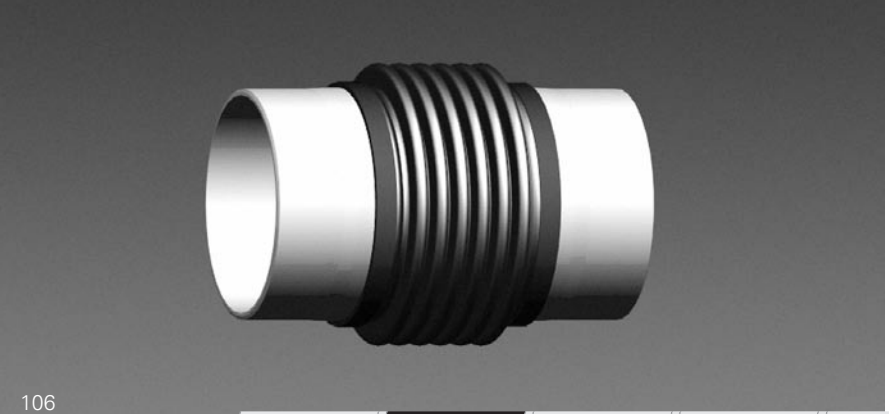


Type ARG

Designation
The designation consists of two parts:
1. the series, defined by 3 letters
2. the nominal size, defined by 10 digits

Example:
Type ARG: HYDRA axial exhaust-gas expansion joint with weld ends

Standard version/materials:
multi-ply bellows: 1.4541
weld ends: P 235 TR1 (1.0254)
operating temperature: up to 550°C

Designation (example):

A	R	G	0	1	.	0	1	5	0	.	1	2	6	.	0
Type			Nominal pressure (PN1)			Nominal diameter (DN150)				Movement absorption, nominal (2α = ±63 = 126 mm)				Inner sleeve (0 = without, 1 = with)	

Order text

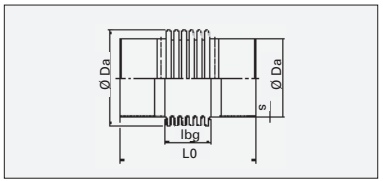
Please state the following with your order:

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

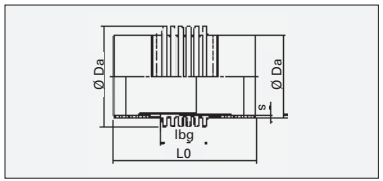
The expansion joints for low pressure (exhaust-gas) are designed for non-pressurised applications (PS < 0.5 bar gauge pressure).

The Pressure Equipment Directive 97/23/EC does not apply to this operating condition.

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



Type ARG without inner sleeve



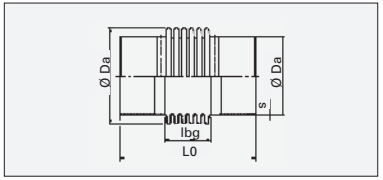
Type ARG with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type	Order No., standard version		Overall length	Weight approx.		Weld ends	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	outside diameter	wall thickness
DN	$2\delta_N$	–	–	–	Lo	G	G	D	s
–	mm	–	–	–	mm	kg	kg	mm	mm
50	24	**.0050.024.0**	417751	417842	214	1	1.2	60.3	4
50	56	**.0050.056.0**	417753	417843	286	1.2	1.5	60.3	4
50	80	**.0050.080.0**	417754	417844	340	1.4	1.8	60.3	4
65	28	**.0065.028.0**	417755	417845	214	1.5	1.7	76.1	4
65	64	**.0065.064.0**	417756	417846	286	1.8	2.2	76.1	4
65	92	**.0065.092.0**	417757	417847	340	2	2.6	76.1	4
80	37	**.0080.037.0**	417758	417848	230	1.8	2.1	88.9	4
80	74	**.0080.074.0**	417759	417849	300	2.1	2.7	88.9	4
80	106	**.0080.106.0**	417760	417850	360	2.4	3.1	88.9	4
100	40	**.0100.040.0**	417761	417851	226	2.3	2.7	114.3	4
100	86	**.0100.086.0**	417762	417852	303	2.7	3.5	114.3	4
100	119	**.0100.119.0**	417763	417853	358	3.1	4.1	114.3	4
125	63	**.0125.063.0**	417764	417854	251	2.9	3.5	139.7	4
125	126	**.0125.126.0**	417765	417855	342	3.6	4.7	139.7	4
125	180	**.0125.180.0**	417766	417856	420	4.1	5.6	139.7	4
150	63	**.0150.063.0**	417767	417857	251	3.5	4.2	168.3	4
150	126	**.0150.126.0**	417768	417858	342	4.3	5.7	168.3	4
150	180	**.0150.180.0**	417769	417860	420	5	6.7	168.3	4
200	70	**.0200.070.0**	417770	417861	265	4.6	5.9	219.1	4
200	140	**.0200.140.0**	417771	417862	370	5.7	7.8	219.1	4
200	200	**.0200.200.0**	417772	417863	460	6.7	9.3	219.1	4

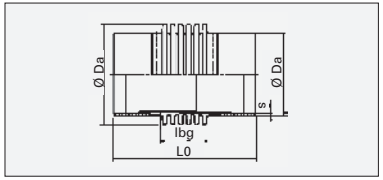
[1] Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints **Type ARG 01...**
for low pressure with weld ends
PN 1

Bellows			Nominal movement absorption[1] nominal for 1000 loading cycles		Vibrations in all planes	Adjusting force rate			Natural frequency of bellows	
outside diameter	corrugated length	effective cross-section	angular[1]	lateral[1]		axial	angular	lateral	axial	radial
Da	lbg	A	$2\alpha_N$	$2\lambda_N$	â	c_δ	c_α	c_λ	ω_a	ω_r
mm	mm	cm^2	degrees	mm	mm	N/mm	Nm/degrees	N/mm	Hz	Hz
89	54	45.2	36	5.6	0.5	105	1.3	307	350	1250
89	126	45.2	50	31	1	45	0.6	26	150	230
89	180	45.2	50	63	1	31	0.4	8.5	105	110
107	54	67.8	33	5.2	0.5	101	1.9	448	290	1280
107	126	67.8	50	29	1	43	0.8	35	125	235
107	180	67.8	50	59	1	30	0.6	13	90	115
121	70	88.1	39	8.1	0.5	87	2.2	309	220	840
121	140	88.1	50	32	1	43	1.1	39	110	210
121	200	88.1	50	66	1	30	0.7	14	75	105
148	66	135.6	33	6.5	0.5	96	3.6	584	210	1050
148	143	135.6	50	31	1	44	1.7	57	100	225
148	198	135.6	50	59	1	32	1.2	21	70	115
174	91	186	45	12	0.5	81	4.2	349	120	520
174	182	186	50	49	1	40	2.1	44	60	130
174	260	186	50	101	1	28	1.5	15	40	65
203	91	263	38	10	1	77	5.7	473	120	610
203	182	263	50	42	1	38	2.8	58	60	150
203	260	263	50	85	1	27	2	20	40	75
255	105	430	33	10	1	77	9.2	574	110	600
255	210	430	50	42	1	38	4.6	72	55	150
255	300	430	50	85	1	27	3.2	24	40	75



Type ARG without inner sleeve



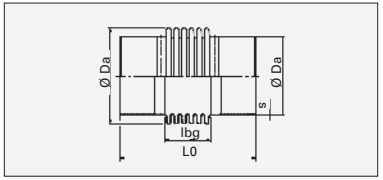
Type ARG with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type	Order No., standard version		Overall length	Weight approx.		Weld ends	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	outside diameter	wall thickness
DN	$2\delta_N$	–	–	–	Lo	G	G	D	s
–	mm	–	–	–	mm	kg	kg	mm	mm
250	72	**.0250.072.0**	417773	417864	262	5.7	7.3	273	4
250	144	**.0250.144.0**	417774	417865	364	7	9.4	273	4
250	216	**.0250.216.0**	417775	417867	466	8.4	11.6	273	4
300	70	**.0300.070.0**	417777	417868	255	6.5	9.2	323.9	4
300	154	**.0300.154.0**	417778	417869	369	8.2	12.5	323.9	4
300	210	**.0300.210.0**	417779	417870	445	9.3	14.8	323.9	4
350	75	**.0350.075.0**	417780	417871	260	7.3	10.3	355.6	4
350	150	**.0350.150.0**	417781	417872	360	8.9	13.6	355.6	4
350	210	**.0350.210.0**	417782	417873	440	10.2	16.3	355.6	4
400	65	**.0400.065.0**	417783	417874	265	10.1	12.9	406.4	4
400	117	**.0400.117.0**	417784	417875	349	12.9	18	406.4	4
400	195	**.0400.195.0**	417785	417876	475	17.1	25	406.4	4
450	56	**.0450.056.0**	417786	417877	248	10.8	13.7	457	4
450	140	**.0450.140.0**	417787	417878	380	15.8	22	457	4
450	196	**.0450.196.0**	417789	417879	468	19.1	27	457	4
500	68	**.0500.068.0**	417790	417880	292	14.1	17.9	508	4
500	136	**.0500.136.0**	417791	417881	384	18.1	25	508	4
500	221	**.0500.221.0**	417792	417882	499	23	33	508	4
600	76	**.0600.076.0**	417793	417883	304	17.3	22	610	4
600	152	**.0600.152.0**	417794	417884	408	22	32	610	4
600	228	**.0600.228.0**	417795	417885	512	27	40	610	4

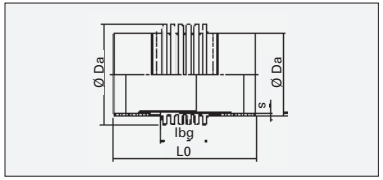
[1] Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints **Type ARG 01...**
for low pressure with weld ends
PN 1

Bellows			Nominal movement absorption[1] nominal for 1000 loading cycles		Vibrations in all planes	Adjusting force rate			Natural frequency of bellows	
outside diameter	corrugated length	effective cross-section	angular[1]	lateral[1]		axial	angular	lateral	axial	radial
Da	lbg	A	$2\alpha_N$	$2\lambda_N$	â	c_δ	c_α	c_λ	ω_a	ω_r
mm	mm	cm^2	degrees	mm	mm	N/mm	Nm/degrees	N/mm	Hz	Hz
312	102	658	28	8.4	0.7	86	16	1057	110	780
312	204	658	50	34	1	43	7.9	131	55	190
312	306	658	50	76	1	28	5.1	39	35	90
365	95	913	23	6.5	0.5	102	26	1981	110	1030
365	209	913	46	31	1	46	12	189	50	210
365	285	913	50	58	1	34	8.7	74	40	115
400	100	1101	22	6.7	0.5	98	30	2063	100	950
400	200	1101	41	27	1	49	15	258	50	240
400	280	1101	50	52	1	35	11	96	35	120
458	105	1439	17	5.3	0.5	186	75	4677	120	1260
458	189	1439	30	17	1	103	41	789	70	390
458	315	1439	45	48	1	62	25	173	40	140
513	88	1817	13	3.4	0.3	220	112	9944	130	1850
513	220	1817	31	21	1	88	45	639	55	300
513	308	1817	41	42	1	62	31	232	40	150
569	92	2244	14	3.9	0.3	210	131	10641	115	1690
569	184	2244	28	16	1	105	66	1340	55	420
569	299	2244	42	41	1	64	40	308	35	160
674	104	3192	14	4.1	0.3	205	182	11569	100	1570
674	208	3192	26	17	1	102	91	1446	50	390
674	312	3192	36	37	1	68	60	431	35	175



Type ARG without inner sleeve



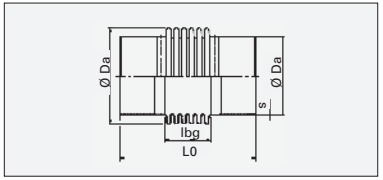
Type ARG with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type	Order No., standard version		Overall length	Weight approx.		Weld ends	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	outside diameter	wall thickness
DN	$2\delta_N$	**ARG 01 ...**	–	–	Lo	G	G	D	s
–	mm	–	–	–	mm	kg	kg	mm	mm
700	80	**.0700.080.0**	417796	417886	312	21	27	711	4
700	140	**.0700.140.0**	417797	417887	396	26	36	711	4
700	220	**.0700.220.0**	417798	417888	508	32	46	711	4
800	84	**.0800.084.0**	417799	417889	316	24	33	813	4
800	147	**.0800.147.0**	417800	417890	403	29	42	813	4
800	231	**.0800.231.0**	417801	417891	519	37	54	813	4
900	84	**.0900.084.0**	417802	417892	320	27	38	914	4
900	168	**.0900.168.0**	417805	417893	440	36	52	914	4
900	231	**.0900.231.0**	417807	417894	530	43	62	914	4
1000	72	**.1000.072.0**	417808	417895	296	28	36	1016	4
1000	144	**.1000.144.0**	417809	417896	392	35	51	1016	4
1000	240	**.1000.240.0**	417811	417898	520	45	67	1016	4
1200	72	**.1200.072.0**	417812	417899	293	34	46	1220	4
1200	144	**.1200.144.0**	417813	417900	386	43	67	1220	4
1200	240	**.1200.240.0**	417814	417901	510	55	89	1220	4
1400	48	**.1400.048.0**	417815	417902	304	39	53	1420	4
1400	108	**.1400.108.0**	417816	417903	434	51	80	1420	4
1400	180	**.1400.180.0**	417817	417904	590	65	109	1420	4
1600	48	**.1600.048.0**	417818	417905	304	44	60	1620	4
1600	108	**.1600.108.0**	417819	417906	434	58	92	1620	4
1600	180	**.1600.180.0**	417820	417907	590	74	124	1620	4

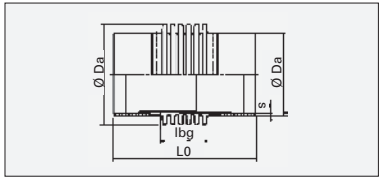
[1] Inner sleeve, movement absorption: The inner sleeve is designed for axial movement only. The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100%.

Axial expansion joints **Type ARG 01...**
for low pressure with weld ends
PN 1

Bellows			Nominal movement absorption[1] nominal for 1000 loading cycles		Vibrations in all planes	Adjusting force rate			Natural frequency of bellows	
outside diameter	corrugated length	effective cross-section	angular[1]	lateral[1]		axial	angular	lateral	axial	radial
Da	lbg	A	$2\alpha_N$	$2\lambda_N$	â	c_δ	c_α	c_λ	ω_a	ω_r
mm	mm	cm^2	degrees	mm	mm	N/mm	Nm/degrees	N/mm	Hz	Hz
780	112	4312	12	4	0.3	197	237	12990	90	1480
780	196	4312	21	12	1	112	135	2434	50	480
780	308	4312	30	30	1	71	85	623	30	195
882	116	5575	11	3.9	0.3	197	306	15687	85	1570
882	203	5575	19	12	1	112	174	2920	50	510
882	319	5575	28	29	1	71	110	750	30	210
992	120	7118	9.9	3.5	0.2	200	396	18908	80	1650
992	240	7118	19	14	1	100	198	2363	40	410
992	330	7118	25	27	1	72	143	909	30	220
1095	96	8733	7.7	2.2	0.2	270	656	48940	105	2940
1095	192	8733	15	8.7	0.7	135	328	6118	50	740
1095	320	8733	23	24	1	81	197	1323	30	265
1295	93	12311	6.5	1.8	0.1	260	891	70830	95	3210
1295	186	12311	13	7.1	0.6	130	445	8844	45	800
1295	310	12311	20	20	1	78	267	1910	30	290
1470	104	16309	3.8	1.2	0.1	492	2232	142010	150	5320
1470	234	16309	8.3	5.8	0.5	218	989	12469	70	1050
1470	390	16309	13	16	1	131	594	2694	40	380
1670	104	21150	3.3	1	0.1	550	3235	205642	150	6040
1670	234	21150	7.3	5.1	0.5	244	1435	18056	70	1200
1670	390	21150	12	14	1	146	859	3901	40	430



Type ARG without inner sleeve



Type ARG with inner sleeve

Nominal diameter	Nominal axial movement absorption	Type	Order No., standard version		Overall length	Weight approx.		Weld ends	
			without inner sleeve	with inner sleeve		without inner sleeve	with inner sleeve	outside diameter	wall thickness
DN	$2\delta_N$	–	–	–	Lo	G	G	D	s
–	mm	–	–	–	mm	kg	kg	mm	mm
1800	48	**.1800.048.0**	417821	417908	304	49	68	1820	4
1800	108	**.1800.108.0**	417822	417909	434	65	103	1820	4
1800	180	**.1800.180.0**	417823	417910	590	84	140	1820	4
2000	48	**.2000.048.0**	417824	417911	304	55	76	2020	4
2000	108	**.2000.108.0**	417825	417912	434	72	115	2020	4
2000	180	**.2000.180.0**	417826	417913	590	93	155	2020	4
2200	48	**.2200.048.0**	417827	417914	304	82	105	2220	6
2200	108	**.2200.108.0**	417828	417915	434	101	150	2220	6
2200	180	**.2200.180.0**	417829	417917	590	124	194	2220	6
2400	48	**.2400.048.0**	417830	417918	304	89	114	2420	6
2400	108	**.2400.108.0**	417831	417919	434	110	163	2420	6
2400	180	**.2400.180.0**	417832	417920	590	135	211	2420	6
2600	48	**.2600.048.0**	417833	417921	304	97	124	2620	6
2600	108	**.2600.108.0**	417834	417922	434	119	176	2620	6
2600	180	**.2600.180.0**	417835	417923	590	146	229	2620	6
2800	48	**.2800.048.0**	417836	417924	304	104	133	2820	6
2800	108	**.2800.108.0**	417837	417926	434	128	190	2820	6
2800	180	**.2800.180.0**	417838	417927	590	158	246	2820	6
3000	48	**.3000.048.0**	417839	417928	304	112	143	3020	6
3000	108	**.3000.108.0**	417840	417929	434	137	203	3020	6
3000	180	**.3000.180.0**	417841	417930	590	169	264	3020	6

[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 **Type ARG 01...**
for low pressure with weld ends
PN 1

Bellows			Nominal movement absorption[1] nominal for 1000 loading cycles		Vibrations in all planes	Adjusting force rate			Natural frequency of bellows	
outside diameter	corrugated length	effective cross-section	angular[1]	lateral[1]		axial	angular	lateral	axial	radial
Da	lbg	A	$2\alpha_N$	$2\lambda_N$	â	c_δ	c_α	c_λ	ω_a	ω_r
mm	mm	cm^2	degrees	mm	mm	N/mm	Nm/degrees	N/mm	Hz	Hz
1870	104	26216	3	0.9	–	607	4493	285864	150	6760
1870	234	26216	6.6	4.6	0.4	270	1999	25101	70	1340
1870	390	26216	10	13	1	162	1199	5420	40	480
2070	104	32717	2.7	0.8	–	667	6068	385984	150	7480
2070	234	32717	5.9	4.1	0.4	296	2693	33890	70	1480
2070	390	32717	9.5	11	1	178	1619	7318	40	530
2270	104	39443	2.5	0.7	–	730	8005	508860	150	8200
2270	234	39443	5.4	3.8	0.3	324	3553	44664	70	1620
2270	390	39443	8.8	10	1	194	2127	9651	40	580
2470	104	46798	2.3	0.7	–	782	10174	647120	150	8900
2470	234	46798	5	3.4	0.3	347	4514	56819	70	1760
2470	390	46798	8	9.6	1	208	2706	12273	40	630
2670	104	54781	2.1	0.6	–	842	12822	815575	150	9620
2670	234	54781	4.6	3.2	0.3	374	5695	71585	70	1900
2670	390	54781	7.4	8.9	0.8	224	3411	15469	40	680
2870	104	63392	1.9	0.6	–	902	15894	1010919	150	10330
2870	234	63392	4.3	3	0.2	401	7066	88750	65	2040
2870	390	63392	7	8.2	0.8	240	4229	19171	40	740
3070	104	72631	1.8	0.5	–	962	19421	1235250	150	11050
3070	234	72631	4	2.8	0.2	427	8621	108451	65	2180
3070	390	72631	6.5	7.7	0.7	256	5168	23425	40	790