FLEXEJ

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HVAC
Elaflex
Solutions

HVAC

Elaflex

Solutions

HVAC

dosing pots
low loss headers
air & dirt separators
metal expansion joints
rubber expansion joints

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FLEXEJ

Welcome

FlexEJ offers a broad range of pipe expansion joints and pressure fabrications; we are both stockist and manufacturer with factories in the UK and Spain.

- Rubber and metal pipe expansion joints from DN15 to over DN3600
- Metal hose assemblies
- Dosing pots, air & dirt separators and low loss headers for HVAC applications
- Pressure vessels and fabrications

We are accredited to ISO9001, ISO14000 and the PED. As required we offer full material traceability, documentation and compliance with client specifications – our welders are qualified to both EN and ASME.

You can also buy a wide range of stock expansion joints and HVAC fabrications direct from our web shop at flexej.co.uk with next day delivery.

We are here to help; please get in touch by phone, email or via the website live chat facility. We will be delighted to assist you in selecting the right stock product through to developing a unique design for your application.

Tim Robinson
Director

FlexEJ Ltd
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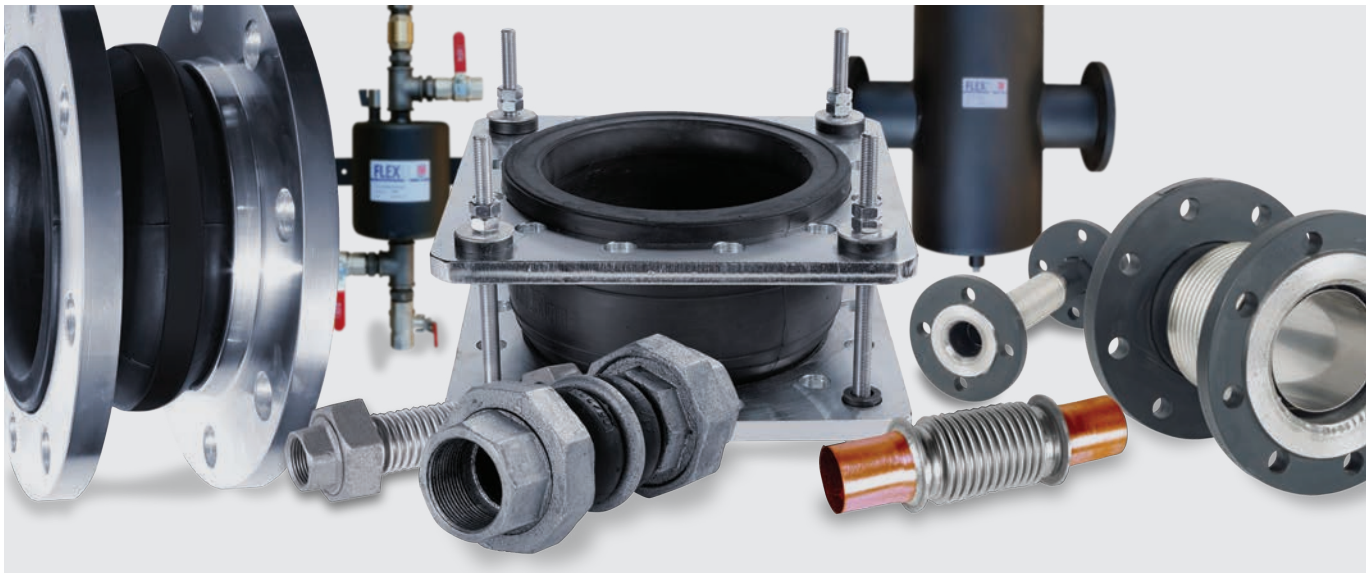

Contents

HVAC Flanged Rubber Bellows
Untied

Specification

Commercial quality EPDM bellows intended primarily for HVAC water applications – LT heating, waste, sanitary, chilled.

Not suitable for drinking water, contaminated water or mineral oil products.

Materials

- Liner EPDM
- Reinforcement Nylon chord
- Cover EPDM
- Flanges Carbon steel, galvanised PN16

Rating

16 Barg @ 20°C to 6 Barg @ 95°C.
Vacuum rating 400 mmHg.

Size	Length	Axial Comp.	Axial Ext.	Lateral	Angular	Stock code
in.	mm	mm	mm	mm	degree	
DN032-1¼"	106	20	20	±30	± 7.5	R0032SF5AA16U
DN032-1¼"	130	30	20	±20	± 35	R0032SF15A16U
DN032-1¼"	150	12	9	±12	± 15	R0032SF10B16U
DN040-1½"	106	20	20	±30	± 7.5	R0040SF5AA16U
DN040-1½"	130	30	20	±20	± 35	R0040SF15A16U
DN040-1½"	150	12	9	±12	± 15	R0040SF10B16U
DN050-2"	106	20	20	±30	± 7.5	R0050SF5AA16U
DN050-2"	130	30	20	±20	± 35	R0050SF15A16U
DN050-2"	150	12	9	±12	± 15	R0050SF10B16U
DN065-2½"	106	20	20	±30	± 7.5	R0065SF5AA16U
DN065-2½"	130	30	20	±20	± 30	R0065SF15A16U
DN065-2½"	150	12	9	±12	± 15	R0065SF10B16U
DN080-3"	106	20	20	±30	± 7.5	R0080SF5AA16U
DN080-3"	130	30	20	±20	± 30	R0080SF15A16U
DN080-3"	150	12	9	±12	± 15	R0080SF10B16U
DN100-4"	106	20	20	±30	± 7.5	R0100SF5AA16U
DN100-4"	130	30	20	±20	± 25	R0100SF15A16U
DN100-4"	150	16	9	±12	± 15	R0100SF10B16U
DN125-5"	106	20	20	±30	± 7.5	R0125SF5AA16U
DN125-5"	130	30	20	±20	± 25	R0125SF15A16U
DN125-5"	150	16	9	±12	± 15	R0125SF10B16U
DN150-6"	106	20	20	±30	± 7.5	R0150SF5AA16U
DN150-6"	130	30	20	±20	± 15	R0150SF15A16U
DN150-6"	150	16	9	±12	± 15	R0150SF10B16U
DN200-8"	106	20	20	±30	± 5	R0200SF5AA16U
DN200-8"	130	30	20	±20	± 15	R0200SF15A16U
DN200-8"	150	16	9	±12	± 15	R0200SF10B16U
DN250-10"	106	20	20	±30	± 5	R0250SF5AA16U
DN250-10"	130	30	20	±20	± 10	R0250SF15A16U
DN250-10"	200	19	19	±19	± 15	R0250SF10E16U

Movements are non concurrent

Product by FlexEJ Ltd

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HVAC Flanged Rubber Bellows

Tied

Specification

Commercial quality EPDM bellows intended primarily for HVAC water applications – LT heating, waste, sanitary, chilled.

Not suitable for drinking water, contaminated water or mineral oil products.

Materials

- Liner EPDM
- Reinforcement Nylon chord
- Cover EPDM
- Flanges Carbon steel, galvanised PN16

Rating

16 Barg @ 20°C to 6 Barg @ 95°C.
Vacuum rating 400 mmHg.

Size	Length	Axial Comp.	Axial Ext.	Lateral	Angular	Stock code
in.	mm	mm	mm	mm	degree	
DN032-1¼"	106	20	20	±30	± 7.5	R0032SF5AA16T
DN032-1¼"	130	30	20	±20	± 35	R0032SF15A16T
DN032-1¼"	150	12	9	±12	± 15	R0032SF10B16T
DN040-1½"	106	20	20	±30	± 7.5	R0040SF5AA16T
DN040-1½"	130	30	20	±20	± 35	R0040SF15A16T
DN040-1½"	150	12	9	±12	± 15	R0040SF10B16T
DN050-2"	106	20	20	±30	± 7.5	R0050SF5AA16T
DN050-2"	130	30	20	±20	± 35	R0050SF15A16T
DN050-2"	150	12	9	±12	± 15	R0050SF10B16T
DN065-2½"	106	20	20	±30	± 7.5	R0065SF5AA16T
DN065-2½"	130	30	20	±20	± 30	R0065SF15A16T
DN065-2½"	150	12	9	±12	± 15	R0065SF10B16T
DN080-3"	106	20	20	±30	± 7.5	R0080SF5AA16T
DN080-3"	130	30	20	±20	± 30	R0080SF15A16T
DN080-3"	150	12	9	±12	± 15	R0080SF10B16T
DN100-4"	106	20	20	±30	± 7.5	R0100SF5AA16T
DN100-4"	130	30	20	±20	± 25	R0100SF15A16T
DN100-4"	150	16	9	±12	± 15	R0100SF10B16T
DN125-5"	106	20	20	±30	± 7.5	R0125SF5AA16T
DN125-5"	130	30	20	±20	±25	R0125SF15A16T
DN125-5"	150	16	9	±12	±15	R0125SF10B16T
DN150-6"	106	20	20	±30	± 7.5	R0150SF5AA16T
DN150-6"	130	30	20	±20	± 15	R0150SF15A16T
DN150-6"	150	16	9	±12	± 15	R0150SF10B16T
DN200-8"	106	20	20	±30	± 5	R0200SF5AA16T
DN200-8"	130	30	20	±20	± 15	R0200SF15A16T
DN200-8"	150	16	9	±12	± 15	R0200SF10B16T
DN250-10"	106	20	20	±30	± 5	R0250SF5AA16T
DN250-10"	130	30	20	±20	± 10	R0250SF15A16T
DN250-10"	200	19	19	±19	± 15	R0250SF10E16T

Movements are non concurrent

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HVAC Union Rubber Bellows

Specification

Commercial quality EPDM bellows intended primarily for HVAC water applications - LT heating, waste, sanitary, chilled.

Not suitable for drinking water, contaminated water or mineral oil products.

Materials

- Liner EPDM
- Reinforcement Nylon chord
- Cover EPDM
- Union Iron, BSP

Rating

10 Barg @ 20 °C to 6 Barg @ 95 °C.
Vacuum rating 400 mmHg.

Size in.	Length mm	Axial Comp. mm	Axial Ext. mm	Lateral mm	Angular degree	Stock code
DN020-¾"	200	22	6	22	45	R0020FTUEBSP
DN025-1"	200	22	6	22	45	R0025FTUEBSP
DN032-1¼"	200	22	6	22	45	R0032FTUEBSP
DN040-1½"	200	22	6	22	45	R0040FTUEBSP
DN050-2"	200	22	6	22	45	R0050FTUEBSP
DN065-2½"	240	22	6	22	45	R0065FTUJBSP
DN080-3"	240	22	6	22	45	R0080FTUJBSP

Movements are non concurrent

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Elaflex Red Band / ERV-R

Specification

For water, drinking water (approval DVGW W 270, ACS as well as WRAS), cold and warm waste water, seawater, cooling water, also with chemical additives for water treatment, low concentrated acids and alkalis, salt solutions, technical alcohols, esters and ketones.

Not suitable for mineral oil products, cooling water with added oil containing corrosion preventatives, oily compressor air.

Materials

- Liner — Butyl (IIR)/EPDM, seamless, low permeation
- Reinforcement — PA textile cord, Butyl rubberized
- Cover — EPDM, ozone proof, heat resistant
- Marking — Red band, ERV DN .., PN .., production date
- Flanges◆ — Swivelling, DIN PN 10/16, carbon steel, zinc plated

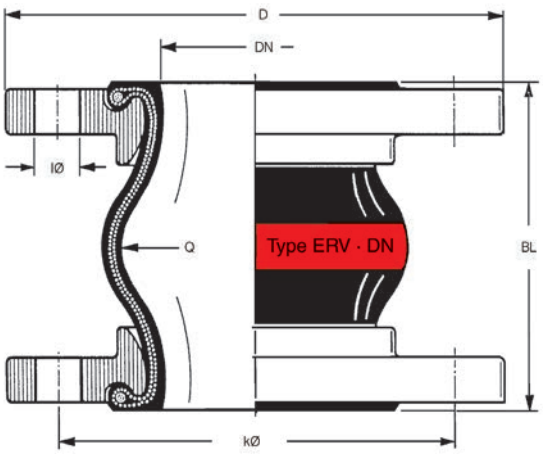
Operating conditions

Temperature range (depending on medium) -40°C up to +100°C, temporarily up to +120°C. Electrically dissipative.

Notes

◆ Table shows PN10/16 flanges – many other flange types are available

* For rubber expansion joints DN 25 bellows DN 32 are used



Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm ◆			Part number ◆
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	16	1.9	15	115	85	4 x 14	ERV-R 25.16 *
1 1/4"	32	130	16	3.4	15	140	100	4 x 18	ERV-R 32.16
1 1/4"	32	160	16	3.6	15	140	100	4 x 18	ERV-R 32x160.16
1 1/2"	40	130	16	4.0	20	150	110	4 x 18	ERV-R 40.16
1 1/2"	40	160	16	4.2	20	150	110	4 x 18	ERV-R 40x160.16
2"	50	130	16	4.6	30	165	125	4 x 18	ERV-R 50.16
2"	50	150	16	4.7	30	165	125	4 x 18	ERV-R 50x150.16
2"	50	160	16	4.8	30	165	125	4 x 18	ERV-R 50x160.16
2 1/2"	65	130	16	5.3	50	185	145	4 x 18	ERV-R 65.16
2 1/2"	65	150	16	5.4	50	185	145	4 x 18	ERV-R 65x150.16
2 1/2"	65	160	16	5.5	50	185	145	4 x 18	ERV-R 65x160.16
3"	80	130	16	6.9	85	200	160	8 x 18	ERV-R 80.16
3"	80	150	16	7.0	85	200	160	8 x 18	ERV-R 80x150.16
3"	80	160	16	7.1	85	200	160	8 x 18	ERV-R 80x160.16
4"	100	130	16	8.0	125	220	180	8 x 18	ERV-R 100.16
4"	100	150	16	8.1	125	220	180	8 x 18	ERV-R 100x150.16
4"	100	160	16	8.2	125	220	180	8 x 18	ERV-R 100x160.16
5"	125	130	16	9.9	185	250	210	8 x 18	ERV-R 125.16
5"	125	150	16	10.1	185	250	210	8 x 18	ERV-R 125x150.16
5"	125	160	16	10.2	185	250	210	8 x 18	ERV-R 125x160.16
6"	150	130	16	12.3	250	285	240	8 x 22	ERV-R 150.16
6"	150	150	16	12.4	250	285	240	8 x 22	ERV-R 150x150.16
6"	150	160	16	12.5	250	285	240	8 x 22	ERV-R 150x160.16
8"	200	130	16	16.5	400	340	295	8 x 22	ERV-R 200.10
8"	200	150	16	16.6	400	340	295	8 x 22	ERV-R 200x150.10
8"	200	160	16	16.7	400	340	295	8 x 22	ERV-R 200x160.10
8"	200	175	16	16.8	400	340	295	8 x 22	ERV-R 200x175.10
10"	250	130	16	21.6	600	395	350	12 x 22	ERV-R 250.10
10"	250	175	16	21.9	600	395	350	12 x 22	ERV-R 250x175.10
10"	250	200	10	22.1	600	395	350	12 x 22	ERV-R 250x200.10
12"	300	130	16	29.3	800	445	400	12 x 22	ERV-R 300.10
12"	300	200	10	29.8	800	445	400	12 x 22	ERV-R 300x200.10
14"	350	200	16	43.0	1000	505	460	16 x 22	ERV-R 350.10
16"	400	200	16	46.0	1375	565	515	16 x 26	ERV-R 400.10
18"	450	200	10	50.0	1780	615	565	20 x 26	ERV-R 450.10
18"	450	250	10	53.0	1780	615	565	20 x 26	ERV-R 450x250.10
20"	500	200	10	57.0	2185	670	620	20 x 26	ERV-R 500.10
24"	600	200	10	70.0	3080	780	725	20 x 30	ERV-R 600.10
28"	700	260	10	117.0	4800	895	840	24 x 30	ERV-R 700.10
32"	800	250	10	129.5	5440	1015	950	24 x 33	ERV-R 800.10
36"	900	300	10	184.0	7100	1115	1050	28 x 33	ERV-R 900.10
40"	1000	300	10	245.0	8700	1230	1160	28 x 36	ERV-R 1000.10

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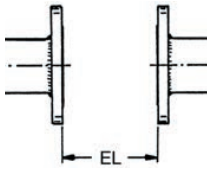
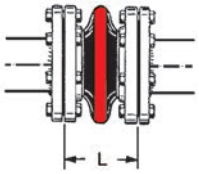
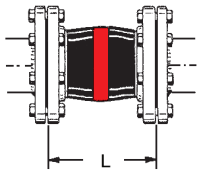
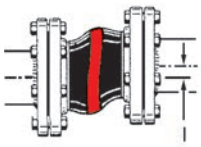
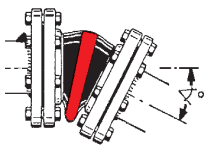
Elaflex Red Band / ERV-R

Range of movement

Red Band ERV-R					

Length	Bellow size	Installation length		Axial *		Lateral *	Angular *
BL	DN	EL min.	EL max.	L min.	L max.	l	∢
mm	mm	mm	mm	mm	mm	mm	degree
130	25-80	120	135	100	150	±30	±30
130	100-150	120	135	100	150	±30	±20
130	200	115	140	105	160	±30	±10
130	250-300	125	140	120	160	±15	± 5
150	50-200	140	160	115	180	±30	±15
160	32-200	150	170	130	195	±35	±15
175	200	165	185	160	210	±15	± 5
175	250	165	185	160	210	±10	± 5
200	250-300	190	210	160	235	±30	±10
200	350-600	190	210	160	235	±30	± 8
250	450	240	260	210	285	±35	±10
250	800	240	260	210	285	±35	± 5
260	700	250	270	220	290	±30	± 5
300	900-1000	290	310	260	340	±40	± 5

* Allowable static range of movement in service with usage of collar flanges up to 50°C

Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	-700	-600	-400	-300	-300	-300	-200	-100									
With VSD			max.	max.	max.	max.	max.	max.	-600	-400	-200									
With VSR							max.	max.	max.	max.	max.	max.	max.	-700	-700	-700				
With VSRV														max.	max.	max.	max.	-700	-700	-700

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41 of the Elaflex section).

For dependencies of overpressure, range of movement and temperature please see table on page 8 of the Elaflex section.

Approvals

These certificates can be obtained from sales@flexej.co.uk

There is an overview of all certificates on page 47 of the Elaflex section

Elaflex Rotex

Specification

For permanent use with hot heating water, cooling water and hot air. Approved according to DIN up to 100°C at 10 bar and up to 110°C at 6 bar.

Not suitable for drinking water, cooling water with oil containing additives, oily compressor air, permanent effect of steam.

Materials

- Liner — EPDM, hot water resistant, seamless, high abrasion resistance
- Reinforcement — Polymer textile cord, hot water and hydrolysis proof
- Cover — EPDM, ozone proof, heat resistant
- Marking — 2 red bands, ERV DN .., PN .., production date
- Flanges◆ — Swivelling, DIN PN 10/16, carbon steel, zinc plated

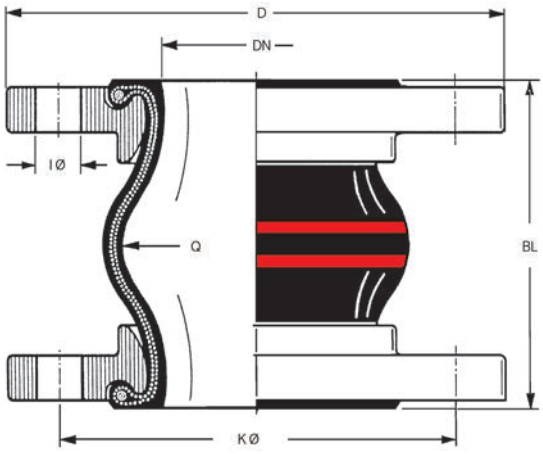
Operating conditions

Temperature range (depending on medium) -40°C up to +130°C, temporarily up to +150°C. Electrically dissipative.

Notes

◆ Table shows PN10/16 flanges – many other flange types are available

* For rubber expansion joints DN 25 bellows DN 32 are used



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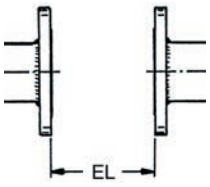
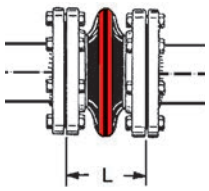
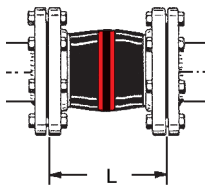
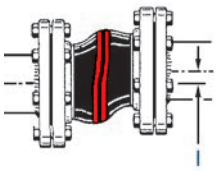
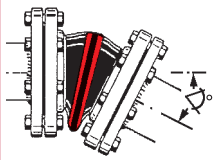
Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm◆			Part number◆
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	16	1.9	15	115	85	4 x 14	ROTEX 25.16 *
1¼"	32	130	16	3.4	15	140	100	4 x 18	ROTEX 32.16
1¼"	32	160	16	3.6	15	140	100	4 x 18	ROTEX 32x160.16
1½"	40	130	16	4.0	20	150	110	4 x 18	ROTEX 40.16
1½"	40	160	16	4.2	20	150	110	4 x 18	ROTEX 40x160.16
2"	50	130	16	4.6	30	165	125	4 x 18	ROTEX 50.16
2"	50	160	16	4.8	30	165	125	4 x 18	ROTEX 50x160.16
2½"	65	130	16	5.3	50	185	145	4 x 18	ROTEX 65.16
2½"	65	160	16	5.5	50	185	145	4 x 18	ROTEX 65x160.16
3"	80	130	16	6.9	85	200	160	8 x 18	ROTEX 80.16
3"	80	150	16	7.0	85	200	160	8 x 18	ROTEX 80x150.16
3"	80	160	16	7.1	85	200	160	8 x 18	ROTEX 80x160.16
4"	100	130	16	8.0	125	220	180	8 x 18	ROTEX 100.16
4"	100	150	16	8.1	125	220	180	8 x 18	ROTEX 100x150.16
4"	100	160	16	8.2	125	220	180	8 x 18	ROTEX 100x160.16
5"	125	130	16	9.8	185	250	210	8 x 18	ROTEX 125.16
5"	125	150	16	9.9	185	250	210	8 x 18	ROTEX 125x150.16
5"	125	160	16	10.0	185	250	210	8 x 18	ROTEX 125x160.16
6"	150	130	16	12.3	250	285	240	8 x 22	ROTEX 150.16
6"	150	150	16	12.4	250	285	240	8 x 22	ROTEX 150x150.16
6"	150	160	16	12.5	250	285	240	8 x 22	ROTEX 150x160.16
8"	200	130	16	16.5	400	340	295	8 x 22	ROTEX 200.10
8"	200	150	16	16.6	400	340	295	8 x 22	ROTEX 200x150.10
8"	200	160	16	16.7	400	340	295	8 x 22	ROTEX 200x160.10
8"	200	175	16	16.8	400	340	295	8 x 22	ROTEX 200x175.10
10"	250	130	16	21.6	600	395	350	12 x 22	ROTEX 250.10
10"	250	175	16	21.9	600	395	350	12 x 22	ROTEX 250x175.10
10"	250	200	10	22.1	600	395	350	12 x 22	ROTEX 250x200.10
12"	300	130	16	29.3	800	445	400	12 x 22	ROTEX 300.10
12"	300	200	10	29.7	800	445	400	12 x 22	ROTEX 300x200.10
14"	350	200	16	43.0	1000	505	460	16 x 22	ROTEX 350.10
16"	400	200	16	46.0	1375	565	515	16 x 26	ROTEX 400.10
18"	450	200	10	50.0	1780	615	565	20 x 26	ROTEX 450.10
18"	450	250	10	53.0	1780	615	565	20 x 26	ROTEX 450x250.10
20"	500	200	10	57.0	2185	670	620	20 x 26	ROTEX 500.10
24"	600	200	10	70.0	3080	780	725	20 x 30	ROTEX 600.10
28"	700	260	10	117.0	4800	895	840	24 x 30	ROTEX 700.10
32"	800	250	10	129.5	5440	1015	950	24 x 33	ROTEX 800.10
36"	900	300	10	184.0	7100	1115	1050	28 x 33	ROTEX 900.10
40"	1000	300	10	245.0	8700	1230	1160	28 x 36	ROTEX 1000.10

Elaflex Rotex
Range of movement

Rotex					

Length	Bellow size	Installation length		Axial *		Lateral *	Angular *
BL	DN	EL min.	EL max.	L min.	L max.	l	∢
mm	mm	mm	mm	mm	mm	mm	degree
130	25-80	120	135	100	150	±30	±30
130	100-150	120	135	100	150	±30	±20
130	200	115	140	105	160	±25	±10
130	250-300	125	140	115	160	±25	± 5
150	80-200	140	160	120	170	±30	±15
160	32-200	150	170	130	185	±25	±15
175	200-250	165	185	145	205	±30	±10
200	250-300	190	210	170	225	±25	±10
200	350-600	190	210	160	225	±25	± 8
250	450	240	260	210	280	±25	±10
250	800	240	260	210	280	±25	± 5
260	700	250	270	220	290	±25	± 5
300	900-1000	290	310	260	335	±30	± 5

* Allowable static range of movement in service with usage of collar flanges up to 70°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	-700	-600	-400	-300	-300	-300	-200	-100									
With VSD			max.	max.	max.	max.	max.	max.	-600	-400	-200									
With VSR							max.	max.	max.	max.	max.	max.	max.	-700	-700	-700				
With VSRV														max.	max.	max.	max.	-700	-700	-700

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41 of the Elaflex section).

For dependencies of overpressure, range of movement and temperature please see table on page 8 of the Elaflex section.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47 of the Elaflex section

Elaflex Red Spot / ERP

Specification

For sanitary installations, highly flexible for cold and warm water, pool water, sea water and drinking water (WRAS approved).

Not suitable for all kinds of mineral oil products, cooling water with added oil containing corrosion preventatives, oily compressor air, for permanent working pressure > 10 bar.

Materials

- Liner — Butyl (IIR)/EPDM, seamless
- Reinforcement — PA textile cord
- Cover — EPDM
- Marking — Red spot, ERV DN .., PN 10, production date
- Flanges◆ — Swivelling, DIN PN 10 carbon steel, zinc plated

Operating conditions

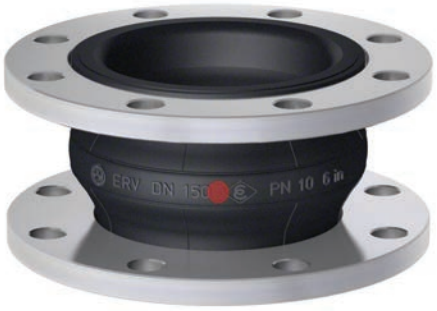
Temperature range (depending on medium) -40°C up to +90°C, temporarily up to +120°C. Electrically dissipative.

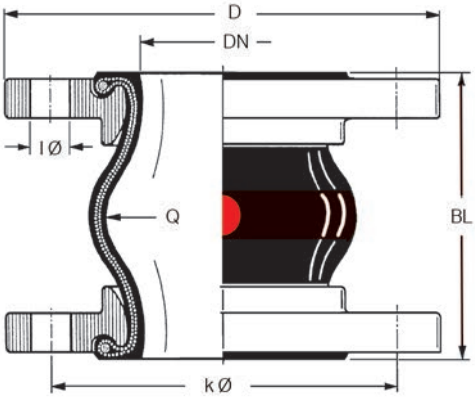
Notes

◆ Table shows PN10/16 flanges – many other flange types are available

★ For rubber expansion joints DN 25 bellows DN 32 are used

Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm◆			Part number◆
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	10	1.8	15	115	85	4 x 14	ERP 25.10★
1¼"	32	130	10	3.3	15	140	100	4 x 18	ERP 32.10
1½"	40	130	10	3.9	20	150	110	4 x 18	ERP 40.10
2"	50	130	10	4.5	30	165	125	4 x 18	ERP 50.10
2½"	65	130	10	5.2	50	185	145	4 x 18	ERP 65.10
3"	80	130	10	6.8	85	200	160	8 x 18	ERP 80.10
4"	100	130	10	7.9	125	220	180	8 x 18	ERP 100.10
5"	125	130	10	9.8	185	250	210	8 x 18	ERP 125.10
6"	150	130	10	12.2	250	285	240	8 x 22	ERP 150.10





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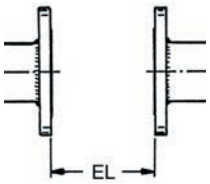
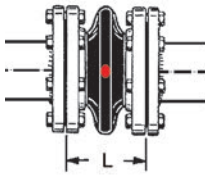
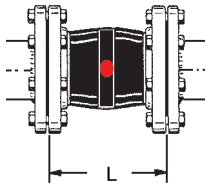
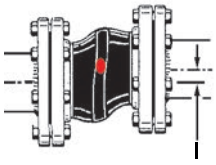
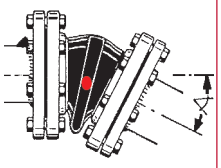
Elaflex Red Spot / ERP

Range of movement

Red Spot ERP							
Length	**Bellow size**	**Installation length**		**Axial ***		**Lateral ***	**Angular ***
BL	**DN**	**EL min.**	**EL max.**	**L min.**	**L max.**	**I**	**$\sphericalangle$**
mm	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**degree**
130	25-80	120	135	100	150	± 30	± 30
	100-150	120	135	100	150	± 30	± 20

* Allowable static range of movement in service with usage of collar flanges up to 50°C

Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
Without VSD/VSR	-300	-300	-300	-300	-200	-200	-200	-100											
With VSD			-500	-500	-400	-400	-400	-300											
With VSR							-500	-400											

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41 of the Elaflex section).

For dependencies of overpressure, range of movement and temperature please see table on page 8 of the Elaflex section.

Approvals

These certificates can be obtained from sales@flexej.co.uk

There is an overview of all certificates on page 47 of the Elaflex section

DNV·GL

WRAS Water Regulations Advisory Scheme

HVAC Metal Bellows
Copper End Axial Expansion Joints

Specification

Copper ended with 316 stainless steel bellows intended primarily for HVAC water applications – LTHW, heating and drinking water. WRAS approved.

Materials

- Ends — Copper BS EN1057 Table 'X'
- Bellows — 316 stainless steel

Rating

6 Barg @ 90 °C

Approvals

Size	Length	Axial Comp.	Axial Ext.	Copper pipe size	Stock code
in.	mm	mm	mm	mm	
DN012-½"	220	25	0	15	MRCA12X220X6X25
DN020-¾"	230	25	0	22	MRCA20X230X6X25
DN025-1"	235	25	0	28	MRCA25X235X6X25
DN032-1¼"	245	25	0	35	MRCA32X245X6X25
DN040-1½"	250	25	0	42	MRCA40X250X6X25
DN050-2"	250	25	0	54	MRCA50X250X6X25

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HVAC Metal Bellows
Union End Axial Expansion Joints

Specification

Union ended with 316 stainless steel bellows intended primarily for HVAC water applications – HTHW, heating.

Not suitable for drinking water.

Materials

- Ends — Iron swivel unions BSP
- Bellows — 316 stainless steel

Rating

6 Barg @ 150 °C

Size	Length	Axial Comp.	Axial Ext.	Stock code
in.	mm	mm	mm	
DN012-½"	181	25	0	MRUA12X181X6X25
DN020-¾"	187	25	0	MRUA20X187X6X25
DN025-1"	191	25	0	MRUA25X191X6X25
DN032-1¼"	207	25	0	MRUA32X207X6X25
DN040-1½"	215	25	0	MRUA40X215X6X25
DN050-2"	229	25	0	MRUA50X229X6X25

Product by FlexEJ Ltd

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HVAC Metal Bellows
Flanged Axial & Pump Expansion Joints

Specification

Stainless steel 321 bellows designed for 1000 EJMA cycles with carbon steel PN16 flanges. Intended primarily for HVAC water applications – HTHW, LTHW, heating, steam.

Not suitable for drinking water.

For axial pipe movement or lateral movement – pump applications. Available with tied or untied flanges. Internal flow liner optional.

Materials

- Bellows 321 stainless steel
- Liner* Stainless steel
- Flanges PN16, carbon steel

Rating

10 Barg @ 110°C

Please contact sales if you require a higher temperature or pressure. Longer lengths available to order.

* Optional

Size in.	Length mm	Axial mm	Stock code Untied – Axial
DN050-2"	130	±10	HVFA0050PN16U
DN065-2½"	130	±13	HVFA0065PN16U
DN080-3"	130	±14	HVFA0080PN16U
DN100-4"	150	±15	HVFA0100PN16U
DN150-6"	150	±19	HVFA0150PN16U

Size in.	Length mm	Lateral mm	Stock code Untied – Pump
DN050-2"	130	±3	HVFP0050PN16U
DN065-2½"	130	±3	HVFP0065PN16U
DN080-3"	130	±3	HVFP0080PN16U
DN100-4"	150	±3	HVFP0100PN16U
DN150-6"	150	±3	HVFP0150PN16U

Size in.	Length mm	Lateral mm	Stock code Tied – Pump
DN050-2"	130	±3	HVFP0050PN16T
DN065-2½"	130	±3	HVFP0065PN16T
DN080-3"	130	±3	HVFP0080PN16T
DN100-4"	150	±3	HVFP0100PN16T
DN150-6"	150	±3	HVFP0150PN16T

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Product comparison table

	HVAC Flanged	Red Spot	Red Band	Rotex	HVAC Union	Union End	Copper End	Axial	Pump
									
DN: from to	**32 250**	**25 150**	**25 1000**	**25 1000**	**20 80**	**12 50**	**12 50**	**50 150**	**50 150**
EPDM Bellows	✓	✓	✓	✓	✓				
Stainless Steel Bellows						✓	✓	✓	✓
Flanged/Standard	PN16	Any	Any	Any				PN16	PN16
Union BSP Female					✓	✓			
Copper Pipe End							✓		
WRAS Approved for Potable Water		✓	✓				✓		
Heating Water			✓	✓		✓	✓	✓	✓
DIN 4809 Approved				✓					
Movements: Axial Compression	✓	✓	✓	✓	✓	✓	✓	✓	
Axial Extension	✓	✓	✓	✓	✓			✓	
Lateral	✓	✓	✓	✓	✓				✓
Angular	✓	✓	✓	✓	✓				
Rating Barg / °C: from	16 / 20	10 / 50	16 / 50	16 / 70	16 / 20	6 / 20	6 / 20	10 / 20	10 / 20
to	6 / 95	6 / 100	10 / 100	8 / 130	16 / 180	6 / 150	6 / 90	10 / 110	10 / 110
See full product information on page	04-05	11	07	09	06	14	13	15	15

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PE(S)R – PED

Following Brexit the Pressure Equipment Directive – PED (with CE marking) became the Pressure Equipment (Safety) Regulations – PE(S)R (with UKCA marking).

Currently the requirements of PE(S)R are essentially the same as the PED.

It is FlexEJ's responsibility to apply the PE(S)R to any pressure equipment we supply. Applications fall into three broad areas:

- **Exempt**: Outside the scope of the PE(S)R – some specific applications, like for like repairs and any application with ≤ 0.5 barg internal pressure. Not UKCA (or CE) marked.
- **Sound Engineering Practice (SEP)**: Applications falling within the scope of the PE(S)R but not categorised. Not UKCA (or CE) marked.
- **Category I-IV**: Specific requirements per category. UKCA marked.

The PE(S)R assessment of each application and item of pressure equipment is based on the application working fluid, design pressure and the equipment volume or diameter as appropriate. Application design temperature is also an important factor in determining the vapour pressure of liquids.

The application media are grouped as follows:

- **Fluid Group 1**
  'Dangerous substances': explosive; extremely flammable; highly flammable; flammable (where the maximum allowable temperature is above flashpoint); very toxic; toxic; oxidising.
- **Fluid Group 2**
  All other fluids including steam.
- **State**
  Gas or liquid: if a fluid has a vapour pressure at the maximum allowable temperature of the equipment of greater than 0.5 barg it is treated as a gas. (Note that water >110C has a vapour pressure >0.5 barg.)

PE(S)R assessment of products in this catalogue

See table opposite. Any Group 1 and/or gas applications must be made known to FlexEJ.

Enquiries

When you contact sales we will ask you for the minimum details required to allow the PE(S)R assessment to be made. We will then quote accordingly.

FlexEJ has dual certification – we can design and manufacture pressure equipment to both PE(S)R with UKCA mark and/or PED with CE mark.

	Group 2 Liquid Media Assessment				
Range	Page	P barg	T C	DN	Category
FlexEJ Rubber Bellows	4–6	16	20	≤250	SEP
Elaflex Red Band Rubber Bellows	7	16	50	≤300	SEP
		16	50	350, 400	Cat I
		10	50	>400	SEP
Elaflex Rotex Rubber Bellows	9	16	50	≤300	SEP
		16	50	350, 400	Cat I
		10	50	>400	SEP
Elaflex Red Spot Rubber Bellows	11	10	50	≤150	SEP
FlexEJ Copper Metal Bellows	13	6	90	≤50	SEP
FlexEJ Union End Metal Bellows	14	6	110	≤50	SEP
FlexEJ Flanged Metal Bellows	15	10	110	≤150	SEP
FlexEJ Air / Dirt / Air+Dirt Separators	19–21	10	110	≤150	SEP
FlexEJ HP Low Loss Headers	22	10	110	≤150	SEP
FlexEJ LP Low Loss Headers	24–26	6	110	≤65	SEP
	Group 2 Gas Media Assessment (based on water)				
Range	Page	P barg	T C	DN	Category
FlexEJ Union End Metal Bellows	14	6	150	≤50	SEP
Elaflex Rotex Rubber Bellows	9	8	130	≤125	SEP
		8	130	150–400	Cat I
		5	130	450–700	Cat I
		5	130	≥750	Cat II

Product by FlexEJ Ltd

For technical assistance & sales
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Bolt Packs

Specification

Carbon Steel BZP bolts to ISO898 Gr8.8

Pack contains the quantity for two pairs of flanges – so one pack is required to install one expansion joint.

Flange	Pipe size	Bolt	Pack quantity 2 flange pairs	Stock code
PN6	DN25-1″	M10x50	8	IBLX403
PN6	DN32-1¼″	M12x50	8	HHLX746
PN6	DN40-1½″	M12x50	8	HHLX746
PN6	DN50-2″	M12x60	8	HHLX749
PN6	DN65-2½″	M12x60	8	HHLX749
PN6	DN80-3″	M16x60	8	HHLX740
PN6	DN100-4″	M16x60	8	HHLX740
PN6	DN125-5″	M16x70	16	HHLX743
PN6	DN150-6″	M16x70	16	HHLX743
PN6	DN200-8″	M16x70	16	HHLX743
PN10	DN32-1¼″	M16x60	8	HHLX740
PN10	DN40-1½″	M16x60	8	HHLX740
PN10	DN50-2″	M16x60	8	HHLX740
PN10	DN65-2½″	M16x60	8	HHLX740
PN10	DN80-3″	M16x70	16	HHLX743
PN10	DN100-4″	M16x70	16	HHLX743
PN10	DN125-5″	M16x70	16	HHLX743
PN10	DN150-6″	M20x70	16	HHLX744
PN10	DN200-8″	M20x70	16	HHLX744
PN10	DN250-10″	M20x80	24	HHLX745
PN10	DN300-12″	M20x80	24	HHLX745
PN16	DN32-1¼″	M16x60	8	HHLX740
PN16	DN40-1½″	M16x60	8	HHLX740
PN16	DN50-2″	M16x60	8	HHLX740
PN16	DN65-2½″	M16x60	8	HHLX740
PN16	DN80-3″	M16x70	16	HHLX743
PN16	DN100-4″	M16x70	16	HHLX743
PN16	DN125-5″	M16x70	16	HHLX743
PN16	DN150-6″	M20x70	16	HHLX744

Gasket Packs

Specification

Non Asbestos Composite to BS7531

Pack contains the quantity for two pairs of flanges – so one pack is required to install one expansion joint.

Gaskets are not required for installing rubber expansion joints, the rubber face acts as the gasket when mated with a suitable pipe flange.

Flange	Pipe size	Pack quantity 2 flange pairs	Stock code
PN6	DN65-2½″	2	FRG006506BS
PN10	DN32-1¼″	2	FRG003216BS
PN10	DN40-1½″	2	FRG004016BS
PN10	DN50-2″	2	FRG005016BS
PN10	DN65-2½″	2	FRG006516BS
PN10	DN80-3″	2	FRG008016BS
PN10	DN100-4″	2	FRG010016BS
PN10	DN125-5″	2	FRG012516BS
PN10	DN150-6″	2	FRG015016BS
PN16	DN32-1¼″	2	FRG003216BS
PN16	DN40-1½″	2	FRG004016BS
PN16	DN50-2″	2	FRG005016BS
PN16	DN65-2½″	2	FRG006516BS
PN16	DN80-3″	2	FRG008016BS
PN16	DN100-4″	2	FRG010016BS
PN16	DN125-5″	2	FRG012516BS
PN16	DN150-6″	2	FRG015016BS
PN16	DN200-8″	2	FRG020016BS
PN16	DN250-10″	2	FRG025016BS
PN16	DN300-12″	2	FRG030016BS

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Air Separators

Specification

Carbon steel body, flanged PN16, with stainless steel air bubble coalescing brush, Flamco Flexvent AAV and drain plug. For removal of air in closed HVAC heating water and cooling water systems.

Not suitable for drinking water.

Materials

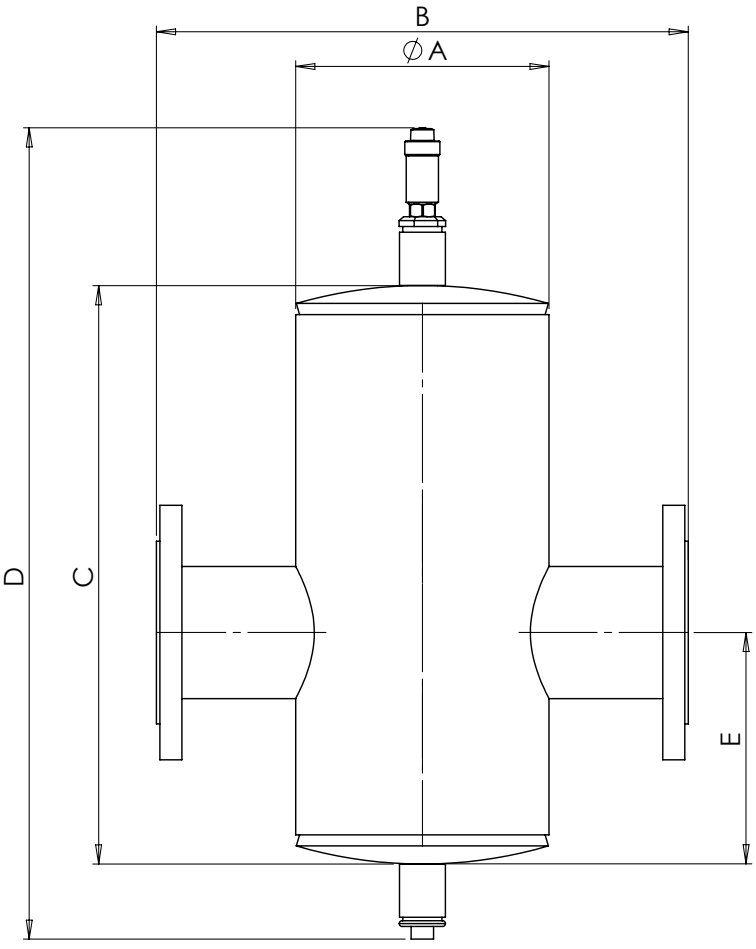
- Body — Carbon steel
- Internals — Stainless steel
- Flanges — PN16, carbon steel

Rating

10 Barg @ 110°C

Size in.	Length mm	Body size	Height mm	Stock code
DN050-2"	350	DN150	555	FEJA050
DN065-2½"	350	DN150	555	FEJA065
DN080-3"	460	DN200	705	FEJA080
DN100-4"	460	DN200	705	FEJA100
DN125-5"	630	DN250	975	FEJA125
DN150-6"	630	DN300	975	FEJA150

DN	DIM 'A'	DIM 'B'	DIM 'C'	DIM 'D'	DIM 'E'
50	165	350	350	555	125
65	165	350	350	555	125
80	219	460	500	705	200
100	219	460	500	705	200
125	273	630	770	975	335
150	324	630	770	975	335



Product by FlexEJ Ltd

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Dirt Separators

Specification

Carbon steel body, flanged PN16, with stainless steel brush, vent plug and DN25 drain valve. For removal of dirt in closed HVAC heating water and cooling water systems.

Not suitable for drinking water.

Materials

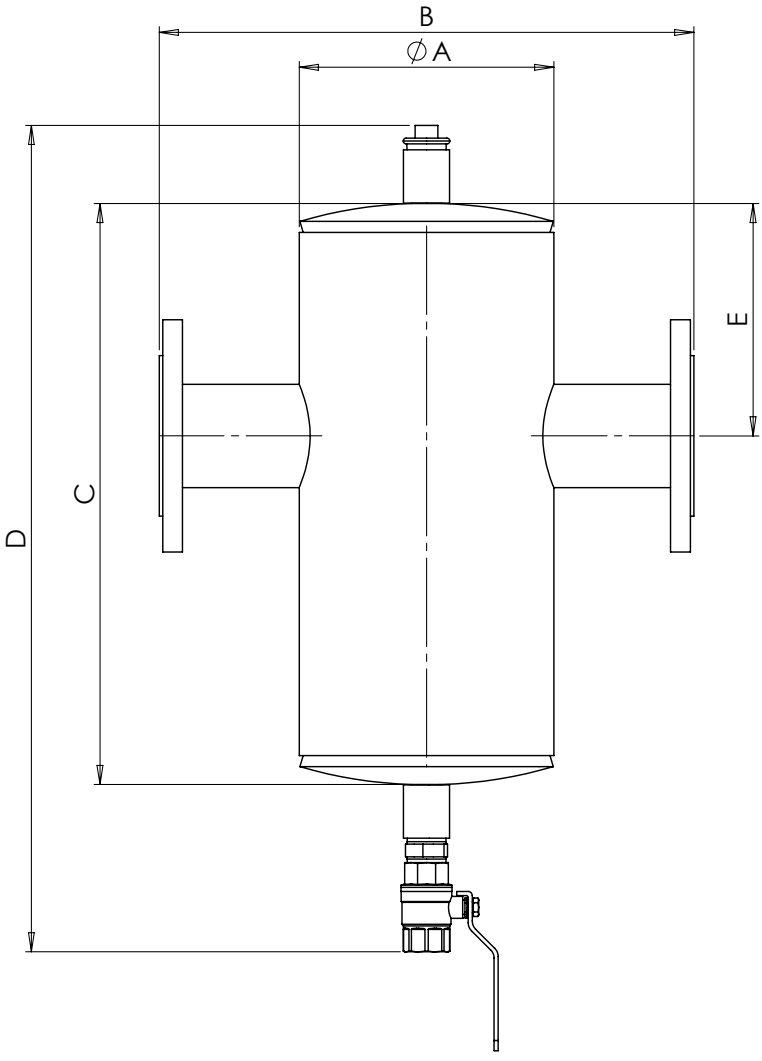
- Body — Carbon steel
- Internals — Stainless steel
- Flanges — PN16, carbon steel

Rating

10 Barg @ 110°C

Size in.	Length mm	Body size	Height mm	Stock code
DN050-2"	350	DN150	560	FEJD050
DN065-2½"	350	DN150	560	FEJD065
DN080-3"	460	DN200	710	FEJD080
DN100-4"	460	DN200	710	FEJD100
DN125-5"	630	DN250	980	FEJD125
DN150-6"	630	DN300	980	FEJD150

DN	DIM 'A'	DIM 'B'	DIM 'C'	DIM 'D'	DIM 'E'
50	165	350	350	560	125
65	165	350	350	560	125
80	219	460	500	710	200
100	219	460	500	710	200
125	273	630	770	980	335
150	324	630	770	980	335



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e: sales@flexej.co.uk

Air & Dirt Separators

Specification

Carbon steel body, flanged PN16 (except DN32 & DN40), with stainless steel air bubble coalescing brush, Flamco Flexvent AAV and DN25 drain valve. For removal of air & dirt in closed HVAC heating water and cooling water systems.

Not suitable for drinking water.

Materials

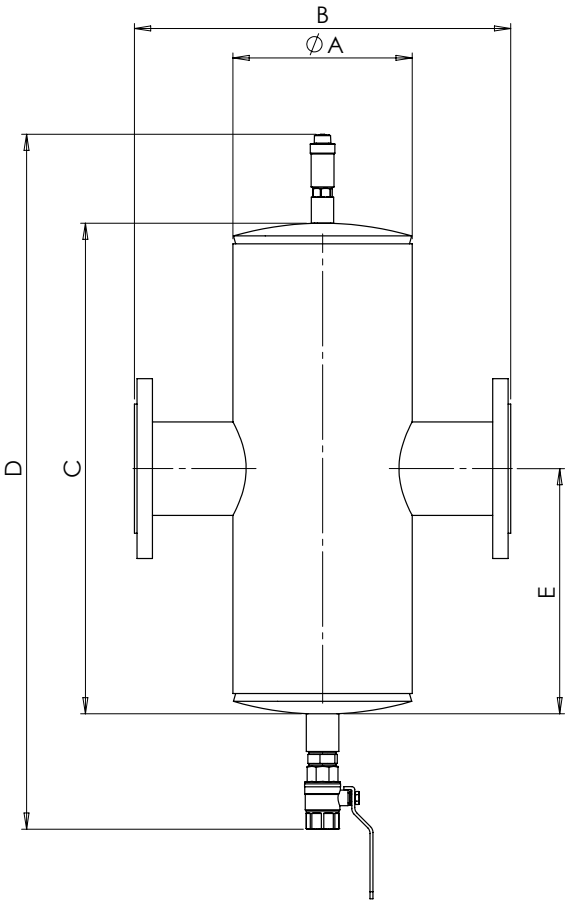
- Body — Carbon steel
- Internals — Stainless steel
- Connection — DN32-DN40 threaded BSPT male carbon steel
  DN50-DN150 flanged PN16 carbon steel

Rating

10 Barg @ 110°C

Size in.	Length mm	Body size	Height mm	Stock code
DN32-1¼"	300	DN100	665	FEJAXD032
DN40-1½"	300	DN100	665	FEJAXD040
DN50-2"	350	DN150	705	FEJAXD050
DN65-2½"	350	DN150	705	FEJAXD065
DN80-3"	460	DN200	855	FEJAXD080
DN100-4"	460	DN200	855	FEJAXD100
DN125-5"	630	DN250	1125	FEJAXD125
DN150-6"	630	DN300	1125	FEJAXD150

DN	DIM 'A'	DIM 'B'	DIM 'C'	DIM 'D'	DIM 'E'
32	114	300	416	665	208
40	114	300	416	665	208
50	165	350	450	705	225
65	165	350	450	705	225
80	219	460	600	855	300
100	219	460	600	855	300
125	273	630	870	1125	435
150	324	630	870	1125	435



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e: sales@flexej.co.uk

Low Loss Headers – High Power

Specification

Carbon steel body, flanged PN16 with Flamco Flexvent AAV and DN25 drain valve. A low loss header decouples the boiler from the system. This allows the boilers/boiler circuit flow to optimise at best efficiency for any system conditions. For closed HVAC heating systems.

Not suitable for drinking water.

Materials

- Body — Carbon steel
- Internals — –
- Flanges — PN16, carbon steel

Rating

10 Barg @ 110°C

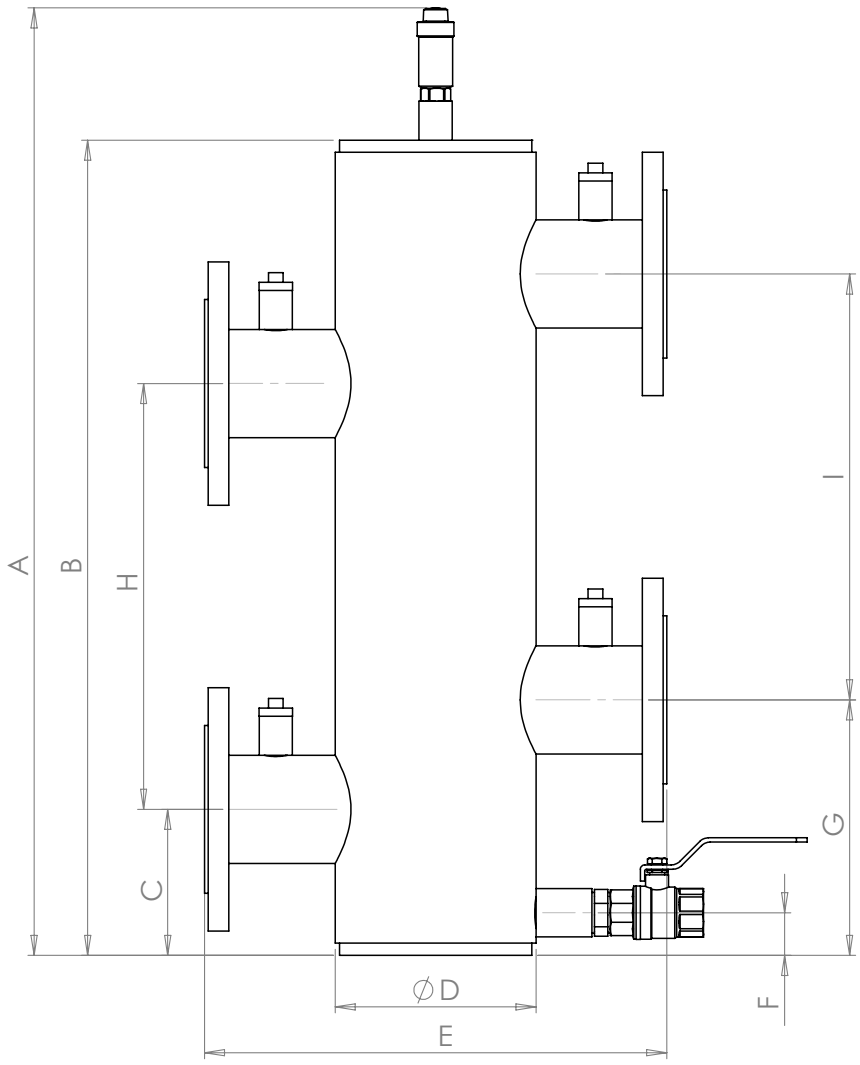
The table shows performance for the FlexEJ Low Loss Headers with a 20°C temperature difference at a flow rate typical for the connection size.

Options

- Insulation jacket (see page 23).

Size	Body size	Flow	Power	Product code
DN	DN mm	m³/h	kW	
DN050-2"	100	8.6	200	FEJLLH050
DN065-2½"	125	13.3	310	FEJLLH065
DN080-3"	150	18.9	440	FEJLLH080
DN100-4"	200	34.0	790	FEJLLH100
DN125-5"	250	52.9	1,230	FEJLLH125
DN150-6"	250	63.6	1,480	FEJLLH150

DN	DIM 'A'	DIM 'B'	DIM 'C'	DIM 'D'	DIM 'E'	DIM 'F'	DIM 'G'	DIM 'H'	DIM 'I'
50	690	582	96	114	320	31	191	300	300
65	710	602	106	140	355	31	201	300	300
80	780	670	120	165	380	35	210	350	350
100	920	810	130	219	380	35	235	450	450
125	1025	915	143	273	430	38	278	500	500
150	1150	1035	163	273	430	38	323	550	550



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Low Loss Headers – High Power Insulation

Specification

Very flexible filled glass cloth insulation jacket with Velcro hook and loop flaps plus draw cords.

May be fitted to the Low Loss Header when all piping is complete and is easily removed/reinstalled for maintenance.

Materials

- Silicone coated 530 g/m2 e-glass cloth inner and outer, black
- Mineral rock fibre blanket filler 0.040 W/mK

Rating

110°C

Fire Classification: A1 to EN 13501-1

LLH Stock code	Insulation Stock code
FEJLLH050	FEJLLH050INS
FEJLLH065	FEJLLH065INS
FEJLLH080	FEJLLH080INS
FEJLLH100	FEJLLH100INS
FEJLLH125	FEJLLH125INS
FEJLLH150	FEJLLH150INS

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Low Loss Headers – Low Power
DN20–DN25

Specification

Carbon steel body, BSPP female threaded system connections. Plugged air vent and drain connections.

A low loss header decouples the boiler from the system. This allows the boilers/boiler circuit flow to optimise at best efficiency for any system conditions. For closed HVAC heating systems.

Not suitable for drinking water.

Materials

- Body Carbon steel
- Internals –
- Connection BSPP female, carbon steel

Rating

6 Barg @ 110°C

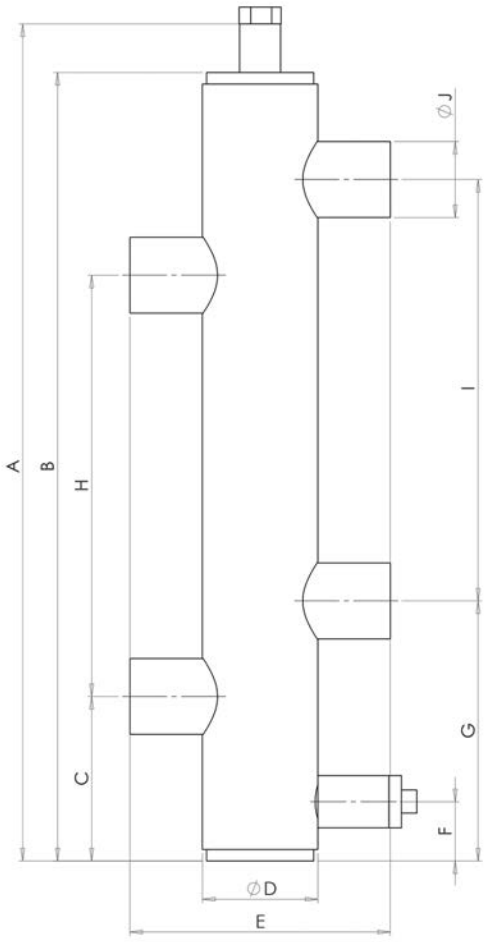
The table shows performance for the FlexEJ Low Loss Headers with a 20°C temperature difference at a flow rate typical for the connection size.

Options

- Valves set including Flamco AAV and drain valve
- Insulation jacket (see page 27)
- Horizontal header – connection manifold (see page 28)

Size	Body size DN mm	Flow m³/h	Power kW	Product code
DN20-¾"	40	1.3	30	FEJLLH020BSP
DN25-1"	50	2	50	FEJLLH025BSP

DN	DIM 'A'	DIM 'B'	DIM 'C'	DIM 'D'	DIM 'E'	DIM 'F'	DIM 'G'	DIM 'H'	DIM 'I'	DIM 'J'
20	437	412	86	48	112	31	136	220	220	socket thread G¾"
25	437	412	86	60	136	31	136	220	220	socket thread G1"



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Low Loss Headers – Low Power
DN32–DN50

Specification

Carbon steel body, BSPT male threaded system connections. Plugged air vent and drain connections. Brass thermocouple pocket and clip fitted in ½" socket.

A low loss header decouples the boiler from the system. This allows the boilers/boiler circuit flow to optimise at best efficiency for any system conditions. For closed HVAC heating systems.

Not suitable for drinking water.

Materials

- Body Carbon steel
- Internals –
- Connection BSPT male, carbon steel

Rating

6 Barg @ 110°C

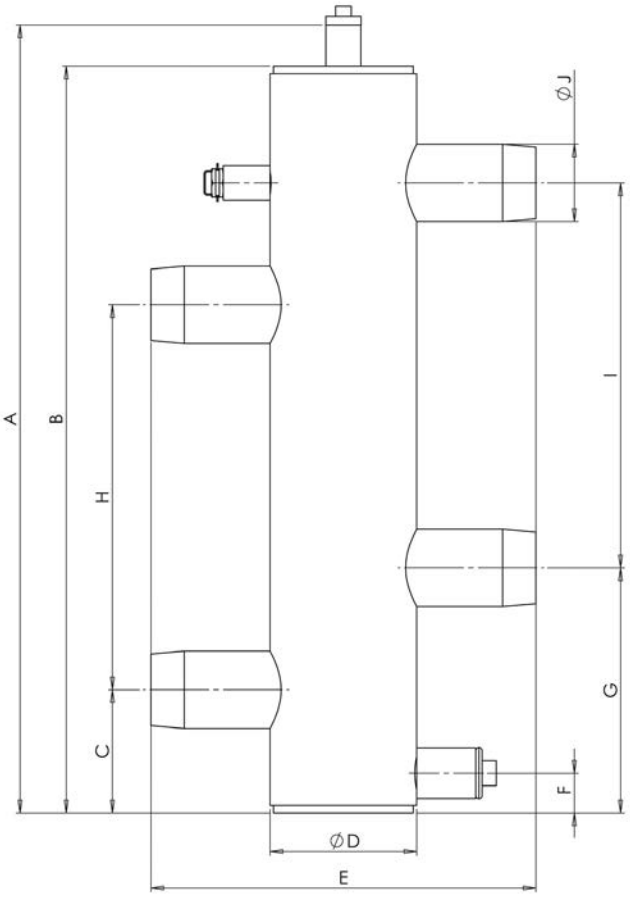
The table shows performance for the FlexEJ Low Loss Headers with a 20°C temperature difference at a flow rate typical for the connection size.

Options

- Valves set including Flamco AAV and drain valve
- Insulation jacket (see page 27)
- Horizontal header – connection manifold (see page 28)

Size	Body size DN mm	Flow m³/h	Power kW	Product code
DN32-R1¼"	65	3.0	70	FEJLLH032BSP
DN40-R1½"	80	4.7	110	FEJLLH040BSP
DN50-R2"	100	6.9	160	FEJLLH050BSP

DN	DIM 'A'	DIM 'B'	DIM 'C'	DIM 'D'	DIM 'E'	DIM 'F'	DIM 'G'	DIM 'H'	DIM 'I'	DIM 'J'
32	614	582	96	76	250	31	191	300	300	pipe thread R1¼"
40	614	582	96	88	270	31	191	300	300	pipe thread R1½"
50	614	582	96	114	300	31	191	300	300	pipe thread R2"



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Low Loss Headers – Low Power
DN65 PN6

Size	Body size DN mm	Flow m³/h	Power kW	Product code
DN65-2½"	125	12.0	280	FEJLLH065PN6

DN	DIM 'A'	DIM 'B'	DIM 'C'	DIM 'D'	DIM 'E'	DIM 'F'	DIM 'G'	DIM 'H'	DIM 'I'	DIM 'J'
65	634	602	106	139	356	31	201	300	300	flange DN65, PN6

Specification

Carbon steel body, DN65 PN6 flanged system connections. Plugged air vent and drain connections. Brass thermocouple pocket and clip fitted in ½" socket.

A low loss header decouples the boiler from the system. This allows the boilers/boiler circuit flow to optimise at best efficiency for any system conditions. For closed HVAC heating systems.

Not suitable for drinking water.

Materials

- Body — Carbon steel
- Internals — –
- Connection — DN65 PN6 flange, carbon steel

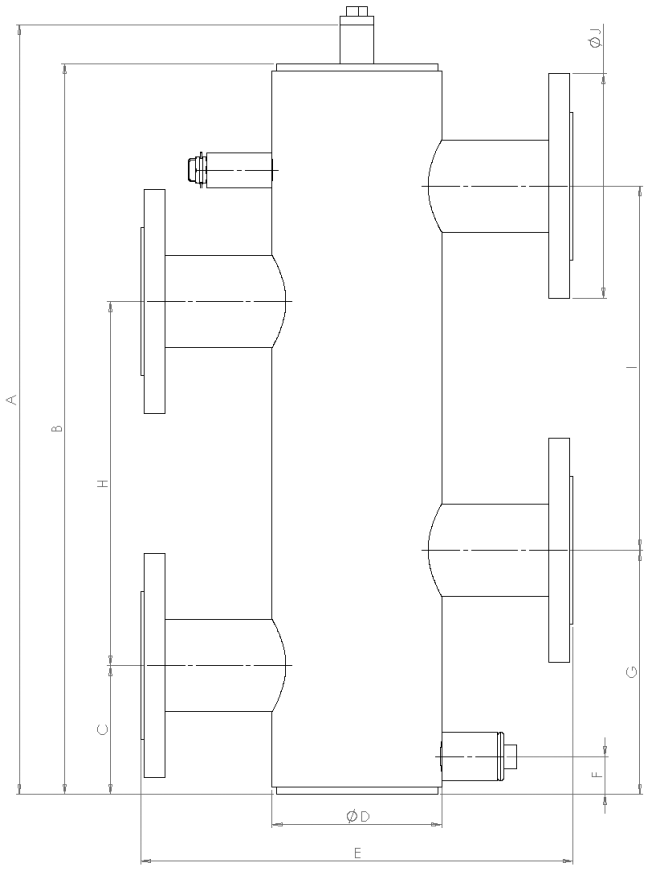
Rating

6 Barg @ 110°C

The table shows performance for the FlexEJ Low Loss Headers with a 20°C temperature difference at a flow rate typical for the connection size.

Options

- Valves set including Flamco AAV and drain valve
- Insulation jacket (see page 27)



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Low Loss Headers – Low Power Insulation

Specification

Very flexible filled glass cloth insulation jacket with Velcro hook and loop flaps plus draw cords.

May be fitted to the Low Loss Header when all piping is complete and is easily removed / reinstalled for maintenance.

Materials

- Silicone coated 530 g/m2 e-glass cloth inner and outer, black
- Mineral rock fibre blanket filler 0.040 W/mK

Rating

110°C

Fire Classification: A1 to EN 13501-1

LLH Stock code	Insulation Stock code
FEJLLH020BSP	FEJLLH020BSPINS
FEJLLH025BSP	FEJLLH025BSPINS
FEJLLH032BSP	FEJLLH032BSPINS
FEJLLH040BSP	FEJLLH040BSPINS
FEJLLH050BSP	FEJLLH050BSPINS
FEJLLH065PN6	FEJLLH065PN6INS

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Low Loss Headers – Low Power Manifolds

Specification

Carbon steel pipe with BSPT male threaded system connections. Supplied with MAC Union (male for DN20 & DN25 and female for DN32 to DN50) for connection to the Low Loss Header, one header cap and one system cap.

Manifolds may be daisy chained to provide additional system connections.

Supplied as pairs.

Not suitable for drinking water.

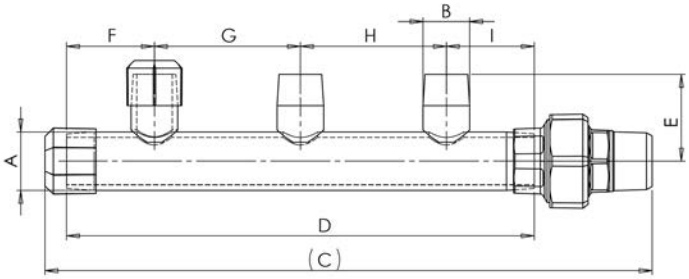
Materials

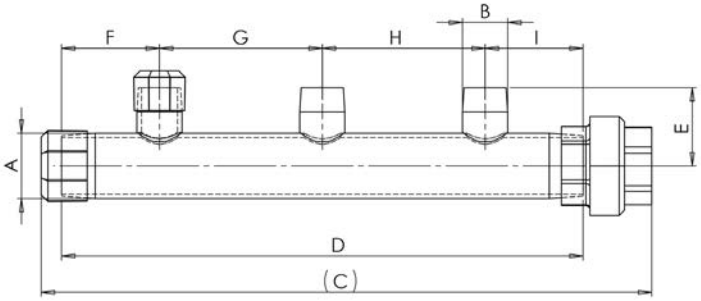
- Pipe — Carbon steel
- Internals — –
- Connection — BSPT male, carbon steel, pipe caps and union (male for DN20 & DN25 and female for DN32 to DN50) cast iron

Rating

6 Barg @ 110°C

DIM 'A'	DIM 'B'	DIM 'C'	DIM 'D'	DIM 'E'	DIM 'F'	DIM 'G'	DIM 'H'	DIM 'I'	Stock code
DN20	DN20	288	215	45	40	67	67	40	FEJMAN020BSP
DN25	DN20	350	270	50	51	84	84	51	FEJMAN025BSP
DN32	DN25	391	339	55	64	106	106	64	FEJMAN032BSP
DN40	DN25	452	386	58	73	121	121	73	FEJMAN040BSP
DN50	DN40	549	482	64	90	151	151	90	FEJMAN050BSP





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Chemical Dosing Pots

Specification

Carbon steel body, DN25 BSP PN40 valve connections, air vent ball valve, Tundish and NRV. Dosing pots are used to safely introduce inhibitors and other chemicals into the flowing system. For closed HVAC heating and cooling systems.

Not suitable for drinking water.

Materials

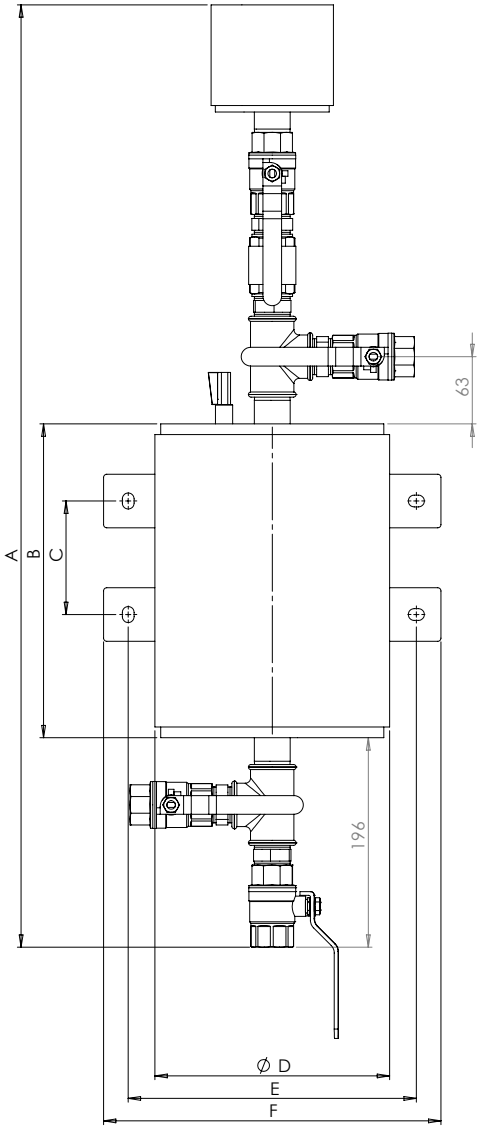
- Body Carbon steel
- Tundish Carbon steel

Rating

10 Barg @ 110°C

Size in.	Length mm	Body size	Height mm	Stock code
03.5L	770	DN150	770	FEJDP03
05L	845	DN150	845	FEJDP05
10L	880	DN200	880	FEJDP10
15L	1030	DN200	1030	FEJDP15
20L	1175	DN200	1175	FEJDP20
25L	1085	DN250	1085	FEJDP25

Size	DIM 'A'	DIM 'B'	DIM 'C'	DIM 'D'	DIM 'E'	DIM 'F'
3.5L	770	183	N/A	165	269	315
5.0L	845	258	78	165	269	315
10.0L	880	293	106	219	269	315
15.0L	1030	443	255	219	269	315
20.0L	1175	558	408	219	269	315
25.0L	1085	500	326	273	328	375



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Low Loss Headers – High Power
Engineered to order

Specification

A full range of Low Loss Headers designed for larger systems. The base specification includes a carbon steel body, flat or pipe cap ends, with flanged PN16 connections, Flamco Flexvent AAV and DN25 drain valve.

The range may be engineered to order to meet any system or site requirements.

Not suitable for drinking water.

Materials

- Body — Carbon steel or stainless steel
- Internals — –
- Connection — Flange type and number of connections to customer requirements

Rating

10 Barg @ 110°C

The table shows performance for the FlexEJ Low Loss Headers with a 20°C temperature difference at a flow rate typical for the connection size.

Size DN	Flow m³/h	Power kW	Stock code
DN150-6"	73	1,700	FEJLLH150-300
DN200-8"	90	2,100	FEJLLH200-350
DN200-8"	120	2,800	FEJLLH200-400
DN250-10"	150	3,500	FEJLLH250-450
DN250-10"	193	4,500	FEJLLH250-500
DN300-12"	279	6,500	FEJLLH300-600
DN400-16"	451	10,500	FEJLLH400-750
DN450-18"	516	12,000	FEJLLH450-800
DN450-18"	581	13,500	FEJLLH450-850
DN500-20"	667	15,500	FEJLLH500-900
DN600-24"	903	21,000	FEJLLH600-1050

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Manufactured to order

FlexEJ designs and manufactures in both carbon steel and stainless steel. We can build to meet your exact specifications and requirements:

- Buffer vessels
- Large and multiple circuit low loss headers
- Manifolds
- Pipe spools
- Expansion joints
- Hose assemblies.

Contact us and we will be pleased to help.

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Elaflex

flanges
accessories
rubber expansion joints

FLEXEJ

Welcome

FlexEJ offers a broad range of pipe expansion joints and pressure fabrications; we are both stockist and manufacturer with factories in the UK and Spain.

- Rubber and metal pipe expansion joints from DN15 to over DN3600
- Metal hose assemblies
- Dosing Pots, Air & Dirt Separators and Low Loss Headers for HVAC applications
- Pressure vessels and fabrications

We are accredited to ISO9001, ISO14000 and the PED. As required we offer full material traceability, documentation and compliance with client specifications – our welders are qualified to both EN and ASME.

You can also buy a wide range of stock expansion joints and HVAC fabrications direct from our web shop at flexej.co.uk with next day delivery.

We are here to help; please get in touch by phone, email or via the website live chat facility. We will be delighted to assist you in selecting the right stock product through to developing a unique design for your application.

Tim Robinson
Director

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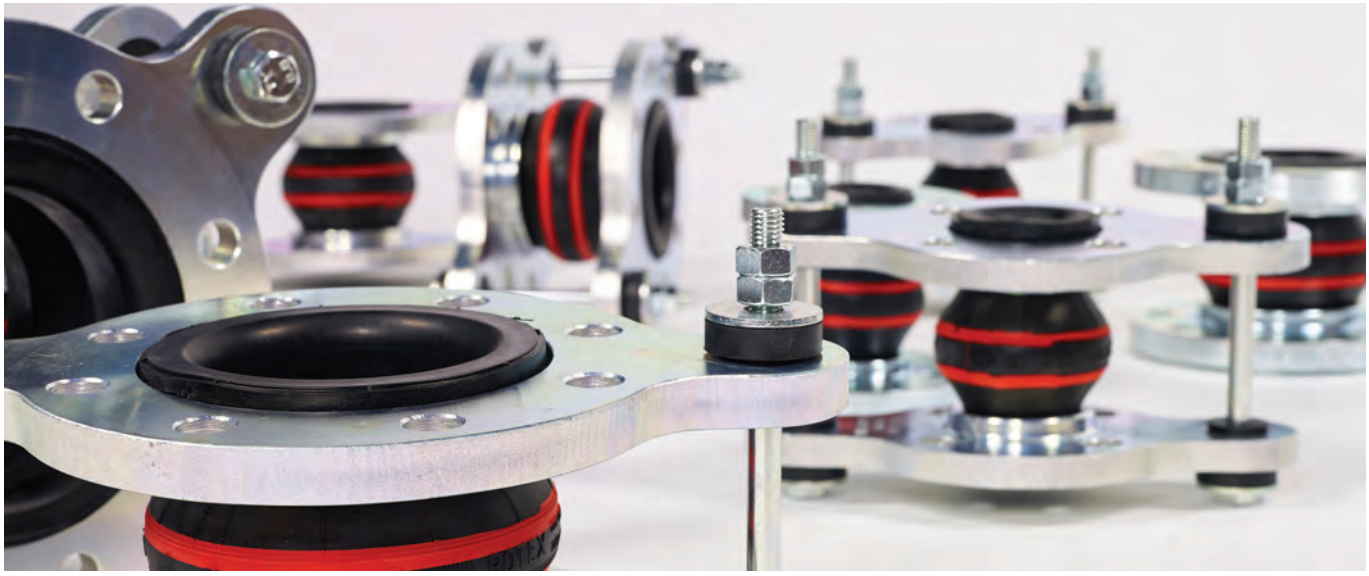
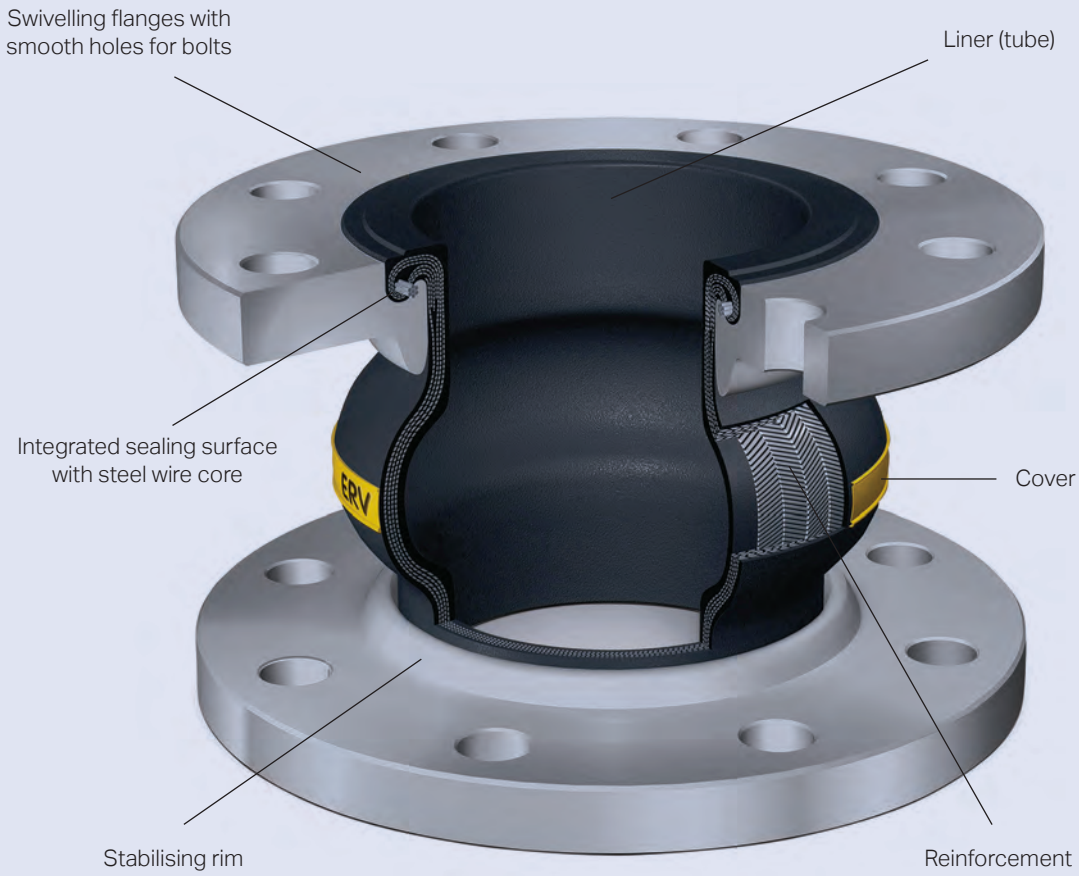


Contents

Why choose Elaflex ERV Expansion Joints?



Elaflex ERV expansion joints are moulded single sphere type rubber bellows with swivelling metal flanges. Their construction and lengths have become the internationally recognised standard.

Premium products come at a price, but the additional cost for ERV pays off in the long run due to its superior operating life and the reduced occurrence of costs arising from product failure – plant downtime, environmental damage and replacement of parts.

Optimal shape and construction of the bellows

- Large axial, lateral and angular range of allowable movement, no double sphere necessary
- Low reaction forces and low inherent resistance
- Noise dampening: the major part of the piping's structure-borne noise and the low-frequency noise generated by fluids is eliminated
- Vibration dampening: ERV efficiently absorb vibrations caused by engines, turbines or compressors

Experience and know-how

- Applications since 1956
- Two highly competent and professional companies working together – ContiTech, one of the leading international rubber product manufacturers (bellows production) and Elaflex (know-how regarding flanges, accessories, assembling, certification, testing and distribution)
- Consistent suppliers and manufacturing methods ensure a constant quality

Customer focus

- Local FlexEJ held stock plus a large warehouse of bellows in Hamburg (>25,000 bellows permanent stock) and flanges/accessories ensure short lead times for standard types
- Technical service: professional advice, documentation, testing certification (audited to European Pressure Equipment Directive)
- Our website www.flexej.co.uk has a bellows finder, online purchasing of Elaflex expansion joints for next day delivery and datasheets for all Elaflex bellows to download
- Global support by local Elaflex distribution partners – FlexEJ in the UK

Easy installation

- Swivelling flanges and smooth bolt holes make assembling easy
- The highly flexible bellow eases installation in problematic locations

Superior lifetime

- HiTech rubber compounds from ContiTech
- Physical properties of compounds and reinforcements are optimised for each bellows type: elongation at break, ozone and UV resistance, cold flexibility, tensile strength, volumetric extension etc.
- Permanent testing of raw material properties – before and during production
- Rubberized reinforcements for superior adhesion of all layers
- Integrated sealing surface with type matched steel wire core
- Made in Germany, Elaflex/ContiTech quality philosophy
- High operational safety, 1:4 safety factor regarding burst pressure

Large product range

- Variety of 13 different types, sizes 1"–40" (DN 25–1000 mm), various lengths and a vast choice of flange type/material and accessories

The bellows

- International quality reference for some applications, eg. ERV-G for tank trucks (fuels), ERV-R for drinking water, ROTEX for heating systems, ERV-OR for LP Gas
- Some unique products such as ERV-GS (ship engine room type approved), ERV-GS HNBR (large application range, temperature, abrasion & fire resistant) and ERV-G LT (low temperature down to -40° C)
- Efficient due to standardised bellows lengths

Flanges

- Modular system – flanges match with all bellows
- Certified materials, EN 10204–3.1
- Standard types with stabilising rim
- Marked with size, standard, material, manufacturer
- Cr (VI)-free corrosion protection for steel flanges long-lasting and environmentally friendly

Certificates

- Various ERV types are certified for civil and navy ship construction, drinking water, foodstuffs, heating and gas supply installations

Elaflex Rubber Expansion Joints

Range & code summary

Type		Liner	Key feature	page
Water and waste water				
ERV-R	Red Band	Butyl (IIR) / EPDM	With drinking water approval	09
Rotex	Rotex	EPDM	TÜV approved for heating systems	11
ERP	Red Spot	Butyl (IIR) / EPDM	Extra flexible	13
ERV-CR	Black Band	CR	The economical option	15
ERV-BR	Blue Spot	BR	For abrasive media	17
Petroleum-based products, Liquid Petroleum Gas				
ERV-G	Yellow Band	NBR	For tank trucks, refineries and petrol stations	19
ERV-GS	Yellow Steel	NBR	Fire resistant for 30 minutes at 800°C	21
ERV-GS	Yellow Steel HNBR	HNBR	For extremely demanding conditions: -35°C to 120°C	23
ERV-G LT	Yellow Band LT	NBR	For low temperatures up to -40°C	25
ERV-OR	Orange Band	NBR	For LPG and other gases up to 25 bar	27
Chemistry and foodstuffs				
ERV-GR	Green Band	CSM	For aggressive acids, lyes and chemicals	29
ERV-W	White Band	NBR light grey	Conforms to foodstuff standards	33
Flanges				35
Dimensions and information for DIN, ASA, SAE, BS, VG, TW, JIS461				
Accessories				39
ZS			Tie rod with outer limitation	
ZSS			Tie rod with inner and outer limitation	
RG			Angular limiter	
SR			Inner protective sleeve	
TA			PTFE lining	
TAS			PTFE lining and PTFE vacuum support ring	
VSD			Vacuum support spiral	
VSR			Vacuum support ring	
VSRV			Bolted vacuum support ring	
FSH			Flame protection cover	

Elaflex Rubber Expansion Joints
Checklist

1 Medium
- Chemical composition
- Gaseous, liquid, paste-like
- Abrasion

2 Operation conditions
- Minimum and maximum temperature
- Maximum pressure
- Vacuum
- Axial range of movement (elongation/compression)
- Angular load
- Lateral offset
- Dynamic load

3 Installation site
- Indoor or outdoor installation
- Exposure to sunlight (UV)
- Salt-containing atmosphere

4 Classification according to Pressure Equipment Directive?
The requirements of the Pressure Equipment Directive may apply, especially when gaseous media are used. Further information on page 46.

The following table shows the dependencies of overpressure, range of movement and temperature for ERV expansion joints:

Type	Working temperature max.	Temperature depending on range of movement*	Temperature depending on working pressure		
			PN 10	Bellow PN 16	PN 25
ERV-R, ERV-CR, ERV-G, ERV-G LT, ERV-GR, ERV-W	**50°C**	**100%**	**10 bar**	**16 bar**	–
	70°C	80%	8 bar	12 bar	–
	100°C	60%	6 bar	10 bar	–
ERV-BR	**50°C**	**100%**	**10 bar**	**16 bar**	–
	70°C	80%	8 bar	12 bar	–
ERV-OR	**50°C**	**100%**	**–**	**–**	**25 bar**
	70°C	80%	–	–	20 bar
	100°C	60%	–	–	15 bar
ERP	**50°C**	**100%**	**10 bar**	–	–
	70°C	80%	8 bar	–	–
	100°C	60%	6 bar	–	–
Rotex	**70°C**	**100%**	**10 bar**	**16 bar**	–
	100°C	75%	7.5 bar	12 bar	–
	130°C	50%	5 bar	8 bar	–
ERV-GS ERV-GS HNBR	**60°C**	**100%**	**10 bar**	**16 bar**	–
	100°C	60%	6 bar	10 bar	–

* For type specific range of movement see data sheets.
Depending on media, a reduction of working conditions may be necessary. Please ask our sales team in case of questions.

Elaflex Rubber Expansion Joints

Available types & lengths

DN	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Red Band																					
ERV-R 130	•	•	•	•	•	•	•	•	•	•	•	•									
ERV-R 150				•	•	•	•	•	•	•											
ERV-R 160		•	•	•	•	•	•	•	•	•											
ERV-R 175										•	•										
ERV-R 200											•	•	•	•	•	•	•				
ERV-R 250															•				•		
ERV-R 260																		•			
ERV-R 300																				•	•
DN	**25**	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**	**700**	**800**	**900**	**1000**
Rotex																					
Rotex 130	•	•	•	•	•	•	•	•	•	•	•	•									
Rotex 150						•	•	•	•	•											
Rotex 160		•	•	•	•	•	•	•	•	•											
Rotex 175										•	•										
Rotex 200											•	•	•	•	•	•	•				
Rotex 250															•				•		
Rotex 260																		•			
Rotex 300																				•	•
DN	**25**	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**	**700**	**800**	**900**	**1000**
Red Spot																					
ERP 130	•	•	•	•	•	•	•	•	•												
Black Band																					
ERV-CR 130	•	•	•	•	•	•	•	•	•	•	•	•									
ERV-CR 200													•	•	•	•	•				
ERV-CR 250															•				•		
ERV-CR 260																		•			
ERV-CR 300																				•	•
Blue Spot																					
ERV-BR 130	•	•	•	•	•	•	•	•	•	•	•	•									

Elaflex Rubber Expansion Joints

Available types & lengths

DN	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Yellow Band																					
ERV-G 130	●	●	●	●	●	●	●	●	●	●	●	●									
ERV-G 150				●	●	●	●	●	●	●											
ERV-G 160		●	●	●	●	●	●	●	●	●											
ERV-G 175										●	●										
ERV-G 200											●	●	●	●	●	●	●				
ERV-G 250															●				●		
ERV-G 260																		●			
ERV-G 300																				●	●
DN	**25**	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**	**700**	**800**	**900**	**1000**
Yellow Steel																					
ERV-GS 130	●	●	●	●	●	●	●	●	●	●	●	●									
ERV-GS 150						●	●	●	●												
ERV-GS 175										●	●										
ERV-GS 200												●	●	●	●	●	●				
ERV-GS 250															●						
DN	**25**	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**	**700**	**800**	**900**	**1000**
Yellow Steel	HNBR																				
ERV-GS HNBR 130	●	●	●	●	●	●	●	●	●	●	●	●									
ERV-GS HNBR 150						●	●	●	●												
ERV-GS HNBR 175										●	●										
ERV-GS HNBR 200												●	●	●	●	●	●				
ERV-GS HNBR 250															●						
DN	**25**	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**	**700**	**800**	**900**	**1000**
LT																					
ERV-GLT 130	●	●	●	●	●	●	●	●	●	●	●	●									
DN	**25**	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**	**700**	**800**	**900**	**1000**
Orange Band																					
ERV-OR 130	●	●	●	●	●	●	●	●	●												

Elaflex Rubber Expansion Joints

Available types & lengths

DN	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Green Band ■																					
ERV-GR 130	•	•	•	•	•	•	•	•	•	•	•	•									
ERV-GR 200													•	•	•	•	•				
ERV-GR 250															•						
ERV-GR 260																	•				
DN	**25**	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**	**700**	**800**	**900**	**1000**
White Band □																					
ERV-W 130	•	•	•	•	•	•	•	•	•	•	•	•									
ERV-W 200													•	•	•	•	•				
ERV-W 250															•						

Elaflex Red Band / ERV-R

Specification

For water, drinking water (approval DVGW W 270, ACS as well as WRAS), cold and warm waste water, seawater, cooling water, also with chemical additives for water treatment, low concentrated acids and alkalis, salt solutions, technical alcohols, esters and ketones.

Not suitable for mineral oil products, cooling water with added oil containing corrosion preventatives, oily compressor air.

Materials

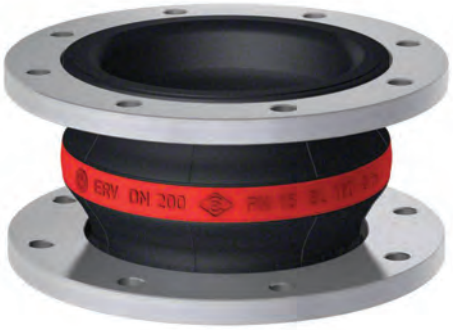
- Liner — Butyl (IIR)/EPDM, seamless, low permeation
- Reinforcement — PA textile cord, Butyl rubberized
- Cover — EPDM, ozone proof, heat resistant
- Marking — Red band, ERV DN .., PN .., production date
- Flanges♦ — Swivelling, DIN PN 10/16, carbon steel, zinc plated

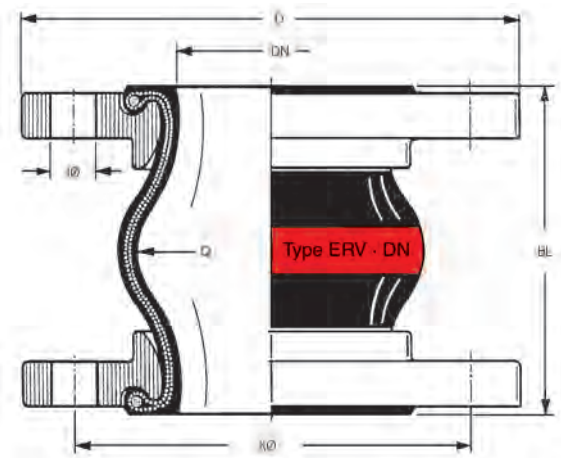
Operating conditions

Temperature range (depending on medium) -40°C up to +100°C, temporarily up to +120°C. Electrically dissipative.

Notes

♦ Table shows PN10/16 flanges – many other flange types are available
* For rubber expansion joints DN 25 bellows DN 32 are used
Specifications subject to change without notice © ELAFLEX





Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm ♦			Part number ♦
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	16	1.9	15	115	85	4 x 14	ERV-R 25.16 *
1 1/4"	32	130	16	3.4	15	140	100	4 x 18	ERV-R 32.16
1 1/4"	32	160	16	3.6	15	140	100	4 x 18	ERV-R 32x160.16
1 1/2"	40	130	16	4.0	20	150	110	4 x 18	ERV-R 40.16
1 1/2"	40	160	16	4.2	20	150	110	4 x 18	ERV-R 40x160.16
2"	50	130	16	4.6	30	165	125	4 x 18	ERV-R 50.16
2"	50	150	16	4.7	30	165	125	4 x 18	ERV-R 50x150.16
2"	50	160	16	4.8	30	165	125	4 x 18	ERV-R 50x160.16
2 1/2"	65	130	16	5.3	50	185	145	4 x 18	ERV-R 65.16
2 1/2"	65	150	16	5.4	50	185	145	4 x 18	ERV-R 65x150.16
2 1/2"	65	160	16	5.5	50	185	145	4 x 18	ERV-R 65x160.16
3"	80	130	16	6.9	85	200	160	8 x 18	ERV-R 80.16
3"	80	150	16	7.0	85	200	160	8 x 18	ERV-R 80x150.16
3"	80	160	16	7.1	85	200	160	8 x 18	ERV-R 80x160.16
4"	100	130	16	8.0	125	220	180	8 x 18	ERV-R 100.16
4"	100	150	16	8.1	125	220	180	8 x 18	ERV-R 100x150.16
4"	100	160	16	8.2	125	220	180	8 x 18	ERV-R 100x160.16
5"	125	130	16	9.9	185	250	210	8 x 18	ERV-R 125.16
5"	125	150	16	10.1	185	250	210	8 x 18	ERV-R 125x150.16
5"	125	160	16	10.2	185	250	210	8 x 18	ERV-R 125x160.16
6"	150	130	16	12.3	250	285	240	8 x 22	ERV-R 150.16
6"	150	150	16	12.4	250	285	240	8 x 22	ERV-R 150x150.16
6"	150	160	16	12.5	250	285	240	8 x 22	ERV-R 150x160.16
8"	200	130	16	16.5	400	340	295	8 x 22	ERV-R 200.10
8"	200	150	16	16.6	400	340	295	8 x 22	ERV-R 200x150.10
8"	200	160	16	16.7	400	340	295	8 x 22	ERV-R 200x160.10
8"	200	175	16	16.8	400	340	295	8 x 22	ERV-R 200x175.10
10"	250	130	16	21.6	600	395	350	12 x 22	ERV-R 250.10
10"	250	175	16	21.9	600	395	350	12 x 22	ERV-R 250x175.10
10"	250	200	10	22.1	600	395	350	12 x 22	ERV-R 250x200.10
12"	300	130	16	29.3	800	445	400	12 x 22	ERV-R 300.10
12"	300	200	10	29.8	800	445	400	12 x 22	ERV-R 300x200.10
14"	350	200	16	43.0	1000	505	460	16 x 22	ERV-R 350.10
16"	400	200	16	46.0	1375	565	515	16 x 26	ERV-R 400.10
18"	450	200	10	50.0	1780	615	565	20 x 26	ERV-R 450.10
18"	450	250	10	53.0	1780	615	565	20 x 26	ERV-R 450x250.10
20"	500	200	10	57.0	2185	670	620	20 x 26	ERV-R 500.10
24"	600	200	10	70.0	3080	780	725	20 x 30	ERV-R 600.10
28"	700	260	10	117.0	4800	895	840	24 x 30	ERV-R 700.10
32"	800	250	10	129.5	5440	1015	950	24 x 33	ERV-R 800.10
36"	900	300	10	184.0	7100	1115	1050	28 x 33	ERV-R 900.10
40"	1000	300	10	245.0	8700	1230	1160	28 x 36	ERV-R 1000.10

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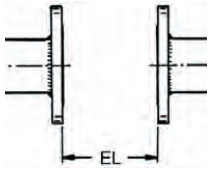
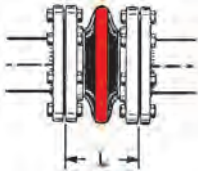
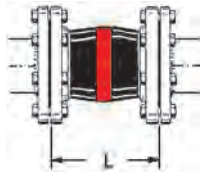
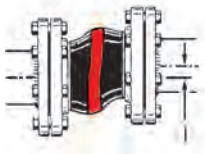
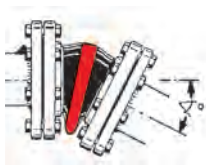
Elaflex Red Band / ERV-R

Range of movement

Red Band ERV-R							
Length	Bellow size	Installation length		Axial *		Lateral *	Angular *
BL	DN	EL min.	EL max.	L min.	L max.	l	∢
mm	mm	mm	mm	mm	mm	mm	degree
130	25-80	120	135	100	150	±30	±30
130	100-150	120	135	100	150	±30	±20
130	200	115	140	105	160	±30	±10
130	250-300	125	140	120	160	±15	± 5
150	50-200	140	160	115	180	±30	±15
160	32-200	150	170	130	195	±35	±15
175	200	165	185	160	210	±15	± 5
175	250	165	185	160	210	±10	± 5
200	250-300	190	210	160	235	±30	±10
200	350-600	190	210	160	235	±30	± 8
250	450	240	260	210	285	±35	±10
250	800	240	260	210	285	±35	± 5
260	700	250	270	220	290	±30	± 5
300	900-1000	290	310	260	340	±40	± 5

* Allowable static range of movement in service with usage of collar flanges up to 50°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	-700	-600	-400	-300	-300	-300	-200	-100									
With VSD			max.	max.	max.	max.	max.	max.	-600	-400	-200									
With VSR							max.	max.	max.	max.	max.	max.	max.	-700	-700	-700				
With VSRV														max.	max.	max.	max.	-700	-700	-700

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

Elaflex Rotex

Specification

For permanent use with hot heating water, cooling water and hot air. Approved according to DIN up to 100°C at 10 bar and up to 110°C at 6 bar.

Not suitable for drinking water, cooling water with oil containing additives, oily compressor air, permanent effect of steam.

Materials

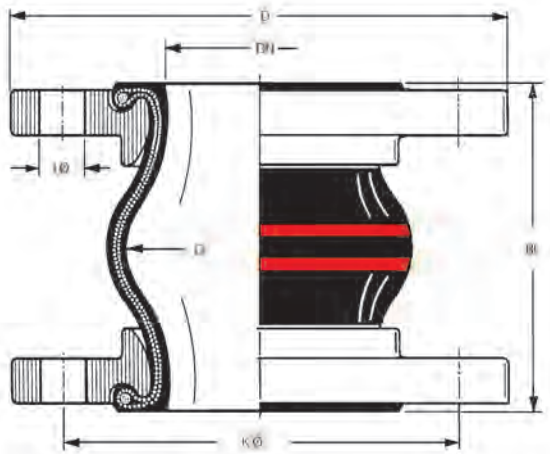
- Liner — EPDM, hot water resistant, seamless, high abrasion resistance
- Reinforcement — Polymer textile cord, hot water and hydrolysis proof
- Cover — EPDM, ozone proof, heat resistant
- Marking — 2 red bands, ERV DN .., PN .., production date
- Flanges◆ — Swivelling, DIN PN 10/16, carbon steel, zinc plated

Operating conditions

Temperature range (depending on medium) -40°C up to +130°C, temporarily up to +150°C. Electrically dissipative.

Notes

◆ Table shows PN10/16 flanges – many other flange types are available
★ For rubber expansion joints DN 25 bellows DN 32 are used
Specifications subject to change without notice © ELAFLEX



Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm◆			Part number◆
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	16	1.9	15	115	85	4 x 14	ROTEX 25.16★
1 1/4"	32	130	16	3.4	15	140	100	4 x 18	ROTEX 32.16
1 1/4"	32	160	16	3.6	15	140	100	4 x 18	ROTEX 32x160.16
1 1/2"	40	130	16	4.0	20	150	110	4 x 18	ROTEX 40.16
1 1/2"	40	160	16	4.2	20	150	110	4 x 18	ROTEX 40x160.16
2"	50	130	16	4.6	30	165	125	4 x 18	ROTEX 50.16
2"	50	160	16	4.8	30	165	125	4 x 18	ROTEX 50x160.16
2 1/2"	65	130	16	5.3	50	185	145	4 x 18	ROTEX 65.16
2 1/2"	65	160	16	5.5	50	185	145	4 x 18	ROTEX 65x160.16
3"	80	130	16	6.9	85	200	160	8 x 18	ROTEX 80.16
3"	80	150	16	7.0	85	200	160	8 x 18	ROTEX 80x150.16
3"	80	160	16	7.1	85	200	160	8 x 18	ROTEX 80x160.16
4"	100	130	16	8.0	125	220	180	8 x 18	ROTEX 100.16
4"	100	150	16	8.1	125	220	180	8 x 18	ROTEX 100x150.16
4"	100	160	16	8.2	125	220	180	8 x 18	ROTEX 100x160.16
5"	125	130	16	9.8	185	250	210	8 x 18	ROTEX 125.16
5"	125	150	16	9.9	185	250	210	8 x 18	ROTEX 125x150.16
5"	125	160	16	10.0	185	250	210	8 x 18	ROTEX 125x160.16
6"	150	130	16	12.3	250	285	240	8 x 22	ROTEX 150.16
6"	150	150	16	12.4	250	285	240	8 x 22	ROTEX 150x150.16
6"	150	160	16	12.5	250	285	240	8 x 22	ROTEX 150x160.16
8"	200	130	16	16.5	400	340	295	8 x 22	ROTEX 200.10
8"	200	150	16	16.6	400	340	295	8 x 22	ROTEX 200x150.10
8"	200	160	16	16.7	400	340	295	8 x 22	ROTEX 200x160.10
8"	200	175	16	16.8	400	340	295	8 x 22	ROTEX 200x175.10
10"	250	130	16	21.6	600	395	350	12 x 22	ROTEX 250.10
10"	250	175	16	21.9	600	395	350	12 x 22	ROTEX 250x175.10
10"	250	200	10	22.1	600	395	350	12 x 22	ROTEX 250x200.10
12"	300	130	16	29.3	800	445	400	12 x 22	ROTEX 300.10
12"	300	200	10	29.7	800	445	400	12 x 22	ROTEX 300x200.10
14"	350	200	16	43.0	1000	505	460	16 x 22	ROTEX 350.10
16"	400	200	16	46.0	1375	565	515	16 x 26	ROTEX 400.10
18"	450	200	10	50.0	1780	615	565	20 x 26	ROTEX 450.10
18"	450	250	10	53.0	1780	615	565	20 x 26	ROTEX 450x250.10
20"	500	200	10	57.0	2185	670	620	20 x 26	ROTEX 500.10
24"	600	200	10	70.0	3080	780	725	20 x 30	ROTEX 600.10
28"	700	260	10	117.0	4800	895	840	24 x 30	ROTEX 700.10
32"	800	250	10	129.5	5440	1015	950	24 x 33	ROTEX 800.10
36"	900	300	10	184.0	7100	1115	1050	28 x 33	ROTEX 900.10
40"	1000	300	10	245.0	8700	1230	1160	28 x 36	ROTEX 1000.10

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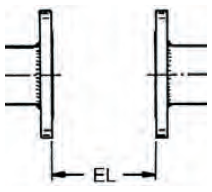
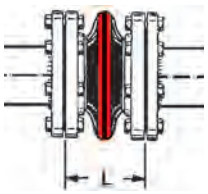
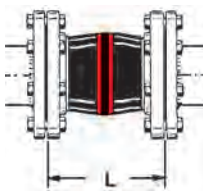
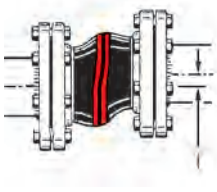
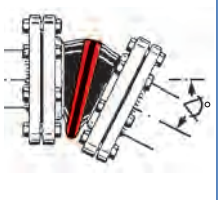
Elaflex Rotex

Range of movement

Rotex					

Length	Bellow size	Installation length		Axial *		Lateral *	Angular *
BL	DN	EL min.	EL max.	L min.	L max.	l	◁
mm	mm	mm	mm	mm	mm	mm	degree
130	25-80	120	135	100	150	±30	±30
130	100-150	120	135	100	150	±30	±20
130	200	115	140	105	160	±25	±10
130	250-300	125	140	115	160	±25	± 5
150	80-200	140	160	120	170	±30	±15
160	32-200	150	170	130	185	±25	±15
175	200-250	165	185	145	205	±30	±10
200	250-300	190	210	170	225	±25	±10
200	350-600	190	210	160	225	±25	± 8
250	450	240	260	210	280	±25	±10
250	800	240	260	210	280	±25	± 5
260	700	250	270	220	290	±25	± 5
300	900-1000	290	310	260	335	±30	± 5

* Allowable static range of movement in service with usage of collar flanges up to 70°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	-700	-600	-400	-300	-300	-300	-200	-100									
With VSD			max.	max.	max.	max.	max.	max.	-600	-400	-200									
With VSR							max.	max.	max.	max.	max.	max.	max.	-700	-700	-700				
With VSRV														max.	max.	max.	max.	-700	-700	-700

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

Elaflex Red Spot / ERP

Specification

For sanitary installations, highly flexible for cold and warm water, pool water, sea water and drinking water (WRAS approved).

Not suitable for all kinds of mineral oil products, cooling water with added oil containing corrosion preventatives, oily compressor air, for permanent working pressure > 10 bar.

Materials

- Liner — Butyl (IIR)/EPDM, seamless
- Reinforcement — PA textile cord
- Cover — EPDM
- Marking — Red spot, ERV DN .., PN 10, production date
- Flanges♦ — Swivelling, DIN PN 10 carbon steel, zinc plated

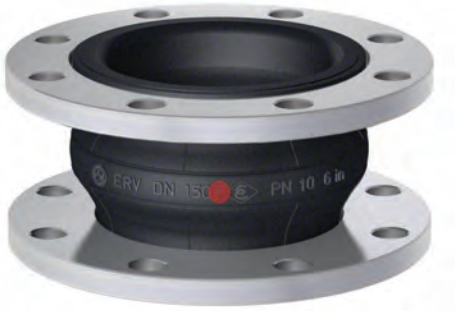
Operating conditions

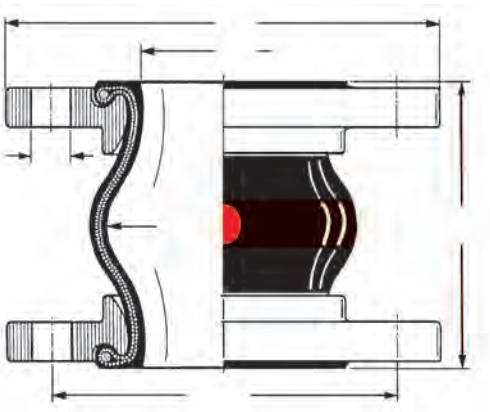
Temperature range (depending on medium) -40°C up to +90°C, temporarily up to +120°C. Electrically dissipative.

Notes

♦ Table shows PN10/16 flanges – many other flange types are available
* For rubber expansion joints DN 25 bellows DN 32 are used

Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm ♦			Part number ♦
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	10	1.8	15	115	85	4 x 14	ERP 25.10 *
1¼"	32	130	10	3.3	15	140	100	4 x 18	ERP 32.10
1½"	40	130	10	3.9	20	150	110	4 x 18	ERP 40.10
2"	50	130	10	4.5	30	165	125	4 x 18	ERP 50.10
2½"	65	130	10	5.2	50	185	145	4 x 18	ERP 65.10
3"	80	130	10	6.8	85	200	160	8 x 18	ERP 80.10
4"	100	130	10	7.9	125	220	180	8 x 18	ERP 100.10
5"	125	130	10	9.8	185	250	210	8 x 18	ERP 125.10
6"	150	130	10	12.2	250	285	240	8 x 22	ERP 150.10





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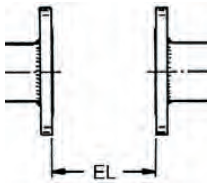
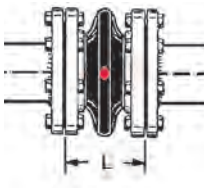
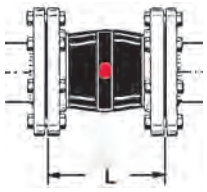
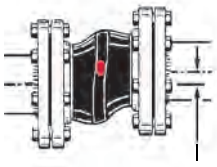
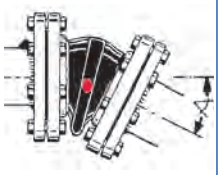
Elaflex Red Spot / ERP

Range of movement

Red Spot ERP							
Length	**Bellow size**	**Installation length**		**Axial ***		**Lateral ***	**Angular ***
BL	**DN**	**EL min.**	**EL max.**	**L min.**	**L max.**	**I**	**∢**
mm	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**degree**
130	25-80	120	135	100	150	± 30	± 30
	100-150	120	135	100	150	± 30	± 20

* Allowable static range of movement in service with usage of collar flanges up to 50°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
Without VSD/VSR	-300	-300	-300	-300	-200	-200	-200	-100											
With VSD			-500	-500	-400	-400	-400	-300											
With VSR							-500	-400											

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

Elaflex Black Band / ERV-CR

Specification

For cold and warm water, swimming pool water, sea water, waste water (weakly sour or alkaline) also oil containing, cooling water with protective oils against corrosion, lubricating oil, grease and air, compressed air.

Not suitable for drinking water, acids, alkalis, chemicals, heating oil, diesel, gasoline and jet fuel, petroleum, solvents, other hydrocarbons and hot compressed air.

Materials

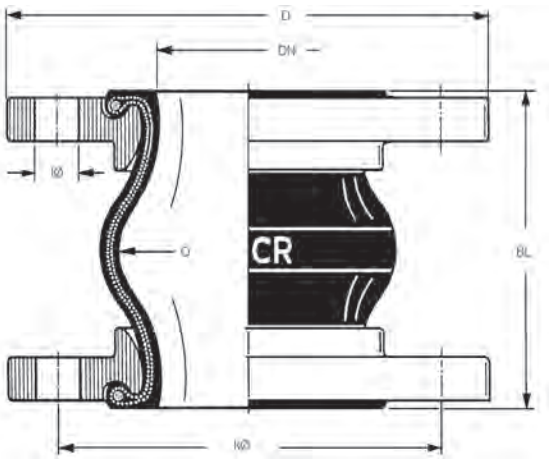
- Liner — Chloroprene CR, seamless, abrasion resistant
- Reinforcement — PA textile cord
- Cover — Chloroprene CR
- Marking — White imprint 'CR', ERV DN .., PN .., production date
- Flanges♦ — Swivelling, DIN PN 10/16 carbon steel, zinc plated

Operating conditions

Temperature range (depending on medium) -25°C up to +90°C, temporarily up to +100°C. Electrically non-conductive.

Notes

♦ Table shows PN10/16 flanges – many other flange types are available
* For rubber expansion joints DN 25 bellows DN 32 are used
Specifications subject to change without notice © ELAFLEX



Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm♦			Part number♦
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	16	1.5	15	115	85	4 x 14	ERV-CR 25.16*
1¼"	32	130	16	3.4	15	140	100	4 x 18	ERV-CR 32.16
1½"	40	130	16	4.0	20	150	110	4 x 18	ERV-CR 40.16
2"	50	130	16	4.6	30	165	125	4 x 18	ERV-CR 50.16
2½"	65	130	16	5.3	50	185	145	4 x 18	ERV-CR 65.16
3"	80	130	16	6.9	85	200	160	8 x 18	ERV-CR 80.16
4"	100	130	16	8.0	125	220	180	8 x 18	ERV-CR 100.16
5"	125	130	16	9.9	185	250	210	8 x 18	ERV-CR 125.16
6"	150	130	16	12.3	250	285	240	8 x 22	ERV-CR 150.16
8"	200	130	16	16.5	400	340	295	8 x 22	ERV-CR 200.10
10"	250	130	16	21.6	600	395	350	12 x 22	ERV-CR 250.10
12"	300	130	16	29.3	800	445	400	12 x 22	ERV-CR 300.10
14"	350	200	16	43.0	1000	505	460	16 x 22	ERV-CR 350.10
16"	400	200	16	46.0	1375	565	515	16 x 26	ERV-CR 400.10
18"	450	200	10	50.0	1780	615	565	20 x 26	ERV-CR 450.10
18"	450	250	10	53.0	1780	615	565	20 x 26	ERV-CR 450x250.10
20"	500	200	10	57.0	2185	670	620	20 x 26	ERV-CR 500.10
24"	600	200	10	70.0	3080	780	725	20 x 30	ERV-CR 600.10
28"	700	260	10	117.0	4800	895	840	24 x 30	ERV-CR 700.10
32"	800	250	10	129.5	5440	1015	950	24 x 33	ERV-CR 800.10
36"	900	300	10	184.0	7100	1115	1050	28 x 33	ERV-CR 900.10
40"	1000	300	10	245.0	8700	1230	1160	28 x 36	ERV-CR 1000.10

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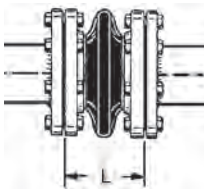
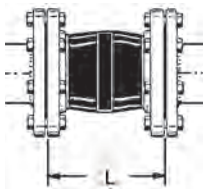
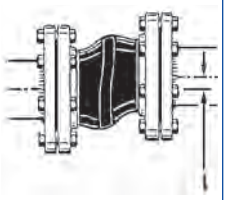
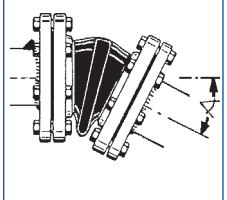
Elaflex Black Band / ERV-CR

Range of movement

ERV-CR					

Length	Bellow size	Installation length		Axial *		Lateral *	Angular *
BL	DN	EL min.	EL max.	L min.	L max.	l	◁
mm	mm	mm	mm	mm	mm	mm	degree
130	25-80	120	135	100	150	±30	±30
130	100-150	120	135	100	150	±30	±20
130	200	115	140	105	160	±30	±10
130	250-300	125	140	120	160	±15	± 5
200	350-600	190	210	160	235	±30	± 8
250	450	240	260	210	285	±35	±10
250	800	240	260	210	285	±35	± 5
260	700	250	270	220	290	±30	± 5
300	900-1000	290	310	260	340	±40	± 5

* Allowable static range of movement in service with usage of collar flanges up to 50°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	-700	-600	-400	-300	-300	-300	-200	-100									
With VSD			max.	max.	max.	max.	max.	max.	-600	-400	-200									
With VSR							max.	max.	max.	max.	max.	max.	max.	-700	-700	-700				
With VSRV														max.	max.	max.	max.	-700	-700	-700

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

Elaflex Blue Spot / ERV-BR

Specification

For abrasive media such as sludges, slurries, solid/liquid mixtures and emulsions, dust-like or powdery products (eg. carbon-blacks). Also suitable for all kinds of water (non oil containing) as well as various chemicals.

Not suitable for petroleum based products or any kind of mineral oil. For extreme strain (eg. sharp and rough-edged matter) we suggest the use of ERV with inner protection sleeve type SR, see page 39.

Materials

- Liner — BR/NR, seamless, high abrasion resistant
- Reinforcement — Polyester textile cord
- Cover — BR/NR
- Marking — Blue spot, ERV DN .., PN 16, production date
- Flanges◆ — Swivelling, DIN PN 10/16, carbon steel, zinc plated

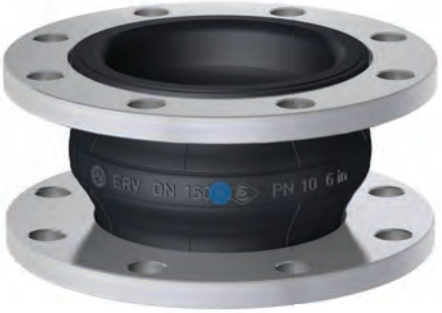
Operating conditions

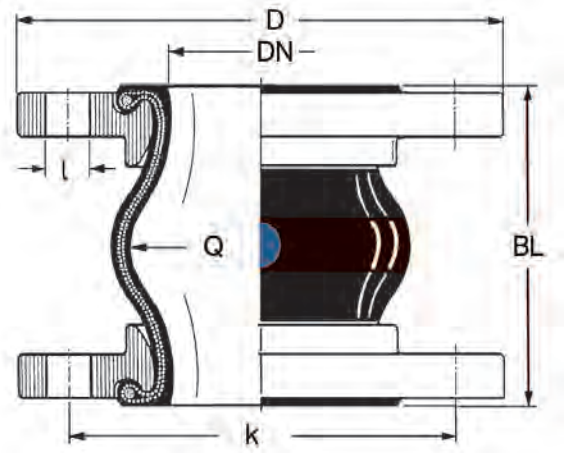
Temperature range (depending on medium)
-50° C up to +70° C, temporarily up to + 90° C.
Electrically dissipative.

Notes

◆ Table shows PN10/16 flanges – many other flange types are available
* For rubber expansion joints DN 25 bellows DN 32 are used

Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm◆			Part number◆
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	16	1.9	15	115	85	4 x 14	ERV-BR 25.16*
1¼"	32	130	16	3.4	15	140	100	4 x 18	ERV-BR 32.16
1½"	40	130	16	4.0	20	150	110	4 x 18	ERV-BR 40.16
2"	50	130	16	4.6	30	165	125	4 x 18	ERV-BR 50.16
2½"	65	130	16	5.3	50	185	145	4 x 18	ERV-BR 65.16
3"	80	130	16	6.9	85	200	160	8 x 18	ERV-BR 80.16
4"	100	130	16	8.0	125	220	180	8 x 18	ERV-BR 100.16
5"	125	130	16	9.9	185	250	210	8 x 18	ERV-BR 125.16
6"	150	130	16	12.3	250	285	240	8 x 22	ERV-BR 150.16
8"	200	130	16	16.5	400	340	295	8 x 22	ERV-BR 200.10
10"	250	130	16	21.6	600	395	350	12 x 22	ERV-BR 250.10
12"	300	130	16	29.3	800	445	400	12 x 22	ERV-BR 300.10





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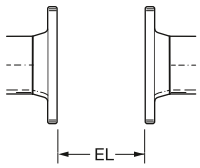
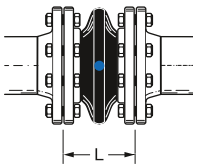
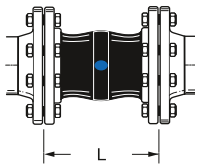
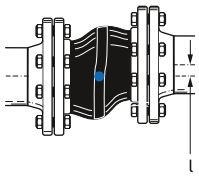
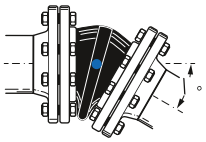
Elaflex Blue Spot / ERV-BR

Range of movement

ERV-BR							
Length	**Bellow size**	**Installation length**		**Axial ***		**Lateral ***	**Angular ***
BL	**DN**	**EL min.**	**EL max.**	**L min.**	**L max.**	**l**	**∢**
mm	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**degree**
130	32–80	120	135	100	150	±30	±25
130	100–150	120	135	100	150	±30	±15
130	200	115	140	110	155	±30	± 5
130	250–300	125	140	120	155	±15	± 5

* Allowable static range of movement in service with usage of collar flanges up to 50°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	-700	-600	-400	-300	-300	-300	-200	-100									
With VSD			max.	max.	max.	max.	max.	max.	-600	-400	-200									
With VSR							max.	max.	max.	max.	max.									

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

Elaflex Yellow Band / ERV-G

Specification

For petroleum based products with aromatic content up to 50%, fuels (ethanol content up to 85%), aviation fuels, town gas and natural gas except liquefied petroleum gas.

Materials

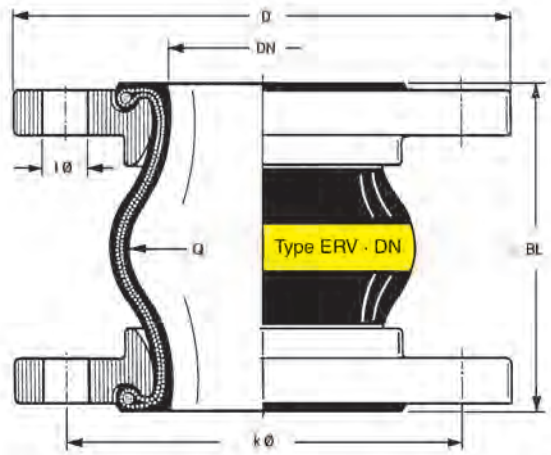
- Liner — NBR (nitrile), seamless, abrasion resistant
- Reinforcement — PA textile cord
- Cover — Chloroprene CR
- Marking — Yellow band, ERV DN.., PN .., production date
- Flanges♦ — Swivelling, DIN PN 10/16, carbon steel, zinc plated

Operating conditions

Temperature range (depending on medium) -20°C up to +90°C, temporarily up to +100°C. Electrically dissipative.

Notes

♦ Table shows PN10/16 flanges – many other flange types are available
⋆ For rubber expansion joints DN 25 bellows DN 32 are used



Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm♦			Part number♦
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1″	25	130	16	1.9	15	115	85	4 x 14	ERV-G 25.16⋆
1¼″	32	130	16	3.4	15	140	100	4 x 18	ERV-G 32.16
1¼″	32	160	16	3.6	15	140	100	4 x 18	ERV-G 32x160.16
1½″	40	130	16	4.0	20	150	110	4 x 18	ERV-G 40.16
1½″	40	160	16	4.2	20	150	110	4 x 18	ERV-G 40x160.16
2″	50	130	16	4.6	30	165	125	4 x 18	ERV-G 50.16
2″	50	150	16	4.7	30	165	125	4 x 18	ERV-G 50x150.16
2″	50	160	16	4.8	30	165	125	4 x 18	ERV-G 50x160.16
2½″	65	130	16	5.3	50	185	145	4 x 18	ERV-G 65.16
2½″	65	150	16	5.4	50	185	145	4 x 18	ERV-G 65x150.16
2½″	65	160	16	5.5	50	185	145	4 x 18	ERV-G 65x160.16
3″	80	130	16	6.9	85	200	160	8 x 18	ERV-G 80.16
3″	80	150	16	7.0	85	200	160	8 x 18	ERV-G 80x150.16
3″	80	160	16	7.1	85	200	160	8 x 18	ERV-G 80x160.16
4″	100	130	16	8.0	125	220	180	8 x 18	ERV-G 100.16
4″	100	150	16	8.1	125	220	180	8 x 18	ERV-G 100x150.16
4″	100	160	16	8.2	125	220	180	8 x 18	ERV-G 100x160.16
5″	125	130	16	9.9	185	250	210	8 x 18	ERV-G 125.16
5″	125	150	16	10.1	185	250	210	8 x 18	ERV-G 125x150.16
5″	125	160	16	10.2	185	250	210	8 x 18	ERV-G 125x160.16
6″	150	130	16	12.3	250	285	240	8 x 22	ERV-G 150.16
6″	150	150	16	12.4	250	285	240	8 x 22	ERV-G 150x150.16
6″	150	160	16	12.5	250	285	240	8 x 22	ERV-G 150x160.16
8″	200	130	16	16.5	400	340	295	8 x 22	ERV-G 200.10
8″	200	150	16	16.6	400	340	295	8 x 22	ERV-G 200x150.10
8″	200	160	16	16.7	400	340	295	8 x 22	ERV-G 200x160.10
8″	200	175	16	16.8	400	340	295	8 x 22	ERV-G 200x175.10
10″	250	130	16	21.6	600	395	350	12 x 22	ERV-G 250.10
10″	250	175	16	21.9	600	395	350	12 x 22	ERV-G 250x175.10
10″	250	200	10	22.1	600	395	350	12 x 22	ERV-G 250x200.10
12″	300	130	16	29.3	800	445	400	12 x 22	ERV-G 300.10
12″	300	200	10	29.8	800	445	400	12 x 22	ERV-G 300x200.10
14″	350	200	16	43.0	1000	505	460	16 x 22	ERV-G 350.10
16″	400	200	16	46.0	1375	565	515	16 x 26	ERV-G 400.10
18″	450	200	10	50.0	1780	615	565	20 x 26	ERV-G 450.10
18″	450	250	10	53.0	1780	615	565	20 x 26	ERV-G 450x250.10
20″	500	200	10	57.0	2185	670	620	20 x 26	ERV-G 500.10
24″	600	200	10	70.0	3080	780	725	20 x 30	ERV-G 600.10
28″	700	260	10	117.0	4800	895	840	24 x 30	ERV-G 700.10
32″	800	250	10	129.5	5440	1015	950	24 x 33	ERV-G 800.10
36″	900	300	10	184.0	7100	1115	1050	28 x 33	ERV-G 900.10
40″	1000	300	10	245.0	8700	1230	1160	28 x 36	ERV-G 1000.10

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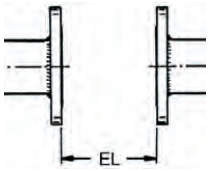
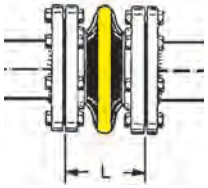
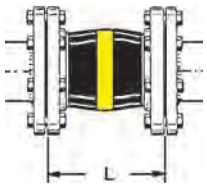
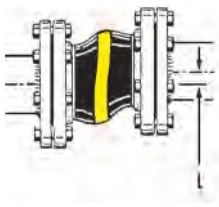
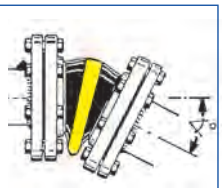
Elaflex Yellow Band / ERV–G

Range of movement

ERV-G							
Length	**Bellow size**	**Installation length**		**Axial ***		**Lateral ***	**Angular ***
BL	**DN**	**EL min.**	**EL max.**	**L min.**	**L max.**	**l**	**∢**
mm	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**degree**
130	25–80	120	135	100	150	±30	±30
130	100-150	120	135	100	150	±30	±20
130	200	115	140	105	160	±30	±10
130	250–300	125	140	120	160	±15	± 5
150	50–200	140	160	115	180	±30	±15
160	32–200	150	170	130	195	±35	±15
175	200–250	165	185	160	210	±10	± 5
200	250–300	190	210	160	235	±30	±10
200	350–600	190	210	160	235	±30	± 8
250	450	240	260	210	285	±35	±10
250	800	240	260	210	285	±35	± 5
260	700	250	270	220	290	±30	± 5
300	900–1000	290	310	260	340	±40	± 5

* Allowable static range of movement in service with usage of collar flanges up to 50°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	-700	-600	-400	-300	-300	-300	-200	-100									
With VSD			max.	max.	max.	max.	max.	max.	-600	-400	-200									
With VSR							max.	max.	max.	max.	max.	max.	max.	-700	-700	-700				
With VSRV														max.	max.	max.	max.	-700	-700	-700

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

Elaflex Yellow Steel / ERV-GS

Specification

For petroleum based products, DIN EN fuels up to 50% aromatic content, cooling water with oily anticorrosion additives, lubrication and hydraulic oil, seawater.

Materials

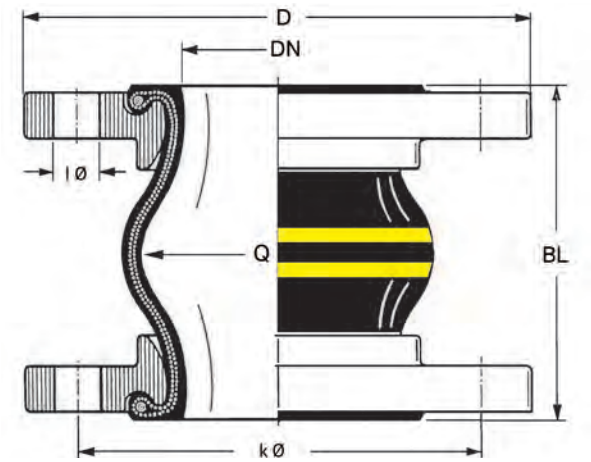
- Liner — NBR (nitrile), seamless, abrasion resistant
- Reinforcement — Steel wire cord
- Cover — Chloroprene CR
- Marking — 2 yellow bands, ERV DN .., PN .., production date
- Flanges◆ — Swivelling, DIN PN 10/16, carbon steel, zinc plated

Operating conditions

Temperature range (depending on medium)
-20°C up to +90°C, temporarily up to +100°C.
Fire resistant (to ISO 15540) up to 30 min. and +800°C.
Electrically dissipative.

Notes

◆ Table shows PN10/16 flanges – many other flange types are available
* For rubber expansion joints DN 25 bellows DN 32 are used



Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm◆			Part number◆
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	16	2.0	10	115	85	4 x 14	ERV-GS 25.16*
1¼"	32	130	16	3.5	15	140	100	4 x 18	ERV-GS 32.16
1½"	40	130	16	4.0	20	150	110	4 x 18	ERV-GS 40.16
2"	50	130	16	5.0	30	165	125	4 x 18	ERV-GS 50.16
2½"	65	130	16	5.5	50	185	145	4 x 18	ERV-GS 65.16
3"	80	130	16	7.1	85	200	160	8 x 18	ERV-GS 80.16
3"	80	150	16	7.2	85	200	160	8 x 18	ERV-GS 80x150.16
4"	100	130	16	8.3	125	220	180	8 x 18	ERV-GS 100.16
4"	100	150	16	8.4	125	220	180	8 x 18	ERV-GS 100x150.16
5"	125	130	16	10.1	185	250	210	8 x 18	ERV-GS 125.16
5"	125	150	16	10.2	185	250	210	8 x 18	ERV-GS 125x150.16
6"	150	130	16	12.6	250	285	240	8 x 22	ERV-GS 150.16
6"	150	150	16	12.7	250	285	240	8 x 22	ERV-GS 150x150.16
8"	200	130	16	16.9	400	340	295	8 x 22	ERV-GS 200.10
8"	200	175	16	17.2	400	340	295	8 x 22	ERV-GS 200x175.10
10"	250	130	16	22.3	600	395	350	12 x 22	ERV-GS 250.10
10"	250	175	16	22.6	600	395	350	12 x 22	ERV-GS 250x175.10
12"	300	130	16	29.9	800	445	400	12 x 22	ERV-GS 300.10
12"	300	200	16	30.4	800	445	400	12 x 22	ERV-GS 300x200.10
14"	350	200	16	44.0	1000	505	460	16 x 22	ERV-GS 350.10
16"	400	200	16	47.5	1375	565	515	16 x 26	ERV-GS 400.10
18"	450	200	10	51.0	1780	615	565	20 x 26	ERV-GS 450.10
18"	450	250	10	54.0	1780	615	565	20 x 26	ERV-GS 450x250.10
20"	500	200	10	57.5	2185	670	620	20 x 26	ERV-GS 500.10
24"	600	200	10	70.0	3080	780	725	20 x 30	ERV-GS 600.10

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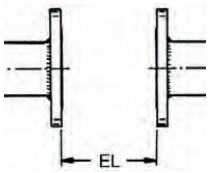
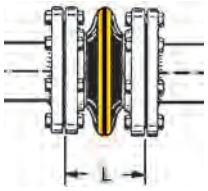
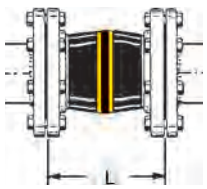
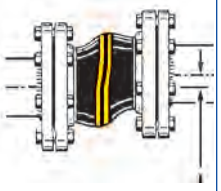
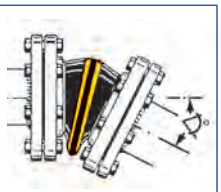
Elaflex Yellow Steel / ERV–GS

Range of movement

ERV-GS							
Length	Bellow size	Installation length		Axial *		Lateral *	Angular *
BL	DN	EL min.	EL max.	L min.	L max.	l	◁
mm	mm	mm	mm	mm	mm	mm	degree
130	25–80	120	135	100	145	±15	±20
130	100–150	120	135	100	145	±15	±15
130	200–300	125	140	115	150	±10	± 5
150	80–150	140	160	115	170	±15	±15
175	200–250	165	185	150	195	±15	± 5
200	300–350	190	210	170	230	±25	±10
200	400–600	190	210	160	230	±25	± 5
250	450	240	260	210	280	±30	± 5

* Allowable static range of movement in service with usage of collar flanges up to 60°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	max.	-900	-800	-700	-700	-700	-700	-600	-400	-400	-300	-300	-200				
With VSD			max.	max.	max.	max.	max.	max.	max.	max.	-800									
With VSR							max.	max.	max.	max.	max.	max.	max.	-800	-800	-700				
With VSRV														max.	max.	max.				

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

Elaflex Yellow Steel / ERV-GS HNBR

Specification

For petroleum based products, DIN EN fuels up to 50% aromatic content, cooling water with oily anticorrosion additives, lubrication and hydraulic oil, seawater. Very good aging, weathering and ozone resistance.

Materials

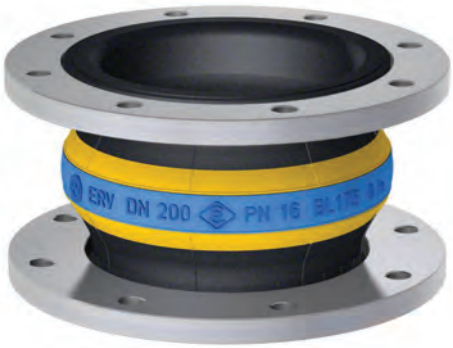
- Liner — HNBR (nitrile), seamless, high abrasion resistance
- Reinforcement — Steel wire cord
- Cover — Chloroprene CR
- Marking — Yellow-blue-yellow bands, ERV DN .., PN .., production date
- Flanges◆ — Swivelling, DIN PN 10/16, carbon steel, zinc plated

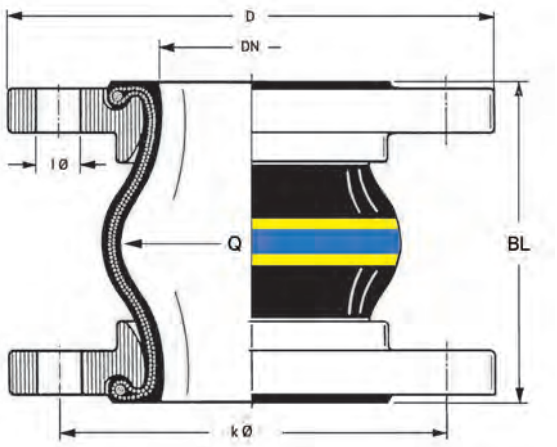
Operating conditions

Temperature range (depending on medium) -35°C up to +100°C, temporarily up to +120°C.
Fire resistant (to ISO 15540) up to 30 min. at +800°C.
Electrically dissipative.

Notes

◆ Table shows PN10/16 flanges – many other flange types are available
* For rubber expansion joints DN 25 bellows DN 32 are used





Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm◆			Part number◆
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	16	2.0	10	115	85	4 x 14	ERV-GS HNBR 25.16*
1¼"	32	130	16	3.5	15	140	100	4 x 18	ERV-GS HNBR 32.16
1½"	40	130	16	4.0	20	150	110	4 x 18	ERV-GS HNBR 40.16
2"	50	130	16	5.0	30	165	125	4 x 18	ERV-GS HNBR 50.16
2½"	65	130	16	5.5	50	185	145	4 x 18	ERV-GS HNBR 65.16
3"	80	130	16	7.1	85	200	160	8 x 18	ERV-GS HNBR 80.16
3"	80	150	16	7.2	85	200	160	8 x 18	ERV-GS HNBR 80x150.16
4"	100	130	16	8.3	125	220	180	8 x 18	ERV-GS HNBR 100.16
4"	100	150	16	8.4	125	220	180	8 x 18	ERV-GS HNBR 100x150.16
5"	125	130	16	10.1	185	250	210	8 x 18	ERV-GS HNBR 125.16
5"	125	150	16	10.2	185	250	210	8 x 18	ERV-GS HNBR 125x150.16
6"	150	130	16	12.6	250	285	240	8 x 22	ERV-GS HNBR 150.16
6"	150	150	16	12.7	250	285	240	8 x 22	ERV-GS HNBR 150x150.16
8"	200	130	16	16.9	400	340	295	8 x 22	ERV-GS HNBR 200.10
8"	200	175	16	17.2	400	340	295	8 x 22	ERV-GS HNBR 200x175.10
10"	250	130	16	22.3	600	395	350	12 x 22	ERV-GS HNBR 250.10
10"	250	175	16	22.6	600	395	350	12 x 22	ERV-GS HNBR 250x175.10
12"	300	130	16	29.9	800	445	400	12 x 22	ERV-GS HNBR 300.10
12"	300	200	16	30.4	800	445	400	12 x 22	ERV-GS HNBR 300x200.10
14"	350	200	16	44.0	1000	505	460	16 x 22	ERV-GS HNBR 350.10
16"	400	200	16	47.5	1375	565	515	16 x 26	ERV-GS HNBR 400.10
18"	450	200	10	51.0	1780	615	565	20 x 26	ERV-GS HNBR 450.10
18"	450	250	10	54.0	1780	615	565	20 x 26	ERV-GS HNBR 450x250.10
20"	500	200	10	57.5	2185	670	620	20 x 26	ERV-GS HNBR 500.10
24"	600	200	10	70.0	3080	780	725	20 x 30	ERV-GS HNBR 600.10

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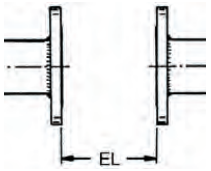
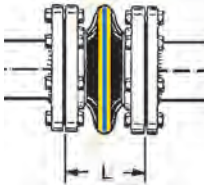
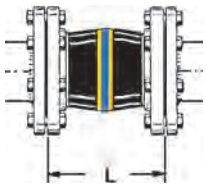
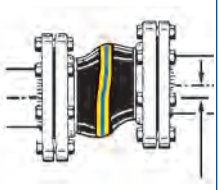
Elaflex Yellow Steel / ERV–GS HNBR

Range of movement

ERV-GS HNBR							
Length	Bellow size	Installation length		Axial *		Lateral *	Angular *
BL	DN	EL min.	EL max.	L min.	L max.	l	∢
mm	mm	mm	mm	mm	mm	mm	degree
130	25–80	120	135	100	145	± 15	± 20
130	100–150	120	135	100	145	± 15	± 15
130	200–300	125	140	115	150	± 10	± 15
150	80–150	140	160	115	170	± 15	± 15
175	200–250	165	185	150	195	± 15	± 15
200	300–350	190	210	170	230	± 25	± 10
200	400–600	190	210	160	230	± 25	± 15
250	450	240	260	210	280	± 30	± 15

* Allowable static range of movement in service with usage of collar flanges up to 60°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	max.	-900	-800	-700	-700	-700	-700	-600	-400	-400	-300	-300	-200				
With VSD			max.	max.	max.	max.	max.	max.	max.	max.	-800									
With VSR							max.	max.	max.	max.	max.	max.	max.	-900	-800	-700				
With VSRV															max.	max.				

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

Elaflex Yellow Band / ERV-G LT

Specification

For low temperature applications for standard-conform petroleum based products, eg. diesel, heating oil up to +90°C, aviation fuels, petroleum up to +60°C and gasoline up to +40°C.

Materials

- Liner — NBR (nitrile), seamless, high abrasion resistance
- Reinforcement — PA textile cord
- Cover — Chloroprene CR
- Marking — Yellow band with white 'LT' print, ERV DN.., PN 16, production date
- Flanges◆ — Swivelling, DIN PN 10/16, carbon steel, zinc plated

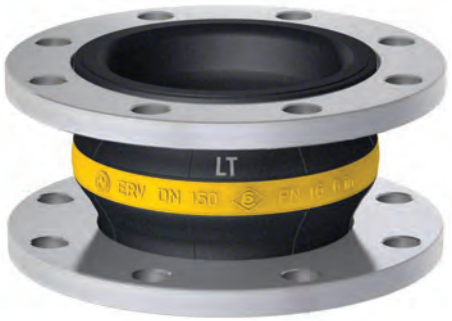
Operating conditions

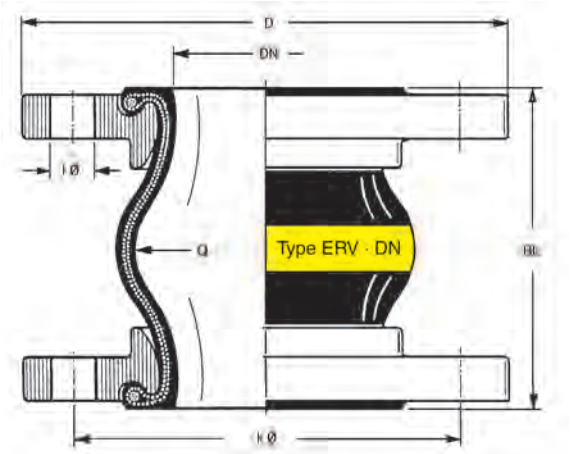
Temperature range (depending on medium) -40°C up to +90°C, temporarily up to +100°C. Electrically dissipative.

Notes

◆ Table shows PN10/16 flanges – many other flange types are available
* For rubber expansion joints DN 25 bellows DN 32 are used
Specifications subject to change without notice © ELAFLEX

Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm ◆			Part number ◆
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	16	1.9	15	115	85	4 x 14	ERV-G LT 25.16 *
1¼"	32	130	16	3.4	15	140	100	4 x 18	ERV-G LT 32.16
1½"	40	130	16	4.0	20	150	110	4 x 18	ERV-G LT 40.16
2"	50	130	16	4.6	30	165	125	4 x 18	ERV-G LT 50.16
2½"	65	130	16	5.3	50	185	145	4 x 18	ERV-G LT 65.16
3"	80	130	16	6.9	85	200	160	8 x 18	ERV-G LT 80.16
4"	100	130	16	8.0	125	220	180	8 x 18	ERV-G LT 100.16
5"	125	130	16	9.9	185	250	210	8 x 18	ERV-G LT 125.16
6"	150	130	16	12.3	250	285	240	8 x 22	ERV-G LT 150.16
8"	200	130	16	16.5	400	340	295	8 x 22	ERV-G LT 200.10
10"	250	130	16	21.6	600	395	350	12 x 22	ERV-G LT 250.10
12"	300	130	16	29.3	800	445	400	12 x 22	ERV-G LT 300.10





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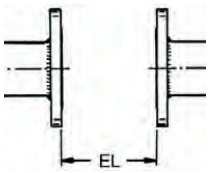
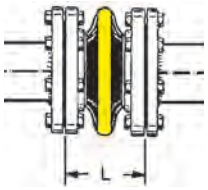
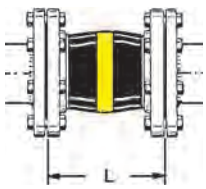
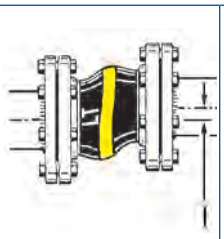
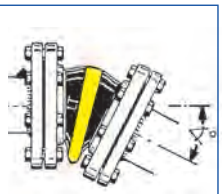
Elaflex Yellow Band / ERV–G LT

Range of movement

ERV-G LT							
Length	**Bellow size**	**Installation length**		**Axial ***		**Lateral ***	**Angular ***
BL	**DN**	**EL min.**	**EL max.**	**L min.**	**L max.**	**l**	**∢**
mm	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**degree**
130	25–80	120	135	100	150	±30	±30
	100–150	120	135	100	150	±30	±20
	200	115	140	105	160	±30	±10
	250–300	125	140	120	160	±15	± 5

* Allowable static range of movement in service with usage of collar flanges up to 50°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	-700	-600	-400	-300	-300	-300	-200	-100								
With VSD			max.	max.	max.	max.	max.	max.	-600	-400.	-200								
With VSR							max.	max.	max.	max.	max.								

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

DNV·GL

Elaflex Orange Band / ERV-OR

Specification

For Liquid Petroleum Gas (LPG) according to EN 589.
For tank trucks and refuelling stations.

Materials

- Liner — NBR (nitrile), seamless
- Reinforcement — PA textile cord
- Cover — Chloroprene CR, pricked
- Marking — Orange band, ERV DN .., PN 25, production date
- Flanges◆ — Swivelling, DIN 2635/PN 40 carbon steel, zinc plated

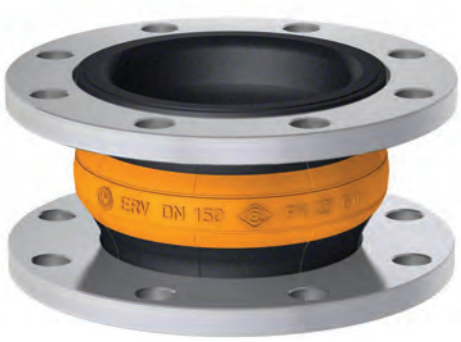
Operating conditions

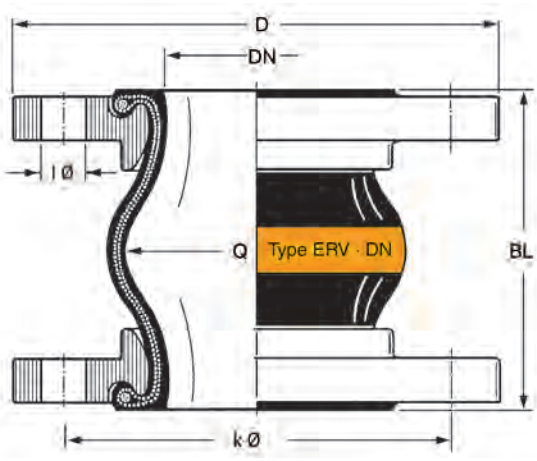
Temperature range (depending on medium) -20°C up to +90°C, temporarily up to 100°C.
Electrically dissipative.

Notes

◆ Table shows PN10/16 flanges – many other flange types are available
* For rubber expansion joints DN 25 bellows DN 32 are used

Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm◆			Part number◆
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1″	25	130	25	2.0	15	115	85	4 x 14	ERV-OR 25.25*
1¼″	32	130	25	3.0	15	140	100	4 x 18	ERV-OR 32.25
1½″	40	130	25	3.5	20	150	110	4 x 18	ERV-OR 40.25
2″	50	130	25	5.0	30	165	125	4 x 18	ERV-OR 50.25
2½″	65	130	25	6.0	50	185	145	8 x 18	ERV-OR 65.25
3″	80	130	25	7.5	85	200	160	8 x 18	ERV-OR 80.25
4″	100	130	25	10.0	125	235	190	8 x 22	ERV-OR 100.25
5″	125	130	25	12.0	185	270	220	8 x 26	ERV-OR 125.25
6″	150	130	25	16.0	250	300	250	8 x 26	ERV-OR 150.25





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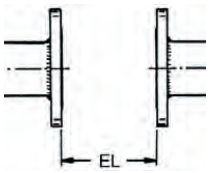
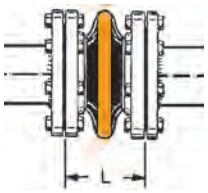
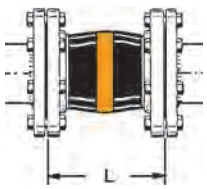
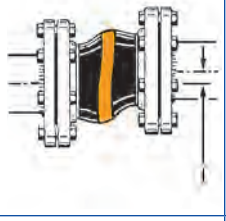
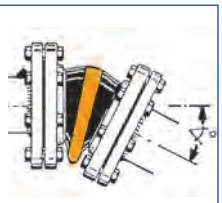
Elaflex Orange Band / ERV–OR

Range of movement

ERV-OR							
Length	**Bellow size**	**Installation length**		**Axial ***		**Lateral ***	**Angular ***
BL	**DN**	**EL min.**	**EL max.**	**L min.**	**L max.**	**l**	**∢**
mm	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**degree**
130	25–100	120	135	100	160	±30	±30

* Allowable static range of movement in service with usage of collar flanges up to 50°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	max.	max.	max.	max.	max.											
With VSD			max.	max.	max.	max.	max.	max.											

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

DNV·GL

Elaflex Green Band / ERV-GR

Specification

For chemicals, acids, alkalis and aggressive chemical waste water. For oil-contaminated compressed air up to +90°C.

Materials

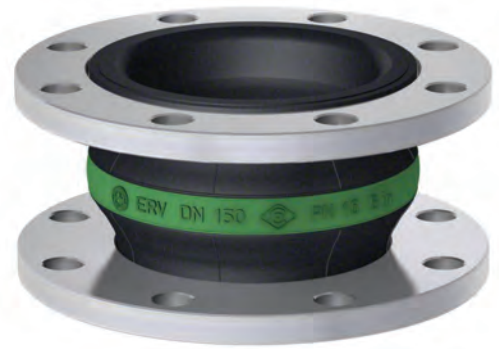
- Liner — Hypalon® CSM, seamless, high abrasion resistance
- Reinforcement — PA textile cord
- Cover — Hypalon® CSM
- Marking — Green band, ERV DN .., PN .., production date
- Flanges◆ — Swivelling, PN 10/16, carbon steel, zinc plated

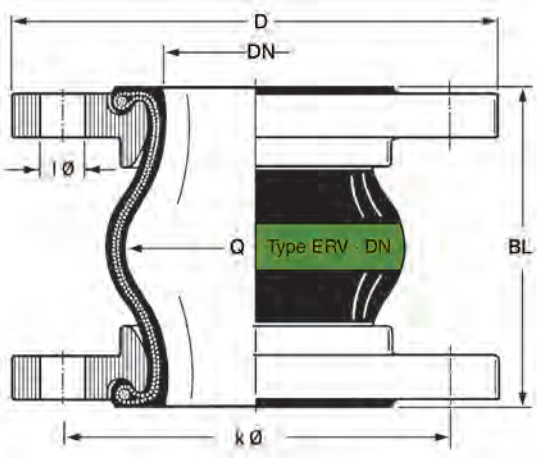
Operating conditions

Temperature range (depending on medium) -20°C up to +100°C, temporarily up to 110°C. Electrically non-conductive.

Notes

◆ Table shows PN10/16 flanges – many other flange types are available
* For rubber expansion joints DN 25 bellows DN 32 are used





Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm◆			Part number◆
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1"	25	130	16	1.9	15	115	85	4 x 14	ERV-GR 25.16*
1¼"	32	130	16	3.4	15	140	100	4 x 18	ERV-GR 32.16
1½"	40	130	16	4.0	20	150	110	4 x 18	ERV-GR 40.16
2"	50	130	16	4.6	30	165	125	4 x 18	ERV-GR 50.16
2½"	65	130	16	5.3	50	185	145	4 x 18	ERV-GR 65.16
3"	80	130	16	6.9	85	200	160	8 x 18	ERV-GR 80.16
4"	100	130	16	8.0	125	220	180	8 x 18	ERV-GR 100.16
5"	125	130	16	9.9	185	250	210	8 x 18	ERV-GR 125.16
6"	150	130	16	12.3	250	285	240	8 x 22	ERV-GR 150.16
8"	200	130	16	16.5	400	340	295	8 x 22	ERV-GR 200.10
10"	250	130	16	21.6	600	395	350	12 x 22	ERV-GR 250.10
12"	300	130	16	29.3	800	445	400	12 x 22	ERV-GR 300.10
14"	350	200	16	43.0	1000	505	460	16 x 22	ERV-GR 350.10
16"	400	200	16	46.0	1375	565	515	16 x 26	ERV-GR 400.10
18"	450	200	10	50.0	1780	615	565	20 x 26	ERV-GR 450.10
18"	450	250	10	53.0	1780	615	565	20 x 26	ERV-GR 450x250.10
20"	500	200	10	57.0	2185	670	620	20 x 26	ERV-GR 500.10
24"	600	200	10	70.0	3080	780	725	20 x 30	ERV-GR 600.10
28"	700	260	10	117.0	4800	895	840	24 x 30	ERV-GR 700.10

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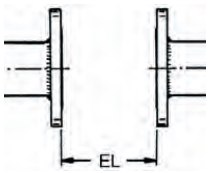
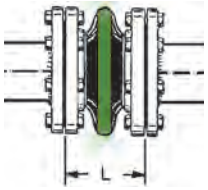
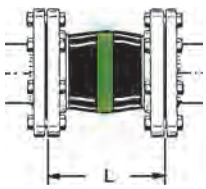
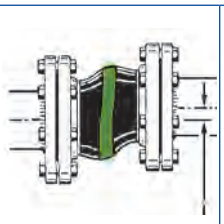
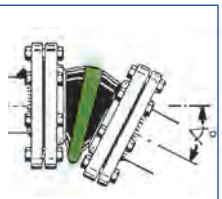
Elaflex Green Band / ERV–GR

Range of movement

ERV-GR						
Length	**Bellow size**	**Installation length**		**Axial ***		**Lateral ***	**Angular ***
BL	**DN**	**EL min.**	**EL max.**	**L min.**	**L max.**	**l**	**∢**
mm	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**degree**
130	25–80	120	135	100	150	±30	±30
130	100–150	120	135	100	150	±30	±20
130	200	115	140	105	160	±30	±10
130	250–300	125	140	120	160	±15	± 5
200	350–600	190	210	160	235	±30	± 8
250	450	240	260	205	285	±35	±10
260	700	250	270	220	290	±30	± 5

* Allowable static range of movement in service with usage of collar flanges up to 50°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	-700	-600	-400	-300	-300	-300	-200	-100									
With VSD			max.	max.	max.	max.	max.	max.	-600	-400	-200									
With VSR							max.	max.	max.	max.	max.	max.	max.	-700	-700	-700				
With VSRV														max.	max.	max.				

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

Elaflex White Band / ERV-W

Specification

For foodstuffs, also oil and fat containing food. Liner conforms to Recommendation XXI of BfR and FDA-21CFR 177.2600.

Not approved for drinking water.

Materials

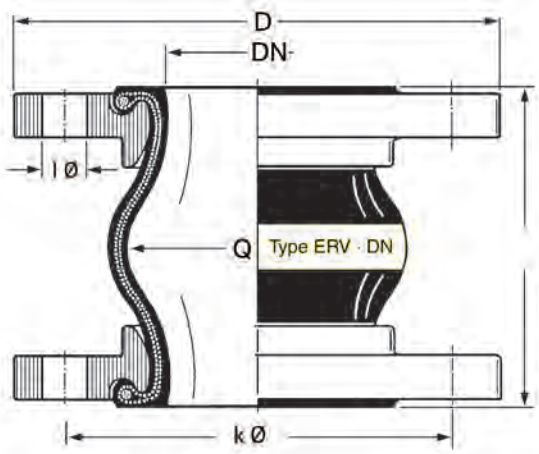
- Liner — NBR light grey, seamless, abrasion resistant
- Reinforcement — PA textile cord
- Cover — Chloroprene (CR)
- Marking — White band, ERV DN .., PN .., production date
- Flanges♦ — Swivelling, PN 10/16, carbon steel, zinc plated

Operating conditions

Temperature range (depending on medium) -20°C up to +90°C, temporarily up to 100°C. Electrically non-conductive.

Notes

♦ Table shows PN10/16 flanges – many other flange types are available
⋆ For rubber expansion joints DN 25 bellows DN 32 are used
Specifications subject to change without notice © ELAFLEX



Bellow size DN		Length BL	PN	Weight approx.	Effect. area	Flange measurements mm ♦			Part number ♦
in.	mm	mm	bar	kg	Q:cm²	D	k Ø	l x Ø	Type
1″	25	130	16	1.9	15	115	85	4 x 14	ERV-W 25.16 ⋆
1¼″	32	130	16	3.4	15	140	100	4 x 18	ERV-W 32.16
1½″	40	130	16	4.0	20	150	110	4 x 18	ERV-W 40.16
2″	50	130	16	4.6	30	165	125	4 x 18	ERV-W 50.16
2½″	65	130	16	5.3	50	185	145	4 x 18	ERV-W 65.16
3″	80	130	16	6.9	85	200	160	8 x 18	ERV-W 80.16
4″	100	130	16	8.0	125	220	180	8 x 18	ERV-W 100.16
5″	125	130	16	9.9	185	250	210	8 x 18	ERV-W 125.16
6″	150	130	16	12.3	250	285	240	8 x 22	ERV-W 150.16
8″	200	130	16	16.5	400	340	295	8 x 22	ERV-W 200.10
10″	250	130	16	21.6	600	395	350	12 x 22	ERV-W 250.10
12″	300	130	16	29.3	800	445	400	12 x 22	ERV-W 300.10
14″	350	200	16	43.0	1000	505	460	16 x 22	ERV-W 350.10
16″	400	200	16	46.0	1375	565	515	16 x 26	ERV-W 400.10
18″	450	200	10	50.0	1780	615	565	20 x 26	ERV-W 450.10
18″	450	250	10	53.0	1780	615	565	20 x 26	ERV-W 450x250.10
20″	500	200	10	57.0	2185	670	620	20 x 26	ERV-W 500.10
24″	600	200	10	70.0	3080	780	725	20 x 30	ERV-W 600.10

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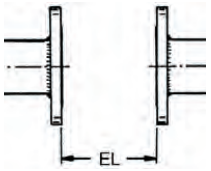
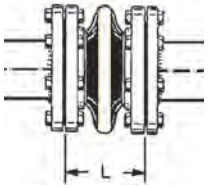
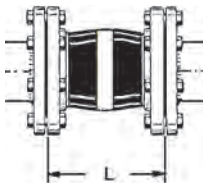
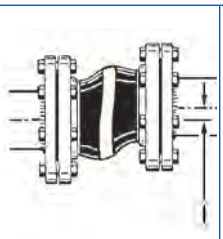
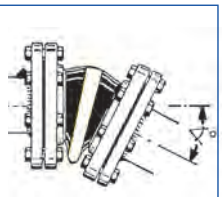
Elaflex White Band / ERV–W

Range of movement

ERV-W						
Length	**Bellow size**	**Installation length**		**Axial ***		**Lateral ***	**Angular ***
BL	**DN**	**EL min.**	**EL max.**	**L min.**	**L max.**	**l**	**∢**
mm	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**degree**
130	25–80	120	135	100	150	±30	±30
130	100–150	120	135	100	150	±30	±20
130	200	115	140	105	160	±30	±10
130	250–300	125	140	120	160	±15	± 5
200	350–600	190	210	160	235	±30	± 8
250	450	240	260	205	285	±35	±10

* Allowable static range of movement in service with usage of collar flanges up to 50°C
Please note: Data not valid for *combined* movements

Permissable vacuum [mbar]

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
Without VSD/VSR	max.	max.	max.	-700	-600	-400	-300	-300	-300	-200	-100									
With VSD			max.	max.	max.	max.	max.	max.	-600	-400	-200									
With VSR							max.	max.	max.	max.	max.	max.	max.	-700	-700	-700				
With VSRV														max.	max.	max.				

Data measured at room temperature with new expansion joints of standard length and non swelling media. For swelling media use a safety factor. A compressed installation improves the table listed vacuum resistance. The maximum permittable elongation (L max.) reduces the vacuum resistance by 50%.

In this case we recommend using vacuum support spirals or vacuum support rings (see page 41).

For dependencies of overpressure, range of movement and temperature please see table on page 7.

Approvals

These certificates can be obtained from sales@flexej.co.uk
There is an overview of all certificates on page 47

DNV·GL

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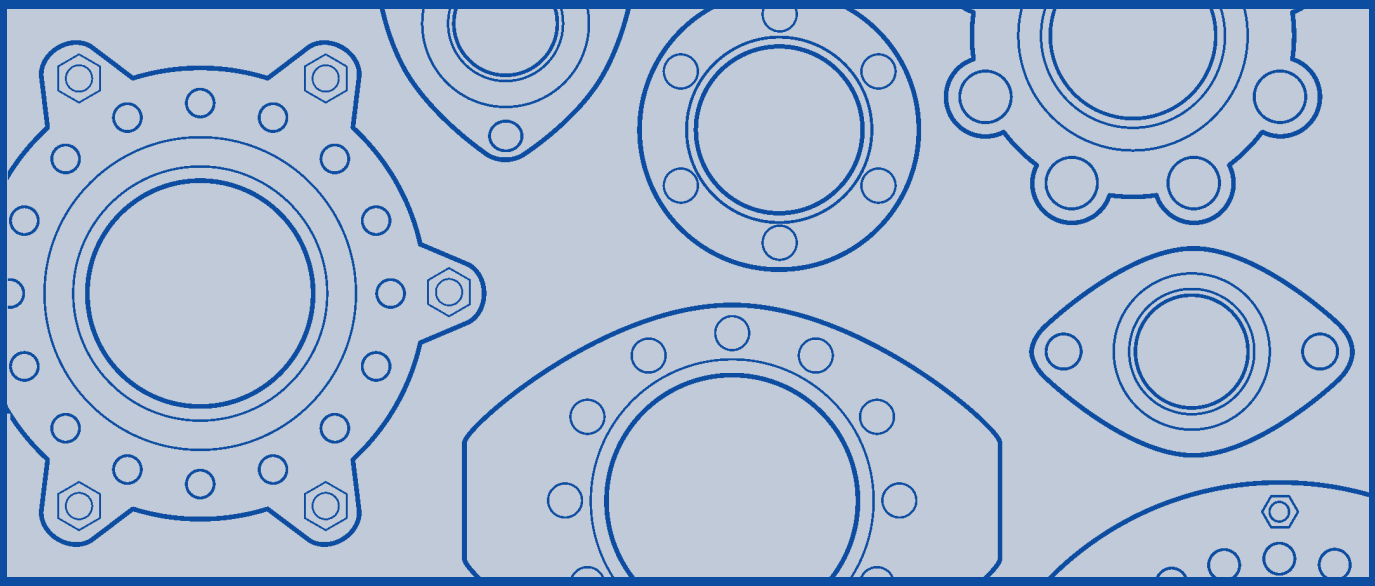


Flanges & Accessories

Flanges

Commonly used measurements

Flange standard		DIN PN 6				DIN PN 10				DIN PN 16				DIN PN 25				DIN PN 40			
Part number		.6				.10				.16				.25				.40			
DN		DØ	kØ	n	lØ	DØ	kØ	n	lØ	DØ	kØ	n	lØ	DØ	kØ	n	lØ	DØ	kØ	n	lØ
mm	in	mm	mm		mm		mm		mm		mm		mm		mm		mm		mm		mm
25	1"					115	85	4	14	115	85	4	14	115	85	4	14	115	85	4	14
32	1¼"	120	90	4	14	140	100	4	18	140	100	4	18	140	100	4	18	140	100	4	18
40	1½"	130	100	4	14	150	110	4	18	150	110	4	18	150	110	4	18	150	110	4	18
50	2"	140	110	4	14	165	125	4	18	165	125	4	18	165	125	4	18	165	125	4	18
65	2½"	160	130	4	14	185	145	4	18	185	145	4	18	185	145	8	18	185	145	8	18
80	3"	190	150	4	18	200	160	8	18	200	160	8	18	200	160	8	18	200	160	8	18
100	4"	210	170	4	18	220	180	8	18	220	180	8	18	235	190	8	22	235	190	8	22
125	5"	240	200	8	18	250	210	8	18	250	210	8	18	270	220	8	26	270	220	8	26
150	6"	265	225	8	18	285	240	8	22	285	240	8	22	300	250	8	26	300	250	8	26
200	8"	320	280	8	18	340	295	8	22	340	295	12	22	360	310	12	26	375	320	12	30
250	10"	375	335	12	18	395	350	12	22	405	355	12	26	425	370	12	30	450	385	12	33
300	12"	440	395	12	22	445	400	12	22	460	410	12	26	485	430	16	30	515	450	16	33
350	14"	490	445	12	22	505	460	16	22	520	470	16	26	555	490	16	33	580	510	16	36
400	16"	540	495	16	22	565	515	16	26	580	525	16	30	620	550	16	36	660	585	16	39
450	18"	595	550	16	22	615	565	20	26	640	585	20	30	670	600	20	36	685	610	20	39
500	20"	645	600	20	22	670	620	20	26	715	650	20	33	730	660	20	36	755	670	20	42
600	24"	755	705	20	26	780	725	20	30	840	770	20	36	845	770	20	39				
700	28"	860	810	24	26	895	840	24	30	910	840	24	36	960	875	24	42				
800	32"	975	920	24	30	1015	950	24	33	1025	950	24	39	1085	990	24	48				
900	36"	1075	1020	24	30	1115	1050	28	33	1125	1050	28	39	1185	1090	28	48				
1000	40"	1175	1120	28	30	1230	1160	28	36	1255	1170	28	42	1320	1210	28	56				

A wide range of common flange types is available from stock in carbon steel with zinc plating.

Any flange drilling, material or coating can be supplied to order, please enquire.

It is also possible to have two different flange types on the same rubber bellows, making the product an ideal way to connect between equipment with different flanges.

The following pages list basic dimensions for the most common type we provide, please see the Flange Finder www.flexej.co.uk for a wider range of data.

Flanges

Commonly used measurements

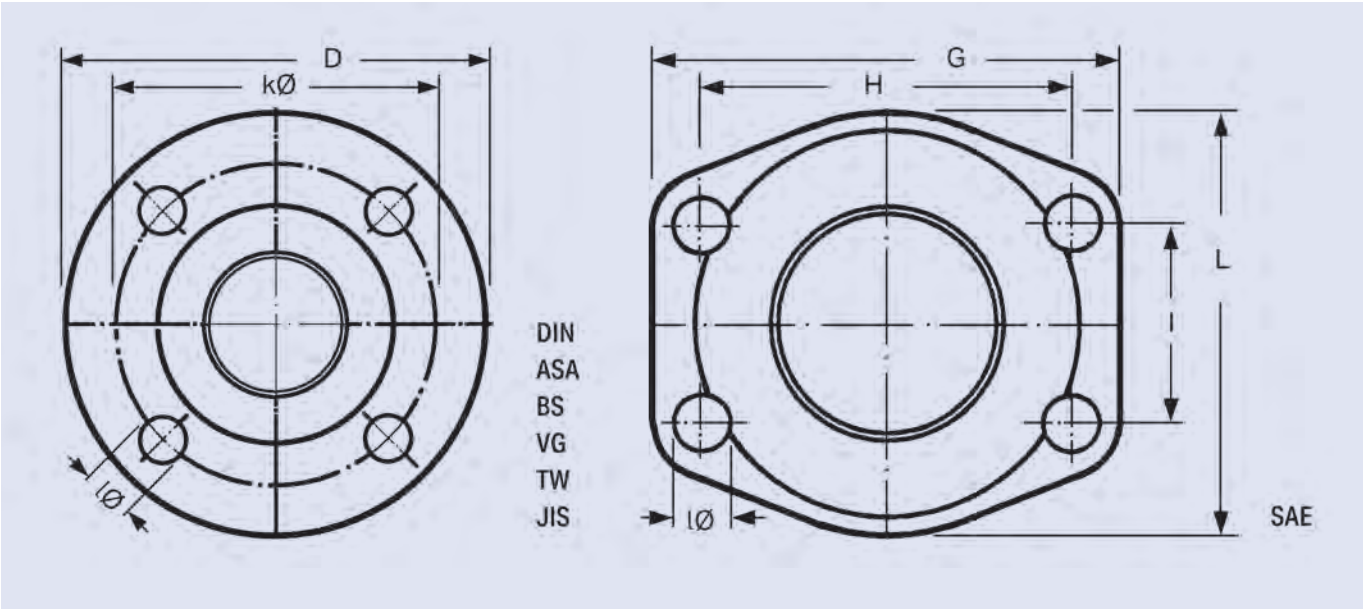
Flange standard		ANSI B 16.5 150 lb/sq in.							ANSI B 16.5 300 lb/sq.in.							SAE J518c					
Part number		.ASA 150							.ANSI 300							.SAE					
DN		DØ		kØ		n	lØ		DØ		kØ		n	lØ		G	H	I	L	n	lØ
mm	in.	mm	in.	mm	in.		mm	in.	mm	in.	mm	in.		mm	in.	mm	mm	mm	mm		mm
25	1"	108.0	4½"	79.4	3⅛"	4	15.9	⅝	123.8	4⅞	88.9	3½"	4	19.0	¾"						
32	1¼"	117.5	4⅝"	88.9	3½"	4	15.9	⅝"	133.4	5¼"	98.4	3⅞"	4	19.0	¾"	79	58.7	30.2	73	4	13
40	1½"	127.0	5"	98.4	3⅞"	4	15.9	⅝"	155.6	6⅛"	114.3	4¾"	4	22.2	⅞"	94	70.0	35.7	83	4	13
50	2"	152.4	6"	120.7	4¾"	4	19.0	¾"	165.1	6½"	127.0	5"	8	19.0	¾"	102	78.0	42.9	97	4	13
65	2½"	177.8	7"	139.7	5½"	4	19.0	¾"	190.5	7½"	149.2	5⅞"	8	22.2	⅞"	114	89.0	50.8	115	4	13
80	3"	190.5	7½"	152.4	6"	4	19.0	¾"	209.6	8¼"	168.3	6⅝"	8	22.2	⅞"	135	106.4	61.9	131	4	17
100	4"	228.6	9"	190.5	7½"	8	19.0	¾"	254.0	10"	200.0	7⅞"	8	22.2	⅞"	162	130.2	77.8	152	4	17
125	5"	254.0	10"	215.9	8½"	8	22.2	⅞"	279.4	11"	235.0	9¼"	8	22.2	⅞"	184	152.4	92.1	181	4	17
150	6"	279.4	11"	241.3	9½"	8	22.2	⅞"	317.5	12½"	269.9	10⅝"	12	22.2	⅞"						
200	8"	342.9	13½"	298.5	11¾"	8	22.2	⅞"	381.0	15"	330.2	13"	12	25.4	1"						
250	10"	406.4	16"	361.9	14¼"	12	25.4	1"	444.5	17½"	387.3	15¼"	16	28.6	1⅛"						
300	12"	482.6	19"	431.8	17	12	25.4	1"	520.7	20½"	450.8	17¾"	16	31.7	1¼"						
350	14"	533.4	21"	476.2	18⅜"	12	28.6	1⅛"	584.2	23"	514.3	20¼"	20	31.7	1¼"						
400	16"	596.9	23½"	539.7	21¼"	16	28.6	1⅛"	647.7	25½"	571.5	22½"	20	34.9	1⅜"						
450	18"	635.0	25"	577.9	21¾"	16	31.7	1¼"	711.2	28"	628.7	24¾"	24	34.9	1⅜"						
500	20"	698.5	27½"	635.0	25"	20	31.7	1¼"	774.7	30½"	685.8	27"	24	34.9	1⅜"						
600	24"	812.8	32"	749.3	29½"	20	34.9	1⅜"	914.4	36"	812.8	32"	24	41.3	1⅝"						

Flange standard		BS 10 table D							BS 10 table E							BS 10 table F						
Part number		.BS 10D							.BS 10E							.BS 10F						
DN		DØ		kØ		n	lØ		DØ		kØ		n	lØ		DØ		kØ		n	lØ	
mm	in	mm	in	mm	in		mm	in.	mm	in.	mm	in.		mm	in.	mm	in.	mm	in.		mm	in.
25	1"	114.3	4½"	82.5	3¼"	4	14.3	$^{9}/_{16}$"	114.3	4½"	82.5	3¼"	4	14.3	$^{9}/_{16}$"	120.6	4¾"	87.3	$3^{7}/_{16}$"	4	17.5	$^{11}/_{16}$"
32	1¼"	120.6	4¾"	87.3	$3^{7}/_{16}$"	4	14.3	$^{9}/_{16}$"	120.6	4¾"	87.3	$3^{7}/_{16}$"	4	14.3	$^{9}/_{16}$"	133.3	5¼"	98.4	3⅞"	4	17.5	$^{11}/_{16}$"
40	1½"	133.3	5¼"	98.4	3⅞"	4	14.3	$^{9}/_{16}$"	133.3	5¼"	98.4	3⅞"	4	14.3	$^{9}/_{16}$"	139.7	5½"	104.8	4⅛"	4	17.5	$^{11}/_{16}$"
50	2"	152.4	6"	114.3	4½"	4	17.5	$^{11}/_{16}$"	152.4	6"	114.3	4½"	4	17.5	$^{11}/_{16}$"	165.1	6½"	127.0	5"	4	17.5	$^{11}/_{16}$"
65	2½"	165.1	6½"	127.0	5"	4	17.5	$^{11}/_{16}$"	165.1	6½"	127.0	5"	4	17.5	$^{11}/_{16}$"	184.1	7¼"	146.0	5¾"	8	17.5	$^{11}/_{16}$"
80	3"	184.1	7¼"	146.0	5¾"	4	17.5	$^{11}/_{16}$"	184.1	7¼"	146.0	5¾"	4	17.5	$^{11}/_{16}$"	203.2	8"	165.1	6½"	8	17.5	$^{11}/_{16}$"
100	4"	215.9	8½"	177.8	7"	4	17.5	$^{11}/_{16}$"	215.9	8½"	177.8	7"	8	17.5	$^{11}/_{16}$"	228.6	9"	190.5	7½"	8	17.5	$^{11}/_{16}$"
125	5"	254.0	10"	209.5	8¼"	8	17.5	$^{11}/_{16}$"	254.0	10"	209.5	8¼"	8	17.5	$^{11}/_{16}$"	279.4	11"	234.9	9¼"	8	22.2	⅞"
150	6"	279.4	11"	234.9	9¼"	8	17.5	$^{11}/_{16}$"	279.4	11"	234.9	9¼"	8	22.2	⅞"	304.8	12"	260.3	10¼"	12	22.2	⅞"
200	8"	336.5	13¼"	292.1	11½"	8	17.5	$^{11}/_{16}$"	336.5	13¼"	292.1	11½"	8	22.2	⅞"	368.3	14½"	323.9	12¾"	12	22.2	⅞"
250	10"	406.4	16"	355.6	14"	8	22.2	⅞"	406.4	16"	355.6	14"	12	22.2	⅞"	431.8	17"	381.0	15"	12	25.4	1"
300	12"	457.2	18"	406.4	16"	12	22.2	⅞"	457.2	18"	406.4	16"	12	25.4	1"	489.0	19¼"	438.1	17¼"	16	25.4	1"

Flanges

Commonly used measurements

Flange standard		VG 95959-1				DIN 28460 'TW'				JIS 5 K				JIS 10 K				JIS 16 K			
Part number		.VG-1				.TW				.JIS 5 K				.JIS 10 K				.JIS 16 K			
DN		DØ	kØ	n	lØ	DØ	kØ	n	lØ	DØ	kØ	n	lØ	DØ	kØ	n	lØ	DØ	kØ	n	lØ
mm	in.	mm	mm		mm	mm	mm		mm	mm	mm		mm	mm	mm		mm	mm	mm		mm
25	1"													125	90	4	19	125	90	4	19
32	1¼"	100	76	6	11					115	90	4	15	135	100	4	19	135	100	4	19
40	1½"	108	84	6	11					120	95	4	15	140	105	4	19	140	105	4	19
50	2"	120	96	6	11	154	130	8	11.5	130	105	4	15	155	120	4	19	155	120	8	19
65	2½"	140	116	8	11	154	130	8	11.5	155	130	4	15	175	140	4	19	175	140	8	19
80	3"	150	126	8	11	154	130	8	11.5	180	145	4	19	185	150	8	19	200	160	8	23
100	4"	172	148	10	11	174	150	8	14	200	165	8	19	210	175	8	19	225	185	8	23
125	5"	200	176	10	11	204	176	8	14	235	200	8	19	250	210	8	23	270	225	8	25
150	6"	226	202	12	11	240	210	12	14	265	230	8	19	280	240	8	23	305	260	12	25
200	8"	288	264	16	11	308	274	16	16	320	280	8	23	330	290	12	23	350	305	12	25
250	10"									385	345	12	23	400	355	12	25	430	380	12	27
300	12"									430	390	12	23	445	400	16	25	480	430	16	27
350	14"									480	435	12	25	490	445	16	25	540	480	16	33
400	16"									540	495	16	25	560	510	16	27	605	540	16	33
450	18"									605	555	16	25	620	565	20	27	675	605	20	27
500	20"									655	605	20	25	675	620	20	27	730	660	20	33
600	24"									770	715	20	27	795	730	24	33	845	770	24	30



Accessories
ERV tie rods and angular limiters

Tied Flanges – Type ZS

The table shows that the pressure thrust forces in small ERV bellows up to DN 50 are low and tie rods normally are not necessary.

Tie rods are required when it is not possible to restrain the pipe system with sufficient fixed points or when the load on some of the fixed points needs to be decreased.

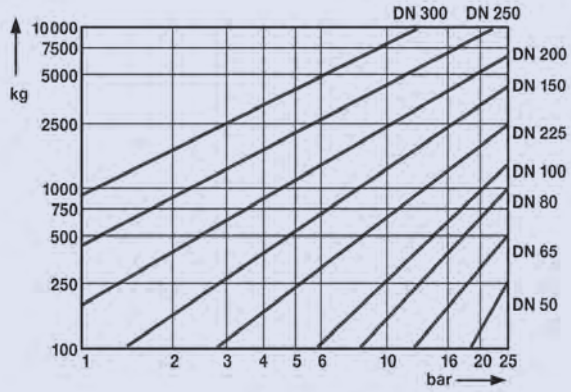
Generally, axial restraint is best achieved with good quality adjustable tie rods in conjunction with single piece flanges, which include the tie rod lugs. The tie rods can be adjusted to suit actual installed conditions.

The tie rods are rated for the force at test pressure and are supplied complete with noise reducing bushes made of weatherproof rubber. For DN 350 and larger the tie rods have spherical washers.

When assembling ERV ZS / ZSS ensure that the nuts on the tie rods are locked with the supplied lock nuts. When installing check the maximum and minimum installation lengths for the specific bellows – refer to the data in this catalogue.

DN mm	Number of tie rods ◆	Part number type
25	2	ERV 25 ... ZS
32	2	ERV 32 ... ZS
40	2	ERV 40 ... ZS
50	2	ERV 50 ... ZS
65	2	ERV 65 ... ZS
80	2	ERV 80 ... ZS
100	2	ERV 100 ... ZS
125	2	ERV 125 ... ZS
150	2	ERV 150 ... ZS
200	2	ERV 200 ... ZS
250	2	ERV 250 ... ZS
300	4	ERV 300 ... ZS
350	4	ERV 350 ... ZS
400	4	ERV 400 ... ZS
450	4	ERV 450 ... ZS
500	4	ERV 500 ... ZS
600	4	ERV 600 ... ZS

◆ Values for flanges DIN PN 10, number of tie rods may change with different flange standards.

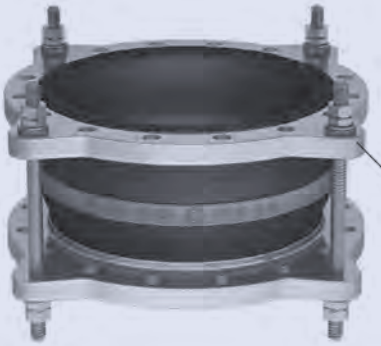


Pressure thrust forces of ERV Expansion Joints (installation length = 130mm)

Type ... ZS

Tie rods with outer limitation in rubber bushings

(PN16 up to DN 200)
(PN10 up to DN 300)



Type ... ZS

Tie rods with outer limitation in spherical discs and conical seats

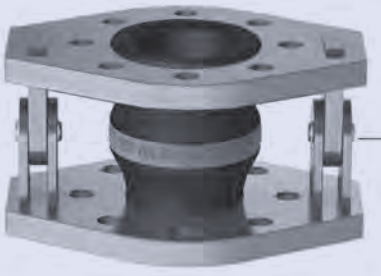
(PN16 from DN 250)
(PN10 from DN 350)

Special designs

Type ... ZSS

Tie rods with inner and outer limitation

(up to DN 300)



Type ... RG

Angular limiter

(up to DN 300)

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ELAFLEX

Accessories

ERV inner sleeves and PTFE linings

Type SR

ERV inner protection sleeve on stainless steel AISI 316 Ti to prevent abrasion of the rubber liner, ie. for media containing abrasive components or flow with cavitation.

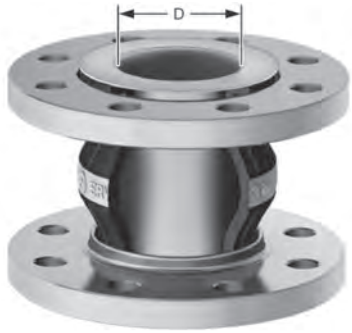
Available for all ERV types DN 25–600. Wall thickness of stainless steel sleeve depending on DN, between 1 and 3mm. Lateral and angular movements are significantly reduced.

Conical sleeves available on request.

Please note:

- The nominal bore is reduced.
- A gasket is required between the outer face of the sleeve and the mating flange. The rubber face of the bellows seals to the inner face of the sleeve.

* For rubber expansion joints DN 25 bellows DN 32 are used.



DN mm	D ≈ mm	Part number type
25	22	ERV... 25...SR ◆
32	22	ERV... 32...SR
40	30	ERV... 40...SR
50	38	ERV... 50...SR
65	53	ERV... 65...SR
80	72	ERV... 80...SR
100	88	ERV...100...SR
125	112	ERV...125...SR
150	138	ERV...150...SR
200	190	ERV...200...SR
250	235	ERV...250...SR
300	290	ERV...300...SR
350	320	ERV...350...SR
400	390	ERV...400...SR
450	440	ERV...450...SR
500	490	ERV...500...SR
600	590	ERV...600...SR

Type TA

ERV white PTFE lining. Used when the chemical resistance of the chosen ERV type is insufficient. Resistant to all commonly used liquids.

Electrically isolating, therefore not suitable for flammable liquids in Ex-Zones. Allowable working temperature of expansion joint has to be observed. For maximum pressure of 6 bar – not suitable for vacuum.

Available for DN 25–300. Seamless lining with sealing surface, PTFE, approx. 1mm thickness. Delivered only as complete factory mounted unit with flanges. Unmounted lining not available. The allowable movement range of the ERV is restricted by approximately 50%.

Conforms to FDA.

* For rubber expansion joints DN 25 bellows DN 32 are used.

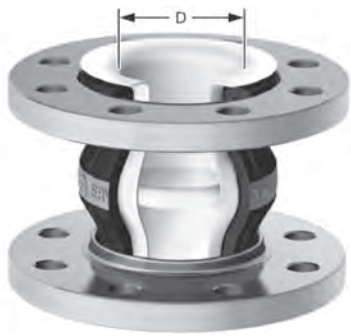
DN mm	D ≈ mm	Part number type
25	26	ERV... 25...TA ◆
32	26	ERV... 32...TA
40	34	ERV... 40...TA
50	44	ERV... 50...TA
65	59	ERV... 65...TA
80	72	ERV... 80...TA
100	92	ERV...100...TA
125	115	ERV...125...TA
150	138	ERV...150...TA
200	187	ERV...200...TA
250	235	ERV...250...TA
300	285	ERV...300...TA

Type TAS

ERV with PTFE lining and PTFE vacuum support ring. Properties as type TA, but also suitable for vacuum service, up to 70°C.

Available for DN 50–300. Seamless PTFE lining as type TA but additionally with factory mounted support ring of solid PTFE. The allowable movement range is restricted by approximately 50%.

Conforms to FDA.



DN mm	D ≈ mm	Part number type
50	44	ERV...50...TAS
65	59	ERV...65...TAS
80	72	ERV...80...TAS
100	92	ERV...100...TAS
125	115	ERV...125...TAS
150	138	ERV...150...TAS
200	187	ERV...200...TAS
250	235	ERV...250...TAS
300	285	ERV...300...TAS

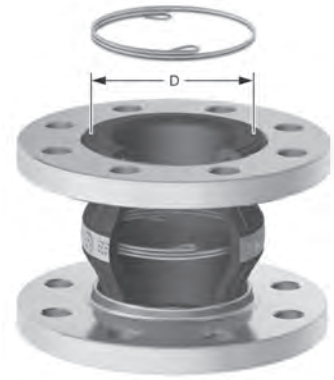
Accessories

Vacuum support spirals and rings for ERV

Type VSD

ERV with vacuum support spiral. Spiral of AISI 316 Ti, used when the vacuum resistance (see data sheet for each bellows type) is not sufficient.

Available for DN 50–300. Number of turns and material thickness vary with DN. The vacuum support spiral can be easily installed. No restriction of admissible pressure for ERV. Movement range restricted by approximately 50%.



DN mm	D ≈ mm	Part number type
50	85	ERV... 50...VSD
65	110	ERV... 65...VSD
80	130	ERV... 80...VSD
100	180	ERV...100...VSD
125	230	ERV...125...VSD
150	270	ERV...150...VSD
200	320	ERV...200...VSD
250	420	ERV...250...VSD
300	500	ERV...300...VSD

Type VSR

ERV with vacuum support ring. Ring of AISI 316 Ti, used when the vacuum resistance (see data sheet for each bellows type) is not sufficient.

Available for DN 125–600. The vacuum support rings can be easily installed. No restriction of admissible pressure for ERV. Movement range restricted by approx. 50%.

DN mm	D ≈ mm	Part number type
125	175	ERV...125...VSR
150	190	ERV...150...VSR
200	260	ERV...200...VSR
250	300	ERV...250...VSR
300	350	ERV...300...VSR
350	410	ERV...350...VSR
400	480	ERV...400...VSR
450	440	ERV...450...VSR
500	580	ERV...500...VSR
600	680	ERV...600...VSR

Type VSRV

ERV with bolted vacuum support ring. For maximum vacuum resistance (see data sheet for each bellows type) is not sufficient. Bolted ring in stainless steel AISI 316 Ti .

Available for DN 500–1000. The vacuum support rings can be easily installed. No restriction of admissible pressure for ERV. Movement range restricted by approx. 50%.

DN mm	D ≈ mm	Part number type
500	545	ERV...500...VSRV
600	640	ERV...600...VSRV
700	780	ERV...700...VSRV
800	850	ERV...800...VSRV
900	1000	ERV...900...VSRV
1000	1085	ERV..1000...VSRV

Product by FlexEJ Ltd

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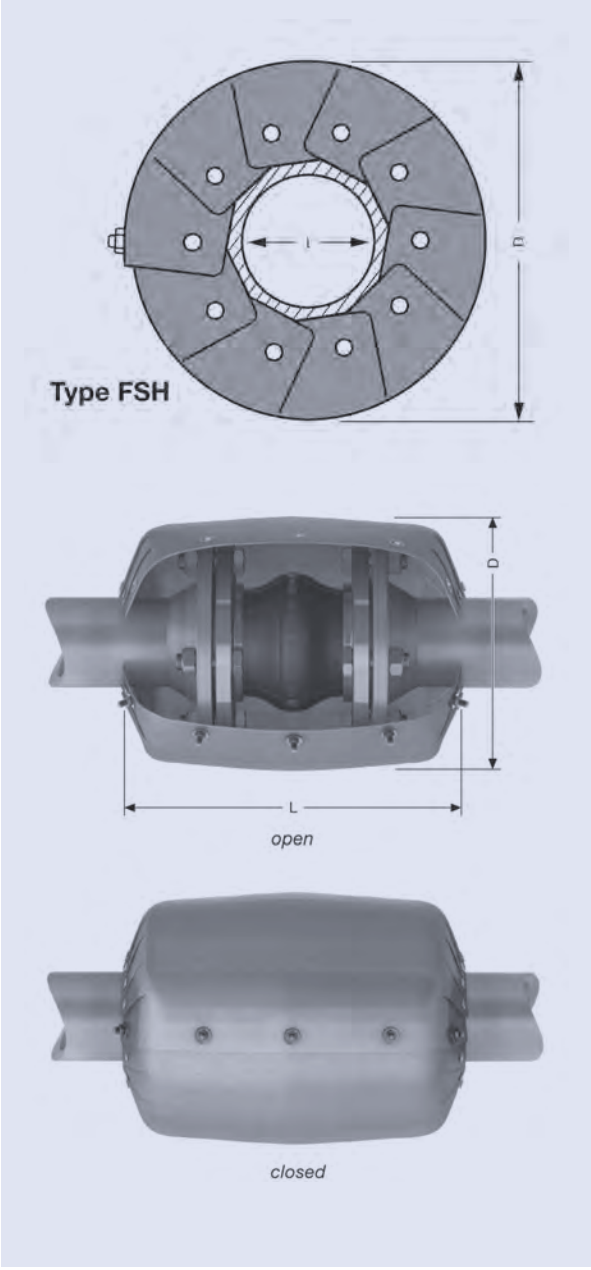
Accessories
Flame protection covers

FSH

Flame protection cover for ERV rubber expansion joints, made of several layers of glass fibre fabric with a surface cover of silver coloured high temperature resistant silicone-aluminium-glass fabric (certified acc. MED A1 / 3.13). Screws, nuts and washers of brass. It reliably protects the expansion joint against radiation heat and direct flames up to + 800°C for 30 minutes (ISO 15540).

The flame protection cover is resistant against oil and chemical influences as well as against ageing and weathering. Because of its split design the flame protection cover can be mounted after installation of the bellows or re-opened. The dimensions have been chosen in such a way that the counter flanges are also completely covered. The allowed range of movement is not restricted.



Type for ERV with flanges according to DIN PN 10/16				
DN mm	I Ø mm	D Ø mm	Length L mm	Part number type
25	30	170	260	FSH for ERV 25x130
32	40	190	260	FSH for ERV 32x130
40	45	195	260	FSH for ERV 40x130
50	60	210	260	FSH for ERV 50x130
65	75	225	260	FSH for ERV 65x130
80	90	240	260	FSH for ERV 80x130
100	110	260	260	FSH for ERV 100x130
125	135	285	260	FSH for ERV 125x130
150	160	330	260	FSH for ERV 150x130
200	220	385	260	FSH for ERV 200x130
250	265	435	260	FSH or ERV 250x130
300	315	485	260	FSH for ERV 300x130
25	30	170	300	FSH for ERV 25x160
32	40	190	300	FSH for ERV 32x160
40	45	195	300	FSH for ERV 40x160
50	60	210	300	FSH for ERV 50x160
65	75	225	300	FSH for ERV 65x160
80	90	240	300	FSH for ERV 80x160
100	110	260	300	FSH for ERV 100x160
125	135	285	300	FSH for ERV 125x160
150	160	330	300	FSH for ERV 150x160
200	220	385	300	FSH for ERV 200x160
250	265	435	340	FSH for ERV 250x200
300	315	485	340	FSH for ERV 300x200

Hints & Information

Hints for the pipework designer

ERV rubber expansion joints are delivered ready for installation. The swivelling flanges can be fitted in any desired position and have stabilising rims to ease the assembly. Flanges with stabilising rim (collar) also helps to maintain a safety gap between the ends of the screws and the bellow throughout the whole range of movement and avoids injuries.

Correct mating flanges

Seals are not required if the sealing surface of the mating flanges of the pipework are of the same size. Seals (as shown in Fig. E) should be only used in order to prevent damage to the rubber sealing surface, for example if the mating flanges either have a larger internal diameter, sharp edges or irregularities eg. welding beads.

Crushing strength

The maximum operating pressure and test pressure not only depends on the burst pressure of the rubber bellow but can also be affected by operating temperature and design pressure/ nominal pressure of the used flanges. For full details please see page 7. The burst pressure (at room temperature) is at least 3–4 times the nominal pressure (PN). Pressure test certificates can be issued upon request.

Vacuum resistance

The maximum vacuum depends on size, operating temperature, length of installation and the installation of vacuum support rings (page 41). Please see type specific data sheets for details. The vacuum resistance can be slightly increased even without vacuum support rings if the installation length is shortened (eg. by 20mm). The vacuum resistance decreases if a longer installation length is chosen, or the expansion joint is lengthened in operation.

Weather and heat resistance

The outer rubber (cover) is resistant against weathering and protects the reinforcements against ageing, abrasion and corrosion. For the permitted temperature range please see type specific data sheets. For permanently warm operating conditions including external radiation heat please see page 7.

ERV types with an outer rubber of CR or Hypalon (CSM) are (within limits) oil proof and flame resistant. An additional flame protection can be achieved by using a flame protection cover conforming to the 'Germanischer Lloyd' standard, see page 42.

Pressure loss

The internal design of the ERV bellows allows a high flow with little turbulence. Therefore the pressure loss is usually neglectible, even when dealing with high flow rates.

Noise levels

Due to their design, ERV expansion joints reduce noise in pipelines. An even better reduction is achieved if the total installation length is shortened in a range of 5–10mm.

Installation

For the allowable range of movement please see type specific data sheets. If possible, the length of the installation gap is designed to be equal to the recommended installation length, or slightly shorter. The low inherent resistance of ERV allows a compression by hand and makes fitting into smaller gaps easy.

For larger installation gaps or lateral offset, not more than 50% of the maximum area of movement should be used up in order to leave a reserve for operation. If the bellows is lengthened during operation, a jolted (compressed) installation is recommended. The position of installation must be accessible for visual examination. When installing the unit, installation hints (page 45) must be observed.

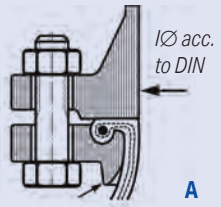
Restraint

The inherent resistance of ERV bellows is negligible in respect of calculations for anchorage points. Under pressure the bellow acts like a plunger, thus requiring to fix anchorage points for larger size expension joints. Since the ERV construction absorbs part of these forces, the anchorage points may be correspondingly weaker. If such anchorage points cannot be provided, or if the stability of the other fittings is insufficient, the pressure thrust forces have to be absorbed by tie rods. For available types see page 39.

Identification

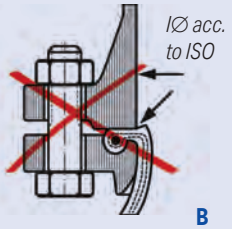
All ERV bellows have a vulcanised coloured type marking and an embossed text stating manufacturers mark, nominal width DN, nominal pressure PN as well as the manufacturing date.

Right
Flanges with correct ID to help prevent damage to rubber



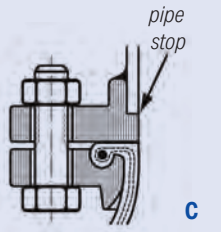
A

Wrong
Flanges with too large female diameter can damage rubber



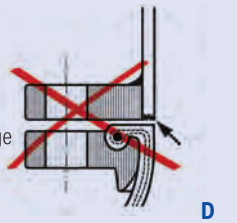
B

Right
Weld neck flanges with correct ID prevent damage to rubber



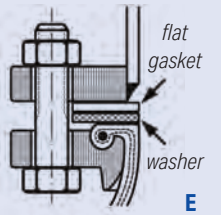
C

Wrong
Uneven end of pipe can cause damage to rubber



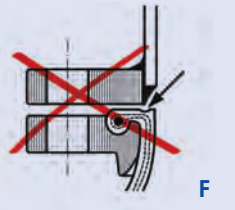
D

Right
In case of B, D or F an additional flat seal can be used to prevent damage to rubber



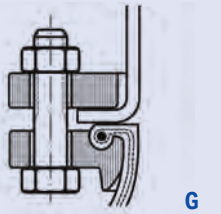
E

Wrong
Inner edge of flanges damages rubber



F

Right
Well rounded smooth edge prevents damage to rubber



G

Installation and operation hints

Elaflex expansion joints are provided ready for installation. The standard flanges can be turned into any desired position. Additional sealings usually are not necessary. For installation please observe the following:

1 Prior to the installation of the expansion joint ensure that the mating flanges have satisfactory sealing surfaces. Protruding pipe ends, grooves and tongues are not permitted as the sealing surface of the bellows might be destroyed (see hints for the pipework designer, page 44).

Attention: When using slip-on flanges the outside diameter must be larger than the sealing surface of the expansion joint.

2 Pay attention to the correct installation length: The pulling of expansion joints into installation gaps which are too large will lengthen the rubber bellow and might lead to the collar being drawn out of the flange groove (see diagram). During the subsequent tightening of the screws the collar of the bellows would be crushed asymmetrically.

Please note: A considerable lengthening during installation decreases the allowable range of movement during operation. To shorten installation gaps, distance flanges are available.

3 If possible install the expansion joints in such way that the date of production is visible.

4 Screws should be inserted from the expansion joint side. If this is not feasible, it must be assured that the bellows may not touch the screws in all operating conditions.

5 We recommend to use bolts of property class 8.8. The bolts have to be fastened crosswise in three uniform steps.

When using a torque wrench:

Step 1: Tighten bolts equally by hand (pay attention to parallel sealing surfaces!).

Step 2: Fasten crosswise with torque 50 Nm

Step 3: Fasten crosswise

Do not use any sharp-edged tools which might damage the rubber bellow in case the tool slips.

6 If no torque wrench can be used during installation, the screws may only be tightened to an extent that between the metal flanges a distance 'y' of at least 1 mm remains (see picture).

7 The test pressure of a bellow or flange is 1.5 x PN. This value depends on which component is weaker.

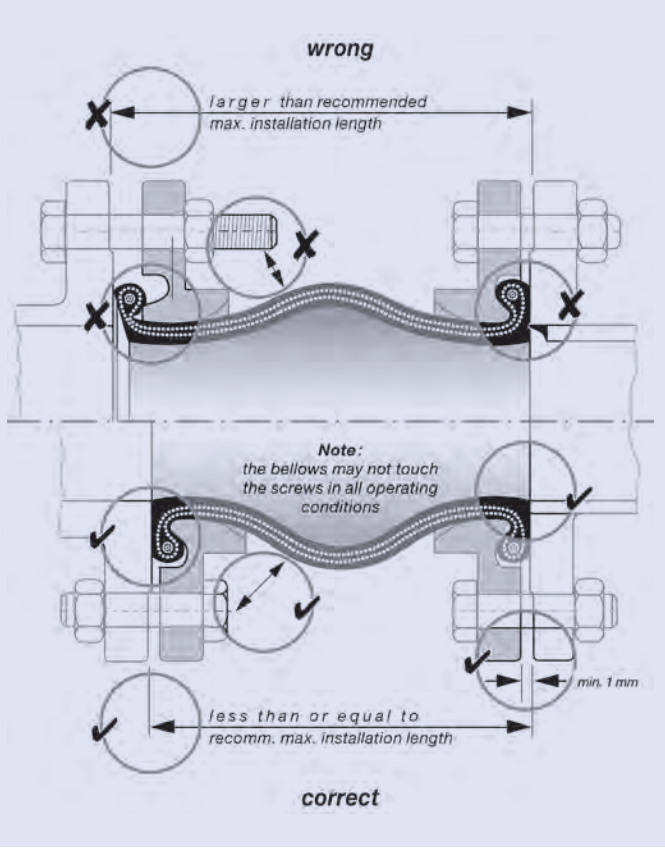
8 The rubber bellow of the expansion joint must not be painted! Solvents can damage the rubber cover, furthermore the colour coat impedes a proper visual inspection.

9 When welding and cutting, the rubber bellow must be protected against heat by all means. For electric welding it must be insured that the electric current does not pass through the bellows.

10 Permanent radiation heat above 90° C must be avoided. If necessary flame protection covers should be used (see page 42).

11 Rubber expansion joints are subject to wear and must be included to routine inspection of the pipe system (visual inspection of the expansion joint regarding damages as well as inspection for hardening by pushing in with a thumb).

Diameter	approx torque
up to DN 80	max. 80 Nm
up to DN 300	max. 100 Nm
up to DN 500	max. 130 Nm
DN 700	250 Nm
DN 800	300 Nm
DN 900	310 Nm
DN 1000	340 Nm



Information concerning the Pressure Equipment Directive

Elaflex rubber expansion joints are 'pressure equipment' according to this directive. Below we list those expansion joints which fall under category I-III:

Expansion joints for liquid chemicals and petroleum based products				
DN	WP Barg <=	Category	WP Barg <=	Category
<=125	16	n/a		n/a
150	10	n/a		n/a
200	10	n/a		n/a
250	8	n/a	10	I
300	7	n/a	10	I
350	6	n/a	10	I
400	5	n/a	10	I
500	4	n/a	10	I
600	3.5	n/a	10	I
700	3	n/a	10	I
800	2.5	n/a	10	I
900	2	n/a	10	I
1000	2	n/a	10	I

Expansion joints for LP Gas (liquefied gases)		
DN	WP Barg <=	Category
<=40	25	I
50–125	25	II
150	25	III

Expansion joints for gas/natural gas[2]		
DN	WP Barg <=	Category
<=25		n/a
32–50	16	I
65–125	16	II
150–350	10	II
>=400		III

Expansion joints for air[3]		
DN	WP Barg <=	Category
<=100	10	n/a
125–200	5	n/a
250	4	n/a
>=300	3.5	I

Requirements

No category (n/a)

These expansion joints only have to conform to 'sound engineering practice' (SEP). No declaration of conformity is necessary. For these expansion joints the CE marking must not be used.

Category I

A certificate of conformity for the materials (at least EN 10204-2.2), a random pressure test, a declaration of conformity[1] and a CE marking of the expansion joints are necessary.

Category II

A specific test report for the materials (at least EN 10204-3.1, the pressure test of every joint, the declaration of conformity[1] and a CE marking of the expansion joint with code number of the notified body etc. are necessary.

The manufacturer of the expansion joints is responsible for the adherence to these requirements. Rubber bellows or flanges alone are not pressure equipment according to this directive.

For the manufacturing of expansion joints Elaflex has been certified by Germanischer Lloyd. A copy of the certificate no. 77 314 - 10 HH is available on request.

Category III

As category II, but requires additional inspection by the notified body and individual approval.

Footnotes

[1] According to the PED, Elaflex customers may directly download the necessary declarations of conformity. Please use this free service by contacting sales@flexej.co.uk

[2] If the expansion joint is intended for use with gas/natural gas, this has to be stated when ordering.

[3] If the expansion joint is intended for the use with air, this has to be stated when ordering.

To define the right category for all dangerous fluids or pressures not mentioned here, please enquire by contacting sales@flexej.co.uk stating medium, dimension, pressure, temperature and application.

Overview of certificates

please request from sales@flexej.co.uk

Approvals		ERV-GS	ERV-GS HBNR	ERV-G	ERV-R	Rotex	ERV-CR	Other
DNV · GL (Det Norske Veritas/Germanischer Lloyd)		✓	✓	✓	✓	✓	✓	✓ ALL
Lloyd's Register		✓	✓	✓	✓	✓		
Bureau Veritas		✓	✓	✓	✓		✓	
RINA Services S.p.A		✓	✓	✓	✓	✓		
American Bureau of Shipping		✓	✓					
Nippon Kaiji Kyokai		✓	✓					
China Classification Society		✓	✓	✓	✓		✓	
Technischer Überwachungs-Verein						✓ DIN 4809		
Bundesamt für Wehrtechnik und Beschaffung				✓	✓			
Deutscher Verien des Gas- und Wasserfachs				✓ GAS	✓ DRINKING WATER			
Attestation de Conformité Sanitaire					✓ DRINKING WATER			
Water Regulations Advisory Scheme					✓			✓ ERP
Dienststelle Schiffssicherheit BG Verkehr (ex. See-Berufsgenossenschaft)		✓ MARINE EQUIPMENT DIRECTIVE ✓						

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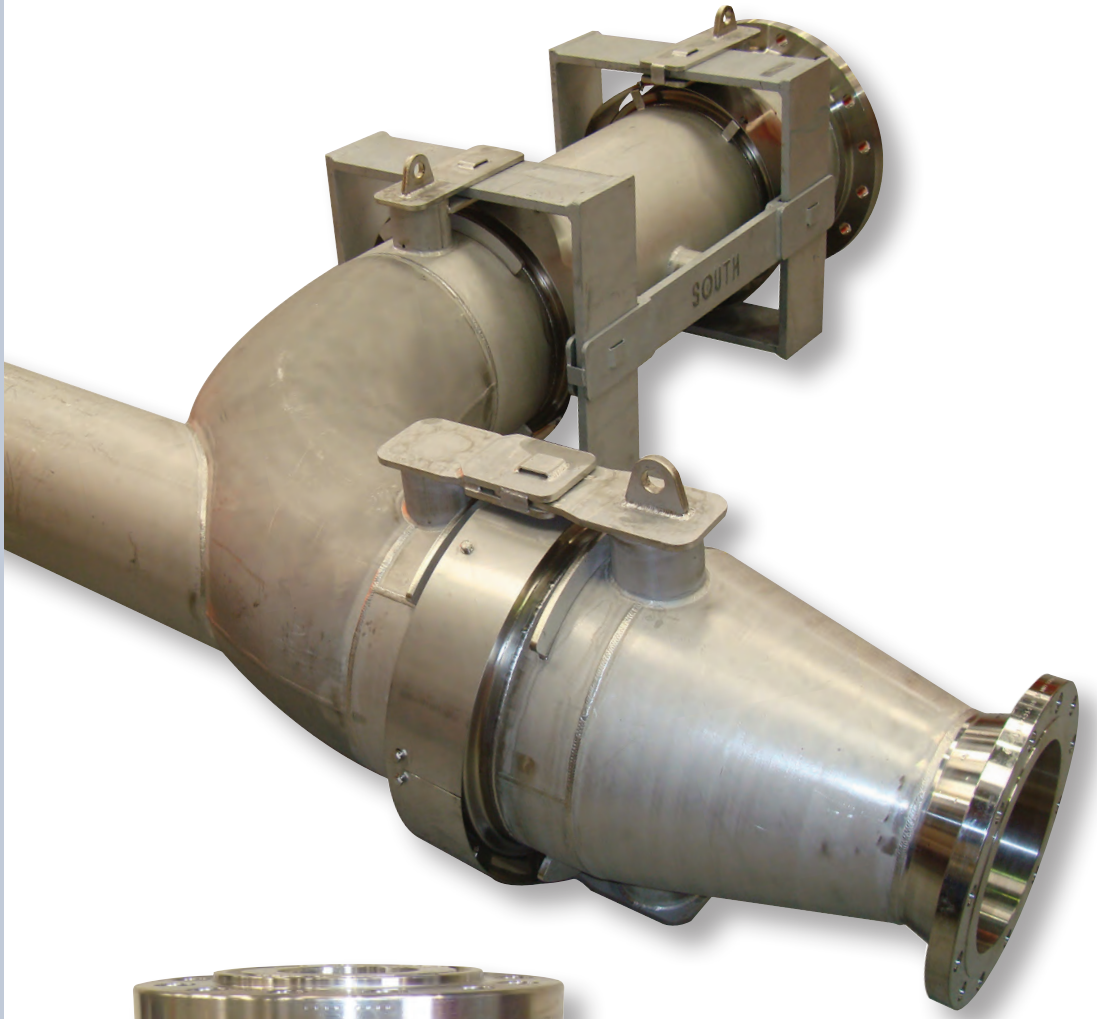

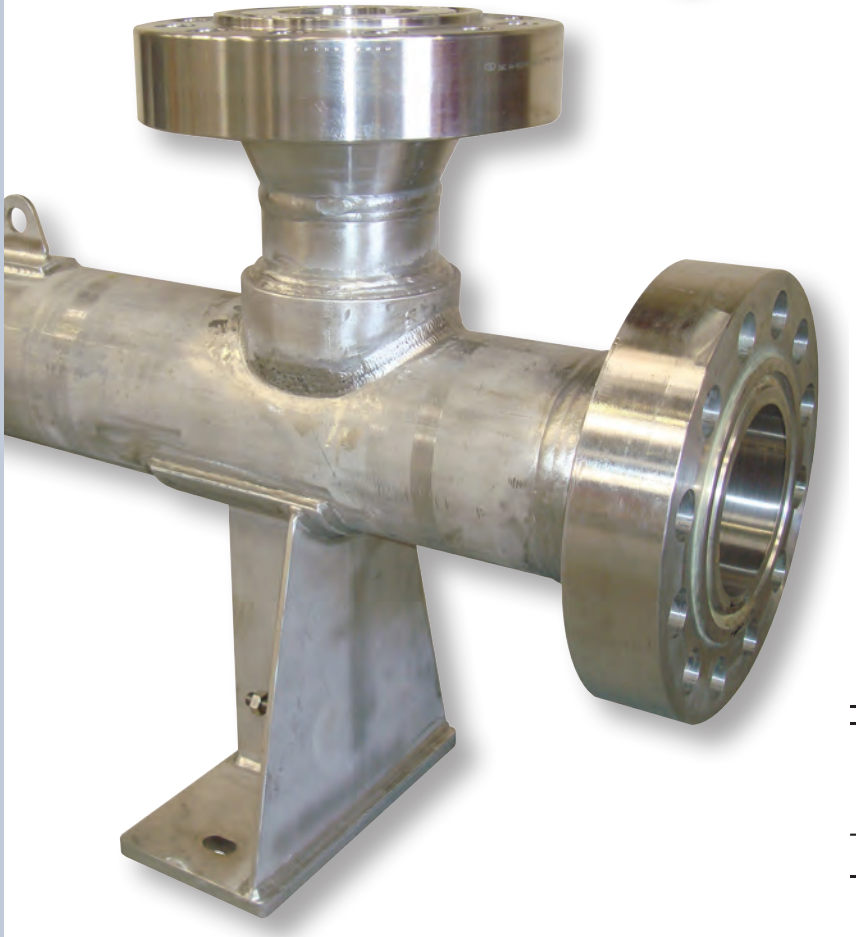

Solutions

metal bellows
PTFE bellows
large rubber bellows
metal hose assemblies
manufacturing & design

FLEXEJ

Welcome

FlexEJ offers a broad range of pipe expansion joints and pressure fabrications; we are both stockist and manufacturer with factories in the UK and Spain.

- Rubber and metal pipe expansion joints from DN15 to over DN3600
- Metal hose assemblies
- Dosing pots, air & dirt separators and low loss headers for HVAC applications
- Pressure vessels and fabrications

We are accredited to ISO9001, ISO14000 and the PED. As required we offer full material traceability, documentation and compliance with client specifications – our welders are qualified to both EN and ASME.

You can also buy a wide range of stock expansion joints and HVAC fabrications direct from our web shop at flexej.co.uk with next day delivery.

We are here to help; please get in touch by phone, email or via the website live chat facility. We will be delighted to assist you in selecting the right stock product through to developing a unique design for your application.

Tim Robinson
Director

FlexEJ Ltd
For technical assistance & sales
t: +44 (0)1384 881188
e: sales@flexej.co.uk

Contents

Industrial Metal Axial

Long/short

Specification

Stainless steel 316 punch formed bellows designed to EJMA with stainless steel liner. Customer choice of any flange or weld end in carbon or stainless steel. Available in long and short versions; length to order within given range.

Tied, hinged or gimbal restraints available.

Not suitable for drinking water – please enquire for our WRAS or DWI approved products.

Materials

- Bellows — 316 stainless steel
- Liner — Stainless steel
- Flanges or weld ends — Any commonly available carbon or stainless grade

Operating conditions

Intended for industrial applications up to 300°C design – steam, exhaust gases, process.

Rating

16 Barg @ 180°C to 12 Barg @ 300°C

Notes

The minimum and maximum lengths shown in the table are the available range of nominal lengths supplied.

Size – long	Minimum length	Maximum length	Axial Comp.	Axial Ext.
in.	mm	mm	mm	mm
DN100-4"	210	450	30	30
DN125-5"	210	480	35	35
DN150-6"	250	500	35	35
DN200-8"	250	550	35	35
DN250-10"	250	600	35	35
DN300-12"	280	600	40	40
DN350-14"	280	600	40	40
DN400-16"	300	600	40	40

Size – short	Minimum length	Maximum length	Axial Comp.	Axial Ext.
in.	mm	mm	mm	mm
DN040-1½"	180	300	15	15
DN050-2"	180	300	15	15
DN065-2½"	180	400	15	15
DN080-3"	180	500	15	15
DN100-4"	180	500	15	15
DN125-5"	180	500	15	15
DN150-6"	180	500	15	15
DN200-8"	220	500	15	15
DN250-10"	220	500	15	15

Product by FlexEJ Ltd

For technical assistance & sales
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Industrial Metal Pump

Specification

Stainless steel 316 punch formed bellows designed to EJMA with optional stainless steel liner. Customer choice of any flange or weld end in carbon or stainless steel. Available in long and short versions; length to order within given range.

Tied version available.

Not suitable for drinking water – please enquire for our WRAS or DWI approved products

Materials

- Bellows — 316 stainless steel
- Liner (optional) — Stainless steel
- Flanges or weld ends — Any commonly available carbon or stainless grade

Operating conditions

Intended for industrial applications up to 300°C design – steam, exhaust gases, process.

Rating

16 Barg @ 180°C to 12 Barg @ 300°C

Notes

The minimum and maximum lengths shown in the table are the available range of nominal lengths supplied.

Size	Minimum length	Maximum length	Lateral
in.	mm	mm	mm
DN050-2"	130	330	±3
DN065-2½"	130	390	±3
DN080-3"	130	400	±3
DN100-4"	130	400	±3
DN125-5"	150	400	±3
DN150-6"	150	400	±3
DN200-8"	200	400	±3
DN250-10"	200	400	±3
DN300-12"	200	400	±3
DN350-14"	200	400	±3
DN400-16"	200	400	±3

Product by FlexEJ Ltd

For technical assistance & sales
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e: sales@flexej.co.uk

Safetech
Large rubber bellows

Safetech is FlexEJ's sister company located in Spain. Safetech designs and manufactures rubber bellows in its dedicated facility near Bilbao. This ability to hand build rubber expansion joints means we can offer lengths, diameters, movements, materials, restraints and rating to meet your precise requirements. Pressure balanced rubber expansion joints and PTFE lined rubber expansion joints are just two of the specialty products we design and manufacture.

Multiple arch engineered rubber bellows

Each additional arch in the bellows provides additional movement capability. The length of the expansion joint can be adjusted to suit your piping layout or existing equipment meaning the full movement capacity of the bellows is available to you in all cases.

Pressure balanced engineered rubber bellows

A pressure balanced rubber expansion joint uses two rubber bellows to provide the movement specified and a third, larger diameter rubber bellows to generate an equal pressure force. Net result no pressure force acting on your pipe, flanges or equipment.

Linings and liners PTFE, stainless steel

Safetech can provide a PTFE lining in any of its rubber bellows, the PTFE affording greater chemical resistance than the rubber. We also provide a variety of stainless steel 'top hat' liners.

Restraint hardware tie rods, lugs, hinges, collars

Safetech's preferred design is to manufacture the flange backing ring in segments with integral tie rod lugs. Safetech can also supply one piece flanges if requested. If the joint is to be used to allow easy dismantling of line equipment we can also provide a dismantling collar on the bellows which allows the tie rods to compress the convolution(s) to ease removal.

SAFETECH

Product by FlexEJ Ltd

For technical assistance & sales
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e: sales@flexej.co.uk

Safetech

Single / Double / Triple / Quad Arch

Specification

Flexel CG21 series full face fully engineered rubber expansion joint available in a wide variety of rubber compounds to suit the media. Flange drilling and backing flanges provided to any specification. Available as tied, untied, hinged and gimbal designs with a wide range of configurable options such as liners.

Each additional arch adds 150mm to the minimum length of the bellows and increases the movement capability proportionately.

Elastomer	Colour code	Main applications	Max temp.
Natural	Green	Abrasive media	80°C
Neoprene	Yellow	Seawater, circulating water, fire	110°C
EPDM HT	Yellow – Yellow	Seawater, hot water, waste water, high temperatures	140°C
EPDM FG *	Yellow – Yellow	Drinking water, foodstuffs	80°C
Nitrile	White	Oils, gasoline, aliphatic hydrocarbons	110°C
Butyl	Red	Diluted acids and chemicals, gases, weathering	100°C
Hypalon	Red – Green	Strong acids, alkalis, chemicals, weathering	110°C
Viton	Green – Green	Strong acids, alkalis, chemicals, various hydrocarbons	180°C

* Certified by FDA or WRAS

DN		Length	PN	Movement capability			
mm	in.	mm	bar	Compression mm	Extension mm	Lateral mm	Angular deg
600	24"	300	10	38	25	25	4.4
700	28"	300	10	38	25	25	4
800	32"	300	10	38	25	25	4.9
900	36"	300	10	38	25	25	3.4
1000	40"	300	10	55	35	35	3.1
1050	42"	300	10	55	35	35	3
1100	44"	300	10	55	35	35	2.9
1150	46"	300	10	55	35	35	2.6
1200	48"	300	10	55	35	35	2.5
1250	50"	300	8	55	35	35	2.5
1300	52"	350	8	55	35	35	2.4
1350	54"	350	8	55	35	35	2.3
1400	56"	350	8	55	35	35	2.2
1450	58"	350	8	55	35	35	2.1
1500	60"	350	8	55	35	35	2.1
1600	64"	350	7	55	35	35	2
1650	66"	350	7	55	35	35	1.9
1700	68"	350	7	55	35	35	1.9
1800	72"	350	7	55	35	35	1.8
1900	76"	350	6	55	35	35	1.5
1950	78"	350	6	55	35	35	1.5
2000	80"	350	6	55	35	35	1.5
2100	84"	350	6	55	35	35	1.4
2200	88"	350	6	55	35	35	1.4
2250	90"	350	6	55	35	35	1.4
2300	92"	350	6	55	35	35	1.3
2400	96"	350	6	55	35	35	1.3
2500	100"	350	5	55	35	35	1.2
2550	102"	350	5	55	35	35	1.2
2600	104"	350	5	55	35	35	1.2
2700	108"	350	5	55	35	35	1.2
2800	112"	350	5	55	35	35	1.1
2850	114"	350	4	55	35	35	1.1
2900	116"	350	4	55	35	35	1.1
3000	120"	350	4	55	35	35	1

Product by FlexEJ Ltd

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Vaneflon-R

PTFE expansion bellows

Pressure / Vacuum	2 convolution bellows 10 Barg @ 50°C to 2 Barg @ 235°C FV @ 130°C to 0.0 Barg @ 170°C				3 convolution bellows 10 Barg @ 50°C to 2 Barg @ 235°C FV @ 50°C to 0.0 Barg @ 140°C				4 convolution bellows 6 Barg @ 50°C to 1 Barg @ 235°C -0.25 Barg @ 0°C to 0.0 Barg @ 60°C				5 convolution bellows 6 Barg @ 50°C to 1 Barg @ 235°C -0.25 Barg @ 0°C to 0.0 Barg @ 60°C				6 convolution bellows 6 Barg @ 50°C to 1 Barg @ 235°C -0.25 Barg @ 0°C to 0.0 Barg @ 60°C			
Size degree	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg
25-1"	42	9	6	13	54	13	9	19	67	18	12	26	79	22	15	32	91	27	18	39
32-1¼"	51	9	6	12	66	13	9	18	81	18	12	24	96	22	15	30	112	27	18	36
40-1½"	52	10	7	12	68	15	10	18	84	20	14	24	100	25	17	30	117	30	21	36
50-2"	52	10	7	11	69	15	10	16	85	20	14	22	101	25	17	27	117	30	21	33
65-2½"	58	11	8	10	79	16	12	15	101	22	16	20	122	27	20	25	143	33	24	30
80-3"	62	11	8	10	87	16	12	15	112	22	16	20	137	27	20	25	162	33	24	30
100-4"	64	12	9	9	90	18	13	13	117	24	18	18	143	30	22	22	169	36	27	27
125-5"	74	13	9	8	100	19	13	12	126	26	18	16	151	32	22	20	177	39	27	24
150-6"	76	14	9	7	103	21	13	10	130	28	18	14	155	35	22	17	182	42	27	21
200-8"	77	15	10	6	105	22	15	9	133	30	20	12	161	37	25	15	186	45	30	18
250-10"	78	16	10	6	108	24	15	9	137	32	20	12	166	40	25	15	196	48	30	18
300-12"	80	16	10	5	110	24	15	7	140	32	20	10	170	40	25	12	200	48	30	15
350-14"	91	17	10	5	122	25	15	7	154	34	20	10	185	42	25	12	216	51	30	15
400-16"	93	17	10	4	125	25	15	6	157	34	20	8	189	42	25	10	221	51	30	12
450-18"	105	17	10	4	138	25	15	6	172	34	20	8	206	42	25	10	239	51	30	12
500-20"	105	18	11	4	138	27	16	6	172	36	22	8	206	45	27	10	239	54	33	12
600-24"	105	18	11	3	139	27	16	4	173	36	22	6	207	45	27	7	241	54	33	9

Description

PTFE bellows offer excellent media compatibility and corrosion resistance. High quality PTFE bellows formed from multi-laminated tubes that ensure an absolute minimum porosity and a homogeneous wall-thickness.

Flanges

Any drilling/standard available. Coated carbon steel standard, options for stainless steels or high alloys to order. Note flanges are drilled and tapped, through bolting is not offered.

Limit rods

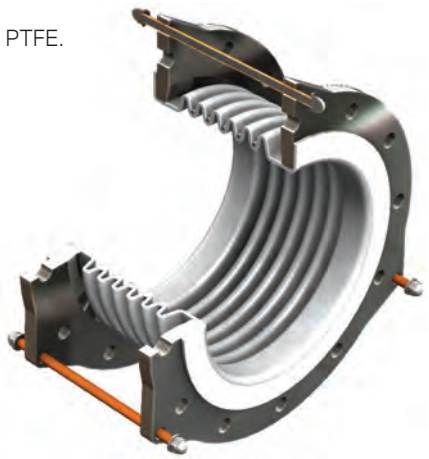
Standard for PTFE joints. Tie rods, hinges or gimbals also available.

Support rings

External in the bellows convolution root, 304 stainless steel standard. Options for other stainless steels or high alloys to order. Some bellows may also require intermediate support flanges.

Options

Liner, electrically conductive PTFE.



Product by FlexEJ Ltd

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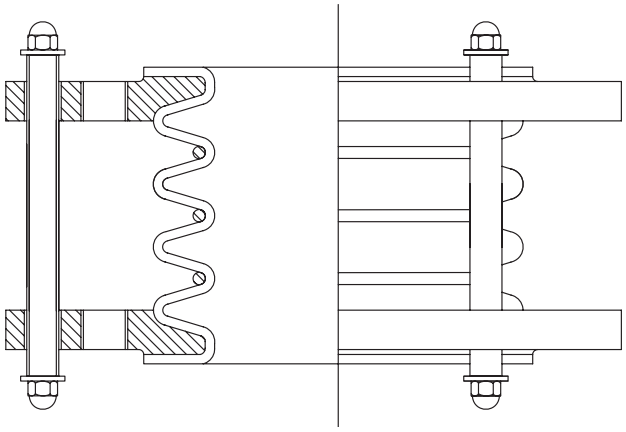
Vaneflon-R
PTFE expansion bellows

Pressure / Vacuum	7 convolution bellows 2.5 Barg @ 50°C to 0.5 Barg @ 200°C -0.25 Barg @ 0°C to 0.0 Barg @ 60°C				8 convolution bellows 2.5 Barg @ 50°C to 0.5 Barg @ 200°C -0.25 Barg @ 0°C to 0.0 Barg @ 60°C				9 convolution bellows 2.5 Barg @ 50°C to 0.5 Barg @ 200°C -0.25 Barg @ 0°C to 0.0 Barg @ 60°C				10 convolution bellows 2.5 Barg @ 50°C to 0.5 Barg @ 200°C -0.25 Barg @ 0°C to 0.0 Barg @ 60°C			
Size degree	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg
25-1"	104	31	21	45	116	36	24	52	128	40	27	58	140	45	30	65
32-1¼"	127	31	21	42	142	36	24	48	157	40	27	54	172	45	30	60
40-1½"	133	35	24	42	149	40	28	48	165	45	31	54	181	50	35	60
50-2"	133	35	24	38	149	40	28	44	165	45	31	49	181	50	35	55
65-2½"	165	38	28	35	186	44	32	40	208	49	36	45	229	55	40	50
80-3"	188	38	28	35	212	44	32	40	238	49	36	45	263	55	40	50
100-4"	196	42	31	31	221	48	36	36	248	54	40	40	274	60	45	45
125-5"	204	45	31	28	229	52	36	32	255	58	40	36	281	65	45	40
150-6"	209	49	31	24	234	56	36	28	262	63	40	31	289	70	45	35
200-8"	215	52	35	21	243	60	40	24	268	67	45	27	296	75	50	30
250-10"	225	56	35	21	254	64	40	24	284	72	45	27	313	80	50	30
300-12"	230	56	35	17	261	64	40	20	291	72	45	22	321	80	50	25
350-14"	246	59	35	17	277	68	40	20	308	76	45	22	338	85	50	25
400-16"	251	59	35	14	283	68	40	16	315	76	45	18	345	85	50	20
450-18"	269	59	35	14	303	68	40	16	NA	76	45	18	NA	85	50	20
500-20"	273	63	38	14	303	72	44	16	336	81	49	18	370	90	55	20
600-24"	274	63	38	10	304	72	44	12	338	81	49	13	372	90	55	15



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Vaneflon-RHD

PTFE expansion bellows – heavy duty

Pressure / Vacuum	2 convolution bellows 16 Barg @ 50°C to 3 Barg @ 235°C FV @ 180°C to 0.0 Barg @ 220°C				3 convolution bellows 16 Barg @ 50°C to 3 Barg @ 235°C FV @ 130°C to 0.0 Barg @ 170°C				4 convolution bellows 10 Barg @ 50°C to 2 Barg @ 235°C FV @ 50°C to 0.0 Barg @ 140°C				5 convolution bellows 10 Barg @ 50°C to 2 Barg @ 235°C FV @ 50°C to 0.0 Barg @ 140°C				6 convolution bellows 10 Barg @ 50°C to 2 Barg @ 235°C -0.5 Barg @ 0°C to 0.0 Barg @ 70°C			
Size / degree	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg
25-1"	44	6	4	9	56	9	6	13	69	12	8	18	81	15	10	22	93	18	12	27
32-1¼"	53	6	4	8	68	9	6	12	83	12	8	16	98	15	10	20	113	18	12	24
40-1½"	54	7	5	8	70	10	7	12	86	14	10	16	102	17	12	20	119	21	15	24
50-2"	54	7	5	7	71	10	7	10	87	14	10	14	103	17	12	17	119	21	15	21
65-2½"	60	8	6	7	81	12	9	10	103	16	12	14	124	20	15	17	145	24	18	21
80-3"	64	8	6	7	89	12	9	10	115	16	12	14	140	20	15	17	165	24	18	21
100-4"	66	9	6	6	92	13	9	9	119	18	12	12	145	22	15	15	171	27	18	18
125-5"	77	9	6	6	103	13	9	9	129	18	12	12	154	22	15	15	180	27	18	18
150-6"	78	10	6	5	105	15	9	7	133	20	12	10	158	25	15	12	185	30	18	15
200-8"	80	10	7	4	108	15	10	6	136	20	14	8	164	25	17	10	189	30	21	12
250-10"	81	11	7	4	110	16	10	6	140	22	14	8	169	27	17	10	199	33	21	12
300-12"	83	11	7	3	113	16	10	4	143	22	14	6	173	27	17	7	203	33	21	9
350-14"	94	12	7	3	125	18	10	4	157	24	14	6	188	30	17	7	219	36	21	9
400-16"	96	12	7	3	128	18	10	4	160	24	14	6	192	30	17	7	224	36	21	9
450-18"	108	12	7	3	141	18	10	4	175	24	14	6	209	30	17	7	243	36	21	9
500-20"	108	13	8	3	142	19	12	4	175	26	16	6	209	32	20	7	243	39	24	9
600-24"	109	13	8	2	143	19	12	3	177	26	16	4	210	32	20	5	244	39	24	6

Description

PTFE bellows offer excellent media compatibility and corrosion resistance. High quality heavy duty PTFE bellows formed from multi-laminated tubes that ensure an absolute minimum porosity and a homogeneous wall-thickness.

Flanges

Any drilling/standard available. Coated carbon steel standard, options for stainless steels or high alloys to order. Note flanges are drilled and tapped, through bolting is not offered.

Limit rods

Standard for PTFE joints. Tie rods, hinges or gimbals also available.

Support rings

External in the bellows convolution root, 304 stainless steel standard. Options for other stainless steels or high alloys to order. Some bellows may also require intermediate support flanges.

Options

Liner, electrically conductive PTFE.

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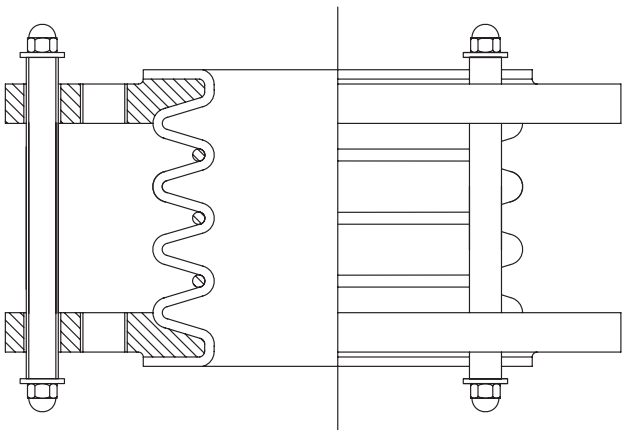
Vaneflon-RHD

PTFE expansion bellows – heavy duty

Pressure / Vacuum	7 convolution bellows: 6 Barg @ 50°C to 1 Barg @ 235°C; -0.5 Barg @ 0°C to 0.0 Barg @ 70°C				8 convolution bellows: 6 Barg @ 50°C to 1 Barg @ 235°C; -0.5 Barg @ 0°C to 0.0 Barg @ 70°C				9 convolution bellows: 6 Barg @ 50°C to 1 Barg @ 235°C; -0.5 Barg @ 0°C to 0.0 Barg @ 70°C				10 convolution bellows: 6 Barg @ 50°C to 1 Barg @ 235°C; -0.5 Barg @ 0°C to 0.0 Barg @ 70°C			
Size degree	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg	Length mm	Axial ±mm	Lateral ±mm	Ang ±deg
25-1"	106	21	14	31	118	24	16	36	130	27	18	40	142	30	20	45
32-1¼"	129	21	14	28	144	24	16	32	159	27	18	36	174	30	20	40
40-1½"	135	24	17	28	151	28	20	32	167	31	22	36	183	35	25	40
50-2"	135	24	17	24	151	28	20	28	167	31	22	31	183	35	25	35
65-2½"	167	28	21	24	188	32	24	28	210	36	27	31	231	40	30	35
80-3"	190	28	21	24	215	32	24	28	240	36	27	31	265	40	30	35
100-4"	198	31	21	21	224	36	24	24	250	40	27	27	276	45	30	30
125-5"	206	31	21	21	231	36	24	24	257	40	27	27	283	45	30	30
150-6"	212	35	21	17	237	40	24	20	264	45	27	22	291	50	30	25
200-8"	217	35	24	14	245	40	28	16	270	45	31	18	298	50	35	20
250-10"	228	38	24	14	257	44	28	16	287	49	31	18	316	55	35	20
300-12"	233	38	24	10	264	44	28	12	294	49	31	13	324	55	35	15
350-14"	249	42	24	10	280	48	28	12	311	54	31	13	341	60	35	15
400-16"	254	42	24	10	286	48	28	12	318	54	31	13	348	60	35	15
450-18"	273	42	24	10	306	48	28	12	NA	54	31	13	NA	60	35	15
500-20"	276	45	28	10	306	52	32	12	340	58	36	13	373	65	40	15
600-24"	278	45	28	7	308	52	32	8	342	58	36	9	376	65	40	10



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Metal Hose Assemblies

FlexEJ designs and manufactures fully engineered metal hose assemblies in diameters from DN6 to DN200. Hose core materials available include 321 stainless steel, 316 stainless steel, Monel 400 Hastelloy C276 and alloy 625. FlexEJ specialises in engineering and manufacturing metal hose assemblies to order. Full documentation packages, NDT, material traceability and testing are all part of what we offer.

External braids and spirals – eliminate pressure force

The external braid is not added to the hose for mechanical protection. It is a key component and considerably increases the pressure rating of the hose assembly by restraining the pressure force. Single braid is the most common but we can also supply with double and triple braids for higher pressures. If mechanical protection is required then we can add an external spiral which keeps the braid off the ground if being used for loading/unloading for example.

Movements loops, laterals

Hose does not move in the same way as an expansion joint; there must be no axial movement or torsion – all movements should be the result of angulation. Movement ideally should be lateral, in a single plane, with the hose or piping incorporating elbows to achieve this as required.

The allowable bending radius for the hose depends on the type of motion the hose will experience, this is described as:

- Single motion: infrequent or installation-only movement
- Repeated motion: low frequency/motion without major dynamic demand
- Dynamic motion: higher frequency/continuous motion with dynamic demand.

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Metal Hose Assemblies

Range table

Performance data shown is typical for 321 stainless steel hose core. The rating chart shows temperature deration only; movements must also be taken into account in the final design pressure calculation.

The dynamic bend radius shown applies to a moderate repeated motion without high acceleration, pressure pulsation or other additional load.

Size DN	Braid	Length	Rating	Movements	
				Static bend radius mm	Dynamic bend radius mm
6-¼"	0	Any	10 Barg @ 20°C to 5 Barg @ 500°C	16	110
10-⅜"	0	Any	5.5 Barg @ 20°C to 2.75 Barg @ 500°C	22	150
12-½"	0	Any	5.5 Barg @ 20°C to 2.75 Barg @ 500°C	24	165
16-⅝"	0	Any	5 Barg @ 20°C to 2.5 Barg @ 500°C	28	195
20-¾"	0	Any	4.1 Barg @ 20°C to 2.05 Barg @ 500°C	30	200
25-1"	0	Any	4.1 Barg @ 20°C to 2.05 Barg @ 500°C	44	200
32-1¼"	0	Any	3.4 Barg @ 20°C to 1.7 Barg @ 500°C	55	250
40-1½"	0	Any	2.4 Barg @ 20°C to 1.2 Barg @ 500°C	70	250
50-2"	0	Any	1 Barg @ 20°C to 0.5 Barg @ 500°C	90	350
65-2½"	0	Any	1 Barg @ 20°C to 0.5 Barg @ 500°C	110	410
80-3"	0	Any	1 Barg @ 20°C to 0.5 Barg @ 500°C	130	450
100-4"	0	Any	0.1 Barg @ 20°C to 0.05 Barg @ 500°C	131	530
125-5"	0	Any	0.1 Barg @ 20°C to 0.05 Barg @ 500°C	189	800
150-6"	0	Any	0.1 Barg @ 20°C to 0.05 Barg @ 500°C	216	1050
200-8"	0	Any	0.1 Barg @ 20°C to 0.05 Barg @ 500°C	281	1300
6-¼"	1	Any	167 Barg @ 20°C to 83.5 Barg @ 500°C	25	110
10-⅜"	1	Any	100 Barg @ 20°C to 50 Barg @ 500°C	38	150
12-½"	1	Any	74 Barg @ 20°C to 37 Barg @ 500°C	45	165
16-⅝"	1	Any	70 Barg @ 20°C to 35 Barg @ 500°C	50	195
20-¾"	1	Any	65 Barg @ 20°C to 32.5 Barg @ 500°C	70	200
25-1"	1	Any	50 Barg @ 20°C to 25 Barg @ 500°C	85	200
32-1¼"	1	Any	39 Barg @ 20°C to 19.5 Barg @ 500°C	105	250
40-1½"	1	Any	35 Barg @ 20°C to 17.5 Barg @ 500°C	127	250
50-2"	1	Any	30 Barg @ 20°C to 15 Barg @ 500°C	160	350
65-2½"	1	Any	26 Barg @ 20°C to 13 Barg @ 500°C	200	410
80-3"	1	Any	22 Barg @ 20°C to 11 Barg @ 500°C	230	450
100-4"	1	Any	20 Barg @ 20°C to 10 Barg @ 500°C	218	530
125-5"	1	Any	20 Barg @ 20°C to 10 Barg @ 500°C	315	800
150-6"	1	Any	23 Barg @ 20°C to 11.5 Barg @ 500°C	360	1050
200-8"	1	Any	15 Barg @ 20°C to 7.5 Barg @ 500°C	468	1300
6-¼"	2	Any	220 Barg @ 20°C to 110 Barg @ 500°C	25	110
10-⅜"	2	Any	178 Barg @ 20°C to 89 Barg @ 500°C	38	150
12-½"	2	Any	103 Barg @ 20°C to 51.5 Barg @ 500°C	45	165
16-⅝"	2	Any	125 Barg @ 20°C to 62.5 Barg @ 500°C	50	195
20-¾"	2	Any	86 Barg @ 20°C to 43 Barg @ 500°C	70	200
25-1"	2	Any	76 Barg @ 20°C to 38 Barg @ 500°C	85	200
32-1¼"	2	Any	57 Barg @ 20°C to 28.5 Barg @ 500°C	105	250
40-1½"	2	Any	55 Barg @ 20°C to 27.5 Barg @ 500°C	127	250
50-2"	2	Any	44 Barg @ 20°C to 22 Barg @ 500°C	160	350
65-2½"	2	Any	46 Barg @ 20°C to 23 Barg @ 500°C	200	410
80-3"	2	Any	40 Barg @ 20°C to 20 Barg @ 500°C	230	450

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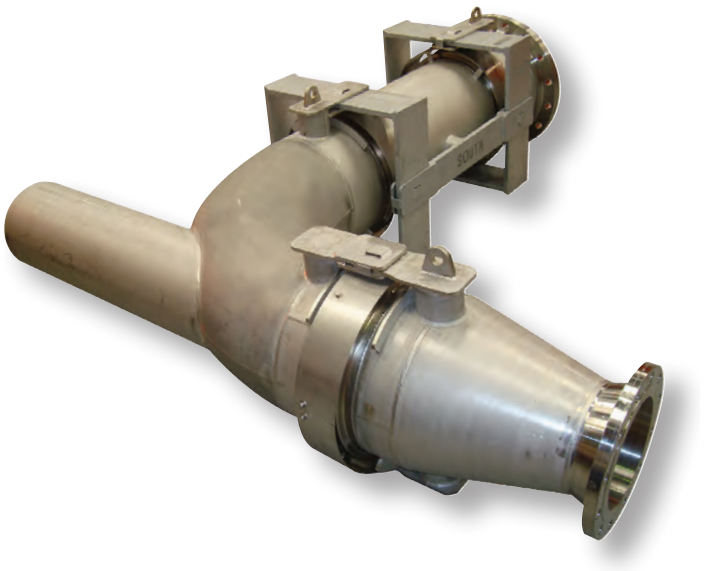
Metal expansion joints
Design & manufacture

We offer full multi-case, concurrent/non concurrent movement design using our own EJMA10 bellows and hardware calculation tools. Metal bellows design is an iterative process, the task is to search for the optimum solution: a rugged, long life bellows which can still provide the required movements at the specified pressure and temperature. The more we understand about your application the closer to that optimum we will be able to get.

FlexEJ has developed and qualified its own integrated suite of tools for bellows design to EJMA10, component temperature modelling and restraint design for tie rods, hinges and gimbals. Overall design is to B31.3 or EN13445 with PED as appropriate supported by SolidWorks, FEA and thermal modelling for high temperature designs requiring internal insulation. We are happy to work to any client specifications and to submit full design and manufacturing documentation for approval.

Bellows materials include 304, 321 316(H), 625, 800(H), 825 and expansion joint materials include carbon steels, CrMo, stainless steels and all can be supplied with liners, covers, tie rods, hinges, gimbals, pressure balanced, insulation, refractory as required – delivering a complete pipe expansion joint to your exact requirements.



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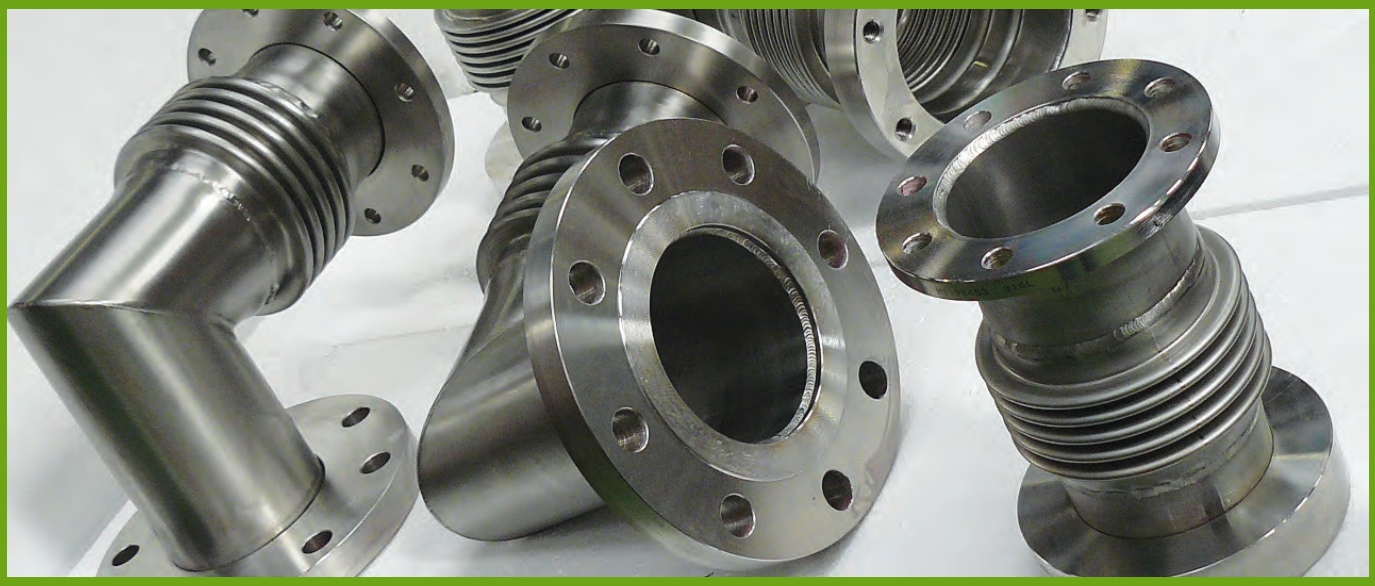


FlexEJ: a manufacturing partner

Manufacturing partner
OEM, pressure envelope

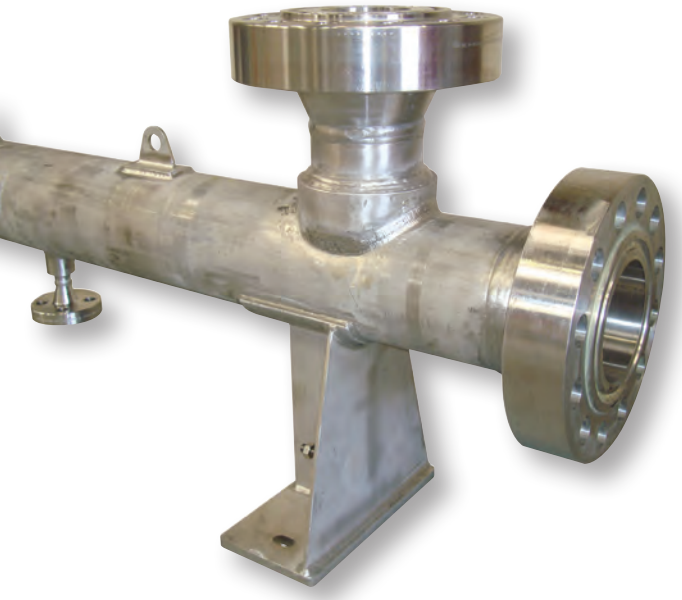
FlexEJ has an established history of working in close partnership with OEMs. We can accommodate any scope requirement – build to print, packaging, through to full design and manufacture. Success requires a close working relationship and our commitment to on-time delivery of error-free product.

Flexibility – new products, variations, specials, varying demand by product line. We have developed the systems to enable us to work with our customers and to be as responsive as possible to the normal – and unusual – demands of their markets.

Proactive management – to be responsive we must be proactive in stock control, planning, and capacity. We have developed systems to allow us to do this efficiently and to optimise batch and stock levels.

Design & documentation – savings, improvements, simplifications, new products. We undertake full product design and development for some of our customers and build to print for others. For all our customers we provide the documentation they require in the format specified.

Our experience allows us to provide a comprehensive, competitive and engaged service to any OEM looking for a long-term pressure fabrication partner.



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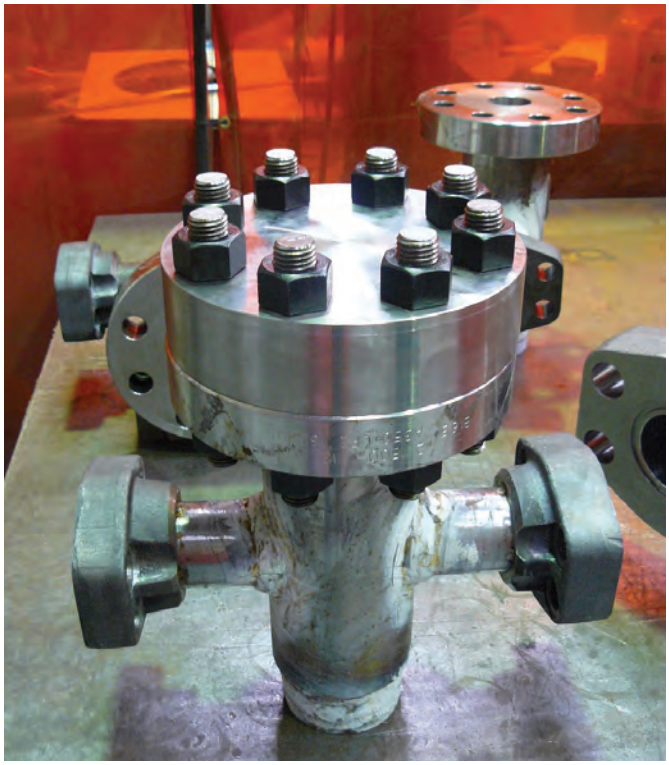

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Pressure vessels
Design, engineering & manufacture

FlexEJ specialises in the manufacture of small to medium pressure vessels. Backed up by our team of engineers and support office staff, we are known for high quality work, with excellent manufacturing documentation.

We use PV Elite suite for calculations which integrates with our Solid Works for design and detailing. Material traceability and NDT are both managed through a specially developed database which integrates with our business system for instant reporting and indexing/ retrieval of certification, ready for inclusion in the manufacturing data book.

Additionally, we offer build-to-print where the code calculation has been completed by others and the design envelope exists, or we can take concept drawings forward to full manufacturing designs.

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