



Rubber expansion joints

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Construction

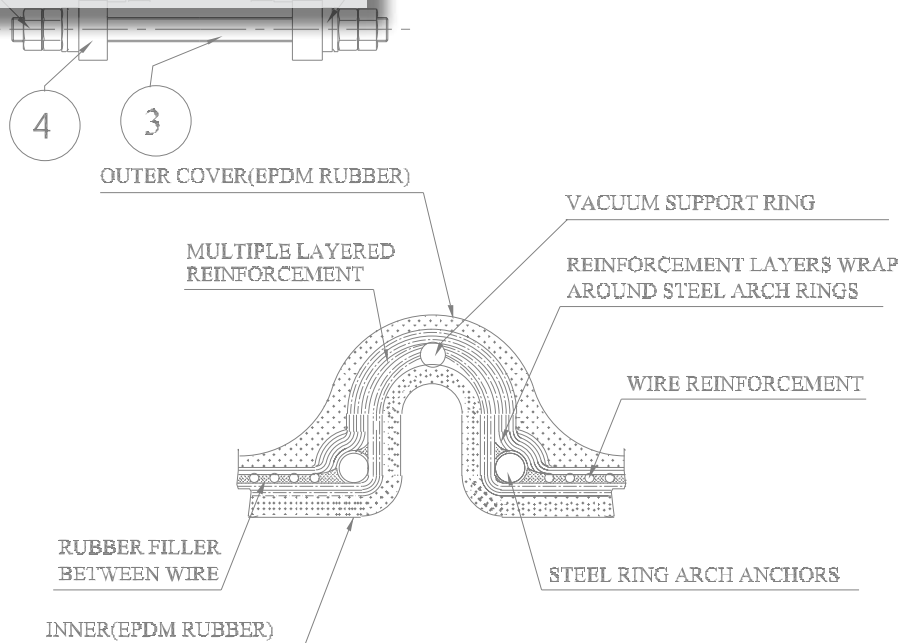
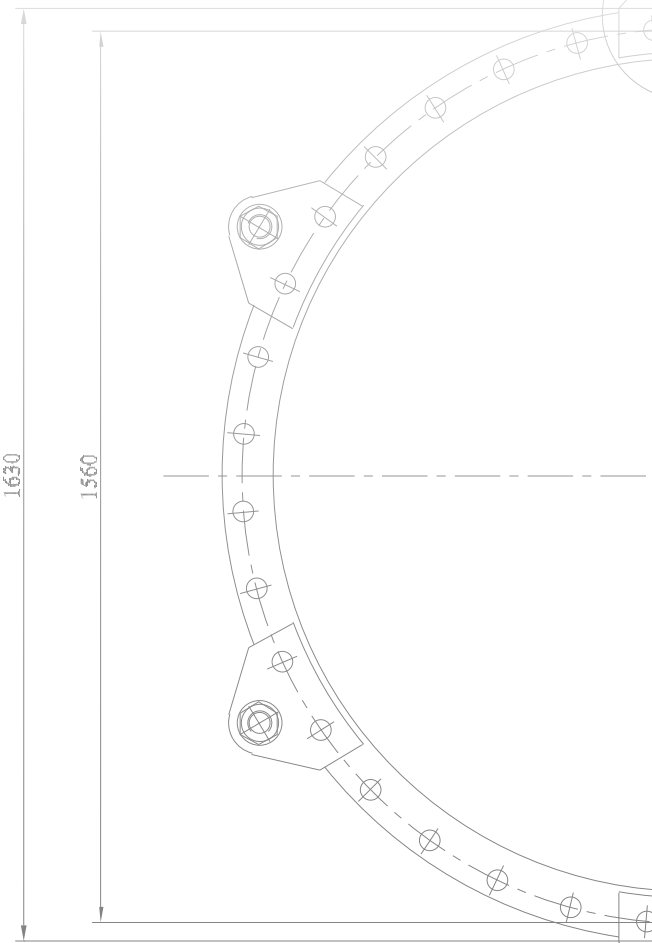
The rubber expansion joints can be divided into two main categories namely the moulded expansion joints and the hand built one's. To the first category belong the SF, DF,UMF and MF series, while the second category consists of the SPOOL type joints.

The construction is in general as follows:

The inside rubber lining is leak-proof and made of synthetic or natural rubber, depending on the application. This applies also for the outside rubber cover, which has the prime function to protect the canvass, between the cover and the inside lining, from outside damages. Special polymers can be supplied to resist chemicals, oils, sunlight, acid fumes and ozone. The pressure supporting canvass consists of fabric and metal reinforcement, as wire or solid rings.

Rubber qualities

The rubber bellows are available in Neoprene, Butyl, Nitrile, EPDM, Hypalon, Natural rubber and Viton.



CONSTRUCTION OF MATERIALS

Detail A

Detail C

Rubber quality	Color band	Property
Neoprene CR	No color band	Excellent weather-resistance. Good oil- and gasoline-resistance. Temperature range: -20°C to +70°C.
EPDM	Red	Outstanding ozone- and sunlight-resistance and suitable for most chemicals, alkaline waste-water, compressed air (oil free). Excellent electrical insulation. Not suitable for oil, gasoline and greases. Temperature range: -25°C to +130°C.
Nitril NBR	Yellow	Very good oil- and gasoline-resistance and suitable for gases, solvents and greases. Good abrasion-resistance. Not applicable to steam and hot water. Temperature range: -20°C to +90°C.
Hypalon CSM	Green	Outstanding ozone- and sunlight-resistance and suitable for most chemicals. Good oil- and gasoline-resistance. Temperature range: -25°C to +80°C.
Butyl IIR	Blue	Very good heat- and weather-resistance, suitable for alkaline waste-water, chemicals and compressed air (oil free). Temperature range: -25°C to +150°C.
Viton FPM	Purple	Suitable for chemicals, oil, gasoline and solvents. Not suitable for chlorines and ketones. Temperature range: -10°C to +180°C.
PTFE	No color band	Outstanding resistance for all media, with the exception of alkali metals at melting point and amides formed from the reaction of a carboxylic acids with an amine. Temperature range: -50°C to +230°C.

Movements

Axial : +/- 13 mm.
Lateral : +/- 18 mm.

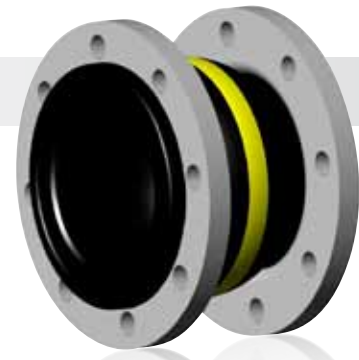
6	2	Split backing flanges drilled according to DIN PN 6	C.S. 37.0	Electr. Galv.
5	12	Spherical washers M42	C.S. 37.0	
4	12	Lugs	C.S. 37.0	Electr. Galv.
3	6	Tie-Bars M42 Lg= +/- 700 mm.	C.S. 5.8	Electr. Galv.
2	24	Nuts M42	C.S. Class 8	Electr. Galv.
1	1	Rubber Bellows DN 1400	EPDM	

Itemref	Quantity	Title/Name, designation, dimension etc	Material	Remarks
Designed by W.J.H.	Checked by	Approved by - date A+W	File name 045604	Date 00-00-00
		Title Expansion joint DN 1400 PN 6		
		Drawing number A3-485030		Sheet 1 of 1

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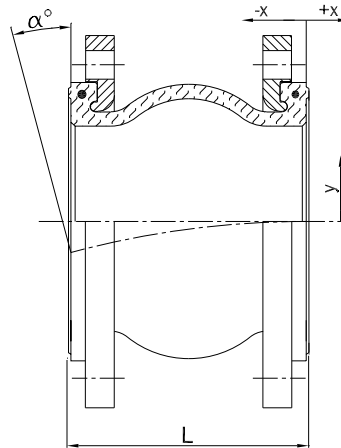
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Rubber joints with floating flanges

Type SF-Standard

Reinforcement of the bellows by Nylon tire cords and at both ends by hardened steel wire rings. The floating galvanised flanges are drilled according to DIN, ANSI, BS, JIS and other standards. The sealing surfaces provide a fluid and gas-tight seal and make the use of gaskets unnecessary. For high vacuum a vacuum spiral or ring must be used. The maximum allowable temperature is 105°C.



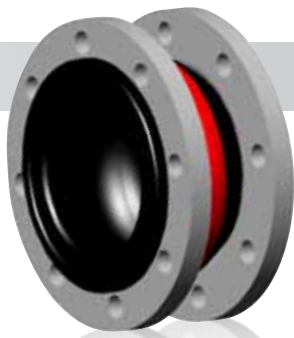
Burst pressure:

- 60 barg (Size 32 to 300 mm)
- 40 barg (Size 350 m)
- 24 barg (Size 400 to 1200 mm)

The maximum allowable pressure and movements must be adjusted by one of the factors below at operating temperatures over 80°C.

85°C	90°C	95°C	100°C	>100°C
0,92	0,83	0,75	0,67	0,6

Size mm (in.)	L mm	Axial (-x) mm	Axial (+x) mm	Lateral (y) mm	Angular (α°)	Max.Pressure barg (PSIG) up to 80°C.	Vacuum mm Hg (in.Hg)
32 (1¼")	95	8	4	8	15°	16 (225)	660 (26)
40 (1½")	95	8	4	8	15°	16 (225)	660 (26)
50 (2")	105	8	5	8	15°	16 (225)	660 (26)
65 (2½")	115	12	6	10	15°	16 (225)	660 (26)
80 (3")	130	12	6	10	15°	16 (225)	660 (26)
100 (4")	135	18	10	12	15°	16 (225)	660 (26)
125 (5")	170	18	10	12	15°	16 (225)	660 (26)
150 (6")	180	18	10	12	15°	16 (225)	660 (26)
200 (8")	205	25	14	22	15°	16 (225)	660 (26)
250 (10")	240	25	14	22	15°	16 (225)	660 (26)
300 (12")	260	25	14	22	15°	16 (225)	660 (26)
350 (14")	265	25	16	22	15°	10 (150)	660 (26)
400 (16")	265	25	16	22	15°	7 (100)	660 (26)
450 (18")	265	25	16	22	15°	7 (100)	660 (26)
500 (20")	265	25	16	22	15°	7 (100)	660 (26)
600 (24")	265	25	16	22	15°	7 (100)	660 (26)
700 (28")	265	25	16	22	15°	7 (100)	660 (26)
800 (32")	265	25	16	22	12°	7 (100)	660 (26)
900 (36")	265	25	16	22	10°	7 (100)	660 (26)
1000 (40")	265	25	16	22	10°	7 (100)	660 (26)
1200 (48")	265	25	16	22	8°	7 (100)	660 (26)



Rubber joints with floating flanges

Type SF-130

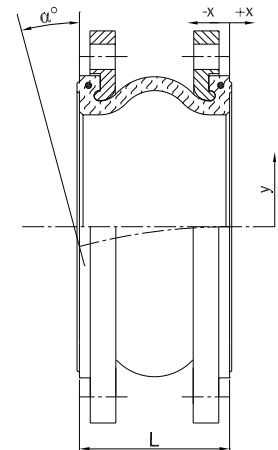
Burst pressure:

60 barg (Size 32 to 200 mm)

The maximum allowable pressure and movements must be adjusted by one of the factors below at operating temperatures over 80°C.

85°C	90°C	95°C	100°C	>100°C
0,92	0,83	0,75	0,67	0,6

For all sizes the overall length is 130 mm. The shape of the bellows gives the expansion joint a higher flexibility and allows larger movements. Reinforcement of the bellows by Nylon tire cords and at both ends by hardened steel wire rings. The floating galvanised flanges are drilled according to DIN, ANSI, BS, JIS and other standards. The sealing surfaces provide a fluid and gas-tight seal and make the use of gaskets unnecessary. For high vacuum a vacuum spiral or ring must be used. The maximum allowable temperature is 105°C.



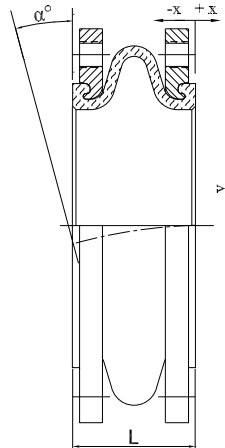
Size mm (in.)	L mm	Axial (-x) mm	Axial (+x) mm	Lateral (y) mm	Angular (a°)	Max. Pressure barg (PSIG) up to 80°C.	Vacuum mm Hg (in.Hg)
32 (1¼")	130	30	20	20	35°	16(225)	660(26)
40 (1½")	130	30	20	20	35°	16(225)	660(26)
50 (2")	130	30	20	20	35°	16(225)	660(26)
65 (2½")	130	30	20	20	30°	16(225)	660(26)
80 (3")	130	30	20	20	30°	16(225)	660(26)
100 (4")	130	30	20	20	25°	16(225)	660(26)
125 (5")	130	30	20	20	25°	16(225)	660(26)
150 (6")	130	30	20	20	15°	16(225)	660(26)
200 (8")	130	30	20	20	15°	16(225)	660(26)
250 (10")	130	30	20	20	10°	16(225)	660(26)
300 (12")	130	30	20	20	10°	16(225)	660(26)



Rubber joints with floating flanges

Type SF-105

The short overall length of 105 mm for all sizes requires a shape of the bellows with an outside diameter greater than the pitch diameter of the flanges to obtain an acceptable flexibility. For that reason the flanges are provided with threaded bolt holes. Reinforcement of the bellows by Nylon tire cords and at both ends by hardened steel wire rings. The floating galvanised flanges are drilled according to DIN, ANSI, BS, JIS and other standards. The sealing surfaces provide a fluid and gas-tight seal and make the use of gaskets unnecessary. For high vacuum a vacuum spiral or ring must be used. The maximum allowable temperature is 105°C.



Burst pressure:

60 barg (Size 32 to 200 mm)
40 barg (Size 250 and 300 mm)

The maximum allowable pressure and movements must be adjusted by one of the factors below at operating temperatures over 80°C.

85°C	90°C	95°C	100°C	>100°C
0,92	0,83	0,75	0,67	0,6

Size mm (in.)	L mm	Axial (-x) mm	Axial (+x) mm	Lateral (y) mm	Angular (a°)	Max.Pressure barg (PSIG) up to 80°C.	Vacuum mm Hg (in.Hg)
32 (1¼")	105	30	20	15	7.5°	16 (225)	660 (26)
40 (1½")	105	30	20	15	7.5°	16 (225)	660 (26)
50 (2")	105	30	20	15	7.5°	16 (225)	660 (26)
65 (2½")	105	30	20	15	7.5°	16 (225)	660 (26)
80 (3")	105	30	20	15	7.5°	16 (225)	660 (26)
100 (4")	105	30	20	15	7.5°	16 (225)	660 (26)
125 (5")	105	30	20	15	7.5°	16 (225)	660 (26)
150 (6")	105	30	20	15	7.5°	16 (225)	660 (26)
200 (8")	105	30	20	15	5°	16 (225)	660 (26)
250 (10")	105	30	20	15	5°	16 (225)	660 (26)
300 (12")	105	30	20	15	5°	16 (225)	660 (26)



Rubber joints with floating flanges

Type SF-USA

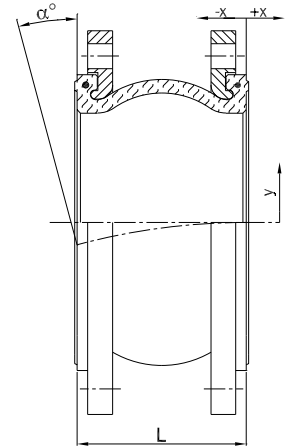
Burst pressure:

60 barg (Size 32 to 200 mm)
40 barg (Size 250 and 300 mm)

The maximum allowable pressure and movements must be adjusted by one of the factors below at operating temperatures over 80°C.

85°C	90°C	95°C	100°C	>100°C
0,92	0,83	0,75	0,67	0,6

The dimensions and movements of this type of rubber expansion joint with floating flanges are attuned to the USA market. Reinforcement of the bellows by Nylon tire cords and at both ends by hardened steel wire rings. The floating galvanised flanges are drilled according to DIN, ANSI, BS, JIS and other standards. The sealing surfaces provide a fluid and gas-tight seal and make the use of gaskets unnecessary. For high vacuum a vacuum spiral or ring must be used. The maximum allowable temperature is 105°C.



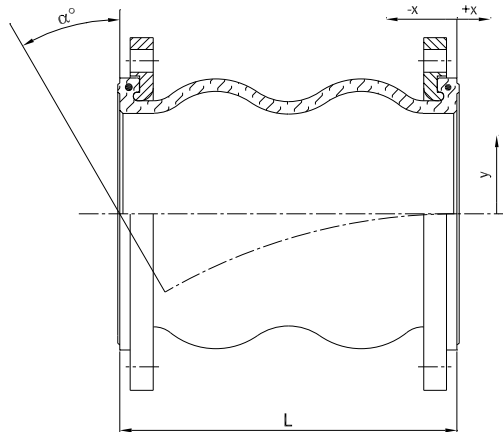
Size mm (in.)	L mm	Axial (-x) mm	Axial (+x) mm	Lateral (y) mm	Angular (α°)	Max. Pressure barg (PSIG) up to 80°C.	Vacuum mm Hg (in.Hg)
32 (1¼")	6"	1/2"	3/8"	1/2"	15°	16 (225)	660 (26)
40 (1½")	6"	1/2"	3/8"	1/2"	15°	16 (225)	660 (26)
50 (2")	6"	1/2"	3/8"	1/2"	15°	16 (225)	660 (26)
65 (2½")	6"	1/2"	3/8"	1/2"	15°	16 (225)	660 (26)
80 (3")	6"	1/2"	3/8"	1/2"	15°	16 (225)	660 (26)
100 (4")	6"	5/8"	3/8"	1/2"	15°	16 (225)	660 (26)
125 (5")	6"	5/8"	3/8"	1/2"	15°	16 (225)	660 (26)
150 (6")	6"	5/8"	3/8"	1/2"	15°	16 (225)	660 (26)
200 (8")	6"	5/8"	3/8"	1/2"	15°	16 (225)	660 (26)
250 (10")	8"	3/4"	1/2"	3/4"	15°	16 (225)	660 (26)
300 (12")	8"	3/4"	1/2"	3/4"	15°	16 (225)	660 (26)
350 (14")	8"	3/4"	1/2"	3/4"	15°	10 (150)	660 (26)
400 (16")	8"	3/4"	1/2"	3/4"	15°	7 (100)	660 (26)
450 (18")	8"	3/4"	1/2"	3/4"	15°	7 (100)	660 (26)
500 (20")	8"	3/4"	1/2"	3/4"	15°	7 (100)	660 (26)



Rubber joints with floating flanges

Type DF

The double sphere joints allows larger movements. Reinforcement of the bellows by Nylon tire cords and at both ends by hardened steel wire rings. The floating galvanised steel flanges are drilled according to DIN, ANSI, BS, JIS and other standards. The sealing surfaces provide a fluid and gas-tight seal and make the use of gaskets unnecessary. For high vacuum a vacuum spiral or ring must be used. The maximum allowable temperature is 105°C.



Burst pressure:

60 barg (Size 32 to 200 mm)
24 barg (Size 250 to 450 mm)

The maximum allowable pressure and movements must be adjusted by one of the factors below at operating temperatures over 80°C.

85°C	90°C	95°C	100°C	>100°C
0,92	0,83	0,75	0,67	0,6

Size mm (in.)	L mm	Axial (-x) mm	Axial (+x) mm	Lateral (y) mm	Angular (a°)	Max. Pressure barg (PSIG) up to 80°C.	Vacuum mm Hg (in.Hg)
25 (1")	120	30	15	25	25°	16 (225)	660 (26)
32 (1¼")	175	50	25	40	40°	16 (225)	660 (26)
40 (1½")	175	50	25	40	40°	16 (225)	660 (26)
50 (2")	175	50	25	40	40°	16 (225)	660 (26)
65 (2½")	175	50	25	40	40°	16 (225)	660 (26)
80 (3")	175	50	25	40	40°	16 (225)	660 (26)
100 (4")	225	55	30	40	35°	16 (225)	660 (26)
125 (5")	225	55	30	40	35°	16 (225)	660 (26)
150 (6")	225	55	30	40	35°	16 (225)	660 (26)
200 (8")	325	65	30	35	30°	16 (225)	660 (26)
250 (10")	325	65	30	35	30°	16 (225)	660 (26)
300 (12")	325	65	30	35	30°	16 (225)	660 (26)
350 (14")	350	40	30	30	20°	10 (150)	660 (26)
400 (16")	350	40	30	30	20°	7 (100)	660 (26)
450 (18")	350	40	30	30	20°	7 (100)	400 (16)
500 (20")	350	40	30	30	20°	7 (100)	400 (16)
600 (24")	350	40	30	30	20°	7 (100)	400 (16)



Rubber joints with fixed flanges

Type UMF

Burst pressure:

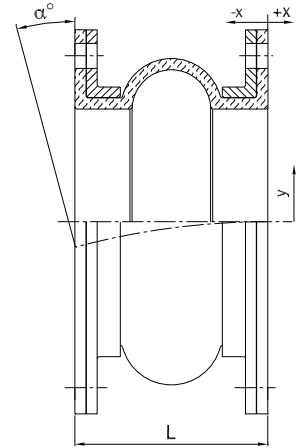
60 barg (Size 32 to 200 mm)
40 barg (Size 250 and 300 mm)

The maximum allowable pressure and movements must be adjusted by one of the factors below at operating temperatures over 80°C.

85°C	90°C	95°C	100°C	>100°C
0,92	0,83	0,75	0,67	0,6

The maximum allowable temperature is 105°C.

Belonging to the category of moulded joints, the reinforcement consists of nylon tire cord. No metal rings are imbedded. The design of the single arch allows large movements. The joints can be furnished with filled or unfilled arch. Filled arch prevents materials from obstruction the arch, however, the allowable movements are reduced with 50%. The split retaining rings in cast ductile iron are provided with sleeves to support the cylindrical parts. The flanges are drilled according to DIN, ANSI, BS, JIS and other standards. The sealing surfaces provide a fluid and gas-tight seal and make the use of gaskets unnecessary. For higher vacuum than indicated in the table below a vacuum spiral or ring must be used.



Size mm (in.)	L mm	Axial (-x) mm	Axial (+x) mm	Lateral (y) mm	Angular (a°)	Max. Pressure barg (PSIG) up to 80°C.	Vacuum mm Hg (in.Hg)
50 (2")	150	30	20	20	35°	10 (150)	380 (15)
65 (2½")	150	30	20	20	30°	10 (150)	380 (15)
80 (3")	150	30	20	20	30°	10 (150)	380 (15)
100 (4")	150	30	20	20	25°	10 (150)	380 (15)
125 (5")	150	30	20	20	25°	10 (150)	380 (15)
150 (6")	150	30	20	25	20°	10 (150)	380 (15)
200 (8")	150	30	20	25	20°	10 (150)	380 (15)
250 (10")	200	30	20	25	15°	10 (150)	380 (15)
300 (12")	200	30	20	25	15°	10 (150)	380 (15)
350 (14")	200	50	23	25	12°	9 (130)	255 (10)
400 (16")	200	50	23	25	12°	7½ (110)	255 (10)
450 (18")	200	50	23	25	9°	7½ (110)	255 (10)
500 (20")	200	50	23	25	9°	7½ (110)	255 (10)
600 (24")	250	55	25	25	9°	7 (100)	255 (10)

Rubber joints with fixed flanges

SPOOL TYPE

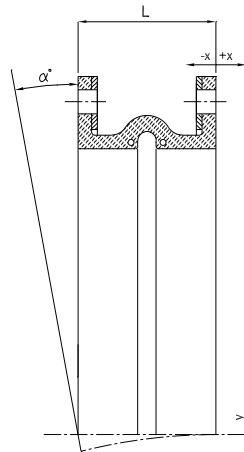
Hand built rubber expansion joints with one(1) up to four(4) arches. The split retaining rings are in galvanized carbon steel or in stainless steel, drilled according to DIN, ANSI, BS or as required. Reinforcement by high quality synthetic fabric and spiral steel wire or steel bars. The sealing surface of the rubber flanges provide a fluid and gas tight seal and makes the use of gaskets unnecessary.

Type SA = joint with one (1) arch

Type DA = joint with two (2) arches

Type TA = joint with three (3) arches

Type MA = joint with four (4) arches



SA

The maximum allowable pressure and movements must be adjusted by one of the factors below at operating temperatures over 80°C.

85°C	90°C	95°C	100°C	>100°C
0,92	0,83	0,75	0,67	0,6

Size mm (in.)	L mm	Axial (-x) mm	Axial (+x) mm	Lateral (y) mm	Angular (a°)	Max.Pressure barg (PSIG) up to 80°C.
1000 (40")	255	40	20	15	1,5°	4 (60)
1050 (42")	305	40	20	20	1,5°	4 (60)
1100 (44")	305	40	20	20	1,5°	4 (60)
1200 (48")	305	40	20	20	1,5°	4 (60)
1300 (50")	305	40	20	20	1,3°	4 (60)
1400 (54")	305	40	20	20	1,3°	4 (60)
1450 (56")	305	40	20	20	1,3°	4 (60)
1500 (60")	305	40	20	20	1,0°	4 (60)
1600 (62")	305	40	20	20	1,0°	3½ (50)
1700 (66")	305	40	20	20	1,0°	3½ (50)
1800 (72")	305	40	20	20	0,9°	3½ (50)
2000 (78")	305	40	20	20	0,9°	3½ (50)
2100 (84")	305	40	20	20	0,8°	3½ (50)
2300 (90")	305	40	20	20	0,8°	3½ (50)
2400 (96")	305	40	20	20	0,8°	3½ (50)
2450 (98")	305	60	25	30	0,6°	2 (30)
2500 (100")	305	60	25	30	0,6°	2 (30)
2600 (102")	305	60	25	30	0,6°	2 (30)
2700 (108")	305	60	25	30	0,4°	1¾ (25)
3000 (120")	305	60	25	30	0,4°	1¾ (25)
3350 (132")	305	60	25	30	0,3°	1¾ (25)



Flexible connectors

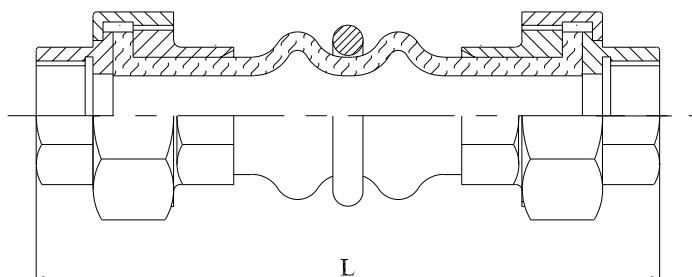
Type MF

Burst pressure:
60 barg

The double sphere rubber connectors are standard in Nitrile rubber quality with rubber impregnated nylon tyre cord. For other elastomers please refer to the type SF-Standard. Both ends provided with a cast ductile iron union with female thread BS or ANSI.

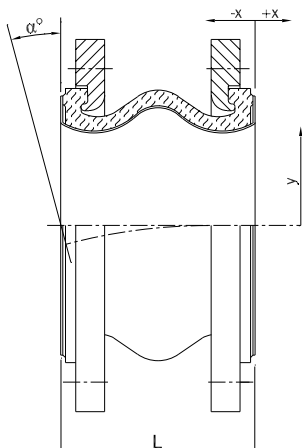
The maximum allowable pressure and movements must be adjusted by one of the factors below at operating temperatures over 80°C.

85°C	90°C	95°C	100°C	>100°C
0,92	0,83	0,75	0,67	0,6



Size mm (in.)	L mm	Axial (-x) mm	Axial (+x) mm	Lateral (y) mm	Angular (a°)	Max. Pressure barg (PSIG) up to 80°C.	Vacuum mm Hg (in.Hg)
20 (3/4")	200	22	6	22	32°	10 (150)	660 (26)
25 (1")	200	22	6	22	25°	10 (150)	660 (26)
32 (1 1/4")	200	22	6	22	25°	10 (150)	660 (26)
40 (1 1/2")	200	22	6	22	20°	10 (150)	660 (26)
50 (2")	200	22	6	22	15°	10 (150)	660 (26)
65 (2 1/2")	240	22	6	22	12°	10 (150)	660 (26)

Rubber joints with PTFE-lining



In fact all our series rubber expansion joints can be provided with a PTFE lining. This lining is applied after manufacturing the complete rubber joint, so including the steel flanges of the series with swivelling flanges. The PTFE-lining causes a reduction of about 50% of the allowable movements of the joints without PTFE-lining.



OVERALL FREE LENGTHS

1Size mm (in.)	Moulded expansion joints							Hand built SPOOL type			
	SF-105 mm	SF-130 mm	SF-USA mm	SF-STANDARD mm	UMF mm	DF mm	MF mm	SA mm	DA mm	TA mm	MA mm
20 (1")							200				
25 (1")	105	130				120	200				
32 (1¼")	105	130	150	95		175	200				
40 (1½")	105	130	150	95		175	200				
50 (2")	105	130	150	105	150	175	200	150	250	350	450
65 (2½")	105	130	150	115	150	175	240	150	250	350	450
80 (3")	105	130	150	130	150	175		150	250	350	450
100 (4")	105	130	150	135	150	225		150	250	350	450
125 (5")	105	130	150	170	150	225		150	250	350	450
150 (6")	105	130	150	180	150	225		150	250	350	450
200 (8")	105	130	150	205	150	325		150	250	350	450
250 (10")	105	130	200	240	200	325		200	300	400	500
300 (12")	105	130	200	260	200	325		200	300	400	500
350 (14")			200	265	200	350		200	300	400	500
400 (16")			200	265	200	350		200	300	400	500
450 (18")			200	265	200	350		200	300	400	500
500 (20")			200	265	200			200	300	400	500
600 (24")				265	250			250	350	450	550
700 (28")				265				250	350	450	550
800 (32")				265				250	350	450	550
900 (36")				265				250	350	450	550
1000 (40")				265				250	350	450	550
1100(44")				265				300	400	500	600
1200(48")				265				300	400	500	600
1300 (50")								300	400	500	600
1400 (54")								300	400	500	600
1450 (56")								300	400	500	600
1500 (60")								300	400	500	600
1600 (62")								300	400	500	600
1700 (66")								300	400	500	600
1800 (72")								300	400	500	600
2000 (78")								300	400	500	600
2100 (84")								300	400	500	600
2300 (90")								300	400	500	600
2400 (96")								300	400	500	600
2450 (98")								300	400	500	600
2500 (100")								300	400	500	600
2600 (102")								300	400	500	600
2700 (108")								300	400	500	600
3000 (120")								300	400	500	600
3350 (132")								300	400	500	600
3650 (144")								300	400	500	600

PHYSICAL AND CHEMICAL PROPERTIES OF ELASTOMERS

Elastomers	Neoprene	Nat.Rubber	Butyl	Nitrile	Hypalon	EPDM	Viton	Silicone
ASTM D-2000/SAE J-200	BC	AA	AA	BF	CE	BA	HK	GE
ANSI/ASTM D1418-77	CR	IR	IIR	NBR	CSM	EPDM	FKM	SI
Alkali,conc.	0	X	4	0	4	6	0	0
Animal Et Veg.oil	4	X	5	5	4	5	6	5
Chemicals	3	3	6	3	6	6	6	5
Water	4	5	5	4	5	5	5	5
Oxygenated Hydro	1	4	4	0	1	6	0	2
Lacquers	0	0	3	2	0	3	1	0
Oil Et Gasoline	4	0	0	5	4	0	6	X
Alkali Dilute	4	X	4	4	4	6	4	2
Acid,dilute	6	3	6	4	6	6	6	6
Acid,conc.	4	3	4	4	4	4	6	2
Aliphatic hydro	3	0	0	6	3	0	6	0
Aromatic hydro	2	0	0	4	2	0	5	0
Electr.insulation	3	5	5	1	3	6	3	6
Water absorption	4	5	5	4	4	6	5	6
Radiation	5	6	4	5	5	7	5	5
Swelling in oil	4	0	0	5	4	0	6	2
Rebound cold	4	6	0	4	2	9	2	6
Comp. set	2	4	3	5	2	4	6	3
Tensile strength	4	6	4	5	2	5	5	0
Dielectric str.	5	6	5	0	5	7	5	4
Abrasion	5	6	4	4	4	5	5	6
Impermeability	4	2	6	4	4	4	5	0
Dynamic	2	2	2	5	2	5	5	2
Rebound hot	5	6	5	4	4	6	4	0
Heat	4	2	5	4	4	6	7	7
Cold	4	5	4	3	4	5	2	6
Flame	4	0	0	0	4	0	6	2
Tear	4	5	4	3	3	4	2	2
Ozone	5	0	6	2	7	7	7	6
Weather	6	2	5	2	6	6	7	6
Sunlight	5	0	5	0	7	7	7	6
Oxidation	5	4	6	4	6	6	7	6

7 = Outstanding
 6 = Excellent
 5 = Very good
 4 = Good
 3 = Fair to good
 2 = Fair
 1 = Poor to fair
 0 = Poor

Remarks for installation

Use the right torque for the bolts.

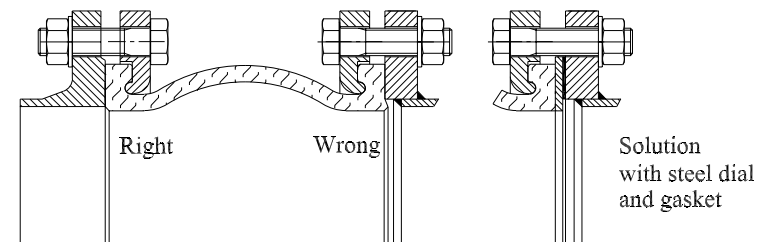
Allowing the joints it's maximum movements and preventing damages to the rubber sphere, the bolts must be inserted through the flange with the heads of the bolts on the joint side. To secure the joint to the pipe the bolts should be tightened crosswise, applying the following torque:

For expansion joints up to a nominal diameter of 80 mm. 60 Nm (max.)

For expansion joints larger than a nominal diameter of 80 mm. 80 Nm (max.)

Use the right counter flange.

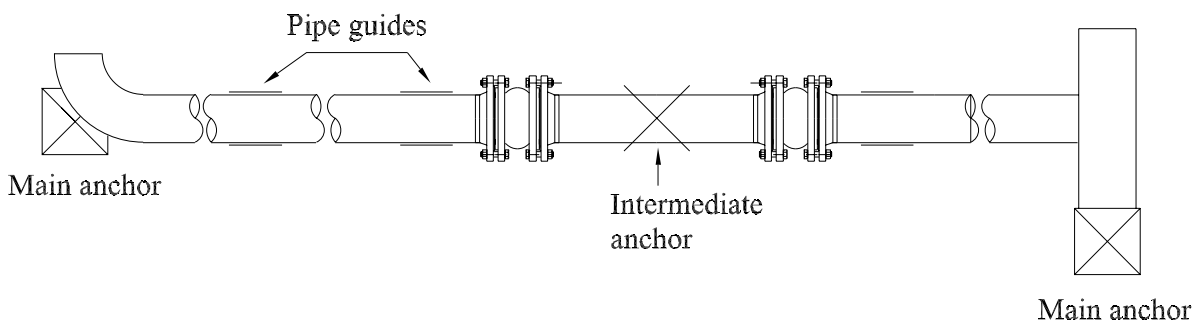
For a proper, durable and safe connection the inner diameter of the counter flange should not be larger than the inner diameter of the rubber joint and should be flat to ensure maximum sealing. Turbulence within the joint could cause noise, pressure loss or even leakage at the connection.



Pipe anchors and guides

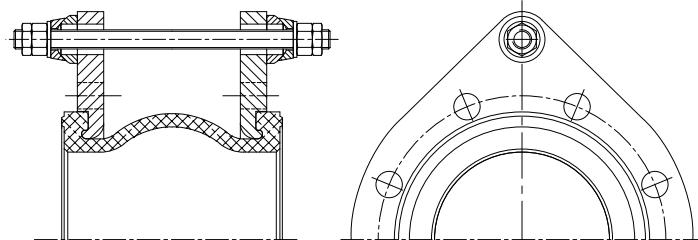
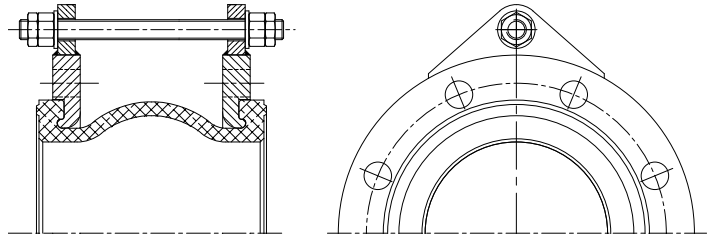
A main pipe anchor must be designed to withstand the forces and moments of the pipe section to which it is attached. In case of a pipe section containing one or more unrestrained expansion joints, these will consist of the full line thrust due to pressure and flow, the forces and/or moments required to deflect the expansion joint or joints (large diameters Spool type), frictional forces due to pipe guides, etc.

An intermediate pipe anchor must be designed to withstand only the forces and/or moments required to deflect the expansion joint or joints, frictional forces due to pipe guides, etc. Correct alignment of the pipe is of vital importance in the proper function of the expansion joint. Install the joint close to an anchor and place a pipe guide behind the joint at a distance of about 1,5 x pipe diameter.



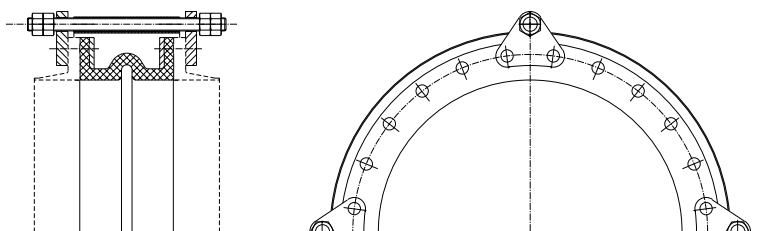
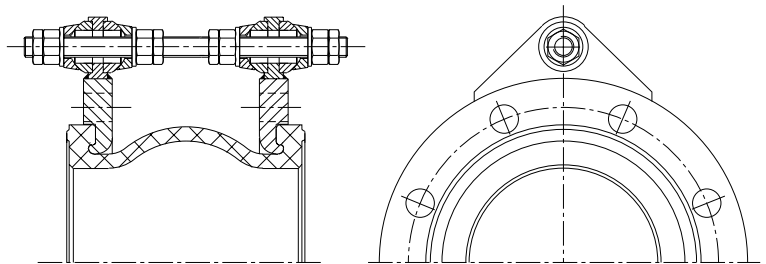
Remarks for installation

Limit rods to restrict the bellows axial movement range during normal operation. In the event of a main anchor failure, they are designed to prevent bellows over-extension while restraining the full pressure loading and dynamic forces generated by the anchor failure. Lugs are welded to the flanges.



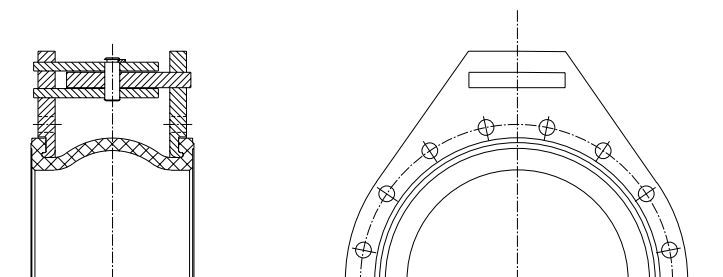
Tie rods with external spherical bearings, whose primary function is to continuously restrain the full bellows pressure thrust during normal operation while permitting only lateral deflection. The lugs are integrated in the oval flanges.

Tie rods with external and internal spherical bearings, whose primary function is to continuously restrain the full bellows pressure thrust during normal operation while permitting only lateral deflection. The lugs are welded to the flanges.



Spool type expansion joint with limits rods to restrict the bellows axial movement range during normal operation. In the event of a main anchor failure, they are designed to prevent bellows overextension or over-compression while restraining the full pressure loading and dynamic forces generated by the anchor failure. The loose lugs are bolted to the steel flanges.

Spool type expansion joint with limits rods to restrict the bellows axial movement range during normal operation. In the event of a main anchor failure, they are designed to prevent bellows overextension or over-compression while restraining the full pressure loading and dynamic forces generated by the anchor failure. The loose lugs are bolted to the steel flanges.



From our delivery program

Metal expansion joints

Bellows in stainless steel, single and multi walled. Axial, lateral, angular and pressure balanced expansion joints with or without certificates. Life time cycles according to E.J.M.A.

Special series with double walled bellows, provided with weld ends or flanges for exhaust gas pipe systems at a competitive price level.



Silicone flexible pipe connectors

Colour blue:

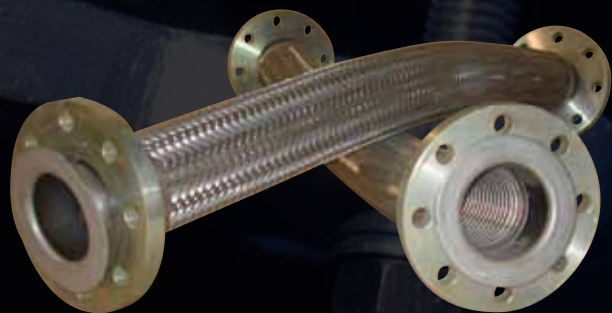
For cooling systems, radiators, air, etc.

Colour green:

For oil, solvents, chemicals, drinking water, etc.

Metal hoses

Parallel corrugated metal hoses from size 10 up to size 300 mm with braiding in stainless steel. Besides the usual end connections as threaded pipe nipples, pipe ends, unions and flanges, special customers designed connections can be supplied.



AMCO
EUROPE B.V.

AMCO Europe B.V.
Kiotoweg 361
3047 BG Rotterdam
The Netherlands

Tel. : +31 (0)10 28 60 244
Fax : +31 (0)10 28 60 234
E-mail : info@amco-europe.eu
Web : www.amco-europe.eu

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