



- **Saunders full bore diaphragm valves have been developed to satisfy market demand for a valve to handle sludges, slurries and give high flow performance with minimum turbulence, while giving 100% leak-tight closure.**
- **A wide choice of materials, methods of operation and body connections meet the needs of most industrial applications. Extended life, reliability, safety and ease of use, combined with essentially simple design, result in low maintenance for minimum running costs. Saunders straight-through bore diaphragm valves (DN15 – DN350) positively benefit your company with a unique range of features.**

## GUIDE TO BODY (LININGS) APPLICATIONS

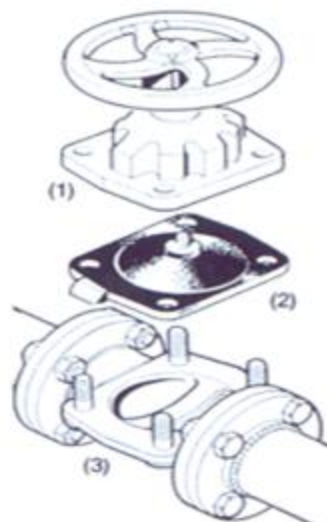
BODY / LINING Typical applications	SIZE	TEMP °C
<b>CAST IRON / DUCTILE IRON</b> Strength, low cost non corrosive duties	DN 8 – DN 350	- 20° to 175°
<b>A R BRONZE / GUNMETAL STAINLESS STEEL</b> Long life in hostile, corrosive water applications Purity of service, product protection	DN 20 – DN 150	- 30 ° to 175 °
<b>RUBBERS</b> Economic handling of corrosive & abrasive media	DN 20 – DN 350	
<b>RUBBERS SOFT (SRL/AAL)</b> Abrasive duties		- 10 ° to 85 °
<b>RUBBERS HARD (EBONITE) (HRL)</b> Acid, chlorinated water, moist chlorine		- 10 ° to 85 °
<b>RUBBERS BUTYL (BL)</b> Minerals, acids and slurries		- 10 ° to 110 °
<b>RUBBERS NEOPRENE (NL)</b> Abrasive duties where hydro-carbons are present		- 10 ° to 105 °
<b>POLYPROPYLENE PP</b> Chemical & abrasion resistance in water treatment and effluent handling	DN 20 – DN 150	- 10 ° to 85 °
<b>POLYTETRAFLUOROETHYLENE PTFE</b> High temp mineral acids, aromatic, aliphatic and chlorinated solvents.	DN 125 – DN 250	- 10 ° to 175 °
<b>ETHYLENE TETRAFLUORETHYLENE ETFE</b> High abrasion resistance, chemically resistant to strong acids & bases	DN 20 – DN 150	- 10 ° to 150 °
<b>PERFLUOROALKOXY PFA</b> High temperature strong acid resisting applications	DN 20 – DN 350	- 20 ° to 175 °
<b>HALAR™</b> Excellent resistance to mineral and oxidizing acids inorganic bases, salts	DN 25 –DN 200	- 10 ° to 150 °
<b>BROSILICATE GLASS</b> Excellent for strong acids, halogens	DN 25 – DN 200	- 10 ° to 175 °
<b>RILSAN™</b> Potable water applications	DN 20 – DN 350	- 20 ° to 80 °
<b>FUSION BONDED EPOXY FBE</b> Potable water applications	DN 25 – DN 350	- 20 ° to 80 °
HALAR™ is the registered trademark of AUSIMONT UK Ltd. RILSAN™ is the registered trademark of ATO Chemical Products UK Ltd.		

# SAUNDERS TYPE "A" DIAPHRAGM VALVES pg 3 of 6

[INVAL MENU](#)

GRADE Typical Applications	SIZE	TEMP. °C
<u>B</u> Acid and alkalis. Up to 85% sulphuric acid at ambient temperatures. Hydrochloric hydrofluoric phosphoric acids, caustic alkalis and many esters. Sea water, very low vapour and gas permeability. Inert gasses and many industrial gases. <u>B (V)</u>	DN 8 to DN 350	- 40 ° to 100 °
	DN 25 to DN 350	- 40 ° to 100 °
<u>Q</u> Abrasives, water purification brewing. Inorganic salts, mineral acids <u>Q (V)</u>	DN 8 to DN 350	- 50 ° to 100 °
	DN 100 to DN 350	- 50 ° to 100 °
<u>214 / 325</u> Highest chemical resistance to all fluids except alkali metals although permeable to some. Especially chlorine. Alternative backing diaphragms available to deal with this and other applications. NOTE: 214 grade has a bayonet fitting in all sizes except DN 8 and DN 10 requiring a corresponding slotted compressor. <u>214 / 226</u>	DN 8 to DN 250	- 20 ° to 160 °
		- 5 ° to 175 °
<u>226</u> Paraffinic and aromatic hydrocarbons, acids, particularly concentrated sulphuric and chlorine applications. Not recommended for ammonia and its derivatives or for polar solvents, e.g. acetone	DN 8 to DN 350	- 5 ° to 150 °
<u>237</u> Good acid and ozone resistance certain chlorine services	DN 8 to DN 350	- 10 ° to 100 °
<u>300</u> For hot water services applications involving steam sterilisations, there for, ideally suited for brewing and pharmaceutical applications. For services involving continuous high temperature / pressure combinations consult our technical department. <u>300 (V)</u>	DN 8 to DN 350	- 40 ° to 130 °
	DN 100 to DN 350	- 40 ° to 130 °
In larger sizes than 80mm weir type diaphragms are specially reinforced for vacuum duties and are identified by a suffix (V) e.g. Q(V). All (V) diaphragms have ferrous studs and are construction e.g. ammonia, acetylene. B (V) diaphragms are available in sizes DN 25 and larger to complete a full range of diaphragms with ferrous studs.		
<b>KEY TO GRADE LETTERS / MATERIALS</b>		
B – Butyl 214 / 226 – PTFE / Fluororubber 226 – Fluororubber	Q – Natural Rubber 214/325 – PTFE/EP Rubber 237 - Hypalon	300 – Butyl





## MAINTENACE

Three part design:

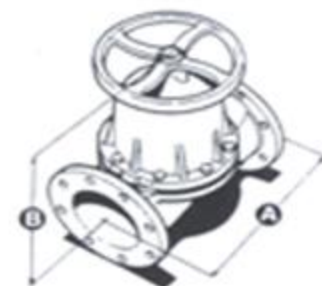
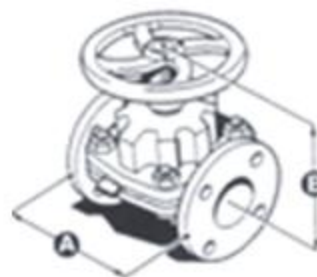
Bonnet (1)

Diaphragm (2)

Body (3)

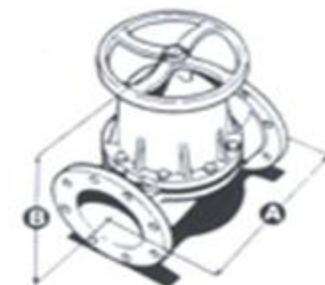
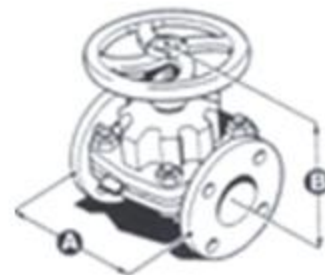
Means the diaphragm is replaced with the body in the pipeline, no gasket costs or pipeline disturbance problems are involved.

VALVE	SCREWED ENDS			
SIZE (DN)	C1,SG, MI	A (mm) SS,GM, ARB	B (max) ALL MATERIALS	NOMINAL MASS kg
8	48	48	59	140g
10	48	48	68	410g
15	64	64	91	570g
20	83	83	94	890g
25	108	95	115	1.4
32	121	114	152	2.3
40	140	133	165	3.3
50	165	152	187	8.3
65	203	191	224	9.4
80	254	241	233	15.8



SIZES DN 100 TO DN 350 NON PREFERRED SIZES

VALVE		SCREWED FLANGED PIPE CONNECTIONS				
SIZE (DN)	A (mm)			B (max)	NOMINAL	MASS
	UNLINED	BS5156 LINED	COATED	ALL MATERIALS	UNLINED kg	LINED kg
8	-	-	-	-	-	-
10	-	-	-	-	-	-
15	108	114	110	100	2.2	-
20	117	123	119	100	2.5	-
25	127	133	129	110	3.6	-
32	146	152	148	150	4.5	-
40	159	165	161	160	6.2	6.6
50	190	196	192	180	9.4	10
65	216	222	218	214	13	14
80	254	260	256	220	20	22
100	305	311	307	300	35	37
125	356	361	358	375	50	53
150	406	412	408	430	65	70
200	521	527	523	507	145	156
250	635	641	637	588	230	240
300	749	755	751	683	360	366
350	749	755	751	893	450	476



## DIAPHRAGM TEMPERATURES TYPE A (°C)

-5°	214/226 & 214/226K	175°
-20°	214/325 & 214/326K	160°
-50°	AA & Q & QV	100°
-40°	B & BV	100°
-20°	C, CV & 233CV	100°
-30°	HT & HTV	100°
-5°	226 & 226V	150°
-10°	237, 286 303	100°
-40°	300 & 300V	130°
-40°	325	130°

## BODY TEMPERATURE LIMIT (°C)

-30°	-10° HARD RUBBER LINED	85°
-30°	-10° SOFT NATURAL RUBBER LINED - AAL	85°
-20°	-10° POLYPROPYLENE LINED (P.P.)	85°
-30°	-10° POLYCHLOROPRENE LINED	105°
-40°	-10° BUTYL RUBBER LINED	110°
-20°	-10° ETHYLENE TETRAFLUOROETHYLENE (ETFE) & HALAR™	150°
	-10° CAST IRON: UNLINED, GLASS LINED & PTFE LINED	175°
	-20° SG IRON: UNLINED AND PFA LINED	175°
	-30° OTHER METALS: STAINLESS STEEL, COPPER ALLOYS	175°
	-20° RILSAN™	80°

- STANDARDS APPLICABLE
- BS 5156 Diaphragm Valves
- BS 4504 Flange Dimensions
- ISO R7 thread connections

Graphs applies to whole valve performance (manual bonnets.) For actuated valves refer to appropriate performance graphs. Temperature bands for diaphragms are shown as a guide only. Many aspects of service conditions will determine the highest working temperature.

## VALVE BODY TEMPERATURE/PRESSURE RELATIONSHIP

