

The couplings used with glass equipment are important from two main points of view:

1. They must ensure the effective seal of the joint.
2. They should not induce any undue stress in the glass.
3. They must be reliable in all service conditions.

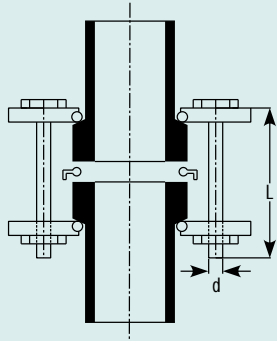
In this section we have covered coupling to join glass components together as well as to join glass components with a other metal equipment.

PTFE bellows are available for normal & vacuum applications, together with flanges to connect them to glass or non-glass equipment.

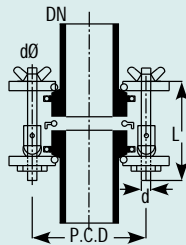
COUPLINGS & GASKETS

COMPLETE COUPLINGS

A complete coupling is a set of two backing flanges with insert and nut-bolts. complete set of flanges require to make a joint & standard one are available in Cast Iron. Also available in other MOC like Stainless Steel 304 & 316, Siliumin.



Cat.Ref.	DN	Flanges		inserts		Nuts - Bolts		
		Cat.Ref.	Qty	Cat.Ref.	Qty	d	L	Qty
CT1*	25	CF1	2nos	CN1	2nos	5/16"	65	3nos
CT1.5*	40	CF1.5	2nos	CN1.5	2nos	5/16"	65	3nos
CT2*	50	CF2	2nos	CN2	2nos	5/16"	75	3nos
CT3*	80	CF3	2nos	CN3	2nos	5/16"	75	6nos
CT4*	100	CF4	2nos	CN4	2nos	5/16"	100	6nos
CT6*	150	CF6	2nos	CN6	2nos	5/16"	100	6nos
CT9*	225	CF9	2nos	CN9	2nos	3/8"	125	8nos
CT12*	300	CF12	2nos	CN12	2nos	3/8"	150	12nos
CT16	400	CF16	2nos	CN16	2nos	3/8"	150	12nos
CT18*	450	CF18	2nos	CN18	2nos	1/2"	150	12nos
CT24	600	CF24	2nos	CN24	2nos	1/2"	150	12nos
CT32	800	CF32	2nos	CN32	2nos	1/2"	150	24nos

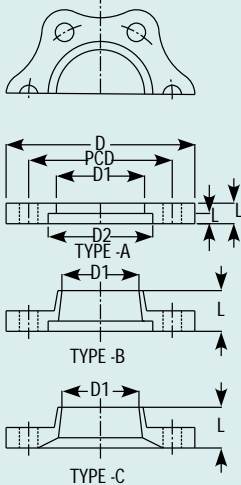


QUICK RELEASE COUPLINGS

Cat.Ref.	DN	PCD	nxdØ
QCT3	80	133	6x9Ø
QCT4	100	178	6x9Ø
QCT6	150	254	6x9Ø
QCT9	225	310	8x11Ø
QCT12	300	395	12x11Ø

For easy & fast opening or closing of couplings as quick as possible without using tools, the Quick Release Coupling is an ideal solution. In case of solid charging material to reaction or addition vessels, we recommend to use our Quick Release Coupling.

Quick Release coupling are offered in cast iron & stainless steel material as per the requirement. Quick Release Coupling is available from DN 80 to DN 300 sizes.



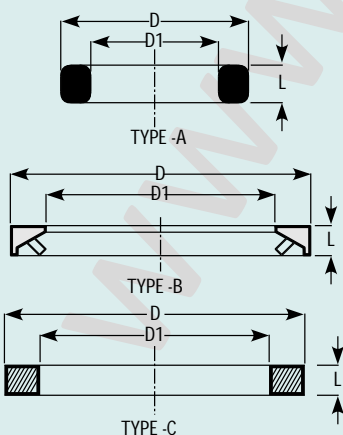
BACKING FLANGES

Backing flanges are used to couple a glass ends to a glass end or to a bellow. Backing flanges are made of cast iron and are used with Inserts.

Cat.Ref.	DN	D	D1	D2	PCD	n x dØ	L	L1	Type
CF1	25	92	43	51	70	3 x 9Ø	10	6	A
CF1.5	40	110	58	66	86	3 x 9Ø	10	6	A
CF2	50	120	70	81	98	3 x 9Ø	12	8	A
CF3	80	155	101	112	133	6 x 9Ø	12	8	A
CF4	100	200	134	148	178	6 x 9Ø	12	8	A
CF6	150	275	186	196	254	6 x 9Ø	15	8	A
CF9	225	350	260	282	310	8 x 11Ø	28	8	B
CF12	300	425	342	363	395	12 x 11Ø	34	8	B
CF16	400	525	467	476	495	12 x 12Ø	22	8	A
CF18	450	630	537	557	585	12 x 14Ø	37	8	B
CF24	600	755	643	690	710	12 x 14Ø	50	5	C
CF32	800	990	861	922	950	24 x 14Ø	67	5	C

INSERTS

Split ring type inserts are used with backing flanges. These are made of Cast iron with asbestos lining. In addition, insert made of suitable composite rubber material for 25 DN to 150 DN size. New Non-Asbestos (make Champion, Klinger) insert are being introduced for 25DN to 300DN.



Cat.Ref.	DN	D	D1	L	Type
CN1	25	50	34	10	A
CN1.5	40	65	48	10	A
CN2	50	80	61	8	B
CN3	80	111	90	9	B
CN4	100	147	119	10	B
CN6	150	195	168	10	B
CN9	225	280	240	10	B
CN12	300	361	324	10	B
CN16	400	474	431	12	B
CN18	450	555	500	18	B
CN24	600	684	634	10	C

ADAPTOR BACKING FLANGES

Adaptor backing flanges are used to couple a glass end to the flange having different bolt configuration. These flanges are made of cast iron and are supplied with inserts.

These are particularly used to fit a glass equipment on a non-glass equipment like Glass-lined Reactor etc.

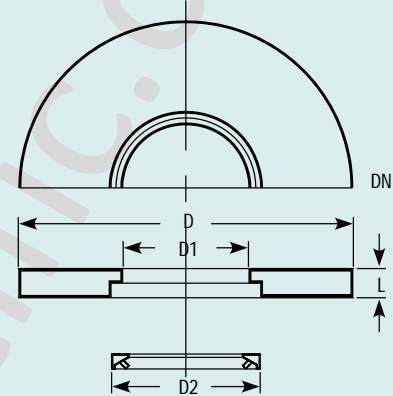
Adaptor backing flanges are generally supplied undrilled. However, if specified, these can be supplied drilled as per "Table E", "Table F" and "ASA150" standards.

Drilled to Table E

Cat.Ref.	PCD	n x dØ
CFA1/E	82	4 x 12Ø
CFA1.5/E	98	4 x 12Ø
CFA2/E	114	4 x 16Ø
CFA3/E	146	4 x 16Ø
CFA4/E	178	8 x 16Ø
CFA6/E	235	8 x 19Ø
CFA9/E	324	12 x 19Ø
CFA12/E	406	12 x 23Ø

Undrilling flanges

Cat.Ref.	DN	D	D1	D2	L
CFA1	25	115	43	51	10
CFA1.5	40	150	58	66	10
CFA2	50	165	70	81	12
CFA3	80	200	101	112	12
CFA4	100	220	134	148	12
CFA6	150	285	186	196	15
CFA9	225	395	260	282	15
CFA12	300	445	342	363	18



Drilled to ASA 150

Cat.Ref.	PCD	n x dØ
CFA1/A	79	4 x 12Ø
CFA1.5/A	98	4 x 12Ø
CFA2/A	121	4 x 16Ø
CFA3/A	152	4 x 16Ø
CFA4/A	190	8 x 16Ø
CFA6/A	241	8 x 19Ø
CFA9/A	298	8 x 19Ø
CFA12/A	432	12 x 23Ø

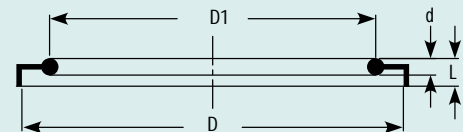
Drilled to Table F

Cat.Ref.	PCD	n x dØ
CFA1/F	87	4 x 16Ø
CFA1.5/F	105	4 x 16Ø
CFA2/F	127	4 x 16Ø
CFA3/F	165	8 x 16Ø
CFA4/F	190	8 x 16Ø
CFA6/F	260	12 x 19Ø
CFA9/F	356	12 x 23Ø
CFA12/F	438	16 x 23Ø

PTFE "O" RING WITH LOCKING COLLAR

These PTFE O rings are specially made to use as gaskets in glass fittings. These are provided with a collar which helps to locate it on the glass end correctly.

Cat.Ref.	DN	D	D1	d	L
TR1*	25	42	33	3	5
TR1.5*	40	57	48	3	5
TR2*	50	70	59	3	5
TR3*	80	100	88	3	5
TR4*	100	134	119	4	6
TR6*	150	186	168	4	6
TR9*	225	260	236	4	7
TR12*	300	342	318	4	7
TR16	400	467	435	6	7
TR18*	450	527	490	6	7
TR24	600	686	640	8	10
TR32	800	910	885	10	12



PTFE BELLOWS - GLASS TO GLASS

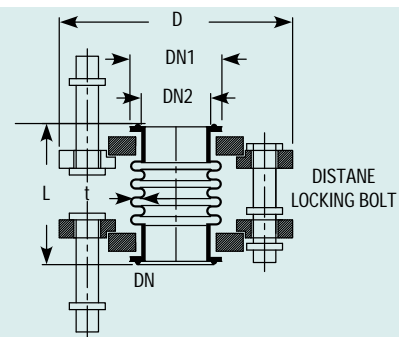
These bellows are used in installation of glass equipment for following purposes :

- to provide safe branching of pipelines from the main glass equipment.
- to accommodate odd degrees and variation in length.

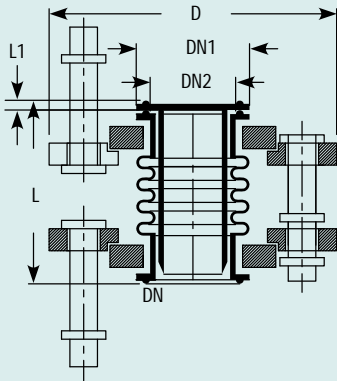
Bellows are supplied alongwith required bellow flanges and nut-bolts. Distance - locking bolts are provided to avoid excessive compression or contraction of the bellow. Gaskets are not required where bellows are used. For drilling details, refer "Bellow flanges"

Line bellows

These can withstand a temperature of 200°C under normal atmospheric conditions.



Cat.Ref.	DN	D	D1	D2	L
FBN1*	25	95	41	31	65
FBN1.5*	40	105	56	43	65
FBN2*	50	120	69	55	65
FBN3*	80	155	98	82	65
FBN4*	100	200	132	111	65
FBN6*	150	275	184	162	65
FBN9*	225	350	258	230	65
FBN12	300	420	340	308	65



Vacuum bellows

For pipelines of 80DN and above operating under vacuum, the bellows are provided with an internal sleeve which supports the convolutions without affecting the flexibility of the bellow. These bellows can withstand a temperature of 200°C under full vacuum. For size upto 50DN, line bellows can be used for these applications.

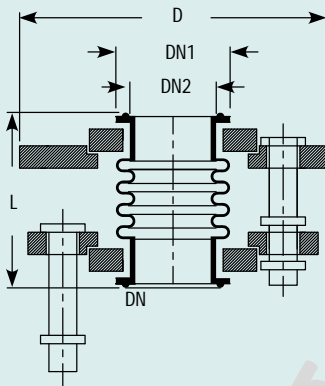
Cat.Ref.	DN	D	D1	D2	L	L1	t
VB3*	80	155	98	82	70	5	3.0
VB4*	100	200	132	111	70	5	3.5
VB6*	150	275	184	162	70	5	4.0
VB9*	225	350	253	230	70	5	5.0
VB12	300	420	338	308	70	5	5.0

PTFE BELLOWS - GLASS TO METAL

These bellows are used in installation of glass equipment for following purposes :

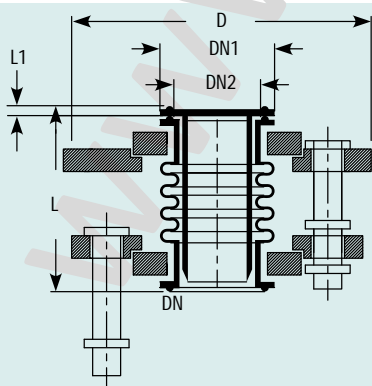
- to minimise the transfer of vibrations from the rotating equipments which are connected to the glass assembly.
- to accommodate the thermal expansion of any metallic (non-glass) equipment which are connected to the glass pipeline.

These are similar to the bellows for glass-to-glass in construction, but having adaptor bellow flange at one end. Generally this adaptor flange is supplied undrilled so that it can be drilled as per the configuration of mating flange. However, this adaptor bellow flange can be supplied drilled AS per "Table E", "Table F" or "ASA 150" standards, if Specified.



Line bellows

Cat.Ref.	Cat.Ref.	Cat.Ref.	Cat.Ref.	DN	D	L
Undrilled	Table E	Table F	ASA 150			
FBF1*	FBF1/E	FBF1/F	FBF1/A	25	115	60
FBF1.5*	FBF1.5/E	FBF1.5/F	FBF1.5/A	40	150	65
FBF2*	FBF2/E	FBF2/F	FBF2/A	50	165	65
FBF3*	FBF3/E	FBF3/F	FBF3/A	80	200	65
FBF4*	FBF4/E	FBF4/F	FBF4/A	100	220	65
FBF6*	FBF6/E	FBF6/F	FBF6/A	150	285	65
FBF9*	FBF9/E	FBF9/F	FBF9/A	225	395	65
FBF12	FBF12/E	FBF12/F	FBF12/A	300	445	65



Vacuum bellows

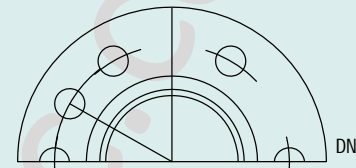
Cat.Ref.	Cat.Ref.	Cat.Ref.	Cat.Ref.	DN	D	L
Undrilled	Table E	Table F	ASA 150			
VBF3*	VBF3/E	VBF3/F	VBF3/A	80	200	70
VBF4*	VBF4/E	VBF4/F	VBF4/A	100	220	70
VBF6*	VBF6/E	VBF6/F	VBF6/A	150	285	70
VBF9*	VBF9/E	VBF9/F	VBF9/A	225	395	70
VBF12	VBF12/E	VBF12/F	VBF12/A	300	445	70

* marked items are available fast.

BELLOW FLANGES

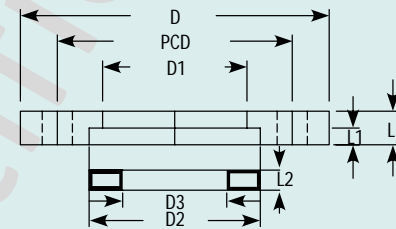
Bellow flanges are used to fit a bellow to a glass component. Standard Bellow are made Cast Iron. Cast Iron with Epoxy Coated, Cast Iron with PTFE coated, Aluminum, Silumin, Stainless Steel, 304 & 316 and are used in FBV, VB, FB type bellows. These are provided with two holes at 180° for Distance - locking bolts and are supplied with a split ring.

Cat.Ref.	DN	D	D1	D2	D3	L	L1	L2
BF1*	25	95	43	51	33	7	3	6
BF1.5*	40	110	58	66	45	7	3	6
BF2*	50	120	70	81	57	7	3	6
BF3*	80	155	101	112	84	7	3	6
BF4*	100	200	134	148	113	8	3	6
BF6*	150	275	186	196	164	8	3	6
BF9*	225	350	260	282	234	8	3	6
BF12	300	425	342	363	310	10	5	8



Drilling details

Cat.Ref.	PCD	n x d \emptyset	n x d1 \emptyset
BF1	70	3 x 9 \emptyset	2 x 9 \emptyset
BF1.5	86	3 x 9 \emptyset	2 x 9 \emptyset
BF2	98	3 x 9 \emptyset	2 x 9 \emptyset
BF3	133	6 x 9 \emptyset	2 x 9 \emptyset
BF4	178	6 x 9 \emptyset	2 x 9 \emptyset
BF6	254	6 x 9 \emptyset	2 x 9 \emptyset
BF9	310	8 x 11 \emptyset	2 x 11 \emptyset
BF12	395	12 x 11 \emptyset	2 x 11 \emptyset



ADAPTOR BELLOW FLANGES

Adaptor bellow flange are used to fit a bellow to a flange having different bolt configuration. These flanges are made of cast iron and are supplied with a split ring.

These are particularly used to fit a bellow with a non-glass equipment like Glass-lined Reactor etc. These are used in FBF, VBF type PTFE bellows.

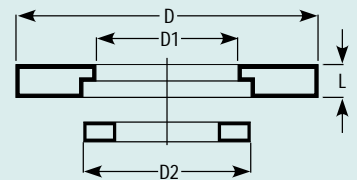
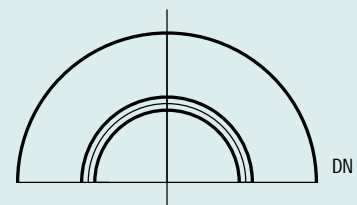
Adaptor bellow flanges are generally supplied undrilled. However, if specified, these can be supplied drilled as per "Table E", "Table F" and "ASA150" standards.

Undrilling flanges

Cat.Ref.	DN	D	D1	D2	L
BFA1*	25	115	43	51	7
BFA1.5*	40	150	58	66	7
BFA2*	50	165	70	81	7
BFA3*	80	200	101	112	7
BFA4*	100	220	134	148	8
BFA6*	150	285	186	196	8
BFA9*	225	395	260	282	8
BFA12	300	445	342	363	10

Drilled to Table E

Cat.Ref.	PCD	n x d \emptyset
BFA1/E	82	4 x 12 \emptyset
BFA1.5/E	98	4 x 12 \emptyset
BFA2/E	114	4 x 16 \emptyset
BFA3/E	146	4 x 16 \emptyset
BFA4/E	178	8 x 16 \emptyset
BFA6/E	235	8 x 19 \emptyset
BFA9/E	324	12x19 \emptyset
BFA12/E	406	12x23 \emptyset



Drilled to Table F

Cat.Ref.	PCD	n x d \emptyset
BFA1/F	87	4 x 16 \emptyset
BFA1.5/F	105	4 x 16 \emptyset
BFA2/F	127	4 x 16 \emptyset
BFA3/F	165	8 x 16 \emptyset
BFA4/F	190	8 x 16 \emptyset
BFA6/F	260	12 x 19 \emptyset
BFA9/F	356	12 x 23 \emptyset
BFA12/F	438	12 x 23 \emptyset

Drilled to ASA 150

Cat.Ref.	PCD	n x d \emptyset
BFA1/A	79	4 x 16 \emptyset
BFA1.5/A	98	4 x 16 \emptyset
BFA2/A	121	4 x 19 \emptyset
BFA3/A	152	4 x 19 \emptyset
BFA4/A	190	8 x 19 \emptyset
BFA6/A	241	8 x 19 \emptyset
BFA9/A	298	8 x 19 \emptyset
BFA12/A	432	12x23 \emptyset

* marked items are available fast.