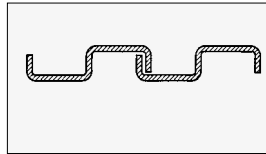
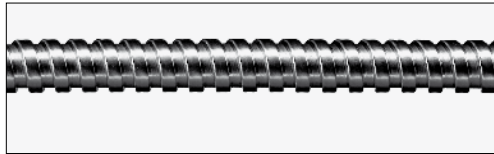


## Protective hoses

to DIN EN ISO 15465 (type SOU), DIN EN 50086-2-3

## Type SG



### Types:

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

### Application:

- protective hose to DIN EN ISO 15465 (type SOU)
- standard protective hose for VDE-approved electrical installations 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 > galvanised, uncoated, but PG dimensions only

### Materials:

- steel, galvanised (1.0330): up to DN 18
- steel, hot-dip galvanised (1.0226): DN 20 and above
- brass (2.0321)
- stainless steel (1.4301)

### Versions:

- galvanised steel, uncoated
- brass, blank, nickel- or chromium-plated
- stainless steel, uncoated

### Operating temperature:

- brass: 250° C
- galvanised steel: 400° C
- stainless steel: 600° C  
(for VDE-approved applications:  
from -15° C to +60° C)

## Protective hoses

to DIN EN ISO 15465 (type SOU), DIN EN 50086-2-3

## Type SG

### 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 bis 11: 50 u. 100 m bundle
  - DN 14 bis 23: 25 u. 50 m bundle
  - DN 31: 25 m bundle

### Supplied in the following forms:

Bundled in rings

### Order specifications:

- protective hose, galvanised 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

## Protective hoses

to DIN EN ISO 15465 (type SOU), DIN EN 50086-2-3

## Type SG-S-O

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

## Protective hoses

to DIN EN ISO 15465 (type SOU), DIN EN 50086-2-3

## Type SG-S-O

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

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

## Protective hoses

Chromium- or nickel-plated brass

## Type SG

DN	Inside diameter	Outside diameter	Permissible tolerance	Minimum bending radius	Weight approx.
—	d	D	d, D	r <sub>min</sub>	—
—	mm	mm	mm	mm	kg/m
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

## Protective hoses

to DIN EN ISO 15465 (type SOU), stainless steel

## Type SG-E-O

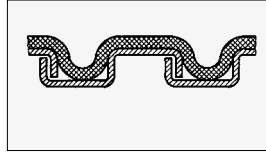
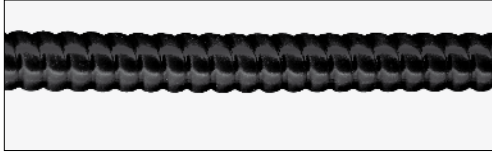
DN	Inside diameter	Outside diameter	Permissible tolerance	Minimum bending radius	Weight approx.
—	d	D	d, D	r <sub>min</sub>	—
—	mm	mm	mm	mm	kg/m
2	1.4	3.0	±0.1	16	0.020
3	3.0	4.6	±0.2	18	0.030
4	4.0	5.8	±0.2	19	0.035
5	5.0	6.8	±0.2	20	0.040
6	6.0	8.0	±0.3	25	0.050
7	7.0	9.0	±0.3	27	0.060
8	8.0	10.0	±0.3	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

## Protective hoses

to DIN EN 50086-2-3 (VDE 0605 part 2-3),  
galvanised steel with plastic coating

## Type SG



**Types:**  
SG-S-P

### Application:

- standard protective hose for VDE-approved electrical installations 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 > galvanised, coated,  
but PG dimensions only

### Materials:

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

### Versions:

Galvanised steel, with black PVC coating

### Operating temperature:

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

## Protective hoses

to DIN EN 50086-2-3 (VDE 0605 part 2-3),  
galvanised steel with plastic coating

## Type SG

### Classification:

Coated

01-02-03-04-05-06-07-08-09-10-11-12  
--3--3--3--1--4--1--4--0--3--1--1--3  
(DN 7)  
--3--3--3--1--4--1--4--0--2--2--1--3  
(DN 10-49)

### Production lengths:

Measured in extended position

- DN 4 bis 11: 50 u. 100 m bundle
- DN 14 bis 23: 25 u. 50 m bundle
- DN 31: 25 m bundle

### Supplied in the following forms:

Bundled in rings

### Order specifications:

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

## Protective hoses

to DIN EN 50086-2-3 (VDE 0605 part 2-3),  
galvanised steel with plastic coating

## Type SG-S-P

DN	Nominal size	Inside diameter	Outside diameter	Permissible tolerance	Minimum bending radius	Weight approx.
—	PG	d	D	d, D	r <sub>min</sub>	—
—	DIN 40430	mm	mm	mm	mm	kg/m
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

## Protective hoses

to DIN EN 50086-2-3 (VDE 0605 part 2-3),  
galvanised steel with plastic coating

## Type SG-S-P

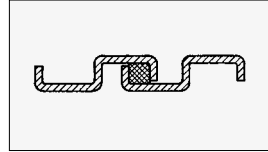
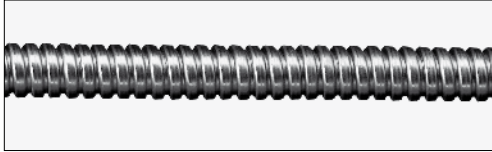
DN	Nominal size	Inside diameter	Outside diameter	Permissible tolerance	Minimum bending radius	Weight approx.
—	PG	d	D	d, D	r <sub>min</sub>	—
—	DIN 40430	mm	mm	mm	mm	kg/m
36		36.0	42.6	±0.4	112	0.685
38*	36*	38.2	44.8	±0.4	117	0.730
40*		40.0	46.6	±0.4	122	0.765
45*	42*	45.2	51.8	±0.4	136	0.850
47		47.0	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

## Protective hoses

Extraction and exhaust hoses

## Type SD



### Types:

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, galvanised (1.0330): up to DN 18
- steel, hot-dip galvanised (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:

- galvanised, with rubber seal: 60° C
- galvanised, with cotton seal: 120° C
- galvanised, with ceramic seal: 400° C
- stainless steel with ceramic seal: 600° C

## Protective hoses

Extraction and exhaust hoses

## Type SD

### Production lengths:

Measured in extended position

- DN 8 bis 11; 50 u. 100 m bundle
- DN 14 bis 23; 25 u. 50 m bundle
- DN 31; 25 m bundle

### Supplied in the following forms:

Bundled in rings

### Order specifications:

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

## Protective hoses

Extraction and exhaust hoses, galvanised or stainless steel

Choice of seal: cotton, rubber, ceramic or glass fibre seal

## Type SD

DN	Inside diameter	Outside diameter	Permissible tolerance	Minimum bending radius	Weight approx.
—	d	D	d, D	r <sub>min</sub>	—
—	mm	mm	mm	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

## Protective hoses

Extraction and exhaust hoses, galvanised or stainless steel

Choice of seal: cotton, rubber, ceramic or glass fibre seal

## Type SD

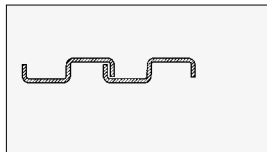
DN	Inside diameter	Outside diameter	Permissible tolerance	Minimum bending radius	Weight approx.
—	d	D	d, D	r <sub>min</sub>	—
—	mm	mm	mm	mm	kg/m
34	34.0	38.5	±0.4	125	0.585
35	35.0	39.5	±0.4	130	0.600
36	36.0	41.5	±0.4	130	0.640
37	37.0	42.5	±0.4	140	0.680
38	38.0	43.5	±0.4	145	0.720
39	38.5	44.0	±0.4	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

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

## Protective hoses

Rectangular protective hoses

## Type SV



### Types:

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, galvanised (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, galvanised steel, without seal  
Type SV-S-O
- rectangular protective hose, galvanised steel, with rubber seal  
Type SV-S-G
- rectangular protective hose, galvanised steel, with cotton seal  
Type SV-S-B

## Protective hoses

Rectangular protective hoses

Galvanised steel, without seal

## Type SV-S-O

Nominal size	Outside dimensions			Inside dimensions			Minimum bending radius		Weight approx.
	D <sub>1</sub>	D <sub>2</sub>	Perm. tolerance	d <sub>1</sub>	d <sub>2</sub>	Perm. tolerance	r <sub>min</sub>	Perm. tolerance	
mm	mm		mm	mm		mm	mm	–	kg/m
<b>15</b>	30	x 50	+ 1	27.0	x 47.0	-1	70	- 10	0.640
<b>25</b>	50	x 50	+ 1	46.8	x 46.8	-1	120	- 10	0.820
<b>38</b>	45	x 85	+ 1	40.8	x 81.0	1	100	- 10	1.28
<b>42</b>	65	x 65	+ 1	60.8	x 60.8	1	130	- 10	1.26
<b>51</b>	60	x 85	+ 1	55.8	x 81.0	1	130	- 10	1.44
<b>69</b>	60	x 115	+ 1	54.8	x 110.2	-1	130	- 20	2.37
<b>92</b>	80	x 115	+ 1	74.6	x 110.0	1	170	- 20	2.66
<b>126</b>	90	x 140	+ 1	84.6	x 135.0	1	180	- 20	3.15
<b>140</b>	80	x 175	+ 1	74.4	x 169.8	1	170	- 20	3.54
<b>154</b>	110	x 140	+ 1	104.2	x 135.2	1	250	- 20	3.60
<b>193</b>	110	x 175	+ 1	104.2	x 169.6	1	250	- 20	3.97
<b>242</b>	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