



COUPLINGS & GASKETS

The couplings designed for use with our glass process plant and pipeline components are of major importance from two main points of view.

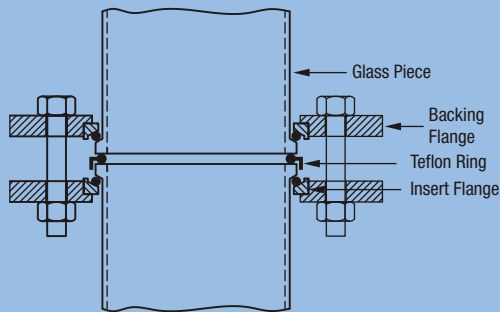
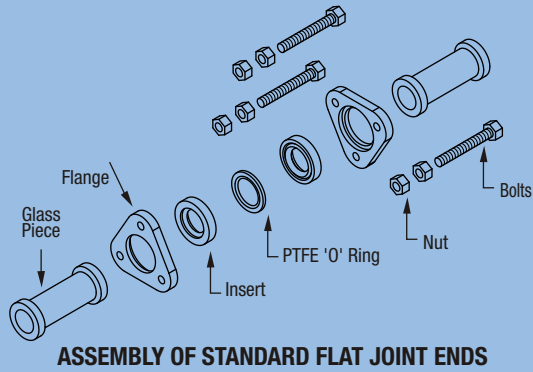
- They must ensure that the bolt load applied to the joint is sufficient to make an effective seal whilst not inducing undue stress in the glass.
- They must be totally reliable in all service conditions.

This chapter of the catalogue covers not only the necessary couplings to join glass equipments and pipeline components together but also the couplings needed to join glass to another materials. For glass plants installed in relatively corrosive environments and added advantage is the availability of couplings constructed from various materials including stainless steel and plastic.

COMPLETE COUPLINGS

Complete coupling consists of two flanges, two inserts and the appropriate number of nuts, bolts, PTFE 'O' ring.

Generally flanges are made of cast iron powder coated / SS, nuts, bolts, springs washers and plain washers can also be supplied SS on request.



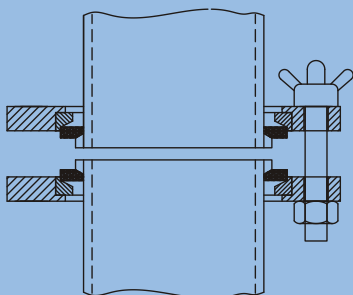
BACKING FLANGES			INSERTS		NUTS & BOLTS			Complete Coupling
DN	CAT. REF	QTY	CAT. REF	QTY	D	L	QTY	CAT. REF
25	SCF1	2	SCN1	2	5/16"	2.5"	3	SCT 1
40	SCF 1.5	2	SCN 1.5	2	5/16"	2.5"	3	SCT 1.5
50	SCF 2	2	SCN 2	2	5/16"	2.5"	3	SCT 2
80	SCF 3	2	SCN 3	2	5/16"	3.5"	6	SCT 3
100	SCF 4	2	SCN 4	2	5/16"	3.5"	6	SCT 4
150	SCF 6	2	SCN 6	2	3/8"	3.5"	6	SCT 6
225	SCF 9	2	SCN 9	2	3/8"	5"	8	SCT 9
300	SCF 12	2	SCN 12	2	3/8"	5"	12	SCT 12
400	SCF 16	2	SCN 16	2	1/2"	8"	12	SCT 16
450	SCF 18	2	SCN 18	2	1/2"	8"	12	SCT 18
600	SCF 24	2	SCN 24	2	1/2"	8"	12	SCT 24

DN is nominal size of coupling.

QUICK RELEASE COUPLINGS

Quick release couplings are used in applications where there is need to open or to close couplings as quickly without using tools. Charging materials to reaction or extraction vessels or replacing measurement indicators are typical examples of this.

Upper flange with slotted bolt -holes, hinged quick release bolts and a lower backing flange, which is fixed on the glass and are separated by means of hinged quick release bolts and wing nuts. Depending upon the frequency of opening. The sealing gasket may need regular renewal.



BACKING FLANGES

Backing flanges form an internal part of the complete coupling detailed earlier in this chapter. Up to and including DN 450 they are one-piece unit and for DN-600 it is available in two pieces. Backing flanges are used to couple to glass end or to a bellow.

Backing flanges are made of cast iron and are used with inserts.

* Stainless steel (S.S.) flanges can be made on request basis.

DN	D	H	P.C.D	d x N	TYPE	CAT. REF
25	90	10	70	9 x 3	A	SCF 1
40	105	10	86	9 x 3	A	SCF 1.5
50	120	11	98	9 x 3	A	SCF 2
80	155	12	133	9 x 6	A	SCF 3
100	200	14	178	9 x 6	A	SCF 4
150	280	15	254	11 x 6	A	SCF 6
225	335	29	310	11 x 8	B	SCF 9
300	420	35	394	11 x 12	B	SCF 12
400	525	22	495	12 x 12	A	SCF 16
450	630	38	585	14 x 12	B	SCF 18
600	745	48	710	14 x 12	B	SCF 24

Note : H may vary ± 2 mm up to DN 150 and ± 3 mm from Dn 200 to Dn 600mm
DN is the nominal size of the coupling.

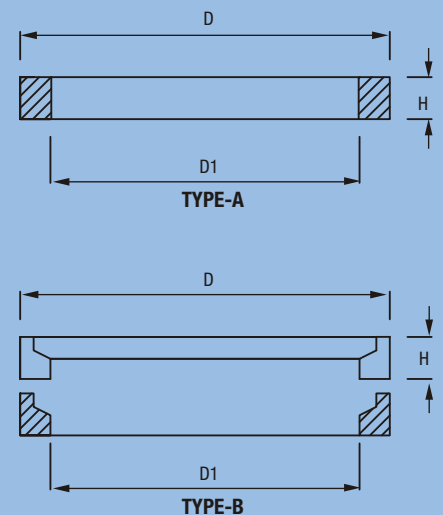
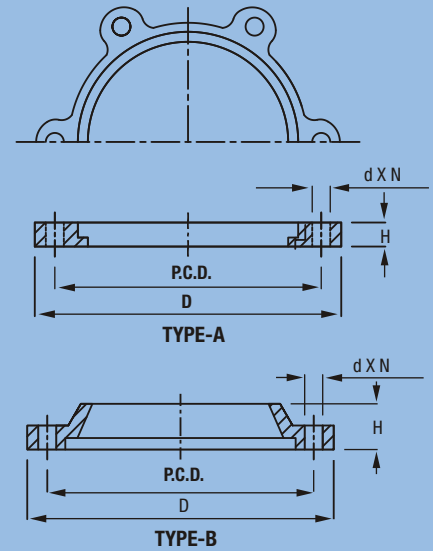


INSERTS

Spilt ring type insert are used with backing flanges. This are made of cast iron asbestos rope. Non asbestos PTFE impregnated rope cab be supplied on request. Insert from ruber material can also be supplied on request.

DN	D	D1	H	TYPE	CAT. REF
25	50	36	8	A	SCN 1
40	65	50	8	A	SCN 1.5
50	79	62	8	A	SCN 2
80	110	92	8	A	SCN 3
100	146	122	8	A	SCN 4
150	197	174	10	A	SCN 6
225	275	240	10	A	SCN 9
300	359	322	10	A	SCN 12
400	474	431	12	A	SCN 16
450	555	500	18	A	SCN 18
600	684	634	18	B	SCN 24

Note : H may vary ± 2 mm up to DN 150 and ± 3 mm from Dn 200 to Dn 600mm
DN is the nominal size of the coupling.

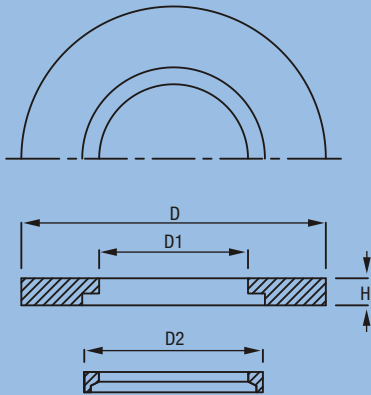


ADAPTOR BACKING FLANGE

These flanges are made of cast iron and are supplied with a spilt ring.

Aluminum flanges can also be supplied on request. Please mention Cat.Ref. SCFA for cast iron and SACFA for aluminum flanges.

Adaptor backing flanges are generally supplied undrilled. However, if specified, these can be supplied drilled as per "Table E", "Table F" and "ASA 150" standards.



UNDRILLING FLANGES

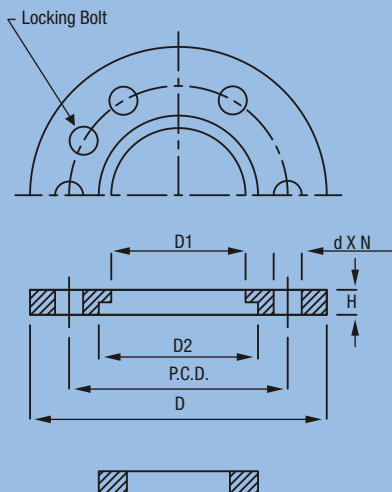
DN	D	D1	D2	H	CAT. REF
25	115	43	51	10	SCFA 1
40	150	58	66	10	SCFA 1.5
50	165	70	81	12	SCFA 2
80	200	101	112	12	SCFA 3
100	220	134	148	12	SCFA 4
150	285	186	196	15	SCFA 6
225	395	260	282	15	SCFA 9
300	445	342	363	18	SCFA 12

Drilled to Table E			Drilled to Table F			Drilled to ASA 150		
CAT. REF.	PCD	n x dØ	CAT. REF.	PCD	n x dØ	CAT. REF.	PCD	n x dØ
SCFA 1/E	82	4 x 12Ø	SCFA 1/F	87	4 x 16Ø	SCFA 1/A	79	4 x 12Ø
SCFA 1.5/E	98	4 x 12Ø	SCFA 1.5/F	105	4 x 16Ø	SCFA 1.5/A	98	4 x 12Ø
SCFA 2/E	114	4 x 16Ø	SCFA 2/F	127	4x 16Ø	SCFA 2/A	121	4 x 16Ø
SCFA 3/E	146	4 x 16Ø	SCFA 3/F	165	8x 16Ø	SCFA 3/A	152	4 x 16Ø
SCFA 4/E	178	8 x 16Ø	SCFA 4/F	190	8 x 16Ø	SCFA 4/A	190	8 x 16Ø
SCFA 6/E	235	8 x 19Ø	SCFA 6/F	260	12x 19Ø	SCFA 6/A	241	8 x 19Ø
SCFA 9/E	324	12 x 19Ø	SCFA 9/F	356	12 x 23Ø	SCFA 9/A	298	8 x 19Ø
SCFA 12/E	406	12 x 23Ø	SCFA 12/F	438	16 x 23Ø	SCFA 12/A	432	12 x 23Ø

BELLOW FLANGES

These flanges are made of cast iron and supplied with a spilt ring.

Aluminum flanges can also be supplied on request. Please mention Cat.Ref. SBF for cast iron and SABF for aluminum flanges.



DN	D	D1	D2	PCD	d X N	H	CAT. REF
25	90	44	54	70	9 x 3	8	SBF 1
40	105	59	66	86	9 x 3	9	SBF 1.5
50	121	71	80	98	9 x 3	10	SBF 2
80	155	102	115	133	9 x 6	10	SBF 3
100	200	135	146	178	9 x 6	10	SBF 4
150	274	186	202	254	10 x 6	10	SBF 6
225	340	260	275	310	10 x 8	11	SBF 9
300	425	340	363	394	11 x 12	15	SBF 12

ADAPTOR BELLOW FLANGES

These flanges are made of cast iron and supplied with a split ring.

Aluminum flanges can also be supplied on request. Please mention Cat. Ref. SBFA for cast iron and SABFA for aluminum flanges.

Adaptor bellow flanges are generally supplied undrilled. However, if specified, these can be supplied drilled as per "Table E", "Table F" and "ASA 150" standards.

UNDRILLING FLANGES

DN	D	D1	D2	H	CAT. REF
25	115	44	53	7	SBFA 1
40	150	59	65	9	SBFA 1.5
50	165	70	81	8	SBFA 2
80	200	104	115	9	SBFA 3
100	220	133	149	9	SBFA 4
150	285	189	204	11	SBFA 6
225	395	261	280	12	SBFA 9
300	445	342	363	12	SABFA 12

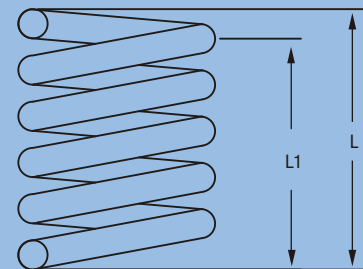
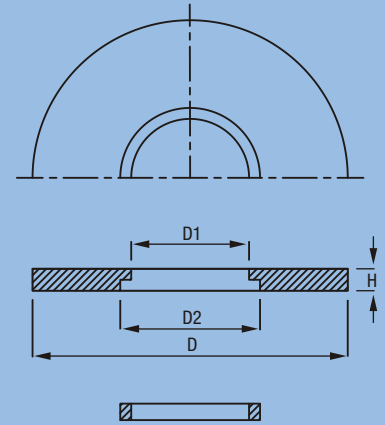
Drilled to Table E			Drilled to Table F			Drilled to ASA 150		
CAT. REF.	PCD	n x dØ	CAT. REF.	PCD	n x dØ	CAT. REF.	PCD	n x dØ
SBFA 1/E	82	4 x 12Ø	SBFA 1/F	87	4 x 16Ø	SBFA 1/A	79	4 x 12Ø
SBFA 1.5/E	98	4 x 12Ø	SBFA 1.5/F	105	4 x 16Ø	SBFA 1.5/A	98	4 x 12Ø
SBFA 2/E	114	4 x 16Ø	SBFA 2/F	127	4 x 16Ø	SBFA 2/A	121	4 x 16Ø
SBFA 3/E	146	4 x 16Ø	SBFA 3/F	165	8 x 16Ø	SBFA 3/A	152	4 x 16Ø
SBFA 4/E	178	8 x 16Ø	SBFA 4/F	190	8 x 16Ø	SBFA 4/A	190	8 x 16Ø
SBFA 6/E	235	8 x 19Ø	SBFA 6/F	260	12 x 19Ø	SBFA 6/A	241	8 x 19Ø
SBFA 9/E	324	12 x 19Ø	SBFA 9/F	356	12 x 23Ø	SBFA 9/A	298	8 x 19Ø
SBFA 12/E	406	12 x 23Ø	SBFA 12/F	438	16 x 23Ø	SBFA 12/A	432	12 x 23Ø

COMPRESSION SPRINGS

Compression rings are used to set and maintain the correct bolts load on standard glass couplings.

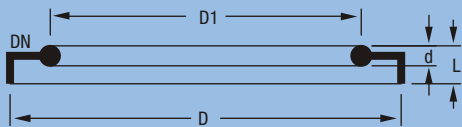
Standard compression springs have a corrosion resistant coating and are also available in SS.

DN	FREE L	INSTALLED L1	CAT. REF.
25 -100	14.5	11.0	SDF 8.5
150 - 300	22.0	18.0	SDF 10.5
450 - 600	28.7	22.7	SDF 13



PTFE 'O' RINGS

PTFE 'O' rings are the most widely used gaskets in glass fittings. These are provided with a locking collar, which help to lock the two glass surface correctly. They are manufactured from quality grade of PTFE.

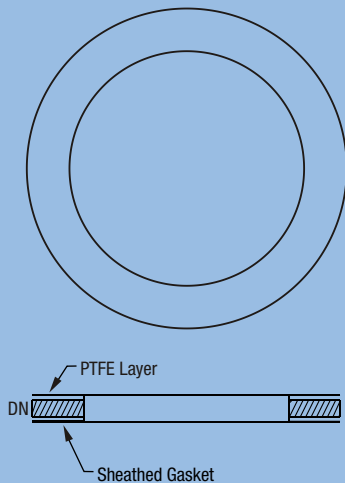


DN	D	D1	d	L	CAT. REF
25	42	33	3	5	STR 1
40	57	48	3	5	STR 1.5
50	70	59	3	5	STR 2
80	100	88	3	5	STR 3
100	134	119	4	6	STR 4
150	186	168	4	6	STR 6
225	260	236	4	7	STR 9
300	342	318	4	7	STR 12
450	537	490	6	7	STR 18
600	686	640	8	10	STR 24

PTFE SHEATED GASKETS

These gaskets take form of a PTFE sheath fitted over a compressed asbestos fiber gaskets. When using this type of gasket, a higher bolting force is required for DN 450 and above.

Please consult our Technical Department for further information.



DN	CAT . REF.
25	STMP 1
40	STMP 1.5
50	STMP 2
80	STMP 3
100	STMP 4
150	STMP 6
225	STMP 9
300	STMP 12
450	STMP 18
600	STMP 24

PTFE BELLOWS

PTFE bellows are an important aid in the construction of glass plant and pipeline.

They can be used to compensate for different thermal movement between glass and associated equipment, absorb vibrations from associated equipment or foundations. In particular, bellows can be used for connecting glass to other materials. When bellows are used, the support and restraint of the glass should be such that the force resulting from pressure/vacuum in the pipeline and forces resulting from Pressure /vacuum in the pipeline and forces resulting from movement of the bellows do not result in undue stresses in the glass. The maximum operating temperature for PTFE bellows is 180°C. Bellows DN 80 and above should not be used under vacuum. For such application we recommend the use of vacuum bellows as detailed on the following page.

Permissible operating conditions for SBFN bellows

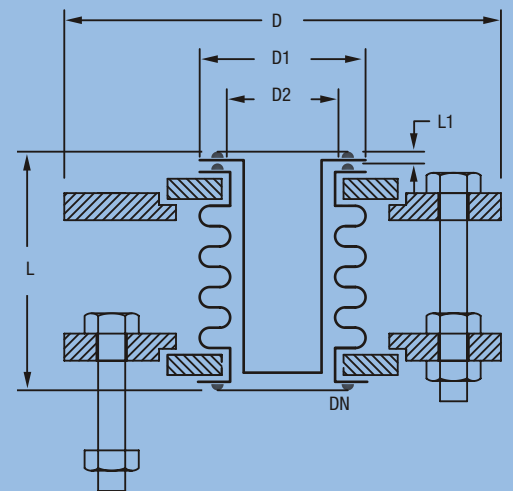
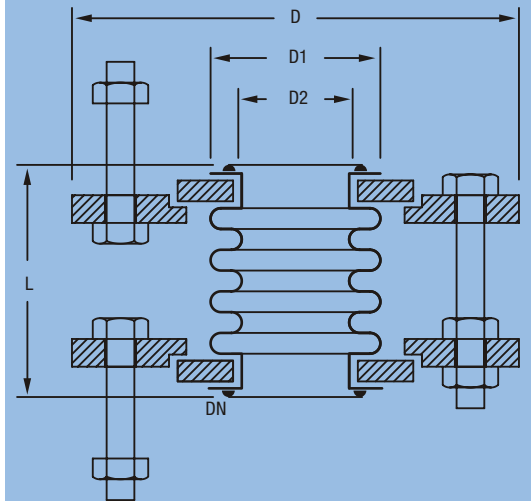
Permissible operating pressure (bar g)

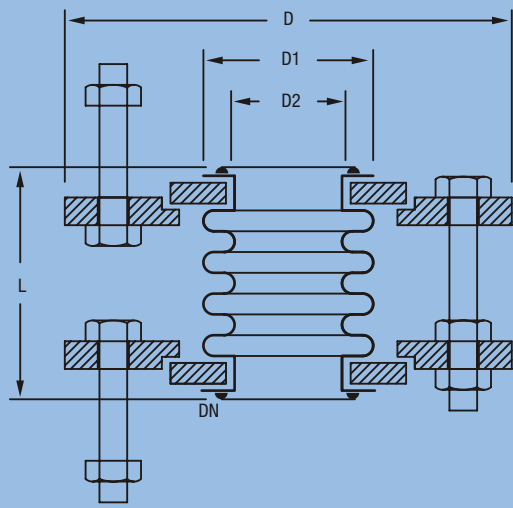
DN	20°C	100°C	160°C	200°C
15	-1/+4	-1/+3	-1/+ 1.5	
25	-1/+4	-1/+3	-1/+ 1.5	
40	-1/+4	-1/+3	-1/+ 1.5	
50	-1/+4	-1/+2	-1/+1	unpressurised
80	-1/+3	-1/+2	-1/+1	
100	-1/+2	-1/+2	-1/+1	
150	-1/+2	-1/+ 1.5	-1/+ 0,7	
200	-1/+1	-1/+1	-1/+ 0,5	
300	-1/+1	-1/+ 0,7	-1/+ 0,3	

Permissible operating conditions for SVBN bellows

Permissible operating pressure (bar g)

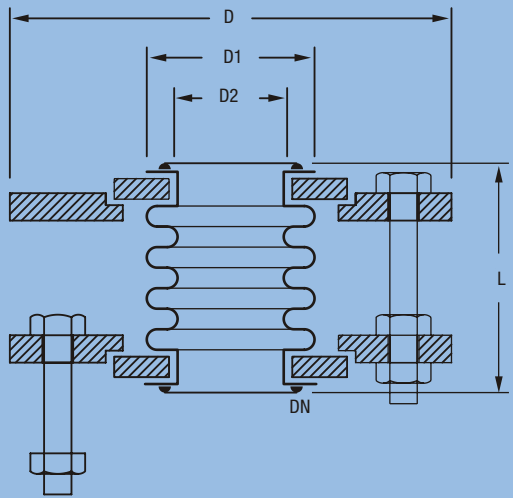
DN	20°C	100°C	160°C	200°C
80	-1/+3	-1/+2	-1/+1	
100	-1/+2	-1/+2	-1/+1	
150	-1/+2	-1/+ 1.5	-1/+ 0,7	unpressurised
200	-1/+1	-1/+1	-1/+ 0,5	
300	-1/+1	-1/+ 0,7	-1/+ 0,3	





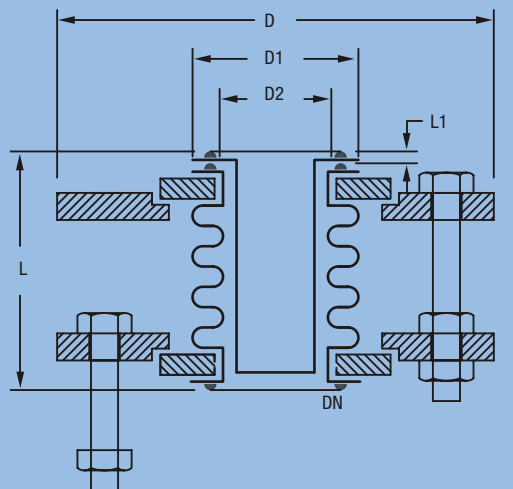
**PTFE BELLOWS
GLASS TO GLASS (LINE BELLOW)**

DN	D	D1	D2	L	CAT. REF
25	90	41	31	60	SFBN 1
40	105	56	43	60	SFBN 1.5
50	121	69	55	60	SFBN 2
80	155	98	82	65	SFBN 3
100	200	132	111	65	SFBN 4
150	274	184	162	65	SFBN 6
225	340	258	230	65	SFBN 9
300	425	340	308	65	SFBN 12



**PTFE BELLOWS GLASS TO
OTHER MATERIALS (LINE BELLOW)**

DN	D	D1	D2	L	CAT. REF
25	90	41	31	60	SFBF 1
40	105	56	43	60	SFBF 1.5
50	121	69	55	60	SFBF 2
80	155	98	82	65	SFBF 3
100	200	132	111	65	SFBF 4
150	274	184	162	65	SFBF 6
225	340	258	230	65	SFBF 9
300	425	340	308	65	SFBF 12



**PTFE VACUUM BELLOWS
GLASS TO GLASS (VACUUM BELLOW)**

DN	D	D1	D2	L	L1	Cat. Ref
80	155	98	82	70	5	SVBN 3
100	200	132	111	70	5	SVBN 4
150	275	184	162	70	5	SVBN 6
225	350	258	230	70	5	SVBN 9
300	425	340	308	70	5	SVBN 12

**PTFE VACUUM BELLOWS
GLASS TO OTHER MATERIALS (VACUUM BELLOW)**

DN	D	D1	D2	L	L1	CAT. REF
80	155	98	82	70	5	SVBF 3
100	200	132	111	70	5	SVBF 4
150	275	184	162	70	5	SVBF 6
225	350	258	230	70	5	SVBF 9
300	425	340	308	70	5	SVBF 12

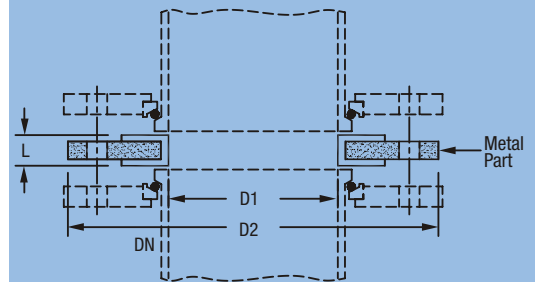
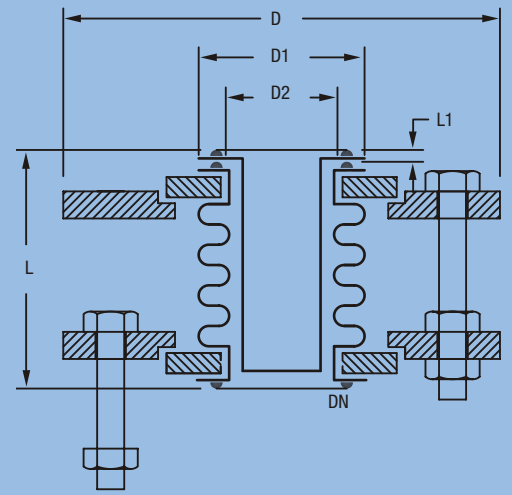
* Bellows can be supplied with undrilled adaptor flanges. However, if specified, these can be supplied drilled as per "Table E", "Table F" and "ASA 150" standards.

* Tolerances for above bellows in length is ± 3 mm and diameter as per glass buttress end tolerance as given in Technical Information.

ADAPTOR PLATE FOR REACTORS

These components are used as interface spacers when connecting glass flat buttress end components to other process plant and pipeline equipment and glass - lined reaction vessels. A combination of steel, rubber and PTFE provide an ideal sealing surface with only PTFE coming into contact with the process fluids to maintain resistance to corrosion.

DN	D1	D2	L	CAT. REF
25	25	60	10	SEMP 1
40	37	80	10	SEMP 1.5
50	50	100	10	SEMP 2
80	75	120	12	SEMP 3
100	100	155	12	SEMP 4
150	150	210	12	SEMP 6
225	200	260	15	SEMP 9
300	300	360	15	SEMP 12



Notes