SOUTHWEST WIRE ROPE LP

General Catalog

"YOUR SINGLE SOURCE"

FOR ALL YOUR LIFTING,
LOADING, LASHING & MOORING NEEDS

WIRE ROPE / SYNTHETIC ROPE / RELATED HARDWARE / WIRE ROPE INSTALLATION SERVICES

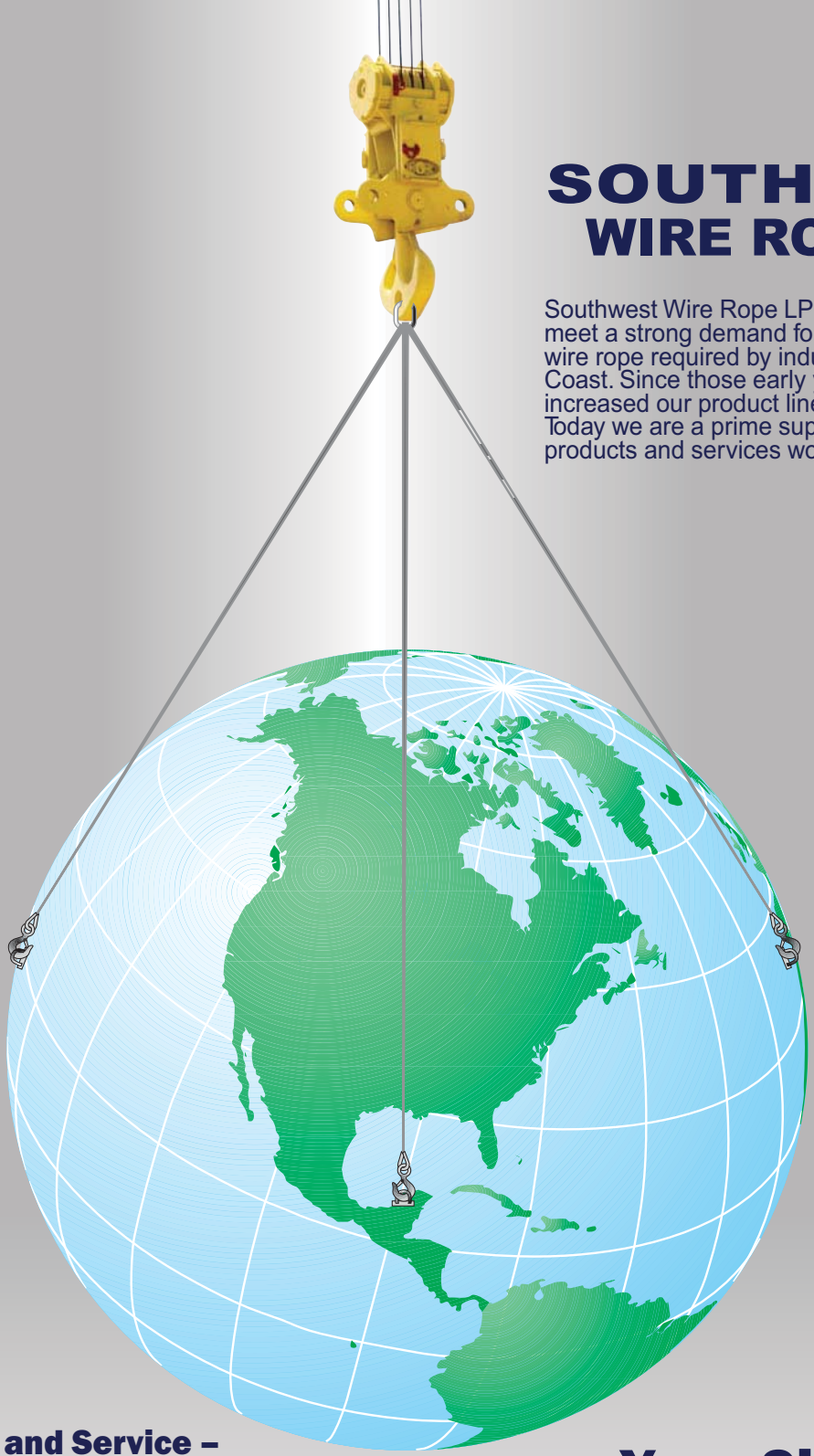
ISO 9001:2008 ABS CERTIFIED

A DIVISION OF
HWC
HOUSTON WIRE & CABLE COMPANY

www.swwrinc.com

SOUTHWEST WIRE ROPE LP

Southwest Wire Rope LP was established in 1966 to meet a strong demand for reliable service and quality wire rope required by industries along the U.S. Gulf Coast. Since those early years, we have expanded and increased our product line to meet diversified markets. Today we are a prime supplier of wire rope and related products and services worldwide.



Quality and Service – Our Number One Priority

Because we have the opportunity to service a wide variety of successful companies in multiple industries, our key to growth has been to provide the products they need with the quality they demand and the service we know they deserve. This includes technical support that comes from a knowledgeable sales staff totalling over 200 years experience in wire rope.

Our ability to provide “one-stop shopping” means our customers can rely on Southwest Wire Rope LP for all their requirements and prompt reliable service.

Your Single Source For All Your

- **Wire Rope**
- **Synthetic Rope**
- **Related Hardware**
- **Wire Rope Installation Services**

SOUTHWEST WIRE ROPE LP

All specifications included herein are subject to change without notice.

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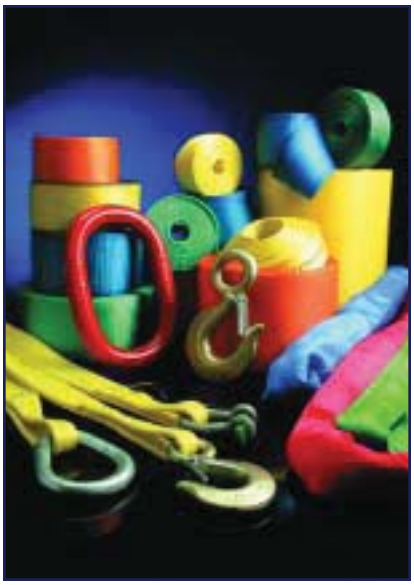
Wire Rope

Wire Rope Fittings

Wire Rope Slings

Chain



Synthetic Web Slings

Miscellaneous Equipment

SOUTHWEST WIRE ROPE LP

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"Gold Strand" ® Wire Rope

In 1983, we introduced our own identifying trademark into the industry that has become synonymous with the word "quality." That trademark is "Gold Strand" wire rope identified by the distinctive one or two gold colored strands proudly and attractively entwined into the wire rope. Today, "Gold Strand" wire rope is marketed by many wire rope companies throughout the country and is recognized as a quality product supplied by Southwest Wire Rope LP.

Large Inventory Covering A Full Line of Products

Southwest Wire Rope LP, maintains a large inventory of wire rope in all diameters and constructions to meet the needs and expectations of the market.

In addition, Southwest Wire Rope LP offers a complete range of wire rope slings, nylon slings, chain, shackles, thimbles, sockets, and other related hardware in stock at four full-service locations in Texas and Louisiana.

As a distributor for major manufacturers of wire rope and of rigging and hoisting equipment, we are able to provide prompt delivery of all products by utilizing their stocks from all around the country.

Full Range of Equipment and Services

- Proof testing on hardware and wire rope to 2,000,000 pounds
- Destruction test performed beyond 1,000,000 pounds up to 2-1/4" diameter wire rope
- Certification provided from American Bureau of Shipping (ABS), Det Norske Veritas (DNV), Lloyds Register of Shipping (LRS), American Petroleum Institute (API)
- Several swagers from 75 tons up to 1,500 ton capacity
- Zinc or resin socketing for all sizes of wire rope
- Field inspections and consulting

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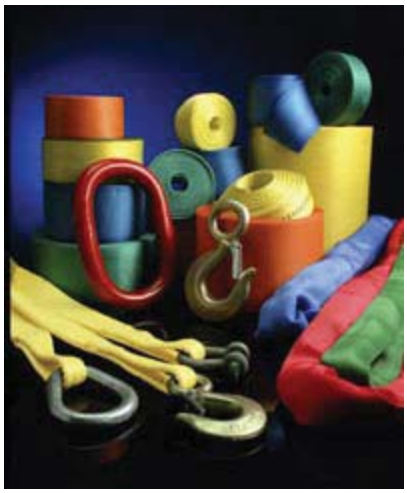
Wire Rope

Wire Rope Slings



Synthetic Web Slings

BLOCKS

CHAIN
- Alloy - Grades 80 & 100
- Anchor
- Boomer
- Hi-Test
- Proof Coil
- Transport

CLIPS
- Drop Forged
- Fist Grip
- Malleable

HOOKS

INSTALLATION SERVICES

LINKS
- Alloy Oblong
- Pear Shape

LOAD BINDERS
- Ratchet
- Lever

PENDANTS

SHACKLES
- Alloy
- Carbon
- Lifting
- Round Pin Anchor
- Round Pin Chain
- Screw Pin Anchor
- Screw Pin Chain
- Stainless Steel
- Towing
- Trawling
- Wide Body

SHEAVES

SLINGS
- Chain
- Fiber Rope
- Nylon Web
- Polyester Round
- Synthetic Web
- Wire Rope

SOCKETS
- Mooring Sockets
- Spelter
- Strand
- Swage
- Wedge

SYNTHETIC ROPE
- HMPE - High Tensile Fiber (Plasma)
- Mooring Ropes
- Mooring Tails
- Nylon
- Polyester
- Polypropylene

SWIVELS
- Ball Bearing
- Chain
- Eye and Eye
- Jaw End

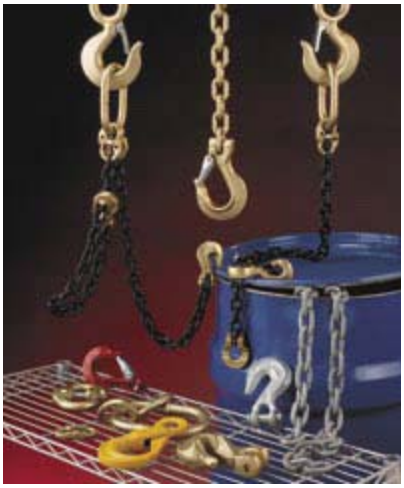
TESTING
- Proof and Destructive

THIMBLES
- Crescent
- Equalizing
- Fiber Rope
- Hawser
- Heavy Duty
- Regular
- Slip-On
- Slip-Thru
- Solid
- Stainless

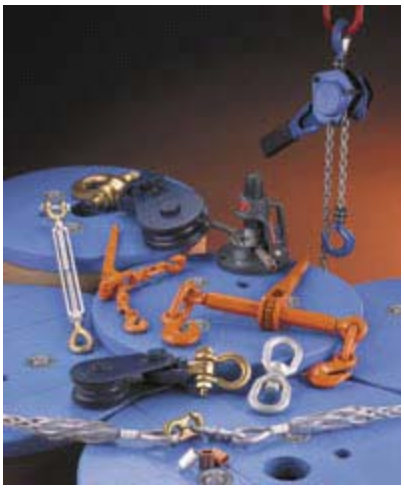
TURNBUCKLES
- Galvanized
- Stainless Steel

WIRE ROPE
- "Gold Strand"
- Cable-Laid
- Drill Line
- Galvanized
- Mooring Line
- Perimeter Rope
- Rotation Resistant
- Sandline
- Stainless Steel

Wire Rope Fittings

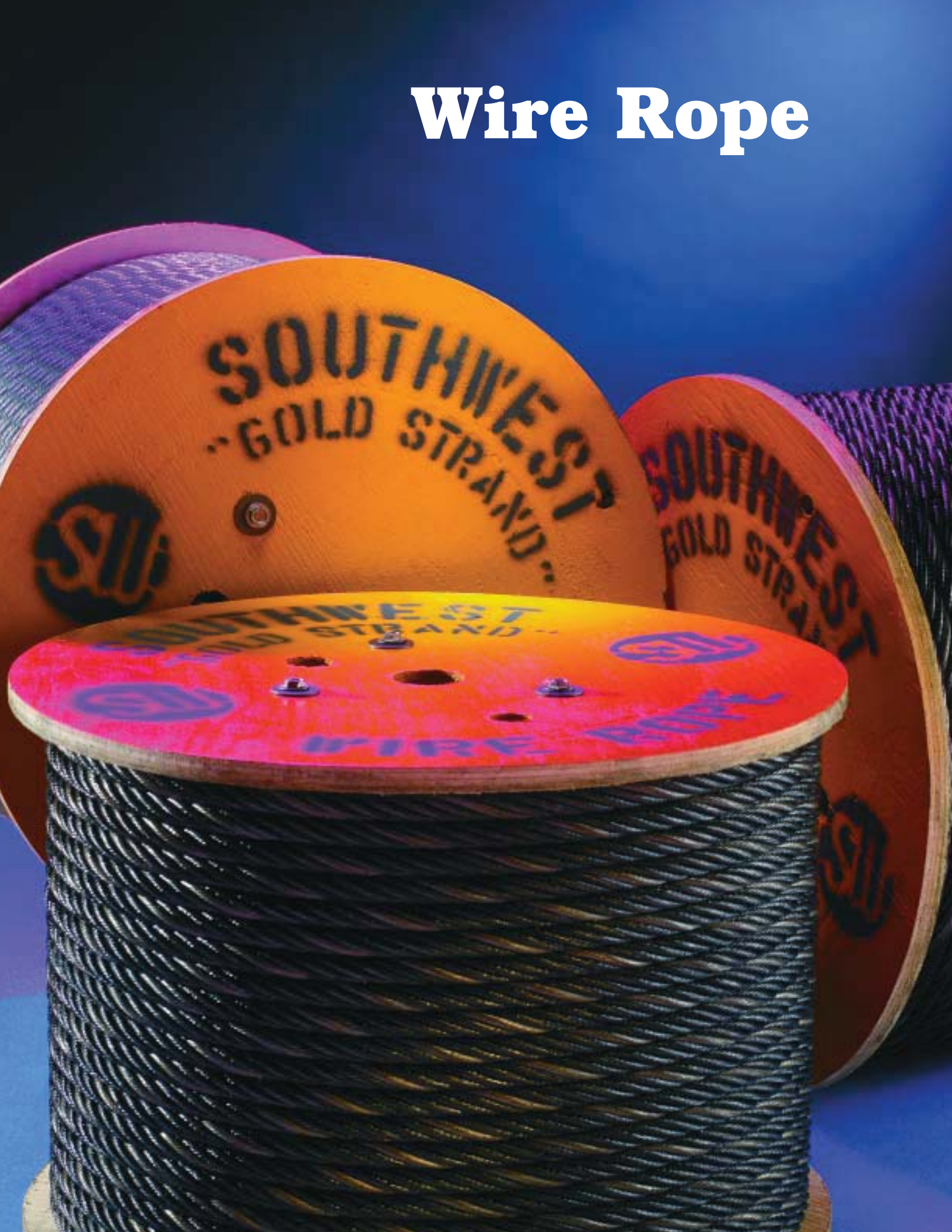


Chain



Accessories

Wire Rope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GOLD STRAND
SOUTHWEST
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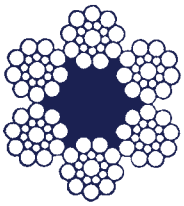
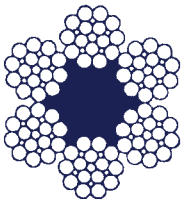
SOUTHWEST
GOLD STRAND

Wire Rope

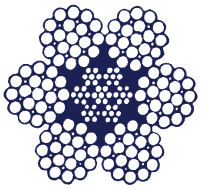
"GOLD STRAND"



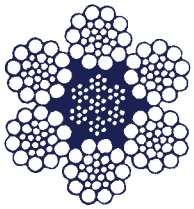
6 x 19 SEALE



6 x 21 FILLER WIRE



6 x 25 FILLER WIRE
IWRC



6 x 26
WARRINGTON-SEALE
EIPS

NOMINAL STRENGTHS OF WIRE ROPE

6 x 19 Classification/Bright (Uncoated), or Drawn-Galvanized, Fiber Core, EIPS

Nom. Diam.	Nominal Strength	Approx. Mass
Inches	EIPS	Lb/Ft
	Tons	
1/4	3.02	0.11
5/16	4.69	0.16
3/8	6.72	0.24
7/16	9.10	0.32
1/2	11.8	0.42
9/16	14.9	0.53
5/8	18.3	0.66
3/4	26.2	0.95
7/8	35.4	1.29
1	46.0	1.68
1 1/8	57.8	2.13
1 1/4	71.1	2.63
1 3/8	85.5	3.18
1 1/2	101	3.78
1 5/8	118	4.44
1 3/4	137	5.15
1 7/8	156	5.91
2	176	6.72
2 1/8	197	7.59
2 1/4	220	8.51

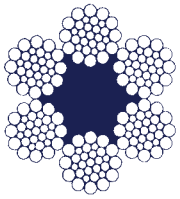
6 x 19 Classification/Bright (Uncoated), or Drawn-Galvanized, IWRC, EIPS

Nom. Diam.	Nominal Strength	Approx. Mass
Inches	EIPS	Lb/Ft
	Tons	
1/4	3.40	0.12
5/16	5.27	0.18
3/8	7.55	0.26
7/16	10.2	0.35
1/2	13.3	0.46
9/16	16.8	0.59
5/8	20.6	0.72
3/4	29.4	1.04
7/8	39.8	1.42
1	51.7	1.85
1 1/8	65.0	2.34
1 1/4	79.9	2.89
1 3/8	96.0	3.50
1 1/2	114	4.16
1 5/8	132	4.88
1 3/4	153	5.67
1 7/8	174	6.50
2	198	7.39
2 1/8	221	8.35
2 1/4	247	9.36
2 3/8	274	10.4
2 1/2	302	11.6
2 5/8	331	12.8
2 3/4	361	14.0

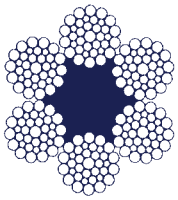
(Meets or exceeds federal specification RR-W-410 [latest revision].)

Wire Rope

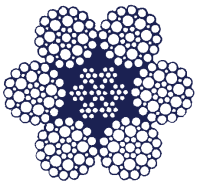
"GOLD STRAND"



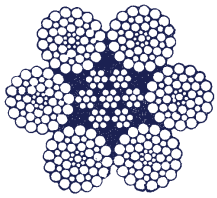
6 x 31
WARRINGTON SEALE



6 x 36
WARRINGTON SEALE



6 x 41 SFW
SEALE FILLER WIRE
IWRC



6 x 49 SWS
SEALE WARRINGTON
IWRC

NOMINAL STRENGTHS OF WIRE ROPE

6 x 36 Classification/Bright (Uncoated), or Drawn-Galvanized, Fiber Core, EIPS

Nom. Diam. Inches	Nominal Strength EIPS Tons	Approx. Mass Lb/Ft
1/4	3.02	0.11
5/16	4.69	0.16
3/8	6.72	0.24
7/16	9.10	0.32
1/2	11.8	0.42
9/16	14.9	0.53
5/8	18.3	0.66
3/4	26.2	0.95
7/8	35.4	1.29
1	46.0	1.68
1 1/8	57.8	2.13
1 1/4	71.1	2.63
1 3/8	85.5	3.18
1 1/2	101	3.78
1 5/8	118	4.44
1 3/4	137	5.15
1 7/8	156	5.91
2	176	6.72
2 1/8	197	7.59
2 1/4	220	8.51

Meets or exceeds federal specification RR-W-410 (latest revision).

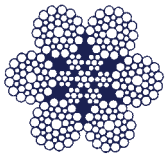
6 x 36 Classification/Bright (Uncoated), or Drawn-Galvanized, IWRC, EIPS

Nom. Diam. Inches	Nominal Strength EIPS Tons	Approx. Mass Lb/Ft
1/4	3.40	0.12
5/16	5.27	0.18
3/8	7.55	0.26
7/16	10.2	0.35
1/2	13.3	0.46
9/16	16.8	0.59
5/8	20.6	0.72
3/4	29.4	1.04
7/8	39.8	1.42
1	51.7	1.85
1 1/8	65.0	2.34
1 1/4	79.9	2.89
1 3/8	96.0	3.50
1 1/2	114	4.16
1 5/8	132	4.88
1 3/4	153	5.67
1 7/8	174	6.50
2	198	7.39
2 1/8	221	8.35
2 1/4	247	9.36
2 3/8	274	10.4
2 1/2	302	11.6
2 5/8	331	12.8
2 3/4	361	14.0
2 7/8	392	15.3
3	425	16.6
3 1/8	458	18.0
3 1/4	492	19.5
3 3/8	529	21.0
3 1/2	564	22.7
3 5/8	602	24.3
3 3/4	641	26.0

Wire Rope

LARGE DIAMETER, HIGH STRENGTH

"GOLD STRAND"



6 X 36
WARRINGTON-SEALE

Specifications per API 9A

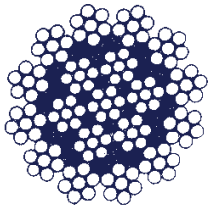
6 x 36 Classification Wire Rope Bright (Uncoated) or Drawn-Galvanized Wire, Independent Wire Rope Core (IWRC)

Nominal Rope Diameter		Diameter Range		Approximate Length Mass		Minimum Breaking Force	
mm	(in)	min mm	max. mm	kg/100 m	(lb/ft)	kN	(short tons)
63,5	(2 1/2)	63,5	66,7	1,730	(11.6)	2,950	(332)
66,7	(2 5/8)	66,7	70,0	1,910	(12.8)	3,240	(364)
69,9	(2 3/4)	69,9	73,4	2,080	(14.0)	3,530	(397)
73,0	(2 7/8)	73,0	76,7	2,280	(15.3)	3,840	(432)
76,2	(3)	76,2	80,0	2,470	(16.6)	4,160	(468)
79,4	(3 1/8)	79,4	83,4	2,680	(18.0)	4,490	(505)
82,6	(3 1/4)	82,6	86,7	2,900	(19.5)	4,830	(543)
85,7	(3 3/8)	85,7	90,0	3,130	(21.0)	5,180	(582)
88,9	(3 1/2)	88,9	93,3	3,380	(22.7)	5,520	(621)
95,3	(3 3/4)	95,3	100	3,870	(26.0)	6,270	(705)
102	(4)	102	107	4,400	(44.0)	6,340	(713)
108	(4 1/4)	108	113	4,960	(49.6)	7,110	(799)
114	(4 1/2)	114	120	5,570	(55.7)	7,900	(888)
121	(4 3/4)	121	127	6,200	(62.1)	8,730	(981)
127	(5)	127	133	6,870	(68.8)	9,590	(1,078)
133	(5 1/4)	133	140	7,410	(49.8)	9,960	(1,120)
140	(5 1/2)	140	147	8,110	(54.5)	10,800	(1,219)
146	(5 3/4)	146	153	8,870	(59.6)	11,700	(1,320)
152	(6)	152	160	9,680	(65.0)	12,700	(1,426)

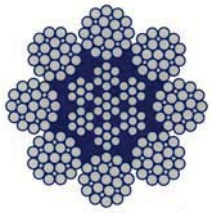
EEEIPS & HIGHER GRADES - AVAILABLE ON SPECIAL ORDER.

Wire Rope

ROTATION RESISTANT TYPES



19 X 7 CLASS



8 X 19 CLASS

19 x 7 Classification/Bright (Uncoated) or Drawn-Galvanized Wire Strand Core

Nominal Diam. (In.)	Nominal Strength Tons	Approx. Mass Lb/Ft
1/4	2.77	0.113
5/16	4.30	0.175
3/8	6.15	0.25
7/16	8.33	0.35
1/2	10.80	0.45
9/16	13.60	0.58
5/8	16.80	0.71
3/4	24.00	1.02
7/8	32.50	1.39
1	42.20	1.82
1 1/8	53.10	2.30
1 1/4	65.10	2.84

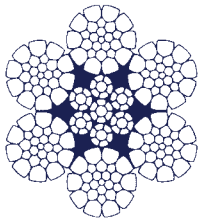
8 x 19 Classification/Bright (Uncoated), or Drawn-Galvanized, IWRC (EIPS)

Nominal Diam. (In.)	Nominal Strength Tons	Approx. Mass Lb/Ft
1/2	11.6	.47
9/16	14.7	.60
5/8	18.1	.73
3/4	25.9	1.06
7/8	35.0	1.44
1	45.5	1.88

Meets or exceeds applicable API-9A and federal specification RR-W-410 (latest revision).

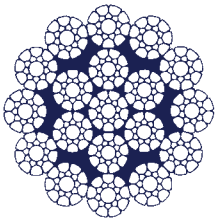
Wire Rope

COMPACTED STRAND



6 x 26

WIRE ROPE



19 X 19 & 18 X 19
Rotation Resistant

- Mining, industrial, construction, logging, and oilfield applications.
- Stability, strength, fatigue resistance, and abrasion resistance.
- All popular sizes.
- Longer service life.

Extra value means different things in different applications. In applications where increased strength, stability, and abrasion resistance are beneficial. 6-strand compacted ropes are a natural and can result in longer service life. From boom hoist ropes and drag ropes in mining applications, to sawmill carriage ropes and mainline ropes in logging, their versatility and extra value make a difference.

- As single-part hoist lines and wherever spooling problems, drum crushing, bird caging, block twisting and fast line speeds are likely to be encountered.
- At the design and specification stage, ideal when machinery space and weight savings are important.
- Greater fatigue resistance cuts rope expense in applications where fatigue is the primary cause for removal.
- Ideally suited to rugged applications.

This rotation resistant, higher strength rope provides extra value in both original equipment designs and replacement applications. 18 and 19 strand compacted wire rope, provides higher strength in a smaller diameter, and resistance to drum crushing.

Nominal Diameter In.	6 Strand Compacted Bright		**19 X 19 and 18 X 19 Compacted Strand Rotation Resistant	
	Minimum Breaking Load	Approx. Mass (LB/FT)	Minimum Breaking Load	Approx. Mass (LB/FT)
3/8	8.30	.31	8.30	.31
7/16	11.2	.39	11.2	.40
1/2	14.6	.49	14.6	.54
9/16	18.5	.63	18.5	.69
5/8	22.7	.78	22.7	.85
3/4	32.4	1.13	32.4	1.25
7/8	43.8	1.54	43.8	1.68
1	56.9	2.00	56.9	2.17
1 1/8	71.5	2.54	71.5	2.75
1 1/4	87.9	3.14	87.9	3.45
1 3/8	106	3.80	106	4.33
1 1/2	125	4.50	125	5.11

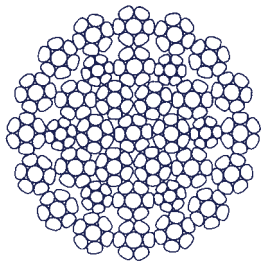
Breaking loads listed are the minimum established by the Wire Rope Technical Board. Verify the breaking load when inquiring as actual inventories may have different breaking loads.

** The given strengths for 19 strand rotation resistant wire ropes are applicable only when a test is conduced on a new rope fixed at both ends. When the rope is in use and one end is free to rotate, the nominal strength is reduced.

Not recommeded for use with swivels.

Metric Crane Ropes

* Also available in imperial diameters
* Rotation Resistant
* Can be used with in-line Swivels
* 2160 Grade Tensile
* Drawn Galvanized available, for added corrosion protection.
* Compacted Strand.



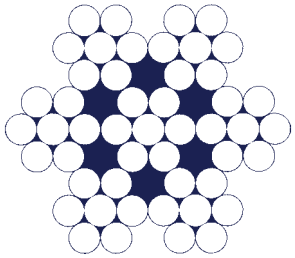
Compacted Strand
35 X 7 Class

2160 GRADE

Nominal Diameter mm-1/+4%	Mass (Lbs/Ft)	Estimated Break Strength (Lbs)
10	0.312	21,430
12	0.450	30,780
13	0.538	36,180
14	0.622	43 820
15	0.712	50,300
16	0.800	57,300
17	0.907	64,720
18	1.011	72,580
19	1.136	80,900
20	1.297	89,440
21	1.431	98 650
22	1.556	108,310
23	1.699	118,430
24	1.848	128,990
25	2.009	132,140
25.4	2.100	136,000
26	2.157	142,700
28	2.553	165,620
29	2.688	177,530
30	2.923	183,370
32	3.313	208,540
34	3.736	236,000
36	4.193	263,000

Estimated breaking strength shown. **Call for available diameters & breaking strengths.**

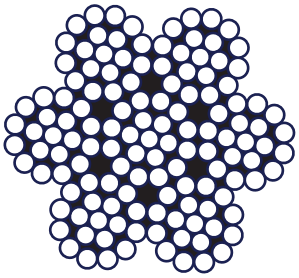
Galvanized and Stainless Steel Cables



7 X 7

GALVANIZED

Diameter in Inches	Construction	Breaking Strength (lbs)	Approx. Weight per Foot (lbs)
1/16	7x7	480	.0075
3/32	7x7	920	.016
1/8	7x7	1,700	.028
1/8	7x19	2,000	.029
5/32	7x7	2,600	.043
5/32	7x19	2,800	.045
3/16	7x7	3,700	.062
3/16	7x19	4,200	.065
7/32	7x19	5,600	.086
1/4	7x7	6,100	.106
1/4	7x19	7,000	.11
5/16	7x19	9,800	.173
3/8	7x19	14,400	.243



7 X 19

STAINLESS STEEL (T304)

Diameter in Inches	Construction	Breaking Strength (lbs)	Approx. Weight per Foot (lbs)
1/16	7x7	480	.075
3/32	7x7	920	.016
1/8	7x7	1,760	.028
1/8	7x19	1,760	.029
3/16	7x7	3,700	.062
3/16	7x19	3,700	.065
1/4	7x19	6,400	.11
5/16	7x19	9,000	.173
3/8	7x19	12,000	.243

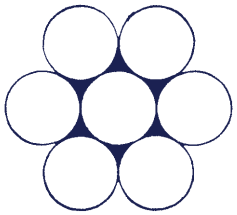
STAINLESS STEEL (T316)

Diameter in Inches	Construction	Breaking Strength (lbs)	Approx. Weight per Foot (lbs)
1/16	7x7	480	.0075
1/8	7x19	1,670	.029
3/16	7x19	3,565	.065
1/4	7x19	5,875	.11
5/16	7x19	8,825	.173
3/8	7x19	11,760	.243

Meets or exceeds applicable federal specification RR-W-410 (latest revision).
Uncoated cable meets dimensional and strength requirements of MIL-W-83420, aircraft cable.
Cables in strict compliance with MIL-W-83420 available upon request.

GALVANIZED STEEL STRAND - 1 X 7

ASTM A475, CLASS A COATING,
LEFT REGULAR LAY, EXTRA HIGH STRENGTH**



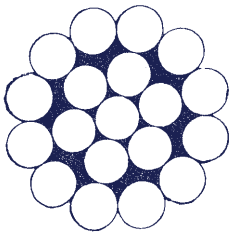
1x7 Strand

Diameter Inches	Nominal Breaking Strength (Tons)	Approx. Weight Per Foot (lbs)
3/16	1.99	.073
1/4	3.32	.120
5/16	5.60	.225
3/8	7.70	.273
7/16	10.70	.399
1/2	13.45	.517
9/16	19.50	.637
5/8	21.20	.796

AVAILABLE IN DOMESTIC OR IMPORTED
**OTHER GRADES ALSO AVAILABLE

GALVANIZED STEEL STRAND - 1 X 19

ASTM A475, CLASS A COATING,
LEFT REGULAR LAY, EXTRA HIGH STRENGTH



1x19 Strand

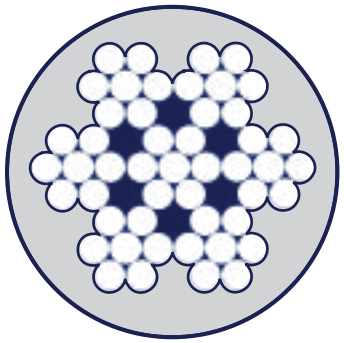
Diameter Inches	Nominal Breaking Strength (Tons)	Approx. Weight Per Foot (lbs)
3/4	29.15	1.16
7/8	39.85	1.58
1	52.25	2.07

AVAILABLE IN DOMESTIC OR IMPORTED
ASTM A586 & A603 ALSO AVAILABLE
STAINLESS STEEL STRAND ALSO AVAILABLE

Galvanized and Stainless Steel Coated Cables

GALVANIZED, CLEAR VINYL COATED - 7 X 7 & 7 X 19

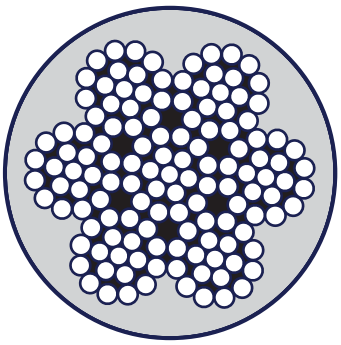
Diameter (In)	Coated To (In)	Weight per foot (lbs)	Breaking Strength (lbs)	Construction
1/16	3/32	.0093	480	7x7
1/16	1/8	.012	480	7x7
3/32	1/8	.018	920	7x7
3/32	3/16	.026	920	7x7
1/8	3/16	.035	1,700	7x7
3/32	1/8	.019	1,000	7x19
1/8	3/16	.036	2,000	7x19
3/16	1/4	.077	4,200	7X19
3/16	5/16	.08	4,200	7X19
1/4	5/16	.12	7,000	7X19
5/16	3/8	.20	9,800	7X19
3/8	7/16	.27	14,400	7X19



7 X 7

TYPE 304 STAINLESS STEEL, VINYL COATED - 7 X 19

Diameter (In)	Coated To (In)	Weight per foot (lbs)	Breaking Strength (lbs)	Construction
1/8	3/16	.036	1,760	7x19
3/16	1/4	.077	3,700	7x19
1/4	5/16	.128	6,400	7x19
5/16	3/8	.20	9,000	7x19
3/8	7/16	.27	12,000	7x19

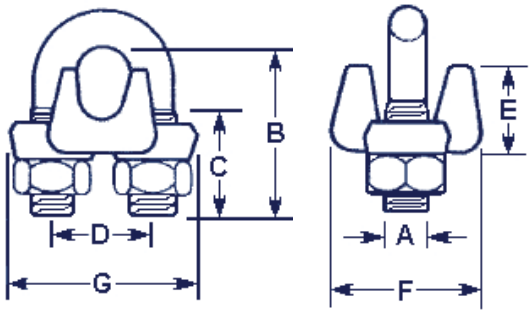


7 X 19

OTHER FINISHED DIAMETERS ALSO AVAILABLE
AVAILABLE IN CLEAR AND COLOR COATINGS
MEETS OR EXCEEDS FEDERAL SPECIFICATION RR-W-410 (latest revision)

Wire Rope Fittings

Wire Rope Clips



DROP FORGED U-BOLT TYPE GALVANIZED FINISH

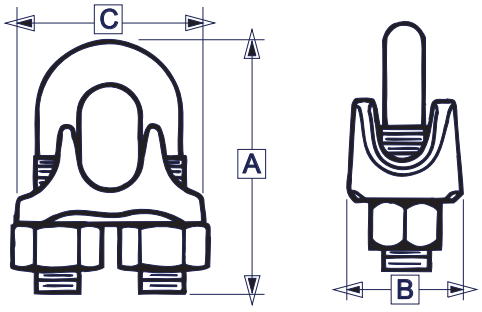
Meets Performance Requirements of Federal Specifications FF-C-450 Type 1 Class 1.

Size Inches	Min. Clips Required	Torque in Ft. Lbs.*	Amt. Wire Rope to turn back (Inches)	Approx. Wt. in Pounds	Dimensions in Inches						
					A	B	C	D	E	F	G
1/8 **	2	4.5	3 1/4	.05	.19	.75	.44	.44	.38	.81	.94
3/16 **	2	7.5	3 3/4	.10	.25	.94	.56	.56	.50	.94	1.19
1/4	2	1.5	4 3/4	.18	.31	1.06	.56	.75	.63	1.19	1.50
5/16	2	30	5 1/4	.31	.38	1.44	.75	.88	.75	1.31	1.69
3/8	2	45	6 1/2	.46	.44	1.50	.75	1.00	.88	1.56	1.94
7/16	2	65	7	.73	.50	1.88	1.00	1.19	1.00	1.81	2.31
1/2	3	65	11 1/2	.73	.50	1.88	1.00	1.19	1.06	1.81	2.31
9/16	3	95	12	.96	.56	2.38	1.25	1.31	1.13	2.06	2.50
5/8	3	95	12	1.00	.56	2.38	1.25	1.31	1.25	2.06	2.50
3/4	4	130	18	1.50	.63	2.75	1.38	1.50	1.38	2.31	2.75
7/8	4	225	19	2.44	.75	3.19	1.44	1.81	1.69	2.63	3.31
1	5	225	26	2.70	.75	3.63	1.75	1.88	1.75	2.63	3.47
1 1/8	6	225	34	3.10	.75	4.00	2.00	2.00	1.88	2.81	3.56
1 1/4	7	360	44	4.60	.88	4.38	2.25	2.31	2.06	3.25	4.06
1 3/8	7	360	44	5.20	.88	4.63	2.31	2.38	2.25	3.44	4.25
1 1/2	8	360	54	5.90	.88	4.94	2.38	2.63	2.50	3.50	4.38
1 5/8	8	430	58	7.34	1.00	5.31	2.62	2.75	2.66	3.61	4.75
1 3/4	8	590	61	9.80	1.13	5.88	2.75	3.06	2.88	3.75	5.25
2	8	750	71	13.75	1.25	6.50	3.00	3.31	3.38	4.44	5.81
2 1/4	8	750	73	15.70	1.25	7.13	3.31	3.88	3.81	4.50	6.31
2 1/2	9	750	84	17.90	1.25	7.75	3.38	4.13	4.25	4.50	6.44
2 3/4	10	750	100	22.00	1.25	8.31	3.50	4.36	5.00	5.00	6.75
3	10	1200	106	32.00	1.50	9.19	3.88	4.75	5.25	5.31	7.56

* Based on clean, unlubricated threads. The table above shows the minimum torque required to reach maximum holding power of wire rope clips.

** U-Bolts and nuts zinc plated.

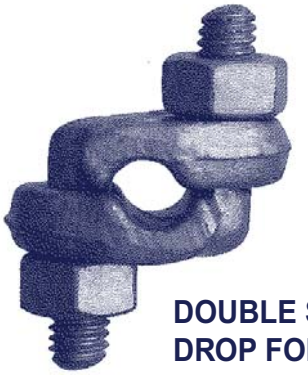
MALLEABLE GALVANIZED FINISH



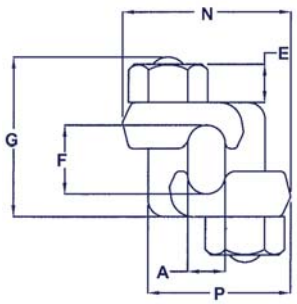
Size (In.)	Min. Clips Reqd.	Amt. Wire Rope to Turn Back (In.)	Torque in Lbs. Ft.*	Approx. Wt. in Pounds	Approximate Dimension in Inches		
					A	B	C
1/16*	3	4	2	.03	.80	.45	.69
1/8*	3	4 3/4	3	.04	.99	.56	.94
3/16	3	5 1/2	4.5	.063	1.19	.63	1.06
1/4	3	7	15	.13	1.60	.75	1.31
5/16	3	7 3/4	15	.15	1.62	.75	1.44
3/8	3	9 1/2	30	.21	2.01	.88	1.63
7/16	4	10 1/4	40	.37	2.44	1.06	1.88
1/2	4	15 1/4	45	.37	2.44	1.06	1.88
9/16	4	16	50	.59	2.81	1.28	2.09
5/8	4	16	75	.59	2.81	1.28	2.09
3/4	5	22 1/4	75	.84	3.12	1.56	2.38
7/8	5	23 1/2	130	1.25	3.69	1.81	2.88
1	6	31	130	1.66	4.07	2.00	3.00
1 1/8	7	39	200	2.43	4.75	2.06	3.38

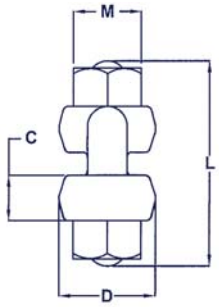
*NOTE: 1/16" and 1/8" are not covered by Federal Specification FF-C-450 D.

Wire Rope Clips



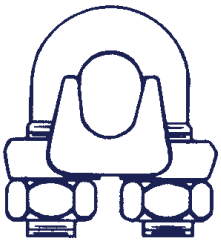
DOUBLE SADDLE DROP FORGED

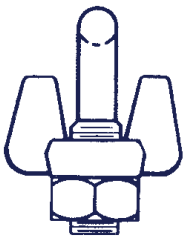




Size (In.)	Dimensions										Min. Number of Clips	Rope Turnback (In.)	Torque Ft./Lb.	Weight Lb.
	A (In.)	B (In.)	C (In.)	D (In.)	E Thread (In.)	F (In.)	G (In.)	L Approx (In.)	M (In.)	N (In.)				
3/16	0.28	1.25	0.34	0.94	3/8 to 16	0.50	1.63	2.26	0.69	1.28	2	4.00	30	21
1/4	0.28	1.25	0.34	0.94	3/8 to 16	0.50	1.63	2.26	0.69	1.28	2	4.00	30	21
5/16	0.34	1.38	0.44	1.06	3/8 to 16	0.63	1.66	2.19	0.69	1.41	2	5.00	30	27
3/8	0.41	1.56	0.50	1.06	7/16 to 14	0.75	1.75	2.25	0.75	1.85	2	5.50	45	45
7/16	0.50	1.78	0.56	1.25	1/2 to 13	1.00	2.19	2.75	0.88	2.06	2	6.50	65	65
1/2	0.50	1.78	0.56	1.25	1/2 to 13	1.00	2.19	2.75	0.88	2.06	3	11.00	65	65
9/16	0.66	2.25	0.69	1.50	5/8 to 11	1.25	2.69	3.31	1.06	2.59	3	12.75	130	113
5/8	0.66	2.25	0.69	1.50	5/8 to 11	1.25	2.69	3.31	1.06	2.59	3	13.50	130	113
3/4	0.81	2.69	0.88	1.81	3/4 to 10	1.50	3.38	4.32	1.25	3.06	3	16.00	225	144

Furnished in galvanized finish.





Furnished in galvanized finish.

DROP FORGED - TYPE 316

Size	Minimum Clips Required	Torque in ft. lbs.*	Approximate Weight in Pounds
1/8	2	4.5	.05
3/16	2	7.5	.106
1/4	2	15	.19
5/16	2	30	.30
3/8	2	45	.46
1/2	3	65	.68
5/8	3	95	1.0
3/4	4	130	1.5
7/8	4	225	2.44
1	5	225	2.70

Dimensions for drop forged stainless steel clips are the same as for the drop forged galvanized clips in the table above.

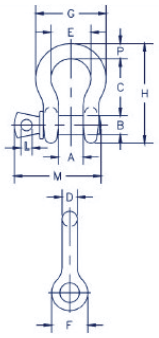
* Based on clean, unlubricated threads. The table above shows the minimum torque required to reach maximum holding power of wire rope clips.

STAINLESS STEEL, CAST MALLEABLE - TYPE 304

Size	Minimum Clips Required	Torque in ft. lbs.*	Approximate Weight in Pounds
1/8	3	3	.05
5/32	3	4	.06
3/16	3	4.5	.19
1/4	3	15	.19
5/16	3	15	.30
3/8	3	30	.46
1/2	4	45	.65
5/8	4	75	.78
3/4	5	75	1.09
7/8	5	130	1.63
1	6	130	2.15

* Based on clean, unlubricated threads. The table above shows the minimum torque required to reach maximum holding power of wire rope clips.

Screw Pin Anchor Shackles



Galvanized Carbon & Alloy Forged Steel Screw Pin Anchor Shackles

Carbon Steel

Nominal Size (in.)	Working Load Limit (t)*	Weight Each (lbs.)	Dimensions (in.)											Tolerance +/-	
			A	B	C	D	E	F	G	H	L	M	P	C	A
3/16	1/3	.06	.38	.25	.88	.19	.60	.56	.98	1.47	.16	1.12	.19	.06	.06
1/4	1/2	.10	.47	.31	1.13	.25	.78	.61	1.28	1.84	.19	1.38	.25	.06	.06
5/16	3/4	.19	.53	.38	1.22	.31	.84	.75	1.47	2.09	.22	1.66	.31	.06	.06
3/8	1	.31	.66	.44	1.44	.38	1.03	.91	1.78	2.49	.25	2.03	.38	.13	.06
7/16	1 1/2	.38	.75	.50	1.69	.44	1.16	1.06	2.03	2.91	.31	2.38	.44	.13	.06
1/2	2	.72	.81	.63	1.88	.50	1.31	1.19	2.31	3.28	.38	2.69	.5	.13	.06
5/8	3 1/4	1.37	1.06	.75	2.38	.63	1.69	1.50	2.94	4.19	.44	3.34	.69	.13	.06
3/4	4 3/4	2.35	1.25	.88	2.81	.75	2.00	1.81	3.50	4.97	.50	3.97	.81	.25	.06
7/8	6 1/2	3.62	1.44	1.00	3.31	.88	2.28	2.09	4.03	5.83	.50	4.50	.97	.25	.06
1	8 1/2	5.03	1.69	1.13	3.75	1.00	2.69	2.38	4.69	6.56	.56	5.07	1.06	.25	.06
1 1/8	9 1/2	7.41	1.81	1.25	4.25	1.16	2.91	2.69	5.16	7.47	.63	5.59	1.25	.25	.06
1 1/4	12	9.50	2.03	1.38	4.69	1.29	3.25	3.00	5.75	8.25	.69	6.16	1.38	.25	.06
1 3/8	13 1/2	13.53	2.25	1.50	5.25	1.42	3.63	3.31	6.38	9.16	.75	6.84	1.50	.25	.13
1 1/2	17	17.20	2.38	1.63	5.75	1.54	3.88	3.63	6.88	10.00	.81	7.35	1.62	.25	.13
1 3/4	25	27.78	2.88	2.00	7.00	1.84	5.00	4.19	8.86	12.34	1.00	9.08	2.25	.25	.13
2	35	45.00	3.25	2.25	7.75	2.08	5.75	4.81	9.97	13.68	1.22	10.34	2.40	.25	.13
2 1/2	55	85.75	4.13	2.75	10.50	2.71	7.25	5.69	12.87	17.84	1.38	13.00	3.13	.25	.25

Forged steel with Carbon or Alloy pins - quenched & tempered.

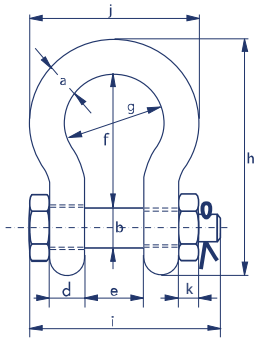
* Maximum Proof Load is 2 times the Working Load Limit (metric tons) and 2.2 times the Working Load Limit (short tons). Minimum Ultimate Strength is 4.5 times the Working Load Limit (metric tons), and 5 times the Working Load Limit.

Alloy Steel

Nominal Size (in.)	Working Load Limit (t)*	Weight Each (lbs.)	Dimensions (in.)											Tolerance +/ -	
			A	B	C	D	E	F	G	H	L	M	P	C	A
3/8	2	.31	.66	.44	1.44	.38	1.03	.91	1.78	2.49	.25	2.03	.38	.13	.06
7/16	2 2/3	.38	.75	.50	1.69	.44	1.16	1.06	2.03	2.91	.31	2.38	.44	.13	.06
1/2	3 1/3	.63	.81	.63	1.88	.5	1.31	1.19	2.31	3.28	.38	2.69	.50	.13	.06
5/8	5	1.38	1.06	.75	2.38	.63	1.69	1.50	2.94	4.19	.44	3.34	.69	.13	.06
3/4	7	2.25	1.25	.88	2.81	.75	2.00	1.81	3.50	4.97	.50	3.97	.81	.25	.06
7/8	9 1/2	3.61	1.44	1.00	3.31	.88	2.28	2.09	4.03	5.83	.50	4.50	.97	.25	.06
1	12 1/2	5.32	1.69	1.13	3.75	1.00	2.69	2.38	4.69	6.56	.56	5.07	1.06	.25	.06
1 1/8	15	7.25	1.81	1.25	4.25	1.16	2.91	2.69	5.16	7.47	.63	5.59	1.25	.25	.06
1 1/4	18	9.88	2.03	1.38	4.69	1.29	3.25	3.00	5.75	8.25	.69	6.16	1.38	.25	.06
1 3/8	21	13.25	2.25	1.50	5.25	1.42	3.63	3.31	6.38	9.16	.75	6.84	1.50	.25	.13

Meets or exceeds all requirements of ASME B30.26.

Shackles



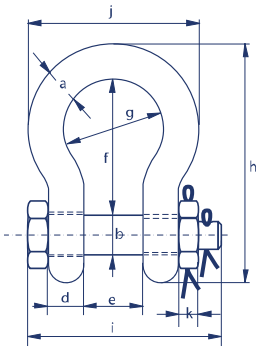
GALVANIZED ALLOY BOLT TYPE ANCHOR SHACKLES

Working Load Limit	Diameter Bow	Diameter Pin	Diameter Eye	Width Eye	Width Inside	Length Inside	Width Bow	Length	Length Bolt	Width	Thickness Nut	Weight Each
	a	b	c	d	e	f	g	h	i	j	k	
Tons	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Lbs
3.3	1/2	5/8	1 11/32	17/32	7/8	2	1 9/32	3 19/32	3 9/32	2 1/2	17/32	0.97
5	5/8	3/4	1 19/32	5/8	1 3/32	2 17/32	1 23/32	4 1/2	3 29/32	3 1/8	11/16	1.74
7	3/4	7/8	1 7/8	3/4	1 1/4	3	2	5 11/32	4 17/32	3 23/32	25/32	2.78
9.5	7/8	1	2 3/32	7/8	1 7/16	3 9/32	2 9/32	6 5/32	5 5/32	4 3/16	29/32	4.14
12.5	1	1 1/8	2 11/32	1	1 23/32	3 3/4	2 11/16	6 29/32	5 15/16	4 7/8	1	6.13
15	1 1/8	1 1/4	2 5/8	1 1/8	1 7/8	4 1/4	2 15/16	7 3/4	6 19/32	5 3/8	1 1/8	8.53
18	1 1/4	1 3/8	2 29/32	1 9/32	2	4 17/32	3 9/32	8 9/16	7 1/32	6 3/32	1 1/4	11.6
21	1 3/8	1 1/2	3 5/32	1 3/8	2 1/4	5 1/4	3 5/8	9 7/16	7 25/32	6 23/32	1 11/32	15.3
30	1 1/2	1 5/8	3 1/2	1 17/32	2 11/32	5 3/4	3 29/32	10 5/16	8	7 3/16	3/4	19.38
40	1 3/4	2	4 1/8	1 25/32	2 29/32	7	4 15/16	12 11/32	9 19/32	8 29/32	15/16	33.07
50	2	2 1/4	4 11/16	2 31/32	3 9/32	7 3/4	5 7/16	14 3/32	10 5/8	9 13/16	1 3/32	45.64
80	2 1/2	2 3/4	5 3/4	2 9/16	4 1/8	10 1/4	7 9/32	18 1/4	13	12 15/16	1 5/16	90.61
110	3	3 1/4	6 7/16	3 15/16	5	12 15/16	7 1/2	21 29/32	14 25/32	14	1 19/32	137.13
140*	3 3/4	3 3/4	8 1/2	3 17/32	5 11/16	15	9 11/32	26 9/32	17 5/16	16 3/8	2	242.51
175*	4	4 1/4	9 5/8	3 15/16	6 17/32	15 3/4	10 13/16	27 5/8	19 9/32	19 1/8	2 3/8	352.74

* = round headed bolt

ANCHOR SHACKLE WITH BOLT
(TYPE IVA, CLASS 3)

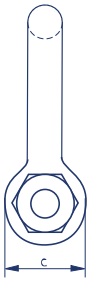
Meets or exceeds federal specification RR-C-271.



GALVANIZED WIDE MOUTH ALLOY TOWING SHACKLES

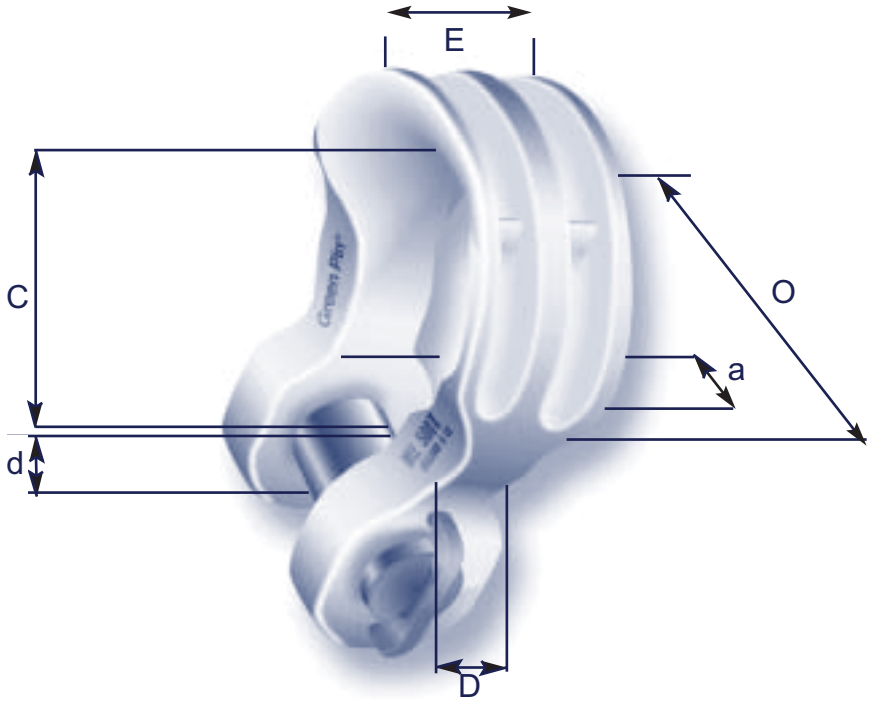
Working Load Limit	Diameter Bow	Diameter Pin	Diameter Eye	Width Eye	Width Inside	Length Inside	Width Bow	Length	Length Bolt	Width	Thickness Nut	Weight Each
	a	b	c	d	e	f	g	h	i	j	k	
Tons	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Lbs
22	1 1/2	1 5/8	3 1/2	1 17/32	4 3/16	8 1/2	6 9/32	12 9/16	9 3/4	9 1/4	3/4	27.56
30	1 3/4	2	4 1/8	1 25/32	5	9 3/4	6 7/8	14 9/16	11 11/16	10 7/16	15/16	39.68
40	2	2 1/4	4 11/16	1 31/32	5 3/4	10 3/4	8 5/32	16 3/16	13 5/16	12 1/8	1 3/32	55.12
55	2 1/2	2 3/4	5 3/4	2 9/16	6 1/2	12 3/8	8 3/8	19 3/16	15 5/16	13 1/2	1 5/16	105.82
100	3	3 1/4	6 7/16	2 15/16	7 1/4	13	10	20 7/8	17	15 7/8	1 19/32	154.32

* = round headed bolt



Green Pin® 'Sling Shackles'

For use with large slings, to provide better D/d bending ratio to the sling.



Working Load Limit (m.t)	Dia Body D (Inches)	Dia Pin d (Inches)	Inside Width a (Inches)	Inside Length C (Inches)	Width of Bow O (Inches)	Bearing Surface E (Inches)	Weight Each (Lbs.)
55	2 3/8	2 1/4	3 3/4	9 7/8	6 5/16	4	110
75	2 3/4	2 3/4	4 1/8	11 3/8	7 5/16	4 3/4	148
125	3 3/8	3 5/32	5 1/8	14 3/8	8 11/16	6	243
150	3 3/4	3 3/4	5 17/32	15 3/8	9 7/8	6 3/4	353
200	4 5/16	4 1/8	5 29/32	18 7/8	10 7/8	8	485
250	5	4 3/4	6 23/32	21 1/4	11 7/8	9 1/2	705
300	5 5/16	5 5/16	7 9/32	23 5/8	13 3/4	10 1/2	772
400	6 5/16	6 5/16	8 11/16	22 5/8	14 9/16	12 5/8	1,400
500	6 3/4	7 1/8	9 7/8	26 3/4	17 3/4	13 3/8	1,770
600	7 1/2	7 7/8	10 7/8	29 1/8	19 1/4	14 5/8	2,161
700	7 7/8	8 1/2	11 13/16	29 1/2	21 1/4	15 3/4	2,778
800	8 5/8	9 1/8	12 3/4	33 1/2	21 7/8	16 9/16	3,153
900	9 9/16	10	13 3/4	33 1/2	23	17 3/8	3,638
1000	10 1/4	10 5/8	15	33 5/8	24 1/8	18 1/8	4,674
1250	11 1/4	11 7/8	16 15/16	36 5/8	25 5/8	20 7/8	5,291
1500	11 5/8	12 5/8	18 1/8	37 3/8	26 3/4	22	6,570

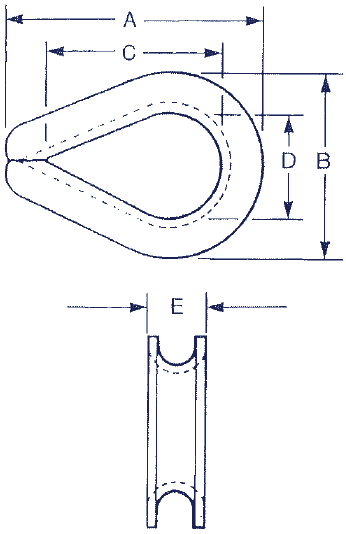
- Material: alloy steel, quenched and tempered
- Proofload test certification Lloyd's Register of Shipping
- Design factor: 5:1
- Finish: body aluminum painted, pin green paint
- Sling Shackles are supplied including material certificates according to EN10204 (DIN 50 049-3.1b)
- The Sling Shackles are Ultra-sonic- and Magnetic Particle inspected.

Wire Rope Thimbles

GALVANIZED HEAVY DUTY WIRE ROPE THIMBLES

Hot dip galvanized. Meets or exceeds the performance requirements of Federal Specification FF-T-276b, Type III.

For Rope Diameter Inches	DIMENSIONS IN INCHES					Approx. Weight Each in Pounds
	A	B	C	D	E	
1/4	2.19	1.50	1.63	.88	.41	.075
5/16	2.50	1.81	1.88	1.06	.50	.14
3/8	2.88	2.13	2.13	1.13	.66	.25
7/16	3.25	2.25	2.38	1.25	.75	.36
1/2 - 9/16	3.63	2.56	2.75	1.50	84	.51
5/8	4.25	3.00	3.25	1.75	1.00	.75
3/4	5.00	3.50	3.75	2.00	1.25	1.47
7/8	5.50	4.00	4.25	2.25	1.38	1.85
1	6.13	4.38	4.50	2.50	1.56	3.00
1 1/8 - 1 1/4	7.00	5.63	5.13	2.88	1.88	3.80
1 1/4 - 1 3/8	9.06	6.75	6.50	3.50	2.25	8.60
1 3/8 - 1 1/2	9.06	7.00	6.50	3.50	2.63	11.00
1 5/8	11.25	8.13	8.00	4.00	2.72	11.80
1 3/4	12.19	8.25	9.00	4.50	2.88	17.90
1 7/8 - 2	15.13	10.25	12.00	6.00	3.13	25.00
2 1/4	17.13	11.88	14.00	7.00	3.63	45.00
2 1/2 *	22.25	12.75	17.50	8.00	4.38	63.50

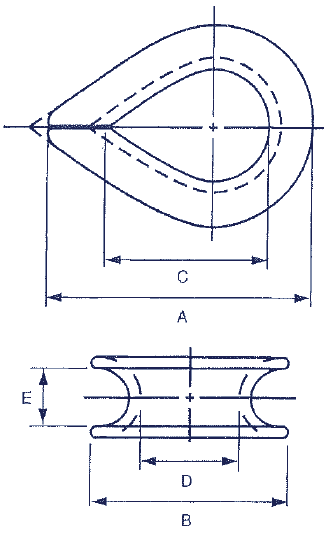


*** 2 1/2 available with or without gusset plates.**

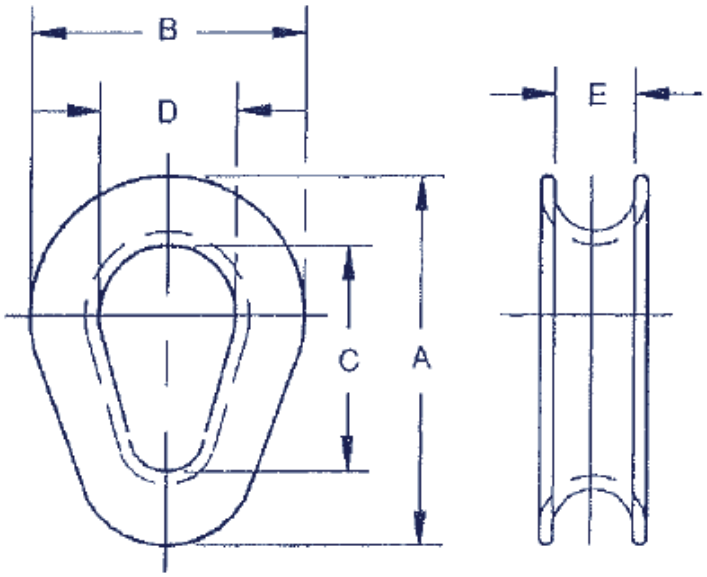
GALVANIZED STANDARD DUTY WIRE ROPE THIMBLES

Meets or exceeds the performance requirements of Federal Specification FF-T-276b, Type II.

For Rope Diameter Inches	DIMENSIONS IN INCHES					Approx. Weight Each in Pounds
	A	B	C	D	E	
1/8	1.88	1.06	1.25	.69	.16	.02
3/16	1.88	1.06	1.25	.69	.22	.023
1/4	1.94	1.06	1.31	.69	.28	.05
5/16	2.13	1.25	1.50	.81	.38	.054
3/8	2.38	1.47	1.63	.94	.44	.062
1/2	2.75	1.75	1.88	1.13	.56	.13
5/8	3.50	2.38	2.25	1.38	.69	.22
3/4	3.75	2.69	2.50	1.63	.81	.50
7/8	5.00	3.19	3.50	1.88	.94	.85
1	5.69	3.75	4.25	2.50	1.06	1.00
1 1/8 - 1 1/4	6.25	4.31	4.50	2.75	1.31	1.75



Hawser Thimbles



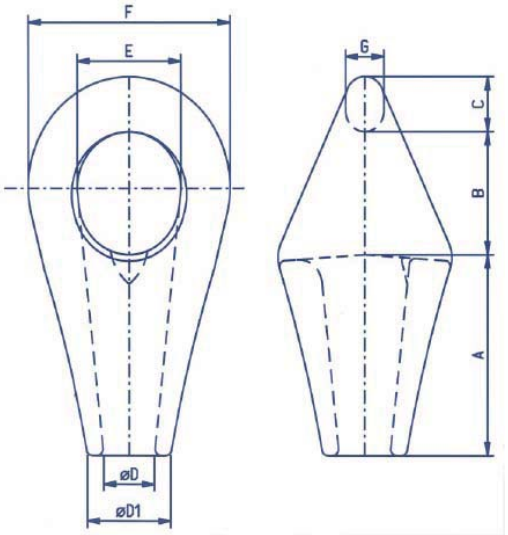
HAWSER THIMBLES

Hot galvanized, Cast Alloy Steel

For Rope Diameter Inches	DIMENSIONS IN INCHES					Approx. Weight Each in Pounds
	A	B	C	D	E	
5/8 - 3/4	6 7/8	4 1/2	5	3	1 3/16	3.5
7/8 - 1	8 5/8	5 3/4	6 1/4	3 3/4	1 7/16	6.0
1 1/8 - 1 1/4	10	6 5/8	7 1/8	4 3/16	1 11/16	8.5
1 3/8 - 1 1/2	12 1/8	8	8.75	5	2 3/16	18.5
1 5/8 - 1 3/4	12 3/4	8	9 1/4	5	2 7/16	24.0
1 7/8 - 2	14 3/4	9 1/2	10 3/4	6	2 11/16	30.5
2 1/8 - 2 1/4	17 1/8	11	12 1/2	7	3 1/8	56.0
2 3/8 - 2 1/2	19 1/4	12 3/4	14 1/4	8 1/4	3 7/8	95.0
2 3/4 - 3	24 1/2	17	15	9 3/8	4 15/16	135.0

Mooring Sockets

Dimensions



Available upon request at additional cost:

- Proof loading
- ABS, DNV, 3rd party witness testing
- Nondestructive Testing

MBL Tons	Rope Dia. (Inches)	A	B	C	D	D1	E	F	G	Weight (Lbs.)
140	1 1/4 - 1 3/8	5.5	3.3	1.5	1.5	2.5	2.9	4.9	1.4	15.4
160	1 1/2 - 1 5/8	6.3	4.3	1.6	1.7	2.7	3.6	5.1	1.5	22.0
200	1 3/4 - 1 7/8	7.4	5.0	2.0	2.0	3.1	4.3	7.1	1.8	37.5
250	2 - 2 1/8	8.5	4.9	2.2	2.2	3.1	4.5	7.9	2.0	52.9
300	2 1/4 - 2 3/8	9.0	5.7	2.5	2.5	3.5	5.3	9.0	2.2	72.7
400	2 1/2 - 2 5/8	9.8	6.3	2.9	2.9	4.4	6.3	10.4	2.5	110.2
500	2 3/4 - 2 7/8	11.0	6.9	3.1	3.1	4.7	6.7	10.9	2.7	130.0
600	3 - 3 1/8	12.4	8.3	3.3	3.4	5.0	7.2	11.8	2.9	163.1
700	3 1/4 - 3 3/8	13.4	8.1	3.9	3.6	5.2	8.0	12.6	3.5	196.2
800	3 1/2 - 3 5/8	14.2	8.7	4.1	3.9	5.5	8.5	13.4	3.7	229.3
900	3 3/4 - 4	15.0	9.4	4.3	4.2	5.9	9.2	14.8	3.9	295.4
1000	4 1/4 - 4 1/2	17.7	10.2	4.9	4.7	6.5	9.9	15.7	4.3	396.8

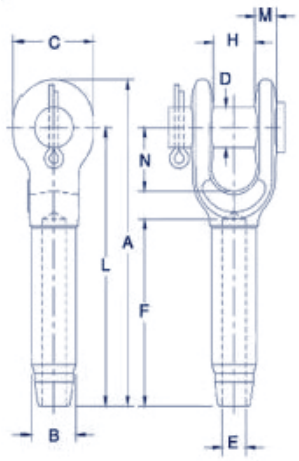
Dimensions are approximate only and subject to change without notice.

WARNING: Follow manufacturers recommendations for resin socketing.

Swage Sockets

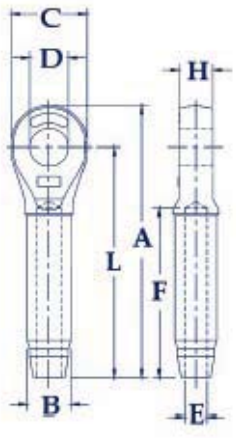
Swage sockets are recommend for use on 6 x 19 or 6 x 36 IWRC regular lay ropes.
They are NOT recommended for use on fiber core or lang lay ropes. Sockets properly applied have an efficiency rating of 100% based on the catalog breaking strength of wire rope. In accordance with ANSI B30.9, all slings terminated with swage sockets shall be proof loaded. Maximum Proof Load shall not exceed 50% of XXIP rope catalog breaking strength.

OPEN SWAGE SOCKETS



S-501 Open Socket Specifications												
Rope Size (in.)	Weight Each (lbs)	Before Swage Dimensions										Max. After Swage Dim. (in.)
		A	B	C	D	E	F	H	L	M	N	
1/4	.52	4.78	.50	1.38	.69	.27	2.19	.69	4.00	.38	1.47	.46
5/16	1.12	6.30	.78	1.62	.81	.34	3.25	.80	5.34	.48	1.67	.71
3/8	1.30	6.30	.78	1.62	.81	.41	3.25	.80	5.34	.48	1.67	.71
7/16	2.08	7.82	1.01	2.00	1.00	.49	4.31	1.00	6.69	.56	1.96	.91
1/2	2.08	7.82	1.01	2.00	1.00	.55	4.31	1.00	6.69	.56	1.96	.91
9/16	4.67	9.54	1.27	2.38	1.19	.61	5.38	1.25	8.13	.68	2.21	1.16
5/8	4.51	9.54	1.27	2.38	1.19	.68	5.38	1.25	8.13	.68	2.21	1.16
3/4	7.97	11.61	1.56	2.75	1.38	.80	6.44	1.50	10.00	.78	2.69	1.42
7/8	11.52	13.37	1.72	3.13	1.63	.94	7.50	1.75	11.63	.94	3.20	1.55
1	17.80	15.47	2.00	3.69	2.00	1.07	8.63	2.00	13.38	1.07	3.68	1.80
1 1/8	25.25	17.35	2.25	4.06	2.25	1.19	9.75	2.25	15.00	1.19	4.18	2.05
1 1/4	35.56	19.20	2.53	4.50	2.50	1.34	10.81	2.50	16.50	1.27	4.64	2.30
1 3/8	43.75	21.10	2.81	5.25	2.50	1.46	11.88	2.41	18.13	1.46	5.25	2.56
1 1/2	58.50	23.17	3.08	5.50	2.75	1.59	12.94	3.00	19.75	1.65	5.70	2.81
1 3/4	88.75	26.70	3.40	6.25	3.50	1.87	15.06	3.50	23.00	2.07	6.67	3.06
2	146.20	31.15	3.94	7.80	3.75	2.12	17.06	4.00	26.75	1.81	8.19	3.56

CLOSED SWAGE SOCKETS



S-502 Closed Socket Specifications										
Rope Size (in.)	Weight Each (lbs)	Before Swage Dimensions								Max. After Swage Dim. (in.)
		A	B	C	D	E	F	H	L	
1/4	.33	4.28	.50	1.38	.76	.27	2.19	.50	3.50	.46
5/16	.75	5.42	.77	1.62	.88	.34	3.25	.68	4.50	.71
3/8	.72	5.42	.78	1.62	.88	.41	3.25	.68	4.50	.71
7/16	1.42	6.88	1.01	2.00	1.07	.49	4.31	.87	5.75	.91
1/2	1.42	6.88	1.01	2.00	1.07	.55	4.31	.87	5.75	.91
9/16	2.92	8.59	1.27	2.38	1.28	.61	5.38	1.14	7.25	1.16
5/8	2.85	8.59	1.27	2.38	1.28	.68	5.38	1.14	7.25	1.16
3/4	5.00	10.25	1.56	2.88	1.49	.80	6.44	1.33	8.63	1.42
7/8	6.80	11.87	1.72	3.12	1.73	.94	7.50	1.53	10.09	1.55
1	10.40	13.56	2.00	3.62	2.11	1.07	8.63	1.78	11.50	1.80
1 1/8	14.82	15.03	2.25	4.00	2.37	1.19	9.75	2.03	12.75	2.05
1 1/4	21.57	16.94	2.53	4.50	2.62	1.34	10.81	2.25	14.38	2.30
1 3/8	28.54	18.59	2.81	5.00	2.62	1.46	11.88	2.29	15.75	2.56
1 1/2	38.06	20.13	3.08	5.38	2.87	1.59	12.94	2.56	17.00	2.81
1 3/4	51.00	23.56	3.40	6.25	3.63	1.87	15.06	3.08	20.00	3.06
2	89.25	27.13	3.94	7.25	3.88	2.12	17.06	3.31	23.00	3.56

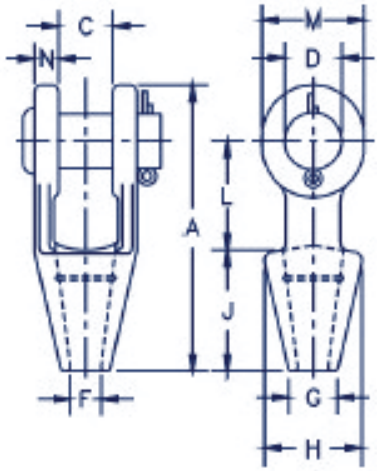
Open Wire Rope Spelter Sockets

Sockets are cast alloy steel.

Meets or exceeds Federal Specifications RR-S-550 latest revision strength & dimensionally.

Drawing illustrates on internal groove used on 1/4" through 3/4".

7/8" through 1 1/2" have two grooves. 1 5/8" and larger have three grooves.



STANDARD OPEN WIRE ROPE SPELTER SOCKETS

Rope Dia. (in.)	Structural Strand Dia. (in.)	Weight Each (lbs.)	Dimensions (in.)									
			A	C	D	F	G	H	J	L	M	N
1/4	-	1.10	4.56	.75	.69	.38	.69	1.56	2.25	1.56	1.31	.36
5/16 - 3/8	-	1.30	4.84	.81	.81	.50	.81	1.69	2.25	1.75	1.50	.44
7/16 - 1/2	-	2.25	5.56	1.00	1.00	.56	.94	1.88	2.50	2.00	1.88	.50
9/16 - 5/8	1/2	3.60	6.75	1.25	1.19	.69	1.13	2.25	3.00	2.50	2.25	.56
3/4	9/16 - 5/8	5.83	7.94	1.50	1.38	.81	1.25	2.62	3.50	3.00	2.62	.62
7/8	11/16 - 3/4	9.65	9.25	1.75	1.63	.94	1.50	3.25	4.00	3.50	3.13	.80
1	13/16 - 7/8	15.5	10.56	2.00	2.00	1.13	1.75	3.75	4.50	4.00	3.75	.88
1 1/8	15/16 - 1	21.5	11.81	2.25	2.25	1.25	2.00	4.12	5.00	4.62	4.12	1.00
1 1/4 - 1 3/8	1 1/16 - 1 1/8	31.00	13.19	2.50	2.50	1.50	2.25	4.75	5.50	5.00	4.75	1.13
1 1/2	1 3/16 - 1 1/4	47.25	15.12	3.00	2.75	1.63	2.75	5.25	6.00	6.00	5.38	1.19
*1 5/8	1 5/16 - 1 3/8	55.00	16.25	3.00	3.00	1.75	3.00	5.50	6.50	6.50	5.75	1.31
*1/3/4 - 1 7/8	1 7/16 - 1 5/8	82.00	18.25	3.50	3.50	2.00	3.13	6.38	7.50	7.00	6.50	1.56
*2 - 2 1/8	1 11/16 - 1 3/4	129.00	21.50	4.00	3.75	2.25	3.75	7.38	8.50	9.00	7.00	1.81
*2 1/4 - 2 3/8	1 13/16 - 1 7/8	167.00	23.50	4.50	4.25	2.50	4.00	8.25	9.00	10.00	7.75	2.13
*2 1/2 - 2 5/8	1 15/16 - 2 1/8	252.00	25.50	5.00	4.75	2.88	4.50	9.25	9.75	10.75	8.50	2.38
*2 3/4 - 2 7/8	2 3/16 - 2 7/16	315.00	27.25	5.25	5.00	3.12	4.88	10.50	11.00	11.00	9.00	2.88
*3 - 3 1/8	2 1/2 - 2 5/8	380.00	29.00	5.75	5.25	3.38	5.25	11.12	12.00	11.25	9.50	3.00
*3 1/4 - 3 3/8	2 3/4 - 2 7/8	434.00	30.88	6.25	5.50	3.62	5.75	11.88	13.00	11.75	10.00	3.12
* 3 1/2 - 3 5/8	3 - 3 1/8	563.00	33.25	6.75	6.00	3.88	6.50	12.38	14.00	12.50	10.75	3.25
* 3 3/4 - 4	-	783.00	36.25	7.50	7.00	4.25	7.25	13.62	15.00	13.50	12.50	3.50

Spelter socket terminations have an efficiency rating of 100%, based on the catalog strength of wire rope. Ratings are based on recommended use with 6 x 7, 6 x 19, or 6 x 37, IPS or XIP (EIP), XXIP (EEIP), RRL, FC, or IWRC wire rope.
*Cast Alloy Steel

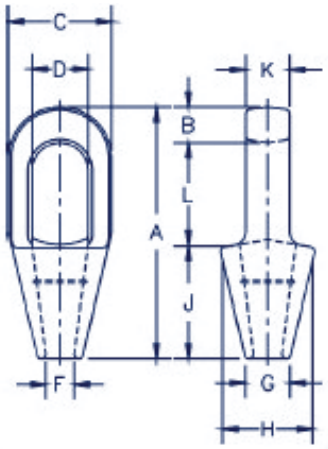
Closed Wire Rope Spelter Sockets

Sockets are cast alloy steel.

Meets or exceeds Federal Specifications RR-S-550 latest revision strength & dimensionally.

Drawing illustrates on internal groove used on 1/4" through 3/4".

7/8" through 1 1/2" have two grooves. 1 5/8" and larger have three grooves.



STANDARD CLOSED WIRE ROPE SPELTER SOCKETS

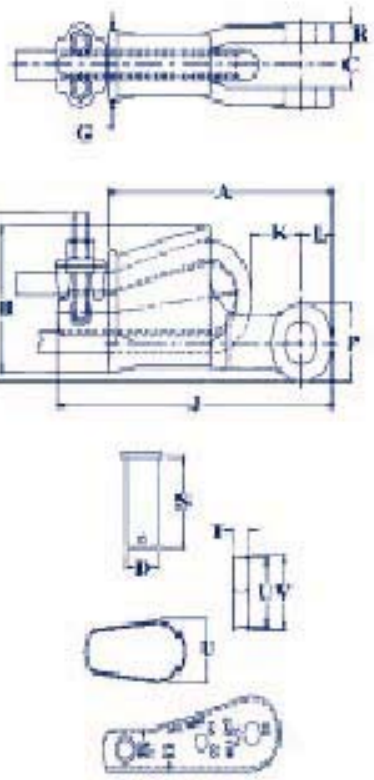
Rope Dia. (in.)	Structural Strand Dia. (in.)	Weight Each (lbs.)	Dimensions (in.)									
			A	B	C	D*	F	G	H	J	K	L
1/4	-	.50	4.50	.50	1.50	.88	.38	.69	1.56	2.25	.50	1.75
5/16 - 3/8	-	.75	4.88	.62	1.69	.97	.50	.81	1.69	2.25	.69	2.00
7/16 - 1/2	-	1.50	5.44	.69	2.00	1.16	.56	.94	1.88	2.50	.88	2.25
9/16 - 5/8	1/2	2.50	6.31	.81	2.63	1.41	.69	1.12	2.38	3.00	1.00	2.50
3/4	9/16 - 5/8	4.25	7.56	1.06	3.00	1.66	.81	1.25	2.75	3.56	1.25	3.00
7/8	11/16 - 3/4	7.25	8.75	1.25	3.63	1.88	.94	1.50	3.25	4.00	1.50	3.50
1	13/16 - 7/8	10.50	9.88	1.38	4.13	2.30	1.13	1.75	3.75	4.44	1.75	4.00
1 1/8	15/16 - 1	14.25	11.00	1.50	4.50	2.56	1.25	2.00	4.13	5.00	2.00	4.50
1 1/4 - 1 3/8	1 1/16 - 1 1/8	19.75	12.12	1.63	5.30	2.81	1.50	2.25	4.75	5.50	2.25	5.00
1 1/2	1 3/16 - 1 1/4	29.20	13.94	1.94	5.33	3.19	1.63	2.75	5.25	6.00	2.50	6.00
** 1 5/8	1 5/16 - 1 3/8	36.00	15.13	2.13	5.75	3.25	1.75	3.00	5.5	6.50	2.75	6.50
** 1 3/4 - 1 7/8	1 7/16 - 1 5/8	57.25	17.25	2.19	6.75	3.75	2.00	3.13	6.38	7.50	3.00	7.56
** 2 - 2 1/8	1 11/16 - 1 3/4	79.00	19.50	2.44	7.63	4.38	2.25	3.75	7.38	8.50	3.25	8.56
** 2 1/4 - 2 3/8	1 13/16 - 1 7/8	105.00	21.13	2.63	8.50	5.00	2.50	4.00	8.25	9.00	3.63	9.50
** 2 1/2 - 2 5/8	1 15/16 - 2 1/8	140.00	23.50	3.12	9.50	5.50	2.88	4.50	9.25	9.75	4.00	10.62
** 2 3/4 - 2 7/8	2 3/16 - 2 7/16	220.00	25.38	3.12	10.75	6.25	3.12	4.88	10.19	11.00	4.88	11.25
** 3 - 3 1/8	2 1/2 - 2 5/8	276.00	27.00	3.25	11.50	6.75	3.38	5.25	11.50	12.00	5.25	11.75
** 3 1/4 - 3 3/8	2 3/4 - 2 7/8	313.00	29.25	4.00	12.25	7.25	3.62	5.75	12.25	13.00	5.75	12.25
** 3 1/2 - 3 5/8	3 - 3 1/8	400.00	31.00	4.00	13.00	7.75	3.88	6.50	13.00	14.00	6.25	13.00
** 3 3/4 - 4	-	542.00	33.25	4.25	14.25	8.50	4.25	7.25	14.25	15.00	7.00	14.00

are based on the recommended use with 6 x 7, 6 x 19 or 6 x 37, IPS or XIP (EIP), XXIP (EEIP), RRL, FC or IWRC wire rope.

* Diameter of pin must not exceed pin used on companion 416 socket. Reference adjacent page "D" dimension.

** Cast Alloy Steel

Wedge Sockets



Wedge socket terminations have an effeciency rating of 80% based on the strength of XXIP wire rope.

Wedge sockets, except welded 5/8" and 3/4", meet the performance requirements of Federal Specification RR-S-550D, Type C, except those provisions required of the contractor.

Wedge sockets meet or exceed the requirements of ASME B30.26.

Available with Bolt, Nut and Cotter Pin.

Assemblies include Socket, Wedge, Pin and Wire Rope Clip.

Wire Rope Dia.		Dimensions (in.)															Weight Each (lbs.)	Wedge Only Weight Each (lbs.)
(in.)	(mm)	A	B	C	D	G	H	J*	K*	L	P	R	S	T	U	V		
3/8	9 - 10	5.69	2.72	.81	.81	1.38	3.06	7.80	1.88	.88	1.56	.44	2.13	.44	1.25	1.38	3.18	.50
1/2	11 - 13	6.88	3.47	1.00	1.00	1.62	3.76	8.91	1.26	1.06	1.94	.50	2.56	.53	1.75	1.88	6.15	1.05
5/8	14 - 16	8.25	4.30	1.25	1.19	2.12	4.47	10.75	1.99	1.22	2.25	.56	3.25	.69	2.00	2.19	9.70	1.79
3/4	18 - 19	9.88	5.12	1.50	1.38	2.44	5.28	12.36	2.41	1.40	2.63	.66	3.63	.78	2.34	2.56	14.50	2.60
7/8	20 - 22	11.25	5.85	1.75	1.63	2.69	6.16	14.37	2.48	1.67	3.13	.75	4.31	.88	2.69	2.94	21.50	4.00
1	24 - 26	12.81	6.32	2.00	2.00	2.94	6.96	16.29	3.04	2.00	3.75	.88	4.70	1.03	2.88	3.28	30.75	5.37
1 1/8	28	14.38	6.92	2.25	2.25	3.31	7.62	18.34	2.56	2.25	4.25	1.00	5.44	1.10	3.25	3.56	45.30	7.30
1 1/4	30 - 32	16.34	8.73	2.62	2.50	3.56	9.39	20.48	2.94	2.34	4.50	1.06	6.13	1.19	4.62	4.94	64.90	10.60

*Nominal
NOTE: For intermediate rope sizes, use next larger size socket.

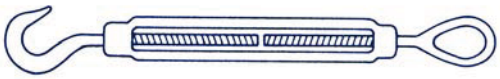
Turnbuckles

Suggested Turnbuckle / Wire Rope Pairing Based on Wire Rope and Termination Type

6X19 Or 6X36 Class IWRC EIP Wire Rope Size (Ins.)	Wire Rope Terminated With Properly Attached Drop Forged Wire Rope Clips - Use Turnbuckle Size		Wire Rope Terminated With Flemish Eye Splice and Swaged Sleeve - Use Turnbuckle Size	
	Hook x Hook Hook x Eye	Jaw x Jaw Jaw x Eye Eye x Eye	Hook x Hook Hook x Eye	Jaw x Jaw Jaw x Eye Eye x Eye
1/4	1/2	3/8	1/2	1/2
5/16	5/8	1/2	5/8	1/2
3/8	3/4	5/8	3/4	5/8
7/16	7/8	5/8	7/8	3/4
1/2	1	3/4	1	3/4
9/16	1 1/4	7/8	1 1/4	7/8
5/8	1 1/2	7/8	--	1
3/4	--	1	--	1 1/4
7/8	--	1 1/4	--	1 1/4
1	--	1 1/2	--	1 1/2
1 1/8	--	1 1/2	--	1 3/4
1 1/4	--	1 3/4	--	2
1 3/8	--	2	--	2
1 1/2	--	2	--	2 1/2
1 5/8	--	2 1/2	--	2 1/2
1 3/4	--	2 1/2	--	2 1/2
1 7/8	--	2 1/2	--	2 3/4
2	--	2 3/4	--	2 3/4

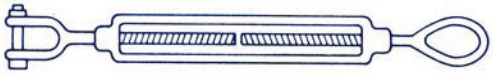
These combinations are suggestions only based soley on Working Load data.
The user bears the responsibility of ensuring that the turnbuckle / wire rope combination actually used is suitable for the application and purpose intended.

Hook x Hook

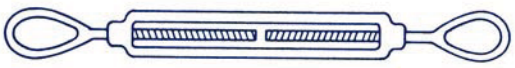


Hook x Eye

Jaw x Jaw



Jaw x Eye

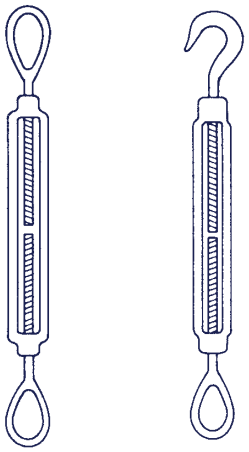


Eye x Eye

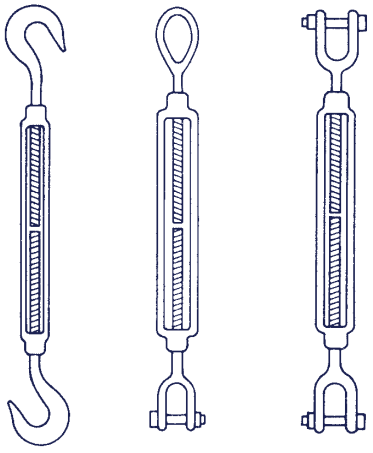
Turnbuckles

When Ordering Be Sure To Specify:
1st— Diameter of thread.
2nd— Length of take-up.
3rd— Self colored or galvanized.
4th— The type of end fittings desired.

Meets or exceeds the performance requirements of ASTM F - 1145
(formerly Federal Specification FF-T-791)



EYE & EYE HOOK & EYE



HOOK & HOOK JAW & EYE JAW & JAW

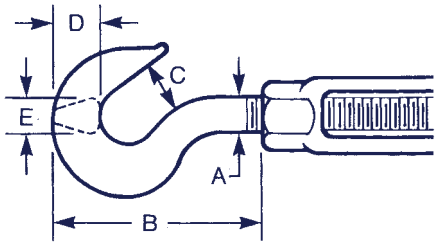
Diameter X Take-up Inches	Average Overall Length With Ends in Closed Position	Approx. Weight Each in lbs.			Working Load Limit in lbs.	
		With Eyes and/or Hooks	Jaw & Eye	Jaw & Jaw	Hook & Hook Hook & Eye	Eye & Eye Jaw & Eye Jaw & Jaw
1/4 X 4	8.25	.30	.30	.40	400	500
5/16 X 4 1/2	9.56	.50	.53	.58	700	800
3/8 X 6	11.88	.75	.82	.93	1,000	1,200
1/2 X 6	13.31	1.50	1.62	1.68	1,500	2,200
1/2 X 9	16.31	1.75	1.82	1.85	1,500	2,200
1/2 X 12	19.31	2.18	2.19	2.20	1,500	2,200
5/8 X 6	15.30	2.63	2.69	2.82	2,250	3,500
5/8 X 9	18.50	3.00	3.01	3.25	2,250	3,500
5/8 X 12	21.50	3.25	3.50	3.75	2,250	3,500
3/4 X 6	17.00	3.75	4.25	4.68	3,000	5,200
3/4 X 9	20.00	4.50	5.00	5.38	3,000	5,200
3/4 X 12	23.00	5.75	5.75	6.12	3,000	5,200
3/4 X 18	29.00	7.00	7.25	7.75	3,000	5,200
7/8 X 12	24.63	8.38	8.88	9.38	4,000	7,200
7/8 X 18	30.63	10.25	10.60	11.44	4,000	7,200
1 X 6	20.63	10.75	11.10	11.80	5,000	10,000
1 X 12	26.63	11.25	12.00	12.88	5,000	10,000
1 X 18	32.63	14.00	14.75	16.10	5,000	10,000
1 X 24	38.63	17.00	17.75	18.60	5,000	10,000
1 1/4 X 12	29.88	19.00	21.20	23.60	6,500	15,200
1 1/4 X 18	35.88	24.10	26.00	26.60	6,500	15,200
1 1/4 X 24	41.88	25.00	28.70	31.20	6,500	15,200
1 1/2 X 12	32.38	27.00	31.10	35.50	7,500	21,400
1 1/2 X 18	38.38	31.20	36.40	40.70	7,500	21,400
1 1/2 X 24	44.38	38.20	44.20	47.60	7,500	21,400
1 3/4 X 18	41.38	53.00	57.50	62.00	-	28,000
1 3/4 X 24	47.75	58.00	60.00	64.00	-	28,000
2 X 24	51.75	90.00	102.00	115.00	-	37,000
2 1/2 X 24	58.50	163.00	180.00	200.00	-	60,000
2 3/4 X 24	61.50	180.00	214.00	248.00	-	75,000

Larger sizes available per request.
Lock nuts available per request.
Jaw end fittings sizes ¼" through ⅝" have bolts and nuts.
Jaw end fittings sizes ¾" through 2 ¾" have pins and cotters.
Large jaw sizes available with bolts and nuts upon special request.

Turnbuckles

For sizing information, refer to our website: http://**www.swwrinc.com**

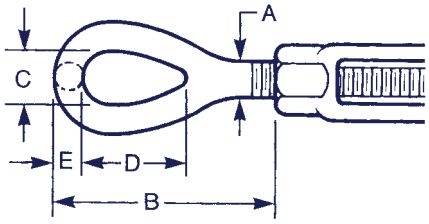
HOOK



HOOK

DIMENSIONS IN INCHES				
A	B	C	D	E
1/4	1.66	.45	.41	.25
5/16	1.91	.50	.44	.31
3/8	2.28	.56	.53	.38
1/2	2.84	.66	.69	.50
5/8	3.53	.84	.84	.63
3/4	4.31	.97	1.00	.75
7/8	5.00	1.13	1.19	.88
1	5.69	1.25	1.38	1.00
1 1/4	6.91	1.50	1.50	1.06
1 1/2	8.69	1.88	1.75	1.31

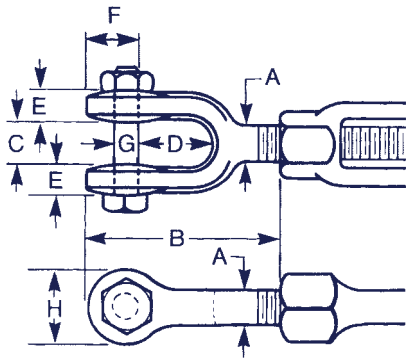
EYE



EYE

DIMENSIONS IN INCHES				
A	B	C	D	E
1/4	1.78	.34	.78	.22
5/16	2.19	.44	.94	.28
3/8	2.56	.53	1.13	.34
1/2	3.22	.72	1.44	.44
5/8	3.88	.88	1.75	.50
3/4	4.69	1.00	2.13	.63
7/8	5.25	1.25	2.38	.75
1	6.38	1.44	3.00	.88
1 1/4	7.75	1.81	3.56	1.13
1 1/2	8.63	2.13	4.13	1.25
1 3/4	10.00	2.38	4.69	1.50
2	12.13	2.69	5.75	1.75
2 1/2	13.56	3.13	6.50	2.00
2 3/4	15.00	3.25	7.00	2.25

JAW



JAW

DIMENSIONS IN INCHES							
A	B	C	D	E	F	G	H
1/4	1.63	.41	.63	.28	.50	.25	.63
5/16	2.00	.47	.88	.28	.50	.25	.69
3/8	2.19	.50	.88	.31	.59	.31	.81
1/2	2.75	.63	1.06	.41	.75	.38	1.00
5/8	3.50	.75	1.31	.50	1.03	.50	1.31
3/4	4.13	.94	1.50	.56	1.28	.63	1.63
7/8	4.84	1.13	1.75	.69	1.47	.75	1.88
1	5.53	1.19	2.06	.78	1.66	.88	2.13
1 1/4	7.19	1.75	2.81	1.00	2.09	1.13	2.63
1 1/2	7.88	2.06	2.81	1.06	2.47	1.38	3.13
1 3/4	9.38	2.38	3.38	1.25	2.91	1.63	3.50
2	10.88	2.50	3.75	1.56	3.53	2.00	4.19
2 1/2	13.34	2.88	4.19	1.56	4.63	2.25	5.63
2 3/4	15.00	3.50	4.44	1.63	5.38	2.75	6.13

Proof load twice rated load

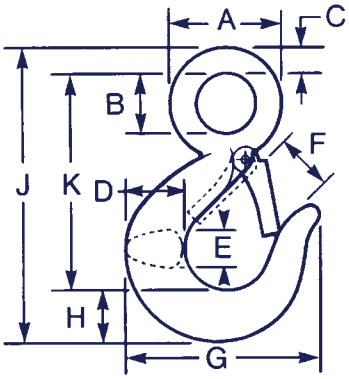
*Ultimate load five times rated load

Meets or exceeds the performance requirements of ASTM F - 1145 (formerly Federal Specification FF-T-791)

Hooks

EYE HOOKS

Carbon or Alloy steel forged, heat-treated, with latch installed or without latch.

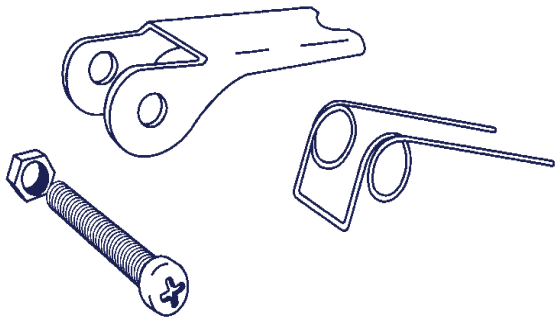


Size (WLL)* Tons		Dimensions in Inches										Approximate Weight Each with Latch in Pounds
Carbon	Alloy	A	B	C	D	E	F	G	H	J	K	
**3/4	1	1.50	.75	.38	.88	.63	.94	2.88	.75	4.38	3.25	.60
**1	1 1/2	1.75	.88	.44	1.00	.69	1.06	3.13	.81	4.88	3.63	.82
**1 1/2	2	2.00	1.13	.44	1.19	.81	1.06	3.50	1.00	5.50	4.13	1.44
2	3	2.38	1.25	.59	1.38	.94	1.22	3.94	1.19	6.31	4.56	1.94
3	5	3.00	1.56	.69	1.63	1.19	1.50	5.00	1.50	7.94	5.75	3.94
5	7	3.81	2.00	.88	2.06	1.50	1.88	6.25	1.75	10.00	7.38	7.75
7 1/2	11	4.69	2.44	1.13	2.63	1.63	2.25	7.56	2.25	12.44	9.06	15.4
-	15	5.37	2.84	1.26	2.94	2.19	2.51	8.30	2.59	13.93	10.07	22.2
-	22	6.64	3.50	1.58	3.50	2.69	3.30	10.30	3.00	17.06	12.50	37.6

* Working Load Limit applies only when the load is applied to the center of the saddle of the hook.
** 3/4,1, 1 1/2, and 2 Ton Carbon Steel Hooks also available in Hot Galvanized.

STAINLESS LATCH KITS

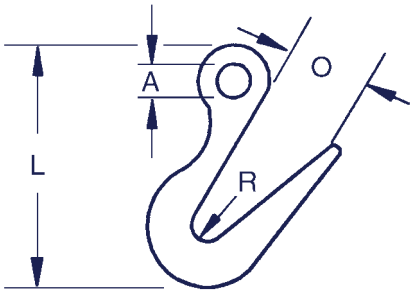
Size (WLL)* Tons		Approximate Weight Each with Latch in Pounds
Carbon	Alloy	
3/4	1	.02
1	1-1/2	.02
1 1/2	2	.03
2	3	.03
3	5	.05
5	7	.09
7 1/2	11	.17
10	15	.25
-	22	.75



SORTING HOOK

Forged alloy steel, heat treated.

Working Load Limit, 2-1/2" from tip		2 Tons
Working Load Limit, at bottom		7-1/2 Tons
Approximate Weight Each		7.75 Pounds
Overall Length	L	9.69"
I.D. of Eye	A	1.38"
Opening at Top of Hook	O	2.81"
Radius at Bottom of Hook	R	.63"

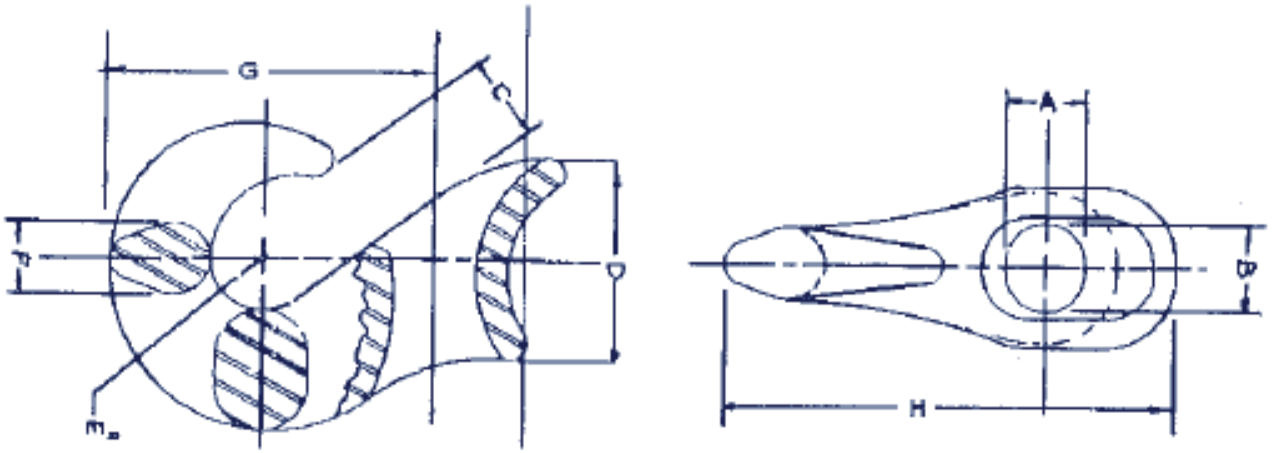


Sliding Choker Hooks

FLAT OR BRAIDED SLIDING HOOKS												
Hook No.	6 Parts	Wt. Lbs.	8 Parts	Rated Load - Lbs.	A	B	C	D	E	F	G	H
*0	3/32	1	1/16	1,500	9/16	9/16	1/2	1 3/4	3/8	5/8	2 3/4	3 3/4
1	1/8	1.25	3/32	2,600	11/16	11/16	5/8	2	7/16	11/16	3 1/8	4 1/4
2	3/16	1.75	1/8	3,400	13/16	15/16	7/8	2 1/8	17/32	3/4	3 11/32	4 11/16
3	-	3.25	3/16	5,100	1 3/16	1 1/4	1 1/16	2 3/4	5/8	15/16	3 31/32	5 5/8
4	1/4	5	1/4	7,000	1 7/16	1 7/16	1 5/32	3	5/8	1 1/8	4 5/8	6 1/4
5	5/16	6.5	5/16	13,000	1 3/4	1 3/4	1 7/16	3 1/8	3/4	1 3/8	5 1/16	7 3/16
6	3/8	11	3/8	15,000	2	2	1 17/32	4 1/4	7/8	1 9/16	6 5/16	8 5/8
7	7/16	26	7/16	23,000	2 5/16	2 5/16	1 3/4	5 5/8	1	1 3/4	8 11/16	11 5/8
8	1/2 - 9/16	50	1/2	30,000	2 13/16	2 13/16	2 3/16	7	1 1/4	2	10 5/8	14 1/2

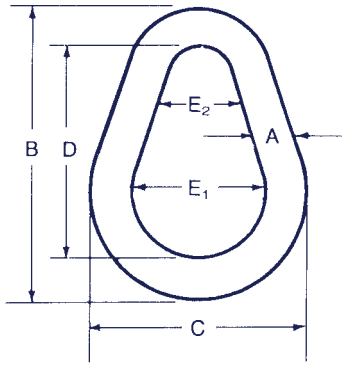
ROUND OR REGULAR SLIDING HOOKS												
Hook No.	Rope Size	Wt. Lbs.	Rated Load - Lbs.	Thimble Size	A	B	C	D	E	F	G	H
*1/4 - 5/16	1/4 - 5/16	1	1,500	1/4 - 5/16	9/16	9/16	1/2	1 3/4	3/8	5/8	2 3/4	3 3/4
3/8	3/8	1.31	2,600	3/8	11/16	11/16	5/8	2	7/16	11/16	3 1/8	4 1/4
1/2	1/2	1.85	3,400	1/2	3/4	3/4	7/8	2 1/8	1/2	3/4	3 5/8	4 13/16
5/8	5/8	4	5,100	5/8	7/8	7/8	1 1/8	2 3/4	9/16	15/16	4 7/16	5 15/16
3/4	3/4	4.5	8,000	3/4	1	1	1 1/8	3 1/8	11/16	1 1/4	4 11/16	6 7/16
7/8 - 1	7/8 - 1	10	15,000	7/8 - 1	1 1/4	1 1/4	1 1/4	4 1/4	7/8	1 9/16	6 1/16	8 1/8
1 1/8 - 1 1/4	1 1/8 - 1 1/4	26	23,000	1 1/8 - 1 1/4	2 5/16	2 5/16	1 3/4	5 5/8	1	1 3/4	8 11/16	11 5/8
1 3/8 - 1 1/2	1 3/8 - 1 1/2	50	30,000	1 3/8 - 1 1/2	2 13/16	2 13/16	2 3/8	7	1 1/4	2	10 5/8	14 1/2

* Manganese Bronze Alloy
Used in any other way than the Choker Configuration, will not be warranteed.



Steel Links

HEAT-TREATED, HIGH TEST CARBON STEEL PEAR SHAPE LINK



Approx. Dimensions in Inches						Rated Load Single Pull Pounds	Weight Each (Lbs.)
A	B	C	D	E_1	E_2		
3/8	3	2 1/4	2 1/4	1 1/2	3/4	1,800	.23
1/2	4	3	3	2	1	2,900	.51
5/8	5	3 3/4	3 3/4	2 1/2	1 1/4	4,200	1.08
3/4	6	4 1/2	4 1/2	3	1 1/2	6,000	1.90
7/8	7	5 1/4	5 1/4	3 1/2	1 3/4	8,300	2.90
1	8	6	6	4	2	10,800	4.60
1 1/4	10	7 1/2	7 3/4	5	2 1/2	16,750	9.20
1 3/8	11	8 1/4	8 1/4	5 1/2	2 3/4	20,500	11.00
1 1/2	12	9	9	6	3	25,000	14.30
1 3/4	14	10 1/2	10 1/2	7	3 1/2	34,000	22.60
2	16	12	12	8	4	45,000	33.80
2 1/4	18	13 1/2	13 1/2	9	4 1/2	56,000	48.20
2 1/2	20	15	15	10	5	68,500	66.00
2 3/4	22	16 1/2	16 1/2	11	5 1/2	84,500	88.00
3	24	18	18	12	6	100,000	114.00
3 1/4	26	19 1/2	19 1/2	13	6 1/2	117,500	146.00
3 1/2	28	21	21	14	7	136,500	181.00
3 3/4	30	22 1/2	22 1/2	15	7 1/2	155,000	223.00
4	32	24	24	16	8	176,000	271.00

NOTES: Available in larger sizes and alloy steel per special order.
Minimum breaking strength is six times the rated working load.
Galvanized on request only.
Ridgeless electrically side welded.

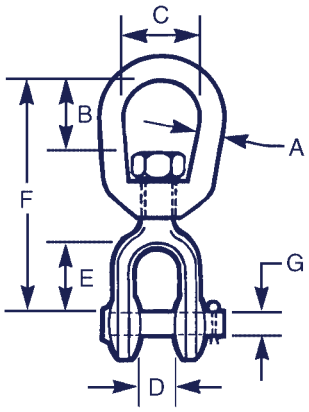
Drop Forged Swivels

CAUTION: NEVER EXCEED WORKING LOAD LIMIT.
SWIVELS ARE NOT INTENDED TO ROTATE UNDER LOAD.

JAW & EYE SWIVELS

Meets or exceeds the performance requirements of Federal Specifiation RR-C-271 (latest revision).
Hot galvanized.

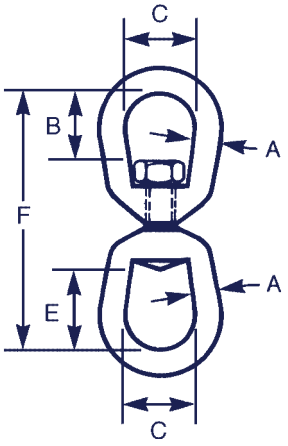
Size (A) in Inches	Working Load Limit in Pounds	Approximate Weight Each in Pounds	Dimensions in Inches					
			B	C	D	E	F	G
1/4	850	.22	.69	.75	.38	.88	2.69	.25
5/16	1,200	.39	.88	1.00	.50	.88	2.88	.31
3/8	2,250	.71	.94	1.25	.63	1.00	3.50	.38
1/2	3,600	1.4	1.38	1.50	.81	1.31	4.50	.50
5/8	5,200	2.3	1.63	1.75	1.00	1.50	5.31	.63
3/4	7,200	3.5	1.75	2.00	1.19	1.75	6.06	.75
7/8	10,000	5.7	2.08	2.25	1.20	2.07	7.06	.88
1	12,500	9.5	2.27	2.44	1.73	2.81	8.56	1.12
1 1/4	18,000	15.7	2.69	3.13	2.06	2.81	9.44	1.38
1 1/2	45,200	55.0	4.20	4.00	2.37	4.43	14.75	2.25



EYE & EYE SWIVELS

Meets or exceeds the performance requirements of Federal Specifiation RR-C-271 (latest revision).
Hot galvanized.

Size (A) in Inches	Working Load Limit in Pounds	Approximate Weight Each in Pounds	Dimensions in Inches			
			B	C	E	F
1/4	850	.20	.69	.75	.94	2.88
5/16	1,200	.38	.75	1.00	1.13	3.63
3/8	2,250	.68	.94	1.25	1.38	4.25
1/2	3,600	1.4	1.38	1.50	1.94	5.63
5/8	5,200	2.5	1.63	1.75	2.31	6.63
3/4	7,200	3.8	1.81	2.00	2.56	7.25
7/8	10,000	6.0	2.06	2.25	3.02	8.28
1	12,500	8.5	2.35	2.48	3.43	9.53
1 1/4	18,000	16.3	2.69	3.13	3.69	11.13
1 1/2	45,200	46.0	4.18	4.00	4.18	17.12

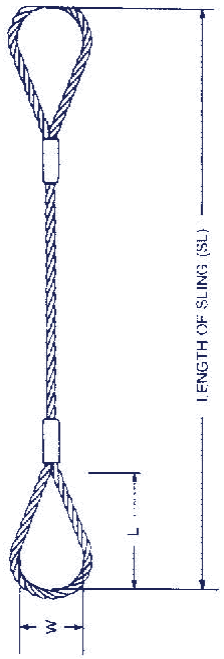


Wire Rope Slings

Type 11 Slings

FLEMISHED EYE AND MECHANICALLY SWAGED

Diam. Of Wire Rope Inches	Min. Length (SL) Of Sling Ft.-In.	Inside Loop Dimensions W Inches	Inside Loop Dimensions L Inches	Rated Capacity in Tons (2000 lbs.) EIPS-IWRC Single Leg Vertical	Choker Hitch	Vertical Basket Hitch**
1/4	1-6	2	4	.65	.48	1.3
5/16	1-9	2 1/2	5	1.00	.74	2.0
3/8	2-0	3	6	1.40	1.10	2.9
7/16	2-3	3 1/2	7	1.90	1.40	3.9
1/2	2-6	4	8	2.50	1.90	5.1
9/16	2-9	4 1/2	9	3.20	2.40	6.4
5/8	3-0	5	10	3.90	2.90	7.8
3/4	3-6	6	12	5.60	4.10	11.0
7/8	4-0	7	14	7.60	5.60	15.0
1	4-6	8	16	9.80	7.20	20.0
1 1/8	5-0	9	18	12.00	9.10	24.0
1 1/4	5-6	10	20	15.00	11.00	30.0
1 3/8	6-0	11	22	18.00	13.00	36.0
1 1/2	7-0	12	24	21.00	16.00	42.0
1 5/8	4-6	13	26	24.00	18.00	49.0
1 3/4	8-0	14	28	28.00	21.00	57.0
2	9-0	16	32	37.00	28.00	73.0
2 1/4	10-0	18	36	44.00	35.00	89.0
2 1/2	11-0	20	40	54.00	42.00	109.0
2 3/4	12-0	22	44	65.00	51.00	130.0
3	13-0	24	48	77.00	60.00	153.0
3 1/2	19-8	36	72	102.00	79.00	203.0
4	23-8	45	90	130.00	97.00	259.0



Design Factor 5:1

* Rated capacities of choker hitches apply when the angle of choke is greater than 135°.

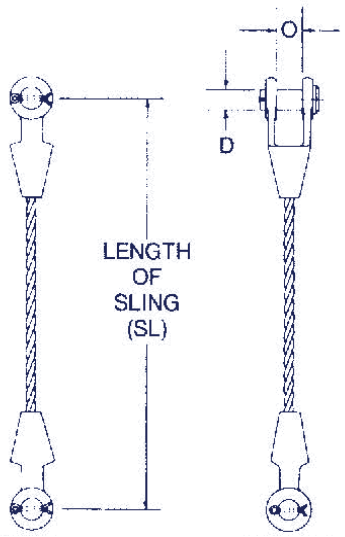
**Rated capacities of basket hitches are based on a minimum diameter of curvature at the point of load contact of 20 times the rope diameter.

Wire Rope Diam. Inches	Heavy Duty Thimble Inside Width Inches	Heavy Duty Thimble Inside Length Inches	Alloy Hook Size-Tons For EIPS	Carbon Shackle Size-Inches For EIPS	Open Swagged Socket Pin Size Inches	Open Swagged Socket Jaw Size Inches	Closed Swaged Socket Hole Diam. Inches	Closed Swaged Socket Head Thickness Inches
6 x 19 WITH I. W. R. C.								
1/4	7/8	1 5/8	1	5/16	11/16	11/16	3/4	1/2
5/16	1 1/16	1 7/8	1 1/2	3/8	13/16	13/16	7/8	11/16
3/8	1 1/8	2 1/8	2	7/16	13/16	13/16	7/8	11/16
7/16	1 1/4	2 3/8	3	1/2	1	1	1 1/16	7/8
1/2	1 1/2	2 3/4	5	5/8	1	1	1 1/16	7/8
9/16	1 1/2	2 3/4	5	5/8	1 3/16	1 1/4	1 1/4	1 1/8
5/8	1 3/4	3 1/4	7	3/4	1 3/16	1 1/4	1 1/4	1 1/8
3/4	2	3 3/4	11	7/8	1 3/8	1 1/2	1 7/16	1 5/16
7/8	2 1/4	4 1/4	11	1	1 5/8	1 3/4	1 11/16	1 1/2
1	2 1/2	4 1/2	15	1 1/4	2	2	2 1/16	1 3/4
1 1/8	2 7/8	5 1/8	22	1 1/4	2 1/4	2 1/4	2 5/16	2
6 x 37 WITH I. W. R. C.								
1 1/4	3 1/2	6 1/2	22	1 1/2	2 1/2	2 1/2	2 9/16	2 1/4
1 3/8	3 1/2	6 1/4	30	1 3/4	2 1/2	2 1/2	2 9/16	2 1/4
1 1/2	3 1/2	6 1/4	30	1 3/4	2 3/4	3	2 13/16	2 1/2
1 5/8	4	8	30	1 3/4	-	-	-	-
1 3/4	4 1/2	9	37	2	3 1/2	3 1/2	3 9/16	3
2	6	12	60	2 1/2	3 3/4	4	3 13/16	3 1/4
2 1/4	7	14	60	2 1/2	-	-	-	-
2 1/2	8 1/2	15 3/4	-	2 1/2	-	-	-	-
2 3/4	-	-	-	3	-	-	-	-
3	-	-	-	3	-	-	-	-
3 1/2	-	-	-	3 1/2	-	-	-	-
4	-	-	-	4	-	-	-	-

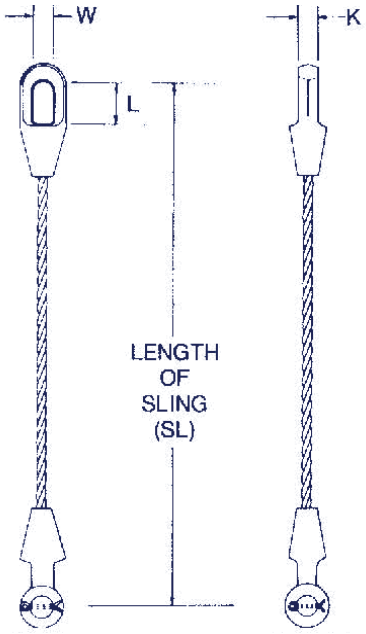
Type 11 Slings

SLINGS WITH SINGLE-ROPE LEGS AND OPEN AND/OR CLOSED SOCKETS (POURED ATTACHED)

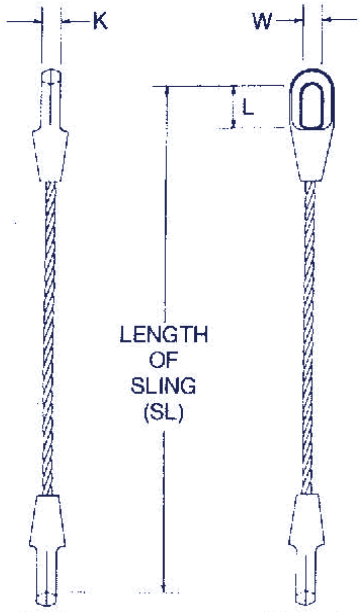
TYPE 11 OPEN SOCKETS



TYPE 11 OPEN AND CLOSED SOCKETS



TYPE 11 CLOSED SOCKETS



Diameter Of Wire Rope Inches	Minimum Length (SL) Of Sling Ft.-In.	Rated Capacities in Tons (2,000 lbs.) EIPS-IWRC		Important Dimensions				
				Open Socket		Closed Socket		
		Single Part Vertical	Vertical Basket ∪	O Inches	D Inches	W Inches	L Inches	K Inches
1/4	1-0	.68	1.3	11/16	11/16	13/16	1 3/4	1/2
5/16	1-0	1.10	1.9	13/16	13/16	15/16	2	11/16
3/8	1-0	1.50	2.8	13/16	13/16	15/16	2	11/16
7/16	1-2	2.00	3.8	1	1	1 1/8	2 1/4	7/8
1/2	1-3	2.70	4.9	1	1	1 1/8	2 1/4	7/8
9/16	1-5	3.40	6.2	1 1/4	1 3/16	1 3/8	2 1/2	1
5/8	1-6	4.10	7.6	1 1/4	1 3/16	1 3/8	2 1/2	1
3/4	1-9	5.90	11	1 1/2	1 3/8	1 5/8	3	1 1/4
7/8	2-0	8.00	15	1 3/4	1 5/8	1 7/8	3 1/2	1 1/2
1	2-6	10.00	19	2	2	2 1/4	4	1 3/4
1 1/8	2-9	13.00	24	2 1/4	2 1/4	2 1/2	4 1/2	2
1 1/4	3-0	16.00	30	2 1/2	2 1/2	2 3/4	5	2 1/4
1 3/8	3-0	19.00	36	2 1/2	2 1/2	2 3/4	5	2 1/4
1 1/2	3-3	23.00	42	3	2 3/4	3 1/8	6	2 1/2
1 5/8	3-9	26.00	49	3	3	3 1/4	6 1/2	2 3/4
1 3/4	4-3	31.00	57	3 1/2	3 1/2	3 17/32	7 9/16	3
2	4-9	39.00	73	4	3 3/4	3 25/32	8 9/16	3 1/4
2 1/4	5-0	49.00	91	4 1/2	4 1/4	4 9/32	9 1/2	3 5/8
2 1/2	5-9	60.00	112	5	4 3/4	5 1/2	10 5/8	4
2 3/4	6-5	72.00	134	5 1/4	5	6 1/2	11 1/4	4 7/8
3	6-10	85.00	157	5 3/4	5 1/4	6 3/4	11 3/4	5 1/4
3 1/4	7-7	98.00	182	6 1/4	5 1/2	7 1/4	12 1/4	5 3/4
3 1/2	8-2	113.00	209	6 3/4	6	7 3/4	13	6 1/4
3 3/4	8-8	128.00	235	7 1/2	7	8 1/4	14	7
4	9-1	143.00	263	7 1/2	7	8 1/4	14	7

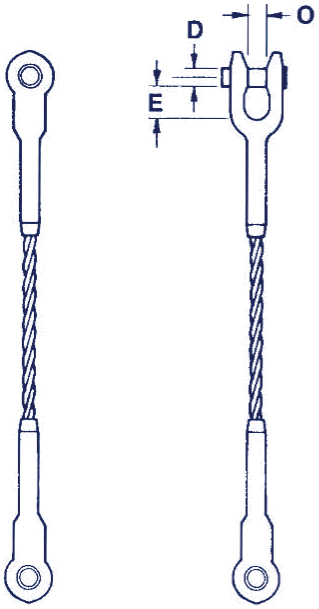
Design Factor 5:1

Sockets available up through 6" diameter wire rope upon request.

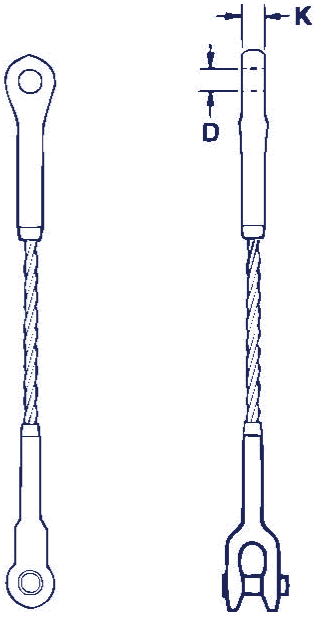
Type 11 Slings

SLINGS WITH SINGLE-ROPE LEGS AND OPEN AND/OR CLOSED SWAGED SOCKETS

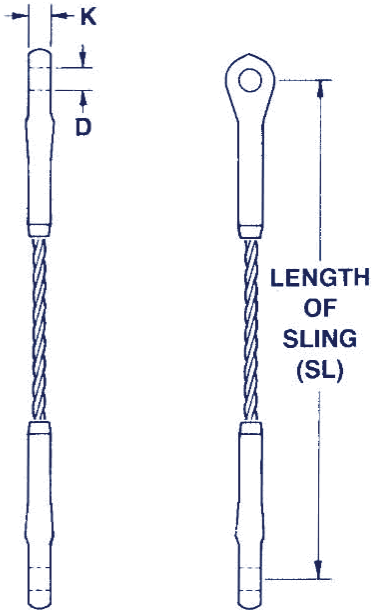
TYPE 11 OPEN SWAGED SOCKETS



TYPE 11 OPEN AND CLOSED SWAGED SOCKETS



TYPE 11 CLOSED SWAGED SOCKETS



Diameter Of Wire Rope Inches	Minimum Length (SL) Of Sling Ft.-In.	Rated Capacities in Tons (2,000 lbs.) EIPS-IWRC		Important Dimensions				
				Open Swage Socket			Closed Swage Socket	
		Single Part Vertical	Vertical Basket	O Inches	D Inches	E Inches	K Inches	D Inches
1/4	0-11	.68	1.3	11/16	11/16	1 5/32	1/2	3/4
5/16	1-1	1.10	1.9	13/16	13/16	1 11/32	11/16	7/8
3/8	1-3	1.50	2.8	13/16	13/16	1 11/32	11/16	7/8
7/16	1-6	2.00	3.8	1	1	1 1/2	7/8	1 1/16
1/2	1-8	2.70	4.9	1	1	1 1/2	7/8	1 1/16
9/16	1-10	3.40	6.2	1 1/4	1 3/16	1 21/32	1 1/8	1 1/4
5/8	2-0	4.10	7.6	1 1/4	1 3/16	1 21/32	1 1/8	1 1/4
3/4	2-5	5.90	11	1 1/2	1 3/8	2 1/16	1 5/16	1 7/16
7/8	2-10	8.00	15	1 3/4	1 5/8	2 7/16	1 1/2	1 11/16
1	3-2	10.00	19	2	2	2 3/4	1 3/4	2 1/16
1 1/8	3-7	13.00	24	2 1/4	2 1/4	3 1/8	2	2 5/16
1 1/4	4-0	16.00	30	2 1/2	2 1/2	3 1/2	2 1/4	2 9/16
1 3/8	4-5	19.00	36	2 1/2	2 1/2	4	2 1/4	2 9/16
1 1/2	4-9	23.00	42	3	2 3/4	4 3/8	2 1/2	2 13/16
1 3/4	5-5	31.00	57	3 1/2	3 1/2	5	3	3 9/16
2	6-4	39.00	73	4	3 3/4	6 1/8	3 1/4	3 13/16
2 1/4	7-2	49.00	91	4 1/2	4 1/4	4 5/8	4	4 5/16
2 1/2	8-0	60.00	112	4 1/2	4 1/4	4 5/8	4	4 5/16

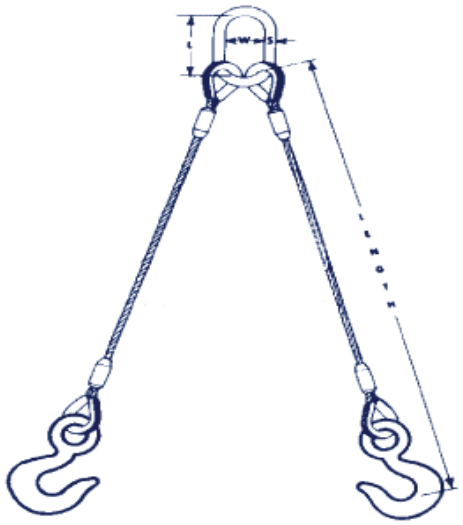
Design Factor 5:1

Type 21 Slings

FLEMISHED EYE AND MECHANICALLY SWAGED

Type 21 slings are 2-leg All-Purpose bridles, designed for general lifting purposes where attachment may be made directly to the load, such as hooking into lifting eyes or placing loops over lugs.
Capacites listed have a 5:1 design factor.

Diameter Of Wire Rope Inches	Minimum Length (SL) Of Sling Ft.- In.	Rated Capacities in Tons EIPS-IWRC			Alloy Links Diam. Inches
		60°	45°	30°	
1/4	1-3	1.10	.91	.65	1/2
5/16	1-6	1.70	1.40	1.00	1/2
3/8	1-8	2.50	2.00	1.40	3/4
7/16	1-10	3.40	2.70	1.90	7/8
1/2	2-0	4.40	3.60	2.50	1
9/16	2-2	5.50	4.50	3.20	1 1/4
5/8	2-4	6.80	5.50	3.90	1 1/4
3/4	2-9	9.70	7.90	5.60	1 1/4
7/8	3-3	13.00	11.00	7.60	1 1/2
1	3-6	17.00	14.00	9.80	1 1/2
1 1/8	4-0	21.00	17.00	12.00	1 3/4
1 1/4	4-6	26.00	21.00	15.00	2
1 3/8	5-0	31.00	25.00	18.00	2
1 1/2	5-6	37.00	30.00	21.00	2 1/4
1 5/8	6-0	42.00	35.00	24.00	2 1/2
1 3/4	6-6	49.00	40.00	28.00	2 1/2
2	8-0	63.00	52.00	37.00	2 3/4
2 1/4	8-9	77.00	63.00	44.00	3 1/4
2 1/2	10-0	94.00	77.00	54.00	3 3/4



FLEMISHED EYE AND MECHANICALLY SWAGED

Wire Rope Diam. Inches	Standard Loop Inside		Heavy Duty Thimble Inside		Alloy Hook Size-Tons For EIPS	Carbon Shackle With Thimble Size-Inches For EIPS	Open Swaged Socket		Closed Swaged Socket	
	Width Inches	Length Inches	Width Inches	Length Inches			Pin Size Inches	Jaw Size Inches	Hole Diam. Inches	Head Opening Inches
6 x 19 WITH I. W. R. C.										
1/4	2	4	7/8	1 5/8	1	5/16	11/16	11/16	3/4	1/2
5/16	2 1/2	5	1 1/16	1 7/8	1 1/2	3/8	13/16	13/16	7/8	11/16
3/8	3	6	1 1/8	2 1/8	2	7/16	13/16	13/16	7/8	11/16
7/16	3 1/2	7	1 1/4	2 3/8	3	1/2	1	1	1 1/16	7/8
1/2	4	8	1 1/2	2 3/4	5	5/8	1	1	1 1/16	7/8
9/16	4 1/2	9	1 1/2	2 3/4	5	5/8	1 3/16	1 1/4	1 1/4	1 1/8
5/8	5	10	1 3/4	3 1/4	7	3/4	1 3/16	1 1/4	1 1/4	1 1/8
3/4	6	12	2	3 3/4	11	7/8	1 3/8	1 1/2	1 7/16	1 5/16
7/8	7	14	2 1/4	4 1/4	11	1	1 5/8	1 3/4	1 11/16	1 1/2
1	8	16	2 1/2	4 1/2	15	1 1/4	2	2	2 1/16	1 3/4
1 1/8	9	18	2 7/8	5 1/8	22	1 1/4	2 1/4	2 1/4	2 5/16	2
6 x 37 WITH I. W. R. C.										
1 1/4	10	20	2 7/8	5 1/8	22	1 1/2	2 1/2	2 1/2	2 9/16	2 1/4
1 3/8	11	22	3 1/2	6 1/4	30	1 3/4	2 1/2	2 1/2	2 9/16	2 1/4
1 1/2	12	24	3 1/2	6 1/4	30	1 3/4	2 3/4	3	2 13/16	2 1/2
1 5/8	13	26	4	8	30	1 3/4	3 1/2	3 1/2	3 9/16	3
1 3/4	14	28	4 1/2	9	37	2	3 1/2	3 1/2	3 9/16	3
2	16	32	6	12	60	2 1/2	3 3/4	4	3 13/16	3 1/4
2 1/4	18	36	7	14	60	2 1/2	4 1/4	4 1/4	4 5/16	4
2 1/2	20	40	-	-	-	3	4 1/4	4 1/4	4 5/16	4
2 3/4	22	44	-	-	-	3	-	-	-	-
3	24	48	-	-	-	3	-	-	-	-
3 1/4	-	-	-	-	-	3 1/2	-	-	-	-
3 1/2	-	-	-	-	-	3 1/2	-	-	-	-
3 3/4	-	-	-	-	-	4	-	-	-	-
4	-	-	-	-	-	4	-	-	-	-

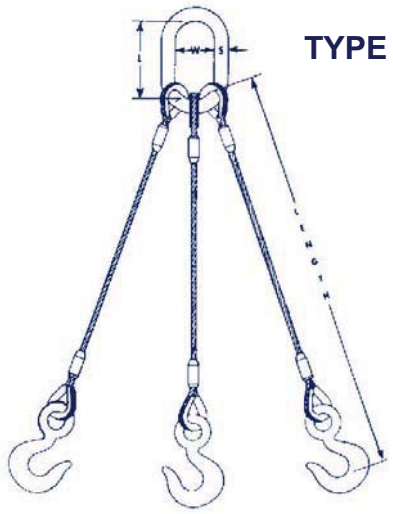
Fittings dimensions subject to change without notice.
Confirm fittings details when inquiring.

Type 31 Slings

FLEMISHED EYE AND MECHANICALLY SWAGED

Type 31 slings are 3-leg All-Purpose bridles, generally recommended for handling unbalanced loads.
Capacities listed have a 5:1 design factor.

Diameter Of Wire Rope Inches	Minimum Length (SL) Of Sling Ft.-In.	Rated Capacities in Tons EIPS-IWRC 60°	45°	30°	Alloy Links Diam. Inches
1/4	1-3	1.70	1.40	.97	1/2
5/16	1-6	2.60	2.10	1.50	5/8
3/8	1-8	3.70	3.00	2.20	3/4
7/16	1-10	5.00	4.10	2.90	1
1/2	2-0	6.60	5.40	3.80	1
9/16	2-2	8.30	6.80	4.80	1 1/4
5/8	2-4	10.00	8.30	5.90	1 1/4
3/4	2-9	15.00	12.00	8.40	1 1/2
7/8	3-3	20.00	16.00	11.00	1 3/4
1	3-6	26.00	21.00	15.00	2
1 1/8	4-0	31.00	26.00	18.00	2
1 1/4	4-6	38.00	31.00	22.00	2 1/4
1 3/8	5-0	46.00	38.00	27.00	2 1/2
1 1/2	5-6	55.00	45.00	32.00	2 3/4
1 5/8	6-0	63.00	52.00	37.00	2 3/4
1 3/4	6-6	74.00	60.00	42.00	3
2	8-0	95.00	78.00	55.00	3 1/2
2 1/4	8-9	116.00	94.00	67.00	4
2 1/2	10-0	141.00	115.00	82.00	4 1/2



TYPE 31

Wire Rope Diam. Inches	Standard Loop Inside Width Inches	Standard Loop Inside Length Inches	Heavy Duty Thimble Inside Width Inches	Heavy Duty Thimble Inside Length Inches	Alloy Hook Size-Tons For EIPS	Carbon Shackle With Thimble Size-Inches For EIPS	Open Swaged Socket Pin Size Inches	Open Swaged Socket Jaw Size Inches	Closed Swaged Socket Hole Diam. Inches	Closed Swaged Socket Head Opening Inches
6 x 19 WITH I. W. R. C.										
1/4	2	4	7/8	1 5/8	1	5/16	11/16	11/16	3/4	1/2
5/16	2 1/2	5	1 1/16	1 7/8	1 1/2	3/8	13/16	13/16	7/8	11/16
3/8	3	6	1 1/8	2 1/8	2	7/16	13/16	13/16	7/8	11/16
7/16	3 1/2	7	1 1/4	2 3/8	3	1/2	1	1	1 1/16	7/8
1/2	4	8	1 1/2	2 3/4	5	5/8	1	1	1 1/16	7/8
9/16	4 1/2	9	1 1/2	2 3/4	5	5/8	1 3/16	1 1/4	1 1/4	1 1/8
5/8	5	10	1 3/4	3 1/4	7	3/4	1 3/16	1 1/4	1 1/4	1 1/8
3/4	6	12	2	3 3/4	11	7/8	1 3/8	1 1/2	1 7/16	1 5/16
7/8	7	14	2 1/4	4 1/4	11	1	1 5/8	1 3/4	1 11/16	1 1/2
1	8	16	2 1/2	4 1/2	15	1 1/4	2	2	2 1/16	1 3/4
1 1/8	9	18	2 7/8	5 1/8	22	1 1/4	2 1/4	2 1/4	2 5/16	2
6 x 37 WITH I. W. R. C.										
1 1/4	10	20	2 7/8	5 1/8	22	1 1/2	2 1/2	2 1/2	2 9/16	2 1/4
1 3/8	11	22	3 1/2	6 1/4	30	1 3/4	2 1/2	2 1/2	2 9/16	2 1/4
1 1/2	12	24	3 1/2	6 1/4	30	1 3/4	2 3/4	3	2 13/16	2 1/2
1 5/8	13	26	4	8	30	1 3/4	3 1/2	3 1/2	3 9/16	3
1 3/4	14	28	4 1/2	9	37	2	3 1/2	3 1/2	3 9/16	3
2	16	32	6	12	60	2 1/2	3 3/4	4	3 13/16	3 1/4
2 1/4	18	36	7	14	60	2 1/2	4 1/4	4 1/4	4 5/16	4
2 1/2	20	40	-	-	-	3	4 1/4	4 1/4	4 5/16	4
2 3/4	-	-	-	-	-	3	-	-	-	-
3	-	-	-	-	-	3	-	-	-	-
3 1/4	-	-	-	-	-	3 1/2	-	-	-	-
3 1/2	-	-	-	-	-	3 1/2	-	-	-	-
3 3/4	-	-	-	-	-	4	-	-	-	-
4	-	-	-	-	-	4	-	-	-	-

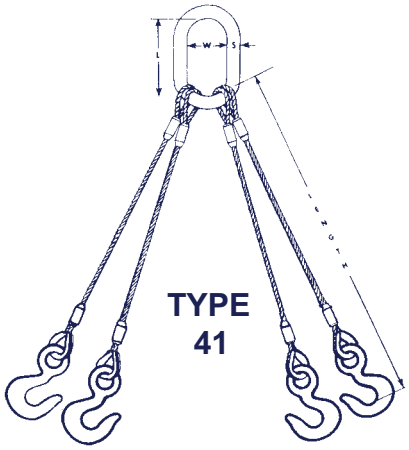
Confirm fittings details when inquiring.

Type 41 Slings

FLEMISHED EYE & MECHANICALLY SWAGED

Diameter Of Wire Rope Inches	Minimum Length (SL) Of Sling Ft.-In.	Rated Capacities in Tons EIPS-IWRC 60°	45°	30°	Alloy Links Diam. Inches
1/4	1-3	2.20	1.80	1.30	5/8
5/16	1-6	3.50	2.80	2.00	3/4
3/8	1-8	5.00	4.10	2.90	7/8
7/16	1-10	6.70	5.50	3.90	1
1/2	2-0	8.80	7.10	5.10	1 1/4
9/16	2-2	11.00	9.00	6.40	1 1/2
5/8	2-4	14.00	11.00	7.80	1 1/2
3/4	2-9	19.00	16.00	11.00	1 3/4
7/8	3-3	26.00	21.00	15.00	2
1	3-6	34.00	28.00	20.00	2 1/4
1 1/8	4-0	42.00	34.00	24.00	2 1/2
1 1/4	4-6	51.00	42.00	30.00	2 1/2
1 3/8	5-0	62.00	50.00	36.00	3 1/4
1 1/2	5-6	73.00	60.00	42.00	3 3/4
1 5/8	6-0	85.00	69.00	49.00	3 3/4
1 3/4	6-6	98.00	80.00	57.00	4 1/2
2	8-0	127.00	104.00	73.00	4 1/2
2 1/4	8-9	154.00	126.00	89.00	Call
2 1/2	10-0	188.00	154.00	109.00	Call

Type 41 slings are 4-leg All-Purpose bridles, used both for balanced and unbalanced loads and for heavier loads where design calls for more distribution of weight by the use of attachment at four points.
Capacities listed have a 5:1 design factor.



Diameter Of Wire Rope Inches	Standard Loop Inside Width Inches	Standard Loop Inside Length Inches	Heavy Duty Thimble Inside Width Inches	Heavy Duty Thimble Inside Length Inches	Alloy Hook Size-Tons For EIPS	Carbon Shackle With Thimble Size-Inches For EIPS	Open Swaged Socket Pin Size Inches	Open Swaged Socket Jaw Size Inches	Closed Swaged Socket Hole Diam. Inches	Closed Swaged Socket Head Opening Inches
6 x 19 WITH I. W. R. C.										
1/4	2	4	7/8	1 5/8	1	5/16	11/16	11/16	3/4	1/2
5/16	2 1/2	5	1 1/16	1 7/8	1 1/2	3/8	13/16	13/16	7/8	11/16
3/8	3	6	1 1/8	2 1/8	2	7/16	13/16	13/16	7/8	11/16
7/16	3 1/2	7	1 1/4	2 3/8	3	1/2	1	1	1 1/16	7/8
1/2	4	8	1 1/2	2 3/4	5	5/8	1	1	1 1/16	7/8
9/16	4 1/2	9	1 1/2	2 3/4	5	5/8	1 3/16	1 1/4	1 1/4	1 1/8
5/8	5	10	1 3/4	3 1/4	7	3/4	1 3/16	1 1/4	1 1/4	1 1/8
3/4	6	12	2	3 3/4	11	7/8	1 3/8	1 1/2	1 7/16	1 5/16
7/8	7	14	2 1/4	4 1/4	11	1	1 5/8	1 3/4	1 11/16	1 1/2
1	8	16	2 1/2	4 1/2	15	1 1/4	2	2	2 1/16	1 3/4
1 1/8	9	18	2 7/8	5 1/8	22	1 1/4	2 1/4	2 1/4	2 5/16	2
6 x 37 WITH I. W. R. C.										
1 1/4	10	20	2 7/8	5 1/8	22	1 1/2	2 1/2	2 1/2	2 9/16	2 1/4
1 3/8	11	22	3 1/2	6 1/4	30	1 3/4	2 1/2	2 1/2	2 9/16	2 1/4
1 1/2	12	24	3 1/2	6 1/4	30	1 3/4	2 3/4	3	2 13/16	2 1/2
1 5/8	13	26	4	8	30	1 3/4	3 1/2	3 1/2	3 9/16	3
1 3/4	14	28	4 1/2	9	37	2	3 1/2	3 1/2	3 9/16	3
2	16	32	6	12	60	2 1/2	3 3/4	4	3 13/16	3 1/4
2 1/4	18	36	7	14	60	2 1/2	4 1/4	4 1/4	4 5/16	4
2 1/2	20	40	-	-	-	3	4 1/4	4 1/4	4 5/16	4
2 3/4	-	-	-	-	-	3	-	-	-	-
3	-	-	-	-	-	3	-	-	-	-
3 1/4	-	-	-	-	-	3 1/2	-	-	-	-
3 1/2	-	-	-	-	-	3 1/2	-	-	-	-
3 3/4	-	-	-	-	-	4	-	-	-	-
4	-	-	-	-	-	4	-	-	-	-

Confirm fittings details when inquiring.

Type 12 Slings

CABLE-LAID: GALVANIZED

Southwest Wire Rope Cable-Laid slings are specialized slings, designed specifically for applications that require extreme flexibility and resistance to kinking. Type 12 is a single-leg construction for use singularly or in pairs. Where cutting abrasion or extreme conditions are factors, however, the All-Purpose Type 11 sling is recommended.

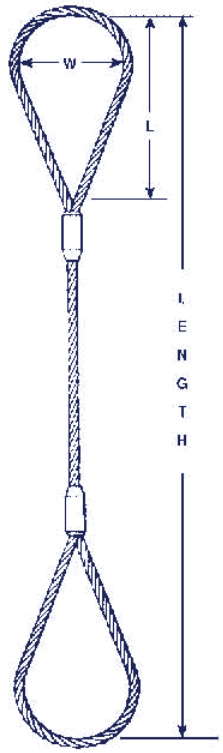
Diam. Of Wire Rope Inches	Min. Length (SL) Of Sling Ft.-In.	Inside Loop Dimensions W Inches	Inside Loop Dimensions L Inches	Rated Capacity in Tons (2000 lbs.) Single Part Vertical	** Choker Hitch	Vertical Basket
7 x 7 x 7 Construction						
3/8	2	3	6	1.1	0.8	2.2
1/2	2-6	4	8	1.9	1.3	3.7
5/8	3	5	10	2.8	1.9	5.5
7 x 7 x 19 Construction						
3/4	3-6	6	12	4.1	2.8	8.1
7/8	4	7	14	5.4	3.8	11
1	4-6	8	16	6.9	4.8	14
1 1/8	5	9	18	8.3	5.8	17
1 1/4	5-6	10	20	9.9	6.9	20

Capacities listed have a 5:1 design factor

PERTINENT DIMENSIONS FOR END FITTINGS

Rope Diam. Inches	Loop Inside Width In.	Loop Inside Length In.	Thimble Inside Width In.	Thimble Inside Length In.	Alloy Hook Size Tons	Shackle Size In.
7 x 7 x 7 Construction						
3/8	3	6	1 1/8	2 1/8	1 1/2	7/16
1/2	4	8	1 1/2	2 3/4	3	1/2
5/8	5	10	1 3/4	3 1/4	4 1/2	5/8
7 x 7 x 19 Construction						
3/4	6	12	2	3 3/4	7	3/4
7/8	7	14	2 1/4	4 1/4	7	7/8
1	8	16	2 1/2	4 1/2	11	1
1 1/8	9	18	2 7/8	5 1/8	11	1 1/8
1 1/4	10	20	3 1/2	6 1/2	15	1 3/8

TYPE 12
SINGLE LEG



LOOP

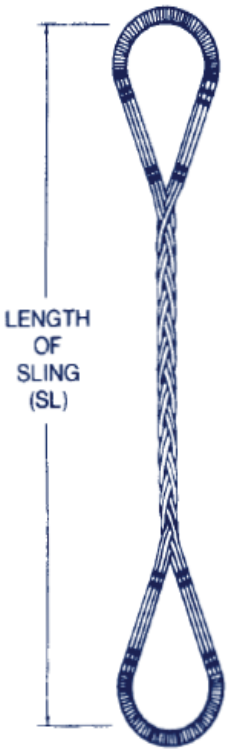
*Rated capacities of basket hitches are based on a minimum diameter of curvature at the point of load contact of 10 times the rope diameter.

** Rated capacities for choker hitches apply when the angle of choke is greater than 135°.

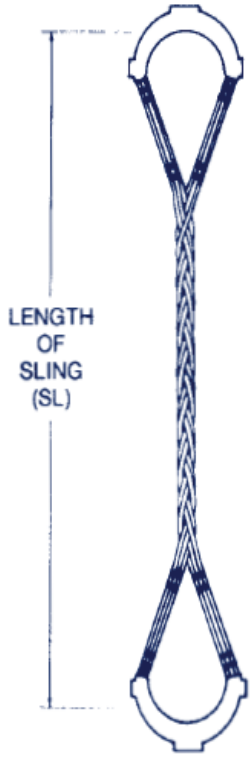
Fittings dimensions subject to change witout notice. Confirm fitting details when inquiring.

Braided Slings
Type 16 6 - Part

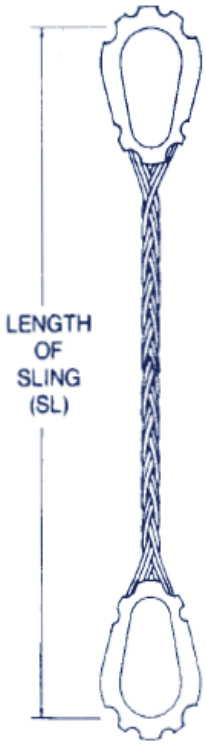
TYPE 16
(WITH SERVED LOOPS)



TYPE 16
(WITH CRESCENT THIMBLES)



TYPE 16
(WITH SLIP-THRU THIMBLES)



Diam. Of Component Ropes In.	Min Length (SL) of Slings Ft.-In.	Rated Capacities in Tons of 2000 lb. EIPS Rope - IWRC			Length of Loops		Slip-Thru Thimbles	Crescent Thimbles
		Single Leg Vertical	** Choker Hitch	Vertical Basket *	Suggested L In.	Min. L In.	Size No.	Size No.
1/8	1-6	.84	.74	1.7	6	6	W-2	6C
3/16	2-0	1.4	1.2	2.8	8	6	W-3	8C
1/4	2-6	2.9	2.5	4.9	12	8	W-4	9C
5/16	2-9	3.8	3.4	7.7	12	8	W-4	10C
3/8	3-6	5.5	4.8	11	16	10	W-5	16C
7/16	4-0	8.6	7.5	17	18	12	W-6	18C
1/2	4-6	11	9.8	22	18	12	W-7	20C
9/16	5-6	14	12	28	20	14	W-7	22C
5/8	6-6	17	15	35	24	18	W-8	24C
3/4	7-6	25	22	49	28	20	W-9	32C
7/8	8-9	33	29	67	32	24	W-10	40C
1	10-6	43	38	87	36	30	W-10	40C

* Larger sizes available upon request.
Rated capacities basket hitch based on D/d ratio of 25 times the component rope diameter.
Rated capacities based on pin diameter no larger than natural eye width or less than the nominal sling diameter.
Rated capacities based on design factor of 5.
Horizontal sling angles less than 30 degrees shall not be used.
** Rated capacities of choker hitches apply when the angle of choke is greater than 135°.
Standard in 7 x 19 galvanized rope through 3/8" componet ropes.

All data subject to change without notice.
www.swwrinc.com

Type 18 Slings

8-PART BRAIDED

Diameter of Component Rope Inches	Diameter of Sling Body Inches (Approx.)	Min. Length (SL) of Sling Ft.-In.	Rated Capacity **			Standard Inside Loop Dimensions Approx.	
			Single Leg Vertical	*** Choker Hitch	Basket Hitch * Straight Pull Vertical	W Inches	L Inches
* 3/32	7/16	1-5	.56	.49	1.10	2	4
* 1/8	9/16	1-10	1.10	1.00	2.20	3	6
* 3/16	13/16	2-10	1.90	1.60	3.70	5	10
* 1/4	1 1/8	3-6	3.80	3.30	6.60	6	12
* 5/16	1 3/8	4-6	5.10	4.50	10.00	8	16
* 3/8	1 11/16	5-0	7.30	6.40	15.00	8	16
7/16	2	5-9	11.00	10.00	23.00	9	18
1/2	2 1/4	6-5	15.00	13.00	30.00	9	18
9/16	2 1/2	8-0	19.00	16.00	38.00	12	24
5/8	2 13/16	9-4	23.00	20.00	46.00	14	28
3/4	3 3/8	-	33.00	29.00	66.00	-	-
7/8	4	-	45.00	39.00	89.00	-	-
1	4 1/2	-	58.00	51.00	116.00	-	-
1 1/8	5	-	73.00	64.00	146.00	-	-
1 1/4	5 5/8	-	89.00	78.00	179.00	-	-
1 3/8	6 3/16	-	108.00	94.00	215.00	-	-
1 1/2	6 3/4	-	128.00	112.00	255.00	-	-
1 5/8	7 5/16	-	148.00	129.00	296.00	-	-
1 3/4	7 7/8	-	171.00	150.00	343.00	-	-
1 7/8	8 7/16	-	195.00	171.00	390.00	-	-
2	9	-	222.00	194.00	444.00	-	-

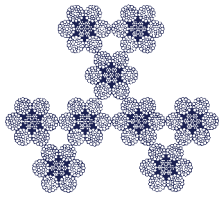
TYPE 18

Larger sizes available.
Standard galvanized 7 x 19 through 3/8" component ropes.
** Rated capacities of basket hitches are based on minimum diameter of curvature at the point of load contact of 20 times the rope diameter.
*** Rated capacities of choker hitches apply when the angle of choke is greater than 135°.

PERTINENT DIMENSIONS FOR END FITTINGS

Sling Size Inches	Loop Inside		Slip-Thru Thimble Inside		Alloy Hook	Shackle with Thimble	Half Thimble Inside Loop	
	Width In.	Length In.	Width In.	Length In.	Size Tons	Size In.	Width In.	Length In.
3/32	1 1/2	3	2 1/8	4 1/8	1	1/4	-	-
1/8	2	4	2 1/8	4 1/8	1 1/2	3/8	2	4
3/16	3	6	2 3/8	4 3/8	3	1/2	2 1/4	6
1/4	4	8	3 3/8	6 5/8	4 1/2	5/8	3 1/4	8
5/16	5	10	3 3/4	7 1/8	7	3/4	4 1/2	10
3/8	6	12	3 3/4	7 1/8	11	7/8	4 5/8	12
7/16	7	14	4 3/8	8 3/8	15	1 1/8	5 1/2	14
1/2	8	16	5	9 1/2	15	1 1/4	6	16
9/16	9	18	5	9 1/2	22	1 1/2	6 1/2	18
5/8	10	20	6 3/4	11 3/4	30	1 3/4	7	20
3/4	12	24	8	14 1/2	37	2	8	24
7/8	14	28	8 3/8	17 5/8	45	2	-	-
1	16	32	8 3/8	17 5/8	60	2 1/8	-	-

Braided Slings Type 19



Cross Section Through Body

Helically laid with one continuous wire rope running through both eyes and the body

Flexibility and handing ease for rigging large lifts is achieved in these 9-part slings by laying a single wire rope continuously through both eyes and the sling body so that nine parts of rope form the body. This proven design provides internal adjustment to distribute the load evenly among all nine parts of the body when a sling is in tension. In addition, the construction makes it possible to visually inspect all internal parts of the sling before and after each lift – important when a sling is to be used many times. Only two splices occur in the entire sling, where the two rope ends are spliced at the eyes.

A 9-part sling construction exhibits constructional stretch of approximately 1 ½% on the first loading, and a lesser amount thereafter. For this reason, lifts using two or more legs should always be made with legs which have been subjected to the same past usage when such stretch may affect the lift.

Where a sling body must conform to a tight choke hitch, or must bend in a tight radius, as around a pin or post, a 9-part construction may be the most suitable, since it can develop greater lifting capacity from a smaller component rope.

9-PART BRAID
HAND TUCKED SPLICE
IWRC
VERTICAL, CHOKER OR VERTICAL BASKET
RATED CAPACITY IN TONS OF 2,000 lbs.
RATED CAPACITIES SHOWN APPLY ONLY TO 6X19 AND 6X36 CLASSIFICATION WIRE ROPE

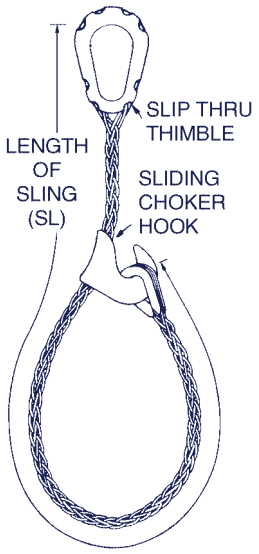
ROPE DIAMETER (INCHES)	VERTICAL		CHOKER		VERTICAL BASKET	
	IPS	EIPS	IPS	EIPS	IPS	EIPS
3/32*	0.63	-	0.55	-	1.3	-
1/8*	1.3	-	1.1	-	2.5	-
3/16	2.1	2.4	1.8	2.1	4.2	4.8
1/4	3.7	4.3	3.2	3.7	7.4	8.6
5/16	5.8	6.6	5.0	5.8	12	13
3/8	8.3	9.5	7.2	8.3	17	19
7/16	11	13	9.8	11	22	26
1/2	14	17	13	15	29	34
9/16	18	21	16	19	37	42
5/8	23	26	20	23	45	52
3/4	32	37	28	32	65	74
7/8	44	50	38	44	87	100
1	57	65	50	57	113	130
1 1/8	71	82	62	72	142	164
1 1/4	87	101	77	88	175	201
1 3/8	105	121	92	106	210	242
1 1/2	125	144	109	126	249	287
1 5/8	145	166	127	146	290	333
1 3/4	168	193	147	169	335	386
1 7/8	192	219	168	192	383	438
2	217	249	190	218	433	499

* NOTE: 3/32 & 1/8 utilize Galvanized Small Cord minimum breaking force.

Rated capacities basket hitch based on D/d ratio of 25 times the component rope diameter.
Rated capacities based on pin diameter no larger than natural eye width or less than the nominal sling diameter.
Rated capacities based on design factor of 5
Horizontal sling angles less than 30 degrees shall not be used.

Choker Slings

Type 18 8 - Part Braided Slings



TYPE 18

CHOKER HITCH RATING

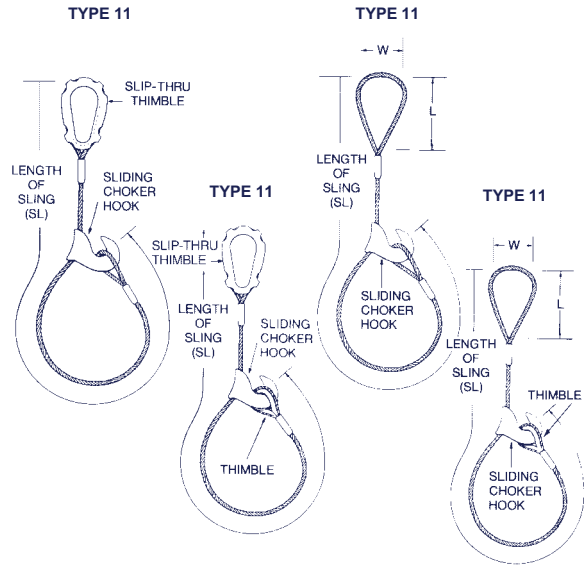
Diameter of Ropes in Braided Sling Inches	Rated Capacities** in Tons (2000 lb) EIPS IWRC	Slip-Thru Thimbles Size No.	Choker Hooks Size No.
1/8	1.0	W-2	2
3/16	1.6	W-3	3
1/4	3.3	W-4	4
5/16	4.5	W-5	5
3/8	6.4	W-6	6
7/16	10	W-5	7
1/2	13	W-7	8

** Rated capacities of basket hitches are based on a minimum diameter of curvature at the point of load contact of 25 times the component rope diameter.

Rated capacities of choker hitches apply when the angle of choke is greater than 135°.

Standard galvanized 7 x 19 through 3/8" component rope.

Flemished Eye & Mechanically Swaged



Diameter of Individual Ropes Inches	Rated Capacities** in Tons (2000 lb) EIPS IWRC	Slip-Thru Thimbles Size No.	Spliced Loops W in.	Spliced Loops L in.
1/4	.48	W-2	2	4
3/8	1.1	W-2	3	6
1/2	1.9	W-3	4	8
5/8	2.9	W-4	5	10
3/4	4.1	W-4	6	12
7/8	5.6	W-5	7	14
1	7.2	W-5	8	16
1 1/8	9.1	W-6	9	18
1 1/4	11	W-6	10	20
1 3/8	13	W-7	11	22
1 1/2	16	W-7	12	24

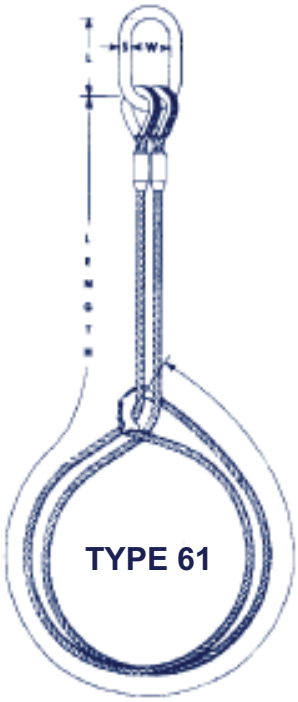
** Rated capacities of choker hitches apply when the angle of choke is greater than 135°.

Choker Slings

TAPERED SLEEVE ATTACHMENTS

These Choker Slings are designed to grip or choke the load. Ideally suited to lifting bar stock, beams, lumber, bundles of pipe and similar material. The tapered sleeve splice, as well as the anchor hitch on Type 61, allows close snubbing of the load, insuring a positive grip.

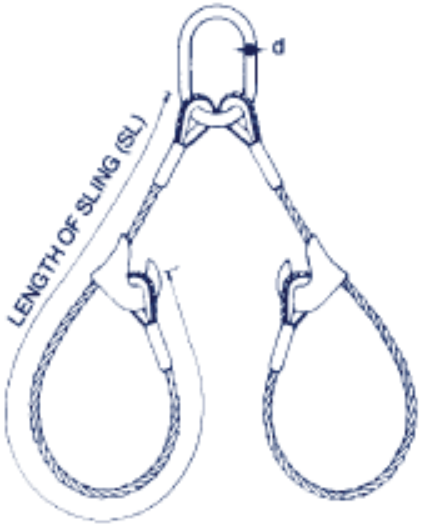
The use of sliding choker hooks on Type 21 increases sling life and permits faster handling.



TYPE 61

Ror Ratings on Type 61 shown call SWWR.

TWO LEG BRIDLE CHOKER SLING - TYPE 21



TYPE 21

Diameter of Wire Rope Inches	Rated Capacities* in Tons (2000 lb) EIPS IWRC** When Used @ 60°	45°	30°	Alloy Oblong Links d In.
3/8	1.8	1.5	1.1	1/2
1/2	3.2	2.6	1.9	3/4
5/8	5.0	4.1	2.9	7/8
3/4	7.1	5.8	4.1	1
7/8	9.7	7.9	5.6	1 3/8
1	13	10	7.2	1 1/2
1 1/8	16	13	9.1	1 1/2
1 1/4	19	16	11	1 3/4
1 3/8	23	19	13	2
1 1/2	28	23	16	2

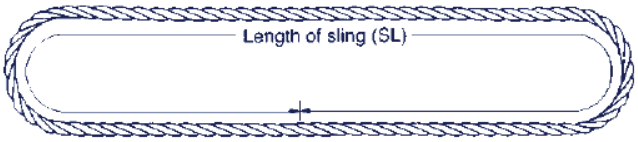
*Rated capacities are based on minimum diameter of curvature at the point of load contact of 25 times the rope diameter. Rated capacities of choker hitches apply when the angle of choke is greater than 135°.

Fittings dimensions subject to change without notice. Confirm fittings details when inquiring.

Grommet Slings

Mechanically Spliced

TYPE 53
STRAND-LAID GROMMET WITH MECHANICAL SPLICE



Diam. Of Grommet Inches	Rated Capacities in Tons (2000 lb) EIPS				
	Choker Hitch	Leg Vertical	Basket Hitch When Used		
			60°	45°	30°
3/8	1.6	2.4	4.1	3.3	2.4
1/2	2.9	4.1	7.2	5.9	4.1
5/8	4.5	6.4	11	9.1	6.4
3/4	6.4	9.2	16	13	9.2
7/8	8.7	12	22	18	12
1	11	16	28	23	16

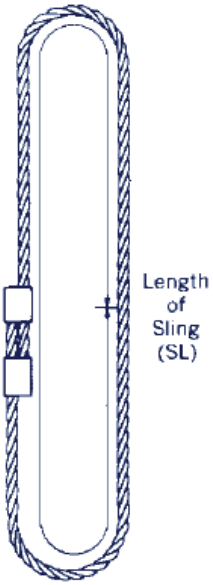
Larger sizes available upon request
Rated capacities basket hitch and vertical lift based on D/d ratio of 5 where “d” = body diameter of the finished grommet
Rated capacities based on design factor of 5.
Rated capacities based on pin diameter no smaller than 5 times the body diameter.
Horizontal sling angles less than 30 degrees shall not be used.
Length of sling (SL) is measured as indicated on sketch.
Rated capacities of choker hitches apply when the angle of choke is greater than 120°.

Hand Tucked

TYPE 51
STRAND-LAID GROMMET WITH HAND TUCKED SPLICE

Diam. Of Grommet Inches	Rated Capacities in Tons (2000 lb) EIPS				
	Choker Hitch	Leg Vertical	Basket Hitch When Used		
			60°	45°	30°
3/8	1.5	2.1	3.6	3.0	2.1
1/2	2.6	3.7	6.4	5.2	3.7
5/8	4.0	5.7	9.9	8.1	5.7
3/4	5.7	8.2	14	12	8.2
7/8	7.7	11	19	16	11
1	10	14	25	20	14

Larger sizes available upon request
Length of sling (SL) is measured as indicated on sketch.
Rated capacities of choker hitches apply when the angel of choker is greater than 120°.

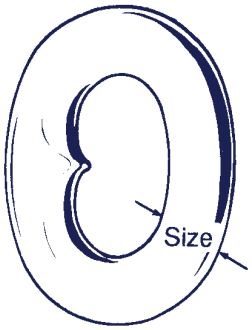


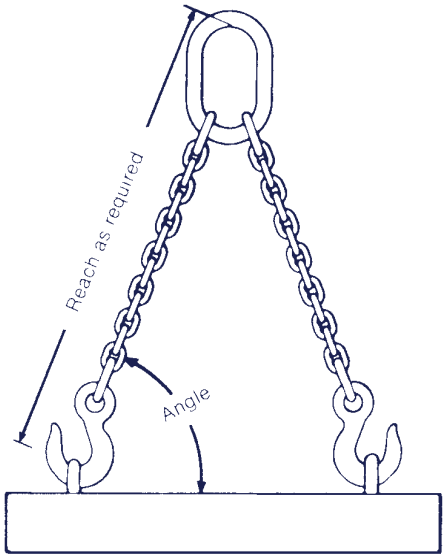
Chain

Alloy Chain Slings

HOW TO ORDER THE PROPER CHAIN SLING

When ordering, please be sure to include the following:





SIZE

Size means diameter of the material from which the link of the body chain is formed. Throughout this bulletin, size will be given in fractions.

REACH ("PULL TO PULL")

If chain slings are to be used in pairs and are to be matched for reach, please indicate when ordering.

TYPE

In describing the type of chain sling, the following symbols should be used. If attachments required are other than standard, give detailed specifications and descriptions.

First Symbol (Basic Type)

- **S** — Single chain sling
- **C** — Single choker chain sling with a standard end link on each end, no hooks
- **D** — Double branch chain sling
- **T** — Triple branch chain sling
- **Q** — Quadruple branch chain sling

Second Symbol (Type of Master Link or End Link)

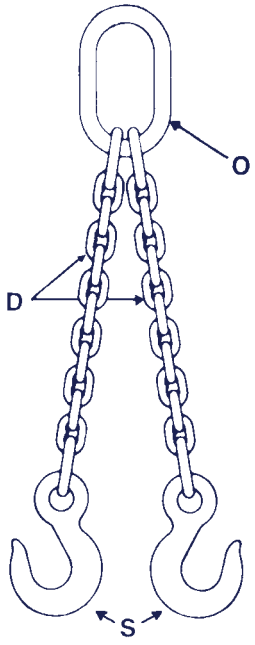
- **O** — Oblong master link of standard dimensions
- **P** — Pear-shaped master link (available on request, not a standard item)

Third Symbol (Type of Hook)

- **S** — Sling hook
- **G** —Grab hook
- **F** — Foundry hook
- **L** — Latchlok
- **PH** — Plate hook (available on request, not a standard item)
- **PC** — Plate champ (available on request, not a standard item)

Alloy Chain Slings

HOW TO SELECT THE PROPER CHAIN SLING

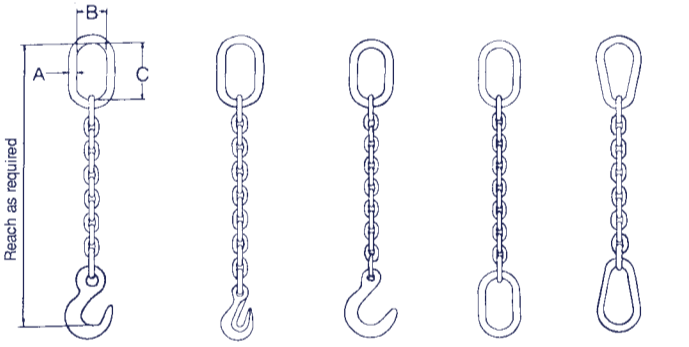


EXAMPLE
1/2'' chain, 6 ft. reach, type DOS

1. Determine the maximum weight of LOAD
2. Determine the TYPE of sling required. This will be determined by the configuration of the load.
3. From the working load limit charts of the following pages, determine the size of the body chain for the sling. Be sure to take into consideration the effect of the angles shown.
4. Select the matching ATTACHMENTS required.
5. Determine the REACH required to give the desired angle. The reach is measured from the upper bearing surface of the master link to the bearing surface of the lower attachment (”Pull to Pull”).

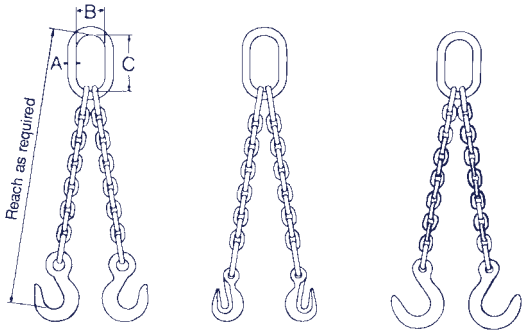
Chain Sling Configurations Alloy

SINGLE CHAIN SLINGS/TYPE S AND C



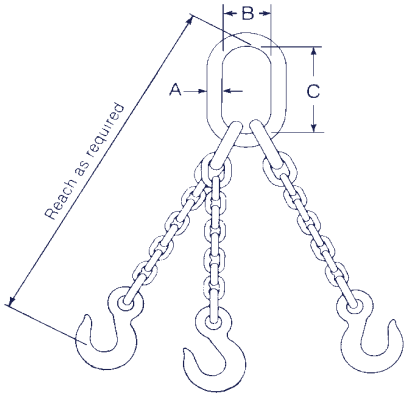
TYPE SOS SLING HOOK | TYPE SOG GRAB HOOK | TYPE SOF FOUNDRY HOOK | TYPE CO | TYPE CP

DOUBLE CHAIN SLINGS/TYPE D



TYPE DOS SLING HOOKS | TYPE DOG GRAB HOOKS | TYPE DOF FOUNDRY HOOKS

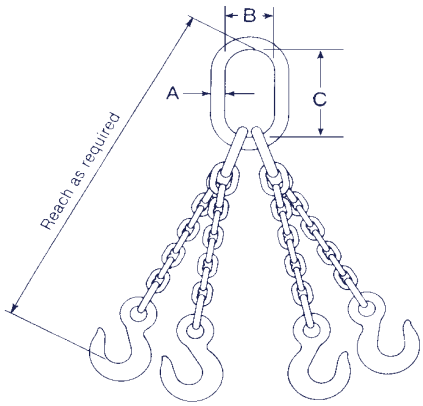
TRIPLE CHAIN SLINGS/TYPE T



TYPE TOS

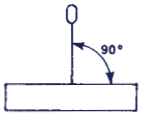
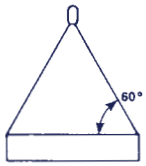
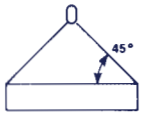
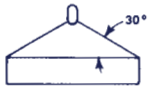
OTHER CONFIGURATIONS AVAILABLE UPON REQUEST

QUAD CHAIN SLINGS/TYPE Q



TYPE QOS

Working Load Limits of 100 Grade Chain Slings

Single chain slings type S & C		Double chain slings — type D Working load limit in pounds when used with branches at angle of inclination to horizontal load as shown		
Chain Size in inches				
Size	On Straight Lift	60°	45°	30°
9/32	4,300 lbs.	7,400 lbs.	6,100 lbs.	4,300 lbs.
3/8	8,800 lbs.	15,200 lbs.	12,400 lbs.	8,800 lbs.
1/2	15,000 lbs.	26,000 lbs.	21,200 lbs.	15,000 lbs.
5/8	22,600 lbs.	39,100 lbs.	32,000 lbs.	22,600 lbs.
3/4	35,300 lbs.	61,100 lbs.	49,900 lbs.	35,300 lbs.
7/8	42,700 lbs.	74,000 lbs.	60,400 lbs.	42,700 lbs.

Above data complies with all existing federal regulations

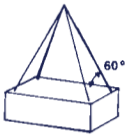
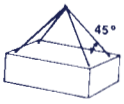
Caution: Serious damage to a chain may occur when a force exceeding the working load limit is applied to a chain or chain assembly. These working load limits should not be exceeded.

Use of chain under heat conditions

When the chain itself is heated to temperatures shown below, the working load limits should be reduced as indicated.

Temperature of Chain	Reduction in Working Load Limit [1] While Heated	Permanent Reduction in Working Load Limit [2]
500° F.	none	none
600° F.	10%	none
700° F.	20%	none
800° F.	30%	none
900° F.	40%	10%
*1000° F.	50%	15%

[1] While chain is at room temperature shown in first column.
[2] When chain is used at room temperature after having been heated to temperature shown in first column.
* Chains shall not be heated above 1000° F or cooled below –40° F.

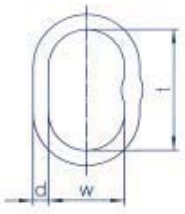
Triple chain slings — type T Quad chain slings — type Q		Working load limit in pounds when used with branches at angle of inclination to horizontal load as shown.	
Chain Size in inches			
Size	60°	45°	30°
9/32	11,200 lbs.	9,100 lbs.	6,400 lbs.
3/8	22,900 lbs.	18,700 lbs.	13,200 lbs.
1/2	39,000 lbs.	31,800 lbs.	22,500 lbs.
5/8	58,700 lbs.	47,900 lbs.	33,900 lbs.
3/4	91,700 lbs.	74,900 lbs.	53,000 lbs.
7/8	110,900 lbs.	90,600 lbs.	64,000 lbs.

Above data complies with all existing federal regulations

***SAFETY NOTE:** A quad branch chain sling, especially when used on a load of rigid structure, is usually not sustaining the load evenly distributed on each of its four branches. The maximum working load limits are therefore set at the same values as for triple branch chain slings of equal quality and size and used with branches at same angle of inclination.

Grade 100 Alloy Components

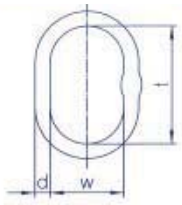
Master Link



WLL* Lb 4:1	Stock Dia.	d	t	w	Weight Lb/Pc	Master Link for Chain 0	
						1-Leg	2-Leg
3800	3/8"	.39	3.15	1.97	.31	7/32	-
5800	1/2"	.51	4.33	2.36	.75	9/32	7/32
7500	5/8"	.63	4.33	2.36	1.17	5/16	9/32
10000	3/4"	.71	5.31	2.95	1.90	3/8	5/16
16700	7/8"	.91	6.30	3.54	3.53	1/2	3/8
26000	1"	1.06	7.09	3.94	5.42	5/8	1/2
39100	1 1/4"	1.30	7.87	4.33	9.13	3/4	5/8
61100	1 1/2"	1.42	10.24	5.51	13.71	7/8	3/4
83100	1 3/4"	1.77	13.39	7.09	28.26	1	7/8
111000	2"	1.97	13.78	7.48	36.49	1 1/4	1

Master link for single leg slings and 2-leg slings. Proof tested 2x WLL*.
Working load limit of master link only

Enlarged Master Link

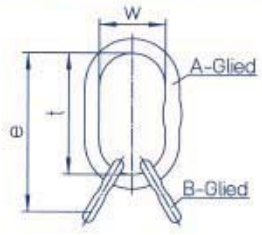


WLL* Lb 4:1	Stock Dia.	d	t	w	Weight Lb/Pc	Master Link for Chain 0	
						1-Leg	2-Leg
3800	3/8"	.43	3.54	2.56	.49	7/32	-
6100	1/2"	.55	4.72	2.76	.97	9/32	7/32
8400	5/8"	.63	5.51	3.15	1.48	5/16	9/32
12800	3/4"	.75	6.30	3.74	2.40	3/8	5/16
18500	7/8"	.91	6.30	4.33	3.73	1/2	3/8
30000	1"	1.06	7.48	4.33	5.84	5/8	1/2
45000	1 1/4"	1.30	9.06	5.12	10.54	3/4	5/8
61100	1 1/2"	1.50	10.83	5.91	16.49	7/8	3/4

The same as master link A above; however because of their larger inner dimensions, suitable for larger crane hooks or special hooks. Proof tested 2x WLL*.
Working load limit of master link only.

Grade 100 Alloy Components

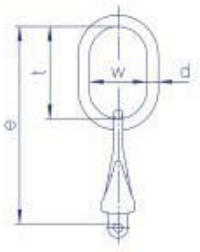
Master Link Assemblies



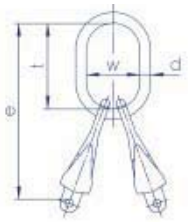
For assembling 3- and 4-leg chains with Connex links, and for rope slings.
Proof tested

Stock Dia.	e	t	w	Weight Lb/Pc	Assembly for Chain 0 3 - and 4 - Leg
3/4"	7.44	5.31	2.95	2.78	7/32
7/8"	9.06	6.30	3.54	5.11	9/32 + 5/16
1"	10.43	7.09	3.94	8.11	3/8
1 1/4"	12.40	7.87	4.33	14.24	1/2
1 1/2"	15.75	10.24	5.51	22.18	5/8
2"	16.69	13.78	7.48	50.42	3/4
2"	20.47	13.78	7.48	54.65	7/8
2 3/8"	22.44	15.75	7.87	83.20	1

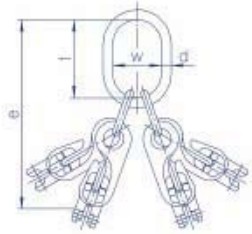
Clevis Master Sets



For Chain 0	d	t	w	e	Weight Lb/Pc
9/32"	.51	4.33	2.36	9.13	2.12
3/8"	.71	5.31	2.95	11.57	4.65
1/2"	.91	6.30	3.54	14.29	9.48
5/8"	1.06	7.09	3.94	16.26	16.01



For Chain 0	d	t	w	e	Weight Lb/Pc
9/32"	.63	4.33	2.36	9.13	3.90
3/8"	.91	6.30	3.54	12.56	9.04
1/2"	1.06	7.09	3.94	15.08	17.33
5/8"	1.30	7.87	4.33	17.05	30.29

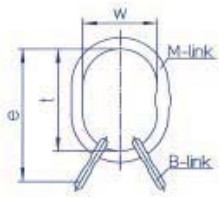


For Chain 0	d	t	w	e	Weight Lb/Pc
9/32"	.91	6.30	3.54	13.86	10.67
3/8"	1.06	7.09	3.94	16.69	19.44
1/2"	1.30	7.87	4.33	20.39	38.05
5/8"	1.42	10.24	5.51	24.92	64.51

Master sets for single and multi-leg chains with welded-in shortening hook.

Grade 100 Alloy Components

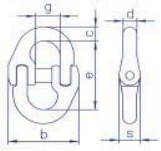
Enlarged Master Link Assemblies



For 3- and 4-leg chain slings.
Large inner width. Proof tested

Stock Dia.	e	t	w	Weight Lb/Pc	Assembly for chain 0 3-leg and 4-leg
3/4"	8.43	6.30	3.74	3.15	7/32
7/8"	9.06	6.30	4.33	5.31	9/32 + 5/16
1"	10.83	7.48	4.33	8.84	3/8
1 1/4"	13.58	9.06	5.12	15.21	1/2
1 1/2"	16.34	10.83	5.91	24.52	5/8
2"	19.69	13.78	7.48	50.42	3/4
2"	20.47	13.78	7.48	54.65	7/8

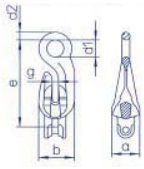
Connex Connecting Link



General connecting link
for connection of:
Master links to chain,
Chain to chain,
Hooks to chain

WLL Lb 4:1	For Chain	e	c	s	d	b	g	Weight Lb/Pc
2700	7/32"	1.75	.31	.43	.30	1.54	.56	.13
4300	9/32"	2.01	.39	.51	.35	1.83	.64	.26
5700	5/16"	2.42	.45	.59	.39	2.09	.72	.40
8800	3/8"	2.83	.50	.70	.50	2.48	.91	.73
15000	1/2"	3.46	.75	.87	.66	3.11	1.09	1.54
22600	5/8"	4.06	.83	1.14	.83	4.17	1.30	2.51
35300	3/4"	4.53	1.16	1.37	.96	4.65	1.64	4.72
42700	7/8"	5.31	1.14	1.50	1.06	5.77	1.89	7.08
58400	1"	7.48	1.57	1.81	1.18	6.88	2.36	14.76

Clevis Shortening Hook

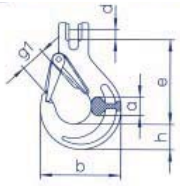


In line shortening hook
not for basket
configurations

WLL Lb 4:1	For Chain	e	b	a	d1	d2	g	Weight Lb/Pc
2700	7/32"	2.72	.79	.59	.29	.75	2.60	.44
4300	9/32"	4.80	2.09	1.54	.94	.47	.35	1.37
5700	5/16"	6.26	2.74	1.97	1.22	.55	.51	2.76
8800	3/8"	6.26	2.74	1.97	1.22	.55	.51	2.76
15000	1/2"	7.99	3.62	2.52	1.46	.71	.59	5.95
22600	5/8"	9.17	4.02	3.15	1.89	.94	.71	10.58

Grade 100 Alloy Components

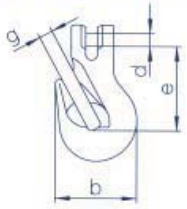
Clevis Sling Hook



General purpose hook with forged safety catch

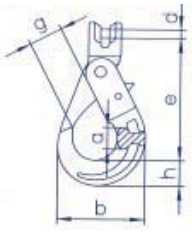
WLL Lb 4:1	For Chain	e	h	a	d	g1	b	Weight Lb/Pc
2700	7/32"	2.72	.79	.59	.29	.75	2.60	.44
4300	9/32"	3.74	1.10	.75	.35	1.06	3.54	1.16
5700	5/16"	3.72	1.10	.75	.39	1.06	3.54	1.16
8800	3/8"	4.29	1.30	.98	.49	1.18	4.25	2.43
15000	1/2"	5.35	1.57	1.34	.63	1.50	5.16	4.41
22600	5/8"	6.10	1.93	1.46	.79	1.81	6.02	7.67
35300	3/4"	7.22	2.09	1.81	.94	2.09	6.97	11.02
42700	7/8"	8.41	2.44	1.97	1.06	2.68	7.72	26.68

Clevis Grab Hook



WLL Lb 4:1	For Chain	e	b	d	g	Weight Lb/Pc
2700	7/32"	1.77	1.87	.29	.31	.33
4300	9/32"	2.40	2.28	.35	.41	.84
5700	5/16"	2.38	2.28	.39	.41	.84
8800	3/8"	2.99	2.99	.49	.51	1.87
15000	1/2"	4.09	3.98	.63	.67	4.19
22600	5/8"	4.29	4.65	.79	.75	6.17
35300	3/4"	5.51	5.80	.94	.91	7.72
42700	7/8"	6.59	6.54	1.06	1.02	12.13

Clevis Safety Hook

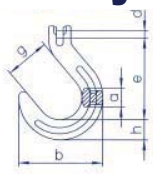


Automatically closes and locks under load

WLL Lb 4:1	For Chain	e	h	a	b	d	g	Weight Lb/Pc
4300	9/32"	4.84	1.02	.79	3.46	.35	1.34	1.98
5700	5/16"	4.84	1.02	.79	3.46	.39	1.34	1.98
8800	3/8"	5.67	1.18	.98	4.21	.51	1.77	3.53
15000	1/2"	7.09	1.57	1.34	5.43	.63	2.05	6.39
22600	5/8"	8.54	1.97	1.38	6.61	.83	2.36	12.79

Grade 100 Alloy Components

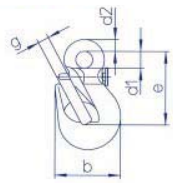
Clevis Foundry Hook



Used when throat opening of sling hook is too small.

WLL Lb 4:1	For Chain	e	h	a	g	d	b	Weight Lb/Pc
4300	9/32"	4.74	1.14	.98	2.52	.35	4.65	2.20
5700	5/16"	4.72	1.14	.98	2.52	.39	4.65	2.20
8800	3/8"	5.51	1.38	1.26	2.99	.49	5.63	3.92
15000	1/2"	6.67	1.65	1.57	3.50	.63	6.69	6.53

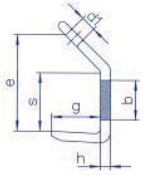
Eye Grab Hook with Safety Catch



Grab hook that does not require WLL reduction when used for shortening with added "safety catch" feature.

WLL Lb 4:1	For Chain	e	b	d1	d2	g	Weight Lb/Pc
5700	9/32" + 5/16"	2.78	2.28	.79	.45	.41	.88
8800	3/8"	3.46	2.99	.87	.59	.51	1.98
15000	1/2"	4.45	3.98	1.02	.71	.67	3.97

Plate Hook



For lifting sheet metal stacks and boards.

WLL Lb 4:1	For Chain	e	s	b	h	d1	g	Weight Lb/Pc
5700	9/32" + 5/16"	5.16	3.15	1.97	.71	1.10	2.17	2.47
8800	3/8"	6.18	3.94	2.56	.79	1.26	2.56	5.73
15000	1/2"	8.15	5.12	3.15	1.02	1.57	3.54	13.01
22600	5/8"	10.28	6.30	3.94	1.30	1.97	4.33	23.81
35300	3/4"	11.89	7.28	4.72	1.57	2.36	5.12	37.92
42700	7/8"	14.29	8.66	5.51	1.97	2.95	5.91	69.00

Welded Chain Specifications

TRANSPORT CHAIN (GRADE 70)

Significantly higher tensile strength for all load binding and tie down applications, which permits you to hold a given load with the next smaller size chain than High Test. This increased strength-to-weight ratio means lower costs and a lighter chain, for easier storage and handling.

Trade Size in Inches	Size Material in Inches	Working* Load Limit Lbs.	Nominal Inside Length in Inches	Nominal Inside Width in Inches	Maximum Length 100 Links in Inches	Weight per 100 Feet Lbs.
1/4	9/32	3,150	.76	.40	87	76
5/16	11/32	4,700	.98	.46	102	113
3/8	13/32	6,600	1.14	.54	119	162
7/16	15/32	8,750	1.29	.62	134	212
1/2	17/32	11,300	1.43	.72	149	270

*Working load limit must not be exceeded.
Not to be used for overhead lifting.
Boomer chains or binder chains available on request.

HIGH TEST CHAIN (GRADE 43)

High test chain features both high tensile strength and resistance to wear needed by modern hauling and heavy duty trucking.
Working load limit exceeds those of ordinary low carbon or general utility chain.

FINISH Self-colored, and hot galvanized.

Trade Size in Inches	Size Material in Inches	Working* Load Limit Lbs.	Nominal Inside Length in Inches	Nominal Inside Width in Inches	Maximum Length 100 Links in Inches	Weight per 100 Feet Lbs.
1/4	9/32	2,600	.82	.39	86	75
5/16	11/32	3,900	1.01	.48	105	111
3/8	13/32	5,400	1.15	.56	121	157
7/16	15/32	7,200	1.29	.65	135	213
1/2	17/32	9,200	1.43	.75	150	274
5/8	21/32	13,000	1.79	.90	186	409
3/4	25/32	20,200	1.96	1.06	205	603
7/8	29/32	24,500	2.25	1.14	235	735
1	1 1/32	26,500	2.66	1.34	277	975

*Working load limit must not be exceeded.
Not to be used for overhead lifting.

HIGH TEST BOOMER CHAINS OR BINDER CHAINS

Made according to ASTM specifications.
Bright Polished High Test Steel.
Ridgeless electrically welded, with grab hook at each end.
*Working load limit must not be exceeded.
Not to be used for overhead lifting.

Size x Length	Working* Load Limit	Approx. Weight Each/Lbs.
1/4" x 20'	2,600	16
5/16" x 20'	3,900	22
3/8" x 20'	5,400	32
7/16" x 20'	7,200	44
1/2" x 20'	9,200	54
5/8" x 20'	13,000	86

PROOF COIL CHAIN (GRADE 30)

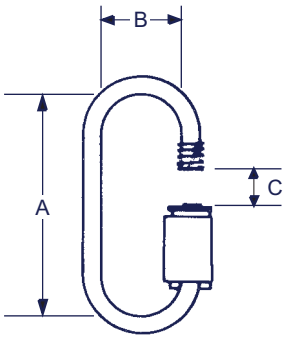
A general utility chain for such uses as log chain, cargo lashing chain, pipe line hanging chain, tailgate, guard rail, tow and switch chain.

FINISH Self-colored, bright zinc and hot galvanized.

Trade Size in Inches	Size Material in Inches	Working* Load Limit Lbs.	Nominal Inside Length in Inches	Nominal Inside Width in Inches	Maximum Length 100 Links in Inches	Weight per 100 Feet Lbs.
3/16	7/32	800	.95	.40	99	40
1/4	9/32	1,300	1.00	.50	104	71
5/16	11/32	1,900	1.10	.50	114	107
3/8	13/32	2,650	1.23	.62	128	158
7/16	15/32	3,700	1.38	.75	142	213
1/2	17/32	4,500	1.50	.81	156	278
5/8	21/32	6,900	1.87	1.00	194	410
3/4	25/32	10,600	2.12	1.12	220	580
7/8	29/32	12,800	2.50	1.37	260	811
1	1 1/32	17,900	2.75	1.50	286	1045

*Working load limit must not be exceeded.
Not to be used for overhead lifting.

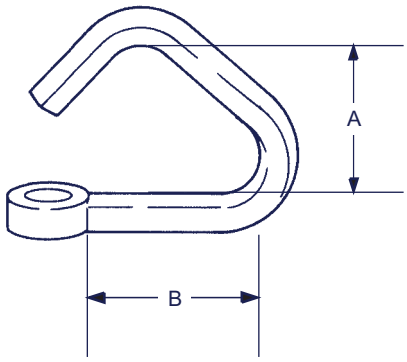
Chain Connecting Links



QUICK LINK OR RAPID LINK

Trade Size Inches	A Inside Length Inches	B Inside Length Inches	C Inside Length Inches	Working Load Limit Pounds*	Avg. Wt. Pounds Per 100
3/16	1 1/2	1/2	1/4	750	4.50
1/4	1 3/4	9/16	9/32	1,250	8.00
5/16	2 5/16	11/16	3/8	1,900	17.00
3/8	2 7/16	3/4	7/16	2,650	23.00
1/2	3 3/16	15/16	19/32	4,500	51.00

* CAUTION: This working load limit should not be exceeded.
APPLICATIONS: Used as a repair link, connecting link or attaching device on proof coil chain only.
DESCRIPTION: Zinc-plated NOT heat-treated.

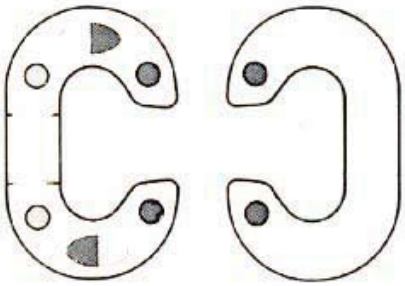


COLD SHUT

Trade Size Inches	A Inside Length Inches	B Inside Length Inches	Working Load Limit Pounds*	Avg. Wt. Pounds Per 100
3/16	11/16	5/16	525	3
1/4	1 3/16	3/8	925	6
5/16	1 7/16	13/32	1,450	10
3/8	1 1/4	5/8	2,110	18
7/16	1 3/8	13/16	2,850	26
1/2	1 9/16	13/16	3,750	38
5/8	2 1/4	3/4	5,850	78
3/4	2 1/2	7/8	8,425	130
7/8	3 3/8	1	11,475	200
1	3 7/8	1 3/16	15,000	325

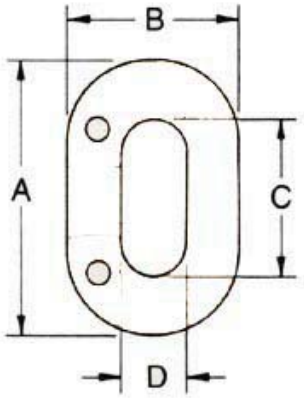
* CAUTION: This working load limit should not be exceeded.
APPLICATIONS: As a temporary repair link, use **one size larger** than the proof coil chain with which it is to be used. Also used to couple light attachments.
DESCRIPTION: Low carbon steel, self-colored or zinc-plated finish.

Chain Connecting Links



THE "CONNECTING LINK"
DROP FORGED STEEL-HEAT TREATED

Chain Size Inches	Dimensions In Inches				Working Load Limit Lbs.*	Avg. Wt. Pounds Per 100
	A	B	C	D		
3/16	1 3/16	25/32	11/16	11/32	800	3
1/4	1 1/2	1	7/8	7/16	1,400	6
5/16	2 11/16	1 5/32	15/16	15/32	2,000	11
3/8	2 1/16	1 3/8	1 1/8	9/16	2,800	18
7/16	2 11/32	1 17/32	1 9/32	19/32	3,600	29
1/2	2 21/32	1 23/32	1 15/32	21/32	4,700	39
9/16	3	1 5/16	1 5/8	1/4	5,500	50
5/8	3 5/16	2 3/32	1 11/16	25/32	7,000	75
3/4	3 7/8	2 1/2	2 1/8	15/16	10,000	116
7/8	4 1/2	2 15/16	2 1/2	1 1/8	12,000	174
1	5	3 5/16	2 3/4	1 1/4	15,500	240
1 1/8	5 5/8	3 11/16	3 1/8	1 5/8	19,500	340
1 1/4	6 1/8	4 3/16	3 1/4	1 3/4	24,000	470
1 3/8	6 3/4	4 9/16	3 1/2	1 3/4	28,000	620



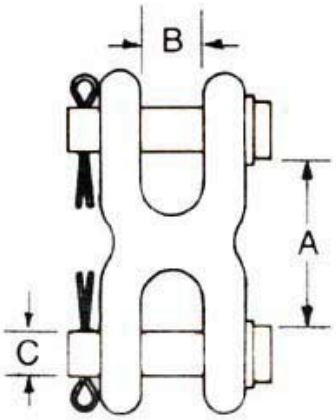
Galvanized or Self-Colored

*CAUTION: The Working Load Limit should not be exceeded.
To be used with proof coil chain only.
Not for Overhead Lifting.
DESCRIPTIONS: All sizes have rivet holes countersunk.
Sizes 3/16", 1/4" and 5/16" have rivets only.
Sizes 3/8" and up also have interlocking lugs.

To attach, separate the halves of the "Connecting Link" which have been matched under pressure at the factory to insure a tight fit. Insert each half through the links which are to be joined together. Fit the rivets into the holes. Then peen over the rivets, filling the countersunk holes.

DOUBLE CLEVIS MID-LINK

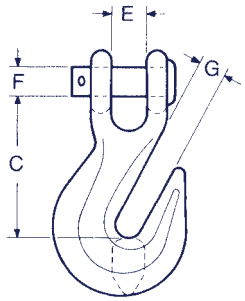
Chain Size Inches	Dimensions In Inches			Working Load Limit Lbs.*	Avg. Wt. Pounds Per 100
	A	B	C		
1/4 & 5/16	1 3/16	7/16	3/8	4,700	33
3/8	1 3/8	1/2	7/16	6,600	46
7/16 & 1/2	1 3/4	5/8	9/16	11,300	110
5/8	1 15/16	3/4	11/16	18,000	160



*CAUTION: The Working Load Limit should not be exceeded.
APPLICATIONS: Used as temporary or permanent link with proof coil or high test chain. Not to be used in Overhead Lifting.
DESCRIPTION: Drop forged, heat-treated, carbon steel, zinc-plated.

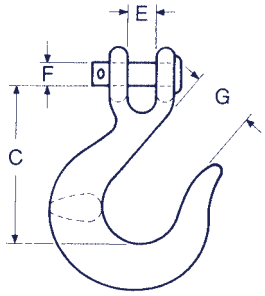
Chain Hooks

CLEVIS GRAB HOOKS



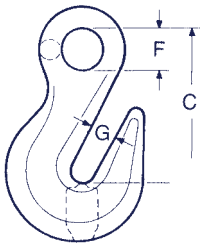
Size of Chain	Rated Load Pounds		Approximate Dimensions in Inches				Weight Pounds Each
	High Test	Transport	C	E	F	G	
1/4	2,600	3,150	1 13/16	7/16	3/8	11/32	.36
5/16	3,900	4,700	2 5/32	1/2	7/16	7/16	.63
3/8	5,400	6,600	2 15/32	19/32	15/32	1/2	1.00
7/16	7,200	8,700	2 25/32	21/32	9/16	9/16	1.31
1/2	9,200	11,300	3 7/32	3/4	5/8	21/32	2.06
5/8	11,500	16,000	4 3/32	29/32	3/4	25/32	4.25
3/4	16,200	-	4 5/8	15/16	7/8	15/16	7.19

CLEVIS SLIP HOOKS



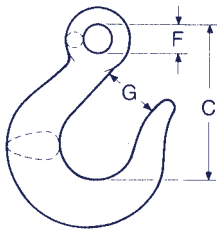
Size of Chain	Rated Load Pounds		Approximate Dimensions in Inches				Weight Pounds Each
	High Test	Transport	C	E	F	G	
1/4	2,600	3,150	2 9/16	7/16	3/8	15/16	.44
5/16	3,900	4,700	2 23/32	13/32	7/16	1 1/16	.75
3/8	5,400	6,600	3 1/4	19/32	15/32	1 5/16	1.13
7/16	7,200	8,700	3 21/32	9/16	9/16	1 9/16	2.06
1/2	9,200	11,300	4	3/4	5/8	1 11/16	2.75
5/8	11,500	16,000	4 15/16	13/16	3/4	2	4.75
3/4	-	-	6 3/32	1 5/16	1	2 1/2	11.28

EYE GRAB HOOKS



Size of Chain	Rated Load Pounds	Approximate Dimensions in Inches			Weight Pounds Each
	High Test	C	F	G	
1/4	2,600	1 31/32	1/2	11/32	.28
5/16	3,900	2 1/4	9/16	7/16	.45
3/8	5,400	2 9/16	21/32	1/2	.79
7/16	7,200	2 15/16	3/4	9/16	1.19
1/2	9,200	3 3/8	7/8	21/32	1.75
5/8	11,500	4 3/32	1 1/16	25/32	3.25
3/4	16,200	5 5/32	1 3/8	15/16	5.94
7/8	22,500	5 29/32	1 9/16	1 1/16	9.17
1	26,500	6 23/32	1 13/16	1 3/16	13.83

EYE SLIP HOOKS



Size of Chain	Rated Load Pounds	Approximate Dimensions in Inches			Weight Pounds Each
	High Test	C	F	G	
1/4	2,600	2 17/32	1/2	15/16	.40
5/16	3,900	2 29/32	5/8	1 1/16	.70
3/8	5,400	3 5/16	11/16	1 5/16	1.00
7/16	7,200	3 7/8	13/16	1 9/16	1.56
1/2	9,200	4 9/32	15/16	1 11/16	2.31
5/8	11,500	5 7/32	1 1/8	2	3.78
3/4	16,200	5 25/32	1 3/8	2 1/8	6.56
7/8	22,500	7 5/32	1 9/16	2 3/4	10.42
1	26,500	8 3/32	1 13/16	3	14.33

RATED LOAD SHOULD NOT BE EXCEEDED
NOT FOR OVERHEAD LIFTING

Synthetic Web And Round Slings

Nylon and Polyester Web Slings

type 1 triangle choker

type 2 triangle triangle

HEAVY DUTY

TYPE 1 (TC)	TYPE 2* (TT)	RATED CAPACITIES IN LBS.		
		VERTICAL	CHOKER	BASKET
ONE PLY				
TC1-902	TT1-902	3,200	2,500	6,400
TC1-903	TT1-903	4,800	3,800	9,600
TC1-904	TT1-904	6,400	5,000	12,800
TC1-906	TT1-906	9,600	7,700	19,200
TC1-908	TT1-908	12,800	10,200	25,600
TC1-910	TT1-910	16,000	12,800	32,000
TC1-912	TT1-912	19,200	15,400	38,400
TWO PLY				
TC2-902	TT2-902	6,400	5,000	12,800
TC2-903	TT2-903	8,600	6,900	17,200
TC2-904	TT2-904	11,500	9,200	23,000
TC2-906	TT2-906	16,300	13,000	32,600
TC2-908	TT2-908	19,200	15,000	38,400
TC2-910	TT2-910	22,400	17,400	44,800
TC2-912	TT2-912	26,900	21,500	53,800

Three and four ply hardware slings are available upon request.
* Type 2 can not be used in a choker hitch.

LIGHT DUTY

TYPE 1 (TC)	TYPE 2* (TT)	RATED CAPACITIES IN LBS.		
		VERTICAL	CHOKER	BASKET
ONE PLY				
TC1-702	TT1-702	2,400	1,900	4,800
TC1-703	TT1-703	3,600	2,900	7,200
TC1-704	TT1-704	4,800	3,800	9,600
TC1-706	TT1-706	7,200	5,800	14,400
TWO PLY				
TC2-702	TT2-702	4,800	3,800	9,600
TC2-703	TT2-703	6,500	5,200	13,000
TC2-704	TT2-704	8,600	6,900	17,200
TC2-706	TT2-706	12,600	10,100	25,200

* Type 2 can not be used in a choker hitch.

Note:
Hardware – Aluminum hardware is available on single ply types 1 and 2 slings in 2”, 3”, 4” and 6” widths.

Nylon and Polyester Web Slings

type 3
eye & eye flat

type 4
eye & eye twist

HEAVY DUTY

TYPE 3 (FLAT EYE) & TYPE 4 (TWISTED EYE	RATED CAPACITIES IN POUNDS		
	VERTICAL	CHOKER	BASKET
ONE PLY			
EE1-901	1,600	1,250	3,200
EE1-902	3,200	2,500	6,400
EE1-903	4,800	3,800	9,600
EE1-904	6,400	5,000	12,800
EE1-906	9,600	7,700	19,200
EE1-908	12,800	10,200	25,600
EE1-910	16,000	12,800	32,000
EE1-912	19,200	15,400	38,400
TWO PLY			
EE2-901	3,200	2,500	6,400
EE2-902	6,400	5,000	12,800
EE2-903	8,600	6,900	17,200
EE2-904	11,500	9,200	23,000
EE2-906	16,300	13,000	32,600
EE2-908	19,200	15,400	38,400
EE2-910	22,400	17,900	44,800
EE2-912	26,900	21,500	53,800
THREE PLY			
EE3-901	4,100	3,300	8,200
EE3-902	8,300	6,600	16,600
EE3-903	12,500	10,000	25,000
EE3-904	16,000	12,800	32,000
EE3-906	23,000	18,400	46,000
EE3-908	30,700	24,500	61,400
EE3-910	36,800	29,400	73,600
EE3-912	44,000	35,200	88,000
FOUR PLY			
EE4-901	5,000	4,000	10,000
EE4-902	10,000	8,000	20,000
EE4-903	14,900	11,900	29,800
EE4-904	19,800	15,800	39,600
EE4-906	29,800	23,800	59,600
EE4-908	39,700	31,700	79,400
EE4-910	49,600	39,600	99,200
EE4-912	59,500	47,600	119,000

All data subject to change without notice.
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Note:
Tapering – types 3 and 4 are tapered at 3" and wider unless otherwise ordered. These wider slings are tapered at the bearing points to accommodate a crane hook.

LIGHT DUTY

TYPE 3 (FLAT EYE) & TYPE 4 (TWISTED EYE)	RATED CAPACITIES IN POUNDS		
	VERTICAL	CHOKER	BASKET
ONE PLY			
EE1-701	1,200	950	2,400
EE1-702	2,400	1,900	4,800
EE1-703	3,600	2,900	7,200
EE1-704	4,800	3,800	9,600
EE1-706	7,200	5,800	14,400
TWO PLY			
EE2-701	2,400	1,900	4,800
EE2-702	4,800	3,800	9,600
EE2-703	6,500	5,200	13,000
EE2-704	8,600	6,900	17,200
EE2-706	12,200	9,800	24,400
THREE PLY			
EE3-701	3,500	2,800	7,000
EE3-702	7,000	5,600	14,000
EE3-703	9,400	7,500	18,800
EE3-704	12,000	9,600	24,000
EE3-706	18,000	14,400	36,000
FOUR PLY			
EE4-701	4,200	3,400	8,400
EE4-702	8,000	6,400	16,000
EE4-703	12,000	9,600	24,000
EE4-704	16,000	12,800	32,000
EE4-706	23,500	18,800	47,000

Eye Length Chart

Sling Width	Plies of Webbing			
	1	2	3	4
1"	9"	9"	12"	12"
2"	9"	9"	12"	12"
3"	12"	12"	18"	18"
4"	12"	12"	18"	18"
5"	15"	15"	20"	20"
6"	18"	18"	24"	24"
8"	24"	24"	30"	30"
10"	30"	30"	36"	36"
12"	30"	30"	36"	36"

type 3
eye & eye flat

type 4
eye & eye twist

Nylon and Polyester Web Slings

HEAVY DUTY

TYPE 5 (EN)	RATED CAPACITIES IN LBS.		
	VERTICAL	CHOKER	BASKET
ONE PLY			
EN1-901	3,200	2,500	6,400
EN1-902	6,400	5,000	12,800
EN1-903	8,600	6,900	17,200
EN1-904	11,500	9,200	23,000
EN1-906	16,300	13,000	32,600
EN1-908	19,200	15,400	38,400
EN1-910	22,400	17,900	44,800
EN1-912	26,900	21,500	53,800
TWO PLY			
EN2-901	6,200	4,900	12,400
EN2-902	12,200	9,800	24,400
EN2-903	16,300	13,000	32,600
EN2-904	20,700	16,500	41,400
EN2-906	28,600	23,000	57,200
EN2-908	30,700	24,500	61,400
EN2-910	33,600	26,800	67,200
EN2-912	37,600	30,000	75,200
THREE PLY			
EN3-901	8,000	6,400	16,000
EN3-902	16,000	12,800	32,000
EN3-903	21,500	17,200	43,000
EN3-904	28,700	23,000	57,400
EN3-906	40,700	32,500	81,400
EN3-908	46,000	36,800	92,000
EN3-910	51,500	41,200	103,000
EN3-912	59,200	47,300	118,400
FOUR PLY			
EN4-901	10,000	8,000	20,000
EN4-902	19,800	15,800	39,600
EN4-903	26,700	21,300	53,400
EN4-904	35,600	28,400	71,200
EN4-906	50,500	40,400	101,000
EN4-908	57,600	46,000	115,200
EN4-910	67,200	53,700	134,400
EN4-912	80,700	64,500	161,400

LIGHT DUTY

TYPE 5 (EN)	RATED CAPACITIES IN LBS.		
	VERTICAL	CHOKER	BASKET
ONE PLY			
EN1-701	2,400	1,900	4,800
EN1-702	4,800	3,800	9,600
EN1-703	6,500	5,200	13,000
EN1-704	8,600	6,900	17,200
EN1-706	12,200	9,800	24,400
TWO PLY			
EN2-701	4,800	3,800	9,600
EN2-702	9,600	7,700	19,200
EN2-703	11,700	9,400	23,400
EN2-704	15,500	12,400	31,000
EN2-706	22,500	18,000	45,000
THREE PLY			
EN3-701	6,200	4,900	12,400
EN3-702	12,500	10,000	25,000
EN3-703	16,300	13,000	32,600
EN3-704	20,600	16,400	41,200
EN3-706	29,300	23,400	58,600
FOUR PLY			
EN4-701	7,700	6,200	15,400
EN4-702	15,500	12,400	31,000
EN4-703	20,800	16,600	41,600
EN4-704	26,600	21,200	53,200
EN4-706	37,800	30,200	75,600

All data subject to change without notice.
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Cordura Lined Reversed Eye Slings

type 6 reversed eye

HEAVY DUTY

TYPE 6 (RE)	VERTICAL	CHOKER	BASKET	SLING WIDTH	EYE LENGTH
ONE PLY					
RE1-902	4,500	3,600	9,000	2	9
RE1-904	7,700	6,200	15,400	4	15
RE1-906	11,000	8,800	22,000	6	15
TWO PLY					
RE2-902	6,500	5,200	13,000	2	9
RE2-904	13,000	10,400	26,000	4	15
RE2-906	20,000	16,000	40,000	6	15
THREE PLY					
RE3-904	16,400	13,100	32,800	4	15
RE3-906	25,500	20,400	51,000	6	15
FOUR PLY					
RE4-906	34,000	27,200	68,000	6	15

type 7 flat eye

LIGHT DUTY

TYPE 6 (RE)	VERTICAL	CHOKER	BASKET	SLING WIDTH	EYE LENGTH
ONE PLY					
RE1-702	3,600	2,900	7,200	2	9
RE1-704	6,800	5,400	13,600	4	15
RE1-706	8,000	6,400	16,000	6	15
TWO PLY					
RE2-702	5,200	4,200	10,400	2	9
RE2-704	10,500	8,400	21,000	4	15
RE2-706	14,400	11,500	28,000	6	15
THREE PLY					
RE3-704	14,000	11,200	28,000	4	15
RE3-706	20,000	16,000	40,000	6	15

type 8 wide body basket

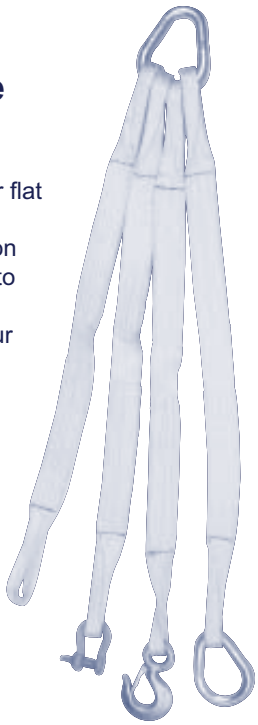
Wide Body Basket

When surface area is more critical than weight capacity, a wide body basket is the preferred alternative. A wide body basket is also an economical approach to load balancing. Contact a SWWR specialist for more information on Wide Body and Load Balancing Baskets.

type 9 load balancer basket

Multi-leg Bridle

A multi-leg bridle can be manufactured from either flat web or polyester round slings. SWWR application specialists are available to assist in determining the best configuration for your lifting requirements.



type 10 multi-leg bridle

5

Round Slings

Tubular Polyester Round Slings

Lift Capacities according to polyester round sling type (color) and hitch used.

CODE	COLOR	CAPACITIES IN LBS.			MINIMUM LENGTH
		VERTICAL	CHOKER	BASKET	
SWG30	PURPLE	2,650	2,120	5,300	3 ft.
SWG60	GREEN	5,300	4,240	10,600	3 ft.
SWG90	YELLOW	8,400	6,720	16,800	3 ft.
SWG120	TAN	10,600	8,500	21,200	3 ft.
SWG150	RED	13,200	10,560	26,400	3 ft.
SWG180	ORANGE	16,800	13,440	33,600	3 ft.
SWG240	BLUE	21,200	17,000	42,400	3 ft.
SWG300	ORANGE	25,000	20,000	50,000	3 ft.
SWG360	GREY	31,700	25,300	63,400	3 ft.
SWG500	ORANGE	40,000	32,000	80,000	3 ft.
SWG600	BROWN	52,900	42,300	105,800	6 ft.
SWG800	OLIVE	66,100	52,880	132,200	6 ft.
SWG1000	BLACK	90,000	72,000	180,000	6 ft.

Removal from Service

A polyester round sling shall be removed from service if any of the following is visible:

- If polyester round slings identification tag is missing or unreadable.
- Melting, charring or weld spatter of any part of the polyester round sling.
- Holes, tears cuts, embedded particles, abrasive wear, or snags that expose the core fibers of the polyester round sling.
- Broken or worn stitching in the cover which exposes the core fibers.
- Fittings when damaged, stretched or distorted in any way.
- Polyester round slings that are knotted.
- Acid or alkalis burns of the polyester round sling.
- Any conditions which cause doubt as to the strength of the polyester round sling.

8 Part Braided Round Slings

CODE	COLOR	RATED CAPACITIES IN LBS.			APPROXIMATE MEASUREMENTS					
		VERTICAL	CHOKER	BASKET	MINIMUM LENGTH (FT.)	WEIGHT (LBS./FT.)	STANDARD EYE (EL) (IN.)	WIDTH AT LOAD (W) (IN.)	THICKNESS AT LOAD (IN.)	EYE DIA. (IN.)
SWG30	PURPLE	8,800	7,100	17,600	4 1/2	1.1	15	3 1/2	1	1 3/4
SWG60	GREEN	18,000	14,400	36,000	5	1.5	15	4	1 9/8	2
SWG90	YELLOW	28,500	22,800	57,000	5 1/2	2.2	15	4 3/4	1 5/8	2 1/2
SWG120	TAN	36,000	28,800	72,000	5 1/2	2.6	15	5	1 3/4	2 1/2
SWG150	RED	44,900	35,900	89,800	6 1/2	3.6	20	6	2 1/6	2 3/4
SWG180	ORANGE	57,100	45,600	114,200	7	4.1	20	6 1/4	2 1/2	3 1/4
SWG240	BLUE	72,000	57,600	144,000	9	5.6	20	7 1/2	2 3/4	3 3/4
SWG360	GREY	105,400	84,300	210,800	9 1/2	8.3	30	9 1/2	3 1/4	4 1/2
SWG600	BROWN	180,200	144,100	360,400	10 1/2	12.0	30	13	3 3/4	5 1/2
SWG800	OLIVE	224,400	179,500	448,800	13	16.0	30	13 1/2	4 1/2	6
SWG1000	BLACK	306,000	244,000	612,000	14 1/2	20.0	31	15 3/4	5 1/4	6 1/2

Endless and Eye & Eye styles of Round Slings are made to a tolerance of ± 1% of the specified length (± 1" minimum tolerance) and can stretch 3% at rated capacity.

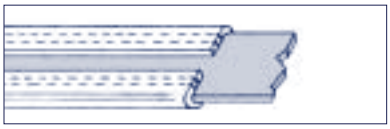
Braided Round Slings length tolerance is ± 5% of the ordered length (sling at rest). At its rated capacity, braided Round Slings will stretch approximately 9%.

Note: Matched lengths of slings must be specified at time of order.
Higher capacity round slings available upon request.

Wear Pads

SCUFF EDGE™

EDGEGUARD



SLEEVE

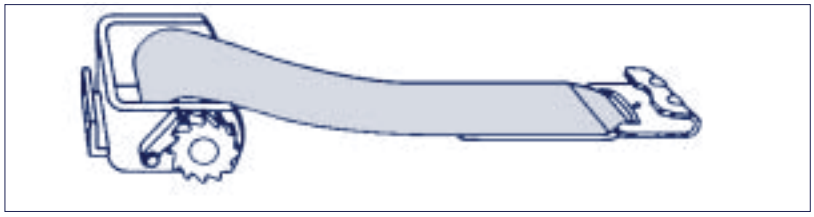
REGULAR

WRAP

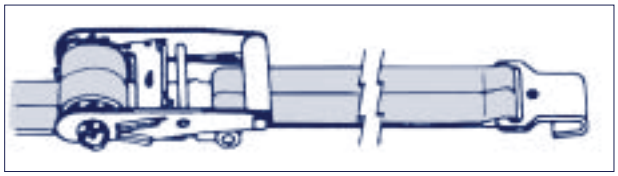
Truck Tiedowns

Polyester Webbing

- 27' and 30' Standard Lengths
- Fits Standard 3" & 4" Winches
- Manufactured to Customer Order
- Corner Protectors, Sliding Sleeves Available
- Meets or Exceeds California and Federal Regulations



Ratchet Snugger (Truck Tiedown)

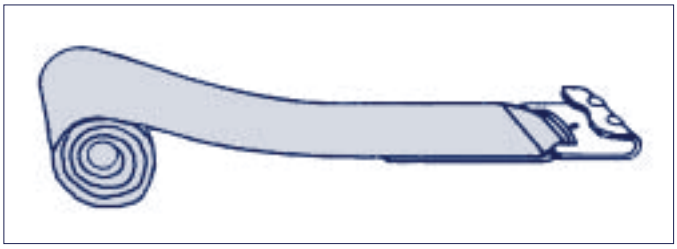


Size	W.L.L.
1” X 10’ W/Ratchet	1500
1” X 12’ W/Ratchet	1500
2” X 27’ W/Ratchet	3300
3” X 27’ W/Ratchet	5000
4” X 27’ W/Ratchet	5000

Replacement Strap for Standard Truck Tiedowns

Size	W.L.L.
3”	5000
4”	5000

Length to your requirements



Full Body Harness, D-rings center back only.
Note: The fall-protection attachment point must always be the center back D-ring.

SOUTHWEST
WIRE ROPE LP

ULTRA-SAFE INC.

THE ULTIMATE
IN FALL PROTECTION

Custom Harnesses Available for Your Application

Cable Retractable Lanyards

100% tie-off, shock-absorbing
Y-lanyard.

Cordage

Comparative Weight Strength and Working Load Chart

NOMINAL SIZE		MANILA			NYLON			POLYPROPYLENE		
Diameter	Circumference	Linear Density[1] (Lbs/100ft)	Minimum Tensile Strength[2] (Lbs.)	Max. Working[3] Load (Lbs.)	Linear Density[1] (Lbs/100ft)	Minimum Tensile Strength[2] (Lbs.)	Max. Working[3] Load (Lbs.)	Linear Density[1] (Lbs/100ft)	Minimum Tensile Strength[2] (Lbs.)	Max. Working[3] Load (Lbs.)
3/16	5/8	1.5	406	41	1.0	900	75	0.7	720	72
1/4	3/4	2.0	540	54	1.5	1,490	124	1.2	1,130	113
5/16	1	2.9	900	90	2.5	2,300	192	1.8	1,710	171
3/8	1 1/8	4.1	1,220	122	3.5	3,340	278	2.8	2,440	244
7/16	1 1/4	5.3	1,580	176	5.0	4,500	410	3.8	3,160	352
1/2	1 1/2	7.5	2,380	264	6.5	5,750	525	4.7	3,780	420
9/16	1 3/4	10.4	3,100	388	8.2	7,200	720	6.1	4,600	575
5/8	2	13.3	3,960	496	10.5	9,350	935	7.5	5,600	700
3/4	2 1/4	16.7	4,860	695	14.5	12,800	1,420	10.7	7,650	1,090
13/16	2 1/2	19.5	5,850	835	17.0	15,300	1,700	12.7	8,900	1,270
7/8	2 3/4	22.4	6,950	995	20.0	18,000	2,000	15.0	10,400	1,490
1	3	27.0	8,100	1,160	26.4	22,600	2,520	18.0	12,600	1,800
1 1/16	3 1/4	31.2	9,450	1,350	29.0	26,000	2,880	20.4	14,400	2,060
1 1/8	3 1/2	36.0	10,800	1,540	34.0	29,800	3,320	23.8	16,500	2,360
1 1/4	3 3/4	41.6	12,200	1,740	40.0	33,800	3,760	27.0	18,900	2,700
1 15/16	4	47.8	13,500	1,930	45.0	38,800	4,320	30.4	21,200	3,020
1 1/2	4 1/2	60.0	16,700	2,380	55.0	47,800	5,320	38.4	26,800	3,820
1 5/8	5	74.5	20,200	2,880	66.5	58,500	6,500	47.6	32,400	4,620
1 3/4	5 1/2	89.5	23,800	3,400	83.0	70,000	7,800	59.0	38,800	5,550
2	6	108.0	28,000	4,000	95.0	83,000	9,200	69.0	46,800	6,700
2 1/8	6 1/2	125.0	32,400	4,620	109.0	95,500	10,600	80.0	55,000	7,850
2 1/4	7	146.0	37,000	5,300	129.0	113,000	12,600	92.0	62,000	8,850
2 1/2	7 1/2	167.0	41,800	5,950	149.0	126,000	14,000	107.0	72,000	10,300
2 5/8	8	191.0	46,800	6,700	168.0	146,000	16,200	120.0	81,000	11,600
2 7/8	8 1/2	215.0	52,000	7,450	189.0	162,000	18,000	137.0	91,000	13,000
3	9	242.0	57,500	8,200	210.0	180,000	20,000	153.0	103,000	14,700
3 1/4	10	298.0	69,500	9,950	264.0	226,000	25,200	190.0	123,000	17,600
3 5/8	11	366.0	82,000	11,700	312.0	270,000	30,000	232.0	146,000	20,800
4	12	434.0	94,500	13,500	380.0	324,000	36,000	276.0	171,000	24,000
4 1/4	13	-	-	-	445.0	380,000	42,200	325.0	202,000	28,900
4 1/2	14	-	-	-	520.0	441,000	49,000	375.0	234,000	33,400
5	15	-	-	-	590.0	507,000	56,300	430.0	268,000	38,300
5 1/4	16	-	-	-	675.0	572,000	63,600	490.0	302,000	43,100
5 5/8	17	-	-	-	765.0	635,000	70,600	555.0	329,000	47,000
6	18	-	-	-	860.0	698,000	77,600	625.0	360,000	51,400

NOTES:

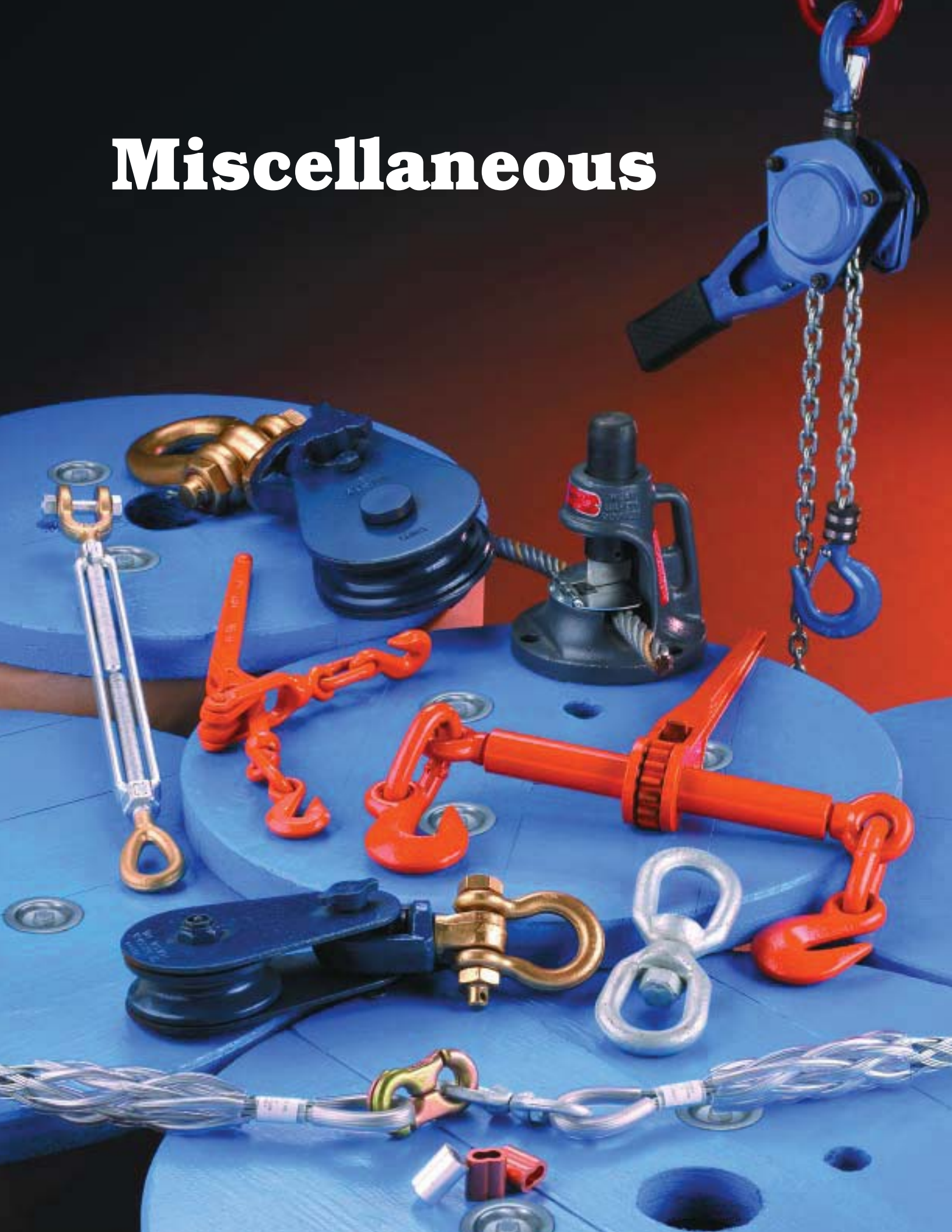
1. LINEAR DENSITY: (pounds per 100 feet) shown is "average." Maximum is 5% higher.
2. NEW ROPE TENSILE STRENGTHS: are based on tests of new and unused rope of standard construction in accordance with Cordage Institute Standard Test Methods.
3. MAX. WORKING LOADS: are for rope in good condition with appropriate splices in noncritical applications, and under normal service conditions. Working loads should be reduced where life, limb, or valuable property are involved, or for exceptional service conditions such as shock loads, sustained loads, etc.

These specifications are for 3-strand laid standard ropes. Four-strand ropes weigh approximately 7% more and breaking tests are approximately 5% less than 3 strand ropes.

CAUTION!

1. Working loads are recommended guidelines only.
2. Specs are based on test of new and unused ropes of current manufacturers.
3. Once rope is put into service it is continuously deteriorating.
4. Manila and sisal rope will deteriorate in storage even under ideal conditions.

Miscellaneous

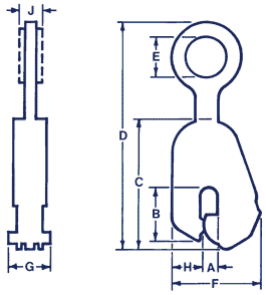


Vertical Lifting Locking

JC Renfroe
Model FR

The Model FR is a vertical lifting tool for relatively light work. It is small and easy to handle in capacities through three tons.

It incorporates a "Lock Closed" feature which facilitates attaching the clamp to the plate.



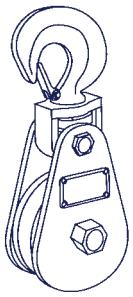
SPECIFICATIONS (in inches)

Rated Capacity Tons	Plate Thickness A	B	C	MAX. D	E	F	G	H	J	Weight (in pounds)
1/2	0 - 3/4	2 13/16	7	11 1/4	2 3/8	4 5/8	2 1/2	1 1/2	1/2	8
	1/2 - 1	2 13/16	7	11 1/4	2 3/8	4 7/8	2 1/2	1 1/2	1/2	8
	3/4 - 1 1/4	2 13/16	7	11 1/4	2 3/8	5 1/8	2 1/2	1 1/2	1/2	9
	1 - 1 1/2	2 13/16	7	11 1/4	2 3/8	5 3/8	2 1/2	1 1/2	1/2	10
	1 1/4 - 1 3/4	2 13/16	7	11 1/4	2 3/8	5 3/8	2 1/2	1 1/2	1/2	11
1	0 - 3/4	3 3/16	9	13 3/4	2 5/8	5 7/8	3 3/16	1 5/8	5/8	14
	1/2 - 1	3 3/16	9	13 3/4	2 5/8	6 1/8	3 3/16	1 5/8	5/8	15
	3/4 - 1 1/4	3 3/16	9	13 3/4	2 5/8	6 3/8	3 3/16	1 5/8	5/8	15
	1 - 1 1/2	3 3/16	9	13 3/4	2 5/8	6 5/8	3 3/16	1 5/8	5/8	16
	1 1/4 - 1 3/4	3 3/16	9	13 3/4	2 5/8	6 7/8	3 3/16	1 5/8	5/8	17
	1 1/2 - 2	3 3/16	9	13 3/4	2 5/8	7 1/8	3 3/16	1 5/8	5/8	18
2	0 - 1	3 1/2	9	16 3/8	3 5/8	6 3/4	3 3/8	2 1/8	3/4	23
	3/4 - 1 1/2	3 1/2	9	16 3/8	3 5/8	7 1/4	3 3/8	2 1/8	3/4	23
	1 1/4 - 2	3 1/2	9	16 3/8	3 5/8	7 3/4	3 3/8	2 1/8	3/4	23
	1 3/4 - 2 1/2	3 1/2	9	16 3/8	3 5/8	8 1/4	3 3/8	2 1/8	3/4	24
3	0 - 1 1/4	4 3/16	10 3/4	18 3/8	3 5/8	7 5/8	3 9/16	2 7/16	3/4	30
	3/4 - 1 1/2	4 3/16	10 3/4	18 3/8	3 5/8	7 7/8	3 9/16	2 7/16	3/4	31
	1 1/4 - 2	4 3/16	10 3/4	18 3/8	3 5/8	8 3/8	3 9/16	2 7/16	3/4	32
	1 3/4 - 2 1/2	4 3/16	10 3/4	18 3/8	3 5/8	8 7/8	3 9/16	2 7/16	3/4	33

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Other models available upon request.

Snatch Blocks



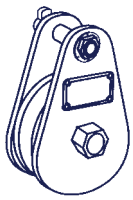
SNATCH BLOCK WITH HOOK

Sheave Size	Working Load Limit in Tons	Wire Rope Size	Approx. Weight Each in Pounds
3"	2	3⁄8”	5
4 1⁄2"	4	1⁄2”	12
6"	8	3⁄4”	28
8"	8	3⁄4”	34
10"	8	3⁄4”	53

SNATCH BLOCK WITH SHACKLE

Sheave Size	Working Load Limit in Tons	Wire Rope Size	Approx. Weight Each in Pounds
3"*	2	3⁄8”	5
4 1⁄2”	4	1⁄2”	13
6"	8	3⁄4”	29
8"	8	3⁄4”	36
10"	8	3⁄4”	44

* Fitted with swivel eye



TAIL BOARD

Sheave Size	Working Load Limit in Tons	Wire Rope Size	Approx. Weight Each in Pounds
3"*	2	3⁄8”	2
4 1⁄2”	4	1⁄2”	7.5
6"	8	3⁄4”	16
8"	8	3⁄4”	23

* Also available Hot Galvanized

All data subject to change without notice.
www.swwrinc.com

Wire Rope Cutters

IMPACT TYPE (Hammer Action)

The Finest Quality Hammer-Type Cable Cutters

Here are the original portable impact cutters, invented by Morse-Starrett, and designed for one purpose: to cut wire rope. Actuat ed by striking with a hammer, they are simple to operate, and do a superior cutting job with only a few blows. These cutters are precision engineered to deliver a cut without affecting the original roundness of the wire rope. The blades and dies are made of the best tool steel available, heat treated and ground to close tolerances. No other similar product matches M-S quality of material and workmanship.

WARNING:
Wear safety goggles, use cable bands and read instruction sheet before using this tool.

For Cutting Wire Rope:

Up to **5/8"** – Model 1 designed for occasional on-the-job-cutting.

Up to **1-1/16"** – Use Model 1A.

Up to **1-1/2"** – Use Model 2.

Model	Capacity	Height	Base	Weight
1	⅝"	6"	3-½"	7 lbs.
1A	1-1/16"	7"	6-¼"	15 lbs.
2	1-½"	9"	7-¾"	28 lbs.

SPECIFICATIONS: All are portable. Firm base required for operation.

Model 2

HYDRAULIC TYPE (Manually Operated)

The Finest Manually Operated Hydraulic Cable Cutter

A few strokes make a good, clean cut.

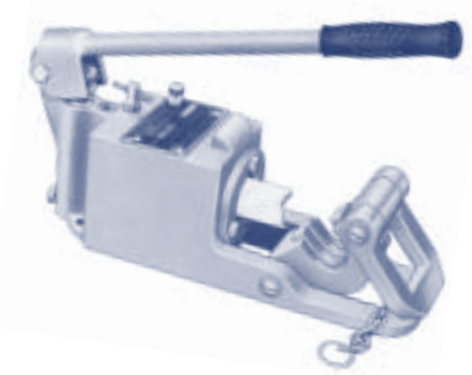
This efficient, portable Hydrashear is a self-contained hydraulic cable cutter recommended by wire rope manufacturers, and used by industries throughout the world.

This tool is precision engineered to give a good, clean cut with minimum effort. Just pump the handle . . . no outside power needed. It can be easily carried to the job, and placed anywhere to do its work.

The blades and shear blades are made of the finest tool steel available, heat treated and ground to close tolerances, which means long life, as well as superior performance. Three models available.

Hydrashears are used by earthmoving and construction contractors, factory warehouses, rigging lofts, elevator repairmen. All models will operate underwater.

Model	Capacity	Dimensions	Weight
W	¾"	12" x 3-⅝" x 6" high	21 lbs.
P	1-⅛"	14" x 4-⅛" x 7" high	34 lbs.
C	1-¾"	18-½" x 5" x 8" high	66 lbs.



Wire Rope Snakes

The Lewis Snake Grip expands or contracts to grip different or identical cable and/or rope sizes as per the customer's needs. Save time stringing up, changing and unstringing because the snake requires no special tools. the swivel and swing link go smoothly through blocks and prevent line twisting. Install new cable by using old existing cable as pulling line. Always seize the ends of the grips by banding or taping.

Lewis Snake Grips LSG

Regular Size LSG Snakes		
Size Range	Approx. Brk. Stgth.	Work Load
LSG 1/4" - 1/2"	4,400 lbs.	1,200 lbs.
LSG 1/2" - 1"	7,500 lbs.	2,500 lbs.
LSG 1" - 1 1/2"	10,000 lbs.	3,500 lbs.
LSG 1 1/2" - 2"	12,000 lbs.	4,000 lbs.
LSG 2" - 2 3/4"	16,000 lbs.	5,000 lbs.
LSG 2 3/4" - 3 1/2"	20,000 lbs.	6,500 lbs.
LSG 3 1/2" - 4 1/4"	24,000 lbs.	8,000 lbs.

Special Size LSG Snakes		
Part No. / Size Range	Approx. Brk. Stgth.	Work Load
LSG 1/4" - 1 1/2"	4,400 lbs.	1,200 lbs.
LSG 1/2" - 1 1/2"	7,500 lbs.	2,500 lbs.
LSG 1/2" - 2"	7,500 lbs.	2,500 lbs.
LSG 1" - 2"	10,000 lbs.	3,500 lbs.
LSG 1 1/2" - 2 1/2"	12,000 lbs.	4,000 lbs.

The LSG-X series performs the same function as the standard LSG series. The LSG-X cannot be taken apart in the middle, it is permanently attached via our new “Swivel Tube” Assembly. This swivel tube assembly is a low profile heavy-duty friction swivel. This snake is for the customer who does not need to separate the two pulling grip elements and who prefers a very low profile swivel. The swivel is permanently greased and has the size range and working load clearly stenciled on the swivel tube assembly.

Lewis Snake Grips LSG-X

Regular Size LSG-X Snakes		
Part No. / Size Range	Approx. Brk. Stgth.	Work Load
LSG-X 1/4" - 1/2"	4,400 lbs.	1,200 lbs.
LSG-X 1/2" - 1"	7,500 lbs.	2,500 lbs.
LSG-X 1" - 1 1/2"	10,000 lbs.	3,500 lbs.
LSG-X 1 1/2" - 2"	12,000 lbs.	4,000 lbs.
LSG-X 2" - 2 3/4"	16,000 lbs.	5,000 lbs.
LSG-X 2 3/4" - 3 1/2"	20,000 lbs.	6,500 lbs.
LSG-X 3 1/2" - 4 1/4"	24,000 lbs.	8,000 lbs.

Special Size LSG-X Snakes		
Part No. / Size Range	Approx. Brk. Stgth.	Work Load
LSG-X 1/4" - 1 1/2"	4,400 lbs.	1,200 lbs.
LSG-X 1/2" - 1 1/2"	7,500 lbs.	2,500 lbs.
LSG-X 1/2" - 2"	7,500 lbs.	2,500 lbs.
LSG-X 1" - 2"	10,000 lbs.	3,500 lbs.
LSG-X 1 1/2" - 2 1/2"	12,000 lbs.	4,000 lbs.

WARNING: Please follow guidelines for proper installation and use. 1. Safety is always No. 1. Make sure no one is under the line as it is being pulled through the blocks and crown. 2. Be sure that the right size range grips being used for the line or rope being pulled. For example, for 1 3/8” drilling line, use the LSG 1 - 1 1/2” snake. When pulling a larger line with a smaller line (replacing the smaller with the larger), make sure the smaller line has the correct size grip and that the new larger diameter line has the correct size grip as well. LSG snakes are available with any required size range on either side. 3. Make sure the cable is clean and free of grease and oil in the area that will be loaded into the LSG snake. A high grade degreaser and heavy duty disposable towels are recommended for this purpose. 4. When loading the cable into the grip, be certain the cable is inserted all the way into the grip until the grip is fully loaded (into the plastic boot area below the pulling eye of the grip). Also examine both grips for cable abrasion or broken cables. An LSG snake showing any signs of cable fraying, broken cables or distorted hardware should be immediately discarded and replaced. Inspect the LSG Snake Grip prior to use. 5. Once the snake is loaded properly, the tail end of the grip should be clamped using a Bandit brand banding device.

SOUTHWEST WIRE ROPE LP

Riggers Manual

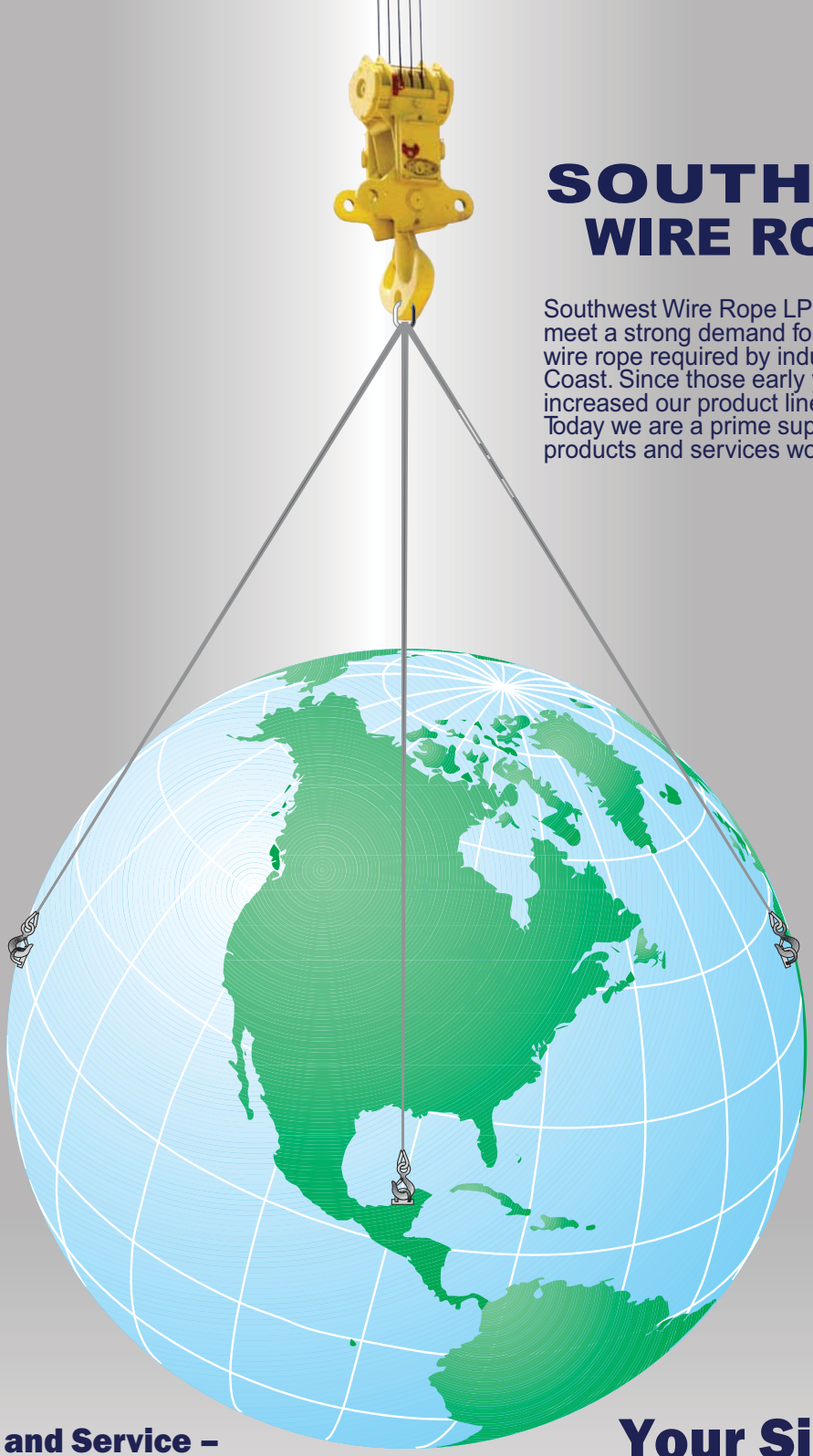
WE SUPPLY ALL YOUR LIFTING / LOADING / LASHING NEEDS

A DIVISION OF HWC
HOUSTON WIRE & CABLE COMPANY

www.swwrinc.com

SOUTHWEST WIRE ROPE LP

Southwest Wire Rope LP was established in 1966 to meet a strong demand for reliable service and quality wire rope required by industries along the U.S. Gulf Coast. Since those early years, we have expanded and increased our product line to meet diversified markets. Today we are a prime supplier of wire rope and related products and services worldwide.



Quality and Service – Our Number One Priority

Because we have the opportunity to service a wide variety of successful companies in multiple industries, our key to growth has been to provide the products they need with the quality they demand and the service we know they deserve. This includes technical support that comes from a knowledgeable sales staff totalling over 200 years experience in wire rope.

Our ability to provide “one-stop shopping” means our customers can rely on Southwest Wire Rope LP for all their requirements and prompt reliable service.

Your Single Source

For All Your
Wire Rope
Synthetic Rope
Related Hardware
Wire Rope Installation Services

SOUTHWEST WIRE ROPE LP

RIGGERS MANUAL

All specifications included herein are subject to change without notice.

MEMBER CORDAGE INSTITUTE SUPPORTING QUALITY PRODUCTS

WEB SLING & TIE DOWN ASSOCIATION

AWRF

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A DIVISION OF HWC HOUSTON WIRE & CABLE COMPANY

WIRE ROPE IS A MACHINE - a special purpose machine. And today we expect a great deal from a machine. It must be built to stand up under grueling punishment, yet be engineered with all the precision of a fine watch.

It is a machine that is contantly being developed and improved to meet new and exciting demands. Like all machines, wire rope requires intelligent selection, handling and maintenance.

We at SOUTHWEST WIRE ROPE LP are serious about the wire rope business and we're equally serious about our customers in the OEM, marine towing, stevedoring, dredging, heavy construction, land and marine oil industries and mining interests. Our people stand ready to serve all your wire rope needs, people with the knowledge to make your job easier.

This manual is planned to help you get the best possible service out of one of your most important machines - your wire rope.

We hope this information will be of practical help to you on the job and in the office.

SOUTHWEST WIRE ROPE LP

The information and data set forth herein are accurate to the best of our knowledge. It is intended for general information only. Applications suggested for the materials described herein are made soley to permit the reader to make his own evaluation and decisions, and are not to be construed as either expressed or implied warranties of fitness for these or other applications. Anyone making use of this information assumes all liability arising from such use.

Consult your OEM, operations manual, applicable local laws & Wire Rope Technical Board publications in the selection of the correct wire rope for you.

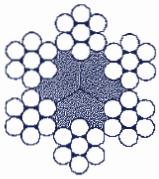
Wire Rope Classifications

Based on the Nominal Number of Wires in Each Strand

Classification	Description
6 x 7	Containing 6 strands that are made up of 3 through 14 wires, of which no more than 9 are outside wires.
6 x 19	Containing 6 strands that are made up of 15 through 26 wires, of which no more than 12 are outside wires.
6 x 37	Containing 6 strands that are made up of 27 through 49 wires, of which no more than 18 are outside wires.
6 x 61	Containing 6 strands that are made up of 50 through 74 wires, of which no more than 24 are outside wires.
6 x 91	Containing 6 strands that are made up of 75 through 109 wires, of which no more than 30 are outside wires.
6 x 127	Containing 6 strands that are made up of 110 or more wires, of which no more than 36 are outside wires.
8 x 19	Containing 8 strands that are made up of 15 through 26 wires, of which no more than 12 are outside wires.
19 x 7 and 18 x 7	Containing 19 strands, each strand is made up of 7 wires. It is manufactured by covering an inner rope of 7x7 left lang lay construction with 12 strands in right regular lay. (The rotation-resistant property that characterizes this highly specialized construction is a result of the counter torques developed by the two layers.) When the steel wire core strand is replaced by a fiber core, the description becomes 18x7.

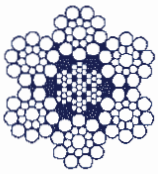
Wire Rope Classifications

6 x 7 Classification

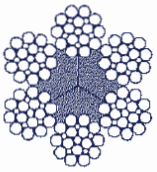


6 x 7
FC

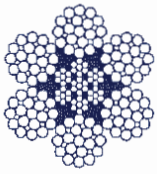
6 x 19 Classification



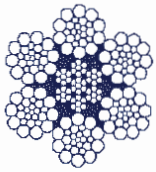
6 x 19 Seale
IWRC



6 x 21 Filler Wire
FC

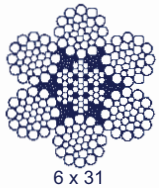


6 x 25 Filler Wire
IWRC

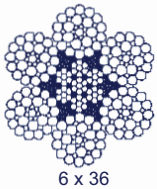


6 x 26 Warrington Seale
IWRC

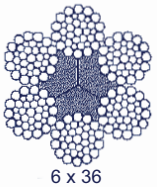
6 x 37 Classification



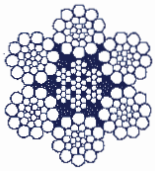
6 x 31
Warrington Seale
IWRC



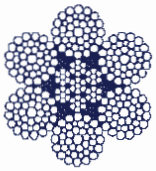
6 x 36
Seale Filler Wire
IWRC



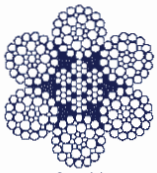
6 x 36
Warrington Seale
FC



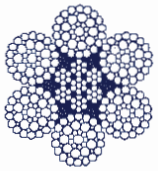
6 x 31
Filler Wire Seale
IWRC



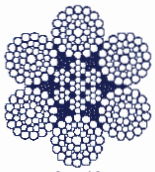
6 x 41
Warrington Seale
IWRC



6 x 41
Seale Filler Wire
IWRC

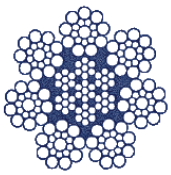


6 x 46
Seale Filler Wire
IWRC



6 x 49
Seale Filler Wire
IWRC

7 x 19 Classification

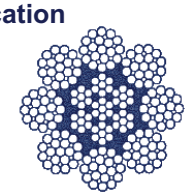


7 x 19 Seale
IWRC

7 x 25 Filler Wire
IWRC

8 x 19 Classification

8 x 19 Seale
FC

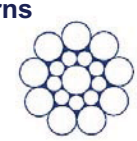


8 x 25 Filler Wire
IWRC

Four Basic Strand Patterns

7 Wire

19 Warrington

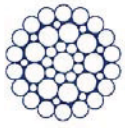


19 Seale

25 Filler Wire

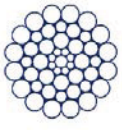
Combination Strand Patterns

31
Warrington Seale



46 Seale
Filler Wire

43 Seale
Filler Wire



49
Warrington Seale

Cross sections of some commonly used wire ropes such as the 6 x 7, 6 x 19 & 6 x 37 classifications. Also available, but not as common, are the 7 x 19 & 8 x 19 Classifications.

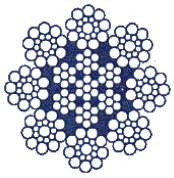
Rope Classifications indicate the number of strands as well as the number of wires in each strand.

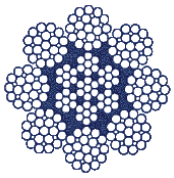
However, these are nominal Classifcations that may or may not reflect the actual construction. For example, the 6 x 19 Classification includes constructions such as 6 x 21 Filler Wire, 6 x 25 Filler Wire, and 6 x 26 Warrington Seale. Despite the fact that none of the three constructions named have 19 wires, they are in the 6 x 19 classification.

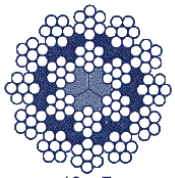
Factors affecting the selection of wire rope should be considered. The key to choosing the rope best suited for the job is making an accurate review of several important requirements. Correct appraisal of the following will simplify the selection process:

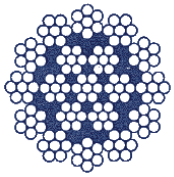
1.) Required minimum breaking force
2.) Resistance to bending fatigue
3.) Resistance to vibrational fatigue
4.) Resistance to abrasion
5.) Resistance to crushing

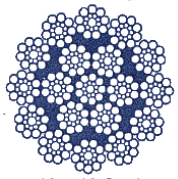
Rotation Resistant Ropes

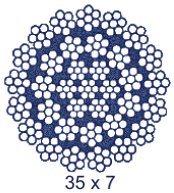

8 x 19 Seale
IWRC


8 x 25 Filler Wire
IWRC


18 x 7
FC


19 x 7


19 x 19 Seale

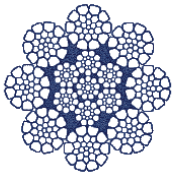

35 x 7

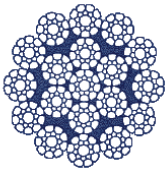

35 x 19 Seale

Rotation Resistant ropes are designed to resist the tendency to spin or rotate under load. These ropes are used either as single part lines or in situations where operating conditions require a rope that will resist block rotation in a multipart system. The essential nature of rotation resistant rope designs impose certain limitations on their application and necessitate special handling requirements not encountered with other rope constructions.

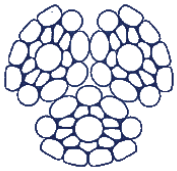
Compacted Strand & Swaged Wire Rope

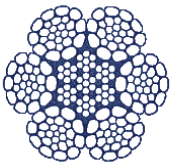

6 x 26 Warrington Seale
Compacted Strand
IWRC

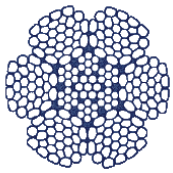

8 x 26 Warrington Seale
Compacted Strand
IWRC


19 x 19 Seale
Compacted Strand

Compacted strand wire rope is a wire rope manufactured from strands which have been compacted or reduced in diameter in the stranding operation to increase the metalic content.


3 x 19 Seale
Compacted (Swaged)

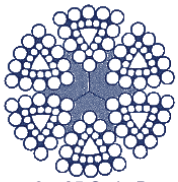

6 x 26 Warrington Seale
Compacted (Swaged)
IWRC

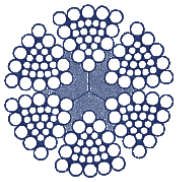

6 x 31 Warrington Seale
Compacted (Swaged)
IWRC

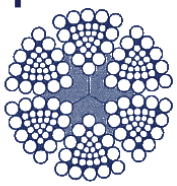
A swaged wire rope is rotary swaged following closing of the rope. Rotary swaging is the most common process to compact the rope, although other processes may be used.

Flattened (Triangular) Strand Wire Rope


6 x 31 Style V
Flattened Strand
(Brangel Center)
FC

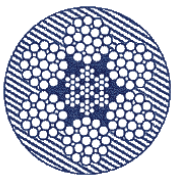

6 x 25 Style B
Flattened Strand
(Solid Center Wire)
FC

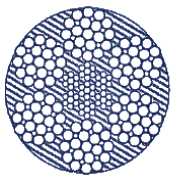

6 x 27 Style H
Flattened Strand
(3 Wire Center)
FC


6 x 30 Style G
Flattened Strand
(Plaited Center)
FC

Each strand of a flattened strand wire rope is comprised of a layer or layers of wire around a triangular shaped center. The center consists of either a triangular shaped wire element, or wires in a triangular configuration. The triangular strand shape provides a high strength rope with high metallic area which is resistant to crushing.

Plastic Processed Wire Rope Cross Sections


Plastic Coated
Wire Rope


Plastic Filled
Wire Rope


Plastic Coated IWRC
Wire Rope

Plastic coated IWRC wire rope is wire rope which incorporates a plastic coated or plastic filled IWRC. The plastic coated or plastic filled IWRC reduces internal wear and may increase bending fatigue life. Minimum breaking forces for plastic coated and plastic filled ropes are based on the diameter and grade of the rope with an uncoated or unfilled IWRC.

Minimum Breaking Force of Wire Rope

6 x 7 Classification / Bright (Uncoated), Fiber Core

Nominal Diameter		Approximate Mass		Minimum Breaking Force* IPS**	
inches	mm	1b/ft	kg/m	tons	metric tonnes
1/4	6.4	0.09	0.14	2.64	2.40
5/16	7.9	0.15	0.22	4.10	3.72
3/8	9.5	0.21	0.31	5.86	5.32
7/16	11.1	0.29	0.43	7.93	7.20
1/2	12.7	0.38	0.57	10.3	9.35
9/16	14.3	0.48	0.71	13.0	11.8
5/8	15.9	0.59	0.88	15.9	14.4
3/4	19.1	0.84	1.25	22.7	20.6
7/8	22.2	1.15	1.71	30.7	27.9
1	25.4	1.50	2.23	39.7	36.0
1 1/8	28.6	1.90	2.83	49.8	45.2
1 1/4	31.8	2.34	3.48	61.0	55.3
1 3/8	34.9	2.82	4.23	73.1	66.3
1 1/2	38.1	3.38	5.03	86.2	78.2

* To convert to Kilonewtons (kN), multiply tons (nominal strength) by 8.896; 1 lb=4.448 newtons (N).

**Minimum breaking forces listed above apply to ropes with bright or drawn galvanized wires. Minimum breaking forces are 10% lower for ropes with wires galvanized at finished size.

Minimum Breaking Force or Wire Rope

6 x 7 Classification / Bright (Uncoated), IWRC

Nominal Diameter		Approximate Mass		Minimum Breaking Force* IPS**	
inches	mm	1b/ft	kg/m	tons	metric tonnes
1/4	6.4	0.10	0.15	2.84	2.58
5/16	7.9	0.16	0.24	4.41	4.00
3/8	9.5	0.23	0.34	6.30	5.72
7/16	11.1	0.32	0.48	8.52	7.73
1/2	12.7	0.42	0.63	11.1	10.1
9/16	14.3	0.53	0.79	14.0	12.7
5/8	15.9	0.65	0.97	17.1	15.5
3/4	19.1	0.92	1.37	24.4	22.1
7/8	22.2	1.27	1.89	33.0	29.9
1	25.4	1.65	2.46	42.7	38.7
1 1/8	28.6	2.09	3.11	53.5	48.5
1 1/4	31.8	2.57	3.82	65.6	59.5
1 3/8	34.9	3.12	4.64	78.6	71.3
1 1/2	38.1	3.72	5.54	92.7	84.1

* To convert to Kilonewtons (kN), multiply tons (nominal strength) by 8.896; 1 lb=4.448 newtons (N).

**Minimum breaking forces listed above apply to ropes with bright or drawn galvanized wires. Minimum breaking forces are 10% lower for ropes with wires galvanized at finished size.

Minimum Breaking Force of Wire Rope

6 x 19 Classification / Bright (Uncoated), Fiber Core

Nominal Diameter		Approximate Mass		Minimum Breaking Force* EIPS**	
inches	mm	1b/ft	kg/m	tons	metric tonnes
1/4	6.4	0.11	0.16	3.02	2.74
5/16	7.9	0.16	0.24	4.69	4.25
3/8	9.5	0.24	0.35	6.72	6.10
7/16	11.1	0.32	0.48	9.10	8.26
1/2	12.7	0.42	0.63	11.8	10.7
9/16	14.3	0.53	0.79	14.9	13.5
5/8	15.9	0.66	0.98	18.3	16.6
3/4	19.1	0.95	1.41	26.2	23.8
7/8	22.2	1.29	1.92	35.4	32.1
1	25.4	1.68	2.50	46.0	41.7
1 1/8	28.6	2.13	3.17	57.8	52.4
1 1/4	31.8	2.63	3.91	71.1	64.5
1 3/8	34.9	3.18	4.73	85.5	77.6
1 1/2	38.1	3.78	5.63	101	91.6
1 5/8	41.3	4.44	6.61	118	107
1 3/4	44.5	5.15	7.66	137	124
1 7/8	47.6	5.91	8.80	156	142
2	50.8	6.72	10.0	176	160
2 1/8	54	7.59	11.3	197	179
2 1/4	57.2	8.51	12.7	220	200

* To convert to Kilonewtons (kN), multiply tons (nominal strength) by 8.896; 1 lb=4.448 newtons (N).

**Minimum breaking forces listed above apply to ropes with bright or drawn galvanized wires. Minimum breaking forces are 10% lower for ropes with wires galvanized at finish size.

Minimum Breaking Force of Wire Rope

6 x 19 Classification / Bright (Uncoated), IWRC

Nominal Diameter		Approximate Mass		Minimum Breaking Force*			
				EIPS**		EEIPS**	
inches	mm	1b/ft	kg/m	tons	metric tonnes	tons	metric tonnes
1/4	6.4	0.12	0.17	3.40	3.08	3.74	3.39
5/16	7.9	0.18	0.27	5.27	4.78	5.80	5.26
3/8	9.5	0.26	0.39	7.55	6.85	8.30	7.53
7/16	11.1	0.35	0.52	10.2	9.25	11.2	10.2
1/2	12.7	0.46	0.68	13.3	12.1	14.6	13.2
9/16	14.3	0.59	0.88	16.8	15.2	18.5	16.8
5/8	15.9	0.72	1.07	20.6	18.7	22.7	20.6
3/4	19.1	1.04	1.55	29.4	26.7	32.4	29.4
7/8	22.2	1.42	2.11	39.8	36.1	43.8	39.7
1	25.4	1.85	2.75	51.7	46.9	56.9	51.6
1 1/8	28.6	2.34	3.48	65.0	59.0	71.5	64.9
1 1/4	31.8	2.89	4.30	79.9	72.5	87.9	79.7
1 3/8	34.9	3.50	5.21	96.0	87.1	106	96.2
1 1/2	38.1	4.16	6.19	114	103	125	113
1 5/8	41.3	4.88	7.26	132	120	146	132
1 3/4	44.5	5.67	8.44	153	139	169	153
1 7/8	47.6	6.50	9.67	174	158	192	174
2	50.8	7.39	11.0	198	180	217	197
2 1/8	54.0	8.35	12.4	221	200	245	220
2 1/4	57.2	9.36	13.9	247	224	272	247
2 3/8	60.3	10.4	15.5	274	249	302	274
2 1/2	63.5	11.6	17.3	302	274	332	301
2 5/8	66.7	12.8	19.0	331	300	364	330
2 3/4	79.9	14.0	20.8	361	327	397	360

* To convert to Kilonewtons (kN), multiply tons (nominal strength) by 8.896; 1 lb=4.448 newtons (N).

**Minimum breaking forces listed above apply to ropes with bright or drawn galvanized wires. Minimum breaking forces are 10% lower for ropes with wires galvanized at finish size.

Minimum Breaking Force of Wire Rope

6 x 36 Classification / Bright (Uncoated), Fiber Core

Nominal Diameter		Approximate Mass		Minimum Breaking Force* EIPS**	
inches	mm	1b/ft	kg/m	tons	metric tonnes
1/4	6.4	0.11	0.16	3.02	2.74
5/16	7.9	0.16	0.24	4.69	4.25
3/8	9.5	0.24	0.35	6.72	6.10
7/16	11.1	0.32	0.48	9.10	8.26
1/2	12.7	0.42	0.63	11.8	10.7
9/16	14.3	0.53	0.79	14.9	13.5
5/8	15.9	0.66	0.98	18.3	16.6
3/4	19.1	0.95	1.41	26.2	23.8
7/8	22.2	1.29	1.92	35.4	32.1
1	25.4	1.68	2.50	46.0	41.7
1 1/8	28.6	2.13	3.17	57.8	52.4
1 1/4	31.8	2.63	3.91	71.1	64.5
1 3/8	34.9	3.18	4.73	85.5	77.6
1 1/2	38.1	3.78	5.63	101	91.6
1 5/8	41.3	4.44	6.61	118	107
1 3/4	44.5	5.15	7.66	137	124
1 7/8	47.6	5.91	8.80	156	142
2	50.8	6.72	10.0	176	160
2 1/8	54.0	7.59	11.3	197	179
2 1/4	57.2	8.51	12.7	220	200

* To convert to Kilonewtons (kN), multiply tons (minimum breaking force) by 8.896; 1 lb = 4.448 newtons (N).

** Minimum breaking forces listed above apply to ropes with bright or drawn galvanized wires. Minimum breaking forces are 10% lower for ropes with wires galvanized at finish size.

Minimum Breaking Force of Wire Rope

6 x 36 Classification / Bright (Uncoated), IWRC

Nominal Diameter		Approximate Mass		Minimum Breaking Force*			
				EIPS**		EEIPS**	
inches	mm	1b/ft	kg/m	tons	metric tons	tons	metric tonnes
1/4	6.4	0.12	0.17	3.40	3.08	3.74	3.39
5/16	7.9	0.18	0.27	5.27	4.78	5.80	5.26
3/8	9.5	0.26	0.39	7.55	6.85	8.30	7.53
7/16	11.1	0.35	0.52	10.2	9.25	11.2	10.2
1/2	12.7	0.46	0.68	13.3	12.1	14.6	13.2
9/16	14.3	0.59	0.88	16.8	15.2	18.5	16.8
5/8	15.9	0.72	1.07	20.6	18.7	22.7	20.6
3/4	19.1	1.04	1.55	29.4	26.7	32.4	29.4
7/8	22.2	1.42	2.11	39.8	36.1	43.8	39.7
1	25.4	1.85	2.75	51.7	46.9	56.9	51.6
1 1/8	28.6	2.34	3.48	65.0	59.0	71.5	64.9
1 1/4	31.8	2.89	4.30	79.9	72.5	87.9	80.0
1 3/8	34.9	3.50	5.21	96.0	87.1	106	96.2
1 1/2	38.1	4.16	6.19	114	103	125	113
1 5/8	41.3	4.88	7.26	132	120	146	132
1 3/4	44.5	5.67	8.44	153	139	169	153
1 7/8	47.6	6.50	9.67	174	158	192	174
2	50.8	7.39	11.0	198	180	217	197
2 1/8	54.0	8.35	12.4	221	200	243	220
2 1/4	57.2	9.36	13.9	247	224	272	247
2 3/8	60.3	10.4	15.5	274	249	302	274
2 1/2	63.5	11.6	17.3	302	274	332	301
2 5/8	66.7	12.8	19.0	331	300	364	330
2 3/4	79.9	14.0	20.8	361	327	397	360
2 7/8	73.0	15.3	22.8	392	356	432	392
3	76.2	16.6	24.7	425	386	468	425
3 1/8	79.4	18.0	26.8	458	415	505	458
3 1/4	82.6	19.5	29.0	492	446	543	493
3 3/8	85.7	21.0	31.3	529	480	582	528
3 1/2	88.9	22.7	33.8	564	512	621	563
3 5/8	92.1	24.3	36.2	602	528	663	601
3 3/4	95.3	26.0	38.7	641	581	705	640

* To convert to Kilonewtons (kN), multiply tons (minimum breaking force) by 8.896; 1 lb = 4.448 newtons (N).

** Minimum breaking forces listed above apply to ropes with bright or drawn galvanized wires. Minimum breaking forces are 10% lower for ropes with wires galvanized at finish size.

Minimum Breaking Force of Wire Rope

8 x 19 Classification / Bright (Uncoated), Fiber Core

Nominal Diameter		Approximate Mass		Minimum Breaking Force* IPS	
inches	mm	1b/ft	kg/m	tons	metric tonnes
1/4	6.4	0.10	0.15	2.35	2.13
5/16	7.9	0.15	0.22	3.65	3.31
3/8	9.5	0.22	0.33	5.24	4.75
7/16	11.1	0.30	0.45	7.09	6.43
1/2	12.7	0.39	0.58	9.23	8.37
9/16	14.3	0.50	0.74	11.6	10.5
5/8	15.9	0.61	0.91	14.3	13.0
3/4	19.1	0.88	1.31	20.5	18.6
7/8	22.2	1.20	1.79	27.7	25.1
1	25.4	1.57	2.34	36.0	32.7
1 1/8	28.6	1.99	2.96	45.3	41.1
1 1/4	31.8	2.45	3.65	55.7	50.5
1 3/8	34.9	2.97	4.42	67.1	60.7
1 1/2	38.1	3.53	5.25	79.4	72.0

* To convert to Kilonewtons (kN), multiply tons (nominal strength) by 8.896; 1 lb=4.448 newtons (N).

** Minimum breaking forces listed above apply to ropes with bright or drawn galvanized wires. Minimum breaking forces are 10% lower for ropes with wires galvanized at finish size.

Minimum Breaking Force of Wire Rope

8 x 19 Classification / Rotation Resistant / Bright (Uncoated), IWRC

Nominal Diameter		Approximate Mass		Minimum Breaking Force* EIPS	
inches	mm	1b/ft	kg/m	tons	metric tonnes
1/2	12.7	0.47	0.70	11.60	10.5
9/16	14.3	0.60	0.89	14.7	13.3
5/8	15.9	0.73	1.09	18.1	16.4
3/4	19.1	1.06	1.58	25.9	23.5
7/8	22.2	1.44	2.14	35.0	31.8
1	25.4	1.88	2.80	45.5	41.3
1 1/8	28.6	2.39	3.56	57.3	51.7
1 1/4	31.8	2.94	4.37	70.5	64.0
1 3/8	34.9	3.56	5.30	84.9	77.0
1 1/2	38.1	4.24	6.31	100.0	90.7

The minimum breaking forces for 8 x 19 rotation resistant ropes are applicable only when a test is conducted on a new rope that is fixed at both ends. When the rope is in use, and one end is free to rotate, the breaking fource is reducted.

* To convert to Kilonewtons (kN), multiply tons (nominal strength) by 8.896;
1 lb = 4.448 newtons (N).

** Minimum breaking forces listed above apply to ropes with bright or drawn galvanized wires. Minimum breaking forces are 10% lower for ropes with wires galvanized at finish size.

Minimum Breaking Force of Wire Rope

19 x 7 Classification / Rotation Resistant / Bright (Uncoated)

Nominal Diameter		Approximate Mass		Minimum Breaking Force* EIPS**	
inches	mm	1b/ft	kg/m	tons	metric tonnes
1/2	12.7	0.45	0.67	10.8	9.8
9/16	14.3	0.58	0.86	13.6	12.3
5/8	15.9	0.71	1.06	16.8	15.2
3/4	19.1	1.02	1.52	24.0	21.8
7/8	22.2	1.39	2.07	32.5	29.5
1	25.4	1.82	2.71	42.2	38.3
1 1/8	28.6	2.30	3.42	53.1	48.2
1 1/4	31.8	2.84	4.23	65.1	59.1
1 3/8	34.9	3.43	5.10	78.4	71.1
1 1/2	38.1	4.08	6.07	92.8	84.2

The give strengths are applicable only when a test is conducted on a new rope fixed at both ends. When the rope is in use, the breaking strength is reduced when one end is free to rotate.

* To convert to Kilonewtons (kN), multiply tons (nominal strength) by 8.896; 1 lb=4.448 newtons (N).

** Minimum breaking forces listed above apply to ropes with bright or drawn galvanized wires. Minimum breaking forces are 10% lower for ropes with wires galvanized at finish size.

Use of this rope with an inline swivel is prohibited. See Wire Rope Technical Board publication.

Minimum Breaking Force of Wire Rope

1 x 7 and 1 x 19 Small Diameter Specialty Strand, Galvanized and Corrosion Resistant

Nominal Diameter		Approximate Mass				Minimum Breaking Force							
						Galvanized				Corrosion Resistant			
		1 x 7		1 x 19		1 x 7		1 x 19		1 x 7		1 x 19	
inches	mm	lbs./ 100ft	kg/ 30.5m*	lbs./ 100ft	kg/ 30.5m*	lb	kg	lb	kg	lb	kg	lb	kg
1/32	.8	.25	.11			185	83.9			185	83.9		
3/64	1.2	.55	.25	.55	.25	375	170	375	170	375	170	375	170
1/16	1.6	.85	.39	.85	.39	500	227	500	227	500	227	500	227
5/64	2.0			1.4	.64			800	363			800	363
3/32	2.4			2.0	.91			1,200	544			1,200	544
7/64	2.8			2.7	1.2			1,600	726			1,600	726
1/8	3.2			3.5	1.6			2,100	953			2,100	953
5/32	4.0			5.5	2.5			3,300	1,497			3,300	1,497
3/16	4.8			7.7	3.5			4,700	2,132			4,700	2,132
7/32	5.6			10.2	4.6			6,300	2,858			6,300	2,858
1/4	6.4			13.5	6.1			8,200	3,720			8,200	3,720
9/32	7.1			17.0	7.7			10,300	4,672			10,300	4,672
5/16	7.9			21.0	9.5			12,500	5,670			12,500	5,670
3/8	9.5			30.0	13.6			17,500	7,938			17,500	7,938

* 30.5m = 100 ft

** To convert to Kilonewtons (kN), multiply tons (minimum breaking force) by 8.896; 1 lb = 4.448 newtons (N).

Minimum Breaking Force of Wire Rope

7 x 7 and 7 x 19 Small Diameter Specialty Cord, Galvanized and Corrosion Resistant

Nominal Diameter		Approximate Mass				Minimum Breaking Force***							
						Galvanized				Corrosion Resistant			
		7 x 7		7 x 19		7 x 7		7 x 19		7 x 7		7 x 19	
inches	mm	lbs./ 100ft	kg/ 30.5m**	lbs./ 100ft	kg/ 30.5m**	lb	kg	lb	kg	lb	kg	lb	kg
1/32	.8	.06*	.07*			110*	49.9*			110*	49.9*		
3/64	1.2	.42	.19			270	122			270	122		
1/16	1.6	.75	.34	.75	.34	480	218	480	218	480	218	480	218
5/64	2.0	1.1	.50			650	295			650	295		
3/32	2.4	1.6	.73	1.7	.77	920	417	1,000	454	920	417	920	417
7/64	2.8	2.2	1.0			1,260	572			1,260	572		
1/8	3.2	2.8	1.3	2.9	1.3	1,700	771	2,000	907	1,700	771	1,760	798
5/32	4.0	4.3	2.0	4.5	2.0	2,600	1,179	2,800	1,270	2,400	1,089	2,400	1,089
3/16	4.8	6.2	2.8	6.5	2.9	3,700	1,678	4,200	1,905	3,700	1,678	3,700	1,678
7/32	5.6	8.3	3.8	8.6	3.9	4,800	2,177	5,600	2,540	4,800	2,177	5,000	2,268
1/4	6.4	10.6	4.8	11.0	5.0	6,100	2,767	7,000	3,175	6,100	2,767	6,400	2,903
9/32	7.1	13.4	6.1	13.9	6.3	7,600	3,447	8,000	3,629	7,600	3,447	7,800	3,538
5/16	7.9	16.7	7.6	17.3	7.8	9,200	4,173	9,800	4,445	9,000	4,082	9,000	4,082
11/32	8.7	20.1	9.1	20.7	9.4	11,100	5,035	12,500	5,670	10,500	4,763		
3/8	9.5	23.6	10.7	24.3	11.0	13,100	5,942	14,400	6,532	12,000	5,443	12,000	5,443

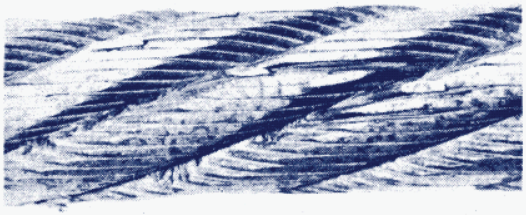
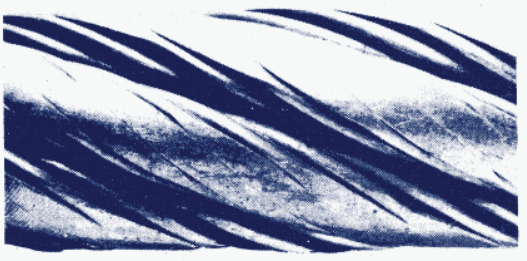
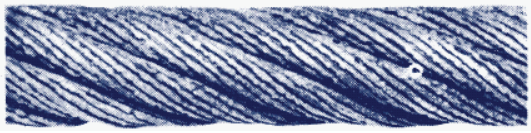
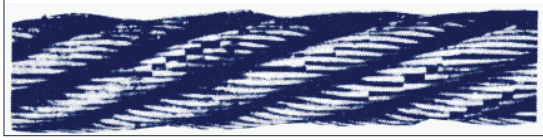
* 3 x 7 construction

** 30.5m = 100 ft

*** To convert to Killonewtons (kN), multiply tons (minimum breaking force) by 8.896; 1 lb = 4.448 newtons (N).

Classification of Abuse

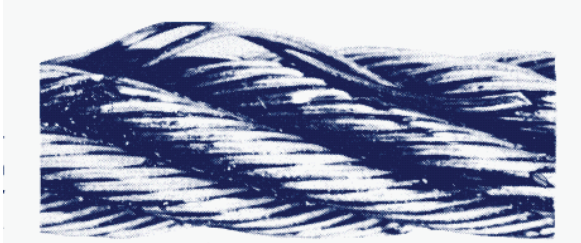
Effect / Cause

	Severe wear, associated with high tread pressure. Protrusion of fiber main core.
	Severe wear in Langs Lay, caused by abrasion at cross-over points on multi-layer coiling application
	Corrosion of severe degree caused by immersion of rope in chemically treated water.
	Typical wire fractures as a result of bend fatigue.

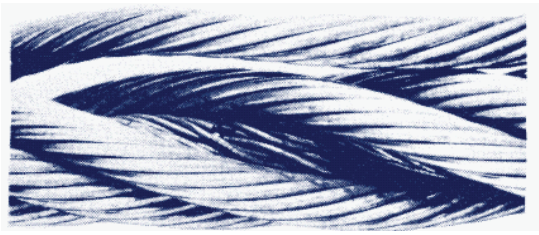
1

Classification of Abuse

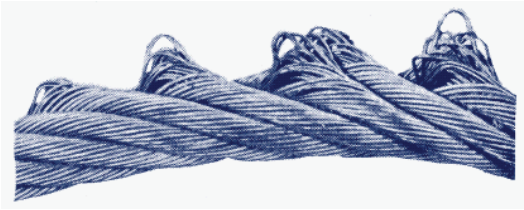
Effect / Cause



Wire fractures at the strand, or core interface, as distinct from "crown fracture", caused by failure or core support.



Break up of IWRC resulting from high stress application. Note nicking of wires in outer strands.



Strand core protrusion as a result of torsional unbalance created by "drop ball" application. (i.e. shock loading).

Typical example of localised wear and deformation created at a previously kinked portion of rope

Inspection of Sheaves and Drums

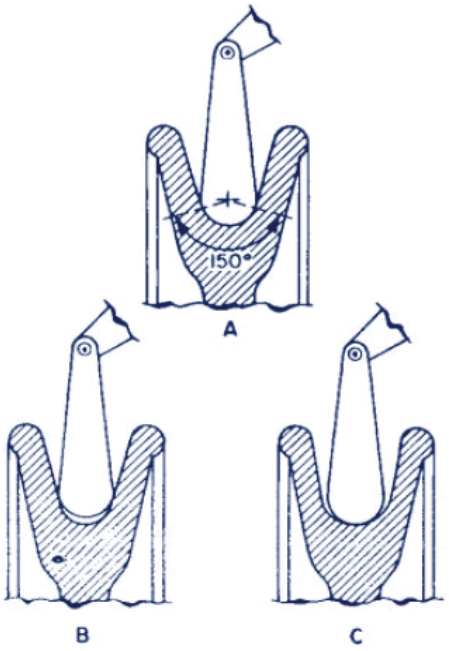


Figure 1. Cross-sections illustrating three sheave-groove conditions. **A** is correct, **B** is too tight, and **C** is loo loose.

Under normal conditions, machines receive periodic inspections, and their over-all condition is recorded. Such inspections usually include the drum, sheaves, and any other parts that may come into contact with the wire rope and subject it to wear. As an additional precaution, rope related working parts, particularly in the areas described below, should be re-inspected prior to the installation of a new wire rope.

The very first item to be checked when examining sheaves and drums, is the condition of the grooves (Figs. 1, 2 and 3). To check the size, contour and amount of wear, a groove gage is used. As shown in Figure 1, the gage should contact the groove for about 150° of arc.

Two types of groove gages are in general use and it is important to note which of these is being used. The two differ by their respective percentage over nominal.

For new or re-machined grooves, the groove gage is nominal plus the full oversize percentage. The gage carried by most wire rope repesentatives today is used for worn grooves and is made nominal plus 1/2 the oversize percentage.

This latter gage is intended to act as a sort of "no-go" gage. Any sheave with a groove smaller than this must be re-grooved or, in all likeihood, the existing rope will be damaged.

When the sheave is re-gooved it should be machined to the dimensions for "new and machined". Similarly, the size of the "no-go" gage is given, against which worn grooves are judged. Experience has clearly demonstrated that the service life of the wire rope will be materially increased by strict adherence to these standards.

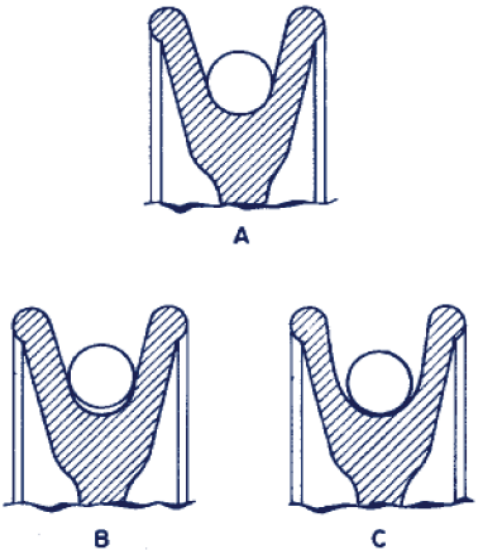


Figure 2. These sheave-groove cross-sections represent three wire rope seating conditions: **A**, a new rope in a new groove; **B**, a new rope in a worn groove; and **C**, a worn rope in a worn groove. (See also **Figs. 1** and **3**)

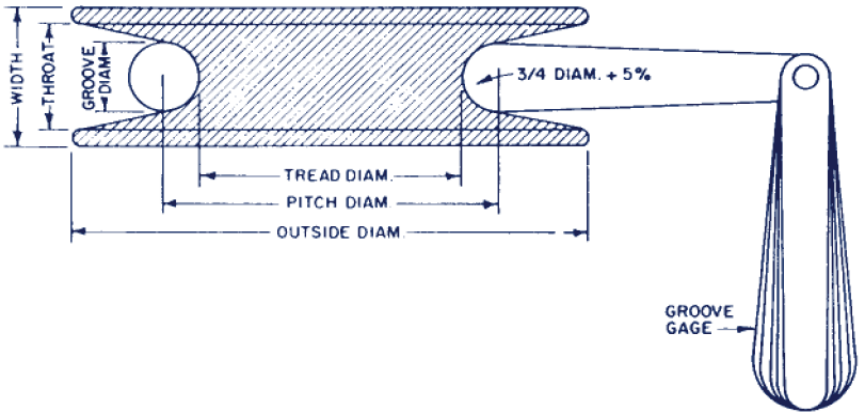


Figure 3. Illustrating the various dimensions of a sheave, and the use of a groove gave.

General Purpose Rope Sheave and Drum Groove Dimensions*

Nominal Rope Diameter		Groove Radius					
		Minimum Worn Groove		Recommended Minimum New Groove		Maximum Groove	
inches	mm**	inches	mm	inches	mm	inches	mm
1/4	6.5	0.128	3.25	0.134	3.40	0.138	3.51
5/16	8	0.160	4.06	0.167	4.24	0.172	4.37
3/8	9.5	0.192	4.88	0.199	5.05	0.206	5.23
7/16	11	0.224	5.69	0.232	5.89	0.241	6.12
1/2	13	0.256	6.50	0.265	6.73	0.275	6.99
9/16	14.5	0.288	7.32	0.298	7.57	0.309	7.85
5/8	16	0.320	8.13	0.331	8.41	0.344	8.74
3/4	19	0.384	9.75	0.398	10.11	0.413	10.49
7/8	22	0.448	11.38	0.464	11.79	0.481	12.22
1	26	0.513	13.03	0.530	13.46	0.550	13.97
1 1/8	29	0.577	14.66	0.596	15.14	0.619	15.72
1 1/4	32	0.641	16.28	0.663	16.84	0.688	17.48
1 3/8	35	0.705	17.91	0.729	18.52	0.756	19.20
1 1/2	38	0.769	19.53	0.795	20.19	0.825	20.96
1 5/8	42	0.833	21.16	0.861	21.87	0.894	22.71
1 3/4	45	0.897	22.78	0.928	23.57	0.963	24.46
1 7/8	48	0.961	24.41	0.994	25.25	1.031	26.19
2	52	1.025	26.04	1.060	26.92	1.100	27.94
2 1/8	54	1.089	27.66	1.126	28.60	1.169	29.69
2 1/4	58	1.153	29.29	1.193	30.30	1.238	31.45
2 3/8	60	1.217	30.91	1.259	31.98	1.306	33.17
2 1/2	64	1.281	32.54	1.325	33.66	1.375	34.93
2 5/8	67	1.345	34.16	1.391	35.33	1.444	36.68
2 3/4	71	1.409	35.79	1.458	37.03	1.513	38.43
2 7/8	74	1.473	37.41	1.524	38.71	1.581	40.16
3	77	1.537	39.04	1.590	40.39	1.650	41.91
3 1/8	80	1.602	40.69	1.656	42.06	1.719	43.66
3 1/4	83	1.666	42.32	1.723	43.76	1.788	45.42
3 3/8	86	1.730	43.94	1.789	45.44	1.856	47.14
3 1/2	90	1.794	45.57	1.855	47.12	1.925	48.90
3 3/4	96	1.922	48.82	1.988	50.50	2.063	52.40
4	103	2.050	52.07	2.120	53.85	2.200	55.88
4 1/4	109	2.178	55.32	2.253	57.23	2.338	59.39
4 1/2	115	2.306	58.57	2.385	60.58	2.475	62.87
4 3/4	122	2.434	61.82	2.518	63.96	2.613	66.37
5	128	2.563	65.10	2.650	67.31	2.750	69.85
5 1/4	135	2.691	68.35	2.783	70.69	2.888	73.36
5 1/2	141	2.819	71.60	2.915	74.04	3.025	76.84
5 3/4	148	2.947	74.85	3.048	77.42	3.163	80.34
6	154	3.075	78.11	3.180	80.77	3.300	83.82

*Values given are applicable to grooves in sheaves and drums, they are not generally suitable for pitch design since this may involve other factors.
** Not a precise conversion; for information only.

Further, the dimensions do not apply to traction-type elevators; in this circumstance, drum- and sheave-groove tolerances should conform to the elevator manufactuer's specifications.

Modern drum design embraces extensive consideratoins beyond the scope of this publication. It should also be noted that drum grooves are now produced with a number of oversize dimensions and pitches applicable to certain service requirements.

Measuring Wire Rope Diameter

It is important to check the diameter of the delivered rope *before* installation. This is to make certain that the rope meets the specified nominal diameter for the given application.

Imperial (inch) and Metric (millimeter) ropes are not always interchangable. Consult rope manufacturer for details on any specific rope diameter.

The actual rope diameter is the diameter of the circumscribing circle, i.e., its largest cross-sectional dimension. To insure accuracy this measurement should be made with a wire rope caliper using the *correct* method (b) shown in **Fig. 4**. Special techniques and equipment must be employed for measuring ropes with an odd number of outer strands (e.g. Circumferential tapes, calipers and plates).

Tollerance for wire rope diameter permit the diameter to be slightly larger than the nominal size, according to the limits shown in **Table 1**.

TABLE 1 OVERSIZE LIMITS OF WIRE ROPE DIAMETERS*

Nominal Rope Diameter	Allowable Limits	
Thru 1/8" (3.2 mm)	-0	+8%
Over 1/8" (3.2 mm) thru 3/16" (4.8 mm)	-0	+7%
Over 3/16" (4.8 mm) thru 5/16" (8.0 mm)	-0	+6%
Over 5/16" (8.0 mm) and larger	-0	+5%

* These limits have been adopted by the Wire Rope Technical Board (WRTB). In the case of certain special purpose ropes, such as aircraft cables and elevator ropes, each has specific requirements. If a question should arise regarding compliance with oversize tolerances the rope may be measured under tension not exceeding 20% of the minimum breaking force. If the actual diameter determined by this measurement is within the specified tolerance the rope is considered to meet the required diameter.

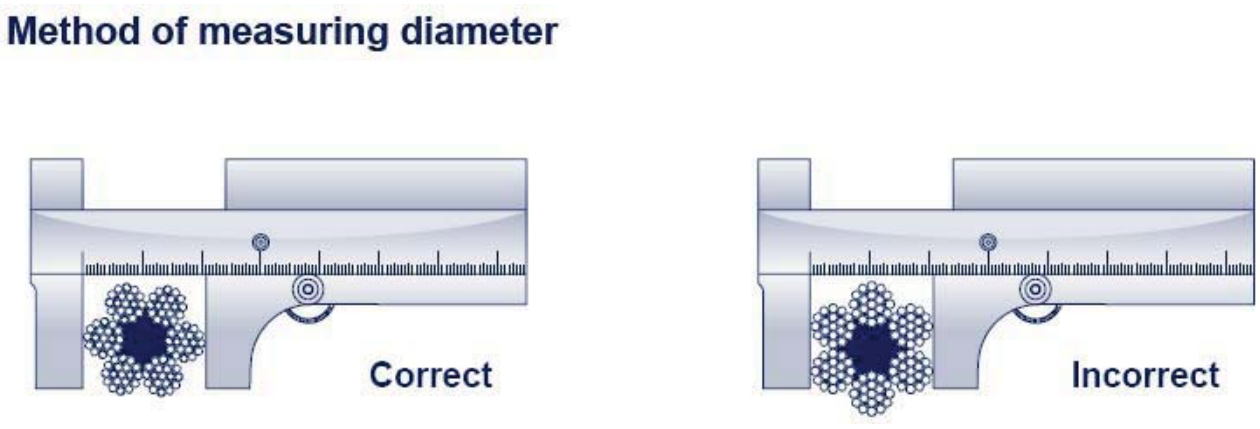


Figure 4. How to measure (or caliper) a wire rope correctly. Since the "true" diameter lies within the circumscribed circle, always measure the larger dimension (**Correct**) above.

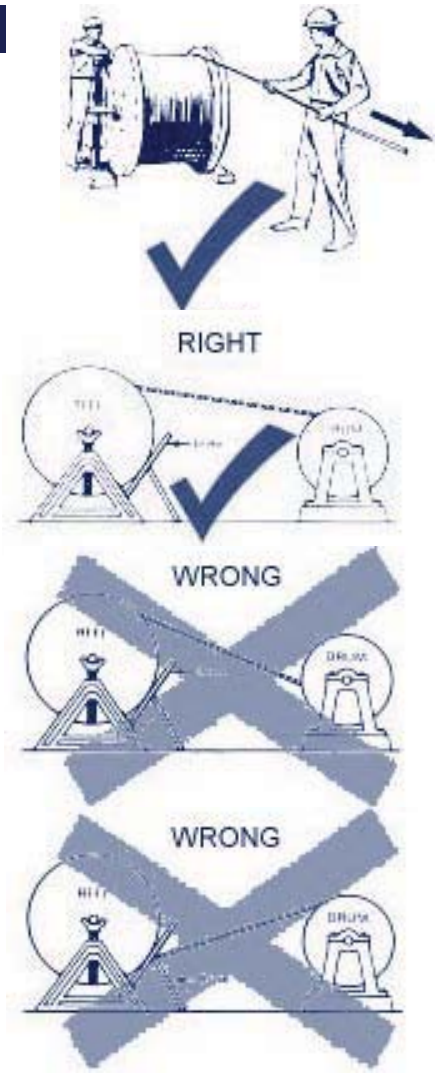


Figure 5. The correct and the wrong way to wind wire rope from reel to drum

Un-Reeling & Un-Coiling

When re-reeling wire rope from a horizontally supported reel to a drum, it is imperative for the rope to travel from the top of the reel to the top of the drum; or, from the bottom of the reel to the bottom of the drum **(Fig. 5**). Re-reeling in this manner will avoid putting a reverse bend into the rope as it is being installed. If a rope is installed so that a reverse bend is induced, it may cause the rope to become "twisty" and, consequently, harder to handle. *When unwinding wire rope from a coil*, there are two suggested methods from carrying out this procedure in a proper manner:

1) One method involves placing the coil on a vertical unreeling stand. The stand consists of a base with a fixed vertical shaft. On this shaft there is a "swift," consisting of a plate with inclined pins positioned so that the coil may be placed over them. The shole swift and coil then rotate as the rope is pulled off. This method is particularly effective when the rope is to be wound on a drum.

2) The most common as well as the easiest uncoiling method is merely to hold one end of the rope while rolling the coil along the ground like a hoop **(Fig. 6)**. **Figure 7** shows unreeling and uncoiling methods that are most likely to provide kinks. Such improper procedures should be strenuously avoided in order to prevent the occurrence of loops. These loops, when pulled taut, will inevitably result in inks. No matter how a kink develops, it will damage strands and wires, and the kinked section must be cut out. Proper and careful handling will keep the wire rope free from kinks.

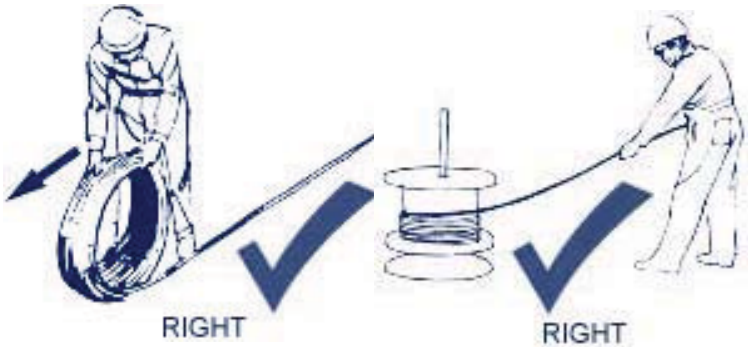


Figure 6. Perhaps the most common and easiest uncoiling method is to hold one end of the rope while the coil is rolled along the ground.

Figure 7. Illustrations of a wrong method of unreeling wire rope.

Drums - Plain (Smooth)

Installation of a wire rope on a plain (smooth) face drum requires a great deal of care. The starting position should be at the correct drum flange so that each wrap of the rope will wind tightly against the preceding wrap **(Fig. 8).** Here too, close supervision should be maintained during installation. This will help make certain that:

1) The rope is properly attached to the drum.
2) Appropriate tension on the rope is maintained as it is wound on the drum. Back tension applied to the rope during installation should be from 2 to 5% of the minimum breaking force of the rope being installed.
3) Each wrap is guided as close to the preceding wrap as possible, so that there are no gaps between wraps.
4) It is preferable to have at least three dead wraps remaining on the drum when the rope is unwound during normal operations. Two dead wraps are a mandatory requirement in many codes and standards. (consult your operators manual).

Loose and uneven winding on a plain (smooth) faced drum can and usually does create excessive wear, crushing and distortion of the rope. The results of such abuse are shorter service life and a reduction in the rope's effective strength. Also, for an operation that is sensitive in terms of moving and spotting a load, the operator will encounter control difficulties as the rope will pile up, pull and fall from the pile to the drum surface. The ensuing shock can break or otherwise damage the rope.

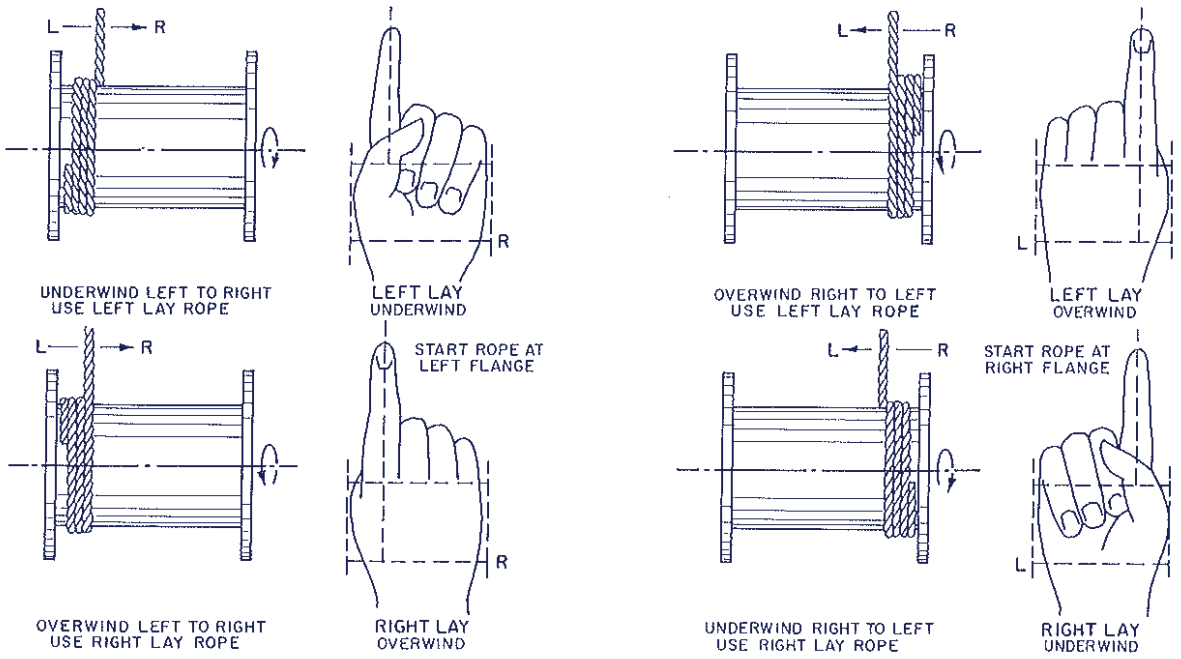


Figure 8. By holding the right or left hand with index finger extended, palm up or palm down, the proper procedure for applying left- and right-lay rope on a smooth drum can be easily determined.

Seizing Wire Rope

While there are numerous ways to cut wire rope, in every case certain precautions must be observed. For one thing, proper seizings are always applied on both sides of the place where the cut is to be made. In a wire rope, carelessly or inadequately seized ends may become distorted and flattened, and the strands may loosen. Subsequently, when the rope is operated, there may be an uneven distribution of loads to the strands; a condition that will significantly shorten the life of the rope.

The two widely accepted methods of applying seizing are illustrated in Figures 9 and 10. The seizing itself should be soft, or annealed wire or strand. Seizing wire diameter and the length of the seizing will depend on the diameter of the wire rope; the length of the seizing should never be less than the diameter of the rope being seized. Normally, for preformed ropes, one seizing on each side of the cut is sufficient. But for ropes that are not preformed or rotation resistant rope, a minimum of two seizings on each side is recommended; and these should be spaced one rope diameter apart. (See Table 2).

Other methods of seizing may be acceptable depending on the level of preforming of the rope. Non-preformed or partially preformed ropes require special attention and correct seizing is very important. Seizing of preformed ropes may be accomplished by methods such as plastic wire ties, hose clamps, some types of tape, etc.

The most important fact in the seizing of any rope is that the rope does not deform and the rope lay does not change when the rope is cut.

Table 2 lists suggested seizing wire diameters for use with a range of wire rope diameters.

Note: Loss of seizing on a non rotating or rotation resistant wire rope will result in rope damage.

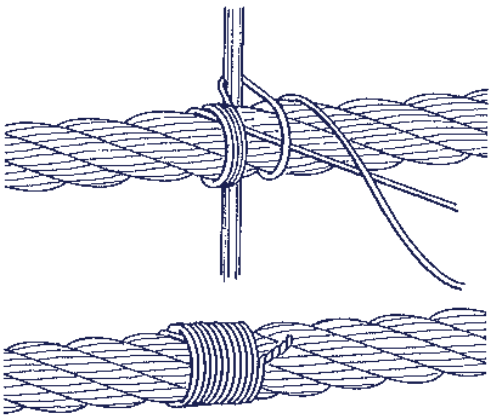


Figure 9. Lay one end of the seizing wire in the groove between two strands; wrap the other end tightly in a close helix over a portion of the wire in the groove using a seizing iron (a round bar 1/2" to 5/8" diameter x 18" long) as shown above. Both ends of the seizing wire should be twisted together tightly, and the finished appearance as shown below. Seizing widths should not be less than the rope diameter.

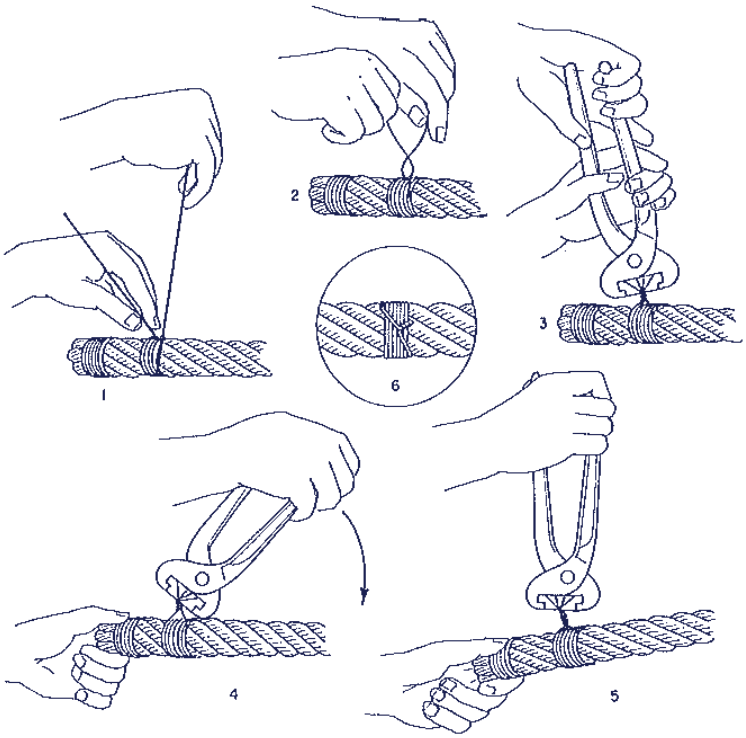


Figure 10. The procedure illustrated at right is another method of seizing wire rope.

Table 2 Seizing*

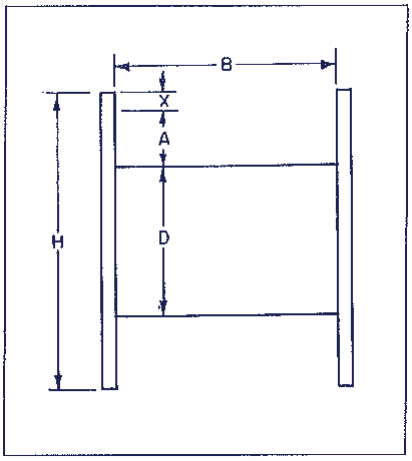
Rope Diameters		Suggested Seizing Wire Diameters**	
inches	mm	inches	mm
1/8 - 5/16	3.2 - 8.0	.032	0.813
3/8 - 9/16	9.5 - 14.5	.048	1.21
5/8 - 15/16	16.0 - 24.0	.063	1.60
1 - 1 5/16	26.0 - 33.0	.080	2.03
1 3/8 - 1 11/16	35.0 - 43.0	.104	2.64
1 3/4 and larger	4.50 and larger	.124	3.15

* Length of the seizing should not be less than the rope diameter.

**The diameter of seizing wire for elevator ropes is usually somewhat smaller than that shown in this table. Consult the wire rope manufacturer for specific size recommendations. Soft annealed seizing strand of an appropriate size may also be used.

Shipping Reel Capacity

While it is virtually impossible to calculate the precise length of wire rope that can be spooled on a reel or drum, the following formula provides a close approximation.



The formula is: L = (A+D) ● A ● B ● K

Where: L = length of rope (ft)
A = depth of rope space on drum (inches)
B = width of drum between flanges (inches)
D = drum barrel diameter (inches)
K = constant for given rope diameter (see table below)
H = diameter of reel flanges (inches)
X = clearance

"K" FACTORS*
(0.2618 ÷ rope diameter squared)**

Diam. (inches)	K	Diam. (inches)	K	Diam. (inches)	K
1/16	56.9	1/2	.950	1 3/8	.126
3/32	25.4	9/16	.749	1 1/2	.106
1/8	14.4	5/8	.608	1 5/8	.0900
5/32	9.38	11/16	.502	1 3/4	.0775
3/16	6.48	3/4	.422	1 7/8	.0675
7/32	4.59	13/16	.360	2	.0594
1/4	3.73	7/8	.310	2 1/8	.0521
5/16	2.39	1	.237	2 1/4	.0469
3/8	1.69	1 1/8	.188	2 3/8	.0421
7/16	1.24	1 1/4	.152	2 1/2	.0380

* The values given for "K" factors take maximum allowable rope oversize into account. (See Table 1 page 20). These "K" factor values do not apply to certain special ropes such as aircraft cords and elevator ropes. Clearance ("X") should be about 2 inches unless rope-end fittings require more.

**This formula is based on uniform rope winding on the reel. It will not give correct results if the winding is non-uniform. The formula also assumes that there will be the same number of wraps of rope in each layer. While this is not strictly correct, there is no appreciable error in the result unless the traverse of the reel is quite small relative to the flange diameter ("H").

How to Attach a Wire Rope Socket Using Resin

* This is for information purposes only and should not be used as an instruction for performing socketing in the field, proper training and certification is required for field application.

Resin - Poured Socketing

Before proceeding with a resin socketing procedure, check the resin manufacturer's instructions carefully. Each resin system has specific procedures and steps which must be followed in the order specified for the system to give the desired results. Since any resin system depends upon a chemical reaction, the procedure becomes critically important. Give particular attention to selecting sockets designed for resin socketing. Sockets with "rings" should not be used, or if the sockets do have "rings", they should be filled prior to pouring the resin. Also, do not use oversize sockets with resin socketing. The following steps give a general outline to follow for resin socketing; they should not be used as a substitute for detailed instructions supplied by the resin manufacturer.

1. *Measure the Rope Ends to be Socketed*
   The rope end should be of sufficient length so the ends of the unlaid wires (from the strands) will be at the top of the socket basket.
2. *Apply Serving at Base of Socket*
   Apply a tight serving band - length of two rope diameters - at the point where the socket base will be to eliminate any distortion below the band of the wires and strands. **(Fig's 12 & 13)**
3. *Broom Out Strand Wires*

   Unlay and straighten the individual rope strands and spread them evenly so that they form an included angle of approximately 60 degrees. Unlay the wires of each individual strand for the full length of the rope end - being careful not to disturb or change the lay of the wires and strands under the serving band. Unlay the wires of the independent wire rope core (IWRC) in the same manner. A fiber core should be cut out and removed as close to the serving band as possible, unless otherwise recommended by the manufacturer. **(Fig. 12)**

4. *Clean the Broomed-out Ends*

   A cleaning solvent recommended by a solvent supplier for the type of lubrication of the wire rope should be chosen. If there are questions about the type of lubrication on the wire rope, contact the supplier of the wire rope.

   Follow the solvent supplier's recommendations for cleaning the broomed end. Make certain that all grease and dirt is removed from the wires to the very bottom of the broom up to the serving band **(Fig. 13)**. After cleaning, place the broomed-out end pointing downward as shown in **(Fig. 14)**, allowing it to remain until all solvent has evaporated and the wires are dry.

   Solvent should never be permitted to remain on the rope or on the serving band since it will run down the wires when the rope is turned upright.

Fig. 11

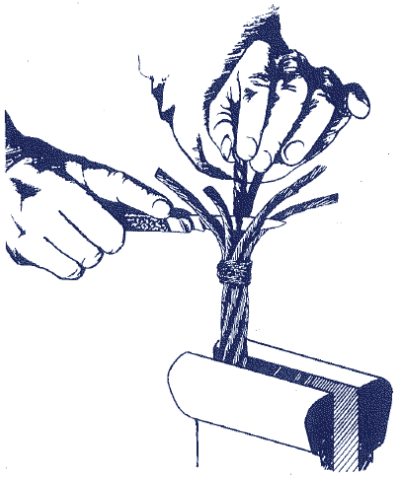


Fig. 12

Fig. 13

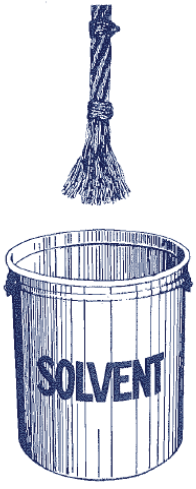


Fig. 14

How to Attach a Wire Rope Socket Using Resin

Resin - Poured Socketing - Cont.

5. *Close Rope Ends and Place Socket*
   Place rope in a vertical position with the broom end up. Close and compact the broom to permit insertion of the broomed end into the base of the socket **(Fig. 15)**. Slip the socket on, removing any temporary banding or seizing as required.
   Another method of placing the socket onto the rope is to first cover the end of the rope with a wrapping or split tubing; then slide the socket onto this section of covered rope, this will prevent contamination of the inner surface of the socket by the wire rope lubricant. Once the end of the wire rope is cleaned and broomed, the socket can be slid into position and the wrapping or split tubing can be removed. A word of caution: Never heat a socket into which resin will be poured.
   Make certain the broomed wires are uniformly spaced in the basket, with the wire ends slightly below the top edge of the basket, and the axis of the rope and the fitting are aligned. Seal the annular space between the base of the socket and the rope to prevent leakage to the resin from the basket **(Fig. 16)**. In addition to normal sealing materials, non-hardening butyl rubber-base sealant or latex glazing compounds are satisfactory for this purpose. Make sure the sealant does not enter the base of the socket so the resin will be able to fill the complete depth of the socket basket.
6. *Pouring the Resin*
   Mix and pour the resin in strict accordance with the resin manufacturer's instructions **(Fig's 17 & 18)**.
7. *Lubrication After Socket Attachment*
   After the resin has cured, re-lubricate the wire rope at the base of the socket to replace any lubricant that may have been removed during the cleaning operation.
8. *Resin Properties*
   All properties and precautions of resins should be obtained from the resin manufacturers. Take special note of the "shelf life" of the resin being used.

Fig. 15

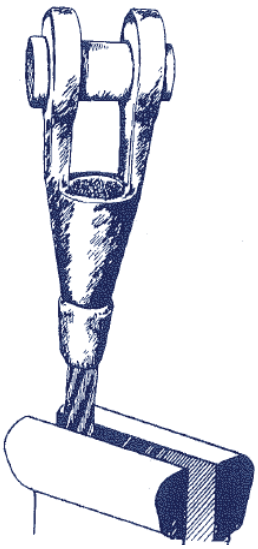


Fig. 16

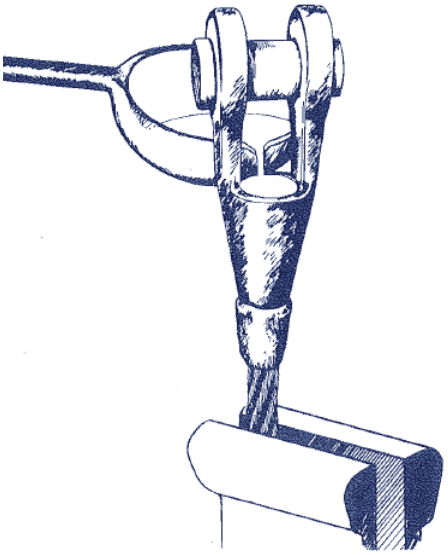


Fig. 17

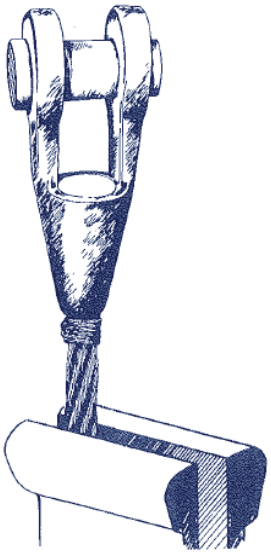


Fig. 18

Recommended Method of Applying Wire Rope Clips

U-Bolt Clips

RECOMMENDED METHOD OF APPLYING U-BOLT WIRE ROPE CLIPS

1. The following is based on the use of the proper size U-Bolt clips on new rope.

   Refer to Manufacturer's Recommendations. Turn back specified amount of rope from thimble or loop. Apply first clip one base width from dead end of rope. Apply U-Bolt over dead end of wire rope with live end resting in saddle. Tighten nuts evenly, alternating from one nut to the other until reaching the recommended torque.

2. When two clips are required, apply the second clip as near the loop or thimble as possible. Tighten nuts evenly, alternating until reaching the recommended torque. When more than two clips are required, apply the second clip as near the loop or thimble as possible, turn nuts on second clip firmly, but do not tighten. Proceed to Step 3.

3. When three or more clips are required, space additional clips equally between first two - take up rope slack - tighten nuts on each U-Bolt evenly, alternating from one nut to the other until reaching recommended torque.

4. Apply first load to test the assembly. This load should be of equal or greater weight than loads expected in use. Next, check and retighten nuts to recommended torque.

   In accordance with good rigging and maintenance practices, the wire rope and termination should be inspected periodically for wear, abuse, and general adequacy. Inspect periodically and retighten to recommended torque.

   A termination made in accordance with the above instructions and the manufacturer's recommendations, has an approximate 80% efficiency rating. This rating is based upon the minimum breaking force of wire rope. If a pulley is used in place of a thimble for turning back the rope, add one additional clip.

   IMPORTANT: *Failure to make a termination in accordance with aformentioned instructions, or failure to periodically check and retighten to the recommended torque, may cause a reduction in efficiency rating.*

Double Saddle Clips

RECOMMENDED METHOD OF APPLYING DOUBLE SADDLE WIRE ROPE CLIPS

The following is based on the use of proper size Double Saddle clips on new rope.

1. Refer to Manufacturer's Recommendations. Turn back specified amount of rope from thimble or loop. Apply first clip one base width from dead end of rope. Tighten nuts evenly, alternating from one nut to the other until reaching the recommended torque.

2 When two clips are requred, apply the second clip as near the loop or thimble as possible. Tighten nuts evenly, alternating until reaching the recommended torque. When more than two clips are required, apply the second clip as near the loop or thimble as possible. Turn nuts on second clip firmly, but do not tighten. Proceed to Step 3.

3. When three or more clips are required, space additional clips equally between first two - take up rope slack - tighten nuts on each Double Saddle evenly, alternating from one nut to the other until reaching reommended torque.

4. Apply first load to test the assembly. This load should be of equal or greater weight than loads expected in use. Next, check and retighten nuts to recommended torque.

   In accordance with good rigging and maintenance practices, the wire rope and termination should be inspected periodically for wear, abuse, and general adequacy. Inspect periodically and retighten to recommended torque.

   A termination made in accordance with the above instructions and the manufacturer's recommendations, has an approximate 80% efficiency rating. This rating is based upon the minimum breaking force of wire rope. If a pulley is used in place of a thimble for turning back the rope, add one additional clip.

   IMPORTANT: *Failure to make a termination in accordance with aformentioned instructions, or failure to periodically check and retighten to the recommended torque, may cause a reduction in efficiency rating.*

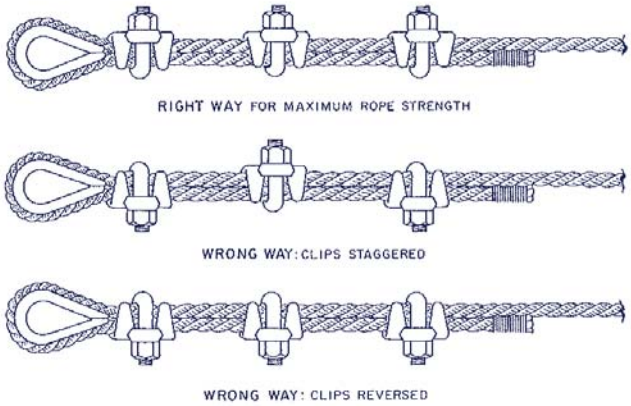


Table 3 Terminal Efficiencies (Approximate)

Efficiencies are based on nominal strengths

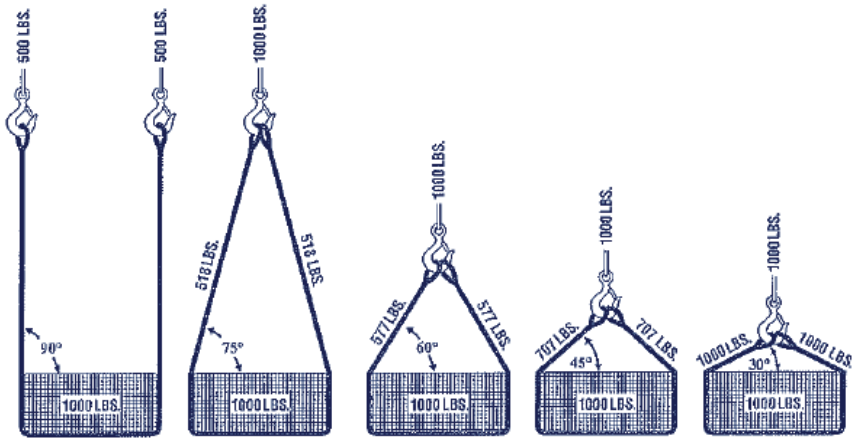
Type of Termination	Efficiency Rope with IWRC*	Efficiency Rope with FC**
Wire Rope Socket (Spelter or Resin)	100%	100%
Swaged Socket (Regular Lay Ropes Only)	100%	(Not Recommended)
Mechanical Spliced Sleeve		
1" dia. and smaller	95%	92.50%
Greater than 1" dia. through 2"	92.50%	90%
Greater than 2" dia. through 3 1/2"	90%	(Not established)
Loop or Thimble Splice Hand Spliced (Tucked) (Carbon Steel Rope)		
1/4"	90%	90%
5/16"	89%	89%
3/8"	88%	88%
7/16"	87%	87%
1/2"	86%	86%
5/8"	84%	84%
3/4"	82%	82%
7/8" thru 2 1/2"	80%	80%
Loop or Thimble Splice Hand Spliced (Tucked) (Stainless Steel Rope)		
1/4"	80%	
5/16"	79%	
3/8"	78%	
7/16"	77%	
1/2"	76%	
5/8"	74%	
3/4"	72%	
7/8"	70%	
Wedge Sockets*** (Depending on Design)	75% to 80%	75% to 80%
Clips*** (Number of clips varies with size of rope)	80%	80%

*IWRC = Independent Wire Rope Core
**FC = Fiber Core
***Typical values when terminations are correctly designed, applied and maintained. Refer to fittings manufacturers for exact values and method.

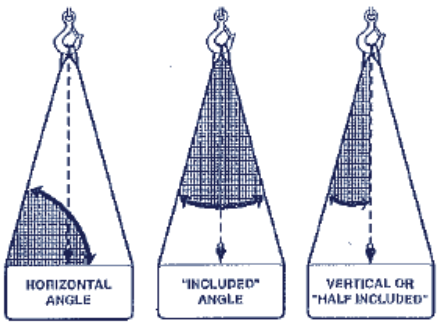
Sling Angles

The Sling Angle is the angle measured between a horizontal plane and the sling leg or body. This angle is very important and can have a dramatic effect on the rated capacity of the sling, shown here.

As the illustration shows below, when this angle decreases, the load on each leg increases. This principle applies whether one sling is used to pull at an angle, in a basket hitch or for multilegged bridle slings. Sling angles of less than 30 degrees shall not be used.



Sling Angles in this manual are measured from the horizontal plane. If the horizontal angle is used you must use the trigonometric sine of the horizontal angle in calculating sling capacity at that angle. When the vertical angle is used you must use the trigonometric cosine of the vertical angle shown here.



Flemish Eye and Mechanically Swaged
Vertical, Choker or Vertical Basket

RATED CAPACITY IN TONS OF 2,000 lbs.
RATED CAPACITIES SHOWN APPLY ONLY TO 6 X 19 AND 6 X 36 CLASSIFICATION WIRE ROPE WITH IWRC

ROPE DIA. (IN)	VERTICAL			CHOKER			VERTICAL BASKET		
	IPS	EIPS	EEIPS	IPS	EIPS	EEIPS	IPS	EIPS	EEIPS
1/4	0.56	0.65	0.71	0.41	0.48	0.52	1.1	1.3	1.4
5/16	0.87	1.0	1.1	0.64	0.74	0.81	1.7	2.0	2.2
3/8	1.2	1.4	1.6	0.92	1.1	1.2	2.5	2.9	3.2
7/16	1.7	1.9	2.1	1.2	1.4	1.6	3.4	3.9	4.3
1/2	2.2	2.5	2.8	1.6	1.9	2.0	4.4	5.1	5.5
9/16	2.8	3.2	3.5	2.0	2.4	2.6	5.5	6.4	7.0
5/8	3.4	3.9	4.3	2.5	2.9	3.2	6.8	7.8	8.6
3/4	4.9	5.6	6.2	3.6	4.1	4.5	9.7	11	12
7/8	6.6	7.6	8.3	4.8	5.6	6.1	13	15	17
1	8.5	9.8	11	6.3	7.2	8.0	17	20	22
1 1/8	10	12		7.9	9.1		21	24	
1 1/4	13	15		10	11		26	30	
1 3/8	15	18		12	13		31	36	
1 1/2	18	21		14	16		37	42	
1 5/8	21	24		16	18		43	49	
1 3/4	25	28		19	21		49	57	
1 7/8	28	32		21	24		56	64	
2	32	37		24	28		64	73	
2 1/8	35	40		27	31		69	80	
2 1/4	39	44		30	35		77	89	
2 3/8	43	49		33	38		86	99	
2 1/2	47	54		37	42		94	109	
2 5/8	52	60		40	46		104	119	
2 3/4	57	65		44	51		113	130	
2 7/8	61	71		48	55		123	141	
3	67	77		52	60		133	153	
3 1/8	72	82		56	64		144	165	
3 1/4	77	89		60	69		154	177	
3 3/8	83	95		64	74		165	190	
3 1/2	88	102		69	79		177	203	

RATED CAPACITIES BASKET HITCH BASED ON D/d RATIO OF 25
RATED CAPACITIES BASED ON PIN DIAMETER NO LARGER THAN NATURAL EYE WIDTH OR LESS THAN THE NOMINAL SLING DIAMETER
RATED CAPACITIES BASED ON DESIGN FACTOR OF 5 HORIZONTAL SLING ANGLES LESS THAN 30 DEGREES SHALL NOT BE USED

Flemished Eye and Mechanically Swaged

2-Leg Bridle

RATED CAPACITY IN TONS OF 2,000 lbs.
RATED CAPACITIES SHOWN APPLY ONLY TO 6 X 19 AND 6 X 36 CLASSIFICATION WIRE ROPE WITH IWRC

ROPE DIA. (IN)	VERTICAL			60°			45°			30°		
	IPS	EIPS	EEIPS	IPS	EIPS	EEIPS	IPS	EIPS	EEIPS	IPS	EIPS	EEIPS
1/4	1.1	1.3	1.4	0.97	1.1	1.2	0.79	0.91	1.0	0.56	0.65	0.71
5/16	1.7	2.0	2.2	1.5	1.7	1.9	1.2	1.4	1.6	0.87	1.0	1.1
3/8	2.5	2.9	3.2	2.2	2.5	2.7	1.8	2.0	2.2	1.2	1.4	1.6
7/16	3.4	3.9	4.3	2.9	3.4	3.7	2.4	2.7	3.0	1.7	1.9	2.1
1/2	4.4	5.1	5.5	3.8	4.4	4.8	3.1	3.6	3.9	2.2	2.5	2.8
9/16	5.5	6.4	7.0	4.8	5.5	6.1	3.9	4.5	5.0	2.8	3.2	3.5
5/8	6.8	7.8	8.6	5.9	6.8	7.5	4.8	5.5	6.1	3.4	3.9	4.3
3/4	9.7	11	12	8.4	9.7	11	6.9	7.9	8.7	4.9	5.6	6.2
7/8	13	15	17	11	13	14	9.3	11	12	6.6	7.6	8.3
1	17	20	22	15	17	19	12	14	15	8.5	9.8	11
1 1/8	21	24		18	21		15	17		10	12	
1 1/4	26	30		22	26		18	21		13	15	
1 3/8	31	36		27	31		22	25		15	18	
1 1/2	37	42		32	37		26	30		18	21	
1 5/8	43	49		37	42		30	35		21	24	
1 3/4	49	57		43	49		35	40		25	28	
1 7/8	56	64		49	56		40	46		28	32	
2	64	73		55	63		45	52		32	37	
2 1/8	69	80		60	69		49	56		35	40	
2 1/4	77	89		67	77		55	63		39	44	
2 3/8	86	99		75	85		61	70		43	49	
2 1/2	94	109		82	94		67	77		47	54	
2 5/8	104	119		90	103		73	84		52	60	
2 3/4	113	130		98	113		80	92		57	65	
2 7/8	123	141		106	122		87	100		61	71	
3	133	153		115	133		94	108		67	77	
3 1/8	144	165		124	143		102	117		72	82	
3 1/4	154	177		134	153		109	125		77	89	
3 3/8	165	190		143	165		117	135		83	95	
3 1/2	177	203		153	176		125	144		88	102	

RATED CAPACITIES BASKET HITCH BASED ON D/d RATIO OF 25
RATED CAPACITIES BASED ON PIN DIAMETER NO LARGER THAN NATURAL EYE WIDTH OR LESS THAN THE NOMINAL SLING DIAMETER
RATED CAPACITIES BASED ON DESIGN FACTOR OF 5 HORIZONTAL SLING ANGLES LESS THAN 30 DEGREES SHALL NOT BE USED

Flemished Eye and Mechanically Swaged

3-Leg Bridle

RATED CAPACITY IN TONS OF 2,000 lbs.
RATED CAPACITIES SHOWN APPLY ONLY TO 6 X 19 AND 6 X 36 CLASSIFICATION WIRE ROPE WITH IWRC

ROPE DIA. (IN)	VERTICAL			60°			45°			30°		
	IPS	EIPS	EEIPS	IPS	EIPS	EEIPS	IPS	EIPS	EEIPS	IPS	EIPS	EEIPS
1/4	1.7	1.9	2.1	1.5	1.7	1.8	1.2	1.4	1.5	0.84	0.97	1.1
5/16	2.6	3.0	3.3	2.3	2.6	2.9	1.8	2.1	2.3	1.3	1.5	1.7
3/8	3.7	4.3	4.7	3.2	3.7	4.1	2.6	3.0	3.3	1.9	2.2	2.4
7/16	5.1	5.8	6.4	4.4	5.0	5.5	3.6	4.1	4.5	2.5	2.9	3.2
1/2	6.6	7.6	8.3	5.7	6.6	7.2	4.6	5.4	5.9	3.3	3.8	4.2
9/16	8.3	9.6	11	7.2	8.3	9.1	5.8	6.8	7.5	4.1	4.8	5.3
5/8	10	12	13	8.8	10	11	7.2	8.3	9.1	5.1	5.9	6.5
3/4	15	17	18	13	15	16	10	12	13	7.3	8.4	9.2
7/8	20	23	25	17	20	22	14	16	18	9.9	11	12
1	26	29	32	22	26	28	18	21	23	13	15	16
1 1/8	31	36		27	31		22	26		16	18	
1 1/4	39	44		33	38		27	31		19	22	
1 3/8	46	53		40	46		33	38		23	27	
1 1/2	55	63		48	55		39	45		27	32	
1 5/8	64	73		55	63		45	52		32	37	
1 3/4	74	85		64	74		52	60		37	42	
1 7/8	84	97		73	84		60	68		42	48	
2	95	110		83	95		68	78		48	55	
2 1/8	104	119		90	103		73	84		52	60	
2 1/4	116	133		101	116		82	94		58	67	
2 3/8	129	148		112	128		91	105		65	74	
2 1/2	141	163		123	141		100	115		71	82	
2 5/8	156	179		135	155		110	126		78	89	
2 3/4	170	195		147	169		120	138		85	97	
2 7/8	184	212		159	183		130	150		92	106	
3	200	230		173	199		141	162		100	115	
3 1/8	215	247		187	214		152	175		108	124	
3 1/4	232	266		201	230		164	188		116	133	
3 3/8	248	286		215	247		175	202		124	143	
3 1/2	265	305		230	264		187	215		133	152	

RATED CAPACITIES BASKET HITCH BASED ON D/d RATIO OF 25
RATED CAPACITIES BASED ON PIN DIAMETER NO LARGER THAN NATURAL EYE WIDTH OR LESS THAN THE NOMINAL SLING DIAMETER
RATED CAPACITIES BASED ON DESIGN FACTOR OF 5 HORIZONTAL SLING ANGLES LESS THAN 30 DEGREES SHALL NOT BE USED

Flemished Eye and Mechanically Swaged

4-Leg Bridle

RATED CAPACITY IN TONS OF 2,000 lbs.
RATED CAPACITIES SHOWN APPLY ONLY TO 6 X 19 AND 6 X 36 CLASSIFICATION WIRE ROPE WITH IWRC

ROPE DIA. (IN)	VERTICAL			60°			45°			30°		
	IPS	EIPS	EEIPS	IPS	EIPS	EEIPS	IPS	EIPS	EEIPS	IPS	EIPS	EEIPS
1/4	2.2	2.6	2.8	1.9	2.2	2.4	1.6	1.8	2.0	1.1	1.3	1.4
5/16	3.5	4.0	4.4	3.0	3.5	3.8	2.5	2.8	3.1	1.7	2.0	2.2
3/8	5.0	5.7	6.3	4.3	5.0	5.5	3.5	4.1	4.5	2.5	2.9	3.2
7/16	6.8	7.8	8.5	5.9	6.7	7.4	4.8	5.5	6.0	3.4	3.9	4.3
1/2	8.7	10	11	7.6	8.8	9.6	6.2	7.1	7.8	4.4	5.1	5.5
9/16	11	13	14	9.5	11	12	7.8	9.0	9.9	5.5	6.4	7.0
5/8	14	16	17	12	14	15	9.6	11	12	6.8	7.8	8.6
3/4	19	22	25	17	19	21	14	16	17	9.7	11	12
7/8	26	30	33	23	26	29	19	21	24	13	15	17
1	34	39	43	30	34	37	24	28	31	17	20	22
1 1/8	42	48		36	42		30	34		21	24	
1 1/4	51	59		44	51		36	42		26	30	
1 3/8	62	71		54	62		44	50		31	36	
1 1/2	73	84		63	73		52	60		37	42	
1 5/8	85	98		74	85		60	69		43	49	
1 3/4	98	113		85	98		70	80		49	57	
1 7/8	112	129		97	112		80	91		56	64	
2	127	147		110	127		90	104		64	73	
2 1/8	138	159		120	138		98	113		69	80	
2 1/4	155	178		134	154		109	126		77	89	
2 3/8	172	197		149	171		122	139		86	99	
2 1/2	189	217		163	188		133	154		94	109	
2 5/8	207	238		180	206		147	169		104	119	
2 3/4	226	260		196	225		160	184		113	130	
2 7/8	246	282		213	244		174	200		123	141	
3	266	306		231	265		188	216		133	153	
3 1/8	287	330		249	286		203	233		144	165	
3 1/4	309	354		267	307		218	250		154	177	
3 3/8	330	381		286	330		234	269		165	190	
3 1/2	354	406		306	352		250	287		177	203	

RATED CAPACITIES BASKET HITCH BASED ON D/d RATIO OF 25
RATED CAPACITIES BASED ON PIN DIAMETER NO LARGER THAN NATURAL EYE WIDTH OR LESS THAN THE NOMINAL SLING DIAMETER
RATED CAPACITIES BASED ON DESIGN FACTOR OF 5 HORIZONTAL SLING ANGLES LESS THAN 30 DEGREES SHALL NOT BE USED

Cable- Laid; Mechanical Spliced Slings - Galvanized

Vertical, Choker or Vertical Basket

RATED CAPACITY IN TONS OF 2,000 lbs.

ROPE DIAMETER (INCHES)	VERTICAL	CHOKER 	VERTICAL BASKET 
7 X 7 X 7 CONSTRUCTION			
1/4	0.50	0.35	1.0
3/8	1.1	0.8	2.2
1/2	1.9	1.3	3.7
5/8	2.8	1.9	5.5
3/4	3.8	2.7	7.6
7/8	5.0	3.5	10
1	6.4	4.5	13
7 X 7 X 19 CONSTRUCTION			
1/2	1.9	1.3	3.8
5/8	2.9	2.0	5.8
3/4	4.1	2.8	8.1
7/8	5.4	3.8	11
1	6.9	4.8	14
1 1/8	8.3	5.8	17
1 1/4	9.9	6.9	20

RATED CAPACITIES BASKET HITCH BASED ON D/d RATIO OF 10

RATED CAPACITIES BASED ON PIN DIAMETER NO LARGER THAN NATURAL EYE WIDTH OR LESS THAN THE NOMINAL SLING DIAMETER

RATED CAPACITIES BASED ON DESIGN FACTOR OF 5

HORIZONTAL SLING ANGLES LESS THAN 30 DEGREES SHALL NOT BE USED

6-Part Braid Hand Tucked Splice IWRC

Vertical, Choker or Vertical Basket

RATED CAPACITY IN TONS OF 2,000 lbs.
RATED CAPACITIES SHOWN APPLY ONLY TO 6 X 19 AND 6 X 36 CLASSIFICATION WIRE ROPE

ROPE DIAMETER (INCHES)	VERTICAL 		CHOKER 		VERTICAL BASKET 	
	IPS	EIPS	IPS	EIPS	IPS	EIPS
3/32*	0.42		0.37		0.84	
1/8*	0.84		0.74		1.7	
3/16	1.4	1.6	1.2	1.4	2.8	3.2
1/4	2.5	2.9	2.2	2.5	4.9	5.7
5/16	3.8	4.4	3.4	3.9	7.7	8.9
3/8	5.5	6.3	4.8	5.5	11	13
7/16	7.5	8.6	6.5	7.5	15	17
1/2	9.7	11	8.5	9.8	19	22
9/16	12	14	11	12	24	28
5/8	15	17	13	15	30	35
3/4	22	25	19	22	43	49
7/8	29	33	25	29	58	67
1	38	43	33	38	75	87
1 1/8	47	55	42	48	95	109
1 1/4	58	67	51	59	117	134
1 3/8	70	81	61	71	140	161
1 1/2	83	96	73	84	166	192
1 5/8	97	111	85	97	193	222
1 3/4	112	129	98	112	223	257
1 7/8	128	146	112	128	255	292
2	144	166	126	146	289	333

* NOTE: 3/32 & 1/8 utilize Galvanized Small Cord minimum breaking force.

RATED CAPACITIES BASKET HITCH BASED ON D/d RATIO OF 25 TIMES THE COMPONENT ROPE DIAMETER.
RATED CAPACITIES BASED ON PIN DIAMETER NO LARGER THAN NATURAL EYE WIDTH OR LESS THAN THE NOMINAL SLING DIAMETER
RATED CAPACITIES BASED ON DESIGN FACTOR OF 5 HORIZONTAL SLING ANGLES LESS THAN 30 DEGREES SHALL NOT BE USED

8-Part Braid Hand Tucked Splice IWRC

Vertical, Choker or Vertical Basket

RATED CAPACITY IN TONS OF 2,000 lbs.
RATED CAPACITIES SHOWN APPLY ONLY TO 6 X 19 AND 6 X 36 CLASSIFICATION WIRE ROPE

ROPE DIAMETER (INCHES)	VERTICAL		CHOKER		VERTICAL BASKET	
	IPS	EIPS	IPS	EIPS	IPS	EIPS
3/32*	0.56		0.49		1.1	
1/8*	1.1		1.0		2.2	
3/16	1.9	2.2	1.6	1.9	3.7	4.3
1/4	3.3	3.8	2.9	3.3	6.6	7.6
5/16	5.1	5.9	4.5	5.2	10	12
3/8	7.3	8.5	6.4	7.4	15	17
7/16	10	11	8.7	10	20	23
1/2	13	15	11	13	26	30
9/16	16	19	14	16	32	38
5/8	20	23	18	20	40	46
3/4	29	33	25	29	57	66
7/8	39	45	34	39	78	89
1	50	58	44	51	101	116
1 1/8	63	73	55	64	127	146
1 1/4	78	89	68	78	155	179
1 3/8	94	108	82	94	187	215
1 1/2	111	128	97	112	222	255
1 5/8	129	148	113	129	258	296
1 3/4	149	171	130	150	298	343
1 7/8	170	195	149	171	340	390
2	193	222	169	194	385	444

* NOTE: 3/32 & 1/8 utilize Galvanized Small Cord minimum breaking force.

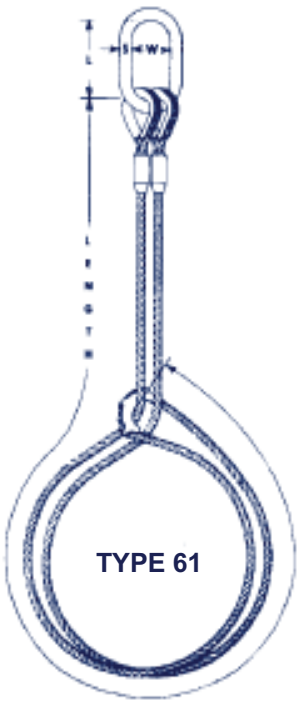
RATED CAPACITIES BASKET HITCH BASED ON D/d RATIO OF 25 TIMES THE COMPONENT ROPE DIAMETER
RATED CAPACITIES BASED ON PIN DIAMETER NO LARGER THAN NATURAL EYE WIDTH OR LESS THAN THE NOMINAL SLING DIAMETER
RATED CAPACITIES BASED ON DESIGN FACTOR OF 5
HORIZONTAL SLING ANGLES LESS THAN 30 DEGREES SHALL NOT BE USED

Choker Slings

Tapered Sleeve Attachments

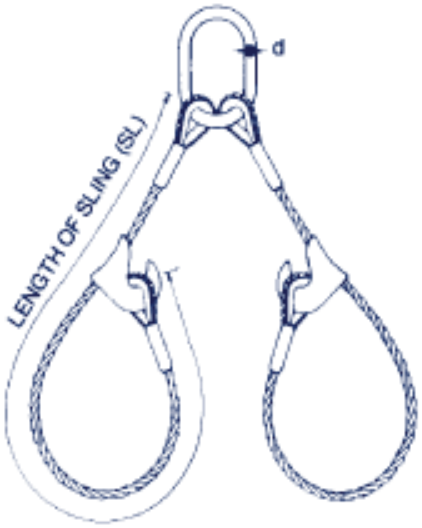
These Choker Slings are designed to grip or choke the load. Ideally suited to lifting bar stock, beams, lumber, bundles of pipe and similar material. The tapered sleeve splice, as well as the anchor hitch on Type 61, allows close snubbing of the load, insuring a positive grip.

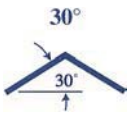
The use of sliding choker hooks on Type 21 increases sling life and permits faster handling.



For Ratings on Type 61 shown call SWWR.

Two Leg Choker Mechanical Splice IWRC



Diameter of Wire Rope Inches	Rated Capacities* in Tons (2000 lbs) EIPS IWRC Rated Capacities Shown Apply Only to 6 X 19 and 6 X 36 Classification Wire Rope			
				
1/4	0.95	0.82	0.67	0.48
5/16	1.5	1.03	1	0.74
3/8	2.1	1.8	1.5	1.1
7/16	2.9	2.5	2	1.4
1/2	3.7	3.2	2.6	1.9
9/16	4.7	4.1	3.3	2.4
5/8	5.8	5.0	4.1	2.9
3/4	8.2	7.1	5.8	4.1
7/8	11	9.7	7.9	5.6
1	14	13	10	7.2
1 1/8	18	16	13	9.1
1 1/4	22	19	16	11
1 3/8	27	23	19	13
1 1/2	32	28	23	16

Rated capacities basket hitch based on D/d ratio of 25
Rated capacities based on pin diameter no larger than natural eye width or less than the nominal sling diameter
Rated capacities based o design factor of 5
Horizontal sling angles less than 30 degrees shall not be used

Wire Rope Slings

29 CFR 1910.184

1) Do not exceed rated capacity.
2) Consult SWWR below -60 degrees F, over 400 degrees F
3) Remove from service if:
   * Evidence of heat damage
   * Broken wires = 6/lay, 3 in 1 strand/lay
   * 1/3 wear of outside wires
   * Kinks * Crushing * Unstranding
   * Birdcaging * Corrosion
   * Distorted rope structure
   * Damaged end attachments
   * Hooks beyond 15% spread or 10 degrees twist

Recommended Practices

1) Use chaffing gear and avoid load slippage.
2) Don't drag slings. Avoid shock loads.
3) Don't choke on fittings, avoid pinch points.
4) Avoid hand-splice rotation, don't crush sling.
5) Place sling(s) in center bowl of hook.
6) Calculate additional tensions due to angles.
7) Don't place small sling eye on large hook.
8) Personnel stand clear of load.

ASME B30.9

1) Do not use knots to form eyes.
2) Use WR clips only if you can't prefabricate.
3) Remove from service if:
   * Broken wires for multi-part slings:
     Less than 8-part and Cable Laid =
     20/lay, 20/braid/lay, 1 strand/sling
     8-part or more = 40/lay, 40/braid/lay,
     1 strand/sling
   * Core damage * Severe abrasion
4) For overhead life - must be marked with
   * Manufacturer name
   * Rated load for types of hitches
   * Diameter and length

Synthetic Web Slings

29 CFR 1910.184

1) Do not exceed rated capacity.
2) Do not use nylon web near acids, nor polyester web around caustics.
3) Repaired slings shall be proof tested to twice rated capacity.
4) Stitching is the only acceptable method to attach end fittings and form eyes.
5) Fittings shall be of minimum breaking strength equal to that of the sling.
6) Do not use at temp. in excess of 180 degrees.
7) Remove from service if:
   * Acid or caustic burns
   * Melted or charred
   * Snags, punctures, tears or cuts
   * Distortion of fittings
   * Broken or worn stitches

Recommended Practices

1) Use padding between sharp edges and sling.
2) Don't drag slings. Avoid shock loads.
3) Do not twist or kink the legs of a sling.
4) Do not shorten or lengthen using knots.
5) Place sling(s) in center bowl of hook.
6) Personnel stand clear of suspended load.

ASME B30.9

1) Slings shall be permanently marked with:
   * SWWR name and part number
   * Rated load for types of hitches used
   * Type of synthetic web material
2) Remove from service if:
   * Holes, tears, cuts, snags, crushing
   * No tag or illegible tag
   * Knots in any part of the sling
   * Excessive pitting or corrosion, or cracked, distorted, or broken fittings
   * UV/sunlight damage
   * Other visible damage that causes doubt as to the strength of the sling

Polyester Roungslings

ASME B30.9

1) Do not exceed rated capacity.
2) Slings shall be tagged to show SWWR I.D., code/stock #, rated loads of hitches, core and cover material.
3) Always consult SWWR when using a roundsling in chemically active environments, such as acids or caustics.
4) Repairs of load bearing yarns or fittings are not permitted. Repairs to protective covers shall be done by SWWR or qualified person, then marked by repair agent and proof tested to twice rated load.
5) Fitting surfaces shall be cleanly finished and sharp edges removed.

Recommended Practices

1) Prevent cutting with padding.
2) Do not constrict, bunch or pinch slings by the load, hook or fittings.
6) Fittings shall be of minimum breaking strength equal to that of the sling. Previously used fittings shall be free from defects and proof tested 2xRL. Since diameter and width of bearing surface of fittings can affect strength, refer to SWWR recommendations.
7) Do not use above 194, F, or below -40, F. Some mfgrs. vary.
8) Remove from service if:
   * Missing or illegible tag
   * Chemical or heat damage
   * Holes, tears, cuts, abrasion, snags, or broken/worn stitching that expose core yarns.
   * Fittings that are stretched, worn, cracked, pitted or distorted.
   * Knots in any part of the sling
   * Other damage that causes doubt as to the sling's strength.

Alloy Chain Slings

29 CFR 1910.184

1) Do not exceed rated capacity.
2) Slings shall be permanently marked with size, grade, rated capacity and reach.
3) Slings shall be thoroughly inspected at intervals no greater than once every 12 months. Records of such inspections must be kept in file.
4) Makeshift links or fasteners made from bolts or rods shall not be used.
5) Worn or damaged slings or attachments shall not be used until repaired.
6) Mechanical coupling or low carbon steel repair links shall not be used to repair broken lengths of chain.
7) Remove from service if:
   * Heated above 1000 degrees
   * Cracked/deformed master links, couplings or other components.
   * Hooks are cracked and have been opened more than 15% or twisted more than 10 degrees from plane or unbent hook.
   * Reduction in size of links at any point.

ASME B30.9

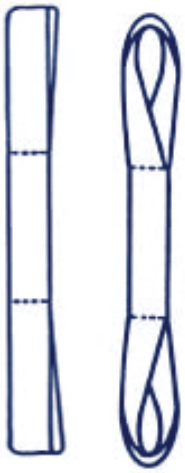
1) Prior to use, welded components of new slings shall be proof tested to twice rated load.
2) Repaired slings shll be permanently marked with name of repairing agency.
3) Latches on hooks should seat properly, rotate freely, and show no permanent distortion.
4) Slings should be long enough so that the rated load is adequate when the angle of the legs is taken into consideration.
5) Check chain and attachments for wear, nicks, cracks breaks, gouges, stretch, bends, weld splatter, discoloration from excessive temperature, and throat opening of hooks.

Nylon Slings

TYPE 1 SLINGS
Choker & Basket Hitch
Triangle & Choker Fittings

TYPE 2 SLINGS
Basket & Vertical
Hitches Only
Two Triangle Fittings

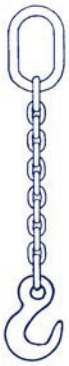
TYPES 3 & 4 SLINGS
Flat & Twisted Eyes
Vertical, Choker, Basket Hitches



TYPE 5 SLINGS
Vertical, Choker, Basket Hitches
Endless or Grommet Type

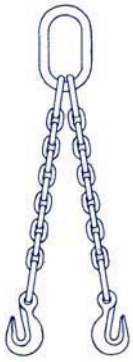
Chain Slings

SINGLE



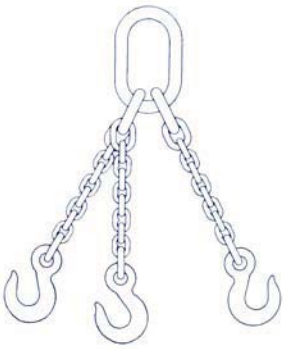
TYPE SOS

DOUBLE



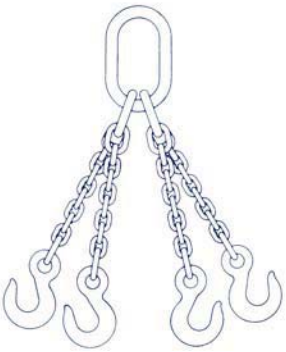
TYPE DOG

TRIPLE



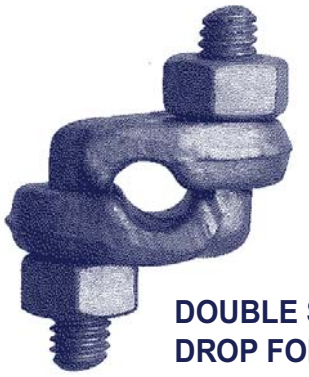
TYPE TOS

QUAD

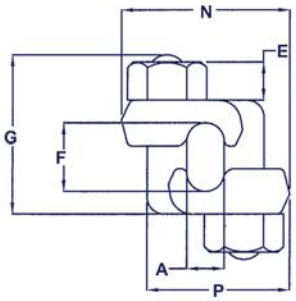


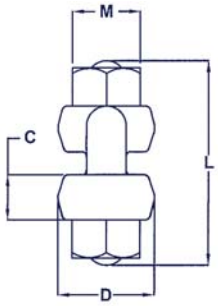
TYPE QOS

Wire Rope Clips



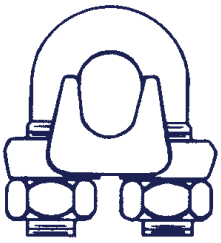
DOUBLE SADDLE DROP FORGED

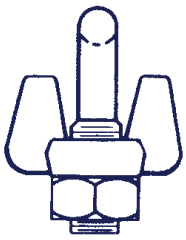




Size (In.)	Dimensions										Min. Number of Clips	Rope Turnback (In.)	Torque Ft./Lb.	Weight Lb.
	A (In.)	B (In.)	C (In.)	D (In.)	E Thread (In.)	F (In.)	G (In.)	L Approx (In.)	M (In.)	N (In.)				
3/16	0.28	1.25	0.34	0.94	3/8 to 16	0.50	1.63	2.26	0.69	1.28	2	4.00	30	21
1/4	0.28	1.25	0.34	0.94	3/8 to 16	0.50	1.63	2.26	0.69	1.28	2	4.00	30	21
5/16	0.34	1.38	0.44	1.06	3/8 to 16	0.63	1.66	2.19	0.69	1.41	2	5.00	30	27
3/8	0.41	1.56	0.50	1.06	7/16 to 14	0.75	1.75	2.25	0.75	1.85	2	5.50	45	45
7/16	0.50	1.78	0.56	1.25	1/2 to 13	1.00	2.19	2.75	0.88	2.06	2	6.50	65	65
1/2	0.50	1.78	0.56	1.25	1/2 to 13	1.00	2.19	2.75	0.88	2.06	3	11.00	65	65
9/16	0.66	2.25	0.69	1.50	5/8 to 11	1.25	2.69	3.31	1.06	2.59	3	12.75	130	113
5/8	0.66	2.25	0.69	1.50	5/8 to 11	1.25	2.69	3.31	1.06	2.59	3	13.50	130	113
3/4	0.81	2.69	0.88	1.81	3/4 to 10	1.50	3.38	4.32	1.25	3.06	3	16.00	225	144

Furnished in galvanized finish.





Furnished in galvanized finish.

DROP FORGED - TYPE 316

Size	Minimum Clips Required	Torque in ft. lbs.*	Approximate Weight in Pounds
1/8	2	4.5	.05
3/16	2	7.5	.106
1/4	2	15	.19
5/16	2	30	.30
3/8	2	45	.46
1/2	3	65	.68
5/8	3	95	1.0
3/4	4	130	1.5
7/8	4	225	2.44
1	5	225	2.70

Dimensions for drop forged stainless steel clips are the same as for the drop forged galvanized clips in the table above.

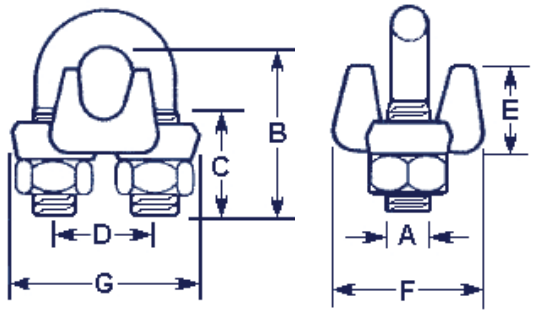
* Based on clean, unlubricated threads. The table above shows the minimum torque required to reach maximum holding power of wire rope clips.

STAINLESS STEEL, CAST MALLEABLE - TYPE 304

Size	Minimum Clips Required	Torque in ft. lbs.*	Approximate Weight in Pounds
1/8	3	3	.05
5/32	3	4	.06
3/16	3	4.5	.19
1/4	3	15	.19
5/16	3	15	.30
3/8	3	30	.46
1/2	4	45	.65
5/8	4	75	.78
3/4	5	75	1.09
7/8	5	130	1.63
1	6	130	2.15

* Based on clean, unlubricated threads. The table above shows the minimum torque required to reach maximum holding power of wire rope clips.

Wire Rope Clips



DROP FORGED U-BOLT TYPE GALVANIZED FINISH

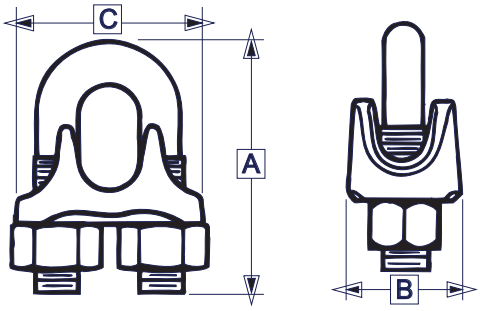
Meets Performance Requirements of Federal Specifications FF-C-450 Type 1 Class 1.

Size Inches	Min. Clips Required	Torque in Ft. Lbs.*	Amt. Wire Rope to turn back (Inches)	Approx. Wt. in Pounds	Dimensions in Inches						
					A	B	C	D	E	F	G
1/8 **	2	4.5	3 1/4	.05	.19	.75	.44	.44	.38	.81	.94
3/16 **	2	7.5	3 3/4	.10	.25	.94	.56	.56	.50	.94	1.19
1/4	2	1.5	4 3/4	.18	.31	1.06	.56	.75	.63	1.19	1.50
5/16	2	30	5 1/4	.31	.38	1.44	.75	.88	.75	1.31	1.69
3/8	2	45	6 1/2	.46	.44	1.50	.75	1.00	.88	1.56	1.94
7/16	2	65	7	.73	.50	1.88	1.00	1.19	1.00	1.81	2.31
1/2	3	65	11 1/2	.73	.50	1.88	1.00	1.19	1.06	1.81	2.31
9/16	3	95	12	.96	.56	2.38	1.25	1.31	1.13	2.06	2.50
5/8	3	95	12	1.00	.56	2.38	1.25	1.31	1.25	2.06	2.50
3/4	4	130	18	1.50	.63	2.75	1.38	1.50	1.38	2.31	2.75
7/8	4	225	19	2.44	.75	3.19	1.44	1.81	1.69	2.63	3.31
1	5	225	26	2.70	.75	3.63	1.75	1.88	1.75	2.63	3.47
1 1/8	6	225	34	3.10	.75	4.00	2.00	2.00	1.88	2.81	3.56
1 1/4	7	360	44	4.60	.88	4.38	2.25	2.31	2.06	3.25	4.06
1 3/8	7	360	44	5.20	.88	4.63	2.31	2.38	2.25	3.44	4.25
1 1/2	8	360	54	5.90	.88	4.94	2.38	2.63	2.50	3.50	4.38
1 5/8	8	430	58	7.34	1.00	5.31	2.62	2.75	2.66	3.61	4.75
1 3/4	8	590	61	9.80	1.13	5.88	2.75	3.06	2.88	3.75	5.25
2	8	750	71	13.75	1.25	6.50	3.00	3.31	3.38	4.44	5.81
2 1/4	8	750	73	15.70	1.25	7.13	3.31	3.88	3.81	4.50	6.31
2 1/2	9	750	84	17.90	1.25	7.75	3.38	4.13	4.25	4.50	6.44
2 3/4	10	750	100	22.00	1.25	8.31	3.50	4.36	5.00	5.00	6.75
3	10	1200	106	32.00	1.50	9.19	3.88	4.75	5.25	5.31	7.56

* Based on clean, unlubricated threads. The table above shows the minimum torque required to reach maximum holding power of wire rope clips.

** U-Bolts and nuts zinc plated.

MALLEABLE GALVANIZED FINISH



Size (In.)	Min. Clips Reqd.	Amt. Wire Rope to Turn Back (In.)	Torque in Lbs. Ft.*	Approx. Wt. in Pounds	Approximate Dimension in Inches		
					A	B	C
1/16*	3	4	2	.03	.80	.45	.69
1/8*	3	4 3/4	3	.04	.99	.56	.94
3/16	3	5 1/2	4.5	.063	1.19	.63	1.06
1/4	3	7	15	.13	1.60	.75	1.31
5/16	3	7 3/4	15	.15	1.62	.75	1.44
3/8	3	9 1/2	30	.21	2.01	.88	1.63
7/16	4	10 1/4	40	.37	2.44	1.06	1.88
1/2	4	15 1/4	45	.37	2.44	1.06	1.88
9/16	4	16	50	.59	2.81	1.28	2.09
5/8	4	16	75	.59	2.81	1.28	2.09
3/4	5	22 1/4	75	.84	3.12	1.56	2.38
7/8	5	23 1/2	130	1.25	3.69	1.81	2.88
1	6	31	130	1.66	4.07	2.00	3.00
1 1/8	7	39	200	2.43	4.75	2.06	3.38

*NOTE: 1/16" and 1/8" are not covered by Federal Specification FF-C-450 D.

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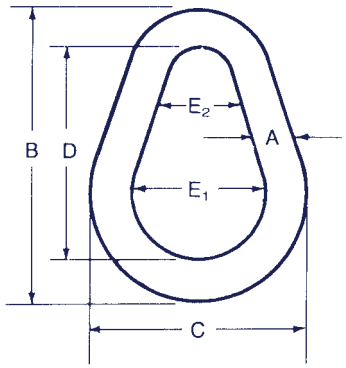
Steel Links



HEAT-TREATED, HIGH TEST CARBON STEEL PEAR SHAPE LINK

Dimensions in Inches						Rated Load Single Pull Pounds	Weight Each (Lbs.)
A	B	C	D	E¹	E²		
3/8	3	2 1/4	2 1/4	1 1/2	3/4	1,800	.23
1/2	4	3	3	2	1	2,900	.51
5/8	5	3 3/4	3 3/4	2 1/2	1 1/4	4,200	1.08
3/4	6	4 1/2	4 1/2	3	1 1/2	6,000	1.90
7/8	7	5 1/4	5 1/4	3 1/2	1 3/4	8,300	2.90
1	8	6	6	4	2	10,800	4.60
1 1/4	10	7 1/2	7 3/4	5	2 1/2	16,750	9.20
1 3/8	11	8 1/4	8 1/4	5 1/2	2 3/4	20,500	11.00
1 1/2	12	9	9	6	3	25,000	14.30
1 3/4	14	10 1/2	10 1/2	7	3 1/2	34,000	22.60
2	16	12	12	8	4	45,000	33.80
2 1/4	18	13 1/2	13 1/2	9	4 1/2	56,000	48.20
2 1/2	20	15	15	10	5	68,500	66.00
2 3/4	22	16 1/2	16 1/2	11	5 1/2	84,500	88.00
3	24	18	18	12	6	100,000	114.00
3 1/4	26	19 1/2	19 1/2	13	6 1/2	117,500	146.00
3 1/2	28	21	21	14	7	136,500	181.00
3 3/4	30	22 1/2	22 1/2	15	7 1/2	155,000	223.00
4	32	24	24	16	8	176,000	271.00

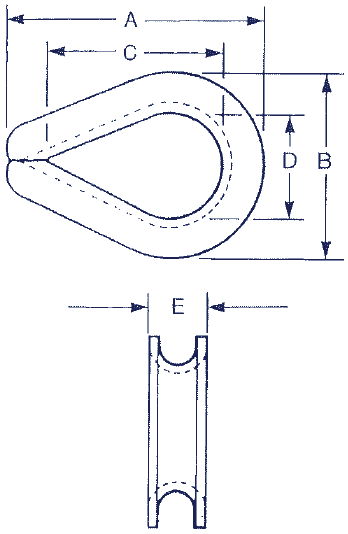
NOTES: Available in larger sizes and alloy steel per special order.
Minimum breaking strength is six times the rated working load.
Galvanized on request only.
Ridgeless electrically side welded.

Wire Rope Thimbles

GALVANIZED HEAVY DUTY WIRE ROPE THIMBLES

Hot dip galvanized. Meets or exceeds the performance requirements of Federal Specification FF-T-276b, Type III.

For Rope Diameter Inches	DIMENSIONS IN INCHES					Approx. Weight Each in Pounds
	A	B	C	D	E	
1/4	2.19	1.50	1.63	.88	.41	.075
5/16	2.50	1.81	1.88	1.06	.50	.14
3/8	2.88	2.13	2.13	1.13	.66	.25
7/16	3.25	2.25	2.38	1.25	.75	.36
1/2 - 9/16	3.63	2.56	2.75	1.50	84	.51
5/8	4.25	3.00	3.25	1.75	1.00	.75
3/4	5.00	3.50	3.75	2.00	1.25	1.47
7/8	5.50	4.00	4.25	2.25	1.38	1.85
1	6.13	4.38	4.50	2.50	1.56	3.00
1 1/8 - 1 1/4	7.00	5.63	5.13	2.88	1.88	3.80
1 1/4 - 1 3/8	9.06	6.75	6.50	3.50	2.25	8.60
1 3/8 - 1 1/2	9.06	7.00	6.50	3.50	2.63	11.00
1 5/8	11.25	8.13	8.00	4.00	2.72	11.80
1 3/4	12.19	8.25	9.00	4.50	2.88	17.90
1 7/8 - 2	15.13	10.25	12.00	6.00	3.13	25.00
2 1/4	17.13	11.88	14.00	7.00	3.63	45.00
2 1/2 *	22.25	12.75	17.50	8.00	4.38	63.50

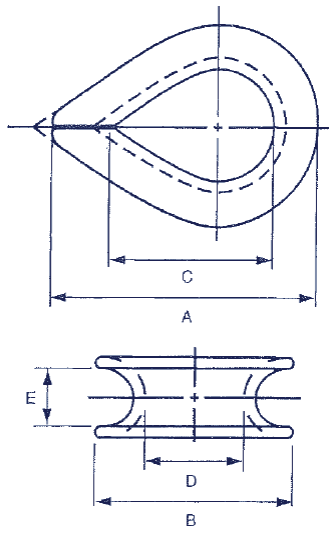


*** 2 1/2 available with or without gusset plates.**

GALVANIZED STANDARD DUTY WIRE ROPE THIMBLES

Meets or exceeds the performance requirements of Federal Specification FF-T-276b, Type II.

For Rope Diameter Inches	DIMENSIONS IN INCHES					Approx. Weight Each in Pounds
	A	B	C	D	E	
1/8	1.88	1.06	1.25	.69	.16	.02
3/16	1.88	1.06	1.25	.69	.22	.023
1/4	1.94	1.06	1.31	.69	.28	.05
5/16	2.13	1.25	1.50	.81	.38	.054
3/8	2.38	1.47	1.63	.94	.44	.062
1/2	2.75	1.75	1.88	1.13	.56	.13
5/8	3.50	2.38	2.25	1.38	.69	.22
3/4	3.75	2.69	2.50	1.63	.81	.50
7/8	5.00	3.19	3.50	1.88	.94	.85
1	5.69	3.75	4.25	2.50	1.06	1.00
1 1/8 - 1 1/4	6.25	4.31	4.50	2.75	1.31	1.75



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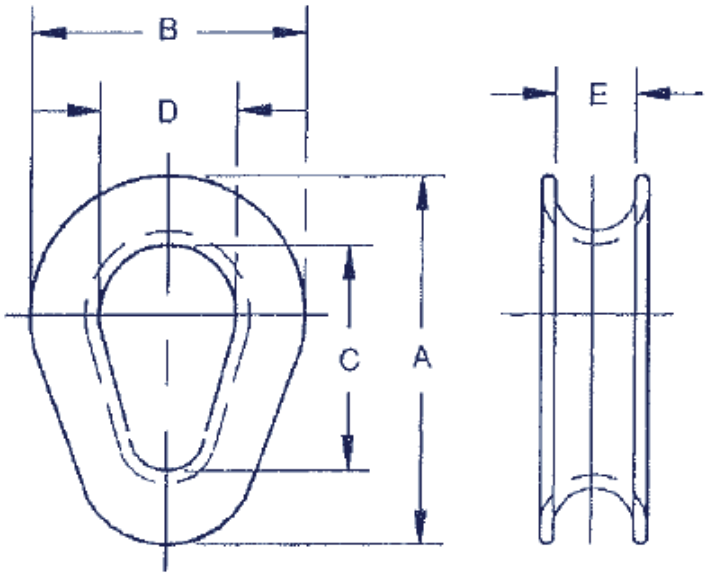
Hawser Thimbles

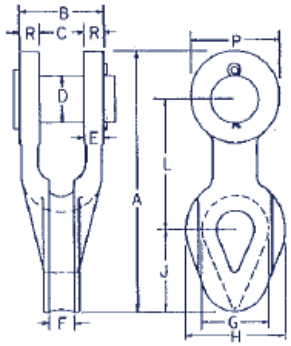


HAWSER THIMBLES

Hot galvanized, Cast Alloy Steel

For Rope Diameter Inches	DIMENSIONS IN INCHES					Approx. Weight Each in Pounds
	A	B	C	D	E	
5/8 - 3/4	6 7/8	4 1/2	5	3	1 3/16	3.5
7/8 - 1	8 5/8	5 3/4	6 1/4	3 3/4	1 7/16	6.0
1 1/8 - 1 1/4	10	6 5/8	7 1/8	4 3/16	1 11/16	8.5
1 3/8 - 1 1/2	12 1/8	8	8.75	5	2 3/16	18.5
1 5/8 - 1 3/4	12 3/4	8	9 1/4	5	2 7/16	24.0
1 7/8 - 2	14 3/4	9 1/2	10 3/4	6	2 11/16	30.5
2 1/8 - 2 1/4	17 1/8	11	12 1/2	7	3 1/8	56.0
2 3/8 - 2 1/2	19 1/4	12 3/4	14 1/4	8 1/4	3 7/8	95.0
2 3/4 - 3	24 1/2	17	15	9 3/8	4 15/16	135.0

Boom Pendant



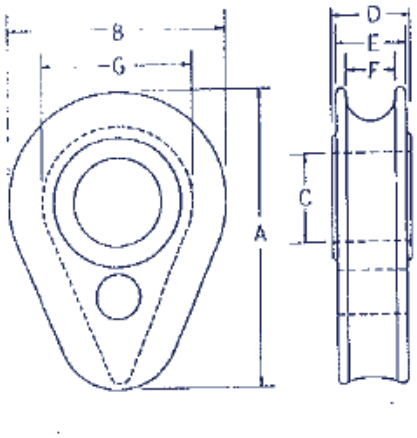
OPEN THIMBLE

APPROXIMATE DIMENSIONS AND WEIGHTS WITH PINS													
Wire Rope Dia.	A	B	C	D	E	F	G	H	J	L	P	R	Est. Wt. Lbs.
9/16 - 5/8	8 3/64	2 3/8	1 1/4	1 3/16	15/32	11/16	2 1/8	3 1/8	2 17/32	4 1/4	2 9/32	9/16	5.3
3/4	9 9/32	2 13/16	1 1/2	1 3/8	17/32	13/16	2 1/2	3 5/8	3 1/32	4 3/4	2 3/4	21/32	7.5
7/8	10 5/16	3 1/4	1 3/4	1 5/8	5/8	15/16	2 3/4	4 1/8	3 1/4	5 1/4	3 1/4	3/4	12.5
1	11 11/16	3 3/4	2	2	3/4	1 1/8	3	4 9/16	3 11/16	5 7/8	3 7/8	7/8	19
1 1/8	12 25/32	4 1/4	2 1/4	2 1/4	7/8	1 1/4	3 1/4	5 1/16	3 27/32	6 17/32	4 7/16	1	26
1 1/4 - 1 3/8	15 1/32	4 3/4	2 1/2	2 1/2	15/16	1 1/2	4	6 1/8	4 5/16	8	4 15/16	1 1/8	39
1 1/2	17 1/8	5 3/8	3	2 3/4	1 1/16	1 5/8	4 1/2	6 3/4	4 13/16	9 1/8	5 5/8	1 3/16	56
1 5/8	20 1/2	5 5/8	3	3	1 3/16	1 3/4	5 1/2	8	6 7/16	10 5/8	6 1/8	1 5/16	82
1 3/4 - 1 7/8	24 1/16	6 5/8	3 1/2	3 1/2	1 5/16	2	7	9 3/4	7 7/16	12 3/4	6 7/8	1 9/16	125
2 - 2 1/8	27	7 5/8	4	3 3/4	1 11/16	2 1/4	8	10 3/4	9 3/4	13 1/4	7 1/8	1 13/16	166

3

CLOSED THIMBLE

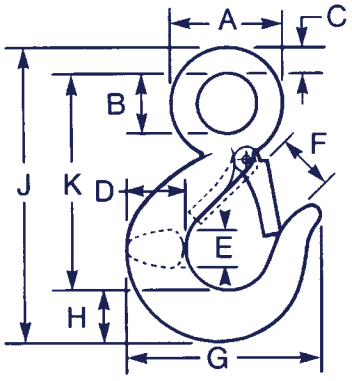
DIMENSIONS AND WEIGHTS								
Wire Rope Dia.	A	B	C	D	E	F	G	Est. Wt. Lbs.
9/16 - 5/8	4 3/32	3 1/8	1 1/4	1 1/16	1 1/16	11/16	2 1/8	1.7
3/4	4 27/32	3 5/8	1 7/16	1 5/16	1 3/16	13/16	2 1/2	2.6
7/8	5 5/16	4 1/8	1 11/16	1 1/2	1 3/8	15/16	2 3/4	3.5
1	5 31/32	4 9/16	2 1/16	1 3/4	1 5/8	1 1/8	3	4.6
1 1/8	6 3/8	5 1/16	2 5/16	2	1 3/4	1 1/4	3 1/4	5.6
1 1/4 - 1 3/8	7 3/8	6 1/8	2 9/16	2 1/4	2 1/8	1 1/2	4	9.6
1 1/2	8 3/16	6 3/4	2 13/16	2 1/2	2 3/8	1 5/8	4 1/2	14
1 5/8	10 7/16	8	3 1/16	2 5/8	2 1/2	1 3/4	5 1/2	29
1 3/4 - 1 7/8	12 5/16	9 3/4	3 9/16	3 1/8	3	2	7	41
2 - 2 1/8	13	10 1/2	3 13/16	3 7/16	3 1/4	2/1/4	7 1/2	57
2 1/4 - 2 3/8	17 5/16	11 3/4	4 3/8	3 7/8	3 5/8	2 1/2	8 1/2	76



Hooks

EYE HOOKS

Carbon or Alloy steel forged, heat-treated, with latch installed or without latch.

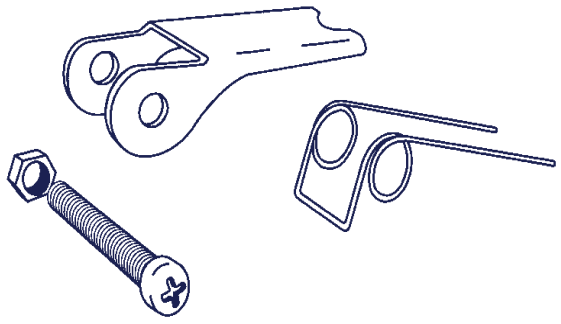


Size (WLL)* Tons		Dimensions in Inches										Approximate Weight Each with Latch in Pounds
Carbon	Alloy	A	B	C	D	E	F	G	H	J	K	
**3/4	1	1.50	.75	.38	.88	.63	.94	2.88	.75	4.38	3.25	.60
**1	1 1/2	1.75	.88	.44	1.00	.69	1.06	3.13	.81	4.88	3.63	.82
**1 1/2	2	2.00	1.13	.44	1.19	.81	1.06	3.50	1.00	5.50	4.13	1.44
2	3	2.38	1.25	.59	1.38	.94	1.22	3.94	1.19	6.31	4.56	1.94
3	5	3.00	1.56	.69	1.63	1.19	1.50	5.00	1.50	7.94	5.75	3.94
5	7	3.81	2.00	.88	2.06	1.50	1.88	6.25	1.75	10.00	7.38	7.75
7 1/2	11	4.69	2.44	1.13	2.63	1.63	2.25	7.56	2.25	12.44	9.06	15.4
-	15	5.37	2.84	1.26	2.94	2.19	2.51	8.30	2.59	13.93	10.07	22.2
-	22	6.64	3.50	1.58	3.50	2.69	3.30	10.30	3.00	17.06	12.50	37.6

* Working Load Limit applies only when the load is applied to the center of the saddle of the hook.
** 3/4,1, 1 1/2, and 2 Ton Carbon Steel Hooks also available in Hot Galvanized.

STAINLESS LATCH KITS

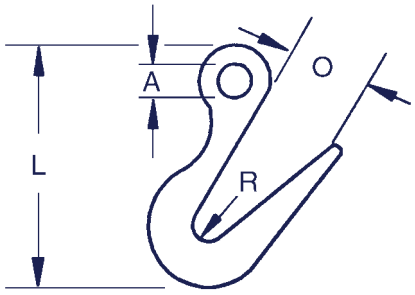
Size (WLL)* Tons		Approximate Weight Each with Latch in Pounds
Carbon	Alloy	
3/4	1	.02
1	1-1/2	.02
1 1/2	2	.03
2	3	.03
3	5	.05
5	7	.09
7 1/2	11	.17
10	15	.25
-	22	.75



SORTING HOOK

Forged alloy steel, heat treated.

Working Load Limit, 2-1/2" from tip		2 Tons
Working Load Limit, at bottom		7-1/2 Tons
Approximate Weight Each		7.75 Pounds
Overall Length	L	9.69"
I.D. of Eye	A	1.38"
Opening at Top of Hook	O	2.81"
Radius at Bottom of Hook	R	.63"

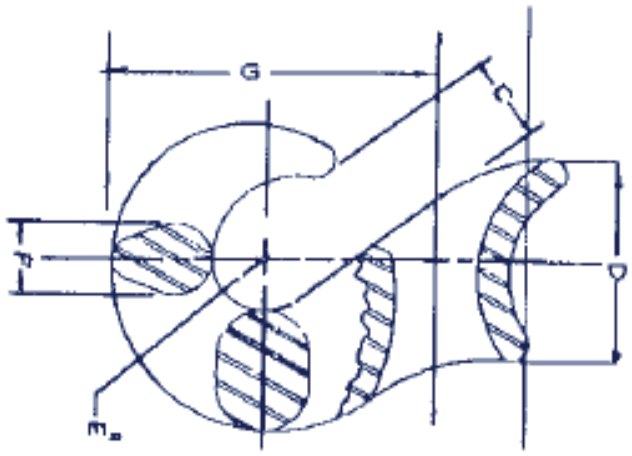


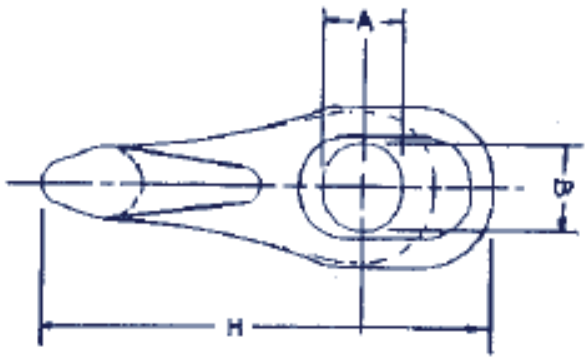
Sliding Choker Hooks

FLAT OR BRAIDED SLIDING HOOKS												
Hook No.	6 Parts	Wt. Lbs.	8 Parts	Rated Load - Lbs.	A	B	C	D	E	F	G	H
*0	3/32	1	1/16	1,500	9/16	9/16	1/2	1 3/4	3/8	5/8	2 3/4	3 3/4
1	1/8	1.25	3/32	2,600	11/16	11/16	5/8	2	7/16	11/16	3 1/8	4 1/4
2	3/16	1.75	1/8	3,400	13/16	15/16	7/8	2 1/8	17/32	3/4	3 11/32	4 11/16
3	-	3.25	3/16	5,100	1 3/16	1 1/4	1 1/16	2 3/4	5/8	15/16	3 31/32	5 5/8
4	1/4	5	1/4	7,000	1 7/16	1 7/16	1 5/32	3	5/8	1 1/8	4 5/8	6 1/4
5	5/16	6.5	5/16	13,000	1 3/4	1 3/4	1 7/16	3 1/8	3/4	1 3/8	5 1/16	7 3/16
6	3/8	11	3/8	15,000	2	2	1 17/32	4 1/4	7/8	1 9/16	6 5/16	8 5/8
7	7/16	26	7/16	23,000	2 5/16	2 5/16	1 3/4	5 5/8	1	1 3/4	8 11/16	11 5/8
8	1/2 - 9/16	50	1/2	30,000	2 13/16	2 13/16	2 3/16	7	1 1/4	2	10 5/8	14 1/2

ROUND OR REGULAR SLIDING HOOKS												
Hook No.	Rope Size	Wt. Lbs.	Rated Load - Lbs.	Thimble Size	A	B	C	D	E	F	G	H
*1/4 - 5/16	1/4 - 5/16	1	1,500	1/4 - 5/16	9/16	9/16	1/2	1 3/4	3/8	5/8	2 3/4	3 3/4
3/8	3/8	1.31	2,600	3/8	11/16	11/16	5/8	2	7/16	11/16	3 1/8	4 1/4
1/2	1/2	1.85	3,400	1/2	3/4	3/4	7/8	2 1/8	1/2	3/4	3 5/8	4 13/16
5/8	5/8	4	5,100	5/8	7/8	7/8	1 1/8	2 3/4	9/16	15/16	4 7/16	5 15/16
3/4	3/4	4.5	8,000	3/4	1	1	1 1/8	3 1/8	11/16	1 1/4	4 11/16	6 7/16
7/8 - 1	7/8 - 1	10	15,000	7/8 - 1	1 1/4	1 1/4	1 1/4	4 1/4	7/8	1 9/16	6 1/16	8 1/8
1 1/8 - 1 1/4	1 1/8 - 1 1/4	26	23,000	1 1/8 - 1 1/4	2 5/16	2 5/16	1 3/4	5 5/8	1	1 3/4	8 11/16	11 5/8
1 3/8 - 1 1/2	1 3/8 - 1 1/2	50	30,000	1 3/8 - 1 1/2	2 13/16	2 13/16	2 3/8	7	1 1/4	2	10 5/8	14 1/2

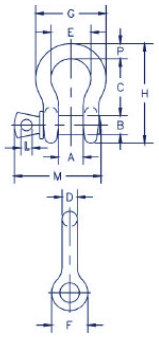
* Manganese Bronze Alloy
Used in any other way than the Choker Configuration, will not be warranteed.





All data subject to change without notice.
www.swwrinc.com

Screw Pin Anchor Shackles



Galvanized Carbon & Alloy Forged Steel Screw Pin Anchor Shackles

Carbon Steel

Nominal Size (in.)	Working Load Limit (t)*	Weight Each (lbs.)	Dimensions (in.)											Tolerance +/-	
			A	B	C	D	E	F	G	H	L	M	P	C	A
3/16	1/3	.06	.38	.25	.88	.19	.60	.56	.98	1.47	.16	1.12	.19	.06	.06
1/4	1/2	.10	.47	.31	1.13	.25	.78	.61	1.28	1.84	.19	1.38	.25	.06	.06
5/16	3/4	.19	.53	.38	1.22	.31	.84	.75	1.47	2.09	.22	1.66	.31	.06	.06
3/8	1	.31	.66	.44	1.44	.38	1.03	.91	1.78	2.49	.25	2.03	.38	.13	.06
7/16	1 1/2	.38	.75	.50	1.69	.44	1.16	1.06	2.03	2.91	.31	2.38	.44	.13	.06
1/2	2	.72	.81	.63	1.88	.50	1.31	1.19	2.31	3.28	.38	2.69	.5	.13	.06
5/8	3 1/4	1.37	1.06	.75	2.38	.63	1.69	1.50	2.94	4.19	.44	3.34	.69	.13	.06
3/4	4 3/4	2.35	1.25	.88	2.81	.75	2.00	1.81	3.50	4.97	.50	3.97	.81	.25	.06
7/8	6 1/2	3.62	1.44	1.00	3.31	.88	2.28	2.09	4.03	5.83	.50	4.50	.97	.25	.06
1	8 1/2	5.03	1.69	1.13	3.75	1.00	2.69	2.38	4.69	6.56	.56	5.07	1.06	.25	.06
1 1/8	9 1/2	7.41	1.81	1.25	4.25	1.16	2.91	2.69	5.16	7.47	.63	5.59	1.25	.25	.06
1 1/4	12	9.50	2.03	1.38	4.69	1.29	3.25	3.00	5.75	8.25	.69	6.16	1.38	.25	.06
1 3/8	13 1/2	13.53	2.25	1.50	5.25	1.42	3.63	3.31	6.38	9.16	.75	6.84	1.50	.25	.13
1 1/2	17	17.20	2.38	1.63	5.75	1.54	3.88	3.63	6.88	10.00	.81	7.35	1.62	.25	.13
1 3/4	25	27.78	2.88	2.00	7.00	1.84	5.00	4.19	8.86	12.34	1.00	9.08	2.25	.25	.13
2	35	45.00	3.25	2.25	7.75	2.08	5.75	4.81	9.97	13.68	1.22	10.34	2.40	.25	.13
2 1/2	55	85.75	4.13	2.75	10.50	2.71	7.25	5.69	12.87	17.84	1.38	13.00	3.13	.25	.25

Forged steel with Carbon or Alloy pins - quenched & tempered.

* Maximum Proof Load is 2 times the Working Load Limit (metric tons) and 2.2 times the Working Load Limit (short tons). Minimum Ultimate Strength is 4.5 times the Working Load Limit (metric tons), and 5 times the Working Load Limit.

Alloy Steel

Nominal Size (in.)	Working Load Limit (t)*	Weight Each (lbs.)	Dimensions (in.)											Tolerance +/ -	
			A	B	C	D	E	F	G	H	L	M	P	C	A
3/8	2	.31	.66	.44	1.44	.38	1.03	.91	1.78	2.49	.25	2.03	.38	.13	.06
7/16	2 2/3	.38	.75	.50	1.69	.44	1.16	1.06	2.03	2.91	.31	2.38	.44	.13	.06
1/2	3 1/3	.63	.81	.63	1.88	.5	1.31	1.19	2.31	3.28	.38	2.69	.50	.13	.06
5/8	5	1.38	1.06	.75	2.38	.63	1.69	1.50	2.94	4.19	.44	3.34	.69	.13	.06
3/4	7	2.25	1.25	.88	2.81	.75	2.00	1.81	3.50	4.97	.50	3.97	.81	.25	.06
7/8	9 1/2	3.61	1.44	1.00	3.31	.88	2.28	2.09	4.03	5.83	.50	4.50	.97	.25	.06
1	12 1/2	5.32	1.69	1.13	3.75	1.00	2.69	2.38	4.69	6.56	.56	5.07	1.06	.25	.06
1 1/8	15	7.25	1.81	1.25	4.25	1.16	2.91	2.69	5.16	7.47	.63	5.59	1.25	.25	.06
1 1/4	18	9.88	2.03	1.38	4.69	1.29	3.25	3.00	5.75	8.25	.69	6.16	1.38	.25	.06
1 3/8	21	13.25	2.25	1.50	5.25	1.42	3.63	3.31	6.38	9.16	.75	6.84	1.50	.25	.13

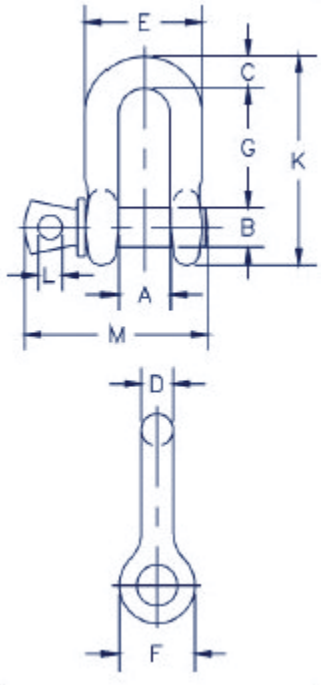
Meets or exceeds all requirements of ASME B30.26.

Screw Pin Chain Shackles

Nominal Size (in.)	Working Load Limit (t)*	Weight Each (lbs.)	Dimensions (in.)										Tolerance +/-	
			A	B	C	D	E	F	G	K	L	M	G	A
1/4	1/2	.11	.47	.31	.25	.25	.97	.62	.97	1.59	.19	1.43	.06	.06
5/16	3/4	.17	.53	.38	.31	.31	1.15	.75	1.07	1.91	.22	1.71	.06	.06
3/8	1	.28	.66	.44	.38	.38	1.42	.92	1.28	2.31	.25	2.02	.13	.06
7/16	1 1/2	.43	.75	.50	.44	.44	1.63	1.06	1.48	2.67	.31	2.37	.13	.06
1/2	2	.59	.81	.63	.50	.50	1.81	1.18	1.66	3.03	.38	2.69	.13	.06
5/8	3 1/4	1.25	1.06	.75	.63	.63	2.32	1.50	2.04	3.76	.44	3.34	.13	.06
3/4	4 3/4	2.63	1.25	.88	.81	.75	2.75	1.81	2.40	4.53	.50	3.97	.25	.06
7/8	6 1/2	3.16	1.44	1.00	.97	.88	3.20	2.10	2.86	5.33	.50	4.50	.25	.06
1	8 1/2	4.75	1.69	1.13	1.00	1.00	3.69	2.38	3.24	5.94	.56	5.13	.25	.06
1 1/8	9 1/2	6.75	1.81	1.25	1.25	1.13	4.07	2.69	3.61	6.78	.63	5.71	.25	.06
1 1/4	12	9.06	2.03	1.38	1.38	1.25	4.53	3.00	3.97	7.50	.69	6.25	.25	.13
1 3/8	13 1/2	11.63	2.25	1.50	1.50	1.38	5.01	3.31	4.43	8.28	.75	6.83	.25	.13
1 1/2	17	15.95	2.38	1.63	1.62	1.50	5.38	3.62	4.84	9.05	.81	7.33	.25	.13
1 3/4	25	26.75	2.88	2.00	2.12	1.75	6.38	4.19	5.78	10.97	1.00	9.06	.25	.13
2	35	42.31	3.25	2.25	2.36	2.10	7.25	5.00	6.77	12.74	1.13	10.35	.25	.13
2 1/2	55	71.75	4.12	2.75	2.63	2.63	9.38	5.68	8.07	14.85	1.38	13.00	.25	.25

Screw Pin Chain Shackles Meet or Exceed Requirements of Federal Specification RR-C-271b Type IVB Class 2.

* NOTE: Maximum Proof Load is 2.0 times the Working Load Limit. Minimum Ultimate Strength is 6 times the Working Load Limit.

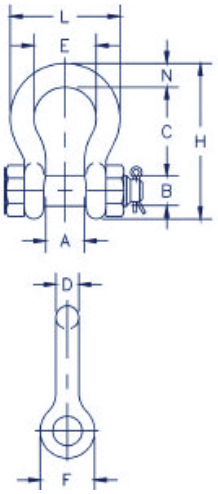


Bolt Type Shackles

Anchor Shackles

Bolt Type Anchor Shackles Meet or Exceed Requirements of Federal Specification. RR-C-271D Type IVA, Class 3.

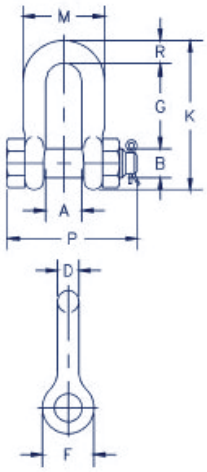
Nominal Size (in.)	Working Load Limit (t)*	Weight Each (lbs.)	Dimensions (in.)									Tolerance +/-	
			A	B	C	D	E	F	H	L	N	C	A
3/16	1/3	.06	.38	.25	.88	.19	.60	.56	1.47	.98	.19	.06	.06
1/4	1/2	.11	.47	.31	1.13	.25	.78	.61	1.84	1.28	.25	.06	.06
5/16	3/4	.22	.53	.38	1.22	.31	.84	.75	2.09	1.47	.31	.06	.06
3/8	1	.33	.66	.44	1.44	.38	1.03	.91	2.49	1.78	.38	.13	.06
7/16	1 1/2	.49	.75	.5	1.69	.44	1.16	1.06	2.91	2.03	.44	.13	.06
1/2	2	.79	.81	.64	1.88	.50	1.31	1.19	3.28	2.31	.50	.13	.06
5/8	3 1/4	1.68	1.06	.77	2.38	.63	1.69	1.50	4.19	2.94	.69	.13	.06
3/4	4 3/4	2.72	1.25	.89	2.81	.75	2.00	1.81	4.97	3.50	.81	.25	.06
7/8	6 1/2	3.95	1.44	1.02	3.31	.88	2.28	2.09	5.83	4.03	.97	.25	.06
1	8 1/2	5.66	1.69	1.15	3.75	1.00	2.69	2.38	6.56	4.69	1.06	.25	.06
1 1/8	9 1/2	8.27	1.81	1.25	4.25	1.13	2.91	2.69	7.47	5.16	1.25	.25	.06
1 1/4	12	11.71	2.03	1.40	4.69	1.29	3.25	3.00	8.25	5.75	1.38	.25	.06
1 3/8	13 1/2	15.83	2.25	1.53	5.25	1.42	3.63	3.31	9.16	6.38	1.50	.25	.13
1 1/2	17	20.80	2.38	1.66	5.75	1.53	3.88	3.63	10.00	6.88	1.62	.25	.13
1 3/4	25	33.91	2.88	2.04	7.00	1.84	5.00	4.19	12.34	8.80	2.25	.25	.13
2	35	52.25	3.25	2.30	7.75	2.08	5.75	4.81	13.68	10.15	2.40	.25	.13
2 1/2	55	98.25	4.13	2.80	10.5	2.71	7.25	5.69	17.90	12.75	3.13	.25	.25
3	85	154.00	5.00	3.30	13.00	3.12	7.88	6.50	21.50	14.62	3.62	.25	.25
3 1/2	120	265.00	5.25	3.76	14.63	3.62	9.00	8.00	24.88	17.02	4.38	.25	.25
4	150	338.00	5.50	4.26	14.50	4.00	10.00	9.00	25.68	18.00	4.56	.25	.25



Chain Shackles

Bolt Type Chain Shackles Meet or Exceed Requirements of Federal Specification. RR-C-271D Type IVA, Class 3.

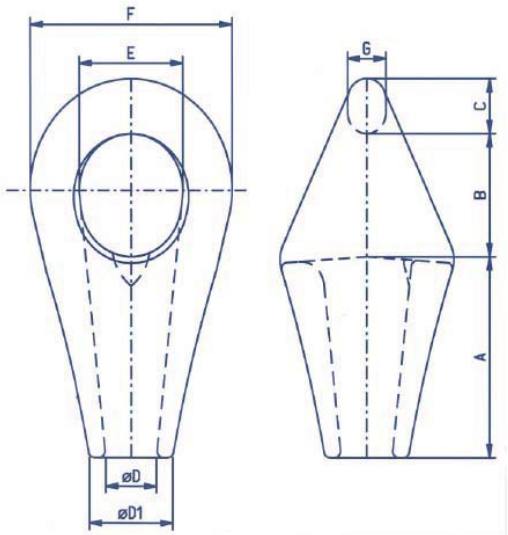
Nominal Size (in.)	Working Load Limit (t)*	Weight Each (lbs.)	Dimensions (in.)									Tolerance +/-	
			A	B	D	F	G	K	M	P	R	G	A
1/4	1/2	.13	.47	.31	.25	.62	.91	1.59	.97	1.56	.25	.06	.06
5/16	3/4	.23	.53	.38	.31	.75	1.07	1.91	1.15	1.82	.31	.06	.06
3/8	1	.33	.66	.44	.38	.92	1.28	2.31	1.42	2.17	.38	.13	.06
7/16	1 1/2	.49	.75	.50	.44	1.06	1.48	2.67	1.63	2.51	.44	.13	.06
1/2	2	.75	.81	.64	.50	1.18	1.66	3.03	1.81	2.80	.50	.13	.06
5/8	3 1/4	1.47	1.06	.77	.63	1.50	2.04	3.76	2.32	3.56	.63	.13	.06
3/4	4 3/4	2.52	1.25	.89	.75	1.81	2.40	4.53	2.75	4.15	.81	.25	.06
7/8	6 1/2	3.85	1.44	1.02	.88	2.10	2.86	5.33	3.20	4.82	.97	.25	.06
1	8 1/2	5.55	1.69	1.15	1.00	2.38	3.24	5.94	3.69	5.39	1.00	.25	.06
1 1/8	9 1/2	7.60	1.81	1.25	1.13	2.68	3.61	6.78	4.07	5.90	1.25	.25	.06
1 1/4	12	10.81	2.03	1.40	1.25	3.00	3.97	7.50	4.53	6.69	1.38	.25	.06
1 3/8	13 1/2	13.75	2.25	1.53	1.38	3.31	4.43	8.28	5.01	7.21	1.50	.25	.13
1 1/2	17	18.50	2.38	1.66	1.50	3.62	4.87	9.05	5.38	7.73	1.62	.25	.13
1 3/4	25	31.40	2.88	2.04	1.75	4.19	5.82	10.97	6.38	9.33	2.12	.25	.13
2	35	46.75	3.25	2.30	2.10	5.00	6.82	12.74	7.25	10.41	2.36	.25	.13
2 1/2	55	85.00	4.12	2.80	2.63	5.68	8.07	14.85	9.38	13.58	2.63	.25	.25
3	85	124.25	5.00	3.25	3.00	6.50	8.56	16.87	11.00	15.13	3.50	.25	.25



* NOTE: Maximum Proof Load is 2.0 times the Working Load Limit. Minimum Ultimate Strength is 6 times the Working Load Limit.

"MOORING SOCKETS"

Dimensions



Available upon request at additional cost

- Proof loading
- ABS, DNV, 3rd party witness testing
- Nondestructive Testing

MBL Tons	Rope Dia. (Inches)	A	B	C	D	D1	E	F	G	Weight (Lbs.)
140	1 1/4 - 1 3/8	5.5	3.3	1.5	1.5	2.5	2.9	4.9	1.4	15.4
160	1 1/2 - 1 5/8	6.3	4.3	1.6	1.7	2.7	3.6	5.1	1.5	22.0
200	1 3/4 - 1 7/8	7.4	5.0	2.0	2.0	3.1	4.3	7.1	1.8	37.5
250	2 - 2 1/8	8.5	4.9	2.2	2.2	3.1	4.5	7.9	2.0	52.9
300	2 1/4 - 2 3/8	9.0	5.7	2.5	2.5	3.5	5.3	9.0	2.2	72.7
400	2 1/2 - 2 5/8	9.8	6.3	2.9	2.9	4.4	6.3	10.4	2.5	110.2
500	2 3/4 - 2 7/8	11.0	6.9	3.1	3.1	4.7	6.7	10.9	2.7	130.0
600	3 - 3 1/8	12.4	8.3	3.3	3.4	5.0	7.2	11.8	2.9	163.1
700	3 1/4 - 3 3/8	13.4	8.1	3.9	3.6	5.2	8.0	12.6	3.5	196.2
800	3 1/2 - 3 5/8	14.2	8.7	4.1	3.9	5.5	8.5	13.4	3.7	229.3
900	3 3/4 - 4	15.0	9.4	4.3	4.2	5.9	9.2	14.8	3.9	295.4
1000	4 1/4 - 4 1/2	17.7	10.2	4.9	4.7	6.5	9.9	15.7	4.3	396.8

Dimensions are approximate only and subject to change without notice.

WARNING: Follow manufacturers recommendations for resin socketing.

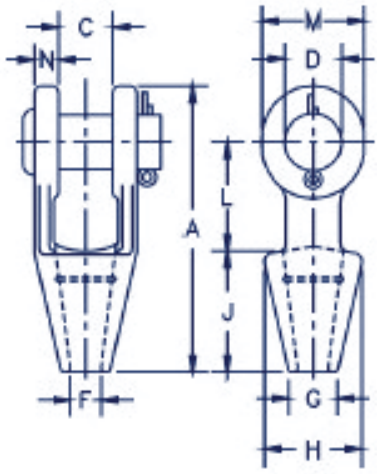
Open Wire Rope Spelter Sockets

Sockets are cast alloy steel.

Meets or exceeds Federal Specifications RR-S-550 latest revision strength & dimensionally.

Drawing illustrates on internal groove used on 1/4" through 3/4".

7/8" through 1 1/2" have two grooves. 1 5/8" and larger have three grooves.



STANDARD OPEN WIRE ROPE SPELTER SOCKETS

Rope Dia. (in.)	Structural Strand Dia. (in.)	Weight Each (lbs.)	Dimensions (in.)									
			A	C	D	F	G	H	J	L	M	N
1/4	-	1.10	4.56	.75	.69	.38	.69	1.56	2.25	1.56	1.31	.36
5/16 - 3/8	-	1.30	4.84	.81	.81	.50	.81	1.69	2.25	1.75	1.50	.44
7/16 - 1/2	-	2.25	5.56	1.00	1.00	.56	.94	1.88	2.50	2.00	1.88	.50
9/16 - 5/8	1/2	3.60	6.75	1.25	1.19	.69	1.13	2.25	3.00	2.50	2.25	.56
3/4	9/16 - 5/8	5.83	7.94	1.50	1.38	.81	1.25	2.62	3.50	3.00	2.62	.62
7/8	11/16 - 3/4	9.65	9.25	1.75	1.63	.94	1.50	3.25	4.00	3.50	3.13	.80
1	13/16 - 7/8	15.5	10.56	2.00	2.00	1.13	1.75	3.75	4.50	4.00	3.75	.88
1 1/8	15/16 - 1	21.5	11.81	2.25	2.25	1.25	2.00	4.12	5.00	4.62	4.12	1.00
1 1/4 - 1 3/8	1 1/16 - 1 1/8	31.00	13.19	2.50	2.50	1.50	2.25	4.75	5.50	5.00	4.75	1.13
1 1/2	1 3/16 - 1 1/4	47.25	15.12	3.00	2.75	1.63	2.75	5.25	6.00	6.00	5.38	1.19
*1 5/8	1 5/16 - 1 3/8	55.00	16.25	3.00	3.00	1.75	3.00	5.50	6.50	6.50	5.75	1.31
*1/3/4 - 1 7/8	1 7/16 - 1 5/8	82.00	18.25	3.50	3.50	2.00	3.13	6.38	7.50	7.00	6.50	1.56
*2 - 2 1/8	1 11/16 - 1 3/4	129.00	21.50	4.00	3.75	2.25	3.75	7.38	8.50	9.00	7.00	1.81
*2 1/4 - 2 3/8	1 13/16 - 1 7/8	167.00	23.50	4.50	4.25	2.50	4.00	8.25	9.00	10.00	7.75	2.13
*2 1/2 - 2 5/8	1 15/16 - 2 1/8	252.00	25.50	5.00	4.75	2.88	4.50	9.25	9.75	10.75	8.50	2.38
*2 3/4 - 2 7/8	2 3/16 - 2 7/16	315.00	27.25	5.25	5.00	3.12	4.88	10.50	11.00	11.00	9.00	2.88
*3 - 3 1/8	2 1/2 - 2 5/8	380.00	29.00	5.75	5.25	3.38	5.25	11.12	12.00	11.25	9.50	3.00
*3 1/4 - 3 3/8	2 3/4 - 2 7/8	434.00	30.88	6.25	5.50	3.62	5.75	11.88	13.00	11.75	10.00	3.12
* 3 1/2 - 3 5/8	3 - 3 1/8	563.00	33.25	6.75	6.00	3.88	6.50	12.38	14.00	12.50	10.75	3.25
* 3 3/4 - 4	-	783.00	36.25	7.50	7.00	4.25	7.25	13.62	15.00	13.50	12.50	3.50

Spelter socket terminations have an efficiency rating of 100%, based on the catalog strength of wire rope. Ratings are based on recommended use with 6 x 7, 6 x 19, or 6 x 37, IPS or XIP (EIP), XXIP (EEIP), RRL, FC, or IWRC wire rope.
*Cast Alloy Steel

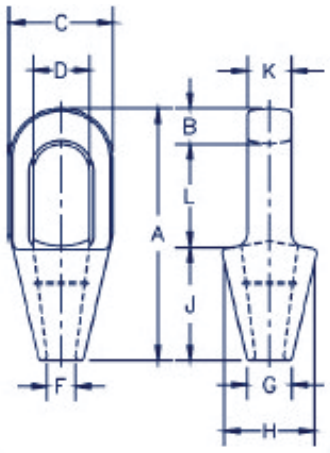
Closed Wire Rope Spelter Sockets

Sockets are cast alloy steel.

Meets or exceeds Federal Specifications RR-S-550 latest revision strength & dimensionally.

Drawing illustrates on internal groove used on 1/4" through 3/4".

7/8" through 1 1/2" have two grooves. 1 5/8" and larger have three grooves.



STANDARD CLOSED WIRE ROPE SPELTER SOCKETS

Rope Dia. (in.)	Structural Strand Dia. (in.)	Weight Each (lbs.)	Dimensions (in.)									
			A	B	C	D*	F	G	H	J	K	L
1/4	-	.50	4.50	.50	1.50	.88	.38	.69	1.56	2.25	.50	1.75
5/16 - 3/8	-	.75	4.88	.62	1.69	.97	.50	.81	1.69	2.25	.69	2.00
7/16 - 1/2	-	1.50	5.44	.69	2.00	1.16	.56	.94	1.88	2.50	.88	2.25
9/16 - 5/8	1/2	2.50	6.31	.81	2.63	1.41	.69	1.12	2.38	3.00	1.00	2.50
3/4	9/16 - 5/8	4.25	7.56	1.06	3.00	1.66	.81	1.25	2.75	3.56	1.25	3.00
7/8	11/16 - 3/4	7.25	8.75	1.25	3.63	1.88	.94	1.50	3.25	4.00	1.50	3.50
1	13/16 - 7/8	10.50	9.88	1.38	4.13	2.30	1.13	1.75	3.75	4.44	1.75	4.00
1 1/8	15/16 - 1	14.25	11.00	1.50	4.50	2.56	1.25	2.00	4.13	5.00	2.00	4.50
1 1/4 - 1 3/8	1 1/16 - 1 1/8	19.75	12.12	1.63	5.30	2.81	1.50	2.25	4.75	5.50	2.25	5.00
1 1/2	1 3/16 - 1 1/4	29.20	13.94	1.94	5.33	3.19	1.63	2.75	5.25	6.00	2.50	6.00
** 1 5/8	1 5/16 - 1 3/8	36.00	15.13	2.13	5.75	3.25	1.75	3.00	5.5	6.50	2.75	6.50
** 1 3/4 - 1 7/8	1 7/16 - 1 5/8	57.25	17.25	2.19	6.75	3.75	2.00	3.13	6.38	7.50	3.00	7.56
** 2 - 2 1/8	1 11/16 - 1 3/4	79.00	19.50	2.44	7.63	4.38	2.25	3.75	7.38	8.50	3.25	8.56
** 2 1/4 - 2 3/8	1 13/16 - 1 7/8	105.00	21.13	2.63	8.50	5.00	2.50	4.00	8.25	9.00	3.63	9.50
** 2 1/2 - 2 5/8	1 15/16 - 2 1/8	140.00	23.50	3.12	9.50	5.50	2.88	4.50	9.25	9.75	4.00	10.62
** 2 3/4 - 2 7/8	2 3/16 - 2 7/16	220.00	25.38	3.12	10.75	6.25	3.12	4.88	10.19	11.00	4.88	11.25
** 3 - 3 1/8	2 1/2 - 2 5/8	276.00	27.00	3.25	11.50	6.75	3.38	5.25	11.50	12.00	5.25	11.75
** 3 1/4 - 3 3/8	2 3/4 - 2 7/8	313.00	29.25	4.00	12.25	7.25	3.62	5.75	12.25	13.00	5.75	12.25
** 3 1/2 - 3 5/8	3 - 3 1/8	400.00	31.00	4.00	13.00	7.75	3.88	6.50	13.00	14.00	6.25	13.00
** 3 3/4 - 4	-	542.00	33.25	4.25	14.25	8.50	4.25	7.25	14.25	15.00	7.00	14.00

Spelter socket terminations have an efficiency rating of 100%, based on the catalog strength of wire rope. Ratings are based on the recommended use with 6 x 7, 6 x 19 or 6 x 37, IPS or XIP (EIP), XXIP (EEIP), RRL, FC or IWRC wire rope.

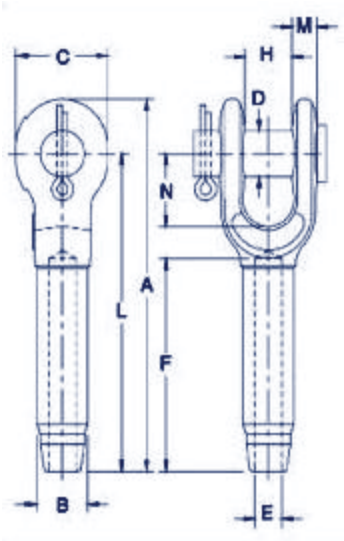
* Diameter of pin must not exceed pin used on companion 416 socket. Reference adjacent page "D" dimension.

** Cast Alloy Steel

Swage Sockets

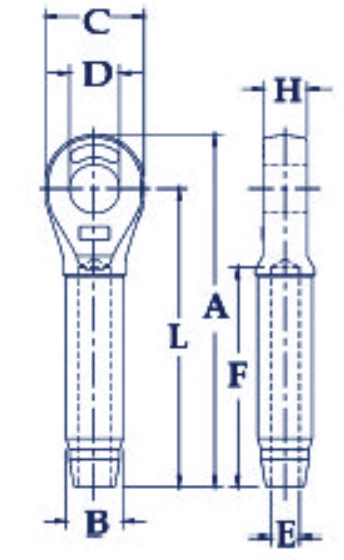
Swage sockets are recommend for use on 6 x 19 or 6 x 36 IWRC regular lay ropes.
They are NOT recommended for use on fiber core or lang lay ropes. Sockets properly applied have an efficiency rating of 100% based on the catalog breaking strength of wire rope. In accordance with ANSI B30.9, all slings terminated with swage sockets shall be proof loaded. Maximum Proof Load shall not exceed 50% of XXIP rope catalog breaking strength.

OPEN SWAGE SOCKETS



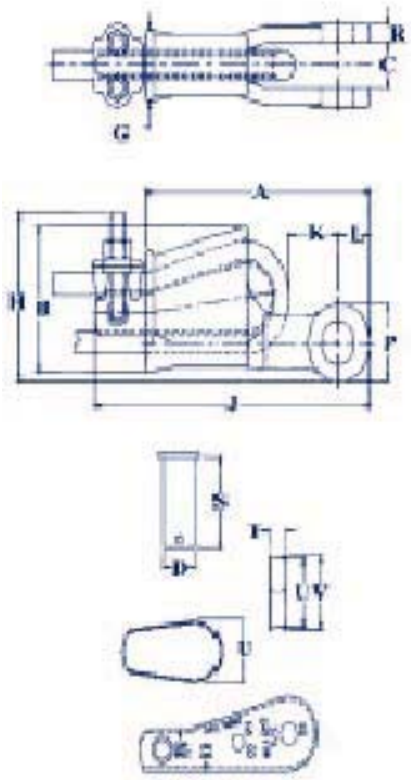
Rope Size (in.)	Weight Each (lbs.)	Before Swage Dimensions										Max. After Swage Dim. (in.)
		A	B	C	D	E	F	H	L	M	N	
1/4	.52	4.78	.50	1.38	.69	.27	2.19	.69	4.00	.38	1.47	.46
5/16	1.12	6.30	.78	1.62	.81	.34	3.25	.80	5.34	.48	1.67	.71
3/8	1.30	6.30	.78	1.62	.81	.41	3.25	.80	5.34	.48	1.67	.71
7/16	2.08	7.82	1.01	2.00	1.00	.49	4.31	1.00	6.69	.56	1.96	.91
1/2	2.08	7.82	1.01	2.00	1.00	.55	4.31	1.00	6.69	.56	1.96	.91
9/16	4.67	9.54	1.27	2.38	1.19	.61	5.38	1.25	8.13	.68	2.21	1.16
5/8	4.51	9.54	1.27	2.38	1.19	.68	5.38	1.25	8.13	.68	2.21	1.16
3/4	7.97	11.61	1.56	2.75	1.38	.80	6.44	1.50	10.0	.78	2.69	1.42
7/8	11.52	13.37	1.72	3.13	1.63	.94	7.50	1.75	11.63	.94	3.20	1.55
1	17.80	15.47	2.00	3.69	2.00	1.07	8.63	2.00	13.38	1.07	3.68	1.80
1 1/8	25.25	17.35	2.25	4.06	2.25	1.19	9.75	2.25	15.00	1.19	4.18	2.05
1 1/4	35.56	19.20	2.53	4.50	2.50	1.34	10.81	2.50	16.50	1.27	4.64	2.30
1 3/8	43.75	21.10	2.81	5.25	2.50	1.46	11.88	2.41	18.13	1.46	5.25	2.56
1 1/2	58.50	23.17	3.08	5.50	2.75	1.59	12.94	3.00	19.75	1.65	5.70	2.81
1 3/4	88.75	26.70	3.40	6.25	3.50	1.87	15.06	3.50	23.00	2.07	6.67	3.06
2	146.20	31.15	3.94	7.80	3.75	2.12	17.06	4.00	26.75	1.81	8.19	3.56

CLOSED SWAGE SOCKETS



Rope Size (in.)	Weight Each (lbs.)	Before Swage Dimensions								Max. After Swage Dim. (in.)
		A	B	C	D	E	F	H	L	
1/4	.33	4.28	.50	1.38	.76	.27	2.19	.50	3.50	.46
5/16	.75	5.42	.77	1.62	.88	.34	3.25	.68	4.50	.71
3/8	.72	5.42	.78	1.62	.88	.41	3.25	.68	4.50	.71
7/16	1.42	6.88	1.01	2.00	1.07	.49	4.31	.87	5.75	.91
1/2	1.42	6.88	1.01	2.00	1.07	.55	4.31	.87	5.75	.91
9/16	2.92	8.59	1.27	2.38	1.28	.61	5.38	1.14	7.25	1.16
5/8	2.85	8.59	1.27	2.38	1.28	.68	5.38	1.14	7.25	1.16
3/4	5.00	10.25	1.56	2.88	1.49	.80	6.44	1.33	8.63	1.42
7/8	6.80	11.87	1.72	3.12	1.73	.94	7.50	1.53	10.09	1.55
1	10.40	13.56	2.00	3.62	2.11	1.07	8.63	1.78	11.50	1.80
1 1/8	14.82	15.03	2.25	4.00	2.37	1.19	9.75	2.03	12.75	2.05
1 1/4	21.57	16.94	2.53	4.50	2.62	1.34	10.81	2.25	14.38	2.30
1 3/8	28.54	18.59	2.81	5.00	2.62	1.46	11.88	2.29	15.75	2.56
1 1/2	38.06	20.13	3.08	5.38	2.87	1.59	12.94	2.56	17.00	2.81
1 3/4	51.00	23.56	3.40	6.25	3.63	1.87	15.06	3.08	20.00	3.06
2	89.25	27.13	3.94	7.25	3.88	2.12	17.06	3.31	23.00	3.56

Wedge Sockets



Wedge socket terminations have an effeciency rating of 80% based on the strength of XXIP wire rope.

Wedge sockets, except welded 5/8" and 3/4", meet the performance requirements of Federal Specification RR-S-550D, Type C, except those provisions required of the contractor.

Wedge sockets meet or exceed the requirements of ASME B30.26.

Available with Bolt, Nut and Cotter Pin.

Assemblies include Socket, Wedge, Pin and Wire Rope Clip.

Wire Rope Dia.		Dimensions (in.)															Weight Each (lbs.)	Wedge Only Weight Each (lbs.)
(in.)	(mm)	A	B	C	D	G	H	J*	K*	L	P	R	S	T	U	V		
3/8	9 - 10	5.69	2.72	.81	.81	1.38	3.06	7.80	1.88	.88	1.56	.44	2.13	.44	1.25	1.38	3.18	.50
1/2	11 - 13	6.88	3.47	1.00	1.00	1.62	3.76	8.91	1.26	1.06	1.94	.50	2.56	.53	1.75	1.88	6.15	1.05
5/8	14 - 16	8.25	4.30	1.25	1.19	2.12	4.47	10.75	1.99	1.22	2.25	.56	3.25	.69	2.00	2.19	9.70	1.79
3/4	18 - 19	9.88	5.12	1.50	1.38	2.44	5.28	12.36	2.41	1.40	2.63	.66	3.63	.78	2.34	2.56	14.50	2.60
7/8	20 - 22	11.25	5.85	1.75	1.63	2.69	6.16	14.37	2.48	1.67	3.13	.75	4.31	.88	2.69	2.94	21.50	4.00
1	24 - 26	12.81	6.32	2.00	2.00	2.94	6.96	16.29	3.04	2.00	3.75	.88	4.70	1.03	2.88	3.28	30.75	5.37
1 1/8	28	14.38	6.92	2.25	2.25	3.31	7.62	18.34	2.56	2.25	4.25	1.00	5.44	1.10	3.25	3.56	45.30	7.30
1 1/4	30 - 32	16.34	8.73	2.62	2.50	3.56	9.39	20.48	2.94	2.34	4.50	1.06	6.13	1.19	4.62	4.94	64.90	10.60

*Nominal
NOTE: For intermediate rope sizes, use next larger size socket.

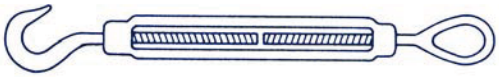
Turnbuckles

Suggested Turnbuckle / Wire Rope Pairing Based on Wire Rope and Termination Type

6X19 Or 6X36 Class IWRC EIP Wire Rope Size (Ins.)	Wire Rope Terminated With Properly Attached Drop Forged Wire Rope Clips - Use Turnbuckle Size		Wire Rope Terminated With Flemish Eye Splice and Swaged Sleeve - Use Turnbuckle Size	
	Hook x Hook Hook x Eye	Jaw x Jaw Jaw x Eye Eye x Eye	Hook x Hook Hook x Eye	Jaw x Jaw Jaw x Eye Eye x Eye
1/4	1/2	3/8	1/2	1/2
5/16	5/8	1/2	5/8	1/2
3/8	3/4	5/8	3/4	5/8
7/16	7/8	5/8	7/8	3/4
1/2	1	3/4	1	3/4
9/16	1 1/4	7/8	1 1/4	7/8
5/8	1 1/2	7/8	--	1
3/4	--	1	--	1 1/4
7/8	--	1 1/4	--	1 1/4
1	--	1 1/2	--	1 1/2
1 1/8	--	1 1/2	--	1 3/4
1 1/4	--	1 3/4	--	2
1 3/8	--	2	--	2
1 1/2	--	2	--	2 1/2
1 5/8	--	2 1/2	--	2 1/2
1 3/4	--	2 1/2	--	2 1/2
1 7/8	--	2 1/2	--	2 3/4
2	--	2 3/4	--	2 3/4

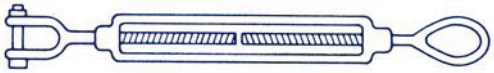
These combinations are suggestions only based soley on Working Load data.
The user bears the responsibility of ensuring that the turnbuckle / wire rope combination actually used is suitable for the application and purpose intended.

Hook x Hook

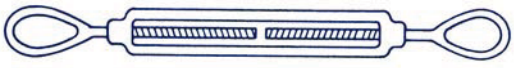


Hook x Eye

Jaw x Jaw



Jaw x Eye

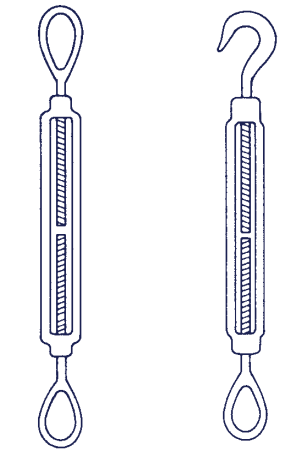


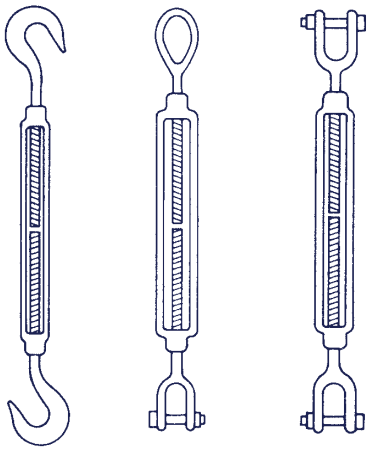
Eye x Eye

Turnbuckles

When Ordering Be Sure To Specify:
1st— Diameter of thread.
2nd— Length of take-up.
3rd— Self colored or galvanized.
4th— The type of end fittings desired.

Meets or exceeds the performance requirements of ASTM F - 1145 (formerly Federal Specification FF-T-791)





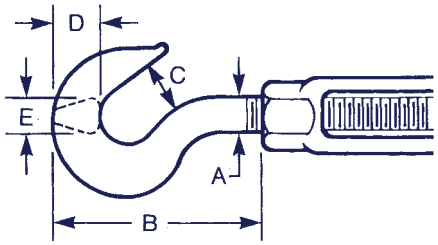
Diameter X Take-up Inches	Average Overall Length With Ends in Closed Position	Approx. Weight Each in lbs.			Working Load Limit in lbs.	
		With Eyes and/or Hooks	Jaw & Eye	Jaw & Jaw	Hook & Hook Hook & Eye	Eye & Eye Jaw & Eye Jaw & Jaw
1/4 X 4	8.25	.30	.30	.40	400	500
5/16 X 4 1/2	9.56	.50	.53	.58	700	800
3/8 X 6	11.88	.75	.82	.93	1,000	1,200
1/2 X 6	13.31	1.50	1.62	1.68	1,500	2,200
1/2 X 9	16.31	1.75	1.82	1.85	1,500	2,200
1/2 X 12	19.31	2.18	2.19	2.20	1,500	2,200
5/8 X 6	15.30	2.63	2.69	2.82	2,250	3,500
5/8 X 9	18.50	3.00	3.01	3.25	2,250	3,500
5/8 X 12	21.50	3.25	3.50	3.75	2,250	3,500
3/4 X 6	17.00	3.75	4.25	4.68	3,000	5,200
3/4 X 9	20.00	4.50	5.00	5.38	3,000	5,200
3/4 X 12	23.00	5.75	5.75	6.12	3,000	5,200
3/4 X 18	29.00	7.00	7.25	7.75	3,000	5,200
7/8 X 12	24.63	8.38	8.88	9.38	4,000	7,200
7/8 X 18	30.63	10.25	10.60	11.44	4,000	7,200
1 X 6	20.63	10.75	11.10	11.80	5,000	10,000
1 X 12	26.63	11.25	12.00	12.88	5,000	10,000
1 X 18	32.63	14.00	14.75	16.10	5,000	10,000
1 X 24	38.63	17.00	17.75	18.60	5,000	10,000
1 1/4 X 12	29.88	19.00	21.20	23.60	6,500	15,200
1 1/4 X 18	35.88	24.10	26.00	26.60	6,500	15,200
1 1/4 X 24	41.88	25.00	28.70	31.20	6,500	15,200
1 1/2 X 12	32.38	27.00	31.10	35.50	7,500	21,400
1 1/2 X 18	38.38	31.20	36.40	40.70	7,500	21,400
1 1/2 X 24	44.38	38.20	44.20	47.60	7,500	21,400
1 3/4 X 18	41.38	53.00	57.50	62.00	**	28,000
1 3/4 X 24	47.75	58.00	60.00	64.00	**	28,000
2 X 24	51.75	90.00	102.00	115.00	**	37,000
2 1/2 X 24	58.50	163.00	180.00	200.00	**	60,000
2 3/4 X 24	61.50	180.00	214.00	248.00	**	75,000

Larger sizes available per request.
Lock nuts available per request.
Jaw end fittings sizes ¼" through ⅝" have bolts and nuts.
Jaw end fittings sizes ¾" through 2 ¾" have pins and cotters.
Large jaw sizes available with bolts and nuts upon special request.

Turnbuckles

For sizing information, refer to our website: http://**www.swwrinc.com**

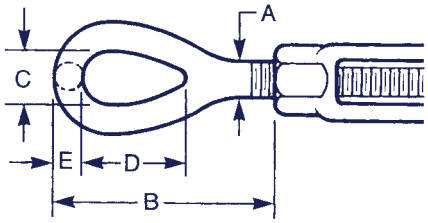
HOOK



HOOK

DIMENSIONS IN INCHES				
A	B	C	D	E
1/4	1.66	.45	.41	.25
5/16	1.91	.50	.44	.31
3/8	2.28	.56	.53	.38
1/2	2.84	.66	.69	.50
5/8	3.53	.84	.84	.63
3/4	4.31	.97	1.00	.75
7/8	5.00	1.13	1.19	.88
1	5.69	1.25	1.38	1.00
1 1/4	6.91	1.50	1.50	1.06
1 1/2	8.69	1.88	1.75	1.31

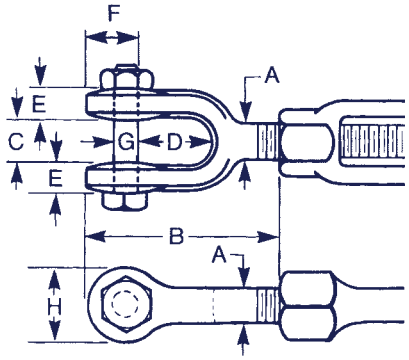
EYE



EYE

DIMENSIONS IN INCHES				
A	B	C	D	E
1/4	1.78	.34	.78	.22
5/16	2.19	.44	.94	.28
3/8	2.56	.53	1.13	.34
1/2	3.22	.72	1.44	.44
5/8	3.88	.88	1.75	.50
3/4	4.69	1.00	2.13	.63
7/8	5.25	1.25	2.38	.75
1	6.38	1.44	3.00	.88
1 1/4	7.75	1.81	3.56	1.13
1 1/2	8.63	2.13	4.13	1.25
1 3/4	10.00	2.38	4.69	1.50
2	12.13	2.69	5.75	1.75
2 1/2	13.56	3.13	6.50	2.00
2 3/4	15.00	3.25	7.00	2.25

JAW



JAW

DIMENSIONS IN INCHES							
A	B	C	D	E	F	G	H
1/4	1.63	.41	.63	.28	.50	.25	.63
5/16	2.00	.47	.88	.28	.50	.25	.69
3/8	2.19	.50	.88	.31	.59	.31	.81
1/2	2.75	.63	1.06	.41	.75	.38	1.00
5/8	3.50	.75	1.31	.50	1.03	.50	1.31
3/4	4.13	.94	1.50	.56	1.28	.63	1.63
7/8	4.84	1.13	1.75	.69	1.47	.75	1.88
1	5.53	1.19	2.06	.78	1.66	.88	2.13
1 1/4	7.19	1.75	2.81	1.00	2.09	1.13	2.63
1 1/2	7.88	2.06	2.81	1.06	2.47	1.38	3.13
1 3/4	9.38	2.38	3.38	1.25	2.91	1.63	3.50
2	10.88	2.50	3.75	1.56	3.53	2.00	4.19
2 1/2	13.34	2.88	4.19	1.56	4.63	2.25	5.63
2 3/4	15.00	3.50	4.44	1.63	5.38	2.75	6.13

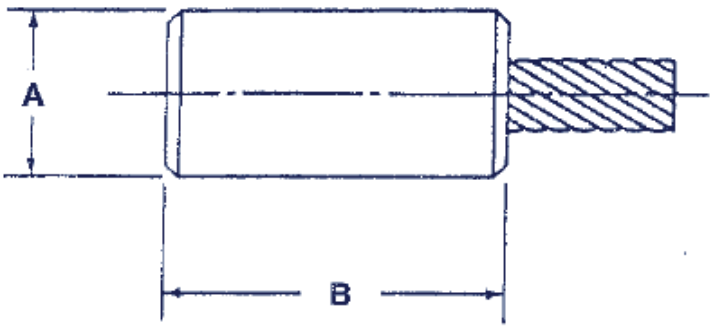
Proof load twice rated load

*Ultimate load five times rated load

Meets or exceeds the performance requirements of ASTM F - 1145 (formerly Federal Specification FF-T-791)

Standard & Non-Standard Swage Buttons

Conforms to Industry Standards



WIRE ROPE SIZE	PART NUMBER	AFTER SWAGE OD (A)		LENGTH (B)	WIRE ROPE SIZE	PART NUMBER	AFTER SWAGE OD (A)		LENGTH (B)
1/8	SB-4	3/8	0.375	0.625	9/16	SB-18	1 1/4	1.250	2.625
	NB-4	3/8	0.375	0.625		NB-18	1 1/4	1.250	2.438
5/32	SB-5	7/16	0.438	0.750	5/8	SB-20	1 3/8	1.375	2.875
	NB-5	7/16	0.438	0.750		NB-20	1 3/8	1.375	2.875
3/16	SB-6	1/2	0.500	0.875	3/4	SB-24	1 1/2	1.500	3.500
	NB-6	1/2	0.500	0.875		NB-24	1 1/2	1.500	3.250
7/32	SB-7	9/16	0.563	1.000	7/8	SB-28	1 3/4	1.750	4.125
	NB-7	9/16	0.563	1.000		NB-28	1 3/4	1.750	3.875
1/4	SB-8	5/8	0.625	1.125	1	SB-32	2	2.000	4.750
	NB-8	9/16	0.563	1.188		NB-32	2	2.000	4.375
5/16	SB-10	3/4	0.750	1.500	1 1/8	SB-36	2 1/4	2.250	5.250
	NB-10	3/4	0.750	1.375		NB-36	2 1/4	2.250	4.813
3/8	SB-12	7/8	0.875	1.750	1 1/4	SB-40	2 1/2	2.500	5.875
	NB-12	3/4	0.750	1.750		NB-40	2 1/2	2.500	5.438
7/16	SB-14	1	1.000	2.000	1 3/8	SB-44	2 3/4	2.750	6.500
	NB-14	1	1.000	2.000		NB-44	2 3/4	2.750	6.000
1/2	SB-16	1 1/8	1.125	2.375	1 1/2	SB-48	3	3.000	7.125
	NB-16	1 1/8	1.125	2.188		NB-48	3	3.000	6.500

NOTE: SB = Standard Buttons
NB = Non-Standard Buttons

Conforms to Industry Standards: Machined from carbon steel specially selected for swaging. Aluminum and stainless steel available upon request.

Metric Conversion Tables

Linear Measure

1 Inch	=	25.4	Millimeters
1 Inch	=	2.54	Centimeters
1 Inch	=	.254	Decimeters
1 Inch	=	.0254	Meters
1 Foot	=	.3048	Meters
1 Yard	=	.9144	Meters
1 Mile	=	1.60935	Kilometers
1 Millimeter	=	.03937	Inches
1 Centimeter	=	.3937	Inches
1 Decimeter	=	3.937	Inches
1 Meter	=	39.37	Inches
1 Meter	=	3.28083	Feet
1 Meter	=	1.09361	Yards
1 Kilometer	=	3280.83	Feet
1 Kilometer	=	1093.61	Yards
1 Kilometer	=	.62137	Miles

Square Measure

1 Square Inch	=	645.16	Square Millimeters
1 Square Inch	=	6.452	Square Centimeters
1 Square Inch	=	.06452	Square Decimeters
1 Square Foot	=	.0929	Square Meters
1 Square Yard	=	.836	Square Meters
1 Square Millimeter	=	.00155	Square Inches
1 Square Centimeter	=	.155	Square Inches
1 Square Decimeter	=	15.5	Square Inches
1 Square Meter	=	1550.00	Square Inches
1 Square Meter	=	10.7639	Square Feet
1 Square Meter	=	1.196	Square Yards
1 Square Kilometer	=	.386102	Square Miles
1 Square Kilometer	=	247.11	Acres

Weight

1 Pound	=	.45359	Kilograms
1 Ton	=	2000.	Pounds
1 Ton	=	907.18	Kilograms
1 Kilogram	=	2.204622	Pounds
1 Metric Ton	=	1000.	Kilograms
1 Metric Ton	=	1.1023	Tons

Metric Conversion Tables

Compound Units

1 Pound per Foot	=	1.488161	Kilograms per Meter
1 Foot per Second	=	.30480	Meters per Second
1 Foot per Second	=	.6818	Miles per Hour
1 Kilogram per Meter	=	.67197	Pounds per Foot
1 Meter per Second	=	3.28083	Feet per Second
1 Meter per Second	=	2.23693	Miles per Hour

Rope Sizes in Millimeters

1/16	Inch	=	1.59	Millimeters
1/8	Inch	=	3.18	Millimeters
3/16	Inch	=	4.76	Millimeters
1/4	Inch	=	6.35	Millimeters
5/16	Inch	=	7.94	Millimeters
3/8	Inch	=	9.53	Millimeters
7/16	Inch	=	11.11	Millimeters
1/2	Inch	=	12.70	Millimeters
9/16	Inch	=	14.29	Millimeters
5/8	Inch	=	15.88	Millimeters
11/16	Inch	=	17.46	Millimeters
3/4	Inch	=	19.05	Millimeters
13/16	Inch	=	20.64	Millimeters
7/8	Inch	=	22.23	Millimeters
15/16	Inch	=	23.81	Millimeters
1	Inch	=	25.40	Millimeters
1 1/4	Inch	=	31.75	Millimeters
1 1/2	Inch	=	38.10	Millimeters
1 3/4	Inch	=	44.45	Millimeters
2	Inch	=	50.80	Millimeters
2 1/4	Inch	=	57.15	Millimeters
2 1/2	Inch	=	63.50	Millimeters
2 3/4	Inch	=	69.85	Millimeters
3	Inch	=	76.20	Millimeters

Measures and Weights

Linear Measure

1000 mils	=	1 inch
12 inches	=	1 foot
3 feet	=	1 yard
2 yards	=	1 fathom
5 1/2 yards	=	1 rod
40 rods	=	1 furlong
8 furlongs	=	1 mile
5280 feet	=	1 mile
1.15156 miles	=	1 nautical mile
1 nautical mile	=	6076.12 feet
3 nautical miles	=	1 nautical league

Square Measure

144 square inches	=	1 square foot
9 square feet	=	1 square yard
30 1/4 square yards	=	1 square rod
160 square rods	=	1 acre
43,560 square feet	=	1 acre
640 acres	=	1 square mile

A circular mil is the area of a circle 1 mil, or 0.001 inch in diameter

1 square inch	=	1, 273,239 circular mils

A circular inch is the area of a circle 1 inch in diameter = 0.7854 sq. in.

1 square inch	=	1.2732 circular inches

Cubic Measure

1728 cubic inches	=	1 cubic foot
1 cubic foot	=	7.4805 gallons
27 cubic feet	=	1 cubic yard
128 cubic feet	=	1 cord

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Riggers Manual

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