

TWINFLEX

FLEXIBLE RUBBER JOINT



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TWIN-SPHERE RUBBER JOINT with floating flanges



FEATURES

- Resistance High Pressure : The excellent molding technique, combined with tough chemical fibers, give TWINFLEX an outstanding pressure withstandability. It can withstand the bursting pressure of over 780psi. (55kgf/cm²) and the max. working pressure of 300psi. (20kgf/cm²)
- Allow large compression, elongation, and angular movement.
- Fit for suction and delivery (discharge).
- Outstanding in absorbing thermal expansion.
- Highly effective to eliminate sound and vibration.
- Excellent in resisting the effects of heat, water and weathering, etc.
- Other advantages :
 1. Neither gasket nor packing is needed.
 2. Mass production makes comparatively low prices possible.
 3. Fit for use as both expansion and flexible joint.
 4. A good insulator to electricity.

TYPICAL APPLICATIONS

- 1) Pressure piping systems for water and warm water used in building equipment and general industrial plants, etc.
- 2) Pump lines and turbine lines used for power generation plants, industrial machinery and universal pump, blowers, etc.
- 3) Feed-water and drainage lines for waterworks, sewerage and sanitary piping system, etc.

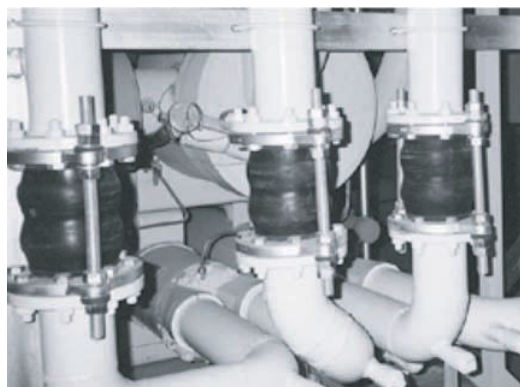
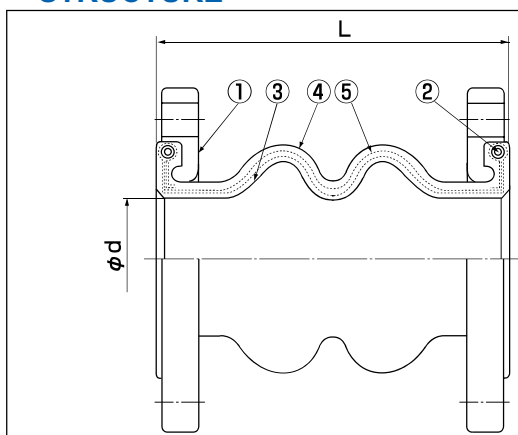
Others : This connector has wide range of applications in waste water disposal plants, mines and chemical plants, etc.

**** Please note that TWINFLEX is not applicable to oils, circulation pumps for pool water, air, gases and hot water supply line. ****

APPLICABLE FLUID

- Applicable Fluid : water, warm water, sea water, weak acids, alkalines, etc.
- Other kinds of fluids may be applicable with the change of the composition or constituents of rubber. For details, please consult us.

STRUCTURE



No.	Parts	Materials
1	Flange	FCD450, SS400
2	Reinforcing Ring	Carbon Steel (SWRH)
3	Inner Rubber	Synthetic Rubber
4	Outer Rubber	Synthetic Rubber
5	Reinforcing Cord	Synthetic Fiber
- Standard item employs JIS10K flange. May be replaced with ANSI, BS, DIN, and other standard (drilling). - Standard rubber is Neoprene. EPDM and other rubbers are available upon request.		

• Dimension and Allowable Movement

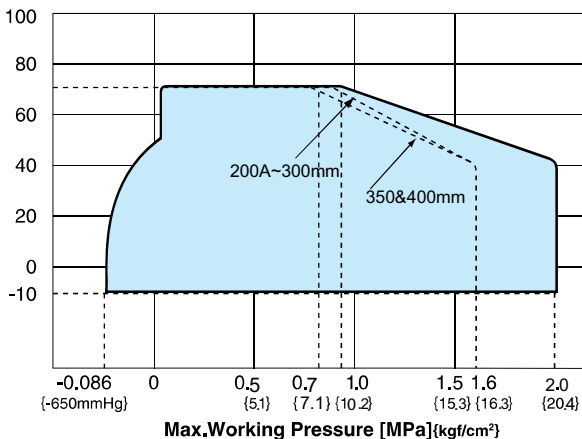
Nominal Dia		Dimension (mm)		Mass	Allowable Movement (mm)				Installation Tolerances(mm)			
mm	inch	L	Ød	Kgs	T.M.	A.E.	A.C.	A.M.	T.M.	A.E.	A.C.	A.M.
32*	1 1/4	175	32	1.8	20	10	20	20	8	3	6	7.5
32	1 1/4	175	35	2.2	20	10	20	20	8	3	6	7.5
40	1 1/2	175	35	2.3	20	10	20	20	8	3	6	7.5
50	2	175	45	3.0	20	10	20	20	8	3	6	7.5
65	2 1/2	175	60	3.9	20	10	20	20	8	3	6	7.5
80	3	175	70	4.1	20	10	20	20	8	3	6	7.5
100	4	225	95	5.3	25	15	30	20	10	3	6	7.5
125	5	225	120	7.6	25	15	30	20	10	3	6	7.5
150	6	225	145	11	25	15	30	20	10	3	6	7.5
200	8	325	195	17	30	20	40	20	12	3	6	7.5
250	10	325	245	24	30	20	40	20	12	3	6	7.5
300	12	325	290	28	30	20	40	20	12	3	6	7.5
350	14	250	340	35	15	15	20	15	6	3	6	7.5
400	16	250	390	48	15	15	20	15	6	3	6	7.5

* Assembly with ANSI 150P
T.M. = Transverse Movement
A.E. = Axial Elongation
A.C. = Axial Compression
A.M. = Angular Movement

- Use the products within the given allowable movements.
- Tolerances for installation are included in the allowable movements
(Allowable movements = Tolerances for installation + Operating movements)
- Although allowable movements are given, no allowance for elongation is recommended when installing the joint.

• Operating Condition

Temp.[°C]



• Normal Working Pressure (at normal temp) :

- Size 32A to 150A : Max 2.0 Mpa at normal temp.
- Size 200A to 300A : Max 1.6 Mpa at normal temp.
- Size 350A & 400A : Max 1.6 Mpa at normal temp.

• Working Temperature :

- Size 32A to 300A : -10 to 70 deg.C.
- Size 350A & 400A : -10 to 40 deg.C.
- *For high temp. application, please consult us. *

• Bursting Pressure :

- 32~150mm : 5.0 Mpa or above at normal temp.
- 200~300mm : 3.5 Mpa or above at normal temp.
- 350&400mm : 4.0 Mpa or above at normal temp.

• Control Unit

In case of the following conditions, control unit is recommended to use for protection of connectors.

- In case that it is hard to support reaction force (thrust) by pressure during the test operation or normal operation.
- In case that lateral movement is anticipated more than the designed movement.
- In case that the connectors are anticipated to be compressed when installation.

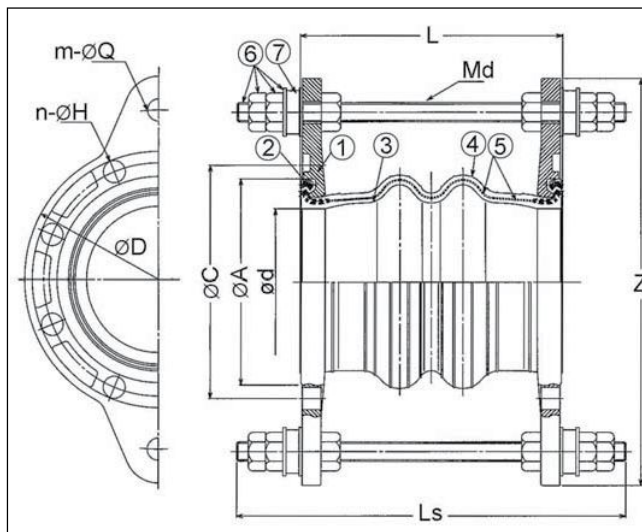
When control units are required to assist with the installation of joint, refer to the below table.

Max Working Pressure	Size				
	32-100A	125A	150-300A	350A	400A
10 kgf/cm ²	No	No	Yes	Yes	Yes
16, 20 kgf/cm ²	No	Yes	Yes	N/A	N/A

Control units for Twinflex can be either back-plate type or integrated type. Next is the illustration of Twinflex Integrated Type. For back-plate type, please consult us.

Twinflex Integrated Type

• Structure



No.	Parts	Materials
1	Flange	FCD450
2	Reinforcing Ring	Carbon Steel (SWRH)
3	Inner Rubber	Synthetic Rubber
4	Outer Rubber	Synthetic Rubber
5	Reinforcing Cord	Synthetic Fiber
6	Bolt, Nut, Washer	Mild Steel
7	Bushing	Hard Rubber

- Standard item employs ANSI150 and JIS10K flanges.
- Standard rubber is Neoprene. EPDM and other rubbers are available upon request.

• Dimension (mm)

Nominal Dia. (A)	L	ØA	Ød	Ls	ANSI150LB		JIS10K	
					m-ØQ (Md)	Z	m-ØQ (Md)	Z
32	175	80	40	320	2-23 (M20)	247	2-23 (M20)	255
40	175	80	40	320	2-23 (M20)	257	2-23 (M20)	260
50	175	96	50	320	2-23 (M20)	262	2-23 (M20)	295
65	175	115	65	320	2-23 (M20)	308	2-23 (M20)	315
80	175	125	75	320	2-23 (M20)	321	2-23 (M20)	325
100	225	152	100	380	2-23 (M20)	359	2-23 (M20)	350
125	225	182	125	380	2-23 (M20)	384	3-23 (M20)	390
150	225	212	150	380	2-23 (M20)	419	3-23 (M20)	420
200	325	263	200	480	2-23 (M20)	483	4-23 (M20)	470
250	325	322	250	480	4-23 (M20)	546	4-23 (M20)	540
300	325	370	300	480	4-23 (M20)	623	4-23 (M20)	585

- Please follow ANSI or JIS standard for ØD, n-ØH, and ØC.
- For other dimensions, allowable movements, and operating conditions, please refer to the previous table and graph.

• Notes

- Information in the above table is for single displacement only. In case of complex displacement, follow the below expression.

$$C.EL(C) = A.EL(C) \times \left\{ 1 - \frac{(A.T.M. - T.M.) \times (A.A.M. - A.M.)}{A.T.M. \times A.A.M.} \right\}$$

C.EL(C) = Correct Elongation (Compression)
T.M. = Transverse Movement
A.EL(C) = Allowable Elongation (Compression)
A.A.M. = Allowable Angular Movement
A.T.M. = Allowable Transverse Movement
- Install the joint according to the above given allowable dimensions.
- Do not install joints at full limits of all allowable movements simultaneously.
- Always check suitability of the operating conditions when installation of the joint.
- Before installation of the joint, check any cracks on rubber body surface, especially after a long period storage.
- In case of the joint movements, pay attention for rubber body not to be damaged by external objects (especially those with sharp edge).
- Keep joints away from heat when installation. Cover the joint with protection sheet to free from any harm of sparks resulted from welding, prearc and grinding near the spot of installation.
- Avoid direct exposure to sunlight for outdoor piping to prevent aging and deterioration of rubber.
- If oil, fat, organic solvent (like thinner, toluene), acid or alkali are adhered, wipe them off quickly.
- To avoid elongation of the joint by reaction force resulted from water pressure, fix pipes before and after the joint.



CAUTION

-Operating conditions in this catalog have been developed from our design calculation, in-house testing, field reports provided by our customers and/or published official standards or specifications. They are a general guideline to user of TOZEN products. For any specification application, please contact us.
*Any information provided in the catalog is subject to change without notice.