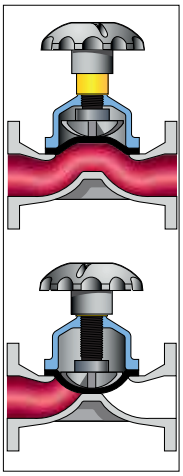
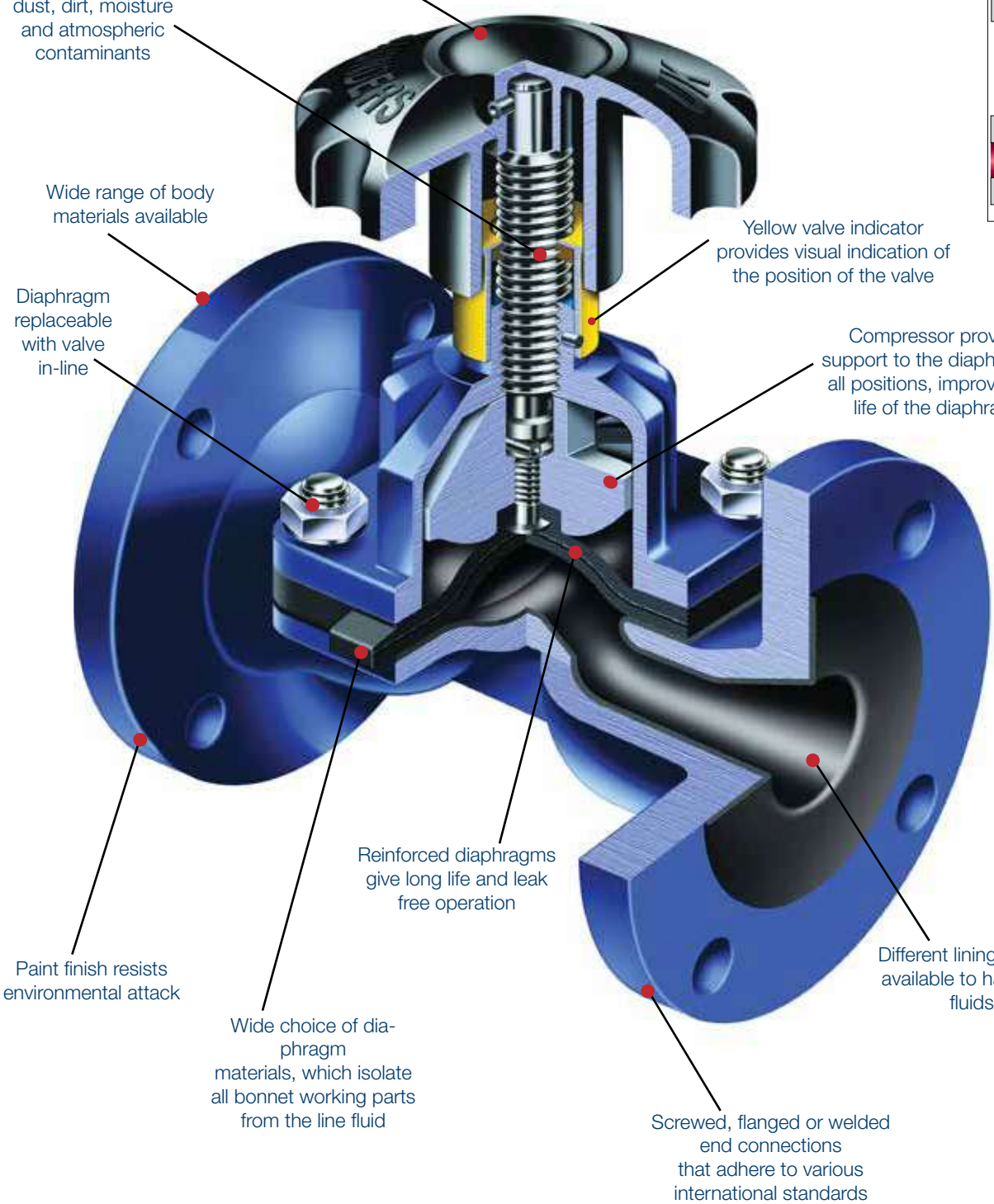
DIAPHRAGM VALVE
A TYPE

KLINGER India

Original Saunders® Design





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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	½"-20" DN15-DN500	14°F~347°F -10°C~175°C
SG Iron	Screwed	BS EN1563	GJS-450-10	¼"-2" DN8-DN50	14°F~347°F -10°C1~75°C
	Flanged		GJS-400-18[1]	½"-14" D15-DN350	
Cast Steel	Screwed	ASTM 216	WCB	½"-10" DN15-DN250	-22°F~347°F -30°C~75°C
	Flanged				
Gunmetal	Screwed	BS EN1982	CC491K--GS	¼"-3" DN8-DN80	-22°F~347°F -30°C~175°C
	Flanged		CC492K--GS	½"-8" DN15-DN200	
Stainless Steel	Screwed	BS EN10283	1.4408[2]	¼"-3" DN8-DN80	-22°F~347°F -30°C~175°C
	Flanged			½"-8" DN15-DN200	

1: For some sizes GJS-400-18-LT grade is available with a low temperature limit of -20°C (-4°F) | 2: Replaces the standard BS3100 316C16 | *Please contact us for information on comparable/equivalent material grades.

LINED OPTIONS - FLANGED BODIES ONLY:

PLASTIC LINING OPTIONS			
Lining	Body Material	Size	Temperature
PFA	SG Iron	½"-8" DN15-DN200	14°F to 347°F -10°C to 175°C
ETFE	SG Iron	½"-6" DN15-DN150	14°F to 302°F -10°C to 150°C
PVDF	SG Iron	¾"-6" DN20-DN150	14°F to 257°F -10°C to 125°C
PP	SG Iron	¾"-6" DN20-DN150	14°F to 185°F -10°C to 85°C

GLASS LINING OPTION			
Lining	Body Material	Size	Temperature
Cast Iron	SG Iron	½"-8" DN15-DN200	14°F to 347°F -10°C to 175°C

RUBBER LINING OPTIONS			
Lining	Body Material	Size	Temperature
Butyl (Isobutylene Isoprene)	Cast Iron	¾"-20" DN20-DN500	14°F to 230°F -10°C to 110°C
	SG Iron		
	Cast Steel		-22°F to 230°F -30°C to 110°C
Neoprene (Polychloroprene)	Cast Iron	¾"-20" DN20-DN500	14°F to 221°F -10°C to 105°C
	SG Iron		
	Cast Steel		-22°F to 221°F -30°C to 105°C
HRL (Hard Natural Rubber)	Cast Iron	¾"-20" DN20-DN500	14°F to 185°F -10°C to 85°C
	SG Iron		
	Cast Steel		-22°F to 185°F -30°C to 85°C

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

PLASTIC LINING:

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

» 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)

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

» 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)

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)

RUBBER LINING:

» HRL - Hard Natural Rubber-Ebonite
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 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.

DIAPHRAGM VALVE
A TYPE

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A TYPE DIAPHRAGM:

RUBBER DIAPHRAGM			
Diaphragm	Composition	Size	Temperature
425	EPM (Ethylene Propylene)	All Sizes	-40°F to 226°F -40°C to 130°C
300	Butyl (Isobutylene Isoprene)	All Sizes	-40°F to 226°F -40°C to 130°C
237	CSM (Chlorosulfonated Polyethylene)	All Sizes	14°F to 212°F -10°C to 100°C
XA	EPDM (Ethylene Propylene Diene)	All Sizes	-40°F to 266°F -40°C to 130°C
HT	Neoprene (Polychloroprene)	All Sizes	-22°F to 212°F -30°C to 100°C
226	FKM (Fluoroelastomer)	All Sizes	23°F to 302°F -5°C to 150°C
C	Nitrile (Butadiene Acrylonitrile)	All Sizes	-4°F to 212°F -20°C to 100°C
Q	Natural Rubber	All Sizes	-58°F to 212°F -50°C to 100°C

PTFE DIAPHRAGM			
Diaphragm	Composition	Size	Temperature
214/300	PTFE/Butyl)	¼"-10" DN8-DN250	-4°F to 302°F -20°C to 150°C
214/425	PTFE/EPM	¼"-10" DN8-DN250	-4°F to 320°F -20°C to 160°C
214/226	PTFE/FKM	¼"-10" DN8-DN250	23°F to 347°F -5°C to 175°C
214S/425	TFM/EPM	¼"-6" DN8-DN150	-4°F to 320°F -20°C to 160°C
214K/425	PTFE/PVDF/EPM	½"-6" DN15-DN150	-4°F to 212°F -20°C to 100°C

DIAPHRAGM IDENTIFICATION:

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.

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 (230°F) 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.

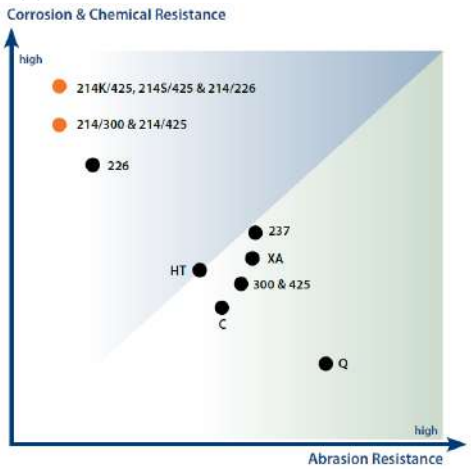
»XA: Specifically designed for both abrasive and corrosive applications such as phosphoric acid, metal treatment, mining applications.

»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 and 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 fitments, except vacuum diaphragm (Cv, 300v, 425v), which have steel fitments. PTFE diaphragms have a stainless steel bayonet fitment.

DIAPHRAGM VALVE
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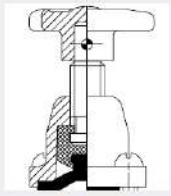
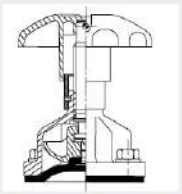
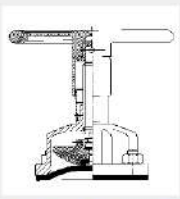
Standard Range



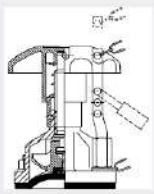
Rising handwheel (2 bolt)
DN8 - DN10
¼" - ⅜"



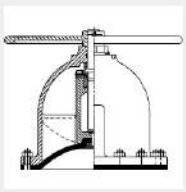
Cast iron bonnet with rising plastic handwheel
DN15 - DN50
½" - 2"



Cast iron bonnet with rising metal handwheel
DN15 - DN150
½" - 6"



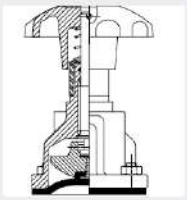
Rising handwheel with indicator (simple padlocking)
DN15 - DN150
½" - 6"



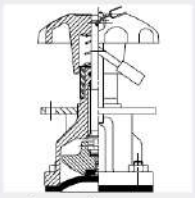
Standard non-rising handwheel without indicator
DN200 - DN350
8" - 14"

Non-rising handwheel with indicator
DN200 - DN350
8" - 14"

High Performance

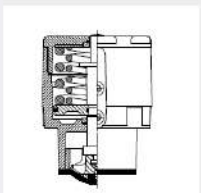


Fluoroelastomer sealed with padlocking
DN15 - DN150
½" - 6"



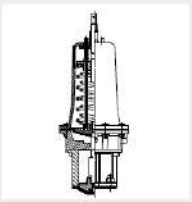
Fluoroelastomer sealed bonnet
DN15 - DN150
½" - 6"

Saunders® Actuation



EC actuators (spring close/spring open/ double acting)
DN8 - DN50
¼" - 2"

ECX actuators (spring close/spring open/double acting)
DN65 - DN150
2½" - 6"



ESM/ES actuators (spring close/spring open/double acting)
DN15 - DN250
½" - 10"

Note: Designs may vary across size range

MANUAL VALVES WORKING PRESSURE & TEMPERATURE:

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

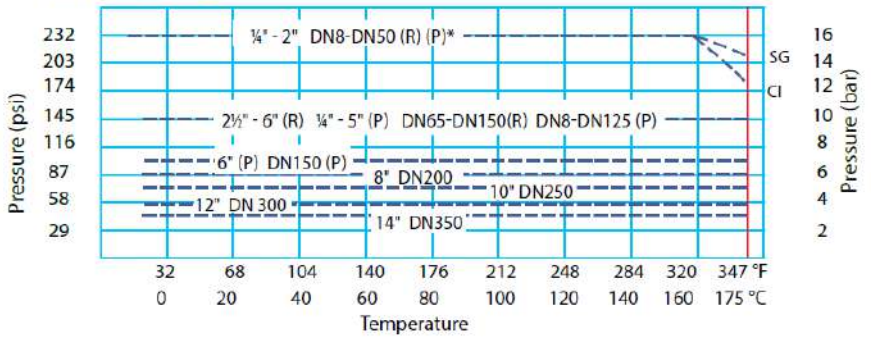
All Saunders® valves are pressure tested in accordance with standard BS EN 12266-1.
» Shell test: 1.5 times maximum rated working pressure
» Seat test: 1.1 times maximum rated working pressure

BONNET PRESSURE LIMITS:

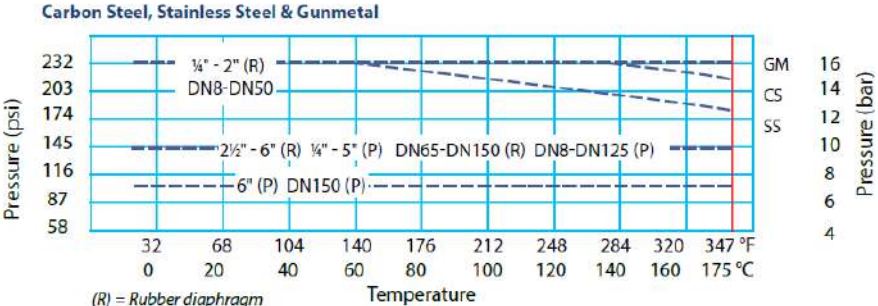
		Pressure (bar/psi)							
Diaphragm		Rubber				PTFE			
Handwheel		Rising		Non-Rising		Rising		Non-Rising	
Size (DN/in)									
8	¼"	16	232			10	145		
10	3/8"	16	232			10	145		
15	½"	16	232			10	145		
20	3/4"	16	232			10	145		
25	1"	16	232			10	145		
32	1¼"	16	232			10	145		
40	1½"	16	232			10	145		
50	2"	16	232			10	145		
65	2½"	10	145			10	145		
80	3"	10	145			10	145		
100	4"	10	145			10	145		
125	5"	10	145			10	145		
150	6"	10	145			7	102		
200	8"			6	87			6	87
250	10"			5	73			5	71
300	12"			4	58				
350	14"			3.5	51				

A Type Body Temperature/Pressure Relationship

Cast Iron and SG Iron



Carbon Steel, Stainless Steel & Gunmetal



(R) = Rubber diaphragm
(P) = PTFE diaphragm
** 2145 Moulded closed version only.*

Certified acc. to DIN EN ISO 9001:2015 Subject to technical alterations.
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