POLIFLEX-T

PTFE FLEXIBLE JOINT

FEATURES

Polytetrafluoroethylene (PTFE) hose has solved the short life problem of metallic hose from using with most dangerous fluids like acids, caustics, chemicals, organic solvent, noxious gas, etc. This material has outstanding chemical resistance to wide variety of chemicals and the long service life that make it ideal for use in hose application. Besides, the nonstick feature of PTFE makes it ideal for food and pharmaceutical process. Many other critical applications of PTFE hose is used for imperative reliability such as submarine and life saving devices. The additional benefit is the reduced maintenance costs and low inventory costs.

Poliflex-T is available with either a corrugated profile enhancing flexibility or smooth bore for minimizing pressure drop and stabilizing the flow. When completed with stainless steel wire braid, PTFE hose are able to be used under high pressure, continuous flexing, and vibration condition.

TEMPERATURE SERVICE

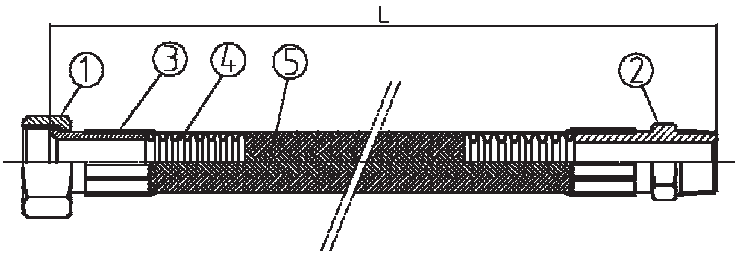
The service temperature of PTFE is ranging from -73°C to +260°C. However in considering the demand of other factors or parameters such as movement and pressure load, we recommend the maximum service temperature up to 200°C.

CAUTION

Although PTFE resists most corrosive media, it is not suitable for Alkali metals (such as sodium and potassium, dissolved on metals) and fluorine compounds (such as fluorides, fluorine oxide, fluorine gas, and fluorinated hydrocarbons).

TJ-4450-0

Screw Type



No.	Parts	Standard Materials
1	Screw end fitting	SUS304
2	Screw end fitting	SUS304
3	Ferrule	SUS304
4	Corrugated hose	PTFE
5	Wire braid	SUS304

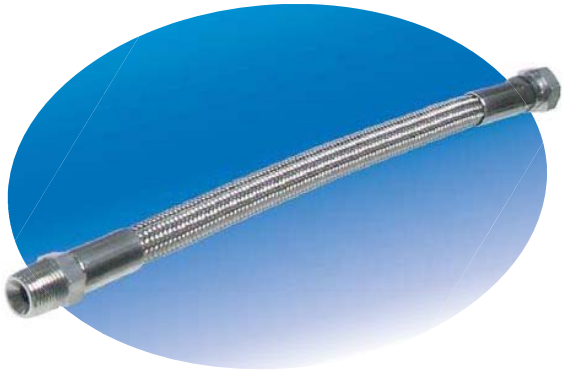
- Screw end fittings can be changeable to SUS316.

SPECIFICATION :

Max. Operating Temperature : 260°C

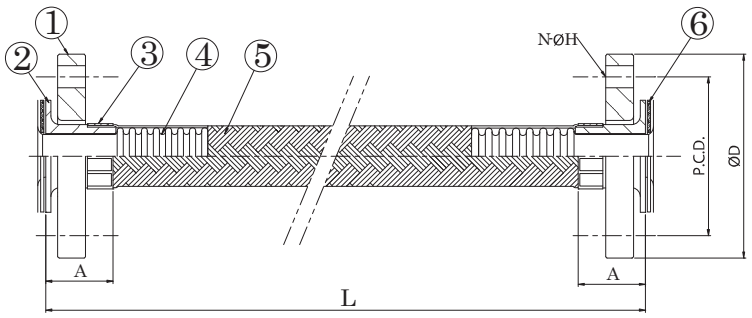
Application : Chemicals, Pharmaceutical, Biomedical, Food, Cosmetic, etc.

The screw end type of PTFE convoluted hose is suitable for small size connection, and it can support higher pressure than flange type but it is not providing 100% PTFE coverage at all wet surface, therefore please specify material to your application such as SUS316.



Nominal Size A (B)	Min. ID of Hose (mm)	Wall Thickness (mm)	Min. Bending Radius (mm)	Max. Working Pressure (bar)	Bursting Pressure (bar)	Ineffective Length (mm)	Overall Length			
							300mm	500mm	1000mm	2000mm
							Eccentric (mm)			
8 (1/4")	6.73	0.76	17.8	172	517	110	83	175	403	861
10 (3/8")	9.14	0.76	20.3	138	414	118	79	170	399	857
15 (1/2")	12.45	0.89	25.4	103	310	136	70	161	390	848
20 (3/4")	18.54	0.89	63.5	69	207	166	48	140	369	826
25 (1")	24.89	1.02	88.9	46	138	194	30	122	351	809
32 (1-1/4")	31.00	1.02	88.9	34	103	220	18	110	339	797
40 (1-1/2")	37.50	1.02	152.4	30	90	240	5.8	88	317	775
50 (2")	48.00	1.09	190.5	23	69	280	0.5	62	291	749

TJ-78800 Loose Flanges Type with Flare



No.	Parts	Standard Materials
1	Loose flange	SUS304
2	Lap joint	SUS304
3	Collar	SUS304
4	Corrugated hose	PTFE
5	Wire braid	SUS304
6	Gasket	ASBESTOS

- Flanges can be selected in standard of JIS, ANSI, ISO/PN, BS, etc.
- Flange material can be changeable to mild steel, carbon steel, and SUS316.
- Lap joint material can be changeable to SUS316.

SPECIFICATION :

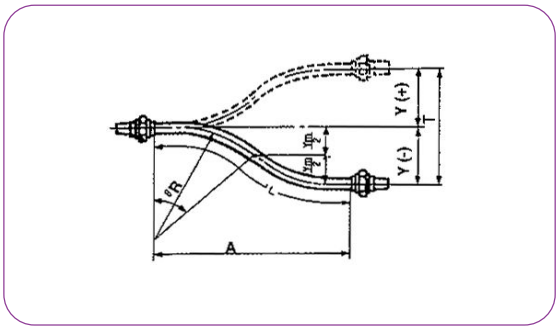
Max. Operating Temperature : 260°C

Application : Chemicals, Pharmaceutical, Biomedical, Food, Cosmetic, etc.

The flange type of PTFE convoluted hose with flare over the face of fitting is the benefit for all wet surfaces with providing 100% PTFE coverage. This type protects all parts of hose from abrasive proceeding of fluid.

Nominal Size A (B)	Min. ID of Hose (mm)	Wall Thickness (mm)	Min. Bending Radius (mm)	Max. Working Pressure (bar)	Bursting Pressure (bar)	Ineffective Length Ax2 (mm)	Overall Length			
							300mm	500mm	1000mm	2000mm
							Eccentric (mm)			
15 (1/2")	11.6	0.82	25	10	40	60	104	196	425	883
20 (3/4")	19.5	1.00	55	10	40	60	98	190	419	877
25 (1")	24.5	1.10	85	10	40	100	74	166	395	852
32 (1 1/4")	31.5	1.15	100	10	40	100	71	163	392	849
40 (1 1/2")	36.5	1.45	120	10	40	100	67	159	388	845
50 (2")	49.5	1.50	165	10	40	100	58	150	379	836
65 (2 1/2")	62.5	1.60	230	10	40	100	45	137	366	823
80 (3")	73.5	1.60	260	10	40	100	37	131	360	817
100 (4")	94.5	1.82	400	10	40	100	24	103	332	790

Calculation for Hose Length (L) with Movement



1. Offset Movement

(in case of non-alignment)

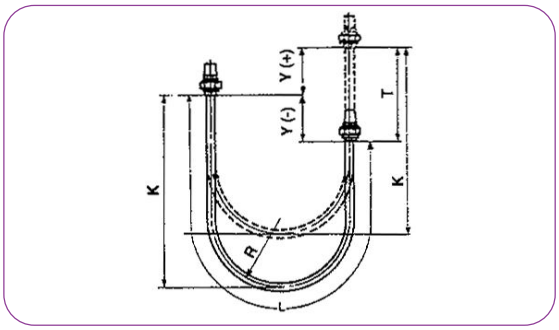
$$Ym = 2 \cdot R (1 - \cos\theta) \quad \text{.....(1)}$$

$$YL = 2 \cdot R (1 - \cos\theta) + \left(L - \frac{\theta \cdot \pi \cdot R}{90}\right) \cdot \sin\theta \quad \text{.....(2)}$$

$$Am = 2 \cdot R \cdot \sin\theta \quad \text{.....(3)}$$

$$AL = 2 \cdot R \cdot \sin\theta + \left(L - \frac{\theta \cdot \pi \cdot R}{90}\right) \cdot \cos\theta \quad \text{.....(4)}$$

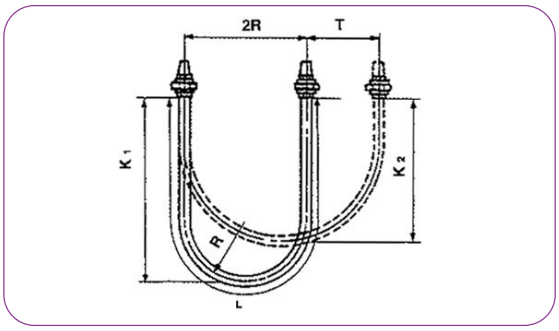
$$R = \frac{Dm \cdot Q}{2 \cdot e} \quad \text{.....(5)}$$



2. Vertical Movement

$$L = 4R + \frac{T}{2} \quad \text{.....(6)}$$

$$K = 1.43R + \frac{T}{2} \quad \text{.....(7)}$$



3. Horizontal Movement

$$L = 4R + 1.57T \quad \text{.....(8)}$$

$$K1 = 1.43R + 0.785T \quad \text{.....(9)}$$

$$K2 = 1.43R + \frac{T}{2} \quad \text{.....(10)}$$

Symbols :

T	:	Total value of displacement (Movement)	mm
L	:	Length of the hose	mm
Lm	:	Min. effective length of the hose	mm
Y	:	Movement from the centre	mm
		Ym : The value of min. effective length of the hose (Short length hose)	mm
		YL : The value by the effective length of the hose > Lm (Long length hose)	mm
A	:	Face-to-face Dimension	
		Am : The value by Lm of the effective length of the hose (Short length hose)	mm
		AL : The value by the effective length of the hose > Lm (Long length hose)	mm
R	:	Allowable bending radius	mm
Dm	:	Effective Diameter	mm
Q	:	Hose Pitch	mm
e	:	Elongation and Compression per Bellows	mm
θ	:	Bend Angle	degree
K	:	Loop Length	mm

Sample of Offset Movement Calculation

For Static Installation

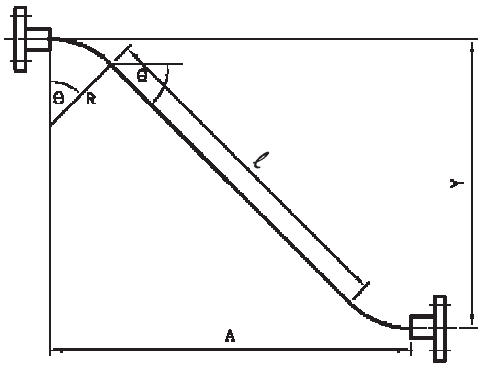
PTFE Hose (Flange Type)
Size : 50A x 1000mmL
Bending Radius : 165mmL
Ineffective Length : 100mmL

So, L = (L of overall hose length) - (Ineffective length)
= 1000 - 100
= 900mmL

Check θ for selecting the formula of movement

L = (¶ x R x θ) / 90
θ = (90 x 900) / (¶ x 165) = 156.2°

So, θ = 156.2° > 45° use long length hose formula (YL and AL formula)
[if θ ≤ 45° use short length hose formula (Ym and Am formula)]



Select YL & AL Formula and use θ = 45°
ℓ = L - 2 x (¶ x R x θ / 180)
= 900 - 0.03492 x (165) x (45)
= 640.7 mm

AL = (2 x R x sin θ) + (ℓ x cos θ)
= (2 x 165 x sin 45) + (640.7 x cos 45)
= 686.39 mm.

YL = (2 x R x (1 - cos θ)) + (ℓ x sin θ)
= (2 x 165 x (1 - cos 45)) + (640.7 x sin 45)
= 549.7 mm.