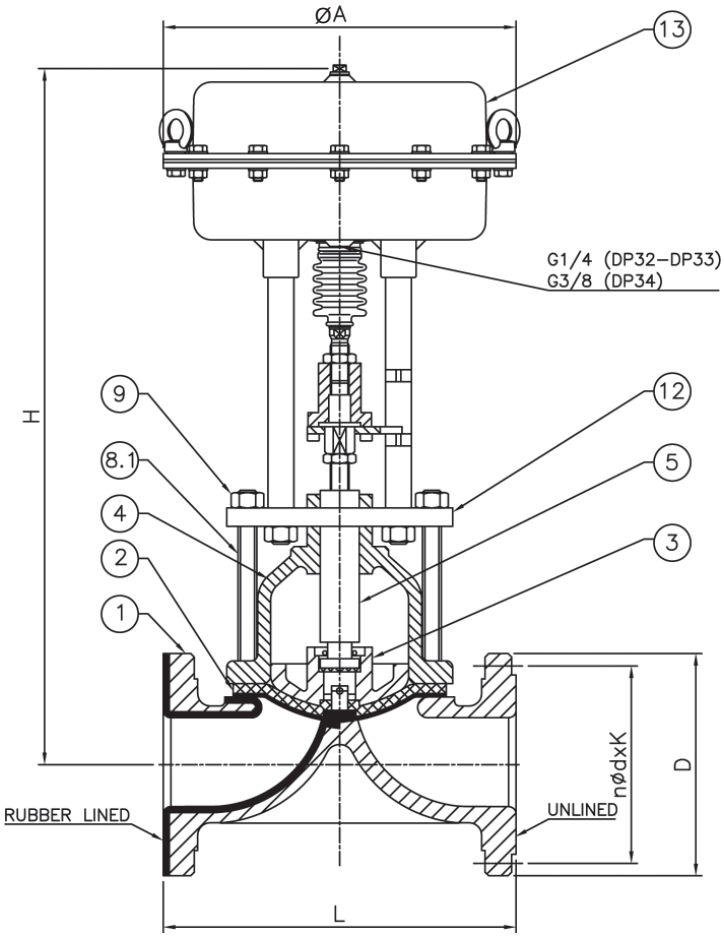
Dimensions are based on the serialized manufacture and should be taken as preliminary.

Our engineering section can issue certified drawings if required and on specific projects.

Please bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

* DIN 3202 F1: EN 558-1 Series 1
BS 5156: EN 558-1 Series 7

Main Dimensions assembled with Weir Type Diaphragm Valves - PTFE Diaphragm





DN	L DIN* 3202F1 UL/RL	L BS5156 UL	L BS5156 RL	H	ØA
15	130	108	114	415	250
20	150	117	123	427	250
25	160	127	133	434	250
32	180	146	152	444	250
40	200	159	165	476	250
50	230	190	196	471	250
65	290	216	222	503	250
80	310	254	260	520	250
100	350	305	313	736	405
125	400	356	364	786	405
150	480	406	414	856	405

Certified Drawings

Dimensions are based on the serialized manufacture and should be taken as preliminary.

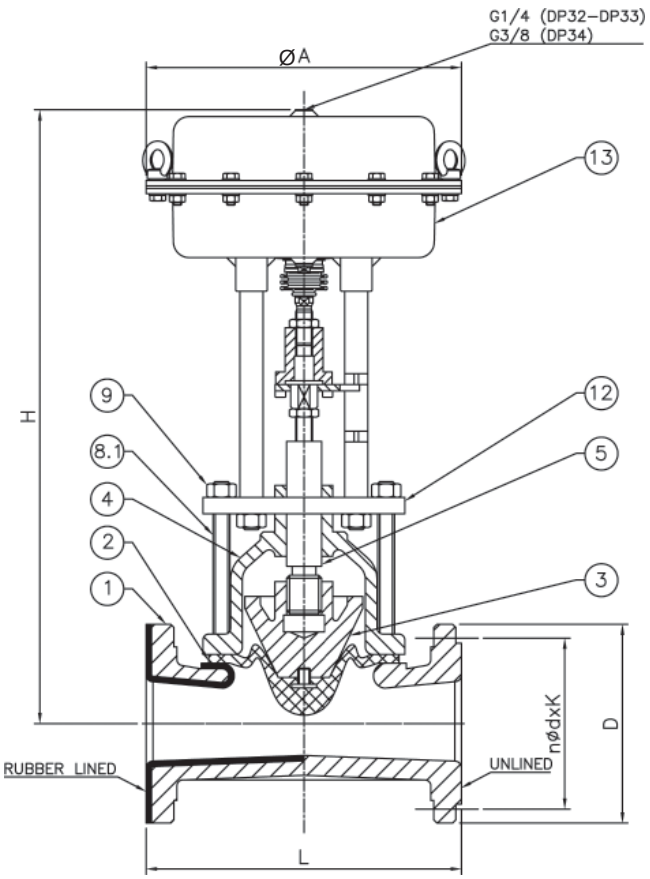
Our engineering section can issue certified drawings if required and on specific projects.

Please bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

* DIN 3202 F1: EN 558-1 Series 1
BS 5156: EN 558-1 Series 7

Diaval © Data subject to change without prior notice

Main Dimensions assembled with Straight Through Type Diaphragm Valves





DN	L DIN* 3202F1 UL/RL	L BS5156 UL	L BS5156 RL	H	ØA
15	130	108	114	420	250
20	150	117	123	423	250
25	160	127	133	453	250
32	180	146	152	455	250
40	200	159	165	463	250
50	230	190	196	493	250
65	290	216	222	685	405
80	310	254	260	716	405
100	350	305	313	754	405
125	400	356	364	780	405

Certified Drawings

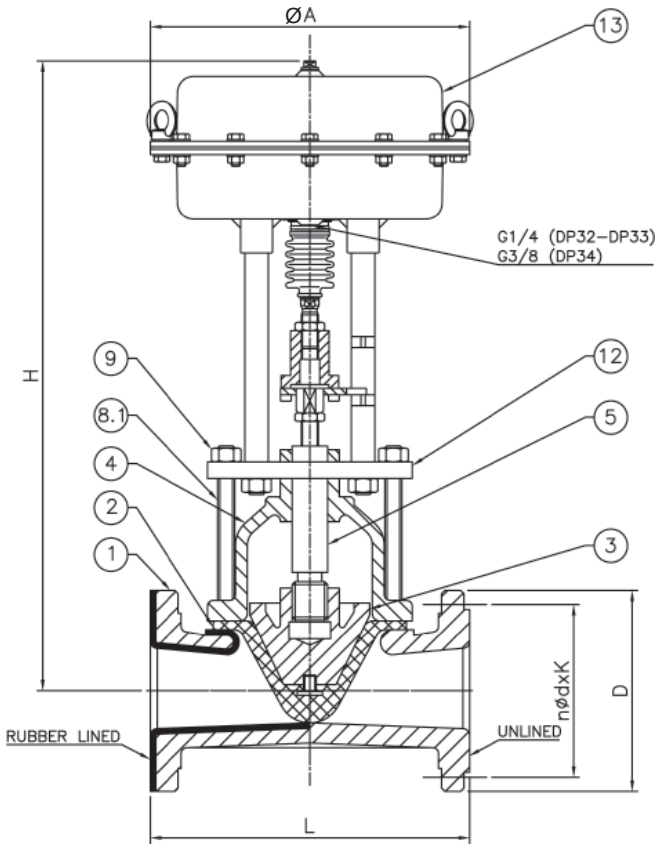
Dimensions are based on the serialized manufacture and should be taken as preliminary.

Our engineering section can issue certified drawings if required and on specific projects.

Please bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

* DIN 3202 F1: EN 558-1 Series 1
BS 5156: EN 558-1 Series 7

Main Dimensions assembled with Straight Through Type Diaphragm Valves





DN	L DIN* 3202F1 UL/RL	L BS5156 UL	L BS5156 RL	H	ØA
15	130	108	114	420	250
20	150	117	123	423	250
25	160	127	133	453	250
32	180	146	152	455	250
40	200	159	165	463	250
50	230	190	196	550	300
65	290	216	222	685	405
80	310	254	260	716	405
100	350	305	313	754	405
125	400	356	364	780	405

Certified Drawings

Dimensions are based on the serialized manufacture and should be taken as preliminary.

Our engineering section can issue certified drawings if required and on specific projects.

Please bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

* DIN 3202 F1: EN 558-1 Series 1
BS 5156: EN 558-1 Series 7

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves
- Pneumatic Actuators - Serie WT
Direct and Reverse Acting

Main Features

- Valid for all DIAVAL manufactured valves in weir and straight through type.
- To be operated with Rubber diaphragms and PTFE / rubber backed diaphragms.
- Rugged design, long life span at the plant.
- Rolling diaphragm design, allowing long cycle operations.
- Single acting (Direct and reverse actions) and double acting.
- Steel hot pressed actuator shell.
- Solid yoke material, no subject to breakages by plant vibrations, maintenance operations or fluid phenomena.
- High quality spring, large thrust.
- Visual position indicator for fully open, close and intermediate stroke.
- Solid actuator spindle.
- Top mounted emergency hand wheels for manual operation and thrust setting. Standard for single acting type.
- The open yoke style eases the assembly of control valve accessories.
- Easy and flexible maintenance.
- Fully traceable at the manufacture facility, identified by aluminum riveted plates.



Working Principle

Direct Acting actuator is designed to operate from a normally open position. Air pressure on the top side of actuator diaphragm closes the valve and the spring opens the valve when the air is released from the actuator.
Reverse Acting actuator is designed to operate from a normally closed position. Air pressure on the bottom side of the actuator diaphragm opens the valve. When air is released spring closes the valve.

Control Accesories

There is a number of control accessories available to be assembled on to the DIAVAL actuators. These accessories are comprehensive of Limit Switches (mechanical or inductive type), proximity sensors, solenoid valves, air speed regulator, positioner, air gauge set… and many other customized solutions.
Control accessories may be specified and provided by the customer or by DIAVAL, however, only those accessories installed and tested at any DIAVAL facilities are covered by a performance guarantee.

Tests - After Market

All actuators are tested after assembly and before dispatch. Tests are comprehensive of visual and functional tests as per DIN 3230 P.3 - EN.10.204/2.
Actuators can be serviced at DIAVAL facilities where a stock of common spares is permanently available.
Off site service engineers are available on demand and against usual service rates.

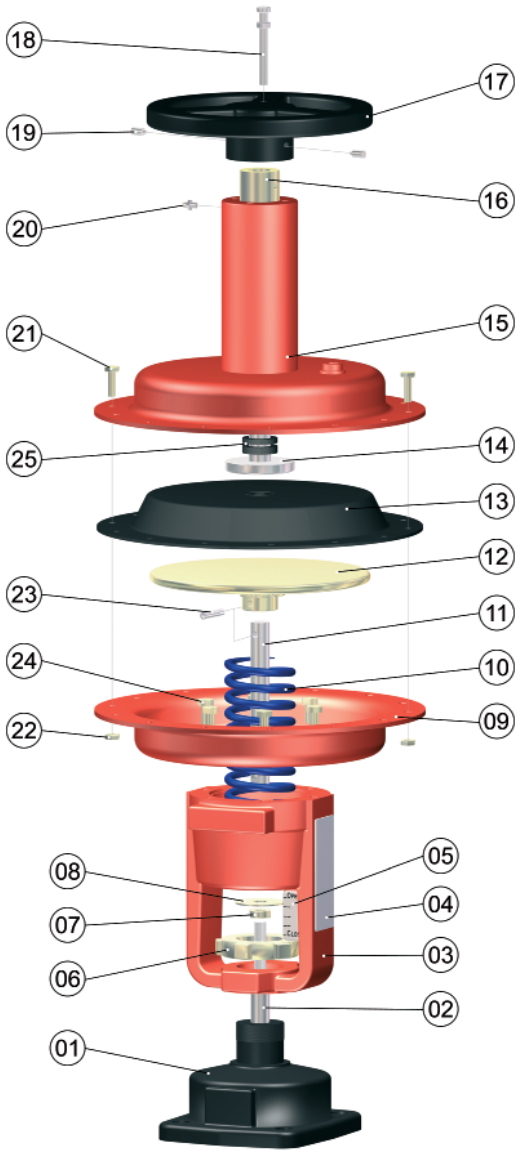
Operating and Maintenance Instructions

Please ensure that the DIAVAL Operating and Maintenance Instructions are provided by your supplier along with the valves. Do not try to start maintenance without having read and understood the Essential Safety Guidelines. Operating and Maintenance Instructions can be downloaded from Internet at any time www.diaval.com

Standard Materials

Only the best quality materials are incorporated to the DIAVAL manufacturing process and are subject to a strict quality control by our DIAVAL engineers at the assembly plant. The rubber diaphragm is manufactured by the associated Company Group – POLY RUBBER PRODUCTS – using their best experience on the polymer technology.
Any materials other than specified could be used on request.

Part	Description	Material
01	Valve Bonnet	--
02	Valve spindle	--
03	Yoke	Ductile Iron
04	Label	Aluminium
05	Scale indicator	St. Steel SS304
06	Lock nut-yoke	Steel Plated
07	Lock nut valve spindle	Steel Plated
08	Travel indicator	St. Steel SS304
09	Lower casing assembly	Steel Pressing
10	Spring	Spring Steel
11	Actuator stem	St. Steel SS401
12	Diaphragm plate	Cast Iron
13	Actuator Diaphragm	Nitrile with nylon fabric.
14	Handwheel spindle	Steel Plated
15	Upper casing assembly	Steel Pressed
16	Handwheel bush	Steel
17	Handwheel	Cast Iron
18	Adjustable mech. stopper	Steel
19	Pin retainer (2 Nos)	Steel
20	Grease nipple	Steel
21	Actuator bolts	Steel
22	Actuator nuts	Steel
23	Cross pin	Steel
24	Lower casing bolts	Steel
25	U-seals	Neoprene



Diaval © Data subject to change without prior notice



Actuator Selection Chart

The below tabulation shows the complete manufacture range of actuators which are available at DIAVAL.
Accurate selection can be done by plotting the valve DN with the line pressure column figure.
The air supply value of 3.5 barg is taken as average. Other parameters, please consult DIAVAL engineers.

MAX.WORKING PRESSURE (kg/cm²) at 0% ΔP - Air supply 3,5 to 4 kg/cm²				
DN	**2,5**	**5**	**7,5**	**10**
15	109WT	109WT	109WT	1018WT
20	109WT	109WT	109WT	1018WT
25	109WT	109WT	109WT	1018WT
32	1018WT	1018WT	1035WT	1035WT
40	1018WT	1018WT	1035WT	1035WT
50	1018WT	1035WT	1035WT	1001WT
65	1035WT	1001WT	1002WT	1003WT
80	1035WT	1001WT	1002WT	1003WT
100	1002WT	1003WT	1004WT	1004WT
125	1003WT	1004WT	CONSULT DIAVAL	CONSULT DIAVAL
150	1005WT-S1	A1-300WT	130	A1-300DDWT
200	CONSULT DIAVAL			
250	CONSULT DIAVAL			
300	CONSULT DIAVAL			

MAX.WORKING PRESSURE (kg/cm²) at 100% Δ P - Air supply 3,5 to 4 kg/cm²				
DN	**2,5**	**5**	**7,5**	**10**
15	109WT	109WT	109WT	109WT
20	109WT	109WT	109WT	109WT
25	109WT	109WT	109WT	109WT
32	1018WT	1018WT	1018WT	1018WT
40	1018WT	1018WT	1018WT	1018WT
50	1018WT	1035WT	1035WT	1035WT
65	1035WT	1001WT	1001WT	1002WT
80	1035WT	1001WT	1001WT	1002WT
100	1002WT	1002WT	1002WT	1003WT
125	1003WT	1003WT	1004WT	1004WT
150	1004WT	1005WT-S1	1005WT-S1	A1-300WT
200	CONSULT DIAVAL			
250	CONSULT DIAVAL			
300	CONSULT DIAVAL			

Notes

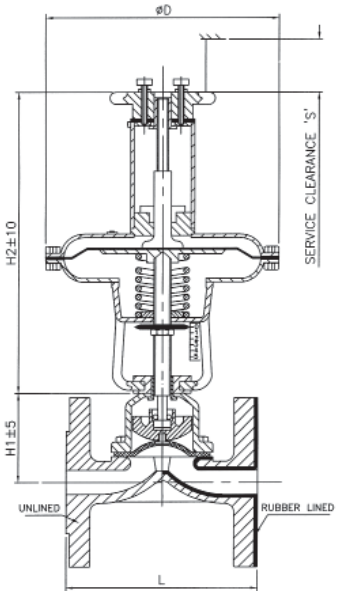
(1).- Some actuator models may be available in stock for ex-delivery, please allow more than a model in your selection.
(2).- R code denotes Reverse Acting.

Main Dimensions assembled with Weir Type Diaphragm Valves

	L				ACTUATOR				
	DIN* 3202F1	BS 5156							
DN	UL/RL	UL	RL	H1	Model	H2	Ød	S	Weight
15	130	108	114	63	109WT	280	110	200	12
					1018WT	430	185	200	12
20	150	117	123	70	109WT	280	110	200	13
					1018WT	430	185	200	13
25	160	127	133	77	109WT	280	110	200	14
					1018WT	430	185	200	15
32	180	146	152	82	1018WT	430	185	200	17
					1035WT	440	235	200	20
40	200	159	165	109	1018WT	430	185	200	19
					1035WT	440	235	200	21
50	230	190	196	99	1018WT	430	185	200	24
					1035WT	440	235	200	26
					1001WT	470	276	200	32
65	290	216	222	126	1018WT	430	185	200	29
					1035WT	440	235	200	32
					1001WT	470	276	200	37
					1002WT	540	330	250	50
					1003WT	560	390	250	70
80	310	254	260	138	1035WT	440	235	200	39
					1001WT	470	276	200	44
					1002WT	540	330	250	54
					1003WT	560	390	250	62
100	350	305	313	165	1002WT	540	330	250	65
					1003WT	560	390	250	73
					1004WT	740	450	300	106
125	400	356	364	202	1003WT	560	390	250	90
					1004WT	740	450	300	123
150	480	406	414	252	1004WT	740	450	300	114
					1005WT	770	600	300	147
					A1-300WT	825	616	300	179
					1005DDWT	1010	600	350	199
					A1-300DDWT	1025	616	350	225
200	CONSULT DIAVAL								
250	CONSULT DIAVAL								
300	CONSULT DIAVAL								

* DIN 3202 F1: EN 558-1 Series 1





Certified Drawings

Dimensions are based on the serialized manufacture and should be taken as preliminary.

Our engineering section can issue certified drawings if required and on specific projects.

Please bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

Diaval © Data subject to change without prior notice



Actuator Selection Chart

The below tabulation shows the complete manufacture range of actuators which are available at DIAVAL.
Accurate selection can be done by plotting the valve DN with the line pressure column figure.
The air supply value of 3.5 barg is taken as average. Other parameters, please consult DIAVAL engineers.

MAX.WORKING PRESSURE (kg/cm²) at 0% ΔP - Air supply 3,5 to 4 kg/cm²				
DN	2,5	5	7,5	10
15	1018WT	1018WT	1035WT	1035WT
20	1018WT	1018WT	1035WT	1035WT
25	1018WT	1035WT	1035WT	1001WT
32	1018WT	1035WT	1035WT	1001WT
40	1018WT	1035WT	1035WT	1001WT
50	1035WT	1001WT	1035WT	1003WT
65	1002WT	1003WT	1002WT	1004WT
80	1003WT	1004WT	1004WT	A1-300WT
100	1003WT	10034WT	1005WT	A1-300WT
125	1005WT-S1	A1-300WT	1005DDWT	A1-300DDWT
150	CONSULT DIAVAL			
200	CONSULT DIAVAL			
250	CONSULT DIAVAL			
300	CONSULT DIAVAL			

MAX.WORKING PRESSURE (kg/cm²) at 100% Δ P - Air supply 3,5 to 4 kg/cm²				
DN	2,5	5	7,5	10
15	1018WT	1018WT	1018WT	1018WT
20	1018WT	1018WT	1018WT	1018WT
25	1018WT	1018WT	1035WT	1035WT
32	1018WT	1018WT	1035WT	1035WT
40	1018WT	1018WT	1035WT	1035WT
50	1035WT	1001WT	1001WT	1002WT
65	1002WT	1002WT	1002WT	1003WT
80	1003WT	1003WT	1004WT	1004WT
100	1003WT	1003WT	1004WT	1004WT
125	1004WT	1005WT-S1	1005WT-S1	A1-300WT
150	CONSULT DIAVAL			
200	CONSULT DIAVAL			
250	CONSULT DIAVAL			
300	CONSULT DIAVAL			

Notes

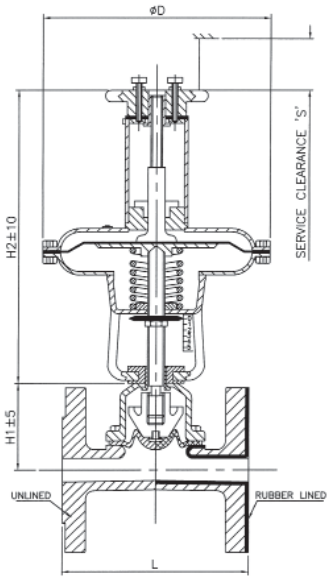
(1).- Some actuator models may be available in stock for ex-delivery, please allow more than a model in your selection.
(2).- R code denotes Reverse Acting.

Main Dimensions assembled with Straight Through Type Diaphragm Valves

	L				ACTUATOR				
	DIN* 3202F1	BS 5156							
DN	UL/RL	UL	RL	H1	Model	H2	Ød	S	Weight
15	130	108	114	68	1018WT	430	185	200	14
					1035WT	440	235	200	16
20	150	117	123	66	1018WT	430	185	200	14
					1035WT	440	235	200	16
25	160	127	133	96	109WT	430	185	200	14
					1018WT	440	235	200	17
					1018WT	470	276	200	22
32	180	146	152	93	1018WT	430	185	200	17
					1035WT	440	235	200	20
					1001WT	470	276	200	20
40	200	159	165	96	1018WT	430	185	200	18
					1035WT	440	235	200	21
					1001WT	470	276	200	26
50	230	190	196	121	1035WT	440	235	200	25
					1001WT	470	276	200	31
					1002WT	540	330	250	41
					1003WT	560	390	250	49
65	290	216	222	139	1002WT	540	330	250	45
					1003WT	560	390	200	53
					1004WT	740	450	300	86
80	310	254	260	138	1003WT	560	390	250	62
					1004WT	740	450	300	62
					1005WT	770	600	300	127
					A1-300WT	825	616	300	147
100	350	305	313	183	1003WT	560	390	250	69
					1004WT	740	450	300	102
					1005WT	770	600	300	134
					A1-300WT	825	616	300	154
125	400	356	364	193,5	1004WT	740	450	300	116
					A1-300WT	825	616	300	168
					1005WT-S1	840	600	300	173
					A1-300DDWT	1025	616	350	183
					1005DDWT	1010	600	350	200
150	CONSULT DIAVAL								
200	CONSULT DIAVAL								
250	CONSULT DIAVAL								
300	CONSULT DIAVAL								

* DIN 3202 F1: EN 558-1 Series 1





Certified Drawings

Dimensions are based on the serialized manufacture and should be taken as preliminary.

Our engineering section can issue certified drawings if required and on specific projects.

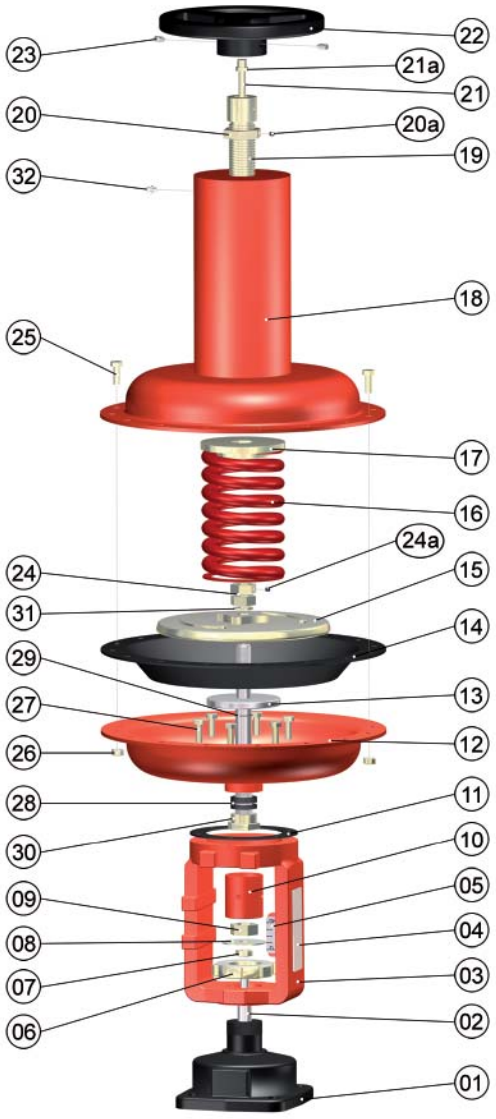
Please bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

Diaval © Data subject to change without prior notice

Standard Materials

Only the best quality materials are incorporated to the DIAVAL manufacturing process and are subject to a strict quality control by our DIAVAL engineers at the assembly plant.
The rubber diaphragm is manufactured by the associated Company Group – POLY RUBBER PRODUCTS – using their best experience on the polymer technology.
Any materials other than specified could be used on request.

Part	Description	Material
01	Valve Bonnet	--
02	Valve spindle	--
03	Yoke	Ductile Iron
04	Label	Aluminium
05	Scale indicator	St. Steel SS304
06	Lock nut-yoke	Steel Plated
07	Lock nut valve spindle	Steel Plated
08	Travel indicator	St. Steel SS304
09	Stopped nut	Steel
10	Adjustable mech. Stop*	Steel
11	Gasket	Neoprene
12	Lower casing assembly	Steel Pressed
13	Actuator stem	St. Steel SS410
14	Actuator Diaphragm	Nitrile with nylon fabric.
15	Diaphragm Plate	Cast Iron
16	Actuator Spring	Spring Steel
17	Spring retainer	Steel
18	Upper casing assly	Steel
19	Handwheel spindle	Steel Plated
20	Check nut	Steel
20a	Grub screw	Steel
21	Lifting screw	Steel Plated
22	Handwheel	Cast Iron
23	Retainers (2 Nos)	Steel
24	Actuator plate lock nut (2 Nos)	Cast Iron
24a	Spindle	Steel
25	Actuator bolts	Steel
26	Actuator nuts	Steel
27	Lower casing bolts	Steel
28	U-seals (2 Nos)	Neoprene
29	O ring	Neoprene
30	U-seals bush	Cast Iron
31	Split washer	Steel
32	Grease nipple	Steel



Actuator Selection Chart

The below tabulation shows the complete manufacture range of actuators which are available at DIAVAL.
Accurate selection can be done by plotting the valve DN with the line pressure column figure.
The air supply value of 3.5 barg is taken as average. Other parameters, please consult DIAVAL engineers.

MAX.WORKING PRESSURE (kg/cm²) at 0% ΔP - Air supply 3,5 to 4 kg/cm²				
DN	2,5	5	7,5	10
15	1018RWT	1018RWT	1018RWT	1018RWT
20	1018RWT	1018RWT		1018RWT
25	1018RWT	1018RWT	1018RWT	1018RWT
32	1018RWT	1035RWT	1035RWT	1035RWT
40	1018RWT	1035RWT	1035RWT	1035RWT
50	1035RWT	1035RWT	1002RWT	1002RWT
65	1001RWT	1002RWT	1003RWT	1004RWT
80	1002RWT	1003RWT	1004RWT	1005RWT
100	1003RWT	1004RWT	1005RWT	1005RWT
125	1004RWT	1005RWT	A2-300RWT	CONSULT DIAVAL
150	A2-300RWT-S1	1005DD-RWT	A2-300DD-RWT	CONSULT DIAVAL
200	CONSULT DIAVAL			
250	CONSULT DIAVAL			
300	CONSULT DIAVAL			

MAX.WORKING PRESSURE (kg/cm²) at 100% Δ P - Air supply 3,5 to 4 kg/cm²				
DN	2,5	5	7,5	10
15	1018RWT	1018RWT	1018RWT	1018RWT
20	1018RWT	1018RWT	1018RWT	1018RWT
25	1018RWT	1018RWT	1018RWT	1018RWT
32	1018RWT	1035RWT	1035RWT	1035RWT
40	1018RWT	1035RWT	1035RWT	1035RWT
50	1018RWT	1035RWT	1035RWT	1001RWT
65	1035RWT	1001RWT	1002RWT	1002RWT
80	1002RWT	1002RWT	1003RWT	1003RWT
100	1002RWT	1003RWT	1003RWT	1004RWT
125	1004RWT	1004RWT	1005RWT	1005RWT
150	1005RWT-S1	A2-300RWT-S1	CONSULT DIAVAL	1005DD-RWT
200	CONSULT DIAVAL			
250	CONSULT DIAVAL			
300	CONSULT DIAVAL			

Notes

(1).- Some actuator models may be available in stock for ex-delivery, please allow more than a model in your selection.
(2).- R code denotes Reverse Acting.

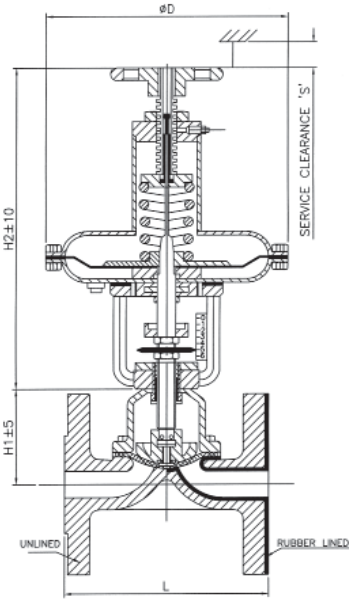
Diaval © Data subject to change without prior notice

Main Dimensions assembled with Weir Type Diaphragm Valves

	L				ACTUATOR				
	DIN* 3202F1	BS 5156							
DN	UL/RL	UL	RL	H1	Model	H2	Ød	S	Weight
15	130	108	114	63	1018WT	470	185	200	14
20	150	117	123	70	1018WT	470	185	200	15
25	160	127	133	77	1018RWT	470	185	200	16
32	180	146	152	82	1018WT	470	185	200	19
					1035WT	490	235	200	24
40	200	159	165	109	1018WT	470	185	200	20
					1035WT	490	235	200	25
50	230	190	196	99	1018RWT	470	185	200	25
					1035RWT	490	235	200	30
					1001RWT	540	276	250	38
					1002RWT	670	330	300	49
65	290	216	222	126	1035RWT	490	235	200	36
					1001RWT	540	276	250	43
					1002RWT	670	330	300	55
					1003RWT	740	390	300	61
					1004RWT	990	450	300	101
80	310	254	260	138	1002RWT	670	330	300	62
					1003RWT	740	390	300	68
					1004RWT	990	450	300	108
					1005RWT	1080	600	300	157
100	350	305	313	165	1002RWT	670	330	300	73
					1003RWT	740	390	300	79
					1004RWT	990	450	300	119
					1005RWT	1080	600	300	168
125	400	356	364	202	1004WT	740	450	300	136
					1005RWT	1080	600	300	185
					A2-300RWT	1130	616	350	215
150	480	406	414	252	A2-300RWT-S1	1300	600	350	239
					1005DD-RWT	1290	600	500	279
					A2-300DD-RWT	1300	616	500	304
					1005RWT-S1	1120	600	350	320
200	CONSULT DIAVAL								
250	CONSULT DIAVAL								
300	CONSULT DIAVAL								

* DIN 3202 F1: EN 558-1 Series 1





Certified Drawings

Dimensions are based on the serialized manufacture and should be taken as preliminary.

Our engineering section can issue certified drawings if required and on specific projects.

Please bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

Actuator Selection Chart

The below tabulation shows the complete manufacture range of actuators which are available at DIAVAL.
Accurate selection can be done by plotting the valve DN with the line pressure column figure.
The air supply value of 3.5 barg is taken as average. Other parameters, please consult DIAVAL engineers.

MAX.WORKING PRESSURE (kg/cm²) at 0% ΔP - Air supply 3,5 to 4 kg/cm²				
DN	2,5	5	7,5	10
15	1018RWT	1035RWT	1035RWT	1035RWT
20	1018RWT	1035RWT	1035RWT	1035RWT
25	1035RWT	1035RWT	1035RWT	1035RWT
32	1035RWT	1035RWT	1002RWT	1002RWT
40	1035RWT	1035RWT	1002RWT	1002RWT
50	1001RWT	1002RWT	1003RWT	1004RWT
65	1003RWT	1004RWT	1005RWT	1005RWT
80	1003RWT	1005RWT	A2-300RWT	A2-300RWT
100	1004RWT	1005RWT	A2-300RWT	A2-300RWT
125	A2-300RWT-S1	1005DD-RWT	A2-300DD-RWT	A2-300DD-RWT
(*)150	CONSULT DIAVAL			
200	CONSULT DIAVAL			
250	CONSULT DIAVAL			
300	CONSULT DIAVAL			

(*) 90 mm max.stroke

MAX.WORKING PRESSURE (kg/cm²) at 100% Δ P - Air supply 3,5 to 4 kg/cm²				
DN	2,5	5	7,5	10
15	1018RWT	1035RWT	1035RWT	1035RWT
20	1018RWT	1035RWT	1035RWT	1035RWT
25	1018RWT	1035RWT	1035RWT	1001RWT
32	1018RWT	1035RWT	1035RWT	1001RWT
40	1018RWT	1035RWT	1035RWT	1001RWT
50	1035RWT	1001RWT	1002RWT	1002RWT
65	1002RWT	1003RWT	1003RWT	1004RWT
80	1004RWT	1004RWT	1005RWT	1005RWT
100	1004RWT	1004RWT	1005RWT	1005RWT
125	1005RWT-S1	A2-300RWT-S1	A2-300RWT-S1	1005DD-RWT
(*)150				
200				
250				
300				

(*) 90 mm max.stroke

Notes

(1).- Some actuator models may be available in stock for ex-delivery, please allow more than a model in your selection.
(2).- R code denotes Reverse Acting.

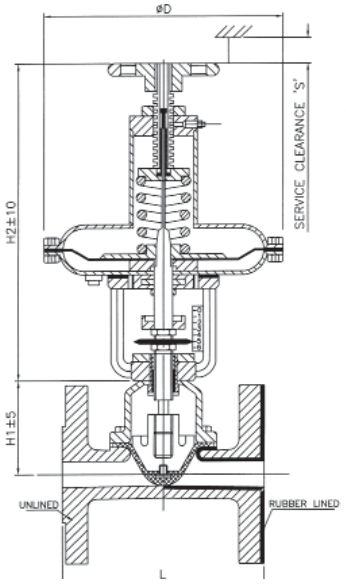
Diaval © Data subject to change without prior notice

Main Dimensions assembled with Straight Through Type Diaphragm

	L				ACTUATOR				
	DIN* 3202F1	BS 5156							
DN	UL/RL	UL	RL	H1	Model	H	Ød	S	Weight
15	130	108	114	68	1018WT	470	185	200	15
					1035WT	490	235	200	20
20	150	117	123	66	1018WT	470	185	200	15
					1035WT	490	235	200	20
25	160	127	133	96	1018RWT	470	185	200	16
					1035RWT	490	235	200	21
					1001RWT	540	276	250	28
					1002RWT	670	330	300	40
32	180	146	152	93	1018RWT	470	185	200	19
					1035RWT	490	235	200	24
					1001RWT	540	276	250	31
					1002RWT	670	330	300	43
40	200	159	165	96	1018WT	470	185	200	20
					1035WT	490	235	200	25
					1001WT	540	276	250	32
					1002WT	670	330	300	44
50	230	190	196	121	1035WT	490	235	200	29
					1001WT	540	276	250	37
					1002WT	670	330	300	48
					1003WT	740	390	300	55
					1004WT	990	450	300	95
65	290	216	222	139	1002RWT	670	330	300	53
					1003RWT	740	390	300	59
					1004RWT	990	450	300	99
					1005RWT	1080	600	300	148
80	310	254	260	138	1004RWT	990	450	300	108
					1005RWT	1080	600	300	157
					A2-300RWT	1130	616	350	187
100	350	305	313	183	1004RWT	990	450	300	115
					1005RWT	1080	600	300	164
					A2-300RWT	1130	616	350	194
125	400	356	364	193,5	A2-300RWT-S1	1300	616	350	228
					1005RWT	1290	600	500	248
					A2-300DDRWT	1300	616	500	273
					1005RWT-S1	1120	450	350	183
150	CONSULT DIAVAL								
200	CONSULT DIAVAL								
250	CONSULT DIAVAL								
300	CONSULT DIAVAL								

* DIN 3202 F1: EN 558-1 Series 1





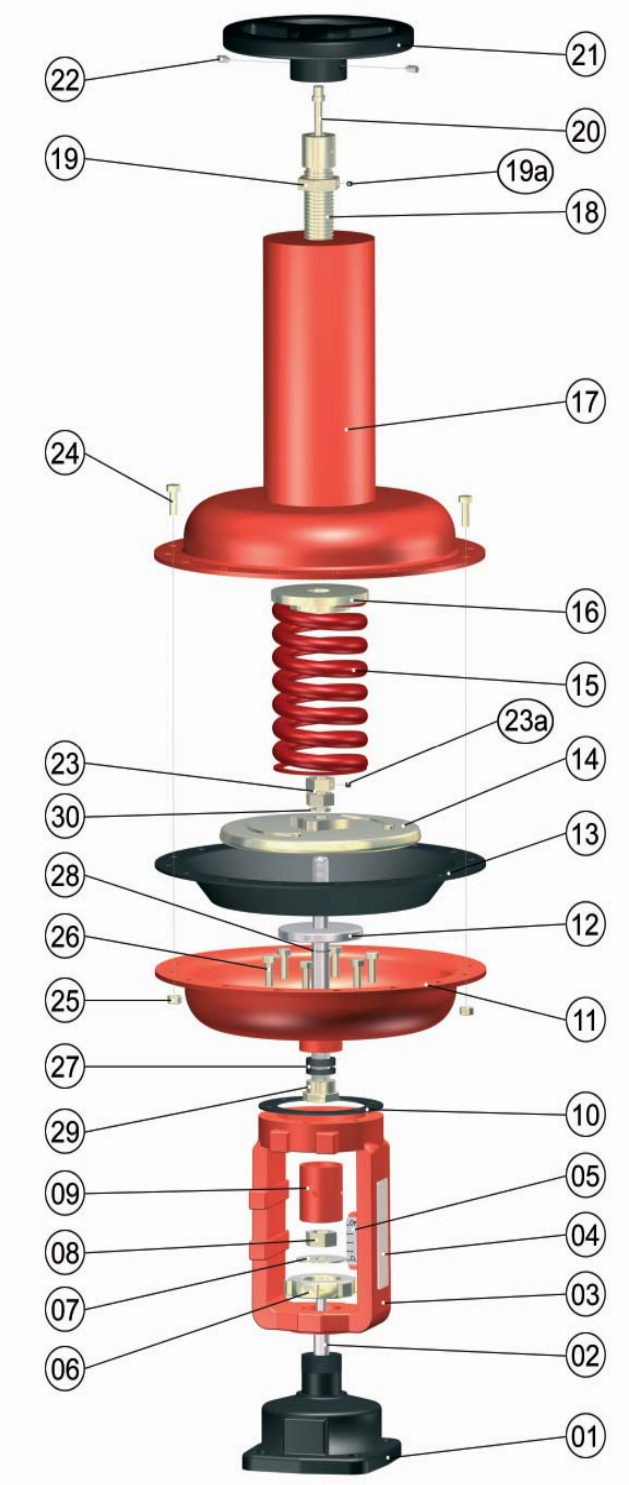
Certified Drawings

Dimensions are based on the serialized manufacture and should be taken as preliminary.

Our engineering section can issue certified drawings if required and on specific projects.

Please bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

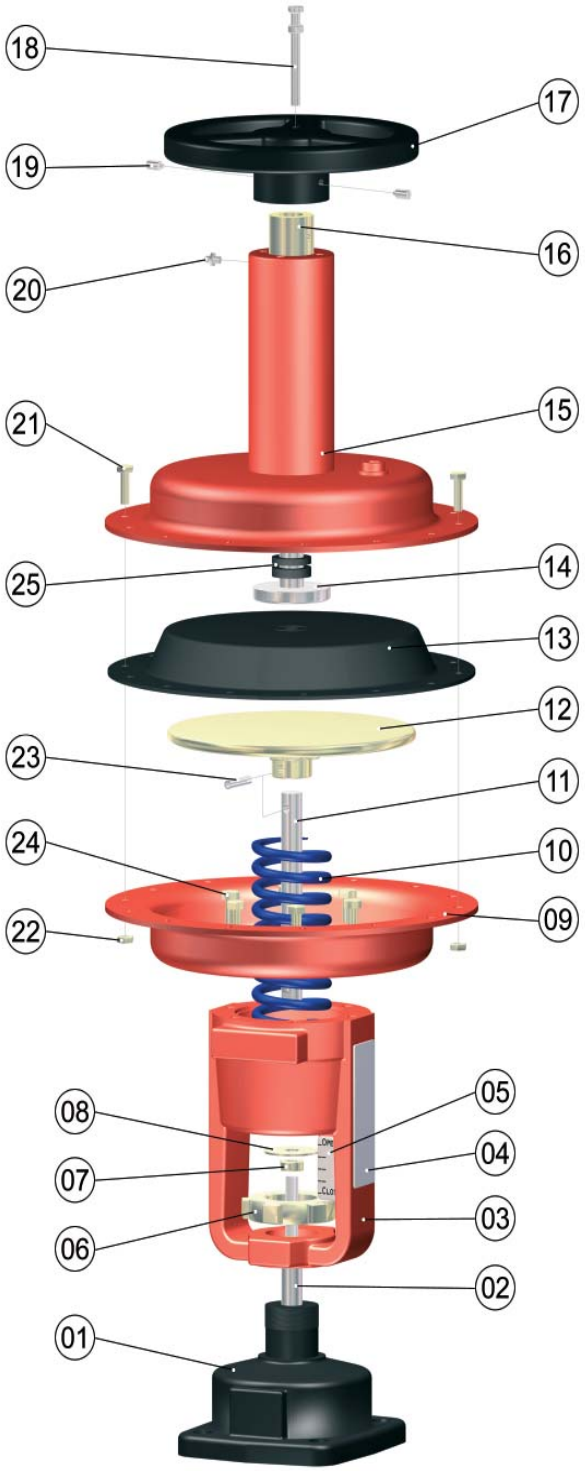
DRAWING 1 - AIR TO OPEN



Nº	PART LIST
01	Valve Bonnet
02	Valve spindle
03	Yoke
04	Label
05	Scale indicator
06	Lock nut-yoke
07	Travel indicator
08	Lock nut valve spindle
09	Adjustable mech. Stop
10	Gasket
11	Lower casing assembly
12	Actuator stem
13	Actuator Diaphragm
14	Diaphragm Plate
15	Spring
16	Spring retainer
17	Upper casing assly
18	Handwheel spindle
19	Check nut
19a	Grub screw
20	Lifiting screw
21	Handwheel
22	Retainers (2 Nos)
23	Nut plate (2 Nos)
23a	Grub screw
24	Studs
25	Nuts
26	Studs
27	U-seals (2 uds)
28	O ring
29	U-seals bush
30	Washer

Diaval © Data subject to change without prior notice

DRAWING 2 - AIR TO CLOSE



N°	PART LIST
01	Valve Bonnet
02	Valve spindle
03	Yoke
04	Label
05	Scale indicator
06	Lock nut-yoke
07	Lock nut valve spindle
08	Travel indicator
09	Lower casing assembly
10	Spring
11	Actuator stem
12	Diaphragm plate
13	Actuator Diaphragm
14	Handwheel spindle
15	Upper casing
16	Handwheel bush
17	Handwheel
18	Adjustable mech. stopper
19	Pin retainer (2 Nos)
20	Grease nipple
21	Studs
22	Nuts
23	Cross pin
24	Studs
25	U-seals

Diaval® Diaphragm Valves

Specification Data Sheet

PROJECT						PAGE N°			
CUSTOMER						REF			
TAG									
LINE									
FLUID									
STATE									
CONCENTRATION %									
TEMPERATURE									
INLET PRESSURE									
FLOW RATE									
VALVE DATA									
SIZE									
DESIGN	WEIR	ST	FF	WEIR	ST	FF	WEIR	ST	FF
F/F LENGTH									
ENDS									
Kvs / Cv									
ΔP									
BODY MATERIAL									
LINING MATERIAL									
DIAPHRAGM MATERIAL									
BONNET ASSEMBLY									
STEM MATERIAL									
HANDWHEEL									
ACTUATOR DATA									
TYPE	· PNEUMATIC			· PNEUMATIC			· PNEUMATIC		
	· ELECTRIC			· ELECTRIC			· ELECTRIC		
ACTUATOR DESIGN	· spring diaphragm	· piston type		· spring diaphragm	· piston type		· spring diaphragm	· piston type	
FUNCTION									
DIAPHRAGM AREA									
MAX. AIR SUPPLY									
VOLTAGE									
POWER (Kn)									
EMERGENCY H/W	· YES	· NO		· YES	· NO		· YES	· NO	
CONTROL ACCESSORIES									
· SOLENOID VALVE	· 3/2 W.	· 5/2 W.		· 3/2 W.	· 5/2 W.		· 3/2 W.	· 5/2 W.	
VOLTAGE									
PROTECTION									
· POSITIONER (I/P)									
SIGNAL									
PROTECTION									
·SPEED FLOW VLV.	· YES	· NO		· YES	· NO		· YES	· NO	
· AIR SET	· YES	· NO		· YES	· NO		· YES	· NO	
· LIMIT SWITCH	· YES	· NO		· YES	· NO		· YES	· NO	
TYPE									
QUANTITY									
CONTACT	· OPEN	· CLOSE		· OPEN	· CLOSE		· OPEN	· CLOSE	
PROTECTION									
·TUBING									
OTHER									
VALVE AND ACTUATOR MODEL NR.									
SOLENOID									
ACCESSORIES MODEL N°									
SOLENOID									
POSITIONER									
LIMIT SWITCH/ES									
REMARKS									

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves

Material Selection

Information contained in the Material Selection Chart is a combination of theoretical and application data, and should be taken as a guide only.

With constant material / process changes, Diaval® cannot accept responsibility for diaphragm and/or body material performance resulting from such changes.

Fluid	Body Material		Diaphragm		Notes
Abrasive Slurry - Non Acidic	Soft Rubber Lined	Ductile Iron	D10	D20 or D30	
Abrasive Slurry - Acidic	Butyl Lined		D20 or D30		
Acetic Acid up to 50%	Halar Lined	FEP Lined	D20 or D30		
Acetic Acid over 50%	Halar Lined	FEP Lined	D20 or D30		
Acetic Acid (Glacial)	Halar Lined	FEP Lined	D20 or D30		Sealed bonnet
Acetoacetic Ester	Halar Lined	Stainless Steel	D90		
Acetone	Ductile Iron		D20 or D30		
Acetylene	Ductile Iron	Cast steel	D20 or D30		No Copper
Alum	Hard Rubber Lined	Soft Rubber Lined	D10	D20 or D30	
Alumina	Ductile Iron	Soft Rubber Lined	D20 or D30	D10	
Aluminium Sulphate	Hard Rubber Lined	Butyl Rubber Lined	D10	D20 or D30	
Ammonia, Aqueous	Ductile Iron	Stainless Steel	D10	D20 or D30	Sealed Bonnet
Ammonia Gaseous	Ductile Iron	Stainless Steel	D10	D20 or D30	Sealed Bonnet
Ammonium Nitrate	Butyl Rubber Lined	FEP Lined	D20 or D30	D50	
Ammonium Phosphate	Butyl Rubber Lined		D10	D20 or D30	
Ammonium Sulphate	Butyl Rubber Lined		D20 or D30		
Aniline	FEP Lined	Stainless Steel	D93/70		
Antifreeze	Ductile Iron	Butyl Rubber Lined	D20 or D30		
Apple Juice	Stainless steel		D15		
Asbestos Cement	Soft Rubber Lined	Ductile Iron	D10		
Ash Handling	Soft Rubber Lined	Ductile Iron	D10		
Asphalt	Ductile Iron	Cast Steel	D20 or D30		
Avcat	Stainless steel	Cast Steel	D70	D20 or D30	
Avgas	Stainless steel	Cast steel	D70		
Avtag	Stainless steel	Cast steel	D70	D20 or D30	
Avtur	Stainless steel	Cast Steel	D70	Butyl	
Barium carbonate	Hard Rubber Lined	Stainless Steel	D20 or D30	D50	
Barium Sulphate	Soft Rubber Lined	Hard Rubber Lined	D20 or D30		
Barytes	Soft Rubber Lined	Hard Rubber Lined	D10		
Basic Slag	Soft Rubber Lined	Ductile Iron	D10		
Battery Acid	Hard Rubber Lined	Butyl Rubber Lined	D20 or D30		
Bauxite	Soft Rubber Lined		D10		
Beet Juice	Ductile Iron	Hard Rubber Lined	D20 or D30		
Benzene	Ductile Iron	Halar Lined	D93/70		
Benzyl Alcohol	FEP Lined	Halar Lined	D93/70		Sealed Bonnet
Bilge (ships)	Ductile Iron	Cast Steel	D40		
Blast Furnace Gas	Ductile Iron	Ductile Iron	D20 or D30		
Bleaching Powder	Hard Rubber Lined	Hypalon lined	D60		
Borax	Hard Rubber Lined		D10		
Brine	Hard Rubber Lined	Stainless steel	D10	D93/70	
Brine, Chlorinated	Hard Rubber Lined	Hypalon lined	D60		

Diaval® Diaphragm Valves

Material Selection

Fluid	Body Material		Diaphragm		Notes
Bromine	FEP Lined		D93/70		Sealed bonnet
BCF	Ductile Iron		D93/70		
Butane	Ductile Iron	Cast Steel	D40	D50	Sealed bonnet
Butanol	Ductile Iron	Cast Steel	D20 or D30		
Calcium Carbonate	Ductile Iron	Soft Rubber Lined	D10	D20 or D30	
Calcium Chloride	Hard Rubber Lined		D10	D20 or D30	
Calcium Hydroxide	Ductile Iron	Soft Rubber Lined	D10	D20 or D30	
Calcium Hypochlorie	Hard Rubber Lined	Ductile Iron	D60	D10	
Calcium Phosphate	Butyl Rubber Lined	Hard Rubber Lined	D10	D20 or D30	
Calcium Sulphate	Soft Rubber Lined	Ductile Iron	D10	D20 or D30	
Calor Gas	Ductile Iron		D40		
Cane Juice	Ductile Iron	Soft Rubber Lined	D20 or D30		
Carbon Black	Soft Rubber Lined	Ductile Iron	D10		
Carbon Dioxide	Ductile Iron	FDuctile Iron	D20 or D30		
Carbon Monoxide	Ductile Iron		D20 or D30		Sealed Bonnet
Carbon Tetrachloride	Ductile Iron	Ductile Iron	D93/70		
Castor Oil	Ductile Iron		D20 or D30		
Caustic Potash	Ductile Iron	Butyl Rubber Lined	D10	D20 or D30	Sealed Bonnet
Caustic Soda	Ductile Iron	Butyl Rubber Lined	D10	D20 or D30	Sealed Bonnet
Cement (Dry and Slurry)	Soft Rubber Lined	Ductile Iron	D10		
Chalk	Ductile Iron	Soft Rubber Lined	D10		
China Clay	Ductile Iron	Soft Rubber Lined	D10		
Chlorinated Brine	FEP Lined	Hard Rubber Lined	D60	D10	
Chorine Gas Dry	Ductile Iron	Halar Lined	D93/70		
Chorine Gas Moist	FEP Lined	Halar Lined	D93/70		
Chorine Gas Wet	FEP Lined	Halar Lined	D93/70		
Chlorine Water	Hard Rubber Lined	Halar Lined	D10		
Chloroform	FEP Lined	Stainless Steel	D93/70		
Chrome Alum	Butyl Rubber Lined	Halar Lined	D20 or D30		
Chrome Plating Solns	Butyl Rubber Lined	Halar Lined	D20 or D30		
Chrome Tanning Solns	Butyl Rubber Lined	Halar Lined	D20 or D30	D93/70	
Clays and Slips	Soft Rubber Lined	Ductile Iron	D10		
Coal Dust	Soft Rubber Lined	Ductile Iron	D10		
Coal Gas	Ductile Iron	Ductile Iron	D20 or D30	D40	
Coal Slurry	Soft Rubber Lined	Ductile Iron	D10		
Coke Oven Gas	Ductile Iron	Ductile Iron	D20 or D30	D40	
Compressed Air (Oil Free)	Ductile Iron	Cast steel	D40	D20 or D30	
Compressed Air (Oily)	Ductile Iron	Cast Steel	D40	D70	
Concrete	Soft Rubber Lined	Ductile Iron	D10		
Copper Plating Solutions	Butyl Rubber Lined	Halar Lined	D20 or D30		
Copper Sulphate	Butyl Rubber Lined	Halar Lined	D20 or D30		
Creosote	Hard Rubber Lined	Halar Lined	D70		

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves

Material Selection

Fluid	Body Material		Diaphragm		Notes
Creosote	Ductile Iron	Halar Lined	D70		
Crude Oil	Cast Steel	Ductile Iron	D70	D93/70	
Cutting Oil	Hard Rubber Lined		D40		
Demineralised Water	Hard Rubber Lined	Stainless Steel	D20 or D30	D93/70	
Detergents	Hard Rubber Lined	Halar Lined	D20 or D30	D10	
Dibutyl Phthalate	Halar Lined	Ductile Iron	D93/70		
Dichlorodifluoromethane	Ductile Iron	Cast steel	D93/70		
Diesel Oil	Ductile Iron	Cast steel	D70		
Diethyl Ether	Stainless Steel	Ductile Iron	D93/70		Sealed bonnet
Diethylene Glycol	Ductile Iron	Stainless Steel	D20 or D30		
Disinfectant (General)	Ductile Iron	Halar Lined	D50		
Dye Liquors	FEP Lined	Butyl Rubber Lined	EPDM	D20 or D30	
Electrolytic Tinplating Solutions	Butyl Rubber Lined	FEP Lined	D20 or D30		
Ethane	Ductile Iron	Cast Steel	D40	D50	
Ethanol	Ductile Iron	Stainless Steel	D20 or D30	D20 or D30	
Ether	Ductile Iron	Stainless Steel	D93/70		Sealed bonnet
Ethyl Acetate	Stainless Steel	Halar Lined	D20 or D30		
Ethyl Alcohol	Ductile Iron	Stainless Steel	D20 or D30		
Ethylene	Ductile Iron	Stainless Stee	D20 or D30		
Ethylene Glycol	Ductile Iron	Stainless Steel	D20 or D30		
Ferric Sulphate	Butyl Rubber Lined	Halar Lined	D10		
Fetilizers (Dry Powders)	Soft Rubber Lined	Ductile Iron	D10		
Fertilizer Slurries (Wet Process)	Butyl Rubber Lined	Ductile Iron	D20 or D30	D20 or D30	
Fire Foam	Ductile Iron	Cast steel	D40		
Flue Gas	Ductile Iron	Cast steel	D40	D20 or D30	
Fly Ash	Ductile Iron	Soft Rubber Lined	D10	Butyl	
Freon	Ductile Iron	Ductile Iron	D93/20	D50	
Fuel Oil	Ductile Iron	Cast steel	D40		
Gas (Coal)	Ductile Iron	Cast steel	D40		
Gas (Natural	Ductile Iron	Cast steel	D40		
Gasoline	Cast Steel	Ductile Iron	D70		
Glucose	Stainless Steel	Stainless steel	D20 or D30		
Glycerine	Stainless Steel	Hard Rubber Lined	D20 or D30		
Gravel	Soft Rubber Lined	Ductile Iron	D10		
Grease	Ductile Iron	Cast steel	D40		
Gypsum	Soft Rubber Lined	Ductile Iron	D10		
Hydraulic Oils (Vegetable Based)	Ductile Iron	Ductile Iron	D20 or D30		
Hydraulic Oils (Mineral Based)	Ductile Iron	Ductile Iron	D40		
Hydrobromic Acid	FEP Lined	Halar Lined	D93/70		
Hydrochloric Acid	Hard Rubber Lined	Halar Lined	D10	D93/70	
Hydrofluoric Acid	Butyl Rubber Lined	Halar Lined	D20 or D30		
Hydrogen	Ductile Iron	Cast Steel	D20 or D30	D10	Sealed Bonnet

© Data subject to change without prior notice

Diaval® Diaphragm Valves

Material Selection

Fluid	Body Material		Diaphragm		Notes
Hydrogen Peroxide	Hard Rubber Lined	Stainless Steel	PTFE/D70	D20 or D30	
Hypo	Hard Rubber Lined	Halar Lined	D10	D60	
Inert Gases	Ductile Iron	Ductile Iron	D20 or D30		
Inks	Stainless Steel	Halar Lined	D93/70	D20 or D30	
Insecticide Solutions	Ductile Iron	Ductile Iron	D40	D20 or D30	
Instrument Air	Ductile Iron	Stainless Steel	D20 or D30	D40	
Iron Oxide Slurry	Soft Rubber Lined	Ductile iron	D20 or D30		
Isopropanol	Ductile Iron	Hard Rubber Lined	D10	D20 or D30	
Kaolin	Soft Rubber Lined	Ductile Iron	D10		
Kerosene	Ductile Iron	Stainless Steel	D70	D93/70	
Laundry Bleach	Hard Rubber Lined	Halar Lined	D60	D10	
Lime	Ductile Iron	Soft Rubber Line	D10		
Liquid Paraffin	Ductile Iron	Ductile Iron	D40	D70	
Liquid Petroleum Gases (L.P.G.)	Ductile Iron	Cast Steel	D40	D20 or D30	Sealed bonnet
Lubricating Oils	Ductile Iron	Cast Steel	D40	D70	
Magnesium Chloride	Hard Rubber Lined	Butyl Rubber Lined	D10	D20 or D30	
Magnesium Oxide	Ductile Iron	Hard Rubber Line	D10	D20 or D30	
Magnesium Sulphate	Butyl Rubber Lined	Ductile Iron	D10	D20 or D30	
Magnetite	Soft Rubber Lined	Ductile Iron	D10		
Methane	Hard Rubber Lined	Ductile Iron	D20 or D30	D40	
Methanol	Ductile Iron	Stainless Steel	D20 or D30		
Methanol/Water Mixture	Ductile Iron	Hard Rubber Lined	D20 or D30	D10	
Methylated Spirits	Ductile Iron	Stainless Steel	D20 or D30		
Methyl Ethyl Ketone (MEK)	Stainless Steel	FEP Lined	D93/20		
Methyl Isobutyl Ketone	Stainless Steel	FEP Lined	D93/20	D20 or D30	
Milk	Stainless Steel		D15		
Mineral Oil	Ductile Iron	Cast Steel	D70	D40	
Molasses	Ductile Iron	Stainless Steel	D20 or D30		
Monosodium Glutamate	Hard Rubber Lined	Stainless Steel	D10		
Mortar and Cement	Soft Rubber Lined	Ductile Iron	D10	D20 or D30	
Naphtha	Ductile Iron	Cast steel	D70		
Napthalene	Ductile Iron	Cast steel	D70		
Natural Gas	Ductile Iron	Stainless Steel	D40	D50	
Nickel Plating Solutions	Butyl Rubber Lined	Halar Lined	D20 or D30	D60	
Nickel Plating Sludge	Butyl Rubber Lined	Halar Lined	D20 or D30	D60	
Nitric Acid	FEP Lined	Stainless Steel	D93/20	D70	Check grade of S.S.
Nitric Acid / Hydrofluoric Acid Mix	FEP Lined	Halar Lined	D93/70		
Nitrogen	Ductile Iron	Stainless steel	D20 or D30		
Nitrous Oxide (Dry)	Stainless Steel	FEP Lined	D20 or D30		
Oils, Animal	Ductile Iron	Stainless steel	D40	D93/20	
Oils, Cutting	Ductile Iron	Stainless steel	D70	D40	

Diaval © Data subject to change without prior notice

Diaval® Diaphragm Valves

Material Selection

Fluid	Body Material		Diaphragm		Notes
Oil Fuel	Ductile Iron	Stainless steel	D70	D40	
Oils, Lubricating	Ductile Iron	Stainless steel	D70	D40	
Oils, Mineral	Ductile Iron	Cast Steel	D70	D40	
Oil, Rolling	Ductile Iron	Cast Steel	D70	D40	
Oil, Transformer	Ductile Iron	Stainless Steel	D70	D40	
Oils, Vegetable	Stainless Steel	Ductile Iron	D40	D70	
Oleum	FEP Lined	Halar Lined	D93/70		
Olive Oil	Stainless Steel	Ductile Iron	D40	D93/20	
Oxygen	Ductile Iron	Stainless Steel	D50	D20 or D30	Degreased for Oxygen
Paint (Oil Based)	Ductile Iron	Stainless Steel	D40	D20 or D30	
Paint (Water Based)	Ductile Iron	Stainless Steel	D20 or D30	D93/20	
Paper Pulp	Hard Rubber Lined	Butyl Rubber Lined	D10	D20 or D30	
Paper Stock	Hard Rubber Lined	Butyl Rubber Lined	D10	D20 or D30	
Paraffin	Ductile Iron	Stainless Steel	D70	D40	
Paraffin Wax	Ductile Iron	Cast steel	D40	D70	
Paraquet	Ductile Iron	Halar Lined	D40		Sealed Bonnet
Pentane	Ductile Iron	Cast Steel	D70	D93/20	
Perchloroethylene	Ductile Iron	Cast Steel	D70	D93/70	
Petrol	Ductile Iron	Cast Steel	D70		Sealed Bonnet
Petroleum Jelly	Ductile Iron	Halar Lined	D70	D40	
Phosphoric Acid	Butyl Rubber Lined	Halar Lined	D20 or D30		
Photographic Developers	Halar Lined	FEP Lined	D20 or D30	D93/20	
Plating Solutions	Butyl Rubber Lined	Halar Lined	D20 or D30		
Polyethylene Glycol	Ductile Iron	Stainless Steel	D10	D20 or D30	
Potassium Chloride	Hard Rubber Lined	Halar Lined	D10	D20 or D30	
Potassium Cyanide	Hard Rubber Lined	Halar Lined	D10	D20 or D30	Sealed Bonnet
Potassium Ferricyanide	Hard Rubber Lined	Halar Lined	D20 or D30	D10	
Potassium Hydroxide	Ductile Iron	Hard Rubber Lined	D20 or D30	D10	Sealed Bonnet
Potassium Hypochlorite	Hard Rubber Lined	Halar Lined	D60	D10	
Potassium Phosphate	Hard Rubber Lined	Butyl Rubber Lined	D20 or D30	D10	
Pottery Slip	Soft Rubber Lined	Ductile Iron	D10		
Producer Gas	Ductile Iron	Cast steel	D20 or D30	D40	
Propane (Gas or Liquid)	Ductile Iron	Cast Steel	D40	D50	
Radioactive Effluents	Butyl Rubber Lined	Stainless Steel	D20 or D30		No Copper Parts.
Rock Salt	Soft Rubber Lined	Hard Rubber Lined	D10	D20 or D30	
Rolling Oil	Ductile Iron	Cast Steel	D70	D10	
Salt	Soft Rubber Lined	Hard Rubber Lined	D10	D20 or D30	
Sand	Soft Rubber Lined	Ductile Iron	D10	D20 or D30	
Sea Water	Stainless steel	Hard Rubber Lined	D10	D20 or D30	
Sewage	Ductile Iron	Hard Rubber Lined	D10	D50	
Silver Plating Solutions	Butyl Rubber Lined	Halar Lined	D20 or D30		

Diaval® Diaphragm Valves

Material Selection

Fluid		Body Material		Diaphragm		Notes
Slaked Lime		Ductile Iron	Soft Rubber Lined	D10	D20 or D30	
Slip (Pottery)		Soft Rubber Lined	Ductile Iron	D10		
Soap Lye		Ductile Iron	Butyl Rubber Lined	D10	D20 or D30	
Soap Solutions		Ductile Iron	Butyl Rubber Lined	D10	D20 or D30	
Sodium Bicarbonate		Ductile Iron	Halar Lined	D20 or D30	D93/D20	
Sodium Chloride		Soft Rubber Lined	Hard Rubber Lined	D10	D20 or D30	
Sodium Hydroxide		Ductile Iron	Hard Rubber Lined	D20 or D30	D10	Sealed Bonnet
Sodium Hydroxide (Oily)		Ductile Iron	Stainless Steel	D50	D40	
Sodium Hypochlorite		Hard Rubber Lined	Halar Lined	D10	D70	
Solvent Naphtha		Ductile Iron	Cast Steel	D70	D40	
Stannic Chloride		Halar Lined	FEP Lined	D20 or D30	D93/D20	
Starch Solutions		Ductile Iron	Halar Lined	D20 or D30	D60	
Stearic Acid		Stainless Steel	Halar Lined	D93/2D20		
Sugar		Ductile Iron	Stainless steel	D20 or D30	D15	
Sulphur Dioxide		Butyl Rubber Lined	Hard Rubber Lined	D20 or D30		
Sulphuric Acid	Below 75%	Butyl Rubber Lined	Halar Lined	D20 or D30	D70	
Sulphuric Acid	75-95%	Halar Lined	FEP Lined	D93/70	D70	
Sulphuric Acid	95-99%	Ductile Iron	Halar Lined	D93/70	D70	Sealed Bonnet
Sulphuric Acid	Over 99%	FEP Lined	Halar Lined	D93/70		
Syrups (Sugar)		Ductile Iron	Stainless steel	D20 or D30	D15	
Tetrachloroethane		Ductile Iron	Stainless Steel	D93/70	D70	Sealed Bonnet
Textile Dyes		Halar Lined	Butyl Rubber Lined	D20 or D30	D93/D20	
Tin Plating Solutions		Halar Lined	Butyl Rubber Lined	D93/D20	D20 or D30	
Titanium Dioxide		Butyl Rubber Lined	Hard Rubber Lined	D20 or D30	D10	
Toluene		Ductile Iron	Cast Steel	D93/70		
Transformer Oil		Stainless Steel	Ductile Iron	D70		
Trichloroethylene		Ductile Iron	Stainless Steel	D93/70	D70	Sealed Bonnet
Turpentine		Ductile Iron	FEP Lined	D40	D70	Sealed Bonnet
Vegetable Oils		Ductile Iron	Stainless Steel	D70	D93/20	
Vinegar		Stainless Steel		D93/D20		
Water	Cold	Ductile Iron	Stainless steel	D10	D20 or D30	
Water	De-mineralised	Hard Rubber Lined	FEP Lined	D10	D93/20	
Water	Drinking	Stainless steel	Stainless Steel	D20 or D30		
Water	Oily	Ductile Iron	Gunmetal	D40	D50	
Water	(Salt and Brackish)	Stainless steel	Hard Rubber Lined	D10	D20 or D30	
Wood Pulp		Ductile Iron	Soft Rubber Lined	D10	D20 or D30	
Wort		Ductile Iron	Stainless steel	D20 or D30		
Xylene		Ductile Iron	Cast Steel	D93/70	D70	
Zinc Oxide		Soft Rubber Lined	Stainless Steel	D10	D20 or D30	
Zinc Chloride		Stainless Steel	Butyl Rubber Lined	D20 or D30	D93/D20	
Zinc Plating Solutions		Butyl Rubber Lined	Hard Rubber Lined	D20 or D30		

Diaval © Data subject to change without prior notice



New Horizons in the Process Industry.

Diaval®



Comeval®
A COMPANY OF THE ARMATUREN GROUP

www.diaval.com