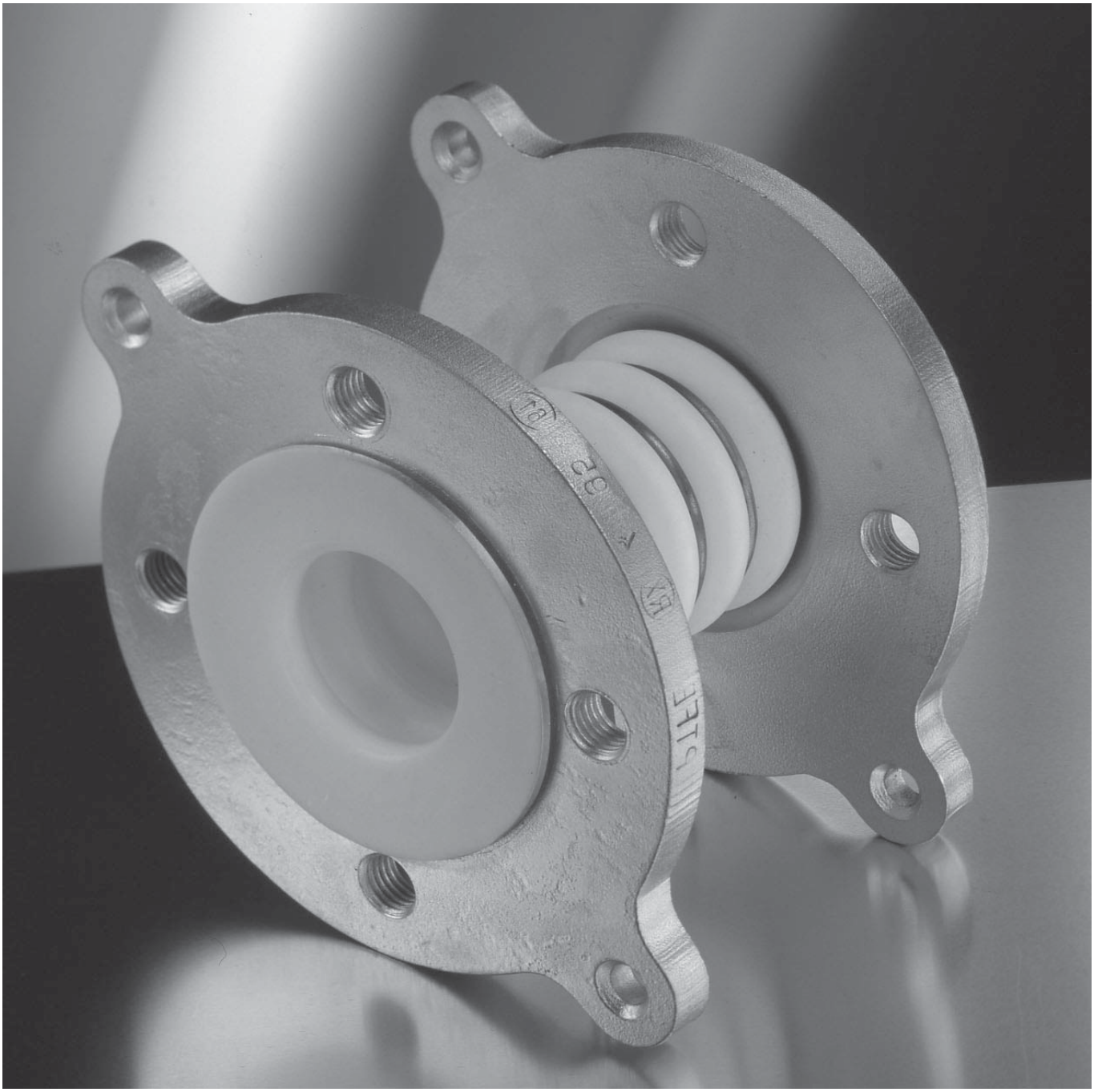
CRANE

RESISTOFLEX

Lined Piping Systems

Expansion Joints

solving critical corrosion, purity and longevity issues in process systems



RESISTOFLEX
Lined Piping Systems

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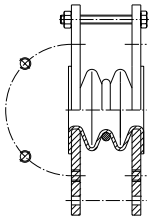
2 Convoluted PTFE Expansion Joints with Reinforcing Rings (ANSI)

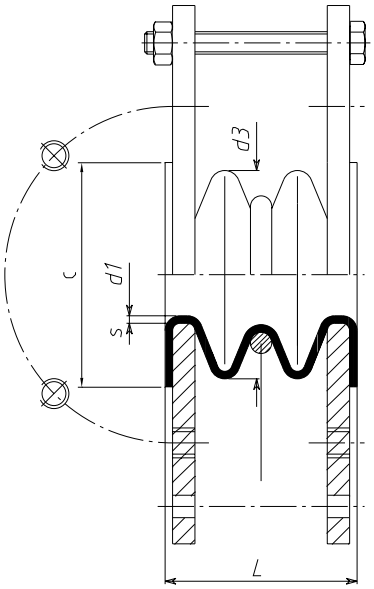
DN	Value Series	Select Series	Options						
	not available in Value Series	Class 150	*Option selection may affect manufacturing lead time. Consult factory for price and delivery*						
			Flanges of 1.0038	Flanges 1.4541 / 1.4571	Conductive Liner	Limit Bolt Inox A2 / A4	Reinforcing Ring Hastelloy	PTFE Nozzle	Vacuum Rings
0.5"		◆ ⊘	Standard	✓	✓	✓	✓	✓	
0.75"		◆ ⊘		✓	✓	✓	✓	✓	
1"		◆ ⊘		✓	✓	✓	✓	✓	
1.5"		◆ ⊘		✓	✓	✓	✓	✓	
2"		◆ ⊘		✓	✓	✓	✓	✓	✓
2.5"		◆ ⊘		✓	✓	✓	✓	✓	✓
3"		◆ ⊘		✓	✓	✓	✓	✓	✓
4"		◆ ⊘		✓	✓	✓	✓	✓	✓
5"		◆ ⊘		✓	✓	✓	✓	✓	✓
6"		◆ ⊘		✓	✓	✓	✓	✓	✓
8"		◆ ⊘		✓	✓	✓	✓	✓	✓
10"		◆ ⊘		✓	✓	✓	✓	✓	✓
12"		◆ ⊘		✓	✓	✓	✓	✓	✓
14"		◆ ⊘		✓	✓	✓	✓	✓	✓
16"		◆ ⊘		✓	✓	✓	✓	✓	✓
18"		◆◆ ⊘		✓	✓	✓	✓	✓	✓
20"		◆◆ ⊘		✓	✓	✓	✓	✓	✓
24"		◆◆ ⊘		✓	✓	✓	✓	✓	✓

◆ Best Price & Lead Time (1 - 2 Weeks)
◆◆ Longer Lead Time (4 - 6 Weeks)
◆◆◆ Price and Delivery Upon Request
● Full Vacuum at 230 °C
⊘ Reduced Vacuum Resistance at Elevated Temp.
○ Non-Vacuum Rated

2 Convoluted PTFE Expansion Joints with Reinforcing Rings (ANSI)

Dimensional Data

DN	L ± 2% (mm)	C (mm)	axial movement max. (± mm)	lateral movement max. (mm)	angular movement max. (degree)	weight (ca. kg)
0.5"	35	35	5	2	7	1,6
0.75"	35	43	6	3	7	1,6
1"	35	51	6	3	7	1,6
1.5"	35	73	6	3	7	2,5
2"	40	92	6	3	7	3,6
2.5"	57	105	9	5	7	4,4
3"	57	127	9	5	7	5,2
4"	67	158	13	6	7	6,9
5"	83	186	13	6	7	11,2
6"	75	216	13	6	7	12,3
8"	102	270	13	6	7	20
10"	140	324	15	6	7	26
12"	150	381	20	10	7	33
14"	160	412	20	10	7	57
16"	178	470	25	10	7	72
18"	185	534	25	10	7	79
20"	230	585	25	10	7	83
24"	160	692	15	10	7	108



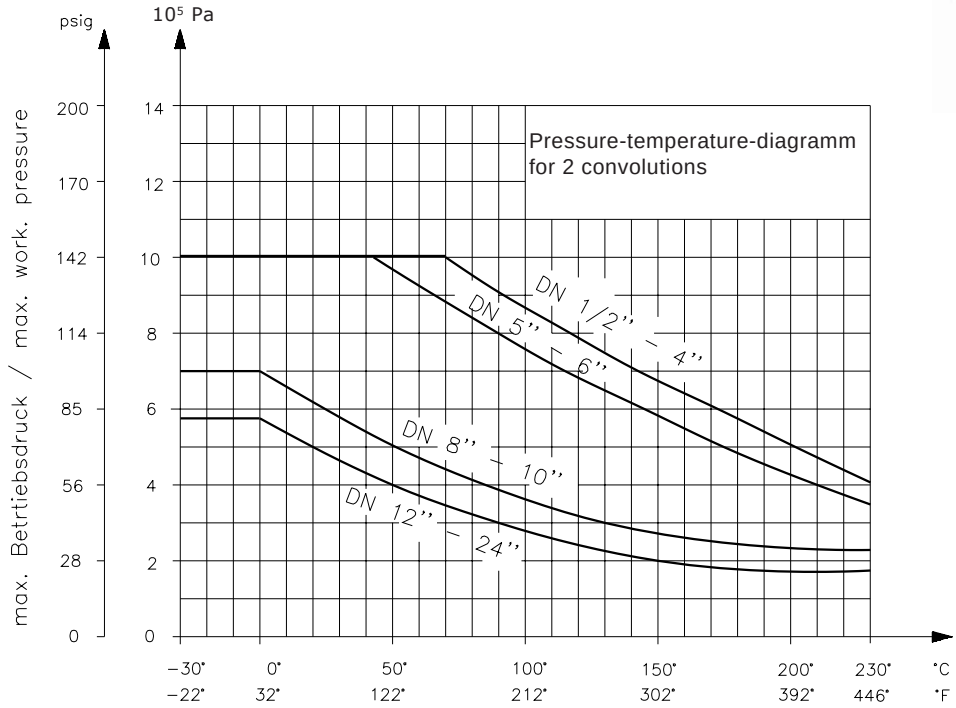
- The mentioned movements (axial, angular, lateral) are alternatives, i.e. the percentage values are not allowed to exceed 100% when added together.

Part Number System

1	K2W	250	15	W	P1	SS	00XX
Type	Fitting	Diameter	Pressure	Liner	Resin Type	Flanges	Options
Finished	Expansion Joint with 2 Convolutes	015 - 1/2" 020 - 3/4" 025 - 1" 040 - 1 1/2" 050 - 2" 080 - 3" 100 - 4" 150 - 6" 200 - 8" 250 - 10" 300 - 12" 350 - 14" 400 - 16" 450 - 18" 500 - 20" 600 - 24"	15 - ANSI 150	W - White E - Anti-Static	Paste Standard	SS	0017 - Standard 1.0038 0018 - Flanges 1.4541 0019 - Flanges 1.4571

2 Convoluted PTFE Expansion Joints with Reinforcing Rings (ANSI)

Pressure-temperature-diagramm:



- The curves are only valid at neutral length and with limit bolts in place.
- The burst pressure is approx. 4 times the max. working pressure shown on the diagramm.

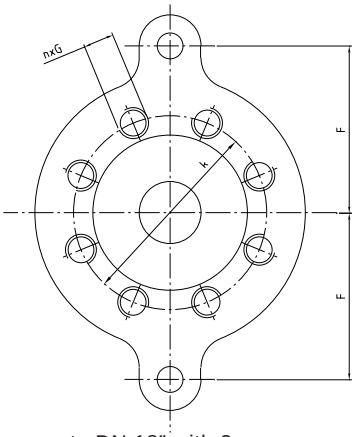
Vacuum resistance:

DN	1" - 4"	5" - 6"	8"		10"		12" - 16"		18"		20"	24"
T [°C]	200	150	50	150	45	100	45	100	45	100	100	100
p [10^4 Pa]	0,1	0,1	0,1	2,0	0,7	3,4	1,5	6,7	3,4	7,0	8,0	8,7

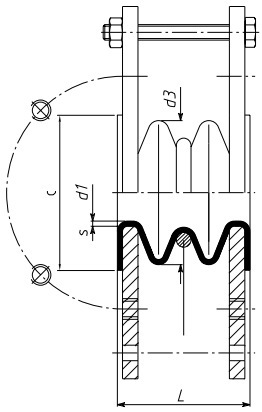
Materials:

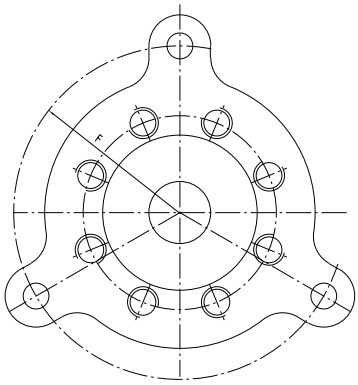
BOM	Materials
Bellow	PTFE-Paste white acc. to ASTM D - 4895 (standard)
	PTFE-Paste conductive acc. to ASTM D - 4895 (optional)
Flange	RSt 37-2 = 1.0038, zinc plated (standard)
	X6CrNiTi 1810 = 1.4541 / X6CrNiMoTi 17.12.2 = 1.4571 (optional)
Reinforcing ring	1.4571 (standard)
	Hastelloy C4 (optional)
Limit bolt	DIN 601 (standard)
	Inox A2 / A4 (optional)

2 Convoluted PTFE Expansion Joints Reinforcing Rings (ANSI)



up to DN 18" with 2 ears





DN 20" and DN 24" with 3 ears

Properties and flange dimensions:

DN	S ±10 % (mm)	d 1 ± 5 % (mm)	d 3 ± 5 % (mm)	eff. bellows cross-section (cm²)	inherent resistance lateral (N / mm)	C compress. (N / mm)	W extension (N / mm)	flange dimensions (Class 150) k ANSI B16.5 (mm)	thread ANSI B16.5 UNC	ears F (mm)	thick-ness (mm)
0.5"	3	24	43	10	70	26	24	60,5	4 x 1/2"	56,5	8
0.75"	3	24	43	10	70	26	24	69,9	4 x 1/2"	61,5	8
1"	3	24	43	10	70	26	24	79,2	4 x 1/2"	66,0	8
1.5"	3	36	57	19	80	81	63	98,6	4 x 1/2"	78,0	10
2"	3	50	75	30	100	140	90	120,7	4 x 5/8"	90,0	12
2.5"	3	60	91	45	120	159	102	139,7	4 x 5/8"	104,0	12
3"	3,5	76	104	70	120	170	120	152,4	4 x 5/8"	113,0	12
4"	4	100	134	112	150	194	130	190,5	8 x 5/8"	132,0	16
5"	4,25	122	163	166	155	230	138	215,9	8 x 3/4"	147,0	16
6"	4,5	150	188	245	160	263	145	241,3	8 x 3/4"	162,0	20
8"	5,25	204	250	400	200	380	157	298,5	8 x 3/4"	201,5	25
10"	5,25	255	325	660	200	212	156	362,0	12 x 7/8"	233,0	25
12"	5,5	280	345	770	200	200	158	431,8	12 x 7/8"	282,0	30
14"	6	350	438	1260	220	251	185	476,3	12 x 1"	307,0	30
16"	6,5	390	462	1500	220	260	192	539,8	16 x 1"	350,0	30
18"	6,5	425	515	2000	240	385	340	577,9	16 x 1 1/8"	368,0	30
20"	6,5	470	555	2080	-	-	-	635,0	20 x 1 1/8"	400,0	30
24"	5	575	665	3200	-	-	-	749,3	20 x 1 1/4"	456,0	34

Calculation of the forces:

Compression force: $F_C = C \times S^{1/2}$

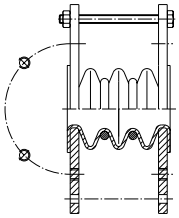
with C from table, S = travel in mm

Extension force: $F_W = W \times S$

with W from table, S = travel in mm

Please note:
- The table is only valid at neutral length and with limit bolts in place.
- The figures stated are average values and apply to room temperature.

3 Convoluted PTFE Expansion Joints with Reinforcing Rings (ANSI)

DN	Value Series	Select Series	Options						
	not available in Value Series	Class 150	*Option selection may affect manufacturing lead time. Consult factory for price and delivery*						
			Flanges of 1.0038	Flanges 1.4541 / 1.4571	Conductive Liner	Limit Bolt Inox A2	Reinforcing Ring Hastelloy	PTFE Nozzle	Vacuum Rings
0.5"		◆ ⊘	Standard	✓	✓	✓	✓	✓	
0.75"		◆ ⊘		✓	✓	✓	✓	✓	
1"		◆ ⊘		✓	✓	✓	✓	✓	
1.5"		◆ ⊘		✓	✓	✓	✓	✓	
2"		◆ ⊘		✓	✓	✓	✓	✓	✓
2.5"		◆ ⊘		✓	✓	✓	✓	✓	✓
3"		◆ ⊘		✓	✓	✓	✓	✓	✓
4"		◆ ⊘		✓	✓	✓	✓	✓	✓
5"		◆ ⊘		✓	✓	✓	✓	✓	✓
6"		◆ ⊘		✓	✓	✓	✓	✓	✓
8"		◆ ⊘		✓	✓	✓	✓	✓	✓
10"		◆ ⊘		✓	✓	✓	✓	✓	✓
12"		◆ ⊘		✓	✓	✓	✓	✓	✓
14"		◆ ⊘		✓	✓	✓	✓	✓	✓
16"		◆ ⊘		✓	✓	✓	✓	✓	✓
18"		◆◆ ⊘		✓	✓	✓	✓	✓	✓
20"		◆◆ ⊘		✓	✓	✓	✓	✓	✓
24"		◆◆ ⊘		✓	✓	✓	✓	✓	✓

◆ Best Price & Lead Time (1 - 2 Weeks)
◆◆ Longer Lead Time (4 - 6 Weeks)
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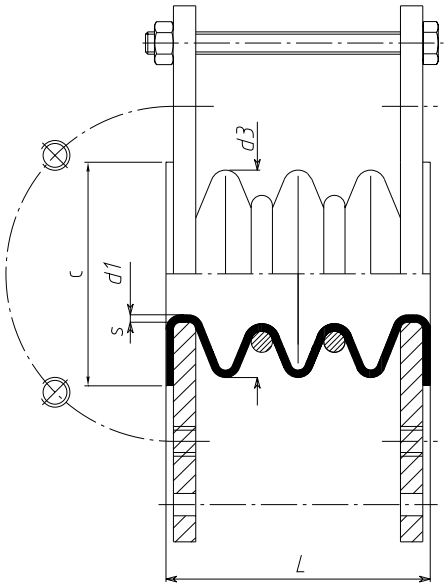
● Full Vacuum at 230 °C
⊘ Reduced Vacuum Resistance at Elevated Temp.
○ Non-Vacuum Rated

3 Convoluted PTFE Expansion Joints with Reinforcing Rings (ANSI)

Dimensional Data

DN	L ± 2% (mm)	C (mm)	axial movement max. (± mm)	lateral movement max. (mm)	angular movement max. (degree)	weight (ca. kg)
0.5"	45	35	10	4	14	1,7
0.75"	45	43	12	5	14	1,7
1"	46	51	13	6	14	1,7
1.5"	50	73	13	6	14	2,6
2"	56	92	15	9	14	3,8
2.5"	77	105	19	9	14	4,6
3"	77	127	25	13	14	5,3
4"	91	158	25	13	14	7
5"	111	186	25	14	14	11,4
6"	101	216	28	14	14	12,7
8"	137	270	28	14	14	21
10"	200	324	30	14	14	27
12"	196	381	30	15	14	35
14"	215	412	32	18	14	60
16"	233	470	35	20	14	75
18"	280	534	30	20	14	91
20"	327	585	30	25	14	110
24"	300	692	25	20	14	140



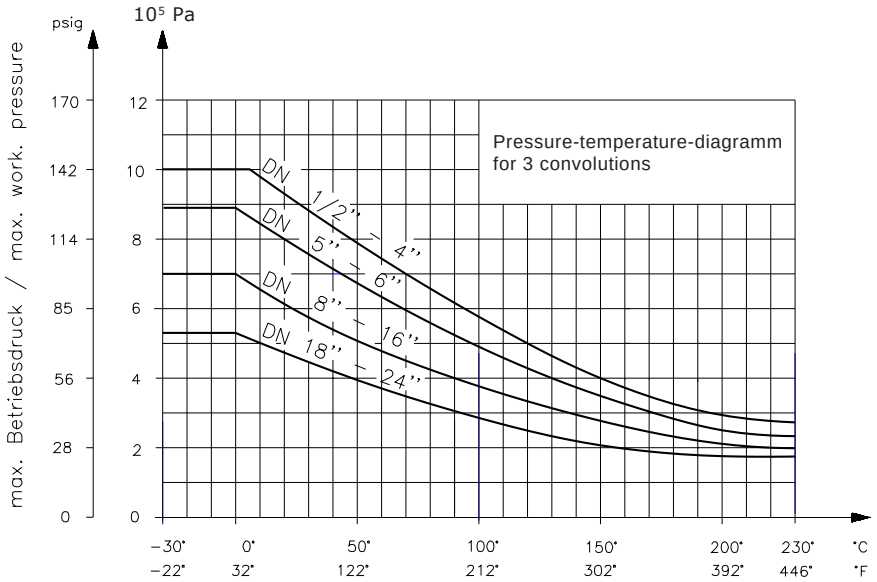
- The mentioned movements (axial, angular, lateral) are alternatives, i.e. the percentage values are not allowed to exceed 100% when added together.

Part Number System

1	K3W	250	15	W	P1	SS	00XX
Type	Fitting	Diameter	Pressure	Liner	Resin Type	Flanges	Options
Finished	Expansion Joint with 2 Convolutes	015 - 1/2" 020 - 3/4" 025 - 1" 040 - 1 1/2" 050 - 2" 080 - 3" 100 - 4" 150 - 6" 200 - 8" 250 - 10" 300 - 12" 350 - 14" 400 - 16" 450 - 18" 500 - 20" 600 - 24"	15 - ANSI 150	W - White E - Anti-Static	Paste Standard	SS	0017 - Standard 1.0038 0018 - Flanges 1.4541 0019 - Flanges 1.4571

3 Convoluted PTFE Expansion Joints with Reinforcing Rings (ANSI)

Pressure-temperature-diagramm:



- The curves are only valid at neutral length and with limit bolts in place.
- The burst pressure is approx. 4 times the max. working pressure shown on the diagramm.

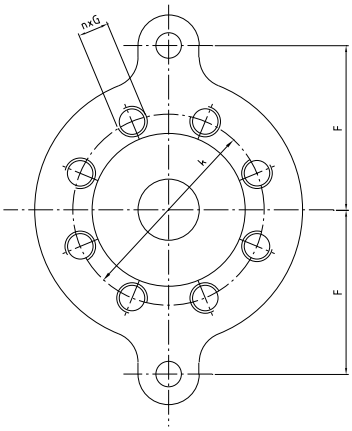
Vacuum resistance:

DN	1" - 4"	5" - 6"	8"		10"		12" - 16"		18"		20"	24"
T [°C]	200	150	50	150	45	100	45	100	45	100	100	100
p [10^4 Pa]	0,1	0,1	0,1	2,0	0,7	3,4	1,5	6,7	3,4	7,0	8,0	8,7

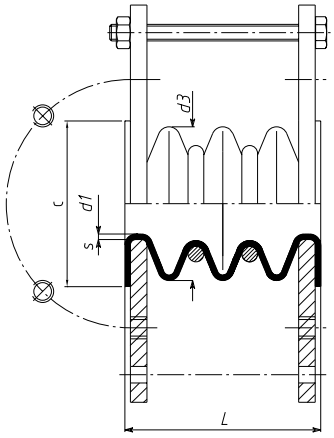
Materials:

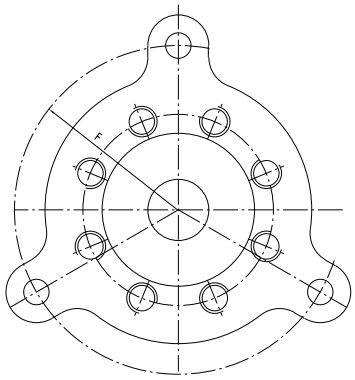
BOM	Materials
Bellow	PTFE-Paste white acc. to ASTM D - 4895 (standard)
	PTFE-Paste conductive acc. to ASTM D - 4895 (optional)
Flange	RSt 37-2 = 1.0038, zinc plated (standard)
	X6CrNiTi 1810 = 1.4541 / X6CrNiMoTi 17.12.2 = 1.4571 (optional)
Reinforcing ring	1.4571 (standard)
	Hastelloy C4 (optional)
Limit bolt	DIN 601 (standard)
	Inox A2 / A4 (optional)

3 Convoluted PTFE Expansion Joints with Reinforcing Rings (ANSI)



up to DN 18" with 2 ears





DN 20" and DN 24" with 3 ears

Properties and flange dimensions:

DN	S ±10 % (mm)	d 1 ± 5 % (mm)	d 3 ± 5 % (mm)	eff. bellows cross-section (cm^2)	inherent resistance lateral (N / mm)	C compress. (N / mm)	W extension (N / mm)	flange dimensions (Class 150) k ANSI B16.5 (mm)	thread ANSI B16.5 UNC	ears F (mm)	thick-ness (mm)
0.5"	3	24	43	10	55	25	21	60,5	4 x 1/2"	56,5	8
0.75"	3	24	43	10	55	25	21	69,9	4 x 1/2"	61,5	8
1"	3	24	43	10	55	25	21	79,2	4 x 1/2"	66,0	8
1.5"	3	36	57	19	60	63	51	98,6	4 x 1/2"	78,0	10
2"	3	50	75	30	80	81	64	120,7	4 x 5/8"	90,0	12
2.5"	3	60	91	45	80	124	84	139,7	4 x 5/8"	104,0	12
3"	3,5	76	104	70	80	155	100	152,4	4 x 5/8"	113,0	12
4"	4	100	134	112	90	175	104	190,5	8 x 5/8"	132,0	16
5"	4,25	122	163	166	95	197	105	215,9	8 x 3/4"	147,0	16
6"	4,5	150	188	245	100	220	108	241,3	8 x 3/4"	162,0	20
8"	5,25	204	250	400	150	264	90	298,5	8 x 3/4"	201,5	25
10"	5,25	255	325	660	150	190	93	362,0	12 x 7/8"	233,0	25
12"	5,5	280	345	770	150	180	95	431,8	12 x 7/8"	282,0	30
14"	6	350	438	1260	170	237	110	476,3	12 x 1"	307,0	30
16"	6,5	390	462	1500	170	254	100	539,8	16 x 1"	350,0	30
18"	6,5	425	515	2000	–	–	–	577,9	16 x 1 1/8"	368,0	30
20"	6,5	470	555	2080	–	–	–	635,0	20 x 1 1/8"	400,0	30
24"	5	575	665	3200	–	–	–	749,3	20 x 1 1/4"	456,0	34

Calculation of the forces:

Compression force: $F_C = C \times S^{1/2}$

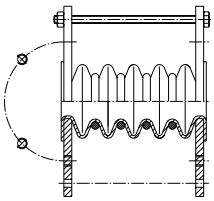
with C from table, S = travel in mm

Extension force: $F_W = W \times S$

with W from table, S = travel in mm

Please note:
- The table is only valid at neutral length and with limit bolts in place.
- The figures stated are average values and apply to room temperature. Deviations due to processing variations are possible

5 Convoluted PTFE Expansion Joints with Reinforcing Rings (ANSI)

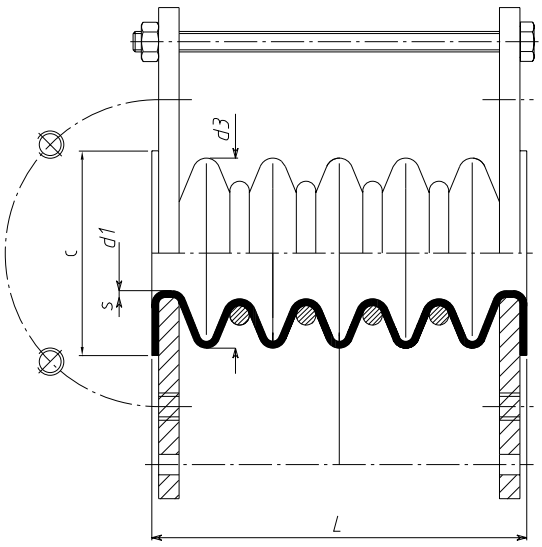
DN	Value Series	Select Series		Options						
	not available in Value Series	Class 150		*Option selection may affect manufacturing lead time. Consult factory for price and delivery*						
				Flanges of 1.0038	Flanges 1.4541 / 1.4571	Conductive Liner	Limit Bolt Inox A2	Reinforcing Ring Hastelloy	PTFE Nozzle	Vacuum Rings
0.5"		◆	○	Standard	✓	✓	✓	✓	✓	
0.75"		◆	○		✓	✓	✓	✓	✓	
1"		◆	○		✓	✓	✓	✓	✓	
1.5"		◆	○		✓	✓	✓	✓	✓	
2"		◆	○		✓	✓	✓	✓	✓	✓
2.5"		◆	○		✓	✓	✓	✓	✓	✓
3"		◆	○		✓	✓	✓	✓	✓	✓
4"		◆	○		✓	✓	✓	✓	✓	✓
5"		◆	○		✓	✓	✓	✓	✓	✓
6"		◆	○		✓	✓	✓	✓	✓	✓
8"		◆	○		✓	✓	✓	✓	✓	✓
10"		◆	○		✓	✓	✓	✓	✓	✓
12"		◆	○		✓	✓	✓	✓	✓	✓
14"		◆	○		✓	✓	✓	✓	✓	✓
16"		◆	○		✓	✓	✓	✓	✓	✓
20"		◆◆	○		✓	✓	✓	✓	✓	✓

◆ Best Price & Lead Time (1 - 2 Weeks)
◆◆ Longer Lead Time (4 - 6 Weeks)
◆◆◆ Price and Delivery Upon Request
● Full Vacuum at 230 °C
⊘ Reduced Vacuum Resistance at Elevated Temp.
○ Non-Vacuum Rated

5 Convoluted PTFE Expansion Joints with Reinforcing Rings (ANSI)

Dimensional Data

DN	L ± 2% (mm)	C (mm)	axial movement max. (± mm)	lateral movement max. (mm)	angular movement max. (degree)	weight (ca. kg)
0.5"	65	35	10	8	20	1,9
0.75"	65	43	12	10	20	1,9
1"	68	51	13	12	20	1,9
1.5"	80	73	19	12	20	2,7
2"	88	92	25	12	20	4,3
2.5"	117	105	25	13	20	5
3"	117	127	25	16	20	5,4
4"	139	158	32	16	20	7,1
5"	167	186	32	16	20	12
6"	153	216	32	16	20	14,2
8"	207	270	32	16	20	22
10"	300	324	32	16	20	29
12"	288	381	35	18	20	40
14"	325	412	35	18	20	65
16"	343	470	40	25	20	81
20"	520	585	40	25	20	110



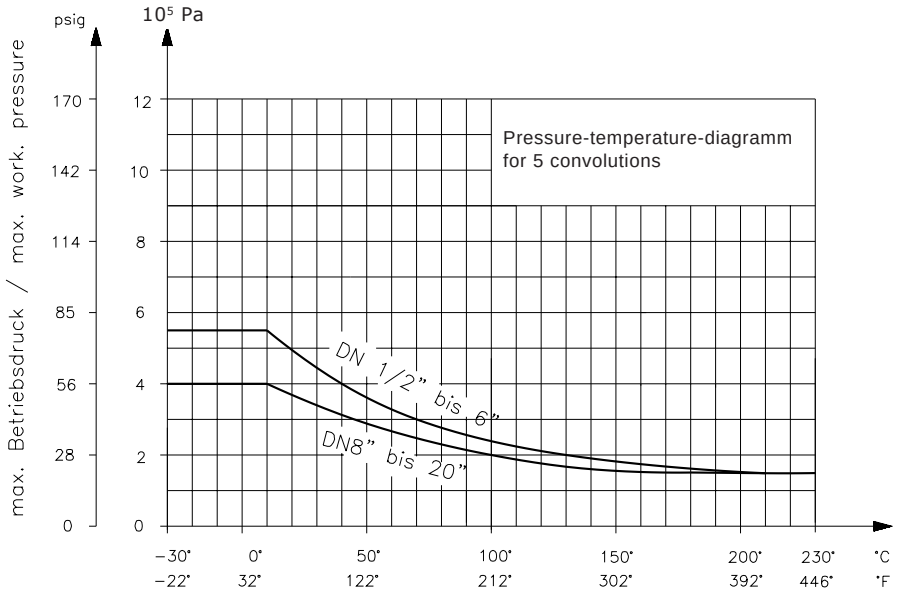
- The mentioned movements (axial, angular, lateral) are alternatives, i.e. the percentage values are not allowed to exceed 100% when added together.

Part Number System

1	K5W	250	15	W	P1	SS	00XX
Type	Fitting	Diameter	Pressure	Liner	Resin Type	Flanges	Options
Finished	Expansion Joint with 5 Convolutes	015 - 1/2" 020 - 3/4" 025 - 1" 040 - 1 1/2" 050 - 2" 080 - 3" 100 - 4" 150 - 6" 200 - 8" 250 - 10" 300 - 12" 350 - 14" 400 - 16" 500 - 20"	15 - ANSI 150	W - White E - Anti-Static	Paste Standard	SS	0017 - Standard 1.0038 0018 - Flansche 1.4541 0019 - Flansche 1.4571

5 Convoluted PTFE Expansion Joints with Reinforcing Rings (ANSI)

Pressure-temperature-diagramm:



- The curves are only valid at neutral length and with limit bolts in place.
- The burst pressure is approx. 4 times the max. working pressure shown on the diagramm. Compared with the pressure curves of the 2- and 3-convolute bellows, it is here much lower because of the risk of buckling.

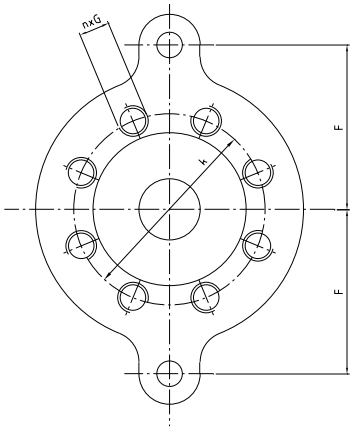
Vacuum resistance:

Not recommended for vacuum service

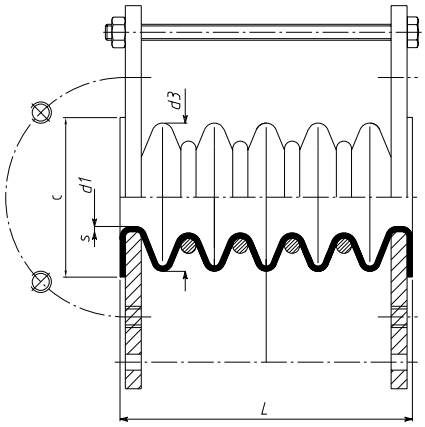
Materials:

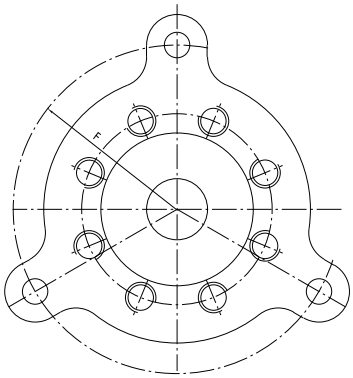
BOM	Materials
Bellow	PTFE-Paste white acc. to ASTM D - 4895 (standard)
	PTFE-Paste conductive acc. to ASTM D - 4895 (optional)
Flange	RSt 37-2 = 1.0038, zinc plated (standard)
	X6CrNiTi 1810 = 1.4541 / X6CrNiMoTi 17.12.2 = 1.4571 (optional)
Reinforcing ring	1.4571 (standard)
	Hastelloy C4 (optional)
Limit bolt	DIN 601 (standard)
	Inox A2 / A4 (optional)

5 Convoluted PTFE Expansion Joints with Reinforcing Rings (ANSI)



up to DN 16" with 2 ears





DN 20" with 3 ears

Properties and flange dimensions:

DN	S ±10 % (mm)	d 1 ± 5 % (mm)	d 3 ± 5 % (mm)	eff. bellows cross-section (cm^2)	inherent resistance lateral (N / mm)	C compress. (N / mm)	W extension (N / mm)	flange dimensions (Class 150) k ANSI B16.5 (mm)	thread ANSI B16.5 UNC	ears F (mm)	thick-ness (mm)
0.5"	3	24	43	10	30	23	20	60,5	4 x 1/2"	56,5	8
0.75"	3	24	43	10	30	23	20	69,9	4 x 1/2"	61,5	8
1"	3	24	43	10	30	23	20	79,2	4 x 1/2"	66,0	8
1.5"	3	36	57	19	30	55	40	98,6	4 x 1/2"	78,0	10
2"	3	50	75	30	40	97	43	120,7	4 x 5/8"	90,0	12
2.5"	3	60	91	45	50	102	56	139,7	4 x 5/8"	104,0	12
3"	3,5	76	104	70	50	114	62	152,4	4 x 5/8"	113,0	12
4"	4	100	134	112	60	127	67	190,5	8 x 5/8"	132,0	16
5"	4,25	122	163	166	65	139	68	215,9	8 x 3/4"	147,0	16
6"	4,5	150	188	245	70	150	68	241,3	8 x 3/4"	162,0	20
8"	5,25	204	250	400	80	177	68	298,5	8 x 3/4"	201,5	25
10"	5,25	255	325	660	80	150	68	362,0	12 x 7/8"	233,0	25
12"	5,5	280	345	770	80	155	78	431,8	12 x 7/8"	282,0	30
14"	6	350	438	1260	90	210	65	476,3	12 x 1"	307,0	30
16"	6,5	390	462	1500	90	200	67	539,8	16 x 1"	350,0	30
20"	6,5	470	555	2080	100	205	65	635,0	20 x 1 1/8"	400,0	30

Calculation of the forces:

Compression force: $F_C = C \times S^{1/2}$

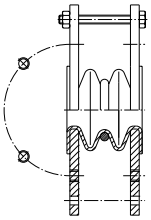
with C from table, S = travel in mm

Extension force: $F_W = W \times S$

with W from table, S = travel in mm

Please note:
- The table is only valid at neutral length and with limit bolts in place.
- The figures stated are average values and apply to room temperature. Deviations due to processing variations are possible

2 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)

DN	Value Series	Select Series		Options						
	not available in Value Series	Class 150		*Option selection may affect manufacturing lead time. Consult factory for price and delivery*						
				Flanges of 1.0038	Flanges 1.4541 / 1.4571	Conductive Liner	Limit Bolt Inox A2	Reinforcing Ring Hastelloy	PTFE Nozzle	Vacuum Rings
0.5"		◆	●	Standard	✓	✓	✓	✓	✓	
0.75"		◆	●		✓	✓	✓	✓	✓	
1"		◆	●		✓	✓	✓	✓	✓	
1.5"		◆	●		✓	✓	✓	✓	✓	
2"		◆	●		✓	✓	✓	✓	✓	✓
2.5"		◆	●		✓	✓	✓	✓	✓	✓
3"		◆	●		✓	✓	✓	✓	✓	✓
4"		◆	●		✓	✓	✓	✓	✓	✓
5"		◆	●		✓	✓	✓	✓	✓	✓
6"		◆	⊘		✓	✓	✓	✓	✓	✓
8"		◆	⊘		✓	✓	✓	✓	✓	✓
10"		◆	⊘		✓	✓	✓	✓	✓	✓
12"		◆	⊘		✓	✓	✓	✓	✓	✓
14"		◆	⊘		✓	✓	✓	✓	✓	✓
16"		◆	⊘		✓	✓	✓	✓	✓	✓

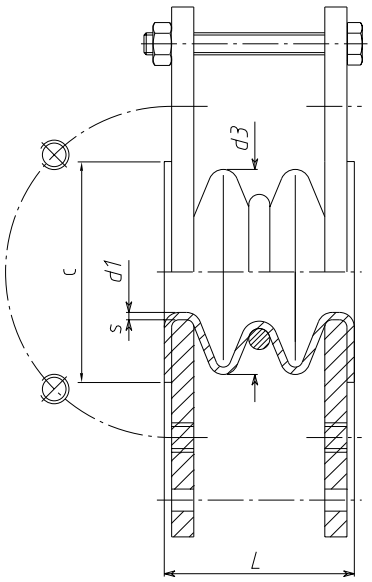
◆ Best Price & Lead Time (1 - 2 Weeks)
◆◆ Longer Lead Time (4 - 6 Weeks)
◆◆◆ Price and Delivery Upon Request

● Full Vacuum at 230 °C
⊘ Reduced Vacuum Resistance at Elevated Temp.
○ Non-Vacuum Rated

2 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)

Dimensional Data

DN	L ± 3% (mm)	C (mm)	axial movement max. (± mm)	lateral movement max. (mm)	angular movement max. (degree)	weight (ca. kg)
0.5"	36	35	6	2	5	1,4
0.75"	36	43	6	2	5	1,5
1"	36	51	6	2,5	5	1,65
1.5"	39	73	8	3	5	2,55
2"	47	92	9	4	5	3,7
2.5"	51	105	9	4,5	5	4,5
3"	52	127	10	5,5	5	5,2
4"	64	158	13	6	5	6,9
5"	77	186	16	7	5	11,3
6"	72	216	16	8	5	12,5
8"	92	270	18	8	5	20,5
10"	135	324	20	8	5	26,5
12"	135	381	20	9	5	34
14"	150	412	22	9	5	56
16"	156	470	24	10	5	74



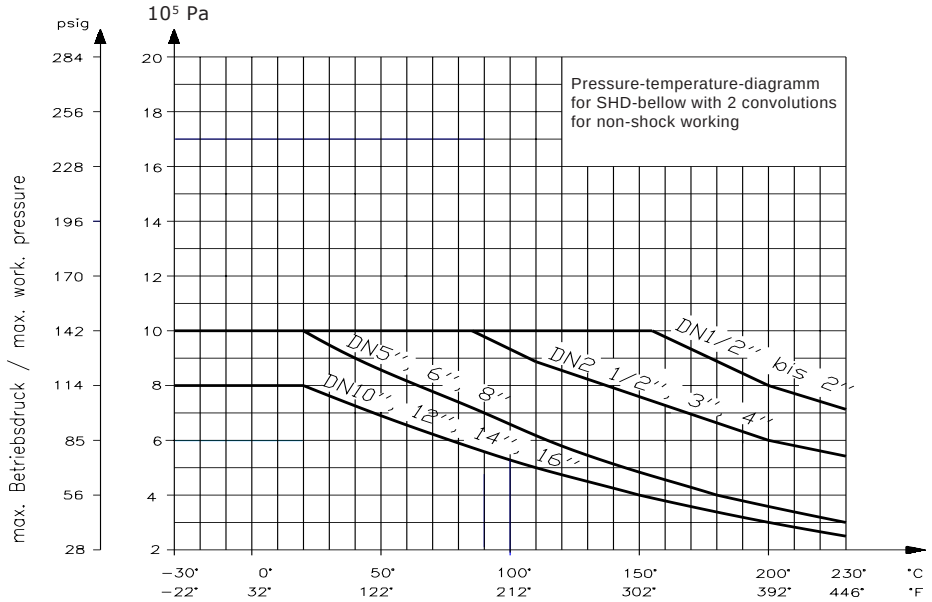
- The mentioned movements (axial, angular, lateral) are alternatives, i.e. the percentage values are not allowed to exceed 100% when added together.

Part Number System

1	K2W	250	15	W	P3	SS	00XX
Type	Fitting	Diameter	Pressure	Liner	Resin Type	Flanges	Options
Finished	Expansion Joint with 2 Convolutes	015 - 1/2" 020 - 3/4" 025 - 1" 040 - 1 1/2" 050 - 2" 080 - 3" 100 - 4" 150 - 6" 200 - 8" 250 - 10" 300 - 12" 350 - 14" 400 - 16"	15 - ANSI 150	W - White E - Anti-Static	Paste SHD	SS	0017 - Standard 1.0038 0018 - Flanges 1.4541 0019 - Flanges 1.4571

2 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)

Pressure-temperature-diagramm:



- The curves are only valid at neutral length and with limit bolts in place.
- The burst pressure is approx. 4 times the max. working pressure shown on the diagramm.

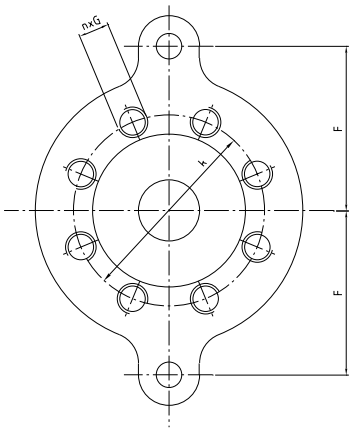
Vacuum resistance:

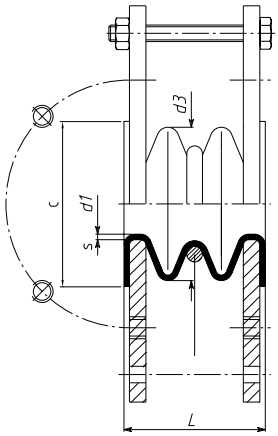
	max. temperature (°C) for full vacuum				
DN	0.5" - 2"	2.5" - 3"	4" - 5"	6" - 8"	10" - 16"
T [°C]	230	230	230	200	175

Materials:

BOM	Materials
Bellow	PTFE-Paste white acc. to ASTM D - 4895 (standard)
	PTFE-Paste conductive acc. to ASTM D - 4895 (optional)
Flange	RSt 37-2 = 1.0038, zinc plated (standard)
	X6CrNiTi 1810 = 1.4541 / X6CrNiMoTi 17.12.2 = 1.4571 (optional)
Reinforcing ring	1.4571 (standard)
	Hastelloy C4 (optional)
Limit bolt	DIN 601 (standard)
	Inox A2 / A4 (optional)

2 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)





Properties and flange dimensions:

DN	S min. (mm)	S max. (mm)	d 1 ± 5 % (mm)	d 3 ± 5 % (mm)	eff. bellows cross-section (cm^2)	inherent resistance lateral (N / mm)	C compress. (N / mm)	W extension (N / mm)	flange dimensions (Class 150) k ANSI B16.5 (mm)	thread ANSI B16.5 UNC	ears F (mm)	thick-ness (mm)
0.5"	2	5	23	41	10	410	180	141	60,5	4 x 1/2"	56,5	8
0.75"	2	5	23	42	10	410	180	141	69,9	4 x 1/2"	61,5	8
1"	2,25	5	24	43	10	410	180	141	79,2	4 x 1/2"	66,0	8
1.5"	2,25	5	36	57	19	145	200	113	98,6	4 x 1/2"	78,0	10
2"	2,25	5	50	75	30	175	260	160	120,7	4 x 5/8"	90,0	12
2.5"	2,25	5	60	91	45	170	111	144	139,7	4 x 5/8"	104,0	12
3"	2,75	6	76	104	70	300	266	300	152,4	4 x 5/8"	113,0	12
4"	2,75	6	100	134	112	215	209	188	190,5	8 x 5/8"	132,0	16
5"	2,75	6	122	163	166	160	121	132	215,9	8 x 3/4"	147,0	16
6"	3	6,75	150	188	245	260	277	234	241,3	8 x 3/4"	162,0	20
8"	3,5	6,75	204	250	400	275	299	218	298,5	8 x 3/4"	201,5	25
10"	3,25	7	255	325	660	320	174	248	362,0	12 x 7/8"	233,0	25
12"	4	7,5	280	345	770	320	300	251	431,8	12 x 7/8"	282,0	30
14"	4,5	9	335	435	1260	450	124	377	476,3	12 x 1"	307,0	30
16"	5	10	390	462	1500	645	638	563	539,8	16 x 1"	350,0	30

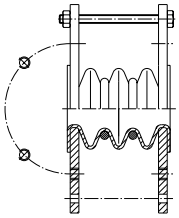
Calculation of the forces:

Compression force: $F_C = C \times S$
with C from table, S = travel in mm

Extension force: $F_W = W \times S$
with W from table, S = travel in mm

Please note:
- The table is only valid at neutral length and with limit bolts in place.
- The figures stated are average values and apply to room temperature. Deviations due to processing variations are possible

3 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)

DN	Value Series	Select Series		Options						
	not available in Value Series	Class 150		*Option selection may affect manufacturing lead time. Consult factory for price and delivery*						
				Flanges of 1.0038	Flanges 1.4541 / 1.4571	Conductive Liner	Limit Bolt Inox A2	Reinforcing Ring Hastelloy	PTFE Nozzle	Vacuum Rings
0.5"		◆	●	Standard	✓	✓	✓	✓	✓	
0.75"		◆	●		✓	✓	✓	✓	✓	
1"		◆	●		✓	✓	✓	✓	✓	
1.5"		◆	●		✓	✓	✓	✓	✓	
2"		◆	●		✓	✓	✓	✓	✓	✓
2.5"		◆	●		✓	✓	✓	✓	✓	✓
3"		◆	●		✓	✓	✓	✓	✓	✓
4"		◆	●		✓	✓	✓	✓	✓	✓
5"		◆	●		✓	✓	✓	✓	✓	✓
6"		◆	⊘		✓	✓	✓	✓	✓	✓
8"		◆	⊘		✓	✓	✓	✓	✓	✓
10"		◆	⊘		✓	✓	✓	✓	✓	✓
12"		◆	⊘		✓	✓	✓	✓	✓	✓
14"		◆	⊘		✓	✓	✓	✓	✓	✓
16"		◆	⊘		✓	✓	✓	✓	✓	✓

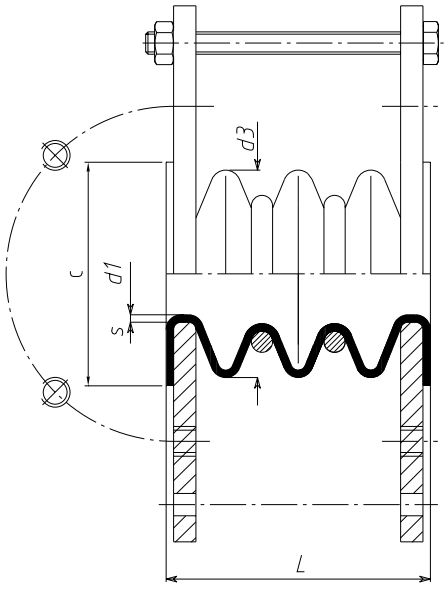
◆ Best Price & Lead Time (1 - 2 Weeks)
◆◆ Longer Lead Time (4 - 6 Weeks)
◆◆◆ Price and Delivery Upon Request

● Full Vacuum at 230 °C
⊘ Reduced Vacuum Resistance at Elevated Temp.
○ Non-Vacuum Rated

3 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)

Dimensional Data

DN	L ± 3% (mm)	C (mm)	axial movement max. (± mm)	lateral movement max. (mm)	angular movement max. (degree)	weight (ca. kg)
0.5"	54	35	9	3	10	1,5
0.75"	54	43	9	4	10	1,6
1"	54	51	9	4	10	1,7
1.5"	58	73	13	6	10	2,6
2"	69	92	15	8	10	3,8
2.5"	77	105	15	9	10	4,6
3"	78	127	16	10	10	5,6
4"	98	158	20	12	10	7,5
5"	117	186	25	13	10	11,6
6"	110	216	25	14	10	13,2
8"	140	270	28	14	10	22
10"	190	324	30	14	10	26,5
12"	198	381	30	15	10	36
14"	194	412	35	15	10	58
16"	233	470	35	15	10	76



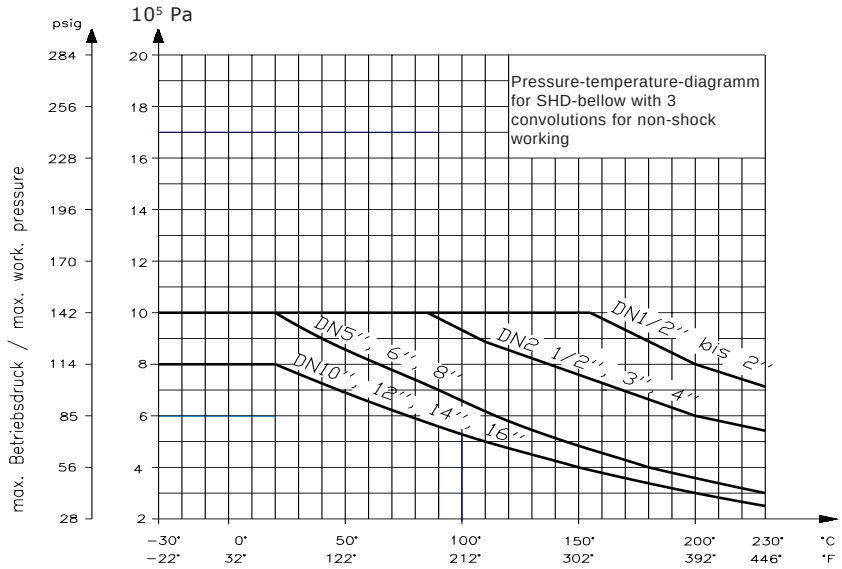
- The mentioned movements (axial, angular, lateral) are alternatives, i.e. the percentage values are not allowed to exceed 100% when added together.

Part Number System

1	K3W	250	15	W	P3	SS	00XX
Type	Fitting	Diameter	Pressure	Liner	Resin Type	Flanges	Options
Finished	Expansion Joint with 3 Convolutes	015 - 1/2" 020 - 3/4" 025 - 1" 040 - 1 1/2" 050 - 2" 080 - 3" 100 - 4" 150 - 6" 200 - 8" 250 - 10" 300 - 12" 350 - 14" 400 - 16"	15 - ANSI 150	W - White E - Anti-Static	Paste SHD	SS	0017 - Standard 1.0038 0018 - Flanges 1.4541 0019 - Flanges 1.4571

3 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)

Pressure-temperature-diagramm:



- The curves are only valid at neutral length and with limit bolts in place.
- The burst pressure is approx. 4 times the max. working pressure shown on the diagramm.

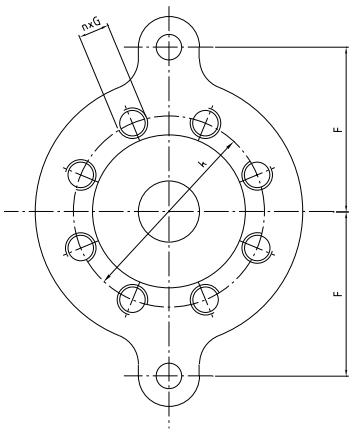
Vacuum resistance:

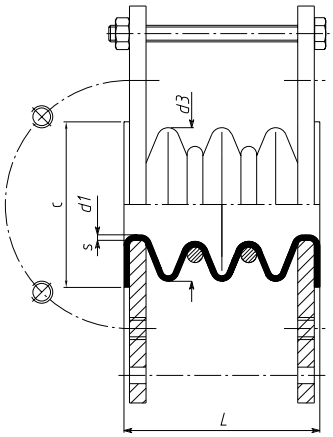
	max. temperature (°C) for full vacuum				
DN	0.5" - 2"	2.5" - 3"	4" - 5"	6" - 8"	10" - 16"
T [°C]	230	230	230	200	175

Materials:

BOM	Materials
Bellow	PTFE-Paste white acc. to ASTM D - 4895 (standard)
	PTFE-Paste conductive acc. to ASTM D - 4895 (optional)
Flange	RSt 37-2 = 1.0038, zinc plated (standard)
	X6CrNiTi 1810 = 1.4541 / X6CrNiMoTi 17.12.2 = 1.4571 (optional)
Reinforcing ring	1.4571 (standard)
	Hastelloy C4 (optional)
Limit bolt	DIN 601 (standard)
	Inox A2 / A4 (optional)

3 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)





Properties and flange dimensions:

DN	S min. (mm)	S max. (mm)	d 1 ± 5 % (mm)	d 3 ± 5 % (mm)	eff. bellows cross-section (cm^2)	inherent resistance lateral (N / mm)	C compress. (N / mm)	W extension (N / mm)	flange dimensions (Class 150) k ANSI B16.5 (mm)	thread ANSI B16.5 UNC	ears F (mm)	thick-ness (mm)
0.5"	2	5	23	41	10	246	120	94	60,5	4 x 1/2"	56,5	8
0.75"	2	5	23	42	10	246	120	94	69,9	4 x 1/2"	61,5	8
1"	2,25	5	24	43	10	246	120	94	79,2	4 x 1/2"	66,0	8
1.5"	2,25	5	36	57	19	88	133	75	98,6	4 x 1/2"	78,0	10
2"	2,25	5	50	75	30	130	173	104	120,7	4 x 5/8"	90,0	12
2.5"	2,25	5	60	91	45	91	74	96	139,7	4 x 5/8"	104,0	12
3"	2,75	6	76	104	70	160	178	200	152,4	4 x 5/8"	113,0	12
4"	2,75	6	100	134	112	108	140	125	190,5	8 x 5/8"	132,0	16
5"	2,75	6	122	163	166	110	80,5	88	215,9	8 x 3/4"	147,0	16
6"	3	6,75	150	188	245	145	185	156	241,3	8 x 3/4"	162,0	20
8"	3,5	6,75	204	250	400	240	200	145	298,5	8 x 3/4"	201,5	25
10"	3,25	7	255	325	660	265	116	165	362,0	12 x 7/8"	233,0	25
12"	4	7,5	280	345	770	265	200	167,3	431,8	12 x 7/8"	282,0	30
14"	4,5	9	335	435	1260	505	129	327	476,3	12 x 1"	307,0	30
16"	5	10	390	462	1500	635	425	375	539,8	16 x 1"	350,0	30

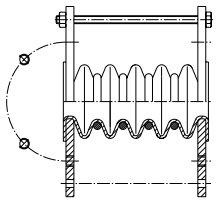
Calculation of the forces:

Compression force: $F_C = C \times S$
with C from table, S = travel in mm

Extension force: $F_W = W \times S$
with W from table, S = travel in mm

Please note:
- The table is only valid at neutral length and with limit bolts in place.
- The figures stated are average values and apply to room temperature. Deviations due to processing variations are possible

5 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)

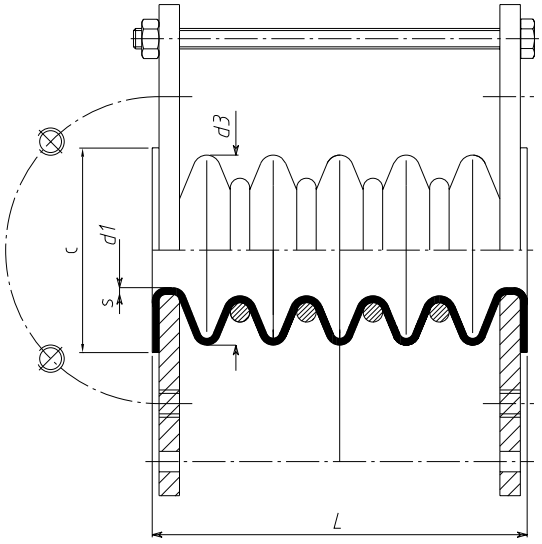
DN	Value Series	Select Series	Options						
	not available in Value Series	Class 150	*Option selection may affect manufacturing lead time. Consult factory for price and delivery*						
			Flanges of 1.0038	Flanges 1.4541 / 1.4571	Conductive Liner	Limit Bolt Inox A2	Reinforcing Ring Hastelloy	PTFE Nozzle	Vacuum Rings
0.5"		◆ ○	Standard	✓	✓	✓	✓	✓	
0.75"		◆ ○		✓	✓	✓	✓	✓	
1"		◆ ○		✓	✓	✓	✓	✓	
1.5"		◆ ○		✓	✓	✓	✓	✓	
2"		◆ ○		✓	✓	✓	✓	✓	✓
2.5"		◆ ○		✓	✓	✓	✓	✓	✓
3"		◆ ○		✓	✓	✓	✓	✓	✓
4"		◆ ○		✓	✓	✓	✓	✓	✓
5"		◆ ○		✓	✓	✓	✓	✓	✓
6"		◆ ○		✓	✓	✓	✓	✓	✓
8"		◆ ○		✓	✓	✓	✓	✓	✓
10"		◆ ○		✓	✓	✓	✓	✓	✓
12"		◆ ○		✓	✓	✓	✓	✓	✓
14"		◆ ○		✓	✓	✓	✓	✓	✓
16"		◆ ○		✓	✓	✓	✓	✓	✓

◆ Best Price & Lead Time (1 - 2 Weeks)
◆◆ Longer Lead Time (4 - 6 Weeks)
◆◆◆ Price and Delivery Upon Request
● Full Vacuum at 230 °C
⊘ Reduced Vacuum Resistance at Elevated Temp.
○ Non-Vacuum Rated

5 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)

Dimensional Data

DN	L ± 3% (mm)	C (mm)	axial movement max. (± mm)	lateral movement max. (mm)	angular movement max. (degree)	weight (ca. kg)
0.5"	87	35	12	5	15	1,6
0.75"	87	43	12	5	15	1,7
1"	87	51	12	8	15	1,8
1.5"	94	73	18	8	15	2,7
2"	112	92	22	10	15	4
2.5"	124	105	22	10	15	4,8
3"	126	127	23	14	15	5,8
4"	157	158	29	14	15	7,7
5"	187	186	35	14	15	12
6"	176	216	35	14	15	13,5
8"	223	270	40	15	15	22,5
10"	310	324	42	15	15	28,4
12"	318	381	42	16	15	37
14"	314	412	43	17	15	61
16"	375	470	45	18	15	78



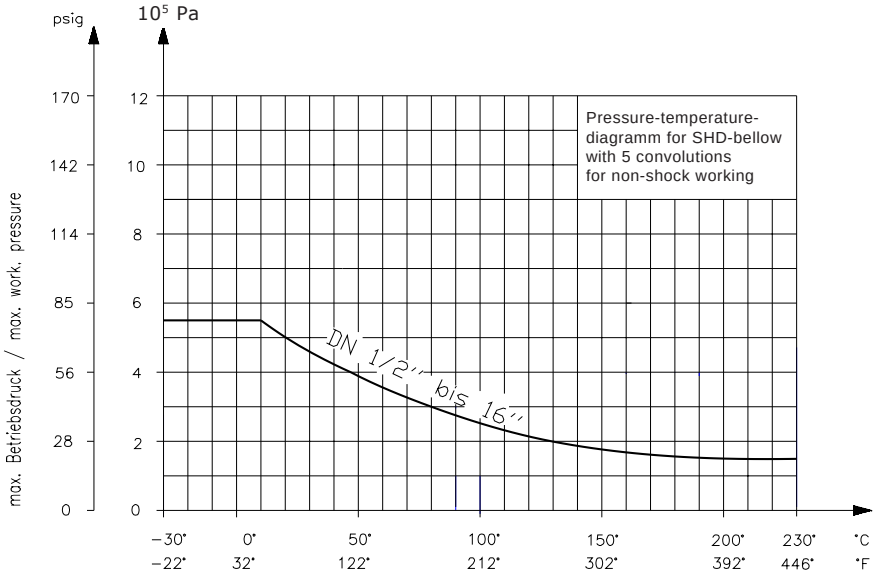
- The mentioned movements (axial, angular, lateral) are alternatives, i.e. the percentage values are not allowed to exceed 100% when added together.

Part Number System

1	K5W	250	15	W	P3	SS	00XX
Type	Fitting	Diameter	Pressure	Liner	Resin Type	Flanges	Options
Finished	Expansion Joint with 5 Convolutes	015 - 1/2" 020 - 3/4" 025 - 1" 040 - 1 1/2" 050 - 2" 080 - 3" 100 - 4" 150 - 6" 200 - 8" 250 - 10" 300 - 12" 350 - 14" 400 - 16"	15 - ANSI 15	W - White E - Anti-Static	Paste SHD	SS	0017 - Standard 1.0038 0018 - Flansche 1.4541 0019 - Flansche 1.4571

5 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)

Pressure-temperature-diagramm:



- The curves are only valid at neutral length and with limit bolts in place.
- The burst pressure is approx. 4 times the max. working pressure shown on the diagramm. Compared with the pressure curves of the 2- and 3-convolute bellows, it is here much lower because of the risk of buckling.

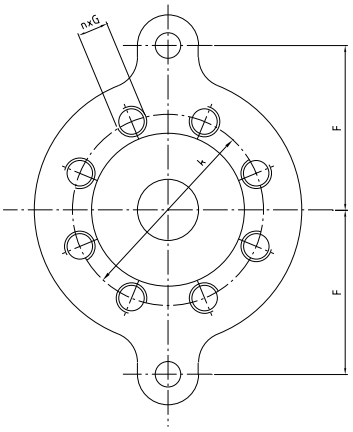
Vacuum resistance:

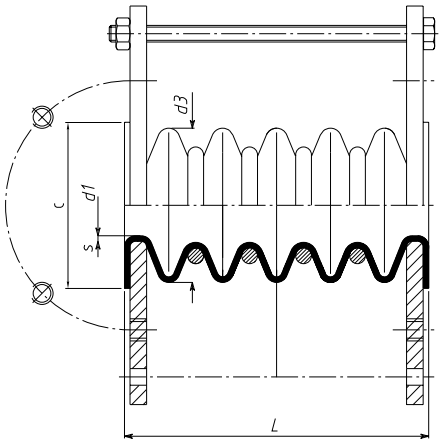
Not recommended for vacuum service

Materials:

BOM	Materials
Bellow	PTFE-Paste white acc. to ASTM D - 4895 (standard)
	PTFE-Paste conductive acc. to ASTM D - 4895 (optional)
Flange	RSt 37-2 = 1.0038, zinc plated (standard)
	X6CrNiTi 1810 = 1.4541 / X6CrNiMoTi 17.12.2 = 1.4571 (optional)
Reinforcing ring	1.4571 (standard)
	Hastelloy C4 (optional)
Limit bolt	DIN 601 (standard)
	Inox A2 / A4 (optional)

5 Convoluted PTFE SHD Expansion Joints with Reinforcing Rings (ANSI)





Properties and flange dimensions:

DN	S min. (mm)	S max. (mm)	d 1 ± 5 % (mm)	d 3 ± 5 % (mm)	eff. bellows cross-section (cm^2)	inherent resistance			flange dimensions (Class 150)			
						lateral (N / mm)	C compress. (N / mm)	W extension (N / mm)	k ANSI B16.5 (mm)	thread ANSI B16.5 UNC	ears F (mm)	thick-ness (mm)
0.5"	2	5	23	41	10	57	48	38	60,5	4 x 1/2"	56,5	8
0.75"	2	5	23	42	10	57	48	38	69,9	4 x 1/2"	61,5	8
1"	2,25	5	24	43	10	57	48	38	79,2	4 x 1/2"	66,0	8
1.5"	2,25	5	36	57	19	25	53	30	98,6	4 x 1/2"	78,0	10
2"	2,25	5	50	75	30	40	69	43	120,7	4 x 5/8"	90,0	12
2.5"	2,25	5	60	91	45	35	30	38	139,7	4 x 5/8"	104,0	12
3"	2,75	6	76	104	70	65	71	80	152,4	4 x 5/8"	113,0	12
4"	2,75	6	100	134	112	45	56	50	190,5	8 x 5/8"	132,0	16
5"	2,75	6	122	163	166	35	32	35	215,9	8 x 3/4"	147,0	16
6"	3	6,75	150	188	245	65	74	62	241,3	8 x 3/4"	162,0	20
8"	3,5	6,75	204	250	400	70	80	58	298,5	8 x 3/4"	201,5	25
10"	3,25	7	255	325	660	80	46	66	362,0	12 x 7/8"	233,0	25
12"	4	7,5	280	345	770	70	80	67	431,8	12 x 7/8"	282,0	30
14"	4,5	9	335	435	1260	175	101	126	476,3	12 x 1"	307,0	30
16"	5	10	390	462	1500	200	170	150	539,8	16 x 1"	350,0	30

Calculation of the forces:

Compression force: $F_C = C \times S$
with C from table, S = travel in mm

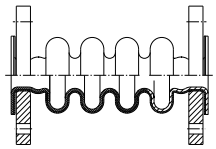
Extension force: $F_W = W \times S$
with W from table, S = travel in mm

Please note:
- The table is only valid at neutral length and with limit bolts in place.
- The figures stated are average values and apply to room temperature. Deviations due to processing variations are possible

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI)

TEFLON® by DuPont

DN 1.25" - 6"

DN	Value Series	Select Series	Options					
	not available in Value Series	Class 150	*Option selection may affect manufacturing lead time. Consult factory for price and delivery*					
			Flanges of 1.0038	Flanges of 1.4541	Bellow of 1.4541	Bellow of Hastelloy C4	Conductive Liner	Class 300
1.25"		◆◆◆ ⊘	Standard	✓	Standard	✓	✓	✓
1.5"		◆◆◆ ⊘		✓		✓	✓	✓
2"		◆◆◆ ⊘		✓		✓	✓	✓
2.5"		◆◆◆ ⊘		✓		✓	✓	✓
3"		◆◆◆ ⊘		✓		✓	✓	✓
4"		◆◆◆ ⊘		✓		✓	✓	✓
5"		◆◆◆ ⊘		✓		✓	✓	✓
6"		◆◆◆ ⊘		✓		✓	✓	✓

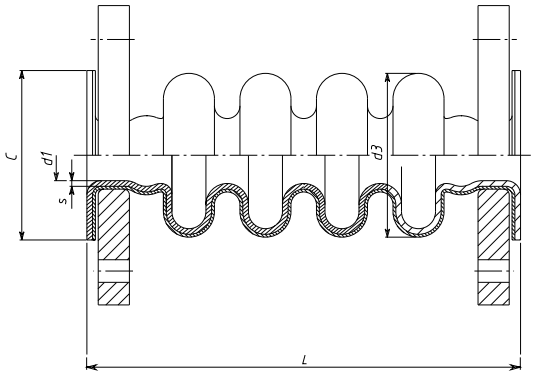
◆ Best Price & Lead Time (1 - 2 Weeks)	● Full Vacuum at 230 °C
◆◆ Longer Lead Time (4 - 6 Weeks)	⊘ Reduced Vacuum Resistance at Elevated Temp.
◆◆◆ Price and Delivery Upon Request	○ Non-Vacuum Rated

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI)

DN 1.25" - 6"

Dimensional Data per Class 150

DN	L + 5% - 1,5% (mm)	C ± 5 % (mm)	axial movement n = 1000 (± mm)	lateral movement (±mm)	angular movement (degree)	weight (ca. kg)
1.25"	145	70	4,5	2,3	20	3,9
	220	70	9	9,5	31	4,1
1.5"	157	80	5,5	2,6	19	4,5
	242	80	11	10,5	31	4,8
2"	179	92	6,5	2,8	19	5,7
	294	92	13,5	13	33	6,5
2.5"	181	107	8,5	3	20	6,9
	287	107	16	12	29	7,9
3"	185	122	10	3,2	20	8
	275	122	17,5	11	30	9
4"	179	147	10	2,3	16	10
	267	147	20	9	28	11
5"	221	178	14,5	3,9	20	14
	363	178	25	14,5	30	17
6"	248	208	15	3,9	17	18
	388	208	30	15,5	30	23



Part Number System

1	EKS	100	15	W	XX	LLL1	XX
Type	Fitting	Diameter	Pressure	Liner	Resin Type	Flanges	Options
Finished	Stainless Steel Expansion Joint	032 - 1.25" 200 - 8" 040 - 1.5" 250 - 10" 050 - 2" 300 - 12" 065 - 2.5" 350 - 14" 080 - 3" 400 - 16" 100 - 4" 450 - 18" 125 - 5" 500 - 20" 150 - 6" 600 - 24"	15 - ANSI 150 30 - ANSI 300	W - White E - Anti-Static	Factory Defined	LL L1 - loose / loose - Length 1 LL L2 - loose / loose - Length 2	26 - Flanges 1.0038 27 - Flanges 1.4541

PTFE Expansion Joints with SS Housing and Spacer Bead (ANSI)

DN 1.25″ - 6″

Pressure resistance:

temperature	°C	20	100	150	200	230
appl. pressure	bar	10	8	7,5	6,9	6,2

- Reduction factors for application pressure, temperature related, acc. to flange material RSt37-2 = 1.0038
- Flange material to select according to service temperature.

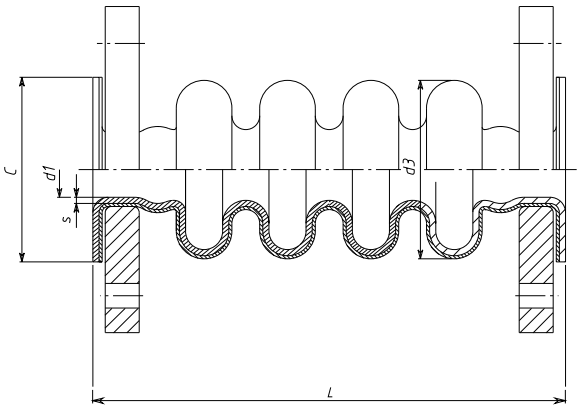
Vacuum resistance:

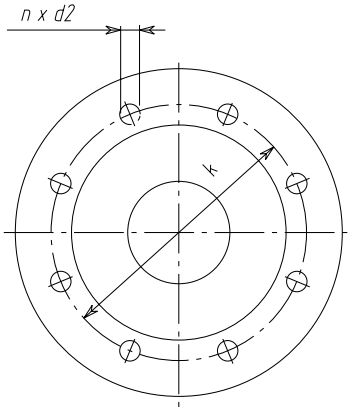
	allowed vacuum p [10^5 Pa]	
DN	1.25" - 4"	5" - 6"
at 23°C	0,15	0,25
at 160°C	0,3	0,4

Materials:

BOM	Materials
Lining	PTFE-Paste weiß ASTM D - 4895 (standard)
	PTFE-Paste el. leitfähig ASTM D - 4895 (optional)
Bellow	X6CrNiTi 1810 = 1.4541 (standard)
	Hastelloy C4 (optional)
Flanges	RSt 37-2 = 1.0038 (standard)
	X6CrNiTi 1810 = 1.4541 (optional)

PTFE Expansion Joints with SS Housing and Spacer Bead (ANSI)





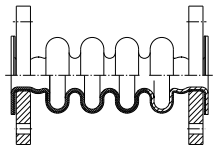
Properties and flange dimensions:

DN	S	d 1	d 3	torsion	eff. bellow cross-section	inherent resistance			torsional stress	flange dimensions (Class 150)		
						axial	lateral	angular		k	n x d2	thick-ness
	±10 % (mm)	± 5 % (mm)	± 5 % (mm)	Mt (kNm)	(cm^2)	(N/mm)	(N/mm)	(Nm/grd)	(kNm/grd)	ANSI B 16.5 (mm)	ANSI B 16.5	(mm)
1.25"	3	35	61	-	20	260	106	1,3	0,2	88,9	4 x 15,7	18
	3	35	61	-	20	130	14	0,7	0,1			
1.5"	4	44	77	0,1	30,6	272	133	2,1	0,3	98,6	4 x 15,7	18
	4	44	77	0,1	30,6	136	16	1	0,1			
2"	4	56	89	0,1	44,7	276	157	3,1	0,5	120,7	4 x 19,1	19
	4	56	89	0,2	44,3	195	23	2,2	0,4			
2.5"	4	72	108	0,2	67,1	234	203	4	1,1	139,7	4 x 19,1	20
	4	72	108	0,3	67,4	173	34	3	0,8			
3"	4	84	124	0,3	87,3	220	229	5	1,6	152,4	4 x 19,1	20
	4	84	124	0,4	87,6	178	53	4,1	1,3			
4"	4,5	107	151	0,7	135	365	769	13	5,6	190,5	8 x 19,1	22
	4,5	107	151	0,7	135	183	96	6,5	2,8			
5"	4,5	126	181	0,9	179,3	290	446	14	6,9	215,9	8 x 22,4	22
	4,5	126	181	1,9	180,7	290	95	14	6,6			
6"	5	154	212	2,8	260,7	560	912	39	22	241,3	8 x 22,4	24
	5	154	212	2,8	260,7	280	117	20	11			

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI)

TEFLON® by DuPont

DN 8″ - 24″

DN	Value Series	Select Series	Options					
	not available in Value Series	Class 150	*Option selection may affect manufacturing lead time. Consult factory for price and delivery*					
			Flanges of 1.0038	Flanges 1.4541	Bellow of 1.4541	Bellow of Hastelloy C4	Conductive Liner	Class 300
8"		◆◆◆ ⊘	Standard	✓	Standard	✓	✓	✓
10"		◆◆◆ ⊘		✓		✓	✓	✓
12"		◆◆◆ ⊘		✓		✓	✓	✓
14"		◆◆◆ ⊘		✓		✓	✓	✓
16"		◆◆◆ ⊘		✓		✓	✓	✓
18"		◆◆◆ ⊘		✓		✓	✓	✓
20"		◆◆◆ ○		✓		✓	✓	✓
24"		◆◆◆ ○		✓		✓	✓	✓

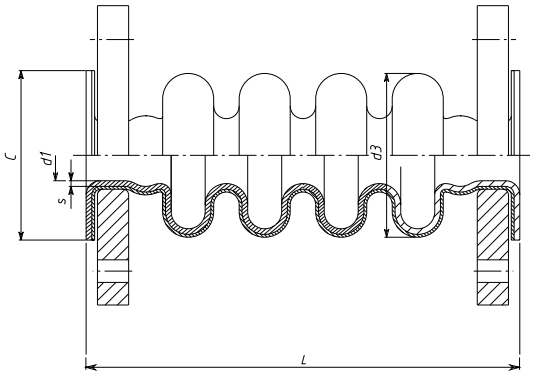
◆	Best Price & Lead Time (1 - 2 Weeks)	●	Full Vacuum at 230 °C
◆◆	Longer Lead Time (4 - 6 Weeks)	⊘	Reduced Vacuum Resistance at Elevated Temp.
◆◆◆	Price and Delivery Upon Request	○	Non-Vacuum Rated

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI)

DN 8" - 24"

Dimensional Data per Class 150

DN	L + 5% - 1,5% (mm)	C ± 5 % (mm)	axial movement n = 1000 (± mm)	lateral movement (±mm)	angular movement (degree)	weight (ca. kg)
8"	246	258	21	4,2	19	25
	418	258	39	17,5	30	33
10"	241	320	22	3	16	32
	390	320	40	12,5	25	38
12"	287	370	27	4,4	17	40
	429	370	47	14	25	51
14"	296	410	30	4,5	17	56
	407	410	46	11,5	23	66
16"	288	465	26	2,9	13	74
	432	465	52	11,5	22	85
18"	329	520	35	4,5	15	85
	536	520	65	17,5	24	113
20"	310	570	28	2,8	12	104
	510	570	63	14,5	22	129
24"	334	670	35	3,4	12	126
	482	670	63	11	17	144



Part Number System

1	EKS	250	15	W	XX	LLL1	XX

Type	Fitting	Diameter	Pressure	Liner	Resin Type	Flanges	Options
Finished	Stainless Steel Expansion Joint	032 - 1.25" 200 - 8" 040 - 1.5" 250 - 10" 050 - 2" 300 - 12" 065 - 2.5" 350 - 14" 080 - 3" 400 - 16" 100 - 4" 450 - 18" 125 - 5" 500 - 20" 150 - 6" 600 - 24"	15 - ANSI 150 30 - ANSI 300	W - White E - Anti-Static	Factory Defined	LL L1 - loose / loose - Length 1 LL L2 - loose / loose - Length 2	26 - Flanges 1.0038 27 - Flanges 1.4541

PTFE Expansion Joints with SS Housing and Spacer Bead (ANSI)

DN 8″ - 24″

Pressure resistance:

temperature	°C	20	100	150	200	230
appl. pressure	bar	10	8	7,5	6,9	6,2

- Reduction factors for application pressure, temperature related, acc. to flange material RSt37-2 = 1.0038
- Flange material to select according to service temperature.

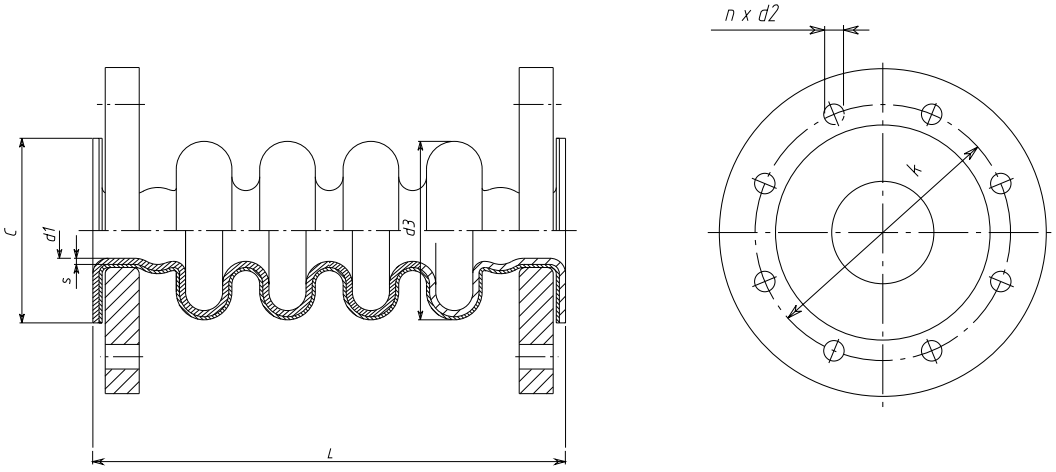
Vacuum resistance:

	allowed vacuum p [10^5 Pa]				
DN	200	250	300 - 350	400 - 450	500 - 600
at 23°C	0,35	0,4	0,5	0,7	1
at 160°C	0,5	0,6	0,75	0,9	1

Materials:

BOM	Materials
Lining	PTFE-Paste weiß ASTM D - 4895 (standard)
	PTFE-Paste el. leitfähig ASTM D - 4895 (optional)
Bellow	X6CrNiTi 1810 = 1.4541 (standard)
	Hastelloy C4 (optional)
Flanges	RSt 37-2 = 1.0038 (standard)
	X6CrNiTi 1810 = 1.4541 (optional)

PTFE Expansion Joints with SS Housing and Spacer Bead (ANSI)



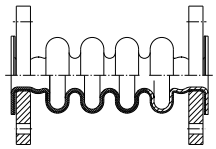
Properties and flange dimensions:

DN	S	d 1	d 3	torsion	eff. bellow cross-section	inherent resistance			torsional stress	flange dimensions (Class 150)		
						axial	lateral	angular		k	n x d2	thick-ness
	±10 % (mm)	± 5 % (mm)	± 5 % (mm)	Mt (kNm)	(cm^2)	(N/mm)	(N/mm)	(Nm/grd)	(kNm/grd)	ANSI B 16.5 (mm)	ANSI B 16.5	(mm)
8"	5	204	265	4,1	431,9	412	1123	48	40	298,5	8 x 22,4	24
	5	204	265	6,5	434,1	335	191	40	31			
10"	5	258	324	6,5	666	525	3024	95	111	362,0	12 x 25,4	26
	5	258	324	7,8	667,4	269	308	49	41			
12"	6	306	376	9,2	932,1	480	2037	121	108	431,8	12 x 25,4	26
	6	306	376	12	932,1	352	436	89	80			
14"	6,25	337	408	11	1119,2	460	2205	139	140	476,3	12 x 28,4	28
	6,25	337	408	15	1119,2	378	672	115	116			
16"	6,25	387	461	20	1448,8	713	6211	281	333	539,8	16 x 28,4	32
	6,25	387	461	20	1448,8	357	779	141	167			
18"	6,25	438	516	25	1820,9	548	3643	272	376	577,9	18 x 31,8	32
	6,25	438	516	38	1813,3	430	645	214	284			
20"	6,25	489	570	47	2235,4	955	10492	586	943	635,0	20 x 31,8	34
	6,25	489	570	47	2235,4	425	923	261	419			
24"	4,5	594	678	48	3200,9	548	6482	484	920	749,3	20 x 35,1	36
	4,5	594	678	48	3200,9	305	1112	269	511			

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI Class 300)

TEFLON® by DuPont

DN 1.25" - 6"

DN	Value Series	Select Series	Options					
		Class 300	*Option selection may affect manufacturing lead time. Consult factory for price and delivery*					
	not available in Value Series		Flanges of 1.0038	Flanges 1.4541	Bellow of 1.4541	Bellow of Hastelloy C4	Conductive Liner	Class 150
1.25"		◆◆◆ ⊘	Standard	✓	Standard	✓	✓	✓
1.5"		◆◆◆ ⊘		✓		✓	✓	✓
2"		◆◆◆ ⊘		✓		✓	✓	✓
2.5"		◆◆◆ ⊘		✓		✓	✓	✓
3"		◆◆◆ ⊘		✓		✓	✓	✓
4"		◆◆◆ ⊘		✓		✓	✓	✓
5"		◆◆◆ ⊘		✓		✓	✓	✓
6"		◆◆◆ ⊘		✓		✓	✓	✓

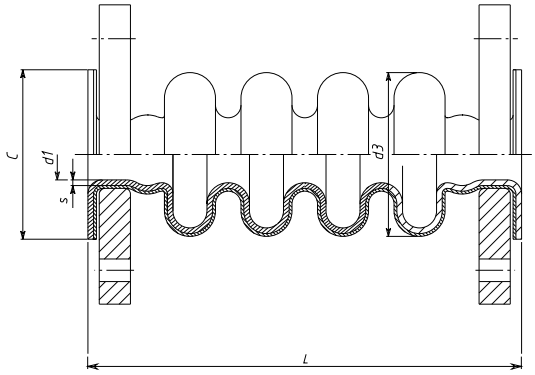
◆ Best Price & Lead Time (1 - 2 Weeks)	● Full Vacuum at 230 °C
◆◆ Longer Lead Time (4 - 6 Weeks)	⊘ Reduced Vacuum Resistance at Elevated Temp.
◆◆◆ Price and Delivery Upon Request	○ Non-Vacuum Rated

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI Class 300)

DN 1.25" - 6"

Dimensional Data per Class 300

DN	L + 5% - 1,5% (mm)	C ± 5 % (mm)	axial movement n = 1000 (± mm)	lateral movement (±mm)	angular movement (degree)	weight (ca. kg)
1.25"	146	70	4	2,1	17	4
	206	70	7,5	7	24	4,2
1.5"	163	80	5	2,5	17	4,6
	263	80	8,5	9	22	5,2
2"	201	92	7,5	3,9	19	6
	308	92	12	12	25	7,2
2.5"	197	107	7	2,7	16	7,7
	281	107	13	9	23	8,9
3"	211	122	8	2,9	16	10
	303	122	14,5	9,5	23	11
4"	217	147	10,5	3,2	16	13
	323	147	17,5	10	23	16
5"	215	178	10	2,3	14	19
	293	178	17,5	7	20	21
6"	256	208	13	3,4	15	23
	368	208	23,5	11	21	28



Part Number System

1	EKS	100	30	W	XX	LLL1	XX
Type	Fitting	Diameter	Pressure	Liner	Resin Type	Flanges	Options
Finished	Stainless Steel Expansion Joint	032 - 1.25" 200 - 8" 040 - 1.5" 250 - 10" 050 - 2" 300 - 12" 065 - 2.5" 350 - 14" 080 - 3" 400 - 16" 100 - 4" 450 - 18" 125 - 5" 500 - 20" 150 - 6" 600 - 24"	15 - ANSI 150 30 - ANSI 300	W - White E - Anti-Static	Factory Defined	LL L1 - loose / loose - Length 1 LL L2 - loose / loose - Length 2	26 - Flanges 1.0038 27 - Flanges 1.4541

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI Class 300)

DN 1.25″ - 6″

Pressure resistance:

temperature	°C	20	100	150	200	230
appl. pressure	bar	25	20	18,7	17,2	15,5

- Reduction factors for application pressure, temperature related, acc. to flange material RSt37-2 = 1.0038
- Flange material to select according to service temperature.

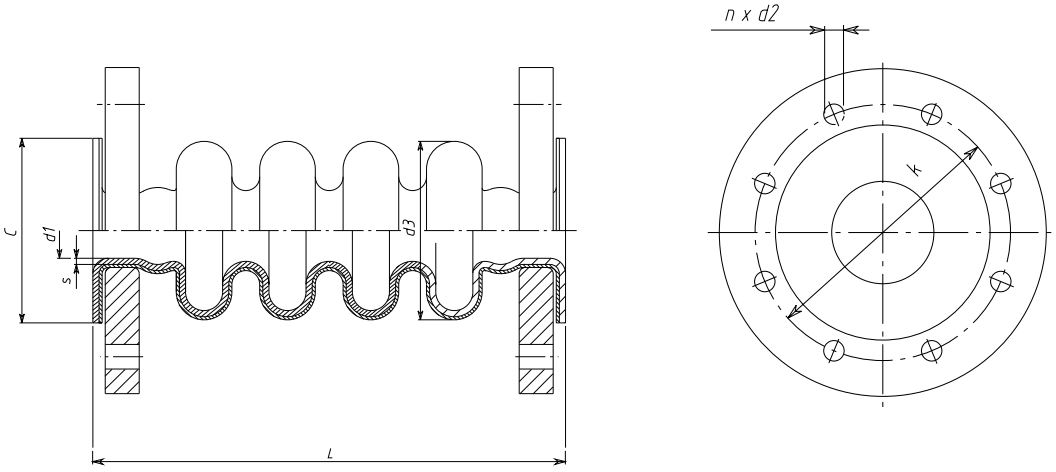
Vacuum resistance:

	allowed vacuum p [10^5 Pa]	
DN	1.25" - 4"	5" - 6"
at 23°C	0,15	0,25
at 160°C	0,3	0,4

Materials:

BOM	Materials
Lining	PTFE-Paste weiß ASTM D - 4895 (standard)
	PTFE-Paste el. leitfähig ASTM D - 4895 (optional)
Bellow	X6CrNiTi 1810 = 1.4541 (standard)
	Hastelloy C4 (optional)
Flanges	RSt 37-2 = 1.0038 (standard)
	X6CrNiTi 1810 = 1.4541 (optional)

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI Class 300)



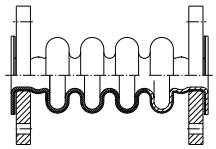
Properties and flange dimensions:

DN	S	d 1	d 3	torsion	eff. bellow cross-section	inherent resistance			torsional stress	flange dimensions (Class 300)		
						axial	lateral	angular		k	n x d2	thick-
	±10 % (mm)	± 5 % (mm)	± 5 % (mm)	Mt (kNm)	(cm^2)	(N/mm)	(N/mm)	(Nm/grd)	(kNm/grd)	ANSI B 16.5 (mm)	ANSI B 16.5	ness (mm)
1.25"	3	35	61	-	20	260	106	1,3	0,2	98,6	4 x 19,1	18
	3	35	61	-	20	130	14	0,7	0,1			
1.5"	4	44	77	0,1	30,6	272	133	2,1	0,3	114,3	4 x 22,4	18
	4	44	77	0,1	30,6	136	16	1	0,1			
2"	4	56	89	0,1	44,7	276	157	3,1	0,5	127,0	8 x 19,1	19
	4	56	89	0,2	44,3	195	23	2,2	0,4			
2.5"	4	72	108	0,2	67,1	234	203	4	1,1	149,4	8 x 22,4	20
	4	72	108	0,3	67,4	173	34	3	0,8			
3"	4	84	124	0,3	87,3	220	229	5	1,6	168,1	8 x 22,4	20
	4	84	124	0,4	87,6	178	53	4,1	1,3			
4"	4,5	107	151	0,7	135	365	769	13	5,6	200,2	8 x 22,4	22
	4,5	107	151	0,7	135	183	96	6,5	2,8			
5"	4,5	126	181	0,9	179,3	290	446	14	6,9	235,0	8 x 22,4	22
	4,5	126	181	1,9	180,7	290	95	14	6,6			
6"	5	154	212	2,8	260,7	560	912	39	22	269,7	12 x 22,4	24
	5	154	212	2,8	260,7	280	117	20	11			

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI Class 300)

TEFLON® by DuPont

DN 8″ - 24″

DN	Value Series	Select Series	Options					
	not available in Value Series	Class 300	*Option selection may affect manufacturing lead time. Consult factory for price and delivery*					
			Flanges of 1.0038	Flanges 1.4541	Bellow of 1.4541	Bellow of Hastelloy C4	Conductive Liner	Class 150
8"		◆◆◆ ⊘	Standard	✓	Standard	✓	✓	✓
10"		◆◆◆ ⊘		✓		✓	✓	✓
12"		◆◆◆ ⊘		✓		✓	✓	✓
14"		◆◆◆ ⊘		✓		✓	✓	✓
16"		◆◆◆ ⊘		✓		✓	✓	✓
18"		◆◆◆ ⊘		✓		✓	✓	✓
20"		◆◆◆ ○		✓		✓	✓	✓
24"		◆◆◆ ○		✓		✓	✓	✓

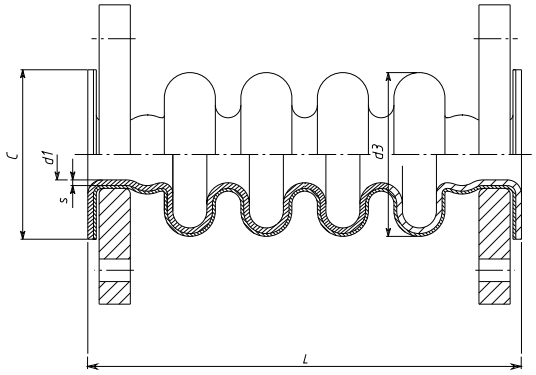
◆	Best Price & Lead Time (1 - 2 Weeks)	●	Full Vacuum at 230 °C
◆◆	Longer Lead Time (4 - 6 Weeks)	⊘	Reduced Vacuum Resistance at Elevated Temp.
◆◆◆	Price and Delivery Upon Request	○	Non-Vacuum Rated

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI Class 300)

DN 8" - 24"

Dimensional Data per Class 300

DN	L + 5% - 1,5% (mm)	C ± 5 % (mm)	axial movement n = 1000 (± mm)	lateral movement (±mm)	angular movement (degree)	weight (ca. kg)
8"	239	258	15	2,5	13	36
	326	258	26	7,5	19	40
10"	268	320	17,5	2,5	13	51
	364	320	30,5	8	18	57
12"	293	375	20	2,8	12	71
	401	375	35	8,5	18	80
14"	305	410	21	2,7	12	103
	416	410	36	8,5	17	112
16"	328	465	22	2,7	11	128
	488	465	44	11	18	146
18"	377	520	25	3,5	11	155
	541	520	45	11,5	16	179
20"	340	570	24	2,5	9,6	173
	508	570	48	10	16	201
24"	337	670	24	2	8,1	220
	501	670	48	8	13	250



Part Number System

1	EKS	250	30	W	XX	LLL1	XX

Type	Fitting	Diameter	Pressure	Liner	Resin Type	Flanges	Options
Finished	Stainless Steel Expansion Joint	032 - 1.25" 200 - 8" 040 - 1.5" 250 - 10" 050 - 2" 300 - 12" 065 - 2.5" 350 - 14" 080 - 3" 400 - 16" 100 - 4" 450 - 18" 125 - 5" 500 - 20" 150 - 6" 600 - 24"	15 - ANSI 150 30 - ANSI 300	W - White E - Anti-Static	Factory Defined	LL L1 - loose / loose - Length 1 LL L2 - loose / loose - Length 2	26 - Flanges 1.0038 27 - Flanges 1.4541

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI Class 300)

DN 8″ - 24″

Pressure resistance:

temperature	°C	20	100	150	200	230
appl. pressure	bar	25	20	18,7	17,2	15,5

- Reduction factors for application pressure, temperature related, acc. to flange material RSt37-2 = 1.0038
- Flange material to select according to service temperature.

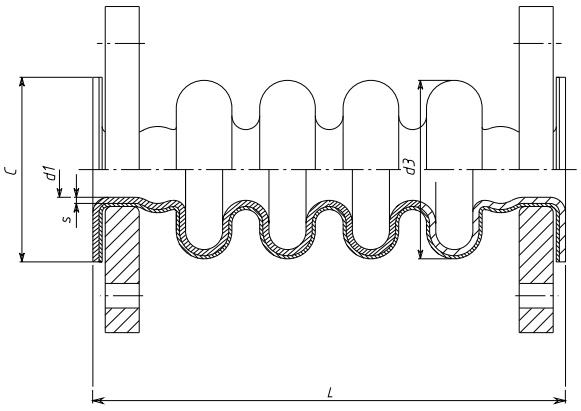
Vacuum resistance:

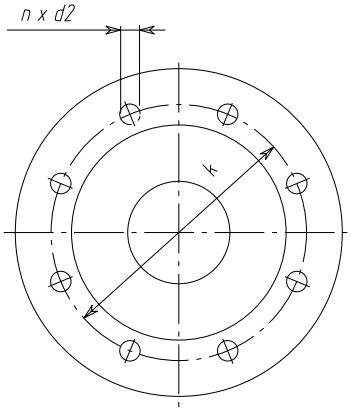
	allowed vacuum p [10^5 Pa]				
DN	8"	10"	12" - 14"	16" - 18"	20" - 24"
at 23°C	0,35	0,4	0,5	0,7	1
at 160°C	0,5	0,6	0,75	0,9	1

Materials:

BOM	Materials
Lining	PTFE-Paste weiß ASTM D - 4895 (standard)
	PTFE-Paste el. leitfähig ASTM D - 4895 (optional)
Bellow	X6CrNiTi 1810 = 1.4541 (standard)
	Hastelloy C4 (optional)
Flanges	RSt 37-2 = 1.0038 (standard)
	X6CrNiTi 1810 = 1.4541 (optional)

PTFE-Expansion Joints with SS Housing and Spacer Bead (ANSI Class 300)

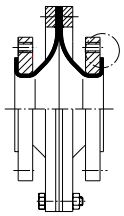




Properties and flange dimensions:

DN	S ±10 % (mm)	d 1 ± 5 % (mm)	d 3 ± 5 % (mm)	torsion Mt (kNm)	eff. bellow cross-section (cm^2)	inherent resistance axial (N/mm)	lateral (N/mm)	angular (Nm/grd)	torsional stress (kNm/grd)	flange dimensions (Class 300) k ANSI B 16.5 (mm)	n x d2 ANSI B 16.5	thick-ness (mm)
8"	5	204	265	4,1	431,9	412	1123	48	40	330,2	12 x 25,4	32
	5	204	265	6,5	434,1	335	191	40	31			
10"	5	258	324	6,5	666	525	3024	95	111	387,4	16 x 28,4	35
	5	258	324	7,8	667,4	269	308	49	41			
12"	6	306	376	9,2	932,1	480	2037	121	108	450,9	16 x 31,8	38
	6	306	376	12	932,1	352	436	89	80			
14"	6,25	337	408	11	1119,2	460	2205	139	140	514,3	20 x 31,8	42
	6,25	337	408	15	1119,2	378	672	115	116			
16"	6,25	387	461	20	1448,8	713	6211	281	333	571,5	20 x 35,1	42
	6,25	387	461	20	1448,8	357	779	141	167			
18"	6,25	438	516	25	1820,9	548	3643	272	376	628,7	24 x 35,1	44
	6,25	438	516	38	1813,3	430	645	214	284			
20"	6,25	489	570	47	2235,4	955	10492	586	943	685,8	24 x 35,1	44
	6,25	489	570	47	2235,4	425	923	261	419			
24"	4,5	594	678	48	3200,9	548	6482	484	920	812,8	24 x	46
	4,5	594	678	48	3200,9	305	1112	269	511			

PTFE Vacuum Expansion Joints for axial movement (ANSI)

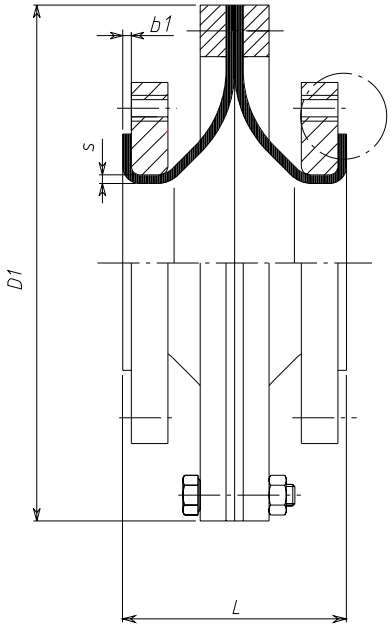
DN	Value Series	Select Series	Options		
	not available in Value Series	Class 150	*Options may affect price and manu-facturing lead time.*		
			Flanges of 1.0038	Flanges of 1.4541	Conductive Liner
4"		◆◆ ●	Standard	✓	✓
6"		◆◆ ●		✓	✓
8"		◆◆ ●		✓	✓
10"		◆◆ ●		✓	✓
12"		◆◆ ●		✓	✓
14"		◆◆ ●		✓	✓
16"		◆◆ ●		✓	✓
18"		◆◆ ●		✓	✓
20"		◆◆ ●		✓	✓
24"		◆◆ ●		✓	✓
40"		◆◆ ●		✓	✓

◆ Best Price & Lead Time (1 - 2 Weeks)	● Full Vacuum at 230 °C
◆◆ Longer Lead Time (4 - 6 Weeks)	⊘ Reduced Vacuum Resistance at Elevated Temp.
◆◆◆ Price and Delivery Upon Request	○ Non-Vacuum Rated

PTFE Vacuum Expansion Joints for axial movement (ANSI)

Dimensional Data

DN	L ± 1,5 % (mm)	D1 (mm)	axial movement (±mm)	S ± 10 % (mm)	b1 ± 10 % (mm)	weight (ca. kg)
4"	96	285	10	4,5	1,5	11
6"	98	350	14	4,5	1,75	17
8"	108	410	16	5	2,0	24
10"	110	465	18	5	2,2	37
12"	115	520	18	5	2,4	40
14"	122	590	18	5	3,75	51
16"	135	670	20	6	4,0	62
18"	150	695	20	6	4,0	90
20"	150	770	20	7	4,5	108
24"	165	890	20	7	4,5	164
40"	210	1360	20	10	5,0	320



Part Number System

1	VKO	250	15	W	P1	00	00XX
Type	Fitting	Diameter	Flanged Connection	Liner	Resin Type	Flanges	Options
Finished	Vacuum Expansion Jont	4” 16” 6” 18” 8” 20” 10” 24” 12” 40” 14”	15 - Class 150 30 - Class 300	W - white E - Anti-Static	Paste	00	00XX - Standard

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