

K-FLEX

Large displacement absorption type for protecting pipes against uneven cave-in caused by earthquake or soft ground, or against thermal expansion and contraction caused by temperature change.



Feature

High pressure resistance

The main unit is reinforced with durable synthetic fibers and steel wires.

Large eccentricity

The internal arch structure is effective for absorbing uneven settlement that occurs in situations, such as connecting pipes between buildings with different foundations. High freedom in design due to the short face-to-face dimension.

Usage

Pipes for tap water and sewer

Pipes for general factory facilities

Pipes in pump stations

Pipes in sewage treatment plants

Kind

- For 100mm eccentricity (Ground & Under-ground) 3-mound
- For 200mm eccentricity (Ground & Under-ground) 4-mound
- For low pressure / for high pressure

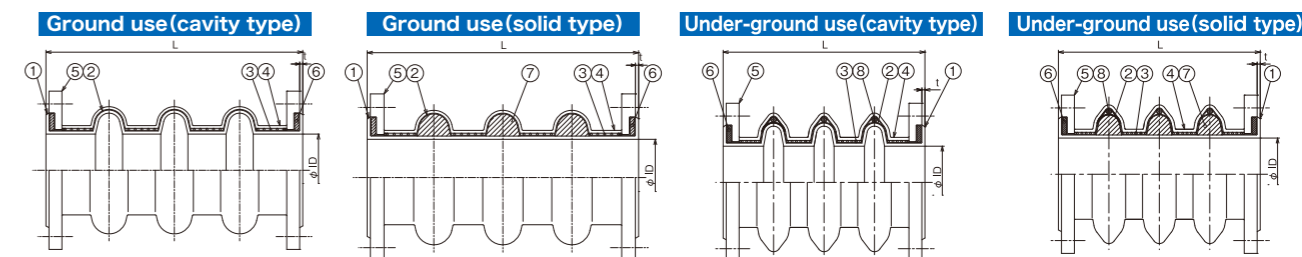
Standard issue

- Max. operating pressure : Please see the maximum operating pressure in the chart on the right. Please use a structure designed for underground installation when the operating negative pressure exceeds the chart on the right. The structure designed for underground installation is operable under the pressure up to -90 kPa. Please contact us when using this product under the pressure that exceeds the maximum operating pressure for individual examination of the structure.
- Max. operating temperature : -10°C~60°C
- When applying for under-ground use, please install the joint in depth of 1M ~ 3M. Maximum Car weight is 25 Ton.
- Please contact us if gas is flowing through the pipe because the highest operating pressure becomes different.
- Solid type tube with straight inner surface is also available to prevent fluids such as filthy water or powder from settling.
- Please use a model with a control unit (tie rod bolt type) to regulate the thrust in the axial direction that is generated by the internal pressure and to prevent excessive deflection. Also, please use a model with a control unit (set bolt type) to adjust the face-to-face dimension during installation. (Please see P25.)
- (1) This product cannot be used in areas with repeated and frequent pressure changes, such as the delivery side of pressurizing or pressure boosting water pumps.
- (2) This product cannot be used with fluids or areas of installation that might lower the elasticity of rubber. Please contact us because use of this product in such conditions needs to be examined.

Handling instructions

- This product generates reactive force due to the load of the inner pressure. Thus, fixing points or supports are required for installed pipes. (Please see p. 26-28.)
- Please see p. 26-28 for other cautions.

Structure



| No. | Name | Material | No. | Name | Material |
|-----|---------------------|-------------------------------|-----|------------------|--------------------|
| 1 | Inner rubber | Synthetic rubber | 5 | Flange | SS400, SUS304 etc. |
| 2 | Reinforcement layer | Synthetic fiber | 6 | End-ring | SS400 |
| 3 | Reinforcement layer | Steel wire or synthetic fiber | 7 | Fill-up rubber | Synthetic rubber |
| 4 | Outer rubber | Synthetic rubber | 8 | Reinforcing ring | SS400 |

Please see "Rubber selection guide" in p.25 for selecting the material of inner rubber.

- The standard product uses the JIS10K flange. Flanges with other specification, such as JIS5K, JIS20K, tap water, JPI, ANSI can also be used.
- Besides the standard products SS400 and SUS304, acceptable materials of the flange include SUS316, SUS316L and S25C.
- Hot-dip galvanization (Zn plating) is the standard for SS400 flange to be used above the ground, and paint consisting of black epoxy resin for underground installation. Painted materials are also available.
- Rounding work is done on the inner diameter of the opening of 25A or smaller.

Size

| NB | φID [mm] | t [mm] | For 100mm eccentricity(3-mound) | | | | For 200mm eccentricity(4-mound) | | | | Max. operating pressure | | |
|-------|----------|--------|---------------------------------|----------------|------------------|-----------|---------------------------------|----------------|------------------|-----------|-------------------------|---------------|-----------------------|
| | | | L [mm] | expansion [mm] | contraction [mm] | mass [kg] | L [mm] | expansion [mm] | contraction [mm] | mass [kg] | inner pressure [Mpa] | | |
| | | | | | | | | | | | low pressure | high pressure | vacuum pressure [kPa] |
| 20A | 19 | 2 | 350 | 18 | 22 | 1.9 | 450 | 18 | 22 | 2.0 | — | 1.00 | -60 |
| 25A | 25 | 2 | 350 | 18 | 22 | 2.8 | 450 | 18 | 22 | 3.0 | — | 1.00 | -60 |
| 32A | 32 | 2 | 350 | 18 | 22 | 3.8 | 450 | 18 | 22 | 4.0 | — | 1.00 | -60 |
| 40A | 38 | 2 | 350 | 18 | 22 | 4.1 | 450 | 18 | 22 | 4.4 | — | 1.00 | -60 |
| 50A | 51 | 3 | 350 | 30 | 45 | 4.9 | 450 | 30 | 45 | 5.2 | — | 1.00 | -60 |
| 65A | 64 | 3 | 350 | 30 | 45 | 7.0 | 450 | 30 | 45 | 7.5 | — | 1.00 | -60 |
| 80A | 76 | 3 | 350 | 30 | 45 | 7.3 | 450 | 30 | 45 | 7.9 | — | 1.00 | -60 |
| 100A | 102 | 3 | 350 | 45 | 60 | 9.0 | 450 | 45 | 60 | 9.8 | — | 1.00 | -60 |
| 125A | 127 | 3 | 350 | 45 | 60 | 12.9 | 450 | 45 | 60 | 14.0 | — | 1.00 | -60 |
| 150A | 152 | 3 | 500 | 60 | 60 | 18.5 | 600 | 60 | 60 | 19.8 | — | 1.00 | -60 |
| 200A | 203 | 3 | 500 | 60 | 60 | 22.6 | 600 | 60 | 60 | 24.2 | — | 1.00 | -60 |
| 250A | 254 | 3 | 500 | 60 | 60 | 31.7 | 600 | 60 | 60 | 33.8 | — | 1.00 | -60 |
| 300A | 305 | 3 | 550 | 60 | 60 | 38.2 | 650 | 60 | 60 | 40.8 | 0.50 | 1.00 | -40 |
| 350A | 350 | 3 | 550 | 60 | 60 | 47.7 | 650 | 60 | 60 | 50.7 | 0.50 | 1.00 | -40 |
| 400A | 400 | 3 | 550 | 60 | 60 | 64.0 | 650 | 60 | 60 | 67.6 | 0.50 | 1.00 | -40 |
| 450A | 450 | 3 | 550 | 60 | 60 | 78.6 | 650 | 60 | 60 | 82.7 | 0.50 | 1.00 | -40 |
| 500A | 500 | 3 | 550 | 60 | 60 | 89.2 | 650 | 60 | 60 | 94.0 | 0.50 | 1.00 | -40 |
| 550A | 550 | 3 | 550 | 60 | 60 | 110.2 | 650 | 60 | 60 | 115.3 | 0.25 | 0.75 | -30 |
| 600A | 600 | 3 | 550 | 60 | 60 | 117.9 | 650 | 60 | 60 | 123.7 | 0.25 | 0.75 | -30 |
| 650A | 650 | 3 | 650 | 60 | 60 | 137.5 | 750 | 60 | 60 | 143.7 | 0.25 | 0.75 | -30 |
| 700A | 700 | 3 | 650 | 60 | 60 | 162.1 | 750 | 60 | 60 | 169.0 | 0.25 | 0.75 | -30 |
| 750A | 750 | 3 | 650 | 60 | 60 | 194.2 | 750 | 60 | 60 | 201.9 | 0.25 | 0.75 | -30 |
| 800A | 800 | 3 | 650 | 60 | 60 | 216.4 | 750 | 60 | 60 | 224.8 | 0.25 | 0.50 | -30 |
| 850A | 850 | 3 | 650 | 60 | 60 | 225.3 | 750 | 60 | 60 | 234.2 | 0.25 | 0.50 | -30 |
| 900A | 900 | 3 | 650 | 60 | 60 | 232.0 | 750 | 60 | 60 | 241.4 | 0.25 | 0.50 | -30 |
| 1000A | 1000 | 3 | 650 | 60 | 60 | 282.4 | 750 | 60 | 60 | 293.2 | 0.25 | 0.50 | -30 |

- Solid type is used for all arch structures with 40A or smaller. (Please see p. 25.)
- The deflection for 50A or larger is the value when the arch structure is the cavity type. Please obtain the deflection for the solid type by multiplying the value in the chart above by 0.5 for compression or 0.6 for extension. (The value of the eccentricity remains the same.)
- Please contact us for details of individual deflection when using diagonal pipes, since they differ from the above values.
- Please make sure that deflections remain within permissible deflections during operation.
- The deflections in the chart indicate individual deflections. Corrections are necessary for combined deflections. Please see p. 26 for the method of correction.