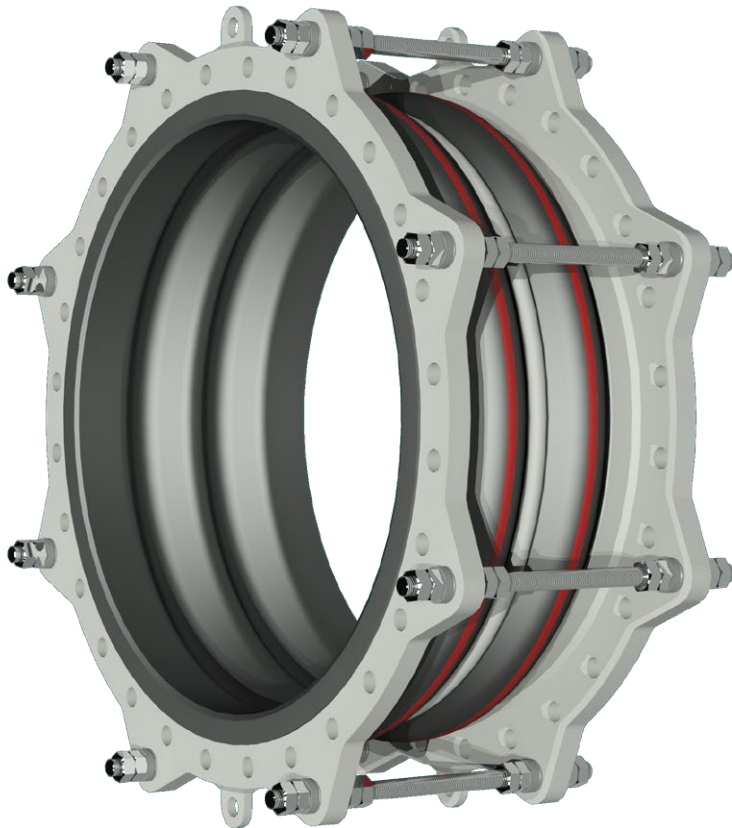
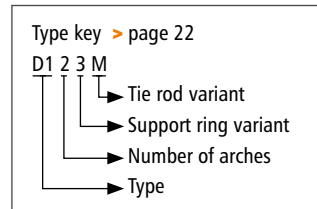


## D120M $\varnothing$ 100 - 1,200 mm



- > **Type D120M**  
without vacuum rings
- > **Type D121M**  
with internal vacuum rings
- > **Type D122M**  
with embedded vacuum rings
- > **Type D123M**  
without vacuum rings,  
with external support ring
- > **Type D124M**  
with internal vacuum rings,  
with external support ring
- > **Type D125M**  
with embedded vacuum rings,  
with external support ring




## Lateral expansion joint with two arches

**Design:** Streamlined, double wide arch rubber bellows with self-sealing rubber bulges, have a cycle life in the tens of millions, constructed with a high-grade leak-proof tube, multiple layers of high-strength cord, a seamless cover, and swivel backing flanges with tie rods borne in spherical washers. Optional with vacuum rings and/or external support ring. In compliance with PED 2014/68/EU, FSA Technical Handbook and ASTM F1123 - 87.

**Diameters:**  $\varnothing$  100 to 1,200 mm, custom diameters possible

**Length:** Standard  $L_E = 350$  to  $650$  mm (> page 274–276)  
Custom length on request

**Pressure:** Up to 10 bar depending on diameter and length  
Vacuum not allowed without vacuum rings, with vacuum rings up to 0.05 bar absolute

**Movement:** For very large lateral and angular (2 tie rod design) movements\*  
 (> page 274–276)

**Spring rate:** To calculate the lateral spring rate for multiple arch joints, divide our single arch values of type D110A by the number of arches (> page 296)




















**Application:**  
Cooling water systems,  
desalination plants,  
drinking water supply,  
plant construction, e. g.  
in pipelines, on pumps,  
as dismantling joints, on  
condensers and vessels



Request assembly  
instructions at:  
[www.ditec-adam.de/  
en/contact](http://www.ditec-adam.de/en/contact)

\*Installation gap tolerances according to axial movement capability of the expansion joint

## Bellows elastomers and reinforcements

Elastomer	Fabric	Marking	°C	Application
EPDM	Polyamid		-40   +100	Cooling water, hot water, seawater, acids, dilute chlorine compounds
EPDM	Aramid		-40   +100	Cooling water, hot water, seawater, acids, dilute chlorine compounds
EPDMht	Aramid		-40   +120	Cooling water, hot water, seawater, acids, dilute chlorine compounds
EPDMwras	Polyamid		-40   +100	Drinking water, foodstuffs
EPDMwras	Aramid		-40   +100	Drinking water, foodstuffs
EPDMbeige	Polyamid		-40   +100	Foodstuffs
EPDMbeige	Aramid		-40   +100	Foodstuffs
IIR	Polyamid		-20   +100	Hot water, acids, bases, gases
IIR	Aramid		-20   +100	Hot water, acids, bases, gases
CSM	Polyamid		-20   +100	Strong acids, bases, chemicals
CSM	Aramid		-20   +100	Strong acids, bases, chemicals
NBR	Polyamid		-30   +100	Oils, petrol, solvents, compressed air
NBR	Aramid		-30   +100	Oils, petrol, solvents, compressed air
NBRbeige	Polyamid		-30   +100	Oil, fatty foods
NBRbeige	Aramid		-30   +100	Oil, fatty foods
CR	Polyamid		-20   +90	Cooling water, slightly oily water, seawater
CR	Aramid		-20   +90	Cooling water, slightly oily water, seawater
FPM	Aramid		-20   +180	Corrosive chemicals, petroleum distillates
FPMbeige	Aramid		-20   +180	Oil, fatty foods
NR	Polyamid		-20   +70	Abrasive materials
Silicon	Aramid Glass		-60   +200	Air, saltwater atmosphere, foodstuffs, medical technology

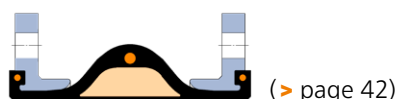
## Backing flanges

- Design:** Single-part integral swivel backing flanges with support collar, clearance holes, groove to accommodate the rubber bulges and tie rod holders (tie rod type B, E, C, M)  
Single-part swivel backing flanges with support collar, clearance holes, groove to accommodate the rubber bulges and tie rod gusset plates (tie rod type R, K, L)
- Flange norms:** DIN, EN, ANSI, AWWA, BS, JIS, special measurements (> page 298)
- Materials:** Carbon steel, stainless steel
- Coating:** Primed, hot-dip galvanised, special paint

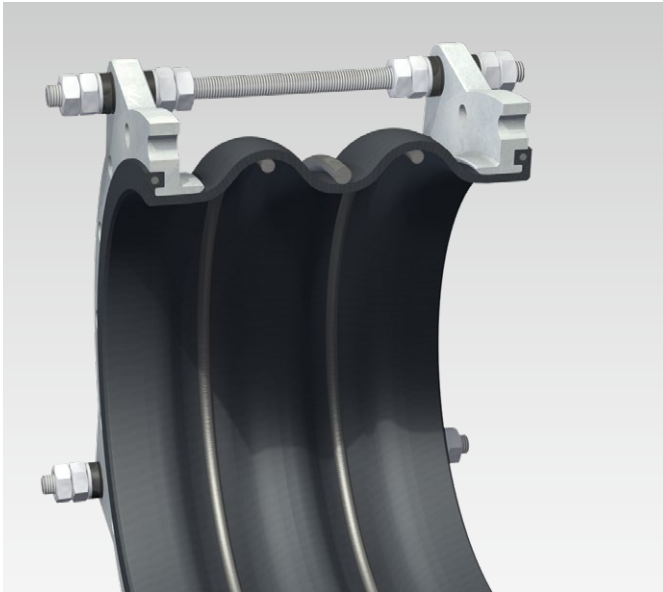
## Accessories

- Protective covers:** Ground protective shield  
Protective shield or cover  
Fire protective shield (> page 58)
- Flow liners:** Cylindrical flow liner  
Conical flow liner  
Telescoping flow liner (> page 57)

### Filled arch:



Tie rods

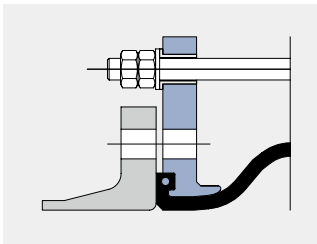


**Design:** Dimensioning according to design pressure (test pressure) based on the Pressure Equipment Directive

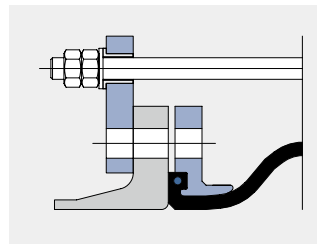
**Materials:** Carbon steel  
Stainless steel

**Coating:** Spherical washers/ball disks: PTFE coated  
Tie rods: galvanised, hot-dip galvanised or PTFE-coated

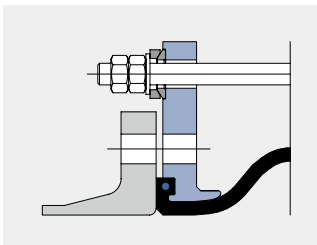
Example: Type D124M



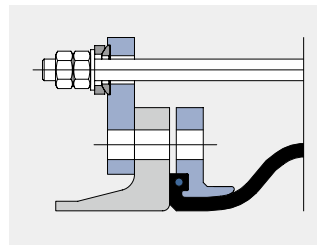
**Type D120B**  
Tie rods mounted outside in rubber bushing to accommodate pressure thrust forces



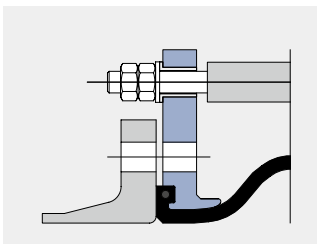
**Type D120R**  
Gusset plates: Tie rods mounted outside in rubber bushing to accommodate pressure thrust forces



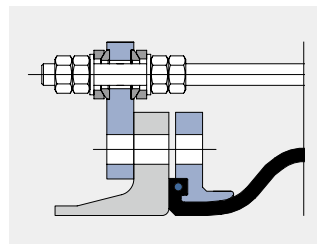
**Type D120E**  
Tie rods mounted outside in spherical washers and ball disks to accommodate pressure thrust forces



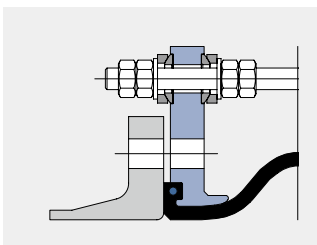
**Type D120K**  
Gusset plates: Tie rods mounted outside in spherical washers and ball disks to accommodate pressure thrust forces



**Type D120C**  
Tie rods mounted outside in rubber bushing and inside with compression sleeve to accommodate pressure/vacuum thrust forces



**Type D120L**  
Gusset plates: Tie rods mounted outside and inside in spherical washers and ball disks to accommodate pressure/vacuum thrust forces



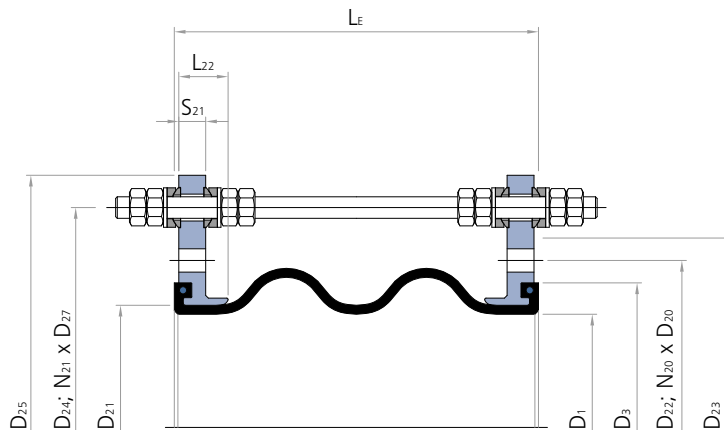
**Type D120M**  
Tie rods mounted outside and inside in spherical washers and ball disks to accommodate pressure/vacuum thrust forces

### Support rings

TYPE	Support rings	Vacuum ring	Support ring	Pressure	Movement
D120M		None	None	Low pressure, vacuum stability on request	> page 274
D121M		Medium contact, inside the arches	None	Low pressure, for vacuum up to 0.05 bar absolute	> page 275
D122M		No medium contact, embedded in the arches	None	Low pressure, for vacuum up to 0.05 bar absolute	> page 276
D123M		None	External between the arches	Depending on the diameter up to 10 bar, slight vacuum	> page 274
D124M		Medium contact, inside the arches	External between the arches	Depending on the diameter up to 10 bar, for vacuum up to 0.05 bar absolute	> page 275
D125M		No medium contact, embedded in the arches	External between the arches	Depending on the diameter up to 10 bar, for vacuum up to 0.05 bar absolute	> page 276

Materials		
Stainless steel	Carbon steel, rubberised	Carbon steel, embedded

#### Cross section D120M

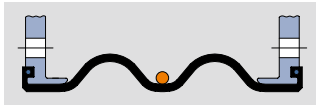


274



**D120M**

> without vacuum rings



**D123M**

> without vacuum rings, with external support ring

Installation length (L <sub>E</sub> ) at design pressure															
∅ mm	up to 10 bar L <sub>E</sub> = 350 mm					up to 10 bar L <sub>E</sub> = 400 mm					up to 10 bar L <sub>E</sub> = 450 mm				
	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>
	mm	mm	± mm	± °		mm	mm	± mm	± °		mm	mm	± mm	± °	
200	53	22	33	0	445	62	20	36	0	445	80	40	53	0	564
250	53	22	32	0	656	62	20	35	0	656	80	40	52	0	799
300	53	22	32	0	903	62	20	35	0	903	80	40	51	0	1,069
350	53	22	31	0	1,134	62	20	34	0	1,134	80	40	50	0	1,320
400	53	22	31	0	1,521	62	20	34	0	1,521	80	40	50	0	1,735
450	53	22	31	0	1,878	62	20	33	0	1,878	80	40	49	0	2,116
500	53	22	30	0	2,290	62	20	33	0	2,290	80	40	49	0	2,552
600	53	22	30	0	3,187	62	20	33	0	3,187	80	40	48	0	3,494
700	53	22	29	0	4,312	62	20	32	0	4,312	80	40	47	0	4,669
800	53	22	29	0	5,555	62	20	32	0	5,555	80	40	47	0	5,958
900	53	22	29	0	6,910	62	20	31	0	6,910	80	40	46	0	7,359
1000	53	22	29	0	8,462	62	20	31	0	8,462	80	40	46	0	8,958
1100	53	22	28	0	10,171	62	20	31	0	10,171	80	40	45	0	10,715
1200	53	22	28	0	12,037	62	20	31	0	12,037	80	40	45	0	12,628

Installation length (L <sub>E</sub> ) at design pressure															
∅ mm	up to 10 bar L <sub>E</sub> = 500 mm					up to 10 bar L <sub>E</sub> = 550 mm					up to 10 bar L <sub>E</sub> = 600 mm				
	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>
	mm	mm	± mm	± °		mm	mm	± mm	± °		mm	mm	± mm	± °	
200	88	41	57	0	573	106	61	74	0	707	124	82	91	0	855
250	88	41	56	0	809	106	61	72	0	968	124	82	89	0	1,140
300	88	41	55	0	1,081	106	61	71	0	1,263	124	82	88	0	1,459
350	88	41	54	0	1,333	106	61	70	0	1,534	124	82	86	0	1,750
400	88	41	54	0	1,750	106	61	69	0	1,979	124	82	85	0	2,223
450	88	41	53	0	2,132	106	61	69	0	2,384	124	82	84	0	2,651
500	88	41	52	0	2,570	106	61	68	0	2,846	124	82	84	0	3,137
600	88	41	52	0	3,515	106	61	67	0	3,837	124	82	82	0	4,174
700	88	41	51	0	4,693	106	61	66	0	5,064	124	82	81	0	5,450
800	88	41	50	0	5,986	106	61	65	0	6,404	124	82	80	0	6,837
900	88	41	50	0	7,390	106	61	64	0	7,854	124	82	79	0	8,332
1000	88	41	49	0	8,992	106	61	64	0	9,503	124	82	79	0	10,029
1100	88	41	49	0	10,751	106	61	63	0	11,310	124	82	78	0	11,882
1200	88	41	48	0	12,668	106	61	63	0	13,273	124	82	77	0	13,893

Recommended sizes  
Further possible sizes

In the event of lateral displacement and simultaneous axial extension the above movements are reduced (> page 29).  
Larger movements on request.

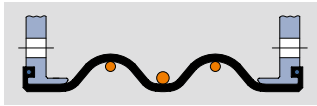
The movement capability of the expansion joints given in the tables is determined for flange dimensions according to DIN PN10. In case of deviating flange dimensions, please contact us.

**Customised products available**



## D121M

> with internal vacuum rings



## D124M

> with internal vacuum rings, with external support ring

### Installation length ( $L_E$ ) at design pressure

$\varnothing$ mm	up to 10 bar $L_E = 350$ mm					up to 10 bar $L_E = 400$ mm					up to 10 bar $L_E = 450$ mm				
	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>
	mm	mm	$\pm$ mm	$\pm^\circ$		mm	mm	$\pm$ mm	$\pm^\circ$		mm	mm	$\pm$ mm	$\pm^\circ$	
200	53	7	33	0	445	62	7	36	0	445	80	13	53	0	564
250	53	7	32	0	656	62	7	35	0	656	80	13	52	0	799
300	53	7	32	0	903	62	7	35	0	903	80	13	51	0	1,069
350	53	7	31	0	1,134	62	7	34	0	1,134	80	13	50	0	1,320
400	53	7	31	0	1,521	62	7	34	0	1,521	80	13	50	0	1,735
450	53	7	31	0	1,878	62	7	33	0	1,878	80	13	49	0	2,116
500	53	7	30	0	2,290	62	7	33	0	2,290	80	13	49	0	2,552
600	53	7	30	0	3,187	62	7	33	0	3,187	80	13	48	0	3,494
700	53	7	29	0	4,312	62	7	32	0	4,312	80	13	47	0	4,669
800	53	7	29	0	5,555	62	7	32	0	5,555	80	13	47	0	5,958
900	53	7	29	0	6,910	62	7	31	0	6,910	80	13	46	0	7,359
1000	53	7	29	0	8,462	62	7	31	0	8,462	80	13	46	0	8,958
1100	53	7	28	0	10,171	62	7	31	0	10,171	80	13	45	0	10,715
1200	53	7	28	0	12,037	62	7	31	0	12,037	80	13	45	0	12,628

### Installation length ( $L_E$ ) at design pressure

$\varnothing$ mm	up to 10 bar $L_E = 500$ mm					up to 10 bar $L_E = 550$ mm					up to 10 bar $L_E = 600$ mm				
	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>
	mm	mm	$\pm$ mm	$\pm^\circ$		mm	mm	$\pm$ mm	$\pm^\circ$		mm	mm	$\pm$ mm	$\pm^\circ$	
200	88	13	57	0	573	106	20	74	0	707	124	27	91	0	855
250	88	13	56	0	809	106	20	72	0	968	124	27	89	0	1,140
300	88	13	55	0	1,081	106	20	71	0	1,263	124	27	88	0	1,459
350	88	13	54	0	1,333	106	20	70	0	1,534	124	27	86	0	1,750
400	88	13	54	0	1,750	106	20	69	0	1,979	124	27	85	0	2,223
450	88	13	53	0	2,132	106	20	69	0	2,384	124	27	84	0	2,651
500	88	13	52	0	2,570	106	20	68	0	2,846	124	27	84	0	3,137
600	88	13	52	0	3,515	106	20	67	0	3,837	124	27	82	0	4,174
700	88	13	51	0	4,693	106	20	66	0	5,064	124	27	81	0	5,450
800	88	13	50	0	5,986	106	20	65	0	6,404	124	27	80	0	6,837
900	88	13	50	0	7,390	106	20	64	0	7,854	124	27	79	0	8,332
1000	88	13	49	0	8,992	106	20	64	0	9,503	124	27	79	0	10,029
1100	88	13	49	0	10,751	106	20	63	0	11,310	124	27	78	0	11,882
1200	88	13	48	0	12,668	106	20	63	0	13,273	124	27	77	0	13,893

Recommended sizes  
Further possible sizes

In the event of lateral displacement and simultaneous axial extension the above movements are reduced (> page 29).  
Larger movements on request.

The movement capability of the expansion joints given in the tables is determined for flange dimensions according to DIN PN10. In case of deviating flange dimensions, please contact us.

**Customised products available**



**D122M**

> with embedded vacuum rings



**D125M**

> with embedded vacuum rings, with external support ring

Installation length (L <sub>E</sub> ) at design pressure															
∅ mm	up to 10 bar L <sub>E</sub> = 350 mm					up to 10 bar L <sub>E</sub> = 400 mm					up to 10 bar L <sub>E</sub> = 450 mm				
	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>
	mm	mm	±mm	±°		mm	mm	±mm	±°		mm	mm	±mm	±°	
200	35	7	33	0	445	41	5	34	0	401	52	12	51	0	515
250	35	7	32	0	656	41	5	33	0	603	52	12	50	0	740
300	35	7	32	0	903	41	5	32	0	840	52	12	49	0	1,001
350	35	7	31	0	1,134	41	5	32	0	1,064	52	12	48	0	1,244
400	35	7	31	0	1,521	41	5	32	0	1,439	52	12	48	0	1,647
450	35	7	31	0	1,878	41	5	31	0	1,787	52	12	47	0	2,019
500	35	7	30	0	2,290	41	5	31	0	2,190	52	12	47	0	2,445
600	35	7	30	0	3,187	41	5	30	0	3,068	52	12	46	0	3,370
700	35	7	29	0	4,312	41	5	30	0	4,174	52	12	45	0	4,525
800	35	7	29	0	5,555	41	5	30	0	5,398	52	12	45	0	5,795
900	35	7	29	0	6,910	41	5	29	0	6,735	52	12	44	0	7,178
1000	35	7	29	0	8,462	41	5	29	0	8,268	52	12	44	0	8,758
1100	35	7	28	0	10,171	41	5	29	0	9,958	52	12	43	0	10,496
1200	35	7	28	0	12,037	41	5	29	0	11,805	52	12	43	0	12,390

Installation length (L <sub>E</sub> ) at design pressure															
∅ mm	up to 10 bar L <sub>E</sub> = 500 mm					up to 10 bar L <sub>E</sub> = 550 mm					up to 10 bar L <sub>E</sub> = 600 mm				
	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>	Movement				A cm <sup>2</sup>
	mm	mm	±mm	±°		mm	mm	±mm	±°		mm	mm	±mm	±°	
200	58	12	55	0	531	70	19	72	0	661	82	26	89	0	804
250	58	12	54	0	760	70	19	71	0	913	82	26	87	0	1,081
300	58	12	53	0	1,024	70	19	69	0	1,201	82	26	86	0	1,392
350	58	12	52	0	1,269	70	19	69	0	1,466	82	26	85	0	1,676
400	58	12	52	0	1,676	70	19	68	0	1,901	82	26	84	0	2,140
450	58	12	51	0	2,051	70	19	67	0	2,299	82	26	83	0	2,561
500	58	12	51	0	2,481	70	19	66	0	2,753	82	26	82	0	3,039
600	58	12	50	0	3,411	70	19	65	0	3,728	82	26	81	0	4,060
700	58	12	49	0	4,572	70	19	64	0	4,939	82	26	79	0	5,320
800	58	12	49	0	5,849	70	19	64	0	6,263	82	26	78	0	6,691
900	58	12	48	0	7,238	70	19	63	0	7,698	82	26	78	0	8,171
1000	58	12	48	0	8,825	70	19	62	0	9,331	82	26	77	0	9,852
1100	58	12	47	0	10,568	70	19	62	0	11,122	82	26	76	0	11,690
1200	58	12	47	0	12,469	70	19	61	0	13,070	82	26	76	0	13,685

Recommended sizes  
Further possible sizes

In the event of lateral displacement and simultaneous axial extension (due to installation gap tolerance) the above movements are reduced (> page 29).  
Larger movements on request.

The movement capability of the expansion joints given in the tables is determined for flange dimensions according to DIN PN10. In case of deviating flange dimensions, please contact us.

**Customised products available**





Double arch EPDM rubber expansion joints  $\varnothing$  500 mm  
with stainless steel swivel flanges,  
for permanent vacuum operation in a paper mill