

Type ABN
Type AFN

Designation

The designation consists of two parts:

1. the series, defined by 3 letters
2. the nominal size, defined by 10 digits

Example:

Type ABN: HYDRA axial expansion joint with swivel flanges

Type AFN: HYDRA axial expansion joint with plain fixed flanges

Standard version/materials:

multi-ply bellows: 1.4541

flange: S 235 JRG2 (1.0038)

operating temperature: up to 300°C

Designation (example):

A	B	N	1	0	.	0	1	5	0	.	0	6	4	.	0
Type			Nominal pressure (PN10)			Nominal diameter (DN150)			Movement absorption, nominal ($2\delta = \pm 32 = 64$ mm)			Inner sleeve (0 = without, 1 = with)			

Order text to Pressure Equipment Directive 97/23/EC

Please state the following with your order:

- for standard versions -> order number
- for different materials -> designation -> details of materials

According to the Pressure Equipment Directive 97/23/EC, the following information is required for testing and documentation:

Type of pressure equipment according to Art. 1:

- vessel volume V [l]

- piping – nominal size DN

Medium property according to Art. 9:

- group 1 – dangerous
- group 2 – all other fluids

State of medium:

- gaseous or liquid, if pD > 0.5 bar
- liquid, if pD < 0.5 bar

Design data:

max. allowable pressure PS [bar]

max./min. allowable temperature TS [°C]

test pressure PT [bar]

Optional:

category _____

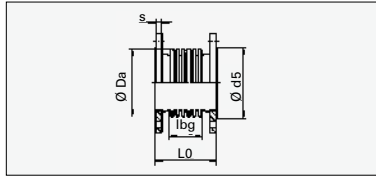
Note: Tell us the dimensions that deviate from the standard dimensions and we can match the expansion joint to your specification.

Axial expansion joints

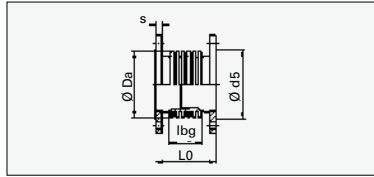
with swivel lap-joint flanges

Type ABN 02...

PN 2.5



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 02 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	rim diameter	thickness
DN	2δ _N	—	—	—	L ₀	G	G	PN	d5	s
—	mm	—	—	—	mm	kg	kg	—	mm	mm
50	20	.0050.020.0	419538	419635	115	3	3.1	6	90	16
50	40	.0050.040.0	419539	419636	160	3.2	3.5	6	90	16
50	70	.0050.070.0	419540	419637	242	3.8	4.2	6	90	16
65	23	.0065.023.0	419541	419638	115	3.9	4.1	6	107	16
65	60	.0065.060.0	419542	419639	187	4.2	4.6	6	107	16
65	87	.0065.087.0	419543	419640	261	4.9	5.5	6	107	16
80	27	.0080.027.0	419545	419641	123	6	6.2	6	122	18
80	64	.0080.064.0	419546	419642	193	6.3	6.8	6	122	18
80	92	.0080.092.0	419547	419643	272	7.1	7.7	6	122	18
100	46	.0100.046.0	419548	419644	150	7	7.5	6	147	18
100	73	.0100.073.0	419549	419645	194	7.3	8	6	147	18
100	98	.0100.098.0	419550	419646	283	9.4	10.3	6	147	18
125	45	.0125.045.0	419551	419647	152	9.5	10.2	6	178	20
125	81	.0125.081.0	419552	419648	204	9.9	10.8	6	178	20
125	140	.0125.140.0	419553	419649	369	13.7	15.1	6	178	20
150	45	.0150.045.0	419554	419650	152	10.5	11.3	6	202	20
150	81	.0150.081.0	419555	419651	204	10.9	12	6	202	20
150	160	.0150.160.0	419556	419652	389	16	17.9	6	202	20
200	60	.0200.060.0	419557	419653	180	15.2	16.4	6	258	22
200	110	.0200.110.0	419558	419654	267	17.1	18.9	6	258	22
200	190	.0200.190.0	419559	419655	415	22.6	25.6	6	258	22

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with swivel lap-joint flanges

Type ABN 02...

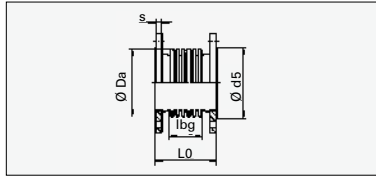
PN 2.5

Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
89	45	45.2	29	3.9	126	1.6	543
89	90	45.2	50	16	63	0.8	68
89	171	44.9	50	52	51	0.7	16
107	45	67.8	28	3.7	122	2.3	781
107	117	67.8	50	25	46	0.9	45
108	190	68.1	50	59	49	0.9	19
121	50	88.1	27	4.1	122	3	825
121	120	88.1	50	24	50	1.2	62
121	198	87.6	50	56	51	1.3	23
148	77	135.6	38	8.9	82	3.1	371
148	121	135.6	50	22	52	2	94
150	208	135.8	50	51	94	3.6	57
174	65	186	32	6.3	114	5.9	960
174	117	186	50	20	63	3.3	166
172	280	181	50	85	73	3.8	33
203	65	263	27	5.3	108	7.9	1286
203	117	263	46	17	60	4.4	221
203	300	260	50	87	72	5.3	40
255	90	430	28	7.7	90	11	934
256	176	430	47	27	71	8.6	193
257	323	430	50	87	71	8.6	57

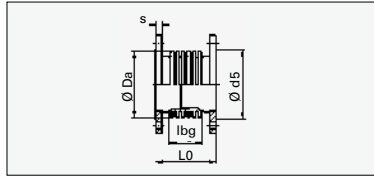
Axial expansion joints with swivel lap-joint flanges

Type ABN 02...

PN 2.5



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 02 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	Overall length	thickness
DN	2δ _N	—	—	—	L ₀	G	G	PN	d5	s
—	mm	—	—	—	mm	kg	kg	—	mm	mm
250	72	.0250.072.0	419560	419656	206	19.9	21.6	6	312	24
250	120	.0250.120.0	419561	419659	275	22.3	24.6	6	312	24
250	204	.0250.204.0	419562	419660	412	29.1	32.6	6	312	24
300	56	.0300.056.0	419563	419661	180	26.2	28	6	365	24
300	126	.0300.126.0	419564	419662	275	27.6	30.4	6	365	24
300	210	.0300.210.0	419565	419663	386	36.6	40.4	6	365	24
350	60	.0350.060.0	419566	419665	188	37	39.1	6	410	26
350	120	.0350.120.0	419567	419666	269	40	42.9	6	410	26
350	210	.0350.210.0	419568	419667	404	47.8	52.3	6	410	26
400	65	.0400.065.0	419569	419668	227	43.5	46.5	6	465	26
400	104	.0400.104.0	419570	419669	290	45.5	49.4	6	465	26
400	182	.0400.182.0	419571	419670	416	49.7	55.2	6	465	26
450	56	.0450.056.0	419572	419672	210	49.4	51.3	6	520	26
450	112	.0450.112.0	419573	419673	298	52.7	57.1	6	520	26
450	182	.0450.182.0	419574	419674	408	56.9	63	6	520	26
500	68	.0500.068.0	419575	419675	214	53.9	57.3	6	570	26
500	119	.0500.119.0	419576	419677	283	56.9	61.3	6	570	26
500	204	.0500.204.0	419577	419678	398	61.8	68	6	570	26
600	76	.0600.076.0	419578	419680	226	71.4	75.8	6	670	28
600	114	.0600.114.0	419579	419682	278	74	79.3	6	670	28
600	209	.0600.209.0	419580	419683	408	80.3	88.1	6	670	28

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints with swivel lap-joint flanges

Type ABN 02...

PN 2.5

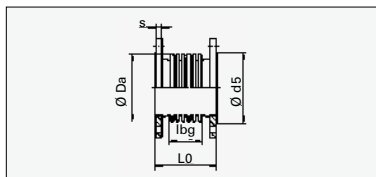
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lb _g	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
312	102	658	27	8.4	86	16	1057
315	170	663	42	23	74	14	333
316	306	663	50	71	75	14	103
365	76	913	18	4.2	127	32	3809
365	171	913	36	21	56	14	329
371	280	924	50	57	87	23	202
400	80	1101	18	4.3	122	37	4082
402	160	1105	33	17	91	28	752
402	294	1102	50	55	90	28	223
458	105	1439	17	5.3	186	75	4677
458	168	1439	26	14	116	47	1145
458	294	1439	38	42	66	27	215
513	88	1817	13	3.4	220	112	9944
513	176	1817	24	14	110	56	1243
513	286	1817	34	36	67	34	286
569	92	2244	14	3.9	210	131	10641
569	161	2244	24	12	120	75	1989
569	276	2244	35	35	70	44	397
674	104	3192	13	4.1	205	182	11569
674	156	3192	19	9.3	136	121	3447
674	286	3192	30	31	74	66	555

Axial expansion joints

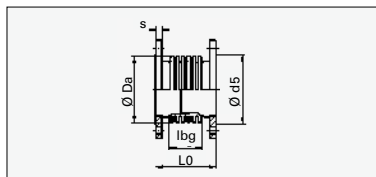
with swivel lap-joint flanges

Type ABN 02...

PN 2.5



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 02 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	rim diameter	thickness
DN	2δ _N	–	–	–	L ₀	G	G	PN	d5	s
–	mm	–	–	–	mm	kg	kg	–	mm	mm
700	80	.0700.080.0	419581	419684	242	95.2	100.7	6	775	32
700	120	.0700.120.0	419582	419685	298	98.4	105.1	6	775	32
700	220	.0700.220.0	419583	419686	438	106.4	116.3	6	775	32
800	63	.0800.063.0	419584	419688	229	122.2	125.9	6	880	34
800	126	.0800.126.0	419585	419689	316	127.7	135.9	6	880	34
800	210	.0800.210.0	419586	419690	432	135.1	146.2	6	880	34
900	63	.0900.063.0	419587	419692	234	132.1	136.5	6	980	35
900	126	.0900.126.0	419588	419693	324	138.7	148.4	6	980	35
900	210	.0900.210.0	419589	419695	444	147.4	160.6	6	980	35
1000	72	.1000.072.0	419590	419697	254	150.9	156.1	6	1080	37
1000	120	.1000.120.0	419591	419698	318	155.7	166.1	6	1080	37
1000	240	.1000.240.0	419592	419699	478	167.9	183.3	6	1080	37
1200	72	.1200.072.0	419593	419700	269	208.5	221.9	2	1280	40
1200	120	.1200.120.0	419594	419701	333	217.5	243.6	2	1280	40
1200	216	.1200.216.0	419595	419703	461	235.6	271.3	2	1280	40

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with swivel lap-joint flanges

Type ABN 02...

PN 2.5

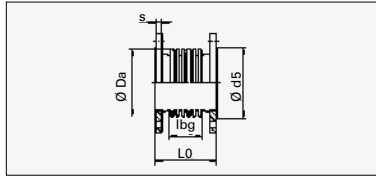
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
780	112	4312	12	4	197	237	12990
780	168	4312	17	9.1	131	157	3849
780	308	4312	27	30	71	85	623
882	87	5575	8.4	2.2	263	408	37153
882	174	5575	16	8.7	131	203	4633
882	290	5575	23	24	79	123	1006
992	90	7118	7.4	2	266	527	44818
992	180	7118	14	7.9	133	264	5602
992	300	7118	21	22	80	159	1215
1095	96	8733	7.7	2.2	270	656	48940
1095	166	8733	12	6.1	162	394	10582
1095	320	8733	21	24	81	197	1323
1295	96	12301	6.5	1.8	406	1391	103923
1295	160	12301	11	5.1	244	836	22453
1295	288	12301	18	17	135	462	3846

Axial expansion joints

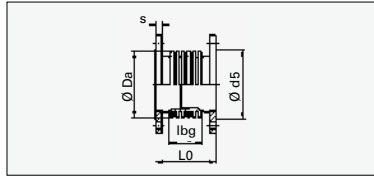
with swivel lap-joint flanges

Type ABN 06...

PN 6



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 06 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	rim diameter	thickness
DN	2δ _N	—	—	—	L ₀	G	G	PN	d5	s
—	mm	—	—	—	mm	kg	kg	—	mm	mm
50	20	.0050.020.0	419706	419767	115	3	3.1	6	90	16
50	52	.0050.052.0	419707	419769	197	3.5	3.8	6	90	16
65	23	.0065.023.0	419708	419770	115	3.9	4.1	6	107	16
65	41	.0065.041.0	419710	419771	151	4.1	4.4	6	107	16
65	72	.0065.072.0	419711	419772	270	6	6.6	6	107	16
80	27	.0080.027.0	419712	419773	123	6	6.2	6	122	18
80	42	.0080.042.0	419713	419774	153	6.1	6.5	6	122	18
80	77	.0080.077.0	419714	419775	280	8.5	9.1	6	122	18
100	33	.0100.033.0	419715	419776	128	6.9	7.2	6	147	18
100	59	.0100.059.0	419716	419777	182	7.6	8.3	6	147	18
100	87	.0100.087.0	419717	419778	271	9.9	10.7	6	147	18
125	36	.0125.036.0	419718	419779	139	9.4	9.8	6	178	20
125	63	.0125.063.0	419719	419780	178	9.7	10.4	6	178	20
125	98	.0125.098.0	419720	419781	300	13.2	14.4	6	178	20
150	40	.0150.040.0	419721	419782	158	10.9	11.4	6	202	20
150	72	.0150.072.0	419722	419783	224	12.9	14.1	6	202	20
150	124	.0150.124.0	419723	419784	363	18.3	20.1	6	202	20
200	40	.0200.040.0	419724	419785	155	15.4	16.1	6	258	22
200	80	.0200.080.0	419725	419786	228	18.1	19.7	6	258	22
200	140	.0200.140.0	419726	419787	346	24.6	26.8	6	258	22

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with swivel lap-joint flanges

Type ABN 06...

PN 6

Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
89	45	45.2	28	3.9	126	1.6	543
89	126	44.9	50	28	70	0.9	39
107	45	67.8	27	3.7	122	2.3	781
107	81	67.8	41	12	67	1.3	136
110	198	68.2	50	50	111	2.2	39
121	50	88.1	26	4.1	122	3	825
121	80	88.1	38	11	76	1.9	204
123	204	87.7	50	48	116	2.9	48
148	55	135.6	27	4.6	116	4.4	1000
149	108	136	43	16	97	3.7	218
151	195	136.2	50	42	123	4.8	87
174	52	186	25	4	142	7.4	1882
174	91	186	39	12	81	4.2	349
173	210	182	50	45	127	6.6	103
202	70	260	23	5.1	164	12	1684
203	135	260	39	18	160	12	453
205	272	260	50	61	141	10	102
256	64	430	19	3.6	197	24	4029
257	136	430	34	15	170	21	781
260	252	432	50	50	160	20	217

Axial expansion joints

with swivel lap-joint flanges

Type ABN 06...

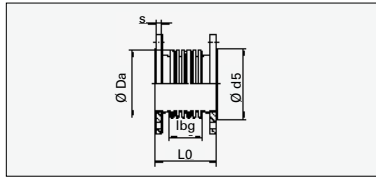
PN 6

Axial expansion joints

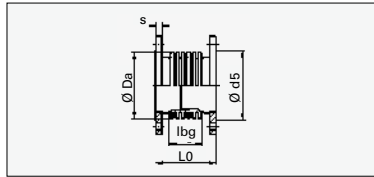
with swivel lap-joint flanges

Type ABN 06...

PN 6



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 06 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	rim diameter	thickness
DN	2δ _N	—	—	—	L ₀	G	G	PN	d5	s
—	mm	—	—	—	mm	kg	kg	—	mm	mm
250	48	.0250.048.0	419727	419788	178	21.8	22.8	6	312	24
250	84	.0250.084.0	419728	419789	232	23.5	25.5	6	312	24
250	144	.0250.144.0	419729	419790	348	31.3	34.4	6	312	24
300	60	.0300.060.0	419730	419791	186	29.2	31	6	365	24
300	90	.0300.090.0	419731	419792	226	30.7	32.9	6	365	24
300	135	.0300.135.0	419732	419793	306	37.7	40.9	6	365	24
350	45	.0350.045.0	419733	419794	173	38.8	40	6	410	26
350	105	.0350.105.0	419734	419795	257	42.1	45	6	410	26
350	165	.0350.165.0	419735	419796	365	51.6	55.8	6	410	26
400	52	.0400.052.0	419736	419797	211	47.9	49.7	6	465	28
400	104	.0400.104.0	419737	419798	299	52.1	56.2	6	465	28
400	169	.0400.169.0	419738	419799	423	62.6	68.4	6	465	28
450	56	.0450.056.0	419739	419800	215	54.8	56.8	6	520	28
450	98	.0450.098.0	419740	419801	284	58.5	62.8	6	520	28
450	182	.0450.182.0	419741	419802	436	72.7	79.4	6	520	28
500	66	.0500.066.0	419742	419803	224	63.1	66.8	6	570	28
500	116	.0500.116.0	419743	419804	299	69.2	74.1	6	570	28
500	198	.0500.198.0	419744	419805	450	93.1	100.7	6	570	28
600	76	.0600.076.0	419746	419806	244	86.9	91.7	6	670	32
600	114	.0600.114.0	419747	419807	300	92.1	98	6	670	32
600	198	.0600.198.0	419748	419808	453	121.3	130.5	6	670	32

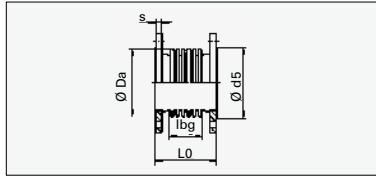
¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
316	72	663	18	3.9	322	60	7958
316	126	663	29	12	184	34	1472
319	240	666	45	39	174	33	394
371	80	924	19	4.6	307	79	8594
371	120	924	27	10	205	53	2531
374	198	927	39	26	223	58	1017
402	63	1102	13	2.5	423	130	22693
402	147	1102	28	14	181	56	1782
405	253	1105	40	37	187	58	623
461	88	1445	13	3.5	345	139	12341
461	176	1445	23	14	172	70	1554
462	299	1445	32	39	146	59	454
514	92	1817	13	3.6	337	171	13891
514	161	1817	20	11	192	98	2599
515	312	1817	30	39	144	73	523
572	100	2248	14	4.1	432	272	18701
572	175	2248	22	12	247	155	3480
574	324	2248	33	40	226	143	937
677	112	3197	13	4.4	427	382	20938
677	168	3197	19	10	285	255	6212
678	319	3192	28	33	239	214	1446

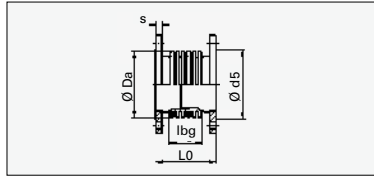
Axial expansion joints with swivel lap-joint flanges

Type ABN 06...

PN 6



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 06 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	rim diameter	thickness
DN	2δ _N	—	—	—	L ₀	G	G	PN	d5	s
—	mm	—	—	—	mm	kg	kg	—	mm	mm
700	60	.0700.060.0	419749	419809	224	110.2	113.5	6	775	36
700	120	.0700.120.0	419750	419810	308	119.8	126.8	6	775	36
700	200	.0700.200.0	419751	419811	442	150.4	160.6	6	775	36
800	63	.0800.063.0	419753	419812	251	147.3	151.5	6	880	37
800	105	.0800.105.0	419755	419813	317	158.9	167.5	6	880	37
800	210	.0800.210.0	419757	419814	482	188	200.9	6	880	37
900	63	.0900.063.0	419758	419815	253	161.1	165.9	6	980	38
900	105	.0900.105.0	419759	419816	319	174.4	184.2	6	980	38
900	210	.0900.210.0	419760	419817	484	207.8	222.7	6	980	38
1000	66	.1000.066.0	419761	419818	277	190.8	196.8	6	1080	42
1000	110	.1000.110.0	419762	419819	347	205.7	217.7	6	1080	42
1000	198	.1000.198.0	419763	419820	487	235.7	252.4	6	1080	42
1200	69	.1200.069.0	419764	419821	295	305.1	320.3	6	1295	47
1200	115	.1200.115.0	419765	419822	365	323.3	353.3	6	1295	47
1200	207	.1200.207.0	419766	419823	505	359.6	400.6	6	1295	47

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints with swivel lap-joint flanges

Type ABN 06...

PN 6

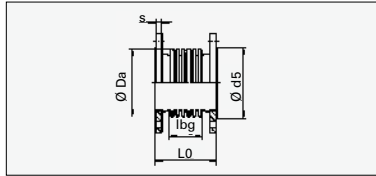
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
780	84	4301	9.1	2.3	546	656	64019
780	168	4301	17	9.1	273	328	7990
783	300	4307	25	27	259	312	2384
887	99	5581	8.4	2.5	860	1343	94213
887	165	5581	14	6.8	516	806	20355
887	330	5581	23	27	258	403	2544
996	99	7118	7.4	2.2	873	1737	121922
996	165	7118	12	6	524	1043	26340
996	330	7118	20	24	262	521	3289
1100	105	8742	7	2.2	890	2173	135514
1100	175	8742	11	6.1	534	1304	29276
1100	315	8742	18	20	296	723	5024
1296	105	12282	6.2	1.9	906	3106	193823
1296	175	12282	10	5.4	544	1865	41870
1296	315	12282	16	17	302	1035	7179

Axial expansion joints

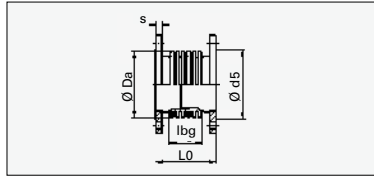
with swivel lap-joint flanges

Type ABN 10...

PN 10



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 10 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	rim diameter	thickness
DN	2δ _N	—	—	—	L ₀	G	G	PN	d5	s
—	mm	—	—	—	mm	kg	kg	—	mm	mm
50	24	.0050.024.0	419824	419901	130	5.3	5.4	16	92	19
50	46	.0050.046.0	419825	419902	218	6.1	6.5	16	92	19
65	18	.0065.018.0	419826	419903	114	6.3	6.5	16	107	20
65	48	.0065.048.0	419827	419904	212	7.9	8.3	16	107	20
80	20	.0080.020.0	419828	419905	122	7.5	7.7	16	122	20
80	41	.0080.041.0	419829	419906	166	7.8	8.3	16	122	20
80	54	.0080.054.0	419830	419907	224	9	9.6	16	122	20
100	26	.0100.026.0	419831	419908	130	9.1	9.4	16	147	22
100	46	.0100.046.0	419832	419909	166	9.4	9.9	16	147	22
100	80	.0100.080.0	419833	419910	295	13.2	14.1	16	147	22
125	30	.0125.030.0	419834	419911	148	11.9	12.3	16	178	22
125	45	.0125.045.0	419835	419912	176	12.2	13	16	178	22
125	85	.0125.085.0	419836	419913	303	16.4	17.6	16	178	22
150	32	.0150.032.0	419837	419914	157	16.4	16.9	16	208	24
150	64	.0150.064.0	419838	419915	217	17.5	18.7	16	208	24
150	95	.0150.095.0	419839	419916	307	21.4	22.8	16	208	24
200	40	.0200.040.0	419840	419917	164	21.3	22	10	258	24
200	80	.0200.080.0	419841	419918	232	23	24.7	10	258	24
200	110	.0200.110.0	419842	419919	296	27.4	29.6	10	258	24
250	48	.0250.048.0	419843	419920	182	27.9	28.9	10	320	26
250	84	.0250.084.0	419855	419921	236	29.6	31.6	10	320	26
250	130	.0250.130.0	419856	419922	416	41.8	45.1	10	320	26

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with swivel lap-joint flanges

Type ABN 10...

PN 10

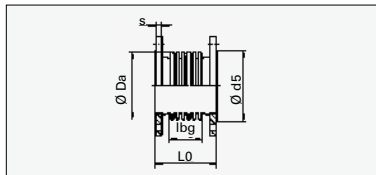
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
89	54	45.2	31	5.6	105	1.3	307
90	140	44.8	50	28	125	1.6	56
107	36	67.8	21	2.3	152	2.9	1538
110	132	68.2	47	22	167	3.3	130
121	44	87.6	20	2.8	230	5.7	2024
121	88	87.6	35	11	115	2.8	249
123	144	87.7	45	24	165	4.2	139
149	48	136	21	3.1	220	8.4	2507
149	84	136	33	9.7	125	4.8	468
152	210	136	48	41	172	6.7	104
171	56	182	21	3.7	215	11	2412
171	84	182	29	8.2	143	7.3	711
174	208	182	46	38	188	9.8	156
203	60	260	19	3.5	360	26	4966
203	120	260	33	14	180	13	621
205	208	260	43	35	185	14	222
257	68	430	19	3.8	340	41	6096
257	136	430	31	15	170	21	781
260	198	432	41	31	203	25	438
316	72	663	18	3.9	322	60	7958
316	126	663	27	12	184	34	1472
319	304	665	31	45	183	34	260

Axial expansion joints

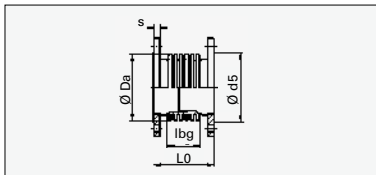
with swivel lap-joint flanges

Type ABN 10...

PN 10



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 10 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	rim diameter	thickness
DN	2δ _N	—	—	—	L ₀	G	G	PN	d5	s
—	mm	—	—	—	mm	kg	kg	—	mm	mm
300	45	.0300.045.0	419857	419923	174	32.4	33.5	10	370	26
300	90	.0300.090.0	419858	419924	237	35.1	37.5	10	370	26
300	137	.0300.137.0	419859	419925	443	53.4	57.5	10	370	26
350	60	.0350.060.0	419882	419926	203	47.4	49.7	10	410	28
350	105	.0350.105.0	419883	419927	269	50.4	53.5	10	410	28
350	150	.0350.150.0	419884	419928	479	81.3	86.2	10	410	28
400	48	.0400.048.0	419885	419929	230	69.3	71.2	10	465	32
400	96	.0400.096.0	419886	419930	326	78.1	82.7	10	465	32
400	156	.0400.156.0	419887	419931	474	100	105.7	10	465	32
450	70	.0450.070.0	419888	419932	259	79	83	10	520	32
450	98	.0450.098.0	419889	419933	309	84.2	89	10	520	32
450	182	.0450.182.0	419890	419934	459	99.7	106.1	10	520	32
500	66	.0500.066.0	419891	419935	246	91.7	94.3	10	570	34
500	116	.0500.116.0	419892	419936	327	100.9	106.4	10	570	34
500	192	.0500.192.0	419893	419937	476	130.2	138.4	10	570	34
600	72	.0600.072.0	419894	419938	258	117.6	122.8	10	670	36
600	108	.0600.108.0	419895	419939	316	125.5	131.8	10	670	36
600	198	.0600.198.0	419896	419940	474	162.3	172	10	670	36
700	57	.0700.057.0	419897	419941	248	162.5	166.2	10	780	40
700	114	.0700.114.0	419898	419942	344	182.2	190.4	10	780	40
700	190	.0700.190.0	419899	419943	472	208.5	219.8	10	780	40

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with swivel lap-joint flanges

Type ABN 10...

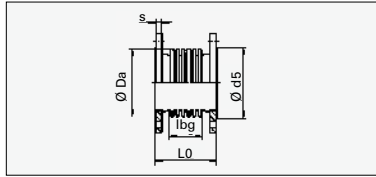
PN 10

Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
372	63	925	15	2.7	496	129	22347
372	126	925	26	11	248	64	2772
374	330	924	30	44	236	62	391
403	88	1103	17	4.7	382	118	10477
403	154	1103	26	14	218	67	1971
412	360	1116	32	47	308	98	520
464	96	1445	12	3.6	752	306	22829
464	192	1445	22	14	376	153	2854
467	338	1449	31	41	327	134	806
518	125	1821	16	6	588	301	13245
518	175	1821	21	12	420	215	4827
518	325	1821	29	41	226	116	755
574	108	2248	14	4.4	680	429	25288
574	189	2248	21	13	388	245	4716
576	336	2248	30	40	315	200	1218
678	116	3192	12	4.3	657	588	30045
678	174	3192	17	9.8	438	392	8902
680	330	3192	27	34	341	306	1938
785	96	4307	8.6	2.4	1246	1507	112503
785	192	4307	16	9.8	623	753	14063
785	320	4307	23	27	374	452	3035

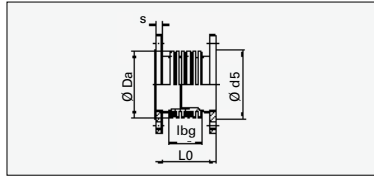
Axial expansion joints with swivel lap-joint flanges

Type ABN 16...

PN 16



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 16 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	rim diameter	thickness
DN	2δ _N	—	—	—	L ₀	G	G	PN	d5	s
—	mm	—	—	—	mm	kg	kg	—	mm	mm
50	22	.0050.022.0	419944	419984	131	5.4	5.5	16	92	19
50	42	.0050.042.0	419945	419985	221	6.3	6.7	16	92	19
65	28	.0065.028.0	419946	419986	139	6.5	6.7	16	107	20
65	48	.0065.048.0	419947	419987	212	7.9	8.3	16	107	20
80	23	.0080.023.0	419948	419988	139	8	8.2	16	122	20
80	50	.0080.050.0	419949	419989	212	8.9	9.4	16	122	20
100	31	.0100.031.0	419950	419990	148	9.7	10	16	147	22
100	53	.0100.053.0	419951	419991	225	11.8	12.5	16	147	22
125	21	.0125.021.0	419952	419992	135	12.3	12.7	16	178	22
125	42	.0125.042.0	419953	419993	177	13	13.5	16	178	22
125	59	.0125.059.0	419954	419994	239	14.9	15.8	16	178	22
150	24	.0150.024.0	419955	419995	142	16.1	16.6	16	208	24
150	48	.0150.048.0	419956	419996	187	16.9	17.9	16	208	24
150	66	.0150.066.0	419957	419997	243	19.5	20.7	16	208	24
200	30	.0200.030.0	419958	419998	156	23	23.7	16	258	26
200	60	.0200.060.0	419959	419999	210	25.1	26.6	16	258	26
200	97	.0200.097.0	419960	420000	373	34.1	36.4	16	258	26
250	32	.0250.032.0	419961	420001	193	33.7	34.8	16	320	29
250	56	.0250.056.0	419962	420002	250	36	37.4	16	320	29
250	103	.0250.103.0	419963	420003	379	46.5	49.5	16	320	29

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints with swivel lap-joint flanges

Type ABN 16...

PN 16

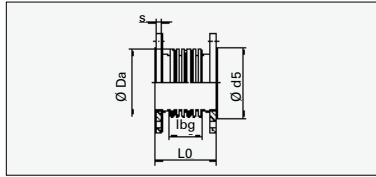
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate		
outside diameter	corrugated length	corrugated length	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
89	54	44.9	29	5.2	163	2.1	495
91	143	45	41	25	166	2.2	74
108	60	68.1	28	5.7	156	3	573
110	132	68.2	40	22	167	3.3	130
122	60	87.4	23	4.3	322	8	1528
123	132	87.7	38	20	180	4.5	178
150	65	135.8	23	4.9	302	12	1953
152	140	136	36	18	258	10	351
172	42	181	15	1.9	490	25	9744
172	84	181	27	7.7	245	13	1267
174	144	182	34	18	272	14	464
203	45	260	14	2	480	35	11884
203	90	260	25	7.8	240	18	1528
205	144	260	32	17	267	20	663
260	54	432	14	2.3	746	91	21692
260	108	432	26	9.1	373	46	2712
262	270	434	29	36	268	33	311
318	76	665	12	2.8	567	106	12618
318	133	665	18	8.5	324	61	2371
320	260	665	27	30	286	54	549

Axial expansion joints

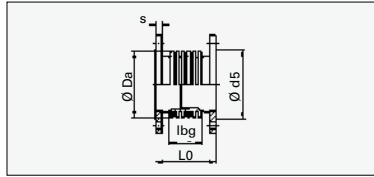
with swivel lap-joint flanges

Type ABN 16...

PN 16



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 16 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	rim diameter	thickness
DN	2δ _N	—	—	—	L ₀	G	G	PN	d5	s
—	mm	—	—	—	mm	kg	kg	—	mm	mm
300	30	.0300.030.0	419964	420004	187	46.7	48	16	375	32
300	80	.0300.080.0	419965	420005	292	54.4	57.2	16	375	32
300	120	.0300.120.0	419966	420006	472	73	77.3	16	375	32
350	30	.0350.030.0	419967	420007	187	61	62.4	16	410	32
350	80	.0350.080.0	419968	420008	292	69.8	72.8	16	410	32
350	130	.0350.130.0	419969	420009	439	87.2	91.6	16	410	32
400	48	.0400.048.0	419970	420010	244	82.1	84.2	16	465	34
400	84	.0400.084.0	419971	420011	322	91.1	94.9	16	465	34
400	132	.0400.132.0	419972	420012	426	103.1	108.2	16	465	34
450	52	.0450.052.0	419974	420014	250	102.4	104.8	16	520	37
450	91	.0450.091.0	419975	420015	328	112.9	118.1	16	520	37
450	143	.0450.143.0	419976	420016	432	126.9	132.8	16	520	37
500	48	.0500.048.0	419977	420017	232	126.5	129	16	570	38
500	96	.0500.096.0	419978	420018	316	139.1	144.6	16	570	38
500	144	.0500.144.0	419979	420019	400	151.6	158.5	16	570	38

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with swivel lap-joint flanges

Type ABN 16...

PN 16

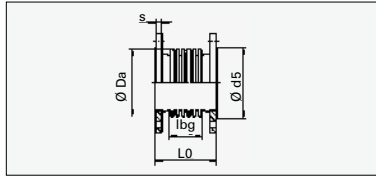
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
374	63	924	9.6	1.8	886	231	40189
374	168	924	21	13	332	87	2119
376	345	924	25	40	352	92	537
408	63	1110	8.8	1.7	886	278	48158
408	168	1110	19	12	332	104	2533
412	312	1116	26	35	355	112	798
467	104	1449	12	3.8	1065	437	27779
467	182	1449	19	12	608	249	5189
467	286	1449	25	29	387	159	1336
520	104	1821	12	3.7	1030	530	33691
520	182	1821	19	11	588	302	6289
520	286	1821	24	28	374	192	1622
576	84	2248	9.9	2.5	1263	801	78051
576	168	2248	18	10	631	400	9744
576	252	2248	24	22	421	267	2891

Axial expansion joints

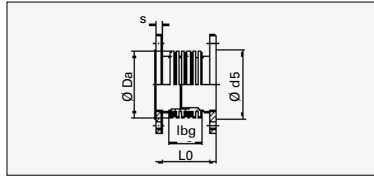
with swivel lap-joint flanges

Type ABN 25...

PN 25



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 25 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	rim diameter	Blatt-dicke
DN	2δ _N	—	—	—	L ₀	G	G	PN	d5	s
—	mm	—	—	—	mm	kg	kg	—	mm	mm
50	13	.0050.013.0	420020	420071	120	5.7	5.8	40	92	20
50	29	.0050.029.0	420021	420072	179	6.3	6.5	40	92	20
65	17	.0065.017.0	420022	420073	128	7.3	7.5	40	107	22
65	40	.0065.040.0	420023	420073	218	8.8	9.1	40	107	22
80	23	.0080.023.0	420024	420075	148	9.2	9.5	40	122	24
80	42	.0080.042.0	420025	420076	219	10.7	11.1	40	122	24
100	23	.0100.023.0	420044	420077	140	12	12.3	40	147	24
100	48	.0100.048.0	420045	420078	215	13.9	14.5	40	147	24
125	26	.0125.026.0	420046	420079	167	17.6	18.1	40	178	26
125	52	.0125.052.0	420049	420080	231	19	19.8	40	178	26
150	29	.0150.029.0	420052	420081	171	22.1	22.7	40	208	28
150	58	.0150.058.0	420053	420082	235	23.9	25.1	40	208	28
200	26	.0200.026.0	420054	420083	186	33.1	34	25	258	32
200	46	.0200.046.0	420056	420098	240	35.3	36.4	25	258	32
200	71	.0200.071.0	420057	420099	313	39.8	41.7	25	258	32
250	24	.0250.024.0	420058	420100	191	46.5	47.6	25	320	35
250	48	.0250.048.0	420059	420101	251	50	51.5	25	320	35
250	80	.0250.080.0	420061	420102	331	54.8	57.4	25	320	35
300	27	.0300.027.0	420062	420103	203	61.4	62.8	25	375	38
300	55	.0300.055.0	420063	420104	269	66	67.8	25	375	38
300	82	.0300.082.0	420064	420107	335	70.6	73.6	25	375	38

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with swivel lap-joint flanges

Type ABN 25...

PN 25

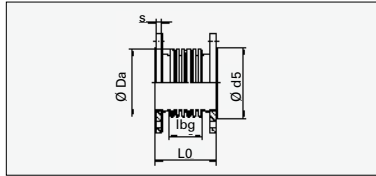
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
90	40	44.8	18	2.3	437	5.7	2449
91	99	45	31	12	240	3.1	217
109	44	67.9	18	2.5	410	8	2841
111	132	68.1	33	18	260	5.2	205
123	60	87.7	21	4.1	396	10	1910
125	130	88.4	32	17	277	7.1	289
151	52	136.2	18	3	462	18	4577
152	126	136	30	15	286	11	476
174	64	182	18	3.6	612	32	5371
174	128	182	29	14	306	16	671
205	64	260	17	3.4	602	45	7554
205	128	260	27	13	301	22	923
261	72	434	12	2.6	792	97	12998
261	126	434	18	8	452	56	2425
262	198	434	23	19	365	45	789
320	60	665	8.7	1.6	1243	234	44691
320	120	665	16	6.4	621	117	5586
320	200	665	21	18	373	70	1203
374	66	924	8.6	1.7	1183	309	48772
374	132	924	15	6.9	591	154	6116
374	198	924	19	16	394	103	1806

Axial expansion joints

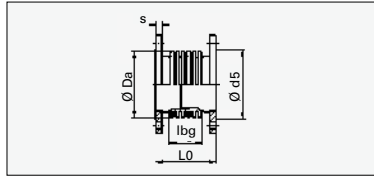
with swivel lap-joint flanges

Type ABN 25...

PN 25



Type ABN without inner sleeve



Type ABN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type ABN 25 ...	Order No. standard version		Overall length	Weight approx.		Flange		
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	rim diameter	thickness
DN	$2\delta_N$	—	—	—	L_0	G	G	PN	d5	s
—	mm	—	—	—	mm	kg	kg	—	mm	mm
350	30	.0350.030.0	420065	420108	219	95.3	97	25	410	42
350	50	.0350.050.0	420066	420109	267	100.1	102.1	25	410	42
350	80	.0350.080.0	420067	420110	339	107.4	110.8	25	410	42
400	32	.0400.032.0	420068	420111	256	119.1	121.4	25	465	42
400	56	.0400.056.0	420069	420112	331	128.5	131.4	25	465	42
400	96	.0400.096.0	420070	420113	482	152.9	158.3	25	465	42

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with swivel lap-joint flanges

Type ABN 25...

PN 25

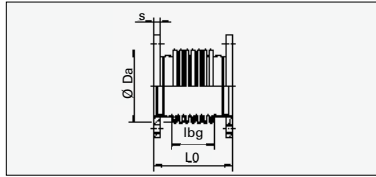
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	$2\alpha_N$	$2\lambda_N$	c_δ	c_α	c_λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
412	72	1116	8.8	1.9	1540	488	43149
412	120	1116	14	5.2	924	293	9326
412	192	1116	19	13	577	183	2275
466	100	1444	8.1	2.5	1740	712	32636
466	175	1444	13	7.5	994	407	6092
469	324	1450	18	24	691	285	1244

Axial expansion joints

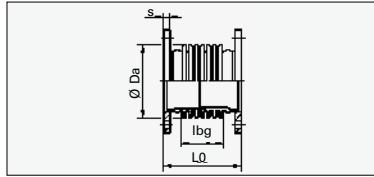
with plain fixed flanges

Type AFN 02...

PN 2.5



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 02 ...	Order No. standard version		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	thickness
DN	2δ _N	–	–	–	Lo	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
50	20	.0050.020.0	421681	421833	129	3	3.2	6	16
50	40	.0050.040.0	421682	421834	174	3.2	3.4	6	16
50	70	.0050.070.0	421683	421835	255	3.7	4.1	6	16
65	23	.0065.023.0	421684	421836	129	3.9	4.1	6	16
65	60	.0065.060.0	421685	421837	201	4.2	4.6	6	16
65	87	.0065.087.0	421686	421838	274	4.9	5.4	6	16
80	27	.0080.027.0	421687	421839	136	5.9	6.1	6	18
80	64	.0080.064.0	421688	421840	206	6.3	6.7	6	18
80	92	.0080.092.0	421689	421841	284	7	7.6	6	18
100	46	.0100.046.0	421690	421842	163	7	7.4	6	18
100	73	.0100.073.0	421691	421843	207	7.3	7.9	6	18
100	98	.0100.098.0	421692	421844	294	9.3	10.1	6	18
125	45	.0125.045.0	421693	421845	163	9.4	10	6	20
125	81	.0125.081.0	421694	421846	215	9.8	10.6	6	20
125	140	.0125.140.0	421695	421847	378	13.4	14.8	6	20
150	45	.0150.045.0	421696	421848	163	10.4	11.1	6	20
150	81	.0150.081.0	421697	421849	215	10.8	11.8	6	20
150	160	.0150.160.0	421698	421850	398	16	18	6	20
200	60	.0200.060.0	421699	421851	190	10.8	11.8	6	20
200	110	.0200.110.0	421700	421852	276	12.6	14.2	6	20
200	190	.0200.190.0	421701	421853	423	22	25	6	22

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with plain fixed flanges

Type AFN 02...

PN 2.5

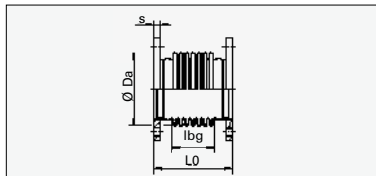
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
89	45	45.2	29	3.9	126	1.6	543
89	90	45.2	50	16	63	0.8	68
89	171	44.9	50	52	51	0.7	16
107	45	67.8	28	3.7	122	2.3	781
107	117	67.8	50	25	46	0.9	45
108	190	68.1	50	59	49	0.9	19
121	50	88.1	27	4.1	122	3	825
121	120	88.1	50	24	50	1.2	62
121	198	87.6	50	56	51	1.3	23
148	77	135.6	38	8.9	82	3.1	371
148	121	135.6	50	22	52	2	94
150	208	135.8	50	51	94	3.6	57
174	65	186	32	6.3	114	5.9	960
174	117	186	50	20	63	3.3	166
172	280	181	50	85	73	3.8	33
203	65	263	27	5.3	108	7.9	1286
203	117	263	46	17	60	4.4	221
203	300	260	50	87	72	5.3	40
255	90	430	28	7.7	90	11	934
256	176	430	47	27	71	8.6	193
257	323	430	50	87	71	8.6	57

Axial expansion joints

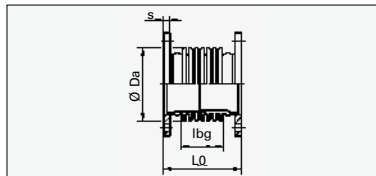
with plain fixed flanges

Type AFN 02...

PN 2.5



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 02 ...	Order No. standard version		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	Drilling EN 1092	thickness
DN	2δ _N	–	–	–	Lo	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
250	72	.0250.072.0	421702	421854	214	16	17	6	22
250	120	.0250.120.0	421703	421855	282	18	20	6	22
250	204	.0250.204.0	421704	421856	418	29	32	6	24
300	56	.0300.056.0	421705	421857	188	26	28	6	24
300	126	.0300.126.0	421706	421858	283	27	30	6	24
300	210	.0300.210.0	421707	421859	392	36	39	6	24
350	60	.0350.060.0	421708	421860	194	37	38	6	26
350	120	.0350.120.0	421709	421861	274	39	42	6	26
350	210	.0350.210.0	421710	421863	408	47	51	6	26
400	65	.0400.065.0	421711	421864	229	43	45	6	26
400	104	.0400.104.0	421712	421865	292	45	48	6	26
400	182	.0400.182.0	421713	421866	418	49	54	6	26
450	56	.0450.056.0	421714	421867	212	48	51	6	26
450	112	.0450.112.0	421715	421868	300	52	56	6	26
450	182	.0450.182.0	421716	421869	410	56	61	6	26
500	68	.0500.068.0	421717	421870	216	53	56	6	26
500	119	.0500.119.0	421718	421871	285	56	61	6	26
500	204	.0500.204.0	421719	421872	400	61	69	6	26
600	76	.0600.076.0	421720	421873	224	70	74	6	28
600	114	.0600.114.0	421721	421874	276	73	78	6	28
600	209	.0600.209.0	421722	421875	406	79	89	6	28

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with plain fixed flanges

Type AFN 02...

PN 2.5

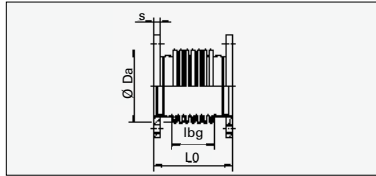
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
312	102	658	27	8.4	86	16	1057
315	170	663	42	23	74	14	333
316	306	663	50	71	75	14	103
365	76	913	18	4.2	127	32	3809
365	171	913	36	21	56	14	329
371	280	924	50	57	87	23	202
400	80	1101	18	4.3	122	37	4082
402	160	1105	33	17	91	28	752
402	294	1102	50	55	90	28	223
458	105	1439	17	5.3	186	75	4677
458	168	1439	26	14	116	47	1145
458	294	1439	38	42	66	27	215
513	88	1817	13	3.4	220	112	9944
513	176	1817	24	14	110	56	1243
513	286	1817	34	36	67	34	286
569	92	2244	14	3.9	210	131	10641
569	161	2244	24	12	120	75	1989
569	276	2244	35	35	70	44	397
674	104	3192	13	4.1	205	182	11569
674	156	3192	19	9.3	136	121	3447
674	286	3192	30	31	74	66	555

Axial expansion joints

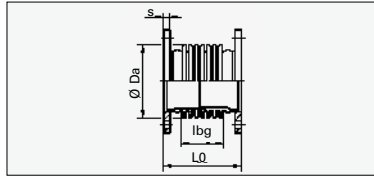
with plain fixed flanges

Type AFN 02...

PN 2.5



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 02 ...	Order No. standard version		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	Drilling EN 1092	thickness
DN	2δ _N	–	–	–	Lo	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
700	80	.0700.080.0	421723	421876	240	94	101	6	32
700	120	.0700.120.0	421724	421877	296	97	103	6	32
700	220	.0700.220.0	421725	421878	436	105	117	6	32
800	63	.0800.063.0	421727	421879	227	120	128	6	34
800	126	.0800.126.0	421728	421880	314	126	137	6	34
800	210	.0800.210.0	421729	421881	430	133	146	6	34
900	63	.0900.063.0	421730	421882	232	130	138	6	35
900	126	.0900.126.0	421731	421883	322	137	149	6	35
900	210	.0900.210.0	421732	421884	442	145	163	6	35
1000	72	.1000.072.0	421733	421885	252	148	159	6	37
1000	120	.1000.120.0	421734	421886	316	153	167	6	37
1000	240	.1000.240.0	421735	421887	476	165	184	6	37
1200	72	.1200.072.0	421736	421888	266	204	222	2	40
1200	120	.1200.120.0	421737	421889	330	213	236	2	40
1200	216	.1200.216.0	421738	421890	458	231	258	2	40
1400	48	.1400.048.0	421739	421891	178	245	255	2	42
1400	108	.1400.108.0	421740	421892	308	257	275	2	42
1400	180	.1400.180.0	421741	421893	464	272	310	2	42
1600	48	.1600.048.0	421742	421894	186	333	344	2	46
1600	108	.1600.108.0	421743	421895	316	347	367	2	46
1600	180	.1600.180.0	421744	421896	472	364	409	2	46

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with plain fixed flanges

Type AFN 02...

PN 2.5

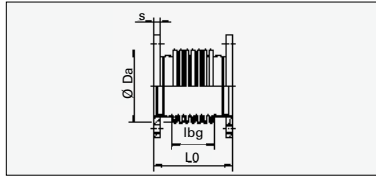
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
780	112	4312	12	4	197	237	12990
780	168	4312	17	9.1	131	157	3849
780	308	4312	27	30	71	85	623
882	87	5575	8.4	2.2	263	408	37153
882	174	5575	16	8.7	131	203	4633
882	290	5575	23	24	79	123	1006
992	90	7118	7.4	2	266	527	44818
992	180	7118	14	7.9	133	264	5602
992	300	7118	21	22	80	159	1215
1095	96	8733	7.7	2.2	270	656	48940
1095	160	8733	12	6.1	162	394	10582
1095	320	8733	21	24	81	197	1323
1295	96	12301	6.5	1.8	406	1391	103923
1295	160	12301	11	5.1	244	836	22453
1295	288	12301	18	17	135	462	3846
1470	104	15993	3.8	1.2	492	2189	139277
1470	234	15993	8.2	5.9	218	970	12230
1470	390	15993	12	16	131	583	2640
1670	104	20791	3.3	1	550	3180	202146
1670	234	20791	7.2	5.2	244	1411	17742
1670	390	20791	11	14	146	844	3833

Axial expansion joints

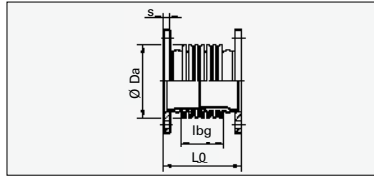
with plain fixed flanges

Type AFN 02...

PN 2.5



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 02 ...	Order No. standard version		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	thick-ness
DN	2δ _N	–	–	–	Lo	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
1800	48	.1800.048.0	421752	421897	194	404	416	2	50
1800	108	.1800.108.0	421753	421898	324	420	442	2	50
1800	180	.1800.180.0	421754	421899	480	439	489	2	50
2000	48	.2000.048.0	421755	421900	198	465	477	2	52
2000	108	.2000.108.0	421757	421901	328	482	506	2	52
2000	180	.2000.180.0	421759	421902	484	503	558	2	52

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with plain fixed flanges

Type AFN 02...

PN 2.5

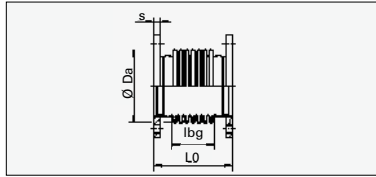
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
1870	104	26216	3	0.9	607	4425	281542
1870	234	26216	6.4	4.6	270	1968	24711
1870	390	26216	9.9	13	162	1181	5339
2070	104	32270	2.7	0.8	667	5985	380708
2070	234	32270	5.9	4.2	296	2656	33426
2070	390	32270	9.1	12	178	1597	7219

Axial expansion joints

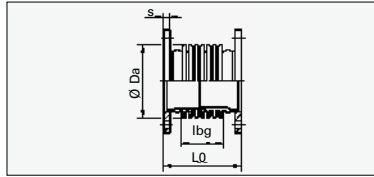
with plain fixed flanges

Type AFN 06...

PN 6



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 06 ...	Order No. standard version		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	thickness
DN	2δ _N	–	–	–	Lo	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
50	20	.0050.020.0	421903	421960	129	3	3.2	6	16
50	52	.0050.052.0	421904	421961	210	3.5	3.7	6	16
65	23	.0065.023.0	421905	421962	129	3.9	4.1	6	16
65	41	.0065.041.0	421906	421963	165	4	4.2	6	16
65	72	.0065.072.0	421907	421964	282	5.9	6.4	6	16
80	27	.0080.027.0	421908	421965	136	5.9	6.1	6	18
80	42	.0080.042.0	421909	421966	166	6.1	6.5	6	18
80	77	.0080.077.0	421910	421967	290	8.4	9	6	18
100	33	.0100.033.0	421911	421968	141	6.9	7.3	6	18
100	59	.0100.059.0	421912	421969	194	7.5	8.1	6	18
100	87	.0100.087.0	421913	421970	281	9.7	10.5	6	18
125	36	.0125.036.0	421914	421971	150	9.3	9.8	6	20
125	63	.0125.063.0	421915	421972	189	9.6	10.3	6	20
125	98	.0125.098.0	421916	421973	308	12.8	13.9	6	20
150	40	.0150.040.0	421917	422009	168	10.7	11.4	6	20
150	72	.0150.072.0	421918	422010	233	12.6	13.6	6	20
150	124	.0150.124.0	421919	422011	370	18	19	6	20
200	40	.0200.040.0	421920	422012	164	15	16	6	22
200	80	.0200.080.0	421921	422013	236	18	19	6	22
200	140	.0200.140.0	421922	422014	352	24	26	6	22

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with plain fixed flanges

Type AFN 06...

PN 6

Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lb _g	A	2α _N	2λ _N	c _δ	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
89	45	45.2	28	3.9	126	1.6	543
89	126	44.9	50	28	70	0.9	39
107	45	67.8	27	3.7	122	2.3	781
107	81	67.8	41	12	67	1.3	136
110	198	68.2	50	50	111	2.2	39
121	50	88.1	26	4.1	122	3	825
121	80	88.1	38	11	76	1.9	204
123	204	87.7	50	48	116	2.9	48
148	55	135.6	27	4.6	116	4.4	1000
149	108	136	43	16	97	3.7	218
151	195	136.2	50	42	123	4.8	87
174	52	186	25	4	142	7.4	1882
174	91	186	39	12	81	4.2	349
173	210	182	50	45	127	6.6	103
202	70	260	23	5.1	164	12	1684
203	135	260	39	18	160	12	453
205	272	260	50	61	141	10	102
256	64	430	19	3.6	197	24	4029
257	136	430	34	15	170	21	781
260	252	432	50	50	160	20	217

Axial expansion joints

with plain fixed flanges

Type AFN 06...

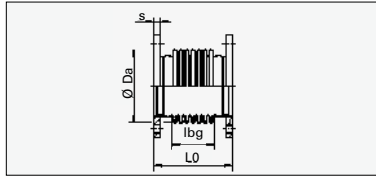
PN 6

Axial expansion joints

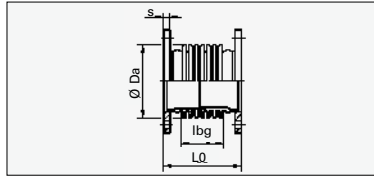
with plain fixed flanges

Type AFN 06...

PN 6



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 06 ...	Order No. Standardausführung		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	thickness
DN	2δ _N	–	–	–	Lo	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
250	48	.0250.048.0	421923	422015	184	21	22	6	24
250	84	.0250.084.0	421924	422016	238	23	25	6	24
250	144	.0250.144.0	421925	422017	352	30	33	6	24
300	60	.0300.060.0	421926	422018	192	28	30	6	24
300	90	.0300.090.0	421927	422019	232	30	32	6	24
300	135	.0300.135.0	421928	422020	310	37	39	6	24
350	45	.0350.045.0	421929	422022	177	38	39	6	26
350	105	.0350.105.0	421930	422023	261	41	44	6	26
350	165	.0350.165.0	421931	422024	367	50	54	6	26
400	52	.0400.052.0	421932	422025	212	39	41	6	28
400	104	.0400.104.0	421933	422026	300	43	47	6	28
400	169	.0400.169.0	421934	422027	419	61	66	6	28
450	56	.0450.056.0	421935	422029	212	53	56	6	28
450	98	.0450.098.0	421936	422030	281	57	61	6	28
450	182	.0450.182.0	421937	422031	432	71	76	6	28
500	66	.0500.066.0	421938	422033	220	57	62	6	28
500	116	.0500.116.0	421939	422034	295	63	70	6	28
500	198	.0500.198.0	421941	422036	444	90	100	6	28
600	76	.0600.076.0	421942	422037	232	62	68	6	32
600	114	.0600.114.0	421943	422038	288	68	75	6	32
600	198	.0600.198.0	421944	422039	447	117	129	6	32

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

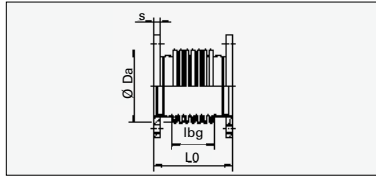
Bellows			Movement absorption ¹⁾ nominal bei 1000 Lastspielen		Adjusting force rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _s	c _a	c _l
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
316	72	663	18	3,9	322	60	7958
316	126	663	29	12	184	34	1472
319	240	666	45	39	174	33	394
371	80	924	19	4,6	307	79	8594
371	120	924	27	10	205	53	2531
374	198	927	39	26	223	58	1017
402	63	1102	13	2,5	423	130	22693
402	147	1102	28	14	181	56	1782
405	253	1105	40	37	187	58	623
461	88	1445	13	3,5	345	139	12341
461	176	1445	23	14	172	70	1554
462	299	1445	32	39	146	59	454
514	92	1817	13	3,6	337	171	13891
514	161	1817	20	11	192	98	2599
515	312	1817	30	39	144	73	523
572	100	2248	14	4,1	432	272	18701
572	175	2248	22	12	247	155	3480
574	324	2248	33	40	226	143	937
677	112	3197	13	4,4	427	382	20938
677	168	3197	19	10	285	255	6212
678	319	3192	28	33	239	214	1446

Axial expansion joints

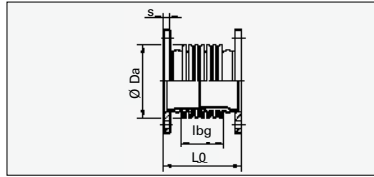
with plain fixed flanges

Type AFN 06...

PN 6



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 06 ...	Order No. standard version		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	thickness
DN	2δ _N	–	–	–	Lo	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
700	60	.0700.060.0	421945	422040	220	107	113	6	36
700	120	.0700.120.0	421946	422041	304	116	125	6	36
700	200	.0700.200.0	421947	422042	436	145	159	6	36
800	63	.0800.063.0	421948	422044	245	116	123	6	37
800	105	.0800.105.0	421949	422046	311	127	137	6	37
800	210	.0800.210.0	421950	422047	476	156	173	6	37
900	63	.0900.063.0	421951	422048	245	144	153	6	38
900	105	.0900.105.0	421952	422049	311	158	169	6	38
900	210	.0900.210.0	421953	422050	476	191	210	6	38
1000	66	.1000.066.0	421954	422051	271	183	194	6	42
1000	110	.1000.110.0	421955	422053	341	198	212	6	42
1000	198	.1000.198.0	421956	422054	481	228	249	6	42
1200	69	.1200.069.0	421957	422055	289	293	311	6	47
1200	115	.1200.115.0	421958	422056	359	311	336	6	47
1200	207	.1200.207.0	421959	422057	499	347	382	6	47

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with plain fixed flanges

Type AFN 06...

PN 6

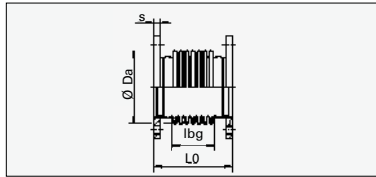
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _s	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
780	84	4301	9.1	2.3	546	656	64019
780	168	4301	17	9.1	273	328	7990
783	300	4307	25	27	259	312	2384
887	99	5581	8.4	2.5	860	1343	94213
887	165	5581	14	6.8	516	806	20355
887	330	5581	23	27	258	403	2544
996	99	7118	7.4	2.2	873	1737	121922
996	165	7118	12	6	524	1043	26340
996	330	7118	20	24	262	521	3289
1100	105	8742	7	2.2	890	2173	135514
1100	175	8742	11	6.1	534	1304	29276
1100	315	8742	18	20	296	723	5024
1296	105	12282	6.2	1.9	906	3106	193823
1296	175	12282	10	5.4	544	1865	41870
1296	315	12282	16	17	302	1035	7179

Axial expansion joints

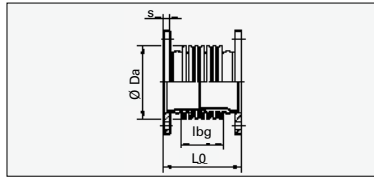
with plain fixed flanges

Type AFN 10...

PN 10



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 10 ...	Order No. standard version		Bau-länge	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	thick-ness
DN	2δ _N	—	—	—	Lo	G	G	PN	s
—	mm	—	—	—	mm	kg	kg	—	mm
50	24	.0050.024.0	422058	422104	141	5.2	5.4	16	19
50	46	.0050.046.0	422059	422105	227	6	6.3	16	19
65	18	.0065.018.0	422060	422106	124	6.2	6.4	16	20
65	48	.0065.048.0	422061	422107	220	7.7	8.1	16	20
80	20	.0080.020.0	422062	422108	132	7.4	7.6	16	20
80	41	.0080.041.0	422063	422109	176	7.7	8.1	16	20
80	54	.0080.054.0	422064	422110	232	8.9	9.3	16	20
100	26	.0100.026.0	422065	422111	138	9	9.4	16	22
100	46	.0100.046.0	422066	422112	174	9.3	9.7	16	22
100	80	.0100.080.0	422067	422113	300	12.9	13.7	16	22
125	30	.0125.030.0	422068	422115	156	11.8	12.3	16	22
125	45	.0125.045.0	422069	422116	184	12	12.6	16	22
125	85	.0125.085.0	422070	422117	308	16	17	16	22
150	32	.0150.032.0	422071	422118	162	16	17	16	24
150	64	.0150.064.0	422072	422119	222	17	18	16	24
150	95	.0150.095.0	422073	422120	310	21	22	16	24
200	40	.0200.040.0	422074	422121	170	21	22	10	24
200	80	.0200.080.0	422075	422122	238	23	24	10	24
200	110	.0200.110.0	422076	422123	300	27	29	10	24
250	48	.0250.048.0	422077	422124	186	27	28	10	26
250	84	.0250.084.0	422078	422125	240	29	31	10	26
250	130	.0250.130.0	422079	422126	418	41	44	10	26

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with plain fixed flanges

Type AFN 10...

PN 10

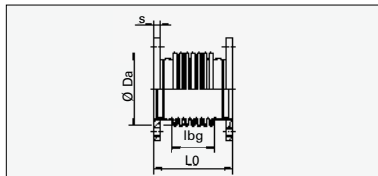
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lb _g	A	2α _N	2λ _N	c _s	c _a	c _l
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
89	54	45.2	31	5.6	105	1.3	307
90	140	44.8	50	28	125	1.6	56
107	36	67.8	21	2.3	152	2.9	1538
110	132	68.2	47	22	167	3.3	130
121	44	87.6	20	2.8	230	5.7	2024
121	88	87.6	35	11	115	2.8	249
123	144	87.7	45	24	165	4.2	139
149	48	136	21	3.1	220	8.4	2507
149	84	136	33	9.7	125	4.8	468
152	210	136	48	41	172	6.7	104
171	56	182	21	3.7	215	11	2412
171	84	182	29	8.2	143	7.3	711
174	208	182	46	38	188	9.8	156
203	60	260	19	3.5	360	26	4966
203	120	260	33	14	180	13	621
205	208	260	43	35	185	14	222
257	68	430	19	3.8	340	41	6096
257	136	430	31	15	170	21	781
260	198	432	41	31	203	25	438
316	72	663	18	3.9	322	60	7958
316	126	663	27	12	184	34	1472
319	304	665	31	45	183	34	260

Axial expansion joints

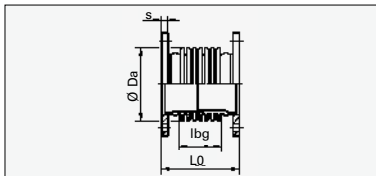
with plain fixed flanges

Type AFN 10...

PN 10



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 10 ...	Order No. standard version		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	thickness
DN	2δ _N	–	–	–	Lo	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
300	45	.0300.045.0	422080	422127	177	31	33	10	26
300	90	.0300.090.0	422081	422128	240	34	36	10	26
300	137	.0300.137.0	422082	424785	444	52	56	10	26
350	60	.0350.060.0	422083	422130	199	46	48	10	28
350	105	.0350.105.0	422084	422131	265	49	52	10	28
350	150	.0350.150.0	422085	422132	471	79	83	10	28
400	48	.0400.048.0	422086	422133	224	51	53	10	32
400	96	.0400.096.0	422087	422134	320	60	63	10	32
400	156	.0400.156.0	422088	422135	466	96	102	10	32
450	70	.0450.070.0	422090	422136	253	70	73	10	32
450	98	.0450.098.0	422091	422137	303	75	79	10	32
450	182	.0450.182.0	422092	422138	453	96	102	10	32
500	66	.0500.066.0	422093	422139	240	88	93	10	34
500	116	.0500.116.0	422094	422140	321	97	104	10	34
500	192	.0500.192.0	422095	422141	468	125	135	10	34
600	72	.0600.072.0	422096	422142	252	113	119	10	36
600	108	.0600.108.0	422098	422143	310	121	129	10	36
600	198	.0600.198.0	422099	422144	466	157	169	10	36
700	57	.0700.057.0	422100	422145	240	119	125	10	40
700	114	.0700.114.0	422101	422146	336	138	148	10	40
700	190	.0700.190.0	422103	422147	464	201	215	10	40

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with plain fixed flanges

Type AFN 10...

PN 10

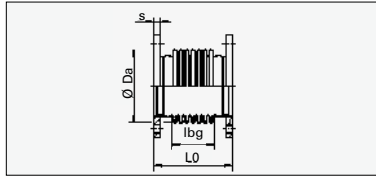
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _s	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
372	63	925	15	2.7	496	129	14898
372	126	925	26	11	248	64	1848
374	330	924	30	44	236	62	261
403	88	1103	17	4.7	382	118	6984
403	154	1103	26	14	218	67	1295
412	360	1116	32	47	308	98	347
464	96	1445	12	3.6	752	306	22829
464	192	1445	22	14	376	153	2854
467	338	1449	31	41	327	134	806
518	125	1821	16	6	588	301	13245
518	175	1821	21	12	420	215	4827
518	325	1821	29	41	226	116	755
574	108	2248	14	4.4	680	429	25288
574	189	2248	21	13	388	245	4716
576	336	2248	30	40	315	200	1218
678	116	3192	12	4.3	657	588	30045
678	174	3192	17	9.8	438	392	8902
680	330	3192	27	34	341	306	1938
785	96	4307	8.6	2.4	1246	1507	112503
785	192	4307	16	9.8	623	753	14063
785	320	4307	23	27	374	452	3035

Axial-Expansion joints

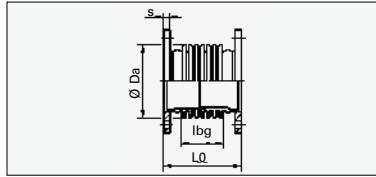
with plain fixed flanges

Type AFN 16...

PN 16



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 16 ...	Order No. standard version		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	thickness
DN	2δ _N	–	–	–	Lo	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
50	22	.0050.022.0	422148	422183	141	5.4	5.6	16	19
50	42	.0050.042.0	422149	422184	230	6.2	6.5	16	19
65	28	.0065.028.0	422150	422185	148	6.5	6.7	16	20
65	48	.0065.048.0	422151	422186	220	7.7	8.1	16	20
80	23	.0080.023.0	422152	422187	148	7.8	8	16	20
80	50	.0080.050.0	422153	422188	220	8.7	9.1	16	20
100	31	.0100.031.0	422154	422189	155	9.6	10	16	22
100	53	.0100.053.0	422155	422190	230	11.5	12.1	16	22
125	21	.0125.021.0	422156	422191	142	12.1	12.5	16	22
125	42	.0125.042.0	422157	422192	184	12.7	13.3	16	22
125	59	.0125.059.0	422158	422193	244	14.5	15	16	22
150	24	.0150.024.0	422159	422194	147	16	16	16	24
150	48	.0150.048.0	422160	422195	192	17	17	16	24
150	66	.0150.066.0	422161	422196	246	19	20	16	24
200	30	.0200.030.0	422162	422197	158	22	23	16	26
200	60	.0200.060.0	422163	422198	212	24	26	16	26
200	97	.0200.097.0	422164	422199	374	33	35	16	26
250	32	.0250.032.0	422165	422200	189	33	34	16	29
250	56	.0250.056.0	422166	422202	246	35	37	16	29
250	103	.0250.103.0	422167	422203	373	45	48	16	29

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial-Expansion joints

with plain fixed flanges

Type AFN 16...

PN 16

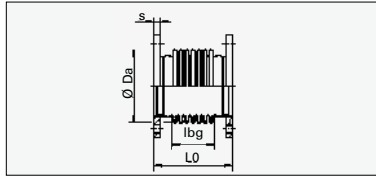
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _s	c _a	c _l
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
89	54	44.9	29	5.2	163	2.1	495
91	143	45	41	25	166	2.2	74
108	60	68.1	28	5.7	156	3	573
110	132	68.2	40	22	167	3.3	130
122	60	87.4	23	4.3	322	8	1528
123	132	87.7	38	20	180	4.5	178
150	65	135.8	23	4.9	302	12	1953
152	140	136	36	18	258	10	351
172	42	181	15	1.9	490	25	9744
172	84	181	27	7.7	245	13	1267
174	144	182	34	18	272	14	464
203	45	260	14	2	480	35	11884
203	90	260	25	7.8	240	18	1528
205	144	260	32	17	267	20	663
260	54	432	14	2.3	746	91	21692
260	108	432	26	9.1	373	46	2712
262	270	434	29	36	268	33	311
318	76	665	12	2.8	567	106	12618
318	133	665	18	8.5	324	61	2371
320	260	665	27	30	286	54	549

Axial expansion joints

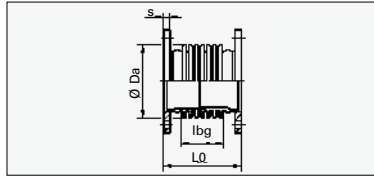
with plain fixed flanges

Type AFN 16...

PN 16



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 16 ...	Order No. standard version		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	thickness
DN	2δ _N	–	–	–	Lo	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
300	30	.0300.030.0	422168	422204	182	45	46	16	32
300	80	.0300.080.0	422169	422205	287	52	55	16	32
300	120	.0300.120.0	422170	422206	464	70	74	16	32
350	30	.0350.030.0	422171	422207	182	59	60	16	32
350	80	.0350.080.0	422172	422208	287	67	70	16	32
350	130	.0350.130.0	422173	422209	431	84	88	16	32
400	48	.0400.048.0	422174	422210	236	78	81	16	34
400	84	.0400.084.0	422175	422211	314	87	91	16	34
400	132	.0400.132.0	422176	422212	418	99	104	16	34
450	52	.0450.052.0	422177	422213	242	98	100	16	37
450	91	.0450.091.0	422178	422214	320	108	112	16	37
450	143	.0450.143.0	422179	422215	424	122	127	16	37
500	48	.0500.048.0	422180	422216	224	121	125	16	38
500	96	.0500.096.0	422181	422217	308	134	140	16	38
500	144	.0500.144.0	422182	422218	392	146	154	16	38

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with plain fixed flanges

Type AFN 16...

PN 16

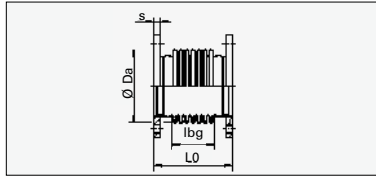
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _s	c _a	c _l
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
374	63	924	9.6	1.8	886	231	26677
374	168	924	21	13	332	87	1413
376	345	924	25	40	352	92	354
408	63	1110	8.8	1.7	886	278	32105
408	168	1110	19	12	332	104	1689
412	312	1116	26	35	355	112	527
467	104	1449	12	3.8	1065	437	27779
467	182	1449	19	12	608	249	5189
467	286	1449	25	29	387	159	1336
520	104	1821	12	3.7	1030	530	33691
520	182	1821	19	11	588	302	6289
520	286	1821	24	28	374	192	1622
576	84	2248	9.9	2.5	1263	801	78051
576	168	2248	18	10	631	400	9744
576	252	2248	24	22	421	267	2891

Axial expansion joints

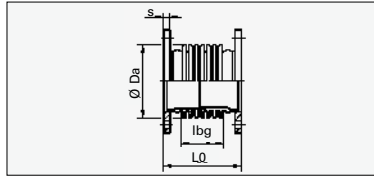
with plain fixed flanges

Type AFN 25...

PN 25



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 25 ...	Order No. standard version		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	thickness
DN	2δ _N	–	–	–	L ₀	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
50	13	.0050.013.0	422219	422248	128	5.7	5.9	40	20
50	29	.0050.029.0	422220	422249	187	6.2	6.4	40	20
65	17	.0065.017.0	422221	422250	134	7.2	7.4	40	22
65	40	.0065.040.0	422222	422251	222	8.6	9	40	22
80	23	.0080.023.0	422223	422252	152	9	9.2	40	24
80	42	.0080.042.0	422224	422253	222	10.5	10.9	40	24
100	23	.0100.023.0	422225	422254	144	11.8	12.2	40	24
100	48	.0100.048.0	422227	422255	218	13.6	14.2	40	24
125	26	.0125.026.0	422228	422256	168	17	18	40	26
125	52	.0125.052.0	422230	422257	232	19	19	40	26
150	29	.0150.029.0	422231	422258	166	21	22	40	28
150	58	.0150.058.0	422232	422259	230	23	24	40	28
200	26	.0200.026.0	422233	422260	181	32	33	25	32
200	46	.0200.046.0	422234	422261	235	34	36	25	32
200	71	.0200.071.0	422235	422262	307	39	40	25	32
250	24	.0250.024.0	422236	422263	185	45	46	25	35
250	48	.0250.048.0	422237	422264	245	48	50	25	35
250	79	.0250.079.0	422238	422265	325	53	55	25	35

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with plain fixed flanges

Type AFN 25...

PN 25

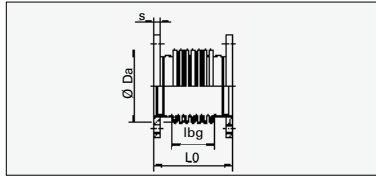
Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
Außen-durchmesser	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lbg	A	2α _N	2λ _N	c _s	c _a	c _l
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
90	40	44.8	18	2.3	437	5.7	2449
91	99	45	31	12	240	3.1	217
109	44	67.9	18	2.5	410	8	2841
111	132	68.1	33	18	260	5.2	205
123	60	87.7	21	4.1	396	10	1910
125	130	88.4	32	17	277	7.1	289
151	52	136.2	18	3	462	18	4577
152	126	136	30	15	286	11	476
174	64	182	18	3.6	612	32	5371
174	128	182	29	14	306	16	671
205	64	260	17	3.4	602	45	7554
205	128	260	27	13	301	22	923
261	72	434	12	2.6	792	97	12998
261	126	434	18	8	452	56	2425
262	198	434	23	19	365	45	789
320	60	665	8,7	1.6	1243	234	44691
320	120	665	16	6.4	621	117	5586
320	200	665	21	18	373	70	1203

Axial expansion joints

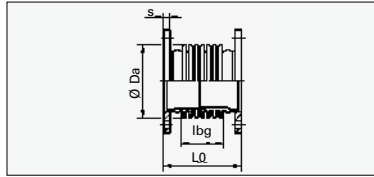
with plain fixed flanges

Type AFN 25...

PN 25



Type AFN without inner sleeve



Type AFN with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type AFN 25 ...	Order No. standard version		Overall length	Weight approx.		Flange	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	drilling EN 1092	thickness
DN	2δ _N	–	–	–	L ₀	G	G	PN	s
–	mm	–	–	–	mm	kg	kg	–	mm
300	27	.0300.027.0	422239	422266	197	59	61	25	38
300	55	.0300.055.0	422240	422267	263	64	66	25	38
300	82	.0300.082.0	422241	422268	329	68	71	25	38
350	30	.0350.030.0	422242	422269	211	92	93	25	42
350	50	.0350.050.0	422243	422270	259	96	99	25	42
350	80	.0350.080.0	422244	422271	331	104	106	25	42
400	32	.0400.032.0	422245	422272	248	114	117	25	42
400	56	.0400.056.0	422246	422273	323	124	127	25	42
400	96	.0400.096.0	422247	422274	472	147	152	25	42

¹⁾ Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints

with plain fixed flanges

Type AFN 25...

PN 25

Bellows			Nominal movement absorption ¹⁾ for 1000 loading cycles		Adjusting force rate rate		
outside diameter	corrugated length	effective cross-section	angular ¹⁾	lateral ¹⁾	axial	angular	lateral
Da	lb _g	A	2α _N	2λ _N	c _s	c _α	c _λ
mm	mm	cm ²	degrees	mm	N/mm	Nm/degrees	N/mm
374	66	924	8.6	1.7	1183	309	32515
374	132	924	15	6.9	591	154	4051
374	198	924	19	16	394	103	1204
412	72	1116	8.8	1.9	1540	488	43149
412	120	1116	14	5.2	924	293	9326
412	192	1116	19	13	577	183	2275
466	100	1444	8.1	2.5	1740	712	48954
466	175	1444	13	7.5	994	407	9137
469	324	1450	18	24	691	285	1867