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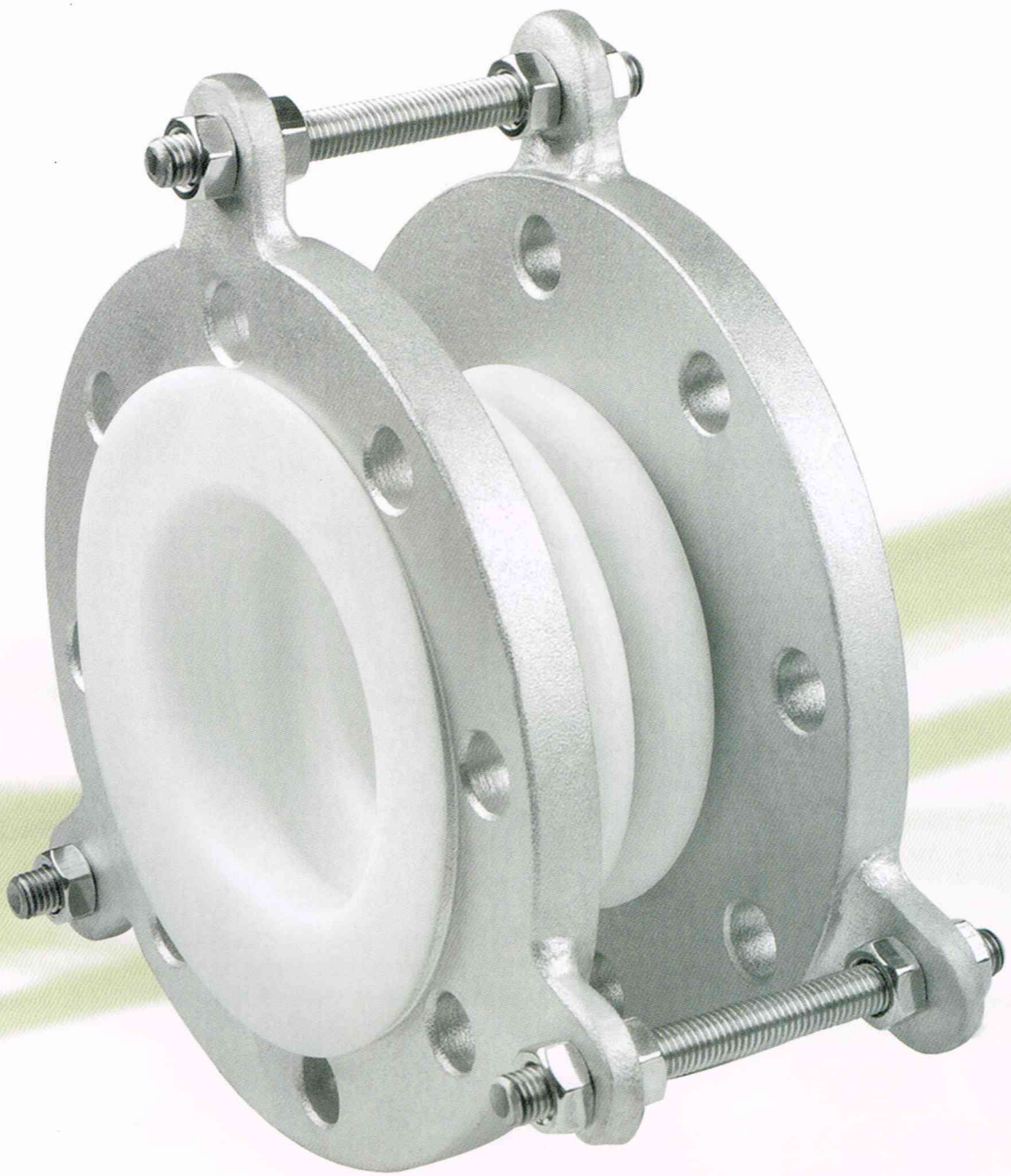
YOUFUMI

EXPANSION JOINT & HOSE

Ⓓ 119 - 130



The Empire Solutions
For Global Industrial Flow Control

PTFE Expansion Joint

fluid system

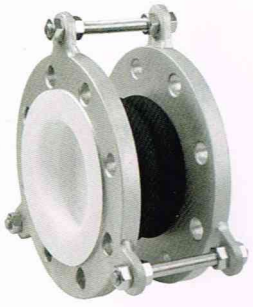
※Product Description

- Expansion joint is also called bellows or compensators, which are designed for axial, lateral and angular movements, misalignment and/or vibration in piping systems.
- Expansion joints come with three convolutions as a standard. More than three convolutions can be customized and the more convolutions, the more movement an expansion joint will provide. Various reinforcements of rings and outer shells are available for high pressures, temperatures or vacuum performance. Tie rods and hinges are designed to limit maximum and minimum movements or preventing movement altogether in certain planes.
- If there is no specific requirement for flange, it will be as per ANSI B16.5 and HG/T 20592 PN1.0MPa standard.
- Lining material: PFA, PTFE(pure and static conductive)
- Nominal diameter: DN25~DN3000
  When the size of expansion joint is bigger than DN300, the type with stainless steel housing for vacuum resistant is recommended.

FB Type PTFE Expansion Joint

FW Type PTFE Stainless Steel Nets Expansion Joint

FG Type Stainless Steel Housing Expansion Joint



FX Type PTFE Rubber Expansion Joint

FX-1 Type Single Spherical PTFE Rubber Expansion Joint

FX-2 Type Double Spherical PTFE Rubber Expansion Joint

FJ Type Metal Expansion Joint

PTFE Expansion Joint

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※ Material Specification

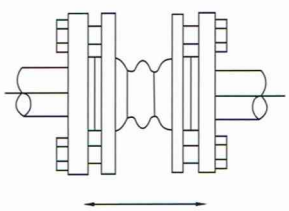
Flange Material	A105, SS304, SS316, SS316L
Vacuum Ring	SS304+PFA/PTFE
Bellow Material	PTFE, PFA, EPDM+PTFE, SS304+PTFE, SS316+PTFE

※ Types of Expansion Joint

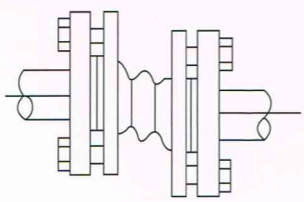
No.	Name	Code	Dimension
1	PTFE Expansion Joint	FB	DN25~DN600
2	PTFE Rubber Expansion Joint	FX	DN25~DN3000
3	PTFE Stainless Steel Nets Expansion Joint	FW	DN25~DN1000
4	PTFE Stainless Steel Housing Expansion Joint	FG	DN25~DN3000
5	Metal Expansion Joint	FJ	DN25~DN3000
6	Single Sperical Expansion Joint	FX-1	DN25~DN1000
7	Double Sperical Expansion Joint	FX-2	DN25~DN1000

※Installation Instruction

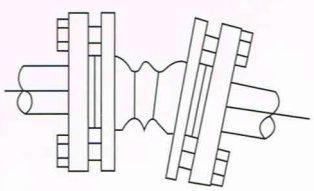
- ◆Before installe the expansion joints into the pipeline, the fixing sleeve on the limit rods have to be removed and adjust the nuts to the top which can make the flange move freely when thermal expansion, if the angle is bigger, also can take off the limits rods directly.
- ◆When installation, keep the expansion joint in the regular status, it can not be stretched or compressed. And the flanges have to be installed in the correct condition, also should keep the bellows and the flare surface from damage.



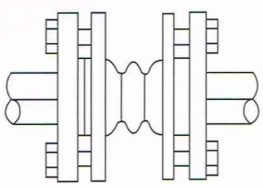
Lateral Movement



Displacement Compensator

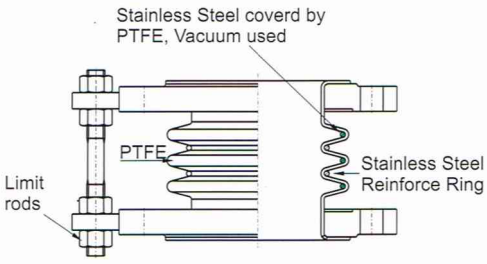


Angle Movement

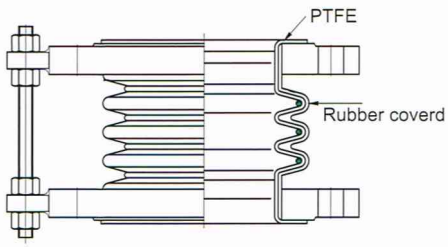


Damping Noise Reduction

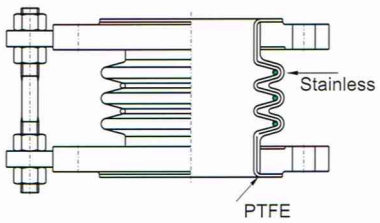
PTFE Expansion Joint



FB Type Expansion Joint



FX Type Expansion Joint

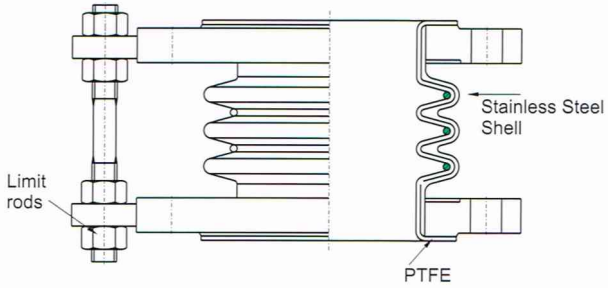


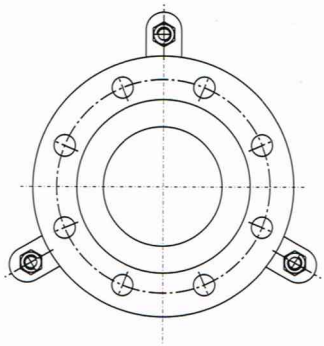
FW Type Expansion Joint

HG/T 20592

DN	NPS	Convolution	Face-to-face L(mm)	Axial Movement ΔX(mm)	Lateral Movement ΔY(mm)	Angle Movement Δθ(°)	Nominal Pressure PN(MPa)
25	1	3	100	±15	8	25	0.40/-0.09
32	1 1/4	3	100	±15	10	25	0.40/-0.09
40	1 1/2	3	100	±18	14	25	0.40/-0.09
50	2	3	100	±18	15	25	0.40/-0.09
65	2 1/2	3	110	±20	16	25	0.35/-0.09
80	3	3	120	±20	16	25	0.35/-0.09
100	4	3	120	±25	17	20	0.30/-0.09
125	5	3	130	±27	17	18	0.30/-0.09
150	6	3	140	±27	16	15	0.30/-0.09
200	8	3	150	±27	15	13	0.25/-0.09
250	10	3	160	±27	12	10	0.25/-0.09
300	12	3	170	±27	8	5.5	0.25/-0.09
350	14	3	180	±27	8	4.5	0.25/-0.09
400	16	3	200	±30	8	4	0.15/-0.09
450	18	3	200	±30	8	3.5	0.15/-0.09
500	20	3	220	±30	8	3	0.15/-0.09
600	24	3	240	±30	8	2.9	0.15/-0.09
700	28	3	280	±30	7	2.7	0.15/-0.09
800	32	3	280	±30	7	2.6	0.15/-0.09
900	36	3	300	±30	7	2.5	0.15/-0.09
1000	40	3	300	±30	7	2.4	0.1/-0.08
1200	48	3	320	±30	5	2.4	0.08/-0.08
1400	56	3	320	±37	7	2.4	0.06/-0.08
1600	64	3	360	±40	7	2.3	0.06/-0.08
1800	72	3	360	±40	7	2.2	0.03/-0.08
2000	80	3	380	±40	7	2.1	0.03/-0.08
2200	88	3	380	±40	7	2.0	0.03/-0.07

PTFE Expansion Joint





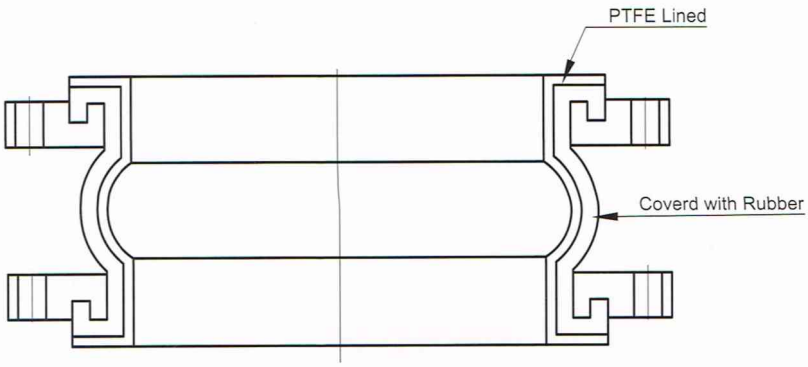
FG Type Stainless Steel Housing Expansion Joint

HG/T 20592

DN	NPS	Convolution	Face-to-face L(mm)	Axial					
				Movement X(mm)			Rigidity Kx(N/mm)		
				Design Pressure (MPa)					
				0.6	1.0	1.6	0.6	1.0	1.6
32	1 1/4	3	100	12	10	8	192	298	476
40	1 1/2	3	100	15	12	10	208	342	648
50	2	3	100	15	12	10	209	467	859
65	2 1/2	3	110	16	12	9	216	568	1100
80	3	3	120	16	12	9	304	676	1287
100	4	3	120	19	15	12	466	831	1393
125	5	3	130	19	15	12	533	996	1682
150	6	3	140	18	15	12	637	1170	1980
200	8	3	150	36	29	24	427	702	1345
250	10	3	160	36	28	23	510	851	1649
300	12	3	170	45	36	30	442	724	1384
350	14	3	180	45	36	29	475	784	1508
400	16	3	200	44	35	28	53	882	1708
450	18	3	200	44	34	28	582	980	1902
500	20	3	220	43	34	28	640	1079	2102
600	24	3	240	73	50	38	540	1463	3202
700	28	3	280	73	48	40	290	815	1463
800	32	3	280	74	47	40	310	875	1585
900	36	3	300	74	46	39	333	985	1708
1000	40	3	300	78	44	34	368	1563	4044
1200	48	3	320	76	43		425	1843	
1400	56	3	320	74	42		485	2128	
1600	64	3	360	72	42		545	2410	
1800	72	3	360	71	35		605	5218	
2000	80	3	380	66	39		943	4173	
2200	88	3	380	65	34		1027	7833	

PTFE Expansion Joint

PTFE Lined Single Spherical Rubber Expansion Joint



FX-1 Type

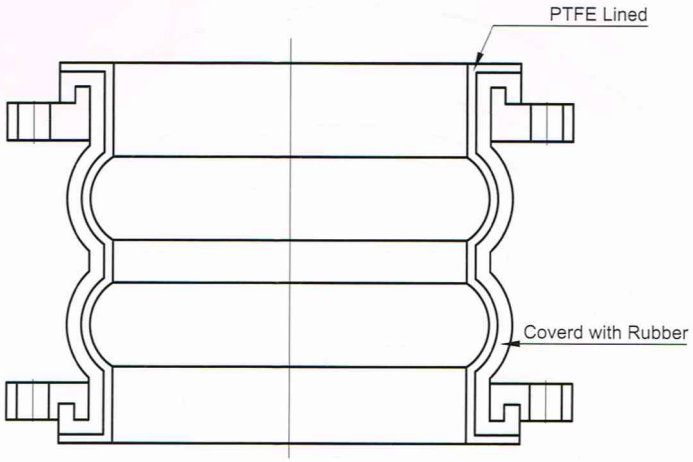
HG/T 20592

DN	NPS	Length L(mm)	Flange Thickness b(mm)	Bolt No.	Bolt Diameter (mm)	Diameter of Bolt Center Hole (mm)	Axial Movement (mm)		Lateral Movement (mm)	Angle Deflection ($\alpha_1+\alpha_2$)
							Elongation	Compression		
32	1 1/4	95	16	4	18	100	6	9	9	15
40	1 1/2	95	18	4	18	110	6	10	9	15
50	2	105	18	4	18	125	7	10	10	15
65	2 1/2	115	20	4	18	145	7	13	11	15
80	3	135	20	4	18	160	8	15	12	15
100	4	150	22	8	18	180	10	19	13	15
125	5	165	24	8	18	210	12	19	13	15
150	6	180	24	8	23	240	12	20	14	15
200	8	210	24	8	23	295	16	25	22	15
250	10	230	24	12	23	350	16	25	22	15
300	12	245	24	12	23	400	16	25	22	15
350	14	255	26	16	23	460	16	25	22	15
400	16	255	26	16	26	515	16	25	22	15
450	18	255	28	20	26	565	16	25	22	15
500	20	255	28	20	26	620	16	25	22	15
600	24	260	30	20	30	725	16	25	22	15
700	28	260	30	24	30	840	16	25	22	15
800	32	260	32	24	33	950	16	25	22	15
900	36	260	36	28	33	1050	16	25	22	15
1000	40	300	36	28	36	1160	18	26	24	15
1200	48	400	38	32	39	1380	18	26	24	15
1400	56	400	38	36	42	1590	20	28	26	15
1600	64	450	40	40	48	1820	25	35	30	10
1800	72	450	40	44	48	2020	25	35	30	10
2000	80	500	44	48	48	2230	25	35	30	10

PTFE Expansion Joint

PTFE Lined Double Spherical Rubber Expansion Joint

- This expansion joint can reduce the vibration and noise in pipeline. It solves the problem of connector displacement, axial stretch and different angle degree for various pipelines.
- According to different material it can be divided into anti-acid, anti-alkali, anti-corrosion, anti-grease, anti-heat etc, applicable for various medium and environment.
- The material belong to polar rubber, sealing performance is good, and weight is light, easy installation and maintenance, long lifespan. Do not contact with sharp metal equipment to avoid punctured sphere.
- A flexible bracket should be provided for overhead usage, the bolts should be tightened when installed.
- If the pressure is exceeding in pipeline, use limit bolts to connect two ends of flange.
- Anti-high pressure with PTFE lined is applicable for corrosive medium such as strong acid and alkali.



FX-2 Type

HG/T 20592

DN	Length L	Axial Movement		Lateral Movement	Angle Deflection
		Elongation	Compression		
50	165	30	50	45	40°
65	175	30	50	45	40°
80	175	30	50	45	40°
100	225	35	50	40	35°
125	225	35	50	40	35°
150	225	35	50	40	35°
200	325	35	60	35	30°
250	330	35	60	35	30°
300	330	35	60	35	30°
350	330	30	50	30	30°
400	330	30	50	30	30°
500	340	30	50	30	30°

PTFE Flexible Hose

FLUID SYSTEM CO.,LTD.
website: www.fluidsystem.co.th
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tel: 0815607905

※Product Description

- Stainless steel braided PTFE flexible hose is generally used in any application, odourless, colourless and chemically inert. For demanding applications, with pulsating pressures or extreme bend radii, the hose is supplied with a stainless steel double braided.
- Nominal diameter:DN10~DN200
- Connect methods: flange, camlock, F/M NPT
- Housing materials: stainless steel
- Suitable medium: Strong acid, strong alkali and strong oxidizing medium, and applicable in chemical, pharmaceutical, electronic, dairy, food, petrochemical industries.
- It is non-stick and can be assembled in place. Flexible, handy, it accepts the smallest bend radius without kinking.
- Lining material:
  PFA, PTFE(pure and static conductive)

PTFE Hose

Stainless Steel Braided
PTFE Flexible Hose

PE Braided PTFE
Flexible Hose

PTFE Flexible Hose

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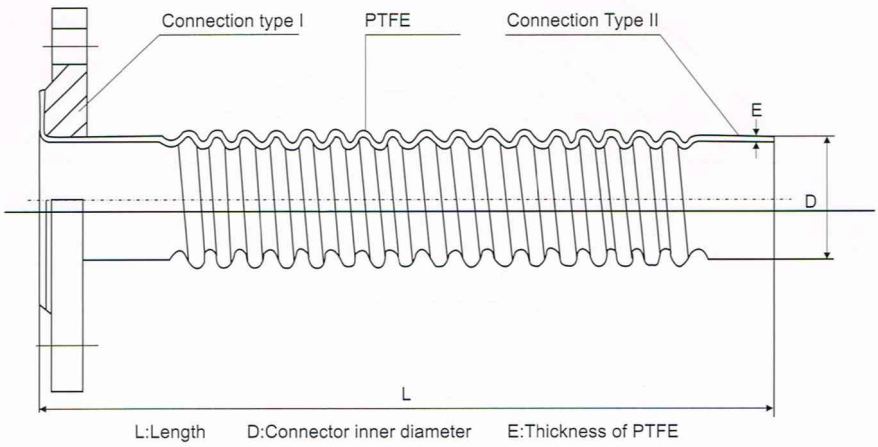
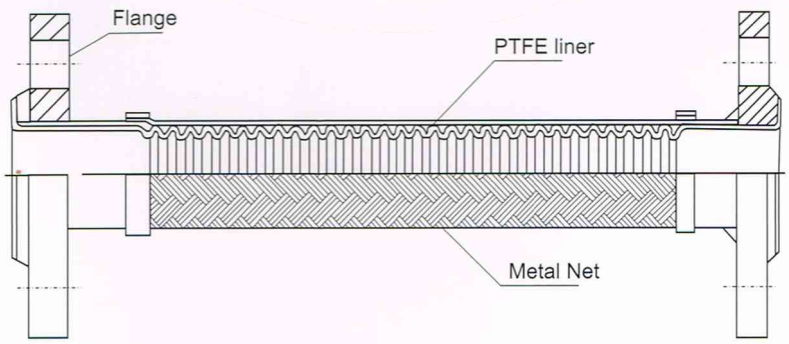
※PTFE Flexible Hose

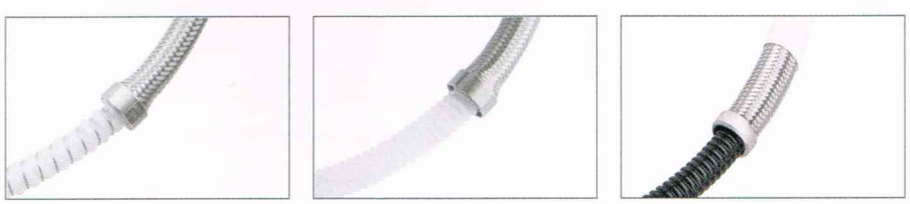
PTFE flexible hose can be used to link low mechinical strength pipe such as graphite, ceramics or glass pipeline. It can be used as outlet pipe for cutting machining, storage tank, container, to conduct the pipe dislocation connection. Apply for pipe displacement caused by weather change or the other reasons. Also apply for pipe reactor and heat exchanger.



※Stainless Steel Braided PTFE Flexible Hose

It is PTFE hose knitting with a layer or multilayer steel net or steel sleeve (according to the pressure), and two sides with flange and quick connector. It is vibration absorption, movement compensation. Especially in the pipe system it has large compensation and movement ability. It features light weight, fatigue resistance, flexibility, corrosion resistant, and pressure resistant.





PTFE Flexible Hose

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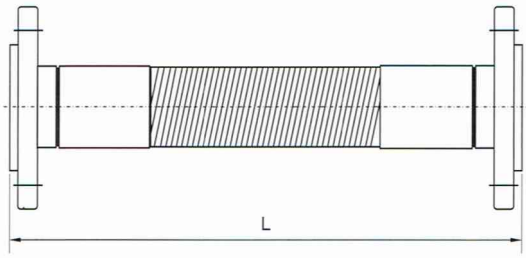
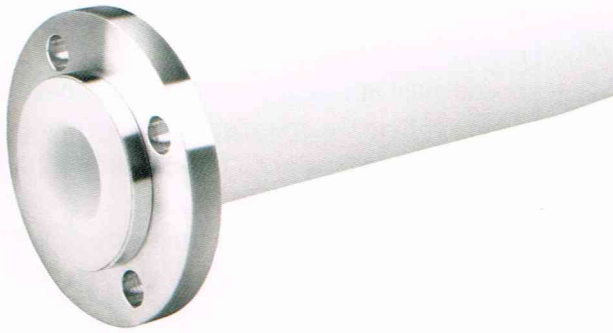
※Technical Specification

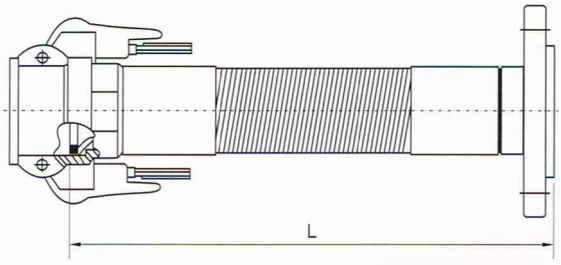
Nominal Diameter		15	20	25	32	40	50	57	65	73	80	89	100	114	125	150	200
Connector Inner Diameter		15	20	25	33	38	51	57	63	73	80	89	100	114	125	159	219
Connector Length		30-50			40-60			50-70			60-80					60-100	100-150
Bellow Outer Diamater		17.0	22.4	27.6	35.8	40.8	54.0	60.2	66.2	76.4	83.6	92.6	105.8	117.8	129.0	164	225
Bellow Inner Diameter		10	15	20	25	30	40	45	52	63	68	75	90	102	113	140	
Thickness		1.5	1.5	1.5	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.5	2.6	3.0
Pressure (MPa)	PTFE Hose	0.65	0.62	0.60	0.50	0.50	0.50	0.40	0.30	0.25	0.23	0.20	0.18	0.12	0.08	0.07	0.05
	SS Braided Hose	1.6		1.6		1.6	1.6		1.6		1.6		1.2		1.0	1.0	0.8
	Reinforce SS Braided Hose	2.0		2.0		2.0	2.0		2.0		2.0		1.5			1.2	1.0
Applicable Vacuum (Kpa)		90			85	80	75	70	65	63	61	60	58	56	50	30	20
Ultimate Deflection Radius	PTFE Hose	≥5.0DN				≥4.5DN		≥4.0DN		≥3.5DN			≥3.0DN			5DN	5DN
	SS Braided Hose	≥5DN														6DN	6DM
	Reinforce SS Braided Hose	≥5DN														6DN	6DN
Thermal Deformation Temperature		< 150℃														< 100℃	< 100℃
Applicable Temperature	PTFE Hose	−10℃ ~ +150℃										−10℃ ~ +150℃				−29℃ ~ +150℃	
	SS Braided Hose	−10℃ ~ +180℃					−10℃ ~ +160℃					−5℃ ~ +150℃				−29℃ ~ +180℃	
	Reinforce SS Braided Hose	−5℃ ~ +180℃					−5℃ ~ +170℃					−5℃ ~ +150℃				−29℃ ~ +180℃	
Fatigue Times		≥10000 times(Ambient Temperature)															
Length		100~10000mm															

※Typical End Connections Composite Hose Assemblies

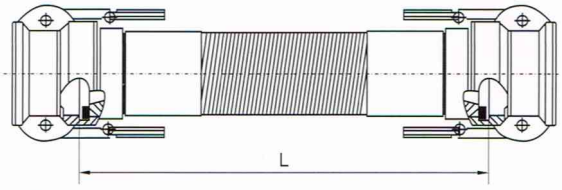


Flang connection(fixed + floating)

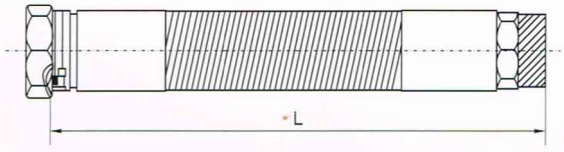




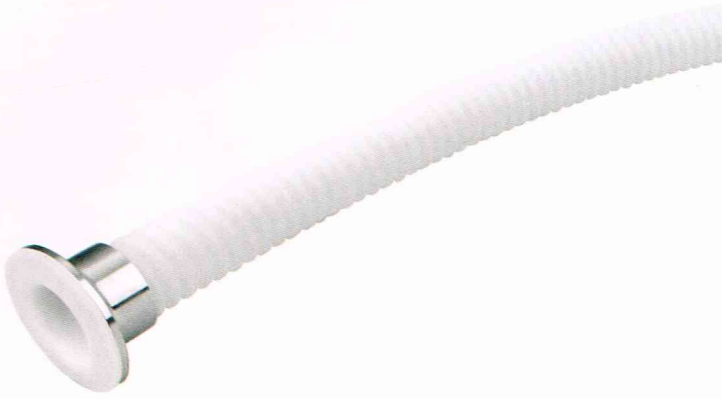
Quick couping(female) + flang connection

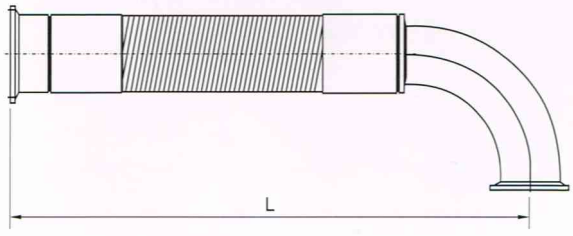


Quick couping(female)



MNPT + FNPT





Quick couping

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※Installing

Incorrect installation of a hose assembly will create stresses within the assembly and result in a premature failure.The following guidelines should be followed:

-hose assemblies hust not be twisted either during installation or in use

-hoses must not be over flexed or bent into a smaller diameter than the specified minimum bend radius

-hose assemblies should be installed so that flexing always occures in the same plane

-it is recommended that flanged assemblies have a floating flange on one end for easier installation and to reduce th possibility of twist

※Cleaning

Before storage,hoses should be drained and flushed with clean water to remove dangerous vapours,the exception being hoses which have been used for conveyants such as sulphuric acid when dilution with water could leave a very corrosive residue. In such instances,drain dry, Hoses must be electrically earthed during cleaning oerations, Hoses may be cleaned using low pressure air, However hoses must be open-ended to avoid excessive pressure build up. Be open-ended to avoid excessive pressure buid up. Steam is not recommended for cleaning as the excessive temperature involved (over 100°C)will damage the hose fabrics.

※Handling

Hoses should be stored in a straight line on solid supports or racks.

Large bore hoses should be carried on a dollie or moved by crane.Hoses must not be supported by a single rope or wire. A wide belt sling should be used, supporting the hose at least every 3 metres. Avoid curvatures that are less than the minimum bend radius of hose.

Do not allow sharp hends adjacent to the end connection fitting-this area is the weakest spot in any type of hose.

Hoses should not be dragged along the ground or over guard rails. Do not allow the hose to chafe (rub) agaiinst hard surfaces and/or sharp edges. If unavoidable, consider having the hoses rope laqqed.

※Inspection

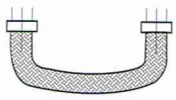
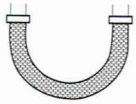
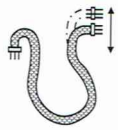
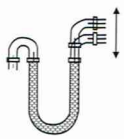
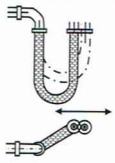
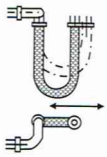
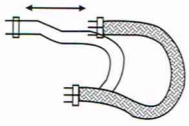
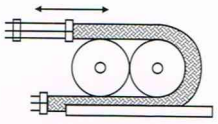
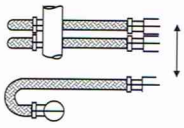
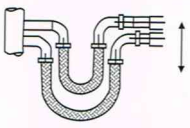
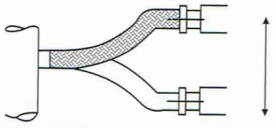
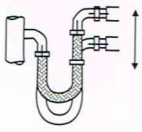
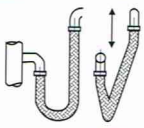
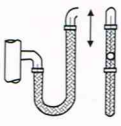
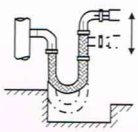
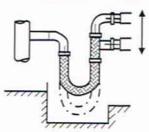
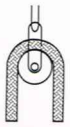
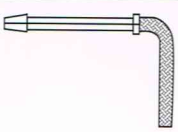
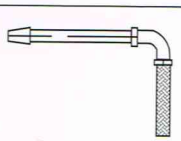
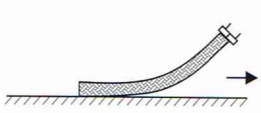
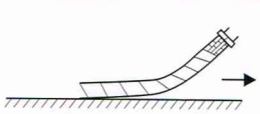
Inspect hose for visual damage at least every six months, more often if experience demands it. Look for:

1. Weakening of the hose adjacent to the end fitting
2. Cuts and adrasions on the fabric cover
3. Abrasion of the outer wire
4. Displacement of the outer wire-identified by differing widths between each round of wire over the length
5. Dents,kinks or twisted sections

※Testing

Composite hose assemblies should be hydrostatically tested at least once every twelve (12) months and electrical continuity tested,where applicable,at least once every six(6) months.

PTFE Flexible Hose

Wrong Installation	Correct Installation	Description
		For 180 °C bending installation,when length is too short and over bending will occur,the installation with more than the minimum bend radius should be adopted.for PTFE bellow hose,plese check the table above
		If the minimum bend radius is unallowable, a rigid elbow should be installed
		Motion direction and hose axis should be in the same plane, lest occurrence of torsional stress.
		For too long length,drooping is easy to occur, a cylinder rack should be installed
		Moting direction and hose axis should be in the same plane, lest occurrence of torsional stress.
		Occurrence of alternating tension should be avoided. To eliminate alternating tension and over bending through installation of rigid elbow
		Motion direction and hose axis should be in the same plane, lest occurrence of torsional stress.
		For self-bending installation,it should be avoid the friction between hose and wall,ground etc
		A cylinder rack should be installed,lest over bennding
		Rigid elbows should be installed, lest over bending
		In case it is impossible to avoid external mechanical stretch, external protection should be avoid

For more information, please kindly contact YFM sales department