

KINETICS™

Kinflex

Flexible Connectors

Description

Kinflex Flexible Connectors prevent stresses due to expansion and contraction, isolate against the transfer of noise and vibration, and compensate for misalignment.

Kinflex connectors absorb the continuing movement experienced in piping systems because of varying ambient temperatures, differences in temperature of materials being handled, and differences in composition. The danger of buckling or pulling apart and resulting maintenance costs are eliminated.

Connectors reduce objectionable noise and vibration in piping systems connected in pumps, compressors, and similar pulsating equipment. The transmission of noise and vibration tends to reduce the efficiency of adjacent equipment as well as impairing the working conditions in offices and factories.

Settlement, load stresses, and wearing of parts frequently cause piping and mechanical equipment to move out of normal alignment. Kinflex Flexible Connectors compensate for these lateral, torsional, and angular movements.

Applications

Air Conditioning, Heating, and Ventilating Systems: Kinflex Flexible Connectors eliminate stresses caused by changes in temperature and piping misalignment, as well as reduce the transmission of noise and vibration. They are used on both hot and chilled water circulation lines, suction and discharge sides of pumps, and header connections.

Industrial: One of the most significant uses for Kinflex Flexible Connectors is in industrial piping installations to compensate for the thermal expansion and contraction of the pipe.

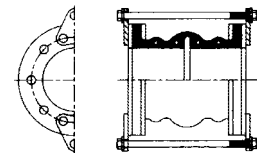
Power Plants: Because of the ability of the Kinflex Flexible Connectors to adjust to all kinds of movement, they can be used in power plants for condenser connections, auxiliary exhaust lines, and connections to air ejectors.

Marine Systems: Kinflex Flexible Connectors isolate marine systems against the transmission of noise and vibration and eliminate the destructive action of electrolysis. They are used on suction and discharge sides of circulating water-cooling systems and air intake lines on diesel engines.



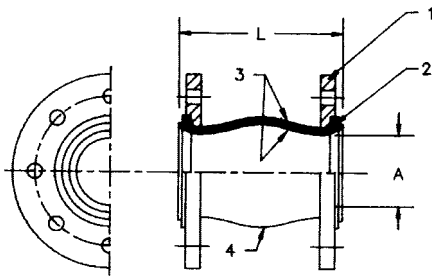
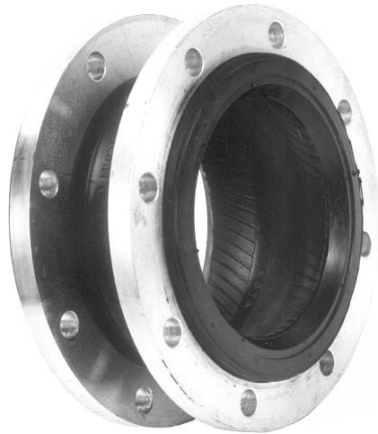
Sewage Treatment Plants and Pollution Control: Kinflex Flexible Connectors are used extensively in sewage water treatment-plants and pollution-control systems.

Control Rod Applications: Control rod assemblies are designed to absorb static pressure thrust developed at the connector thus minimizing possible failure of the connector or damage to the equipment. When used in this manner, control unit assemblies are an additional safety factor, minimizing possible failure of the expansion joint or damage to the equipment.



- 1. Anchored Systems:** Control rod assemblies are not required in piping systems that are anchored on both sides of the connector provided piping movements are within the rated movements.
- 2. Unanchored Systems:** Control rod assemblies are always recommended in unanchored systems and when the maximum pressure and movement exceeds the rated limit.
- 3. Spring-Mounted Equipment:** Control rod assemblies are always recommended for spring-mounted equipment when the maximum pressure and movement exceed the rated limit.

MODEL FC KINFLEX SINGLE-SPHERE CONNECTOR WITH FLOATING FLANGES



KINFLEX FC

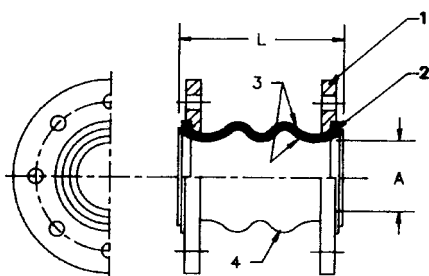
Allowable Movements in Operation

Size-A In. (mm)	Length-L In. (mm)	Axial Compression In. (mm)	Axial Elongation In. (mm)	Transverse Movement In. (mm)	Angular Deflection	Weight Lbs. (kg)
1 (25)	6 (152)	1/2 (13)	3/8 (9)	±1/2 (13)	15°	4 (1.8)
1 1/4 (32)	6 (152)	1/2 (13)	3/8 (9)	±1/2 (13)	15°	5 (2.3)
1 1/2 (38)	6 (152)	1/2 (13)	3/8 (9)	±1/2 (13)	15°	6 (2.8)
2 (50)	6 (152)	1/2 (13)	3/8 (9)	±1/2 (13)	15°	9 (4.0)
2 1/2 (63)	6 (152)	1/2 (13)	3/8 (9)	±1/2 (13)	15°	12 (5.6)
3 (75)	6 (152)	1/2 (13)	3/8 (9)	±1/2 (13)	15°	14 (6.4)
4 (100)	6 (152)	3/4 (19)	1/2 (13)	±1/2 (13)	15°	18 (8.3)
5 (127)	6 (152)	3/4 (19)	1/2 (13)	±1/2 (13)	15°	23 (10.4)
6 (152)	6 (152)	3/4 (19)	1/2 (13)	±1/2 (13)	15°	27 (12.2)
8 (203)	6 (152)	3/4 (19)	1/2 (13)	±1/2 (13)	15°	41 (18.4)
10 (254)	8 (203)	1 (25)	5/8 (16)	±3/4 (19)	15°	57 (25.6)
12 (305)	8 (203)	1 (25)	5/8 (16)	±3/4 (19)	15°	83 (37.7)
14 (356)	8 (203)	1 (25)	5/8 (16)	±3/4 (19)	15°	115 (52.3)
16 (406)	8 (203)	1 (25)	5/8 (16)	±3/4 (19)	15°	165 (75.0)
18 (457)	8 (203)	1 (25)	5/8 (16)	±3/4 (19)	15°	168 (76.4)
20 (508)	8 (203)	1 (25)	5/8 (16)	±3/4 (19)	15°	170 (77.3)
24 (610)	10 (254)	1 (25)	5/8 (16)	±3/4 (19)	15°	255 (116.0)

Operating Conditions	3/4" - 12" (38 mm - 305 mm)	14" - 24" (356 mm - 610 mm)
*Operating Pressure	225 psig (16 kg/cm ²)	125 psig (8.6 kg/cm ²)
*Burst Pressure	900 psig (62 kg/cm ²)	500 psig (34 kg/cm ²)
*Vacuum Rating	26" (600 mm) Hg	
*Temperature	14°F to 225°F (-10°C to 107°C)	
*Applicable Fluids	Water, warm water, seawater, weak acids, alkalies, compressed air, etc.	

Item	Part	Material
1	Flange	*Mild Steel
2	Wire	Hard Steel Wire
3	Body	**Heat-Resistant Rubber
4	Body	Nylon Tire Cord

MODEL FTC KINFLEX TWIN-SPHERE CONNECTOR WITH FLOATING FLANGES



KINFLEX FTC

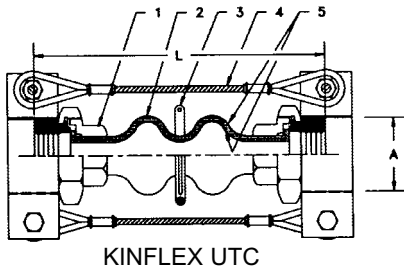
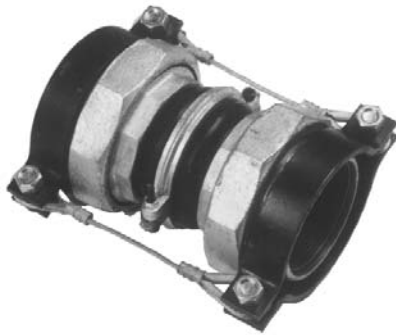
Allowable Movements in Operation

Size-A In. (mm)	Length-L In. (mm)	Axial Compression In. (mm)	Axial Elongation In. (mm)	Transverse Movement In. (mm)	Angular Deflection	Weight Lbs. (kg)
1 1/4 (32)	7 (118)	2 1/16 (52)	1 1/16 (27)	1 3/4 (45)	40°	6 (2.8)
1 1/2 (38)	7 (118)	2 1/16 (52)	1 1/16 (27)	1 3/4 (45)	40°	7 (3.1)
2 (50)	7 (118)	2 1/16 (52)	1 1/16 (27)	1 3/4 (45)	40°	9 (4.1)
2 1/2 (63)	7 (118)	2 1/16 (52)	1 1/16 (27)	1 3/4 (45)	40°	14 (6.4)
3 (75)	7 (118)	2 1/16 (52)	1 1/16 (27)	1 3/4 (45)	40°	15 (6.5)
4 (100)	9 (229)	2 1/16 (52)	1 3/16 (30)	1 1/2 (40)	35°	21 (9.5)
5 (127)	9 (229)	2 1/16 (52)	1 3/16 (30)	1 1/2 (40)	35°	25 (11.1)
6 (152)	9 (229)	2 1/16 (52)	1 3/16 (30)	1 1/2 (40)	35°	30 (13.4)
8 (203)	13 (330)	2 1/16 (52)	1 1/8 (29)	1 3/8 (35)	30°	44 (19.9)
10 (254)	13 (330)	2 1/16 (52)	1 1/8 (29)	1 3/8 (35)	30°	64 (29.1)
12 (305)	13 (330)	2 1/16 (52)	1 1/8 (29)	1 3/8 (35)	30°	95 (43.2)
14 (356)	13 3/4 (349)	1 3/4 (45)	1 3/16 (30)	1 3/16 (30)	20°	135 (61.2)
16 (406)	13 3/4 (349)	1 3/4 (45)	1 3/16 (30)	1 3/16 (30)	20°	175 (79.4)
18 (457)	13 3/4 (349)	1 3/4 (45)	1 3/16 (30)	1 3/16 (30)	20°	181 (82.1)
20 (508)	13 3/4 (349)	1 3/4 (45)	1 3/16 (30)	1 3/16 (30)	20°	185 (83.9)
24 (610)	13 3/4 (349)	1 3/4 (45)	1 3/16 (30)	1 3/16 (30)	20°	295 (133.8)

Operating Conditions	1 1/2" - 12" (38 mm - 305 mm)	
*Operating Pressure	225 psig (16 kg/cm ²)	
*Burst Pressure	900 psig (62 kg/cm ²)	
*Vacuum Rating	26" (600 mm) Hg	
*Temperature	14°F to 225°F (-10°C to 107°C)	
*Applicable Fluids	Water, warm water, seawater, weak acids, alkalies, compressed air, etc.	

Item	Part	Material
1	Flange	*Mild Steel
2	Wire	Hard Steel Wire
3	Body	**Heat-Resistant Rubber
4	Body	Nylon Tire Cord

MODEL UTC KINFLEX TWIN-SPHERE CONNECTOR WITH GALVANIZED UNION ENDS



Allowable Movements in Operation

Size-A In. (mm)	Length-L In. (mm)	Axial Compression In. (mm)	Axial Elongation In. (mm)	Transverse Movement In. (mm)	Angular Deflection	Weight Lbs. (kg)
3/4 (22)	8 (203)	7/8 (22)	1/4 (6)	7/8 (22)	32°	2 (1.1)
1 (25)	8 (203)	7/8 (22)	1/4 (6)	7/8 (22)	25°	3 (1.4)
1 1/4 (32)	8 (203)	7/8 (22)	1/4 (6)	7/8 (22)	21°	3 1/2 (1.6)
1 1/2 (38)	8 (203)	7/8 (22)	1/4 (6)	7/8 (22)	17°	4 (1.8)
2 (51)	8 (203)	7/8 (22)	1/4 (6)	7/8 (22)	13°	5 1/2 (2.5)
2 1/2 (64)	8 (203)	7/8 (22)	1/4 (6)	7/8 (22)	11°	9 1/2 (4.3)
3 (76)	8 (203)	7/8 (22)	1/4 (6)	7/8 (22)	9°	11 (5.0)

Operating Conditions 3/4" - 3" (19 mm - 76 mm)

*Operating Pressure 150 psig (10 kg/cm²)

*Burst Pressure 660 psig (40 kg/cm²)

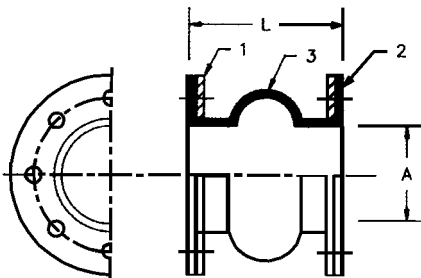
*Vacuum Rating 26" (600 mm) Hg

*Temperature 14°F to 225°F (-10°C to 107°C)

*Applicable Fluids Water, warm water, seawater, weak acids, alkalies, compressed air, etc.

Item	Part	Material
1	Union	FB-32
2	Body	Nylon Tire Cord
3	Ring	Ductile Iron
4	Restraint Assembly	1/8" Dia. Wire Rope
5	Body	**Heat-Resistant Rubber

MODEL KWA KINFLEX WIDE-ARCH CONNECTOR WITH SPLIT RETAINING RINGS



Allowable Movements in Operation

Size-A In. (mm)	Length-L In. (mm)	Axial Compression In. (mm)	Axial Elongation In. (mm)	Transverse Movement In. (mm)	Angular Deflection	Weight Lbs. (kg)
1 (25)	6 (152)	7/8 (22)	3/8 (9)	3/8 (9)	35.8°	4 (1.8)
1 1/4 (32)	6 (152)	7/8 (22)	3/8 (9)	3/8 (9)	29.9°	4 (1.8)
1 1/2 (38)	6 (152)	7/8 (22)	3/8 (9)	3/8 (9)	25.7°	5 (2.3)
2 (50)	6 (152)	1 (25)	3/8 (9)	1/2 (13)	25.2°	6 (2.7)
2 1/2 (63)	6 (152)	1 (25)	3/8 (9)	1/2 (13)	20.6°	8 (3.6)
3 (75)	6 (152)	1 (25)	3/8 (9)	1/2 (13)	17.4°	10 (4.5)
3 1/2 (89)	6 (152)	1 (25)	3/8 (9)	1/2 (13)	15.1°	12 (5.4)
4 (100)	6 (152)	1 (25)	3/8 (9)	1/2 (13)	13.2°	13 (5.9)
5 (127)	6 (152)	1 (25)	1/2 (13)	3/8 (9)	12.0°	14 (6.4)
6 (152)	6 (152)	1 (25)	1/2 (13)	3/4 (19)	11.1°	16 (7.3)
8 (203)	8 (203)	1 (25)	1/2 (13)	3/4 (19)	8.4°	27 (12.3)
10 (254)	8 (203)	1 1/8 (41)	5/8 (16)	7/8 (22)	8.1°	34 (15.4)
12 (305)	8 (203)	1 1/8 (41)	3/4 (19)	7/8 (22)	7.3°	47 (21.3)
14 (356)	8 (203)	1 1/8 (41)	3/4 (19)	7/8 (22)	6.3°	51 (23.1)
16 (406)	8 (203)	1 1/8 (41)	3/4 (19)	1 (25)	5.9°	62 (28.1)
18 (457)	8 (203)	1 1/8 (41)	3/4 (19)	1 (25)	5.3°	67 (30.4)
20 (508)	8 (203)	1 1/8 (41)	3/4 (19)	1 (25)	4.8°	79 (35.8)
22 (559)	10 (254)	1 1/8 (41)	3/4 (19)	1 (25)	4.3°	92 (41.7)
24 (610)	10 (254)	1 7/8 (48)	3/4 (19)	1 (25)	3.9°	105 (47.6)
26 (660)	10 (254)	1 7/8 (48)	1 (25)	1 1/8 (29)	4.4°	114 (51.7)
28 (711)	10 (254)	1 7/8 (48)	1 (25)	1 1/8 (29)	4.1°	131 (59.4)
30 (762)	10 (254)	1 7/8 (48)	1 (25)	1 1/8 (29)	3.8°	140 (63.5)
36 (914)	10 (254)	1 7/8 (48)	1 (25)	1 1/8 (29)	3.2°	205 (93.0)

Operating Conditions 1" - 6" (25 mm - 152 mm) 8" - 12" (203 mm - 305 mm) 14" - 20" (356 mm - 508 mm)

*Operating Pressure 200 psig (13.8 kg/cm²) 150 psig (10.3 kg/cm²) 110 psig (7.6 kg/cm²)

*Burst Pressure 800 psig (55 kg/cm²) 600 psig (41 kg/cm²) 440 psig (30 kg/cm²)

*Vacuum Rating 26" (600 mm) Hg

*Temperature 14°F to 170°F (-10°C to 107°C)

*Applicable Fluids Water, warm water, seawater, weak acids, alkalies, compressed air, etc.

Operating Conditions 22" - 24" (559 mm - 610 mm) 26" - 30" (660 mm - 762 mm) 36" (914 mm)

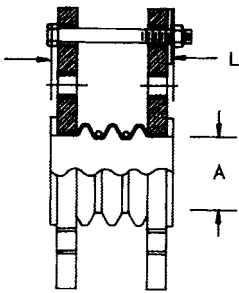
*Operating Pressure 100 psig (6.9 kg/cm²) 90 psig (6.2 kg/cm²) 80 psig (5.5 kg/cm²)

*Burst Pressure 400 psig (27 kg/cm²) 360 psig (25 kg/cm²) 320 psig (22 kg/cm²)

Item	Part	Material
1	Split Retaining Rings	*Mild Steel
2	Body	**Heat-Resistant Rubber
3	Body	Nylon Tire Cord

*Flanges are available with BS, DIN, JIS, ANSI and other standard drillings.
**Standard rubber material uses Neoprene may be replaced with other special synthetic rubber.

MODEL KMC KINFLEX MOLDED TEFLON CONNECTOR



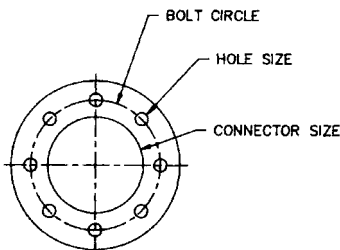
Allowable Movements in Operation

Size-A In. (mm)	Length-L In. (mm)	Maximum Travel		Maximum Misalignment		Angular Deflection	Weight Lbs. (kg)
		In. (mm)	In. (mm)	In. (mm)	In. (mm)		
1 (25)	1 1/4 (44)	1/2 (13)	1/4 (6)	45°	2 (0.9)		
1 1/4 (32)	1 1/4 (44)	1/2 (13)	1/4 (6)	37°	2 (0.9)		
1 1/2 (38)	2 (51)	1/2 (13)	1/4 (6)	33°	4 (1.8)		
2 (50)	2 1/4 (70)	3/4 (19)	3/8 (10)	37°	8 (3.6)		
2 1/2 (63)	3 3/16 (81)	3/4 (19)	3/8 (10)	31°	11 (5.0)		
3 (75)	3 3/8 (92)	1 (25)	1/2 (13)	34°	13 (5.9)		
4 (100)	3 3/8 (92)	1 (25)	1/2 (13)	26°	19 (8.6)		
5 (127)	4 (102)	1 1/8 (29)	1/2 (13)	22°	25 (11.4)		
6 (152)	4 (102)	1 1/8 (29)	9/16 (14)	21°	30 (13.6)		
8 (203)	6 (152)	1 1/8 (29)	9/16 (14)	16°	48 (21.8)		
10 (254)	7 (178)	1 1/8 (29)	3/8 (10)	13°	80 (36.4)		
12 (305)	7 7/8 (200)	1 3/16 (30)	5/16 (8)	11°	105 (47.7)		
14 (356)	5 7/8 (149)	1 3/16 (30)	1/4 (6)	9°	125 (56.8)		
16 (406)	5 7/8 (149)	1 3/16 (30)	1/4 (6)	8°	155 (70.5)		
18 (457)	5 7/8 (149)	1 3/16 (30)	3/16 (5)	7°	175 (79.6)		
20 (508)	5 7/8 (149)	1 3/16 (30)	3/16 (5)	6°	190 (86.4)		
24 (610)	6 7/8 (175)	1 3/16 (30)	3/16 (5)	6°	275 (125.0)		

Operating Conditions	1" - 6" (25 mm - 152 mm)	8" - 10" (203 mm - 254 mm)	12" - 14" (305 mm - 356 mm)
*Operating Pressure @ 150°F	105 psig (7.4 kg/cm ²)	90 psig (6.3 kg/cm ²)	55 psig (3.9 kg/cm ²)
*Vacuum Rating	26" (600 mm) Hg		
*Temperature	14°F to 150°F (-10°C to 66°C)		
*Applicable Fluids	Water, warm water, seawater, weak acids, alkalis, compressed air, etc.		

Operating Conditions	16" - 18" (406 mm - 457 mm)	20" - 24" (508 mm - 610 mm)
*Operating Pressure @ 150°F	40 psig (2.9 kg/cm ²)	30 psig (2.1 kg/cm ²)
*Vacuum Rating	26" (600 mm) Hg	
*Temperature	14°F to 150°F (-10°C to 66°C)	

FLANGE DRILLING FOR MODEL FTC, FC, KWA, AND KMC



Connector Size In. (mm)	Bolt Circle In. (mm)	Number of Holes	FTC, FC, KWA Hole Size		KMC Tap Size
			In. (mm)	In. (mm)	
1 (25)	3 1/8 (79)	4	5/8 (16)	1/2 - 13 (12.7 - UNC)	
1 1/4 (32)	3 1/2 (89)	4	5/8 (16)	1/2 - 13 (12.7 - UNC)	
1 1/2 (38)	3 7/8 (98)	4	5/8 (16)	5/8 - 11 (15.8 - UNC)	
2 (50)	4 3/4 (121)	4	3/4 (19)	5/8 - 11 (15.8 - UNC)	
2 1/2 (63)	5 1/2 (140)	4	3/4 (19)	5/8 - 11 (15.8 - UNC)	
3 (75)	6 (152)	4	3/4 (19)	5/8 - 11 (15.8 - UNC)	
3 1/2 (89)	7 (178)	8	3/4 (19)	5/8 - 11 (15.8 - UNC)	
4 (100)	7 1/2 (191)	8	3/4 (19)	5/8 - 11 (15.8 - UNC)	
5 (127)	8 1/2 (216)	8	7/8 (22)	3/4 - 10 (19.0 - UNC)	
6 (152)	9 1/2 (241)	8	7/8 (22)	3/4 - 10 (19.0 - UNC)	
8 (203)	11 1/4 (298)	8	7/8 (22)	3/4 - 10 (19.0 - UNC)	
10 (254)	14 1/4 (362)	12	1 (25)	7/8 - 9 (22.2 - UNC)	
12 (305)	17 (432)	12	1 (25)	7/8 - 9 (22.2 - UNC)	
14 (356)	18 3/4 (476)	12	1 1/8 (29)	-	
16 (406)	21 1/4 (540)	16	1 1/8 (29)	-	
18 (457)	22 3/4 (578)	16	1 1/4 (32)	-	
20 (508)	25 (635)	20	1 3/8 (32)	-	
22 (559)	27 1/4 (692)	20	1 3/8 (35)	-	
24 (610)	29 1/2 (749)	20	1 3/8 (35)	-	
26 (660)	31 3/4 (806)	24	1 3/8 (35)	-	
28 (711)	34 (864)	28	1 3/8 (35)	-	
30 (762)	36 (914)	28	1 3/8 (35)	-	
36 (914)	42 3/4 (1086)	32	1 5/8 (41)	-	

Specifications

Flexible pipe connectors shall be used on all piping connected to rotating equipment to reduce the transmission of noise and vibration, and to eliminate stresses in piping systems due to misalignment and thermal movement of the piping.

Flexible connectors shall be of the single- or double-sphere molded joint configuration and shall meet or exceed specifications of the Rubber Expansion Joint Division, Fluid Sealing Association.

Connectors shall be made of molded neoprene reinforced with nylon tire cord and shall have mild steel floating flanges or female union ends.

Control rods shall be used with unanchored systems or with spring-mounted equipment where the pressures and movements exceed those the connectors are designed to withstand.

Flexible connectors shall be Kinflex types UTC, FTC, FC, KWA, or KMC as provided by Kinetics Noise Control, Inc.



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Kinetics Noise Control, Inc. is continually upgrading the quality of our products. We reserve the right to make changes to this and all products without notice.