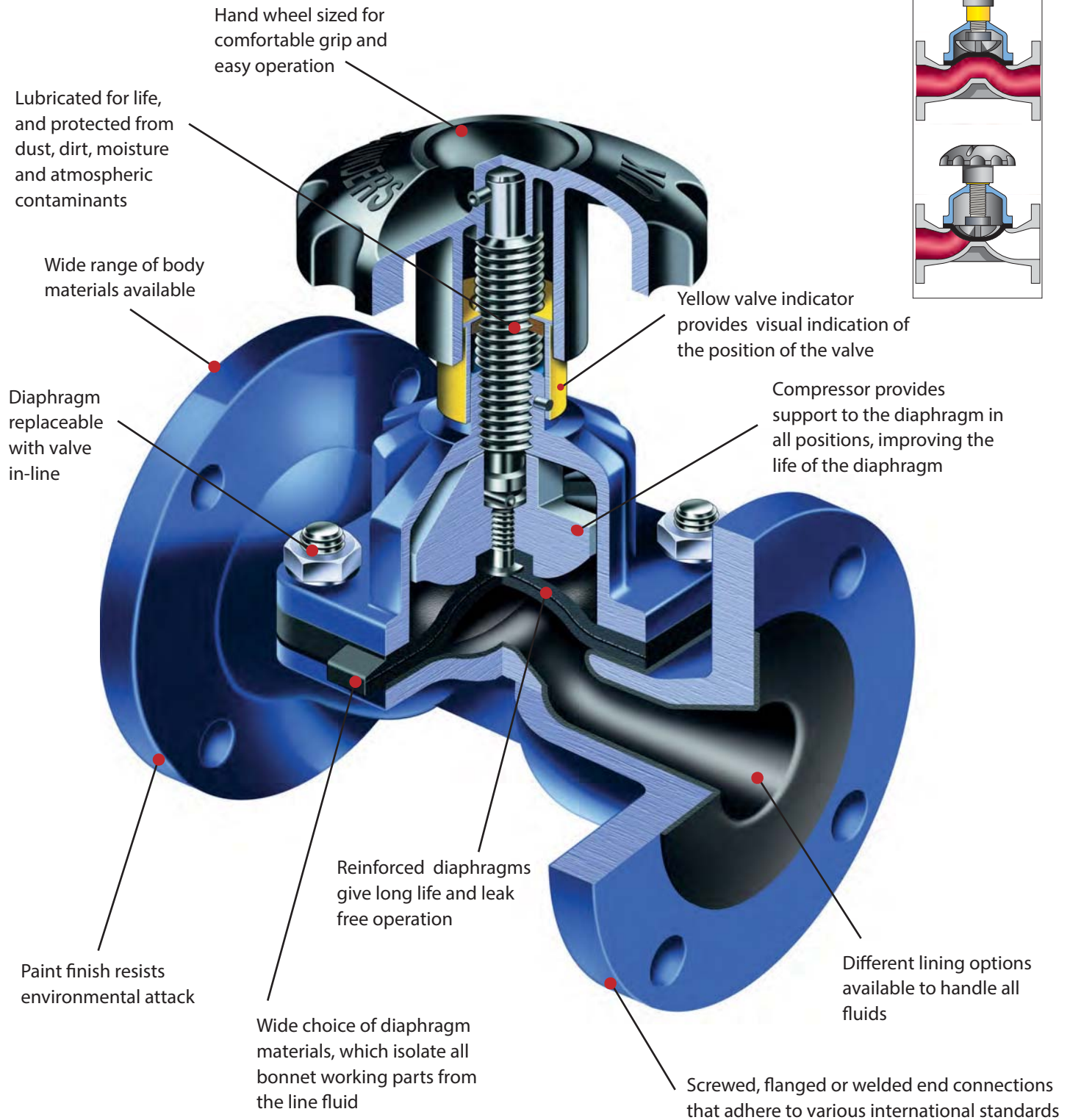


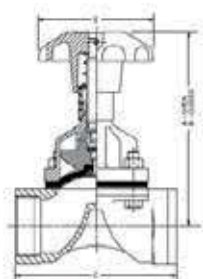
A TYPE – FEATURES

Original Saunders® Design

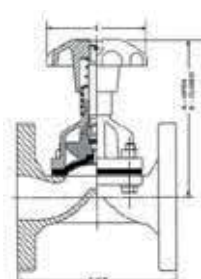


Saunders® A type Diaphragm Valve:
the valve of choice to handle highly corrosive media

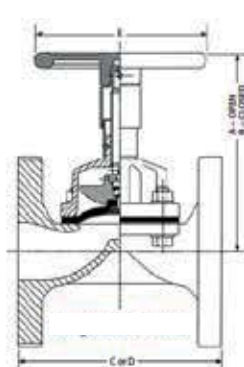
A TYPE – ASSEMBLED VALVE DIMENSIONS



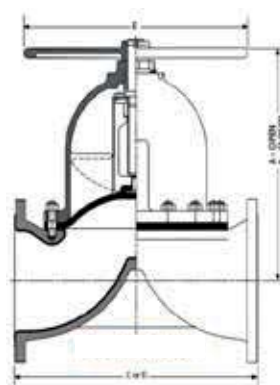
Screwed DN8-DN80



Flanged DN15-DN50



Flanged DN65-DN150



Flanged DN200-DN350

Size (DN)		8	10	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
Screwed Unlined	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C	49	49	64	83	111	125	145	168	206	257	-	-	-	-	-	-	-
	Weight	0.11	0.15	0.45	0.9	1.13	1.8	3	5	9	13	-	-	-	-	-	-	-
Flanged Unlined	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C	-	-	108	117	127	146	159	190	216	254	305	356	406	521	635	749	749
	D	-	-	130	150	160	180	200	230	290	310	350	400	480	600	730	850	980
	Weight	-	-	2	2	3	4	5	8	14	19	32	48	63	152	270	360	506
Flanged Rubber Lined	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C	-	-	-	121	131	150	163	194	220	258	309	362	412	527	641	755	755
	D	-	-	-	150	160	180	200	230	290	310	350	400	480	600	730	850	980
	Weight	-	-	-	3	4	5	6	9	15	21	32	50	63	154	273	365	512
Flanged Glass/Halar Lined	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C	-	-	110	119	129	148	161	192	218	256	307	358	408	523	637	751	751
	D	-	-	130	150	160	180	200	230	290	310	350	400	480	600	730	850	980
	Weight	-	-	2	2	4	5	6	9	15	20	33	49	63	153	272	362	508
Flanged Plastic Lined	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C	-	-	-	123	133	152	165	196	222	260	311	356	412	-	-	-	-
	D	-	-	-	150	160	180	200	230	290	310	350	394	480	-	-	-	-
	Weight	-	-	-	3	4	5	6	9	15	21	34	50	63	-	-	-	-
E		38	50	62	62	80	120	120	120	170	230	280	280	368	482	584	699	699

Note: Dimensions in mm. Weights in kg. Weight may vary with materials, lining and standards. For exact weights please contact Saunders®.

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

Glass lining is typically available in the size range DN15 - DN200 for A Type valves. Contact Saunders® for further requirements.

A TYPE – BODY

Lined and Unlined Options

Our metal bodies provide simultaneous mechanical support for the lining and protection against Ultraviolet (UV) attack. The nominal bore thicknesses of Saunders® linings range from 1 to 5.5 mm, depending on lining material and valve size: glass 1 mm, rubber 2-4.5 mm and plastic 4-5.5 mm.

Unlined Bodies

Material	Connection	Standard	Material Grade	Size	Temperature
Cast Iron	Flanged	BS EN1561	GJL-250	DN15-DN500	-10°C to 175°C
SG Iron	Screwed	BS EN1563	GJS-450-10	DN8-DN50	-10°C to 175°C
	Flanged		GJS-400-18 ¹	DN15-DN350	
Cast Steel	Flanged	ASTM A216	WCB	DN15-DN250	-30°C to 175°C
Gun Metal	Screwed	BS EN1982	CC491K-GS	DN8-DN80	-30°C to 175°C
	Flanged		CC492K-GS	DN15-DN200	
Stainless Steel	Screwed	BS EN10283	1.4408 ²	DN8-DN80	-30°C to 175°C
	Flanged			DN15-DN200	

¹ For some sizes GJS-400-18-LT grade is available with a low temperature limit of -20°C

² Replaces the standard BS3100 316C16

Standard material grade fasteners:

Stainless steel fasteners - All stainless steel, plastic lined and glass lined valves

Aluminium Bronze fasteners - Gunmetal flanged valves

Carbon Steel fasteners - All remaining valves.

Special material grade fasteners available upon request

Lined Options - Flanged Bodies Only

Lining	Body Material	Size	Temperature
PFA	SG Iron	DN15-DN200	-10°C to 175°C
ETFE	SG Iron	DN15-DN150	-10°C to 150°C
PVDF	SG Iron	DN20-DN150	-10°C to 125°C
PP	SG Iron	DN20-DN150	-10°C to 85°C

Glass	Cast Iron	DN15-DN200	-10°C to 175°C
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Butyl (Isobutylene Isoprene)	Cast Iron	DN20-DN500	-10°C to 110°C
	SG Iron		-10°C to 110°C
	Cast Steel		-30°C to 110°C
Neoprene (Polychloroprene)	Cast Iron	DN20-DN500	-10°C to 105°C
	SG Iron		-10°C to 105°C
	Cast Steel		-30°C to 105°C
HRL (Hard Natural Rubber)	Cast Iron	DN20-DN500	-10°C to 85°C
	SG Iron		-10°C to 85°C
	Cast Steel		-30°C to 85°C

Plastic Lining



PFA Perfluoroalkoxy – Excellent suitability for concentrated strong acids at high temperature, aromatics, aliphatic and chlorinated solvents. (White colour)



ETFE Ethylene Tetrafluoroethylene – Suitable for strong acids, salts in water, solvents at medium temperature. ETFE has the highest abrasion resistance of all the fluorocarbon linings. (Red colour)



PP Polypropylene – Economic solution for mineral acids, salts in water, de-ionised water and effluent treatment chemicals. (Light grey colour)



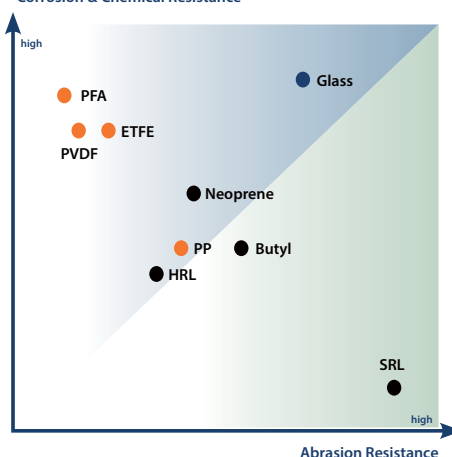
PVDF Polyvinylidene Fluoride – Suitable for mineral acids, salts in water, water and effluent treatment, additionally it is the best solution for wet chlorine gas or chlorine in water. (Black colour)

Glass Lining



Used in many different applications, including strong acids. Very high corrosion and abrasion resistance within a wide range of temperature. *Note that glass is not suitable for applications where thermal cycling occurs.* (Blue colour)

Corrosion & Chemical Resistance



Rubber Lining



HRL Hard Natural Rubber – Used for salts in water, diluted acids, de-ionised water, plating solutions and potable water. HRL has better chemical resistance than SRL. (Black)

Butyl Isobutylene Isoprene – Great for corrosive & abrasive slurries, and acidic slurries. Additional applications are salts in water, dilute acids and alkalis, and lime. (Black)

Neoprene Polychloroprene – Perfect solution for a combination of abrasive slurries containing hydrocarbons, sludge oils and also sea water. (Black)

The temperature ranges above are given for general reference purposes only. Service conditions, such as media being handled and concentration of solids, will determine the highest possible working temperature. Additionally, the performance of the valve will also depend on the diaphragm material.

A TYPE – DIAPHRAGM

A Type Diaphragm

Diaphragm	Composition	Size	Temperature
425	EPDM (Ethylene Propylene)	All Sizes	-40°C to 130°C
300	Butyl (Isobutylene Isoprene)	All Sizes	-40°C to 130°C
237	CSM (Chlorosulfonated Polyethylene)	All Sizes	-10°C to 100°C
XA	EPDM (Ethylene Propylene Diene)	All Sizes	-40°C to 130°C
HT	Neoprene (Polychloroprene)	All Sizes	-30°C to 100°C
226	FKM (Fluoroelastomer)	All Sizes	-5°C to 150°C
C	Nitrile (Butadiene Acrylonitrile)	All Sizes	-20°C to 100°C
Q	Natural Rubber	All Sizes	-50°C to 100°C

214/300	PTFE/Butyl	DN8-DN250	-20°C to 150°C
214/425	PTFE/EPDM	DN8-DN250	-20°C to 160°C
214/226	PTFE/FKM	DN8-DN250	-5°C to 175°C
214S/425	TFM/EPDM	DN8-DN150	-20°C to 160°C
214K/425	PTFE/PVDF/EPDM	DN15-DN150	-20°C to 100°C

In the range of PTFE diaphragms, Saunders offers both moulded open and closed options for your convenience. The 214S is available as moulded closed and was designed specifically to reduce polymeric creep, therefore increasing the sealing properties and life of the diaphragm.



Moulded closed



Moulded open

PTFE Diaphragm

214/300 - Used in strong acids and alkalis, and salts in water at high temperature. Sulfuric acid is a good example with temperatures up to 110°C and concentrations up to 96 %.

214/425 - Typical applications are strong acids, alkalis and salts in water at high temperature. Constant steam is also another important application.

214/226 - Strong acid, diluted chlorine, bromine solutions at low concentration.

214S/425 - Strong acids, alkalis and salts in water at high temperature. Constant steam applications where the valve is mainly closed (diaphragm is moulded closed).

214K/425 - Three layer diaphragm with PTFE/PVDF/425, the best option for chlorine, bromine gas and chlorinated solutions.

Rubber Diaphragm

425 - Salts in water, acids and alkalis, ozone, water, intermittent steam. Great solution for food and beverages applications. FDA and USP approved¹.

300 - Chemicals, diluted acids and alkalis, drinking water. Additional abrasive applications like phosphoric acid in low concentrations. FDA, USP and WRAS approved¹.

237 - The best solution for sodium hypochlorite. Great with strong acids and low concentration chlorine gas. It is also oil resistant.

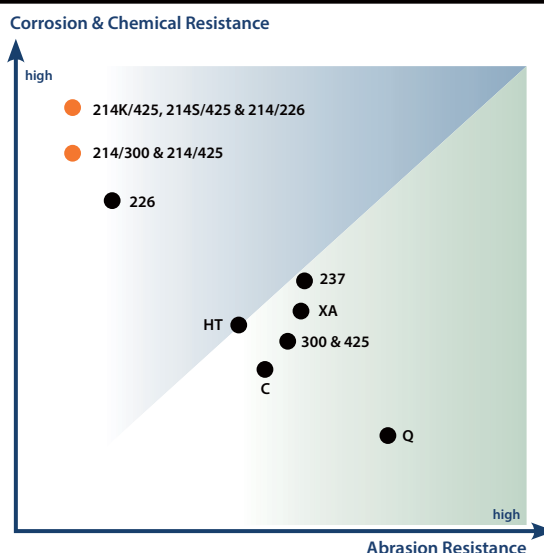
XA - Specifically designed for both abrasive and corrosive applications such as phosphoric acid, metal treatment, mining applications.

HT - Suitable for abrasive slurries containing hydrocarbons.

226 - Great solution for hydrogen at high temperature, concentrated acids, aromatic solvents, low concentrated chlorine solutions, ozone, unleaded petroleum.

C - Lubricating oil, cutting oils, paraffin, animal vegetable oils, aviation kerosene at low temperatures. Cv is ideal for vacuum applications, where oils are present, e.g. (compressed air, acetylene gas, LPG).

Q - Salts in water, diluted acids and alkalis, and abrasive applications.



¹ FDA - Food and Drug Administration

USP - United States Pharmacopeia

WRAS - Water Regulations Advisory Scheme

All rubber diaphragms have threaded brass fixings, except vacuum diaphragm (Cv, 300v, 425v), which have steel fitments. PTFE diaphragms have a stainless steel bayonet fitments.

A TYPE – PRESSURE & TEMPERATURE LIMITS

Maximum manual working pressures for Saunders® A type diaphragm valves.
For actuated valves, please refer to the appropriate datasheets.

Bonnet pressure limits

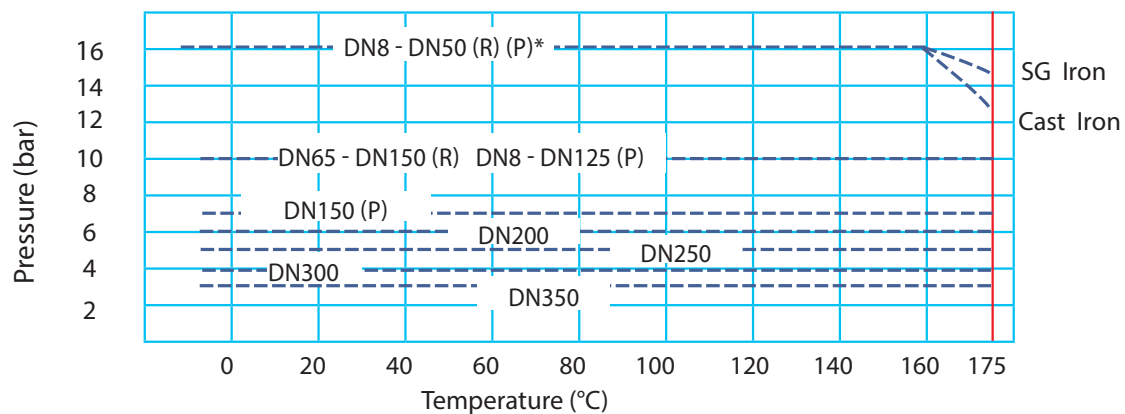
		Size (DN)	8	10	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
Pressure (bar)	Diaphragm	Handwheel																	
	PTFE	Rising	10	10	10	10	10	10	10	10	10	10	10	10	7	-	-	-	-
		Non-rising	-	-	-	-	-	-	-	-	-	-	-	-	-	6	5	-	-
	Rubber	Rising	16	16	16	16	16	16	16	16	10	10	10	10	10	-	-	-	-
		Non-rising	-	-	-	-	-	-	-	-	-	-	-	-	-	6	5	4	3.5

All Saunders® valves are pressure tested in accordance with BS EN12266-1 standard.

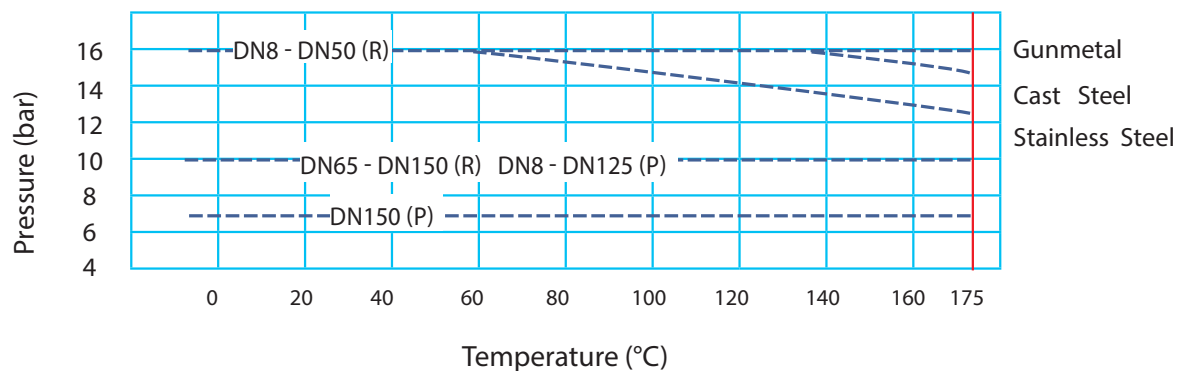
- Shell test: 1.5 times maximum rated working pressure
- Seat test: 1.1 times maximum rated working pressure

Pressure/Temperature Relationships

Cast Iron and SG Iron



Carbon Steel, Stainless Steel & Gunmetal



(R) = Rubber diaphragm

(P) = PTFE diaphragm

* 214S Moulded closed version only