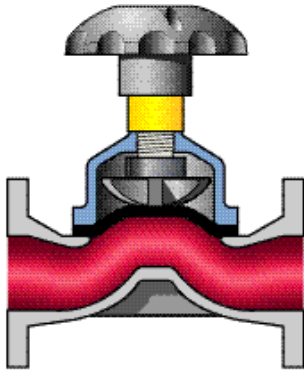


## Saunders A Type Diaphragm Valves

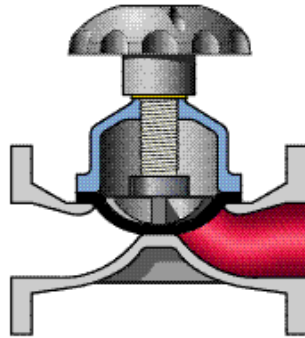
### Valve Benefits for Corrosive and Abrasive Applications

Our Saunders A Type diaphragm valves have been developed to handle a wider range of fluids and gases than any other valve type. A wide choice is available for materials, methods of operation and body end connections – to satisfy the needs of most corrosive and abrasive applications.



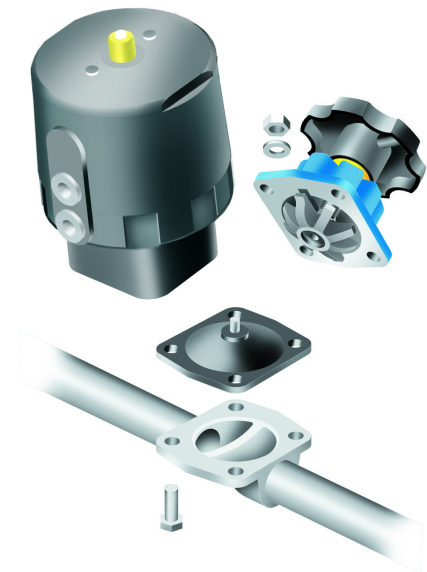
#### Valve flow

Pocketless design for contamination free performance and smooth flow characteristics. Linear operation ensures valve does not induce damaging pressure surges or static charges.



#### Ease of maintenance

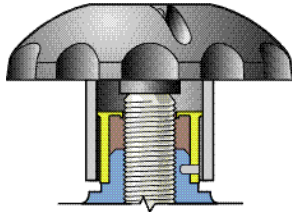
Three part design allows maintenance and actuator retrofitting without removing the valve from the pipeline. Overall this results in lower cost of ownership compared to other valve types.



On pressure and vacuum, Saunders diaphragm valves operate and close 100% leaktight even after thousands of operations. This feature reduces processing and handling costs, by eliminating emissions normally associated with conventional valve designs.

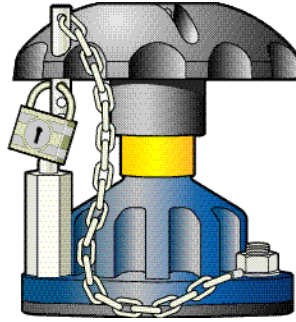
All working parts of the valves are isolated from the line media and positive closure is obtained even on frequent cycling or with entrained particulates in the line unlike quarter turn ball and butterfly valves. Throttling and control characteristics are enhanced by a streamlined flow path that is cavity free and provides excellent flow control capabilities.

Extended life, reliability, safety and ease of use, combined with an essentially simple design, results in low maintenance for minimum running costs.



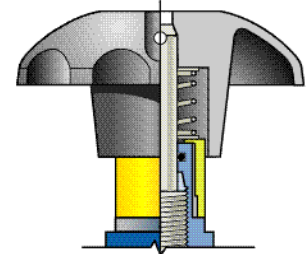
### Lubrication

Bonnet assembly lubricated for long life. Needs no additional grease. The indicator lip seal stops the ingress of dust, dirt and atmospheric contaminants.



### Padlock bonnet

Restricted valve operation can be achieved by utilising the padlocking bonnet option.

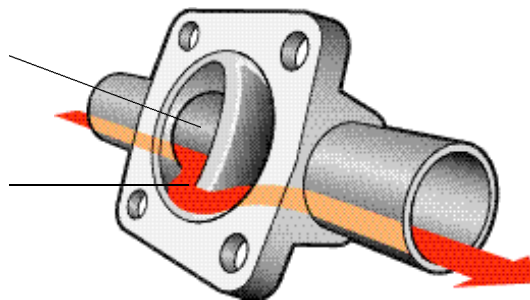


### Sealed bonnet

In cases where hazardous liquids or gases are being handled and where additional safety features are considered to be necessary.

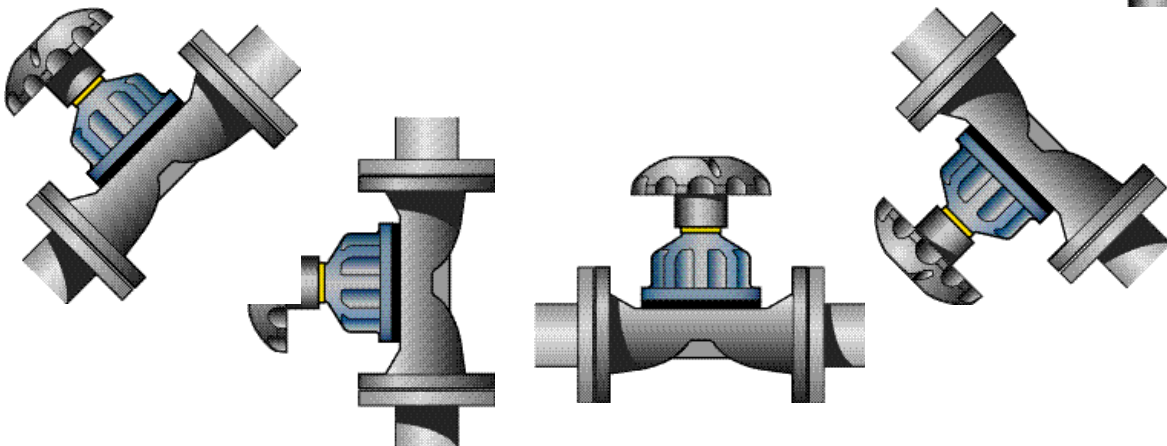
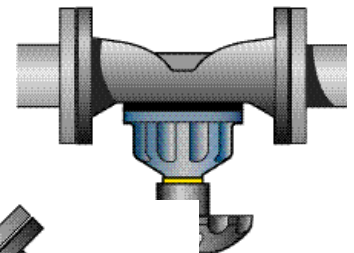
### Valve usable in any position

The Saunders valve can be installed in any position without affecting its operation. However, we recommend 6x pipe diameter from bend or pump.



### Valve set for self draining

The Saunders valve can be installed to assist self-draining if required. Please consult us for drainage angle advice.



# Saunders A Type Diaphragm Valves

## Materials of Construction – Valve Bodies

### Standard Unlined Body Material

#### CAST IRON

BS EN 1561	GJL-250	Flanged	DN15–DN500
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#### SG IRON

BS EN 1563	GJS-450-10	Screwed	DN15–DN50
BS EN 1563	GJS-400-18	Flanged	DN15–DN150
	GJS-400-18-LT		

#### CAST STEEL

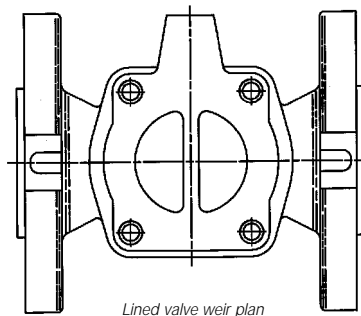
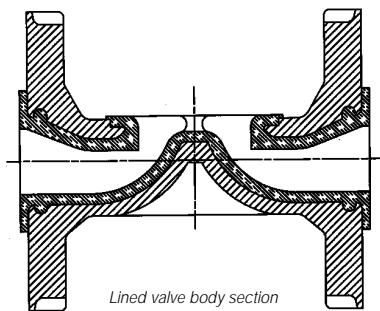
ASTM A216 WCB	Flanged	DN15–DN100
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#### BRONZE

BS EN 1982	CC491K-GS	Screwed	DN15–DN50
BS EN 1982	CC492K-GS	Flanged	DN15–DN100

#### STAINLESS STEEL

BS 3100	316C16	Screwed	DN15–DN50
BS 3100	316C16	Flanged	DN15–DN150



### Plastic lined body features

- ◆ SG iron body – high mechanical strength
- ◆ SG iron body – mechanically supports plastic lining
- ◆ Lining protected from ultraviolet (UV)
- ◆ Injection gate to side of weir flange means:-
  - Smooth weir for diaphragm sealing and zero leakage
  - Lining lock-on weir flange and in-bore inlet
  - Lining thickness range 3–5mm (DN20–DN150)

### Rubber lined body data

- ◆ Soft rubber linings
  - Butyl (Isobutylene isoprene), 60–66° IRHD
- ◆ Hard ebonite rubber HRL, 75–85° Shore D
- ◆ Lining thickness range 2–4.5mm (DN20–DN350)

### Valve body lining – production tests

All Saunders lined valves have each body individually tested for lining integrity.

- ◆ Glass lining – Spark test 10kV ac
- ◆ Rubber, Butyl – Spark test 14kV ac/dc
- ◆ Rubber, HRL – Spark test 17kV ac/dc
- ◆ Plastic lined – Spark test 20kV ac/dc



## Valve Body Linings for Saunders Valves

- ◆ **Hard Rubber – NR/HRL**  
Used for salts in water, dilute mineral acids, chlorine water, de-ionised water, plating solutions and potable water.

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- ◆ **Soft Butyl Rubber – IIR/BL**  
Good for corrosive and abrasive slurries, mineral acids and acidic slurries.

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- ◆ **Glass**  
Used in multi-process chemical plants on acids and solvents.

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- ◆ **Polypropylene – PP**  
Main applications include mineral acids, salts in water, water and effluent treatment chemicals.

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- ◆ **Ethylene tetrafluoroethylene – ETFE**  
Suitable for strong acids, salts in water at higher temperatures, solvents at medium temperature.

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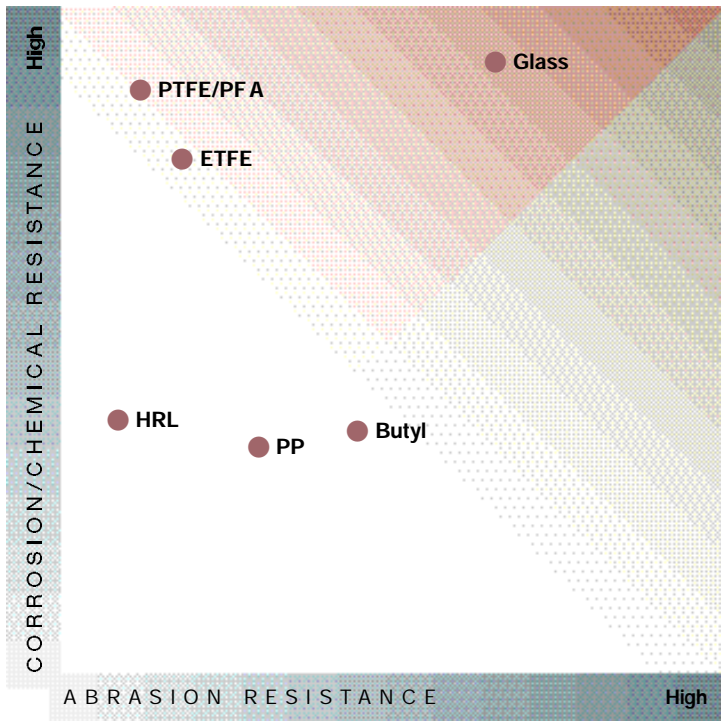
- ◆ **Perfluor oalkoxy – PFA**  
Most suitable for concentrated mineral acids at high temperature, aromatic, aliphatic and chlorinated solvents.

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- ◆ **Polytetrafluor oethylene – PTFE**  
Most suitable for concentrated mineral acids at high temperature, aromatic, aliphatic and chlorinated solvents.

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Valve Body Lining Materials – Visual Process Resistance Guide



# Saunders A Type Diaphragm Valves

## Materials of Construction – Diaphragms

We at Crane Process Flow Technologies are proud of our core competence, the in-house manufacture of Saunders diaphragms for use within our valve range. Many years of experience has resulted in a range of diaphragms, which handle a wide variety of fluids with total security. The guaranteed high performance of Saunders diaphragms results from stringent quality control and continuous development.



### Key Considerations

- ◆ High flex performance
- ◆ Good compression set properties
- ◆ Chemical resistance
- ◆ Abrasion resistance
- ◆ Anti-aging
- ◆ Approvals, traceability

### Diaphragm Construction

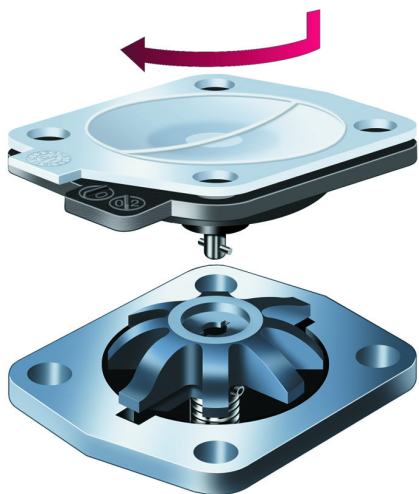
#### Rubber Diaphragms

The polymer material is bonded with a high strength woven reinforcement to ensure maximum strength and durability.

- ◆ Constructed with multi-layers of rubber and nylon reinforcement
- ◆ Studs are attached with bonding adhesive and mechanical anchorage
- ◆ Rib on face for weir flange and across weir for leak tight sealing and lower closure torque
- ◆ Compressor support in both the open and closed positions for extended life

#### PTFE Diaphragms

A two piece construction PTFE face with a rubber backing diaphragm to increase pressure rating and durability. These diaphragms have a bayonet fitting to ensure reliable installation, reduced point loading and ensure maximum life. The 214K is three piece specially reinforced for chlorine service.



PTFE diaphragm bayonet fixing



Rubber diaphragm screw fixing

## Saunders A Type Diaphragm Valves

### Diaphragm Materials of Construction

Grade	Elastomer type	General service and approvals
<b>C</b>	Butadiene Acrylonitrile, sulphur cured, black reinforced	Lubricating oil, cutting oils, paraffin, animal and vegetable oils, aviation kerosene
<b>CV</b>	Butadiene Acrylonitrile, sulphur cured, black reinforced	Vacuum where oils are present, compressed air, liquid petroleum gas (LPG)
<b>HT</b>	Polychloroprene, sulphur cured, black reinforced	Abrasive slurries containing hydrocarbons
<b>Q</b>	Natural rubber polyisoprene/SBR, sulphur cured, black reinforced	Salts in water, dilute acids and alkalies, abrasives
<b>226</b>	Fluoroelastomer, amine cured, black reinforced	Concentrated acids, aromatic solvents, chlorine, ozone, chlorinated solvents, unleaded petroleum
<b>237</b>	Chlorosulphonated polyethylene metal oxide cured, black reinforced	Strong acids, sodium hypochlorite, chlorine gas
<b>286</b>	Chlorosulphonated polyethylene metal oxide cured, black reinforced Kevlar fabric reinforced	Fire mains isolation in WFB valve
<b>300</b>	Isobutylene Isoprene, resin cured black reinforced	Salts in water, dilute acids and alkalies, drinking water, Food & Drug Administration (FDA), United States Pharmacopeia (USP), Water Regulations Advisory Scheme (WRAS)
<b>425</b>	Ethylene propylene (EPM) organic peroxide cured, black reinforced	Salts in water, acids and alkalies, ozone, intermittent steam, drinking water, FDA, USP, WRAS
<b>425V</b>	Ethylene propylene (EPM) organic peroxide cured, black reinforced	Vacuum where acid, alkali, water vapours are present, FDA, USP, WRAS
<b>214/226</b>	Virgin PTFE/Fluoroelastomer – two piece	Strong acids, solvents, chlorine, bromine at higher temperatures
<b>214/300</b>	Virgin PTFE/Isobutylene isoprene – two piece	Strong acids, alkalies and salts in water at high temperature. Constant steam, water for injection (WFI), biopharmaceuticals, FDA USP, WRAS
<b>214/425</b>	Virgin PTFE/Ethylene propylene – two piece	Strong acids, alkalies and salts in water at high temperature. Constant steam, water for injection (WFI), biopharmaceuticals, FDA, USP, WRAS
<b>214S/425</b>	Virgin PTFE/PPVE/Ethylene propylene – two piece	Strong acids, alkalies and salts in water at high temperature. Constant and intermittent steam, WFI, biopharmaceuticals, FDA, USP, WRAS
<b>214K/425</b>	Virgin PTFE/PVDF/Ethylene propylene – three piece	Chlorine, bromine gas and chlorinated solvents

#### Standard

- ◆ Rubber diaphragms have a brass stud
- ◆ Diaphragms suitable for vacuum duties (eg. CV) have steel stud
- ◆ PTFE diaphragms are fitted with stainless steel bayonet

#### Saunders Diaphragms are provided with:-

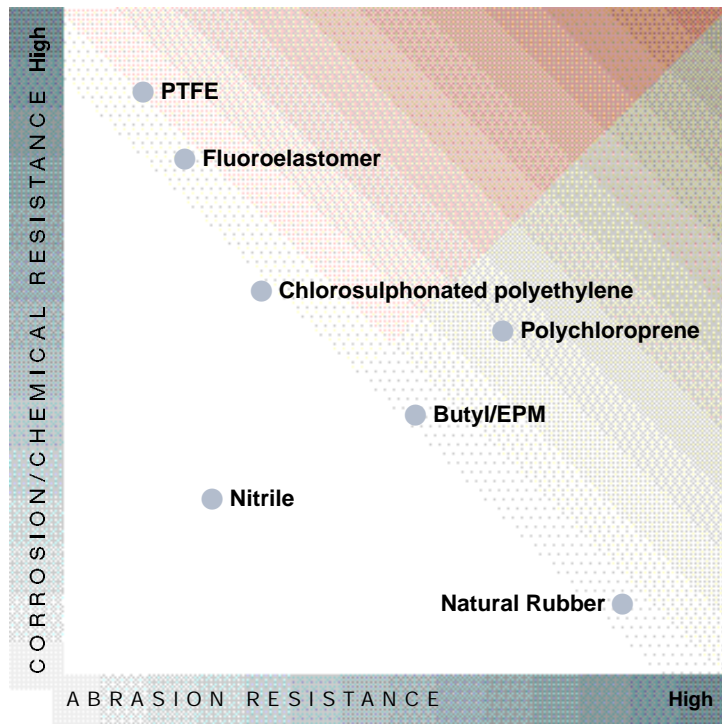
- ◆ Full traceability of manufacture
- ◆ Coding tag for both material and batch number for easy identification
- ◆ Saunders name to confirm genuine manufacture and maximum reliability



# Saunders A Type Diaphragm Valves

## Diaphragm Materials

Diaphragm Materials – Visual Process Resistance Guide



Material	Grade
PTFE	214/214K
Fluoroelastomer	226
Chlorosulphonated polyethylene	237
Polychloroprene	HT
Nitrile	C, CV
Butyl	300, 300V
EPM	425, 425V
Natural Rubber	Q

### Maximum working pressure (bar) – A Type valves

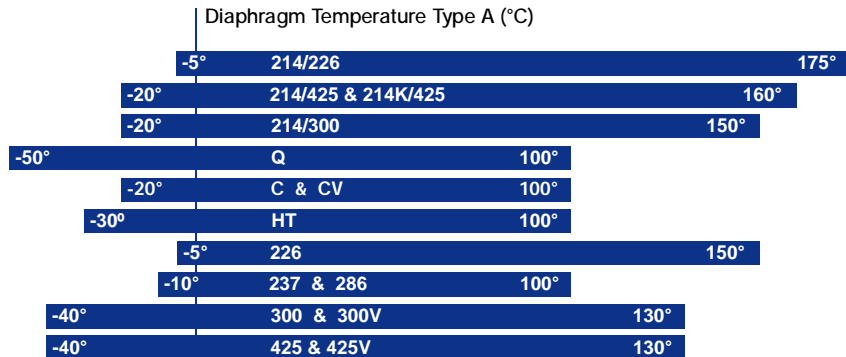
As with all valves, the application and environment have a major bearing on actual valve operating limits, but the following can be used as a guide to the maximum operational limits.

Bonnet assemblies with rubber diaphragm																	
Size DN	8	10	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
Non-rising handwheel														6	5	4	3.5
Rising handwheel	16	16	16	16	16	16	16	16	10	10	10	10	10				
WFB and tank cleaning							15	15									

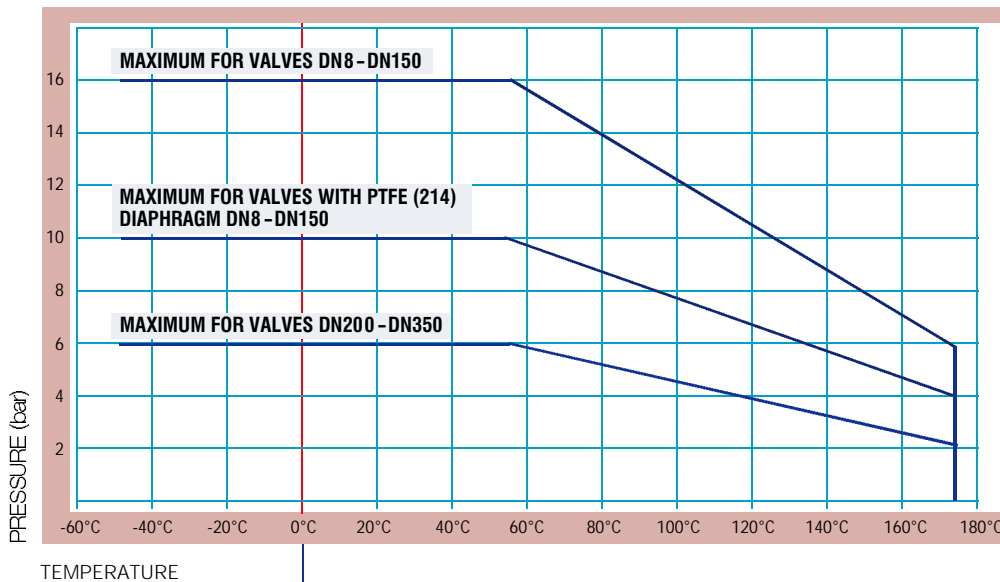
Bonnet assemblies with PTFE faced diaphragm															
Size DN	8	10	15	20	25	32	40	50	65	80	100	125	150	200	250
Non-rising handwheel														6	5
Rising Handwheel	10	10	10	10	10	10	10	10	10	10	10	10	7		

## Diaphragm Performance

### Temperature and Pressure Relationship



### Valve Body Temperature/Pressure Relationship



### Body Temperature Limit (°C)\*\*

-10°	HARD RUBBER LINED	85°
-10°	POLYPROPYLENE LINED (P.P.)	85°*
-10°	BUTYL RUBBER LINED	110°
-10°	ETHYLENE TETRAFLUOROETHYLENE (ETFE)	150°
-10°	CAST IRON: UNLINED, GLASS LINED & PTFE LINED	175°
-10°	SGIRON: UNLINED AND PFA LINED	175°
-30°	OTHER METALS: CARBON STEEL, STAINLESS STEEL, COPPER ALLOYS	175°

Temperature bands for diaphragms are shown as a guide only. Many aspects of service conditions will determine the highest working temperature. For example, 325 diaphragms have given excellent performance under certain conditions up to 150°C.

\* Depends on body substrate material.

\*\* When lined body is cast steel, minimum temperature is -30°C.

When SG Grade EN-GJS-400-18-LT is used, minimum temperature is -20°C.



# Saunders Diaphragm Valves

## Dimensions, Weights and Standards

### Valve Standards

As well as being in overall lengths to EN 558-1 Series 1 and Series 7 and MSS SP88, Saunders valves are manufactured to the following standards:

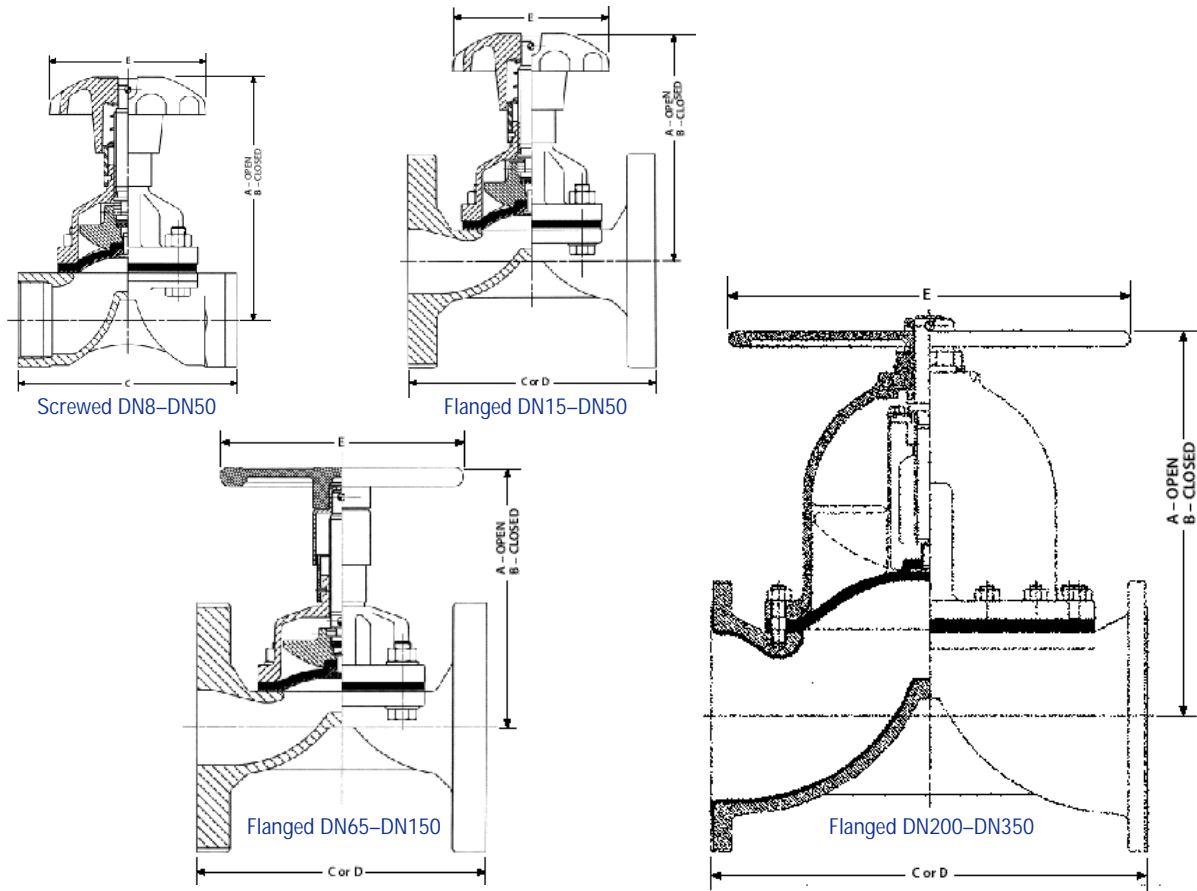
Flanges	
<b>BRITISH</b>	BS 10 tables D and E BS 4504 tables PN10/16 BS 1560 Class 150
<b>EUROPEAN</b>	EN 1092-1 PN10/16 EN 1092-2 PN10/16
<b>AMERICAN</b>	ASME/ANSI B16.1 Class 125 ASME/ANSI B16.5 Class 150 and B16.24 Class 150
<b>JAPANESE</b>	JIS B 2212

Female screwed pipe connections	
<b>BRITISH</b>	BS 21 taper BS 21 parallel
<b>AMERICAN</b>	API 5B
<b>GERMAN</b>	DIN 259
<b>INTERNATIONAL</b>	ISO 7/1 taper ISO 7/1 parallel



## Saunders A Type Diaphragm Valves

### Dimensions and Weights



#### Valve Diameter (DN)

	8	10	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	
Screwed	<b>A</b>	54	67	90	94	119	154	164	188	-	-	-	-	-	-	-	-	-
	<b>B</b>	52	61	84	88	108	142	148	164	-	-	-	-	-	-	-	-	-
	<b>C</b>	49	49	63.5	83	111	125	145	168	-	-	-	-	-	-	-	-	-
	<b>Weight</b>	0.11	0.15	0.45	0.90	1.13	1.80	2.70	5.00	-	-	-	-	-	-	-	-	-
Flanged	<b>A</b>	-	-	100	91	108	143	157	175	226	243	308	388	442	495	581	679	660
	<b>B</b>	-	-	93	85	98	131	141	152	194	208	262	322	367	-	-	-	-
	<b>C</b>	-	-	108	117	127	146	159	190	216	254	305	356	406	521	635	749	749
	<b>D</b>	-	-	130	150	160	180	200	230	290	310	350	400	480	600	730	850	980
<b>Weight</b>	-	-	1.80	1.80	2.70	4.00	4.90	7.70	14.0	19.0	31.7	48.0	62.1	152	270	360	506	
Flanged Rubber Lined	<b>A</b>	-	-	-	97	111	146	160	177	229	246	311	391	445	498	585	683	664
	<b>B</b>	-	-	-	91	101	134	144	154	197	212	265	325	370	-	-	-	-
	<b>C</b>	-	-	-	121	131	150	163	194	220	258	309	362	412	527	641	755	755
	<b>D</b>	-	-	-	150	160	180	200	230	290	310	350	400	480	600	730	850	980
<b>Weight</b>	-	-	-	2.70	3.10	4.50	5.40	8.20	15.0	20.4	33.1	49.2	63.0	154	273	365	512	
Flanged Glass Lined	<b>A</b>	-	-	101	92	109	144	158	176	227	244	309	389	443	496	582	-	-
	<b>B</b>	-	-	94	86	99	132	142	153	195	210	263	323	368	-	-	-	-
	<b>C</b>	-	-	110	119	129	148	161	192	218	256	307	358	408	523	637	-	-
	<b>D</b>	-	-	130	150	160	180	200	230	290	310	350	400	480	600	730	-	-
<b>Weight</b>	-	-	1.80	1.80	3.10	4.50	5.40	8.20	14.5	19.5	32.2	48.5	62.6	153	272	-	-	
Flanged Plastic Lined	<b>A</b>	-	-	-	97	112	-	162	176	-	246	314	-	450	-	-	-	-
	<b>B</b>	-	-	-	91	102	-	145	155	-	211	267	-	374	-	-	-	-
	<b>C</b>	-	-	-	123	133	-	165	196	-	260	311	-	412	-	-	-	-
	<b>D</b>	-	-	-	150	160	-	200	230	-	310	350	-	480	-	-	-	-
<b>Weight</b>	-	-	-	2.70	3.10	-	5.40	8.20	-	20.4	33.1	-	63.0	-	-	-	-	
<b>E</b>	38	50	62	62	80	120	120	120	170	230	280	280	368	482	584	699	699	

Weights in kg. **C** valve length = EN 558-1 Series 7 (ex BS 5156). **D** valve length = EN 558-1 Series 1 (ex DIN 3202 Series F1).

# Saunders A Type Valve

Flow Co-efficient of Valve Range Cv (Kv)

DN 15	BODY MATERIAL / LINING							
	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
% Open								
100	5.50	4.71	-	-	6.00	5.14	-	-
90	5.28	4.53	-	-	5.75	4.93	-	-
80	5.06	4.33	-	-	5.51	4.72	-	-
70	4.83	4.14	-	-	5.27	4.52	-	-
60	4.61	3.95	-	-	5.03	4.31	-	-
50	3.84	3.29	-	-	4.19	3.59	-	-
40	3.08	2.62	-	-	3.35	2.87	-	-
30	2.30	1.97	-	-	2.51	2.15	-	-
20	1.54	1.32	-	-	1.67	1.43	-	-
10	0.77	0.66	-	-	0.83	0.71	-	-
0	0	0	-	-	0	0	-	-

DN 20	BODY MATERIAL / LINING							
	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
% Open								
100	11.50	9.86	9.20	7.89	12.00	10.29	6.50	5.59
90	11.03	9.45	9.00	7.71	11.51	9.87	6.24	5.35
80	10.57	9.06	8.80	7.54	11.03	9.45	5.98	5.13
70	10.12	8.67	8.40	7.20	10.55	9.04	5.72	4.90
60	9.66	8.28	7.70	6.60	10.07	8.63	5.45	4.67
50	8.05	6.90	6.70	5.74	8.39	7.19	4.54	3.89
40	6.43	5.51	5.50	4.71	6.71	5.75	3.63	3.11
30	4.83	4.14	4.10	3.51	5.03	4.31	2.72	2.33
20	3.21	2.75	2.50	2.14	3.35	2.87	1.81	1.55
10	1.60	1.37	1.00	0.86	1.67	1.43	0.90	0.77
0	0	0	0	0	0	0	0	0

DN 25	BODY MATERIAL / LINING							
	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
% Open								
100	17.60	15.09	14.00	12.00	18.00	15.43	11.19	9.60
90	16.29	13.96	13.70	11.74	17.28	14.81	10.75	9.21
80	16.19	13.88	13.40	11.49	16.56	14.19	10.30	8.83
70	15.48	13.26	12.70	10.89	15.83	13.57	9.85	8.42
60	14.78	12.67	11.60	9.94	15.11	12.95	9.40	8.06
50	12.32	10.56	10.20	8.74	12.59	10.79	7.83	6.71
40	9.85	8.44	8.40	7.20	10.07	8.63	6.27	5.37
30	7.39	6.33	6.30	5.40	7.55	6.47	4.70	4.02
20	4.92	4.22	3.80	3.25	5.03	4.31	3.13	2.68
10	2.46	2.11	1.50	1.29	2.51	2.15	1.56	1.34
0	0	0	0	0	0	0	0	0

DN 32	BODY MATERIAL / LINING							
	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
% Open								
100	27.50	23.57	22.00	18.86	28.00	24.00	16.70	14.31
90	26.39	22.61	21.12	18.10	26.88	23.04	16.03	13.74
80	25.29	21.68	20.24	17.35	25.75	22.07	15.36	13.17
70	24.20	20.74	19.35	16.59	24.64	21.11	14.69	12.59
60	23.09	19.79	18.47	15.83	23.51	20.15	14.02	12.02
50	19.25	16.50	15.39	13.19	19.60	16.80	11.69	10.02
40	15.39	13.19	12.32	10.57	15.67	13.43	9.35	8.01
30	11.54	9.89	9.23	7.91	11.75	10.07	7.01	6.01
20	7.69	6.59	6.16	5.28	7.83	6.71	4.67	4.00
10	3.84	3.29	3.08	2.62	3.91	3.35	2.33	1.98
0	0	0	0	0	0	0	0	0

DN 40	BODY MATERIAL / LINING							
	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
% Open								
100	43.00	36.86	35.00	30.00	45.00	38.57	31.00	26.57
90	41.28	35.40	34.00	29.14	43.20	37.03	29.76	25.51
80	39.56	33.91	33.6	28.80	41.39	35.48	28.51	24.43
70	37.84	32.43	32.00	27.43	39.59	33.93	27.28	23.38
60	36.11	30.95	29.00	24.86	37.79	32.41	26.03	22.32
50	30.10	25.81	26.00	22.28	31.50	27.00	21.69	18.59
40	24.07	20.63	21.00	18.00	25.19	21.59	17.35	14.87
30	18.05	15.47	16.00	13.68	18.89	16.19	13.01	11.15
20	12.03	10.31	9.5	8.14	12.59	10.79	8.67	7.43
10	6.01	5.15	3.9	3.34	6.29	5.39	4.33	3.71
0	0	0	0	0	0	0	0	0

DN 50	BODY MATERIAL / LINING							
	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
% Open								
100	80.00	68.61	64.00	54.89	88.00	75.47	59.00	50.60
90	76.80	65.86	63.00	54.03	84.48	72.45	56.00	48.00
80	73.59	63.11	61.00	52.31	80.96	69.43	54.00	46.29
70	70.40	60.37	58.00	49.71	77.43	66.40	52.00	44.57
60	67.19	57.62	53.00	45.43	73.91	63.38	50.00	42.86
50	56.00	48.03	47.00	40.29	61.69	52.82	41.00	35.14
40	44.79	38.39	38.00	32.57	49.28	42.24	33.00	28.28
30	33.59	28.79	29.00	24.86	36.95	31.67	25.00	21.43
20	22.39	19.19	17.00	14.57	24.64	21.11	16.00	13.71
10	11.19	9.60	7.00	6.00	12.32	10.56	8.00	6.86
0	0	0	0	0	0	0	0	0

DN 65	BODY MATERIAL / LINING							
	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
% Open								
100	127.00	108.80	102.00	87.40	132.00	113.10	83.00	71.10
90	121.00	103.70	97.90	83.90	126.00	108.00	79.70	68.30
80	116.00	99.40	93.80	80.40	121.00	103.70	76.40	65.40
70	111.00	95.10	89.80	76.90	116.00	99.40	73.00	62.60
60	106.00	90.90	85.70	73.40	110.00	94.30	69.70	59.80
50	88.90	76.20	71.40	61.20	92.40	79.20	58.10	49.80
40	71.12	60.90	57.10	48.90	73.90	63.40	46.50	39.80
30	53.33	45.70	42.80	36.70	55.40	47.50	34.90	29.90
20	35.56	30.50	28.60	24.50	37.00	31.70	23.20	19.90
10	17.78	15.20	14.30	12.20	18.50	15.84	11.60	9.90
0	0	0	0	0	0	0	0	0

DN 80	BODY MATERIAL / LINING							
	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
% Open								
100	185.00	158.60	148.00	126.90	186.00	159.40	148.00	126.90
90	177.00	151.70	145.00	124.30	178.00	152.60	142.00	121.70
80	170.00	145.70	142.00	121.70	171.00	146.60	136.00	116.60
70	162.00	138.90	135.00	115.70	163.00	139.70	130.00	111.40
60	155.00	132.90	123.00	105.40	156.00	133.70	124.00	106.30
50	129.00	110.60	108.00	92.60	130.00	111.40	103.00	88.30
40	103.00	88.30	89.00	76.30	104.00	89.10	82.90	71.00
30	77.70	66.60	67.00	48.90	78.10	67.00	62.20	44.70
20	51.80	44.40	40.00	34.30	52.10	44.60	41.40	35.50
10	25.90	22.20	16.00	13.70	26.00	22.30	20.70	17.80
0	0	0	0	0	0	0	0	0

DN 100 BODY MATERIAL / LINING								
% Open	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
100	315	270	252	216	336	288	270	231
90	302	259	247	212	322	276	259	222
80	289	248	242	207	309	265	248	213
70	277	237	229	196	295	253	237	203
60	264	226	209	179	282	242	226	194
50	220	189	184	158	235	201	189	172
40	176	151	151	129	188	161	151	129
30	132	113	113	97	141	121	113	97
20	88.20	76	68	50	94.10	81	75.60	65
10	44.10	38	28	24	47.00	40	37.80	32.40
0	0	0	0	0	0	0	0	0

DN 125 BODY MATERIAL / LINING								
% Open	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
100	420	360	363	311	440	377	-	-
90	403	345	348	298	422	362	-	-
80	386	331	333	285	404	346	-	-
70	369	316	319	273	387	332	-	-
60	352	302	304	261	369	316	-	-
50	294	252	254	218	308	264	-	-
40	235	201	203	174	246	211	-	-
30	176	151	152	130	184	158	-	-
20	117	100	101	87	123	105	-	-
10	59	49	51	44	62	53	-	-
0	0	0	0	0	0	0	-	-

DN 150 BODY MATERIAL / LINING								
% Open	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
100	605	519	484	415	630	540	505	433
90	580	497	474	406	604	518	484	414
80	556	477	465	399	579	496	464	398
70	532	456	440	377	554	475	444	381
60	508	435	402	345	529	453	424	363
50	423	363	353	303	441	378	353	303
40	338	290	290	249	352	302	282	242
30	254	218	218	187	264	226	212	182
20	169	145	131	112	176	151	141	121
10	85	73	53	45	88	75	71	61
0	0	0	0	0	0	0	0	0

DN 200 BODY MATERIAL / LINING								
% Open	Cast iron		Rubber Lined		Glass		Plastic Lined	
	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
100	1300	1114	1309	1122	1320	1131	-	-
90	1248	1070	1256	1077	1267	1086	-	-
80	1196	1025	1204	1032	1214	1041	-	-
70	1144	981	1151	987	1161	995	-	-
60	1092	936	1099	942	1108	950	-	-
50	910	780	916	785	924	792	-	-
40	728	624	733	628	739	633	-	-
30	546	468	549	471	554	475	-	-
20	364	312	366	314	369	316	-	-
10	182	156	183	157	184	158	-	-
0	0	0	0	0	0	0	-	-

DN 250 BODY MATERIAL / LINING						
% Open	Cast iron		Rubber Lined		Glass	
	Cv	Kv	Cv	Kv	Cv	Kv
100	1980	1697	2000	1714	2100	1800
90	1900	1629	1920	1646	2015	1727
80	1821	1561	1840	1577	1932	1656
70	1742	1493	1760	1509	1848	1584
60	1663	1425	1679	1439	1763	1511
50	1386	1188	1400	1200	1470	1260
40	1108	950	1120	960	1176	1008
30	831	712	839	719	881	755
20	554	475	560	480	588	504
10	277	237	280	240	294	252
0	0	0	0	0	0	0

DN 300 BODY MATERIAL / LINING						
% Open	Cast iron		Rubber Lined		Glass	
	Cv	Kv	Cv	Kv	Cv	Kv
100	3700	3171	3750	3214	3880	3326
90	3552	3045	3600	3086	3724	3191
80	3404	2917	3450	2957	3569	3059
70	3256	2791	3300	2829	3414	2926
60	3107	2663	3149	2699	3259	2793
50	2590	2220	2625	2250	2716	2327
40	2072	1776	2100	1800	2172	1861
30	1553	1331	1574	1349	1629	1396
20	1036	888	1050	900	1086	931
10	518	444	525	450	543	465
0	0	0	0	0	0	0

DN 350 BODY MATERIAL / LINING						
% Open	Cast iron		Rubber Lined		Glass	
	Cv	Kv	Cv	Kv	Cv	Kv
100	3700	3171	3750	3214	3880	3326
90	3552	3045	3600	3086	3724	3191
80	3404	2917	3450	2957	3569	3059
70	3256	2791	3300	2829	3414	2926
60	3107	2663	3149	2699	3259	2793
50	2590	2220	2625	2250	2716	2327
40	2072	1776	2100	1800	2172	1861
30	1553	1331	1574	1349	1629	1396
20	1036	888	1050	900	1086	931
10	518	444	525	450	543	465
0	0	0	0	0	0	0

Note: Differing Cv & Kv rating can be derived, depending on the method used for testing. The tables above are based on British Standards 1042 and EN 605314/IEC 534.2.3 and show flow in US gallons per minute and cubic metres per hour.

**Cv** is flow in US gpm through valve at P of 1 psi  
**Kv** is flow in m<sup>3</sup>/hr through valve at P of 1 bar

## Saunders A Type Diaphragm Valves

Large Valve Sizes: DN400, DN450 & DN500

Some applications, for example, in the minerals processing and water treatment industries involving corrosive and abrasive slurries, have successfully utilised larger size Saunders diaphragm valves for many years. Double weir options are also available.

These double weir bodies utilise diaphragms and bonnets from the tried and tested DN300 and DN350 range of valves.

### Valve sizes

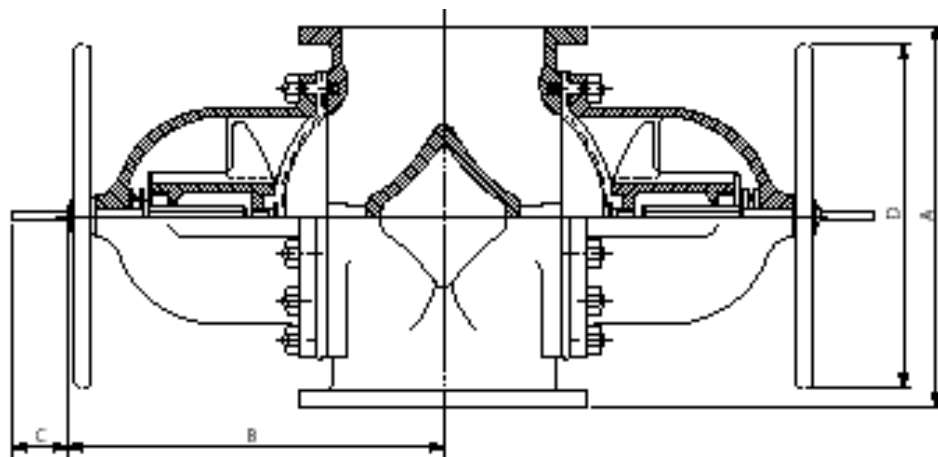
DN400 fitted with two DN300 bonnets

DN450 fitted with two DN300 bonnets

DN500 fitted with two DN350 bonnets



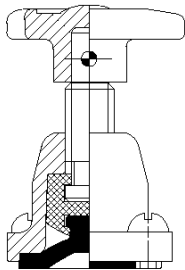
*Large A Type valves installed in a distillery*



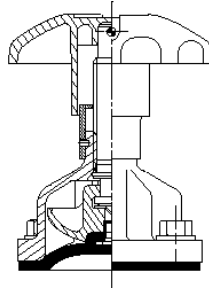
Size DN	A	B	C (TRAVEL)	D
400	750	750	190	700
450	750	750	190	700
500	750	780	230	700

## Manual Bonnet Options for A Type Valves

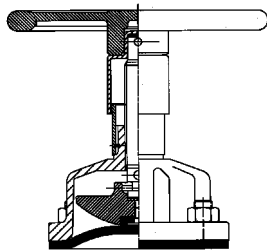
### Standard Range



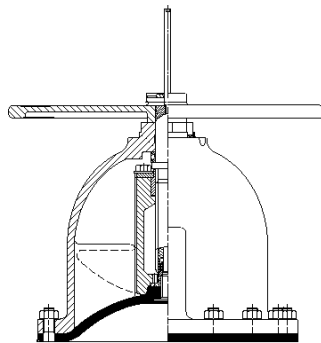
**Rising Handwheel**  
Valve sizes: DN8 to DN10



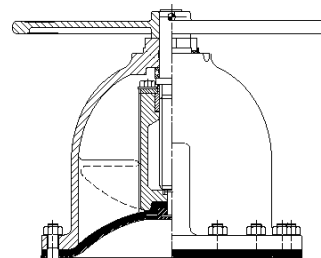
**Cast Iron Rising Handwheel Bonnet**  
Valve sizes: DN15 to DN50



**Cast Iron Rising Handwheel**  
Valve sizes: DN65 to DN150

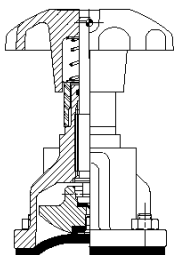


**Non-rising Handwheel with Indicator**  
Valve sizes: DN200 to DN300

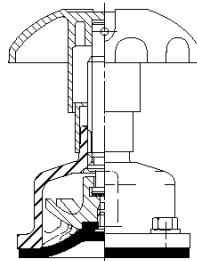


**Non-rising Handwheel without Indication**  
Valve sizes: DN200 to DN350

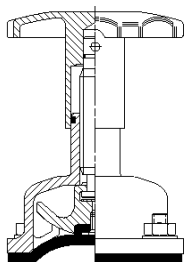
### High Performance Range



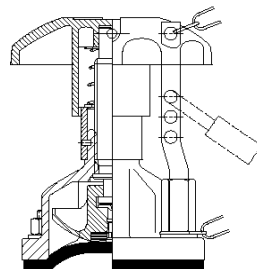
**Fluoroelastomer Sealed Bonnet**  
Valve sizes: DN15 to DN150\*



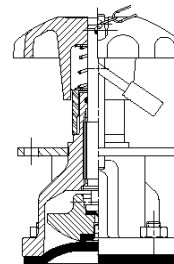
**Stainless Steel**  
Valve sizes: DN15 to DN150\*



**Stainless Steel (Silicone Sealed)**  
Valve sizes: DN8 to DN80



**Rising Handwheel Indicator (simple padlocking)**  
Valve sizes: DN15 to DN150\*



**Fluoroelastomer Sealed Padlocking**  
Valve sizes: DN15 to DN150\*

\* Handwheel is spoked design DN65 – DN150