

Stripwound Hoses

WITZENMANN

managing flexibility



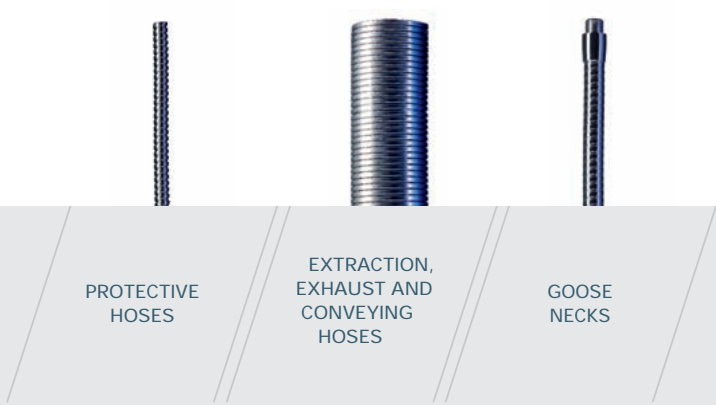
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HYDRA

Quality by Witzenmann



PROTECTIVE HOSES

EXTRACTION, EXHAUST AND CONVEYING HOSES

GOOSE NECKS

PROTECTIVE HOSES

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From
pioneer to
market
leader

The entire metal-hose and expansion-joint industry owes its origins to the stripwound hose first created in 1885 by Heinrich Witzenmann. The company has kept alive this spirit of invention right up to the present day: well-engineered products and innovative solutions have made Witzenmann the leader in technology within the industry. The Witzenmann Group employs more than 2300 people in over 20 subsidiaries, making it one of the world's leading providers of metal hoses and expansion joints.

STRIPWOUND HOSES



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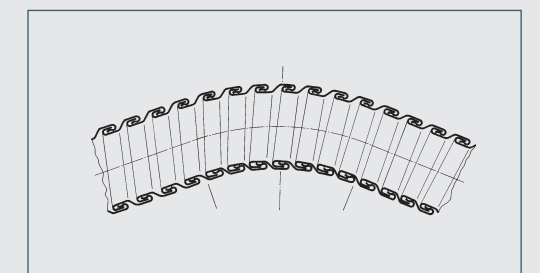
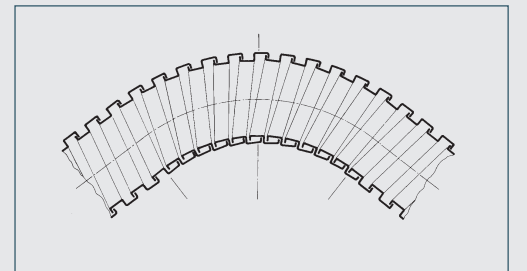
Stripwound hoses are made from a profiled strip that is helically coiled in an "interhooked" manner. Depending on the intended application, these metal hoses are made with an engaged or interlocked profile – ranging from highly flexible versions to more robust forms. Strips of metal - different grades of stainless steel or non-ferrous metals such as brass or aluminium – are used as the basic material.

The benefits of stripwound hoses:

- Extremely resistant to tensile and transversal stresses
- High torsional resistance
- Chemical and thermal resistance
- Available in a wide range of materials
- Flexible and with defined bending radii

Stripwound hoses are used for protective purposes and also as extraction, exhaust and conveying hoses. They are employed in

machine construction, measuring and control engineering, communications technology, fibreoptics and the medical technology. For special applications our product range includes flexible arms which, once bent, remain in any position desired.





Type SG-S-O
SG-M-O
SG-M-C
SG-M-N
SG-E-O

Type
SG-S-O

Application:

- Protective hose acc. to DIN EN ISO 15465 (type SOU)
- Standard protective hose for VDE-approved electrical installations acc. to DIN EN 50086-2-3 (VDE = German Association for Electrical, Electronic & Information Technologies)
- Protective hose for rubber and plastic hoses

Properties:

Highly flexible, good tensile strength and high crushing strength, hoses with PVC coating are liquid-tight

Design:

- Stripwound metal hose
- Interlocked profile
- Round cross-section

Designation:

HYDRA AS < VDE > galvanized, uncoated, but PG dimensions only

Materials:

- Steel, galvanized (1.0330): up to DN 18
- Steel, hot-dip galvanized (1.0226): DN 20 and above
- Brass (2.0321)
- Stainless steel (1.4301)

Versions:

- Galvanized steel, uncoated
- Brass, blank, nickel- or chromium-plated
- Stainless steel, uncoated

Operating temperature:

- Brass: 250°C
 - Galvanized steel: 400°C
 - Stainless steel: 600°C
- (for VDE-approved applications: from -15°C to +60°C)

Classification:

Uncoated
01-02-03-04-05-06-07-08-09-10-11-12
--3--3---4---1---4---1--4---0---2---1---1--3 (DN 8)
--3--3---4---1---4---1--4---0---2---1---1--3 (DN 11-51)

Production lengths:

- Measured in extended position
- DN 3 to 11: 50 and 100 m bundle
 - DN 14 to 23: 25 and 50 m bundle
 - DN 31: 25 m bundle

Supplied in the following forms:

Bundled in rings

Order specifications:

- Protective hose, galvanized steel
Type SG-S-O
- Protective hose, brass, blank
Type SG-M-O
- Protective hose, chromium-plated brass
Type SG-M-C
- Protective hose, nickel-plated brass
Type SG-M-N
- Protective hose, stainless steel
Type SG-E-O

DN	Nominal size PG acc. to DIN 40430	Interior diameter	Exterior diameter	Permissible tolerance	Minimum bending radius	Weight approx.
		d	D	d and D	r _{min}	
		mm	mm	mm	mm	kg/m
3		3.0	4.6	±0.2	18	0.028
4		4.0	5.8	±0.2	19	0.035
5		5.0	6.8	±0.2	20	0.045
6		6.0	8.0	±0.3	21	0.050
7		7.1	9.1	±0.3	23	0.060
8	7	8.0	10.0	±0.3	25	0.065
9		9.0	11.0	±0.3	30	0.075
10		10.0	13.0	±0.3	32	0.110
11*	9	11.0	14.0	±0.3	34	0.120
12		12.0	15.0	±0.3	36	0.130
13		13.0	16.0	±0.3	40	0.140
14		13.5	16.5	±0.3	40	0.135
14*	11	14.0	17.0	±0.3	40	0.145
15		15.0	18.0	±0.3	45	0.155
16*	13.5	16.0	19.0	±0.3	45	0.165
17		17.0	20.0	±0.3	50	0.175
18*	16	18.0	21.0	±0.3	50	0.185
20		20.0	24.0	±0.3	60	0.280
21		21.0	25.0	±0.3	62	0.295
22		21.8	25.8	±0.3	65	0.305
23*	21	23.0	27.0	±0.3	67	0.320
25		25.0	29.0	±0.3	75	0.345
28		28.0	32.0	±0.3	80	0.385
29		29.2	34.2	±0.4	85	0.415
30		30.0	35.0	±0.4	85	0.430
31*	29	31.0	36.0	±0.4	90	0.445
32		32.0	37.0	±0.4	90	0.455
35		35.0	40.0	±0.4	95	0.495

*VDE-compliant version

Please quote when ordering: type of hose, nominal diameter (DN), length

Type
SG-S-O

DN	Nominal size PG acc. to DIN 40430	Interior diameter	Exterior diameter	Permissible tolerance	Minimum bending radius	Weight approx. kg/m
		d	D	d and D	r _{min}	
		mm	mm	mm	mm	
36		36.0	41.0	±0.4	100	0.510
37		37.0	42.0	±0.4	105	0.530
38		38.2	43.2	±0.4	105	0.540
40*	36	40.0	45.0	±0.4	110	0.560
45		45.2	50.2	±0.4	120	0.630
47*	42	47.0	52.0	±0.4	125	0.660
48		48.0	53.0	±0.5	125	0.670
49		49.2	54.2	±0.5	125	0.680
50		50.0	55.0	±0.5	125	0.700
51*	48	51.0	56.0	±0.5	130	0.710

*VDE-compliant version
Please quote when ordering: type of hose, nominal diameter (DN), length

Type
SG-M-O
SG-M-C
SG-M-N

DN	Interior diameter	Exterior diameter	Permissible tolerance	Minimum bending radius	Weight approx. kg/m
	d	D	d and D	r _{min}	
	mm	mm	mm	mm	
3	2.4	3.8	±0.2	15	0.030
3	2.6	3.0	±0.2	15	0.030
3	3.0	4.5	±0.2	15	0.031
3	3.2	4.7	±0.2	15	0.032
4	3.5	5.0	±0.2	15	0.033
4	4.0	6.0	±0.2	20	0.044
5	5.0	7.0	±0.2	20	0.050
6	6.0	8.0	±0.2	20	0.056
7	7.0	9.0	±0.2	20	0.074
8	8.0	9.0	±0.2	25	0.084
9	9.0	11.0	±0.2	25	0.105
10	10.0	13.0	±0.3	25	0.104
12	11.5	14.0	±0.3	30	0.103
12	12.0	15.0	±0.3	30	0.115
13	13.0	16.0	±0.3	35	0.119
14	14.0	17.4	±0.3	35	0.148
15	15.0	18.0	±0.3	40	0.157
16	16.0	19.2	±0.3	40	0.205
17	17.0	20.0	±0.3	45	0.218
18	18.0	21.3	±0.3	45	0.238
19	19.0	22.0	±0.3	45	0.268
20	20.0	23.0	±0.3	50	0.282

*VDE-compliant version
Please quote when ordering: type of hose, nominal diameter (DN), length

Type
SG-E-O

DN	Interior diameter	Exterior diameter	Permissible tolerance	Minimum bending radius	Weight approx.
	d	D	d and D	r _{min}	kg/m
	mm	mm	mm	mm	
2	1.4	3.0	±0.1	16	0.020
3	3.0	4.6	±0.2	18	0.030
4	4.0	5.8	±0.2	19	0.035
5	5.0	6.8	±0.2	20	0.040
6	6.0	8.0	±0.3	25	0.050
7	7.0	9.0	±0.3	27	0.060
8	8.0	10.0	±0.3	29	0.065
9	9.0	11.0	±0.3	30	0.075
10	10.0	13.0	±0.3	25	0.105
11	11.0	14.0	±0.3	30	0.115
12	12.0	15.0	±0.3	30	0.125
13	13.0	16.0	±0.3	35	0.135
14	14.0	17.4	±0.3	35	0.140
15	15.0	18.0	±0.3	40	0.160
16	16.0	19.2	±0.3	40	0.170
17	17.0	20.0	±0.3	45	0.175
18	18.0	21.3	±0.3	45	0.185
19	19.0	23.0	±0.3	45	0.235
20	20.0	24.0	±0.3	50	0.250
20	21.5	25.5	±0.3	50	0.265
22	22.0	26.0	±0.3	50	0.270
23	23.0	27.0	±0.3	55	0.285
25	24.5	28.5	±0.3	55	0.305
25	25.0	29.0	±0.3	60	0.315
26	26.0	30.0	±0.3	60	0.325
27	27.0	31.0	±0.3	60	0.335
28	28.0	32.0	±0.3	60	0.350

*VDE-compliant version

Please quote when ordering: type of hose, nominal diameter (DN), length

Type
SG-S-P



Application:

- Standard protective hose for VDE-approved electrical installations acc. to DIN EN 50086-2-3
- Protective hose for rubber and plastic hoses

Properties:

Highly flexible, good tensile strength and high crushing strength, hoses with PVC coating are liquid-tight

Design:

- Stripwound metal hose
- Interlocked profile
- Round cross-section

Designation:

HYDRA AS < VDE > galvanized, coated, but PG dimensions only

Materials:

- Steel, galvanized (1.0330): up to DN 18
- Steel, hot-dip galvanized (1.0226): DN 20 and above

Versions:

- Galvanized steel, with black PVC coating

Operating temperature:

- Galvanized steel with PVC coating: from -20°C to +80°C (for VDE-approved applications: from -15°C to +60°C)

Classification:

Coated

01-02-03-04-05-06-07-08-09-10-11-12

--3--3--3--3--1--4--1--4--0--3--1--1--3 (DN 7)

--3--3--3--3--1--4--1--4--0--2--2--1--3 (DN 10-49)

Production lengths:

Measured in extended position

- DN 4 to 11: 50 and 100 m bundle
- DN 14 to 23: 25 and 50 m bundle
- DN 31: 25 m bundle

Supplied in the following forms:

Bundled in rings

Order specifications:

- Protective hose, galvanized steel with black PVC coating Type SG-S-P

Type
SG-S-P

DN	Nominal size PG acc. to DIN 40430	Interior diameter	Exterior diameter	Permissible tolerance	Minimum bending radius	Weight approx. kg/m
		d	D	d and D	r _{min}	
		mm	mm	mm	mm	
4		4.0	6.6	±0.2	23	0.050
5		5.0	7.6	±0.2	25	0.055
6		6.0	8.8	±0.3	28	0.070
7*	7	7.1	9.9	±0.3	30	0.075
8		8.0	10.8	±0.3	34	0.085
9		9.0	11.8	±0.3	38	0.095
10*	9	10.0	14.0	±0.3	42	0.140
11		11.0	15.0	±0.3	46	0.155
12		12.0	16.0	±0.3	48	0.165
13*	11	13.0	17.0	±0.3	51	0.175
14		13.5	17.5	±0.3	51	0.185
14		14.0	18.2	±0.3	53	0.195
15*	13.5	15.0	19.2	±0.3	56	0.210
16		16.0	20.2	±0.3	58	0.220
17*	16	17.0	21.2	±0.3	60	0.235
18		18.0	22.2	±0.3	64	0.245
20		20.0	25.4	±0.3	69	0.370
21		21.0	26.4	±0.3	74	0.385
22*	21	21.8	27.2	±0.3	75	0.400
23		23.0	28.4	±0.3	77	0.420
25		25.0	30.4	±0.3	82	0.450
28		28.0	33.4	±0.4	90	0.500
29*	29	29.2	35.8	±0.4	93	0.560
30		30.0	36.6	±0.4	96	0.580
31		31.0	37.6	±0.4	98	0.600
32		32.0	38.6	±0.4	101	0.615
35		35.0	41.6	±0.4	109	0.665

*VDE-compliant version

Please quote when ordering: type of hose, nominal diameter (DN), length

Type
SG-S-P

DN	Nominal size PG acc. to DIN 40430	Interior diameter	Exterior diameter	Permissible tolerance	Minimum bending radius	Weight approx. kg/m
		d	D	d and D	r _{min}	
		mm	mm	mm	mm	
36		36.0	42.6	±0.4	112	0.685
38*	36*	38.2	44.8	±0.4	117	0.730
40		40.0	46.6	±0.4	122	0.765
45*	42*	45.2	51.8	±0.4	136	0.850
47		47.0	53.8	±0.4	138	0.905
48		48.0	54.8	±0.5	142	0.920
49*	48*	49.2	56.0	±0.5	145	0.950
50		50.0	56.8	±0.5	148	0.955
51		51.0	57.8	±0.5	151	0.975

*VDE-compliant version

Please quote when ordering: type of hose, nominal diameter (DN), length



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Type
SD-S-G
SD-S-B
SD-S-K
SD-E-K

Application:

Universal protective hose with seal, can also be used as extraction or exhaust hose

Properties:

Highly flexible, good tensile strength and high crushing strength

Design:

- Stripwound metal hose
- Interlocked profile
- Round cross-section

Materials:

- Steel, galvanized (1.0330): up to DN 18
- Steel, hot-dip galvanized (1.0226): DN 20 and above
- Stainless steel (1.4301)

Versions:

- With rubber seal – G
- With cotton seal – B
- With ceramic seal - K

Operating temperature:

- Galvanized, with rubber seal: 60°C
- Galvanized, with cotton seal: 120°C
- Galvanized, with ceramic seal: 400°C
- Stainless steel with ceramic seal: 600°C

Production lengths:

- Measured in extended position
- DN 8 to 11: 50 and 100 m bundle
- DN 14 to 23: 25 and 50 m bundle
- DN 31: 25 m bundle

Supplied in the following forms:

Bundled in rings

Order specifications:

- Extraction hose, galvanized steel, with cotton seal
Type SD-S-B
- Extraction hose, galvanized steel, with rubber seal
Type SD-S-G
- Extraction hose, galvanized steel, with ceramic seal
Type SD-S-K
- Extraction hose, stainless steel, with ceramic seal
Type SD-E-K

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Type SD
Galvanized steel
or stainless steel
with choice of
seals

DN	Interior diameter	Exterior diameter	Permissible tolerance	Minimum bending radius	Weight approx.
	d mm	D mm	d and D mm	r _{min} mm	kg/m
3	3.0	5.0	±0.2	40	0.060
4	4.0	6.0	±0.2	40	0.070
5	5.0	7.0	±0.2	40	0.085
6	6.0	8.0	±0.2	35	0.095
7	7.0	9.0	±0.2	35	0.105
8	8.0	10.0	±0.2	40	0.115
9	9.0	11.0	±0.2	40	0.140
10	10.0	13.0	±0.2	45	0.180
11	10.5	13.0	±0.2	45	0.190
11	11.0	14.0	±0.2	55	0.200
12	12.0	15.0	±0.2	55	0.210
13	13.0	16.0	±0.2	60	0.215
14	14.0	17.4	±0.2	60	0.220
15	15.0	18.0	±0.2	70	0.240
16	16.0	18.7	±0.2	70	0.260
16	16.0	19.2	±0.2	70	0.265
17	17.0	20.0	±0.2	80	0.280
18	18.0	21.3	±0.2	80	0.290
19	19.0	23.0	±0.3	80	0.315
20	20.0	24.0	±0.3	90	0.335
22	21.5	25.5	±0.3	90	0.370
23	23.0	27.0	±0.3	95	0.395
25	24.5	28.5	±0.3	95	0.415
25	25.0	29.0	±0.3	105	0.430
26	26.0	30.0	±0.4	105	0.460
30	30.0	34.0	±0.4	110	0.525
31	30.5	34.5	±0.4	110	0.540
32	31.5	35.7	±0.4	120	0.570
32	32.0	36.0	±0.4	120	0.580

Please note: bending radius given is with cotton seal, weight given is with ceramic seal

*VDE-compliant version

Please quote when ordering: type of hose, nominal diameter (DN), length

PROTECTIVE HOSES TYPE SD

Protective hoses, extraction and exhaust hoses

Seal: cotton, rubber, ceramic or glass fibre seal

PROTECTIVE HOSES TYPE SV

Rectangular protective hoses



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Type SD
Galvanized steel
or stainless steel
with choice of
seals

DN	Interior diameter	Exterior diameter	Permissible tolerance	Minimum bending radius	Weight approx.
	d	D	d and D	r _{min}	
	mm	mm	mm	mm	kg/m
34	34.0	38.5	±0.4	125	0.585
35	35.0	39.5	±0.4	130	0.600
36	36.0	41.5	±0.4	130	0.640
37	37.0	42.5	±0.4	140	0.680
38	38.0	43.5	±0.4	145	0.720
39	38.5	44.0	±0.4	145	0.760
40	40.0	45.0	±0.4	150	0.830
41	40.5	45.7	±0.4	150	0.950
44	44.0	49.5	±0.4	170	1.010
45	45.0	50.5	±0.4	175	1.030
47	46.5	52.5	±0.4	180	1.070
48	48.0	53.5	±0.5	190	1.100
50	50.0	56.0	±0.5	200	1.160
52	52.0	58.0	±0.5	210	1.300
53	53.0	59.0	±0.5	220	1.350
55	55.0	61.0	±0.5	250	1.400
60	60.0	66.0	±0.6	260	1.590
65	65.0	72.0	±0.6	270	1.950
70	70.0	77.0	±0.6	280	2.100
75	75.0	82.0	±0.6	290	2.250
80	80.0	87.0	±0.6	300	2.400
90	90.0	100.0	±0.7	315	2.620
100	100.0	110.5	±0.7	330	2.850
110	110.0	120.5	±0.7	360	3.110
120	120.0	131.5	±0.7	400	3.400
125	125.0	136.5	±0.7	400	3.450

Please note: bending radius given is with cotton seal, weight given is with ceramic seal

*VDE-compliant version

Please quote when ordering: type of hose, nominal diameter (DN), length

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Type
SV-S-O
SV-S-G
SV-S-B

Application:

Protective hose for energy guide chains, hydraulic lines and for use as conveying hose

Properties:

Highly flexible, good tensile strength, resistant to transversal pressure

Design:

- Stripwound metal hose
- Interlocked profile
- Rectangular cross-section

Materials:

Steel, galvanized (1.0333)

Versions:

- Without seal – O
- With rubber seal – G, available on request
- With cotton seal – B, available on request

Operating temperature:

- With rubber seal: 60°C
- With cotton seal: 120°C
- Without seal: 400°C

Production lengths:

Up to max. 25 m

Supplied in the following forms:

Bundled in rings

Order specifications:

- Rectangular protective hose, galvanized steel, without seal
Type SV-S-O
- Rectangular protective hose, galvanized steel, with rubber seal
Type SV-S-G
- Rectangular protective hose, galvanized steel, with cotton seal
Type SV-S-B



Type SV-S-O
galvanized steel,
without seal

Nominal size NG	Exterior dimensions			Interior dimensions			Minimum bending radius		Weight approx. kg/m
	D1	D2	Permissible tolerance	d1	d2	Permissible tolerance	r _{min}	Permissible tolerance	
	mm	mm		mm	mm		mm		
15	30	x 50	+1	27.0	x 47.0	-1	70	- 10	0.64
25	50	x 50	+1	46.8	x 46.8	-1	120	- 10	0.82
38	45	x 85	+1	40.8	x 81.0	-1	100	- 10	1.28
42	65	x 65	+1	60.8	x 60.8	-1	130	- 10	1.26
51	60	x 85	+1	55.8	x 81.0	-1	130	- 10	1.44
69	60	x 115	+1	54.8	x 110.2	-1	130	- 20	2.37
92	80	x 115	+1	74.6	x 110.0	-1	170	- 20	2.66
126	90	x 140	+1	84.6	x 135.0	-1	180	- 20	3.15
140	80	x 175	+1	74.4	x 169.8	-1	170	- 20	3.54
154	110	x 140	+1	104.2	x 135.2	-1	250	- 20	3.60
193	110	x 175	+1	104.2	x 169.6	-1	250	- 20	3.97
242	110	x 220	±1.5	104.4	x 214.4	-1	250	- 20	4.60

Please quote when ordering:
type of hose, nominal size (NG), length

Type SA-S-O
SA-E-O

Application:

- Protective hose acc. to DIN EN ISO 15465 (type DOU)
- Protective hose with high mechanical strength for light conductors, measuring lines and electric cables
- Protective hose for pressure hoses

Properties:

Resistant to torsion, flexible, extremely high tensile strength, high crushing strength

Design:

- Stripwound metal hose
- Engaged profile
- Round cross-section

Materials:

- Steel, galvanized (1.0330): up to DN 18
- Steel, hot-dip galvanized (1.0226): DN 20 and above
- Stainless steel (1.4301)

Versions:

Stainless steel with PVC or silicone coating

Operating temperature:

- Galvanized steel: 400°C
- Stainless steel: 600°

Production lengths:

Measured in extended position

- Up to DN 9: max. 100 m;
- DN 10 and above: max. 60 m
- DN 15 and above: max. 50 m;
- DN 26 and above: max. 40 m
- DN 45 and above: max. 30 m;
- DN 65 and above: max. 25 m

Supplied in the following forms:

On drums or as bundle

Order specifications:

- Protective hose, galvanized steel
Type SA-S-O
- Protective hose, stainless steel
Type SA-E-O

Type SA-S-0
Galvanized steel,
without seal

DN	Interior diameter		Exterior diameter		Permissible tolerance		Minimum bending radius r_{min} mm	Weight approx. kg/m
	d	D	d	D	d	D		
	mm	mm	mm	mm	mm	mm		
4	4.0	6.1	±0.2	±0.2	35	0.155		
5	5.0	7.1	±0.2	±0.2	35	0.160		
6	6.0	8.2	±0.2	±0.4	35	0.085		
7	7.0	9.2	±0.2	±0.4	40	0.095		
8	8.0	10.2	±0.2	±0.4	45	0.110		
9	9.0	11.2	±0.2	±0.4	50	0.120		
10	10.0	12.2	±0.2	±0.4	55	0.130		
11	11.0	13.2	±0.2	±0.4	60	0.145		
12	12.0	14.2	±0.2	±0.4	65	0.155		
13	13.0	15.2	±0.2	±0.4	70	0.170		
14	14.0	16.8	±0.3	±0.4	80	0.225		
15	14.5	17.3	±0.3	±0.4	83	0.250		
15	15.0	17.8	±0.3	±0.4	85	0.240		
16	16.0	18.8	±0.3	±0.4	90	0.250		
18	18.0	20.8	±0.3	±0.4	95	0.280		
19	19.0	21.8	±0.3	±0.4	98	0.320		
20	20.0	22.8	±0.3	±0.4	100	0.310		
23	23.0	25.8	±0.3	±0.4	125	0.355		
25	25.0	28.3	±0.3	±0.5	135	0.480		
28	28.0	31.3	±0.3	±0.5	150	0.540		
30	30.0	33.3	±0.3	±0.5	155	0.575		
32	32.0	35.3	±0.3	±0.5	170	0.615		
35	35.0	38.3	±0.3	±0.5	185	0.670		
36	36.0	39.3	±0.3	±0.5	185	0.685		

Please quote when ordering:
type of hose, nominal diameter (DN), length

Type SA-S-0
Galvanized steel,
without seal

DN	Interior diameter		Exterior diameter		Permissible tolerance		Minimum bending radius r_{min} mm	Weight approx. kg/m
	d	D	d	D	d	D		
	mm	mm	mm	mm	mm	mm		
40	40.0	44.4	±0.4	±0.6	210	0.935		
45	45.0	49.4	±0.4	±0.6	240	1.100		
50	50.0	54.4	±0.4	±0.6	260	1.160		
54	54.0	58.4	±0.4	±0.6	270	1.300		
55	55.0	59.4	±0.4	±0.6	270	1.330		
60	60.0	66.0	±0.6	±0.6	310	1.870		
65	65.0	71.0	±0.6	±0.6	315	2.020		
70	70.0	76.0	±0.6	±0.6	325	2.180		
75	75.0	81.0	±0.6	±0.6	345	2.340		
80	80.0	86.0	±0.6	±0.6	370	2.500		
85	85.0	91.0	±0.6	±0.6	385	2.650		
90	90.0	98.0	±0.8	±0.6	400	2.800		
100	100.0	108.0	±0.8	±0.6	440	3.120		

Please quote when ordering:
type of hose, nominal diameter (DN), length

Type SA-E-0
Stainless steel,
without seal

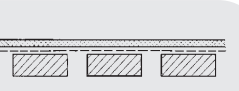
DN	Interior diameter		Exterior diameter		Permissible tolerance		Minimum bending radius r_{min} mm	Weight approx. kg/m
	d	D	d	D	d	D		
	mm	mm	mm	mm	mm	mm		
4	4.0	6.1	±0.2	±0.2	35	0.155		
5	5.0	7.1	±0.2	±0.2	35	0.160		
6	6.0	8.2	±0.2	±0.4	35	0.085		
7	7.0	9.2	±0.2	±0.4	40	0.100		
8	8.0	10.2	±0.2	±0.4	45	0.110		
9	9.0	11.2	±0.2	±0.4	50	0.125		
10	9.5	11.7	±0.2	±0.4	53	0.130		
10	10.0	12.2	±0.2	±0.4	55	0.135		
11	11.0	13.2	±0.2	±0.4	60	0.145		
12	12.0	14.2	±0.2	±0.4	65	0.160		
13	13.0	15.2	±0.2	±0.4	70	0.170		
14	14.0	16.8	±0.3	±0.4	80	0.225		
15	15.0	17.8	±0.3	±0.4	85	0.240		
16	16.0	18.8	±0.3	±0.4	90	0.255		
17	17.0	19.8	±0.3	±0.4	95	0.290		
18	18.0	20.8	±0.3	±0.4	95	0.285		
19	19.0	21.8	±0.3	±0.4	98	0.325		
20	20.0	22.8	±0.3	±0.4	100	0.315		
22	22.0	24.8	±0.3	±0.4	117	0.370		
23	23.0	25.8	±0.3	±0.4	125	0.360		
25	25.0	28.3	±0.3	±0.5	135	0.490		
27	27.0	30.3	±0.3	±0.5	145	0.525		
28	28.0	31.3	±0.3	±0.5	150	0.540		
30	30.0	33.3	±0.3	±0.5	155	0.575		

Please quote when ordering:
type of hose, nominal diameter (DN), length

Type SA-E-0
Stainless steel,
without seal

DN	Interior diameter		Exterior diameter		Permissible tolerance		Minimum bending radius r_{min} mm	Weight approx. kg/m
	d	D	d	D	d	D		
	mm	mm	mm	mm	mm	mm		
32	32.0	35.3	±0.3	±0.5	170	0.615		
33	33.0	36.3	±0.3	±0.5	175	0.635		
35	35.0	38.3	±0.3	±0.5	185	0.675		
40	40.0	44.4	±0.4	±0.6	210	0.950		
45	45.0	49.4	±0.4	±0.6	240	1.100		
50	50.0	54.4	±0.4	±0.6	260	1.170		
54	54.0	58.4	±0.4	±0.6	270	1.310		
55	55.0	59.4	±0.4	±0.6	270	1.330		
58	58.0	62.4	±0.4	±0.6	272	1.830		
60	60.0	66.0	±0.6	±0.6	200	1.870		
65	65.0	71.0	±0.6	±0.6	210	2.025		
70	70.0	76.0	±0.6	±0.6	240	2.180		
75	75.0	81.0	±0.6	±0.6	260	2.340		
80	80.0	86.0	±0.6	±0.6	270	2.500		
85	85.0	91.0	±0.6	±0.6	290	2.650		
90	90.0	98.0	±0.8	±0.8	300	2.800		
100	100.0	108.0	±0.8	±0.8	340	3.120		

Please quote when ordering:
type of hose, nominal diameter (DN), length



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Type
SZ111S
SZ211S

Application:

Protective hose for light conductors in medical and industrial applications, e.g. endoscopy, measuring and control engineering

Properties:

- Highly flexible, with limited bending radius
- High tensile strength and very low expansion
- Resistant to torsion and transversal pressure
- Autoclaveable, lightproof and liquid-tight
- Smooth interior surface – completely free of burr

Design:

- Flat wire spiral with fibre glass braiding and grey silicone coating (version for medical applications)
- Round cross-section

Materials:

- Stainless steel (1.4301)
- Aluminium (3.3555)

Versions:

- Type SZ111S – standard version
- Type SZ211S – special version, extremely lightweight, German patent DE 43 20 350 C1

Operating temperature:

From 60°C to +180°C; up to +134°C for steam sterilization

Production lengths:

Measured in extended position
 d: 1.0 - 3.5 approx. 90 % > 50 m, remainder > 15 m
 4 - 8 approx. 80 % > 40 m, remainder > 10 m
 10 - 13 approx. 70 % > 20 m, remainder > 7 m

Supplied in the following forms:

On drums or as bundle

Order specifications:

- Special protective hose for stainless-steel light conductors
Type SZ111S
- Special protective hose for aluminium light conductors
Type SZ111S
- Special protective hose for stainless-steel light conductors
Type SZ211S

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Type
SZ111S

DN	Interior diameter		Exterior diameter		Minimum bending radius r _{min}	Weight approx. kg/m
	d	Permissible tolerance d	D	Tolerancia tolerance D		
	mm	mm	mm	mm	mm	
1	1.0	-0.15	2.9	+0.2 / -0.1	5	0.015
2	1.5	-0.15	3.5	+0.2 / -0.1	6	0.019
3	2.5	-0.15	4.4	+0.2 / -0.1	14	0.030
3	3.0	-0.15	5.3	+0.2 / -0.1	20	0.045
4	3.5	-0.15	5.8	±0.2	20	0.050
4	4.0	-0.15	6.5	±0.3	25	0.065
5	4.5	-0.15	7.0	±0.3	25	0.070
5	5.0	-0.15	7.5	±0.3	25	0.080
6	6.0	-0.15	8.9	±0.3	35	0.110
7	6.5	-0.15	9.6	±0.3	35	0.130
7	7.0	-0.15	10.1	±0.3	45	0.140
8	8.0	±0.1	11.6	±0.3	45	0.190
10	10.0	±0.1	13.6	±0.4	65	0.240
11	11.4	±0.1	15.6	±0.4	75	0.325
12	12.0	±0.1	16.2	±0.4	75	0.350

Special version made of aluminium

DN	Interior diameter		Exterior diameter		Minimum bending radius r _{min}	Weight approx. kg/m
	d	Permissible tolerance d	D	Permissible tolerance D		
	mm	mm	mm	mm	mm	
3	2.5	-0.15	4.6	+0.2 / -0.1	15	0.018
4	4.0	+0.15 / -0.15	6.5	±0.3	25	0.028
5	4.6	-0.15	7.1	±0.3	25	0.036
6	6.0	±0.15	8.9	±0.3	35	0.058

Type SZ211S

DN	Interior diameter		Exterior diameter		Minimum bending radius r_{min}	Weight approx. kg/m
	d	Permissible tolerance d	D	Permissible tolerance D		
	mm	mm	mm	mm	mm	
3	2.7	±0.15	4.4	+0.2/ -0.1	7	0.020
3	3.3	±0.15	5.3	+0.2/ -0.1	9	0.030
4	3.8	±0.15	5.8	±0.2	11	0.030
5	4.5	±0.15	6.5	±0.3	13	0.040
5	5.0	±0.15	7.0	±0.3	14	0.040
6	5.5	±0.15	7.5	±0.3	16	0.045
7	6.5	±0.15	8.9	±0.3	22	0.065
7	7.2	±0.2	9.6	±0.3	23	0.070
8	7.7	±0.2	10.1	±0.3	25	0.075
9	9.0	±0.2	11.6	±0.3	29	0.085
11	10.6	±0.2	13.6	±0.4	42	0.160
12	12.4	±0.2	15.6	±0.4	55	0.190
13	13.0	±0.2	16.2	±0.4	59	0.195



Type KLE1
ERD1
SUM

Materials:

Nickel-plated brass, connection thread DIN 40430 without grounding insert ERD1 without counter nut SUM

Compression couplings can be used for universally connecting protective hoses SG (VDE)* and SG.

Thread PG acc. to DIN 40430	Thread metric mm	Suitable for		Width across flats s mm	Clamping width Exterior hose diameter	
		SG-S-0 (VDE) DN	SG-S-P (VDE) DN		min. mm	max. mm
7	12 x 1.5	8	7	19	10.0	12.5
9	16 x 4.5	11	10	22	12.0	15.5
11	20 x 1.5	14	13	27	15.0	18.5
13.5	20 x 1.5	16	15	27	17.0	20.5
16	25 x 1.5	18	17	30	19.5	22.0
21	32 x 1.5	23	22	41	25.0	30.0
29	40 x 1.5	31	29	46	32.0	37.0
36	50 x 1.5	40	38	60	42.0	47.5
42	56 x 1.5	47	45	66	49.0	54.0
48	63 x 1.5	51	49	80	52.0	61.0

Grounding insert ERD1

Brass, blank, suitable for compression coupling KLE1

Nominal size PG acc. to DIN 40430	Suitable for	
	SG-S-0 (VDE) DN	SG-S-P(VDE) DN
7	8	7
9	11	10
11	14	13
13.5	16	15
16	18	17
21	23	22
29	31	29
36	40	38
42	47	45
48	51	49

Counter nut SUM

Nickel-plated brass, suitable for compression coupling KLE1

Nominal size PG acc. to DIN 40430
7
9
11
13.5
16
21
29
36
42
48

Please quote when ordering:
type of hose, material, nominal diameter (DN), length

*VDE: When properly installed using grounding insert, this coupling complies with VDE regulations.
Please quote when ordering: type of hose, nominal size (PG)



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Type
Serie 1400
Serie 1600

Type
SA-E-S

Material:
Nickel-plated brass

...are highly effective space-savers, enabling them to be installed on a junction box with a small distance between boreholes.

Kroneck threaded sockets...
...ensure a metallic connection in accordance with VDE 0113, provided their use complies with these regulations.

...can be removed easily and reused many times.

Thread PG acc. to DIN 40430	Series 1400 Suitable for metal hose SG and SD		Series 1600 Suitable for metal hose SG-S-P	
	d1	d2	d1	d2
	mm		mm	
7	8.0	10.2	7.0	10.2
9	11.0	14.0	10.0	14.0
11	14.0	17.4	13.0	17.4
13.5	16.0	19.2	15.0	19.2
16	18.0	21.3	17.0	21.3
21	23.0	27.0	21.5	27.0
29	31.5	35.7	30.0	35.7
36	40.5	45.7	38.5	45.7
42	46.5	52.5	44.0	52.5
48	50.0	56.0	48.0	56.0

Application:
Protective hose for light conductors in medical and industrial applications, e.g. endoscopy, sensor technology, laser technology, optoelectronics, measuring technology and control engineering

Properties:

- Resistant to torsion
- Flexible
- Extremely good tensile strength
- High crushing strength
- Lightproof and liquid-tight

Design:

- Stripwound metal hose
- Engaged profile
- Round cross-section and grey silicone coating

Materials:

- Stainless steel (1.4301)

Versions:

- Stainless steel with silicone coating

Operating temperature:
From - 60°C to +180°C

Production lengths:
Measured in extended position

- Up to DN 9: max. 100 m;
- DN 10 and above: max. 60 m
- DN 15 and above: max. 50 m;
- DN 26 and above: max. 40 m
- DN 45 and above: max. 30 m;
- DN 65 and above: max. 25 m

Supplied in the following forms:
On drums or as bundle

Order specifications:
Protective hose, stainless steel with silicone coating
Type SA-E-S

DN	Interior diameter Permissible tolerance		Exterior diameter Permissible tolerance		Minimum bending radius r min	Weight approx. kg/m
	d mm	d mm	D mm	D mm		
5	4.8	± 0.2	8.5	± 0.4	35	0.112
6	5.8	± 0.2	9.5	± 0.4	45	0.144
6	6.0	± 0.2	9.6	± 0.4	43	0.115
7	7.0	± 0.2	10.6	± 0.4	48	0.131
8	8.0	± 0.2	11.6	± 0.4	55	0.146
9	9.0	± 0.2	12.6	± 0.4	60	0.162
10	10.0	± 0.2	13.6	± 0.4	66	0.176
11	11.0	± 0.2	14.6	± 0.4	73	0.192
12	12.0	± 0.2	15.6	± 0.4	78	0.208



Type SA-E-O

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Protective hoses type SA-E-O

are made to specific customer requirements. A selection of these special versions is given below.

Tensile strength:

This aspect is also defined by customer-specific requirements. Hoses can be supplied with tensile strengths of 2000 N and above.

DN	Interior diameter Permissible tolerance		Exterior diameter Permissible tolerance		Minimum bending radius r min	Weight approx. kg/m
	d mm	d mm	D mm	D mm		
5	5.1	± 0.2	7.8	± 0.1	30	0.108
6	5.8	± 0.2	8.4	+0.1 / -0.2	35	0.115



Type FA330S
Galvanized steel or stainless steel

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Application:

Exhaust hose for mobile and stationary applications; also useable as extraction hose or conveying hose.

Properties:

- High mechanical strength
- Vibration-resistant
- Good flexibility
- Self-supporting bending behaviour
- For high temperatures, owing to metallic sealing

Design:

- Stripwound metal hose
- Engaged profile
- Polygonal cross-section

Materials:

- Steel, galvanized (1.0330 / 1.0333)
- Stainless steel (1.4301)

Operating temperature:

- Galvanized steel: 400°C
- Stainless steel: 600°C

Production lengths:

- In extended position
- Up to DN 55, max. 20 m
- DN 60 and above: max. 10 m

Supplied in the following forms:

Bundled in rings

Order specifications:

- Exhaust hose, galvanized steel, type FA330S
- Exhaust hose, stainless steel, type FA330S

Type FA
Galvanized steel
or stainless
steel, metallic
sealing

DN	Interior diameter	Exterior diameter	Permissible tolerance	Minimum bending radius	Weight approx.
	d	D	d and D	r _{min}	
	mm	mm	mm	mm	kg/m
20	20.0	22.5	±0.4	135	0.318
23	23.0	25.5	±0.4	155	0.363
25	25.0	27.5	±0.4	165	0.394
28	28.0	30.5	±0.4	185	0.439
30	30.0	33.1	±0.4	180	0.582
32	32.0	35.1	±0.4	195	0.619
35	35.0	38.1	±0.4	210	0.674
38	38.0	41.0	±0.4	230	0.728
40	40.0	43.1	±0.5	240	0.766
42	42.0	45.1	±0.5	250	0.799
45	45.0	48.1	±0.5	270	0.859
50	50.0	53.1	±0.5	300	0.953
55	55.0	58.1	±0.5	325	1.040
60	60.0	64.0	±0.6	335	1.550
65	65.0	69.0	±0.6	360	1.670
70	70.0	74.0	±0.6	390	1.800
75	75.0	79.0	±0.6	415	1.920
80	80.0	84.0	±0.7	440	2.040
84	84.0	88.0	±0.7	460	2.100
90	90.0	94.0	±0.7	495	2.300
100	100.0	104.0	±0.8	550	2.550
110	110.0	115.0	±0.8	605	2.810
120	120.0	125.0	±0.8	660	3.060
125	125.0	130.0	±0.8	685	3.180

Type FA
Galvanized steel
or stainless
steel, metallic
sealing

DN	Interior diameter	Exterior diameter	Permissible tolerance	Minimum bending radius	Weight approx.
	d	D	d and D	r _{min}	
	mm	mm	mm	mm	kg/m
130	130.0	137.0	±1.0	600	4.05
140	140.0	147.0	±1.0	645	4.34
150	150.0	157.0	±1.0	690	4.65
160	160.0	167.0	±1.0	735	4.96
175	175.0	182.0	±1.0	800	5.42
180	180.0	187.0	±1.0	825	5.56
185	185.0	192.0	±1.0	995	5.70
200	200.0	208.0	±1.5	1085	7.74
225	225.0	233.0	±1.5	1215	8.68
250	250.0	258.0	±1.5	1350	9.60
275	275.0	283.0	±1.5	1480	10.59
300	300.0	308.0	±2.0	1615	11.49



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Type FG-S-O
 FG-S-G
 FG-S-B
 FG-S-K
 FG-E-K

Application:

Universal exhaust air, extraction and conveying hose, e.g. for smoke, shavings and exhaust gases

Properties:

- Flexible
- Resistant to torsion

Design:

- Stripwound metal hose
- Interlocked profile
- Polygonal cross-section

Materials:

- Steel, hot-dip galvanized (1.0226)
- Stainless steel (1.4301)

Versions:

- Without seal – O
- With rubber seal – G
- With cotton seal – B
- With ceramic seal – K

Operating temperature:

- Galvanized, with rubber seal: 60°C
- Galvanized, with cotton seal: 120°C
- Galvanized, with ceramic seal: 400°C
- Stainless steel, with ceramic seal: 600°C

Production lengths:

- In extended position
- Up to DN 180: max. 25 m
- DN 200 and above: max. 20 m
- DN 350 and above: max. 8 m

Supplied in the following forms:

Bundled in rings

Order specifications:

- Extraction hose, galvanized steel, without seal
Type FG-S-O
- Extraction hose, galvanized steel, with cotton seal
Type FG-S-B
- Extraction hose, galvanized steel, with rubber seal
Type FG-S-G
- Extraction hose, galvanized steel, with ceramic seal
Type FG-S-K
- Extraction hose, stainless steel, with ceramic seal
Type FG-E-K

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Type FG
 Galvanized steel
 or stainless steel
 with choice of
 seals

DN	Interior diameter		Exterior diameter		Permissible tolerance		Minimum bending radius r _{min}	Weight approx. kg/m
	d	mm	D	mm	d	D		
20	20.0		24.0		±0.3	±0.5	100	0.350
25	25.0		29.0		±0.3	±0.5	110	0.430
30	30.0		34.0		±0.4	±0.6	130	0.510
32	32.0		36.0		±0.4	±0.6	140	0.545
35	35.0		39.0		±0.4	±0.6	150	0.590
38	38.0		42.0		±0.4	±0.6	155	0.645
40	40.0		44.5		±0.4	±0.5	155	0.675
45	45.0		49.5		±0.4	±0.5	165	0.755
50	50.0		54.5		±0.5	±0.6	180	0.835
60	60.0		65.5		±0.5	±0.8	215	1.010
63	63.0		68.5		±0.6	±1.0	225	1.060
65	65.0		70.5		±0.6	±1.0	230	1.090
70	70.0		75.5		±0.6	±1.0	240	1.170
71	71.0		76.5		±0.6	±1.0	245	1.190
75	75.0		80.5		±0.6	±1.0	255	1.250
80	80.0		85.5		±0.8	±1.2	270	1.340
81	81.5		87.0		±0.8	±1.2	275	1.360
85	85.0		90.5		±0.8	±1.2	275	1.420
90	90.0		97.0		±0.8	±1.2	280	1.850
100	100.0		107.0		±0.8	±1.2	300	2.040
102	102.0		109.0		±0.8	±1.2	300	2.080
110	110.0		117.0		±0.8	±1.2	330	2.240
112	112.0		119.0		±0.8	±1.2	340	2.280

Please quote when ordering: type of hose, material, nominal diameter (DN), length

Type FG
Galvanized steel
or stainless steel
with choice of
seals

DN	Interior diameter	Exterior diameter	Permissible tolerance		Minimum bending radius	Weight approx.
	d	D	d	D	r _{min}	
	mm	mm	mm	mm	mm	kg/m
120	120.0	127.0	±0.8 / ±1.2		380	2.44
122	122.5	129.5	±0.8 / ±1.2		390	2.49
125	125.0	132.0	±0.8 / ±1.2		400	2.54
130	130.0	138.5	±1.0 / ±1.5		410	2.92
140	140.0	148.5	±1.0 / ±1.5		430	3.13
150	150.0	158.5	±1.0 / ±1.5		460	3.35
160	160.0	168.5	±1.0 / ±1.5		490	3.57
175	175.0	184.0	±1.0 / ±1.5		530	3.90
180	180.0	189.0	±1.0 / ±1.5		540	4.01
200	200.0	210.5	±1.5 / ±2.0		560	5.51
210	210.0	220.5	±1.5 / ±2.0		585	5.78
224	224.0	234.5	±1.5 / ±2.0		625	6.15
225	225.0	235.5	±1.5 / ±2.0		630	6.18
250	250.0	260.5	±1.5 / ±2.0		700	6.85
275	275.0	285.5	±1.5 / ±2.0		770	7.52
280	280.0	291.0	±1.5 / ±2.0		800	7.66
300	300.0	311.0	±2.0 / ±2.5		850	8.20
315	315.0	326.0	±2.0 / ±2.5		890	8.60
350	350.0	367.5	±2.0 / ±2.5		1420	14.00
355	355.0	327.5	±2.0 / ±2.5		1440	14.20
400	400.0	417.5	±3.0 / ±3.5		1620	16.00
450	450.0	467.5	±3.0 / ±3.5		1820	17.90
500	500.0	517.5	±3.0 / ±3.5		2020	19.90

Larger nominal diameters available on request
Please quote when ordering: type of hose, material, nominal diameter (DN), length



Type
FS-S-G
FS-S-B
FS-S-K
FS-E-K

Application:

Conveying hose with smooth interior surface, e.g. suitable for granulates, grain and abrasive materials

Properties:

- Flexible
- Resistant to torsion
- Low wear and tear
- Good tightness

Design:

- Stripwound metal hose
- Interlocked profile, polygonal cross-section
- With inserted coil as abrasion protection

Materials:

- Hot-dip galvanized steel (1.0226)
- Stainless steel (1.4301)

Versions:

- Also available on request in the combination: galvanized steel with stainless-steel interior helix
- With rubber seal – G
- With cotton seal – B
- With ceramic seal – K

Operating temperature:

- Galvanized, with rubber seal: 60°C
- Galvanized, with cotton seal: 120°C
- Galvanized, with ceramic seal: 400°C
- Stainless steel, with ceramic seal: 600°C

Production lengths:

- In extended position
- Up to DN 180: max. 25 m
 - DN 200 and above: max. 20 m
 - DN 350 and above: max. 8 m

Supplied in the following forms:

Bundled in rings

Order specifications:

- Conveying hose, galvanized steel, with rubber seal Type FS-S-G
- Conveying hose, galvanized steel, with cotton seal Type FS-S-B
- Conveying hose, galvanized steel, with ceramic seal Type FS-S-K
- Conveying hose, stainless steel, with ceramic seal Type FS-E-K

Type FS
Galvanized steel
or stainless steel
with choice of
seals

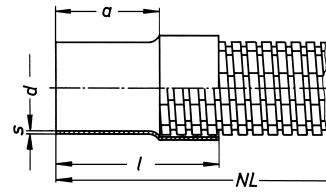
Interior diameter d1	Exterior diameter d2	Permissible tolerance ±	Minimum bending radius ± 20 %	Weight ± 10 %		
				With cotton seal	With ceramic seal	With rubber seal
mm	mm	mm	mm	kg/m	kg/m	kg/m
45	53.5	0.5	200	2.030	2.070	2.060
50	58.5	0.5	215	2.255	2.300	2.290
55	63.5	0.5	230	2.480	2.530	2.520
60	68.5	0.5	240	2.705	2.760	2.750
65	73.5	0.7	250	2.920	2.980	2.970
70	78.5	0.7	260	3.155	3.220	3.205
75	83.5	0.7	275	3.360	3.430	3.415
80	89.0	0.7	285	3.595	3.670	3.655
90	99.5	1.0	345	4.230	4.280	4.390
100	109.5	1.0	380	4.700	4.750	4.870
105	114.5	1.0	400	4.880	4.970	4.915
110	120.0	1.0	410	5.260	5.320	5.450
120	130.0	1.0	450	5.640	5.710	5.850
125	135.0	1.0	470	6.080	6.160	6.100
130	140.0	1.0	485	6.110	6.180	6.350
140	150.0	1.0	515	6.580	6.660	6.840
150	162.5	1.5	545	6.960	7.160	7.460
160	172.5	1.5	570	7.390	7.600	7.910
170	182.5	1.5	590	7.840	8.060	8.390
180	192.5	1.5	620	8.300	8.540	8.900
190	202.5	1.5	650	8.770	9.020	9.400
200	212.5	1.5	680	9.230	9.490	9.890
210	223.0	1.5	715	9.690	9.970	10.380

Type FS
Galvanized steel
or stainless steel
with choice of
seals

Interior diameter d1	Exterior diameter d2	Permissible tolerance ±	Minimum bending radius ± 20 %	Weight ± 10 %		
				With cotton seal	With ceramic seal	With rubber seal
mm	mm	mm	mm	kg/m	kg/m	kg/m
225	238.0	1.5	765	10.400	10.700	11.150
250	265.0	2.0	880	15.470	15.680	16.330
275	290.0	2.0	1010	17.030	17.260	17.980
280	295.0	2.0	1040	17.340	17.570	18.340
300	315.0	2.0	1145	18.590	18.840	19.640
310	325.0	2.0	1200	19.210	19.460	20.270
350	365.0	2.0	1410	21.730	22.020	22.940
380	395.0	2.0	1565	23.580	23.900	24.930
400	415.0	2.0	1670	24.880	25.210	26.260
450	470.0	2.0	1930	28.010	28.420	29.600

CONNECTION FITTINGS TYPE VA20S

For extraction, exhaust and conveying hoses type FA, FG, FS, SD



Type
VA20S

Design:

- Cylindrical sleeve

Operating temperature:

600°C

Installation type:

- Sealed by compression and riveted, brazed or clamped

Order specifications:

- Connection fitting type VA20S

Materials:

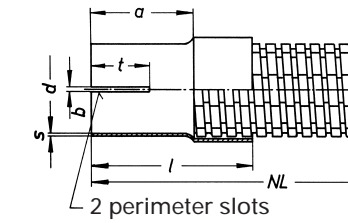
- Stainless steel (1.4301)

DN	d	s	a	l	Weight approx.
	mm	mm	mm	mm	kg/m
40	40	1.0	45	90	0.09
50	50	1.0	45	90	0.13
60	60	1.0	45	90	0.18
70	70	1.0	45	90	0.22
80	80	1.0	50	105	0.25
100	100	1.0	50	105	0.39
120	120	1.0	60	120	0.46
125	125	1.0	60	120	0.48
150	150	1.25	60	120	0.77
180	180	1.25	80	140	1.03
200	200	1.25	80	140	1.33
250	250	1.25	80	140	1.97
300	300	1.5	80	140	3.18
315	315	1.5	80	140	3.33
350	350	1.5	80	140	3.84

Please quote when ordering: type of fitting, nominal diameter (DN), installation type. Other sizes available on request.

CONNECTION FITTINGS TYPE VB20S

For extraction, exhaust and conveying hoses type FA, FG, FS, SD



Type
VB20S

Design:

- Sleeve with 2 slots, cylindrical

Operating temperature:

600°C

Installation type:

- Sealed by compression and riveted, brazed or clamped

Order specifications:

- Connection fitting type VB20S

Materials:

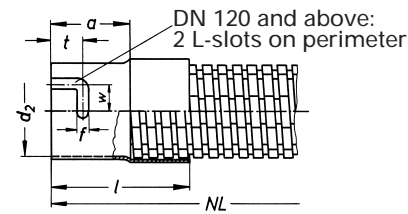
- Stainless steel (1.4301)

DN	d	s	b	t	a	l	Weight approx.
	mm	mm	mm	mm	mm	mm	kg/m
40	40	1.0	2	30	45	90	0.09
50	50	1.0	2	30	45	90	0.13
60	60	1.0	2	30	45	90	0.18
70	70	1.0	2	30	45	90	0.22
80	80	1.0	2	35	50	105	0.25
100	100	1.0	3	35	50	105	0.39
120	120	1.0	3	40	60	120	0.46
125	125	1.0	3	40	60	120	0.48
150	150	1.25	3	40	60	120	0.77
180	180	1.25	3	50	80	140	1.03
200	200	1.25	3	50	80	140	1.33
250	250	1.25	3	50	80	140	1.97
300	300	1.5	3	50	80	140	3.18
315	315	1.5	3	50	80	140	3.33
350	350	1.5	3	50	80	140	3.84

Please quote when ordering: type of fitting, nominal diameter (DN). Other sizes available on request.

CONNECTION FITTINGS TYPE VF20S

Sleeve for extraction, exhaust and conveying hoses type FA, FG, FS, SD



Type
VF20S

Design:

- Sleeve with L-slot, cylindrical

Operating temperature:

600°C

Installation type:

- Sealed by compression and riveted, brazed or clamped

Order specifications:

- Fitting type VF20S

Materials:

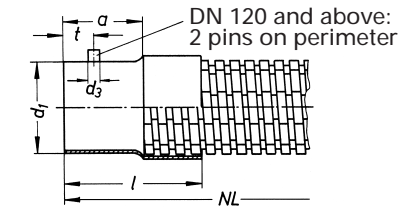
- Stainless steel (1.4301)

DN	d2	f	t	w	a	l	Weight approx. kg/m
	mm	mm	mm	mm	mm	mm	
50	52.5	9	20	15	50	95	0.10
60	63	9	20	15	50	95	0.15
70	73	9	20	15	50	95	0.17
80	83	9	20	15	50	105	0.19
100	103	9	25	25	60	115	0.29
120	123	9	25	25	60	120	0.34
125	128	9	25	25	60	120	0.36
140	144	9	30	25	70	130	0.71
150	154	9	30	25	70	130	0.75
180	184	9	30	25	70	130	0.89
200	204	11	40	30	90	150	1.29
250	255	11	40	30	90	150	2.11
300	305	11	40	30	100	160	2.81
315	320	11	40	30	100	160	2.94
350	355	11	45	30	110	170	3.64

Please quote when ordering: type of fitting, nominal diameter (DN), installation type. Other sizes available on request.

CONNECTION FITTINGS TYPE VE20S

Sleeve for extraction, exhaust and conveying hoses type FA, FG, FS, SD



Type
VE20S

Design:

- Sleeve with pin, cylindrical

Operating temperature:

600°C

Modo de montaje:

- Sealed by compression and riveted, brazed or clamped

Order specifications:

- Fitting type VE20S

Materials:

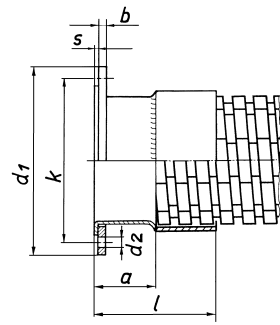
- Stainless steel (1.4301)

DN	d1	d3	t	a	l	Weight approx. kg/m
	mm	mm	mm	mm	mm	
50	52	8	20	50	95	0.11
60	62	8	20	50	95	0.16
70	72	8	20	50	95	0.18
80	82	8	20	50	105	0.20
100	102	8	25	60	115	0.30
120	122	8	25	60	120	0.35
125	127	8	25	60	120	0.37
140	143	8	30	70	130	0.73
150	153	8	30	70	130	0.77
180	183	8	30	70	130	0.91
200	203	10	40	90	150	1.33
250	254	10	40	90	150	2.16
300	304	10	40	100	160	2.87
315	319	10	40	100	160	3.00
350	353	10	45	110	170	3.71

Please quote when ordering: type of fitting, nominal diameter (DN), installation type. Other sizes available on request.

CONNECTION FITTINGS TYPE EA

Swivel-type flange joint for extraction, exhaust and conveying hoses type FA, FG, FS, SD



46

Type
EA20S
EA80S

Design:

- Swivel-type flange joint

Modo de montaje:

- Sealed by compression and riveted, brazed or clamped

Materials:

- EA20S:
Stainless-steel sleeve, stainless-steel flange (1.4301)
- EA80S:
Stainless-steel sleeve (1.4301), flange, galvanized steel

Operating temperature:

EA20S: 600° C
EA80S: 480° C

Order specifications:

- Fitting type EA20S or EA80S

DN	Interior diameter		Number of holes	Weight approx.					
	d1	b			k	d2	s	a	l
	mm	mm	mm	mm	mm	mm	mm	kg/m	
50	115	6	89	4	9.5	1	40	85	0.48
60	125	6	99	4	9.5	1	40	85	0.55
70*	133	6	110	4	9.5	1	40	85	0.61
80*	142	6	118	4	9.5	1	40	95	0.67
100*	162	6	139	4	9.5	1	50	105	0.87
120*	187	6	165	4	9.5	1	50	110	1.03
125*	187	6	165	4	9.5	1	50	110	1.04
140*	212	6	182	8	11.5	1	60	120	1.34
180*	252	6	219	8	11.5	1.25	60	120	1.83
200*	273	6	241	8	11.5	1.25	60	120	2.10
250*	323	6	292	8	11.5	1.25	60	120	2.58
300	383	8	349	8	11.5	1.5	60	120	4.48
315*	398	8	366	8	11.5	1.5	60	120	4.75
350*	438	8	405	8	11.5	1.5	60	120	5.21
400*	484	8	448	12	11.5	1.5	70	130	6.28
500*	584	8	551	12	11.5	2	70	130	8.86

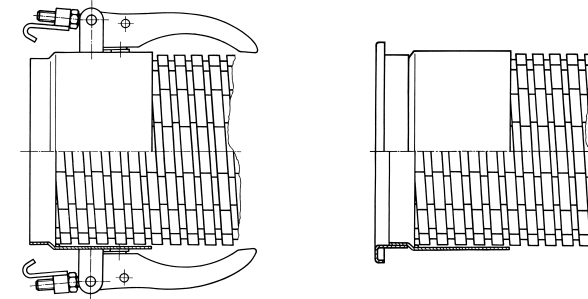
*Flange dimensions in accordance with DIN 241545, 2nd edition July 1990

Other sizes available on request.

Please quote when ordering: type of fitting, nominal diameter (DN), installation type.

CONNECTION FITTINGS TYPE WE, WK

Quick-release coupling for extraction, exhaust and conveying hoses type FA, FG, FS, SD



47

Type
WE20S
WK20S

Design:

Type WE20S

- Coupling element with guide and clamp lock
- DN 200 and above: comes with 2 wooden handles

Type WK20S

- Flange element with guide suitable for coupling element

Installation type:

- Sealed by compression and riveted, brazed or clamped

Materials:

Stainless steel

Operating temperature:

600° C

Order specifications:

- Fitting type VF20S

Accesorios adiconales:

- Screen, galvanized steel
- Lid with chain, galvanized steel
- Handles, 1 pair, wood

DN	Clamp lock	Wooden handles
100	2 units	–
125	2 units	–
150	2 units	–
200	3 units	2 units
250	3 units	2 units
300	3 units	2 units
315	3 units	2 units

Please quote when ordering: fitting type, nominal diameter (DN), installation type. Other sizes available on request.



Type
SD370L
FG370L

Application:

Exhaust hoses acc. to DIN 14572 are used for carrying away exhaust gas from portable fire pumps (DIN 14410), from fire brigading vehicles (DIN 14502 part 1) and from power-generating aggregates (DIN 14685). The hoses prevent operating personnel from being hampered by exhaust gases.

Design:

- Round or polygonal cross-section
- Wooden handles
- Sleeve with pin on one side; sleeve with L-slot on the other side

Materials:

- Galvanized steel with glass fibre seal
- Hot-dip galvanized steel (1.0226): DN 20 and above

Operating temperature:

400° C

Supplied in the following forms:

On stock, prior sale reserved

Order specifications:

Hose, galvanized steel
DN 47: type SD370L
DN 80, 100 and 125: type FG370L

DN	Interior diameter		Exterior diameter		Nominal length extended NL	Weight approx.
	d1	d2	d1	d2		
	mm	mm	mm	mm	mm	kg/m
47	50	52	52	52	1500 2500	2.50 4.00
80	85	87	87	87	2500	6.50
100	102	104	104	104	2500	10.00
125	130	132	132	132	2500	11.50

Please quote when ordering: type of hose, nominal diameter (DN), nominal length (NL). Other sizes available on request.



Flexible arms



Application:

Flexible arms, popularly known as "goose necks", for uses such as lamp bracket hoses or microphone arms. Applications are also standard in fibreoptics (cold light sources, measuring devices), for welding shields, in traffic control technology, car telephones, medical-equipment manufacture etc.

Design:

- Flexible yet resistant to bending
- Combination of interior round wire with a triangular wire coil inserted from outside

Versions:

In many cases it is our common practice to make customized versions; here we can only list the standard series. If this does not cover your needs and you have application-specific requirements, please let us know. Take advantage of our long experience and expert advice.

Load-bearing capacity:

The load-bearing capacity of flexible arms is a function of their nominal size (NG) and the length of the support coil. The term "carrying length" (l) describes the length at which a vibration-free support coil, horizontally clamped on one side, is permitted to sink under its own weight by a distance not exceeding its own exterior diameter. The diagram on the next page shows the relationship between nominal size (NG) and maximum load (p).

Notes on installation:

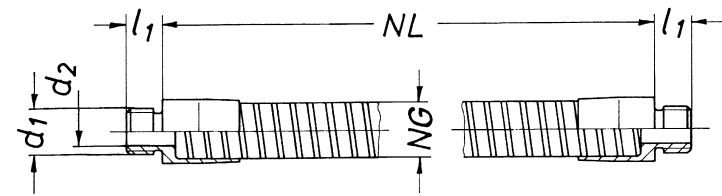
Flexible arms are to be bent evenly; on no account is the minimum bending radius to be exceeded.

Lead time:

Possible at short notice

Order specifications:

- Flexible arm, blank, NL 90 up to 4000 mm
Type BA 151L11
- Flexible arm, high-gloss nickel-plated, NL 90 up to 760 mm
Type BA 152L11
- Flexible arm, high-gloss chromium-plated, NL 90 up to 760 mm
Type BA 153L11
- Flexible arm, matt chromium-plated, NL 90 up to 760 mm
Type BA 154L11
- Flexible arm, matt black finish, NL 90 up to 800 mm
Type BA 156L11



Type FR201 Type FR211 Type FR400



50

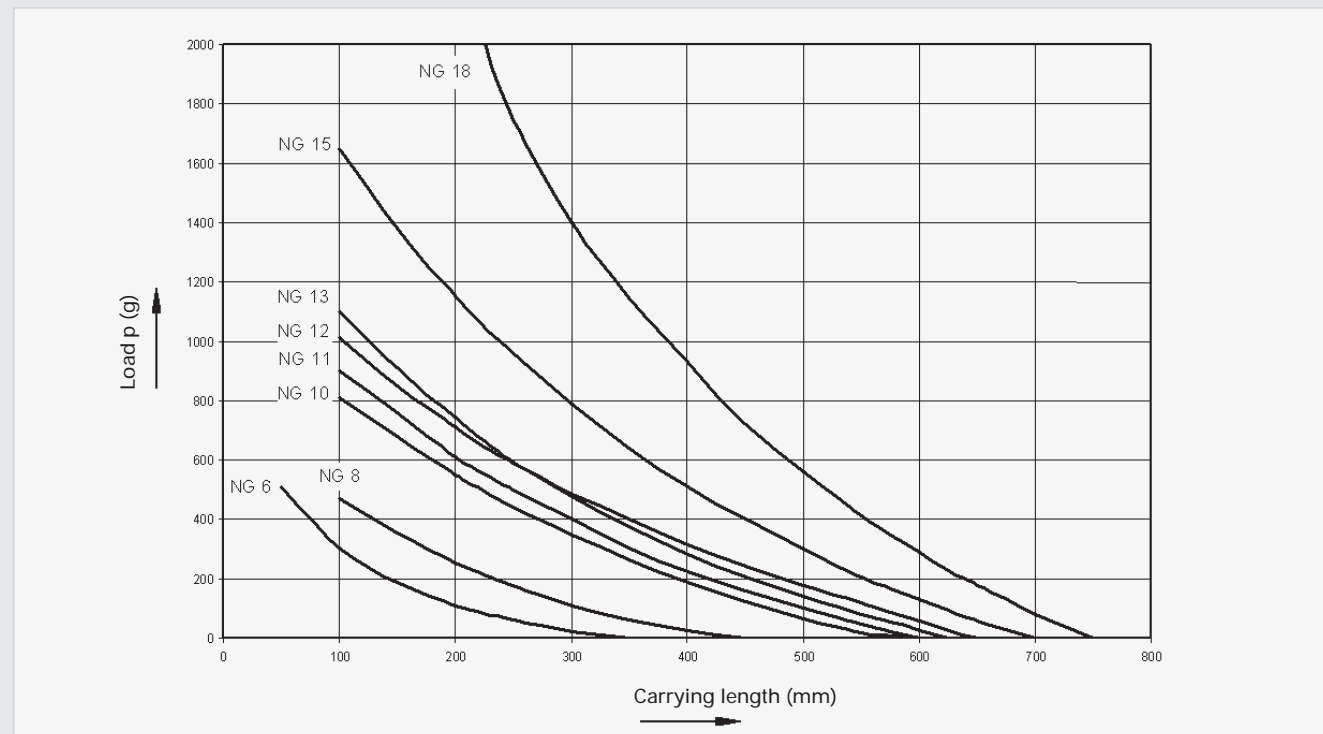
Flexible arms

51

Type FR201
FR211
FR400

NG	Support coil		Connection dimensions			Minimum bending radius	Weight approx. kg/m
	Interior Ø	Tol.	d1	d2	l1		
6	2.6	+0.2 / -0.1	M8 x 1	3.0	8	35	0.150
8	3.9	+0.1 / -0.2	M10 x 1	6.5	8	45	0.250
10	5.3	+0.1 / -0.2	M10 x 1	6.5	8	55	0.350
11	5.3	+0.1 / -0.2	M10 x 1	6.5	8	50	0.465
12	6.7	+0.1 / -0.2	M10 x 1	6.5	8	60	0.470
13	7.1	+0.1 / -0.2	M10 x 1	6.5	8	60	0.590
15	7.3	+0.1 / -0.2	M10 x 1	6.5	8	65	0.850
18	7.7	+0.1 / -0.3	M10 x 1	5.0	8	120	1.30

Diagrama de carga



Application:

Coolant hoses convey liquid and gaseous coolants or lubricants during metal cutting. They can also be used to blow away shavings and metal parts in moulds and workpieces, as well as those arising from use of stamping parts.

Properties:

- Small bending radii, enabling them to be precisely adjusted in the desired direction.
- Reliably maintain alignment even under high pressure, without showing fatigue or vibrating
- Robust and resistant to wear and tear
- Resistant to hot shavings, oils and greases

Design:

- Support coil consists of two profilated wires wound one on top of the other
- A PVC hose is inserted inside

Versions:

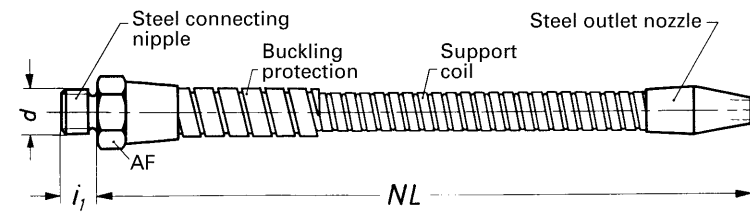
- A range of versions is available for different applications:
- Type FR201: Standard versions with fixed threaded pins and outlet nozzles
 - Type FR211: Coolant hose with connection for interchangeable nozzles
 - Type FR400: High-pressure hose assembly for strong mechanical stresses, as in casting plants, in both machine and tool construction, in plastic injection-moulding machines, and on calendars as separating spray pipes for parting agents.

Witzenmann also supplies plastic coolant hoses composed of individual elements – a variable snap-on system.

Accessories: cut-off ASP 321

Nickel-plated brass

DN	Whitworth pipe thread DIN EN ISO 228-1 d	l	SW
		mm	mm
6	G 1/4	45	22
8	G 3/8	45	22
10	G 1/2	55	27
16	G 3/4	65	32



Type
FR201

Coolant hose type FR201

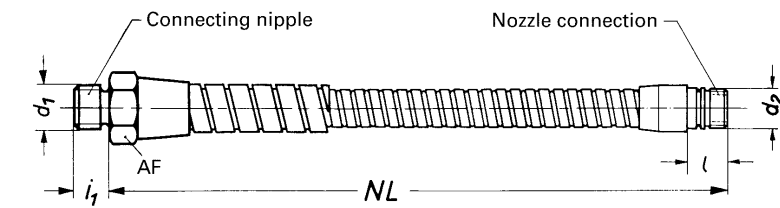
Steel supporting coil with PVC interior hose, threaded pin and steel outlet nozzle

Nickel-plated hose surface with additional buckling protection up to and including DN 10

DN	Connecting nipple DIN 3852-A, part 2		SW	Minimum bending radius r min	Nominal length NL ±5						
	d	i1			mm						
	Zoll	mm			mm						
4	G 1/8	8	15	64	200	250	320	400	-	-	-
6	G 1/4	10	19	72	200	250	320	400	500	630	-
8	G 3/8	10	24	88	-	250	320	400	500	630	-
10	G 1/2	12	27	110	-	-	320	400	500	630	800
16	G 3/4	12	36	110	-	-	-	-	500	630	-

On stock – immediately available. Prior sale reserved.

Please quote when ordering: type of hose, nominal diameter (DN) and nominal length (NL).



Type
FR211

Coolant hose type FR211

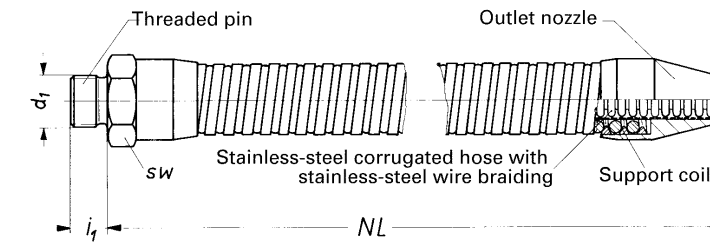
Steel support coil with PVC interior hose, threaded steel pins, connection with O-ring for interchangeable brass or

aluminium nozzles, nickel-plated hose surface, with additional buckling protection up to and including DN 10.

DN	Connecting nipple DIN 3852-A, part 2		SW	Nozzle connection		Minimum bending radius r min	Nominal length NL ±5					
	d1	i1		d2	i		mm					
	Zoll	mm		mm	mm		mm					
4	G 1/8	8	15	M10 x 1	12.0	64	220	250	320	400	-	-
6	G 1/4	10	19	M12 x 1	15.5	72	200	250	320	400	500	-
8	G 3/8	10	24	M16 x 1	17.5	88	-	250	320	400	500	630
10	G 1/2	12	27	M18 x 1	19.0	110	-	-	320	400	500	630
16	G 3/4	12	36	M26 x 1.5	27.0	110	-	-	-	-	500	630

On stock – immediately available. Prior sale reserved.

Please quote when ordering: type of hose, nominal diameter (DN) and nominal length (NL).

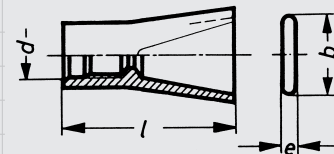


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Type FR211 Accessories

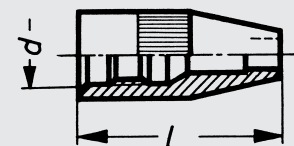
Flat nozzle type DUE110
• Aluminium, blank

DN	d mm	l mm	Outlet b x e mm
4	M10 x 1	34	16 x 0.8
6	M12 x 1	40	21 x 1.4
8	M16 x 1	50	26 x 2.0
10	M18 x 1	60	32 x 2.5
16	M26 x 1.5	70	44 x 3.0



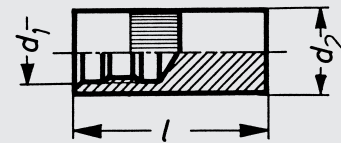
Adjustable nozzle DUE411
• Nozzle can be turned off
• Nickel-plated brass

DN	d mm	l mm
4	M10 x 1	28
6	M12 x 1	36
8	M16 x 1	44
10	M18 x 1	52
16	M26 x 1.5	55



Special nozzle type DUE510
• Bored nozzle, semi-finished by turning
• For self-made nozzle design
• Brass, blank

DN	d1 mm	l mm	d2 mm
4	M10 x 1	28	12
6	M12 x 1	36	15
8	M16 x 1	44	19
10	M18 x 1	52	23
16	M26 x 1.5	55	31.5



On stock – immediately available. Prior sale reserved.
Please quote when ordering: type, nominal diameter (DN)

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Type FR400

Coolant hose type FR400

- Self-supporting high-pressure hose assembly
- Interior annularly corrugated hose with braiding, made entirely of stainless steel
- Exterior steel support coils, outlet nozzles and threaded brass pins

DN	Threaded pin DIN 3852-A, part 2		SW mm	Minimum bending radius r min mm	Nominal pressure PN bar	Nominal length NL ±5 mm			
	Zoll	mm				320	400	500	630
6	G 1/4	12	24	110	160	320	400	500	630
10	G 3/8	12	30	110	100	320	400	500	630

Available at short notice
Please quote when ordering: type of hose, nominal diameter (DN), nominal length (NL)