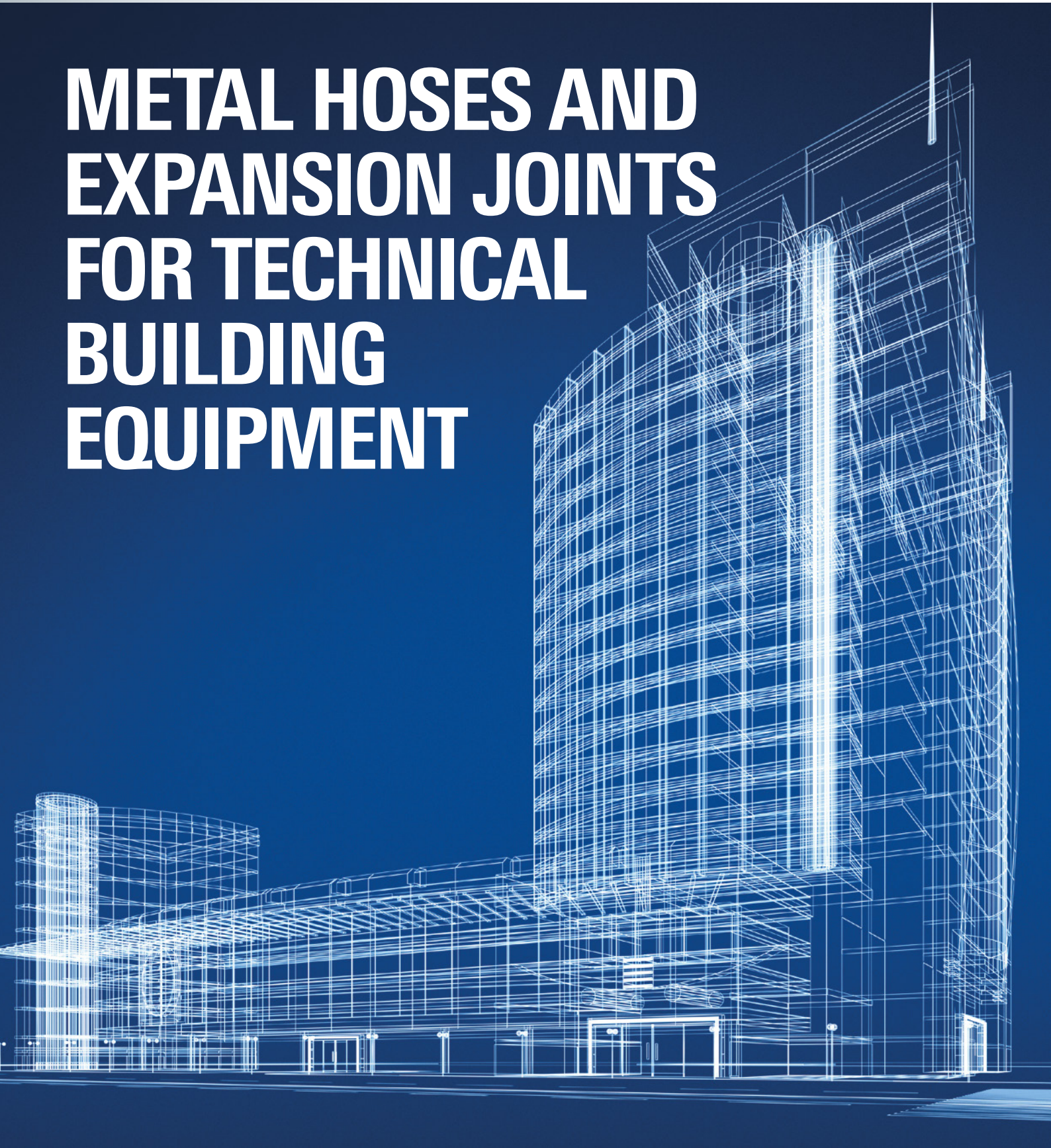
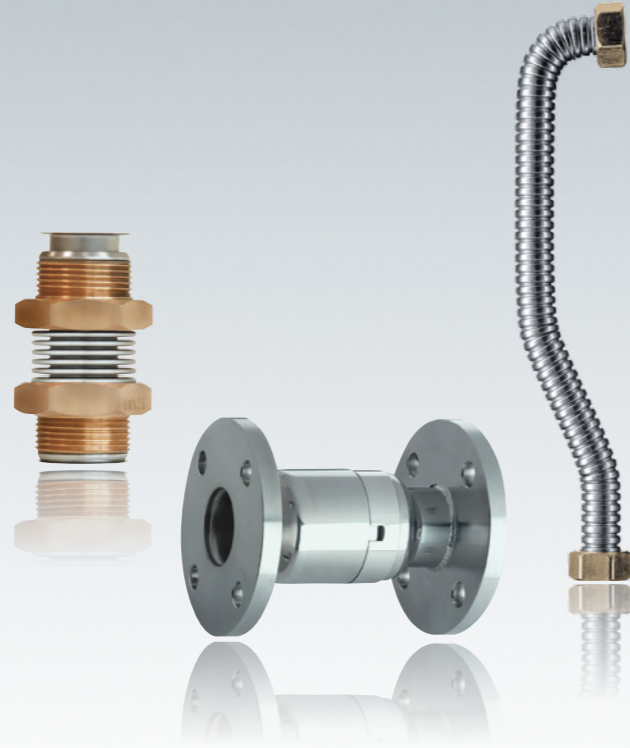




METAL HOSES AND EXPANSION JOINTS FOR TECHNICAL BUILDING EQUIPMENT



CONTENTS



Dear customers,

Thank you for your interest in our products and catalogues. As before, you will also find here a comprehensive overview of our technical solutions in the field of metal hoses and expansion joints. Please understand that this catalogue no longer contains price information. The reason for this lies in the dynamic and geopolitical situation of the procurement markets. The situation was already tense before the Ukraine war broke out and the critical development intensified since then. Therefore we are no longer able to provide a price list as it is hardly possible to make price predictions for longer and the validity would be lost very soon after publication.

Our products are of course available to you in the usual form and the security of supply. Please send us your enquiry if required to wsp@witzenmann.com with details of article numbers and quantities.

We will send you a corresponding offer at short notice. In this way, you will always receive reliable price information under fair consideration of the current raw material situation.

Thank you in advance for your enquiries.

Your Witzemann sales team

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HYDRA® STAINLESS STEEL ANNULARLY CORRUGATED HOSE ASSEMBLIES



From the point of view of pressure resistance, temperature resistance and corrosion safety, HYDRA annularly corrugated hose assemblies fulfil the high requirements placed on metallic corrugated hose assemblies today.

This section is concerned with the general application of stainless steel corrugated hoses in heating, ventilation and sanitary equipment and in industry. A comprehensive stockholding programme is extended by the corrugated hose assemblies that we quickly and reliably make up according to your special requirements. A comprehensive selection of standard annularly corrugated hoses and appropriate end fittings are available for these items, too.

You can also use our enquiry form "Metal hoses," on page 42. We will be pleased to make you an offer. You can submit enquiries for hose assemblies for which an acceptance according to the Pressure Equipment Directive 97/23/EEC is required using the corresponding enquiry form on page 43.

Should you have any questions or require help with the design, we will be happy to assist you.
tga@witzenmann.com

Please state the following with your order

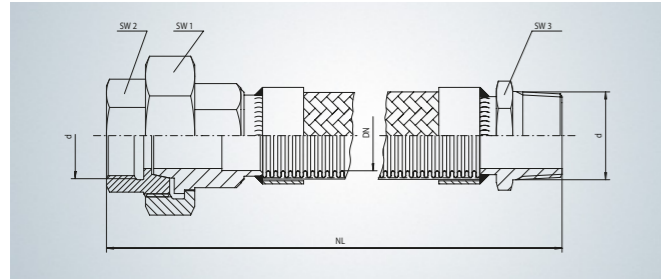
1. Type, DN, nominal length (NL)
2. Intended purpose, medium, operating pressure, operating temperature

HYDRA® STAINLESS STEEL CORRUGATED HOSE

Stainless steel annularly corrugated hose with threaded fitting, medium corrugations with single braiding



Type LA 230



RS 331L12 made of stainless steel with single stainless steel braiding, conical seal screw coupling with internal thread at one end, hexagonal nipple with external thread at the other

Material

- Hose: stainless steel, grade 1.4541 (AISI 321) or 1.4404 (AISI 316L)
- Braiding and end sleeves: stainless steel, grade 1.4301 (AISI 304)
- Threaded fittings: malleable cast iron/steel/stainless steel brazed or welded

Operating temperature

up to 200 °C

CE symbol

DN 32 and bigger acc. to Pressure Equipment Directive 97/23/EEC-cat. I, mod. A

Operating pressure

max. operating pressure 25 bar at 20 °C for general applications, max. operating pressure acc. to VDS approval 12 bar, max. operating pressure acc. to DIN 3384 (DVGW) ≤ DN 25: MOP16, DN 32 to DN 50: MOP5
Note the pressure limitations and pressure reductions at higher temperatures, which are imposed due to certification reasons.

DN DIN EN 10226-1	Threaded fitting size acc. to DIN EN 10226-1		SW1	SW2	SW3	Approx. weight	Nominal length NL	ID Nr.
	Screw coupling	Nipple						
	Inch	Inch						
8	Rp 1/4	R 1/4	28	19	14	0,22	500	1091666
						0,32	1000	1091670
10	Rp 3/8	R 3/8	32	22	19	0,27	500	1091655
						0,40	1000	1091660
						0,50	1500	1091664
						0,35	300	1057851
12	Rp 1/2	R 1/2	41	26	22	0,40	500	1057847
						0,50	800	1083427
						0,55	1000	1083429
						0,65	1500	1083434
						0,55	300	1066198
						0,65	500	1066203
20	Rp 3/4	R 3/4	50	32	27	0,80	800	1066204
						0,90	1000	1066050
						1,15	1500	1066205
						1,40	2000	1066206
						0,75	300	1066219
						0,95	500	1066220
25	Rp 1	R 1	55	38	36	1,15	800	1066221
						1,30	1000	1066120
						1,65	1500	1066222
						2,00	2000	1066223
						0,95	500	1066220
						1,15	800	1066221
32	Rp 1 1/4	R 1 1/4	67	48	46	1,90	500	1091750
						2,10	1000	1091757
						2,30	1500	1091761
						1,75	500	1091770
40	Rp 1 1/2	R 1 1/2	75	54	50	2,15	800	1091788
						2,45	1000	1091789
						3,15	1500	1091790
						3,45	500	1091854
						2,85	800	1091855
50	Rp 2	R 2	90	66	60	3,20	1000	1091856
						3,90	1500	1091857
						2,85	800	1091855
						3,20	1000	1091856
						3,90	1500	1091857

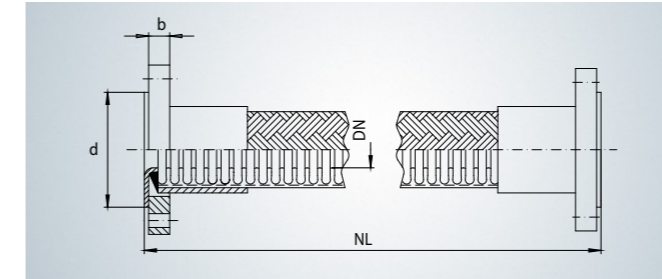
Delivery: at short notice. Other nominal lengths available on request.

HYDRA® STAINLESS STEEL CORRUGATED HOSE

Stainless steel annularly corrugated hoses with loose flanges, medium corrugations with single braiding



Type LA 201



RS 331L12 made of stainless steel with single stainless steel braiding CA82E swivel lap-joint flange fitting both ends > DN 80 RS 341L12.

Material

- Hose: stainless steel, grade 1.4541 (AISI 321) or 1.4404 (AISI 316L)
- Braiding and end sleeves: stainless steel, grade 1.4301 (AISI 304)
- Welding rim: stainless steel, grade 1.4541 (AISI 321) welded
- Loose flange: S235JR (1.0038) acc. to DIN EN 10025-2, galvanised

Operating temperature

up to 300 °C

CE symbol

DN 32 and bigger acc. to Pressure Equipment Directive 97/23/EEC-cat. I, mod A.
DN 65 and bigger acc. to Pressure Equipment Directive 97/23/EEC-cat. II, mod A1

Operating pressure

max. operating pressure acc. to DVGW approval 16 bar at 20 °C
max. operating pressure acc. to VDS approval 12 bar, VDS approval > DN 20

DN	Flange size	d	b	Approx. weight	Nominal length NL	ID Nr.
	-	mm	mm	kg/unit	mm	-
16	PN 10/16	45	14	1,50	500	012603
				1,75	1000	012604
20	PN 10/16	58	14	1,90	500	012609
				2,10	1000	012611
				2,35	1500	012612
				2,60	2000	012613
				2,50	300	012614
25	PN 10/16	68	14	2,70	500*	012616
				3,00	1000	012618
				3,23	1500	012619
				3,80	2000	012620
				3,80	500	012623
				3,80	600*	012624
32	PN 10/16	78	16	4,20	1000	012627
				4,05	300	012630
				4,50	500	012632
				4,60	700*	012634
40	PN 10/16	88	16	5,00	1000	012636
				5,70	1500	012637
				4,70	300	012639
				5,20	500	012641
				5,70	800*	012644
50	PN 10/16	102	16	5,72	1000	012645
				6,60	1500	012647
				6,75	500	012650
				7,50	850*	012652
				7,90	1000	012653
65	PN 10/16	122	16	9,40	1500	012655
				8,50	500	012657
				10,00	1000*	012659
				9,20	500	012663
80	PN 10/16	138	18	11,55	1000	012664
				11,75	1100*	012665
				14,50	1500	012666
				9,20	500	012663
				11,55	1000	012664
100	PN 10/16	158	18	11,75	1100*	012665
				14,50	1500	012666
				9,20	500	012663
				11,55	1000	012664
				11,75	1100*	012665

* These hoses can be installed as 90° bends for vibrations. Delivery: at short notice. Other nominal lengths available on request.

HYDRA® STAINLESS STEEL CORRUGATED HOSES

Stainless steel annularly corrugated hoses with weld ends, medium corrugations with single braiding

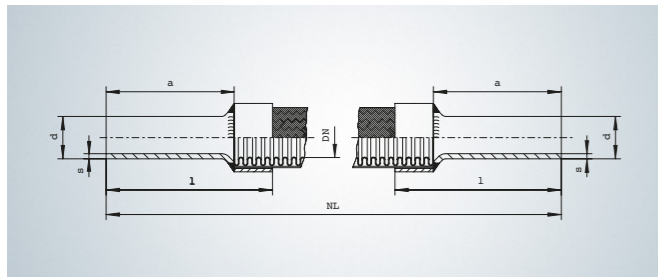


Type LA 240

RS 331L12 made of stainless steel with single stainless steel braiding, UA22S weld end on both ends.

Material

- Hose: stainless steel, grade 1.4541 (AISI 321) or 1.4404 (AISI 316L)
- Braiding: stainless steel, grade 1.4301 (AISI 304)
- End sleeves: stainless steel, grade 1.4301 (AISI 304)
- Weld ends: stainless steel



Operating temperature

up to 550 °C

CE symbol

DN 40 + 50 acc. to Pressure Equipment Directive 97/23/EEC - cat. I, mod. A

DN DIN EN 12627	Weld ends sizes				Permissible operating pressure $P_{t,max}$ at 20 °C acc. to ISO 10380	Approx. weight kg/unit	Nominal length NL mm	ID Nr. -
	d mm	s mm	a mm	l mm				
10	13,5	1,6	55	65	100	0,15 0,20	500 750	065191 065192
12	17,2	1,6	55	67	75	0,17 0,24 0,29	500 750 1000	065194 065195 065196
16	21,3	2	60	74	65	0,27 0,37 0,45	500 750 1000	065197 065198 065199
20	26,9	2,3	60	76	40	0,40 0,50 0,64	500 750 1000	065201 065202 065203
25	33,7	2,6	65	83	65	0,57 0,78 0,95	500 750 1000	065206 065207 065208
40	48,3	2,6	70	92	40	1,00 1,35 1,70	500 750 1000	065213 065214 065215
50	60,3	2,9	70	95	30	1,30 1,70 2,07	500 750 1000	065220 065221 065222

Delivery: at short notice. Other nominal lengths available on request.

HYDRA® STAINLESS STEEL CORRUGATED HOSES

Stainless steel annularly corrugated hoses with connection for cutting ring compression fittings DIN 3861 (L Series), medium corrugations with single braiding

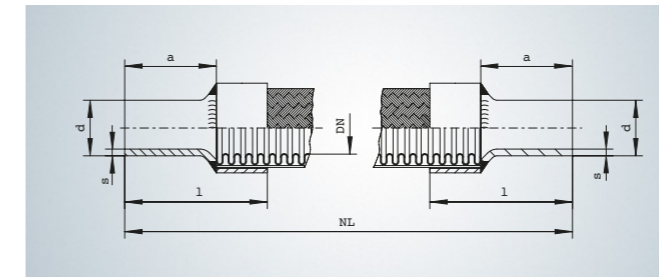


Type LA 241

RS 331L12 made of stainless steel with single stainless steel braiding UD22Q connections made of precision high-grade steel pipe on both ends.

Material

- Hose: stainless steel, grade 1.4541 (AISI 321) or 1.4404 (AISI 316L)
- Braiding: stainless steel, grade 1.4301 (AISI 304)
- End sleeves: stainless steel, grade 1.4301 (AISI 304)
- High-grade steel pipe: precision steel, 1.4541 (AISI 321)/1.4571 (AISI 316Ti), welded



Operating temperature

up to 550 °C

DN DIN EN 12627	Weld ends sizes				Permissible operating pressure $P_{t,max}$ at 20 °C	Approx. weight kg/unit	Nominal length NL mm	ID Nr. -
	d mm	s mm	a mm	l mm				
8	10	1,5	30	40	125	0,07 0,12 0,20	300 500 1000	079959 079960 079961
10	12	1,5	30	40	100	0,09 0,14 0,25	300 500 1000	079962 079963 079964
12	15	2	32	44	75	0,12 0,17 0,30	300 500 1000	079965 079966 079967
16	18	1,5	32	46	65	0,41	1000	079969
20	22	2	36	52	40	0,33 0,55	500 1000	079970 079971
25	28	2	40	58	65	0,48 0,86	500 1000	079972 079973

* These hoses can be installed as 90° bends for vibrations.

Delivery: at short notice. Other nominal lengths available on request.

HYDRA® CORRUGATED HOSES

For sanitary facilities – heating – air conditioning – solar

Application



Radiators, convectors and air conditioning equipment have usually been connected to the distribution pipes by means of rigid connectors. This requires costly installation work to bend the pipes to fit. Installing HYDRA hose assemblies is a great deal simpler.

Advantages of flexible stainless steel hose assemblies

- They balance out assembly inaccuracies
- They compensate for thermal expansion
- They offer high lateral pressure resistance (no reduction of cross sectional area), no adverse effects on drinking water quality
- They are diffusion resistant (no corrosion and choking due to oxygen diffusion)
- They are non-flammable and resistant to high temperatures

Depending on the requirements, we supply hoses ranging from highly flexible through flexible to semiflexible and as bendable tubes with the connections required for the specific applications.

In addition to the proven standard products, we also offer designs and modifications for all imaginable applications and customers' wishes (Please use our questionnaire on page 42-43 for your inquiry, or simply get in touch with us: tga@witzenmann.com).

Your advantage: Thanks to our experience and large production quantities, we offer you economical and intelligent solutions.

Our recommendation for connecting radiators and air conditioning equipment:

- HYDRA corrugated hoses made of stainless steel type RS 341S00 (1.4404 (AISI 316L)). Technical data on p. 18.
- Our ready-to-fit HYDRAFLEX hose assembly is available from stock and is thoroughly described on p. 12.

Please state the following with your order

1. Type, DN, nominal length (NL)
2. Intended purpose, medium, operating pressure, operating temperature

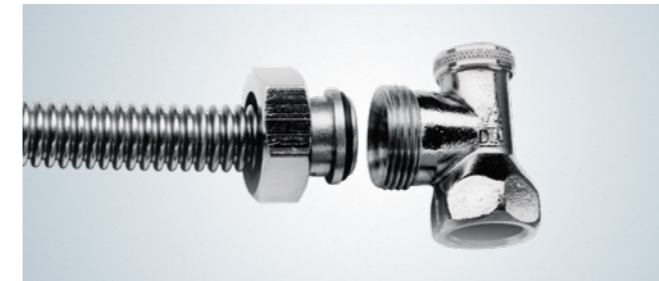
APPLICATION EXAMPLES

For heating and air conditioning technology / Special connections for radiator valves

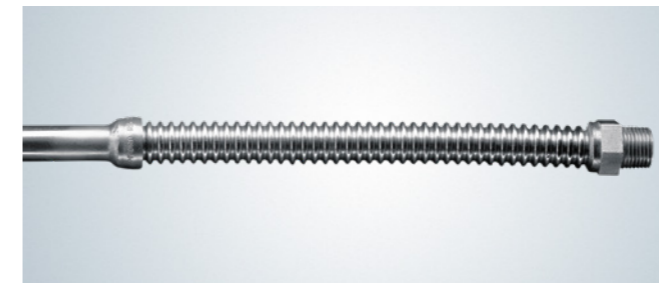
Radiator connection / -screw coupling, spheroidally sealing.



Radiator connection, also available in brazed version.



Convector connection – annularly corrugated hose with compression fitting connection on one end and threaded fitting on the other.



End fittings

HYDRA annularly corrugated hoses can be supplied with the threaded fittings and tube fittings described on pp. 22–23 and with all connections standard on air conditioning equipment and radiators.

Insulation

Only tested and approved insulating materials may be used for the insulation of HYDRA annularly corrugated hoses for heating and air conditioning technology. Special attention is to be paid to the limit values for corrosion inciting contents specified in DIN 1988 T.7 when selecting insulation materials.

Special connection for radiator valves

Special connection for radiator valves with "Eurokonus" acc. to DIN 3841, suitable for flat seal threaded fittings with union nut G 3/4, consisting of special gasket and brass ball adapter 24 x 16 mm.

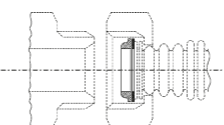
Operating temperature

up to 250 °C

Installation

Attention must always be paid to the following when installing:

- Hose assemblies must be connected without torsion.
- A second spanner is to be used to hold the connection stationary when tightening threaded fittings.
- Minimum bending radii must be observed.
- If movements of the hose occur, the hose must be mounted so that the hose axis and the direction of motion lies in the same plane.
- Avoid frequent bending at the same position.
- The hose may not come into direct contact with concrete, cement or other corrosion initiating materials.

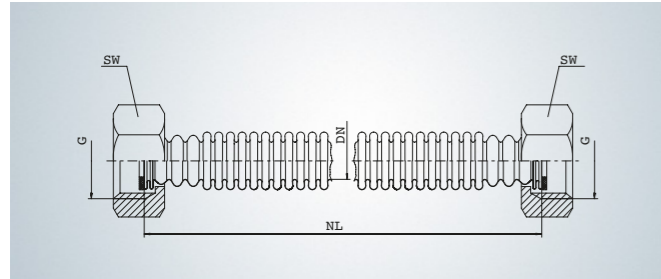
	Type	Dimensions	suitable for threaded fitting DIN EN ISO 228-1	ID Nr.
	GET 699530	24 x 16 mm	G 3/4	378400

HYDRAFLEX® FLEXIBLE INSTALLATION AID

Annularly corrugated hose, wide corrugations



Type HX 411



HYDRAFLEX hose assembly (German and European patents) complete with flat seal union nuts and gaskets.

Material

- Hose: stainless steel, grade 1.4541 (AISI 321) or 1.4404 (AISI 316L) (AISI 316L)
- Nuts: Brass
- Gaskets: AFM34

Accessories

External thread, see p. 19
Special connection for radiator valves, see p. 11

Operating temperature

up to 250 °C

DN	Connection DIN EN ISO 228-1	SW	Permissible operating pressure $P_{t,max}$ at 20 °C	Mind. bending radius r_{min}	Approx. weight	Nominal length NL	ID Nr.
	Inch						
10	G 3/8	19	21	18	0,05	300	291115
					0,07	500	291117
					0,10	800	291124
					0,12	1000	291126
12	G 1/2	24	21	20	0,07	300	319893
					0,09	500	319894
					0,12	800	319895
					0,14	1000	291134
16	G 3/4	30	16	25	0,12	300	319900
					0,14	500	319901
					0,20	800	319902
					0,22	1000	319903
20	G 1	38	10	30	0,20	300	319905
					0,24	500	319906
					0,29	800	319907
					0,32	1000	319908
25	G 1 1/8	46	10	35	0,36	500	291153
					0,50	1000	291159

If no pressure and temperature details are available, the hoses are tested underwater for leaks and pressure at 8 bar N2.

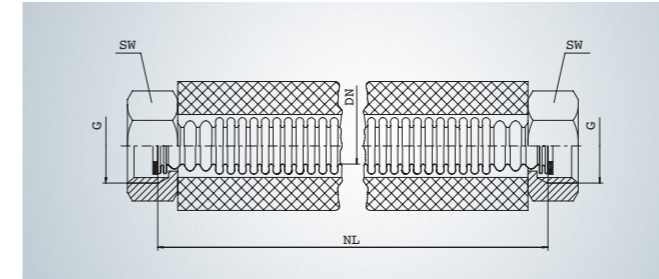
Delivery: ex stock (subject to prior sale). Other nominal lengths available on request.

HYDRAFLEX® FLEXIBLE INSTALLATION AID

Annularly corrugated hose, wide corrugations



Type HX 711



HYDRAFLEX hose assembly with insulation (German and European patents), complete with flat seal union nuts, gaskets and insulation for protection against heat loss, with plastic protective caps.

Material

- Hose: stainless steel, grade 1.4541 (AISI 321) or 1.4404 (AISI 316L) (AISI 316L)
- Nuts: Brass
- Gaskets: AFM34
- Insulation: EPDM

Accessories

External thread, see p. 19
Special connection for radiator valves, see p. 11

Operating temperature

up to 175 °C

DN	Connection G DIN EN ISO 228-1	SW	Permissible operating pressure $P_{t,max}$ at 20 °C	Mind. bending radius r_{min}	Approx. weight	Nominal length NL	ID Nr.
	Inch						
10	G 3/8	19	21	18	0,08	300	365124
					0,10	500	365126
					0,15	800	365129
					0,18	1000	365131
12	G 1/2	24	21	20	0,10	300	365166
					0,13	500	365169
					0,18	800	365172
					0,21	1000	365174
16	G 3/4	30	16	25	0,15	300	365257
					0,20	500	365259
					0,25	800	365262
					0,30	1000	365264
20	G 1	38	10	30	0,23	300	365322
					0,30	500	365324
					0,40	800	365327
					0,45	1000	365329

If no pressure and temperature details are available, the hoses are tested underwater for leaks and pressure at 8 bar N2.

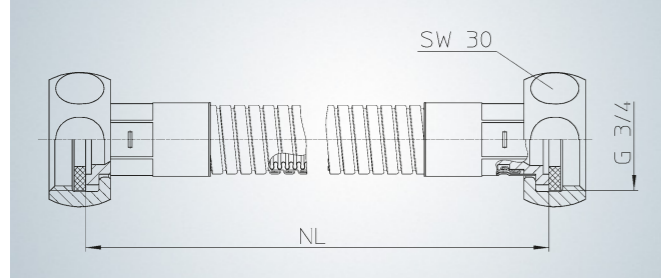
Delivery: ex stock (subject to prior sale). Other nominal lengths available on request.

HYDRA® STAINLESS STEEL SAFETY FEED HOSES

Medium-carrying coiled corrugated hose made of stainless steel,
outside protective strip wound hose made of stainless steel



Type HY 54



HYDRA safety feed hoses made of stainless steel for washing machines and dishwashers. Connection to device and water tap straight with union nuts, with gaskets (also suitable as extension hose).

Material

- Interlocked hose: stainless steel 1.4571 (AISI 316Ti)
- Protective strip wound hose: stainless steel 1.4301 (AISI 304)
- Union nut for appliance: brass, nickel-plated
- Union nut for tap: brass, nickel-plated
- Gaskets: EPDM

Operating pressure

PN 10

Operating temperature

max. 90 °C

DN	Union nut DIN EN ISO 228-1	SW	Approx. weight	Nominal length NL	ID Nr.
	-		mm	kg/unit	
10	G 3/4	30	0,475	1000	080509
10	G 3/4	30	0,545	1250	080510
10	G 3/4	30	0,630	1500	080511
10	G 3/4	30	0,789	2000	080512
10	G 3/4	30	0,935	2500	080513
10	G 3/4	30	1,185	3000	080514

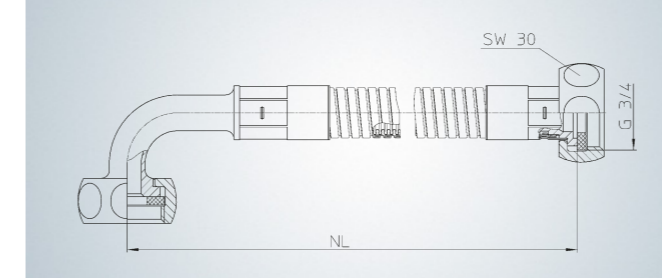
Ex stock (subject to prior sale). Other nominal lengths available on request.

HYDRA® STAINLESS STEEL SAFETY FEED HOSES

Medium-carrying coiled corrugated hose made of stainless steel,
outside protective strip wound hose made of stainless steel



Type HY 22



HYDRA safety feed hoses made of stainless steel for washing machines and dishwashers. Connection to device with 90° bends and union nut, connection on tap straight, with gaskets.

Material

- Interlocked hose: stainless steel 1.4571 (AISI 316Ti)
- Protective strip wound hose: stainless steel 1.4301 (AISI 304)
- Bend: brass, chrome-plated
- Union nut for appliance: brass, nickel-plated
- Union nut for tap: brass, nickel-plated
- Gaskets: EPDM

Operating pressure

PN 10

Operating temperature

max. 90 °C

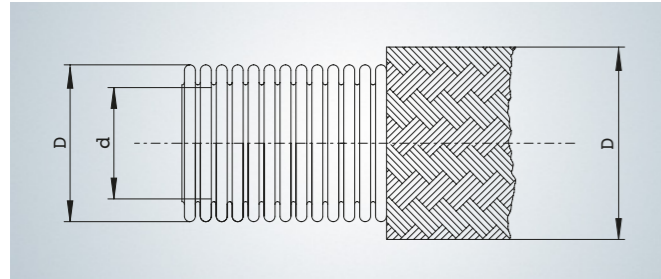
DN	Union nut DIN EN ISO 228-1	SW	Approx. weight	Nominal length NL	ID Nr.
	-		mm	kg/unit	
10	G 3/4	30	0,48	1000	060987
10	G 3/4	30	0,58	1250	060988
10	G 3/4	30	0,665	1500	060989
10	G 3/4	30	0,795	2000	060990
10	G 3/4	30	0,995	2500	060991
10	G 3/4	30	1,175	3000	060992

Ex stock (subject to prior sale). Other nominal lengths available on request.

HYDRA® ANNULARLY CORRUGATED HOSES FOR SELF INSTALLATION

Annularly corrugated hose, standard corrugations

Type RS 331



HYDRA annularly corrugated hose RS 331S12 made of stainless steel, for self installation. Medium version, standard corrugations, with single stainless steel braiding, for self installation.

Material

- Hose: stainless steel, grade 1.4404 (AISI 316L) or 1.4541 (AISI 321)

Operating temperature

-270 °C to max. +600 °C only for hose

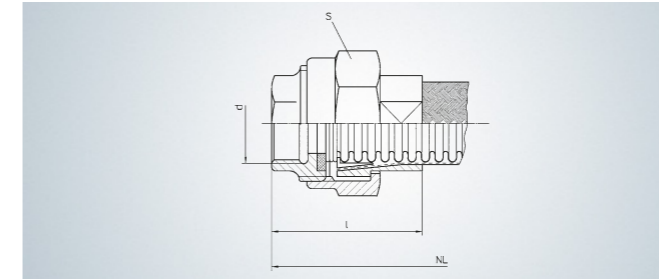
DN	Type	Inside diameter d	Outside diameter D, D1	Tolerance d, D, D1	Mind. bending radius r_{min} one bending process	Nom. bending radius r_n multiple bending	Permissible operating pressure $P_{t,max}$ at 20 °C	Approx. weight	Max. production length	ID Nr.
-	-	mm	mm	mm	mm	mm	bar	kg/unit	m	-
6	RS 331S12	6,2	10,8	± 0,2	25	80	150	0,128	100	378291
8	RS 331S12	8,3	13,7	± 0,2	32	120	125	0,195	100	378292
10	RS 331S12	10,2	15,7	± 0,2	38	130	100	0,215	100	378293
12	RS 331S12	12,2	18,2	± 0,2	45	140	75	0,240	100	378294
16	RS 331S12	16,2	23,3	± 0,2	58	160	65	0,379	100	378295
20	RS 331S12	20,2	28,3	± 0,3	70	170	40	0,478	100	378296
25	RS 331S12	25,5	34,2	± 0,3	85	190	65	0,745	100	378297
32	RS 331S12	34,2	43,0	± 0,3	105	260	25	0,892	100	378298

Ex stock (subject to prior sale). Other nominal lengths available on request.

HYDRA® ANNULARLY CORRUGATED HOSES FOR SELF INSTALLATION

Loose screw coupling

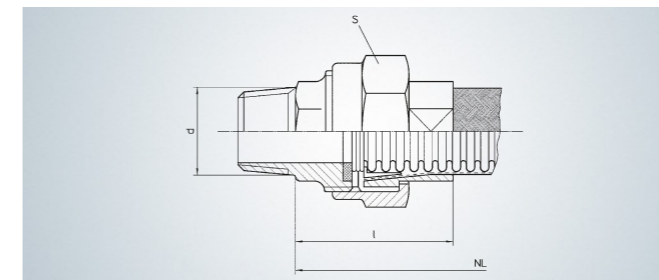
Type QA 58W



Loose screw couplings for self installation, brass, flat seal suitable for hose assembly RS331S12, internal thread. Set consists of male connector, union nut, insert, clamp ring and gasket, asbestos-free

DN	Type	Internal thread DIN EN 10226-1	Dimensions		Approx. weight kg/unit	ID Nr.
			s	l		
-	-	d	mm	mm	-	-
6	QA 58W	Rp 1/4	24	34	0,08	087522
8	QA 58W	Rp 1/4	27	36	0,09	087523
10	QA 58W	Rp 3/8	30	39	0,10	087524
12	QA 58W	Rp 1/2	32	44	0,14	087525
16	QA 58W	Rp 1/2	41	46	0,24	087526
20	QA 58W	Rp 3/4	46	47	0,31	087527
25	QA 58W	Rp 1	55	52	0,42	087528
32	QA 58W	Rp 1 1/4	63	54	0,59	087529

Type RE 58W



Loose screw couplings for self installation, brass, flat seal suitable for hose assembly RS331S12, external thread. Set consists of male connector, union nut, insert, clamp ring and gasket, asbestos-free

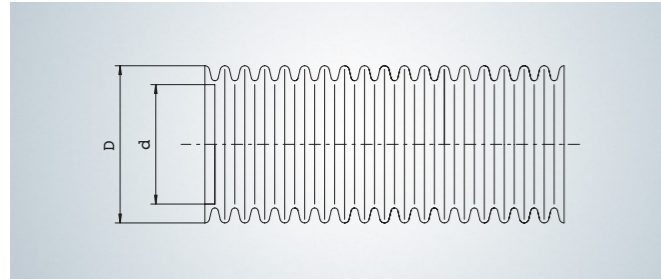
DN	Type	external thread DIN EN 10226-1	Dimensions		Approx. weight kg/unit	ID Nr.
			s	l		
-	-	d	mm	mm	-	-
6	RE 58W	R 1/4	24	44	0,09	087542
8	RE 58W	R 1/4	27	45	0,10	087543
10	RE 58W	R 3/8	30	49	0,11	087544
12	RE 58W	R 1/2	32	57	0,15	087545
16	RE 58W	R 1/2	41	60	0,25	087546
20	RE 58W	R 3/4	46	63	0,37	087547
25	RE 58W	R 1	55	70	0,50	087548
32	RE 58W	R 1 1/4	63	73	0,76	087549

Ex stock (subject to prior sale). Other nominal lengths available on request.

HYDRA® ANNULARLY CORRUGATED HOSES FOR SELF INSTALLATION

Annularly corrugated hose, wide corrugations

Type RS 341



Annularly corrugated hose made of stainless steel, medium version, wide corrugations, for self installation HYDRA annularly corrugated hose RS 341S00 without braiding.

End fittings for self installation: see p. 19 (please select).

This hose is not suited for dynamic loads and frequent movement.

Material

- Hose: stainless steel, grade 1.4541 (AISI 321) or 1.4404 (AISI 316L)

Operating temperature

-270 °C to max. +600 °C only for hose

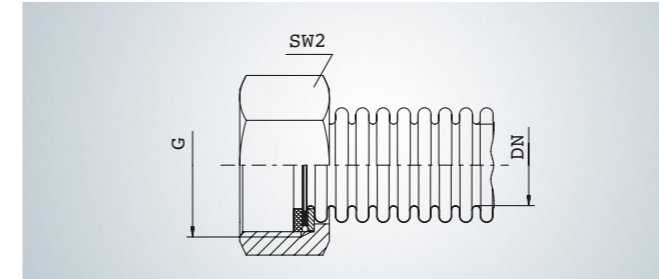
DN	Type	Inside diameter d	Outside diameter D	Tolerance d, D	Min. bending radius r_{min} One bending process	Permissible operating pressure $P_{t,max}$ at 20 °C	Approx. weight	Production length	Volume of drum	ID Nr.
	High profile	mm	mm	mm	mm	bar	kg/unit	m	m	-
8	RS 341S00	8,5	12,0	± 0,3	15	25,0	0,065	10	800	378254
10	RS 341S00	10,3	14,1	± 0,3	18	16,0	0,080	10-100	500	378242
12	RS 341S00	12,5	16,4	± 0,2	20	18,0	0,095	10-100	400	378243
16	RS 341S00	16,3	21,4	± 0,3	25	13,0	0,140	10-100	1200	378244
20	RS 341S00	20,7	26,5	± 0,3	30	20,0	0,300	10-100	600	378245
25	RS 341S00	25,8	31,7	± 0,4	35	16,0	0,360	10-100	500	378246
32	RS 341S00	34,6	41,0	± 0,5	40	2,5	0,360	10-100	250	378247

Ex stock (subject to prior sale). Other nominal lengths available on request.

HYDRA® ANNULARLY CORRUGATED HOSES FOR SELF INSTALLATION

Loose threaded fitting

Type NA 50S

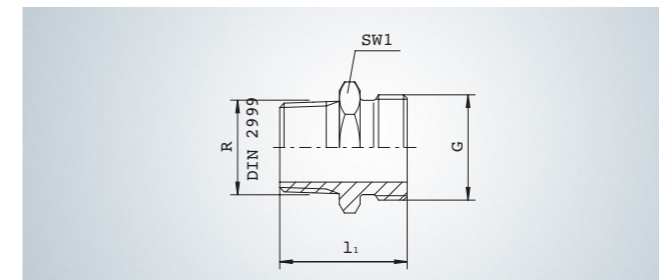


Loose threaded fitting, suitable for annularly corrugated hoses Type RS 341S00.

Set consists of: flat seal brass union nut, stainless steel clamp ring (DBGM), gasket

DN	Type	Threaded fitting set DIN EN ISO 228-1		SW2	Approx. weight	ID Nr.
		-	-	mm	kg/Set	-
10	NA 50S	G ½		24	0,026	379144
12	NA 50S	G ½		24	0,026	377093
16	NA 50S	G ¾		30	0,037	377094
20	NA 50S	G 1		38	0,075	377095
25	NA 50S	G 1¼		46	0,091	377096
32	NA 50S	G 1½		55	0,146	377097

Type MA 50S



Brass male connector, external thread suitable for threaded fitting Type NA50S and HYDRAFLEX annularly corrugated hose assembly HX 411 and HX 711

DN	Type	Male connector external thread on unit		l1	SW1	Approx. weight	ID Nr.
		DIN EN 10226-1	DIN EN ISO 228-1				
		-	mm	mm	mm	kg/unit	-
10	MA 50S	R ⅜	G ⅜	27,0	19	0,045	275486
12	MA 50S	R ½	G ½	33,0	22	0,058	275487
16	MA 50S	R ½	G ¾	34,0	27	0,070	284264
20	MA 50S	R ¾	G 1	38,0	36	0,125	275489
25	MA 50S	R 1	G 1⅜	45,5	46	0,243	275490
25	MA 50S	R 1	G 1¼	45,5	46	0,246	080142
32	MA 50S	R 1¼	G 1½	48,0	50	0,298	086549

Delivery: ex stock (subject to prior sale).

HYDRA® ANNULARLY CORRUGATED HOSES FOR SELF INSTALLATION

IX 331S00 corrugated pipe, semi-flexible

Type IX

HYDRA corrugated pipe IX 331S00 (flat profile)
Applications: Solar connections

Material

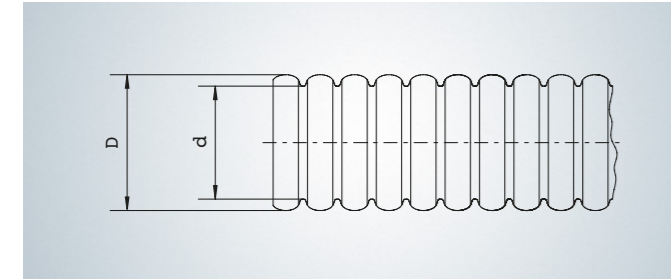
■ Hose: stainless steel, grade 1.4404 (AISI 316L)

Media

Water with anti-freeze agent.
If the system is intended for applications involving dynamic loads, vibrations and movements, please contact us first by using our questionnaire, p. 42.

End fittings

HYDRA-Quick self installation set
see p. 21 (please select)



Operating temperature

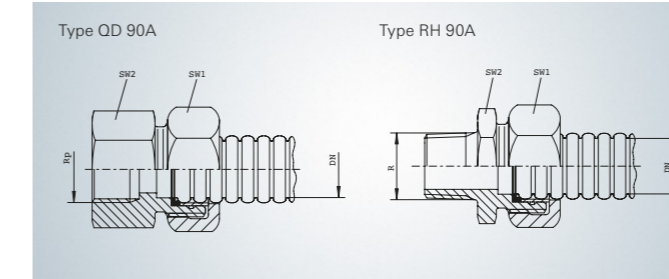
-20 °C to max. +200 °C for the system
-270 °C to max. +600 °C only for hose

DN	Type	Inside diameter	Outside diameter	Tolerance	Min. bending radius r_{min} One bending process	Permissible operating pressure $P_{t,max}$ at 20 °C	Approx. weight	Pro-duction length	ID Nr.
	Flat profile	d	D	d, D	mm	bar	kg/unit	m	-
	-	mm	mm	mm	mm	bar	kg/unit	m	-
16	IX 331S00	16,5	20,4	± 0,25	40	6	0,120	10-100	460038
20	IX 331S00	20,6	24,9	± 0,3	50	6	0,155	10-100	460039

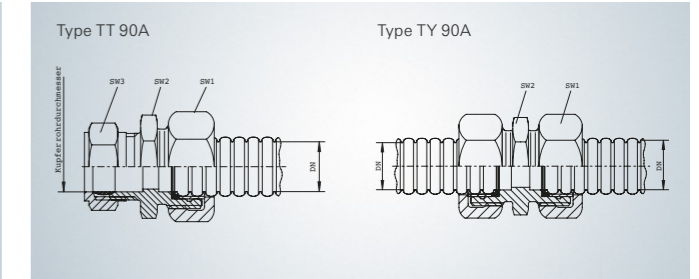
HYDRA® ANNULARLY CORRUGATED HOSES FOR SELF INSTALLATION

HYDRA®-Quick (DGBM) self installation set

Type QD 90A / RH 90A



Type TT 90A / TY 90A



Type QD 90A Brass metal seal threaded fitting, internal thread for flat profile Type IX 331S00

DN	Type Threaded fitting DIN EN 10226-1	Set	SW1	SW2	ID Nr.
	-	-	mm	mm	-
16	QD 90A	Rp 1/2	34	32	425541
20	QD 90A	Rp 3/4	41	36	425562

Type RH 90A Brass metal seal threaded fitting, external thread for flat profile Type IX 331S00

16	RH 90A	R 1/2	34	32	425175
20	RH 90A	R 3/4	41	36	425185

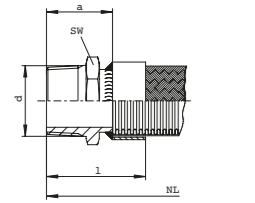
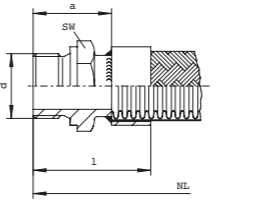
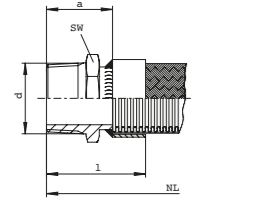
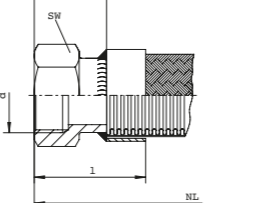
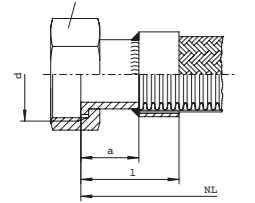
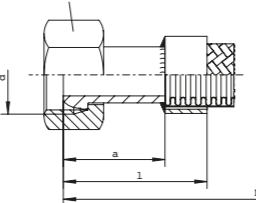
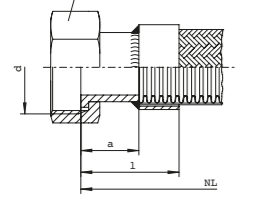
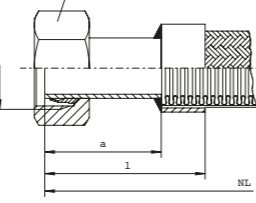
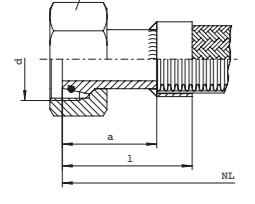
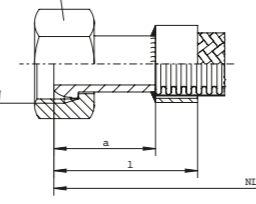
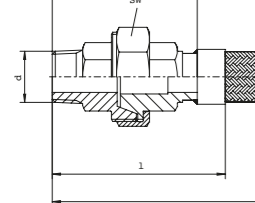
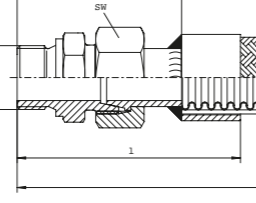
Type TT 90A Brass metal seal threaded fitting, copper pipe connection for flat profile Type IX 331S00

DN	Type Copper pipe connection	Set	SW1	SW2	SW2	ID Nr.
	-	mm	mm	mm	mm	-
16	TT 90A	15 x 1 / 18 x 1	34	32	27	424698
20	TT 90A	22 x 1	41	36	32	424699

Type TY 90A Brass metal seal threaded fitting, hose connection for flat profile Type IX 331S00

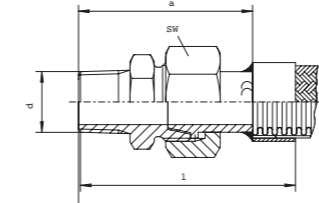
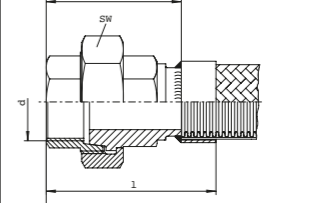
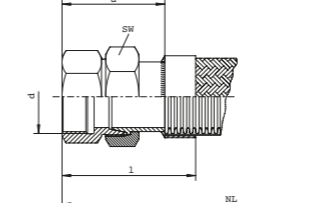
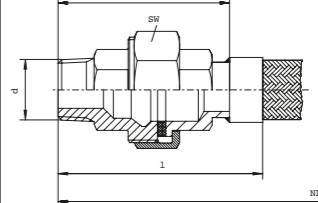
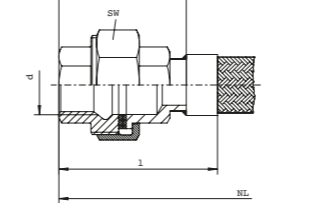
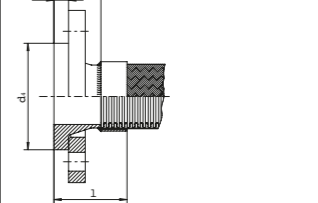
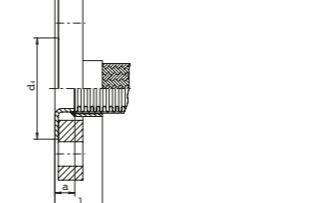
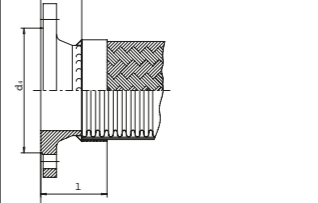
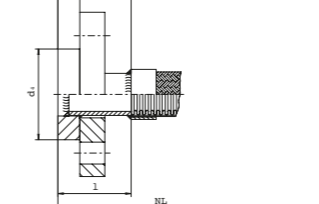
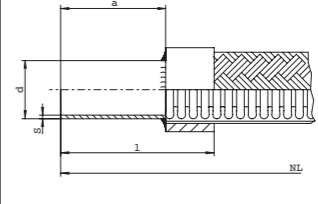
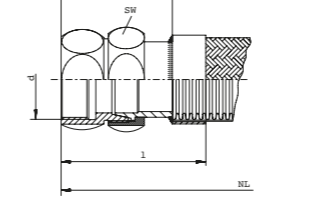
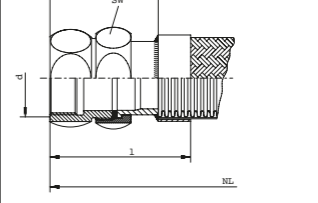
DN	Type	Hose connection DN - DN	SW1	SW2	ID Nr.
	-	mm	mm	mm	-
16	TY 90A	DN16 - DN16	34	32	424694
20	TY 90A	DN20 - DN20	41	36	424695

END FITTINGS

	Type MH 02/12/22/52S Hexagon nipple with Whitworth pipe thread DIN EN 10226-1 (ISO 7/1)		Type MA 12/22/52S Hexagon nipple with Whitworth pipe thread ISO 228/1
	Type MH 32S Hexagon nipple with Whitworth pipe thread DIN EN 10226-1 (ISO 7/1)		Type LA 12/22/52S Hexagon socket with Whitworth pipe thread DIN EN 10226 (ISO 7/1)
	Type NA 12/22/52S Collar pipe, flat sealing union nut with Whitworth pipe thread DIN EN ISO 228-1		Type NF 12/22/52S Ball-type bushing to DIN 3863 union nut with Whitworth pipe thread ISO 228/1
	Type NI 12/22/52S Collar pipe, flat sealing union nut with metric thread DIN 3870, series LL		Type NL 12/22Q Precision pipe connection with tapping ring DIN 3861, union nut with metric thread DIN 3870, series LL
	Type NN 12/22Q, NN 12/22R 24° sealing cone with O-ring, union nut DIN ISO 12151-2		Type NO 12/22/52S Ball-type bushing to DIN 3863 union nut with metric thread DIN 3870, series LL
	Type RF 02S/92S Threaded fitting, external thread conically sealing with Whitworth pipe thread DIN EN 10226-1 (ISO 7/1)		Type RB 12/22/52W Threaded fitting, external thread conically sealing with Whitworth pipe thread DIN EN ISO 228-1

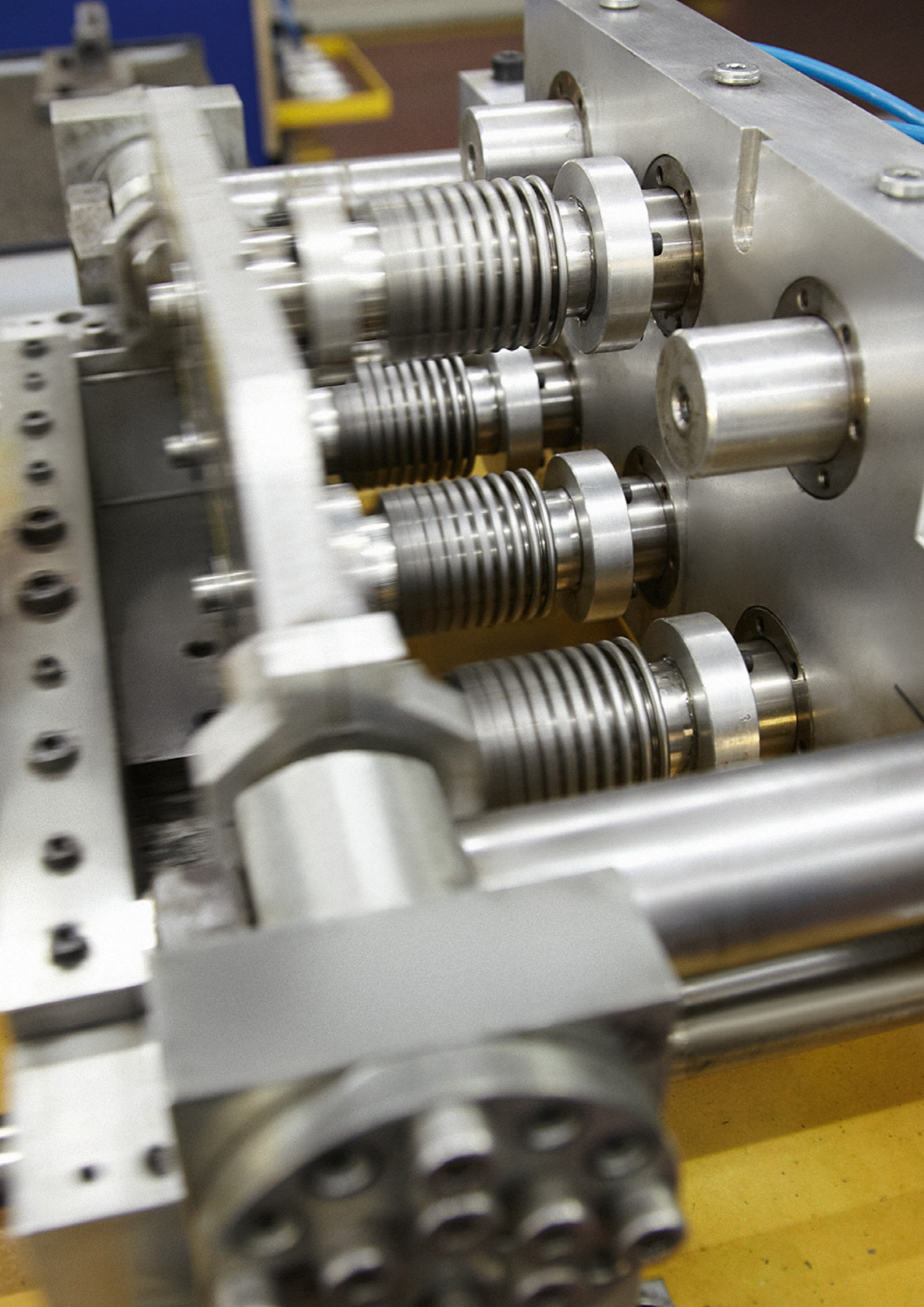
Measures and designs on request.

END FITTINGS

	Type RF 12/22/52W Threaded fitting, external thread conically sealing with Whitworth pipe thread DIN EN 10226-1 (ISO 7/1)		Type QB 02S/92S Threaded fitting, internal thread conically sealing with Whitworth pipe thread DIN EN 10226-1 (ISO 7/1)
	Type QB 12/22/52W/92S Threaded fitting, internal thread conically sealing with Whitworth pipe thread DIN EN 10226-1 (ISO 7/1)		Type RE 02S/92S Threaded fitting, external thread flat sealing with Whitworth pipe thread DIN EN 10226-1 (ISO 7/1)
	Type QA 02S Threaded fitting, internal thread flat sealing with Whitworth pipe thread DIN EN 10226-1 (ISO 7/1)		Type AB 12/82E Flange connection, swivelling welding collar, loose flange DIN EN 1092-1
	Type CA 82 E Type CA 82/22 Flange connection, swivelling welding rim, loose flange DIN EN 1092-1		Type GB 12/22E Type GB 12/22/82 Flange connection, fixed welding neck flange DIN EN 1092-1
	Type BB 12/82/22 Flange connection, swivelling welding collar, loose flange DIN EN 1092-1		Type UA 12/22S Type UD 12/22Q Welding end with ISO pipe dimensions DIN EN ISO 1127
	Type QC 32S Threaded fitting, internal thread spherically sealing with Whitworth pipe thread DIN EN 10226-1 (ISO 7-1)		Type QA 32S Threaded fitting, internal thread flat sealing with Whitworth pipe thread DIN EN 10226-1 (ISO 7-1)

Measures and designs on request.

HYDRA[®] AXIAL EXPANSION JOINTS



HYDRA axial expansion joints are used in technical building equipment in steel, stainless steel and copper pipelines. They compensate for axial movements. Angular and lateral movements are conceivable. Please send us your specific enquiries.

Loading cycles/movement absorption

The movement absorptions specified in the tables refer to application in gas installation according to DIN 30681 for 1000 full axial loading cycles. If the expansion joints are used for drinking water/heating systems, the value for the nominal axial movement absorption of the selected expansion joint should be divided by 1.5. It is then valid for 10,000 loading cycles, corresponding to DIN 1988, Part 2.

Example

Type AMB, DN 32
1,000 loading cycles = ± 15 mm = 30 mm axial movement absorption,
10,000 loading cycles = ± 10 mm = 20 mm axial movement absorption

Enquiry form for acceptance according to Pressure Equipment Directive, page 43. Should you have any questions or require help with the design, we will be happy to assist you. tga@witzenmann.com

Please state the following with your order:

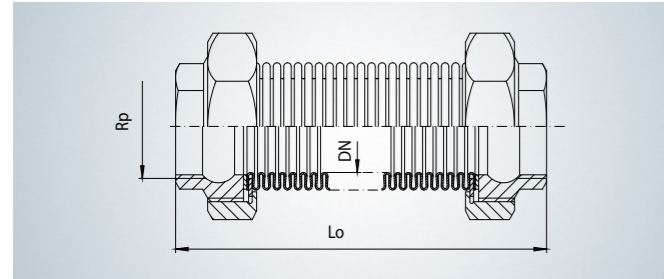
1. Type, nominal diameter (DN), length, axial movement absorption
2. Medium

HYDRA® AXIAL EXPANSION JOINTS

With screw couplings internal thread, flat seal



Type AMB



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti), multi layered
- On flat seal screw couplings made of galvanised malleable cast iron on both ends with internal thread DIN EN 10226-1

Nominal pressure

for water → 10 bar
for gas → nominal diameter up to DN 25 → 10 bar
nominal diameter DN 32 and bigger → 4 bar

Operating temperature

up to 250 °C

DN	Pressure rating	Nominal axial movement absorption*	Type	Free length	Approx. weight	Internal thread DIN EN 10226-1	Bellows Effective cross-section	Adjusting force rate	ID Nr.
	PN	2 δ _N	AMB...	L ₀	-	-	A	C _δ	-
	-	mm	mm	mm	kg	-	cm ²	N/mm	-
15	10	± 12 = 24	10.0015.024.0	125	0,3	Rp ½	4,03	43	459515
20	10	± 14 = 28	10.0020.028.0	135	0,5	Rp ¾	7,04	41	459527
25	10	± 15 = 30	10.0025.030.0	150	0,7	Rp 1	9,51	47	459529
32	10	± 15 = 30	10.0032.030.0	165	1,1	Rp 1¼	14,6	66	459534
40	10	± 17 = 34	10.0040.034.0	190	1,4	Rp 1½	18,3	51	459539
50	10	± 21 = 42	10.0050.042.0	210	2,0	Rp 2	30,5	53	459547

* Valid for 1,000 loading cycles

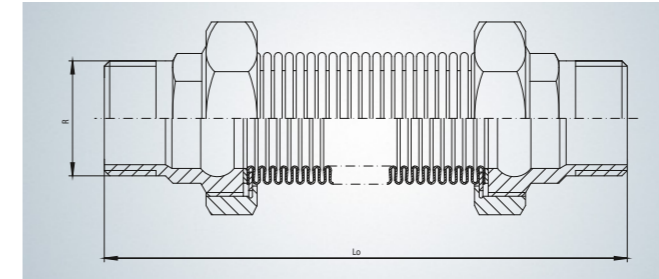
Delivery: ex stock (subject to prior sale).

HYDRA® AXIAL EXPANSION JOINTS

With screw couplings external thread, flat seal



Type AGB



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti), multi layered
- On flat seal screw couplings made of galvanised malleable cast iron on both ends with internal thread DIN EN 10226-1

Nominal pressure

for water → 10 bar
for gas → nominal diameter up to DN 25 → 10 bar
nominal diameter DN 32 and bigger → 4 bar

Operating temperature

up to 250 °C

DN	Pressure rating	Nominal axial movement absorption*	Type	Free length	Approx. weight	External thread DIN EN 10226-1	Bellows Effective cross-section	Adjusting force rate	ID Nr.
	PN	2 δ _N	AGB...	L ₀	-	-	A	C _δ	-
	-	mm	mm	mm	kg	mm	cm ²	N/mm	-
15	10	± 12 = 24	10.0015.024.0	157	0,3	R ½	4,03	43	459569
20	10	± 14 = 28	10.0020.028.0	173	0,5	R ¾	7,04	41	459573
25	10	± 15 = 30	10.0025.030.0	194	0,7	R 1	9,5	47	459578
32	10	± 15 = 30	10.0032.030.0	215	1,2	R 1¼	14,6	66	459583
40	10	± 17 = 34	10.0040.034.0	240	1,5	R 1½	18,3	51	459584
50	10	± 21 = 42	10.0050.042.0	270	2,3	R 2	30,5	53	459587

* Valid for 1,000 loading cycles

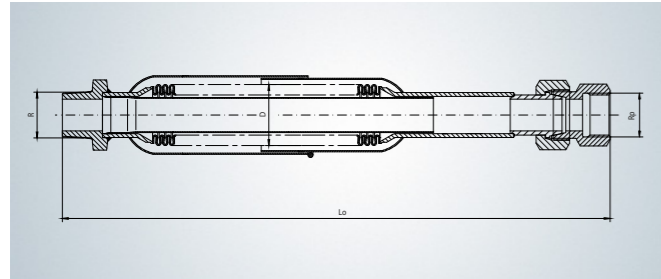
Delivery: ex stock (subject to prior sale).

HYDRA® AXIAL EXPANSION JOINTS

With inner sleeve and external protective tube, screw couplings made of stainless steel, pre-stressed



Type AMV



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti), multi layered
- Inner sleeve and external protective tube made of stainless steel grade 1.4571 (AISI 316Ti)
- Conical seal screw coupling made of stainless steel with internal thread DIN EN 10226-1 on one end
- Stainless steel threaded nipple with external thread DIN EN 10226-1 at the other end

Nominal pressure

for water → 10 bar or 16 bar
for gas → max. 5 bar

Operating temperature

up to 550 °C

DN	Pres- sure rating	Nominal axial movement absorption*	Type AMV...	Free length L ₀	Ap- prox. weight kg	Screw coupling DIN EN 10226-1	Threaded nipple DIN EN 10226-1	Thread length l	Bellows Effective cross section A	Adjus- ting force rate C _δ	ID Nr. -							
												PN	2 δ _N	-	-	-	-	-
												-	mm	mm	mm	mm	cm ²	N/mm
15	16	± 16 = 32 ± 25 = 50	16.0015.032.2	296	0,57	Rp ½	R ½	13	4,4	32	401545							
			16.0015.050.2	369	0,71	-	-	-	-	21	401544							
20	16	± 18 = 36 ± 25 = 50	16.0020.036.2	309	0,87	Rp ¾	R ¾	14	6,0	31	401553							
			16.0020.050.2	388	1,10	-	-	-	-	20	401554							
25	16	± 20 = 40 ± 32 = 64	16.0025.040.2	312	1,10	Rp 1	R 1	16	10,7	40	401549							
			16.0025.064.2	394	1,40	-	-	-	-	27	401550							
32	16	± 20 = 40 ± 32 = 64	16.0032.040.2	343	2,00	Rp 1¼	R 1¼	19	18,2	43	401551							
			16.0032.064.2	429	2,40	-	-	-	-	30	401552							
40	16	± 18 = 36 ± 32 = 64	16.0040.036.2	344	2,10	Rp 1½	R 1½	19	21,6	50	401547							
			16.0040.064.2	514	3,20	-	-	-	-	42	401548							
50	16	± 20 = 40 ± 32 = 64	16.0050.040.2	339	2,80	Rp 2	R 2	23	35,6	55	401523							
			16.0050.064.2	421	3,40	-	-	-	-	37	401546							

* Valid for 1,000 loading cycles

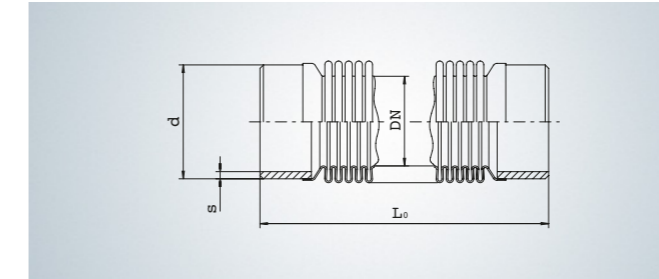
Delivery: PN 16 ex stock, short lead time for PN 10 (subject to prior sale). Special sizes on request.

HYDRA® AXIAL EXPANSION JOINTS

With weld ends



Type ARN



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti) or 1.4541 (AISI 321) multi layered, weld ends made of 1.0305 (St. 35.8) on both ends

Nominal pressure

10 bar

Operating temperature

up to 300 °C

DN	Pres- sure rating	Nominal axial movement absorption*	Type ARN...	Free length L ₀	Ap- prox. weight kg	Weld ends Size Outside diameter	Wall thick- ness s	Bellows Effective cross- section A	Adjus- ting force axial C _δ	ID Nr. -						
											PN	2 δ _N	-	-	-	-
											-	mm	mm	mm	mm	cm ²
15	10	± 10 = 20	10.0015.020.0	122	0,10	21,3	2,0	4,4	32	081331						
20	10	± 12 = 24	10.0020.024.0	122	0,14	26,9	2,3	7,5	33	078991						
25	10	± 12 = 24	10.0025.024.0	122	0,23	33,7	2,6	10,6	36	078911						
32	10	± 12 = 24	10.0032.024.0	144	0,36	42,4	2,6	18,3	47	078992						
40	10	± 12 = 24	10.0040.024.0	144	0,41	48,3	2,9	21,1	43	078993						
50	10	± 24 = 48	10.0050.048.0	174	0,66	60,3	2,9	35,4	30	078994						
65	10	± 20 = 40	10.0065.040.0	176	0,88	76,1	3,2	54,9	24	078995						
80	10	± 20 = 40	10.0080.040.0	174	1,10	88,9	3,2	72,8	47	078997						
100	10	± 24 = 48	10.0100.048.0	174	1,30	114,3	3,6	115,0	60	078998						

* Valid for 1,000 loading cycles

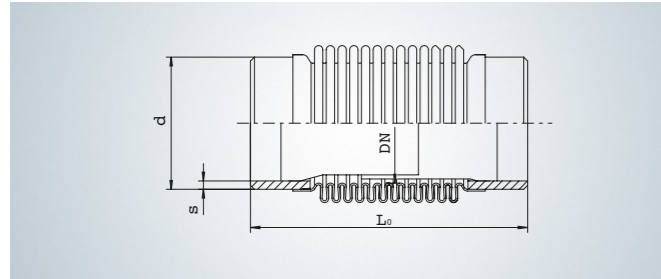
Delivery: ex stock (subject to prior sale). Special sizes on request.

HYDRA® AXIAL EXPANSION JOINTS

With inner sleeve and weld ends



Type ARN



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti) or 1.4541 (AISI 321), multi layered
- Inner sleeve made of stainless steel
- Weld ends of 1.0305 (St. 35.8) on both ends

Nominal pressure

16 bar

Operating temperature

up to 300 °C

DN	Pressure rating	Nominal axial movement absorption*	Type	Free length	Ap-prox. weight	Weld ends Size		Bellows Effective cross section	Adjusting force axial	ID Nr.
						Outside diameter	Wall thickness			
						PN	2 δ _N			
-	mm	mm	mm	kg	mm	mm	cm ²	N/mm	-	
15	16	± 16 = 32	16.0015.032.1	222	0,25	21,3	2,0	4,4	32	081172
20	16	± 18 = 36	16.0020.036.1	226	0,41	26,9	2,3	7,6	31	081176
25	16	± 20 = 40	16.0025.040.1	220	0,52	33,7	2,6	10,7	40	081177
32	16	± 20 = 40	16.0032.040.1	242	0,81	42,4	2,6	18,2	43	081173
40	16	± 18 = 36	16.0040.036.1	238	0,94	48,3	2,9	21,3	50	081171
50	16	± 32 = 64	16.0050.064.1	302	1,60	60,3	2,9	35,6	37	081178
65	16	± 40 = 80	16.0065.080.1	352	2,80	76,1	3,2	53,0	64	081179
80	16	± 32 = 64	16.0080.064.1	324	2,90	88,9	3,2	73,2	44	081180
100	16	± 40 = 80	16.0100.080.1	384	4,50	114,3	3,6	117,0	57	085070

* Valid for 1,000 loading cycles

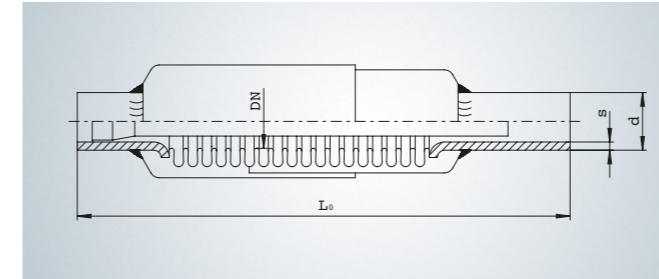
Delivery: ex stock (subject to prior sale). Special sizes on request.

HYDRA® AXIAL EXPANSION JOINTS

With inner sleeve and external protective tube weld ends on both ends, pre-stressed



Type ARF



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti) or 1.4541 (AISI 321), multi layered
- Inner sleeve/protective tube made of stainless steel
- Weld ends from St 35.8 on both ends

Nominal pressure

for water and gas → 10 bar or 16 bar

Operating temperature

up to 300 °C

DN	Pressure rating	Nominal axial movement absorption*	Type	Free length	Ap-prox. weight	Weld ends Size		Bellows Effective cross-section	Adjusting force axial	ID Nr.
						Outside diameter	Wall thickness			
						PN	2 δ _N			
-	mm	mm	mm	kg	mm	mm	cm ²	N/mm	-	
15	10	± 16 = 32 ± 32 = 64	10.0015.032.2 10.0015.064.2	200 312	0,37 0,53	21,3	2,0	4,4	29 11	331382 331383
15	16	± 16 = 32 ± 25 = 50	16.0015.032.2 16.0015.050.2	222 295	0,42 0,52	21,3	2,0	4,4	32 21	331401 331402
20	10	± 20 = 40 ± 40 = 80	10.0020.040.2 10.0020.080.2	226 354	0,62 0,94	26,9	2,3	7,6	31 16	331384 331385
20	16	± 18 = 36 ± 25 = 50	16.0020.036.2 16.0020.050.2	226 305	0,62 0,81	26,9	2,3	7,6	31 19	331403 331405
25	10	± 18 = 36 ± 32 = 64	10.0025.036.2 10.0025.064.2	216 332	0,75 1,10	33,7	2,6	10,7	42 23	331387 331388
25	16	± 20 = 40 ± 32 = 64	16.0025.040.2 16.0025.064.2	220 302	0,79 1,00	33,7	2,6	10,7	40 27	331406 331407
32	10	± 18 = 36 ± 40 = 80	10.0032.036.2 10.0032.080.2	238 362	1,20 1,80	42,4	2,6	18,2	43 25	331389 331390
32	16	± 20 = 40 ± 32 = 64	16.0032.040.2 16.0032.064.2	242 328	1,20 1,70	42,4	2,6	18,2	43 30	331408 331409
40	10	± 18 = 36 ± 32 = 64	10.0040.036.2 10.0040.064.2	238 324	1,30 1,90	48,3	2,9	21,3	50 38	331391 331392
40	16	± 18 = 36 ± 32 = 64	16.0040.036.2 16.0040.064.2	238 408	1,30 2,30	48,3	2,9	21,3 21,6	53 29	331410 331411
50	10	± 24 = 48 ± 40 = 80	10.0050.048.2 10.0050.080.2	214 356	1,40 2,70	60,3	2,9	35,4 35,6	55 37	331393 331394
50	16	± 20 = 40 ± 32 = 64	16.0050.040.2 16.0050.064.2	220 302	1,40 2,30	60,3	2,9	35,6	24 23	331412 331413
65	10	± 20 = 40 ± 40 = 80	10.0065.040.2 10.0065.080.2	216 420	2,30 4,50	76,1	3,2	54,9 52,5	100 64	331395 331396
65	16	± 20 = 40 ± 40 = 80	16.0065.040.2 16.0065.080.2	250 352	2,80 4,20	76,1	3,2	53,0	133 85	331414 331415
80	10	± 20 = 40 ± 40 = 80	10.0080.040.2 10.0080.080.2	214 384	2,60 5,00	88,9	3,2	72,8 73,2	47 36	331397 331398
80	16	± 18 = 36 ± 32 = 64	16.0080.036.2 16.0080.064.2	214 324	2,80 4,50	88,9	3,2	73,2	82 43	331417 331418
100	10	± 24 = 48 ± 40 = 80	10.0100.048.2 10.0100.080.2	214 356	3,30 5,80	114,3	3,6	115,0	60 57	331399 331400
100	16	± 22 = 44 ± 40 = 80	16.0100.044.2 16.0100.080.2	230 384	3,70 6,40	114,3	3,6	115,0 117,0	92 58	331419 331420

* Valid for 1,000 loading cycles

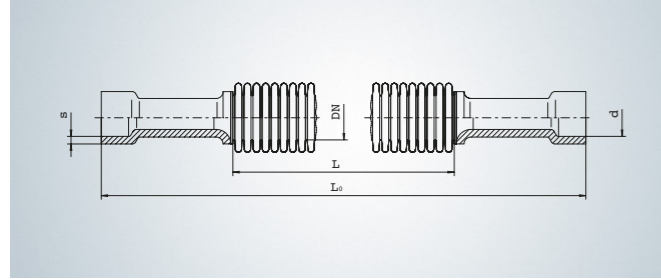
Delivery: ex stock (subject to prior sale). Special sizes on request.

HYDRA® AXIAL EXPANSION JOINTS

With pipe sleeves for brazing, pre-stretched



Type AMC



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti) or 1.4541 (AISI 321), multi layered
- Pipe sleeves stainless steel galvanic copper-plated on both ends, for brazing

Nominal pressure

16 bar

Operating temperature

up to 200 °C

DN	Pressure rating	Nominal axial movement absorption*	Type AMC...	Length pre-stretched L ₀	Ap-prox. weight	Pipe sleeve Sizes		Bellows Effective cross section A	Adjusting force rate axial C _δ	ID Nr.
						Inside diameter	Wall thickness			
						d	s			
	PN	2 δ _N	-	L ₀	-	d	s	A	C _δ	-
	-	mm	-	mm	kg	mm	mm	cm ²	N/mm	-
12	16	-20	16.0012.020.0	167	0,075	15	1,0	3,38	31	335316
15	16	-20	16.0015.020.0	166	0,100	18	1,0	4,42	63	335317
20	16	-22	16.0020.022.0	187	0,190	22	1,2	7,62	47	331481
25	16	-28	16.0025.028.0	210	0,265	28	1,2	10,70	58	331440
32	16	-28	16.0032.028.0	218	0,395	35	1,5	14,60	75	335323
40	16	-28	16.0040.028.0	240	0,520	42	1,5	18,30	58	335364
50	16	-30	16.0050.030.0	261	0,740	54	1,5	30,50	68	335383

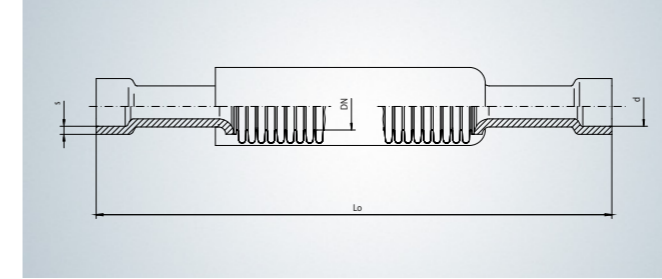
* Valid for 1,000 loading cycles
Delivery: ex stock (subject to prior sale).

HYDRA® AXIAL EXPANSION JOINTS

With pipe sleeves for brazing and external protective tube, pre-stretched



Type AMC



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti) or 1.4541 (AISI 321), multi layered
- Pipe sleeves stainless steel
- Galvanic copper-plated on both ends, for brazing

Nominal pressure

16 bar

Operating temperature

up to 200 °C

DN	Pressure rating	Nominal axial movement absorption*	Type AMC...	Length pre-stretched L ₀	Ap-prox. weight	Pipe sleeve Sizes		Bellows Effective cross section A	Adjusting force rate axial C _δ	ID Nr.
						Inside diameter	Wall thickness			
						d	s			
	PN	2 δ _N	-	L ₀	-	d	s	A	C _δ	-
	-	mm	-	mm	kg	mm	mm	cm ²	N/mm	-
12	16	-20	16.0012.020.3	167	0,090	15	1,0	3,38	31	336290
15	16	-20	16.0015.020.3	166	0,130	18	1,0	4,42	63	336308
20	16	-22	16.0020.022.3	187	0,265	22	1,2	7,62	47	336283
25	16	-28	16.0025.028.3	210	0,338	28	1,2	10,70	58	336279
32	16	-28	16.0032.028.3	218	0,495	35	1,5	14,60	75	336311
40	16	-28	16.0040.028.3	240	0,685	42	1,5	18,30	58	336323
50	16	-30	16.0050.030.3	261	0,970	54	1,5	30,50	68	336327

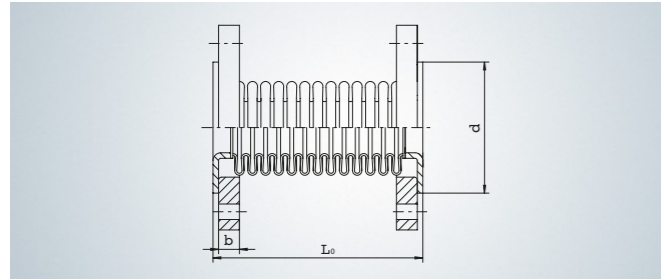
* Valid for 1,000 loading cycles
Delivery: ex stock (subject to prior sale). Special sizes on request.

HYDRA® AXIAL EXPANSION JOINTS

With swivel lap joint flanges



Type ALN



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti) or 1.4541 (AISI 321), multi layered
- With swivel lap joint flanges made of steel at both ends, galvanised
- Flange size acc. to DIN EN 1092-1

Nominal pressure

6 bar or 10 bar

Operating temperature

up to 300 °C

DN	Pres- sure rating	Nominal axial movement absorption*	Type ALN...	Free length	Outside diameter seal face	Flange thickness	Approx. weight	Bellows Effective cross section	Adjusting force rate axial	ID Nr.
	PN	2 δ _N	-	L ₀	d	b	-	A	C _δ	-
	-	mm	mm	mm	mm	mm	kg	cm ²	N/mm	-
20	6	± 16 = 32	06.0020.032.0	78	58	14	1,00	7,4	15	074284
	10	± 12 = 24	10.0020.024.0				1,40	7,5	35	071619
25	6	± 16 = 32	06.0025.032.0	78	68	14	1,40	10,7	13	074285
	10	± 12 = 24	10.0025.024.0				1,70	10,6	36	071620
32	6	± 16 = 32	06.0032.032.0	84	78	16	2,00	18,1	12	074286
	10	± 12 = 24	10.0032.024.0				2,20	18,3	47	071621
40	6	± 16 = 32	06.0040.032.0	84	88	16	2,40	22,2	15	074287
	10	± 12 = 24	10.0040.024.0				2,80	21,1	43	071622
50	6	± 25 = 50	06.0050.050.0	114	102	16	2,70	35,4	30	074288
	10	± 24 = 48	10.0050.048.0				4,00	35,4	30	071623
65	6	± 25 = 50	06.0065.050.0	120	122	16	3,60	54,9	24	074289
	10	± 20 = 40	10.0065.040.0				4,10	54,9	24	071624
80	6	± 25 = 50	06.0080.050.0	118	138	18	4,70	72,8	47	074281
	10	± 20 = 40	10.0080.040.0				5,10	72,8	47	071625
100	6	± 25 = 50	06.0100.050.0	118	158	18	5,20	115,0	60	074282
	10	± 24 = 48	10.0100.048.0				5,40	115,0	60	071626

* Valid for 1,000 loading cycles

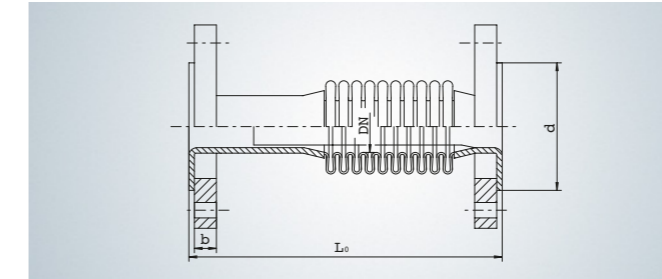
Delivery: ex stock (subject to prior sale). Special sizes on request. Flange made of stainless steel on request.

HYDRA® AXIAL EXPANSION JOINTS

With inner sleeve and swivel lap joint flanges



Type ALN



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti) or 1.4541 (AISI 321), multi layered
- Inner sleeve stainless steel, galvanised
- With swivel lap joint flanges made of steel at both ends
- Flange size acc. to DIN EN 1092-1

Nominal pressure

6 bar or 16 bar

Operating temperature

up to 300 °C

DN	Pres- sure rating	Nominal axial movement absorption*	Type ALN...	Free length	Outside diameter seal face	Flange thickness	Approx. weight	Bellows Effective cross section	Adjusting force rate axial	ID Nr.
	PN	2 δ _N	-	L ₀	d	b	-	A	C _δ	-
	-	mm	mm	mm	mm	mm	kg	cm ²	N/mm	-
32	6	± 25 = 50	06.0032.050.1	202	78	16	2,3	18,3	28	081182
	16	± 24 = 48	16.0032.048.1	263			2,8	18,3	33	081183
40	6	± 32 = 64	06.0040.064.1	251	88	16	3,0	21,1	19	083446
	16	± 24 = 48	16.0040.048.1	300			3,8	21,6	58	081184
50	6	± 32 = 64	06.0050.064.1	229	102	16	3,1	35,4	24	081185
	16	± 32 = 64	16.0050.064.1	278			4,4	35,6	37	081186
65	6	± 32 = 64	06.0065.064.1	311	122	16	4,3	52,5	32	081187
	16	± 40 = 80	16.0065.080.1	337			5,0	53,0	64	081188
80	6	± 32 = 64	06.0080.064.1	242	138	18	5,2	72,8	35	081189
	16	± 27 = 54	16.0080.054.1	262			5,9	73,2	55	081191
100	6	± 40 = 80	06.0100.080.1	297	158	18	6,3	115,0	36	081192
	16	± 28 = 56	16.0100.056.1	262			6,4	115,0	74	081193

* Valid for 1,000 loading cycles

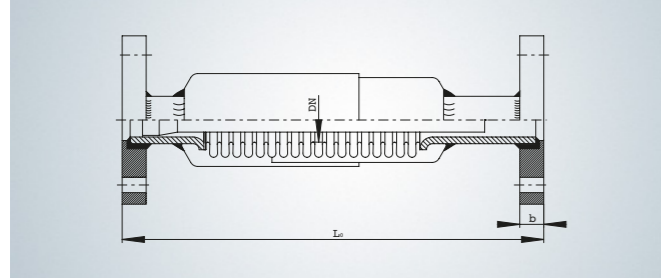
Delivery: ex stock (subject to prior sale). Special sizes on request. Flange made of stainless steel on request.

HYDRA® AXIAL EXPANSION JOINTS

With inner sleeve and external protective tube fixed flanges on both ends, pre-stressed



Type AFF



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti), multi layered
- Inner sleeve and external protective tube made of stainless steel grade 1.4571 (AISI 316Ti)
- Fixed steel flange on both ends
- Flange size acc. to DIN EN 1092-1

Nominal pressure

16 bar

Operating temperature

up to 300 °C

DN	Pressure rating	Nominal axial movement absorption*	Type AFF...	Free length L ₀	Flange thickness b	Approx. weight	Bellows Effective cross section A	Adjusting force rate axial C _δ	ID Nr.									
										PN	2 δ _N	-	L ₀	b	-	A	C _δ	-
										-	mm	mm	mm	mm	kg	cm ²	N/mm	-
20	16	± 18 = 36	16.0020.036.2	236	14	2,2	7,6	32	331461									
		± 25 = 50	16.0020.050.2	315		2,4	7,6	20	331462									
25	16	± 20 = 40	16.0025.040.2	230	14	3,0	10,7	40	331463									
		± 32 = 64	16.0025.064.2	312		3,2	10,7	27	331464									
32	16	± 20 = 40	16.0032.040.2	252	16	4,4	18,2	43	331465									
		± 32 = 64	16.0032.064.2	338		4,9	18,2	30	331466									
40	16	± 18 = 36	16.0040.036.2	248	16	5,1	21,3	50	331467									
		± 32 = 64	16.0040.064.2	418		6,1	21,6	42	331468									
50	16	± 20 = 40	16.0050.040.2	230	16	5,8	35,6	55	331469									
		± 32 = 64	16.0050.064.2	312		6,7	35,6	37	331470									
65	16	± 20 = 40	16.0065.040.2	260	16	8,0	53,0	100	331471									
		± 40 = 80	16.0065.080.2	362		9,4	53,0	64	331472									
80	16	± 18 = 36	16.0080.036.2	224	18	8,6	73,2	82	331473									
		± 32 = 64	16.0080.064.2	334		10,3	73,2	44	331474									
100	16	± 22 = 44	16.0100.044.2	240	18	10,1	115,0	92	331475									
		± 40 = 80	16.0100.080.2	394		12,8	117,0	58	331476									

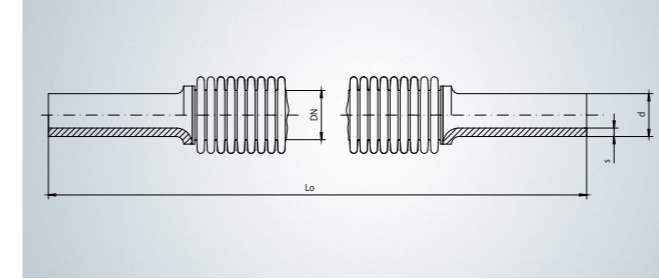
* Valid for 1,000 loading cycles

Delivery: ex stock (subject to prior sale). Special sizes on request. Flange made of stainless steel on request.

HYDRA® AXIAL EXPANSION JOINTS

With pipe ends for pressfitting systems, pre-stretched

Type ARP



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti), multi layered
- Pipe ends of stainless steel 1.4401/1.4571 (AISI 316Ti) for pressfitting systems on both ends

Nominal pressure

16 bar

Operating temperature

up to 550 °C only for expansion joint, please note max. operating temperature of pressfittings used

DN	Pressure rating	Nominal axial movement absorption*	Type ARP...	Free length L ₀	Approx. weight	Pipe connection Sizes		Bellows Effective cross section A	Adjusting force rate axial C _δ	ID Nr.
						Outside diameter	Wall thickness			
						PN	2 δ _N			
12	16	-20	16.0012.020.0	167	0,08	15,0	1,0	3,4	31	326160
15	16	-20	16.0015.020.0	166	0,12	18,0	1,0	2,4	63	318654
20	16	-22	16.0020.022.0	187	0,19	22,0	1,2	7,6	47	318655
25	16	-28	16.0025.028.0	210	0,26	28,0	1,2	10,7	58	318656
32	16	-28	16.0032.028.0	218	0,40	35,0	1,5	14,6	75	318657
40	16	-28	16.0040.028.0	240	0,50	42,0	1,5	18,3	58	318658
50	16	-30	16.0050.030.0	261	0,72	54,0	1,5	30,5	68	318659
65	16	-30	16.0065.030.0	275	1,40	76,1	2,0	52,5	60	318660
80	16	-30	16.0080.030.0	289	1,60	88,9	2,0	73,2	82	318661
100	16	-30	16.0100.030.0	345	2,10	108,0	2,0	115,0	92	318662

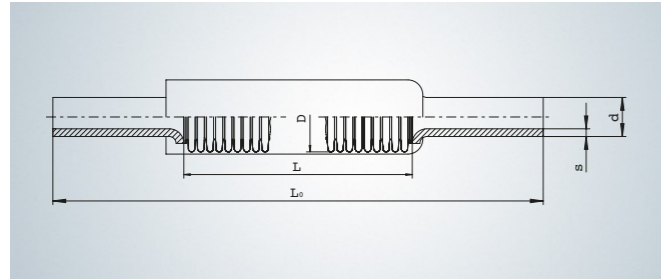
* Valid for 1,000 loading cycles

Delivery: ex stock (subject to prior sale).

HYDRA® AXIAL EXPANSION JOINTS

With external protective tube and pipe connection for pressfitting systems, pre-stretched

Type ARP



Material/end fittings

- Bellows made of stainless steel grade 1.4571 (AISI 316Ti) or 1.4541 (AISI 321), multi layered
- External protective tube made of stainless steel
- Pipe connection stainless steel grade 1.4401/1.4571 (AISI 316Ti) for pressfitting systems on both ends

Nominal pressure

16 bar

Operating temperature

up to 550 °C only for expansion joint, please note max. operating temperature of pressfittings used

DN	Pres- sure rating	Nominal axial movement absorption*	Type ARP...	Free length	Approx. weight	Pipe connection Sizes		Bellows Effective cross section	Adjust- ing force rate axial	ID Nr.
						Outside diameter	Wall thick- ness			
-	PN	2 δ _N	-	L ₀	-	d	s	A	C _δ	-
-	-	mm	mm	mm	kg	mm	mm	cm ²	N/mm	-
12	16	-20	16.0012.020.3	167	0,095	15,0	1,0	3,4	31	336346
15	16	-20	16.0015.020.3	166	0,133	18,0	1,0	4,4	63	336353
20	16	-22	16.0020.022.3	187	0,260	22,0	1,2	7,6	47	336355
25	16	-28	16.0025.028.3	210	0,336	28,0	1,2	10,7	58	336356
32	16	-28	16.0032.028.3	218	0,500	35,0	1,5	14,6	75	336360
40	16	-28	16.0040.028.3	240	0,690	42,0	1,5	18,3	58	336362
50	16	-30	16.0050.030.3	261	0,940	54,0	1,5	30,5	68	336383
65	16	-30	16.0065.030.3	275	1,105	76,1	2,0	52,5	60	336424
80	16	-30	16.0080.030.3	289	1,273	88,9	2,0	73,2	82	339891
100	16	-30	16.0100.030.3	345	1,940	108,0	2,0	115,0	92	339892

* Valid for 1,000 loading cycles

Delivery: ex stock (subject to prior sale). Special sizes on request.

HYDRA® SOUND INSULATING EXPANSION JOINT

ABS/LBS series

Mechanical oscillations and vibrations occur inevitably in many types of equipment, e.g. burners, compressors, pumps, control fittings. They are, of course, transmitted via the medium being conveyed, but primarily through the connected pipes into the entire pipework system and hence into adjoining parts of the building, e.g. in the upper storeys of many residential and office buildings, where they are perceived as audible sound. A distinction is made between three different types of sound types: airborne sound, structure-borne sound and underwater sound. Effective sound insulation can only be achieved when all the sound components audible to the human ear can be reduced equally. This was the goal consistently aimed at - and realised - by the developers of the newly conceived generation of HYDRA sound insulating expansion joints of the ABS/LBS series.

The vibration energy causing the emission of sound is partly converted, by friction, into heat in the expansion joint and thus removed from the system. Our newly developed expansion joints are designed in such a way that the best possible sound reduction is achieved by way of several elements:

Material/end fittings

- Multi-ply construction: sound energy is converted into heat energy by the relative movements between the individual bellow layers and thus removed from the system.
- Outer braiding of stainless steel: here, too, the relative movements between braiding and stainless steel bellows ensure effective sound reduction.
- Tie rods set in cushions of stainless steel braiding: in the LBS expansion joint the tie rods are fixed in braided stainless steel cushions to reduce, in particular, the transmission of structure-borne sound via the tie rods.

HYDRA sound insulating expansion joints of the ABS/LBS series are primarily conceived for reducing sound: the nature of their design limits the amount of axial and lateral movement that can be accommodated.

Design features

- DN 40 to DN 300
- PN 6, PN 10, PN 16 pressure ratings
- Uniform length, BL = 130 mm, for all DN sizes: hence enabling convenient exchange and replacement of rubber expansion joints.
- Operating temperature -20 °C to 300 °C
- Bellows of stainless steel grade 1.4541 (AISI 321), swivel lap-joint flange of S235JR (1.0038)
- All parts in contact with the medium made of stainless steel
- Multi-ply structure of corrugations for optimum sound reduction
- Two versions, with and without tie rods
- Tie rods fixed in "braiding cushions" for optimum reduction of structure-borne sound transmission
- Effective sound reduction through multi-ply structure of bellows and additional outer braiding
- Absence of EPDM components means absolute ageing resistance

The effectiveness of the HYDRA sound insulating expansion joints has been tested and verified in studies carried out by the Fraunhofer Institute for Building Physics in Stuttgart.

Please state the following with your order

1. Type, nominal diameter (DN), length, axial movement absorption
2. Medium

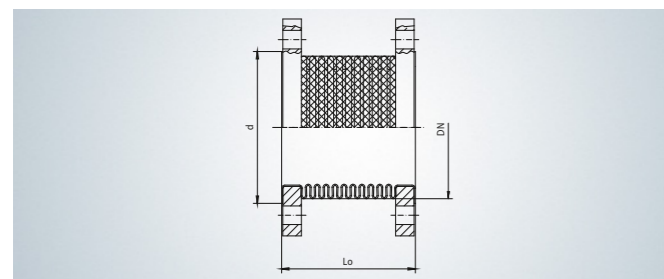


HYDRA® SOUND INSULATING EXPANSION JOINT

With swivel lap-joint flanges for absorbing vibrations and reducing sound transmission



Type ABS



Material/end fittings

- Bellows made of stainless steel grade 1.4541 (AISI 321), multi layered with stainless steel braiding
- Swivel lap joint flange made of steel on both ends
Flange size acc. to DIN EN 1092-1

Nominal pressure

6/10/16 bar

Operating temperature

up to 300 °C

DN	Pres- sure rating	Movement accommoda- tion vibra- tions in all directions		Type ABS...	Length L ₀	Ap- prox. weight kg	Bellows Effec- tive cross section cm ²	Adjusting force rate		Natural frequency of bellow		ID Nr.
		axial	lateral					axial	lateral	axial	lateral	
		PN	-					-	-	A	C _δ	
-	mm	mm	-	mm	kg	cm ²	N/mm	N/mm	Hz	Hz	-	
40	6	3,0	1,50	06.0040.006.0	130	3,2	30,7	160	100	300	500	405575
	16	2,0	1,00	16.0040.004.0		4,7		180	130	340	600	405596
50	6	2,5	1,20	06.0050.005.0	130	3,7	43,6	295	270	350	700	405576
	16	2,0	1,00	16.0050.004.0		6,0		340	350	400	840	405597
65	6	2,5	1,00	06.0065.005.0	130	4,8	67,2	230	325	270	660	405578
	16	2,0	0,80	16.0065.004.0		7,6		265	440	300	820	405598
80	6	2,0	0,70	06.0080.004.0	130	7,0	84,9	330	690	330	970	405579
	16	2,0	0,70	16.0080.004.0		8,4		330	690	330	970	405599
100	6	2,0	0,70	06.0100.004.0	130	8,0	120,8	120	330	160	550	405580
	16	2,0	0,50	16.0100.004.0		10,0		135	460	180	680	405600
125	6	2,0	0,50	06.0125.004.0	130	11,0	172,0	185	785	190	800	405581
	16	2,0	0,40	16.0125.004.0		13,0		200	990	200	950	405601
150	6	2,0	0,40	06.0150.004.0	130	12,0	248,8	195	1190	180	900	405582
	16	2,0	0,30	16.0150.004.0		17,0		215	1550	200	1100	405602
200	6	2,0	0,30	06.0200.004.0	130	17,0	408,3	275	3050	195	1330	405583
	10	2,0	0,30	10.0200.004.0		22,0		280	3400	195	1400	405593
	16	2,0	0,20	16.0200.004.0		23,0		310	4300	220	1700	405603
250	6	2,0	0,30	06.0250.004.0	130	22,0	633,5	260	4850	165	1500	405584
	10	2,0	0,20	10.0250.004.0		28,0		260	5430	165	1570	405594
	16	1,5	0,10	16.0250.003.0		33,0		295	7200	190	1950	405604
300	6	2,0	0,30	06.0300.004.0	130	29,0	876,2	300	7950	165	1750	405585
	10	1,5	0,10	10.0300.003.0		32,0		300	8870	165	1840	405595
	16	1,0	0,05	16.0300.002.0		43,0		400	16900	220	3000	405605

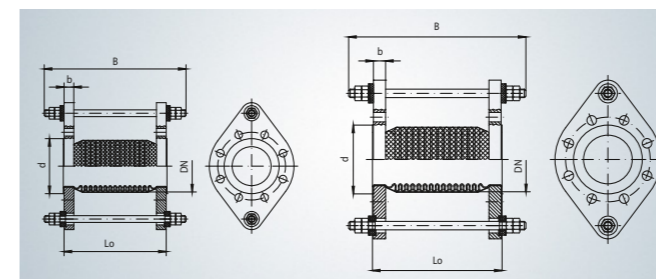
Delivery: standard pressure ratings PN 10/16. Other sizes and types on request.

HYDRA® SOUND INSULATING EXPANSION JOINT

With tie rods and swivel lap-joint flanges for absorbing vibration and reducing sound transmission



Type LBS



Material/end fittings

- Bellows made of stainless steel grade 1.4541 (AISI 321), multi layered with stainless steel braiding
- C-steel tie rods fixed insulating metal cushions, lap joint flanges made of steel on both ends
Flange size acc. to DIN EN 1092-1

Nominal pressure

6/10/16 bar

Operating temperature

up to 300 °C

DN	Pres- sure rating	Movement accommoda- tion lateral	Type LBS...	Length L ₀	Ap- prox. weight kg	Max. width mm	Bellows Effec- tive cross section cm ²	Adjusting force rate		Natural frequency of bellow		ID Nr.
								axial	lateral	axial	lateral	
								PN	-	-	-	
-	mm	mm	-	mm	kg	mm	cm ²	N/mm	N/mm	Hz	Hz	-
40	6	1,50	06.0040.003.0	130	4,4	214	30,7	160	100	300	500	406134
	16	1,00	16.0040.002.0		6,7	234		180	130	340	600	406154
50	6	1,20	06.0050.002.0	130	4,8	240	43,6	295	270	350	700	406135
	16	1,00	16.0050.002.0		8,3	265		340	350	400	840	406155
65	6	1,00	06.0065.002.0	130	5,9	260	67,2	230	325	270	660	406136
	16	0,80	16.0065.002.0		10,1	285		265	440	300	820	406156
80	6	0,70	06.0080.001.0	130	8,3	290	84,9	330	690	330	970	406137
	16	0,70	16.0080.001.0		11,3	300		330	690	330	970	406157
100	6	0,70	06.0100.001.0	130	10,0	310	120,8	120	330	160	550	406138
	16	0,50	16.0100.001.0		14,0	320		135	460	180	680	406158
125	6	0,50	06.0125.001.0	130	12,0	340	172,0	185	785	190	800	406139
	16	0,40	16.0125.001.0		17,0	350		200	990	200	950	406159
150	6	0,40	06.0150.001.0	130	14,0	365	248,8	195	1190	180	900	406140
	16	0,30	16.0150.001.0		22,0	413		215	1550	200	1100	406160
200	6	0,30	06.0200.001.0	130	20,0	420	408,3	275	3050	195	1330	406141
	10	0,30	10.0200.001.0		28,0	468		280	3400	195	1400	406151
	16	0,20	16.0200.001.0		29,0	500		310	4300	220	1700	406161
250	6	0,30	06.0250.001.0	130	25,0	503	633,5	260	4850	165	1500	406142
	10	0,20	10.0250.001.0		35,0	555		260	5430	165	1570	406152
	16	0,10	16.0250.001.0		41,0	589		295	7200	190	1950	406162
300	6	0,30	06.0300.001.0	130	32,0	600	876,2	300	7950	165	1750	406143
	10	0,10	10.0300.001.0		40,0	629		300	8870	165	1840	406153
	16	0,05	16.0300.001.0		53,0	680		400	16900	220	3000	406163

Delivery: standard pressure ratings PN 10/16. Other sizes and types on request.

ENQUIRY FORM FOR HOSE ASSEMBLIES

COMPANY		Enquiry No		
CONTACT	Dept.	Tel.	Fax	E-mail
PROJECT		Project-Nr./-Name		
ITEM				
QUANTITY				
TYPE DESIGNATION				
NOMINAL DIAM. DN				
NOMINAL PRESSURE PN				
NOMINAL LENGTH NL				
END FITTINGS/TYPE OR CONNECTION DIMENSIONS				
THERMAL INSULATION				
CLEANLINESS	<input type="checkbox"/> no special requirements <input type="checkbox"/> free from oil and grease <input type="checkbox"/> other (please specify)			
MEDIUM/DESIGNATION				
for acidic concentration	<input type="checkbox"/> internal		<input type="checkbox"/> external	
Additives	<input type="checkbox"/> gaseous		<input type="checkbox"/> liquid	
Condensates	<input type="checkbox"/> highly toxic		<input type="checkbox"/> toxic	
Other	<input type="checkbox"/> combustible		<input type="checkbox"/> caustic	
Flow velocity (m/s)	<input type="checkbox"/>		<input type="checkbox"/>	
PRESSURE (overpressure) in bar	<input type="checkbox"/> internal		<input type="checkbox"/> external	
Operating pressure:	<input type="checkbox"/> constant		<input type="checkbox"/> intermittent	
Design pressure (if applicable)				
Test pressure				
TEMPERATURE in °C	Operating temperature Design temperature			
MOVEMENT	Type and magnitude			
FORM OF INSTALLATION (include sketch if possible)	<input type="checkbox"/> 180°bend		<input type="checkbox"/> 90°bend	
LOADING CYCLES/year				
EXTERNAL INFLUENCES	<input type="checkbox"/> mechanical loads <input type="checkbox"/> chemical loads <input type="checkbox"/> Temperature			
VIBRATIONS	Amplitude (mm)		Frequency (Hz)	
	Direction		<input type="checkbox"/> axial	
			<input type="checkbox"/> radial	
			<input type="checkbox"/> all directions	
MATERIAL	Metal hose Braiding End fittings			
DESIGN REGULATIONS				
ACCEPTANCE REGULATIONS/CERTIFICATION				
MISCELLANEOUS/REMARKS				
Date	Signature			Sheet No.

PRESSURE EQUIPMENT DIRECTIVE 97/23/EEC

Enquiry form for hose assemblies & expansion joints

COMPANY		Enquiry No		
CONTACT	Dept.	Tel.	Fax	E-mail
PROJECT		Project-Nr./-Name		
DESCRIPTION & DESIGN DATA FOR COMPLETE SYSTEM				
COMPLETE SYSTEM	CATEGORY	MODULE		
	TYPE OF PRESSURE EQUIPMENT	<input type="checkbox"/> pressure vessel <input type="checkbox"/> pipeline <input type="checkbox"/> hot water appliance/steam generator <input type="checkbox"/> pressure-retaining appliance		
MEDIUM	DESIGNATION	<input type="checkbox"/> hazardous/group 1		
		<input type="checkbox"/> other/group 2		
		<input type="checkbox"/> gaseous/liquid pD > 0,5 bar		
		<input type="checkbox"/> gaseous/liquid pD < 0,5 bar		
DESIGN	max. permissible pressure	PS		
	min./max. permissible temperature	TS		
	Volume	V		
OPERATING DATA	$p_{min} =$	$p_{max} =$		
	$t_{min} =$	$t_{max} =$		
DESCRIPTION OF HOSE ASSEMBLY OR EXPANSION JOINT SELECTED				
ITEM				
QUANTITY				
TYPE DESIGNATION				
NOMINAL DIAM. DN				
NOMINAL PRESSURE PN				
NOMINAL LENGTH NL mm/OVERALL LENGTH mm				
END FITTINGS/TYPE OR CONNECTION DIMENSIONS				
MATERIAL	Metal hose Braiding Bellows End fittings			
METAL HOSE				
MOVEMENT	Type and magnitude			
FORM OF INSTALLATION (include sketch if possible)	<input type="checkbox"/> 180°bend		<input type="checkbox"/> 90°bend	
LOADING CYCLES/YEAR				
EXPANSION JOINT				
Movement accommodation	<input type="checkbox"/> axial <input type="checkbox"/> angular <input type="checkbox"/> lateral			
LOADING CYCLES	<input type="checkbox"/> standard = 1,000 <input type="checkbox"/> for drinking water = 10,000			
VIBRATIONS	Amplitude (mm)		Frequency (Hz)	
	Direction		<input type="checkbox"/> axial	
			<input type="checkbox"/> radial	
			<input type="checkbox"/> all directions	
Date	Signature			Sheet No.



Quality by Witzenmann

Witzenmann GmbH

Östliche Karl-Friedrich-Str. 134
75175 Pforzheim
Phone +49 - (0)7231 581-0
Fax +49 - (0)7231 581-820
wi@witzenmann.com
www.witzenmann.de