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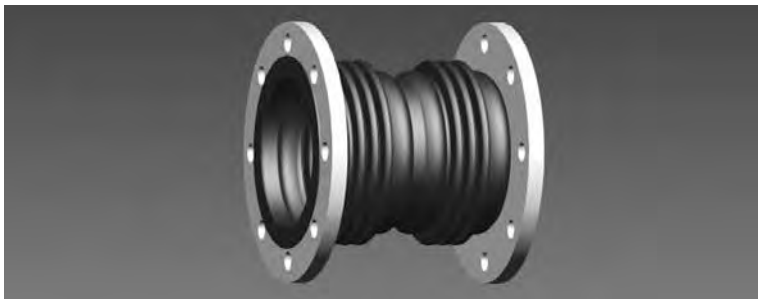
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Oil & Gas

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UNIVERSAL EXPANSION JOINTS FOR LOW PRESSURE (EXHAUST) WITH FLANGES TYPE UBN, UFN

06



Type designation

The type designation consists of 2 parts

1. Type series, defined by 3 letters
2. Nominal size, defined by 10 digits

Example

Type UBN: HYDRA low pressure expansion joint with loose flanges

Type UFN: HYDRA low pressure expansion joint with plain fixed flanges

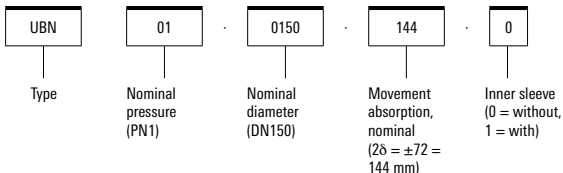
Standard version/materials:

Multi-ply bellows made of 1.4541

Flange made of S235JRG2 (1.0038) or P250GH (1.0460)

Operating temperature: up to 550 °C

Type designation (example)



Order text

Please state the following with your order:

For standard versions

- Type designation or order number

With material variation

- Type designation
- Details of materials

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

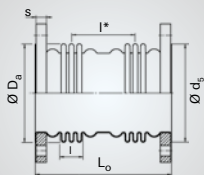
The Pressure Equipment Directive (PED) does not apply to this operating condition.

Information

Tell us the dimensions that deviate from the standard and we customize the expansion joint to your specification.

UNIVERSAL EXPANSION JOINTS FOR LOW PRESSURE WITH LOOSE FLANGES

Type UBN



06

Nominal diameter	Nominal axial movement absorption	Type UBN 01...	Order No. standard version	Overall length	Weight approx.	Centre-to-centre distance of bellows	Flange		
							drilling EN 1092	rim diameter	thickness
DN	2 δ_N	—	—	L ₀	G	I*	PN	d ₅	s
—	mm	—	—	mm	kg	mm	—	mm	mm
50	56	.0050.056.0	425669	392	3.8	257	6	90	16
65	82.8	.0065.083.0	425670	432	5	279	6	107	16
80	95.4	.0080.095.0	425673	446	7	280	6	122	18
100	118.8	.0100.119.0	425674	466	9	291	6	147	18
125	144	.0125.144.0	425675	480	11	286	6	178	20
150	144	.0150.144.0	423511	493	12	299	6	202	20
200	160	.0200.160.0	423512	506	17	292	6	258	22
250	168	.0250.168.0	423513	520	22	293	6	312	24
300	196	.0300.196.0	423514	510	29	269	6	365	24
350	180	.0350.180.0	423515	534	39	302	6	410	26
400	156	.0400.156.0	423516	519	51	266	6	465	28
450	140	.0450.140.0	423517	523	61	282	6	520	30
500	136	.0500.136.0	423518	533	66	310	6	570	30

TYPE UBN 01... PN 1

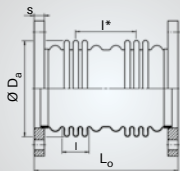
06

Bellows			Nominal movement absorption ¹⁾ at 1000 load cycles		Spring rate		
outside diameter	corrugated length	effective cross-section	angular	lateral	axial	angular	lateral
D _s	l	A	2c _{αN}	2λ _N	c ₀	c _α	c _λ
mm	mm	cm ²	degree	mm	N/mm	Nm/deg	N/mm
89	63	46	41	154	37	0.9	1.6
107	81	68.7	49	197	28	1.1	1.5
121	90	89.1	49	196	26	1.3	1.8
148	99	137	49	203	24	1.8	2.4
174	104	187	49	204	18	1.9	2.5
203	104	264	42	181	21	3.1	3.8
255	120	432	37	149	23	5.5	7
312	119	661	31	127	27	9.9	12
365	133	916	31	112	26	13	19
400	120	1104	26	109	27	17	20
458	126	1445	20	71	88	71	106
513	110	1825	16	62	97	98	135
569	92	2252	14	62	107	134	155

1) The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100 %.

UNIVERSAL EXPANSION JOINTS FOR LOW PRESSURE WITH PLAIN FIXED FLANGES

Type UFN



06

Nominal diameter	Nominal axial movement absorption	Type UFN 01...	Order No. standard version	Overall length	Weight approx.	Centre-to-centre distance of bellows	Flange	
							drilling EN 1092	thickness
DN	$2\delta_n$	—	—	L_0	G	I^*	PN	s
—	mm	—	—	mm	kg	mm	-	mm
50	56	.0050.056.0	425685	404	3.7	257	6	16
65	83	.0065.083.0	425686	444	4.9	279	6	16
80	95	.0080.095.0	425687	456	7	280	6	18
100	119	.0100.119.0	425688	476	8	291	6	18
125	144	.0125.144.0	425689	488	11	286	6	20
150	144	.0150.144.0	423527	501	12	299	6	20
200	160	.0200.160.0	423528	512	17	292	6	22
250	168	.0250.168.0	423529	524	22	293	6	24
300	196	.0300.196.0	423530	514	29	269	6	24
350	180	.0350.180.0	423531	536	39	302	6	26
400	156	.0400.156.0	423532	517	51	266	6	28
450	140	.0450.140.0	423533	521	61	282	6	30
500	136	.0500.136.0	423534	531	65	310	6	30

TYPE UFN 01... PN 1

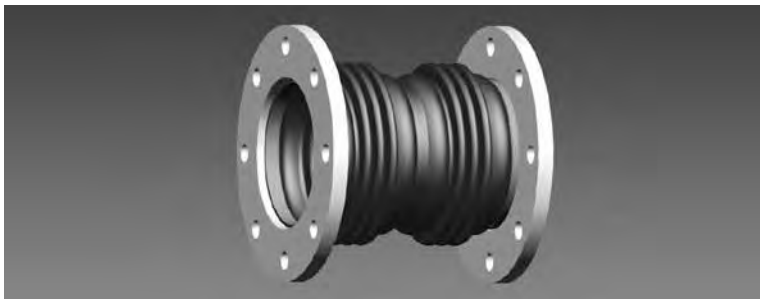
06

Bellows			Nominal movement absorption ¹⁾ at 1000 load cycles		Spring rate		
outside diameter	corrugated length	effective cross-section	angular	lateral	axial	angular	lateral
D _s	l	A	2c _{αN}	2λ _N	c ₀	c _α	c _λ
mm	mm	cm ²	degree	mm	N/mm	Nm/deg	N/mm
89	63	46	41	154	37	0.9	1.6
107	81	68.7	49	197	28	1.1	1.5
121	90	89.1	49	196	26	1.3	1.8
148	99	137	49	203	24	1.8	2.4
174	104	187	49	204	18	1.9	2.5
203	104	264	42	181	21	3.1	3.8
255	120	432	37	149	23	5.5	7
312	119	661	31	127	27	9.9	12
365	133	916	31	112	26	13	19
400	120	1104	26	109	27	17	20
458	126	1445	20	71	88	71	106
513	110	1825	16	62	97	98	135
569	92	2252	14	62	107	134	155

1) The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100 %.

UNIVERSAL EXPANSION JOINTS WITH FLANGES TYPE UBN, UFN

06



Type designation

The type designation consists of 2 parts

1. Type series, defined by 3 letters
2. Nominal size, defined by 10 digits

Example

Type UBN: HYDRA Universal expansion joint with loose flanges

Type UFN: HYDRA Universal expansion joint with plain fixed flanges

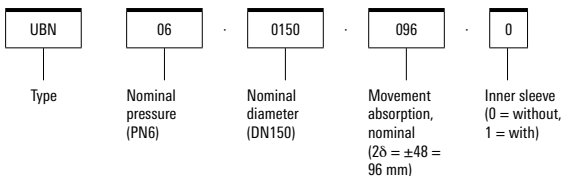
Standard design/Materials

Multi-ply bellows made of 1.4541

Flange made of S235JRG2 (1.0038) or P250GH (1.0460)

Operating temperature: up to 300 °C / 450 °C

Type designation (example)



Order text according to guideline 2014/68/EU "Pressure Equipment Directive"

Please state the following with your order:

For standard versions

- Type designation or order number

With material variation

- Type designation
- Details of the materials

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

06

Type of pressure equipment according to Art. 1 & 2:

- Vessel - volume V [l] _____
- Piping - nominal diameter DN _____

Medium property according to Art. 13:

- 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 [bar] _____
- Max./min. allowable temperature [°C] _____
- Test pressure PT [bar] _____

Optional:

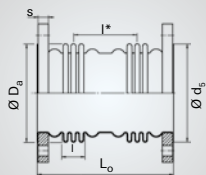
- Category _____

Note

Tell us the dimensions that deviate from the standard and we customize the expansion joint to your specification.

UNIVERSAL EXPANSION JOINTS WITH LOOSE FLANGES

Type UBN



06

Nominal diameter	Nominal axial movement absorption	Type UBN 06...	Order No. standard version	Overall length	Weight approx.	Centre-to-centre distance of bellows	Flange		
							drilling EN 1092	rim diameter	thickness
DN	$2\delta_n$	—	—	L_o	G	l^*	PN	d_s	s
—	mm	—	—	mm	kg	mm	—	mm	mm
50	44	.0050.044.0	425677	343	4.1	216	6	90	16
65	55	.0065.055.0	425678	343	5	210	6	107	16
80	61	.0080.061.0	425680	367	8	224	6	122	18
100	73	.0100.073.0	425681	388	10	232	6	147	18
125	84	.0125.084.0	425683	416	13	240	6	178	20
150	96	.0150.096.0	423519	433	15	251	6	202	20
200	100	.0200.100.0	423520	474	21	293	6	258	22
250	120	.0250.120.0	423521	414	26	214	6	312	24
300	100	.0300.100.0	423522	434	31	230	6	365	24
350	110	.0350.110.0	423523	444	42	231	6	410	26
400	130	.0400.130.0	423524	465	55	227	6	465	28
450	140	.0450.140.0	423525	489	68	242	6	520	30
500	132	.0500.132.0	423526	499	79	266	6	570	30

TYPE UBN 06...

PN 6

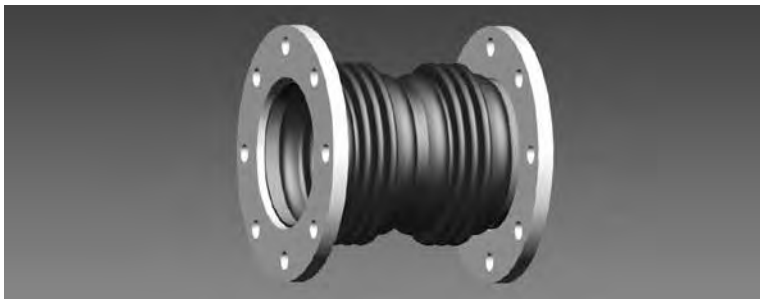
06

Bellows			Nominal movement absorption ¹⁾ at 1000 load cycles		Spring rate		
outside diameter	corrugated length	effective cross-section	angular	lateral	axial	angular	lateral
D _s	l	A	2c _{αN}	2λ _N	c ₀	c _α	c _λ
mm	mm	cm ²	degree	mm	N/mm	Nm/deg	N/mm
89	54	46	31	102	72	1.8	4.4
108	60	69.4	31	99	62	2.4	6
121	66	89.1	30	102	63	3.1	7
150	78	139	29	99	93	7.2	15
172	84	185	29	101	87	8.9	17
203	90	264	27	101	85	12	22
257	85	436	23	99	96	23	30
316	90	670	22	66	84	31	73
371	95	932	16	50	111	57	118
405	100	1119	15	50	109	68	137
461	110	1456	16	50	144	116	239
514	115	1828	16	51	146	148	269
572	100	2265	14	50	206	259	400

1) The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100 %.

UNIVERSAL EXPANSION JOINTS WITH FLANGES TYPE UBN, UFN

06



Type designation

The type designation consists of 2 parts

1. Type series, defined by 3 letters
2. Nominal size, defined by 10 digits

Example

Type UBN: HYDRA Universal expansion joint with loose flanges

Type UFN: HYDRA Universal expansion joint with plain fixed flanges

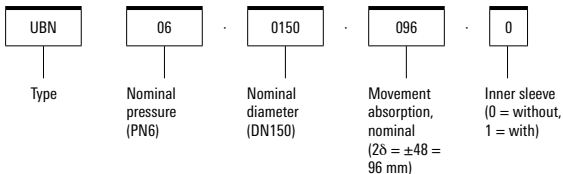
Standard design/Materials

Multi-ply bellows made of 1.4541

Flange made of S235JRG2 (1.0038) or P250GH (1.0460)

Operating temperature: up to 300 °C / 450 °C

Type designation (example)



Order text according to guideline 2014/68/EU "Pressure Equipment Directive"

Please state the following with your order:

For standard versions

- Type designation or order number

With material variation

- Type designation
- Details of the materials

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

06

Type of pressure equipment according to Art. 1 & 2:

- Vessel - volume V [l] _____
- Piping - nominal diameter DN _____

Medium property according to Art. 13:

- 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 [bar] _____
- Max./min. allowable temperature [°C] _____
- Test pressure PT [bar] _____

Optional:

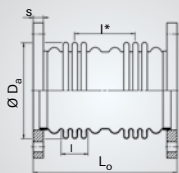
- Category _____

Note

Tell us the dimensions that deviate from the standard and we customize the expansion joint to your specification.

UNIVERSAL EXPANSION JOINTS WITH PLAIN FIXED FLANGES

Type UFN



06

Nominal diameter	Nominal axial movement absorption	Type UFN 06...	Order No. standard version	Overall length	Weight approx.	Centre-to-centre bellows distance	Flange	
							drilling EN 1092	thickness
DN	$2\delta_n$	—	—	L_o	G	I^*	PN	s
—	mm	—	—	mm	kg	mm	-	mm
50	44	.0050.044.0	425690	354	3.9	216	6	16
65	55	.0065.055.0	425691	354	5	210	6	16
80	61	.0080.061.0	425693	376	7	224	6	18
100	73	.0100.073.0	425694	396	10	232	6	18
125	84	.0125.084.0	425695	422	13	240	6	20
150	96	.0150.096.0	423535	439	15	251	6	20
200	100	.0200.100.0	423536	478	20	293	6	22
250	120	.0250.120.0	423537	416	26	214	6	24
300	100	.0300.100.0	423538	437	31	230	6	24
350	110	.0350.110.0	423539	445	42	231	6	26
400	130	.0400.130.0	423540	462	54	227	6	28
450	140	.0450.140.0	423541	486	66	242	6	30
500	132	.0500.132.0	423542	495	77	266	6	30

TYPE UFN 06...

PN 6

06

Bellows			Nominal movement absorption ¹⁾ at 1000 load cycles		Spring rate		
outside diameter	corrugated length	effective cross-section	angular	lateral	axial	angular	lateral
D _s	l	A	2c _{αN}	2λ _N	c ₀	c _α	c _λ
mm	mm	cm ²	degree	mm	N/mm	Nm/deg	N/mm
89	54	46	31	102	72	1.8	4.4
108	60	69.4	31	99	62	2.4	6
121	66	89.1	30	102	63	3.1	7
150	78	139	29	99	93	7.2	15
172	84	185	29	101	87	8.9	17
203	90	264	27	101	85	12	22
257	85	436	23	99	96	23	30
316	90	670	22	66	84	31	73
371	95	932	16	50	111	57	118
405	100	1119	15	50	109	68	137
461	110	1456	16	50	144	116	239
514	115	1828	16	51	146	148	269
572	100	2265	14	50	206	259	400

1) The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100 %.

UNIVERSAL EXPANSION JOINTS FOR LOW PRESSURE (EXHAUST) WITH WELD ENDS TYPE URN

06



Type designation

The type designation consists of 2 parts

1. Type series, defined by 3 letters
2. Nominal size, defined by 10 digits

Example

Type URN: HYDRA universal expansion joint with weld ends

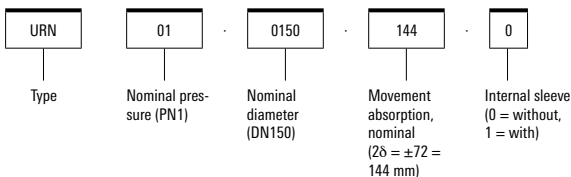
Standard version/materials

Multi-pley bellow made of 1.4541

Weld end made of P235TR1 (1.0254) or P265GH (1.0425)

Operating temperature: up to 550 °C

Type designation (example)



Order text

Please state the following with your order:

For standard versions

- Type designation or order number

With material variation

- Type designation
- Details of materials

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

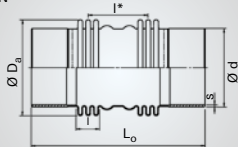
The Pressure Equipment Directive (PED) does not apply to this operating condition.

Information

Tell us the dimensions that deviate from the standard and we customize the expansion joint to your specification.

UNIVERSAL EXPANSION JOINTS FOR LOW PRESSURE WITH WELD ENDS

Type URN



06

Nominal diameter	Axial Movement absorption Nominal	Type URN 01...	Order number standard version	Overall length	Weight approx.	Centre-to-centre distance of bellows	Weld ends	
							outside diameter	wall thickness
DN	$2\delta_n$	—	—	L_0	G	l^*	d	s
—	mm	—	—	mm	kg	mm	—	mm
50	56	.0050.056.0	425696	480	1.4	257	60.3	4
65	83	.0065.083.0	425697	520	2.2	279	76.1	4
80	95	.0080.095.0	425698	530	2.6	280	88.9	4
100	119	.0100.119.0	425699	550	3.4	291	114.3	4
125	144	.0125.144.0	425700	550	4.2	286	139.7	4
150	144	.0150.144.0	423544	563	5	299	168.3	4
200	160	.0200.160.0	423545	572	7	292	219.1	4
250	168	.0250.168.0	423546	572	8	293	273	4
300	196	.0300.196.0	423547	562	10	269	323.9	4
350	180	.0350.180.0	423548	582	11	302	355.6	4
400	156	.0400.156.0	423549	552	17	266	406.4	4
450	140	.0450.140.0	423550	552	18	282	457	4
500	136	.0500.136.0	423551	602	21	310	508	4

TYPE URN 01... PN 1

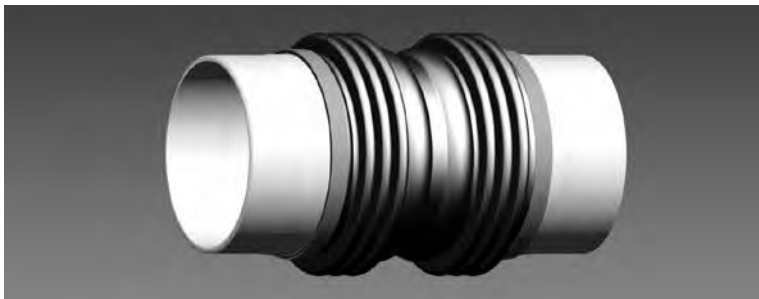
06

Bellows			Nominal movement absorption ¹⁾ at 1000 load cycles		Spring rate		
outside diameter	corrugated length	effective cross-section	angular	lateral	axial	angular	lateral
D _s	l	A	2c _{αN}	2λ _N	c ₀	c _α	c _λ
mm	mm	cm ²	degree	mm	N/mm	Nm/deg	N/mm
89	63	46	41	154	37	0.9	1.6
107	81	68.7	49	197	28	1.1	1.5
121	90	89.1	49	196	26	1.3	1.8
148	99	137	49	203	24	1.8	2.4
174	104	187	49	204	18	1.9	2.5
203	104	264	42	181	21	3.1	3.8
255	120	432	37	149	23	5.5	7
312	119	661	31	127	27	9.7	12
365	133	916	31	112	26	13	19
400	120	1104	26	109	27	17	20
458	126	1445	20	71	88	71	106
513	110	1825	16	62	97	98	135
569	92	2252	14	62	107	134	155

1) The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100 %.

UNIVERSAL EXPANSION JOINTS WITH WELD ENDS TYPE URN

06



Type designation

The type designation consists of 2 parts

1. Type series, defined by 3 letters
2. Nominal size, defined by 10 digits

Example

Type URN: HYDRA Universal-expansion joint with weld ends

Standard version/materials:

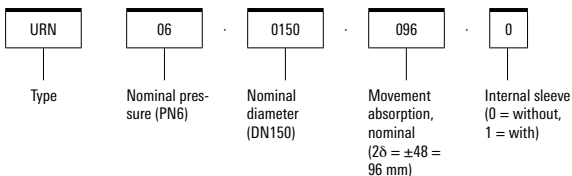
Multi-ply bellow made of 1.4541

Weld ends up to DN 300: P235GH (1.0345)

Weld ends from DN 350: P265GH (1.0425)

Operating temperature: up to 400 °C

Type designation (example)



Order text according to guideline 2014/68/EU "Pressure Equipment Directive"

Please state the following with your order:

For standard versions

- Type designation or order number

With material variation

- Type designation
- Details of the materials

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

06

Type of pressure equipment according to Art. 1 & 2:

- Vessel - volume V [l] _____
- Piping - nominal diameter DN _____

Medium property according to Art. 13:

- 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 [bar] _____
- Max./min. allowable temperature [°C] _____
- Test pressure PT [bar] _____

Optional:

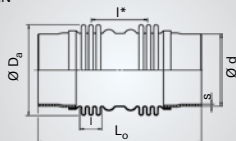
- Category _____

Note

Tell us the dimensions that deviate from the standard and we customize the expansion joint to your specification.

UNIVERSAL EXPANSION JOINTS WITH WELD ENDS

Type URN



06

Nominal diameter	Nominal axial movement absorption	Type URN 06...	Order No. standard version	Overall length	Weight approx.	Centre-to-centre distance of bellows	Weld ends	
							outside diameter	wall thickness
DN	$2\delta_n$	—	—	L_o	G	I^*	d	s
—	mm	—	—	mm	kg	mm	—	mm
50	44	.0050.044.0	425701	430	1.6	216	60.3	4
65	55	.0065.055.0	425702	430	2.3	210	76.1	4
80	61	.0080.061.0	425703	450	2.7	224	88.9	4
100	73	.0100.073.0	425704	470	4.7	232	114.3	4
125	84	.0125.084.0	425705	500	6	240	139.7	4
150	96	.0150.096.0	423552	517	8	251	168.3	4.5
200	100	.0200.100.0	423553	558	12	293	219.1	6.3
250	120	.0250.120.0	423554	484	15	214	273	7.1
300	100	.0300.100.0	423555	509	17	230	323.9	8
350	110	.0350.110.0	423557	515	16	231	355.6	6
400	130	.0400.130.0	423558	521	23	227	406.4	6
450	140	.0450.140.0	423559	541	26	242	457	6
500	132	.0500.132.0	423560	594	37	266	508	6

TYPE URN 06...

PN 6

06

Bellows			Nominal movement absorption ¹⁾ at 1000 load cycles		Spring rate		
outside diameter	corrugated length	effective cross-section	angular	lateral	axial	angular	lateral
D _s	l	A	2c _{αN}	2λ _N	c ₀	c _α	c _λ
mm	mm	cm ²	degree	mm	N/mm	Nm/deg	N/mm
89	54	46	31	102	72	1.8	4.4
108	60	69.4	31	99	62	2.4	6
121	66	89.1	30	102	63	3.1	7
150	78	139	29	99	93	7.2	15
172	84	185	29	101	87	8.9	17
203	90	264	27	101	85	12	22
257	85	436	23	99	96	23	30
316	90	670	22	66	84	31	73
371	95	932	16	50	111	57	118
405	100	1119	15	50	109	68	137
461	110	1456	16	50	144	116	239
514	115	1828	16	51	146	148	269
572	100	2265	14	50	206	259	400

1) The movements (axial, angular, lateral) are to be regarded as alternatives, i.e. the sum of their proportions in percentages should not exceed 100 %.