Anchor INDUSTRIES

steel wire rope slings and fittings

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001

TYPE APPROVAL DNV·GL 2.7-1=2.7-3

LEEA Development Member

labour Department: Labour REPUBLIC OF SOUTH AFRICA

merSETA MANUFACTURING, ENGINEERING AND RELATED SERVICES SETA

BROAD-BASED BLACK ECONOMIC EMPOWERMENT B-BBEE VERIFIED LEVEL 4

Steel Wire Rope Slings
SANS7531

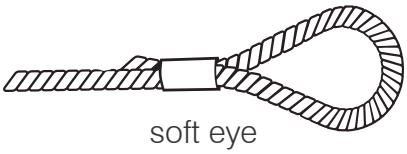
Working load limits

using 6x19 or 6x36 IWRC (1960mpa) — factor of safety 6:1

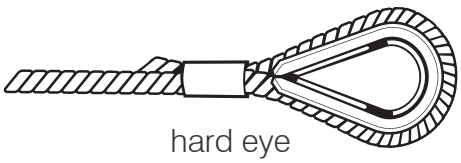
SWR Ø	nominal break load	1 Leg				2 Leg angle between the legs				3 and 4 Leg angle between the legs			endless choke **
		0°	choke	halshing	basket	60°	90°	120°	reeving	60°	90°	120°	
[mm]	[kN]	[t]	[t]	[t]	[t]	[t]	[t]	[t]	[t]	[t]	[t]	[t]	[t]
8	44.7	0.72	0.54	1.07	1.01	1.22	1.00	0.72	0.76	1.86	1.50	1.07	0.80
9	56.5	0.90	0.68	1.36	1.27	1.54	1.27	0.90	0.96	2.35	1.90	1.36	1.02
10	69.8	1.12	0.84	1.68	1.57	1.90	1.56	1.12	1.18	2.90	2.35	1.68	1.26
11	84.4	1.35	1.01	2.03	1.90	2.30	1.89	1.35	1.43	3.51	2.84	2.03	1.52
12	100.0	1.60	1.20	2.40	2.26	2.72	2.24	1.60	1.70	4.16	3.36	2.40	1.80
13	118.0	1.89	1.42	2.83	2.66	3.21	2.64	1.89	2.00	4.91	3.96	2.83	2.12
14	137.0	2.19	1.64	3.29	3.09	3.73	3.07	2.19	2.32	5.70	4.60	3.29	2.47
16	179.0	2.86	2.15	4.30	4.04	4.87	4.01	2.86	3.04	7.45	6.01	4.30	3.22
18	226.0	3.62	2.71	5.42	5.10	6.15	5.06	3.62	3.83	9.40	7.59	5.42	4.07
20	279.0	4.46	3.35	6.70	6.29	7.59	6.25	4.46	4.73	11.61	9.37	6.70	5.02
22	338.0	5.41	4.06	8.11	7.63	9.19	7.57	5.41	5.73	14.06	11.36	8.11	6.08
24	402.0	6.43	4.82	9.65	9.07	10.93	9.00	6.43	6.82	16.72	13.51	9.65	7.24
26	472.0	7.55	5.66	11.33	10.65	12.84	10.57	7.55	8.01	19.64	15.86	11.33	8.50
28	547.0	8.75	6.56	13.13	12.34	14.88	12.25	8.75	9.28	22.76	18.38	13.13	9.85
30	628.0	10.05	7.54	15.07	14.17	17.08	14.07	10.05	10.65	26.12	21.10	15.07	11.30
32	715.0	11.44	8.58	17.16	16.13	19.45	16.02	11.44	12.13	29.74	24.02	17.16	12.87
34	807.0	12.91	9.68	19.37	18.21	21.95	18.08	12.91	13.69	33.57	27.12	19.37	14.53
36	904.0	14.46	10.85	21.70	20.39	24.59	20.25	14.46	15.33	37.61	30.37	21.70	16.27
38	1008.0	16.13	12.10	24.19	22.74	27.42	22.58	16.13	17.10	41.93	33.87	24.19	18.14
40	1120.0	17.92	13.44	26.88	25.27	30.46	25.09	17.92	19.00	46.59	37.63	26.88	20.16
42	1231.0	19.70	14.77	29.54	27.77	33.48	27.57	19.70	20.88	51.21	41.36	29.54	22.16
44	1350.0	21.60	16.20	32.40	30.46	36.72	30.24	21.60	22.90	56.16	45.36	32.40	24.30
48	1610.0	25.76	19.32	38.64	36.32	43.79	36.06	25.76	27.31	66.98	54.10	38.64	28.98
52*	1890.0	30.24	22.68	45.36	42.64	51.41	42.34	30.24	32.05	78.62	63.50	45.36	34.02
54*	2035.0	32.56	24.42	48.84	45.91	55.35	45.58	32.56	34.51	84.66	68.38	48.84	36.63
56*	2422.0	38.76	29.07	58.13	54.64	65.88	54.26	38.76	41.08	100.76	81.39	58.13	62.01
60*	2769.4	44.41	33.23	66.47	62.48	75.33	62.03	44.31	46.97	115.21	93.05	66.47	70.90
64*	2951.8	47.23	35.42	70.84	66.59	80.29	66.12	47.23	50.06	122.79	99.18	70.84	75.57
76*	4167.8	66.68	50.01	100.03	94.03	113.36	93.36	66.68	70.69	173.38	140.04	100.03	106.70
load factor													
		1.00	0.75	1.50	1.41	1.70	1.40	1.00	1.06	2.60	2.10	1.50	1.60

the working load limits above apply to normal conditions of use, in straight configuration and based on the “uniform load” method of rating

* working load limits for sizes 52mm to 76mm calculated using 6x36 IWRC 2160mpa (EEIPS) nominal break loads
** factor of safety for endless choke sling is 8:1 according to the OHSA



soft eye
aluminium ferrule



hard eye
aluminium ferrule

flemish soft eye
steel ferrule

Calculation of Work Load Limits

$$WLL = \frac{Fo \times Ke}{Km \times Ku}$$

- WLL is the Work Load Limit of the sling in tonnes
- Fo is the minimum breaking force of the SWR in kilonewtons
- Ke is a factor that allows for the efficiency of the forming of the eye (spliced or ferrule secured)
- Km is a factor relating mass to force
- Ku is a factor that allows for circumstances of use

Factor of Safety

SANS7531 - 6 to 1 using 80% termination efficiency
EN13414-1 - 5 to 1 using 90% termination efficiency

Markings

All slings come standard with the following markings:

- the sling manufacturer's name or mark
- serial number
- the work load limit

Certification

Each sling or batch of slings is provide with a dated certificate giving the following information:

- the name of the sling manufacturer
- the traceable number
- the configuration of the sling
- the size and construction of the steel wire rope used
- the nominal reach
- the working load limit

D/d ratio

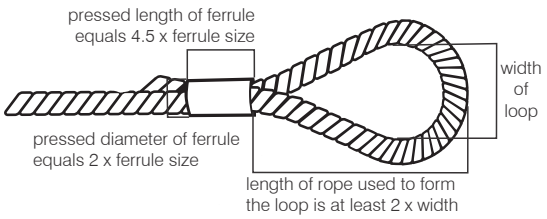
When a sling is bent around something with a large diameter, the outer pieces of the wire stretch very little. However, when a sling is bent around a small diameter, the outer pieces will stretch greatly, thus requiring a reduction in capacity.

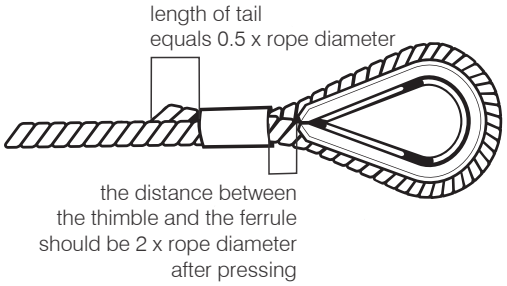
Basket hitches

A basket hitch sling has twice the capacity of a single leg sling only if the D/d ratio > 25:1 and the legs of the sling are vertical at an angle of 0°.

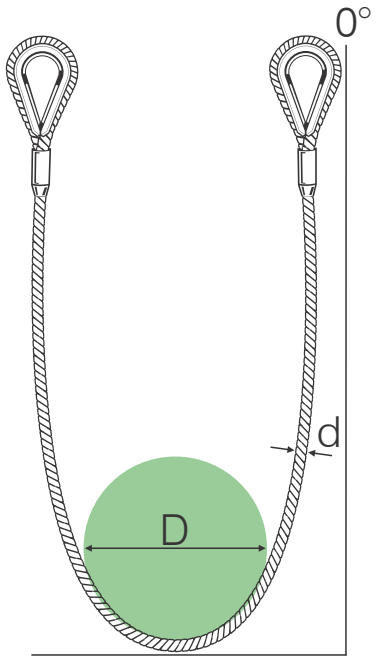
60° - WLL = 1L x 1.7
90° - WLL = 1L x 1.4
120° - WLL = 1L x 1.0

dimensions of eyes after pressing





D/d ratios basket hitches



Steel Wire Rope Slings
EN13414-1

Working load limits

using 6x19 or 6x36 IWRC (1960mpa) — factor of safety 5:1

SWR Ø	nominal break load	1 Leg				2 Leg				3 and 4 Leg			endless choke f.o.s 8:1
						angle between the legs				angle between the legs			
		0°	choke	halshing	basket	60°	90°	120°	reeving	60°	90°	120°	
[mm]	[kN]	[t]	[t]	[t]	[t]	[t]	[t]	[t]	[t]	[t]	[t]	[t]	[t]
8	44.7	0.82	0.62	1.23	1.16	1.39	1.15	0.82	0.87	2.13	1.72	1.23	1.31
9	56.5	1.04	0.78	1.56	1.46	1.76	1.45	1.04	1.10	2.70	2.18	1.56	1.66
10	69.8	1.28	0.96	1.92	1.81	2.18	1.79	1.28	1.36	3.33	2.69	1.92	2.05
11	84.4	1.55	1.16	2.32	2.18	2.63	2.17	1.55	1.64	4.03	3.25	2.32	2.48
12	100.0	1.84	1.38	2.75	2.59	3.12	2.57	1.84	1.95	4.77	3.85	2.75	2.94
13	118.0	2.17	1.62	3.25	3.05	3.68	3.03	2.17	2.30	5.63	4.55	3.25	3.47
14	137.0	2.51	1.89	3.77	3.55	4.27	3.52	2.51	2.67	6.54	5.28	3.77	4.02
16	179.0	3.29	2.46	4.93	4.63	5.59	4.60	3.29	3.48	8.54	6.90	4.93	5.26
18	226.0	4.15	3.11	6.22	5.85	7.05	5.81	4.15	4.40	10.79	8.71	6.22	6.64
20	279.0	5.12	3.84	7.68	7.22	8.71	7.17	5.12	5.43	13.31	10.75	7.68	8.19
22	338.0	6.20	4.65	9.31	8.75	10.55	8.69	6.20	6.58	16.13	13.03	9.31	9.93
24	402.0	7.38	5.53	11.07	10.40	12.54	10.33	7.38	7.82	19.18	15.50	11.07	11.81
26	472.0	8.66	6.50	13.00	12.22	14.73	12.13	8.66	9.18	22.53	18.19	13.00	13.86
28	547.0	10.04	7.53	15.06	14.16	17.07	14.06	10.04	10.64	26.10	21.08	15.06	16.06
30	628.0	11.53	8.65	17.29	16.25	19.60	16.14	11.53	12.22	29.97	24.21	17.29	18.44
32	715.0	13.12	9.84	19.69	18.50	22.31	18.37	13.12	13.91	34.12	27.56	19.69	21.00
34	807.0	14.81	11.11	22.22	20.89	25.18	20.74	14.81	15.70	38.51	31.11	22.22	23.70
36	904.0	16.59	12.44	24.89	23.40	28.21	23.23	16.59	17.59	43.14	34.84	24.89	26.55
38	1008.0	18.50	13.88	27.75	26.09	31.45	25.90	18.50	19.61	48.10	38.85	27.75	29.60
40	1120.0	20.56	15.42	30.84	28.99	34.95	28.78	20.56	21.79	53.45	43.17	30.84	32.89
42	1231.0	22.59	16.95	33.89	31.86	38.41	31.63	22.59	23.95	58.75	47.45	33.89	36.15
44	1350.0	24.78	18.58	37.17	34.94	42.12	34.69	24.78	26.27	64.43	52.04	37.17	39.65
48	1610.0	29.55	22.16	44.33	41.67	50.24	41.37	29.55	31.32	76.83	62.06	44.33	47.28
52*	1890.0	34.69	26.02	52.04	48.91	58.97	48.57	34.69	36.77	90.20	72.85	52.04	55.51
54*	2035.0	37.35	28.01	56.03	52.67	63.50	52.29	37.35	39.59	97.12	78.44	56.03	59.76
56*	2422.0	44.46	33.34	66.68	62.68	75.57	62.24	44.46	47.12	115.58	93.36	66.68	71.13
60*	2769.4	50.83	38.12	76.25	71.67	86.41	71.16	50.83	53.88	132.16	106.75	76.25	81.33
64*	2951.8	54.18	40.63	81.27	76.39	92.11	75.85	54.18	57.43	140.87	113.78	81.27	86.69
76*	4167.8	76.50	57.37	114.75	107.86	130.05	107.1	76.50	81.09	198.9	160.65	114.75	122.40
load factor													
		1.00	0.75	1.50	1.41	1.70	1.40	1.00	1.06	2.60	2.10	1.50	1.60

the working load limits above apply to normal conditions of use, in straight configuration and based on the “uniform load” method of rating

* working load limits for sizes 52mm to 76mm calculated using 6x36 IWRC 2160mpa (EEIPS) nominal break loads

Apply the following factors when not using the full number of legs:

type of sling	no. of legs	load factor
2	1	WLL x 0.50
3 or 4	2	WLL x 0.75
3 or 4	1	WLL x 0.33

Steel Wire Rope Slings
DNV2.7-1 and DNV2.7-3

Components for sling sets used on offshore containers
using 6x19 or 6x36 IWRC (1960mpa)

Container Rating	Enhancement Factor	Work load limit minimum	forerunner sling 0°	2 leg sling 45°	3 or 4 leg sling 45°	Shackle for 2 leg	Shackle for 3 or 4 leg
[kgs]		[t]	[mm]	[mm]	[mm]	[t]	[t]
500		7.00	24	20	18	6.50	4.75
1000		7.00	24	20	18	6.50	4.75
1500		7.00	24	20	18	6.50	4.75
2000	3.5000	7.00	24	20	18	6.50	4.75
2500	2.8800	7.20	24	22	18	6.50	4.75
3000	2.6000	7.80	26	22	18	6.50	4.75
3500	2.4030	8.41	26	22	18	6.50	4.75
4000	2.2070	8.83	28	24	20	6.50	4.75
4500	2.0670	9.30	28	24	20	8.50	4.75
5000	1.9600	9.80	28	24	20	8.50	4.75
5500	1.8730	10.30	30	24	20	8.50	6.50
6000	1.7660	10.60	30	26	20	8.50	6.50
6500	1.7330	11.26	30	26	22	8.50	6.50
7000	1.7000	11.90	32	26	22	8.50	6.50
7500	1.6660	12.50	32	28	22	9.50	6.50
8000	1.6330	13.06	32	28	24	9.50	6.50
8500	1.6000	13.60	32	28	24	12.00	6.50
9000	1.5670	14.10	34	30	24	12.00	6.50
9500	1.5340	14.57	34	30	24	12.00	8.50
10000	1.5010	15.01	36	30	24	12.00	8.50
10500	1.4790	15.53	36	30	26	12.00	8.50
11000	1.4570	16.03	36	30	26	12.00	8.50
11500	1.4350	16.50	36	32	26	12.00	8.50
12000	1.4130	16.96	38	32	26	12.00	8.50
12500	1.3910	17.39	38	32	26	13.50	8.50
13000	1.3680	17.78	38	32	26	13.50	8.50
13500	1.3460	18.17	38	32	26	13.50	9.50
14000	1.3240	18.54	40	34	28	13.50	9.50
14500	1.3020	18.88	40	34	28	13.50	9.50
15000	1.2800	19.20	40	34	28	17.00	9.50
15500	1.2670	19.64	40	34	28	17.00	9.50
16000	1.2540	20.06	40	34	28	17.00	9.50
16500	1.2400	20.46	40	34	28	17.00	12.00
17000	1.2270	20.86	42	36	28	17.00	12.00
17500	1.2140	21.25	42	36	30	17.00	12.00
18000	1.2010	21.62	42	36	30	17.00	12.00
18500	1.1880	21.98	42	36	30	17.00	12.00
19000	1.1740	22.31	42	36	30	17.00	12.00
19500	1.1610	22.64	44	36	30	17.00	12.00
20000	1.1480	22.96	44	36	30	17.00	12.00
20500	1.1430	23.43	44	38	30	17.00	12.00
21000	1.1390	23.92	44	38	30	17.00	12.00
21500	1.1350	24.40	44	38	32	25.00	12.00
22000	1.1300	24.86	48	38	32	25.00	12.00
22500	1.1260	25.34	48	38	32	25.00	12.00
23000	1.1210	25.78	48	38	32	25.00	13.50
23500	1.1170	26.25	48	40	32	25.00	13.50
24000	1.1120	26.69	48	40	32	25.00	13.50
24500	1.1080	27.15	48	40	32	25.00	13.50
25000	1.1040	27.60	48	40	34	25.00	13.50

Safe use and maintenance

Limitations on the use of the sling due to environmental conditions or hazardous applications

a. Select material resistant to chemicals
   - Steel wire rope and components must not be used in alkaline or acidic environments.
   - Comprehensive and regular examination must be carried out when used in severe or corrosive inducing environments.

b. Hardness of steel wire rope.

Rope Grade	API Grade
2160N/mm²	EEIPS
1960N/mm²	EIPS
1770N/mm²	IPS
1570N/mm²	PS

Before putting the sling into first use check the following:

a. Availability of manufacturer's certificate.

b. The sling corresponds precisely to the product specified on the order.

c. The identification and WLL marked on the sling correspond with the information on the certificate.

d. All details of the sling are entered into a lifting equipment register.

e. The availability of instructions for use and adequate training has been given to staff to enable the safe use of the sling.

Before each use / period of use check the following:

a. A thorough inspection of the steel wire rope for broken strands, kinks, crushing, nicks and gouges, ecessive wear, severe corrosion. Increase in the throat opening of Hooks. Distortion or damage to Master links, Thimbles, Ferrules and attachments.

b. Presence of a label and legibility of markings.

c. If any defects are detected withdraw the sling from service.

Selection and use of steel wire rope slings

a. Determine the mass of the load, its centre of gravity, attachment points and proposed method of attachment.

b. Observe the marked WLL and mode factors. In the case of multi-leg slings, this will include restrictions on the angle of sling legs.

c. Always protect slings from sharp edges using suitable packing.

d. Do not drag a load in the sling and do not drag slings over the ground or rough surfaces.

e. Take care to avoid snatch or shock loads which can overstress steel wire rope.

f. Always make sure steel wire rope is free of kinks before putting it under tension.

g. Never load a hook on its tip or wedge a hook into a lifting point.

h. Never use a multi-leg sling at an angle greater that 120° between the sling legs (60° from the vertical).

I. The load should be secured by the sling in such a manner that it cannot topple or fall out of the sling during lift. The sling should be arranged so that the point of lift is directly above the centre of gravity and the load is balanced and stable.

j. When using multi-leg slings make sure that the load is evenly distributed between the legs and each leg carries the same weight.

k. Slings should be protected from edges, friction and abrasions, whether from the load or lifting appliance.

l. Care should be taken to ensure that the load is controlled to prevent accidental rotation or collision with objects.

m. Snatch or shock loading should be avoided as this will increase the forces acting on the sling.

n. Care should be taken to ensure the safety of personnel during lift. Hands and other body parts should be kept away from the sling to prevent injury as the slack is taken up.

o. When using less than the full number of legs, make sure that the legs not in use are hooked back into the Oblong or Sub-Assembly to avoid swinging or snagging causing accidental damage to property or personnel.

p. The load should be lowered in an equally controlled manner as when lifted.

q. Trapping the sling when lowering should be avoided and the load should not rest on the sling as this could cause damage.

r. On completion of the lifting operation the sling should be returned to proper storage. When not in use, slings should be stored in clean, dry conditions on a rack, away from abrasive grit and dust.

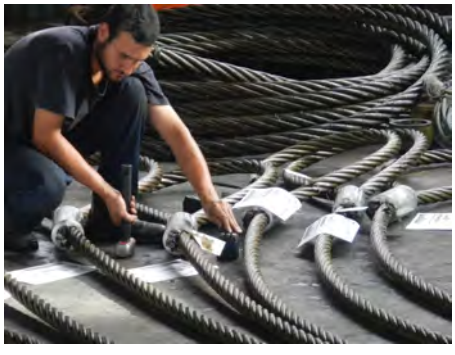
Periodic examination and maintenance

a. Examination periods should be determined by a competent person, taking into account the application, environment, frequency of use and similar matters, but in any event should be visually examined at least ever 3 months by a competent person.

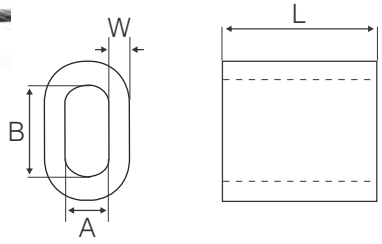
b. The sling should be cleaned prior to inspection to ensure that it is free from oil, dust or any other matter which may cover up cracks or surface defects.

c. Records of such examinations should be maintained.

d. Damaged slings should be withdrawn from service. Never attempt to carry out repairs to the slings yourself.

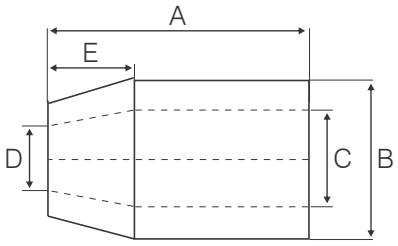


Ferrules
EN13411-3



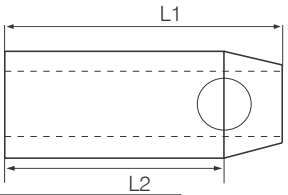
Code	Aluminium					Copper			
	A	B	W	L	Weight	A	B	W	L
	[mm]	[mm]	[mm]	[mm]	[kg/1000pcs]	[mm]	[mm]	[mm]	[mm]
1.0	1.2	2.4	0.65	5	0.094	1.3	2.6	0.86	5
1.5	1.7	3.4	0.75	6	0.211	1.8	3.6	1.05	6
2.0	2.2	4.4	0.85	7	0.375	2.4	4.8	0.85	7
2.5	2.7	5.4	1.05	9	0.499	2.7	5.4	1.10	9
3.0	3.3	6.6	1.25	11	0.843	3.3	6.6	1.35	11
3.5	3.8	7.6	1.50	13	1.320	3.9	7.8	1.60	13
4.0	4.4	8.8	1.70	14	1.81	4.3	8.8	1.70	14
4.5	4.9	9.8	1.90	16	2.61	5.1	10.2	1.90	16
5.0	5.5	11.0	2.10	18	3.57	5.6	11.2	2.10	18
6.0	6.6	13.2	2.50	21	7.55	6.7	13.4	2.50	21
7.0	7.8	15.6	2.90	25	9.53	7.5	15.0	3.00	25
8.0	8.8	17.6	3.30	28	13.70	8.5	17.0	3.50	28
9.0	9.9	19.8	3.70	32	19.80	9.9	19.8	3.70	32
10.0	10.0	21.8	4.10	35	26.40	10.9	21.8	4.10	35
11.0	12.1	24.2	4.50	39	35.80	11.6	23.2	4.20	39
12.0	13.2	26.4	4.90	42	45.80	13.2	26.4	4.90	42
13.0	14.2	28.4	5.40	46	59.70	14.2	28.4	5.40	46
14.0	15.3	30.6	5.80	49	73.50	15.3	30.6	5.80	49
16.0	17.5	35.0	6.70	56	111.00	17.5	35.0	6.70	56
18.0	19.6	39.2	7.60	63	156.00	19.0	38.0	7.80	63
20.0	21.7	43.4	8.40	70	217.00				
22.0	24.3	48.6	9.20	77	292.00				
24.0	26.4	52.8	10.00	84	376.00				
26.0	28.5	57.0	10.90	91	481.00				
28.0	31.0	62.0	11.70	98	603.00				
30.0	33.1	66.2	12.50	105	739.00				
32.0	35.2	70.4	13.40	112	897.00				
34.0	37.8	75.6	14.20	119	1077.00				
36.0	39.8	79.6	15.00	126	1275.00				
38.0	41.9	83.8	15.80	133	1503.00				
40.0	44.0	88.0	16.60	140	1734.00				
42.0	46.2	92.4	17.50	147	2024.00				
44.0	48.4	96.8	18.30	154	2314.00				
46.0	50.6	101.2	19.20	161	2662.00				
48.0	52.8	105.6	20.00	168	3010.00				
50.0	55.0	110.0	20.80	175	3412.00				
52.0	57.2	114.4	21.60	182	3813.00				
54.0	59.4	118.8	22.50	189	4293.00				
56.0	61.6	123.2	23.30	196	4772.00				
58.0	63.8	127.6	24.20	203	5326.00				
60.0	66.0	132.0	25.00	210	5880.00				
64.0	69.0	137.0	26.00	225	6500.00				
78.0	83.0	166.0	32.00	272	11500.00				

Flemish eye steel ferrule EN13411-3



SWR Ø	A	B	C	D	E	Weight
[in]	[in]	[in]	[in]	[in]	[in]	[kg/100pcs]
1/4	1.00	0.66	0.47	0.31	0.28	2.27
5/16	1.50	0.91	0.62	0.38	0.44	6.36
3/8	1.50	0.91	0.66	0.47	0.39	6.36
7/16	2.00	1.22	0.85	0.53	0.65	15.00
1/2	2.00	1.22	0.91	0.63	0.56	13.00
9/16	2.75	1.47	1.03	0.70	0.63	29.00
5/8	2.75	1.47	1.09	0.75	0.63	26.00
3/4	3.19	1.72	1.28	0.91	0.84	40.00
7/8	3.56	2.03	1.53	1.03	1.00	60.00
1	4.00	2.28	1.72	1.16	1.13	89.00
1 1/8	4.80	2.50	1.94	1.28	1.25	118.00
1 1/4	5.19	2.78	2.16	1.44	1.41	161.00
1 3/8	5.81	3.00	2.38	1.56	1.56	192.00
1 1/2	6.25	3.25	2.63	1.69	1.69	227.00
1 3/4	7.25	3.84	3.13	1.94	1.97	366.00
2	8.50	4.38	3.63	2.25	3.63	514.00
2 1/4	9.56	5.03	4.03	2.50	2.53	879.00
2 1/2	10.50	5.50	4.50	2.75	2.81	1068.00
2 3/4	11.50	5.75	4.75	3.00	3.09	1271.00
3	12.00	6.00	5.00	3.25	3.38	1335.00
3 1/4	13.00	6.50	5.43	3.86	3.54	1650.00
3 1/2	14.00	7.00	5.84	3.88	3.94	2106.00
3 3/4	15.00	7.50	6.31	4.06	4.25	2497.00
4 1/2	18.00	9.13	7.66	4.88	5.06	4540.00
5	20.00	10.52	8.73	5.50	5.63	6600.00
6	24.00	12.54	10.20	6.50	6.75	12300.00

Form C aluminium ferrule EN13411-3

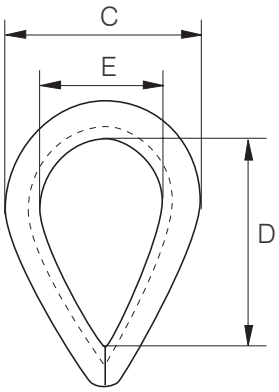


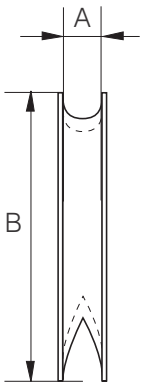
Code	L1	L2
	[mm]	[mm]
8	43	34.0
9	48	38.5
10	53	42.0
11	59	46.7
12	65	50.2
13	70	54.7
14	75	58.2
16	85	66.5
18	96	75.0
20	106	83.0
22	116	91.0
24	126	99.5
26	136	107.2
28	147	115.5
30	158	125.0

Commercial thimbles

mild steel, electro-galvanised

SWR Ø	Groove width	Length	Width	Inside length	Inside width	Weight
	A	B	C	D	E	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg/100pcs]
3	3	24	18	15	10	0.4
4	4	25	19	16	11	0.4
5	5	31	22	22	16	0.8
6	6	37	29	26	19	1.4
7	7	44	32	32	22	2.0
8	8	51	38	34	24	2.8
9	9	57	42	38	29	3.0
10	10	64	44	42	32	4.8
11	11	70	51	48	35	7.5
12	12	76	57	51	38	8.0
14	14	82	60	57	40	10.0
16	16	89	64	60	42	15.0
18	18	102	69	67	45	22.0
20	20	115	79	76	51	25.0
22	22	127	89	83	54	32.0
24	24	140	102	88	64	46.0
26	26	152	105	102	68	66.0

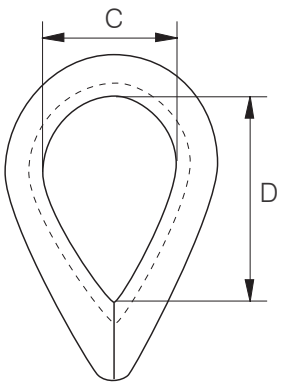


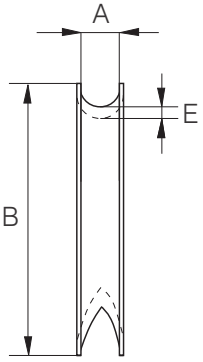


Stainless steel thimbles

AISI 316

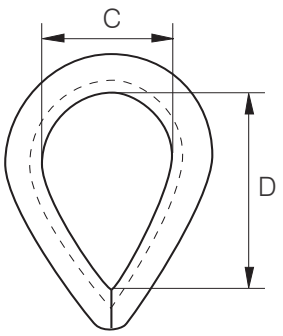
SWR Ø	Groove width	Length	Inside width	Inside length	Thickness	Weight
	A	B	C	D	E	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg/100pcs]
3	3	25	10	16	1.0	0.4
4	4	28	11	17	1.0	0.5
5	5	32	13	20	1.0	0.6
6	6	39	16	25	1.2	1.0
7	7	40	18	28	1.2	1.2
8	8	49	20	32	1.4	1.8
10	10	55	26	40	1.9	2.9
12	12	70	28	45	2.0	4.6
14	14	80	34	56	2.2	7.3
16	16	85	37	62	2.5	9.7
18	18	95	42	65	2.5	16.5
20	20	115	45	78	3.0	21.3

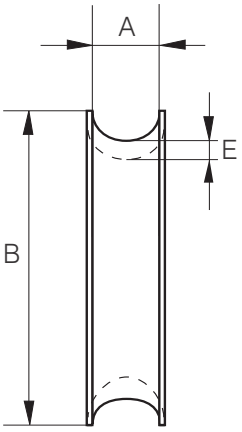




Heavy duty thimbles
EN13411-1
mild steel, hot dipped galvanised

SWR Ø	Groove width	Length	Inside width	Inside length	Thickness	Weight
	A	B	C	D	E	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg/100pcs]
5	5.5	44	19	28	3.0	3.5
7	6	48	20	30	3.5	5.4
8	8	54	22	33	4.0	5.7
10	10	64	25	38	4.8	7.6
11	13	73	29	41	4.8	14.2
13	14	80	32	44	5.6	18.0
15	15	80	32	44	5.6	18.9
16	17	98	41	59	7.9	34.0
17	19	108	44	67	7.9	39.7
19	20	124	51	73	9.5	62.4
21	21	124	51	73	9.5	62.4
22	23	133	57	83	9.5	75.6
24	25	146	64	92	10.3	106.0
25	27	162	70	108	10.3	125.0
28	29	178	76	111	12.7	151.0
32	33	197	95	133	12.7	204.0
35	38	229	105	152	15.9	318.0
38	41	254	114	165	17.5	488.0
42	46	254	114	165	17.5	499.0
45	51	286	127	178	25.4	556.0
47	60	318	133	191	28.6	-
50	64	330	140	203	28.6	-
54	64	330	140	203	28.6	-
57	67	356	146	216	30.2	-
65	70	413	159	241	31.8	-
70	86	502	203	273	41.3	-

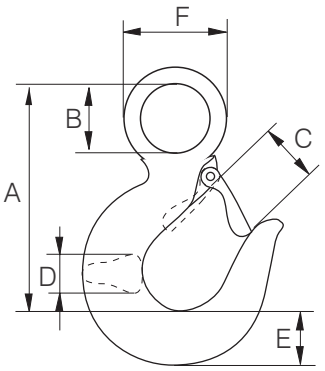




larger re-inforced thimbles available upon request

Large eye hook

carbon steel, powder coated

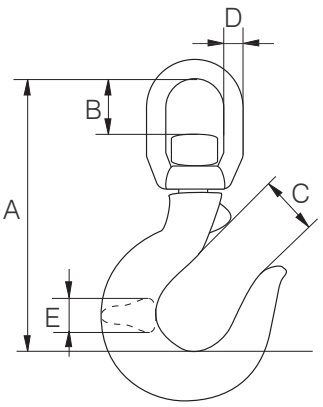


Working load limit	A	B	C	D	E	F	Weight
[t]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kgs]
0.75	82	19	25	15	20	38	0.27
1.00	93	25	27	18	22	45	0.40
1.50	104	28	28	19	26	52	0.55
2.00	119	32	32	22	29	61	0.83
3.00	146	40	38	29	37	75	1.90
5.00	187	51	48	35	46	97	3.30
7.50	230	62	58	42	58	119	5.70
10.00	255	72	65	50	66	136	8.40
15.00	318	89	89	62	77	168	17.00

factor of safety 5:1

Swivel hook

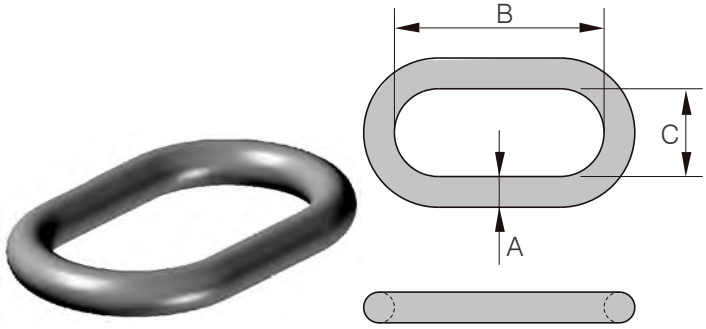
carbon steel, powder coated



Working load limit	A	B	C	D	E	Weight
[t]	[mm]	[mm]	[mm]	[mm]	[mm]	[kgs]
0.25	110	21	21	8	18.5	0.36
0.50	130	25	25	10	23.6	0.60
0.80	155	29	29	12	28.0	0.93
1.00	170	30	30	16	30.7	1.27
1.60	185	35	34	18	36.5	1.92
2.00	215	40	35	20	40.0	2.67
3.20	245	50	42	24	48.0	4.22
4.00	260	47	46	30	50.0	4.84
5.00	300	60	52	30	56.0	7.75
6.30	310	55	59	33	63.0	9.87
8.00	360	65	65	33	71.0	13.65
10.00	420	71	71	36	80.0	18.77

factor of safety 5:1

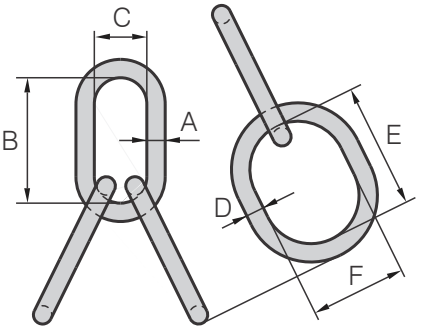
Heavy duty master link
SC1 type



Working load limit	Minimum break load	A	B	C	Weight
[t]	[t]	[mm]	[mm]	[mm]	[kgs]
84	420	72	460	250	45
105	525	80	450	250	56
131	655	90	460	300	77
157	785	100	500	300	101
250	1250	115	600	400	163
300	1500	115	600	300	154
400	2000	115	700	250	166
400	2000	115	490	250	132
400	1600	155	800	400	480
500	2000	175	800	400	603
600	2400	195	800	400	732
700	2800	200	850	400	795

larger sizes available upon request

Heavy duty sub assembly
SC5 type



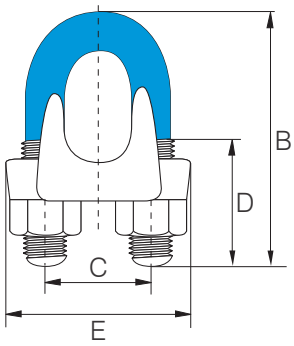
Working load limit	A	B	C	D	E	F	Weight
[t]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kgs]
70	68	460	220	68	430	300	117
100	80	500	250	80	460	330	178
125	90	560	270	90	500	330	249
175	100	600	270	100	560	330	330
250	115	600	400	115	600	400	505
300	115	600	300	115	600	400	492
350	115	600	250	115	600	400	480
400	115	600	250	115	600	300	460

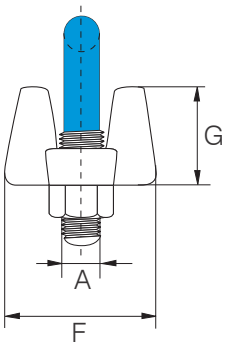
factor of safety 5:1

Wire rope clamps - drop forged

made to EN13411-5 type B specifications

Wire rope diameter		A	B	C	D	E	F	G	Weight 100pcs
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kgs]
3/16	5	6	31	15	13	29	24	13	4.0
1/4	7	8	34	19	13	37	30	18	8.0
5/16	8	10	45	22	19	43	33	19	14.0
3/8	10	11	49	26	19	49	42	25	19.0
7/16	11	12	60	30	25	58	46	26	31.0
1/2	13	13	61	30	25	58	48	31	34.0
9/16	15	14	72	33	32	63	52	31	36.0
5/8	16	14	74	33	32	64	54	36	45.0
3/4	20	16	86	38	37	72	57	38	68.0
7/8	22	19	98	45	41	80	62	40	108.0
1	26	19	108	48	46	88	67	47	113.0
1 1/8	30	19	117	51	51	91	73	48	140.0
1 1/4	34	22	130	59	54	105	79	56	207.0
1 3/8	36	22	140	60	59	108	79	58	234.0
1 1/2	40	22	147	66	60	112	85	64	266.0
1 5/8	42	25	161	70	67	121	92	67	329.0
1 3/4	46	29	174	78	70	134	97	76	441.0
2	52	32	195	86	78	150	113	85	603.0
2 1/4	58	32	213	98	81	162	116	100	707.0
2 1/2	65	32	227	105	87	168	119	113	806.0
2 3/4	72	32	243	112	91	174	127	124	1000.0
3	78	38	271	121	98	194	135	136	1440.0

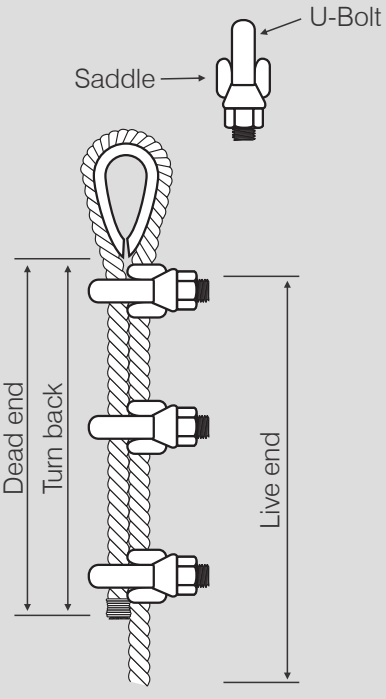




Requirements for forming an eye using wire rope clamps

made to EN13411-5 type B specifications

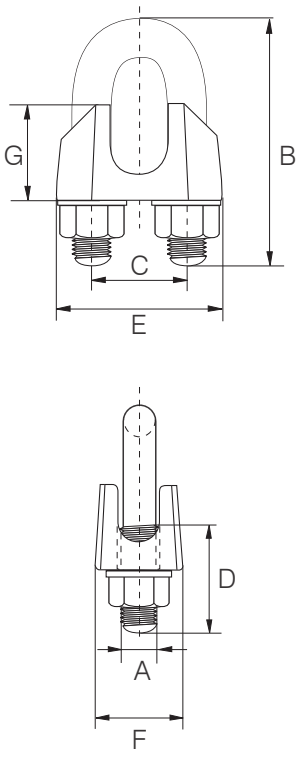
Wire rope diameter		No of clamps required	Length of rope turn back	Torque value
[inch]	[mm]		[mm]	[Nm]
1/4	6	2	120	20.3
5/16	8	3	133	40.7
3/8	10	3	165	61.0
1/2	13	3	292	88.0
5/8	16	3	305	129.0
3/4	20	4	460	176.0
7/8	22	4	480	305.0
1	24	5	660	305.0
1 1/8	28	6	860	305.0
1 3/8	36	7	1120	488.0
1 3/4	44	8	1550	800.0
2	48	8	1800	1017.0
3	78	10	2690	1627.0



Wire rope clamps - commercial

made to DIN741 specifications finish: electro-galvanised or AISI316

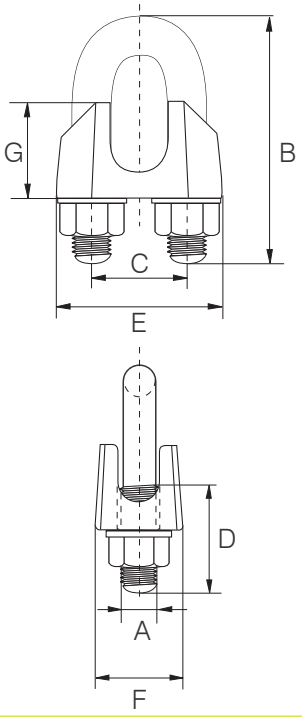
Wire rope diameter	A	B	C	D	E	F	G	Weight 100pcs
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kgs]
3	4	20	9	12	21	10	10	1.4
5	5	24	11	13	23	11	10	1.5
6	5	28	13	15	26	12	11	2.1
8	6	34	16	19	30	14	15	4.1
10	8	42	19	22	34	18	17	6.8
11	8	44	20	22	36	19	18	7.2
13	10	55	24	30	42	23	21	13.0
14	10	57	25	30	44	23	22	13.5
16	12	63	29	33	50	26	26	21.0
19	12	75	32	38	54	29	30	28.0
22	14	85	37	44	61	33	34	40.0
26	14	95	41	45	65	35	37	44.0
30	16	110	48	50	74	37	43	66.0

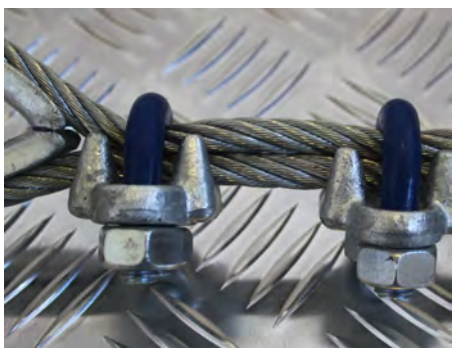


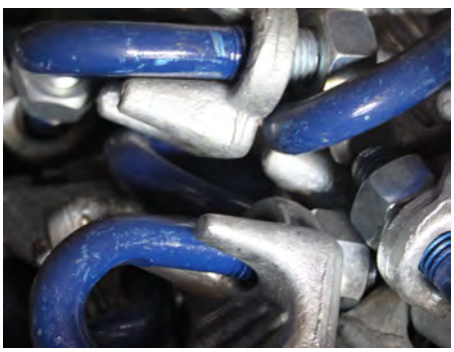
Wire rope clamps - commercial bulldog

made to EN13411-5 type A specifications

Wire rope diameter	A	B	C	D	E	F	G	Weight 100pcs
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kgs]
5	5	25	12	14	25	13	13	2.0
6	6	32	14	17	30	16	14	4.0
8	8	41	18	20	39	20	18	8.2
10	8	46	20	24	40	20	21	9.2
12	10	56	24	28	50	25	24	21.5
13	12	64	29	29	55	28	29	27.5
14	12	66	28	31	59	30	28	39.5
16	14	76	34	35	64	32	35	43.0
19	14	83	37	36	68	33	40	49.0
22	16	96	41	40	74	34	44	68.0
26	20	111	46	50	84	38	51	117.0
30	20	127	54	55	95	41	59	140.0







Safe use and maintenance

This information is of a general nature only covering the main points for the safe use and maintenance of wire rope clamps.

ALWAYS:
- inspect wire rope clamps before use and before placing into storage.
- ensure the threads of the u-bolt and collars of the nuts are lubricated to ensure friction-free tightening.
- ensure the saddle is placed on the live end and the u-bolt is around the dead end of the wire rope.

NEVER:
- use a single wire rope clamp as an end connection.
- use a wire rope clamp for end connections with lifting devices in hoisting operations.
- use with mine shaft cables, in reeving systems for iron and steel mill cranes, or for permanent attachments of ropes in reeving systems.

Selecting the Correct Clamp

Wire rope clamps must be selected according to the maximum permissible nominal rope diameter. When used correctly, end connections made using clamps can achieve approximately 90% of the breaking load of the wire rope used.

Storing and Handling Clamps

Never return damaged wire rope clamps to storage. They should be dry, clean and protected from corrosion. Care must be taken to protect threads of the u-bolt from damage whilst in store.

Using Clamps Safely

Do not attempt to fit wire rope clamps unless you understand the use and limitations of the equipment.

Do not use defective wire rope clamps. Check the thread and nuts of the u-bolt to ensure they are compatible, fully formed, of sufficient length, undamaged and clear of any debris which may prevent proper engagement.

Turn back enough wire rope so that the required minimum number of clamps can be installed according to instructions given.

The saddle of the wire rope clamp should always be placed on the load bearing section of the wire rope and the u-bolt on the rope tail or dead end.

The 1st clamp must be placed 1 saddle width from the turn back rope tail or dead end (figure 1).

The 2nd clamp must be placed immediately against the thimble but in such a position that the tightening does not damage the outer wires of the rope. Tighten the nuts firmly but not to the specified torque (figure 2).

The 3rd clamp must be placed between the 1st and 2nd clamp in such a way that they are separated by at least 1.5 times the clamp width with a maximum of 3 times the clamp width (figure 3).

When using clamps to join wire rope ensure the u-bolt is on the dead end of both sections of the wire (figure 4).

After installing all the clamps, apply light tension on the wire rope and tighten all nuts evenly, alternating until reaching the required torque.

In-service Inspection and Maintenance

Periodic re-tightening of the nuts must be done at 10 000 cycles for heavy usage or 20 000 cycles for moderate usage or every 3 to six months.

Regularly inspect the clamps and, in the event of the following defects, refer the clamp to a Competent Person for thorough examination: illegible markings, distortion or wear of the u-bolt and saddle, incomplete or incorrectly formed threads, damaged parts, nicks, gouges, cracks, corrosion or other defects.

Figure 1

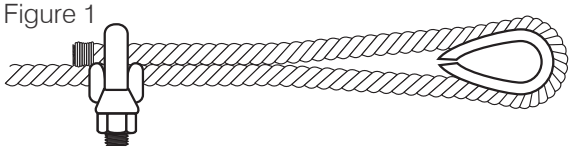


Figure 2

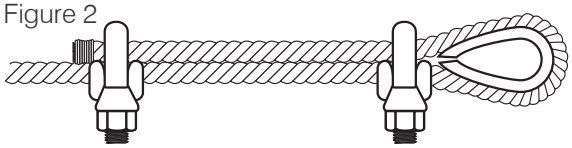


Figure 3

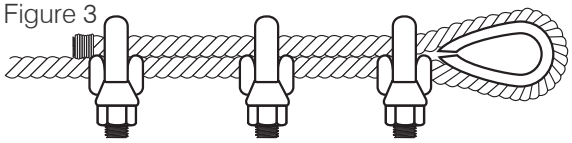
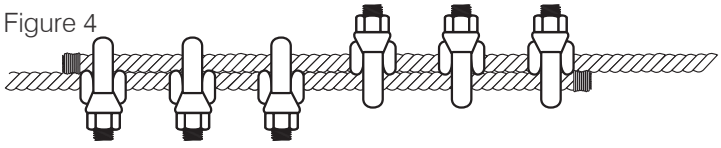


Figure 4



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