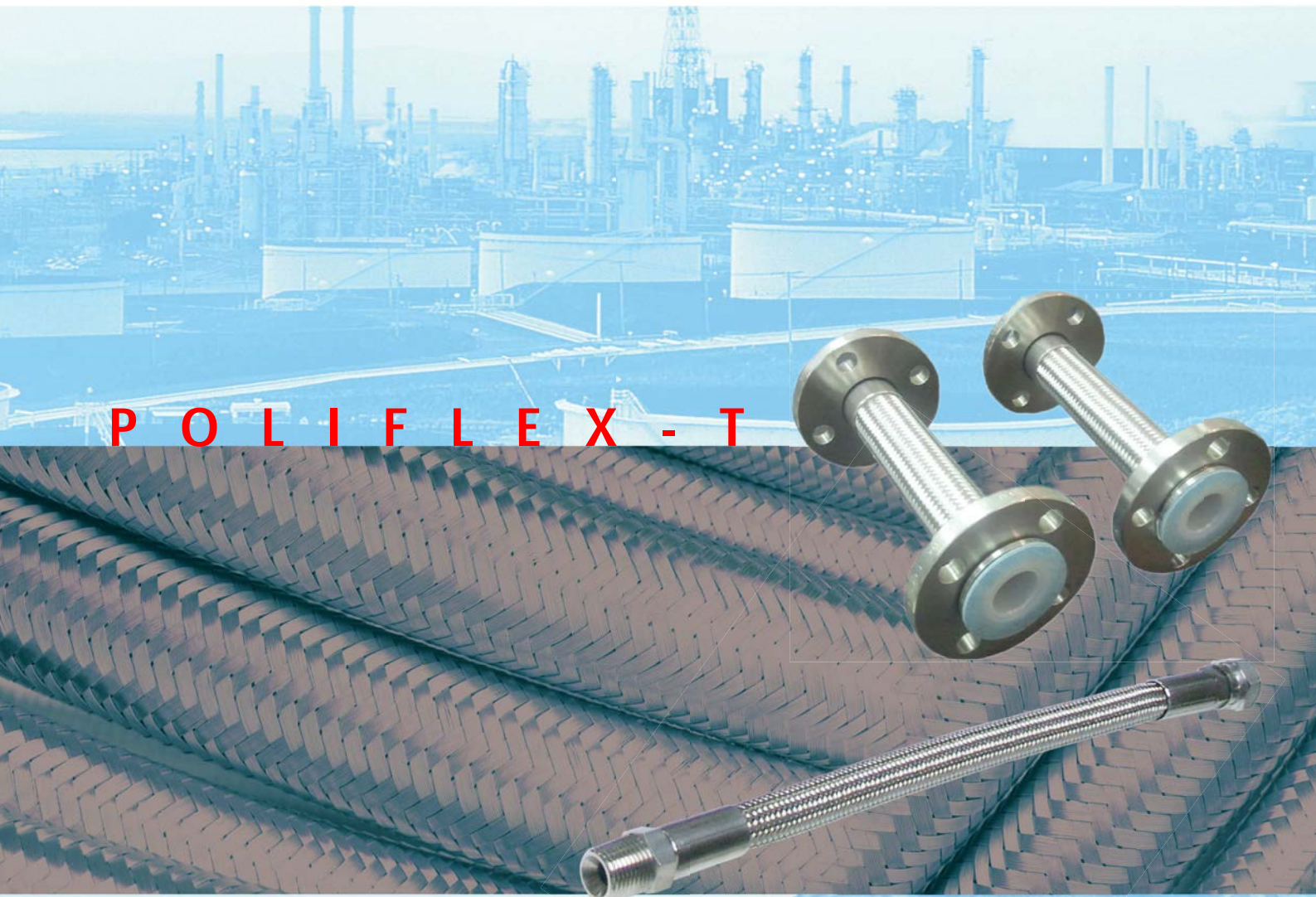


POLIFLEX-T

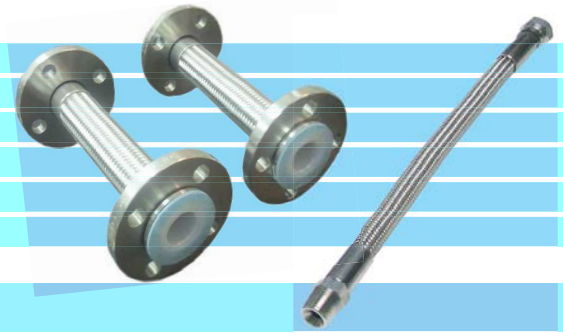
PTFE FLEXIBLE JOINT

P O L I F L E X - T



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.

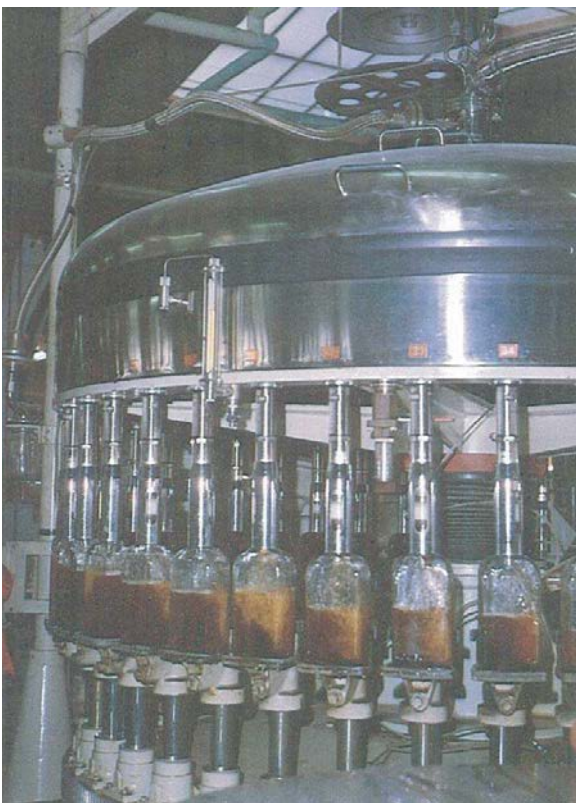
Poliflex-T is available with either a corrugated profile enhancing flexibility or smooth bore for minimizing pressure drop and stabilizing the flow. When completed with stainless steel wire braid, PTFE hose are able to be used under high pressure, continuous flexing, and vibration condition.

TEMPERATURE SERVICE

The service temperature of PTFE is ranging from -73°C to $+260^{\circ}\text{C}$. 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 .

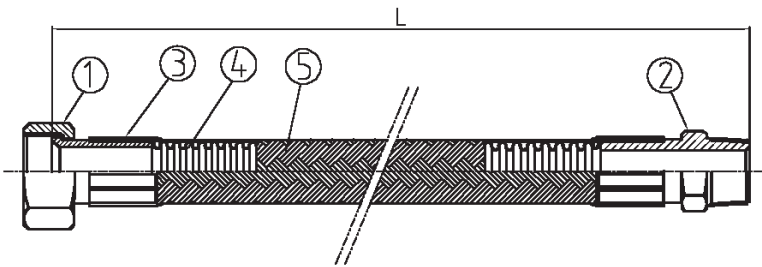
CAUTION

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 |

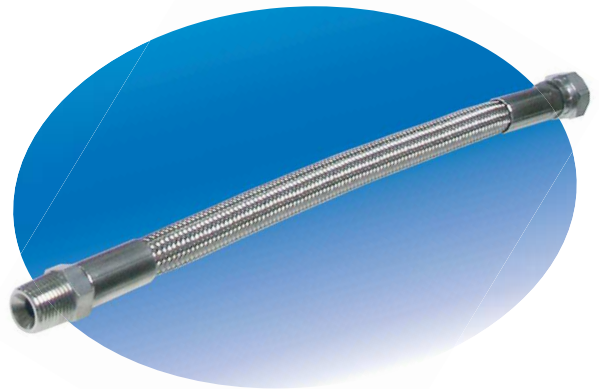
- Screw end fittings can be changeable to SUS316.

SPECIFICATION :

Max. Operating Temperature : 260°C

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

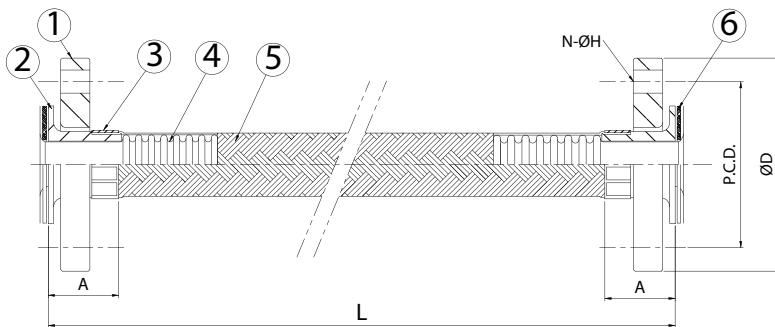
The screw end type of PTFE convoluted hose is suitable for small size connection, and it can support higher pressure than flange type but it is not providing 100% PTFE coverage at all wet surface, therefore please specify material to your application such as SUS316.



| 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 | NON ASBESTOS |

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.

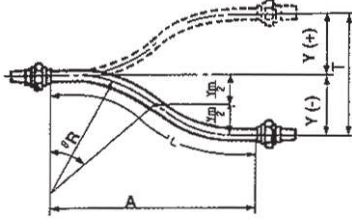


- Flanges can be selected in standard of JIS, ANSI, ISO/PN, BS, etc.
- Flange material can be changeable to mild steel, carbon steel, and SUS316.
- Lap joint material can be changeable to SUS316.

| 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 | 156 | 298 | 651 | 1358 |
| 20 (3/4") | 19.5 | 1.00 | 55 | 10 | 40 | 60 | 140 | 282 | 635 | 1342 |
| 25 (1") | 24.5 | 1.10 | 85 | 10 | 40 | 100 | 96 | 238 | 591 | 1298 |
| 32 (1 1/4") | 31.5 | 1.15 | 100 | 10 | 40 | 100 | 88 | 230 | 583 | 1291 |
| 40 (1 1/2") | 36.5 | 1.45 | 120 | 10 | 40 | 100 | 78 | 219 | 573 | 1280 |
| 50 (2") | 49.5 | 1.50 | 165 | 10 | 40 | 100 | 58 | 196 | 549 | 1256 |
| 65 (2 1/2") | 62.5 | 1.60 | 230 | 10 | 40 | 127 | 32 | 143 | 496 | 1203 |
| 80 (3") | 73.5 | 1.60 | 260 | 10 | 40 | 127 | 28 | 128 | 480 | 1187 |
| 100 (4") | 94.5 | 1.82 | 400 | 10 | 40 | 152 | 18 | 98 | 442 | 1149 |
| 150 (6") | 150 | 2.5 | 520 | 6 | 24 | 178 | NA*** | 84 | 308 | 1015 |

*** 150A (6") : Min Overall Length 400 mm and Eccentric 23.6 mm

Calculation for Hose Length (L) with Movement



1. Offset Movement

(in case of non-alignment)

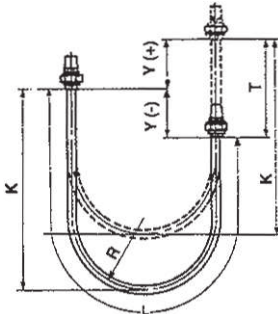
$$Y_m = 2 \cdot R (1 - \cos \theta) \dots\dots\dots (1)$$

$$Y_L = 2 \cdot R (1 - \cos \theta) + (L - \frac{\theta \cdot \sqrt{L} \cdot R}{90}) \cdot \sin \theta \dots\dots\dots (2)$$

$$A_m = 2 \cdot R \cdot \sin \theta \dots\dots\dots (3)$$

$$A_L = 2 \cdot R \cdot \sin \theta + (L - \frac{\theta \cdot \sqrt{L} \cdot R}{90}) \cdot \cos \theta \dots\dots\dots (4)$$

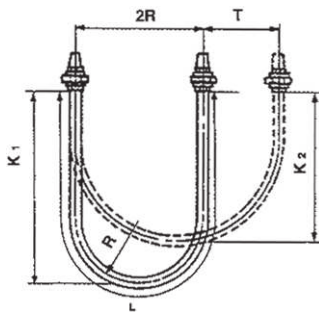
$$R = \frac{D_m \cdot Q}{2 \cdot e} \dots\dots\dots (5)$$



2. Vertical Movement

$$L = 4R + \frac{T}{2} \dots\dots\dots (6)$$

$$K = 1.43R + \frac{T}{2} \dots\dots\dots (7)$$



3. Horizontal Movement

$$L = 4R + 1.57T \dots\dots\dots (8)$$

$$K_1 = 1.43R + 0.785T \dots\dots\dots (9)$$

$$K_2 = 1.43R + \frac{T}{2} \dots\dots\dots (10)$$

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 |
| | Y _m : The value of min. effective length of the hose (Short length hose) | mm |
| | Y _L : The value by the effective length of the hose > L _m (Long length hose) | mm |
| A | : Face-to-face Dimension | |
| | A _m : The value by L _m of the effective length of the hose (Short length hose) | mm |
| | A _L : The value by the effective length of the hose > L _m (Long length hose) | mm |
| R | : Allowable bending radius | mm |
| D _m | : 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.

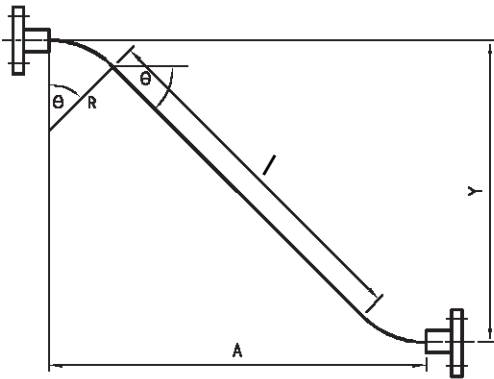
$$\begin{aligned} \text{So, } L &= (\text{L of overall hose length}) - (\text{Ineffective length}) \\ &= 1000 - 100 \\ &= 900\text{mmL.} \end{aligned}$$

Check θ for selecting the formula of movement

$$\begin{aligned} L &= (\pi \times R \times \theta) / 90 \\ \theta &= (90 \times 900) / (\pi \times 165) = 156.2^\circ \end{aligned}$$

So, $\theta = 156.2^\circ > 45^\circ$ use long length hose formula (YL and AL formula)

[if $\theta \leq 45^\circ$ use short length hose formula (Ym and Am formula)]



Select YL & AL Formula and use $\theta = 45^\circ$

$$\begin{aligned} | &= L - 2 \times (\pi \times R \times \theta / 180) \\ &= 900 - 0.03492 \times (165) \times (45) \\ &= 640.7 \text{ mm} \end{aligned}$$

$$\begin{aligned} \text{AL} &= (2 \times R \times \sin \theta) + (| \times \cos \theta) \\ &= (2 \times 165 \times \sin 45) + (640.7 \times \cos 45) \\ &= 686.39 \text{ mm.} \end{aligned}$$

$$\begin{aligned} \text{YL} &= (2 \times R \times (1 - \cos \theta)) + (| \times \sin \theta) \\ &= (2 \times 165 \times (1 - \cos 45)) + (640.7 \times \sin 45) \\ &= 549.7 \text{ mm.} \end{aligned}$$

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