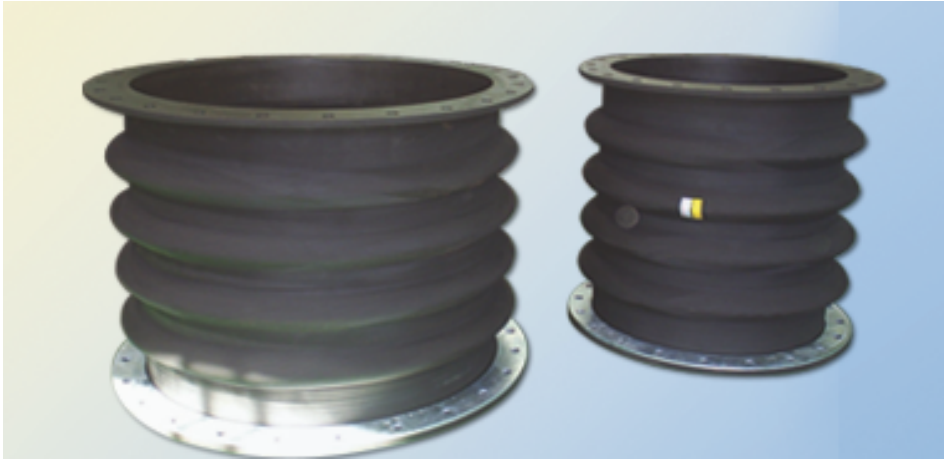


## Series 20UG Underground Type Expansion Joint



### Burial Application

Buried pipelines are directly affected by the external loads produced by weight of earth, traffic load, the ground shifting created by uneven sinking of ground and earthquake. The uneven sinking between rigid structure and ground is most detrimental for underground piping. To solve such differential settlement problems, Kurbo offers Winflex Series 20UG for direct burial application.

### Type Available

- 21UG & 22UG : For standard lateral and axial movements.
- 23UG & 24UG : For 100mm & 200mm lateral and normal axial movements.
- 22GB-3 & 22GB-4 : For 300mm & 400mm lateral and normal axial movements.
- 23UG-PL & 24UG-PL : For 100mm & 200mm lateral and normal axial movements in plastic piping.

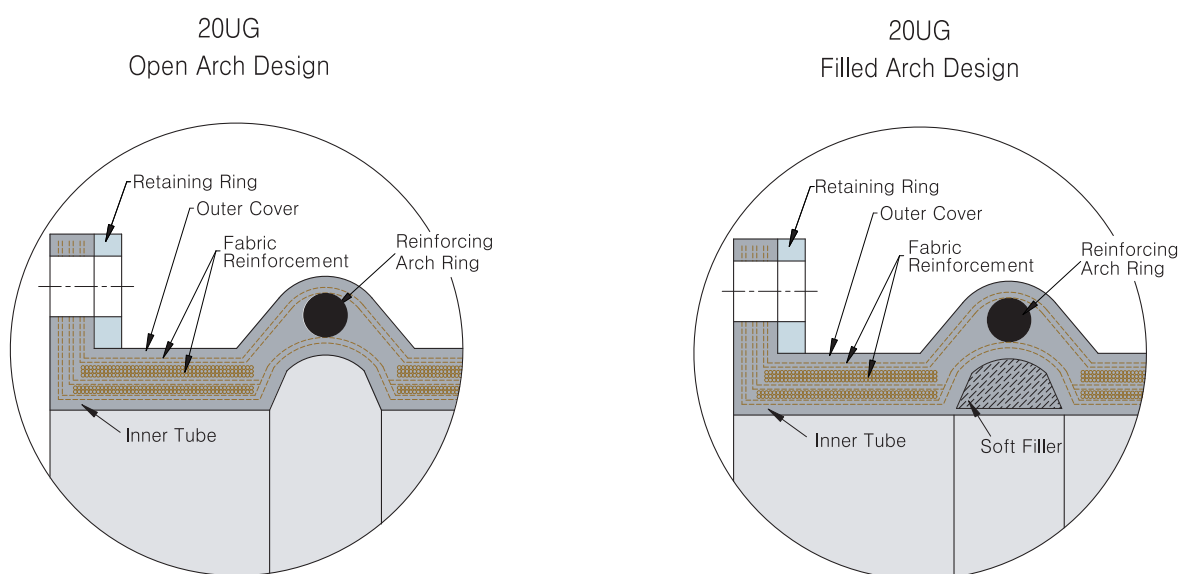
### Features

- Absorb ground/foundation settlement and seismic displacements.
- Prevent any damage or breakage of underground pipeline caused by ground motion like uneven ground sinking or earthquake.
- Designed to withstand external load of over 2 meters of earth weight plus another vehicle load of two 20tons trucks. For greater loads, please contact Kurbo.
- Compensate for differential settlement up to 400mm.
- Available in single, double, triple, multiple arch configurations
- Unique ability to accommodate large lateral movement with short overall length.
- Lateral offset capability can be adjusted with longer length.
- Superior reliability and durability—Extended service life: Use of quality materials, optimum selection of construction and professional workmanship allow Kurbo 20UG to guarantee longer service life.
- Wide variety of elastomers: As a standard elastomers, choice of natural, neoprene, nitrile, butyl, EPDM, CSM elastomers are available. As a special, Viton, Teflon and more available. Please refer to Kurbo "Chemical Resistance Guide" for recommendations on elastomer best suited for the chemical/process fluid in your system.
- Specially formulated rubber has great recovery from movement. Unique ability to return to its original shape.
- Wide range of size, length and connection available
- Excellent corrosion resistance

## ***Solution to Differential Settlement Problems:***

*Prevent any damage of underground piping by accommodating differential settlement caused by uneven ground-level change or seismic activity.*

### CONSTRUCTION



#### **Inner Tube**

The inner tube protects the fabric and metal reinforcements from penetration of the media/fluid.

The smooth, leakproof inner tube can be designed to cover a variety of service conditions for chemical, petroleum, sewage, abrasive and corrosive materials etc.

#### **Fabric Reinforcement**

The body fabric reinforcement is flexible and supporting member between the inner tube and outer cover. Different fabrics are used depending upon the service conditions such as pressure, temperature. All fabric plies are impregnated with rubber to permit flexibility between the fabric plies.

#### **Reinforcing Arch Ring and Wire**

The reinforcing ring at the top of the arch to resist the external forces produced by weight of earth, vehicle load etc. This ring is generally used for direct burial application and vacuum service. In some case, reinforcing steel wires are used over and/or below the fabric plies to provide more strength and rigidity to the expansion joint.

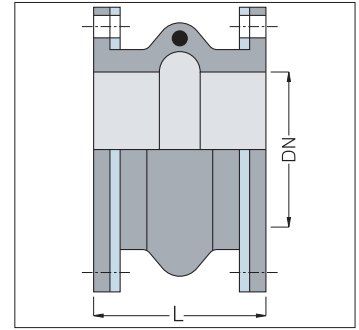
#### **Outer Cover**

The outer cover protects the body fabric and metal reinforcements from external conditions. Generally made of synthetic rubber having good resistance to weather, ozone, aging and corrosion.

#### **Retaining Ring**

All Kurbo Winflex Series 20UG require steel retaining rings. They distribute bolting pressure evenly around the mating flanges and prevent rubber flange damage when tightened. Typical retaining ring material is galvanized mild steel.

## Type 21UG For 20mm Lateral Deflection

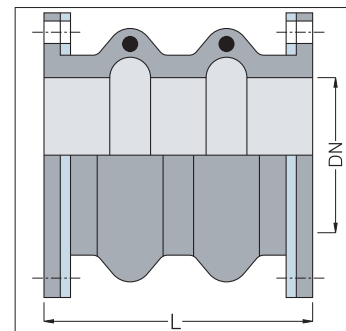
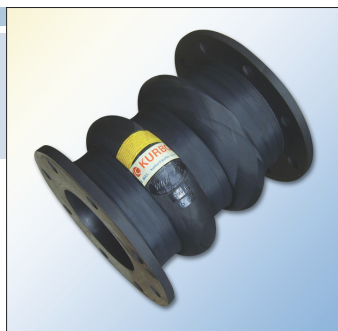


### Movement • Pressure • Weight

Nominal Size		Min. Length		No. of Arch	Movement Capability				Max. Pressure (bar)	Vacuum Rating (mmHg)	Weight (kg)	
DN	inch	mm	inch		Lateral (mm)	Comp. (mm)	Ext. (mm)	Ang. (deg)			Exp Joint	Retaining Ring set
25	1	150	6	1	20	20	15	49.7	10	760	0.6	0.8
32	1.25	150	6	1	20	20	15	43.4	10	760	0.8	1.0
40	1.5	150	6	1	20	20	15	38.2	10	760	0.9	1.2
50	2	150	6	1	20	20	15	30.6	10	760	1.2	1.7
65	2.5	150	6	1	20	20	15	25.3	10	760	1.5	2.4
80	3	150	6	1	20	20	20	27.7	10	760	2.1	2.5
100	4	150	6	1	20	20	20	21.5	10	760	2.7	3.5
125	5	150	6	1	20	20	20	17.5	10	760	3.2	3.7
150	6	200	8	1	20	20	20	14.7	10	760	5.2	4.2
200	8	200	8	1	20	20	20	11.1	10	760	6.9	6.2
250	10	200	8	1	20	20	20	8.9	10	760	8.5	8.2
300	12	200	8	1	20	20	20	7.5	10	760	11.6	12.1
350	14	200	8	1	20	30	25	8.0	10	760	13.9	13.3
400	16	200	8	1	20	30	25	7.0	10	760	16.7	15.9
450	18	200	8	1	20	30	25	6.2	10	760	17.9	15.2
500	20	250	10	1	20	30	25	5.6	10	760	25.3	18.5
550	22	250	10	1	20	30	25	5.1	7	760	29.6	18.6
600	24	250	10	1	20	30	25	4.7	7	760	33.0	22.9
650	26	250	10	1	20	30	25	4.3	7	760	39.5	25.4
700	28	250	10	1	20	30	25	4.0	7	760	42.6	28.0
750	30	250	10	1	20	30	25	3.8	5	760	46.0	31.4
800	32	300	12	1	20	30	25	3.5	5	760	56.5	37.1
850	34	300	12	1	20	30	25	3.3	5	760	59.7	38.6
900	36	300	12	1	20	30	25	3.1	5	760	63.6	42.6
950	38	300	12	1	20	30	25	3.0	5	760	71.6	50.7
1000	40	300	12	1	20	30	25	2.8	5	760	75.0	52.5
1050	42	300	12	1	20	30	25	2.7	5	760	85.4	55.5
1100	44	300	12	1	20	30	25	2.6	5	760	89.7	59.3
1150	46	300	12	1	20	30	25	2.5	5	760	93.7	62.1
1200	48	300	12	1	20	30	25	2.3	5	760	102.0	66.2
1250	50	300	12	1	20	30	25	2.3	5	760	105.8	67.9
1300	52	300	12	1	20	30	25	2.2	5	760	111.0	73.6
1350	54	300	12	1	20	30	25	2.1	5	760	117.7	75.3
1400	56	300	12	1	20	30	25	2.0	5	760	128.6	83.9
1450	58	300	12	1	20	30	25	1.9	5	760	134.1	89.7
1500	60	300	12	1	20	30	25	1.9	5	760	137.6	89.9

1. Weights of expansion joint and retaining ring set are based on Kurbo standard construction with ANSI 150 lbs flange drilling and may vary with selection of rubber/steel material and amount of reinforcements.
2. Larger sizes up to DN3600 available upon request
3. All flange drilling available with different length
4. Higher pressure rating and greater movements are available upon request
5. Movements shown are non-concurrent movements.

## Type 22UG For 50mm Lateral Deflection



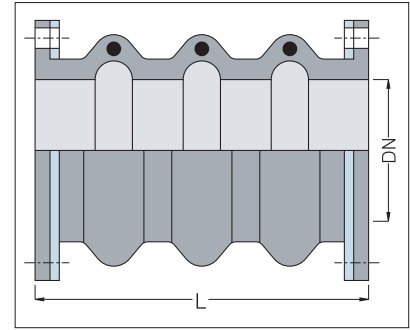
### Movement • Pressure • Weight

Nominal Size		Min. Length		No. of Arch	Movement Capability				Max. Pressure (bar)	Vacuum Rating (mmHg)	Weight (kg)	
DN	inch	mm	inch		Lateral (mm)	Comp. (mm)	Ext. (mm)	Ang. (deg)			Exp Joint	Retaining Ring set
25	1	250	10	2	50	45	30	67.1	10	760	1.0	0.8
32	1.25	250	10	2	50	45	30	62.1	10	760	1.1	1.0
40	1.5	250	10	2	50	45	30	57.6	10	760	1.3	1.2
50	2	250	10	2	50	45	30	49.7	10	760	1.8	1.7
65	2.5	250	10	2	50	45	30	43.4	10	760	2.2	2.4
80	3	300	12	2	50	45	30	38.2	10	760	3.5	2.5
100	4	300	12	2	50	45	30	30.6	10	760	4.5	3.5
125	5	300	12	2	50	45	30	25.3	10	760	5.6	3.7
150	6	300	12	2	50	45	30	21.5	10	760	7.9	4.2
200	8	300	12	2	50	45	30	16.5	10	760	10.4	6.2
250	10	300	12	2	50	45	30	13.3	10	760	12.8	8.2
300	12	300	12	2	50	45	30	11.1	10	760	16.8	12.1
350	14	350	14	2	50	50	40	12.7	10	760	22.3	13.3
400	16	350	14	2	50	50	40	11.1	10	760	26.7	15.9
450	18	350	14	2	50	50	40	9.9	10	760	29.1	15.2
500	20	350	14	2	50	50	40	8.9	10	760	37.6	18.5
550	22	400	16	2	50	50	40	8.1	7	760	47.0	18.6
600	24	400	16	2	50	50	40	7.5	7	760	51.8	22.9
650	26	400	16	2	50	50	40	6.9	7	760	63.5	25.4
700	28	400	16	2	50	50	40	6.4	7	760	68.4	28.0
750	30	400	16	2	50	50	40	6.0	5	760	73.5	31.4
800	32	400	16	2	50	50	40	5.6	5	760	80.8	37.1
850	34	400	16	2	50	50	40	5.3	5	760	85.4	38.6
900	36	400	16	2	50	50	40	5.0	5	760	90.8	42.6
950	38	400	16	2	50	50	40	4.7	5	760	103.1	50.7
1000	40	450	18	2	50	50	40	4.5	5	760	114.5	52.5
1050	42	450	18	2	50	50	40	4.3	5	760	128.8	55.5
1100	44	450	18	2	50	50	40	4.1	5	760	135.2	59.3
1150	46	450	18	2	50	50	40	3.9	5	760	141.1	62.1
1200	48	450	18	2	50	50	40	3.8	5	760	155.2	66.2
1250	50	450	18	2	50	50	40	3.6	5	760	161.2	67.9
1300	52	450	18	2	50	50	40	3.5	5	760	168.5	73.6
1350	54	450	18	2	50	50	40	3.3	5	760	177.6	75.3
1400	56	450	18	2	50	50	40	3.2	5	760	195.4	83.9
1450	58	450	18	2	50	50	40	3.1	5	760	203.1	89.7
1500	60	450	18	2	50	50	40	3.0	5	760	209.0	89.9

1. Weights of expansion joint and retaining ring set are based on Kurbo standard construction with ANSI 150 lbs flange drilling and may vary with selection of rubber/steel material and amount of reinforcements.
2. Larger sizes up to DN3600 available upon request
3. All flange drilling available with different length
4. Higher pressure rating and greater movements are available upon request
5. Movements shown are non-concurrent movements.



## Type 23UG For 100mm Lateral Deflection

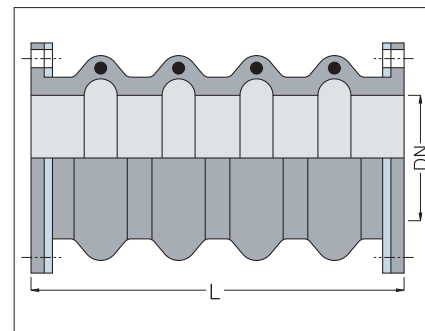


### Movement · Pressure · Weight

Nominal Size		Min. Length		No. of Arch	Movement Capability				Max. Pressure (bar)	Vacuum Rating (mmHg)	Weight (kg)	
DN	inch	mm	inch		Lateral (mm)	Comp. (mm)	Ext. (mm)	Ang. (deg)			Exp Joint	Retaining Ring set
25	1	350	14	3	100	60	40	72.4	10	760	1.3	0.8
32	1.25	350	14	3	100	60	40	68.4	10	760	1.5	1.0
40	1.5	350	14	3	100	60	40	64.5	10	760	1.7	1.2
50	2	350	14	3	100	60	40	57.6	10	760	2.3	1.7
65	2.5	350	14	3	100	60	40	51.6	10	760	2.9	2.4
80	3	350	14	3	100	60	40	46.4	10	760	4.3	2.5
100	4	350	14	3	100	60	40	38.2	10	760	5.5	3.5
125	5	350	14	3	100	60	40	32.2	10	760	6.8	3.7
150	6	500	20	3	100	60	40	27.7	10	760	12.1	4.2
200	8	500	20	3	100	60	40	21.5	10	760	15.8	6.2
250	10	500	20	3	100	60	40	17.5	10	760	20.5	8.2
300	12	550	22	3	100	60	40	14.7	10	760	26.4	12.1
350	14	550	22	3	100	70	50	15.7	10	760	32.5	13.3
400	16	550	22	3	100	70	50	13.8	10	760	38.6	15.9
450	18	550	22	3	100	70	50	12.3	10	760	42.5	15.2
500	20	550	22	3	100	70	50	11.1	10	760	54.9	18.5
550	22	550	22	3	100	70	50	10.1	7	760	62.6	18.6
600	24	550	22	3	100	70	50	9.3	7	760	70.5	22.9
650	26	650	26	3	100	70	50	8.6	7	760	92.7	25.4
700	28	650	26	3	100	70	50	8.0	7	760	102.4	28.0
750	30	650	26	3	100	70	50	7.5	5	760	109.7	31.4
800	32	650	26	3	100	70	50	7.0	5	760	120.7	37.1
850	34	650	26	3	100	70	50	6.6	5	760	125.2	38.6
900	36	650	26	3	100	70	50	6.2	5	760	135.5	42.6
950	38	650	26	3	100	70	50	5.9	5	760	150.2	50.7
1000	40	700	28	3	100	70	50	5.6	5	760	167.2	52.5
1050	42	700	28	3	100	70	50	5.4	5	760	187.3	55.5
1100	44	700	28	3	100	70	50	5.1	5	760	196.4	59.3
1150	46	700	28	3	100	70	50	4.9	5	760	202.0	62.1
1200	48	700	28	3	100	70	50	4.7	5	760	225.9	66.2
1250	50	700	28	3	100	70	50	4.5	5	760	234.6	67.9
1300	52	700	28	3	100	70	50	4.3	5	760	244.7	73.6
1350	54	700	28	3	100	70	50	4.2	5	760	258.8	75.3
1400	56	750	30	3	100	70	50	4.0	5	760	294.9	83.9
1450	58	750	30	3	100	70	50	3.9	5	760	306.1	89.7
1500	60	750	30	3	100	70	50	3.8	5	760	315.3	89.9

- Weights of expansion joint and retaining ring set are based on Kurbo standard construction with ANSI 150 lbs flange drilling and may vary with selection of rubber/steel material and amount of reinforcements.
- Larger sizes up to DN3600 available upon request
- All flange drilling available with different length
- Higher pressure rating and greater movements are available upon request
- Movements shown are non-concurrent movements.

## Type 24UG For 200mm Lateral Deflection

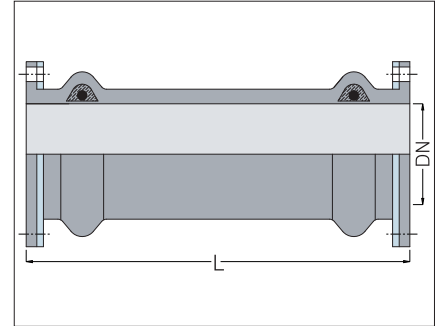


### Movement · Pressure · Weight

Nominal Size		Min. Length		No. of Arch	Movement Capability				Max. Pressure (bar)	Vacuum Rating (mmHg)	Weight (kg)	
DN	inch	mm	inch		Lateral (mm)	Comp. (mm)	Ext. (mm)	Ang. (deg)			Exp Joint	Retaining Ring set
25	1	450	18	4	200	70	50	75.7	10	760	1.6	0.8
32	1.25	450	18	4	200	70	50	72.4	10	760	1.9	1.0
40	1.5	450	18	4	200	70	50	69.1	10	760	2.2	1.2
50	2	450	18	4	200	70	50	63.1	10	760	2.9	1.7
65	2.5	450	18	4	200	70	50	57.6	10	760	3.6	2.4
80	3	450	18	4	200	70	50	52.7	10	760	5.4	2.5
100	4	450	18	4	200	70	50	44.5	10	760	7.0	3.5
125	5	450	18	4	200	70	50	38.2	10	760	8.6	3.7
150	6	600	24	4	200	70	50	33.3	10	760	14.9	4.2
200	8	600	24	4	200	70	50	26.2	10	760	19.4	6.2
250	10	600	24	4	200	70	50	21.5	10	760	23.8	8.2
300	12	650	26	4	200	70	50	18.2	10	760	31.6	12.1
350	14	650	26	4	200	80	60	18.6	10	760	39.3	13.3
400	16	650	26	4	200	80	60	16.5	10	760	46.5	15.9
450	18	650	26	4	200	80	60	14.7	10	760	51.2	15.2
500	20	650	26	4	200	80	60	13.3	10	760	67.1	18.5
550	22	650	26	4	200	80	60	12.1	7	760	76.2	18.6
600	24	650	26	4	200	80	60	11.1	7	760	85.7	22.9
650	26	750	30	4	200	80	60	10.3	7	760	104.6	25.4
700	28	750	30	4	200	80	60	9.6	7	760	124.1	28.0
750	30	750	30	4	200	80	60	8.9	5	760	132.9	31.4
800	32	750	30	4	200	80	60	8.4	5	760	145.1	37.1
850	34	750	30	4	200	80	60	7.9	5	760	150.2	38.6
900	36	750	30	4	200	80	60	7.5	5	760	162.7	42.6
950	38	750	30	4	200	80	60	7.1	5	760	180.8	50.7
1000	40	800	32	4	200	80	60	6.7	5	760	200.4	52.5
1050	42	800	32	4	200	80	60	6.4	5	760	223.4	55.5
1100	44	800	32	4	200	80	60	6.1	5	760	234.1	59.3
1150	46	800	32	4	200	80	60	5.9	5	760	240.3	62.1
1200	48	800	32	4	200	80	60	5.6	5	760	270.8	66.2
1250	50	800	32	4	200	80	60	5.4	5	760	281.4	67.9
1300	52	800	32	4	200	80	60	5.2	5	760	293.3	73.6
1350	54	800	32	4	200	80	60	5.0	5	760	308.6	75.3
1400	56	950	38	4	200	80	60	4.8	5	760	372.6	83.9
1450	58	950	38	4	200	80	60	4.7	5	760	386.5	89.7
1500	60	950	38	4	200	80	60	4.5	5	760	398.4	89.9

1. Weights of expansion joint and retaining ring set are based on Kurbo standard construction with ANSI 150 lbs flange drilling and may vary with selection of rubber/steel material and amount of reinforcements.
2. Larger sizes up to DN3600 available upon request
3. All flange drilling available with different length
4. Higher pressure rating and greater movements are available upon request
5. Movements shown are non-concurrent movements.

## Type 22GB-3 For 300mm Lateral Deflection



### Movement and Pressure Capability

Normal Size		Min. Length		No. of Arch	Movement Capability				Max. Pressure (bar)	Vacuum Rating (mmHg)
DN	inch	mm	inch		Lateral (mm)	Comp. (mm)	Ext. (mm)	Ang. (deg.)		
25	1	700	28	2	300	40	30	67.1	10	760
32	1.25	700	28	2	300	40	30	62.1	10	760
40	1.5	700	28	2	300	40	30	57.6	10	760
50	2	700	28	2	300	40	30	49.7	10	760
65	2.5	800	32	2	300	40	30	43.4	10	760
80	3	800	32	2	300	40	30	38.2	10	760
100	4	800	32	2	300	40	30	30.6	10	760
125	5	900	36	2	300	40	30	25.3	10	760
150	6	900	36	2	300	40	30	21.5	10	760
200	8	1000	40	2	300	40	30	16.5	10	760
250	10	1000	40	2	300	40	30	13.3	10	760
300	12	1100	44	2	300	40	30	11.1	10	760

1. Larger sizes not shown above are available upon request

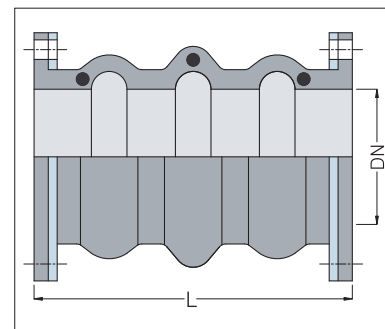
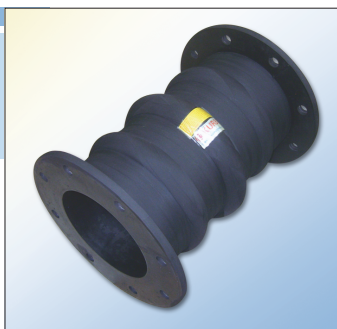
## Type 22GB-4 For 400mm Lateral Deflection

### Movement and Pressure Capability

Normal Size		Min. Length		No. of Arch	Movement Capability				Max. Pressure (bar)	Vacuum Rating (mmHg)
DN	inch	mm	inch		Lateral (mm)	Comp. (mm)	Ext. (mm)	Ang. (deg.)		
25	1	1000	40	2	400	40	30	67.1	10	760
32	1.25	1000	40	2	400	40	30	62.1	10	760
40	1.5	1000	40	2	400	40	30	57.6	10	760
50	2	1100	44	2	400	40	30	49.7	10	760
65	2.5	1100	44	2	400	40	30	43.4	10	760
80	3	1100	44	2	400	40	30	38.2	10	760
100	4	1200	48	2	400	40	30	30.6	10	760
125	5	1200	48	2	400	40	30	25.3	10	760
150	6	1200	48	2	400	40	35	24.7	10	760
200	8	1300	52	2	400	40	35	19.0	10	760
250	10	1400	56	2	400	40	35	15.4	10	760
300	12	1400	56	2	400	40	35	12.9	10	760

1. Larger sizes not shown above are available upon request

## Type 23UG-PL & 24UG-PL For Connection to Plastic Piping



### Movement and Pressure Capability

Nominal Size		23UG-PL				24UG-PL				Max. Pressure (bar)	Vacuum Rating (mmHg)
		100mm Lateral Deflection (mm)				200mm Lateral Deflection (mm)					
DN	inch	L	comp.	Ext.	Ang.	L	comp.	Ext.	Ang.		
25	1	350	60	40	72.4	450	70	50	75.7	5	760
32	1.25	350	60	40	68.4	450	70	50	72.4	5	760
40	1.5	350	60	40	64.5	450	70	50	69.1	5	760
50	2	350	60	40	57.6	450	70	50	63.1	5	760
65	2.5	350	60	40	51.6	450	70	50	57.6	5	760
80	3	350	60	40	46.4	450	70	50	52.7	5	760
100	4	350	60	40	38.2	450	70	50	44.5	5	760
125	5	350	60	40	32.2	450	70	50	38.2	5	760
150	6	500	60	40	27.7	600	70	50	33.3	5	760
200	8	500	60	40	21.5	600	70	50	26.2	5	760
250	10	500	60	40	17.5	600	70	50	21.5	5	760
300	12	550	60	40	14.7	650	70	50	18.2	5	760
350	14	550	70	50	15.7	650	80	60	18.6	5	760
400	16	550	70	50	13.8	650	80	60	16.5	5	760
450	18	550	70	50	12.3	650	80	60	14.7	5	760
500	20	550	70	50	11.1	650	80	60	13.3	5	760
550	22	550	70	50	10.1	650	80	60	12.1	5	760
600	24	550	70	50	9.3	650	80	60	11.1	5	760
650	26	650	70	50	8.6	750	80	60	10.3	5	760
700	28	650	70	50	8.0	750	80	60	9.6	5	760
750	30	650	70	50	7.5	750	80	60	8.9	5	760
800	32	650	70	50	7.0	750	80	60	8.4	5	760
850	34	650	70	50	6.6	750	80	60	7.9	5	760
900	36	650	70	50	6.2	750	80	60	7.5	5	760
950	38	650	70	50	5.9	750	80	60	7.1	5	760
1000	40	700	70	50	5.6	800	80	60	6.7	5	760
1050	42	700	70	50	5.4	800	80	60	6.4	5	760
1100	44	700	70	50	5.1	800	80	60	6.1	5	760
1150	46	700	70	50	4.9	800	80	60	5.9	5	760
1200	48	700	70	50	4.7	800	80	60	5.6	5	760
1250	50	700	70	50	4.5	800	80	60	5.4	5	760
1300	52	700	70	50	4.3	800	80	60	5.2	5	760
1350	54	700	70	50	4.2	800	80	60	5.0	5	760
1400	56	750	70	50	4.0	950	80	60	4.8	5	760
1450	58	750	70	50	3.9	950	80	60	4.7	5	760
1500	60	750	70	50	3.8	950	80	60	4.5	5	760

1. All flange drilling available with different length
2. Higher pressure rating is available upon request
3. Movements shown are non-concurrent movements.