TOZEN
A joint reliance

TWINFLEX

FLEXIBLE RUBBER JOINT

TWF-0322

TWINFLEX

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 6.0 Mpa and the max working pressure of 2.0 Mpa.
- 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

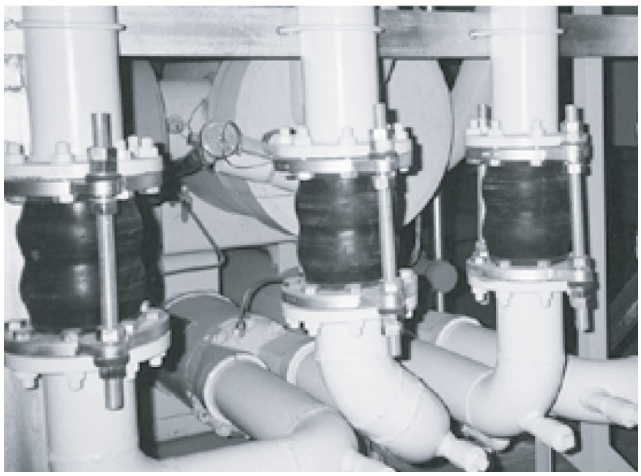
1) Pressure piping systems for water and warm water used in building equipment and general industrial plants, etc.
2) Pump lines and turbine lines used for power generation plants, industrial machinery and universal pump, blowers, etc.
3) Feed-water and drainage lines for waterworks, sewerage and sanitary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

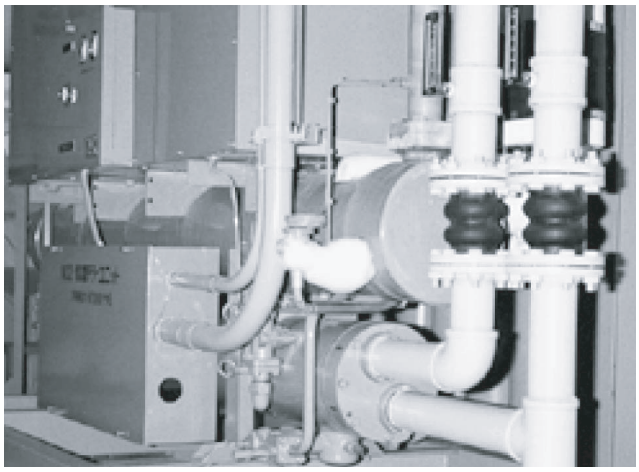
Others : This connector has wide range of applications in waste water disposal plants, mines and chemical plants, etc.

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

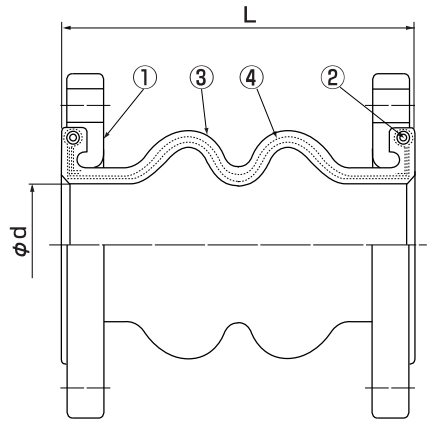
APPLICABLE FLUID

- 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	Shell Rubber	Synthetic Rubber
4	Reinforcing Cord	Synthetic Fiber

- Standard item employs JIS10K flange. Maybe replaced with ANSI, BS, DIN, and other standard (drilling).
- Standard rubber shell material is Neoprene. EPDM and other rubber materials are available upon request.

Dimension and Allowable Movement

Nominal Dia	Dimension (mm)		Mass	Allowable Movement (mm)				Installation Tolerances (mm)			
	L	Ød	Kgs	TM	AE	AC	AM	TM	AE	AC	AM
32*mm (1 1/4")	175	32	1.8	20	10	20	20°	8	3	6	7.5°
32mm (1 1/4")	175	35	2.2	20	10	20	20°	8	3	6	7.5°
40mm (1 1/2")	175	35	2.3	20	10	20	20°	8	3	6	7.5°
50mm (2")	175	45	3.0	20	10	20	20°	8	3	6	7.5°
65mm (2 1/2")	175	60	3.9	20	10	20	20°	8	3	6	7.5°
80mm (3")	175	70	4.1	20	10	20	20°	8	3	6	7.5°
100mm (4")	225	95	5.3	25	15	30	20°	10	3	6	7.5°
125mm (5")	225	120	7.6	25	15	30	20°	10	3	6	7.5°
150mm (6")	225	145	11	25	15	30	20°	10	3	6	7.5°
200mm (8")	325	195	17	30	20	40	20°	12	3	6	7.5°
250mm (10")	325	245	24	30	20	40	20°	12	3	6	7.5°
300mm (12")	325	290	28	30	20	40	20°	12	3	6	7.5°
350mm (14")	250	340	35	15	15	20	15°	6	3	6	7.5°
400mm (16")	250	390	66	15	15	20	15°	6	3	6	7.5°
450mm (18")	275	440	67	15	15	20	15°	6	3	6	7.5°
500mm (20")	275	490	83	15	15	20	15°	6	3	6	7.5°
600mm (24")	300	590	123	15	15	20	15°	6	3	6	7.5°

* Assembly with ANSI 150P

TM = Allowable Transverse Movement

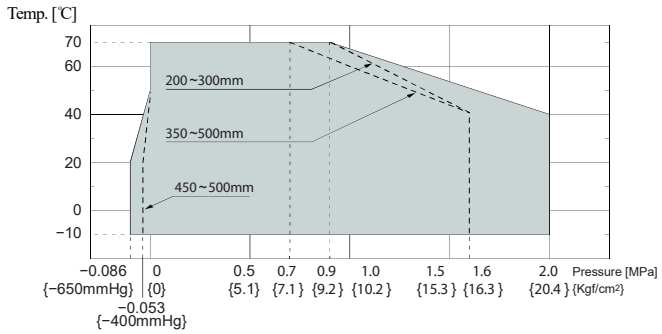
AE = Allowable Axial Elongation

AC = Allowable Axial Compression

AM = Allowable 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 And Perform



- **Max Working Pressure :**
  Size 32A to 150A : 2.0 Mpa
  Size 200A to 300A : 1.6 Mpa
  Size 350A to 600A : 1.6 Mpa
  2.0 Mpa also available in size 200A to 300A.
- **Working Temperature :**
  Size 32A to 600A : -10 to 70 deg.C.
  *For high temp. application, please consult us. *
- **Bursting Pressure :**
  3.0 times or more of W/P, 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.

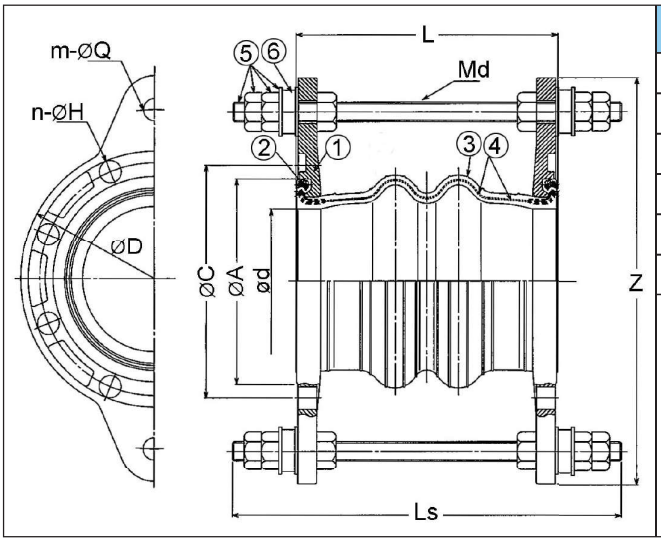
Max Working Pressure	Size			
	32-100A	125A	150-300A	350~600A
10 kgf/cm²	No	No	Yes	Yes
16, 20 kgf/cm²	No	Yes	Yes	Yes

Control units for Twinflex can be either back-plate type or integrated type. Next is the illustration of Twinflex Integrated Type. Twinflex integrated type available up to size 300A. For size over 300A are available in back-plate type. For back-plate type, please consult us.

OPTIONAL

Twinflex Integrated Type

- **Structure**



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

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

OPTIONAL

• Dimension (mm)

Nominal Dia. (A)	L	ØA	Ød	Ls	ANSI150LB		JIS10K	
					m-ØQ (Md)	Z	m-ØQ (Md)	Z
32 mm (1 1/4")	175	80	40	320	2-23 (M20)	247	2-23 (M20)	255
40 mm (1 1/2")	175	80	40	320	2-23 (M20)	257	2-23 (M20)	260
50 mm (2")	175	96	50	320	2-23 (M20)	262	2-23 (M20)	295
65 mm (2 1/2")	175	115	65	320	2-23 (M20)	308	2-23 (M20)	315
80 mm (3")	175	125	75	320	2-23 (M20)	321	2-23 (M20)	325
100 mm (4")	225	152	100	380	2-23 (M20)	359	2-23 (M20)	350
125 mm (5")	225	182	125	380	2-23 (M20)	384	3-23 (M20)	390
150 mm (6")	225	212	150	380	2-23 (M20)	419	3-23 (M20)	420
200 mm (8")	325	263	200	480	2-23 (M20)	483	4-23 (M20)	470
250 mm (10")	325	322	250	480	4-23 (M20)	546	4-23 (M20)	540
300 mm (12")	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

1. Allowable movement above is non-concurrent application. Please follow the calculation below for concurrent application.

$$CAE(\text{or } CAC) = AE(\text{or } AC) \times 1 - \left(\frac{TM - ATM}{TM} \times \frac{AM - AAM}{AM}\right)$$

CAE = Corrected Axial Elongation
CAC = Corrected Axial Compression
TM = Allowable Transverse Movement
AE = Allowable Axial Elongation
AC = Allowable Axial Compression
AM = Allowable Angular Movement
ATM = Actual Transverse Movement
AAM = Actual Angular Movement

2. Install the joint according to the above given allowable dimensions.
3. Do not install joints at full limits of all allowable movements simultaneously.
4. Always check suitability of the operating conditions when installation of the joint.
5. Before installation of the joint, check any cracks on rubber body surface, especially after a long period storage.
6. In case of the joint movements, pay attention for rubber body not to be damaged by external objects (especially those with sharp edge).
7. Keep joints away from heat when installation. Cover the joint with protection sheet to free from any harm of sparks resulted from welding, prearcing and grinding near the spot of installation.
8. Avoid direct exposure to sunlight for outdoor piping to prevent aging and deterioration of rubber.
9. If oil, fat, organic solvent (like thinner, toluene), acid or alkali are adhered, wipe them off quickly.
10. 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 guildline to user of TOZEN products. For any specification application,please contact us.
*Any information provided in the catolog is subject to change without notice.

TOZEN

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