D120A ⌀ 100 - 1,200 mm

- **Type D120A**
  without vacuum rings
- **Type D121A**
  with internal vacuum rings
- **Type D122A**
  with embedded vacuum rings
- **Type D123A**
  without vacuum rings,
  with external support ring
- **Type D124A**
  with internal vacuum rings,
  with external support ring
- **Type D125A**
  with embedded vacuum rings,
  with external support ring

Type key > page 22

D1 2 3 A
- Tie rod variant
- Support ring variant
- Number of arches
- Type

Universal expansion joint with two arches

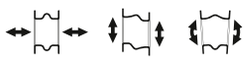
Design: Streamlined, double wide arch rubber bellows with self-sealing rubber bulges, designed to compensate all directional movements, have a cycle life in the tens of millions, constructed with a high-grade leak-proof tube, multiple layers of high-strength cord, a seamless cover, and swivel backing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

Diameters: ⌀ 100 to 1,200 mm, custom diameters possible

Length: Standard L_E = 350 to 600 mm (> page 167–169)
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 axial, lateral and angular movements

 (> page 167–169)

Spring rate: To calculate the axial and lateral spring rate for double 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

CE PED 2014/68/EU · KTW WRAS · FDA · <10⁹ Ohm · EX

Request assembly instructions at:
www.ditec-adam.de/en/contact

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, swivel, round backing flanges with support collar, clearance holes and groove to accept the rubber bulges

Flange norms: DIN, EN, ANSI, AWWA, BS, JIS, special measurements (> page 298)

Materials: Carbon steel, stainless steel

Coating: Primed, hot-dip galvanised, special paint

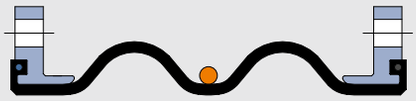
Accessories

Protective covers: Ground protective shield
Protective shield or cover
Fire protective cover (> page 58)

Flow liners: Cylindrical flow liner
Conical flow liner
Telescoping flow liner (> page 57)

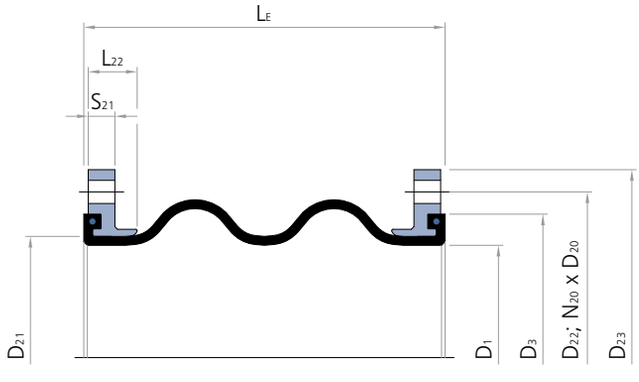
Filled arch:  (> page 42)

Support rings

TYPE	Support rings	Vacuum ring	Support ring	Pressure	Movement
D120A		None	None	Low pressure, vacuum stability on request	> page 167
D121A		Medium contact, inside the arches	None	Low pressure, for vacuum up to 0.05 bar absolute	> page 168
D122A		No medium contact, embedded in the arches	None	Low pressure, for vacuum up to 0.05 bar absolute	> page 169
D123A		None	External between the arches	Depending on the diameter up to 10 bar, slight vacuum	> page 167
D124A		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 168
D125A		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 169

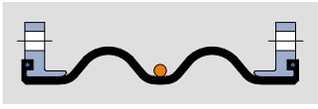
Materials		
Stainless steel	Carbon steel, rubberised	Carbon steel, embedded

Cross section D120A



D120A

> without vacuum rings



D123A

> without vacuum rings, with external support ring

Installation length (L_E) at design pressure

	up to 10 bar L_E = 350 mm					up to 10 bar L_E = 400 mm					up to 10 bar L_E = 450 mm				
	higher pressures on request														
	Movement				A	Movement				A	Movement				A
∅															
mm	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²
200	62	20	36	11.3	445	80	40	53	21.8	564	88	41	57	22.3	573
250	62	20	35	9.1	656	80	40	52	17.7	799	88	41	56	18.2	809
300	62	20	35	7.6	903	80	40	51	14.9	1,069	88	41	55	15.3	1,081
350	62	20	34	6.5	1,134	80	40	50	12.9	1,320	88	41	54	13.2	1,333
400	62	20	34	5.7	1,521	80	40	50	11.3	1,735	88	41	54	11.6	1,750
450	62	20	33	5.1	1,878	80	40	49	10.1	2,116	88	41	53	10.3	2,132
500	62	20	33	4.6	2,290	80	40	49	9.1	2,552	88	41	52	9.3	2,570
600	62	20	33	3.8	3,187	80	40	48	7.6	3,494	88	41	52	7.8	3,515
700	62	20	32	3.3	4,312	80	40	47	6.5	4,669	88	41	51	6.7	4,693
800	62	20	32	2.9	5,555	80	40	47	5.7	5,958	88	41	50	5.9	5,986
900	62	20	31	2.5	6,910	80	40	46	5.1	7,359	88	41	50	5.2	7,390
1000	62	20	31	2.3	8,462	80	40	46	4.6	8,958	88	41	49	4.7	8,992
1100	62	20	31	2.1	10,171	80	40	45	4.2	10,715	88	41	49	4.3	10,751
1200	62	20	31	1.9	12,037	80	40	45	3.8	12,628	88	41	48	3.9	12,668

Installation length (L_E) at design pressure

	up to 10 bar L_E = 500 mm					up to 10 bar L_E = 550 mm					up to 10 bar L_E = 600 mm				
	higher pressures on request														
	Movement				A	Movement				A	Movement				A
∅															
mm	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²
200	106	61	74	31.4	707	124	82	91	39.4	855	138	85	99	40.4	897
250	106	61	72	26.0	968	124	82	89	33.3	1,140	138	85	97	34.2	1,188
300	106	61	71	22.1	1,263	124	82	88	28.7	1,459	138	85	95	29.5	1,514
350	106	61	70	19.2	1,534	124	82	86	25.1	1,750	138	85	94	25.9	1,810
400	106	61	69	17.0	1,979	124	82	85	22.3	2,223	138	85	93	23.0	2,290
450	106	61	69	15.2	2,384	124	82	84	20.0	2,651	138	85	92	20.7	2,725
500	106	61	68	13.7	2,846	124	82	84	18.2	3,137	138	85	91	18.8	3,217
600	106	61	67	11.5	3,837	124	82	82	15.3	4,174	138	85	89	15.8	4,266
700	106	61	66	9.9	5,064	124	82	81	13.2	5,450	138	85	88	13.7	5,555
800	106	61	65	8.7	6,404	124	82	80	11.6	6,837	138	85	87	12.0	6,955
900	106	61	64	7.7	7,854	124	82	79	10.3	8,332	138	85	86	10.7	8,462
1000	106	61	64	7.0	9,503	124	82	79	9.3	10,029	138	85	85	9.6	10,171
1100	106	61	63	6.3	11,310	124	82	78	8.5	11,882	138	85	84	8.8	12,037
1200	106	61	63	5.8	13,273	124	82	77	7.8	13,893	138	85	84	8.1	14,061

Recommended sizes
Further possible sizes

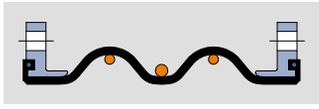
Angular movement only possible with guided external support ring.
In the event of axial extension and simultaneous lateral displacement the above movements are reduced (> page 29).
Larger movements on request.

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

D121A

> with internal vacuum rings



D124A

> with internal vacuum rings, with external support ring

Installation length (L_E) at design pressure

	up to 10 bar L_E = 350 mm					up to 10 bar L_E = 400 mm					up to 10 bar L_E = 450 mm				
	higher pressures on request														
	Movement				A	Movement				A	Movement				A
∅															
mm	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²
200	62	7	36	11.3	445	80	13	53	21.8	564	88	13	57	22.3	573
250	62	7	35	9.1	656	80	13	52	17.7	799	88	13	56	18.2	809
300	62	7	35	7.6	903	80	13	51	14.9	1,069	88	13	55	15.3	1,081
350	62	7	34	6.5	1,134	80	13	50	12.9	1,320	88	13	54	13.2	1,333
400	62	7	34	5.7	1,521	80	13	50	11.3	1,735	88	13	54	11.6	1,750
450	62	7	33	5.1	1,878	80	13	49	10.1	2,116	88	13	53	10.3	2,132
500	62	7	33	4.6	2,290	80	13	49	9.1	2,552	88	13	52	9.3	2,570
600	62	7	33	3.8	3,187	80	13	48	7.6	3,494	88	13	52	7.8	3,515
700	62	7	32	3.3	4,312	80	13	47	6.5	4,669	88	13	51	6.7	4,693
800	62	7	32	2.9	5,555	80	13	47	5.7	5,958	88	13	50	5.9	5,986
900	62	7	31	2.5	6,910	80	13	46	5.1	7,359	88	13	50	5.2	7,390
1000	62	7	31	2.3	8,462	80	13	46	4.6	8,958	88	13	49	4.7	8,992
1100	62	7	31	2.1	10,171	80	13	45	4.2	10,715	88	13	49	4.3	10,751
1200	62	7	31	1.9	12,037	80	13	45	3.8	12,628	88	13	48	3.9	12,668

Installation length (L_E) at design pressure

	up to 10 bar L_E = 500 mm					up to 10 bar L_E = 550 mm					up to 10 bar L_E = 600 mm				
	higher pressures on request														
	Movement				A	Movement				A	Movement				A
∅															
mm	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²
200	106	20	74	31.4	707	124	27	91	39.4	855	138	28	99	40.4	897
250	106	20	72	26.0	968	124	27	89	33.3	1,140	138	28	97	34.2	1,188
300	106	20	71	22.1	1,263	124	27	88	28.7	1,459	138	28	95	29.5	1,514
350	106	20	70	19.2	1,534	124	27	86	25.1	1,750	138	28	94	25.9	1,810
400	106	20	69	17.0	1,979	124	27	85	22.3	2,223	138	28	93	23.0	2,290
450	106	20	69	15.2	2,384	124	27	84	20.0	2,651	138	28	92	20.7	2,725
500	106	20	68	13.7	2,846	124	27	84	18.2	3,137	138	28	91	18.8	3,217
600	106	20	67	11.5	3,837	124	27	82	15.3	4,174	138	28	89	15.8	4,266
700	106	20	66	9.9	5,064	124	27	81	13.2	5,450	138	28	88	13.7	5,555
800	106	20	65	8.7	6,404	124	27	80	11.6	6,837	138	28	87	12.0	6,955
900	106	20	64	7.7	7,854	124	27	79	10.3	8,332	138	28	86	10.7	8,462
1000	106	20	64	7.0	9,503	124	27	79	9.3	10,029	138	28	85	9.6	10,171
1100	106	20	63	6.3	11,310	124	27	78	8.5	11,882	138	28	84	8.8	12,037
1200	106	20	63	5.8	13,273	124	27	77	7.8	13,893	138	28	84	8.1	14,061

Recommended sizes
Further possible sizes

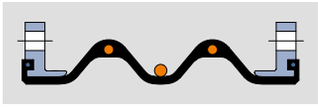
Angular movement only possible with guided external support ring.
In the event of axial extension and simultaneous lateral displacement the above movements are reduced (> page 29).
Larger movements on request.

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

D122A

> with embedded vacuum rings



D125A

> with embedded vacuum rings, with external support ring

Installation length (L_E) at design pressure

	up to 10 bar L_E = 350 mm					up to 10 bar L_E = 400 mm					up to 10 bar L_E = 450 mm				
	higher pressures on request														
	Movement				A	Movement				A	Movement				A
∅															
mm	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²
200	41	5	34	8.0	401	52	12	51	19.3	515	58	12	55	20.3	531
250	41	5	33	6.4	603	52	12	50	15.6	740	58	12	54	16.5	760
300	41	5	32	5.3	840	52	12	49	13.1	1,001	58	12	53	13.9	1,024
350	41	5	32	4.6	1,064	52	12	48	11.3	1,244	58	12	52	11.9	1,269
400	41	5	32	4.0	1,439	52	12	48	9.9	1,647	58	12	52	10.5	1,676
450	41	5	31	3.6	1,787	52	12	47	8.8	2,019	58	12	51	9.3	2,051
500	41	5	31	3.2	2,190	52	12	47	8.0	2,445	58	12	51	8.4	2,481
600	41	5	30	2.7	3,068	52	12	46	6.7	3,370	58	12	50	7.0	3,411
700	41	5	30	2.3	4,174	52	12	45	5.7	4,525	58	12	49	6.0	4,572
800	41	5	30	2.0	5,398	52	12	45	5.0	5,795	58	12	49	5.3	5,849
900	41	5	29	1.8	6,735	52	12	44	4.4	7,178	58	12	48	4.7	7,238
1000	41	5	29	1.6	8,268	52	12	44	4.0	8,758	58	12	48	4.2	8,825
1100	41	5	29	1.5	9,958	52	12	43	3.6	10,496	58	12	47	3.8	10,568
1200	41	5	29	1.3	11,805	52	12	43	3.3	12,390	58	12	47	3.5	12,469

Installation length (L_E) at design pressure

	up to 10 bar L_E = 500 mm					up to 10 bar L_E = 550 mm					up to 10 bar L_E = 600 mm				
	higher pressures on request														
	Movement				A	Movement				A	Movement				A
∅															
mm	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²
200	70	19	72	29.7	661	82	26	89	38.0	804	91	26	95	38.0	804
250	70	19	71	24.5	913	82	26	87	32.0	1,081	91	26	94	32.0	1,081
300	70	19	69	20.8	1,201	82	26	86	27.5	1,392	91	26	92	27.5	1,392
350	70	19	69	18.0	1,466	82	26	85	24.0	1,676	91	26	91	24.0	1,676
400	70	19	68	15.9	1,901	82	26	84	21.3	2,140	91	26	90	21.3	2,140
450	70	19	67	14.2	2,299	82	26	83	19.1	2,561	91	26	89	19.1	2,561
500	70	19	66	12.8	2,753	82	26	82	17.3	3,039	91	26	88	17.3	3,039
600	70	19	65	10.8	3,728	82	26	81	14.6	4,060	91	26	86	14.6	4,060
700	70	19	64	9.2	4,939	82	26	79	12.6	5,320	91	26	85	12.6	5,320
800	70	19	64	8.1	6,263	82	26	78	11.0	6,691	91	26	84	11.0	6,691
900	70	19	63	7.2	7,698	82	26	78	9.8	8,171	91	26	83	9.8	8,171
1000	70	19	62	6.5	9,331	82	26	77	8.9	9,852	91	26	82	8.9	9,852
1100	70	19	62	5.9	11,122	82	26	76	8.1	11,690	91	26	82	8.1	11,690
1200	70	19	61	5.4	13,070	82	26	76	7.4	13,685	91	26	81	7.4	13,685

Recommended sizes
Further possible sizes

Angular movement only possible with guided external support ring.
In the event of axial extension and simultaneous lateral displacement 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