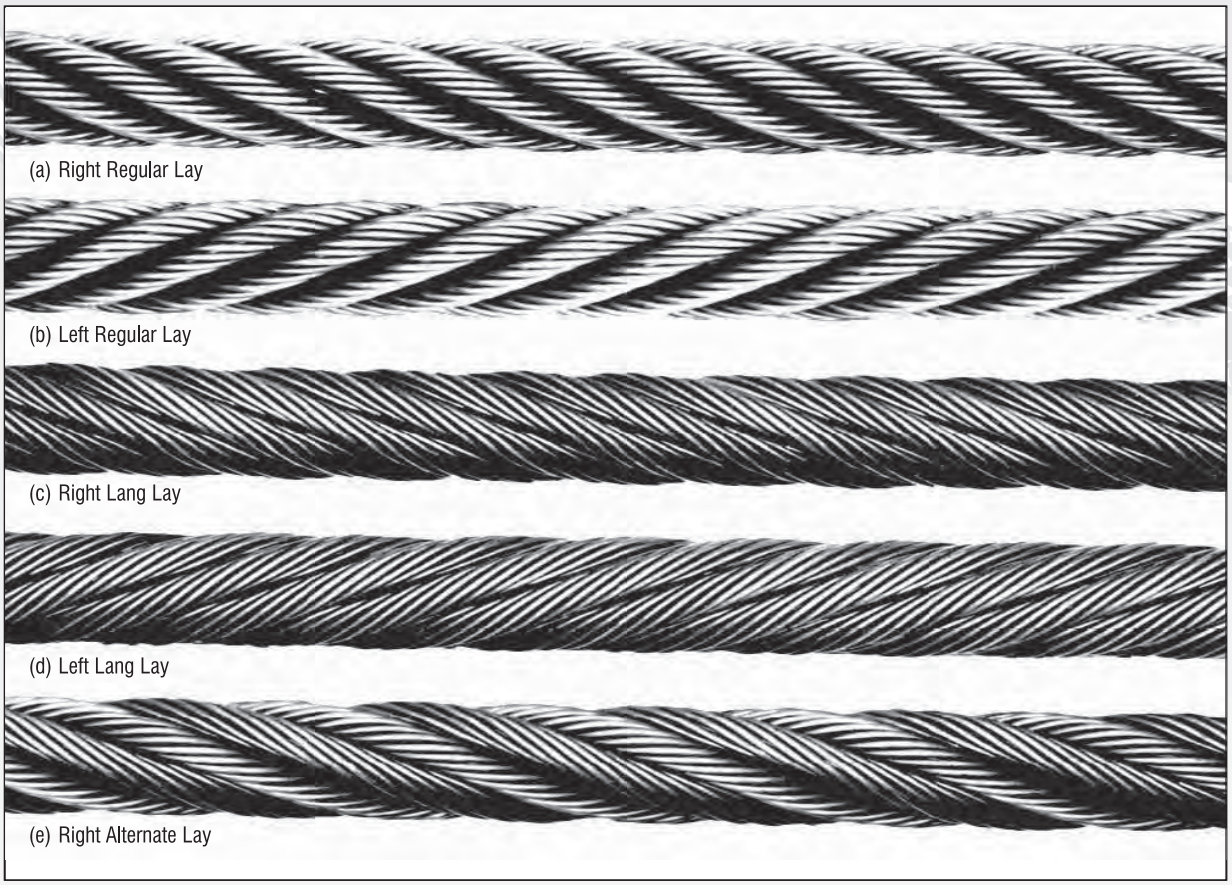
Horizon Cable

Wire Ropes & Slings

3 Wire Rope Identification and Construction

CONSTRUCTION OF TYPICAL ROPE LAYS

Five different lays of rope to choose from.



Wire rope is Identified not only by its component parts, but also by its construction, i.e., by the way the wires have been laid to form strands, and by the way the strands have been laid around the core.

Figure “a” and “c” show a right lay rope. Conversely, “b” and “d” show left lay rope.

Again, the first two illustrations (”a” and “b”) show regular lay ropes. Following these are the types known as lang lay ropes (”c” and “d”). Note that the wires in regular lay ropes appear to line up with the axis of the rope; in lang lay ropes the wires form an angle with the axis of the rope. The difference in appearance is a result of variations in manufacturing techniques: regular lay ropes are made so that the direction of the wire lay in the strand is opposite to the direction of the strand lay in the rope; lang lay ropes are made with both strand lay and rope lay in the same direction. Finally, “e” called alternate lay consists of alternating right and left lay strands.

NOTE: The superiority of lang lay ropes in *certain* applications derives from the fact that when bent over sheaves, its life span in longer.

Handling and Installation

RECEIVING, INSPECTION AND STORAGE

For all wire rope, the best time to begin taking appropriate care and handling measures is immediately upon receiving it. On arrival, the rope should be carefully checked to make certain that the delivered product matches the description on tags, requisition forms, packing slips, purchase order and invoice.
After these necessary preliminary checks, the next concern is that of providing weather-proof storage space. If wire rope is to be kept unused for a considerable amount of time, it must be protected from the elements. The idea storage area is a dry, well-ventilated building or shed. Avoid closed, unheated, tightly sealed buildings or enclosures because condensation will form when warm, moist outside (ambient) air envelopes the colder rope. Although wire rope is protected by lubricant, this is not totally effective since condensation can still occur within the small interstices between strands and wires, thereby causing corrosion problems. On the other hand, if the delivery site conditions preclude storage in an inside space and the rope must be kept outdoors, it should be covered with a waterproof material. This covering will also prevent the lubricant from drying out. Store the reel on an elevated platform or pallet that will keep it from direct contact with the ground. Never store wire rope in areas subject to elevated temperatures. Dust and grit, or chemically laden atmospheres should also be avoided. Although lubricant applied during manufacturing offers initial protection, extended storage may require additional field lubrication.
Whenever wire rope remains on an idle machine, coat the rope with an appropriate protective lubricant. This will provide additional protection against environmental conditions. If the wire rope is inactive for an extended period while wound on the drum of the idle equipment, it may be necessary to apply a coating of lubricant to each layer as the rope is wound on the drum. Cleaning, inspection and re-lubrication should precede start-up of the equipment.

CHECKING THE DIAMETER

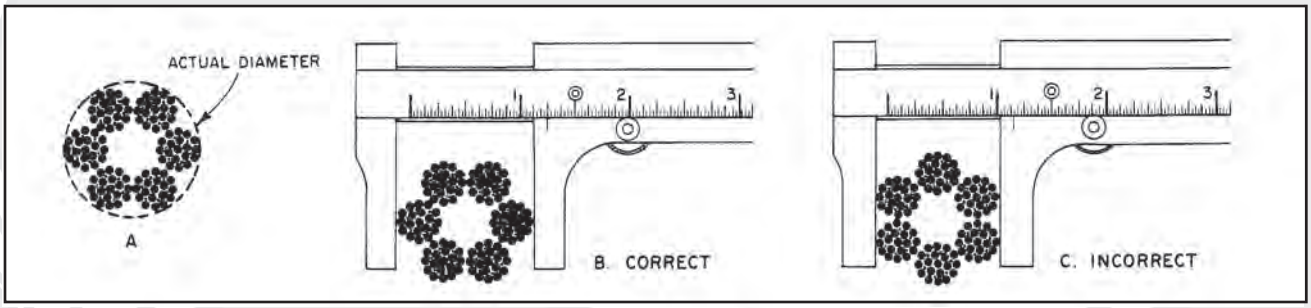
It is important to check the diameter of the delivered rope before installation. This is to make certain that the rope meets the specified nominal diameter for the given application. Imperial (inch) and metric (millimeter) ropes are not always interchangeable. Consult Horizon Cable for details on any 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 correct method (b) shown in the figure below. Special techniques and equipment must be employed for measuring ropes with an odd number of outer strands (e.g. Circumferential taps, calipers and plates). Tolerance for wire rope diameter permit the diameter to be slightly larger than the nominal size, according to the limits shown.

OVERSIZE LIMITS OF WIRE ROPE DIAMETERS*

NOMINAL ROPE DIAMETER	ALLOWABLE LIMITS	
THRU 1/8" (3.2 mm)	-0	+8%
OVER 1/8" (3.2mm) THRU 3/16" (4.8mm)	-0	+7%
OVER 3/16" (4.8mm) THRU 5/16" (8.0mm)	-0	+6%
OVER 5/16" (8.0mm) AND LARGER	-0	+5%

*These limits have been adopted by the Wire Rope Technical Board. In 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.

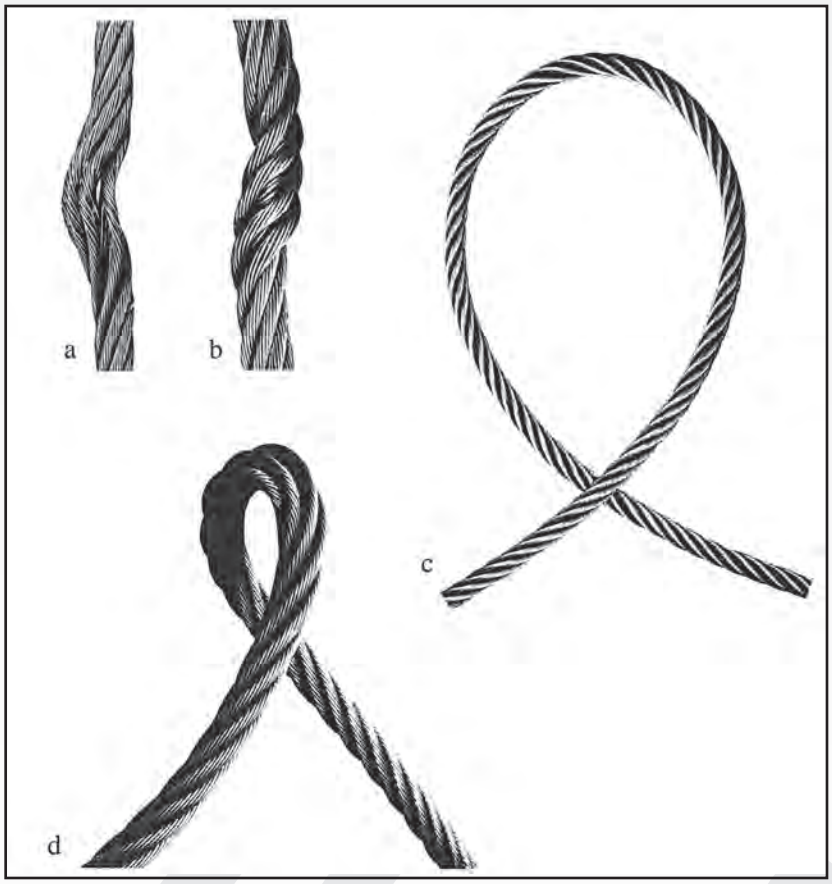
Handling and Installation



How to measure (or caliper) a wire rope correctly. Since the "true" diameter (A) lies within the circumscribed circle, always measure the larger dimension (B).

UNREELING AND COILING

Wire rope is shipped in cut lengths, either on coils or on reels. Great care should be taken when the rope is removed from the shipping package since it can be permanently damaged by improper reeling or uncoiling. Looping the rope over the head of the reel or pulling the rope off a coil while it is lying on the ground, will create loops in the line. Pulling the loop will, at the very least, produce imbalance in the rope and may result in open or closed kinks. Once a rope is kinked, the damage is not repairable. The kink must be cut out or the rope is unfit for service.



Improper handling can create open (a) or *closed kinks* (b). The open kink will open the rope lay; the closed kink will close it.
Starting loop (c): Do not allow the rope to form a loop. If, however, a loop does form and is removed at the stage shown, a kink can be avoided.
Kink (d): In this case, the looped rope was put under tension, the kink was formed, the rope is permanently damaged.

Handling and Installation

Unwinding wire rope from its reel also requires careful and proper procedure.

There are three methods to perform this step correctly:

1) The reel is mounted on a shaft supported by two jacks or a roller payoff. Since the reel is free to rotate, the rope is puled from the reel by a workman holding the rope end, and walking away from the reel as it unwinds. A braking device should be employed so that the rope is kept taut and the reel is restrained from over-running the rope. This is necessary particularly with powered de-reeling equipment.

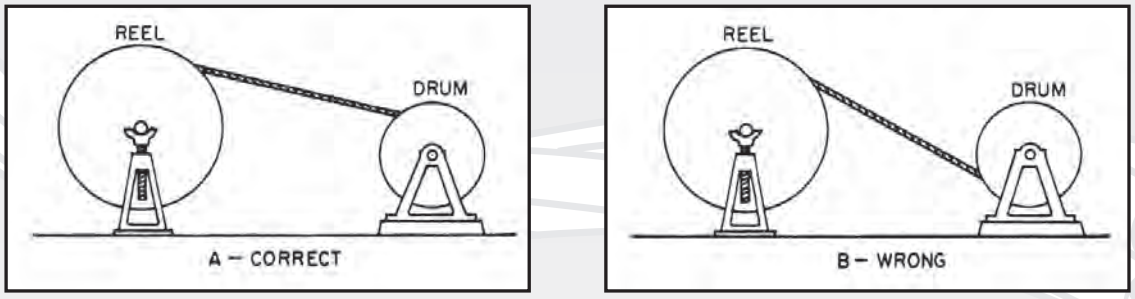
2) Another method involves mounting the reel on an unreeling stand. It is then unwound in the same manner as described above. In this case, however, great care must be exercised to keep the rope under tension sufficient to prevent accumulation of slack. Slack can allow the rope to drop over the rope coming off the reel and be damaged or loose wraps on the reel to fall over the rope coming off the reel and become tangled.

3) In another accepted method, the end of the rope is held while the reel itself is rolled along the ground. With this procedure, the rope will pay off properly however, the end being held will travel in the direction the reel is being rolled. As the difference between the diameter of the reel head and the diameter of the wound rope increase, the speed of travel will increase.

The wire rope reel is mounted on a shaft supported by jacks. This permits the reel to rotate freely, and the rope can be unwound either manually or by a powered mechanism.

Handling and Installation

When re-reeling wire tope from a horizontally supported reel to a drum it is preferable for the rope to travel from the rope of the reel to the drum; or, from the bottom of the reel to the bottom of the drum. Re-reeling in this manner will avoid putting a reverse bend into the rope during installation. 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.



The correct (a) and the wrong (b) way to wind wire rope from reel to drum.

When unwinding wire rope from a coil, there are two suggested methods for carrying out this procedure in a proper manner;

1) One method involves placing a coil on a vertical unreeling stand. The stand consists of a plate 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 whole 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 easiest uncoiling method is merely to hold one end of the rope while rolling the coil along the ground like a hoop. The first two figures below show unreeling methods that are most likely to cause kinks. Such improper procedures must be avoided in order to prevent the occurrence of loops. These loops, when pulled taut, will inevitably result in kinks. 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.

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

Illustrating a ***wrong*** method of ***unreeling*** wire rope.

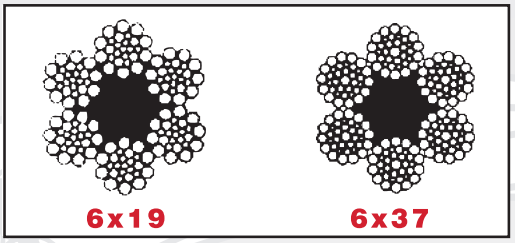
Illustrating a ***wrong*** method of ***uncoiling*** wire rope.

General Purpose Wire Ropes

6x19 & 6x37 CLASSIFICATION (Bright)

6 x 19 and 6 x 37 classification ropes provide an excellent balance between fatiguee and wear resistance. They give excellent service with sheaves and drums of moderate size.

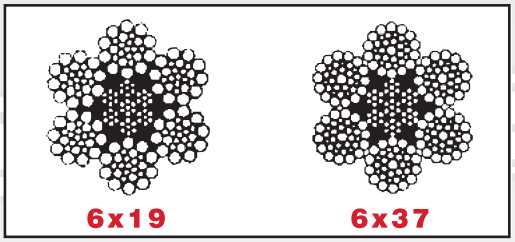
FIBER CORE



FIBER CORE (EIPS)		
DIAMETER (INCHES)	APPROX. WEIGHT PER FOOT IN POUNDS	BREAKING STRENGTH IN TONS*
1/4	.105	3.02
5/16	.164	4.69
3/8	.236	6.72
7/16	.32	9.1
1/2	.42	11.8
9/16	.53	14.9
5/8	.66	18.3
3/4	.95	26.2
7/8	1.29	35.4
1	1.68	46.0
1-1/8	2.13	57.8
1-1/4	2.63	71.1
1-3/8	3.18	85.5
1-1/2	3.78	101.0

Larger sizes available upon request.
*1 Ton = 2,000 lbs.

STEEL CORE (IWRC)



STEEL CORE IWRC (EIPS)		
DIAMETER (INCHES)	APPROX. WEIGHT PER FOOT IN POUNDS	BREAKING STRENGTH IN TONS*
1/4	.116	3.4
5/16	.18	5.27
3/8	.26	7.55
7/16	.35	10.2
1/2	.46	13.3
9/16	.59	16.8
5/8	.72	20.6
3/4	1.04	29.4
7/8	1.42	39.8
1	1.85	51.7
1-1/8	2.34	65.0
1-1/4	2.89	79.9
1-3/8	3.50	96.0
1-1/2	4.16	114.0

Larger sizes available upon request.
*1 ton = 2,000lbs.

MOBILE SPOOLING UNITS AVAILABLE 24 HOURS A DAY 7 DAYS A WEEK!

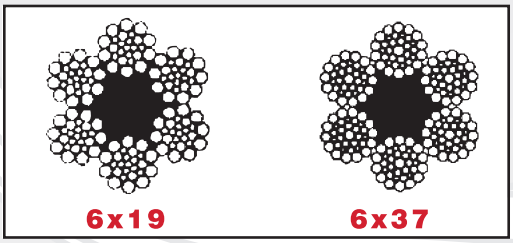
WARNING: Any warranties, expressed or implied, concerning these us of this product apply only to the nominal strength of new, unused wire rope. All equipment using this product must properly used and maintained. Wire rope must be properly stored, handled, used and maintained. Most importantly, wire rope must be regularly inspected during use. Damage, abuse or improper maintenance can cause rope failure. Consult the AISI rope removal criteria are based on the use of steel sheaves. If synthetic sheaves are used, consult the sheave equipment manufacturer. WARNING!

Read important warnings and information preceding wire rope section.

General Purpose Wire Ropes

6x19 & 6x37 CLASSIFICATION (GALVANIZED)

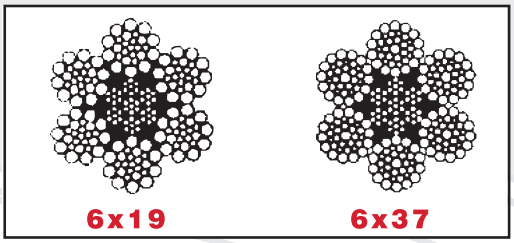
FIBER CORE



FIBER CORE (EIPS)		
DIAMETER (INCHES)	APPROX. WEIGHT PER FOOT IN POUNDS	BREAKING STRENGTH IN TONS*
1/4	.105	3.01
5/16	.164	4.22
3/8	.236	6.04
7/16	.32	8.19
1/2	.42	10.6
9/16	.53	13.4
5/8	.66	16.4
3/4	.95	23.5
7/8	1.29	31.8
1	1.68	41.4
1-1/8	2.13	52.0
1-1/4	2.63	63.9
1-3/8	3.18	76.9
1-1/2	3.78	90.9

Larger sizes available upon request.
*1 Ton = 2,000 lbs.

STEEL CORE (IWRC)



STEEL CORE IWRC (EIPS)		
DIAMETER (INCHES)	APPROX. WEIGHT PER FOOT IN POUNDS	BREAKING STRENGTH IN TONS*
1/4	.116	3.4
5/16	.18	4.74
3/8	.26	6.79
7/16	.35	9.2
1/2	.46	11.9
9/16	.59	15.1
5/8	.72	18.5
3/4	1.04	26.4
7/8	1.42	35.8
1	1.85	46.5
1-1/8	2.34	58.5
1-1/4	2.89	71.9
1-3/8	3.50	86.4
1-1/2	4.16	102.6

Larger sizes available upon request.
*1 ton = 2,000lbs.

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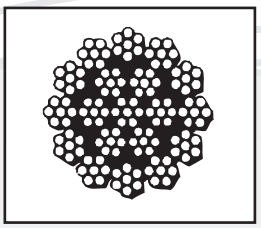
General Purpose Wire Ropes

19x7 CLASSIFICATION

In an application where a single-part hoist rope is used to lift a free load – or where rotation-resistant properties are essential for rope performance – the 19x7 can be used. Its rotation-resistant characteristic is achieved by laying six strands around a core strand in one direction, then laying 12 strands around the first operation in the opposite direction. When the rope is in tension, opposing rotational forces are created between the inner and outer layers. Frequent and regular inspection for broken wires is critical when using rotation resistant rope.

ROTATION RESISTANT



19 X 7 ROTATION RESISTANT		
ROPE DIAMETER (INCHES)	APPROX. WEIGHT PER FOOT POUNDS	BREAKING STRENGTH IN TONS*
1/4	.11	2.77
5/16	.18	4.30
3/8	.25	6.15
7/16	.35	8.33
1/2	.45	10.8
9/16	.57	13.6
5/8	.71	16.8
3/4	1.01	24.0
7/8	1.39	32.5
1	1.82	42.2

*1 ton = 2000 lbs.

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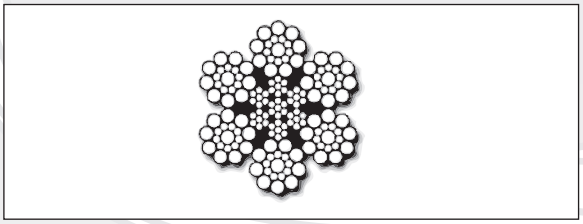
Read important warnings and information preceding wire rope section.

General Purpose Wire Ropes

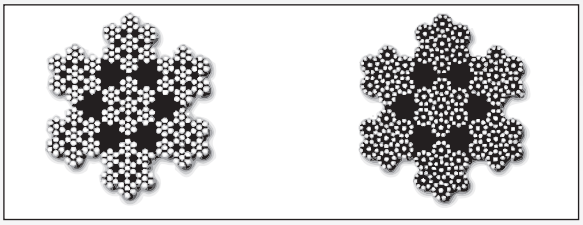
STAINLESS STEEL (GALVANIZED CABLE-LAID)

6 X 19 STAINLESS STEEL WIRE ROPE (TYPE 304)



6 X 19 IWRC		
ROPE DIAMETER (INCHES)	APPROX. WEIGHT PER FOOT POUNDS	BREAKING STRENGTH IN TONS*
7/16	.35	8.15
1/2	.46	11.4
9/16	.59	14.25
5/8	.72	17.5
3/4	1.04	24.8
1	1.85	42.7

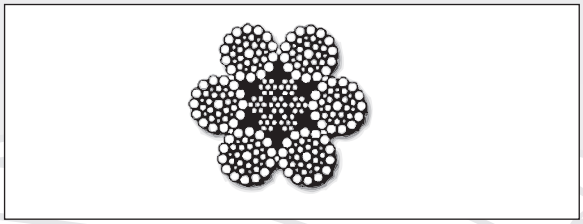
CABLE-LAID WIRE ROPE (GALVANIZED - PREFORMED)



7 X 7 X 7 CABLE-LAID & 7 X 7 X 19 CABLE-LAID			
ROPE DIAMETER (INCHES)	CONSTRUCTION	APPROX. WEIGHT PER FOOT POUNDS	BREAKING STRENGTH IN TONS*
3/8	7 x 7 x 7	.21	5.7
1/2	7 x 7 x 7	.37	9.75
5/8	7 x 7 x 7	.58	14.6
3/4	7 x 7 x 19	.88	21.4
7/8	7 x 7 x 19	1.19	28.4
1	7 x 7 x 19	1.56	36.2
1-1/8	7 x 7 x 19	1.94	44.7
1-1/4	7 x 7 x 19	2.2	53.7

*1 ton = 2000 lbs.

6 X 37 STAINLESS STEEL WIRE ROPE (TYPE 304)



6 X 36 WARRINGTON SEALE IWRC		
ROPE DIAMETER (INCHES)	APPROX. WEIGHT PER FOOT POUNDS	BREAKING STRENGTH IN TONS*
5/16	.18	4.15
3/8	.24	5.85
7/16	.35	7.9
1/2	.46	10.4
9/16	.59	12.8
5/8	.72	15.7
3/4	1.04	22.2
7/8	1.42	29.85
1	1.85	38.65
1-1/8	2.34	48.5
1-1/4	2.89	62.8
1-3/8	3.50	75.75

*Listed for comparison only. Actual operating loads may vary, but should never exceed recommended design factor or 20% of catalog breaking strength.

(Other sizes & constructions available upon request)

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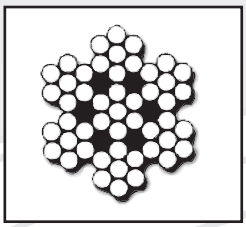
Read important warnings and information preceding wire rope section.

General Purpose Wire Ropes

7 X 7 / 7 X 19 WIRE ROPE (AIRCRAFT CABLE)

"Aircraft cable" has become an accepted industry term for small diameter 7x7 and 7x19 construction wire rope. It is not intended for aircraft use, but designed for industrial and marine applications.

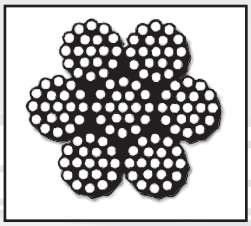
GALVANIZED WIRE ROPE



7 X 7 CLASSIFICATION		
CABLE DIAMETER (INCHES)	APPROX. WEIGHT PER FOOT POUNDS	BREAKING STRENGTH IN POUNDS
1/16	.007	480
5/64	.011	650
3/32	.016	920
1/8	.028	1700
5/32	.043	2600
3/16	.062	3700
1/4	.106	6100

7 X 19 CLASSIFICATION		
CABLE DIAMETER (INCHES)	APPROX. WEIGHT PER FOOT POUNDS	BREAKING STRENGTH IN POUNDS
3/32	.017	1000
1/8	.029	2000
5/32	.045	2800
3/16	.065	4200
7/32	.086	5600
1/4	.110	7000
5/16	.173	9800
3/8	.243	14,400

STAINLESS STEEL WIRE ROPE (TYPE 304)



7 X 7 CLASSIFICATION		
CABLE DIAMETER (INCHES)	APPROX. WEIGHT PER FOOT POUNDS	BREAKING STRENGTH IN POUNDS
1/16	.007	480
3/32	.016	920
1/8	.028	1760
3/16	.062	3700

7 X 19 CLASSIFICATION		
CABLE DIAMETER (INCHES)	APPROX. WEIGHT PER FOOT POUNDS	BREAKING STRENGTH IN POUNDS
3/32	.017	920
1/8	.029	1760
5/32	.045	2400
3/16	.065	3700
7/32	.086	5000
1/4	.110	6400
5/16	.173	9000
3/8	.243	12,000

*Listed for comparison only. Actual operating loads may vary but should never exceed recommended design factor or 20% of catalog breaking strength.

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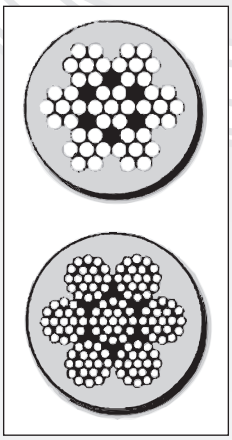
General Purpose Wire Ropes

VINYL COATED CABLE

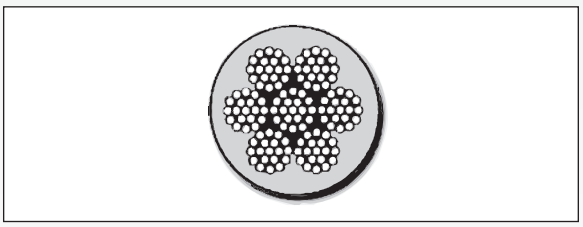
"Aircraft cable" has become an accepted industry term for small diameter 7x7 and 7x19 construction wire rope. It is not intended for aircraft use but designed for industrial and marine applications. When using wire rope clips with plastic coated cable, match clip size to uncoated cable diamter (1/4" cable coated to 5/16" takes 1/4" clip). Remove plastic coating from cable where clips will be positioned for full holding power.

CLEAR VINYL COATED GALVANIZED CABLE



CLEAR VINYL COATED GALVANIZED CABLE				
CABLE DIAMETER (INCHES)	COATED TO (INCHES)	APPROX. WEIGHT PER 1,000 FOOT IN POUNDS	BREAKING STRENGTH IN POUNDS	CONSTRUCTION
1/16	3/32	9.3	480	7 x 7
1/16	1/8	11.8	480	7 x 7
3/32	1/8	18.5	920	7 x 7
3/32	3/16	25.8	920	7 x 7
1/8	3/16	35.2	1,700	7 x 7
3/32	1/8	19.9	1,000	7 x 19
1/8	3/16	36.2	2,000	7 x 19
3/16	1/4	77.5	4,200	7 x 19
1/4	5/16	123.0	7,000	7 x 19
5/16	3/8	197.0	9,800	7 x 19
3/8	7/16	270.0	14,400	7 x 19

VINYL COATED STAINLESS CABLE (TYPE 304)



CLEAR VINYL COATED STAINLESS CABLE				
CABLE DIAMETER (INCHES)	COATED TO	APPROX. WT. PER 1,000 FT. POUNDS	BREAKING STRENGTH IN POUNDS	CONSTRUCTION
1/8	3/16	36.2	1,760	7 x 19
3/16	1/4	77.5	3,700	7 x 19
1/4	5/16	123.0	6,400	7 x 19
5/16	3/8	197.0	9,000	7 x 19
3/8	7/16	270.0	12,000	7 x 19

Additional colors available upon request.

*Listed for comparison only. Actual operating loads may vary, but should never exceed recommended design factor or 20% of catalog breaking strength.

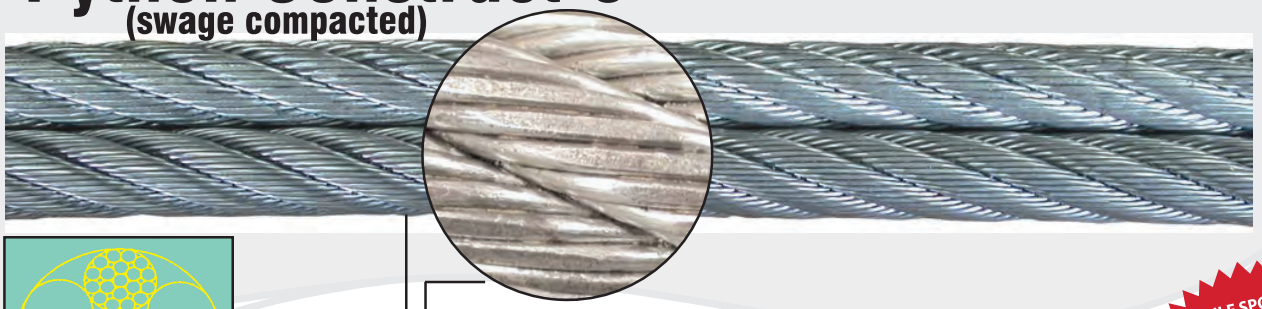
WARNING: Any warranties, expressed or implied, concerning these us of this product apply only to the nominal strength of new, unused wire rope. All equipment using this product must properly used and maintained. Wire rope must be properly stored, handled, used and maintained. Most importantly, wire rope must be regularly inspected during use. Damage, abuse or improper maintenance can cause rope failure. Consult the AISI rope removal criteria are based on the use of steel sheaves. If synthetic sheaves are used, consult the sheave equipment manufacturer. WARNING!

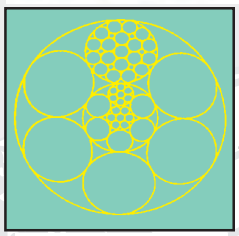
Read important warnings and information preceding wire rope section.

High Performance Wire Ropes

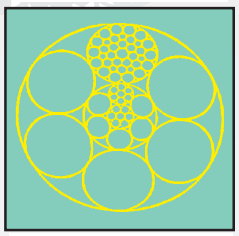
Python Construct-6 CRUSH RESISTANT BOOM HOIST ROPE

(swage compacted)





Up to 7/8 - 24 mm
6 F-V



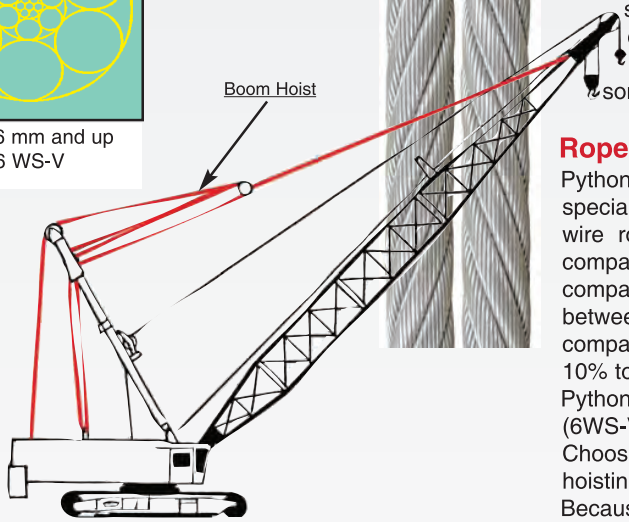
1" - 26 mm and up
6 WS-V

6-strand crush resistant high strength rope
compacted design to increase strength
MaxFlat™ compression for optimum sheave contact

MOBILE SPOOLING UNITS AVAILABLE 24 HOURS A DAY 7 DAYS A WEEK!

Python® Construct-6 types are available in right- and left hand lay. Ask for availability from stock.

Boom Hoist



Main Applications:

High strength standard 6-strand rope for applications which require a crush resistant rope to be used on multiple layer winding systems; e.g. boom hoist on lattice boom mobile- and tower cranes. This rope has also shown remarkable performance gains as main hoist rope on port container cranes and on some overhead crane applications.

Rope Characteristic:

Python® Construct-6 is a swaged rope which is constructed from specialty made engineered and sized 6-strand wire rope. The basic wire rope is already manufactured with purpose intend to be compacted (or swaged) into the finished product. The degree of compacting is carefully selected to ensure the best compromise between crush- and fatigue resistance. The strength increase compared to standard 6-strand ropes varies between about plus 10% to 35% depending on rope diameter.

Python® Construct-6 is available as a 25 wire (6 F-V) or 36 wire (6WS-V) construction, in left- and right lay, bright or galvanized. Choose 6 F-V as Boom Hoist rope, 6 WS-V for single layer drum hoisting.

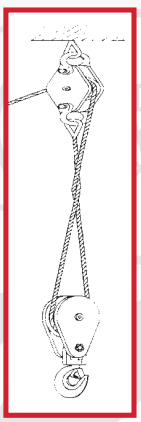
Because of the compacting process most of the rope's initial stretch (constructional stretch) has already been removed.

Python® Construct-6 is NOT rotation resistant or non-rotating

Standard:
DIN 2078/3051 where applicable.

Do NOT use Python® Construct-6 wire rope attached to a swivel. The rope WILL unlay resulting in an unsafe condition.

**Block Twisting (Cabling) will occur when used exceeding certain lifting heights.
Call for advice**



High Performance Wire Ropes

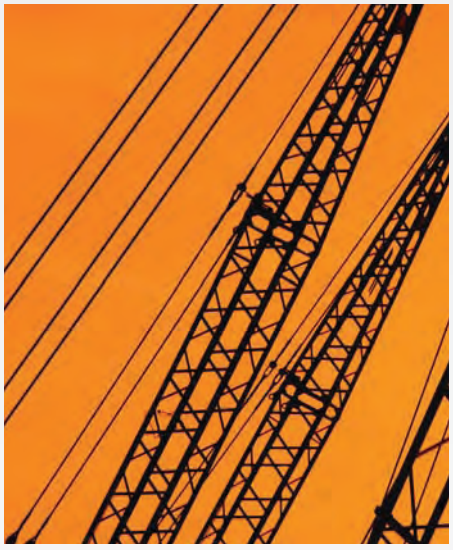
MOBILE SPOOLING UNITS AVAILABLE 24 HOURS A DAY 7 DAYS A WEEK!

6-strand compacted wire rope

Construction:

6 F-V (up to 7/8" or 24 mm)
6 WS-V (1" / 26 mm and up)

6-strand rope with flat outer wire surface resisting drum crushing and aiding in better multiple layer spooling. Compacting removes most of constructional stretch.



Boom Hoist Rope Applications

Boom and Main Hoist Ropes

Overhead Crane Applications

Breaking Strengths

Note: The maximum CAPACITY, WORKING LOAD LIMIT (WLL), or LINE PULL of the rope usually is 1/5 of the below stated values. For specific information consult the standards applicable to your rope application.

Imperial Python® *Construct-6*

Rope dia. inch	Nominal Strength in tons of 2000 lbs EIPS	Weight per foot lbs
5/16	7.5	.25
3/8	10.5	.36
7/16	13.1	.44
1/2	17.6	.59
9/16	20.1	.68
5/8	25.8	.87
3/4	36.5	1.18
7/8	48.5	1.55
1	62.6	2.03
1-1/4	79.5	2.37
1-1/4	94.8	3.15

Metric Python® *Construct-6*

Rope dia. mm	Minimum Strength 1960 N/mm² kN	tons of 2000 lbs	Weight per mtr kgs
8	67.1	7.5	.37
9	82.2	9.2	.46
10	98.3	11.0	.55
11	116.2	13.1	.65
12	135.6	15.2	.76
13	156.3	17.6	.87
14	178.5	20.1	1.01
15	202.5	22.8	1.13
16	229.9	25.8	1.29
18	283.1	31.8	1.59
19	313.0	25.2	1.75
20	342.9	38.5	1.91
22	408.6	45.9	2.30
24	481.2	54.1	2.70
26	561.0	63.1	3.16
28	631.2	70.9	3.52
30	737.4	82.9	4.10
32	843.4	94.8	4.68
34	952.6	107.1	5.34
36	1061.8	119.3	6.03

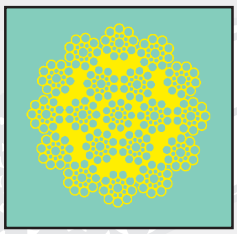
High Performance Wire Ropes

Python Compac 18

(strand compacted)

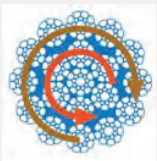
ROTATION RESISTANT FOR MULTI-LAYER DRUMS

MOBILE SPOOLING UNITS AVAILABLE 24 HOURS A DAY 7 DAYS A WEEK!



Compac 18 (18x19)

- 12 outer rope strands
- 19 wire SEALE strand construction for better flexibility
- Complete rope is compacted for increased abrasion resistance and better spooling
- Inner strands are reversed lay to provide rotation resistance feature



2-layer type

Python® Compac 18 ropes are ROTATION RESISTANT but NOT non-rotating.

Main Applications:

Python® Compac 18 is recommended for both multipart load and single part applications where a medium rotational stability is needed. Use as main- and auxiliary hoist line on GROVE, LINK BELT, MANITOWOC, TEREX and other US made mobile- and truck cranes. Often used as a single point line. Large lifting heights will require a tag line to prevent spinning of the load.

Also used very successfully as a pulling rope on underground cable pulling winches.

NOT recommended for construction tower cranes.

Rope Characteristic:

Using the rope to it's maximum fatigue life will cause the rope to deteriorate from the inside out. For this reason we do not recommend this rope to be used on construction for tower cranes. However, mobile and truck mounted cranes are operated on a much less severe duty cycle and it is not expected that Python® Compac18 has to be replaced because of inner rope fatigue but because of other mechanical damages. Keep in mind that this statement covers normal mobile crane use only.

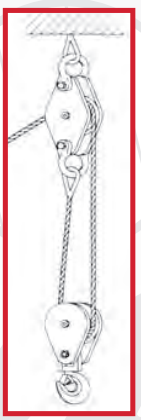
Compacted strands provide improved abrasion resistance as compared with round wire types because of the greater wire and strand bearing surfaces contacting sheaves and drums.

Python® Compac 18 wire ropes are more resistant to the effects of drum crushing than 19x7 due to the compacted strands and smoothness of the rope surface.

With 18 strands of 19 wires in all sizes, Python® Compac 18 remains extremely flexible and easy to handle.

Do NOT use Python® Compac 18 wire rope attached to a swivel or have one or both rope ends rotate freely under load. Doing so will result in a loss of rope strength of between 30% to 40%.

Block Twisting (Cabling) will occur when used exceeding certain lifting heights. This is NOT a non-rotating rope. Call for advice



High Performance Wire Ropes

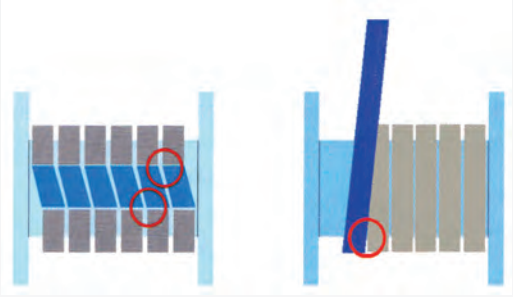
MOBILE SPOOLING UNITS AVAILABLE 24 HOURS A DAY 7 DAYS A WEEK!

Steel Wire Rope, Rotation Resistant, Compacted

Construction:
18 x 19 IWRC, compacted, bright, RRL

Python® Compac 18 is recommended where a medium rotational stability is needed. Use as main- and auxiliary hoist line on GROVE, LINK BELT, MANITOWOC, TEREX and other US made smaller mobile- and truck cranes. Often used as a single point line. Larger lifting heights will require a tag line to prevent spinning of the load and/or block twisting.

NOT recommended for construction tower cranes.



The compacting process results in a very smooth rope surface greatly reducing abrasion and damage at the cross-over points and at the outside of the drum due to fleet angles.

Breaking Strengths

Note: The maximum CAPACITY, WORKING LOAD LIMIT (WLL), or LINE PULL of the rope usually is 1/5 of the below stated values. For specific information consult the standards applicable to your rope application.

Python® Compac 18
(18 x 19 rotation resistant)

Rope dia. inch	Nominal Strength tons of 2000 lbs EIPS	Weight per foot lbs
3/8	7.6	.30
7/16	10.4	.40
1/2	14.5	.54
9/16	18.4	.69
5/8	22.7	.85
3/4	32.7	1.25
7/8	44.5	1.68
1	58.1	2.17
1-1/8	73.5	2.74

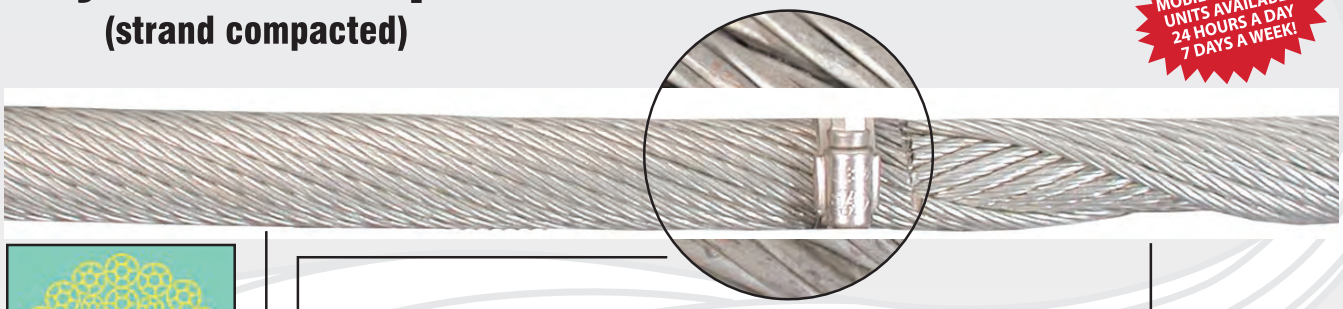
High Performance Wire Ropes

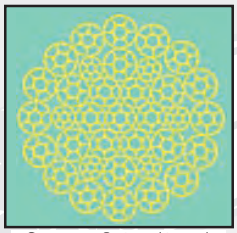
Python Compac 35

(strand compacted)

NON-ROTATING WIRE ROPE

MOBILE SPOOLING UNITS AVAILABLE 24 HOURS A DAY 7 DAYS A WEEK!





Compac® 35 (35x7)

- 16 outer rope strands (19x7 has 12 only)
- Compacted rope design
- Outer wires are die drawn to provide a smooth rope surface thus enhancing spooling characteristic (less interlocking on drum)
- Inner strands are reversed lay to provide good non-rotating properties of the rope.

3-layer type

Main Applications:

Main- and auxiliary hoist line for european type mobile- and for all types of construction tower- and offshore cranes which require a high strength rotation resistant rope construction. The rotation resistant properties make this rope the preferred choice for all single- and multiple line reeving applications.

Rope Characteristic:

This rope is constructed from 16 outer die-drawn strands over 12 inner die-drawn strands. The compacted Lang Lay strands reduce interlocking while spooling onto multiple layer drums as well as inter strand- and inter layer nicking.

This rope is suited to be used on tower cranes as well as european made mobile crane models. Python® Compac 35 comes with a limited diameter tolerance of between +2% to +4% to comply with LEBUS drum criteria. The large number of outer strands distribute the pressures introduced by sheaves and drum more evenly onto the core minimizing the danger of unexpected rope failures because of undetected core deterioration.

Aside from this safety issue Python® Compac 35 satisfies the high-strength requirements of late model tower- and mobile cranes which can NOT be met with neither 19x7 nor 19x19 style ropes. Recommended to be used on grooved drums.

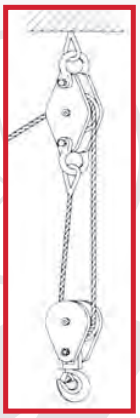
Python® Compac 35 is available in right- AND left hand lay to comply with OEM specifications (Krupp, Demag, Liebherr etc.)

Python®Compac 35 ropes are classified as NON-ROTATING

O.K. to use

YES, Python® Compac 35 ropes can be used with a swivel at the end. In fact, we suggest you use a swivel during installation and the 'break-in' period to get the rope settled. After the break in period you can lock the swivel to stabilize the rope.

When properly used Python® Compac 35 is stable against block twisting. Fleet angles, small sheaves, small line spacing, low block weight will negatively impact this characteristic.



High Performance Wire Ropes

Breaking Strengths

Note: The maximum CAPACITY, WORKING LOAD LIMIT (WLL), or LINE PULL of the rope usually is 1/5 of the below stated values. For specific information consult the standards applicable to your rope application.

MOBILE SPOOLING UNITS AVAILABLE 24 HOURS A DAY 7 DAYS A WEEK!

Non-Rotating Steel Wire Rope, Python Compac 35 Euro Style - Lang's Lay

Class & Construction:
35 x 7 die-drawn strands (up to 42 mm / 1 - 5/8")
35 x 19 die-drawn strnads (over 44 mm / 1 - 3/4" and up)

Recommended to be used on tower-, european type mobile-, and offshore cranes. Available in left- and right hand lang's lay construction. Recommended if you require a rope for single line hoisting applications.

Due to reduced diameter tolerance to between +2% to +4% it conforms to the tight LEBUS drum specification

ALLOWED to be used with a swivel.

Python® Compac 35 / *PLUS*

Rope dia. mm	Rope dia. inch	Minimum Breaking Strength Compac 35 tons of kN	2000 lbs	Compac 35 ***PLUS*** tons of kN	2000 lbs	Weight per meter kg
8	5/16	57	6.4			.29
9		73	8.2			.36
10		98	11.0			.44
11	7/16	118	13.2			.54
12		140	15.7			.65
13	1/2	162	18.2			.76
14	9/16	196	22.0			.96
15		226	25.4			1.12
16	5/8	253	28.5			1.25
17		287	32.2			1.41
18		317	35.6			1.56
19	3/4	358	40.2			1.76
20		402	45.1			1.98
21		444	49.9			2.19
22	7/8	482	54.1			2.37
23		527	59.2			2.62
24		565	63.5			2.81
25		615	69.1	656	73.7	3.06
	1	622	70.0	684	76.9	3.20
26		656	74.2	696	78.2	3.36
28		758	85.2	798	89.7	3.90
	1 - 1/8	773	86.6	814	91.5	4.06
30		892	100.2			4.44
32	1 - 1/4	1006	113.0	1085	121.9	5.00
34		1086	122.0			5.61
35	1 - 3/8	1148	129.0			5.92

Python® Compac 35

Rope dia. mm	Rope dia. inch	Minimum Breaking Strength kN	tons of 2000 lbs	Weight per meter kg
36		1221	137.2	6.31
37		1276	143.4	6.59
38	1 - 1/2	1371	154.1	7.08
40		1470	165.3	7.59
41	1 - 5/8	1483	166.7	8.05
42		1553	174.5	8.43
44	1 - 3/4	1839	206.7	9.50
46		1969	221.3	10.20
48	1 - 7/8	2156	242.3	11.10
50	2	2356	264.8	12.20
52		2554	287.1	13.20
54	2 - 1/4	2771	311.5	14.30
56		2923	328.5	15.10
58		3150	354.1	16.30
60	2 - 3/8	3390	381.0	17.50
62		3632	295.8	18.80
64	2 - 1/2	3850	432.7	19.90
66		4078	458.3	21.10
68		4349	488.8	22.50
70	2 - 3/4	4630	520.4	23.90
72		4870	547.4	25.20
74		5155	579.4	26.60
76	3	5410	608.1	27.90
78		5719	642.8	29.50
80	3 - 1/8	5994	673.7	31.00

Python Compac 35 is available up to a diameter of 4 -3/8" (112 mm)

Oilfield Wire Ropes

Sand Line

- Large outer wires for resistance to wear.
- Exceptional spooling characteristics.
- Resistance to kinking.
- Easy to splice.

MOBILE SPOOLING UNITS AVAILABLE 24 HOURS A DAY 7 DAYS A WEEK!

Diameter	Approx mass WSC		Breaking Strength	
in	lb/ft	kg/ft	tons	kN
3/8	0.21	0.09	5.90	52.20
7/16	0.29	0.13	7.90	70.60
1/2	0.38	0.17	10.30	91.70
9/16	0.48	0.21	13.00	115.70
5/8	0.59	0.26	15.90	141.50
3/4	0.84	0.37	22.70	202.00

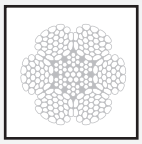
NOTE: Typical Construction 6x7 Fiber Core

Swaged Tubing Line

- Excellent resistance to crushing.
- High breaking force.
- Good resistance to abrasion.

Diameter	Approx mass WSC		Breaking Strength	
in	lb/ft	kg/ft	tons	kN
7/8	1.70	0.77	47.40	421.90
1	2.22	1.01	62.00	551.80
1 1/8	2.80	1.27	73.50	654.20

NOTE: Typical Construction 6x31 Swaged

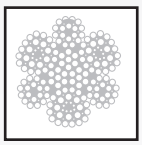


Tubing Line

- Combination of flexibility and resistance to crushing.
- Outstanding resistance to wear and fatigue.

Diameter	Approx mass WSC		Breaking Strength EIP	
in	lb/ft	kg/ft	tons	kN
3/4	1.04	0.46	29.40	261.70
7/8	1.41	0.62	39.80	354.20
1	1.85	0.82	51.70	460.10
1 1/8	2.34	1.03	65.00	578.50

NOTE: Typical Construction 6x26 IWRC



Constructex

- Swaged to increase wearing surface and density.
- Long service life due to resistance to scrubbing and crushing.
- High breaking force.
- Flexible construction.

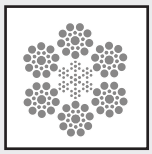
Diameter	Approx mass WSC		Breaking Strength EIP	
in	lb/ft	kg/ft	tons	kN
5/8	0.90	0.39	25.50	226.90
3/4	1.10	0.50	36.50	324.70
7/8	1.50	0.68	48.50	431.50
1	2.00	0.91	62.50	556.00
1 1/8	2.60	1.18	79.50	707.30
1 1/4	3.20	1.45	97.60	868.30
1 3/8	3.80	1.72	119.00	1058.70
1 1/2	4.60	2.09	139.00	1236.70
1 5/8	5.30	2.41	162.00	1441.30

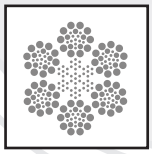
NOTE: Typical Construction 9x40 Swaged

WARNING: Any warranties, expressed or implied, concerning these us of this product apply only to the nominal strength of new, unused wire rope. All equipment using this product must properly used and maintained. Wire rope must be properly stored, handled, used and maintained. Most importantly, wire rope must be regularly inspected during use. Damage, abuse or improper maintenance can cause rope failure. Consult the AISI rope removal criteria are based on the use of steel sheaves. If synthetic sheaves are used, consult the sheave equipment manufacturer. WARNING!

Read important warnings and information preceding wire rope section.

Oilfield Wire Ropes



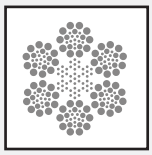


Drill Line

- Good Combination of strength, flexibility, and resistance to peening.
- Good resistance to wear and fatigue.
- Long service life when sheaves and drums are of moderate size.

Diameter	Approx mass		Minimum breaking force		Breaking Strength	
			EIP		EEIP	
in	lb/ft	kg/ft	tons	kN	tons	kN
1	1.85	0.82	51.70	460.10	56.90	506.40
1 1/8	2.34	1.03	65.00	578.50	71.50	636.40
1 1/4	2.89	1.28	79.90	711.10	87.90	782.30
1 3/8	3.49	1.54	96.00	854.40	106.00	943.40
1 1/2	4.16	1.84	114.00	1014.60	125.00	1112.50
1 5/8	4.88	2.15	132.00	1174.80	146.02	1299.40
1 3/4	5.66	2.50	153.00	1361.70	169.00	1504.10

Typical Construction 6x19(S) & 6x26(WS)



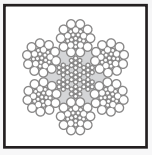
Riser Line

- Good Combination of strength and bending fatigue resitance.

Diameter	Approx mass		Breaking Strength	
			IPS	
in	lb/ft	kg/ft	tons	kN
1 3/4	5.66	2.57	133.0	1187.5
1 7/8	6.49	2.95	152.0	1357.1
2	7.39	3.36	172.0	1535.7
2 1/8	8.34	3.79	192.0	1714.3
2 1/4	9.35	4.25	215.0	1919.6
2 3/8	10.40	4.73	239.0	2133.9
2 1/2	11.60	5.27	262.0	2339.3
2 5/8	12.80	5.82	288.0	2571.4
2 3/4	14.00	6.36	314.0	2803.6
2 7/8	15.30	6.95	341.0	3044.6
3	16.60	7.55	370.0	3303.6

MOBILE SPOOLING UNITS AVAILABLE 24 HOURS A DAY 7 DAYS A WEEK!

Diameter	Approx mass		Breaking Strength	
in	lb/ft	kg/ft	tons	kN
1 3/4	5.66	2.57	133.0	1187.5
1 7/8	6.49	2.95	152.0	1357.1
2	7.39	3.36	172.0	1535.7
2 1/8	8.34	3.79	192.0	1714.3
2 1/4	9.35	4.25	215.0	1919.6
2 3/8	10.40	4.73	239.0	2133.9
2 1/2	11.60	5.27	262.0	2339.3
2 5/8	12.80	5.82	288.0	2571.4
2 3/4	14.00	6.36	314.0	2803.6
2 7/8	15.30	6.95	341.0	3044.6
3	16.60	7.55	370.0	3303.6



Dyplex Riser Line

- High breaking force
- Increased sheave and drum contact
- Excellent resistance to fatigue
- Reduced internal contact for greater fatigue life

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Read important warnings and information preceding wire rope section.

Well Service Products

Slicklines (Well Measuring Strand)

Minimum Breaking Loads (MBL)

Nominal Diameter		Plain Carbon IPS		UHT Carbon EIPS		316 Stainless Steel		Supa 75®		Rec. Minimum Pulley diameter	
Inches	mm	lbf	kN	lbf	kN	lbf	kN	lbf	kN	Inches	mm
0.082	2.08	1239	5.51	1610	7.2	1100	4.9	1240	5.5	10	254
0.092	2.34	1547	6.88	2050	9.1	1400	6.2	1550	6.9	11	279
0.108	2.74	2109	9.40	2730	12.1	1920	8.5	2100	9.0	13	330
0.125	3.18	2837	12.62	3665	16.3	2500	11.1	2700	11.4	15	381

General comparison of grades: Corrosion Protection

Nominal Diameter	H ₂S + CQ	Corrosive elements Chloride, Brine, Salt etc	Corrosive elements Chloride, H2S + CO2
Plain Carbon IPS	Very poor, may be used in low H2S (2-3ppm) and CO2 (2-3%)) with inhibitors	Good - Wire must be cleaned after use to prevent pitting	Extremely poor due to presence of H2S + CO2
UHT Carbon EIPS	Extremely poor - may not be used in any concentrations even with inhibitors	Good - Wire must be cleaned after use to prevent pitting	Extremely poor due to presence of H2S + CO2
316 Stainless Steel	May be used in concentrations of up to 30%	May be used in concentrations of up to 2-3%	May be used in concentrations of H2S ad CO2 up to 30% providing chlorides do not exceed 2-3%
Supa 75®	Excellent all concentrations	Excellent	Very Good

Weights

Nominal Diameter		Plain Carbon IPS		UHT Carbon EIPS		316 Stainless Steel		Supa 75®	
Inches	mm	lbs per 1000ft	kgs/100m	lbs per 1000ft	kgs/100m	lbs per 1000ft	kgs/100m	lbs per 1000ft	kgs/100m
0.082	2.08	18.15	2.70	18.15	2.70	18.15	2.70	18.46	2.75
0.092	2.34	22.66	3.37	22.66	3.37	22.90	3.41	23.29	3.47
0.108	2.74	31.23	4.65	31.23	4.65	31.56	4.70	32.10	4.78
0.125	3.18	41.84	6.23	41.84	6.23	42.28	6.29	43.00	6.40

CALL FOR DETAILS ON OUR REMOVAL & INSTALLATION SERVICES 24 HRS A DAY 7 DAYS A WEEK!

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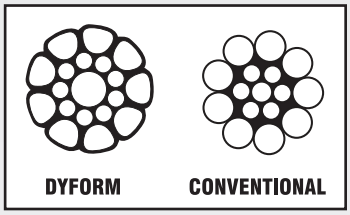
Read important warnings and information preceding wire rope section.

Well Service Products

Service Strands



General Information

Well Service Strands available in two constructions:-
1. 1X16 - Conventional
2. 1X19 - Dyform & Dyform Complete

- Well Service Strands are manufactured in continuous lengths on specialized reels.
- Strictly controlled and recorded maximum strand diameters, within API9A tolerances.
- Lengths manufactured from 15,000ft to 30,000ft. Longer lengths on selected sizes available on request.

Diameter		Recommended Flow Tube Diameter		Approx Weight Conventional Construction		Approx Weight Dyform Construction		Recommended Minimum Pulley Diameter	
Inches	mm	Inches	mm	lbs per 1000ft	kgs/100m	lbs per 1000ft	kgs/100m	Inches	mm
3/16	4.76	0.196	4.98	71	10.6	85	12.7	12	305
7/32	5.56	0.228	5.79	96	14.3	111	16.6	14	355
1/4	6.35	0.263	6.68	126	18.8	148	22.1	16	406
5/16	7.94	0.330	8.38	196	29.2	232	34.6	20	508

Minimum Breaking Loads (MBL)

		Galvanised				316 Stainless Steel				Supa 75®			
Diameter		Conventional		Dyform		Conventional		Dyform		Conventional		Dyform	
Inches	mm	lbf	kN	lbf	kN	lbf	kN	lbf	kN	lbf	kN	lbf	kN
3/16	4.76	4960	22.1	6170	27.5	3990	17.8	4940	22.0	4320	19.2	4960	22.1
7/32	5.56	6610	29.5	8370	37.3	5400	24.1	6500	29.0	5842	26.0	6500	26.7
1/4	6.35	8640	38.5	11200	49.9	7030	31.3	8640	38.5	7600	33.9	8530	38.0
5/16	7.94	13490	60.1	17550	78.2	11000	49.0	13560	60.4	11880	52.9	13380	59.6

Note: The Dyform strand offers higher strength and smoother external periphery which reduces the possibility of pressure leakage.

General comparison of grades: Corrosion Resistance

	H2S + C02	Corrosive elements Chloride, Brine etc	H2S + C02 + Chloride
Galvanized	Very Poor	Good	Extremely Poor
316 Stainless Steel	May be used in concentrations of up to 30%	2-3%	May be used in concentrations of up to 30% providing chlorides do not exceed 2-3%
Supa 75®	Excellent all conditions	Excellent	Very Good

Additional Information

Combinations of galvanized and ungalvanized wires are available on request. Other sizes, mechanical properties and constructions are also available upon request. All breaking loads quoted are guaranteed minimum values. Actual breaking loads are approximately 6% higher than the guaranteed minimum value.

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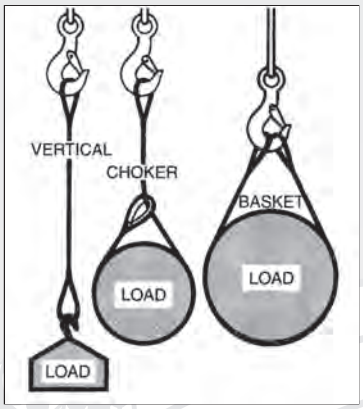
CALL FOR DETAILS ON OUR REMOVAL & INSTALLATION SERVICES 24 HRS A DAY 7 DAYS A WEEK!

Wire Rope Slings



EVERY LIFT USES 1 OF 3 BASIC HITCHES

VERTICAL, or straight, attachment is simply using a sling to connect a lifting hook or other device to a load. Full rated load of the sling may be used, but never exceeded. A tagline should be used on such a lift to prevent rotations which can damage the sling. A sling with a hand-tucked splice can unlay and fail if the sling is allowed to rotate.

CHOKER hitches reduce lifting capacity of a sling, since this method of rigging affects the ablity of the wire rope components to adjust during the lift, place angular loading on the body of the sling, and creates a small diameter bend in the sling body at the choke point.

BASKET hitches distribute a load equally between the two legs of a sling, within limitations imposed by the angles at which legs are rigged to the load. (See discussion of sling angles below.)

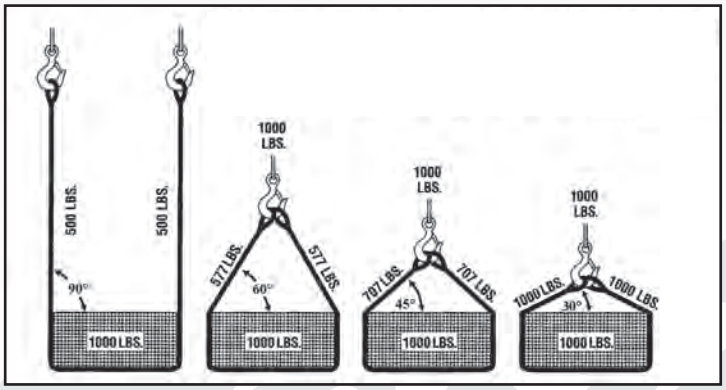
BASIC FACTORS CONCERNING USE OF WIRE ROPE SLINGS

1. RATED LOAD (Rated Capacity) of a wire rope sling is based upon the Minimum Breaking Force, or Published Catalog Strength, of the wire rope used in the sling. AND FACTORS which affect the overall strength of the sling. These factors include ATTACHMENT or SPLICING EFFICIENCY, the number of parts of rope in the sing, type of hitch (e.g., straight pull, choker hitch, basket hitch), DIAMETER AROUND WHICH THE BODY OF THE SLING IS BENT, and the diameter of pin (or hook) over which the eye of the sling is rigged.
2. RATED LOAD of a sling is different for each of the three basic methods of rigging (See graphic above). These rated loads are available from Horizon Cable and may be indicated on the tag attached to the sling at the time it is fabricated (if requested by the user).
3. WARNING: A hand-tucked eye splice can unlay (unravel) and fail if the sling is allowed to rotate during use.
4. NEVER "SHOCK LOAD" A SLING. There is no practical way to estimate the actual force applied by shock loading. The rated load of a wire rope sling can easily be exceeded by a sudden application of force, and damage can occur to the sling. The sudden release of a load can also damage the sling.
5. The BODY of a wire rope sling should be PROTECTED with corner protectors, blocking or padding against damage by sharp edges or corners of a load being lifted. Sharp bends that distort the sling body damage the wire rope and reduce its strength.
6. ANY ANGLE other than vertical at which a sling is rigged increases the loading on the sling.
7. A sling should be given VISUAL INSPECTION BEFORE EACH LIFT OR USAGE to determine if it is capable of safely making the intended lift.

An inspection should include looking for such things as:

- ✓ Broken wires
- ✓ Kinks or distortion of the sling body
- ✓ Condition of eyes and splices, and any attached hardware
- ✓ Reducton in diameter of the rope
- ✓ Any damage
- ✓ Corrosion

8. Whenever a sling is found to be deficient, the eyes must be cut, or other end attachments or fittings removed to prevent further use, and the sling body disgarded.
9. A SLING EYE should never be used over a hook or pin with a body diameter larger than the natural width of the eye. NEVER FORCE AN EYE ONTO A HOOK. The eye should always be used on a hook or pin with AT LEAST THE DIAMETER OF THE ROPE.



SLING ANGLES AFFECT THE LOAD ON THE LEGS OF SLING

SLING ANGLE (also called Angle of Loading) is the angle measured between a horizontal line and the sling leg or body. This angle is very important and can have a dramatic effect on the rated load of the sling. As illustrated here, when this angle DECREASES, the LOAD ON EACH LEG INCREASES. This principle applies whether one sling is used with legs at an angle in a basket hitch, or for mutli-leg bridle slings. Horizontal sling angles of LESS THAN 30 DEGREES SHALL NOT BE USED.

Wire Rope Slings

STANDARD COMBINATIONS

HOW TO ORDER WIRE ROPE SLINGS:

1. Select the proper wire rope diameter and the number of legs determined by the working load limit required (refer to the tables on the following pages).
2. Select the length of the assembly (measured bearing point to bearing point excluding the master link).
3. Select from one of the standard combinations listed below.
   Feel free to call your local Horizon Cable office for assistance.

*All slings include heavy duty engraved id tags in accordance with OSHA regulations.

Standard Combinations

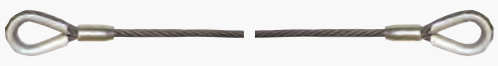
Standard Eye by Standard Eye

Standard Eye by Thimble

Standard Eye by Hook

Standard Eye by Crescent Thimble

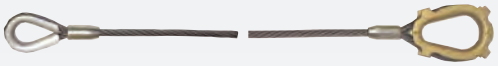
Standard Eye by Slip-Thru Thimble



Thimble by Thimble

Thimble by Hook

Thimble by Crescent Thimble



Thimble by Slip-Thru Thimble

Crescent Thimble by Hook

Crescent Thimble by Crescent Thimble

Slip-Thru Thimble by Hook

Slip-Thru Thimble by Slip-Thru Thimble

Sliding Choker

Standard Eye by Thimble (with sliding choker hook)

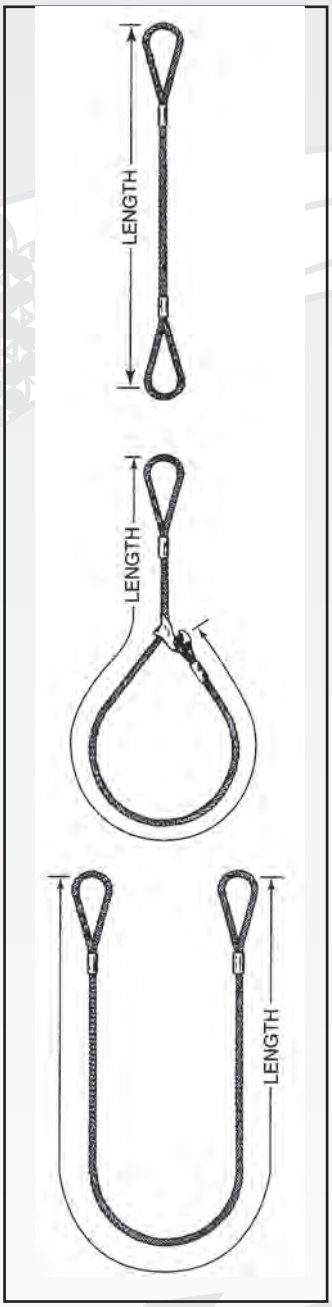
Standard Eye by Standard Eye (with sliding choker hook

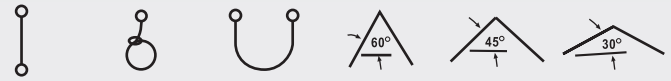
NOTE: Proof testing with certification documents available for all configurations.

Wire Rope Slings

SINGLE LEG SLINGS

Mechanical Splice





ROPE DIAMETER (INCHES)	VERTICAL	CHOKER	BASKET AT DEGREES VERTICAL BASKET	60 DEGREE	45 DEGREE	30 DEGREE
1/4	.65	.48	1.3	1.1	.91	.65
5/16	1	.74	2	1.7	1.4	1
3/8	1.4	1.1	2.9	2.5	2.0	1.4
7/16	1.9	1.4	3.9	3.4	2.7	1.9
1/2	2.5	1.9	5.1	4.4	3.6	2.5
9/16	3.2	2.4	6.4	5.5	4.5	3.2
5/8	3.9	2.9	7.8	6.8	5.5	3.9
3/4	5.6	4.1	11	9.7	7.9	5.6
7/8	7.6	5.6	15	13	11	7.6
1	9.8	7.2	20	17	14	9.8
1-1/8	12	9.1	24	21	17	12
1-1/4	15	11	30	26	21	15
1-3/8	18	13	36	31	25	18
1-1/2	21	16	42	37	30	21

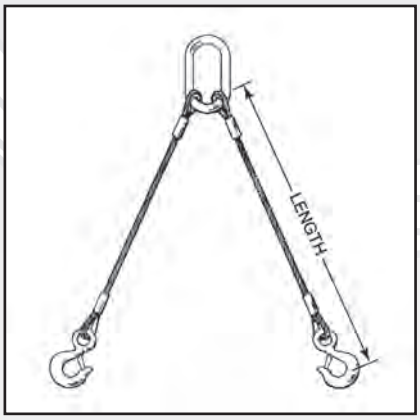
*Larger sizes available upon request.

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.
Rated Capacities shown apply only to 6x19 and 6x37 classification wire rope. - EIPS IWRC
Rated Capacity in Tons.

Wire Rope Slings

DOUBLE LEG SLINGS

Mechanical Splice



ROPE DIAMETER (INCHES)	DOUBLE LEG SLINGS		
	60 DEGREE	45 DEGREE	30 DEGREE
1/4	1.1	.91	.65
5/16	1.7	1.4	1
3/8	2.5	2	1.4
7/16	3.4	2.7	1.9
1/2	4.4	3.6	2.5
9/16	5.5	4.5	3.2
5/8	6.8	5.5	3.9
3/4	9.7	7.9	5.6
7/8	13	11	7.6
1	17	14	9.8
1-1/8	21	17	12
1-1/4	26	21	15
1-3/8	31	25	18
1-1/2	37	30	21

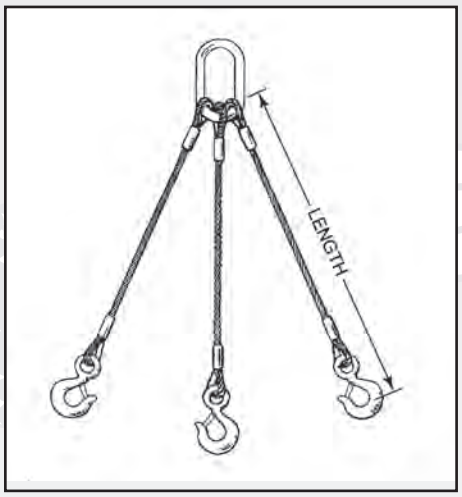
*Larger sizes available upon request.

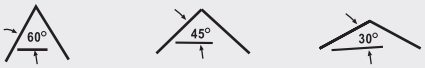
Rated Capacities Basket Hitch based on D/d ratio of 25.
Rated Capacities based on pin diameter no larger than natural eye width or less than the nominal sling diameter.
Rated Capacities based on design factor of 5.
Horizontal Sling angles less than 30 degrees shall not be used.
Rated Capacities shown apply only to 6x19 and 6x37 classification wire rope.- EIPS IWRC
Rated Capacity in tons

Wire Rope Slings

TRIPLE LEG SLINGS

Mechanical Splice





ROPE DIAMETER (INCHES)	TRIPLE LEG SLINGS		
	60 DEGREE	45 DEGREE	30 DEGREE
1/4	1.7	1.4	.97
5/16	2.6	2.1	1.5
3/8	3.7	3.0	2.2
7/16	5.0	4.1	2.9
1/2	6.6	5.4	3.8
9/16	8.3	6.8	4.8
5/8	10	8.3	5.9
3/4	15	12	8.4
7/8	20	16	11
1	26	21	15
1-1/8	31	26	18
1-1/4	38	31	22
1-3/8	46	38	27
1-1/2	55	45	32

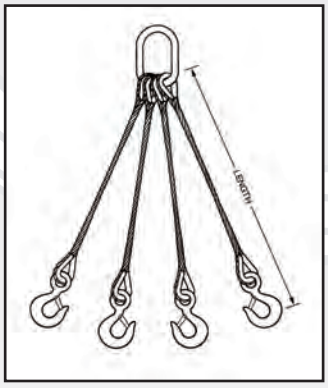
*Larger sizes available upon request.

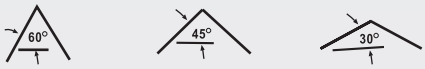
Rated Capacities Basket Hitch based on D/d ratio of 25.
Rated Capacities based on pin diameter no larger than natural eye width or less than the nominal sling diameter.
Rated Capacities based on design factor of 5.
Horizontal Sling angles less than 30 degrees shall not be used.
Rated Capacities shown apply only to 6x19 and 6x37 classification wire rope. - EIPS IWRC
Rated Capacity in tons.

Wire Rope Slings

QUAD LEG SLINGS

Mechanical Splice





ROPE DIAMETER (INCHES)	QUAD LEG SLINGS		
	60 DEGREE	45 DEGREE	30 DEGREE
1/4	2.2	1.8	1.3
5/16	3.5	2.8	2.0
3/8	5.0	4.1	2.9
7/16	6.7	5.5	3.9
1/2	8.8	7.1	5.1
9/16	11	9.0	6.4
5/8	14	11	7.8
3/4	19	16	11
7/8	26	21	15
1	34	28	20
1-1/8	42	34	24
1-1/4	51	42	30
1-3/8	62	50	36
1-1/2	73	60	42

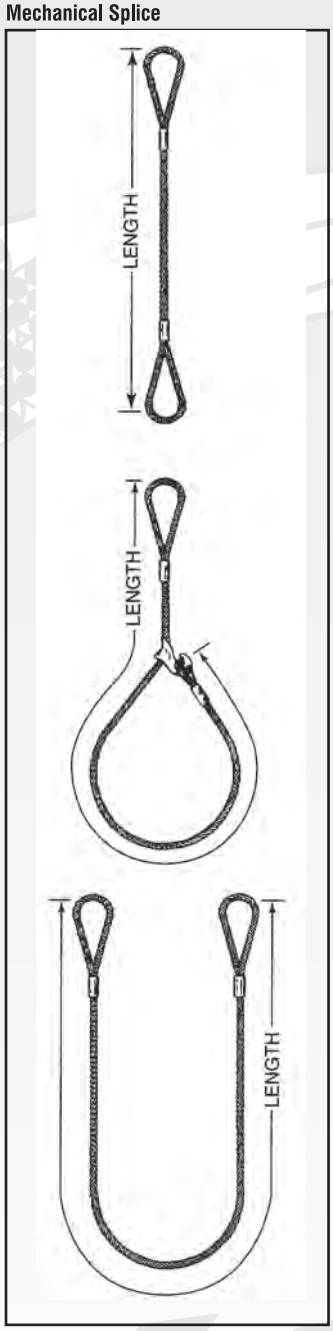
*Larger sizes available upon request.

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.
Rated Capacities shown apply only to 6x19 and 6x37 classification wire rope- EIPS IWRC.
Rated Capacity in tons.

STAINLESS STEEL TYPE 302 & 304 IWRC

SINGLE LEG SLINGS

Mechanical Splice



ROPE DIAMETER (INCHES)	VERTICAL	CHOKER	VERTICAL BASKET
1/4	.61	.45	1.2
5/16	.86	.63	1.7
3/8	1.1	.84	2.3
7/16	1.5	1.1	3.1
1/2	2.2	1.6	4.3
9/16	2.7	2.0	5.4
5/8	3.3	2.5	6.7
3/4	4.7	3.5	9.4
7/8	6.3	4.7	13
1	8.1	6.0	16
1-1/8	10	7.4	20
1-1/4	12	9.1	25
1-3/8	14	11	29
1-1/2	17	13	34

*Larger sizes available upon request.

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 diamete r.
Rated Capacities based on design factor of 5.
Horizontal Sling angles less than 30 degrees shall not be used.
Rated Capacities shown apply only to 6x19 and 6x37 classific ation wire rope.
Rated Capacity in tons

Wire Rope Slings

STAINLESS STEEL TYPE 302 AND 304 IWRC

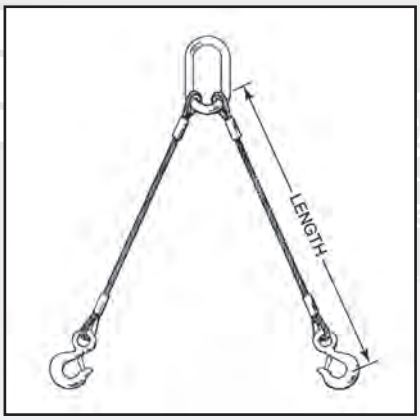
ROPE DIAMETER (INCHES)	60 DEGREE	45 DEGREE	30 DEGREE
1/4	1.1	0.86	0.61
5/16	1.5	1.2	0.86
3/8	2.0	1.6	1.1
7/16	2.7	2.2	1.5
1/2	3.8	3.1	2.2
9/16	4.7	3.8	2.7
5/8	5.8	4.7	3.3
3/4	8.2	6.7	4.7
7/8	11	8.9	6.3
1	14	11	8
1-1/8	17	14	10
1-1/4	21	17	12
1-3/8	24	20	14
1-1/2	29	24	17

*Larger sizes available upon request.

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.
Rated Capacities shown apply only to 6x19 & 6x37 classification wire rope
Rated Capacity in tons.

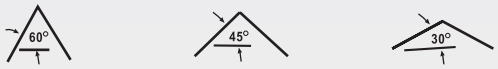
DOUBLE LEG SLINGS

Mechanical Splice



Wire Rope Slings

STAINLESS STEEL TYPE 302 AND 304 IWRC



ROPE DIAMETER (INCHES)	60 DEGREE	45 DEGREE	30 DEGREE
1/4	1.6	1.3	0.91
5/16	2.2	1.8	1.3
3/8	3.0	2.4	1.7
7/16	4.0	3.3	2.3
1/2	5.6	4.6	3.2
9/16	7.1	5.8	4.1
5/8	8.6	7.1	5.0
3/4	12	10	7.1
7/8	16	13	9.5
1	21	17	12
1-1/8	26	21	15
1-1/4	31	25	18
1-3/8	36	30	21
1-1/2	43	35	25

*Larger sizes available upon request.

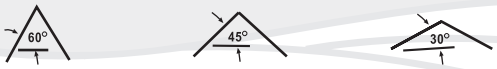
Rated Capacities Basket Hitch based on D/d ratio of 25
Rated Capacities based on pin diameter no larger than natural eye width or less than the nominal sling diameter.
Rated Capacities based on design factor of 5.
Horizontal Sling angles less than 30 degrees shall not be used.
Rated Capacities shown apply only to 6x19 & 6x37 classification wire rope.
Rated Capacity in tons.

TRIPLE LEG SLINGS

Mechanical Splice

Wire Rope Slings

STAINLESS STEEL TYPE 302 AND 304 IWRC



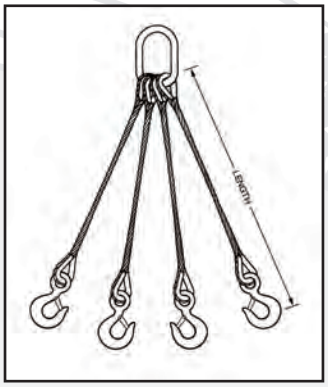
ROPE DIAMETER (INCHES)	60 DEGREE	45 DEGREE	30 DEGREE
1/4	2.1	1.7	1.2
5/16	3.0	2.4	1.7
3/8	3.9	3.2	2.3
7/16	5.4	4.4	3.1
1/2	7.5	6.1	4.3
9/16	9.4	7.7	5.4
5/8	12	9.4	6.7
3/4	16	13	9.4
7/8	22	18	13
1	28	23	16
1-1/8	34	28	20
1-1/4	41	34	24
1-3/8	49	40	28
1-1/2	58	47	33

*Larger sizes available upon request.

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.
Rated Capacities shown apply only to 6x19 & 6x37 classification wire rope.
Rated Capacity in tons.

QUAD LEG SLINGS

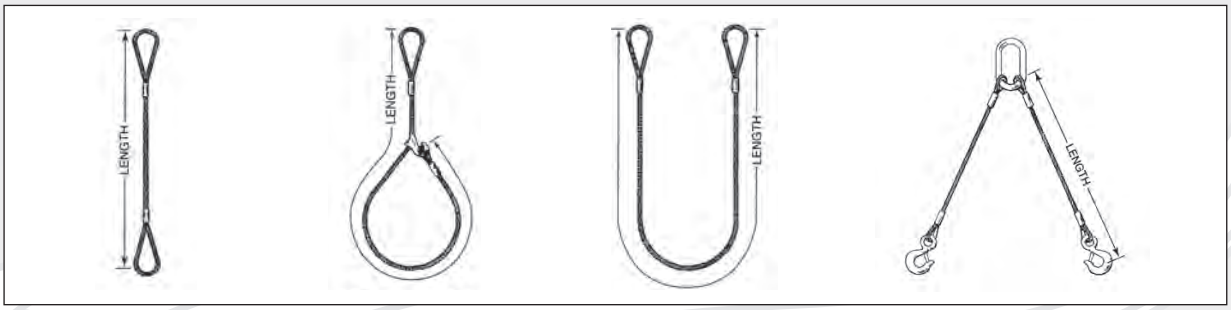
Mechanical Splice

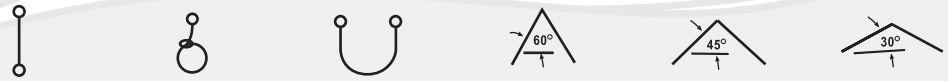


Wire Rope Slings

CABLE LAID SLINGS

MECHANICAL SPLICE



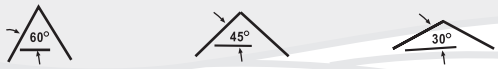


ROPE DIAMETER (INCHES)	SINGLE LEG SLINGS (GALV.) VERTICAL	CHOKER	VERTICAL BASKET	DOUBLE LEG SLINGS OR BASKET (GALV.) 60 DEGREE	45 DEGREE	30 DEGREE
7 x 7 x 7 CONSTRUCTION						
1/4	.50	.34	1.0	0.87	0.71	0.50
3/8	1.1	.74	2.2	1.9	1.5	1.1
1/2	1.9	1.3	3.7	3.2	2.6	1.9
5/8	2.8	1.9	5.5	4.8	3.9	2.8
3/4	3.8	2.7	7.6	6.6	5.4	3.8
7/8	5.0	3.5	10	8.7	7.1	5.0
1	6.4	4.5	13	11	9.1	6.4
7 x 7 x 19 CONSTRUCTION						
1/2	1.9	1.3	3.8	3.3	2.7	1.9
5/8	2.9	2.0	5.8	5.0	4.1	2.9
3/4	4.1	2.8	8.1	7.0	5.8	4.1
7/8	5.4	3.7	11	9.3	7.6	5.4
1	6.9	4.7	14	12	9.7	6.9
1-1/8	8.3	5.8	17	14	12	8.3
1-1/4	9.9	7.0	20	17	14	9.9

Rated Capacities Basket Hitch based on D/d ratio of 10 or greater.
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.
RatedCapacity in tons.

Wire Rope Slings

CABLE LAID SLINGS

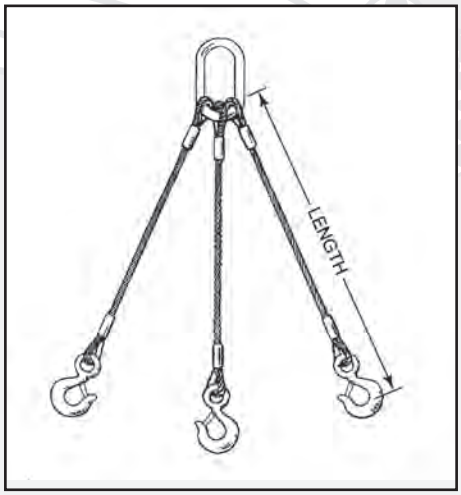


ROPE DIAMETER (INCHES)	60 DEGREE	45 DEGREE	30 DEGREE
	7 x 7 x 7 CONSTRUCTION		
1/4	1.3	1.1	0.76
3/8	2.8	2.3	1.6
1/2	4.8	3.9	2.8
5/8	7.2	5.9	4.2
3/4	9.9	8.1	5.7
	7 x 7 x 19 CONSTRUCTION		
1/2	4.9	4.0	2.9
5/8	7.5	6.1	4.3
3/4	11	8.6	6.1
7/8	14	11	8.1
1	18	15	10
1-1/8	21	18	12
1-1/4	26	21	15

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.
Rated Capacity in tons.

TRIPLE LEG SLINGS (GALVANIZED)

Mechanical Splice



Wire Rope Slings

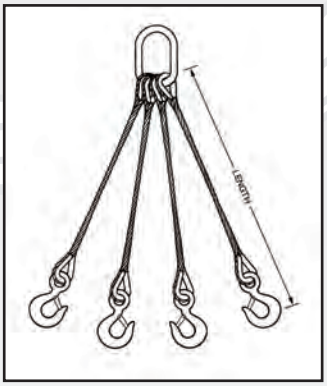
CABLE LAID SLINGS

ROPE DIAMETER (INCHES)	60 DEGREE	45 DEGREE	30 DEGREE
7 x 7 x 7 CONSTRUCTION			
1/4	1.7	1.4	1.0
3/8	3.8	3.1	2.2
1/2	6.4	5.2	3.7
5/8	9.6	7.8	5.5
3/4	13	11	7.6
7 x 7 x 19 CONSTRUCTION			
3/4	14	12	8.1
7/8	19	15	11
1	24	19	14
1-1/8	29	23	17
1-1/4	34	28	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.
Rated Capacity in tons

QUAD LEG SLINGS (GALVANIZED)

Mechanical Splice



Wire Rope Slings

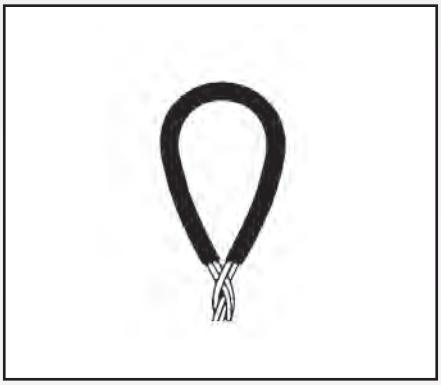
MULTI-PART WIRE ROPE SLINGS

Multi-Part slings are flexible, snug up tightly around the load in choker hitches, and quickly regain shape after a lift. They also offer outstanding handling characteristics, particularly in the large rated capacities. When loaded, stress is equally distributed to all rope parts in the sling body due to the helical manner in which ropes are laid together.

Braided slings are formed by continuosly plaiting, or braiding, several ropes together to form the sling body and both in a single fabrication operation. Ends of individual ropes are usually hand-tucked or mechanically spliced into component ropes of the body.

Braided slings are often selected where loads must be rolled or maneuvered, since the desgin creates friction to grip loads and resist rotation.

Additional multi-part sling configurations available upon request.



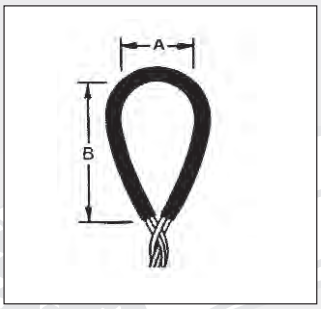
MULTI-PART BODY BRAIDED CONSTRUCTION

High flexibility is achieved by braiding, or plaiting, one or more wire ropes to form a fabric for the sling body. Component ropes run continuously through body and eyes, ends are hand-tucked into sling body or secured with pressed sleeves. 6-part sling is flat, 8-part sling is round.

Wire Rope Slings

8-PART BRAIDS

ROUND BRAID



BRAIDED WIRE ROPE BODY SINGLE LEG SLINGS

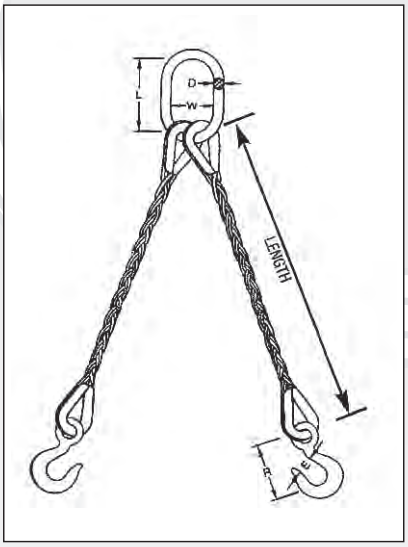
ROPE DIAMETER (INCHES)	SLING DIAMETER (INCHES)	RATED CAPACITY (TONS)* VERTICAL	CHOKER HITCH**	BASKET HITCH 60°	45°	30°	EYE A	EYE B	SLIP THRU THIMBLE	HD THIMBLE	HOOK NO.	CASING THIMBLE
IPS IWRC # 3/32	7/16	.56	0.49	1.1	0.97	0.79	0.56	2	4	W-2	5/16	1	--
IPS IWRC # 1/8	9/16	1.1	1.0	2.2	1.9	1.6	1.1	3	6	W-2	3/8	2	82
IPS IWRC # 3/16	13/16	1.9	1.6	3.7	3.2	2.6	1.9	4	8	W-3	1/2	3	83
IPS IWRC # 1/4	1-1/8	3.3	2.9	6.6	5.7	4.7	3.3	5	10	W-4	3/4	4	84
IPS IWRC # 5/16	1-3/8	5.1	4.5	10.0	8.9	7.3	5.1	6	12	W-5	1	5	85
IPS IWRC # 3/8	1-11/16	7.3	6.4	15.0	13.0	10.0	7.3	7	14	W-6	1-1/8	6	86
IPS IWRC 7/16	2	10.0	8.7	20.0	17.0	14.0	10.0	8	16	W-7	1-1/4	7	87
IPS IWRC 1/2	2-1/4	13.0	11.0	26.0	22.0	18.0	13.0	9	18	W-7	1-3/8	8	--
IPS IWRC 9/16	2-1/2	16.0	14.0	32.0	28.0	23.0	16.0	10	20	W-8	1-1/2	--	--
IPS IWRC 5/8	2-13/16	20.0	18.0	40.0	35.0	28.0	20.0	11	22	W-9	1-3/4	--	--
IPS IWRC 3/4	3-3/8	29.0	25.0	57.0	50.0	41.0	290	12	24	W-10	2	--	--
IPS IWRC 7/8	4	39.0	34.0	78.0	67.0	55.0	39.0	14	28	W-11	--	--	--
IPS IWRC 1	4-1/2	50.0	44.0	101.0	87.0	71.0	50.0	16	32	W-11	--	--	--

Made with 7 x 19 Galvanized component rope.
* Rated Capacities Basket Hitch based on D/d ratio of 25 times the component rope diameter.
** See Choker Hitch Rated Capacity Adjustment.
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.
Sling angles less than 30 degrees shall not be used.

All capacities in tons of 2,000 lbs. All eye and fitting dimensions in inches.

Wire Rope Slings

8-PART BRAIDS



BRAIDED WIRE ROPE BODY DOUBLE LEG SLINGS

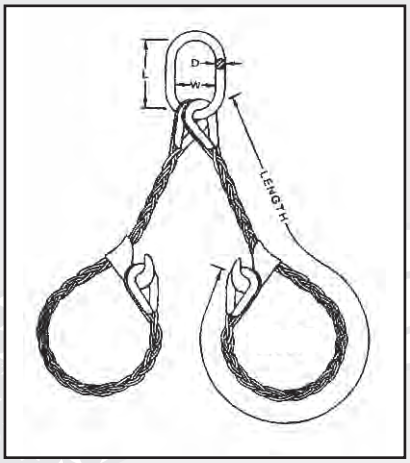
ROPE DIAMETER (INCHES)	60°	45°	30°	ALLOY MASTER LINK D	L	W	WWL TONS**	HOOK E	R
IPS IWRC # 3/32	0.97	0.79	0.56	1/2	5	2-1/2	3/4	15/16	3-7/32
IPS IWRC # 1/8	1.9	1.6	1.1	1/2	5	2-1/2	1-1/2	1-1/16	4-3/32
IPS IWRC # 3/16	3.2	2.6	1.9	3/4	5-1/2	2-3/4	3	1-1/2	5-3/4
IPS IWRC # 1/4	5.7	4.7	3.3	1	8	4	5	1-7/8	7-3/8
IPS IWRC # 5/16	8.9	7.3	5.1	1	8	4	7	1-7/8	7-3/8
IPS IWRC # 3/8	13.0	10.0	7.3	1-1/4	8-3/4	4-3/8	10	2-1/2	10-1/16
IPS IWRC 7/16	17.0	14.0	10.0	1-1/2	12	4-3/8	15	3-3/8	12-1/2
IPS IWRC 1/2	22.0	18.0	13.0	1-3/4	12	6	15	3-3/8	12-1/2
IPS IWRC 9/16	28.0	23.0	16.0	2	14	6	20	4	14-1/16
IPS IWRC 5/8	35.0	28.0	20.0	2	14	7	25	4-1/4	18-5/16
IPS IWRC 3/4	50.0	41.0	29.0	2-1/4	16	8	37	4-1/4	18-15/16

Made with 7 x 19 Galvanized component rope.
* Rated Capacities Basket Hitch based on D/d ratio of 25 times the component rope diameter.
** See Choker Hitch Rated Capacity Adjustment.
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.
Sling angles less than 30 degrees shall not be used.

All capacities in tons of 2,000 lbs. All eye and fitting dimensions in inches.

Wire Rope Slings

8-PART BRAIDS



BRAIDED WIRE ROPE BODY DOUBLE LEG CHOKERS

ROPE DIAMETER (INCHES)	SINGLE LEG CHOKER**	RATED CAPACITY (TONS)* 2 LEG CHOKER HITCH 60°	45°	30°	ALLOY MASTER LINK D	L	W	HOOK NO.	HD THIMBLE
IPS IWRC # 3/32	0.49	0.85	0.69	0.49	1/2	5	2-1/2	1	5/16
IPS IWRC # 1/8	0.98	1.7	1.4	0.98	1/2	5	2-1/2	2	3/8
IPS IWRC # 3/16	1.6	2.8	2.3	1.6	3/4	6	3	3	1/2
IPS IWRC # 1/4	2.9	5.0	4.1	2.9	1	8	4	4	3/4
IPS IWRC # 5/16	4.5	7.8	6.3	4.5	1	8	4	5	1
IPS IWRC # 3/8	6.4	11.0	9.1	6.4	1-1/4	8	4	6	1-1/8
IPS IWRC 7/16	8.7	15.0	12.0	8.7	1-1/2	12	6	7	1-1/4
IPS IWRC 1/2	11.0	20.0	16.0	11.0	1-1/2	12	6	8	1-3/8

Made with 7 x 19 Galvanized component rope.
* Rated Capacities Basket Hitch based on D/d ratio of 25 times the component rope diameter.
** See Choker Hitch Rated Capacity Adjustment.
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.
Sling angles less than 30 degrees shall not be used.

All capacities in tons of 2,000 lbs. All eye and fitting dimensions in inches.

Wire Rope Slings

STRAND LAID MECHANICAL SPLICE GROMMETS

A grommet is a special type of sling which forms a continuous loop. Grommets either have a wire rope body or a body made up of 6 strands which are laid helically around a strand core. A mechanical splice then forms an endless sling body. The minimum circumference is 96 times the body diameter.

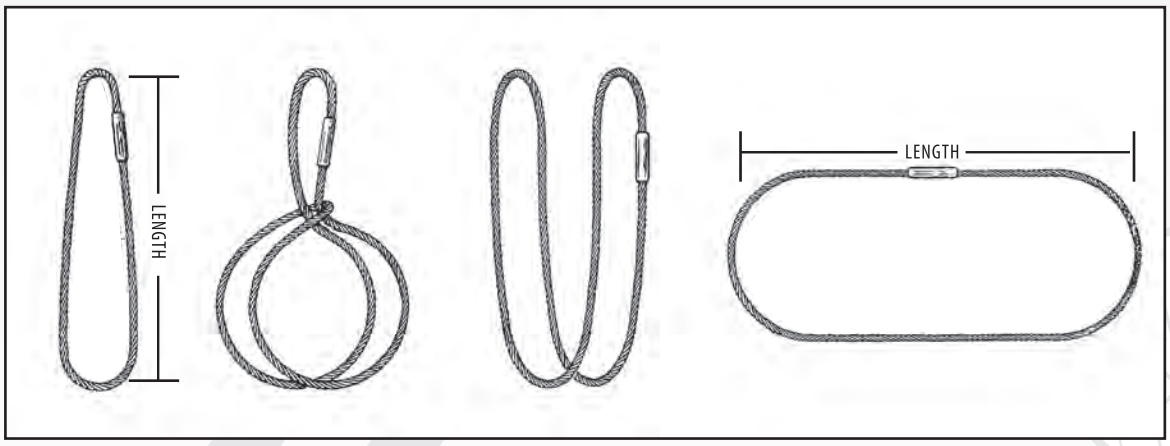
6 x 19 or 6 x 37 classification IWRC-EIPS

ROPE DIAMETER (INCHES)	RATED CAPACITY (TONS)*			BASKET HITCH		
	VERTICAL	CHOKER HITCH**		60°	45°	30°
1/4	1.1	.74	2.1	1.8	1.5	1.1
5/16	1.6	1.2	3.3	2.8	2.3	1.6
3/8	2.4	1.6	4.7	4.1	3.3	2.4
7/16	3.2	2.2	6.4	5.5	4.5	3.2
1/2	4.1	2.9	8.3	7.2	5.9	4.1
9/16	5.2	3.7	1	9.1	7.4	5.2
5/8	6.4	4.5	13	11	9.1	6.4
3/4	9.2	6.4	18	16	13	9.2
7/8	12	8.7	25	22	18	12
1	16	11	32	28	23	16
1-1/8	20	14	41	35	29	20
1-1/4	25	17	50	43	35	25
1-3/8	30	21	60	52	42	30
1-1/2	36	25	71	62	50	36

*Larger sizes available upon request.

Grommets are used in applications where the rigging might be too short for a standard eye & eye wire rope sling.

Grommets can be more desirable than eye & eye wire rope slings when extra flexibility is desired or when lifts are limited with low headroom.



Rated Capacities Basket Hitch based on D/d ratio of 5 where “d” = diameter of the finished grommet.
Rated Capacities based on pin diameter no smaller than 5 times the body diameter.
Rated Capacitties based on design factor of 5.
Horizontal Sling angles less than 30 degrees shall not be used.
Rated Capacity in tons.

Wire Rope Slings

STRAND LAID HAND SPLICE GROMMETS

A grommet is a special type of sling which forms a continuous loop. Grommets either have a wire rope body or a body made up of 6 strands which are laid helically around a strand core. A mechanical splice then forms an endless sling body. The minimum circumference is 96 times the body diameter.

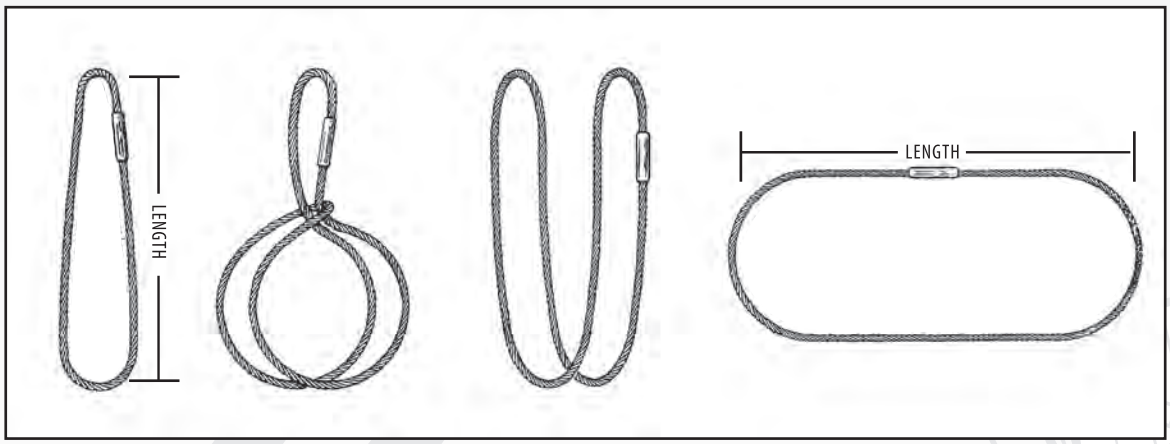
6 x 19 or 6 x 37 classification IWRC-EIPS

ROPE DIAMETER (INCHES)	RATED CAPACITY (TONS)*			BASKET HITCH		
	VERTICAL	CHOKER HITCH**	U	60°	45°	30°
1/4	.94	.66	1.9	1.6	1.3	.94
5/16	1.5	1.0	2.9	2.5	2.1	1.5
3/8	2.1	1.5	4.2	3.6	3.0	2.1
7/16	2.8	2.0	5.7	4.9	4.0	2.8
1/2	3.7	2.6	7.3	6.4	5.2	3.7
9/16	4.6	3.2	9.3	8.0	6.6	4.6
5/8	5.7	4.0	11	9.9	8.1	5.7
3/4	8.2	5.7	16	14	12	8.2
7/8	11	7.7	22	19	16	11
1	14	10	29	25	20	14
1-1/8	18	12	35	31	25	18
1-1/4	21	15	43	37	30	21
1-3/8	25	18	51	44	36	25
1-1/2	30	21	60	52	42	30

*Larger sizes available upon request.

Grommets are used in applications where the rigging might be too short for a standard eye & eye wire rope sling.

Grommets can be more desirable than eye & eye wire rope slings when extra flexibility is desired or when lifts are limited with low headroom.



Rated Capacities Basket Hitch based on D/d ratio of 5 where "d" = diameter of the finished grommet.
Rated Capacities based on pin diameter no smaller than 5 times the body diameter.
Rated Capacitties based on design factor of 5.
Horizontal Sling angles less than 30 degrees shall not be used.
Rated Capacity in tons.

Wire Rope Slings

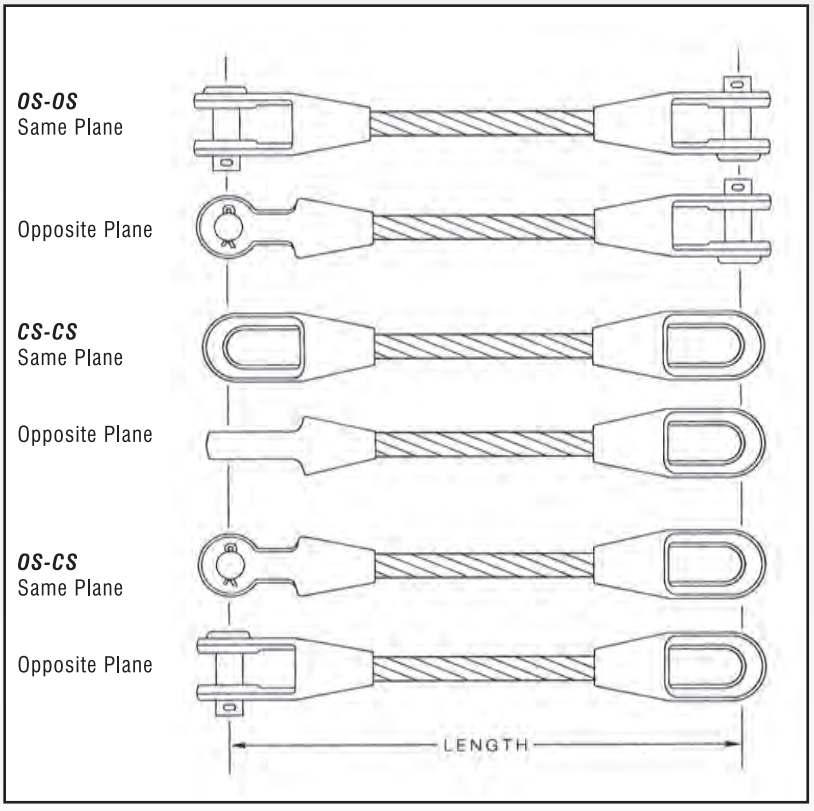
POURED SOCKET ASSEMBLIES

Wire Rope assemblies with fittings permenantly attached at ends are custom fabricated for use as boom pendants, guylines, raising lines, backstays, lifting spreaders, etc. These are offered in both poured, or spelter, sockets and mechanically swaged sockets. A Design Factor of five is applied in establishing Rated Capacities shown.

ST

EPOXY COMPOUND SPELTER SOCKET

Epoxy compound is standard as the bonding medium surrounding wires inside the socket. Steel forgings are used for rope sizes 1/2" through 1-1/2" and cast steel fittings for larger sizes. Larger than 4" available on special order. Assembly length is measured from centerline of pin for open sockets and bearing point for closed sockets.



*All poured socket assemblies are proof tested upon completion and certificates will accompany finished products.

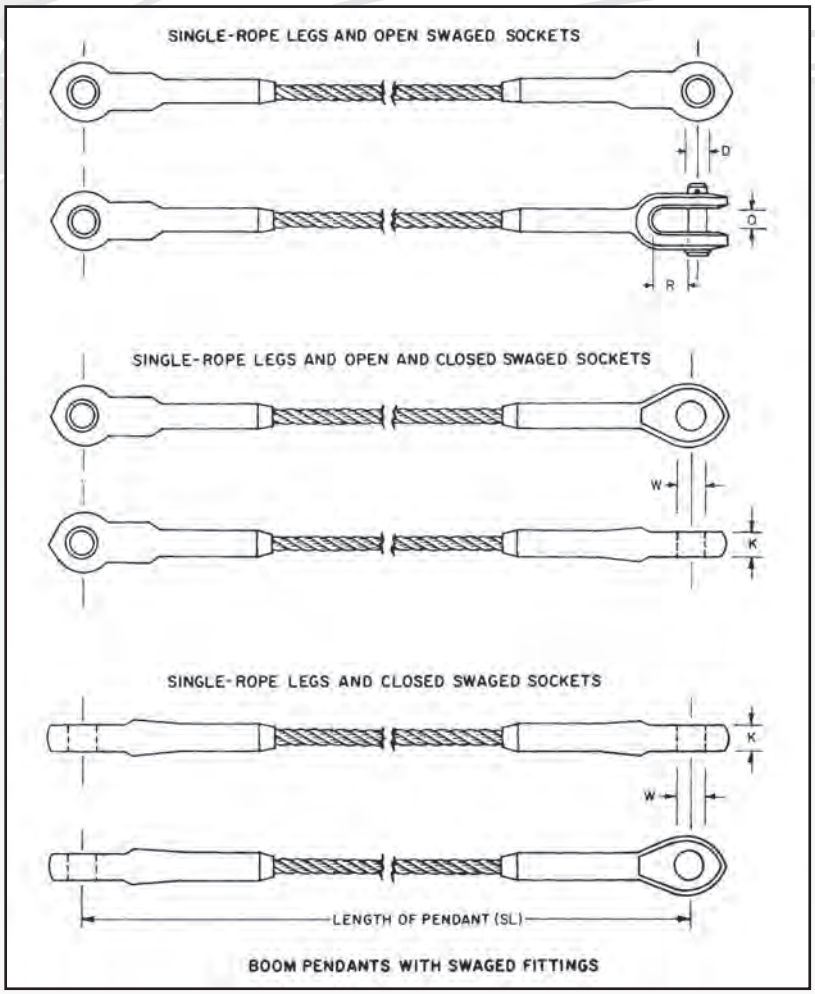
ROPE DIAMETER (INCHES)	VERTICAL	VERTICAL BASKET
1/2	2.7	4.9
9/16	3.4	6.2
5/8	4.1	7.6
3/4	5.9	11
7/8	8	15
1	10	19
1-1/8	13	24
1-1/4	16	30
1-3/8	19	36
1-1/2	23	42
1-5/8	26	49
1-3/4	31	57
1-7/8	35	64
2	40	73
2-1/8	44	82
2-1/4	49	91
2-3/8	55	101
2-1/2	60	112
2-5/8	66	122
2-3/4	72	134
2-7/8	78	145
3	85	157
3-1/8	92	169
3-1/4	98	182
3-3/8	106	196
3-1/2	113	209

Rated Capacity shown apply only to 6x19 and 6x37 EIP IWRC class wire rope.

Wire Rope Slings

SWAGED SOCKET ASSEMBLIES

Swaged sockets are mechanically pressed using precision dies. With the correct socket and fabrication, swaged sockets retain 100% of the wire rope's strength. Normally, only 1 regular lay is used. Swaged assemblies are interchangeable with poured spelter sockets up through 2" rope diameters. Assembly length is measured from centerline of pins for both open and closed sockets.



BOOM PENDANTS WITH SWAGED FITTINGS

ROPE DIAMETER (INCHES)	RATED CAPACITY (TONS)* 6 x 19 & 6 x 37 IWRC EIP IWRC
1/4	.69
5/16	1.05
3/8	1.5
7/16	2.04
1/2	2.66
9/16	3.36
5/8	4.12
3/4	5.88
7/8	7.96
1	10.34
1-1/8	13.0
1-1/4	15.98
1-3/8	19.2
1-1/2	22.8
1-3/4	30.6
2	39.6
2-1/4	49.4
2-1/2	60.4

Rated Capacity shown apply only to 6x19 and 6x37 class wire rope.

*All swaged socket asemblies are proof tested upon completion and certificates will accompany finished products.

Chain & Slings

Chain & Slings

The life span and strength of alloy chain slings depends on proper inspection, maintenance and use.

Care

Chain requires careful storage and regular maintenance.

- Store chain slings by hanging in a clean, dry place.
- Oil chains to avoid corrosion before prolonged storage.
- Do not heat alloy chain as this will alter its molecular structure and strength.

Use

To protect both operators and materials, observe these precautions when using chain slings:

- Before each use, inspect chain and attachments for damage.
- Do not exceed working load limit. Any of the following factors can reduce the working load limit of the sling:
    - Shock loading can produce dangerous overloading.
    - Angle of inclination of sling in relation to the load will affect the working load limit of the sling. As the angle decreases the force exerted by the load increases.
    - Twisting, knots or kinks subject links to unusual stress decreasing the strength of the sling.
    - Using slings for purposes other than that which they are designed for can reduce the strength of the sling.
- Free chain of all twists, knots and kinks.
- Properly load hooks so that point loading of hook does not occur.
- Hook latches must never support load.
- Avoid sudden jerks when lifting or lowering loads.
- Balance all loads; avoid off center loading that could cause load to shift during lift.
- Pad around sharp and square corners.
- Do not drop loads on chain or attachments.
- Block under all loads to avoid crushing chain.
- Match all attachments (hooks, rings, etc.) to working load limit of chain.
- Never force or hammer hooks or chain into position.
- Do not use in acid solutions.
- Clean chain slings regularly as dirt and grit can cause wear at link bearing points.
- For overhead lifting use only grade 80 or higher alloy chain.

Inspection

It is important both to inspect chain slings regularly and to keep written records of chain sling inspections. The usage the slings are subjected to determines the frequency of written inspections. A company that uses slings on a continuous basis probably should consider a monthly inspection while a company that only occasionally uses slings may only need a yearly inspection. A minimum of once a year is required by OSHA with more frequent inspections required by OSHA if deemed necessary.

Use the following guidelines for inspections:

- Clean chains before inspecting so that damage will be visible.
- Inspect each link for the following conditions:
    - Twists, bends
    - Nicks, gouges
    - Excessive wear, especially at bearing points.
    - Stretch
    - Excessive heating, charring or melting.
- Inspect master links, loc a loys, and attachments for distortion or damage.
- Inspect throat openings of hooks for proper opening size. If latches are present they must be in proper working condition.

Gouges

Stretched Links

Nicks

Bent Links

Broken & Worn Links

Knot

Spread Hook Throat
15% or more

Twist
10° or more

Wear
10% or more

Hook Latches

As a general rule if a hook has been supplied by the manufacturer with a latch or a latch is added to the hook the latch **MUST** be maintained.

If there is difficulty maintaining the latch there are "self locking" style hooks with latches that are an integral part of the hook.

At NO time should a latch support the load

Chain

• Pails available in electro galvanized and hot dip galvanized

Proof Coil – Grade 30

Self Colored

• Not for overhead lifting!

Trade Size in Inches	Working Load Limit in Pounds	Feet Per Drum	Inside Length (Max.)	Inside Width (Max.)	Weight Per Foot in Pounds
3/16	660	750	.95	.40	.33
1/4	1,080	800	1.00	.50	.56
5/16	1,900	550	1.29	.44	.93
3/8	2,500	400	1.23	.62	1.38
1/2	4,300	200	1.54	.80	2.41

Proof Coil – Grade 30

Electro Galvanized

• Not for overhead lifting!

Trade Size in Inches	Working Load Limit in Pounds	Feet Per Drum	Feet Per 1/2 Drum	Feet Per Pail	Inside Length (Max.)	Inside Width (Max.)	Weight Per Foot in Pounds
3/16	660	1,500	750	250	.95	.40	.33
1/4	1,080	800	400	141	1.00	.50	.56
5/16	1,900	550	275	92	1.29	.44	.93
3/8	2,500	400	200	63	1.23	.62	1.38
1/2	4,300	200	100	40	1.54	.80	2.41

Proof Coil – Grade 30

Hot Dipped Galvanized

• Not for overhead lifting!

Trade Size in Inches	Working Load Limit in Pounds	Feet Per Drum	Feet Per 1/2 Drum	Feet Per Pail	Inside Length (Max.)	Inside Width (Max.)	Weight Per Foot in Pounds
3/16	620	1,500	750	250	.95	.40	.33
1/4	1,080	800	400	141	1.00	.50	.56
5/16	1,900	550	275	92	. 1 29	.44	.93
3/8	2,500	400	200	63	1.23	.62	1.38
1/2	4,300	200	100	40	1.54	.80	2.41
5/8	6,750	150	n/a	n/a	2.20	.87	3.51
3/4	10,570	100	n/a	n/a	2.76	1.06	5.51
7/8	11,680	75	n/a	n/a	3.15	1.22	6.76
1	14,280	60	n/a	n/a	3.58	1.37	8.85

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Chain

High Test – Grade 43
Self Colored • Not for overhead lifting!

Trade Size in Inches	Working Load Limit in Pounds	Feet Per 1/2 Drum	Feet Per Drum	Inside Length (Max.)	Inside Width (Max.)	Weight Per Foot in Pounds
1/4	2,600	400	800	1.24	.38	.66
5/16	3,900	275	550	1.29	.44	.99
3/8	5,400	200	400	1.38	.55	1.48
1/2	9,200	100	200	1.79	.72	2.56

High Test – Grade 43
Hot Dipped Galvanized • Not for overhead lifting!

Trade Size in Inches	Working Load Limit in Pounds	Feet Per Drum	Inside Length (Max.)	Inside Width (Max.)	Weight Per Foot in Pounds
1/4	2,600	800	1.24	.38	.66
5/16	3,900	550	1.29	.44	.99
3/8	5,400	400	1.38	.55	1.48
1/2	9,200	200	1.79	.72	2.56

Chain Warnings

Never exceed the Working Load Limit (WLL) of the chain.

Only grade 80 alloy chain or higher should be used for overhead lifting.

Remember to always match components.

Avoid shock loads.

Assemblies will carry the WWL of the weakest part.

Never move under a raised load.

Frequently inspect chain. Never use chain that has a deformed link, rust, crack or any indication that would cause doubt about its strength.

Always destroy defective chain by cutting it into short pieces to prevent someone from using it.

Refer to OSHA standard 1910.184 and ASME standard B 30.9 for current design factors for chain slings.

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Chain

Transport – Grade 70

- Yellow zinc chromate
- Not for overhead lifting!

Trade Size in Inches	Working Load Limit in Pounds	Feet Per Pail	Feet Per 1/2 Drum	Feet Per Drum	Inside Length (Max.)	Inside Width (Max.)	Weight Per Foot in Pounds
1/4	3,150	150	400		1.24	.38	.63
5/16	4,700	100	275	550	1.32	.48	.93
3/8	6,600	75	200	400	1.38	.55	1.41
1/2	11,300	NA	100	200	1.79	.72	2.40
5/8	15,800	NA	75	150	2.20	.79	3.40

Stock available in 20' sections with grab hooks on each end.

REFER TO PAGE 186-187 FOR BINDERS

Stainless Steel

Type 316

Trade Size in Inches	Working Load Limit in Pounds	Feet Per Drum	Inside Length (Max.)	Inside Width (Max.)	Weight Per Foot in Pounds
1/8	370	1,000	.87	.28	.19
3/16	780	750	.94	.39	.40
1/4	1,300	400	1.18	.47	.65
5/16	1,850	275	1.26	.55	.87
3/8	2,600	200	1.36	.59	1.41
1/2	4,500	100	1.77	.75	2.32

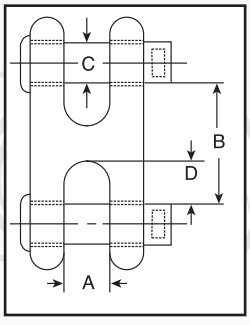
No warranty expressed or implied when used in a corrosive environment.

Not for overhead lifting!

Chain Fittings

Twin Clevis Link – Grade 70

Size	Working Load Limit in Pounds	Approx. Wt. Each in Pounds	Dimension in Inches A	B	C	D
1/4-5/16	4,700	.32	.47	1.18	.38	.43
3/8	6,600	.44	.53	1.34	.47	.48
7/16-1/2	11,250	1.00	.65	1.75	.56	.63

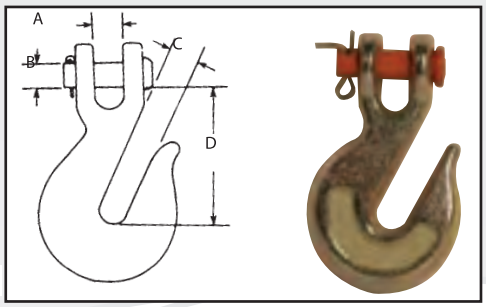


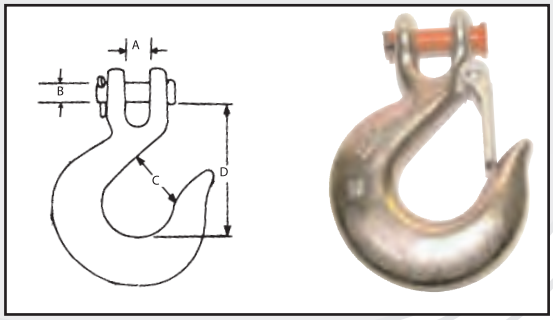
Drop Forged Carbon Steel • Quenched and Tempered, with Alloy Pin

Not for overhead lifting!

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Chain Hooks





Clevis Grab Hooks – Grade 43

Size	Working Load Limit in Pounds	Approx. Wt. Each in Pounds	Dimension in Inches			
			A	B	C	D
1/4	2,600	.40	.32	.31	.34	1.64
5/16	3,900	.78	.39	.38	.44	2.02
3/8	5,400	1.04	.45	.44	.50	2.41
1/2	9,200	2.14	.75	.63	.66	3.19

- Not for overhead lifting!

Clevis Slip Hooks – Grade 43

Size	Working Load Limit in Pounds	Approx. Wt. Each in Pounds	Dimension in Inches			
			A	B	C	D
1/4	1,950	.55	.44	.38	.94	2.56
5/16	2,875	.80	.50	.44	1.06	2.87
3/8	4,000	1.14	.59	.47	1.31	3.25
1/2	6,500	2.88	.75	.63	1.69	4.00

- Not for overhead lifting!

Clevis Grab Hooks - Grade 70

Size	Working Load Limit in Pounds	Approx. Wt. Each in Pounds	Dimension in Inches			
			A	B	C	D
1/4	3,500	.40	.32	.31		1.64
5/16	5,400	.78	.39	.38		2.02
3/8	7,100	.98	.45	.44		2.41
1/2	12,000	2.06	.75	.63		3.19
5/8	18,100	4.05	.91	.75		4.09

Forged Alloy Steel • Not for overhead lifting!

Clevis Slip Hooks – Grade 70

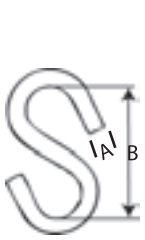
Size	Working Load Limit in Pounds	Approx. Wt. Each in Pounds	Dimension in Inches			
			A	B	C	D
1/4	2,750	.52		.38	.34	2.56
5/16	4,300	.79		.44	.44	2.87
3/8	5,250	1.18		.47	.50	3.25
1/2	9,000	2.74		.63	.66	4.00
5/8	13,500	4.79		.75	.78	4.94

Forged Alloy Steel • Not for overhead lifting!
• Some hooks are available without latch

Chain Fittings

"S" Hooks

ITEM#	Size A	Inside Length B	Approx. Wt. Each in Pounds
	3/16	1.81	.04
	1/4	1.78	.07
	5/16	2.25	.12
	3/8	2.38	.20



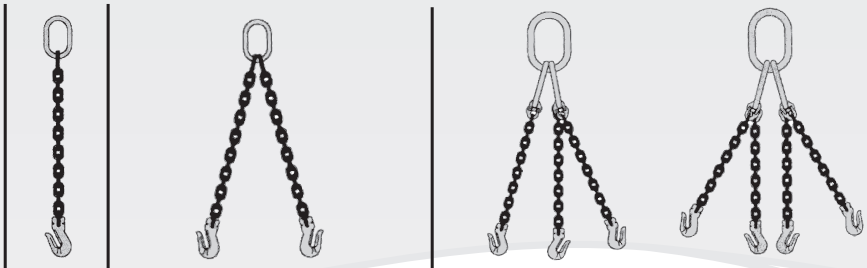
Electro Galvanized
- Not for overhead lifting!
- Not for load securement
- "S" Hook must be properly closed to avoid disengagement

* Remember to correctly match components.

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Maximum Work Load *[lbs]* of Various Chain Sling Applications

Design Factor 4:1



Grade 120 Alloy Winner Pro

Diameter	Angle: / Load Factor:	90 degrees 1	60 degrees 1.7	45 degrees 1.4	30 degrees 1	60 degrees 2.6	45 degrees 2.1	30 degrees 1.45	Temperature Resistance
9/32″		5,200	9,000	7,400	5,200	13,500	11,000	7,800	Retains 100% of work load limit at -40 to 400°F. Not for temperatures over 400°F.
5/16″		6,600	9,300	11,400	6,600	17,100	14,000	9,900	
3/8″		10,600	18,400	15,000	10,600	27,500	22,500	15,900	
1/2″		17,900	31,000	25,300	17,900	46,500	38,000	26,900	

Grade 100 Alloy Winner

7/32″		2,700	4,700	3,800	2,700	7,000	5,700	4,000	Retains 100% of work load limit at -40 to 400°F. Not for temperatures over 400°F.
9/32″		4,300	7,400	6,100	4,300	11,200	9,100	6,400	
5/16″		5,700	9,900	8,100	5,700	14,800	12,100	8,500	
3/8″		8,800	15,200	12,400	8,800	22,900	18,700	13,200	
1/2″		15,000	26,000	21,200	15,000	39,000	31,800	22,500	
5/8″		22,600	39,100	32,000	22,600	58,700	47,900	33,900	
3/4″		35,300	61,100	49,900	35,300	91,700	74,900	53,000	
7/8″		42,700	74,000	60,400	42,700	110,900	90,600	64,000	
1″		59,700	103,400	84,400	59,700	155,100	126,600	89,550	
1-1/4″		90,400	156,600	127,800	90,400	234,900	191,800	135,600	

Grade 80 Alloy

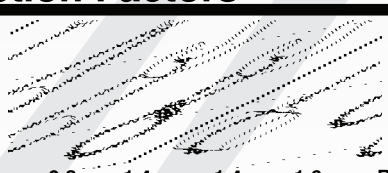
7/32″		2,100	3,600	3,000	2,100	5,500	4,400	3,200	Retains 100% of work load limit at -40 to 400°F, 90% at 400 to 570°F, and 75% at 570 to 750°F. Not for temperatures over 750°F.
9/32″		3,500	6,100	4,900	3,500	9,100	7,400	5,200	
5/16″		4,500	7,800	6,400	4,500	11,700	9,500	6,800	
3/8″		7,100	12,300	10,000	7,100	18,400	15,100	10,600	
1/2″		12,000	20,800	17,000	12,000	31,200	25,500	18,000	
5/8″		18,100	31,300	25,600	18,100	47,000	38,400	27,100	
3/4″		28,300	49,000	40,000	28,300	73,500	60,000	42,400	
7/8″		34,200	59,200	48,400	34,200	88,900	72,500	51,300	
1″		47,700	82,600	67,400	47,700	123,900	101,200	71,500	
1-1/4″		72,300	125,200	102,200	72,300	187,800	153,400	108,500	

Grade 50 Stainless Steel

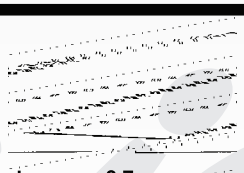
3/16″		1,100	1,900	1,600	1,100	2,900	2,300	1,700	Retains 100% of work load limit at -50 to 750°F, 75% at 750 to 1100°F and 50% at 1100-1290°F. Not for temperatures over 1290°F.
9/32″		2,200	3,800	3,100	2,200	5,700	4,600	3,300	
3/8″		4,400	7,500	6,200	4,400	11,500	9,300	6,600	
1/2″		7,100	12,100	10,000	7,100	18,500	14,900	10,700	
5/8″		11,000	18,700	15,600	11,000	23,100	23,100	16,500	

Reduction Factors

To be used for various slinging methods and conditions without shock loads.



Load factor: 0.8 1.4 1.4 1.6



Reduction factor: 0.7

Asymmetrical distribution of load

1

R = more than 2 x chain dia

0.7

R = more than chain dia.

0.5

Sharp corners

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

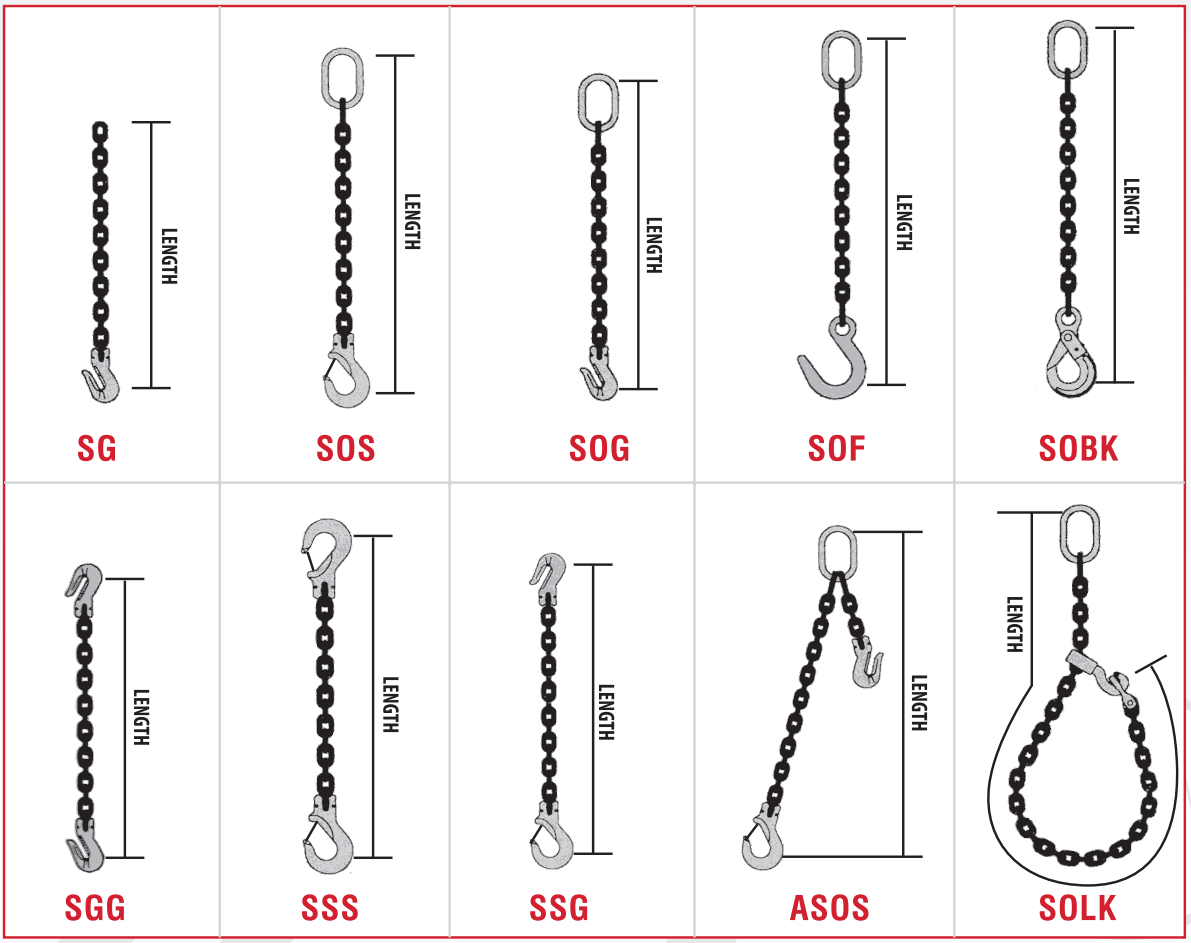
HOW TO ORDER CHAIN SLINGS

Basic chain sling configurations are often described using a code.

1. Select size of chain determined by the working load limit required (refer to previous page)
2. Select length of assembly including attachments, measured bearing point to bearing point.
3. Select first letter designating the number of legs:
   - **S** Single leg with one branch
   - **D** Double leg with two branches
   - **T** Triple leg with three branches
   - **Q** Quadruple leg sling with four branches
4. Select second letter designating the fitting at the top of the sling:
   - **O** Oblong shaped master link
   - **S** Sling hook
   - **G** Grab hook
   - **B** Basket with oblong master sling
5. Select third letter or group of letter designating the fitting at the bottom of each leg:
   - **S** Sling hook
   - **G** Grab hook
   - **LK** Sliding Choker
   - **BK** Self Locking Hook
   - **F** Foundry hook

   Example: 3/8" x 10' Type **ADOS** describes an **A**djustable, **D**ouble Leg Sling with **O**blong master link on top and a **S**ling hook at the bottom of each leg or branch.
6. If an adjustable chain sling is desired add the letter **A** or **E** preceding all letters depending on style of adjusting device preferred.

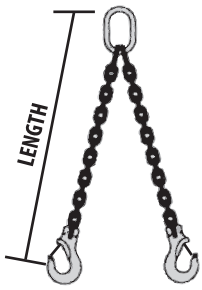
CHAIN SLING TYPE FOR SINGLE LEG



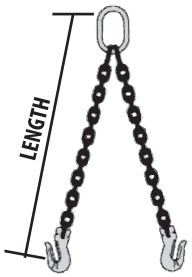
NOTE: All chain slings will use grade 100 alloy chain & components unless otherwise specified.
All slings include heavy duty engraved id tags in accordance with OSHA requirements.
Welded Alloy Chain Slings Available Upon Request.

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

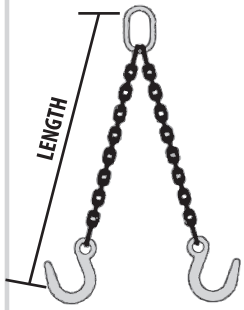
CHAIN SLING TYPES FOR DOUBLE LEG



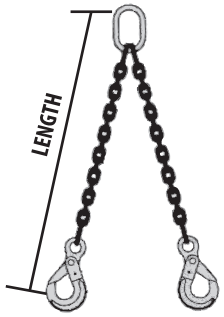
DOS



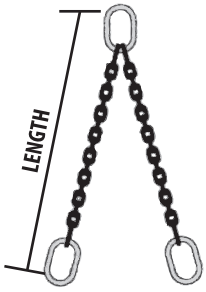
DOG



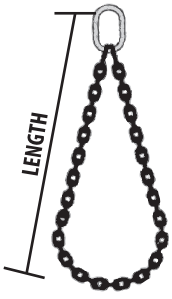
DOF



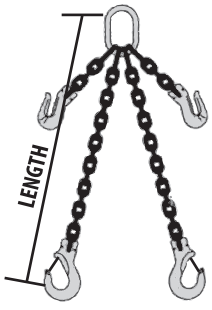
DOBK



DOO



BS



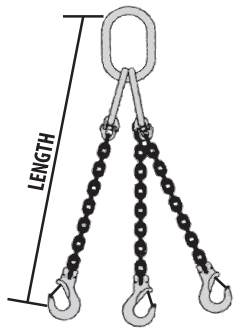
ADOS

DOLK

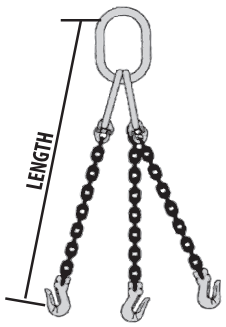
WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Chain & Slings

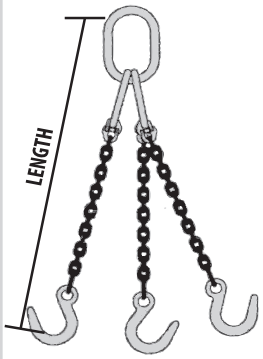
CHAIN SLING TYPES FOR TRIPLE LEG



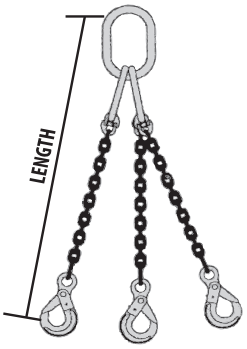
TOS



TOG



TOF



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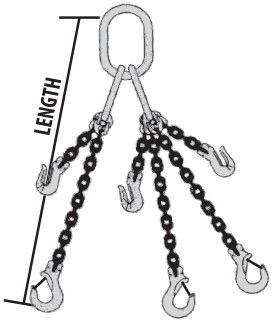
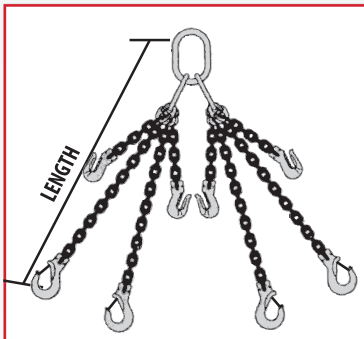


ATOS

CHAIN SLING TYPES FOR QUAD LEG



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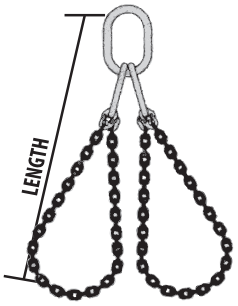

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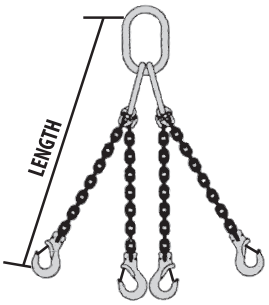

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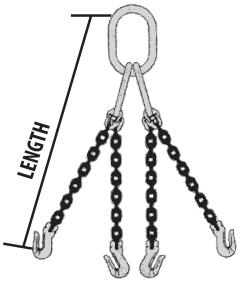

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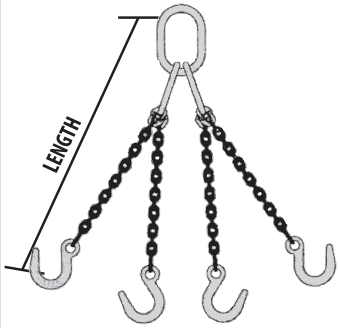

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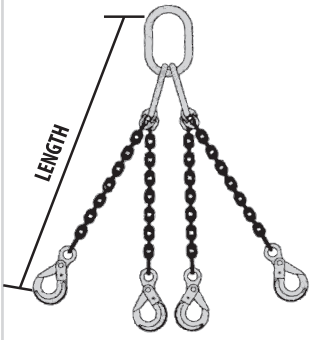
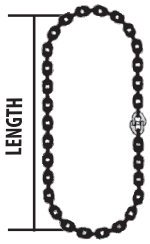


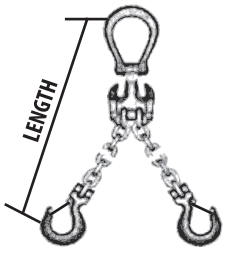
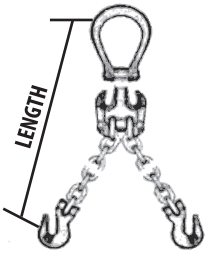
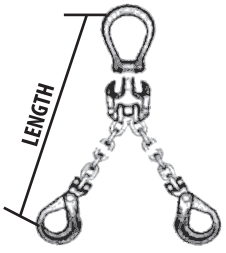
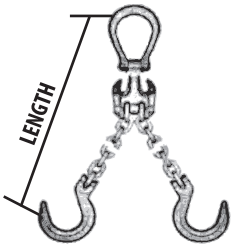
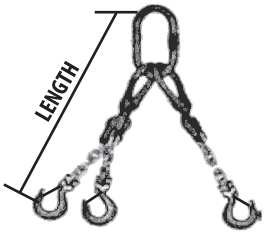
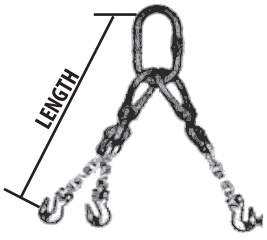
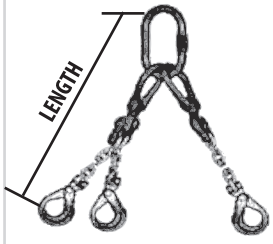
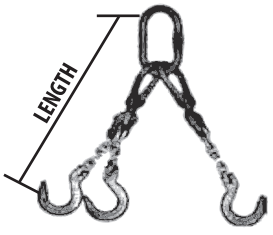
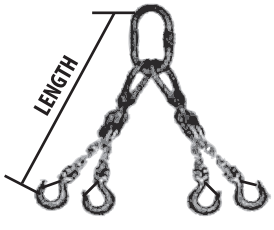
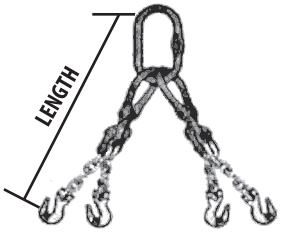
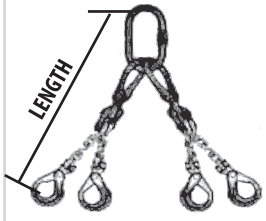
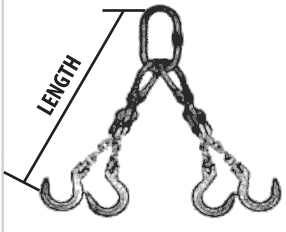
QOBK



ENDLESS

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

CHAIN SLING TYPES WITH "BUILT IN" ADJUSTING DEVICE

 EOS	 ESOG	 ESOBK	 ESOF	SINGLE LEG
 EDOS	 EDOG	 EDOBK	 EDSOF	DOUBLE LEG
 ETOS	 ETOG	 ETOBK	 ETOF	TRIPLE LEG
 EQOS	 EQOG	 EQOBK	 EQOF	QUAD LEG

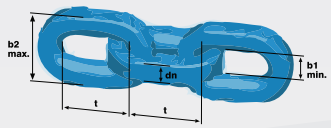
Above assemblies shown with adjusting device built into oblong master link.

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 120 ALLOY COMPONENTS

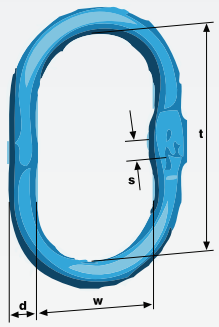
Lifting Chain Winner Pro

Specially rugged profile chain in Grade 120.



Chain size	Standard delivery length [feet]	Pitch t [inch]	Inside b1 min. [inch]	Outside b2 max. [inch]	WLL [lb]	Break. force [lb]	Weight [lb/ft]
9/32″	800	0.87	0.39	1.02	5,200	20,800	0.874
5/16″	500	0.98	0.43	1.14	6,600	26,550	1.040
3/8″	400	1.30	0.55	1.46	10,600	42,400	1.747
1/2″	200	1.61	0.75	1.97	17,900	71,600	3.091

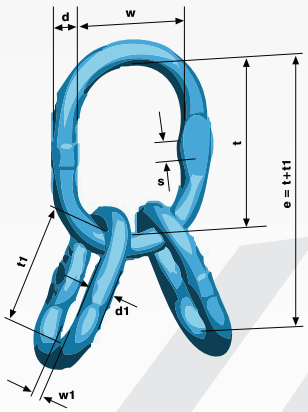
Enlarged Master Link



For single leg sling	WLL [lb]	d [inch]	t [inch]	w [inch]	s [inch]	Weight [lb/pc.]
9/32″	6,100	0.55	4.72	2.76	0.39	0.97
5/16″	8,400	0.67	5.51	3.15	0.51	1.48
3/8″	12,800	0.75	6.30	3.74	0.55	2.67
1/2″	30,000	1.06	7.48	4.33	0.79	5.84

Enlarged Master Link Assembly

Enlarged master link assembly for assembling II-leg, III-leg and IV-leg chain slings with connecting links. Appropriation to chain dimension according to table.



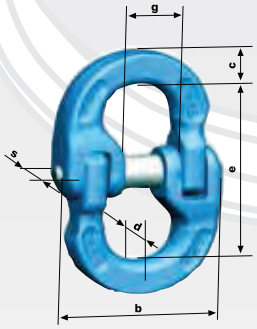
For double leg sling	For III- or IV-leg sling	WLL [lb]	e [inch]	d [inch]	t [inch]	w [inch]	d1 [inch]	t1 [inch]	w1 [inch]	Weight [lb/pc.]
9/32″	-	12,800	8.43	0.75	6.30	3.74	0.51	2.13	0.98	3.42
3/8″	9/32″	22,000	10.24	1.06	7.48	4.33	0.67	2.76	1.34	7.43
1/2″	3/8″	33,200	12.40	1.30	9.06	5.12	0.79	3.35	1.57	13.23
-	1/2″	61,100	16.34	1.50	10.83	5.91	1.06	5.51	2.56	24.52

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 120 ALLOY COMPONENTS

Loc A Loy

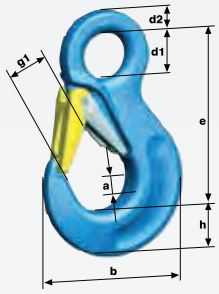
Loc A Loy for easy assembly of chains, master links, master link assemblies and components.



Size [inch]	WLL [lb]	e [inch]	c [inch]	s [inch]	d [inch]	b [inch]	g [inch]	Weight [lb/pc.]
9/32″	5,200	2.48	0.43	0.51	0.35	1.85	0.67	0.26
5/16″	6,600	2.44	0.55	0.59	0.39	2.28	0.83	0.64
3/8″	10,600	2.76	0.63	0.79	0.51	2.60	0.87	0.73
1/2″	17,900	3.74	0.83	0.94	0.67	3.31	1.02	1.54

Eye Sling Hook

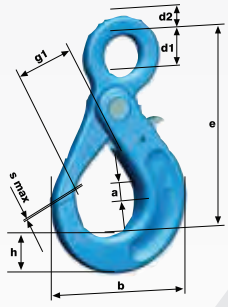
For general lifting applications. All hooks with forged and galvanized safety latch.



Size [inch]	WLL [lb]	e [inch]	h [inch]	a [inch]	d1 [inch]	d2 [inch]	g1 [inch]	b [inch]	Weight [lb/pc.]
9/32″/ 5/16″	6,600	4.17	1.06	0.75	0.98	0.43	1.02	3.46	1.10
3/8″	10,600	5.16	1.30	1.02	1.34	0.63	1.22	4.25	2.43
1/2″	17,900	6.46	1.69	1.30	1.69	0.75	1.54	5.20	4.85

Eye Self Locking Hook

Self Locking hook with larger opening than the eye sling hook. Closes and locks automatically under load. Ensures high level of safety.



Size [inch]	WLL [lb]	e [inch]	h [inch]	a [inch]	b [inch]	d1 [inch]	d2 [inch]	g1 [inch]	s max. [inch]	Weight [lb/pc.]
9/32″/ 5/16″	6,600	4.96	0.98	0.94	3.50	0.98	0.55	1.34	0.04	1.98
3/8″	10,600	6.22	1.22	1.10	4.41	1.22	0.67	1.77	0.08	3.53
1/2″	17,900	8.07	1.61	1.34	5.71	1.57	0.87	2.13	0.08	7.28

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 120 ALLOY COMPONENTS

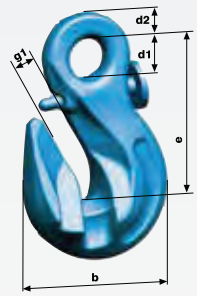
Eye Grab Hook

Special design of the chain contact area for optimal interaction between chain and hook.

Size [Inch]	WLL [lb]	e [Inch]	b [Inch]	d1 [Inch]	d2 [Inch]	g1 [Inch]	Weight [lb/pc.]
9/32″/ 5/16″	6,600	2.68	2.48	0.71	0.43	0.39	1.06
3/8″	10,600	3.46	3.19	0.87	0.55	0.51	2.27
1/2″	17,900	4.33	4.06	1.02	0.71	0.67	4.63

Eye Grab Hook With Pin

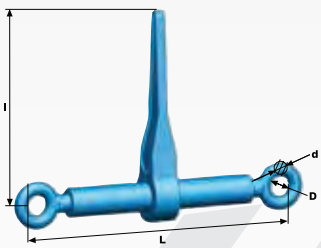
Hook for shortening which prevents the accidential release of the chain. Special design of the chain contact area for optimal interaction between chain and hook.



Size [Inch]	WLL [Inch]	e [Inch]	b [Inch]	d1 [Inch]	d2 [Inch]	g1 [Inch]	Weight [lb/pc.]
9/32″/ 5/16″	6,600	2.68	2.48	0.71	0.43	0.39	1.06
3/8″	10,600	3.46	3.19	0.87	0.55	0.51	2.27
1/2″	17,900	4.33	4.06	1.02	0.71	0.67	4.63

Loadbinder

Load binder with optimized lever length.



Size [Inch]	Length closed L [Inch]	Length open L [Inch]	Tension range [Inch]	length of lever [Inch]	D [Inch]	d [Inch]	Weight [lb/pc.]
9/32″	13.98	19.69	5.71	9.33	0.79	0.63	7.06
3/8″	14.37	20.08	5.71	13.98	1.02	0.71	8.38
1/2″	22.68	34.09	11.42	14.13	1.22	0.87	21.83

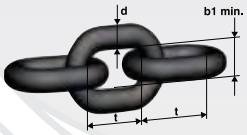
Image as shown is for dimensional purposes only. Load binders sold assembled (connector and grab hook included).

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 100 ALLOY COMPONENTS

Round Steel Chain

Round steel chains for use in overhead lifting. Maximum working temperature: 400°F. Standard surface: blasted, clear painted.



Chain Size	Nominal diameter d	Standard delivery length [feet]	Pitch t	Inside width b1 min.	Outside width b2 max.	WLL [lb]	Breaking force [lb]	Weight [lb/ft]
7/32″	0.217	400	0.67	0.31	0.83	2,700	10,800	0.470
9/32″	0.276	800	0.83	0.39	0.98	4,300	17,200	0.738
5/16″	0.315	500	0.94	0.43	1.14	5,700	22,800	0.939
3/8″	0.394	400	1.18	0.55	1.42	8,800	35,200	1.475
1/2″	0.512	200	1.54	0.71	1.85	15,000	60,000	2.548
5/8″	0.630	150	1.89	0.87	2.28	22,600	90,400	3.830
3/4″	0.787	100	2.44	1.02	2.80	35,300	141,200	5.780
7/8″	0.866	100	2.60	1.18	3.11	42,700	170,800	7.324
1″	1.024	100	3.07	1.38	3.70	59,700	238,800	10.214
1-1/4″	1.260	50	3.78	1.69	4.53	90,400	361,600	15.455

Master Link

Master link for 1 or 2 leg chain sling.

Stock Diameter	WLL 45°-60° [lb]	d [inch]	t [inch]	w [inch]	s [inch]	Weight [lb/pc.]	Master link for chain 1-leg	Master link for chain 2-leg
3/8”	3,800	0.39	3.15	1.97	0.39	0.31	7/32″	-
1/2”	5,800	0.51	4.33	2.36	0.39	0.75	9/32″	7/32″
5/8”	7,500	0.63	4.33	2.36	0.55	1.17	5/16″	9/32″
3/4”	10,000	0.75	5.31	2.95	0.55	2.03	3/8″	5/16″
7/8”	16,700	0.91	6.30	3.54	0.67	3.53	1/2″	3/8″
1”	26,000	1.06	7.09	3.94	0.79	5.42	5/8″	1/2″
1 1/4”	39,100	1.30	7.87	4.33	1.02	9.13	3/4″	5/8″
1 1/2”	61,100	1.42	10.24	5.51	-	13.72	7/8″	3/4″
1 3/4”	83,100	1.77	13.39	7.09	-	28.27	1″	7/8″
2”	111,000	1.97	13.78	7.48	-	36.49	1-1/4″	1″
2 1/4”	156,600	2.36	15.75	7.87	-	59.56	-	1-1/4″
2 3/4”	234,900	2.76	18.11	9.84	-	99.23	-	-

Enlarged Master Link

Similar to master link above, but due to larger inside dimensions suitable for next sized crane hook or special hook.

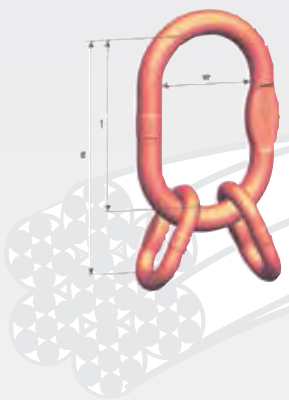
Stock Diameter	WLL [lb]	d [inch]	t [inch]	w [inch]	s [inch]	Weight [lb/pc.]	Master link for chain 1-leg	Master link for chain 2-leg
3/8”	3,800	0.43	3.54	2.56	0.39	0.49	7/32″	
1/2”	6,100	0.55	4.72	2.76	0.39	0.97	9/32″	7/32″
5/8”	8,400	0.63	5.51	3.15	0.51	1.48	5/16″	9/32″
3/4”	12,800	0.75	6.30	3.74	0.55	2.40	3/8″	5/16″
7/8”	18,500	0.91	6.30	4.33	0.67	3.73	1/2″	3/8″
1”	30,000	1.06	7.48	4.33	0.79	5.84	5/8″	1/2″
1 1/4”	45,000	1.30	9.06	5.12	1.02	10.54	3/4″	5/8″
1 1/2”	61,100	1.50	10.83	5.91	1.14	16.49	7/8	3/4″

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 100 ALLOY COMPONENTS

Master Link Assembly

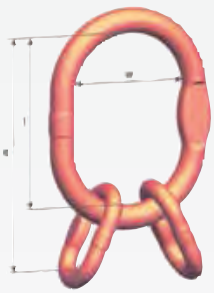
For assembling 3- and 4-leg chains with Loc A Loys, and for rope slings.



WLL 60° [lb]	e [Inch]	t [Inch]	w [Inch]	Weight [lb/pc.]	For Chain
8,100	7.44	5.31	2.95	2.78	7/32″
14,800	9.06	6.30	3.54	5.12	9/32″- 5/16″
22,900	10.43	7.09	3.94	8.11	3/8″
39,000	12.40	7.87	4.33	14.24	1/2″
58,700	15.75	10.24	5.51	22.18	5/8″
91,700	19.69	13.78	7.48	50.43	3/4″
110,900	20.47	13.78	7.48	54.66	7/8″
126,600	22.44	15.75	7.87	91.09	1″
234,900	25.98	18.11	9.84	146.85	1 1/4″

Enlarged Master Link Assembly

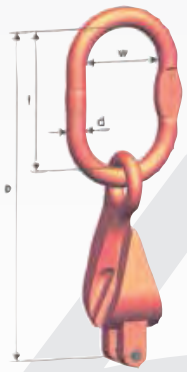
For assembling 3- and 4-leg chain slings. Similar to 4-leg set,
but also suitable for larger crane hooks and special hooks.



WLL [lb]	For Chain	e [Inch]	t [Inch]	w [Inch]	Weight [lb/pc.]
7,000	7/32″	8.43	6.30	3.74	3.15
11,200	9/32″	9.06	6.30	4.33	5.31
22,900	3/8″	10.83	7.48	4.33	8.84
39,000	1/2″	13.58	9.06	5.12	15.21
58,700	5/8″	16.34	10.83	5.91	24.52

Clevis Master Set

Master set for 1-leg chain slings. Adjustable style.



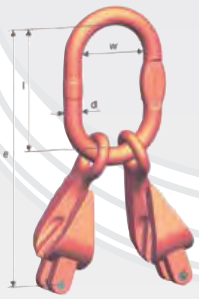
WLL [lb]	for chain	d [Inch]	t [Inch]	w [Inch]	e [Inch]	Weight [lb/pc.]
4,300	9/32″	0.51	4.33	2.36	9.13	2.12
8,800	3/8″	0.75	5.31	2.95	11.57	4.65
15,000	1/2″	0.91	6.30	3.54	14.29	9.48
22,600	5/8″	1.06	7.09	3.94	16.26	16.01

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 100 ALLOY COMPONENTS

Clevis Master Set

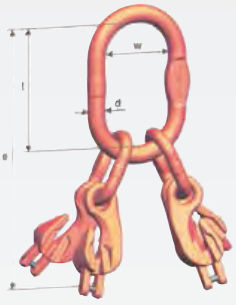
Master set for 2-leg chain slings. Adjustable style.



WLL [lb]	for chain	d [inch]	t [inch]	w [inch]	e [inch]	Weight [lb/pc.]
7,400	9/32″	0.63	4.33	2.36	9.13	3.90
15,200	3/8″	0.91	6.30	3.54	12.56	9.04
26,000	1/2″	1.06	7.09	3.94	15.08	17.33
39,100	5/8″	1.30	7.87	4.33	17.05	30.30

Clevis Master Set

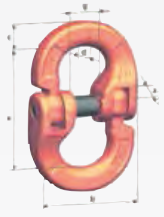
Master set for 4-leg chain slings. Adjustable style.



WLL [lb]	for chain	d [inch]	t [inch]	w [inch]	e [inch]	Weight [lb/pc.]
11,200	9/32″	0.91	6.30	3.54	13.86	10.67
22,900	3/8″	1.06	7.09	3.94	16.69	19.45
39,000	1/2″	1.30	7.87	4.33	20.39	38.06
58,700	5/8″	1.42	10.24	5.51	24.92	64.52

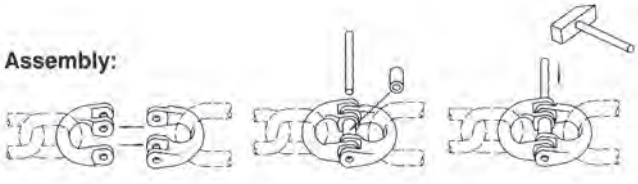
Loc A Loy, Removable

Connecting link for: Master link - chain, Chain - chain, Hook - chain.
Only for straight pull.



Size	WLL [lb]	e [inch]	c [inch]	s [inch]	d [inch]	b [inch]	g [inch]	Weight [lb/pc.]
7/32″	2,700	1.73	0.31	0.43	0.31	1.54	0.55	0.13
9/32″	4,300	2.01	0.39	0.51	0.35	1.85	0.67	0.26
5/16″	5,700	2.44	0.47	0.55	0.39	2.17	0.71	0.51
3/8″	8,800	2.83	0.59	0.71	0.51	2.52	0.94	0.93
1/2″	15,000	3.46	0.79	0.87	0.67	3.11	1.10	1.85
5/8″	22,600	4.06	0.83	1.14	0.83	4.17	1.30	3.09
3/4″	35,300	4.53	1.18	1.38	0.98	4.65	1.65	5.29
7/8″	42,700	6.34	1.34	1.54	0.98	5.83	2.01	9.15
1″	59,700	7.48	1.57	1.81	1.18	6.89	2.36	14.77
1-1/4″	90,400	8.11	1.85	2.20	1.38	8.50	3.15	24.70

Assembly:



WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 100 ALLOY COMPONENTS

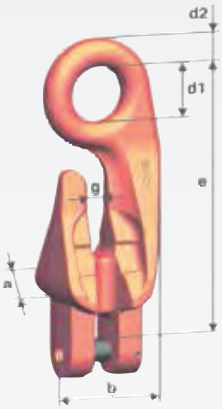
Loc A Loy, Non-Removable

For applications where the pin must not be removed or must be secured by positive locking. Only for straight pull.

Size	WLL [lb]	e [Inch]	c [Inch]	s [Inch]	d [Inch]	b [Inch]	g [Inch]	Weight [lb/pc.]
9/32″	4,300	2.01	0.39	0.51	0.35	1.85	0.67	0.26
3/8″	8,800	2.83	0.59	0.71	0.51	2.52	0.94	0.93
1/2″	15,000	3.46	0.79	0.87	0.67	3.11	1.10	1.85
5/8″	22,600	4.06	0.83	1.14	0.83	4.17	1.30	2.51

Clevis Shortening Hook

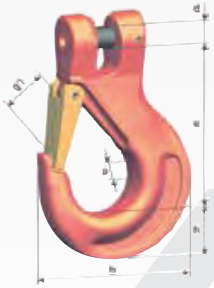
Shortening hook to be used as shortener **ONLY**.
Can be mounted in any chain leg thanks to clevis connecting link



Size	WLL [lb]	e [Inch]	b [Inch]	a [Inch]	d1 [Inch]	d2 [Inch]	g [Inch]	Weight [lb/pc.]
7/32″	2,700	3.31	1.46	1.14	0.71	0.35	0.31	0.66
9/32″	4,300	4.80	2.13	1.54	0.94	0.47	0.43	1.37
5/16″	5,700	4.80	2.13	1.54	0.94	0.47	0.43	1.39
3/8″	8,800	6.26	2.76	1.97	1.22	0.55	0.51	2.76
1/2″	15,000	7.99	3.62	2.52	1.46	0.71	0.59	5.95
5/8″	22,600	9.21	4.02	3.15	1.89	0.94	0.79	10.58

Clevis Sling Hook

General purpose hook, can be attached directly to the chain, therefore no need for Loc A Loys.



Size	WLL [lb]	e [Inch]	h [Inch]	a [Inch]	d [Inch]	g1 [Inch]	b [Inch]	Weight [lb/pc.]
7/32″	2,700	2.72	0.79	0.59	0.28	0.75	2.60	0.44
9/32″	4,300	3.74	1.10	0.75	0.35	1.02	3.54	1.32
5/16″	5,700	3.74	1.10	0.75	0.39	1.02	3.54	1.32
3/8″	8,800	4.29	1.38	0.98	0.49	1.22	4.25	2.43
1/2″	15,000	5.35	1.61	1.34	0.63	1.54	5.16	4.41
5/8″	22,600	6.10	1.93	1.46	0.79	1.77	6.02	7.67
3/4″	35,300	7.24	2.09	2.01	0.94	2.09	6.97	11.03
7/8″	42,700	8.43	2.44	2.05	1.06	2.44	7.72	19.85

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 100 ALLOY COMPONENTS

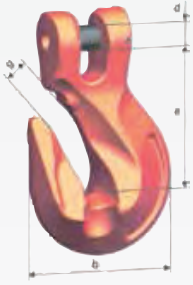
Eye Sling Hook

For general lifting applications.
All hooks with forged safety catch.

Size	WLL [lb]	e [Inch]	h [Inch]	a [Inch]	d1 [Inch]	d2 [Inch]	g1 [Inch]	b [Inch]	Weight [lb/pc.]
7/32″	2,700	3.35	0.83	0.67	0.79	0.39	0.75	2.68	0.66
9/32″	5,700	4.17	1.06	0.75	0.98	0.43	1.02	3.46	1.10
3/8″	8,800	5.16	1.30	1.02	1.34	0.63	1.22	4.29	2.43
1/2″	15,000	6.46	1.73	1.30	1.69	0.75	1.54	5.28	4.85
5/8″	22,600	7.20	1.97	1.57	1.97	0.98	1.77	6.10	7.72
3/4″	35,300	8.07	2.17	1.89	2.17	1.06	2.09	7.01	12.79
7/8″	42,700	8.86	2.44	1.97	2.36	1.14	2.44	7.72	17.64
1″	59,700	10.20	2.95	2.36	2.76	1.46	2.87	9.25	29.55
1-1/4″	90,400	11.77	3.82	3.23	2.60	1.77	3.43	11.46	60.64

Clevis Grab Hook

For shortening and for slings that must not tighten.
First clevis grab hook in Grade 100 quality on the market.
Reduction of load capacity not required thanks to 4-fold safety.



Size	WLL [lb]	e [Inch]	b [Inch]	d [Inch]	g [Inch]	Weight [lb/pc.]
7/32″	2,700	1.77	1.85	0.28	0.31	0.42
9/32″	4,300	2.40	2.28	0.35	0.43	0.84
5/16″	5,700	2.40	2.28	0.39	0.43	0.84
3/8″	8,800	2.99	2.99	0.49	0.51	1.87
1/2″	15,000	4.09	3.98	0.63	0.67	4.19
5/8″	22,600	4.57	4.72	0.79	0.79	7.94
3/4″	35,300	5.55	5.91	0.94	0.98	13.56
7/8″	42,700	6.22	6.50	1.06	1.06	19.85

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 100 ALLOY COMPONENTS

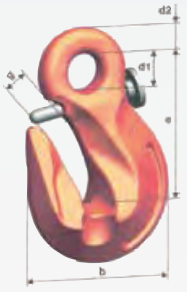
Eye Grab Hook

For shortening and for slings that must not tighten.
First grab hook in Grade 100 quality on the market.
Reduction of load capacity not required thanks to 4-fold safety.

Size	WLL [lb]	e [Inch]	b [Inch]	d1 [Inch]	d2 [Inch]	g [Inch]	Weight [lb/pc.]
7/32″	2,700	2.01	1.89	0.47	0.35	0.31	0.40
9/32″-5/16″	5,700	2.80	2.28	0.79	0.47	0.43	0.88
3/8″	8,800	3.46	2.99	0.87	0.59	0.51	1.98
1/2″	15,000	3.86	3.86	0.94	0.67	0.63	3.53
5/8″	22,600	5.08	4.65	1.26	0.91	0.75	7.94
3/4″	35,300	5.94	5.91	1.42	1.06	0.98	13.56
7/8″	42,700	6.69	6.50	1.65	1.22	1.06	18.30
1″	59,700	7.91	7.68	1.97	1.46	1.26	30.43
1-1/4″	90,400	9.57	9.53	2.36	1.69	1.50	55.13

Eye Grab Hook With Pin

Shortening hook with safety catch against accidental release of the chain. First grab hook with safety catch in Grade 100 quality on the market. Reduction of load capacity not required thanks to 4-fold safety.



Size	WLL [lb]	e [Inch]	b [Inch]	d1 [Inch]	d2 [Inch]	g [Inch]	Weight [lb/pc.]
9/32″- 5/16″	5,700	2.80	2.28	0.79	0.47	0.43	0.88
3/8″	8,800	3.46	2.99	0.87	0.59	0.51	1.98
1/2″	15,000	3.86	3.86	0.94	0.67	0.63	3.53
5/8″	22,600	5.08	4.65	1.26	0.91	0.75	7.94

Clevis Self Locking Hook

Closes and locks automatically under load.

Size	WLL [lb]	e [Inch]	h [Inch]	a [Inch]	b [Inch]	d [Inch]	g [Inch]	s max. [Inch]	Weight [lb/pc.]
7/32″	2,700	3.70	0.79	0.67	2.80	0.28	1.10	0.04	1.10
9/32″	4,300	4.84	1.02	0.79	3.46	0.35	1.34	0.04	1.98
5/16″	5,700	4.84	1.02	0.79	3.46	0.39	1.34	0.04	1.98
3/8″	8,800	5.67	1.18	1.14	4.21	0.49	1.77	0.04	3.53
1/2″	15,000	7.09	1.57	1.38	5.43	0.63	2.05	0.08	6.39
5/8″	22,600	8.58	1.97	1.61	6.61	0.79	2.36	0.08	12.79
3/4″	35,300	10.20	2.44	1.97	7.64	0.94	2.76	0.08	21.83
7/8″	42,700	11.26	2.56	2.05	8.31	1.06	3.19	0.08	28.22
1″	59,700	13.31	3.11	2.40	9.96	1.30	3.94	0.08	45.20

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 100 ALLOY COMPONENTS

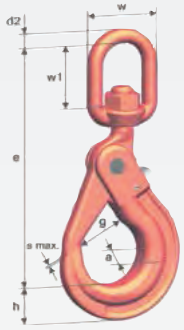
Eye Self Locking Hook

Large eye, therefore suitable for wire ropes and webbing slings.
Automatically closes and locks under load, and requires the load to be grounded before load can be released.

Size	WLL [lb]	e [Inch]	h [Inch]	a [Inch]	b [Inch]	d1 [Inch]	d2 [Inch]	g [Inch]	s max. [Inch]	Weight [lb/pc.]
7/32″	2,700	4.33	0.79	0.67	2.80	0.83	0.43	1.10	0.04	1.10
9/32″-5/16″	5,700	5.35	1.02	0.79	3.46	0.98	0.47	1.34	0.04	1.98
3/8″	8,800	6.65	1.18	1.14	4.21	1.38	0.59	1.77	0.04	3.31
1/2″	15,000	8.07	1.57	1.38	5.43	1.57	0.79	2.05	0.08	5.95
5/8″	22,600	9.88	1.97	1.61	6.61	1.97	1.06	2.36	0.08	12.57
3/4″	35,300	11.42	2.44	1.97	7.64	2.36	1.18	2.76	0.08	21.61
7/8″	42,700	12.68	2.56	2.05	8.31	2.76	1.26	3.19	0.08	27.34

Swivel Self Locking Hook

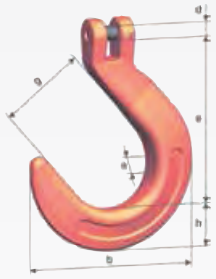
Swivel hook does not rotate under load. Not for welded system!



WLL [lb]	e [Inch]	h [Inch]	a [Inch]	w [Inch]	w1 [Inch]	d2 [Inch]	g [Inch]	s max. [Inch]	Weight [lb/pc.]
5,700	7.13	1.02	0.79	1.38	1.38	0.51	1.34	0.04	2.43
8,800	8.58	1.18	1.14	1.65	1.57	0.63	1.77	0.04	4.41
15,000	10.59	1.57	1.38	1.93	1.85	0.79	2.05	0.08	8.82
22,600	12.56	1.97	1.61	2.36	2.36	0.94	2.36	0.08	14.99

Clevis Foundry Hook

Before using the hook, check whether hooks without safety catch are allowed to be used for this particular application.



Size	WLL [lb]	e [Inch]	h [Inch]	a [Inch]	g [Inch]	d [Inch]	b [Inch]	Weight [lb/pc.]
9/32″	4,300	4.76	1.14	0.98	2.52	0.35	4.65	2.21
5/16″	5,700	4.72	1.14	0.98	2.52	0.39	4.65	2.21
3/8″	8,800	5.51	1.38	1.26	2.99	0.49	5.63	3.92
1/2″	15,000	6.69	1.65	1.57	3.50	0.63	6.69	6.53

Eye Foundry Hook

Before using the hook, check whether hooks without safety catch are allowed to be used for this particular application.

Size	WLL [lb]	e [Inch]	h [Inch]	a [Inch]	d1 [Inch]	d2 [Inch]	g [Inch]	b [Inch]	Weight [lb/pc.]
9/32″-5/16″	5,700	5.16	1.14	0.98	0.94	0.43	2.52	4.65	2.03
3/8″	8,800	6.22	1.38	1.26	1.22	0.55	2.99	5.63	3.90
1/2″	15,000	7.48	1.65	1.57	1.54	0.67	3.50	6.69	6.22
5/8″	22,600	8.82	1.97	1.81	1.85	0.87	4.02	7.87	11.09
3/4″	35,300	10.24	2.40	2.13	2.20	1.10	4.49	9.09	16.76

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

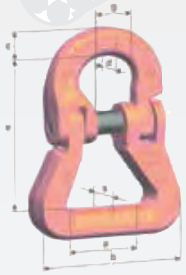
Grade 100 ALLOY COMPONENTS

Sheet Metal Plate Hook

Size	WLL [lb]	e [Inch]	s [Inch]	b [Inch]	h [Inch]	d1 [Inch]	g [Inch]	Weight [lb/pc.]
9/32″-5/16″	5,700	5.16	3.15	1.97	0.71	1.10	2.17	3.31
3/8″	8,800	6.61	3.94	2.76	0.79	1.42	2.56	6.17
1/2″	15,000	8.15	5.12	3.15	1.02	1.57	3.54	11.69
5/8″	22,600	10.28	6.30	3.94	1.30	1.97	4.33	23.15
3/4″	35,300	11.89	7.28	4.72	1.57	2.36	5.12	38.59
7/8″	42,700	14.29	8.66	5.51	1.97	2.95	5.91	67.25

Round Sling Connecting Link

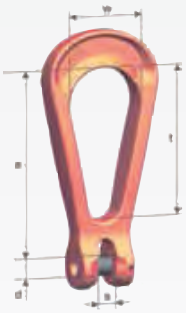
Link for webbing slings mounted in one Loc A Loy half.
Reduced risk of damage thanks to wide surface.



Size	WLL [lb]	a [Inch]	e [Inch]	c [Inch]	d [Inch]	b [Inch]	s [Inch]	Weight [lb/pc.]
5/16″	5,700	1.14	2.60	0.47	0.39	2.56	0.71	0.88
3/8″	8,800	1.57	3.19	0.59	0.51	3.23	0.83	1.21
1/2″	15,000	1.97	4.09	0.79	0.67	3.94	1.10	2.65
5/8″	22,600	1.85	4.45	0.83	0.83	4.33	1.57	4.41
7/8″	42,700	4.29	7.01	1.14	1.06	8.46	2.32	14.33

Clevis Reeving Link

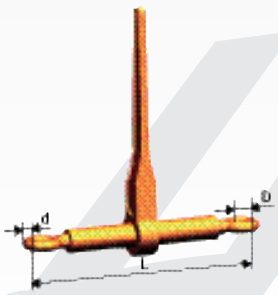
Master set for 1-leg chains. No danger of confusing this master link with any other master link. Can also be used as an end link.



Size	WLL [lb]	e [Inch]	t [Inch]	w [Inch]	d [Inch]	s [Inch]	Weight [lb/pc.]
9/32″	4,300	3.62	2.76	1.34	0.35	0.35	0.62
5/16″	5,700	3.58	2.76	1.34	0.39	0.35	0.66
3/8″	8,800	5.04	4.02	1.97	0.49	0.47	1.54
1/2″	15,000	6.65	5.35	2.60	0.63	0.59	3.09
5/8″	22,600	8.43	6.77	3.27	0.79	0.71	6.04

Load Binder

Load Binder with optimized lever length.



Size	L Length closed [inch]	L Length open [inch]	Tension range [inch]	length of lever [inch]	D [inch]	d [inch]	Weight [lb/pc.]
9/32″	13.98	19.69	5.71	9.33	0.79	0.63	7.06
3/8″	14.37	20.08	5.71	13.98	1.02	0.71	8.38
1/2″	22.68	34.09	11.42	14.13	1.22	0.87	21.83

Image as shown is for dimensional purposes only. Load binders sold assembled (connector and grab hook included).

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 100 ALLOY COMPONENTS

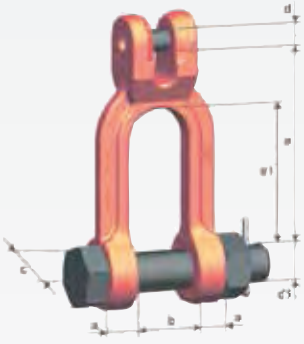
Clevis C-Hook

Suitable for simple and fast hooking and removal.
Only for applications without safety catch requirement.

Size	WLL [lb]	e [Inch]	h [Inch]	d [Inch]	b [Inch]	g [Inch]	Weight [lb/pc.]
9/32″	4,300	3.58	1.10	0.35	2.91	0.79	1.10
5/16″	5,700	3.54	1.10	0.39	2.91	0.79	1.10
3/8″	8,800	5.08	1.54	0.49	4.21	1.10	3.09
1/2″	15,000	6.54	2.01	0.63	5.39	1.61	6.62
5/8″	22,600	8.07	2.36	0.79	6.54	1.77	11.69

Clevis Shackle

Directly attached to the chain. Allows direct connection with other components such as spreader beams.



Size	WLL [lb]	e [Inch]	h [Inch]	d [Inch]	b [Inch]	g [Inch]	Weight [lb/pc.]
9/32″	4,300	3.58	1.10	0.35	2.91	0.79	1.10
5/16″	5,700	3.54	1.10	0.39	2.91	0.79	1.10
3/8″	8,800	5.08	1.54	0.49	4.21	1.10	3.09
1/2″	15,000	6.54	2.01	0.63	5.39	1.61	6.62
5/8″	22,600	8.07	2.36	0.79	6.54	1.77	11.69

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

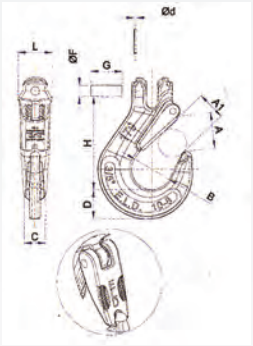
Grade 80 ALLOY COMPONENTS

Alloy Chain

Chain size	Standard delivery length [feet]	Pitch t [Inch]	Inside b1 min. [Inch]	Outside b2 max. [Inch]	WLL [lb]	Breaking force [lb]	Weight [lb/ft]
7/32”	400	0.680	0.319	0.787	2,100	8,400	0.470
9/32”	800	0.826	0.375	0.992	3,500	14,000	0.738
5/16”	500	0.945	0.430	1.134	4,500	18,000	0.939
3/8”	400	1.181	0.531	1.417	7,100	28,400	1.475
1/2”	200	1.535	0.689	1.843	12,000	48,000	2.548
5/8”	150	1.890	0.846	2.268	18,100	72,400	3.830
3/4”	100	2.440	1.008	2.776	28,300	113,200	5.780
7/8”	100	2.598	1.161	3.118	34,200	136,800	7.324
1”	100	3.071	1.378	3.704	47,700	190,800	10.214
11/4”	50	3.780	1.657	4.646	72,300	289,200	15.455

* Larger sizes available upon request.

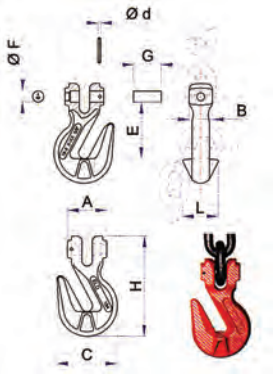
Clevis Sling Hook



WLL [lb]	For Chain size	Dimension A [Inch]	A1 i [Inch]	B [Inch]	C [Inch]	D [Inch]	ØF [Inch]	G [Inch]	Ød [Inch]	H [Inch]	L [Inch]	Weight [lb/pc.]
3,500	9/32″-5/16″	1.14	0.94	1.42	0.79	1.22	0.39	1.1	0.12	3.35	1.18	1.38
7,100	3/8″	1.5	1.26	1.77	0.94	1.38	12,5	1.38	0.12	4.13	1.54	2.64
12,100	1/2″	1.81	1.57	2.28	0.98	1.65	0.63	1.5	0.16	5.2	1.69	4.73
18,100	5/8″	2.09	1.69	2.52	1.26	1.89	0.79	1.97	0.2	5.83	2.05	7.87

* Larger sizes available upon request.

Clevis Grab Hook



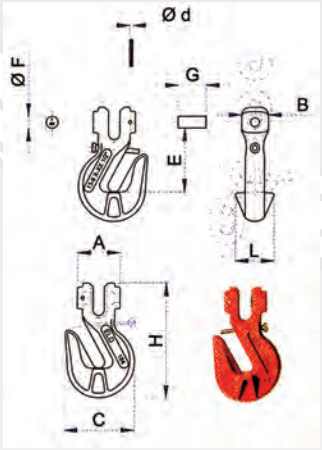
WLL [lb]	For Chain size	Size A [Inch]	B [Inch]	C [Inch]	Ød [Inch]	E [Inch]	ØF [Inch]	G [Inch]	H [Inch]	L [Inch]	Weight [lb/pc.]
3,500	9/32″	1.42	0.87	2.13	0.12	2.13	0.39	1.10	3.78	1.18	0.88
7,100	3/8″	1.81	1.10	2.95	0.12	2.76	0.49	1.38	4.88	1.69	1.85
12,100	1/2″	2.24	1.42	3.66	0.16	3.39	0.63	1.50	6.06	2.05	3.56
18,100	5/8″	2.76	1.65	4.25	0.20	3.98	0.79	1.97	7.05	2.52	5.17

* Larger sizes available upon request.

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

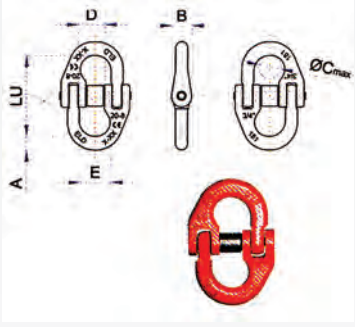
Grade 80 ALLOY COMPONENTS

Clevis Grab Hook with Pin



WLL [lb]	For Chain size	Size A [Inch]	B [Inch]	C [Inch]	Ød [Inch]	E [Inch]	ØF [Inch]	G [Inch]	H [Inch]	L [Inch]	Weight [lb/pc.]
3,500	9/32″	1.42	0.87	2.13	0.12	2.13	0.39	1.10	3.78	1.18	0.88
7,100	3/8″	1.81	1.10	2.95	0.12	2.76	0.49	1.38	4.88	1.69	1.85
12,000	1/2″	2.24	1.42	3.66	0.16	3.39	0.63	1.50	6.06	2.05	3.56
18,100	5/8″	2.76	1.65	4.25	0.20	3.98	0.79	1.97	7.05	2.52	5.17

Loc A Loy



WLL [lb]	For Chain size	Size A [Inch]	B [Inch]	ØC [Inch]	D [Inch]	E [Inch]	LU [Inch]	Weight [lb/pc.]
3,500	9/32″-5/16″	0.37	0.53	0.71	0.79	0.91	2.17	0.36
7,100	3/8″	0.47	0.67	0.87	0.98	1.10	2.64	0.68
12,000	1/2″	0.67	0.87	1.02	1.18	1.34	3.31	1.46
18,100	5/8″	0.87	1.10	1.26	1.42	1.61	4.09	2.49

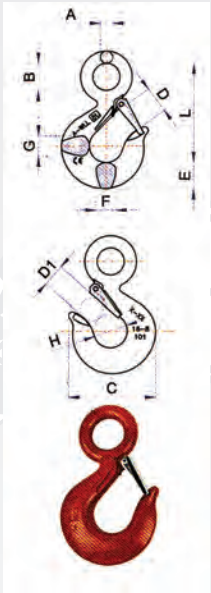
* Larger sizes available upon request.

Weight

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 80 ALLOY COMPONENTS

Eye Sling Hook



WLL [metric ton]	A [Inch]	B [Inch]	C [Inch]	D [Inch]	D1 [Inch]	E [Inch]	F [Inch]	G [Inch]	H [Inch]	L [Inch]	Weight I[lb/pc.]
	Size										
1.25	0.37	0.75	3.03	0.91	0.79	0.83	0.59	0.59	1.22	3.23	0.73
1.6	0.43	0.98	3.23	1.02	0.87	0.91	0.71	0.71	1.34	3.66	1.01
2.5	0.51	1.06	3.70	1.06	0.91	1.06	0.91	0.91	1.50	4.13	1.65
3.2	0.59	1.26	4.17	1.22	1.06	1.22	0.91	0.94	1.65	4.76	2.31
5.4	0.71	1.50	5.20	1.57	1.38	1.46	1.14	1.18	1.97	5.75	4.09
8	0.91	2.01	6.50	2.01	1.69	1.93	1.46	1.46	2.44	7.36	8.69
11.5	1.14	2.52	7.80	2.28	2.09	2.36	1.69	1.81	2.95	9.06	15.84
16	1.3	2.76	8.74	2.60	2.28	2.64	2.05	2.24	3.31	10.04	22.44
22	1.54	3.54	11.14	3.43	3.07	3.15	2.52	2.56	4.33	12.60	44.66

Swivel Hook

WLL [metric ton]	A c	B [inch]	C [inch]	D [inch]	D1 [inch]	E [inch]	F [inch]	H [inch]	L [inch]	M [inch]	N [inch]	P [inch]	R [inch]	Weight [lb/pc.]
	Size													
1.25	0.31	1.06	3.03	0.94	0.79	0.83	0.59	1.22	4.57	1.22	2.01	1.18	0.39	1.03
1.6	0.39	1.30	3.23	1.02	0.87	0.91	0.71	1.34	5.51	1.50	2.48	1.54	0.49	2.20
2.5	0.49	1.65	3.70	1.06	0.91	1.06	0.91	1.50	6.42	1.85	3.11	1.89	0.63	3.08
3.2	0.49	1.57	4.17	1.26	1.06	1.22	0.91	1.65	6.77	1.85	3.11	1.89	0.63	3.65
5.4	0.59	1.97	5.20	1.57	1.38	1.46	1.14	1.97	8.39	2.28	3.78	2.36	0.75	8.03
8	0.69	2.56	6.50	2.01	1.69	1.93	1.46	2.44	10.47	2.83	4.72	2.76	0.94	12.91
11.5	0.87	2.68	7.80	2.28	2.09	2.36	1.69	2.95	12.20	3.23	5.35	3.23	1.06	21.45
16	0.31	1.06	3.03	0.94	0.79	0.83	0.59	1.22	4.57	1.22	2.01	1.18	0.39	33.66
22	0.39	1.30	3.23	1.02	0.87	0.91	0.71	1.34	5.51	1.50	2.48	1.54	0.49	58.30

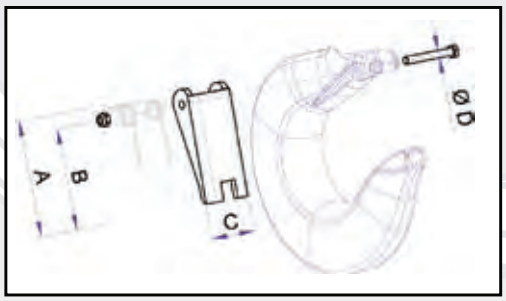
Swivel Self Locking Hook

WLL [metric ton]	Chain size	A [inch]	B [inch]	D [inch]	E [inch]	F [inch]	H [inch]	L [inch]	M [inch]	N [inch]	P [inch]	R [inch]	Weight [lb/pc.]
		Size											
2	9/32″	0.39	1.22	1.30	1.02	0.79	1.77	7.40	1.50	2.48	1.54	0.49	2.90
3.2	3/8″	0.49	1.57	1.73	1.38	1.06	2.28	8.98	1.85	3.11	1.89	0.63	5.06
5.4	1/2″	0.59	1.97	2.13	1.61	1.18	2.80	11.22	2.28	3.78	2.36	0.75	9.68
8	5/8″	0.68	2.56	2.60	2.09	1.38	3.31	13.27	2.83	4.72	2.36	0.94	17.60

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 80 ALLOY COMPONENTS

Latch Kits For Eye Sling Hooks



Size A [inch]	B [inch]	C [inch]	D [inch]	WLL [ton]
1.56	1.28	0.67	0.16	1.25
1.71	1.40	0.91	0.16	1.60
1.93	1.61	0.98	0.16	2.50
2.42	2.03	1.14	0.20	3.20
3.05	2.66	1.38	0.20	5.40
3.43	2.99	1.46	0.24	8.00
3.78	3.37	1.93	0.24	11.50
5.16	4.57	2.13	0.24	16.00
6.00	5.31	2.52	0.31	22.00

- Forged Alloy Steel - Quenched and Tempered.
- Deep straight throat permits efficient handling of flat plates or large cylindrical shapes.

Sorting Hook

Working Load Limit at tip of Hook (Tons)*	Working Load Limit at bottom of Hook (Tons)*	Style	Weight Each (lbs.)	Dimensions (in.)			
				I.D. of Eye	Overall Length	Opening at top of Hook	Radius at bottom of Hook
2	7-1/2	No Handle	6.42	1.38	9.69	2.81	.625
2	7-1/2	With Handle	6.42	1.38	9.69	2.81	.625

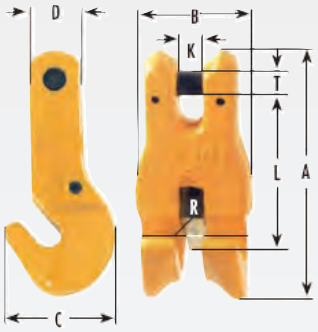
WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 80 ALLOY COMPONENTS

CLUTCH HOOK

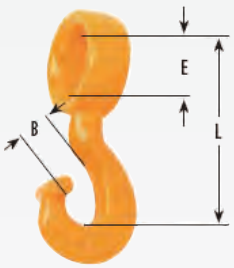
CHAIN SIZE	WLL *(LBS)	DIMENSIONS (INCHES) A	B	C	D	K	L	R	T	WEIGHT EACH (LBS)
7/32″	2,100	3.0	1.3	1.5	0.59	0.27	2.1	0.41	0.28	0.66
9/32″	3,500	3.7	1.7	1.7	0.79	0.35	2.6	0.51	0.35	1.1
5/16″	4,500	3.7	1.7	1.7	0.79	0.35	2.6	0.59	0.38	1.1
3/8″	7,100	4.7	2.2	2.3	0.99	0.45	3.3	0.75	0.47	2.2
1/2″	12,000	5.9	2.6	2.9	1.3	0.57	4.1	1.1	0.62	5.3
5/8″	18,100	7.0	3.1	3.5	1.6	0.68	4.8	1.3	0.77	7.5

* Design Factor 4:1 Proof tested and certified.



SLIDING CHOKER HOOK

CHAIN SIZE	WLL *(LBS)	DIMENSIONS (INCHES) L	B	E	WEIGHT EACH (LBS)
9/32″	3,500	3.8	0.75	1.3	0.7
5/16″	4,500	3.8	0.75	1.3	0.7
3/8″	7,100	4.7	0.83	1.7	1.8
1/2″	12,000	5.9	1.0	2.0	4.0



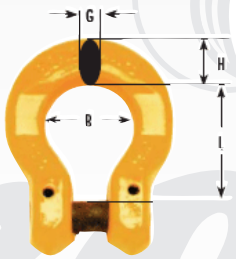
* Design Factor 4:1 Proof tested and certified.

Used with chain coupler to form choker with chain.

CHAIN COUPLER

CHAIN SIZE	WLL *(LBS)	DIMENSIONS (INCHES) L	B	G	H	WEIGHT EACH (LBS)
9/32″	3,500	1.4	1.0	0.43	0.71	0.44
5/16″	4,500	1.4	1.0	0.43	0.71	0.44
3/8″	7,100	1.8	1.3	0.55	0.87	0.88
1/2″	12,000	2.2	1.6	0.67	1.1	2.2

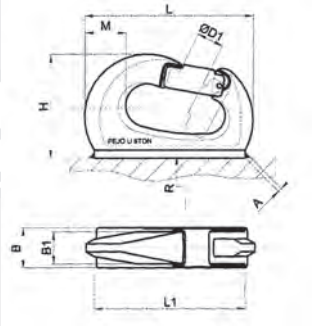
* Design Factor 4:1 Proof tested and certified.



WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

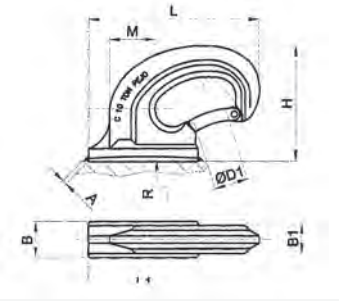
Grade 80 ALLOY COMPONENTS

Bucket Hook (BH)



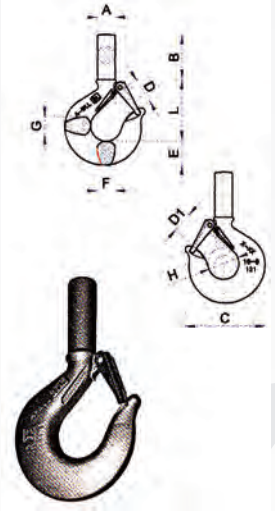
WLL [ton]	B1 [inch]	M [inch]	L [inch]	L1 [inch]	H [inch]	B inch [inch]	Ø D1 [inch]	A [inch]	Weight [lb/pc.]
1	0.83	0.87	4.13	3.90	2.95	0.98	0.91	0.16	1.30
4	1.14	1.38	5.71	5.24	3.98	1.38	1.22	0.24	4.22
5	1.18	1.26	5.98	5.59	4.21	1.38	1.22	0.24	4.60
8	1.40	1.77	8.07	7.28	5.00	1.57	1.57	0.31	8.29
10	1.57	1.83	8.50	8.07	5.47	1.97	1.57	0.31	11.73

Bucket Hook (BHC)



WLL [ton]	B1 [inch]	M [inch]	L [inch]	L1 [inch]	H [inch]	B [inch]	D1 [inch]	A [inch]	Weight]lb/pc.]
10	1.73	2.67	10.31	6.30	6.69	2.56	1.97	0.31	16.32
18	2.12	2.95	11.42	7.09	7.48	3.15	1.97	0.39	24.02

Shank Hook



WLL [t]	Size A [inch]	B [inch]	C [inch]	D [inch]	D1 [inch]	E [inch]	F [inch]	G [inch]	H [inch]	L [inch]	Weight [lb/pc.]
-	0.59	1.93	3.03	0.94	0.79	0.83	0.59	0.59	1.22	2.32	0.77
3.5	0.91	2.72	4.17	1.26	1.06	1.22	0.91	0.94	1.65	3.23	2.42
5.4	1.14	3.19	5.20	1.57	1.38	1.46	1.14	1.18	1.97	3.98	4.47
8	1.42	3.62	6.50	2.01	1.69	1.93	1.46	1.46	2.44	4.96	8.58
11.5	1.69	3.98	7.80	2.28	2.09	2.36	1.69	1.81	2.95	6.18	15.40
16	1.89	4.41	8.74	2.60	2.28	2.64	2.05	2.24	3.31	6.57	21.23
22	2.32	5.31	11.14	3.43	3.07	3.15	2.52	2.56	4.33	8.27	40.70
30	3.35	9.61	13.35	3.82	3.43	3.70	3.15	3.15	4.72	9.84	82.50

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 50 STAINLESS STEEL

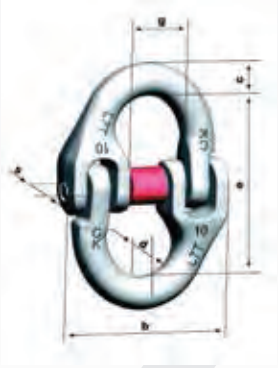
Capacities

Design factor 4:1	1-leg chains	2-leg chains			3- + 4-leg chains		
Angle of inclination:	-	30°	45°	60°	30°	45°	60°
Load factor:	1	1	1.4	1.7	1.5	2.1	2.6
Chain size	Working load limit [lb]						
3/16″	1,100	1,100	1,600	1,900	1,700	2,300	2,900
9/32″	2,200	2,200	3,100	3,800	3,300	4,600	5,700
3/8″	4,400	4,400	6,200	7,500	6,600	9,300	11,500
1/2″	7,100	7,100	10,000	12,100	10,700	14,900	18,500
5/8″	11,000	11,000	15,600	18,700	16,500	23,100	23,100

Lifting Chain

Chain size	Standard delivery length [feet]	Pitch t [inch]	Inside width b1 min [inch]	Outside width b2 max. [inch]	WLL [lb]	Breaking force [lb]	Weight [lb/ft]
3/16″	200	0.63	0.31	0.75	1,100	4,400	0.38
9/32″	200	0.83	0.39	0.98	2,200	8,800	0.74
3/8″	200	1.18	0.55	1.42	4,400	17,600	1.48
1/2″	200	1.54	0.71	1.85	7,100	28,400	2.55
5/8″	100	1.89	0.87	2.28	11,000	44,000	3.83

Loc A Loy

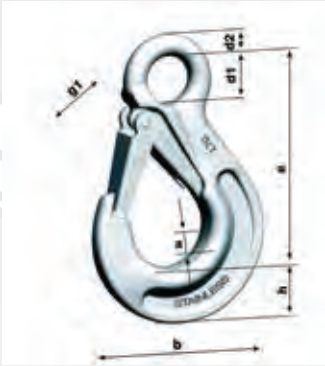


For Chain size	WLL [lb]	e [inch]	c [inch]	s [inch]	d [inch]	b [inch]	g [inch]	Weight [lb/pc.]
7/32”	1,100	1.42	0.28	0.39	0.28	1.34	0.51	0.11
9/32”	2,200	2.13	0.35	0.51	0.35	2.01	0.67	0.26
3/8”	4,400	2.87	0.51	0.71	0.51	2.76	0.98	0.73
1/2”	7,100	3.62	0.67	0.91	0.67	3.39	1.14	1.54
5/8”	11,000	4.09	0.83	1.10	0.83	4.13	1.46	2.69

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

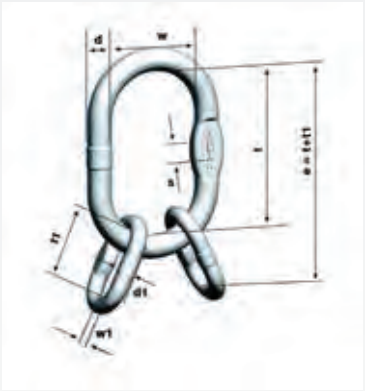
Grade 50 STAINLESS STEEL

Eye Sling Hook



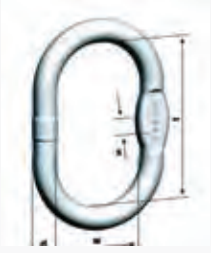
For Chain size	WLL [lb]	e [inch]	h [inch]	a [inch]	d1 [inch]	d2 [inch]	g1 [inch]	b [inch]	Weight [lb/pc.]
3/16”	1,100	3.15	0.79	0.55	0.83	0.31	0.87	2.60	0.55
9/32”	2,200	3.15	0.79	0.55	0.83	0.31	0.87	2.60	0.55
3/8”	4,400	4.09	1.10	0.75	0.94	0.43	1.14	3.54	1.32
1/2”	7,100	4.92	1.30	1.14	1.22	0.55	1.30	4.25	2.65
5/8”	11,000	6.89	1.85	1.46	1.85	0.87	1.89	6.02	6.62

Master Link Assembly



For Chain size	WLL [lb]	e [inch]	d [inch]	t [inch]	w [inch]	d1 [inch]	t1 [inch]	w1 [inch]	Weight [lb/pc.]
3/16”	2,900	6.06	0.51	4.33	2.36	0.39	1.73	0.79	1.15
9/32”	5,700	9.06	0.91	6.30	3.54	0.67	2.76	1.34	5.12
3/8”	11,500	10.43	1.06	7.09	3.94	0.79	3.35	1.57	8.42
1/2”	18,500	12.40	1.30	7.87	4.33	0.91	4.53	1.97	14.24
5/8”	23,100	15.75	1.42	10.24	5.51	1.06	5.51	2.56	22.18

Master Link



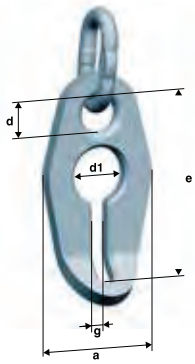
Stock diameter	WLL [lb]	d [inch]	t [inch]	w [inch]	s [inch]	Weight [lb/pc.]	for1-leg chain slings	for 2-leg chain slings
3/8”	1,900	0.39	3.15	1.97	0.39	0.31	3/16	3/16
1/2”	2,900	0.51	4.33	2.36	0.39	0.75	9/32	-
5/8”	3,800	0.67	4.33	2.36	0.55	1.17	-	9/32
11/16”	4,400	0.75	5.31	2.95	0.55	2.03	3/8	-
7/8”	7,500	0.91	6.30	3.54	0.67	3.53	1/2	3/8
1”	12,100	1.06	7.09	3.94	0.79	5.42	5/8	1/2
1 1/4”	18,700	1.30	7.87	4.33	1.02	9.13	-	5/8
1 7/16”	23,200	1.42	10.24	5.51	1.14	13.72	-	-

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Grade 50 STAINLESS STEEL

Adjustable

For Chain size	WLL [lb]	e [inch]	a [inch]	d [inch]	d1 [inch]	g [inch]	Weight [lb/pc.]
3/16"	1,650	3.15	2.05	0.63	1.02	0.31	0.40
9/32"	2,750	4.37	2.68	0.87	1.34	0.43	1.03
3/8"	4,400	5.24	3.39	1.06	1.57	0.47	1.91
1/2"	7,040	6.65	4.25	1.26	2.05	0.63	4.07
5/8"	11,000	8.03	5.28	1.50	2.52	0.79	7.48



VLK in use

Latch Kit for Stainless Steel Eye Sling Hook

Stainless steel safety latch set with extra strong spring
and rivetable safety pin

Sold as a kit only

3/16″-7/16″ Stainles Steel Eye Sling Hook
9/32″ Stainles Steel Eye Sling Hook
3/8″ Stainles Steel Eye Sling Hook
1/2″ Stainles Steel Eye Sling Hook
5/8″ Stainles Steel Eye Sling Hook

WARNING DO NOT EXCEED WORKINGLOAD LIMIT (WLL)!

Synthetic Web Slings

Synthetic Web Slings

RECOMMENDED OPERATING PRACTICES FOR SYNTHETIC WEB SLINGS

OPERATING PRACTICES

The following rules are required operating practices to be followed each time a web sling is used.

1. Determine that the weight of the load is within the rated capacity of the sling.
2. Select a sling having suitable characteristics for the type of load, hitch and environment.
2. Slings shall not be shortened or lengthened by knotting or other unapproved methods.
4. Damaged slings shall not be used.
5. Slings shall be hitched in a manner providing control of the load.
6. Edges in contact with slings should be padded.
7. Keep all portions of the human body from between the sling and the load, and from between the sling and the lifting hook.
8. Personnel should stand clear of the suspended load.
9. Personnel shall not ride the sling.
10. Shock loading should be avoided.
11. Slings should not be pulled from under a load when the load is resting on the sling.
12. Slings should be store in an area where they will not be subject to mechanical damage, moisture, extreme heat or ultraviolet light.
13. Twisting of slings shall be avoided.
14. Loads applied to the hook shall be centered in the base of the hook to prevent point loading on the hook.
15. Before lifting, make certain that the sling, attachments, or load shall not snag. Personnel shall be continuously alert to avoid snagging or bumping.
16. In a basket hitch, the lifting hook should be above the center of gravity and the load balanced to prevent slippage out of the sling.
17. When making a multiple leg lift, or a basket life, the capacity rating of each sling must be downgraded in accordance with the Effect of Angle Chart.
18. Slings should not be dragged on the floor over an abrasive surface.
19. In a choker hitch, slings with hardware shall be long enough so that the choker fitting chokes on the webbing and never on the triangle.
20. Nylon and polyester slings shall not be used at temperatures in excess of 180 degrees Fahrenheit.
21. Exposure to sunlight or ultraviolet light degrades the strength of synthetic web slings.
22. Inspect slings for damage or defects prior to each use.
23. Each sling shall be tagged to show working load limits for each type of hitch.
24. Do not used loads that may slip or slide, as new angles may change sling load, or cause sling damage which could result in sling failure.

INSPECTIONS

Each day before being used, sling and all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.

REMOVAL FROM SERVICE

Synthetic web slings shall be immediately removed from service is any of the following conditions are present:

1. Acid or caustic burns
2. Melting or charring of any part of the sling surface
3. Snags, punctures, tears or cuts
4. Broken or worn stitches
5. Distortion of fittings
6. Knots in any part of the sling.
7. Other apparent defects which cause doubt as to the strength of the sling.

U.V.LIGHT

Enviornments in which web slings are continuously exposed to ultraviolet light can affect the strength of web slings in varying degrees ranging from slight to total degradation. To minimize these effects, store slings not being used in a cool, dry and dark place. Visual indications of ultraviolet degradation are bleaching out of the color, increase stiffness and surface abrasion at points not normally in contact with the load.

Synthetic Web Slings

HOW TO ORDER

SLING SELECTION

Select a sling having suitable characteristics for the type of load, hitch, and environment to which it will be subjected.

SLING CAPACITY - Determine the weight of the load.

SLING TYPE - Select a sling of suitable design for the type of hitch to be used. Where there is no reason to use another type, endless type is recommended. The endless type is more economical and gives longer service life because of wear rotation.

SLING WIDTH - If width is not a consideration because of load crushing or other reasons, use the narrowest sling that is rated to handle the load. Generally a narrower sling is more economical.

SLING LENGTH - Choker slings with metal end fittings must be sufficient length to assure that choking action is on the webbing. Basket hitch slings must be of sufficient length to prevent over stressing of sling legs due to high sling leg angles. Consider the advisability of one complete wrap around the load for choker hitch slings, thus providing a good grip on the load.

SLING BODY PLY - Body ply indicated the number of web thickness in the body of a sling. A rule of thumb is that for a given sling you can double the rated capacity by doubling the plys. For example a 1" two ply sling would have the same capacity as a 2" single ply.

*Multi-legged slings available upon request.

Chemical Data

The chemical data included below should be used only as a guide.
Please consult with Horizon Cable prior to using for specific information regarding chemicals.

	Acids	Alcohols	Aldehydes	Strong Alkalis	Bleaching Agents	Dry Cleaning Solvent	Ethers	Halo-genated Hydro-Carbons	Hydro-Carbons	Ketones	Oils Crude	Oils Lubricating	Soap & Detergents	Water & Sea Water	Weak Alkalis
NYLON	NO	OK	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
POLY-ESTER	•	OK	NO	**	OK	OK	NO	OK	OK	OK	OK	OK	OK	OK	OK

DISCLAIMER OF WARRANTIES AND LIMITS OF LIABILITY

Seller warrants that its goods are free from defects in materials and workmanship at the time of delivery. Therefore, Seller's liability is limited to refund of purchase price or replacement of goods upon written notice and return prepaid to Seller to establish claim for any said defect.
SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE ABOVE OBLIGATION ARE EXCLUDED AND DISCLAIMED BY SELLER.

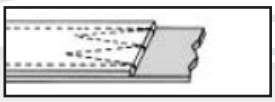
WARNING: Failure to read, understand and follow the operating practices and inspection instructions may result in severe personal injury or death.

Synthetic Web Slings

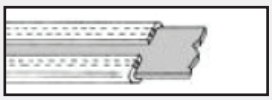
WEB SLING PROTECTORS

The most common cause of web sling damage is cutting. Wear pads and sleeves can help reduce the damage by acting as a buffer between the load and the slings. Common materials used are nylon, cordura, and leather.
The most common material is cordura which offers resistance to grease, oil and dirt and has good abrasion resistance at a reasonable cost. Cordura has similar stretch properties of nylon and works well when sewn on nylon slings as pads. Leather and "pleather" (synthetic leather) offers good abrasion resistance. Leather is subject to deterioration from water, grease, oils and sunlight. It does not stretch making leather less suitable as wear pads. These materials are abrasion resistant but are NOT cut proof. Care must be used to verify that these materials are proper for the application; and, that these materials are positioned properly.
Other materials such as fire hose, rubber, etc. may be used.

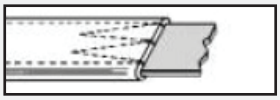
Wear Pads are sewn directly on the sling in locations that are most susceptible to wear such as inside of eyes and wear points on slings for specific applications.



Edge Guards are pads wrapped around the sling edge to protect the sling from snags and cuts.



Wrap Around Guards are pads or sleeves wrapped around the sling width and sewn tight to protect the sling.

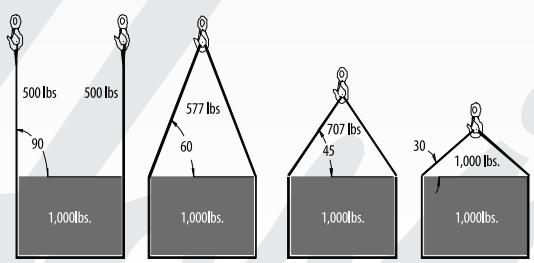


Sleeves come in several different styles and are made from pieces of material sewn together or tubing. Sleeves protect both sides of slings. They are not sewn directly to the sling which allows the sleeve to stay in place on rough edges while allowing the sling to slide inside the sleeve to center itself on the load without the sling being damaged.

Sliding Sleeves are removable from the sling. The are available for eye and eye and endless slings. Floating Sleeves are not removable from the sling. They are only available on endless type slings. Velcro / Cordura Sleeves are removable sleeves with Velcro along one edge. This allows for easy placement of sleeves during the rigging process.

Sling Angle and Sling Load Chart

Sling angle is the angle measured between a horizontal line and the sling leg or body. This angle is very important and can have a dramatic effect on the rated capacity of the sling. As illustrated 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 multi-legged bridle slings. **Sling angles of less than 45 degrees are not recommended.**
Actual Sling Capacity = Factor X Rated



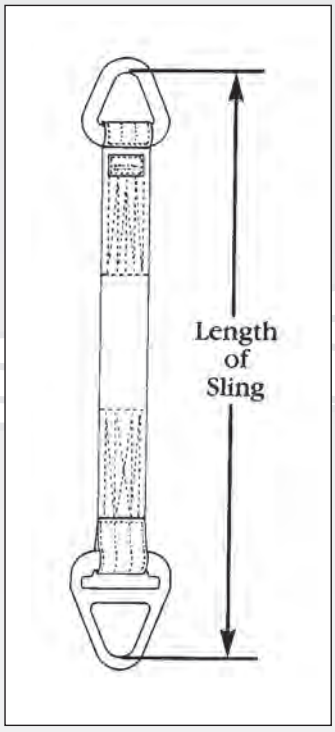
Effect of Angle Chart

Sling Angle in Degrees	Multiplier Factor
30	0.500
45	0.707
60	0.866
70	0.940
85	0.996
90	1.000

Synthetic Web Slings

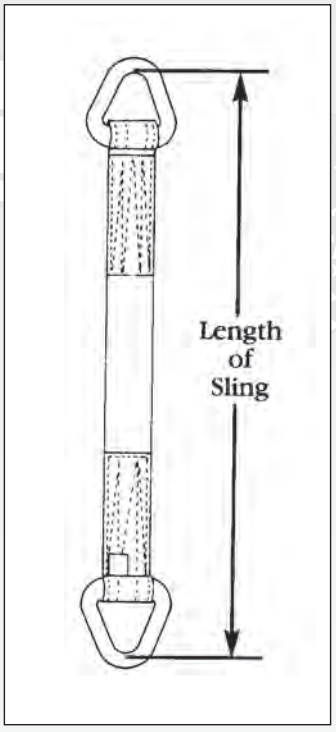
TRIANGLE & CHOKER (TYPE 1)

Web sling made with a triangle fitting on one end and a slotted triangle choker fitting on the other end. It can be used in a vertical basket hitch or choker hitch.



TRIANGLE &TRIANGLE (TYPE 2)

Web sling made with a triangle fitting on both ends. It can be used in a vertical or basket hitch only.



	STEEL AND ALUMINUM HARDWARE					
	TYPE 1	TYPE 2	WIDTH (IN.)	VERTICAL	CHOKER	VERTICAL BASKET
1-PLY	TC-1-92	TT-1-92	2	3,100	2,480	6,200
	TC-1-93	TT-1-93	3	4,700	3,760	9,400
	TC-1-94	TT-1-94	4	6,200	4,960	12,400
	TC-1-96	TT-1-96	6	9,300	7,440	18,600
	TC-1-98	TT-1-98	8	11,800	9,440	23,600
	TC-1-910	T-1-910	10	14,700	11,760	29,400
	TC-1-912	TT-1-912	12	17,600	14,080	35,200
	STEEL HARDWARE ONLY					
	TYPE 1	TYPE 2	WIDTH (IN.)	VERTICAL	CHOKER	VERTICAL BASKET
2-PLY	TC-2-92	TT-2-92	2	6,200	4,960	12,400
	TC-2-93	TT-2-93	3	8,800	7,040	17,600
	TC-2-94	TT-2-94	4	11,000	8,800	22,000
	TC-2-96	TT-2-96	6	16,500	13,200	33,000
	TC-2-98	TT-2-98	8	22,700	18,160	45,400
	TC-2-910	TT-2-910	10	28,400	22,720	56,800
	TC-2-912	TT-2-912	12	34,100	27,280	58,200

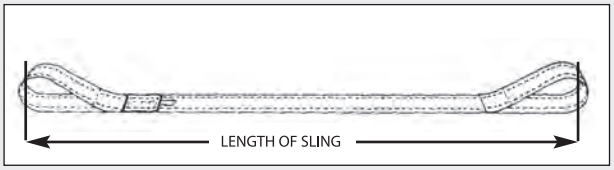
* RATED CAPACITY IN POUNDS CAUTION: DO NOT EXCEED RATED CAPACITIES.
POLYESTER WEBBING AVAILABLE UPON REQUEST.

WARNING: Failure to read, understand and follow the operating practices and inspection instructions may result in severe personal injury or death.

Synthetic Web Slings

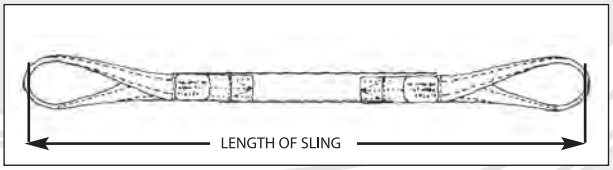
EYE & EYE-FLAT (TYPE 3)

Web sling made with a flat loop eye on each end with loop eye opening on same plane as sling body. This type of sling is sometimes called a flat eye & eye, or double eye sling.



EYE & EYE-TWIST (TYPE 4)

Web sling made with both loop eyes formed as in Type III, except that the loop eyes are turned to form a loop eye which is at a right angle to the plane of the sling body. This type of sling is commonly referred to as a twisted eye sling.



	TYPE 3	TYPE 4	WIDTH (IN.)	VERTICAL	CHOKER	VERTICAL BASKET	EYE LENGTH
1-PLY	EE-1-91	TE-1-91	1	1,600	1,280	3,200	9
	EE-1-92	TE-1-92	2	3,100	2,480	6,200	9
	EE-1-93	TE-1-93	3	4,700	3,760	9,400	11
	EE-1-94	TE-1-94	4	6,200	4,960	12,400	12
	EE-1-96	TE-1-96	6	9,300	7,440	18,600	12
	EE-1-98	TE-1-98	8	11,800	9,440	23,600	18
	EE-1-910	TE-1-910	10	14,700	11,760	29,400	18
	EE-1-912	TE-1-912	12	17,600	14,080	35,200	24

	TYPE 3	TYPE 4	WIDTH (IN.)	VERTICAL	CHOKER	VERTICAL BASKET	EYE LENGTH
2-PLY	EE-2-91	TE-2-91	1	3,100	2,480	6,200	9
	EE-2-92	TE-2-92	2	6,200	4,960	12,400	9
	EE-2-93	TE-2-93	3	8,800	7,040	17,600	11
	EE-2-94	TE-2-94	4	11,000	8,800	22,000	12
	EE-2-96	TE-2-96	6	16,500	13,200	33,000	16
	EE-2-98	TE-2-98	8	22,700	18,160	45,400	20
	EE-2-910	TE-2-910	10	28,400	22,720	56,800	24
	EE-2-912	TE-2-912	12	34,100	27,280	68,200	24

* RATED CAPACITY IN POUNDS
POLYESTER WEBBING AVAILABLE UPON REQUEST.

CAUTION: DO NOT EXCEED RATED CAPACITIES.

WARNING: Failure to read, understand and follow the operating practices and inspection instructions may result in severe personal injury or death.

Synthetic Web Slings

EYE & EYE - FLAT (TYPE 3) & EYE & EYE - TWIST (TYPE 4)

3-PLY

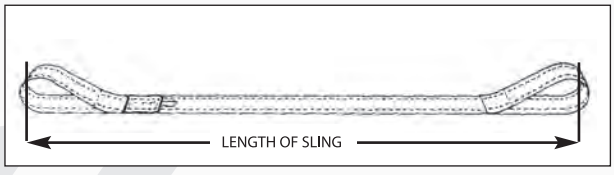
TYPE 3	TYPE 4	WIDTH (IN.)	VERTICAL	CHOKER	VERTICAL BASKET	EYE LENGTH
EE-3-91	TE-3-91	1	4,100	3,300	8,200	10
EE-3-92	TE-3-92	2	8,200	6,600	16,400	12
EE-3-93	TE-3-93	3	12,300	9,900	24,600	14
EE-3-94	TE-3-94	4	15,300	12,200	30,600	16
EE-3-96	TE-3-96	6	22,900	18,300	45,800	18
EE-3-98	TE-3-98	8	30,700	24,600	61,400	24
EE-3-910	TE-3-910	10	36,000	28,800	72,000	24
EE-3-912	TE-3-912	12	40,300	32,200	80,600	24

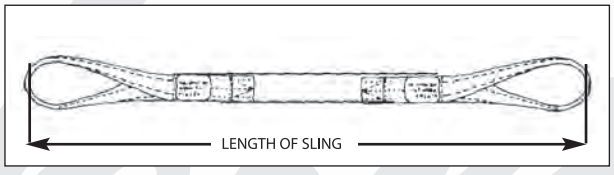
4-PLY

TYPE 3	TYPE 4	WIDTH (IN.)	VERTICAL	CHOKER	VERTICAL BASKET	EYE LENGTH
EE-4-91	TE-4-91	1	5,500	4,400	11,000	10
EE-4-92	TE-4-92	2	11,000	8,800	22,000	12
EE-4-93	TE-4-93	3	16,400	13,120	32,800	14
EE-4-94	TE-4-94	4	20,400	16,320	40,800	16
EE-4-96	TE-4-96	6	30,600	24,480	61,200	18
EE-4-98	TE-4-98	8	40,960	32,768	81,920	24
EE-4-910	TE-4-910	10	48,000	38,400	96,000	24
EE-4-912	TE-4-912	12	53,760	43,008	107,520	24

* RATED CAPACITY IN POUNDS CAUTION: DO NOT EXCEED RATED CAPACITIES.
POLYESTER WEBBING AVAILABLE UPON REQUEST.

WARNING: Failure to read, understand and follow the operating practices and inspection instructions may result in severe personal injury or death.





Synthetic Web Slings

ENDLESS (TYPE 5)

Endless web sling, sometimes referred to as a grommet. It is a continuous loop formed by joining the ends of the fabric together with a splice.

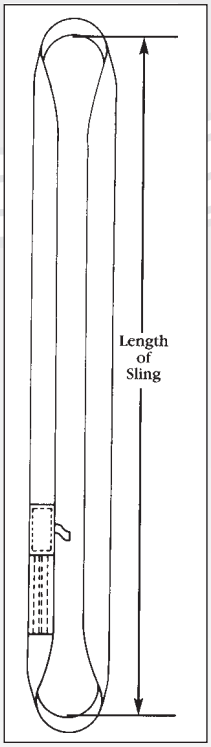
1-PLY

TYPE 5	WIDTH (IN.)	VERTICAL	CHOKER	VERTICAL BASKET
EN-1-91	1	3,200	2,560	6,400
EN-1-92	2	6,200	4,960	12,400
EN-1-93	3	9,400	7,520	18,800
EN-1-94	4	12,400	9,920	24,800
EN-1-96	6	18,600	14,880	37,200
EN-1-98	8	21,200	16,960	42,400
EN-1-910	10	26,500	21,200	53,000
EN-1-912	12	31,800	25,440	63,600

2-PLY

TYPE 5	WIDTH (IN.)	VERTICAL	CHOKER	VERTICAL BASKET
EN-2-91	1	6,200	4,960	12,400
EN-2-92	2	12,400	9,920	24,800
EN-2-93	3	17,600	14,080	35,200
EN-2-94	4	22,000	17,600	44,000
EN-2-96	6	33,000	26,400	66,000
EN-2-98	8	42,300	33,840	84,600
EN-2-910	10	52,900	42,320	105,800
EN-2-912	12	63,500	50,800	127,000

* RATED CAPACITY IN POUNDS
POLYESTER WEBBING AVAILABLE UPON REQUEST.



CAUTION: DO NOT EXCEED RATED CAPACITIES.

WARNING: Failure to read, understand and follow the operating practices and inspection instructions may result in severe personal injury or death.

Synthetic Web Slings

ENDLESS (TYPE 5) CON'T

Endless sling, sometimes referred to as a grommet. It is a continuous loop formed by joining the ends of the fabric together with a splice.

3-PLY

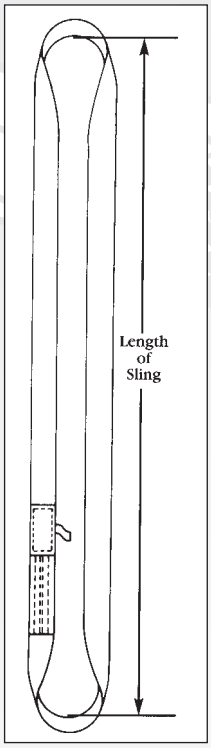
TYPE 5	WIDTH (IN.)	VERTICAL	CHOKER	VERTICAL BASKET
EN-3-91	1	8,200	6,600	16,400
EN-3-92	2	16,500	13,200	33,000
EN-3-93	3	24,700	19,800	49,400
EN-3-94	4	30,600	24,500	61,200
EN-3-96	6	45,900	36,700	91,800
EN-3-98	8	61,400	49,100	122,800
EN-3-910	10	72,000	57,600	144,000
EN-3-912	12	80,600	64,500	161,200

4-PLY

TYPE 5	WIDTH (IN.)	VERTICAL	CHOKER	VERTICAL BASKET
EN-4-91	1	11,000	8,800	22,000
EN-4-92	2	22,000	17,600	44,000
EN-4-93	3	32,900	26,320	65,800
EN-4-94	4	40,800	32,640	81,600
EN-4-96	6	61,200	48,960	122,400
EN-4-98	8	81,920	65,536	163,840
EN-4-910	10	96,000	76,800	192,000
EN-4-912	12	107,520	86,016	215,040

* RATED CAPACITY IN POUNDS

POLYESTER WEBBING AVAILABLE UPON REQUEST.



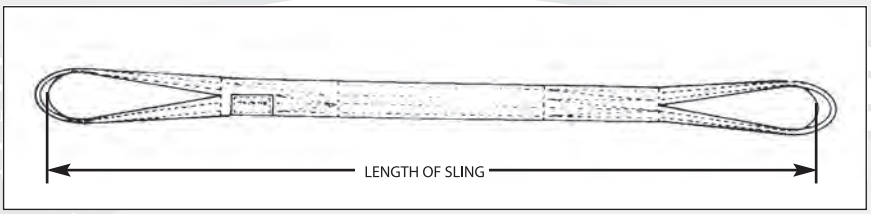
CAUTION: DO NOT EXCEED RATED CAPACITIES.

WARNING: Failure to read, understand and follow the operating practices and inspection instructions may result in severe personal injury or death.

Synthetic Web Slings

REVERSED EYE TYPE 6

The reversed eye are durable slings that feature full body and eye protection. Eye openings are 90 degrees to the sling body for tighter choker hitches and easy vertical basket hitch rigging.



	REVERSED EYE TYPE 6	RATED CAPACITY IN POUNDS			SLING DIMENSIONS	
		WIDTH (IN)	VERTICAL	CHOKER	VERTICAL BASKET	EYE LENGTH
1 PLY	RE-1-92	2	3,200	2,560	6,400	9
1 PLY	RE-1-94	4	6,400	5,120	12,800	15
1 PLY	RE-1-96	6	9,600	7,680	19,200	15
2 PLY	RE-1-92	2	6,400	5,120	12,800	9
2 PLY	RE-1-94	4	12,800	10,240	25,600	15
2 PLY	RE-1-96	6	17,760	14,208	35,520	15
3 PLY	RE-1-94	4	17,760	14,208	35,520	15
3 PLY	RE-1-96	6	26,640	21,312	53,280	15
4 PLY	RE-1-94	4	23,680	18,944	47,360	15
4 PLY	RE-1-96	6	35,520	28,416	71,040	15

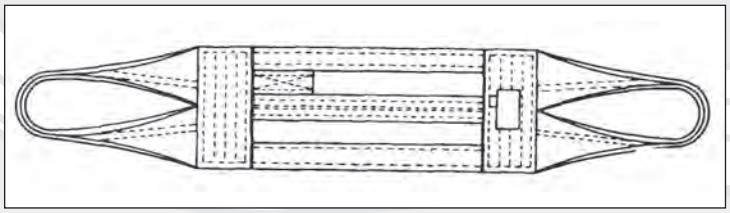
* RATED CAPACITY IN POUNDS CAUTION: DO NOT EXCEED RATED CAPACITIES.
POLYESTER WEBBING AVAILABLE UPON REQUEST.

WARNING: Failure to read, understand and follow the operating practices and inspection instructions may result in severe personal injury or death.

Synthetic Web Slings

WIDE BODY BASKET - (TYPE 8)

The wide body basket slings are mainly used in basket hitches where wide slings are needed for load stability and for handling fragile or delicately finished surfaces. Eyes of slings fit in hoist or crane hooks.



TYPE 8	WIDTH (IN)	PLY	U
WB-1-96	6	1	19,200
WB-2-96	6	2	35,520
WB-1-98	8	1	25,600
WB-2-98	8	2	46,080
WB-1-910	10	1	32,000
WB-2-910	10	2	56,000
WB-1-912	12	1	38,400
WB-2-912	12	2	65,280
WB-1-916	16	1	51,200
WB-2-916	16	2	81,920
WB-1-920	20	1	64,000
WB-2-920	20	2	96,000
WB-1-924	24	1	76,800
WB-2-924	24	2	107,520

* RATED CAPACITY IN POUNDS

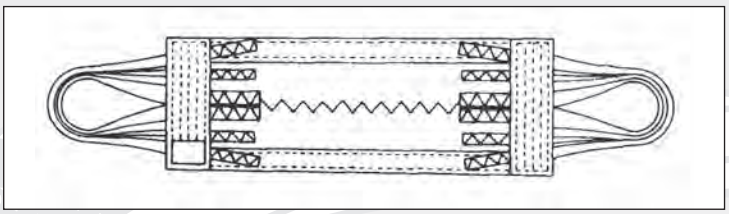
CAUTION: DO NOT EXCEED RATED CAPACITIES.

WARNING: Failure to read, understand and follow the operating practices and inspection instructions may result in severe personal injury or death.

Synthetic Web Slings

LOAD BALANCER BASKET - (TYPE 9)

The load balancer basket slings are mainly used where you need wide slings for load stability and for handling fragile or delicately finished surfaces. They are rated at a lower capacity than the wide body basket. Eyes of slings fit on small hoist hooks and are reinforced.



TYPE 9	WIDTH (IN)	PLY	U
LBB-1-96	6	1	6,000
LBB-1-98	8	1	6,000
LBB-1-910	10	1	6,000
LBB-1-912	12	1	6,000
LBB-1-916	16	1	10,000
LBB-1-920	20	1	10,000
LBB-1-924	24	1	10,000

* RATED CAPACITY IN POUNDS

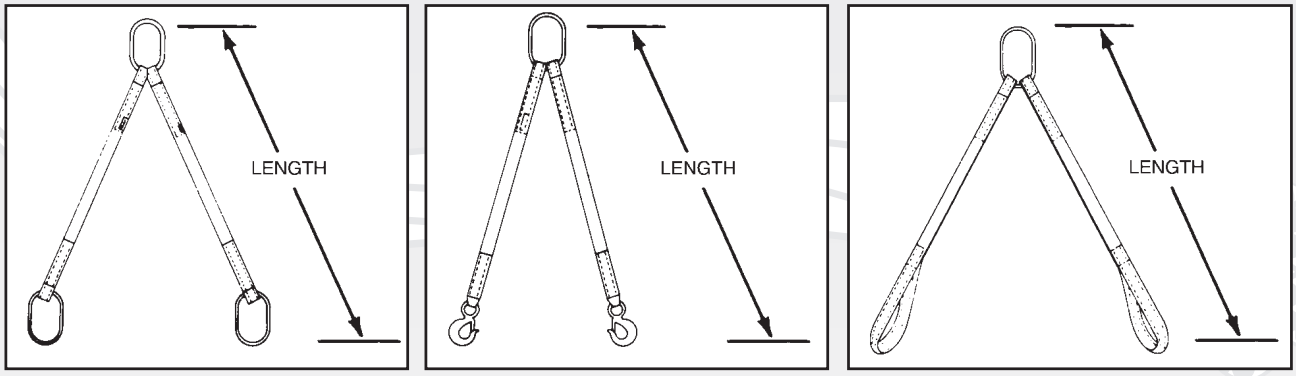
CAUTION: DO NOT EXCEED RATED CAPACITIES.

WARNING: Failure to read, understand and follow the operating practices and inspection instructions may result in severe personal injury or death.

Synthetic Web Slings

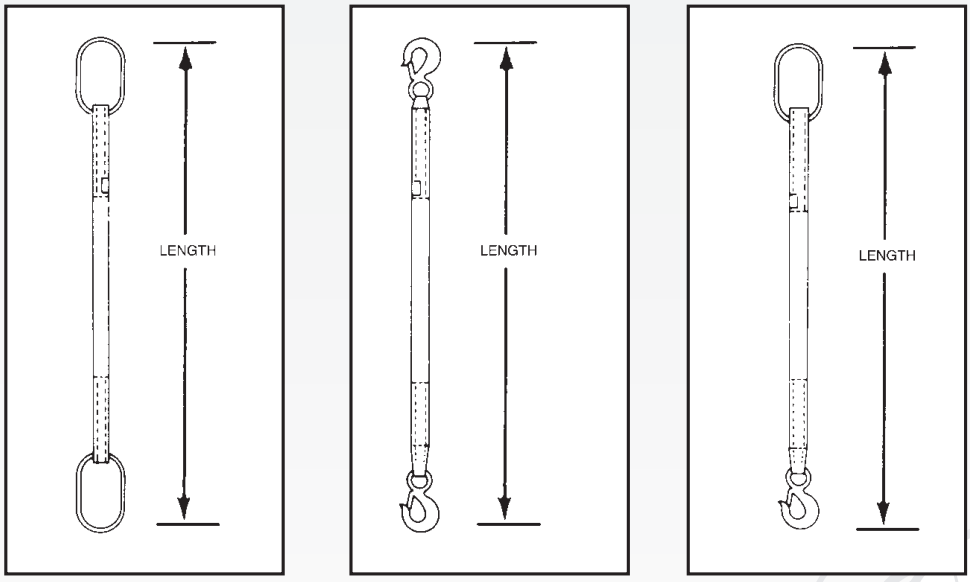
Muti-Legged Slings

These sling assemblies are used on lifts that need multiple legs and come equipped with many variations of rings, hooks and other fittings.



3 and 4 legged assemblies available on request. Because of the wide variety of fittings which can greatly effect the rated capacity of an assembly please contact your nearest Horizon Cable location to discuss your specific lifting requirements.

Hardware Slings (Single Leg)



WARNING: Failure to read, understand and follow the operating practices and inspection instructions may result in severe personal injury or death.

Synthetic Web Slings

RECOMMENDED OPERATING PRACTICES FOR POLYESTER ROUND SLINGS

INSPECTION

Polyester round slings shall be visually inspected by a designated person handling the polyester round sling before each use. These visual observations shall be concerned with the identification tag and discovering damage. Polyester round slings shall be removed from service if there is any doubt as to the condition of the round sling.

INSPECTION RECORDS

Written inspection records, utilizing the identification for each polyester round sling as established by the user, should be kept on file. These records should show a description of the new polyester round sling and its condition on each subsequent inspection.

TYPE OF INSPECTION

a. Initial Inspection – Before any polyester round sling is placed into service, it shall be inspected by a designated person to ensure that the correct round sling is being used, as well as to determine that the round sling meets the requirements of this specification.

b. Frequent Inspection – This inspection shall be conducted by a qualified person handling the polyester round sling each time the round sling is used.

c. Periodic Inspection – This inspection shall be conducted by a designated person. Frequency of inspection should be based on:

1. Frequency of use
2. Severity of service conditions
3. Experience gained on the service life of polyester round slings used in similar applications
4. Periodic inspections should be conducted at least monthly

CARE AND USE

TEMPERATURE: Manufactured from polyester, round slings are seriously graded at temperatures above 200 degrees.
IMPROPER LOADING: Shock loading, unbalanced loading, overloading and inadequate consideration for the effect angle factors can adversely effect strength.
CUTS, PUNCTURES, ABRASIONS: When sleeve on a round sling has been damaged so that the inner load bearing yarns can be exposed, the sling *MUST* be removed from service.
CHEMICALS: Round slings must not be exposed to fumes, vapor sprays, mists or liquids of alkaline, aldehydes, ethers or concentrated sulfuric acid.
FOREIGN MATTER: Material such as metal chips, weld splatter, heavy grit, etc. can damage round slings.

REPAIR OF ROUND SLINGS

There shall be no repairs of load bearing fibers. Repairs to the protective covers shall be done only by the original manufacturer or their appointed agent. Only polyester round slings which can be identified from the information on the identification tag shall be repaired. All repaired polyester round slings shall be proof tested to a minimum of two (2) times the rated capacity before being put back into service. Certification of proof test should be provided.

REMOVAL FROM SERVICE

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

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

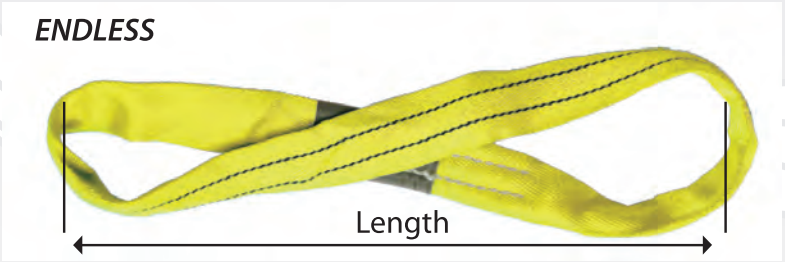
WARNING: Failure to read, understand and follow the use and inspection instructions could result in severe personal injury or death. Do not exceed rated capacities.

Synthetic Web Slings

POLYESTER ROUNDSLING

- Designed especially for easy use and durability
- Chokes much better than standard slings and releases earlier
- Soft and Pliable - conforms well to irregularly shaped loads
- Double Jacket protects load bearing fibers
- Tagged for easy identification

ENDLESS



Length=
Bearing to Bearing

Endless Roundslings COLOR #	Rated Capacity (lbs.)* Vertical	Choker	Vertical Basket	Minimum Length 9ft.)	Approx. Weight (lbs./ft.)	Approx. Body Dia. Relaxed (in.)	Approx. Width at Load (in.)
PURPLE	2,600	2,100	5,200	3	0.3	0.62	1.12
GREEN	5,300	4,200	10,600	3	0.4	0.87	1.5
YELLOW	8,400	6,700	16,800	3	0.5	1.12	1.87
TAN	10,600	8,500	21,200	3	0.6	1.12	2.12
RED	13,200	10,600	26,400	3	0.8	1.37	2.25
WHITE	16,800	13,400	33,600	3	0.9	1.37	2.5
BLUE	21,200	17,000	42,400	3	1.2	1.75	3
ORANGE	25,000	20,000	50,000	8	1.4	1.75	3.3
GREY	31,000	24,800	62,000	8	1.7	2.25	3.75
MAROON	40,000	32,000	80,000	8	2.1	2.5	4.2
BROWN	53,000	42,400	106,000	8	2.6	2.75	4.62
OLIVE	66,000	52,800	132,000	8	3.2	3.12	5.25
BLACK	90,000	72,000	180,000	8	4.1	3.62	6

WARNING

- Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases.
- Slings should not be used at angles of less than 30 degrees

Features:
The most flexible-style of sling. Less rigging weight. Easy handling. Wear points can be shifted to extend life. Color-coded capacity. RED core warning fibers. Wear pads can be added to extend sling life.

EYE-EYE ROUNDSLING

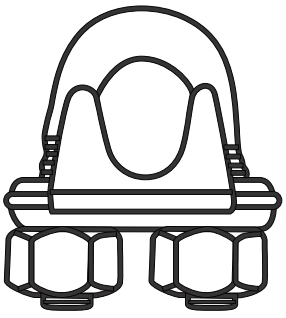
COLOR #	Rated Capacity (lbs.)* Vertical	Choker	Vertical Basket	Minimum Length (ft.)	Approx. Weight (lbs./ft.)	Approx. Body Width at Load (W) (in.)	Approx. Standard Eye Length (L) (in.)
EYPurple	2,600	2,100	5,200	3	0.4	1.7	10
EYGreen	5,300	4,200	10,600	3	0.5	2.2	10
EYYellow	8,400	6,700	16,800	3	0.6	2.5	12
EYTan	10,600	8,500	21,200	3	0.8	2.5	12
EYRed	13,200	10,600	26,400	4	0.9	3.2	14
EYWhite	16,800	13,400	33,600	4	1.1	3.3	16
EYBlue	21,200	17,000	42,400	4	1.3	3.7	16

WARNING

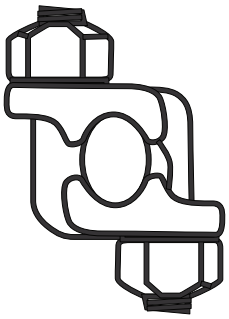
- Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases.
- Slings should not be used at angles of less than 30 degrees

Features:
A durable cover is placed over the sling to form two eyes. This helps prtect the body from wear and extends the life of the sling.

Rigging Hardware



U-BOLT



FIST GRIP

INSTALLATION OF CLIPS

WIRE ROPE CLIPS

Wire rope clips are widely used for making end terminations.
Clips are available in two basic designs; the U-Bolt and fist grip. The efficiency of both types is the same.
When using U-Bolt clips, extreme care must be exercised to make certain that they are attached correctly; i.e., the U-Bolt must be applied so that the "U" section is in contact with the dead end rope. Also, the tightening and retightening of the nuts must be accomplished as required. Use only forged clips for critical, heavy duty, overhead loads, such as support line, guy lines, towing lines, tie downs, scaffolds, etc.

Malleable clips are used for making eye termination assemblies only with right regular lay wire rope and only for light duty uses with small applied loads, such as hand rails, fencing, guard rails, etc.

HOW TO APPLY BOLT CLIPS

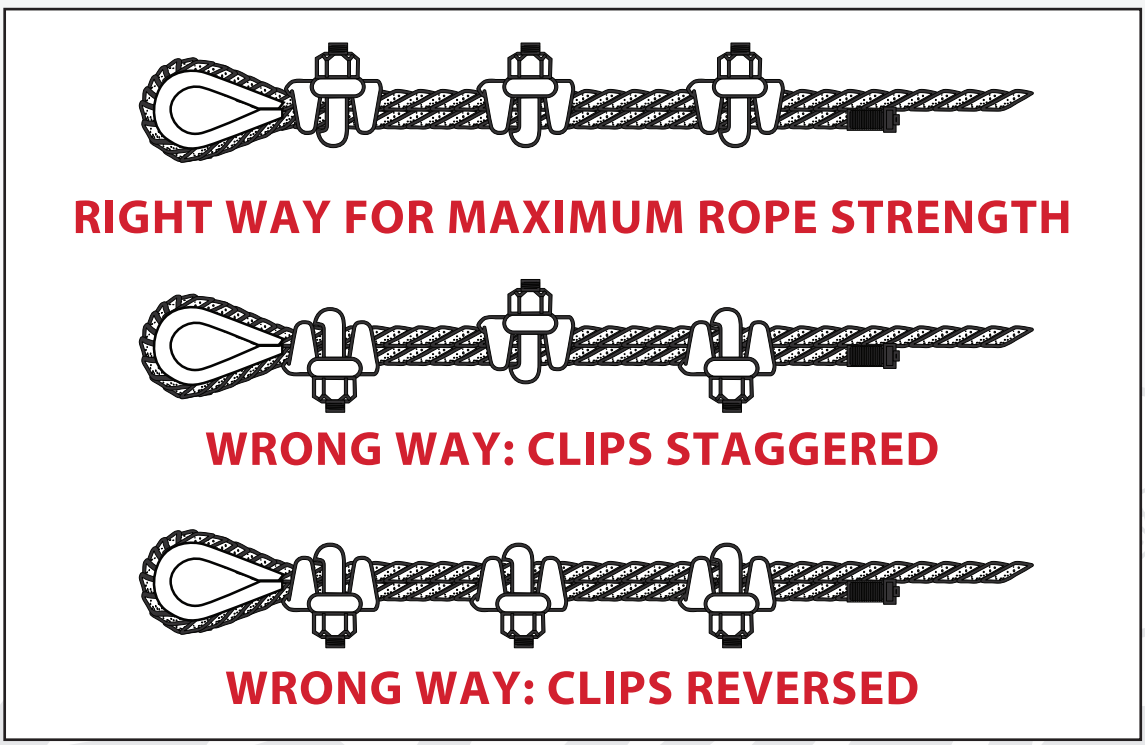
RECOMMENDED METHOD OF APPLYING U-BOLT CLIPS

TO OBTAIN MAXIMUM HOLDING POWER OF THE CLIP

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

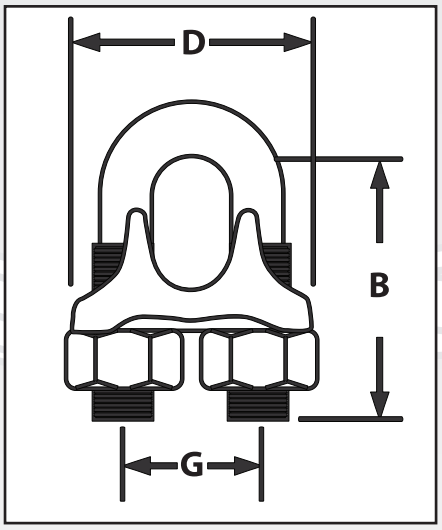
INSTALLATION OF CLIPS

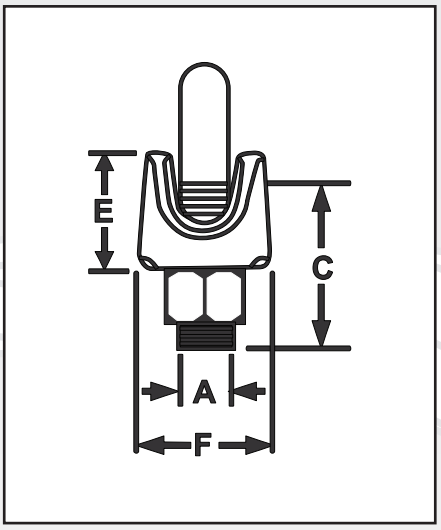
In accordance with good rigging and maintenance practice, the wire rope and termination should be inspected periodically for wear, abuse and general adequacy.
Inspect periodically and retighten to recommended torque.
A termination made in accordance with the above instructions and using the number of dips shown, has an approximate 80% efficiency rating. This rating is based upon the nominal strength of wire rope. If pulley is used in place of a thimble for turning back the rope, add one additional clip
The number of clips shown is based upon using right regular or lang lay wire rope, 6 x 19 classification or 6 x 37 classification, fiber core or IWRC, IPS, or EIP. If Seale construction or similar large outer wire type construction in the 6 x 19 classification, fiber core, IPS, sizes 11/2" and smaller; and right regular lay wire rope. 19 x 7 classification, IPS or EIP, sizes 1 3/4" or smaller.
For other classifications or wire rope not mentioned above, it may be necessary to add additional clips to the number shown.
If a greater number of clips are used than in the table, the amount of rope turnback should be increased proportionately.
The above is based on the use of proper size U-Bolt clips on new rope.
IMPORTANT: Failure to make a termination in accordance with mentioned instructions, or failure to periodically check and retighten to the recommended torque, may cause reduction in efficiency rating.



The correct way to attach U-Bolts is shown at the top; the "U" section is in contact with the dead end of rope and is clear of the thimble.

MALLEABLE WIRE ROPE CLIPS





ZINC PLATED, ACCORDING TO FEDERAL SPECIFICATION FF-C-450 D, TYPE 1, CLASS 2

SIZE IN INCHES	MIN. CLIPS REQD.	TORQUE IN POUNDS FT.*	DIMENSIONS IN INCHES						
			A	B	C	D	E	F	G
1/16	3	2.0	0.03	0.15	0.65	0.45	0.38	0.38	0.45
1/8	3	3.0	0.04	0.18	0.81	0.50	0.50	0.50	0.56
3/16	3	4.5	0.06	0.25	0.94	0.56	0.56	0.56	0.63
1/4	3	15.0	0.13	0.31	1.19	0.75	0.75	0.69	0.75
5/16	3	15.0	0.15	0.31	1.31	0.75	0.75	0.75	0.75
3/8	3	30.0	0.21	0.38	1.63	0.88	0.88	0.84	0.88
7/16	4	40.0	0.37	0.44	2.00	1.06	1.06	1.00	1.06
1/2	4	45.0	0.37	0.44	2.00	1.06	1.06	1.00	1.06
9/16	4	50.0	0.59	0.50	2.31	1.25	1.25	1.25	1.28
5/8	4	75.0	0.59	0.50	2.31	1.25	1.25	1.25	1.28
3/4	5	75.0	0.84	0.56	2.56	1.33	1.33	1.44	1.56
7/8	5	130.0	1.25	0.63	3.06	1.63	1.63	1.75	1.81
1	6	130.0	1.66	0.63	3.44	1.88	1.88	2.06	2.00
1-1/8	7	200.0	2.43	0.75	4.00	2.00	2.00	2.19	2.06

*NOTE: 1/16" AND 1/8" ARE NOT COVERED BY FEDERAL SPECIFICATION FF-C-450 D

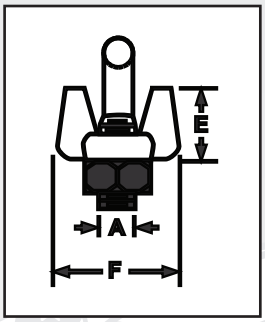
Caution: Never use any wire rope clip to directly connect two straight lengths of wire rope.

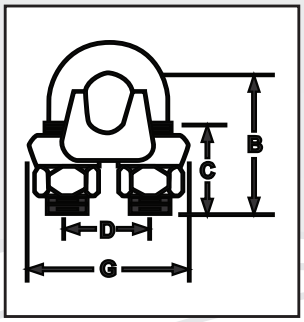
Do not use malleable wire rope clips for critical or lifting applications. Load may be suddenly released resulting in injury or death.

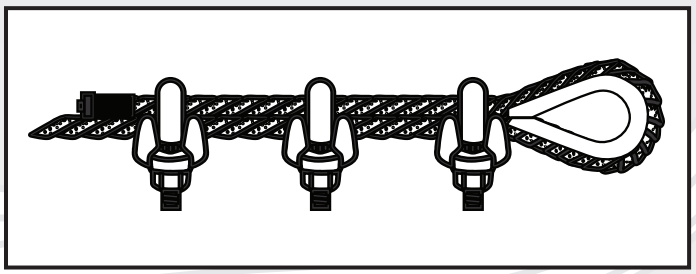
CAUTION: MALLEABLE ROPE CLIPS ARE NOT DESIGNED FOR OVERHEAD LIFTING.

Rigging Hardware

DROP FORGED WIRE ROPE CLIPS







RIGHT WAY FOR MAXIMUM ROPE STRENGTH

HOT GALVANIZED, ACCORDING TO FEDERAL SPECIFICATION FF-C-450 D

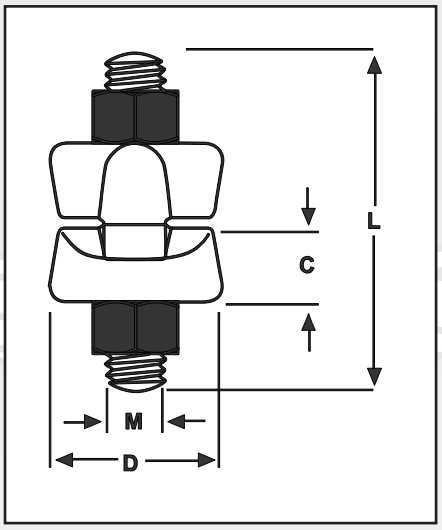
SIZE IN INCHES	MIN. CLIPS REQD.	TORQUE IN POUNDS FT.*	APPROX. WT IN POUNDS	DIMENSIONS IN INCHES						
				A	B	C	D	E	F	G
1/8	2	4.5	0.05	0.19	0.75	0.44	0.44	0.38	0.81	0.94
3/16	2	7.5	0.10	0.25	0.94	0.56	0.56	0.50	0.94	1.19
1/4	2	15.0	0.18	0.31	1.06	0.56	0.75	0.63	1.19	1.50
5/16	2	30.0	0.31	0.38	1.44	0.75	0.88	0.75	1.31	1.69
3/8	2	45.0	0.46	0.44	1.50	0.75	1.00	0.88	1.56	1.94
7/16	3	65.0	0.73	0.50	1.88	1.00	1.19	1.00	1.81	2.31
1/2	3	65.0	0.73	0.50	1.88	1.00	1.19	1.03	1.81	2.31
9/16	3	95.0	1.09	0.56	2.38	1.25	1.31	1.13	2.06	2.50
5/8	3	95.0	1.10	0.56	2.38	1.25	1.31	1.25	2.06	2.50
3/4	4	130.0	1.50	0.63	2.75	1.38	1.50	1.38	2.31	2.75
7/8	4	225.0	2.44	0.75	3.19	1.44	1.81	1.69	2.63	3.31
1	5	225.0	2.70	0.75	3.63	1.75	1.88	1.75	2.63	3.47
1 1/8	6	225.0	3.10	0.75	4.00	2.00	2.00	1.88	2.81	3.56
1 1/4	7	360.0	4.60	0.88	4.38	2.25	2.31	2.06	3.25	4.06
1 3/8	7	360.0	5.20	0.88	4.63	2.31	2.38	2.25	3.44	4.25
1 1/2	8	360.0	5.90	0.88	4.94	2.38	2.63	2.50	3.50	4.38
1 3/4	8	590.0	9.80	1.13	5.88	2.75	3.06	2.88	3.75	5.25
2	8	750.0	13.75	1.25	6.50	3.00	3.31	3.38	4.44	5.81
2 1/4	8	750.0	15.70	1.25	7.13	3.31	3.88	3.81	4.50	6.31
2 1/2	9	750.0	17.90	1.25	7.75	3.38	4.13	4.25	4.50	6.44

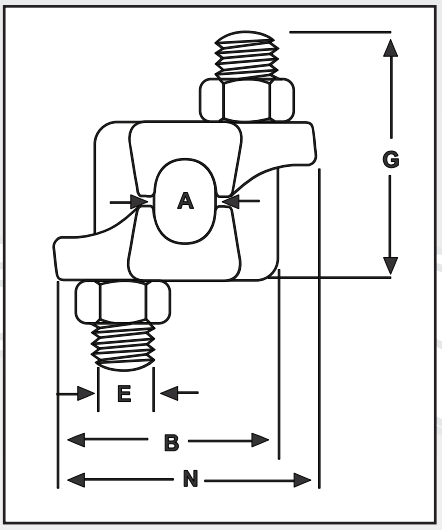
When using U-Bolt clips, extreme care must be excercised to make certain that they are attached correctly. The correct way to attach U-Bolts is shown above; the "U"section is in contact with the rope's "dead end" and is clar of the thimble. The "live end", carrying the load, is gripped by the saddle clip. Also, tightening and retightening of the nuts must be accomplished as required.

*Based on clean, unlubricated threads. Table above shows minimum torque required to reach maximum holding power.
CAUTION: NEVER USE ANY WIRE ROPE CLIP TO DIRECTLY CONNECT TWO STRAIGHT LENGTHS OF WIRE ROPE.

Rigging Hardware

FIST GRIPS





ACCORDING TO FEDERAL SPECIFICATION FF-C-450 D, TYPE 3, CLASS 1

SIZE IN INCHES	DIMENSIONS IN INCHES									WEIGHT PER 100 PCS IN POUNDS
	A	B	C	D	E	G	L	M	N	
3/16-1/4	0.25	1.25	0.34	0.94	0.38	1.28	1.63	0.69	1.47	23
5/16	0.31	1.34	0.44	1.06	0.38	1.47	1.94	0.69	1.56	28
3/8	0.38	1.59	0.5	1.06	0.44	1.81	2.8	0.75	1.88	40
7/16-1/2	0.5	1.88	0.56	1.25	0.5	2.19	2.75	0.88	2.19	62
9/16-5/8	0.63	2.28	0.69	1.5	0.63	2.69	3.5	1.06	2.63	103
3/4	0.75	2.69	0.88	1.81	0.75	2.94	3.75	1.25	3.06	175
7/8	0.88	2.97	0.97	2.13	0.75	3.31	4.13	1.25	3.14	225
1	1.00	3.06	1.19	2.25	0.75	3.72	4.63	1.25	3.53	300
1 1/8	1.13	3.44	1.28	2.38	0.88	4.19	5.5	1.44	3.91	400
1 1/4	1.25	3.56	1.34	2.5	0.88	4.25	5.25	1.44	4.03	400
1 3/8-1 1/2	1.5	4.13	1.56	3.00	1.00	5.56	7.00	1.63	4.66	700

Bolts are an integral part of the saddle. Nuts can be installed in such a way as to enable the operator to swing the wrench in a full arc for fast installation.

All sizes have forged steel saddles.

Entire clip is Galvanized to resist corrosive and rusting action.

RECOMMENDED OPERATING PRACTICES FOR SHACKLES

Instructions for use

Shackles should be inspected before use to ensure that:

- All markings are legible
- The body and pin are both identifiable as being of the same size, type and make
- The threads of the pin and the body are undamaged
- Never use a safety bolt type shackle without using the split cotter pin
- The body and the pin are not distorted or unduly worn
- The body and pin are free from nicks, gouges, cracks and corrosion
- Shackles may not be heat treated as this may affect their Working Load Limit
- Never modify, repair or reshape a shackle by welding, heating or bending as this will affect the Working Load Limit

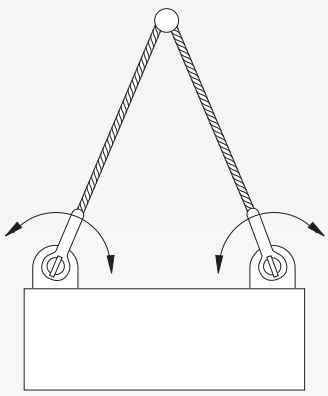
Assembly

Ensure that the pin is correctly screwed into the shackle eye, i.e. tighten hand-tight, then secure using a wrench or other suitable tool so that the collar of the pin is fully seated on the shackle eye. Ensure that the pin is of the correct length so that it penetrates the full depth of the screwed eye and allows the collar of the pin to seat on the surface of the shackle eye.

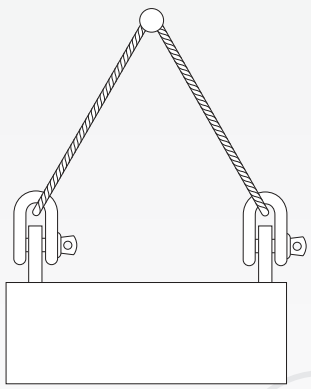
Incorrect seating of the pin may be due to a bent pin, too tight fitting thread or misalignment of the pin holes. Do not use the shackle under these circumstances. Never replace a shackle pin except with one of the same size, type and make as it may not be suitable for the loads imposed.

Select the correct type of shackle and its Working Load Limit for the particular application. Should extreme circumstances or shock loading be applicable, this must be well taken into account on selecting the correct shackle.

Make sure that the shackle is supporting the load correctly, i.e. along the axis of the shackle body centerline, avoid introduction of bending loads, unstable loads and do not apply overloads.



RIGHT



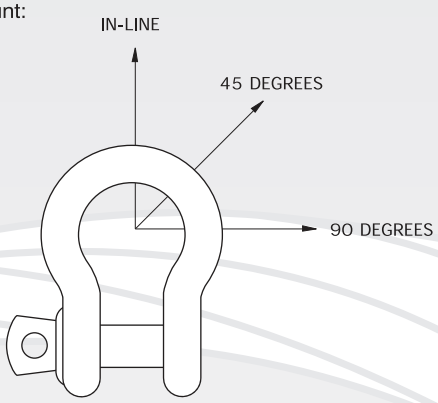
WRONG

Rigging Hardware

Side loads

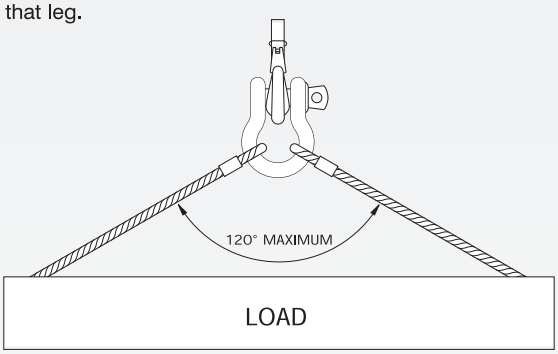
Side loads should be avoided as well, as the products are not designed for this purpose. If side loads cannot be avoided, the following reduction factors must be taken into account:

Load angle	Reduction for side loading New Working Load Limit
0 °	100% of original Working Load Limit
45 °	70% of original Working Load Limit
90 °	50% of original Working Load Limit



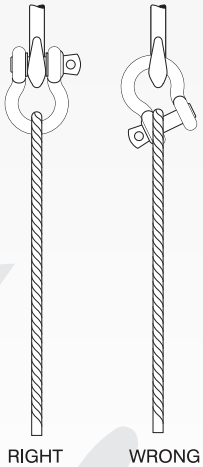
In-line loading is considered to be a load perpendicular to the pin and in the plane of the bow. Load angles in the table are the deviating angles from the in line loads.

When using shackles in connection with multi-leg slings, due consideration should be given to the effect of the angle between the legs of the sling. As the angle increases, so does the load in the sling leg and consequently in any shackle attached to that leg.



When a shackle is used to connect two slings to the hook of a lifting device, a shackle must be assembled with the slings in the shackle body and the hook engaged with the shackle pin. The angle between the slings should not exceed 120°.

To avoid eccentric loading of the shackle a loose spacer may be used on either end of the shackle pin. Do not reduce the width between the shackle jaws by welding washers or spacers to the inside faces of the eyes or by closing the jaws, as this will affect the properties of the shackle.



When a shackle is used to secure the top block of a set of wire rope blocks the load on this shackle is increased by the value of the hoisting effect.

Rigging Hardware

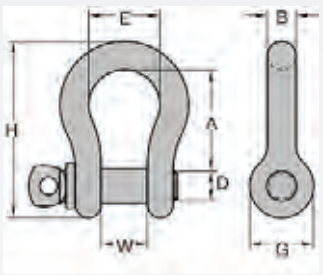
Shackles

Screw Pin Anchor Shackles are ideal for those applications where frequent pin removal is needed.
Bolt Type Anchor Shackles are complete with bolt, nut and cotter pin.

- Meet or exceed FED SPEC RR-C-271 requirements
- Hot Dipped Galvanized to ASTM A153
- Proof load at 2 times Working Load Limit

Screw Pin Anchor Shackles (SPAS)

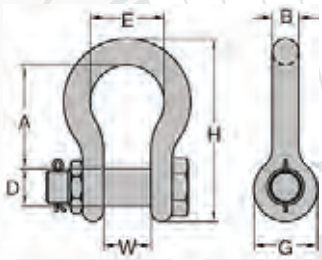
Trade Size (Inches)	Pin Dia. (D)	Dimensions (Inches)					Lbs. Per Each	WLL (Ton)
		W	A	E (Min)	G (Max)	B (Min)		
3/16	1/4	0.375	0.875	0.562	0.625	0.180	0.06	1/3
1/4	5/16	0.469	1.125	0.750	0.875	0.240	0.11	1/2
5/16	3/8	0.531	1.250	0.812	1.000	0.300	0.19	3/4
3/8	7/16	0.656	1.438	0.938	1.125	0.360	0.31	1
7/16	1/2	0.750	1.688	1.062	1.250	0.420	0.49	1-1/2
1/2	5/8	0.812	1.875	1.188	1.375	0.480	0.73	2
5/8	3/4	1.062	2.375	1.500	1.875	0.590	1.37	3-1/4
3/4	7/8	1.250	2.812	1.750	2.125	0.710	2.36	4-3/4
7/8	1	1.438	3.312	2.000	2.375	0.830	3.62	6-1/2
1	1-1/8	1.688	3.750	2.312	2.625	0.950	5.07	8-1/2
1-1/8	1-1/4	1.812	4.250	2.625	2.875	1.070	7.41	9-1/2
1-1/4	1-3/8	2.031	4.688	2.875	3.250	1.190	9.51	12
1-3/8	1-1/2	2.250	5.250	3.250	3.500	1.310	13.25	13-1/2
1-1/2	1-5/8	2.375	5.750	3.375	3.750	1.420	17.70	17
1-3/4	2	2.875	7.000	4.500	4.500	1.660	30.40	25
2	2-1/4	3.250	7.750	5.250	5.250	1.900	45.04	35
2-1/2	2-3/4	4.130	10.500	7.094	5.688	2.500	87.27	55



Bolt Type Anchor Shackles (BTAS)

Trade Size (Inches)	Pin Dia. (D)	Dimensions (Inches)					Lbs. Per Each	WLL (Ton)
		W	A	E (Min)	G (Max)	B (Min)		
3/16	1/4	0.375	0.875	0.562	0.625	0.180	0.06	1/3
1/4	5/16	0.469	1.125	0.750	0.875	0.240	0.11	1/2
5/16	3/8	0.531	1.250	0.812	1.000	0.300	0.22	3/4
3/8	7/16	0.656	1.438	0.938	1.125	0.360	0.33	1
7/16	1/2	0.750	1.688	1.062	1.250	0.420	0.51	1-1/2
1/2	5/8	0.812	1.875	1.188	1.375	0.480	0.79	2
5/8	3/4	1.062	2.375	1.500	1.875	0.590	1.68	3-1/4
3/4	7/8	1.250	2.812	1.750	2.125	0.710	2.72	4-3/4
7/8	1	1.438	3.312	2.000	2.375	0.830	3.95	6-1/2
1	1-1/8	1.688	3.750	2.312	2.625	0.950	5.67	8-1/2
1-1/8	1-1/4	1.812	4.250	2.625	2.875	1.070	8.28	9-1/2
1-1/4	1-3/8	2.031	4.688	2.875	3.250	1.190	11.73	12
1-3/8	1-1/2	2.250	5.250	3.250	3.500	1.310	15.83	13-1/2
1-1/2	1-5/8	2.375	5.750	3.375	3.750	1.420	20.81	17
1-3/4	2	2.875	7.000	4.500	4.500	1.660	33.93	25
2	2-1/4	3.250	7.750	5.250	5.250	1.900	52.29	35
2-1/2	2-3/4	4.130	10.500	7.094	5.688	2.500	87.27	55

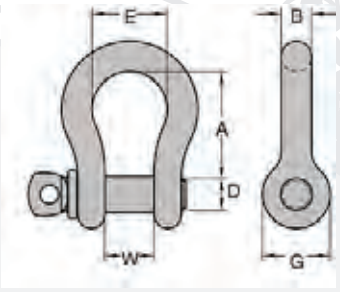
*Larger sizes available upon request.



Rigging Hardware

Alloy Screw Pin Anchor Shackles

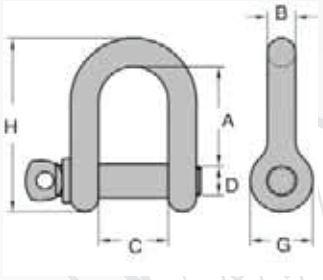
- Meet or exceed FED SPEC RR-C-271 requirements
- Meet ASME B30.26 requirements
- Hot Dipped Galvanized to ASTM A153
- Proof load at 2 times Working Load Limit



Trade Size (Inches)	Pin Dia. (D)	W	A	E (Min.)	G (Max.)	B (Min.)	Lbs. Per Each	Working Load Limit (Ton)
3/16	1/4	0.375	0.875	0.560	0.620	0.180	0.1	1/2
1/4	5/16	0.470	1.125	0.750	0.875	0.240	0.1	3/4
5/16	3/8	0.530	1.250	0.810	1.000	0.300	0.2	1-1/4
3/8	7/16	0.655	1.435	0.940	1.120	0.360	0.3	2
7/16	1/2	0.720	1.685	1.060	1.250	0.420	0.5	2-2/3
1/2	5/8	0.815	1.875	1.190	1.380	0.480	0.7	3-1/3
5/8	3/4	1.065	2.405	1.500	1.880	0.590	1.4	5
3/4	7/8	1.250	2.825	1.750	2.120	0.710	2.4	7
7/8	1	1.500	3.310	2.000	2.370	0.830	3.6	9-1/2
1	1-1/8	1.690	3.750	2.310	2.620	0.950	5.1	12-1/2
1-1/4	1-3/8	2.030	4.690	2.880	3.250	1.190	9.5	18
1-1/2	1-5/8	2.375	5.750	3.380	3.750	1.420	17.7	30
1-3/4	2	2.875	7.000	4.500	4.500	1.660	30.4	40
2	2-1/4	3.250	7.750	5.250	5.250	1.900	45.0	50

*Alloy bolt type anchor shackles available upon request.

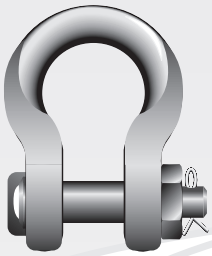
Screw Pin Chain Shackles



Trade Size (Inches)	Pin Dia. (D)	Dimensions (Inches) C	A	G (Max)	B (Min)	Lbs. Per Each	WLL (Ton)
3/16	1/4	0.375	0.750	0.625	0.180	0.05	1/3
1/4	5/16	0.469	0.875	0.875	0.240	0.11	1/2
5/16	3/8	0.531	1.031	1.000	0.300	0.18	3/4
3/8	7/16	0.656	1.125	1.250	0.360	0.30	1
1/2	5/8	0.812	1.625	1.375	0.480	0.59	2
5/8	3/4	1.062	2.000	1.875	0.590	1.27	3-1/4
3/4	7/8	1.250	2.375	2.125	0.710	2.60	4-3/4
7/8	1	1.438	2.812	2.375	0.830	3.15	6-1/2
1	1-1/8	1.688	3.188	2.625	0.950	4.75	8-1/2
1-1/8	1-1/4	1.812	3.562	2.875	1.070	6.75	9-1/2
1-1/4	1-3/8	2.031	3.938	3.250	1.190	9.00	12
1-3/8	1-1/2	2.250	4.438	3.500	1.310	15.00	13-1/2
1-1/2	1-5/8	2.375	4.875	3.750	1.420	22.00	17

Rigging Hardware

WIDE BODY SHACKLES

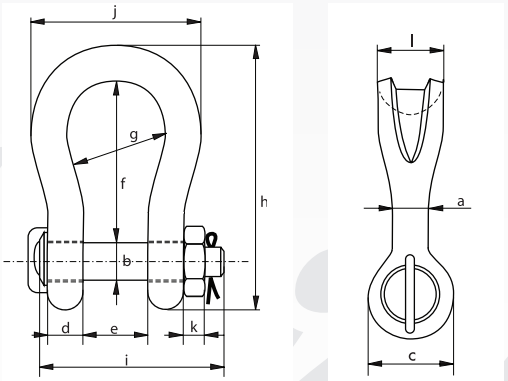


- **Material**
- **Safety Factor**
- **Finish**
- **Temperature Range**
- **Certification**

: bow and pin alloy steel, Grade 8, quenched and tempered
: MBL equals 5 x WLL
: shackle bow painted silver, pin painted green
: -20 °C up to +200 °C

working load limit	diameter body	diameter pin	diameter eye	width eye	width inside	length inside	width bow	length	length bolt	width	thickness nut	bearing surface	weight each
	a	b	c	d	e	f	g	h	i	j	k	l	
t	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	lbs
18	1 3/8	1 3/8	2 23/32	1 3/16	2 1/16	5 25/32	4 1/32	9 13/32	6 1/2	7 3/32	1 5/32	2 17/32	18
30	1 9/16	1 21/32	3 17/32	1 3/8	2 23/32	6 1/2	4 31/32	10 31/32	8 5/32	7 7/8	1 11/32	3 1/8	29
40	2 5/32	2	4 9/32	1 25/32	3 5/16	7 27/32	5 1/2	13 1/32	9 29/32	9 1/4	1 1/2	3 13/16	46
55	2 3/8	2 1/4	4 17/32	2 5/32	3 17/32	9 7/16	6 5/16	15 5/16	11 9/16	10 5/8	1 25/32	3 15/16	66
75	2 11/16	2 3/4	4 29/32	2 1/8	4 11/32	11 13/32	7 9/32	18 5/8	12 7/8	12 15/32	2 1/8	4 23/32	106
125	3 11/32	3 5/32	6 1/16	3 11/32	5 13/32	14 13/32	8 21/32	22 15/16	16 25/32	15 11/32	2 17/32	5 29/32	203
150	3 11/16	3 3/4	7 1/16	3 1/2	5 25/32	15 13/32	9 31/32	25 13/32	17 1/8	17 3/32	1 31/32	6 11/16	309
200	4 11/32	4 1/8	7 27/32	3 15/16	6 7/32	18 15/16	11 1/32	29 7/8	18 1/2	18 31/32	1 31/32	8 1/16	452
250	4 31/32	4 23/32	8 15/16	4 11/32	7 1/16	21 11/32	11 13/16	33 13/16	20 7/16	20 7/8	2 3/8	9 7/16	582
300	5 5/16	5 9/32	9 21/32	4 13/16	7 11/16	23 21/32	13 25/32	37 9/32	22 5/8	24 13/32	2 3/4	10 7/16	794
400	6 5/16	6 5/16	11 17/32	5 23/32	9 3/32	22 11/16	14 9/16	38 25/32	26 9/16	27 5/32	3 5/32	12 19/32	1279
500	6 11/16	7 3/32	12 29/32	6 5/16	10 11/32	26 13/16	17 23/32	44 17/32	29 7/16	31 3/32	3 17/32	13 11/32	1720
600	7 15/32	7 7/8	13 11/16	6 11/16	11 3/8	29 3/16	19 9/32	48 19/32	31 27/32	34 1/16	3 15/16	14 9/16	2161
700	7 7/8	8 15/32	15 7/16	7 15/32	12 13/32	29 9/16	21 1/4	50 9/16	34 19/32	35 15/32	3 15/16	15 3/4	2998
800	8 19/32	9 1/16	16 17/32	7 7/8	13 15/32	33 1/2	21 13/16	56 5/32	37 3/32	37 9/32	4 11/32	16 17/32	3153
900	9 17/32	10 1/32	18 11/32	8 21/32	14 1/2	33 1/2	22 27/32	58 19/32	40 9/32	40 9/32	4 23/32	17 5/16	3638
1000	10 1/4	10 5/8	19 9/32	9 7/16	15 23/32	33 1/2	24 3/16	60 5/16	43 7/16	43 19/32	4 23/32	18 1/8	4674
1250	11 7/32	11 13/16	20 3/32	10 1/4	17 25/32	36 21/32	25 19/32	65 19/32	48 5/16	46 17/32	5 29/32	20 7/8	8157
1500	11 7/32	12 19/32	21 21/32	11 1/32	19 1/32	37 13/32	26 25/32	67 5/16	51 3/16	49 11/32	5 29/32	22 1/16	8818

In inches



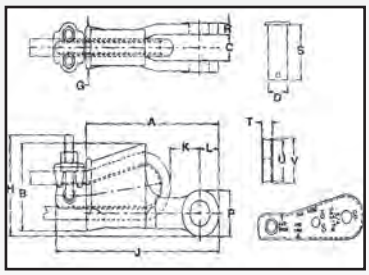
Wedge Sockets

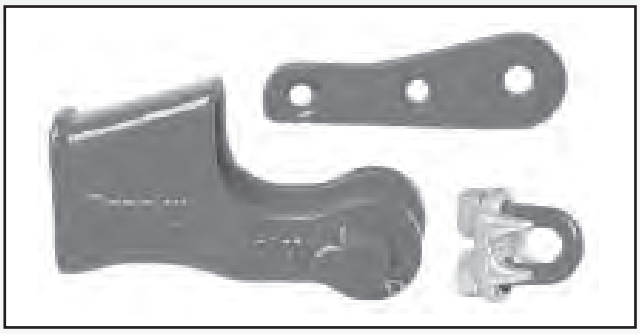
"THE TERMINATOR™" WEDGE SOCKETS

WEDGE SOCKETS

- Basket is cast steel.
- Wedge socket terminations have an efficiency rating of 80% based on the catalog strength of XXIP wire rope.
- Individually magnetic particle inspected.
- Pin diameter and jaw opening allows wedge and socket to be used in conjunction with open swage and spelter sockets.
- Secures the tail or "dead end" of the wire rope to the wedge, thus eliminates loss or "Punch out" of the wedge.
- Eliminates the need for an extra piece of wire rope, and is easily installed.
- The TERMINATOR™ wedge eliminates the potential breaking off of the tail due to fatigue.
- The tail, which is secured by the base of the clip and the wedge, is left undeformed and available for reuse.
- Utilizes standard Red U-Bolt wire rope clip.
- Standard S-421 wedge socket can be retrofitted with the new style TERMINATOR™ wedge.
- Available with Bolt, Nut, and Cotter Pin.

WIRE ROPE DIA. (INCHES)	WEIGHT EACH (LBS.)	WEDGE ONLY WEIGHT EACH (LBS.)
3/8	3.18	.50
1/2	6.15	1.05
5/8	9.70	1.79
3/4	14.50	2.60
7/8	21.50	4.00
1	30.75	5.37
1-1/8	45.30	7.30
1-1/4	64.90	10.60





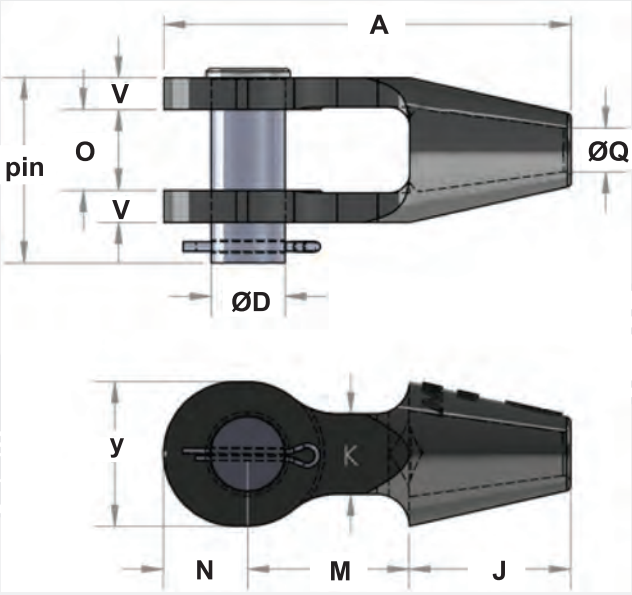
WIRE ROPE DIA. (INCHES)	DIMENSIONS (INCHES) A	B	C	D	G	H	J**	K**	L	P	R	S	T	U	V
3/8	5.69	2.72	.81	.81	1.38	3.06	7.80	1.88	.88	1.56	.44	2.13	.44	1.25	1.38
1/2	6.88	3.47	1.00	1.00	1.62	3.76	8.91	1.26	1.06	1.94	.50	2.56	.53	1.75	1.88
5/8	8.25	4.30	1.25	1.19	2.12	4.47	10.75	1.99	1.22	2.25	.56	3.25	.69	2.00	2.19
3/4	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
7/8	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
1	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
1-1/8	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
1-1/4	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

* S-421T TERMINATOR™ Assembly includes Socket, Wedge, Pin and Wire Rope Clip.

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

Rigging Hardware

OPEN SPELTER SOCKETS



1-1/2" and smaller Rope Sockets have a grooveless basket design for use with resin or zinc socketing media.

1-5/8" and larger Rope Sockets have a grooved basket design that meet the requirements of Federal Specifications RR-S-550D.

Specially designed retaining segments preventing rotation and pop-out of socketing compound. 1-1/2" and smaller Rope Sockets and all Strand Sockets feature these retaining segments.

Engineered and designed for the most extreme applications. We use high grade steel for strength and durability.

ZINC OR RESIN POURED

Rope Size	Strand Size	Dimensions											Weight lbs. Each
		A	J	K	M	N	O	Q	V	Y	Pin Length	Pin Dia.	
7/16" - 1/2"	-	5.56	2.50	1.00	2.00	1.06	1.00	0.56	0.50	1.88	2.62	1.00	2.5
9/16 - 5/8	1/2	6.75	3.00	1.25	2.50	1.25	1.25	0.69	0.56	2.25	2.88	1.19	3.5
3/4	9/16 - 5/8	7.94	3.50	1.50	3.00	1.44	1.50	0.81	0.63	2.63	3.25	1.38	6.0
7/8	11/16 - 3/4	9.22	4.00	1.75	3.50	1.75	1.75	0.94	0.75	3.13	3.88	1.63	10.0
1	13/16 - 7/8	10.56	4.50	2.00	4.00	2.06	2.00	1.13	0.88	3.75	4.50	2.00	15.5
1-1/8	15/16 - 1	11.81	5.00	2.38	4.49	2.31	2.25	1.25	1.00	4.13	5.00	2.25	22.0
1-1/4 - 1-3/8	1-1/16 - 1-1/8	13.19	5.50	2.75	5.00	2.69	2.50	1.50	1.13	4.75	5.63	2.50	32.0
1-1/2	1-3/16 - 1-1/4	15.13	6.00	3.00	6.00	3.13	3.00	1.63	1.19	5.38	6.38	2.75	46.0
1-5/8	1-5/16 - 1-3/8	16.25	6.50	3.25	6.50	3.25	3.00	1.75	1.31	5.75	6.63	3.00	55.0
1-3/4 - 1-7/8	1-7/16 - 1-5/8	18.25	7.50	3.88	7.00	3.75	3.50	2.00	1.56	6.50	7.63	3.50	85.0
2 - 2-1/8	1-11/16 - 1-3/4	21.50	8.50	4.25	9.00	4.00	4.00	2.25	1.81	7.00	8.75	3.75	96.0
2-1/4 - 2-3/8	1-15/16 - 2	23.50	9.00	4.38	10.00	4.50	4.50	2.50	2.13	7.75	10.00	4.25	165.0
2-1/2 - 2-5/8	2-3/16 - 2-1/4	25.50	9.75	4.63	10.75	5.00	5.00	2.88	2.38	8.50	11.00	4.75	252.0
2-3/4 - 2-7/8	2-5/16 - 2-3/8	28.75	11.50	5.25	11.50	5.75	5.38	3.00	2.38	10.00	11.38	5.00	305.0
3 - 3-1/8	2-7/16 - 2-9/16	30.56	12.50	5.50	12.00	6.06	5.75	3.25	2.50	10.50	12.25	5.25	370.0
3-1/4 - 3-3/8	2-5/8 - 2-3/4	34.75	14.00	7.00	14.00	6.75	6.25	3.44	2.75	11.50	13.25	5.50	510.0
3-1/2 - 3-5/8	2-7/8 - 3	36.50	15.00	8.00	14.50	7.00	7.50	3.69	3.25	12.50	15.50	6.00	760.0
3-3/4 - 4	3-5/8 - 3-3/4	38.75	16.00	8.25	15.00	7.75	7.75	4.13	3.38	14.00	16.00	7.00	808.0

CAUTION

Open Rope Spelter sockets are recommended for use on 6x7, 6x19, and 6x37, IPS, XIP (EIP), XXIP (EEIP), RRL, FCI WRC regular lay ropes. They are also approved for use on bridge ropes and structural strand. Before using open rope spelter sockets with other type, lay, construction, or grade of wire rope, it is recommended that a test assembly be destructively tested to prove the adequacy of the assembly.

All dimensions are subject to tolerance.

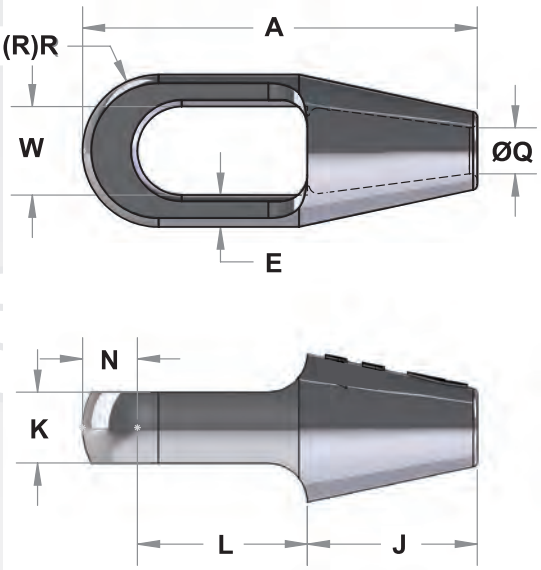
Rigging Hardware

CLOSED SPELTER SOCKETS

1-1/2" and smaller Rope Sockets have a grooveless basket design for use with resin or zinc socketing media.

1-5/8" and larger Rope Sockets have a grooved basket design that meet the requirements of Federal Specifications RR-S-550D.

Specially designed retaining segments preventing rotation and pop-out of socketing compound. 1-1/2" and smaller Rope Sockets and all Strand Sockets feature these retaining segments.



ZINC OR RESIN POURED

Rope Size	Strand Size	Dimensions								Weight lbs. Each
		A	E	J	K	L	N	Q	W	
7/16" - 1/2"	-	5.44	0.44	2.50	0.88	2.25	0.69	0.56	1.13	1.4
9/16 - 5/8	1/2	6.31	0.63	3.00	1.00	2.50	0.81	0.69	1.38	3.0
3/4	9/16 - 5/8	7.56	0.69	3.50	1.25	3.00	1.06	0.81	1.63	4.5
7/8	11/16 - 3/4	8.75	0.88	4.00	1.50	3.50	1.25	0.94	1.88	7.0
1	13/16 - 7/8	9.87	0.94	4.50	1.75	4.00	1.38	1.13	2.25	11.0
1-1/8	15/16 - 1	11.01	1.00	5.00	2.00	4.50	1.50	1.25	2.50	16.0
1-1/4 - 1-3/8	1-1/16 - 1-1/8	12.13	1.13	5.50	2.25	5.00	1.63	1.50	2.75	22.0
1-1/2	1-3/16 - 1-1/4	13.94	1.13	6.00	2.50	6.00	1.94	1.63	3.13	28.0
1-5/8	1-5/16 - 1-3/8	15.13	1.25	6.50	2.75	6.50	2.13	1.75	3.25	36.0
1-3/4 - 1-7/8	1-7/16 - 1-5/8	17.25	1.61	7.50	3.00	7.56	2.19	2.00	3.53	58.0
2 - 2-1/8	1-11/16 - 1-3/4	19.50	1.94	8.50	3.25	8.56	2.44	2.25	3.75	80.0
2-1/4 - 2-3/8	1-15/16 - 2	21.63	2.11	9.50	3.63	9.50	2.63	2.50	4.28	105.0
2-1/2 - 2-5/8	2-3/16 - 2-1/4	24.25	2.13	10.50	4.00	10.62	3.13	2.88	5.50	140.0
2-3/4 - 2-7/8	2-5/16 - 2-3/8	27.00	2.13	11.50	5.00	11.50	4.00	2.88	6.00	200.0
3 - 3-1/8	2-7/16 - 2-9/16	29.00	2.44	12.50	5.00	12.00	4.50	3.25	6.50	240.0
3-1/4 - 3-3/8	2-5/8 - 2-3/4	33.50	2.75	14.00	6.00	14.00	5.50	3.44	7.00	330.0
3-1/2 - 3-5/8	2-7/8 - 3	35.50	3.13	15.00	7.00	14.50	6.00	3.69	7.63	465.0
3-3/4 - 4	3-5/8 - 3-3/4	37.50	3.25	16.00	7.25	15.00	6.50	3.94	8.00	570.0

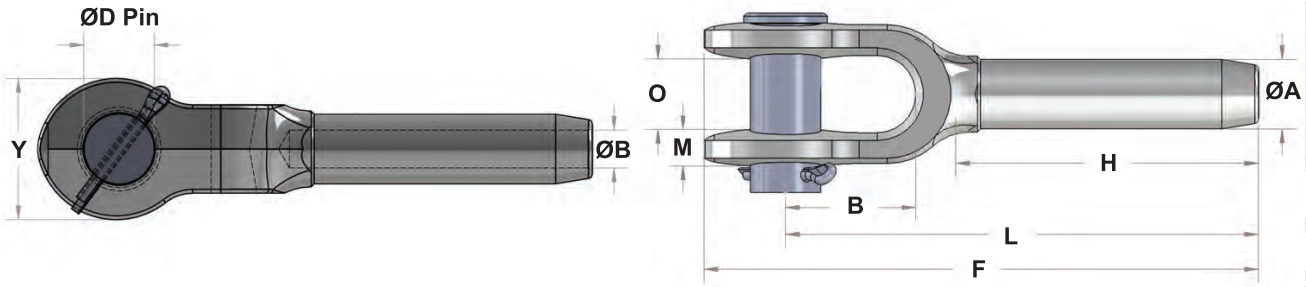
CAUTION

Closed Rope Spelter sockets are recommended for use on 6x7, 6x19, and 6x37, IPS, XIP (EIP), XXIP (EEIP), RRL, FCI WRC regular lay ropes. They are also approved for use on bridge ropes and structural strand. Before using closed rope spelter sockets with other type, lay, construction, or grade of wire rope or strand, it is recommended that a test assembly be destructively tested to prove the adequacy of the assembly.

All dimensions are subject to tolerance.

Rigging Hardware

OPEN SWAGE SOCKETS - CARBON STEEL



Rope Size	Dimensions										Weight lbs. Each	After Swage
	A	B	D	E	F	H	L	M	O	Y		Min - Max
1/4	0.495	0.272	0.688	1-1/2	4-3/4	2-1/8	4	5/16	11/16	1-3/8	0.57	0.428 - 0.460
5/16	0.770	0.339	0.812	1-3/4	6-1/4	3-3/16	5-5/16	13/32	13/16	1-5/8	1.25	0.678 - 0.710
3/8	0.770	0.406	0.812	1-3/4	6-1/4	3-3/16	5-5/16	13/32	13/16	1-5/8	1.20	0.678 - 0.710
7/16	0.982	0.484	1.000	2	7-13/16	4-1/4	6-11/16	1/2	1	2	2.45	0.865 - 0.910
1/2	0.982	0.547	1.000	2	7-13/16	4-1/4	6-11/16	1/2	1	2	2.40	0.865 - 0.910
9/16	1.257	0.609	1.190	2-1/4	9-9/16	5-5/16	8-1/8	5/8	1-1/4	2-1/2	4.80	1.115 - 1.160
5/8	1.257	0.672	1.190	2-1/4	9-9/16	5-5/16	8-1/8	5/8	1-1/4	2-1/2	4.50	1.115 - 1.160
3/4	1.545	0.796	1.380	2-3/4	11-11/16	6-3/8	10	3/4	1-1/2	3	7.80	1.365 - 1.420
7/8	1.700	0.938	1.630	3-1/4	13-5/8	7-7/16	11-5/8	15/16	1-3/4	3-3/8	11.80	1.490 - 1.550
1-0/0	1.975	1.062	2.000	3-3/4	15-5/8	8-1/2	13-3/8	1-1/32	2	4	17.80	1.740 - 1.800
1-1/8	2.245	1.188	2.250	4-1/4	17-1/2	9-9/16	15	1-3/16	2-1/4	4-1/2	28.90	1.990 - 2.050
1-1/4	2.525	1.328	2.500	4-3/4	19-7/16	10-5/8	16-1/2	1-3/16	2-1/2	5	36.20	2.240 - 2.300
1-3/8	2.800	1.453	2.500	5-1/4	21-1/4	11-11/16	18-1/8	1-5/16	2-1/2	5-1/4	47.70	2.490 - 2.560
1-1/2	3.075	1.578	2.750	5-3/4	23-1/4	12-3/4	19-3/4	1-7/16	3	5-3/4	64.40	2.740 - 2.810
1-3/4	3.385	1.859	3.500	6-3/4	27-1/8	14-7/8	23	1-11/16	3-1/2	7	93.40	2.990 - 3.060
2-0/0	3.935	2.109	3.750	8	31-7/16	17	26-3/4	1-13/16	4	8	148.00	3.490 - 3.560
2-1/4	4.450	2.360	4.250	6-3/4	32-7/8	19-1/8	27-3/4	2-9/16	4-1/2	8-3/4	173.00	3.950 - 4.020
2-1/2	4.930	2.657	4.250	6-3/4	34-5/8	19-5/8	29-1/2	2-9/16	4-1/2	8-3/4	233.00	4.350 - 4.420
3-0/0	5.960	3.166	5.250	8-5/8	41-1/8	23-3/4	35-5/8	3	5-3/4	9-1/2	382.00	5.240 - 5.310

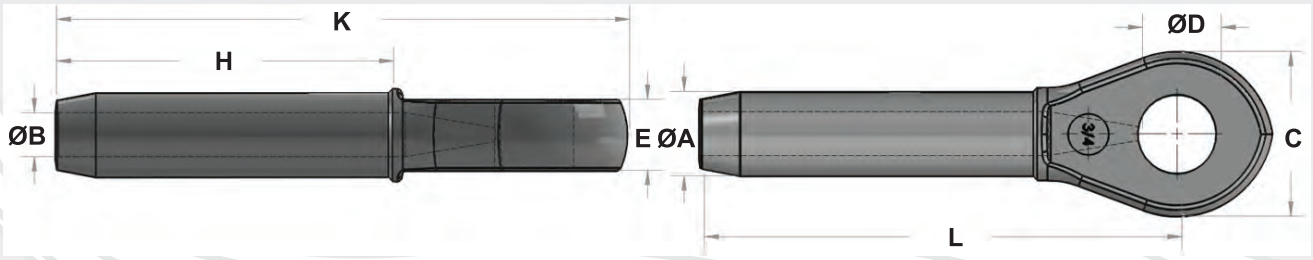
CAUTION

Carbon Steel Open Swage Sockets are recommended for use on 6 x 19 or 6 x 37 IPS or XIP, (EIP), XXIP (EEIP) IWRC regular lay ropes. Before using Swage Sockets with any other type lay, construction, or grade of wire rope or strand, it is recommended that a test assembly be destructively tested to prove the adequacy of the assembly.

All dimensions are subject to tolerance.

Rigging Hardware

CLOSED SWAGE SOCKETS - CARBON STEEL



Rope Size	Dimensions								Weight lbs. Each	After Swage Min - Max
	A	B	C	D	E	H	K	L		
1/4	0.495	0.272	1-7/16	0.750	1/2	2-1/8	4-3/8	3-1/2	0.35	0.428 - 0.460
5/16	0.770	0.339	1-11/16	0.875	11/16	3-3/16	5-1/2	4-1/2	0.77	0.678 - 0.710
3/8	0.770	0.406	1-11/16	0.875	11/16	3-3/16	5-1/2	4-1/2	0.73	0.678 - 0.710
7/16	0.982	0.484	2	1.063	7/8	4-1/4	6-15/16	5-3/4	1.47	0.865 - 0.910
1/2	0.982	0.547	2	1.063	7/8	4-1/4	6-15/16	5-3/4	1.38	0.865 - 0.910
9/16	1.257	0.609	2-1/2	1.250	1-1/8	5-5/16	8-3/4	7-1/4	2.90	1.115 - 1.160
5/8	1.257	0.672	2-1/2	1.250	1-1/8	5-5/16	8-3/4	7-1/4	2.80	1.115 - 1.160
3/4	1.545	0.796	3	1.438	1-5/16	6-3/8	10-3/8	8-5/8	5.16	1.365 - 1.420
7/8	1.700	0.938	3-1/2	1.688	1-1/2	7-7/16	12-1/8	10-1/8	7.40	1.490 - 1.550
1-0/0	1.975	1.062	4	2.063	1-3/4	8-1/2	13-3/4	11-1/2	11.20	1.740 - 1.800
1-1/8	2.245	1.188	4-1/2	2.313	2	9-9/16	15-1/4	12-3/4	16.00	1.990 - 2.050
1-1/4	2.525	1.328	5	2.563	2-1/4	10-5/8	17-1/4	14-3/8	22.70	2.240 - 2.300
1-3/8	2.800	1.453	5-1/4	2.563	2-1/4	11-11/16	18-7/8	15-3/4	29.00	2.490 - 2.560
1-1/2	3.075	1.578	5-1/2	2.813	2-1/2	12-3/4	20-3/8	17	37.50	2.740 - 2.810
1-3/4	3.385	1.859	6-3/4	3.563	3	14-7/8	24	20	55.70	2.990 - 3.060
2-0/0	3.935	2.109	7-3/4	3.813	3-1/4	17	27-1/2	23	90.00	3.490 - 3.560
2-1/4	4.450	2.360	8-5/8	4.312	4	19-1/8	29-3/4	24-7/8	125.00	3.950 - 4.020
2-1/2	4.930	2.657	8-5/8	4.312	4	19-5/8	31-1/8	26-1/4	142.00	4.350 - 4.420
3-0/0	5.960	3.166	9-1/4	5-5/16	5-3/8	23-3/4	37-3/4	32-1/8	252.00	5.240 - 5.310

CAUTION

Carbon Steel Closed Swage Sockets are recommended for use on 6 x 19 or 6 x 37 IPS or XIP, (EIP), XXIP (EEIP) IWRC regular lay ropes. Before using Swage Sockets with any other type lay, construction, or grade of wire rope, or strand, it is recommended that a test assembly be destructively tested to prove the adequacy of the assembly.

All dimensions are subject to tolerance.

Rigging Hardware

Swivels

SWIVELS EQUIPPED WITH TAPERED ROLLER THRUST BEARING

S-1
JAW & HOOK

S-3
JAW & EYE

S-5
EYE & EYE

(TYPE)	WORKING LOAD LIMIT* (METRIC TONS)	WIRE ROPE SIZE (INCHES)	WEIGHT EACH (LBS.)
3-S-1	3	1/2	9.81
3-S-2	3	1/2	9.63
3-S-3	3	1/2	9.12
3-S-4	3	1/2	9.00
3-S-5	3	1/2	8.50
3-S-6	3	1/2	9.32
5-S-1	5	5/8	15.51
5-S-2	5	5/8	13.69
5-S-3	5	5/8	13.50
5-S-4	5	5/8	12.33
5-S-5	5	5/8	11.30
5-S-6	5	5/8	14.24
8-1/2 -S-1	8-1/2	3/4	29.42
8-1/2 -S-2	8-1/2	3/4	26.16
8-1/2 -S-3	8-1/2	3/4	24.90
8-1/2 -S-4	8-1/2	3/4	29.00
8-1/2 -S-5	8-1/2	3/4	29.25
8-1/2 -S-6	8-1/2	3/4	32.00
10 -S-1	10	7/8	46.75
10 -S-2	10	7/8	45.75
10 -S-3	10	7/8	43.50
10 -S-4	10	7/8	44.00
10 -S-5	10	7/8	42.00
10 -S-6	10	7/8	45.50
15 -S-1	15	1	73.75
15 -S-2	15	1	62.75
15 -S-3	15	1	61.00
15 -S-4	15	1	61.00
15 -S-5	15	1	49.00
15 -S-6	15	1	63.00
25 -S-1	25	———	140.00
25 -S-2	25	———	140.00
25 -S-3	25	———	135.00
25 -S-4	25	———	135.00
25 -S-5	25	———	130.00
25 -S-6	25	———	135.00
35 -S-1	35	———	220.00
35 -S-2	35	———	155.00
35 -S-3	35	———	150.00
35 -S-4	35	———	150.00
35 -S-5	35	———	145.00
35 -S-6	35	———	215.00
45 -S-1	45	———	251.00
45 -S-2	45	———	235.00
45 -S-3	45	———	225.00
45 -S-4	45	———	225.00
45 -S-5	45	———	215.00
45 -S-6	45	———	270.00

S-2
JAW & JAW

S-4
EYE & JAW

S-6
EYE & HOOK

* Individually Proof Tested to 2 times the Working Load Limit.

Ultimate Load is 5 times the Working Load Limit.

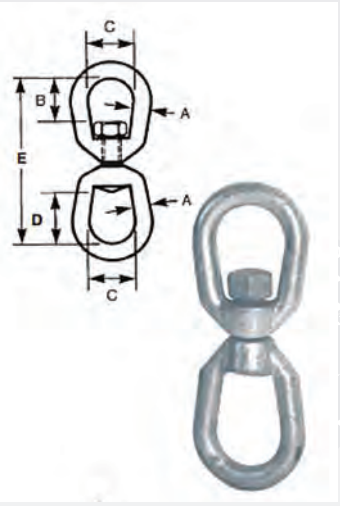
Rigging Hardware

Swivels

Eye & Eye

- Forged Carbon Steel
- Hot Dip Galvanized

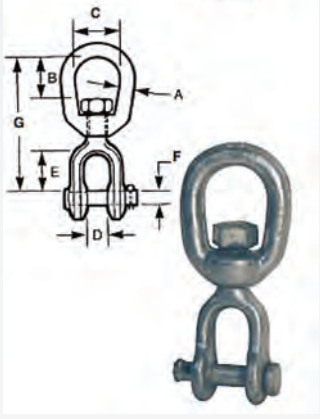
Size (A) in Inches	Working Load Limit in Lbs.	Dimensions in Inches B	C	D	E	Weight Each in Pounds
1/4	850	.69	.75	1.06	2.94	.21
5/16	1,250	.81	1.0	1.25	3.56	.39
3/8	2,250	.94	1.25	1.50	4.31	.71
1/2	3,600	1.31	1.50	2.0	5.44	1.32
5/8	5,200	1.56	1.75	2.38	6.56	2.49
3/4	7,200	1.75	2.0	2.63	7.18	4.02
7/8	10,000	2.06	2.25	3.06	8.38	6.25
1	12,500	2.31	2.50	3.50	9.63	8.95



Jaw & Eye

- Forged Carbon Steel
- Hot Dip Galvanized

Size (A) in Inches	Working Load Limit in Lbs.	Dimensions in Inches B	C	D	E	F	G	Weight Each in Pounds
1/4	850	.69	.75	.47	2.94	.25	2.63	.21
5/16	1,250	.81	1.0	.50	3.56	.31	2.94	.34
3/8	2,250	.94	1.25	.63	4.31	.38	3.63	.66
1/2	3,600	1.31	1.50	.75	5.44	.50	4.50	1.34
5/8	5,200	1.56	1.75	.94	6.56	.63	5.31	2.48
3/4	7,200	1.75	2.0	1.13	7.18	.75	6.06	3.88
7/8	10,000	2.06	2.25	1.19	8.38	.88	7.0	5.87
1	12,500	2.31	2.50	1.75	9.63	1.13	8.56	9.84



LK101

Designed for use on drilling and well servicing rigs as a spinning line and for hoisting lighter loads.

Featuring:

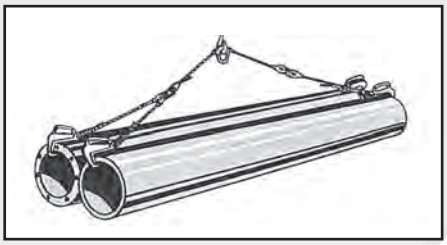
- Maximum load of 10,000 lbs.
- Tested Breaking Strength of 38,000 lbs.
- Manila Line Size up to 1 5/8" on one end and 1 1/4" on the other end.

Weight: 3 lbs.
Shipping Size: 8" x 2" x 2"

Rigging Hardware

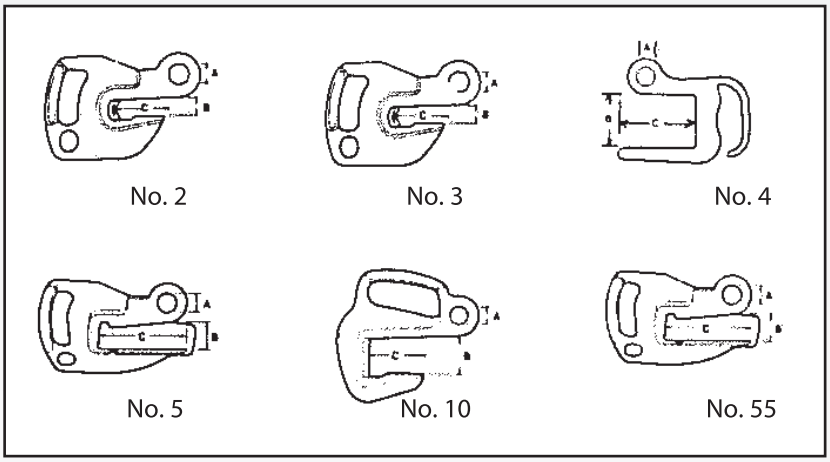
PIPE HOOKS

Pipe Hooks are designed to ease the job of handling pipe. They speed up loading or unloading of pipe sections, or the moving of pipe when placing pipe into position for connecting or welding. For handling pipe with ease, select the pipe hook best suited to your need from these six sizes.
Federal stock number, FSN-3940-909-3716.



- **No. 2– Equipped with soft brass inserts to prevent damaging thin wall gas or oil pipe.**
- **No. 3– Same as No. 2 with a longer throat opening. Has brass insert.**
- **No. 4– A flame cut 3/4" steel plate hook adaptable for lifting jobs requiring a wide throat opening.**
- **No. 5– A wide bearing surface pipe hook with a scuff-resistant plastic insert for protecting epoxy lined pipe.**
- **No. 10– A versatile multi-purpose pipe hook for lighter lifting jobs.**
- **No. 55– Same as No. 5 with a 8-1/2" wide bearing surface and plastic insert.**

WARNING: The angle of each sling leg should be carefully checked with each usage to prevent overloading.



ROPE SIZE (INCHES)	WORKING LOAD LIMIT* (LBS.)	WEIGHT EACH (LBS.)	NUMBER	DIMENSIONS (INCHES) A	B	C
3/8 – 5/8	8,500	8-1/2	2	1-1/4	1	3-1/4
3/8 – 5/8	7,500	10-1/2	3	1-1/4	2	3-1/4
3/8	2,000	5	4	1-3/8	4	5-1/2
3/8 – 5/8	7,000	13	5	1-1/4	7/8	5-1/2
3/8 – 1/2	3,500	7-1/2	10	1-3/16	2-1/2	4-1/4
3/8 – 5/8	7,000	29	55	1-1/4	7/8	5-1/2

* Working Loads shown in table are based on slings using two pipe hooks.
All Pipe Hooks are equipped with handles for ease of handling.

Rigging Hardware

TURNBUCKLES

Hook & Hook

Meets the performance requirements of Federal Specifications FF-T791b, Type 1, Form 1 - Class 5, and ASTM F-1145, except for those provisions required of the contractor.

Hook & Eye

Meets the performance requirements of Federal Specifications FF-T791b, Type 1, Form 1 - Class 6, and ASTM F-1145, except for those provisions required of the contractor.

Eye & Eye

Meets the performance requirements of Federal Specifications FF-T791b, Type 1, Form 1 - Class 4, and ASTM F-1145, except for those provisions required of the contractor.

Jaw & Eye

Meets the performance requirements of Federal Specifications FF-T791b, Type 1, Form 1 - Class 8, and ASTM F-1145, except for those provisions required of the contractor.

Jaw & Jaw

Meets the performance requirements of Federal Specifications FF-T791b, Type 1, Form 1 - Class 7, and ASTM F-1145, except for those provisions required of the contractor.

- Turnbuckle assembly combinations include: Eye and Eye, Hook and Hook, Hook and Eye, Jaw and Jaw, Jaw and Eye.
- End fittings are Quenched and Tempered, bodies heat treated by normalizing.
- Quenched and Tempered end fittings and normalized bodies have enhanced impact properties for greater toughness at all temperatures.
- Hot Dip galvanized.
- Hooks are forged with a greater cross sectional area that results in a stronger hook with better fatigue properties.
- Modified UNJ thread on end fittings for improved fatigue properties. Body has UNC threads.
- Turnbuckle eyes are forged elongated, by design, to maximize easy attachment in system and minimize stress in the eye. For turnbuckle sizes 1/4" through 2-1/2 ", a shackle one size smaller can be reeved through eye.
- Forged jaw ends are fitted with bolts and nuts on sizes 1/4" through 5/8", and pins and cotters on sizes 3/4" through 2-3/4".
- TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.
- Lock Nuts available for all sizes.
- Typical hardness levels, Tensile Strengths and Ductility Properties are available for all sizes.
- Turnbuckles can be furnished proof tested or magnaflux inspected with certificates if requested at time of order.
- Turnbuckles meet or exceed all the requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, products meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.

Rigging Hardware

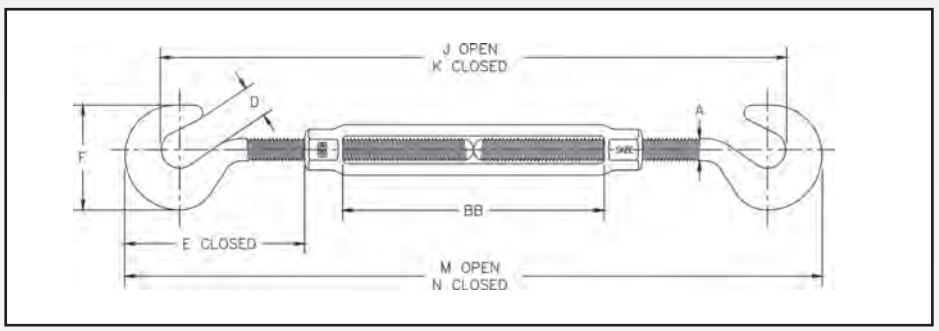
TURNBUCKLES

HOOK & HOOK TURNBUCKLES

- **End fittings are Quenched and Tempered, bodies heat treated by normalizing.**
- **Hot Dip galvanized steel.**
- **Hooks are forged with a greater cross sectional area that results in a stronger hook with better fatigue properties.**
- **Hooks meet or exceed all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Products meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.**
- **TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.**
- **Modified UNJ thread on end fittings for improved fatigue properties.**
- **Body has UNC threads.**
- **Fatigue Rated.**

Hook & Hook

Meets the performance requirements of Federal Specifications FF-T791b, Type 1, Form 1 - Class 5, and ASTM F-1145, except for those provisions required of the contractor.



HOOK & HOOK

THREAD DIA. & TAKE UP (IN.)	WORKING LOAD LIMIT (LBS.)*	WEIGHT EACH (LBS.)	DIMENSIONS (IN.) A	D	E CLOSED	F	J OPEN	K CLOSED	M OPEN	N CLOSED	BB
1/4 x 4	400	.30	.25	.45	1.59	1.27	11.12	7.12	11.94	7.94	4.00
5/16 x 4-1/2	700	.47	.31	.50	1.94	1.50	12.81	8.31	13.81	9.31	4.50
3/8 x 6	1,000	.78	.38	.56	2.30	1.77	16.50	10.50	17.72	11.72	6.00
1/2 x 6	1,500	1.60	.50	.66	2.94	2.28	18.82	11.82	20.38	13.38	6.00
1/2 x 12	1,500	2.28	.50	.66	2.94	2.28	30.82	17.82	32.38	19.38	12.00
5/8 x 6	2,250	2.75	.63	.90	3.69	2.81	20.50	13.25	22.50	15.25	6.00
5/8 x 12	2,250	3.50	.63	.90	3.69	2.81	32.50	19.25	34.50	21.25	12.00
3/4 x 6	3,000	3.89	.75	.98	4.52	3.33	22.38	14.88	24.78	17.28	6.00
3/4 x 12	3,000	5.43	.75	.98	4.52	3.33	34.38	20.88	36.78	23.28	12.00
3/4 x 18	3,000	8.12	.75	.98	4.52	3.33	46.38	26.88	48.78	29.28	18.00
7/8 x 12	4,000	8.10	.88	1.13	5.19	3.78	36.00	22.25	38.75	25.00	12.00
1 x 12	5,000	11.93	1.00	1.25	5.84	4.25	37.63	23.63	40.69	26.69	12.00

* Proof Load is 2.5 times the Working Load Limit. Ultimate Load is five times the Working Load Limit.
Mechanical Galvanized.

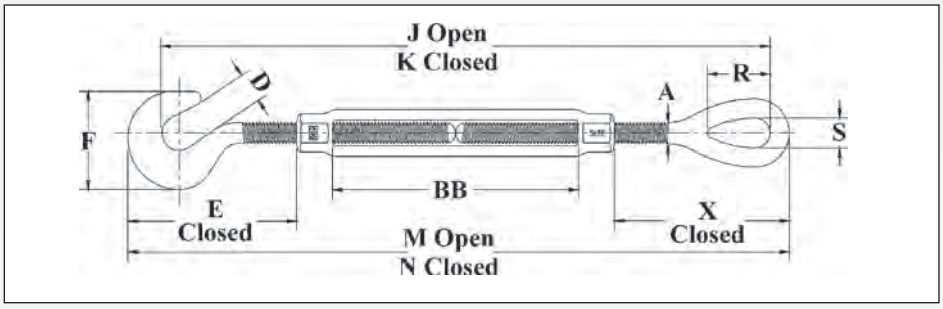
TURNBUCKLES

HOOK AND EYE TURNBUCKLES

- End fittings are Quenched and Tempered, bodies heat treated by normalizing.
- Hot Dip galvanized steel.
- Turnbuckle eyes are forged elongated, by design, to maximize easy attachment in system and minimize stress in the eye. For tunbuckle sizes 1/4" through 2-1/2", a shackle one size smaller can be reeved through eye.
- Turnbuckle hooks are forged with a greater cross sectional area that results in a stronger hook with better fatigue properties.
- All products meet or exceed all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, products meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.
- TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.
- Modified UNJ thread on end fittings for improved fatigue properties.
- Body has UNC threads.
- Fatigue Rated.

Hook & Eye

Meets the performance requirements of Federal Specifications FF-T791b, Type 1, Form 1 - Class 6, and ASTM F-1145, except for those provisions required of the contractor.



HOOK & EYE

THREAD DIA. & TAKE UP (IN.)	WORKING LOAD LIMIT (LBS.)*	WEIGHT EACH (LBS.)	DIMENSION (IN.) A	D	E CLOSED	F	J OPEN	K CLOSED	M OPEN	N CLOSED	R	S	X CLOSED	BB
1/4 x 4	400	.29	.25	.45	1.59	1.27	11.46	7.46	12.09	8.09	.78	.34	1.75	4.00
5/16 x 4-1/2	700	.49	.31	.50	1.94	1.50	13.19	8.69	13.47	9.47	.94	.44	2.09	4.50
3/8 x 6	1,000	.78	.38	.56	2.30	1.77	16.98	10.98	17.94	11.94	1.12	.53	2.52	6.00
1/2 x 6	1,500	1.61	.50	.66	2.94	2.28	19.45	12.45	20.67	13.67	1.44	.72	3.23	6.00
1/2 x 12	1,500	2.26	.50	.66	2.94	2.28	31.45	18.45	32.67	19.67	1.44	.72	3.23	12.00
5/8 x 6	2,250	2.70	.63	.90	3.69	2.81	21.96	13.96	22.72	15.47	1.75	.88	3.90	6.00
5/8 x 12	2,250	3.78	.63	.90	3.69	2.81	33.21	19.96	34.72	21.47	1.75	.88	3.90	12.00
3/4 x 6	3,000	3.89	.75	.98	4.52	3.33	23.13	15.63	24.95	17.45	2.09	1.00	4.69	6.00
3/4 x 12	3,000	5.83	.75	.98	4.52	3.33	35.13	21.63	36.95	23.45	2.09	1.00	4.69	12.00
3/4 x 18	3,000	6.33	.75	.98	4.52	3.33	47.13	27.63	48.95	29.45	2.09	1.00	4.69	18.00
7/8 x 12	4,000	8.10	.88	1.13	5.19	3.78	36.53	22.78	38.66	24.91	2.38	1.25	5.10	12.00
1 x 12	5,000	11.93	1.00	1.25	5.84	4.25	38.80	24.80	41.20	27.20	3.00	1.44	6.36	12.00

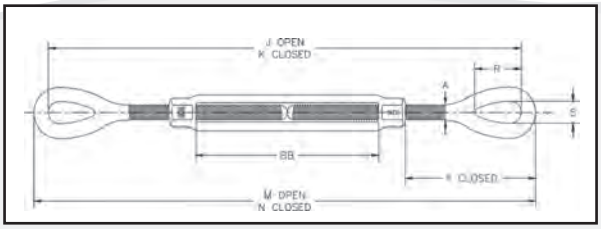
* Proof Load is 2.5 times the Working Load Limit. Ultimate Load is five times the Working Load Limit.
Mechanical Galvanized.

Rigging Hardware

TURNBUCKLES

EYE AND EYE TURNBUCKLES

- End fittings are Quenched and Tempered, bodies heat treated by normalizing.
- Hot Dip galvanized steel.
- Turnbuckle eyes are forged elongated, by design, to maximize easy attachment in system and minimize stress in the eye. For turnbuckle sizes 1/4" through 2-1/2", a shackle one size smaller can be reeved through eye.
- Modified UNJ thread on end fittings for improved fatigue properties. Body has UNC threads.
- All products meet or exceed all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. All products meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.
- TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.
- Fatigue Rated.



Eye & Eye

Meets the performance requirements of Federal Specifications FF-T791b, Type 1, Form 1 - Class 4, and ASTM F-1145, except for those provisions required of the contractor.

EYE & EYE

THREAD DIAMETER & TAKE UP (IN.)	WORKING LOAD LIMIT * (LBS.)	WEIGHT EACH (LBS.)	DIMENSIONS (IN.) A	J OPEN	K CLOSED	M OPEN	N CLOSED	R	S	X CLOSED	BB
1/4 x 4	500	.26	.25	11.80	7.80	12.25	8.25	.78	.34	1.75	4.00
5/16 x 4-1/2	800	.45	.31	13.56	9.06	14.12	9.62	.94	.44	2.09	4.50
3/8 x 6	1,200	.76	.38	17.47	11.47	18.16	12.16	1.12	.53	2.52	6.00
1/2 x 6	2,200	1.54	.50	20.08	13.08	20.96	13.96	1.44	.72	3.23	6.00
1/2 x 12	2,200	2.14	.50	32.08	19.08	32.96	19.96	1.44	.72	3.23	12.00
5/8 x 6	3,500	2.40	.63	21.93	14.68	22.93	15.68	1.75	.88	3.90	6.00
5/8 x 12	3,500	3.42	.63	33.93	20.68	34.93	21.68	1.75	.88	3.90	12.00
3/4 x 6	5,200	3.79	.75	23.88	16.38	25.12	17.62	2.09	1.00	4.69	6.00
3/4 x 12	5,200	5.48	.75	35.88	22.38	37.12	23.62	2.09	1.00	4.69	12.00
3/4 x 18	5,200	7.19	.75	47.88	28.38	49.12	29.62	2.09	1.00	4.69	18.00
7/8 x 12	7,200	7.22	.88	37.07	23.32	38.57	24.82	2.38	1.25	5.10	12.00
7/8 x 18	7,200	9.95	.88	49.07	29.32	50.57	30.82	2.38	1.25	5.10	18.00
1 x 6	10,000	9.04	1.00	27.97	19.97	29.72	21.72	3.00	1.44	6.36	6.00
1 x 12	10,000	11.50	1.00	39.97	25.97	41.97	27.72	3.00	1.44	6.36	12.00
1 x 18	10,000	14.00	1.00	51.97	31.97	53.72	33.72	3.00	1.44	6.36	18.00
1 x 24	10,000	17.25	1.00	63.97	37.97	65.72	39.72	3.00	1.44	6.36	24.00
1-1/4 x 12	15,200	19.00	1.25	42.81	28.31	45.06	30.56	3.56	1.81	7.72	12.00
1-1/4 x 18	15,200	23.00	1.25	54.81	34.31	57.06	36.56	3.56	1.81	7.72	18.00
1-1/4 x 24	15,200	27.00	1.25	66.81	40.31	69.06	42.56	3.56	1.81	7.72	24.00
1-1/2 x 12	21,400	27.50	1.50	45.50	30.50	48.00	33.00	4.06	2.12	8.62	12.00
1-1/2 x 18	21,400	31.00	1.50	57.50	36.50	60.00	39.00	4.06	2.12	8.62	18.00
1-1/2 x 24	21,400	37.50	1.50	69.50	42.50	72.00	45.00	4.06	2.12	8.62	24.00
1-3/4 x 18	28,000	52.50	1.75	57.38	39.38	60.38	42.38	4.62	2.38	10.00	18.00
1-3/4 x 24	28,000	58.00	1.75	69.38	45.38	72.38	48.38	4.62	2.38	10.00	24.00
2 x 24	37,000	85.25	2.00	75.69	51.69	79.19	55.19	5.75	2.69	13.09	24.00
2-1/2 x 24	60,000	144.25	2.50	78.62	54.62	82.62	58.62	6.50	3.12	13.78	24.00
2-3/4 x 24	75,000	194.00	2.75	81.00	57.00	85.50	61.50	7.00	3.25	15.22	24.00

* Proof Load is 2.5 times the Working Load Limit. Ultimate Load is 5 times the Working Load Limit.
Mechanical Galvanized.

Rigging Hardware

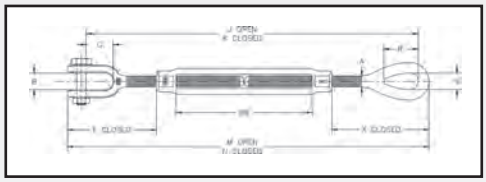
TURNBUCKLES

JAW AND EYE TURNBUCKLES

- End fittings are Quenched and Tempered,bodies heat treated by normalizing.
- Hot Dip galvanized steel.
- Turnbuckles eyes are forged and elongated,by design,to maximize easy attachment in system and minimize stress in the eye.For turnbuckles size 1/4" through 2-1/2", a shackle one size smaller can be reeved through eye.
- Forged jaw ends are fitted with bolts and nuts for 1/4" through 5/8",and pins and cotters on 3/4" through 2-3/4" sizes.
- Modified UNJ thread on end fittings for improved fatigue properties.
- Body has UNC threads.
- All products meet or exceed all the requirements of ASME B30.26 including identification, ductility,design factor,proof load and temperature requirements. All products meet other critical performance requirements including fatigue life, impact properties and material traceability,not addressed by ASME B30.26.
- TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.
- Fatigue Rated.

Jaw & Eye

Meets the performance requirements of Federal Specifications FF-T791b, Type 1, Form 1 - Class 8, and ASTM F-1145, except for those provisions required of the contractor.



JAW & EYE

THREAD DIA. & TAKE UP (IN.)	WORKING LOAD LIMIT (LBS.*)*	WEIGHT EACH (LBS.)	DIMENSIONS (IN.) A	B	E CLOSED	G	J OPEN	K CLOSED	M OPEN	N CLOSED	R	S	X CLOSED	BB
1/4 x 4	500	.30	.25	.45	1.58	.62	11.35	7.35	12.07	8.07	.78	.34	1.75	4.00
5/16 x 4-1/2	800	.50	.31	.50	1.98	.87	13.71	8.71	14.01	9.51	.94	.44	2.09	4.50
3/8 x 6	1,200	.80	.38	.54	2.12	.87	16.81	10.81	17.77	11.77	1.12	.53	2.52	6.00
1/2 x 6	2,200	1.51	.50	.55	2.75	1.06	19.29	12.29	20.48	13.48	1.44	.72	3.23	6.00
1/2 x 9	2,200	1.71	.50	.55	2.75	1.06	25.29	15.29	26.48	16.48	1.44	.72	3.23	9.00
1/2 x 12	2,200	2.08	.50	.55	2.75	1.06	31.29	18.29	32.48	19.48	1.44	.72	3.23	12.00
5/8 x 6	3,500	2.35	.63	.82	3.50	1.31	20.99	13.74	22.53	15.28	1.75	.88	3.90	6.00
5/8 x 9	3,500	3.17	.63	.82	3.50	1.31	26.99	16.74	28.53	18.28	1.75	.88	3.90	9.00
5/8 x 12	3,500	3.61	.63	.82	3.50	1.31	32.99	19.74	34.53	21.28	1.75	.88	3.90	12.00
3/4 x 6	5,200	4.00	.75	1.03	4.18	1.50	22.69	15.19	24.61	17.11	2.09	1.00	4.69	6.00
3/4 x 9	5,200	4.75	.75	1.03	4.18	1.50	28.69	18.19	30.61	20.11	2.09	1.00	4.69	9.00
3/4 x 12	5,200	5.93	.75	1.03	4.18	1.50	34.69	21.19	36.61	23.11	2.09	1.00	4.69	12.00
3/4 x 18	5,200	7.00	.75	1.03	4.18	1.50	46.69	27.19	48.61	29.11	2.09	1.00	4.69	18.00
7/8 x 12	7,200	8.36	.88	1.23	4.85	1.75	36.09	22.34	38.32	24.57	2.38	1.25	5.10	12.00
7/8 x 18	7,200	9.75	.88	1.23	4.85	1.75	48.09	28.34	50.32	30.57	2.38	1.25	5.10	18.00
1 x 6	10,000	8.92	1.00	1.31	5.53	2.06	26.34	18.34	28.89	20.89	3.00	1.44	6.36	6.00
1 x 12	10,000	11.20	1.00	1.31	5.53	2.06	38.34	24.34	40.89	26.89	3.00	1.44	6.36	12.00
1 x 18	10,000	13.30	1.00	1.31	5.53	2.06	50.34	30.34	52.89	32.89	3.00	1.44	6.36	18.00
1 x 24	10,000	17.00	1.00	1.31	5.53	2.06	62.34	36.34	64.89	38.89	3.00	1.44	6.36	24.00
1-1/4 x 12	15,200	19.42	1.25	1.86	7.21	2.81	41.32	26.82	44.55	30.05	3.56	1.81	7.72	12.00
1-1/4 x 18	15,200	24.18	1.25	1.86	7.21	2.81	53.32	32.82	56.05	36.05	3.56	1.81	7.72	18.00
1-1/4 x 24	15,200	28.50	1.25	1.86	7.21	2.81	65.32	38.82	68.55	42.05	3.56	1.81	7.72	24.00
1-1/2 x 12	21,400	28.99	1.50	2.25	7.88	2.81	43.50	28.50	47.25	32.25	4.06	2.12	8.62	12.00
1-1/2 x 18	21,400	35.00	1.50	2.25	7.88	2.81	55.50	34.50	59.25	38.25	4.06	2.12	8.62	18.00
1-1/2 x 24	21,400	39.18	1.50	2.25	7.88	2.81	67.50	40.50	71.25	44.25	4.06	2.12	8.62	24.00
1-3/4 x 18	28,000	53.75	1.75	2.60	9.40	3.38	55.38	37.38	59.78	41.78	4.62	2.38	10.00	18.00
1-3/4 x 24	28,000	60.68	1.75	2.60	9.40	3.38	67.38	43.38	71.78	47.78	4.62	2.38	10.00	24.00
2 x 24	37,000	89.00	2.00	2.62	11.86	3.69	72.62	48.62	77.95	53.95	5.75	2.69	13.09	24.00
2-1/2 x 24	60,000	150.00	2.50	3.06	13.56	4.44	75.80	51.80	82.40	58.40	6.50	3.12	13.78	24.00
2-3/4 x 24	75,000	183.00	2.75	3.68	15.22	4.19	77.88	53.88	85.50	61.50	7.00	3.25	15.22	24.00

* Proof Load is 2.5 times the Working Load Limit. Ultimate Load is 5 times the Working Load Limit. Mechanical Galvanized.

Rigging Hardware

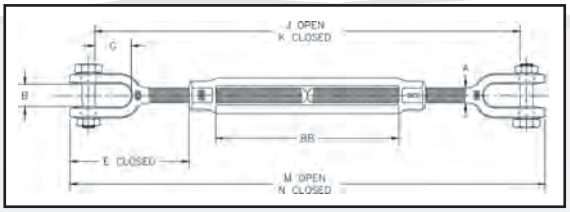
TURNBUCKLES

JAW AND JAW TURNBUCKLES

- End fittings are Quenched and Tempered, bodies heat treated by normalizing.
- Hot Dip galvanized steel.
- TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.
- Forged jaw ends are fitted with bolts and nuts for 1/4" through 5/8", and pins and cotters on 3/4" through 2-3/4" sizes.
- Modified UNJ thread on end fittings for improved fatigue properties.
- Body has UNC threads.
- All products meet or exceed all the requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. All products meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.
- Fatigue Rated.

Jaw & Jaw

Meets the performance requirements of Federal Specifications FF-T791b, Type 1, Form 1 - Class 7, and ASTM F-1145, except for those provisions required of the contractor.



JAW & JAW

THREAD DIA. & TAKE UP (IN.)	WORKING LOAD LIMIT (LBS.)*	WEIGHT EACH (LBS.)	DIMENSIONS (IN.)								
			A	B	E CLOSED	G	J OPEN	K CLOSED	M OPEN	N CLOSED	BB
1/4 x 4	500	.36	.25	.45	1.58	.62	10.90	6.90	11.90	7.90	4.00
5/16 x 4-1/2	800	.52	.31	.50	1.98	.87	12.36	8.36	13.90	9.40	4.50
3/8 x 6	1,200	.81	.38	.54	2.12	.87	16.14	10.14	17.38	11.38	6.00
1/2 x 6	2,200	1.56	.50	.55	2.75	1.06	18.50	11.50	20.00	13.00	6.00
1/2 x 9	2,200	1.74	.50	.55	2.75	1.06	24.50	14.50	26.00	16.00	9.00
1/2 x 12	2,200	2.40	.50	.55	2.75	1.06	30.50	17.50	32.00	19.00	12.00
5/8 x 6	3,500	2.72	.63	.82	3.50	1.31	20.05	12.80	22.13	14.88	6.00
5/8 x 9	3,500	3.43	.63	.82	3.50	1.31	26.05	15.80	28.13	17.88	9.00
5/8 x 12	3,500	3.91	.63	.82	3.50	1.31	32.05	18.80	34.13	20.88	12.00
3/4 x 6	5,200	4.11	.75	1.03	4.18	1.50	21.50	14.00	24.10	16.60	6.00
3/4 x 9	5,200	5.46	.75	1.03	4.18	1.50	27.50	17.00	30.10	19.60	9.00
3/4 x 12	5,200	6.56	.75	1.03	4.18	1.50	33.50	20.00	36.10	22.60	12.00
3/4 x 18	5,200	8.03	.75	1.03	4.18	1.50	45.50	26.00	48.10	28.60	18.00
7/8 x 12	7,200	8.17	.88	1.23	4.85	1.75	35.11	21.36	38.07	24.32	12.00
7/8 x 18	7,200	10.78	.88	1.23	4.85	1.75	47.11	27.36	50.07	30.32	18.00
1 x 6	10,000	10.18	1.00	1.31	5.53	2.06	24.72	16.72	28.06	20.06	6.00
1 x 12	10,000	13.14	1.00	1.31	5.53	2.06	36.72	22.72	40.06	26.06	12.00
1 x 18	10,000	15.14	1.00	1.31	5.53	2.06	48.72	28.72	52.06	32.06	18.00
1 x 24	10,000	18.08	1.00	1.31	5.53	2.06	60.72	34.72	64.06	38.06	24.00
1-1/4 x 12	15,200	20.59	1.25	1.86	7.21	2.81	39.84	25.34	44.04	29.54	12.00
1-1/4 x 18	15,200	24.68	1.25	1.86	7.21	2.81	51.84	31.34	56.04	35.54	18.00
1-1/4 x 24	15,200	28.20	1.25	1.86	7.21	2.81	63.84	37.34	68.04	41.54	24.00
1-1/2 x 12	21,400	30.69	1.50	2.25	7.88	2.81	41.50	26.50	46.50	31.50	12.00
1-1/2 x 18	21,400	36.75	1.50	2.25	7.88	2.81	53.50	32.50	58.50	37.50	18.00
1-1/2 x 24	21,400	41.60	1.50	2.25	7.88	2.81	65.50	38.50	70.50	43.50	24.00
1-3/4 x 18	28,000	54.00	1.75	2.60	9.40	3.38	53.38	35.38	59.18	41.18	18.00
1-3/4 x 24	28,000	63.36	1.75	2.60	9.40	3.38	65.38	41.38	71.18	47.18	24.00
2 x 24	37,000	94.25	2.00	2.62	11.86	3.69	69.54	45.54	76.72	52.72	24.00
2-1/2 x 24	60,000	165.00	2.50	3.06	13.56	4.44	72.98	48.98	82.18	58.18	24.00
2-3/4 x 24	75,000	198.00	2.75	3.68	15.22	4.19	74.75	50.75	85.50	61.50	24.00

* Proof Load is 2.5 times the Working Load Limit. Ultimate Load is 5 times the Working Load Limit.
Mechanical Galvanized.

Rigging Hardware

SNATCH BLOCKS

418, 419, AND 404 SNATCH BLOCKS

NEW IMPROVED LIGHTCHAMPION

- Forged alloy heat treated hooks.
- Forged steel swivel tees, yokes and shackles.
- Hook and shackle assemblies on 4-1/2" through 14" sizes can be interchanged.
- Can be furnished with bronze bushings or roller bearings.
- Opening feature permits insertion of rope while block is suspended from gin-pole.
- 3" thru 18" 418 and 419 blocks have exclusive bolt retaining spring to assure no lost bolts.
- Can be furnished with SS-4055 hook latch.
- Pressure lube fittings.
- Fatigue rated.
- 3" - 10" feature dual-rated wireline sheaves

418 With Hook

419 With Shackle

404 Tail Board

418, 419, AND 404 SNATCH BLOCKS

SHEAVE DIAMETER (IN.)	BEARING CODE	STOCK NO. 418 WITH HOOK	STOCK NO. 419 WITH SHACKLE	STOCK NO. 404 TAIL BOARD	WIRE ROPE SIZE(IN) ††	WORKING LOAD LIMIT (T)*	WEIGHT EACH (LBS.) 418 WITH HOOK	WEIGHT EACH (LBS.) 419 WITH SHACKLE	WEIGHT EACH (LBS.) 404 TAIL BOARD	REP. SHEAVE STOCK NO.	REP. LATCH STOCK NO.
** 3	BB	—	109091	—	5/16 - 3/8	2	—	4	—	2023196	—
** 3	BB	108038	109037†	102016	5/16 - 3/8	2	5	4	3	2023196	1096421
**4-1/2	BB	108065	109064	102025	3/8 - 1/2	4	12	12	7	2023183	1096468
6	BB	108127	109126	102098		8	27	28	15	2023137	1096562
6	RB	108154	109153	102114	5/8 - 3/4	8	27	28	15	2023143	1096562
8	BB	108225	109224	102169		8	33	34	21	2023153	1096562
8	RB	108252	109251	102187	5/8 - 3/4	8	33	34	21	2023163	1096562
10	BB	108323	109322	102230		8	41	42	29	2023174	1096562
10	RB	108350	109359	102258	5/8 - 3/4	8	41	42	29	2023181	1096562
12	BB	169169	202961	178890		8	48	49	36	2023227	1096562
12	RB	199911	169347	178934	5/8	8	48	49	36	2023248	1096562
12	BB	108421	109420	102301		8	48	49	36	2023235	1096562
12	RB	108458	109457	102329	3/4	8	48	49	36	2023236	1096562
14	BB	194920	169356	—		8	55	56	—	2028377	1096562
14	RB	199948	167857	—	5/8	8	55	56	—	2026445	1096562
14	BB	108528	109527	—		8	55	56	—	2028378	1096562
14	RB	108546	109545	—	3/4	8	55	56	—	2026444	1096562
16	BB	199975	203041	—		15	130	135	—	2023694	1096609
16	RB	200008	203087	—	3/4	15	130	135	—	2023702	1096609
16	BB	108608	109607	—		15	130	135	—	2023690	1096609
16	RB	108626	109625	—	7/8	15	130	135	—	2023698	1096609
18	BB	200099	203130	—		15	150	155	—	2023718	1096609
18	RB	200151	203176	—	7/8	15	150	155	—	2023728	1096609
18	BB	108644	109643	—		15	150	155	—	2023709	1096609
18	RB	108662	109661	—	1	15	150	155	—	2023720	1096609

* Ultimate Load is 4 times the Working Load Limit. ** Available in Bronze Bushed only. 3" and 4-1/2" have self lubricating Bronze Bushing. † Fitted with 1-1/4" I D Swivel Eye. †† May be furnished in other wire rope sizes. NOTE: When ordering, please specify: size, block number, hook or shackle, bronze bushed or roller bearing, and wire rope size.

Rigging Hardware

SNATCH BLOCKS

420, 421, AND 406 SNATCH BLOCKS

CHAMPION

- Hooks and side plates are forged alloy steel and heat treated.
- Shackles and yokes are forged and heat treated steel.
- All parts are forged.
- Side plates are designed to eliminate possibility of rope jamming.
- Can be furnished with bronze bushings or sealed roller bearings.
- Opening feature permits insertion of rope while block is suspended from gin-pole.
- Can be furnished with S-4320 hook latch.
- Pressure lube fittings.
- Hook and shackle assemblies can be interchanged.
- Blocks furnished with dual-rated wireline sheaves.
- Fatigue Rated.

420 With Hook

421 With Shackle

406 Tail Board

SHEAVE DIAMETER (IN.)	BEARING CODE	STOCK NO. 420 WITH HOOK	421 WITH SHACKLE	406 TAIL BOARD	WIRE ROPE SIZE † (IN.)	WORKING LOAD LIMIT * (METRIC TONS)	WEIGHT EACH (LBS.) 420 WITH HOOK	421 WITH SHACKLE	406 TAIL BOARD	REP. SHEAVE STOCK NO.	REP. LATCH STOCK NO.
6	BB	169374	169481	167973	3/4 - 7/8	12	40	48	24	2023262	1096609
6	RB	169392	204120	167982	3/4 - 7/8	12	40	48	24	2023270	1096609
8	BB	169418	169515	167991	3/4 - 7/8	15	51	57	30	2023386	1096609
8	RB	169445	204193	168008	3/4 - 7/8	15	51	57	30	2023406	1096609
10	BB	110221	110720	103186	3/4 - 7/8	15	63	69	42	2023420	1096609
10	RB	110258	110757	103202	3/4 - 7/8	15	63	69	42	2023430	1096609

* Ultimate Load is 4 times the Working Load Limit.
†May be furnished in other wire rope sizes.

Rigging Hardware

SNATCH BLOCKS

430, 431, AND 407 SNATCH BLOCKS

SUPER CHAMPION

- Drop forged, heat treated swivel hook or swivel shackle.
- Hook and shackle assemblies on 8" through 14" sizes can be interchanged.
- Can be furnished with bronze bushings or roller bearings.
- Pressure lube fittings.
- 8" through 10" 430 and 431 blocks have exclusive bolt retaining spring to assure no lost bolts.
- Can be furnished with hook latch.
- 8" and 10" models furnished with dual wireline sheaves.
- Fatigue Rated.

430 With Hook

431 With Shackle

407 Tail Board

SHEAVE DIAMETER (IN.)	BEARING CODE	STOCK NO. 430 WITH HOOK	431 WITH SHACKLE	407 TAIL BOARD	WIRE ROPE SIZE (IN.)†	WORKING LOAD LIMIT (T)*	WEIGHT EACH (LBS.) 430 WITH HOOK	431 WITH SHACKLE	407 TAIL BOARD	REP. SHEAVE STOCK NO.	REP. LATCH STOCK NO.
8	BB	120023	121022	103523	1 - 1-1/8	20	75	87	42	2023463	1096657
8	RB	120041	121040	103541	1 - 1-1/8	20	75	87	42	2023818	1096657
10	BB	120096	121095	103603	1 - 1-1/8	20	89	101	55	2026861	1096657
10	RB	120112	121111	103621	1 - 1-1/8	20	89	101	55	2023526	1096657
12	BB	208536	169917	184375	1	20	103	115	70	2023556	1096657
12	RB	208554	209303	184393	1	20	103	115	70	2023563	1096657
12	BB	120176	121175	103685	1 - 1-1/8	20	103	115	70	2023552	1096657
12	RB	120194	121193	103701	1 - 1-1/8	20	103	115	70	4104944	1096657
14	BB	208572	209321	184419	1	20	123	135	90	2023571	1096657
14	RB	208590	170424	184437	1	20	123	135	90	2023583	1096657
14	BB	1201256	121255	103765	1 - 1-1/8	20	123	135	90	2023565	1096657
14	RB	120274	121273	103783	1 - 1-1/8	20	123	135	90	2023579	1096657
18	BB	208689	209410	184552	1	25	240	260	165	2023609	1090143
18	RB	208732	209465	184605	1	25	240	260	165	2023623	1090143
18	BB	119482	119561	119641	1 - 1-1/8	25	240	260	165	2023603	1090143
18	RB	119491	119570	119650	1 - 1-1/8	25	240	260	165	2023611	1090143
20	BB	208750	209483	184623	1 - 1-1/8	30	375	400	215	2023630	1090189
20	RB	208787	169864	184650	1 - 1-1/8	30	375	400	215	2023621	1090189
20	BB	119507	119589	119669	1 - 1-1/4	30	375	400	215	2023626	1090189
20	RB	119516	119598	119678	1 - 1-1/4	30	375	400	215	2023636	1090189
24	BB	208812	209526	184687	1 - 1-1/8	30	450	475	290	2023648	1090189
24	RB	208858	209553	184721	1 - 1-1/8	30	450	475	290	2023661	1090189
24	BB	119525	119605	119687	1 - 1-1/4	30	450	475	290	2023644	1090189
24	RB	119534	119614	119696	1 - 1-1/4	30	450	475	290	2023659	1090189

*Ultimate Load is 4 times the Working Load Limit.
†May be furnished in other Wire Rope sizes.

Rigging Hardware

SNATCH BLOCKS

SPECIAL APPLICATION BLOCKS

HAY FORK PULLEYS WITH SWIVEL HOOK OR SWIVEL EYE

- Forged steel eyes and hooks.
- Available Painted or Zinc Plated.
- One piece pressed steel shells.
- Edges well rounded to prevent chaffing of rope.
- Can be furnished with SS-4055 hook latch.
- Furnished with roller bearings.
- Pressure lube fittings.

HF-1

HF-2

SHEAVE DIAMETER (IN.)	BLOCK NO.	HAY FORK PULLEYS STOCK NO. PAINTED	ZINC PLATED	WORKING LOAD LIMIT (TONS)*	STANDARD ROPE SIZE (IN.)	END FITTING	WEIGHT EACH (LBS.)
4-1/2	HF-1	170022	170594	1	1-1/4 MR	Swivel Hook	6
4-1/2	HF-2	170086	170629	1	1-1/4 MR	Swivel Eye	6
4-1/2	HF-3	170148	170656	1	1/2 WL	Swivel Hook	6
4-1/2	HF-4	170200	170683	1	1/2 WL	Swivel Eye	6
8	HF-5	170264	-	2	1/2 WL	Swivel Eye	11
6	HF-11	170380	-	2	1-1/2 MR	Swivel Hook	11
6	HF-12	170442	-	2	1-1/2 MR	Swivel Eye	11
6	HF-13	170503	-	2	5/8 WL	Swivel Hook	11
6	HF-14	170567	-	2	5/8 WL	Swivel Eye	11

*Ultimate Load is 4 times the Working Load Limit. Rope Code: MR - Manila Rope, WL - Wire Line.

TONG BLOCKS

- Steel sheaves with roller bearings and pressure lubrication.
- Forged steel eyes and hooks.
- East opening feature shown available in 8" size only.

171 Tong Block

SHEAVE DIAMETER (IN.)	BLOCK NO.	171 STOCK NO.	WORKING LOAD LIMIT (TONS)*	WIRE ROPE SIZE (IN.)	WEIGHT EACH (LBS.)	CONNECTION
6	TB-1	171012	1/2	3/4	11	Swivel Eye
8	TB-1	171058	1	3/4	12	Swivel Eye
10	TB-1	171101	2-1/2	3/4	30	Swivel Eye
12	TB-1	171156	2-1/2	3/4	35	Swivel Eye

*Ultimate Load is 4 times the Working Load Limit.

LAY DOWN BLOCKS

- All steel construction, steel sheaves mounted on antifriction bearings, grooved for maximum of 3/4" wire line.
- Used to lay down drill pipe.
- Hook made to fit into end of drill pipe, handy dead end becket for returning block – hooks have handle for disengagement.

443 Lay Down Block

SHEAVE DIAMETER (IN.)	BLOCK NO.	443 STOCK NO.	WORKING LOAD LIMIT (TONS)*	WIRE ROPE SIZE (IN.)	WEIGHT EACH (LBS.)	TYPE BLOCK
4-1/2	443	171414	1/4	1/2	12	Regular
6	443	171432	1/2	3/4	17	Regular

*Ultimate Load is 4 times the Working Load Limit.

SNATCH BLOCKS

OILFIELD SERVICING BLOCKS

M-491 TOWER / DERRICK HOIST BLOCKS

M-491 Tower/Derrick Hoist Block

New design provides the dependability of standard snatch blocks, along with features that make it perfect for the challenging needs of Tugger Hoist and Tower Erection applications.

- **A wide variety of configurations:**
- **4, 8, 12 or 15-metric-ton capacity.**
- **3/8", 7/16", 1/2", 9/16", 5/8", 7/8" and 1" wire line sizes.**
- **Painted or Galvanized finish.**
- **8" and 10" blocks furnished with dual rated wireline sheaves.**
- **Forged steel swivels, tees, yokes and shackles are Quenched and Tempered.**
- **Sheave lubrication through center pin for easy maintenance.**
- **Design factor of 4 to 1.**
- **All blocks 14" and larger are furnished with Roll Forged sheaves with flame hardened grooves.**
- **Recessed sideplate design reduces the gap between the sheave rim and the side plate, allowing the sheave assembly to be captured in the block if loss of center pin occurs.**
- **Sealed tapered roller bearings extend the life of the center pin and bearings, and allows for faster line speeds than recommended with standard snatch blocks.**
- **Suitable for hoisting personnel, contingent upon all employees, including the winch operator, being trained to follow any applicable Federal, local and industry standards.**
- **Tugger/Derrick applications: API RP54.**
- **Tower applications: OSHA directive CPL 2-1.36.**
- **Holes through side plates are available for secondary block securement device.**
- **Manufactured by an API Q1 Certified facility.**

WORKING LOAD LIMIT (T)*	SHEAVE DIAMETER (IN.)	WIRE ROPE SIZE (IN.)	M-491 S STOCK NO. PAINTED	M-491 G STOCK NO. GALVANIZED	WEIGHT EACH (LBS.)
4	8	3/8 - 1/2	2020161	2020170	35
8	10	3/8 - 1/2	2020806	2020815	55
8	10	1/2 - 9/16	2020824	2020833	55
12	10	1/2 - 9/16	2021118	2021127	55
12	14	5/8	2021136	2021145	95
12	14	3/4	2021154	2021163	95
15	16	7/8	2021172	2021181	150
15	16	1	2021190	2021199	150

*Ultimate Load is 4 times the Working Load Limit.

Rigging Hardware

WELL LOGGERS BLOCKS

475

- Alloy aluminum housing for maximum strength and minimum weight.
- Conductor cable ONLY is recommended for use with Well Logger's Blocks.
- For use in high speed well logging, perforating, etc.
- Extra large double row, pre-adjusted sealed tapered bearing.
- Quick opening pin for fast string-up, light weight for easy handling.

477

475 / 477 Floor Blocks

Sheave Diam. (in.)	Block No.	Floor Block Stock No.	Working Load Limit (Tons)*	Conductor Cable Size (in.)†	Weight Each (lbs.)	Connection
7	475	180020	1-1/2	3/16	10	Swivel Hanger
10	475	180128	1-1/2	3/16	11	Swivel Hanger
10	475	180253	2-1/2	5/16	21	Swivel Hanger
12	475	180440	2-1/2	5/16	24	Swivel Hanger
14	475	180618	2-1/2	5/16	43	Swivel Hanger
14	477	169784	6	1/4	58	Swivel Clevis
20	477	191072	6	1/4	70	Swivel Clevis
24	477	191107	10	5/16	130	Swivel Clevis

* Ultimate Load is 4 times the Working Load Limit.
† Other cable sizes available upon request.

476

476 Top Blocks

Sheave Diam. (in.)	Block No.	Floor Block Stock No.	Working Load Limit (Tons)*	Conductor Cable Size (in.)	Weight Each (lbs.)	Connection
7	476	180075	2-1/2	5/16	10	Stinger Pin
10	476	180333	4	5/16	21	Stinger Pin
12	476	180529	4	5/16	24	Stinger Pin
14	476	180707	4	5/16	43	Stinger Pin

* Ultimate Load is 4 times the Working Load Limit.

Guy Line Blocks

- Used on guy-lines to gain mechanical advantage through rapid take-up, taking less pull to guy down.
- Laser burned steel side plates, cold-finished steel pins, 6" steel sheaves.

Block No.	No. of Sheaves	Stock No.	Working Load Limit (Tons)	Sheave Diameter (in.)	Standard Wire Rope Size (in.)*	Weight Each (lbs.)
458	1	171619	5	6	1/2	21
458H	1	293067	8	6	9/16 - 5/8	25
459	2	171637	10	6	1/2	28
459H	2	239076	12	6	9/16 - 5/8	31

* May be furnished in other wire rope sizes.

458

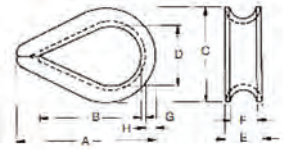
459

Rigging Hardware

WIRE ROPE THIMBLES

STANDARD (LIGHT) DUTY - HOT DIPPED GALVANIZED

Rope Diam. in Inches	Approx. Weight Each	Dimensions in Inches A	B	C	D	E	F	G	H
1/8	.035	1.94	1.31	1.06	.69	.25	.16	.05	.13
3/16	.035	1.94	1.31	1.06	.69	.31	.22	.05	.13
1/4	.035	1.94	1.31	1.06	.69	.38	.28	.05	.13
5/16	.04	2.13	1.50	1.25	.81	.44	.34	.05	.13
3/8	.067	2.38	1.63	1.47	.94	.53	.41	.06	.16
1/2	.125	2.75	1.88	1.75	1.13	.69	.53	.08	.19
5/8	.345	3.50	2.25	2.38	1.38	.91	.66	.13	.34
3/4	.471	3.75	2.50	2.69	1.63	1.08	.78	.14	.34
7/8	.846	5.00	3.50	3.19	1.88	1.27	.94	.16	.44
1	.975	5.69	4.25	3.75	2.50	1.39	1.06	.16	.41

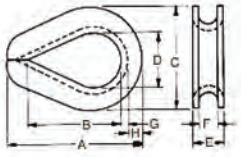


Light Duty Wire Rope THimbles meet the requirements of Federal Specification FF-276b, Type II.

HEAVY DUTY - HOT DIPPED GALVANIZED

Rope Diam. in Inches	Approx. Weight Each	Dimensions in Inches A	B	C	D	E	F	G	H
1-/4	.065	2.19	1.63	1.50	.88	.41	.28	.06	.23
5/16	.108	2.50	1.88	1.81	1.06	.50	.34	.08	.28
3/8	0236	2.88	2.13	2.13	1.13	.63	.41	.11	.34
7/16	031	3.25	2.38	2.38	1.25	.72	.47	.13	.38
1/2	0478	3.63	2.75	2.75	1.50	.81	.53	.14	.41
9/16	0486	3.63	2.75	2.69	1.50	.88	.59	.14	.41
5/8	0694	4.25	3.25	3.13	1.75	.97	.66	.16	.50
3/4	1050	5.00	3.75	3.81	2.00	1.22	.78	.22	.66
7/8	1083	5.50	4.25	4.25	2.25	1.38	.94	.22	.75
1	2.63	6.13	4.50	4.94	2.50	1.56	1.06	.25	.88
1 1/8 - 1 1/4	3.75	7.00	5.13	5.88	2.88	1.81	1.31	.25	1.13
1 1/4 - 1 1 3/8	7.88	9.06	6.50	6.81	3.50	2.19	1.44	.387	1.13
1 3/8 - 1 1/2	10.89	9.00	6.25	7.13	3.50	2.56	1.56	.50	1.13
1 3/4	17.75	12.19	9.00	8.50	4.50	3.06	1.84	.50	1.64

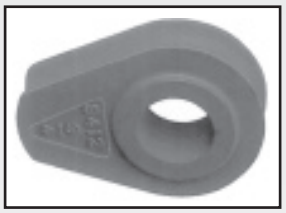
Heavy Duty Wire Rope THimbles meet the requirements of Federal Specification FF-276b, Type III.

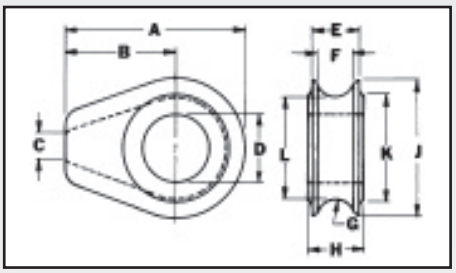


Rigging Hardware

WIRE ROPE THIMBLES

Solid Wire Rope Thimbles

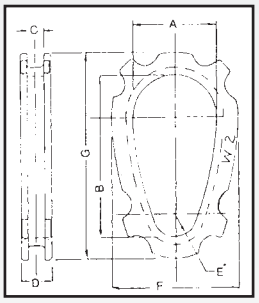




• Fits pin for open wire rope socket, boom pendant clevis and wedge socket.

Rope Dia. (in.)	Weight Each (lbs.)	Dimensions (in.)										
		A	B	C	D	E	F	G	H	J	K	L
† 1/2	.61	2.81	1.75	.25	1.06	.75	.56	.28	.88	2.13	1.63	1.56
† 5/8	2.21	4.69	3.00	.38	1.31	1.06	.81	.41	1.13	3.38	2.25	2.56
† 3/4	2.32	4.69	3.00	.38	1.50	1.06	.81	.41	1.38	3.38	2.25	2.56
† 7/8	5.45	6.06	3.81	.50	1.75	1.38	1.06	.53	1.63	4.50	3.25	3.44
† 1	5.25	6.06	3.81	.50	2.13	1.38	1.06	.53	1.81	4.50	3.25	3.44
† 1 1/8	9.29	7.25	4.56	.63	2.38	1.75	1.31	.66	2.06	5.38	3.88	4.06
† 1 1/4 - 1 3/8	9.81	7.25	4.56	.63	2.63	1.94	1.53	.78	2.31	5.38	3.88	4.13

† Cast Ductile Iron.



Slip-Thru Thimble

SLIP-THRU THIMBLES are designed to allow passage of an identical thimble through its eye. This is a necessity when a regular sling is used as a choker sling. SLIP-THRU THIMBLES also prevent the eye of the sling from mashing together and the top of the eye wearing excessively. The generous inside Dimensions allow the thimbles to fit large crane hooks. Rope retention ears are tapered so they can be bent or peened over wire rope.

DIMENSIONS & DATA											
NO.	SINGLE	SLING SIZE 8 PTS.	SLING SIZE 6 PTS.	DIMENSIONS A	B	C	D	E	F	G	WT. LBS.
W-2	5/16-3/8	3/32-1/8	3/32-1/8	2 1/8	4 1/8	7/16	13/16	9/16	3 1/4	5 1/4	1.3
W-3	1/2-9/16	3/16	3/16	2 3/8	4 3/8	5/8	1	5/8	4	6	1.5
W-4	5/8-3/4	1/4	1/4-5/16	3 3/8	6 5/8	13/16	1 5/16	5/8	5 3/8	8 1/2	3.11
W-5	7/8-1	5/16	3/8	3 3/4	7 1/8	1 1/8	1 5/8	7/8	6 1/4	9 3/8	5.5
W-6	1 1/8-1 1/4	3/8	7/16	4 3/8	8 3/8	1 3/8	1 7/8	1	7 1/8	11	8.6
W-7	1 3/8-1 1/2	7/16-1/2	1/2	5	9 1/2	1 5/8	2 1/8	1 1/4	8 1/8	12 1/2	10
W-8	1 5/8-1 3/4	9/16	5/8	6 3/4	11 3/4	1 13/16	2 9/16	1 7/16	9 3/8	14 3/4	17.6
W-9	1 7/8-2	5/8	3/4	8	14 1/2	2 1/8	3 1/4	1 7/8	13	19 1/4	53
W-10	2 1/8-2 1/4	3/4	7/8-1	8 1/2	15 1/2	2 1/2	3 3/4	2	13	20 3/8	66
W-11	2 1/2-3	7/8-1	1 1/8	9	18 1/2	3 3/16	4 11/16	2 1/2	15 3/4	24 3/4	126

Casing and Choker Thimbles

The No. 83 Casing Thimble has been designed for the oil industry. The Choker Thimbles, No. 82, No. 84, No. 85, No. 86 and No. 87 are designed especially for braided choker slings. The ears can be peened over to retain wire rope.

DIMENSIONS & DATA												
NO.	SLING SIZE 6PT	SLING SIZE 8PT	FITS CHOKER HOOK	A	B	C	D	E	F	G	H[R]	WT. LBS.
82	1/8	1/8	#2	1/2	7/8	1 1/4	2 1/8	3 1/4	1/4	3/8	5/16	.7
*83	1/4	3/16	#3	5/8	1	1 1/2	2 1/2	3 7/8	1/4	1/2	3/8	1.1
84	5/16	1/4	#4	13/16	1 5/16	1 3/4	2 7/8	4 7/16	5/16	5/8	7/16	1.8
85	3/8	5/16	#5	15/16	1 7/16	2	3 1/4	5	5/16	3/4	1/2	2.2
86	7/16	3/8	#6	1 1/8	1 11/16	2 1/4	3 5/8	5 3/4	3/8	7/8	9/16	3.3
87	1/2	7/16	#7	1 3/8	1 15/16	2 3/4	4 1/16	6 3/8	3/8	1	11/16	4.7

Rigging Hardware

Wedge-type Ferrules

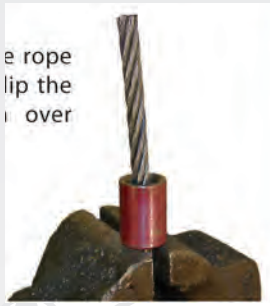
Rope Size	Color	Outside Dia.	Outside Length	Wt.	Wedge Size
3/8", 7/16"	Silver	1-1/8"	1-3/8"	0.25	#4
1/2", 9/16"	Lt. Blue	1-1/8"	1-3/8"	0.25	#4
9/16", 5/8"	Pink	1-1/2"	1-3/4"	0.5	#5
9/16", 5/8"	Maroon	1-5/8"	2"	0.75	#5
3/4"	Grey	1-5/8"	2"	0.75	#6
3/4"	White	2-1/8"	2-5/8"	1.75	#6
7/8"	Black	2-1/8"	2-5/8"	1.75	#7
1"	Green	2-1/8"	2-5/8"	2.75	#8
7/8"	Red	2-3/8"	2-3/4"	1.5	#7
1"	Navy	2-3/8"	2-3/4"	2	#8
1-1/8"	Yellow	2-3/8"	2-3/4"	2	#9
1-1/4"	Orange	2-3/8"	2-3/4"	2.22	#10

Ferrules are made of high strength alloy steel and feature a two-piece wedge that is rifled to provide more gripping surface on the wire rope strands and greater holding power.
Machined wedge-type ferrules permit the make up or repair of chokers and winch lines in minutes - No molten socket metal or swaging equipment is required.

*Wedge-type ferrules are intended only for use with 6x19 or 6x37 class RRL IWRC only!

Rigging Hardware

PROPER WEDGE BUTTONING



Step 1.
Secure the wire rope in a vise and slip the wedge button over the rope.

Step 2.
Carefully spread strands with a marlin spike or screwdriver and slip one wedge at a time between strands.

Step 3.
Make sure both wedges are evenly inserted between the wire rope strands.

Step 4.
Gently tap top of wedges until they are even with the ends of the wire rope strands.

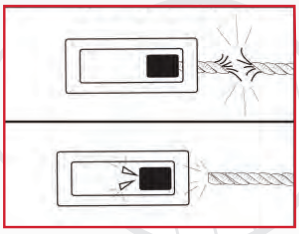
Step 5.
Loosen vise to allow the wire rope to drop down into wedge button. Using a hammer and a small tube that fits between the strands (e.g. a Flemish Eye Sleeve). Drive wedges into button until the tops of the wedges and button are even.

Step 6.
The strands of wire rope should protrude roughly 1/4" past the top of the wedge button. Once the first load is applied, the wedge will seat firmly into the wedge button.

⚠ WARNING

Wire rope and Wedge Buttons WILL FAIL if worn-out, overloaded, misused, damaged, improperly maintained or abused.
Wire Rope or Wedge Button failure can cause serious injury or death!
Protect yourself and others:

- **NEVER USE Wedge Buttons for overhead lifting.**
- **ALWAYS INSPECT wire rope button and wedges for WEAR, DAMAGE, or ABUSE BEFORE USE>**
- **NEVER USE wire rope button and wedges that are WORN_OUT, DAMAGED, or ABUSED.**
- **NEVER OVERLOAD a wire rope or wedge button assembly by exceeding the working load limit.**
- **INFORM YOURSELF; Read and understand the manufacturer's literature, warnings, and instructions. ***
- **REFER TO APPLICATION CODES, STANDARDS, and REGULATIONS for INSPECTION REQUIREMENTS and REMOVAL.**
- **NEVER shock load wire rope or Wedge Buttons.**

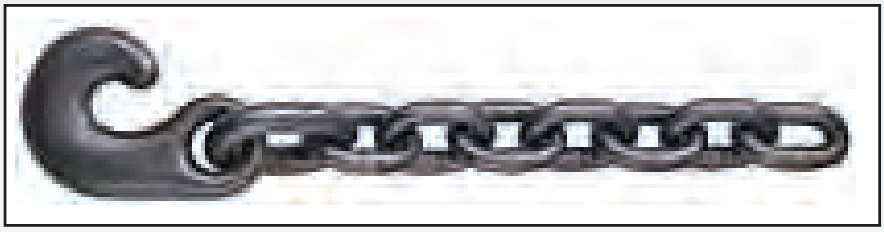


TAIL CHAIN

WINCH LINE TAIL CHAIN

Winch Line Tail Chain is a flexible attachment for use on the end of wire rope. Primarily intended for use on truck and tractor winch lines. Length specified is exclusive of hook. Use same size chains as wire rope. The hook is dropped forged alloy steel and heat treated for extra durability. The hook is designed to prevent wear on wire rope.

Grade 80				
Trade Size	No. of Links	Approximate Length Excluding Hook	WLL Lbs.	Weight Lbs.
1/2"X18"	10	14"	12,000	6
5/8" X 18"	8	16"	18,100	10
3/4" X 18"	8	19-5/8"	28,300	14
7/8" X 24"	9	24"	34,200	23
1" X 24"	7	20-3/8"	47,400	24
1 - 1/8"	5	18"	47,700	21
1 - 1/8"	7	24"	47,700	23
1 - 1/4"	5	24"	72,300	40



WARNING! READ THIS BEFORE USING YOUR LSG SNAKE

GUIDELINES FOR PROPER INSTALLATION AND USE OF LEWIS "LSG SNAKE" ROPE & CABLE CONNECTOR GRIP

1. Safety is always No. 1. Make sure no one is under the line as it is being pulled through the blocks and crown. DO NOT stand below or near the drilling line under tension, severe injury or death could occur.

2. Be sure that the right size range grips are being used for the line or rope being pulled. For example, for 13/8" drilling line, use the LSG 1 - 11/2" 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 each use.

5. Once the snake is loaded properly, Band AND Tape (use electrical tape) over the tail end of each grip using a BAND-IT® brand banding tool. Apply a Second Band AND Tape 4 to 6 inches apart from the first.

6. If you have any questions or comments regarding the safe usage of your LSG Snake, please contact Horizon Cable .

Rigging Hardware

WIRE ROPE GRIPS

Lewis Snake Grip LSG

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 and taping.

REGULAR SIZE LSG SNAKES

Part No/ 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" X 1 1/2"	10,000 lbs.	3,500 lbs.
LSG 1 1/2" X 2"	12,000 lbs.	4,000 lbs.
LSG 2" X 2 3/4"	16,000 lbs.	5,000 lbs.
LSG 2 3/4" X 3 1/2"	20,000 lbs.	6,500 lbs.
LSG 3 1/2" X 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" - 1/2"	4,400 lbs.	1,200 lbs.
LSG 1/2" - 1 1/2"	7,500 lbs.	2,500 lbs.
LSG 1/2" x 2"	7,500 lbs.	2,500 lbs.
LSG 1" X 2"	10,000 lbs.	3,500 lbs.
LSG 1 1/2" x 2 1/2"	12,000 lbs.	4,000 lbs.

*Special size snakes handle 2 different rope sizes at the same time.

Lewis Snake Grip LSG-X

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.

REGULAR SIZE LSG 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-X1" X 1 1/2"	10,000 lbs.	3,500 lbs.
LSG-X 1 1/2" X 2"	12,000 lbs.	4,000 lbs.
LSG-X 2" X 2 3/4"	16,000 lbs.	5,000 lbs.
LSG-X 2 3/4" X 3 1/2"	20,000 lbs.	6,500 lbs.
LSG-X 3 1/2" X 4 1/4"	24,000 lbs.	8,000 lbs.

SPECIAL SIZE LSG 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 1/2"	7,500 lbs.	2,500 lbs.
LSG-X 1/2" x 2"	7,500 lbs.	2,500 lbs.
LSG-X 1" X 2"	10,000 lbs.	3,500 lbs.
LSG-X 1 1/2" x 2 1/2"	12,000 lbs.	4,000 lbs.

*Special size snakes handle 2 different rope sizes at the same time.

Rigging Hardware

WIRE ROPE GRIPS

Designed for use when light, compact grip is desired and where conductor damage is not a factor. Gripping pressure of the knurled jaw is applied to 1/4" (6.35 m m) cable area. Has a swing latch to help hold cable in the jaw.

Klein Havens Grip

Product ID No.	Max Safe Load (kg)	Max Safe Load (lbs)	Max. Cable	Min. Cable	Approx. Weight Each (lbs)
1604-10	1134	2500	.25"	.06"	1
1604-20	2268	5000	.50"	.125"	2.08
1625-20	3629	8000	.75"	.28"	4
162520-1	3629	8000	1"	.50"	4
162520-7/8	3629	8000	.88"	.38"	4

1604-10

1604-20

1604-20L

1625-20

162520-1

WARNING

Before each use, clean jaw area and inspect grip for proper operation to avoid slippage. When used on/near energized lines, ground, insulate, or isolate grip before pulling.
Do not exceed rated capacity.
Always match proper size and type of grip to application.
Grips are to be used for temporary installation, not for permanent anchorage.

Rigging Hardware

WIRE ROPE PULLERS

CABLE PULLERS ARE VERY VERSATILE TOOLS WHICH ARE COMMONLY USED ON CONSTRUCTION SITES, FOR LAYING OF LARGE PIPES, INSTALLATION AND ADJUSTMENTS OF MACHINES, LOADING AND UNLOADING HEAVY AND BULKY GOODS, TENSIONING CABLES, TOWER ERECTING, STACKING OF FOREST PRODUCTS AND THE REMOVAL OF OBSTACLES.

- COMPACT, LIGHT WEIGHT UNITS
- EXTENDABLE OPERATING LEVER INCLUDED WITH ALL UNITS
- LOW MAINTENANCE REQUIREMENTS
- UNITS ARE SUPPLIED WITHOUT CABLE ASSEMBLY
- ALUMINUM-ALLOY HOUSING
- HEAVY DUTY DESIGN, ENSURES A LONG AND RELIABLE SERVICE LIFE
- DESIGNED AND OPERATED IN A NY POSITION TO LIFT, PULL OR LOWER MATERIALS
- THE FRONT AND BACK CLAMPING SYSTEM PROVIDE A LARGE SURFACE CONTACT AREA WHICH EVENLY DISTRIBUTES THE CABLE GRIP
- REDUCING CABLE WEAR WHILE MAXIMIZING USER SAFETY
- THE ROPE CLAMPING SYSTEM CAN BE DISENGAGED WHICH OFFERS SMOOTH AND EASY INSTALLATION OF THE CABLE ASSEMBLIES
- AUTO ADJUST DEVICE AS A STANDARD
- STANDARD OVERLOAD PROTECTION FOR INCREASED OPERATOR SAFETY
- SPECIALLY BUILT IN SHEAR PINS CAN BE REPLACE WITHOUT REMOVING THE LOAD

MODEL NO.	LIFTING CAPACITY LBS	PULLING CAPACITY LBS	ROPE ADVANCE PER FULL STROKE (INCHES)	LEVER PULL AT WLL LBS	WEIGHT (without cables) LBS
VGD 8A	1,760	2,750	2.36	55	15.5
VGD 16A	3,520	5,500	2.36	66	31
VGD 32A	7,040	11,000	1.57	110	51

WIRE ROPE ASSEMBLIES

ROPE ASSEMBLIES COME COMPLETE WITH ALLOY HOOK AND LATCH
GALVANIZED CABLE OFFERS EXCELLENT CORROSION RESISTANCE AND LONGER SERVICE LIFE REUSABLE REEL

NOTE: THE WIRE ROPE USED FOR THESE ASSEMBLIES MUST CONFORM WITH OR EXCEED THE FOLLOWING ROPE SPECIFICATIONS:

CONSTRUCTION	DIAMETER X LENGTH*	WEIGHT (LBS)
6X19W+IWS	5/16"X66'	16
6X19W+IWS	7/16"X66'	30
6X19W+IWR	5/8"X66'	46

*CUSTOM LENGTHS AVAILABLE UPON REQUEST

Rigging Hardware

OVERHAUL BALLS

TOP SWIVELING OVERHAUL BALLS

Eye Hook

Self Locking Hook

Both styles available with optional Wedge Socket Assembly or S-421 TERMINATOR™ Wedge Socket

UWO 422T TERMINATOR™ Wedge Only

- Sizes 4 tons through 10 tons available with self locking hook which may be used for lifting personnel. Meets OSHA Rule 1926.1431(g).
- Design Factor 4:1.
- The top swivel design on the UB500 assures the ball remains stationary if the wire line spins.
- The swivel incorporates a sealed roller thrust bearing together with a grease fitting for easy lubrication.
- Each ball can be equipped with the new US-422T Wedge Socket which can be easily adjusted to fit various sizes of wire rope by changing the wedge (Ensure that correct wedge is used for selected wire rope size).

Overhaul Ball Assembly					Optional US-422T Wedge Sockets					
UB500 Model No.	Eye Hook Stock No.	Self Locking Hook Stock No.	Working Load Limit (tons)	Weight Each (lbs.)	Wire Rope Size (in.)	Model No.	Wedge Socket Assy. Stock No.	Weight Each (lbs.)	Wedge Only Stock No.	Weight Each (lbs.)
MB4T35	1036000*	1036005	4	58	3/8	US4T	1044300	4.6	1047310	0.6
MB4T85	1036009*	1036018	4	102	7/16	US4T	1044309	4.6	1047301	0.6
MB4T150	1036027*	1036032	4	162	1/2	US4T	1044318	4.6	1047329	0.6
MB4T200	1036036*	1036041	4	201	1/2	US5T	1044327	8.5	1047338	1.0
MB7T85	1036045*	1036050	7	109	9/16	US5T	1044336	8.5	1047347	1.0
MB7T150	1036054*	1036063	7	170	5/8	US5T	1044345	8.5	1047356	1.0
MB7T200	1036072*	1036077	7	210	5/8	US6T	1044354	9.4	1047365	1.4
MB7T285	1036081*	1036086	7	321	3/4	US6T	1044363	9.4	1047374	1.4
MB10T150	1036090*	1036095	10	216						
MB10T200	1036099*	1036108	10	260						
MB10T285	1036117*	1036122	10	365						
MB10T350	1036126*	1036131	10	403						
MB10T650	1036135*	1036140	10	718	5/8	US6T	1044354	9.4	1047365	2.3
MB12T150	1036144*	—	12	216	3/4	US6T	1044363	9.4	1047374	2.4
MB12T200	1036153*	—	12	258	7/8	US8T	1044404	20.8	1047425	5.3
MB12T285	1036171*	—	12	365	1	US8T	1044417	20.8	1047431	6.0
MB12T350	1036180*	—	12	403	1-1/8	US10T	1044426	46.5	1047440	9.6
MB12T650	1036189*	—	12	718	1-1/4	US10T	1044435	46.5	1047459	10.5
MB15T200	1036198*	—	15	298						
MB15T350	1036207*	—	15	456						
MB15T650	1036216*	—	15	753						
MB15T1150	1036225*	—	15	1311						
MB20T200	1036234*	—	20	298						
MB20T350	1036243*	—	20	456	5/8	US8AT	1044372	17.5	1047383	3.1
MB20T650	1036252*	—	20	753	3/4	US8AT	1044381	17.5	1047392	3.4
MB20T1150	1036261*	—	20	1311	7/8	US8T	1044404	20.8	1047425	5.3
MB25T350	1036270	—	25	533	1	US8T	1044417	20.8	1047431	6.0
MB25T650	1036279	—	25	865	1-1/8	US10T	1044426	46.5	1047440	9.6
MB25T1150	1036288	—	25	1421	1-1/4	US10T	1044435	46.5	1047459	10.5
MB30T650	1036297	—	30	865						
MB30T1150	1036306	—	30	1421						

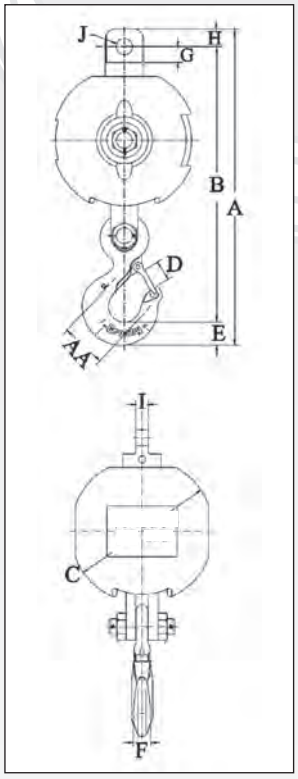
* Utilizes "N" style hooks with integrated latch. Replacement latch kit is S-4320. PL latch and S-4055 latch will not fit.
Standard S-5 Thrust style swivels can not be used with UB500 Overhaul Balls.

Rigging Hardware

OVERHAUL BALLS

TOP SWIVEL OVERHAUL BALLS

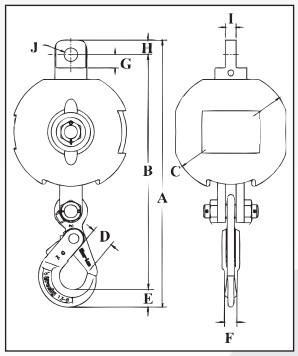
Top Swivel Overhaul Balls with Eye Hooks



Model No.*	Eye Hook Stock No.	Dimensions (in.)										
		A	B	C	D	E	F	G	H	I	J	AA
MB4T35*	103600	20.09	17.27	7.50	1.36	1.44	1.12	1.88	1.38	.88	1.31	2.5
MB4T85*	103600	20.98	18.16	9.25	1.36	1.44	1.12	1.88	1.38	.88	1.31	2.5
MB4T150*	103602	21.98	19.16	11.25	1.36	1.44	1.12	1.88	1.38	.88	1.31	2.5
MB4T200*	103603	22.35	19.53	12.50	1.36	1.44	1.12	1.88	1.38	.88	1.31	2.5
MB7T85*	1036045	23.18	20.36	9.25	1.61	1.81	1.38	1.88	1.38	.88	1.31	3.0
MB7T150*	1036054	24.56	21.36	11.25	1.61	1.81	1.38	1.88	1.38	.88	1.31	3.0
MB7T200*	1036072	24.89	21.71	12.50	1.61	1.81	1.38	1.88	1.38	.88	1.31	3.0
MB7T285*	1036081	25.86	22.67	13.88	1.61	1.81	1.38	1.88	1.38	.88	1 31	3.0
MB10T150*	1036090	31.44	27.19	11.25	2.08	2.25	1.62	2.75	2.00	.88	1.78	4.0
MB10T200*	1036099	31.81	27.56	12.50	2.08	2.25	1.62	2.75	2.00	1.25	1.78	4.0
MB10T285*	1036117	32.75	28.50	13.88	2.08	2.25	1.62	2.75	2.00	1.25	1.78	4.0
MB10T350*	1036126	33.31	29.06	15.00	2.08	2.25	1.62	2.75	2.00	1.25	1.78	4.0
MB10T650*	1036135	34.79	30.54	17.94	2.08	2.25	1.62	2.75	2.00	1.25	1.78	4.0
MB12T150*	1036144	31.44	27.19	11.25	2.08	2.25	1.62	2.75	2.00	1.25	1.78	4.0
MB12T200*	1036153	31.81	27.56	12.50	2.08	2.25	1.62	2.75	2.00	1.25	1.78	4.0
MB12T285*	1036171	32.75	28.50	13.88	2.08	2.25	1.62	2.75	2.00	1.25	1.78	4.0
MB12T350*	1036180	33.31	29.06	15.00	2.08	2.25	1.62	2.75	2.00	1.25	1.78	4.0
MB12T650*	1036189	35.79	30.54	17.94	2.08	2.25	1.62	2.75	2.00	1.25	1.78	4.0
MB15T200*	1036198	37.59	32.59	12.50	3.02	3.00	2.38	2.38	2.00	1.25	1.78	5.0
MB15T350*	1036207	38.81	33.81	15.00	3.02	3.00	2.38	2.38	2.00	1.25	1.78	5.0
MB15T650*	1036216	40.22	35.22	17.94	3.02	3.00	2.38	2.38	2.00	1.25	1.78	5.0
MB15T1150*	1036225	42.22	37.22	21.62	3.02	3.00	2.38	2.38	2.00	1.25	1.78	5.0
MB20T200*	1036234	37.59	32.59	12.50	3.02	3.00	2.38	2.38	2.00	1.25	1.78	5.0
MB20T350*	1036243	38.81	33.81	15.00	3.02	3.00	2.38	2.38	2.00	1.25	1.78	5.0
MB20T650*	1036252	40.22	35.22	17.94	3.02	3.00	2.38	2.38	2.00	1.25	1.78	5.0
MB20T1150*	1036261	42.22	37.22	21.62	3.02	3.00	2.38	2.38	2.00	1.25	1.78	5.0
MB25T350	1036270	47.18	40.18	15.00	3.00	3.62	3.00	3.31	2.75	1.75	1.78	6.5
MB25T650	1036279	49.12	42.75	17.94	3.00	3.62	3.00	3.31	2.75	1.75	1.78	6.5
MB25T1150	1036288	51.06	44.69	21.62	3.00	3.62	3.00	3.31	2.75	1.75	1.78	6.5
MB30T650	1036297	49.12	42.75	17.94	3.00	3.62	3.00	3.31	2.75	1.75	1.78	6.5
MB30T1150	1036306	51.06	44.69	21.62	3.00	3.62	3.00	3.31	2.75	1.75	1.78	6.5

* 4 ton thru 20 ton models use "N" style hooks with integrated latch.

Top Swivel Overhaul Balls with Self Locking Hooks



Model No.	Self Locking Hook Stock No.	Dimensions (in.)									
		A	B	C	D	E	F	G	H	I	J
MB4T35	1036005	20.66	18.18	7.50	1.83	1.15	.94	1.88	1.38	.88	1.31
MB4T85	1036018	21.55	19.05	9.25	1.83	1.15	.94	1.88	1.38	.88	1.31
MB4T150	1036032	22.55	20.05	11.25	1.83	1.15	.94	1.88	1.38	.88	1.31
MB4T200	1036041	22.92	20.42	12.50	1.83	1.15	.94	1.88	1.38	.88	1.31
MB7T85	1036050	23.90	21.30	9.25	2.11	1.66	1.16	1.88	1.38	.88	1.31
MB7T150	1036063	25.28	22.30	11.25	2.11	1.66	1.16	1.88	1.38	.88	1.31
MB7T200	1036077	25.61	22.65	12.50	2.11	1.66	1.16	1.88	1.38	.88	1.31
MB7T285	1036086	26.58	23.61	13.88	2.11	1.66	1.16	1.88	1.38	.88	1.31
MB10T150	1036095	31.24	27.19	11.25	2.49	2.06	1.50	2.75	2.00	1.25	1.78
MB10T200	1036108	31.61	27.56	12.50	2.49	2.06	1.50	2.75	2.00	1.25	1.78
MB10T285	1036122	32.55	28.50	13.88	2.49	2.06	1.50	2.75	2.00	1.25	1.78
MB10T350	1036131	33.11	29.06	15.00	2.49	2.06	1.50	2.75	2.00	1.25	1.78
MB10T650	1036140	34.59	30.54	17.94	2.49	2.06	1.50	2.75	2.00	1.25	1.78

Rigging Hardware

OVERHAUL BALLS

NON SWIVELING OVERHAUL BALLS

Eye Hook

Self locking Eye Hook

Both styles available with optional Wedge Socket Assembly

UWO 422T TERMINATOR™ Wedge Only

- Sizes 4 tons through 10 tons available with self locking hook which may be used for lifting personnel. Meets OSHA Rule 1926.1431(g).
- Design Factor 4:1.
- Each ball can be equipped with the new US-422T Wedge Socket which can be easily adjusted to fit various sizes of wire rope by changing the wedge (Ensure that correct wedge is used for selected wire rope size).

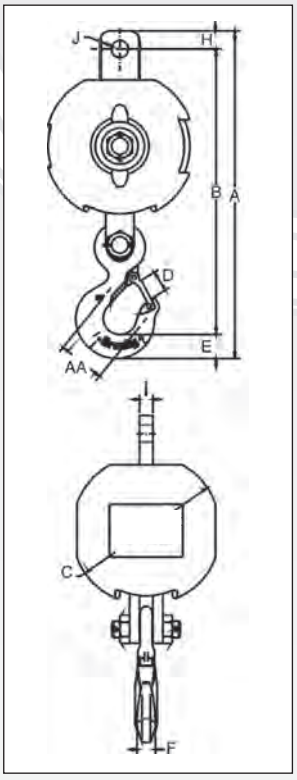
Overhaul Ball Assembly					Optional US-422T Wedge Sockets					
McKissick * UB500 Model No.	Eye Hook Stock No.	Self Locking Hook Stock No.	Working Load Limit (tons)	Weight Each (lbs.)	Wire Rope Size (in.)	Model No.	Wedge Socket Assy. Stock No.	Weight Each (lbs.)	Wedge Socket Assy. Stock No.	Weight Each (lbs.)
MB4NS35	1036402*	1036407	4	54						
MB4NS85	1036411*	1036416	4	98	3/8	US4T	1044300	4.6	1047310	0.6
MB4NS150	1036420*	1036425	4	158	7/16	US4T	1044309	4.6	1047301	0.6
MB4NS200	1036429*	1036434	4	200	1/2	US4T	1044318	4.6	1047329	0.6
MS7NS85	1036438*	1036443	7	104	1/2	US5T	1044327	8.5	1047338	1.0
MB7NS150	1036447*	1036452	7	165	9/16	US5T	1044336	8.5	1047347	1.0
MB7NS200	1036456*	1036461	7	205	5/8	US5T	1044345	8.5	1047356	1.0
MB7NS285	1036465*	1036470	7	316	5/8	US6T	1044354	9.4	1047365	1.4
MB10NS150	1036474*	1036479	10	198	3/4	US6T	1044363	9.4	1047374	1.4
MB10NS200	1036483*	1036488	10	242						
MB10NS285	1036492*	1036497	10	347						
MB10NS350	1036501*	1036506	10	385	5/8	US6T	1044354	9.4	1047365	1.4
MB10NS650	1036510*	1036511	10	700	3/4	US6T	1044363	9.4	1047374	1.4
MB12NS150	1036519*	—	12	198	7/8	US8T	1044404	20.8	1047425	7.6
MB12NS200	1036528*	—	12	240	1	US8T	1044417	20.8	1047431	8.6
MB12NS285	1036537*	—	12	347	1-1/8	US10T	1044426	46.5	1047440	12.5
MB12NS350	1036546*	—	12	385	1-1/4	US10T	1044435	46.5	1047459	15.0
MB12NS650	1036555*	—	12	700						
MB15NS200	1036564*	—	15	267	5/8	US8AT	1044372	17.5	1047383	4.3
MB15NS350	1036573*	—	15	425	3/4	US8AT	1044381	17.5	1047392	4.8
MB15NS650	1036582*	—	15	722	7/8	US8T	1044404	20.8	1047425	7.6
MB15NS1150	1036591*	—	15	1280	1	US8T	1044417	20.8	1047431	8.6
					1-1/8	US10T	1044426	46.5	1047440	12.5
					1-1/4	US10T	1044435	46.5	1047459	15.0

* Utilizes "N" style hooks with integrated latch. Replacement latch kit is S-4320. PL latch and S-4055 latch will not fit.

OVERHAUL BALLS

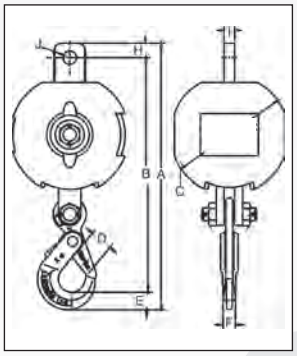
NON SWIVEL OVERHAUL BALLS

Non Swivel Overhaul Balls with Eye Hooks



Model No.	Eye Hook Stock No.	Dimensions (in.)									
		A	B	C	D	E	F	H	I	J	AA
MB4NS35	1036402	20.09	17.27	7.5	1.36	1.44	1.12	1.38	0.75	1.31	2.5
MB4NS85	1036411	20.98	18.16	9.25	1.36	1.44	1.12	1.38	0.75	1.31	2.5
MB4NS150	1036420	21.98	19.16	11.25	1.36	1.44	1.12	1.38	0.75	1.31	2.5
MB4NS200	1036429	22.35	19.53	12.5	1.36	1.44	1.12	1.38	0.75	1.31	2.5
MB7NS85	1036438	23.18	20.36	9.25	1.61	1.81	1.38	1.38	0.75	1.31	3.0
MB7NS150	1036447	24.56	21.36	11.25	1.61	1.81	1.38	1.38	0.75	1.31	3.0
MB7NS200	1036456	24.89	21.71	12.5	1.61	1.81	1.38	1.38	0.75	1.31	3.0
MB7NS285	1036465	25.86	22.67	13.88	1.61	1.81	1.38	1.38	0.75	1.31	3.0
MB10NS150	1036474	31.44	27.19	11.25	2.08	2.25	1.62	2.00	1.25	1.78	4.0
MB10NS200	1036483	31.81	27.56	12.5	2.08	2.25	1.62	2.00	1.25	1.78	4.0
MB10NS285	1036492	32.75	28.5	13.88	2.08	2.25	1.62	2.00	1.25	1.78	4.0
MB10NS350	1036501	33.31	29.06	15.00	2.08	2.25	1.62	2.00	1.25	1.78	4.0
MB10NS650	1036510	34.79	30.54	17.94	2.08	2.25	1.62	2.00	1.25	1.78	4.0
MB12NS150	1036519	31.44	27.19	11.25	2.08	2.25	1.62	2.00	1.25	1.78	4.0
MB12NS200	1036528	31.81	27.56	12.5	2.08	2.25	1.62	2.00	1.25	1.78	4.0
MB12NS285	1036537	32.75	28.5	13.88	2.08	2.25	1.62	2.00	1.25	1.78	4.0
MB12NS350	1036546	33.31	29.06	15.00	2.08	2.25	1.62	2.00	1.25	1.78	4.0
MB12NS650	1036555	35.79	30.54	17.94	2.08	2.25	1.62	2.00	1.25	1.78	4.0
MB15NS200	1036564	37.59	32.59	12.5	3.02	3.00	2.38	2.00	1.25	1.78	5.0
MB15NS350	1036573	38.81	33.81	15.00	3.02	3.00	2.38	2.00	1.25	1.78	5.0
MB15NS650	1036582	40.22	35.22	17.94	3.02	3.00	2.38	2.00	1.25	1.78	5.0
MB15NS1150	1036591	42.22	37.22	21.62	3.02	3.00	2.38	2.00	1.25	1.78	5.0

Non Swivel Overhaul Balls with Self Locking Hooks



Model No.	Self Locking Hook Stock No.	Dimensions (in.)								
		A	B	C	D	E	F	H	I	J
MB4NS35	1036407	20.66	18.18	7.5	1.83	1.15	0.94	1.38	0.75	1.31
MB4NS85	1036416	21.55	19.05	9.25	1.83	1.15	0.94	1.38	0.75	1.31
MB4NS150	1036425	22.55	20.05	11.25	1.83	1.15	0.94	1.38	0.75	1.31
MB4NS200	1036434	22.92	20.42	12.5	1.83	1.15	0.94	1.38	0.75	1.31
MB7NS85	1036443	23.9	21.3	9.25	2.11	1.66	1.16	1.38	0.75	1.31
MB7NS150	1036452	25.28	22.3	11.25	2.11	1.66	1.16	1.38	0.75	1.31
MB7NS200	1036461	25.61	22.65	12.5	2.11	1.66	1.16	1.38	0.75	1.31
MB7NS285	1036470	26.58	23.61	13.88	2.11	1.66	1.16	1.38	0.75	1.31
MB10NS150	1036479	31.24	27.19	11.25	2.49	2.06	1.5	2.00	1.25	1.78
MB10NS200	1036488	31.61	27.56	12.5	2.49	2.06	1.5	2.00	1.25	1.78
MB10NS285	1036497	32.55	28.5	13.88	2.49	2.06	1.5	2.00	1.25	1.78
MB10NS350	1036506	33.11	29.06	15.00	2.49	2.06	1.5	2.00	1.25	1.78
MB10NS650	1036511	34.59	30.54	17.94	2.49	2.06	1.5	2.00	1.25	1.78

Rigging Hardware

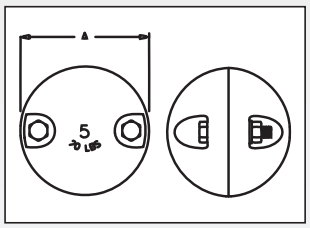
OVERHAUL BALLS

SPLIT OVERHAUL BALLS

Split Overhaul Ball

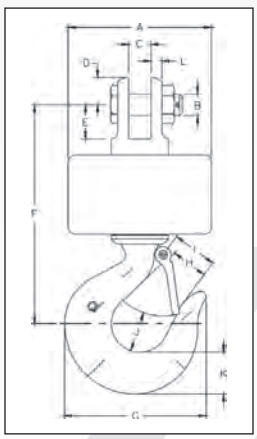
- Attaches easily to Wire Rope.

Catalog No.	Stock No.	Wire Rope Size (in.)	Weight Each (lbs.)	Belt Diameter A (in.)
SHB - 15	2003822	1/4-5/16	15	5.06
SHB - 20	2003830	3/8	20	5.38
SHB - 50	2003831	1/2 - 5/8	50	7.12
SHB - 100	200383	5/8 - 3/4 - 7/8	100	9.19



- Entire overhaul ball is zinc plated to resist corrosion.
- Designed with angular contact bearings which maximize efficiency, reliability and service life of swivel and extend the life of the wire rope.
- Available with wide jaw opening that utilizes nylon spools and shields.
- Designed for applications where headroom is critical.
- Other upper fittings available upon request.

Angular Contact Bearing Swivel Overhaul Balls



AS-15 Stock No.	Working Load Limit (Tons)*	Wire Rope Size (in.)	Dimensions (in.)												Weight Each (lbs.)
			A	B	C	D	E	F	G	H	I	J	K	L	
2009806	1.5	.38	4.00	.50	.50	.69	.78	6.28	4.09	1.12	1.22	1.19	1.12	.31	9
2009807	3.0	.50	5.00	.75	.75	.94	1.19	8.56	4.94	1.34	1.50	1.38	1.44	.38	19
2003969	5.0	.62	6.88	.88	1.06	1.12	1.56	10.81	6.50	1.69	1.88	1.75	1.81	.56	43
2009808	8.5	.75	7.00	1.19	1.56	1.34	2.09	13.75	8.69	2.25	2.50	2.56	2.59	.53	60

* Ultimate Load is 5 times the Working Load Limit.

Rigging Hardware

MANUAL CUTTERS

These self-contained hydraulic cutters are precision engineered tools designed to give a clean cut with minimum effort. Just pump the handle, no outside power is required. Able to be easily carried, these models are favorites of contractors, rigging lofts and elevator repairmen, and are recommended by wire rope manufacturers worldwide. All three models will operate under water with a slight modification.

Model W-075
3/4" capacity

Model P-1125
1 1/8" capacity

Model C-1750
1 3/4" capacity

IMPACT CUTTERS

Actuated by striking with a hammer, they are easy to operate and give superior performance without jamming. They are precision-engineered to deliver a clean cut without affecting the original roundness of the wire rope. The blades and dies are made of the finest tool steel available, heat-treated, and ground to close tolerances.

Model 1
3/4" capacity

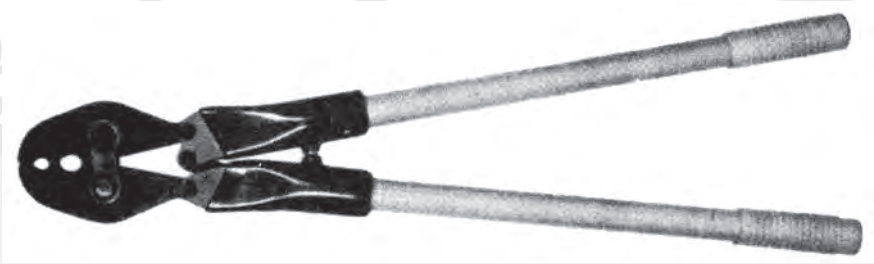
Model 1A
1 1/16" capacity

Model 2
1 1/2" capacity

SWAGING TOOLS FOR COPPER AND ALUMINUM SLEEVES

No. 2 HAND SWAGER

TOOL NUMBER	WILL SWAGE		LENGTH	WT.
	DUPLEX FERRULES	*BUTTON STOPS		
No. 2 Hand Swager	7/32	7/32	33	8
	1/4	1/4	33	8
	9/32	9/32	33	8
	5/16	5/16	33	8



No. 2 HAND SWAGER

Interchangeable dies supply the versatility of compressing either aluminum or copper duplex sleeves, or button stops. Individual dies are available for each size and insert in the jaws of tool. Extra long handle for excellent leverage. Dies are not included with tool and must be ordered seperately.

DIES FOR No. 2 HAND TOOL		WT. OZ.
DUPLEX FERRULES	*BUTTON STOPS	
7/32	7/32	.3
1/4	1/4	.3
9/32	9/32	.3
5/16	5/16	.3

***Tools Above Will Swage Both Aluminum and Copper In Sizes Specified Above.**

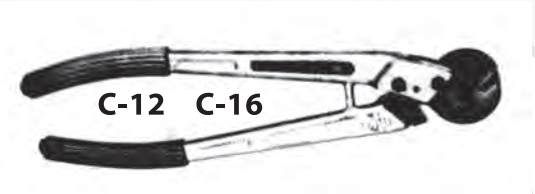
2 PIECE SWAGING DIE FOR No. 2 HAND ABOVE

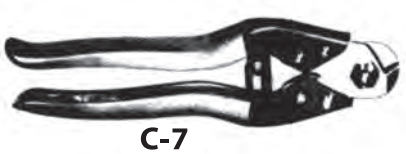
Die Inserts In Jaws of No. 2 Hand Tool.
Separate Die Needed For Each Size.

PRECISION CABLE CUTTERS

TOOL NUMBER	WILL CUT TO:	LENGTH	WT. IN LBS.
C-7	3/16	7 1/2	1.0
C-9	1/4	13	1.5
C-12	3/8	19	4.0
C-16	5/8	23	6.0

NOTE: Cutting Jaws can be replaced on C-12 and C-16





C-7

SWAGING TOOLS FOR COPPER AND ALUMINUM SLEEVES

3 CAVITY HAND TOOL

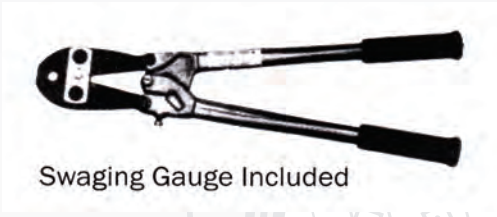
TOOL NUMBER	WILL SWAGE DUPLEX FERRULES	LENGTH	WT.
0-00	1/32, 3/64, 1/16	10	10

SINGLE HAND TOOL

TOOL NUMBER	WILL SWAGE		LENGTH	WT.
	DUPLEX FERRULES	*BUTTON STOPS		
0 - 3/64	3/64	3/64	8	0.5
0 - 1/16	1/16	1/16	8	0.5

SINGLE CAVITY TOOL TUBULAR HANDLE

TOOL NUMBER	WILL SWAGE		LENGTH	WT.
	DUPLEX FERRULES	*BUTTON STOPS		
0 - 3/32	3/32	3/32 - 1/8	18 1/2	3.5
0 - 1/8	1/8	5/32 - 3/16	18 1/2	3.5
0 - 5/32	5/32	7/32	18 1/2	3.5
0 - 3/16	3/16		18 1/2	3.5
0 - 1/4	1/4	1/4 + 5/16	28	6.0
0 - 5/16	5/16		28	6.0



***Tools Above Will Swage Both Aluminum and Copper In Sizes Specified Above.**

SWAGING TOOLS

5 CAVITY HAND SWAGER

TOOL NUMBER	WILL SWAGE		LENGTH	WT.
	DUPLEX FERRULES	*BUTTON STOPS		
No. 1 Hand Tool	1/16	1/16	26	6.5
	3/32	3/32	26	6.5
	1/8	1/8	26	6.5
	5/32	5/32	26	6.5
	3/16	3/16	26	6.5
		7/32	26	6.5

5 CAVITY HAND SWAGER FEATURES

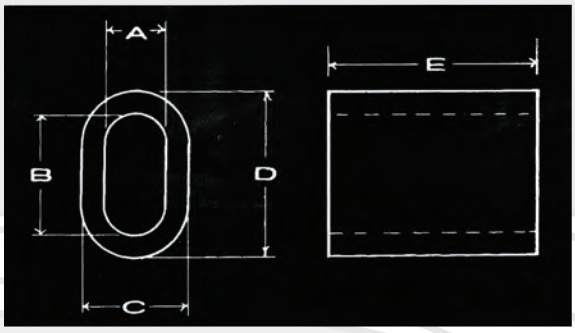
Die Cast Aluminum Handle, Hardened Steel Jaws, Swages 5 Sizes, Swaging Guage included

5 CAVITY BENCH SWAGER

TOOL NUMBER	WILL SWAGE		LENGTH	WT.
	DUPLEX FERRULES	*BUTTON STOPS		
No. 1 Bench Tool	1/16	1/16	20	7
	3/32	3/32	20	7
	1/8	1/8	20	7
	5/32	5/32	20	7
	3/16	3/16	20	7
		7/32	20	7

5 CAVITY BENCH SWAGER FEATURES

Similar Jaw Cavities to Hand Tool, but Bench Mounted for In-House Production Quantities. Die Cast Aluminum Handle and Bench Mount, Hardened Steel Jaws, Swaging Gauge included



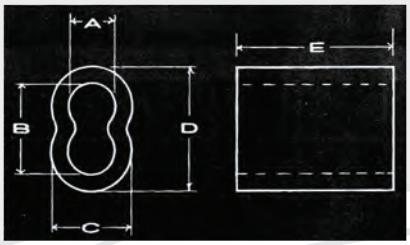
ALUMINUM OVAL SLEEVES

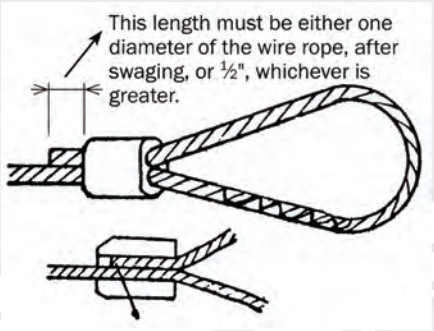
ALUMINUM OVAL SLEEVES are extruded from high quality, seemless alloy and heat treated for cold forming or swaging processes.
The return eye splice using ALUMINUM SLEEVES is made to be used with 6 x 19 or x 37 Class, RRL wire rope.
When properly swaged, this sleeve will attain approximately 95% of IP nominal wire rope strength.
CAUTION: The ALUMINUM SLEEVES must be propery swaged to attain expected strength of the return eye splice of the wire rope.

DIMENSIONS AND DATA

SIZE	A	B	C	D	E LENGTH	AFTER SWAGE O.D.	WT. PER 100
1/4	19/64	19/32	17/32	27/32	1	9/16	2.3
5/16	3/8	3/4	21/32	1 1/32	1 17/64	3/4	4.3
3/8 W.C.	29/64	29/32	13/16	1 1/4	1 17/32	7/8	7.5
1/2	19/32	1 11/64	1 1/32	1 5/8	1 15/16	1 1/8	16.5
5/8	3/4	1 1/2	1 3/8	2 3/32	2 1/2	1 1/4	32
3/4	53/64	1 11/16	1 1/2	2 3/8	2 7/8	1 5/8	52
7/8 H.C.	61/64	1 7/8	1 11/16	2 5/8	3	1 3/4	67
7/8 W.C.	31/32	1 61/64	1 25/32	2 3/4	3 11/32	1 7/8	82
1 H.C.	1 3/32	2 7/32	1 31/32	3 3/32	3 3/4	2	125
1 W.C.	1 3/16	2 3/8	2 7/64	3 19/64	3 7/8	2 1/8	133
1 1/8	1 9/32	2 9/16	2 5/16	3 19/32	4 9/32	2 5/16	172
1 1/4	1 1/32	2 25/32	2 1/2	3 7/8	4 7/16	2 9/16	214
1 1/2	1 21/32	3 19/64	3 1/8	4 3/4	5 35/64	3 3/16	390

Rigging Hardware





ALUMINUM DUPLEX SLEEVES

ALUMINUM DUPLEX SLEEVES, ferrules and buttons are extuded from high quality aluminum alloy and heat treated for cold forming properties.
The return eye splice using DUPLEX ALUMINUM SLEEVES is made to be used with 6 x 19 or x 37 Class, RRL wire rope. When properly swaged, this hourglass shaped sleeve will attain approximately 95% of EIP nominal wire rope strength.
CAUTION: The ALUMINUM DUPLEX SLEEVES must be propery swaged to attain expected strength of the return eye splice of the wire rope.

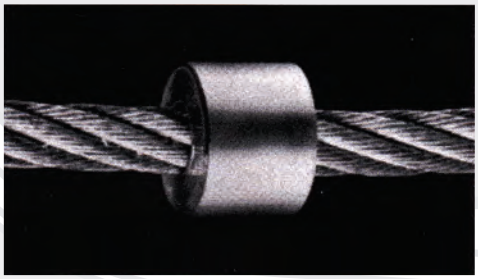
DIMENSIONS AND DATA

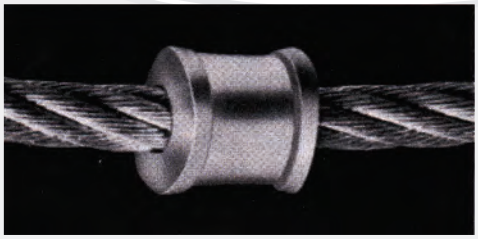
SIZE	A	B	C	D	E LENGTH	AFTER SWAGE O.D.	WT. PER 100
1/16	5/64	5/32	11/64	1/4	3/8	.187	.10
5/64	3/32	3/16	13/64	5/16	3/8	.234	.16
*3/32	1/8	1/4	9/32	13/32	1/2	.281	.30
*1/8	5/32	5/16	11/32	1/2	5/8	.312	.66
*5/32	3/16	3/8	3/8	9/16	11/16	.375	.88
3/16	7/32	7/16	7/16	21/32	1	.437	1.6
7/32	1/4	1/2	1/2	3/4	1 1/16	.500	2.2
1/4	9/32	9/16	17/32	13/16	1 1/8	.563	2.8
9/32	5/16	5/8	9/16	7/8	1 3/16	.625	3.0
5/16	3/8	23/32	11/16	1 1/32	1 1/4	.687	4.6
3/8	7/16	27/32	3/4	1 5/32	1 7/16	.812	5.9
7/16	1/2	1	15/16	1 7/16	1 11/16	1.00	12
1/2	9/16	1 1/8	1 1/16	1 5/8	2	1.12	17
9/16	5/8	1 1/4	1 1/8	1 3/4	2 1/8	1.25	22
5/8	11/16	1 3/8	1 1/4	1 15/16	2 1/2	1.38	31
Comb. 1/8-3/16	DUAL	23/64	7/16	21/32	1	.437	1.6
Thinwall 3/32	1/8	17/64	7/32	3/8	1/2	.218	20
Thinwall 1/8	5/32	5/16	21/64	31/64	5 /8	.296	.61
Thinwall 5/32	13/64	25/64	3/8	37/64	11/16	.350	.81
Thinwall 1/2	17/32	1 1/64	27/32	1 11/32	2	.938	11

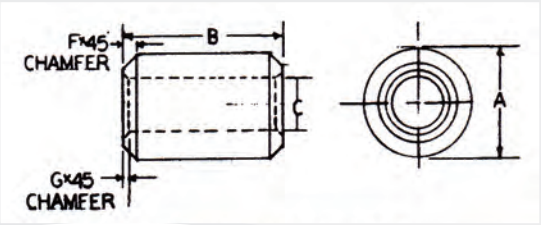
*Also available in copper (ideal for non-rusting permenant splices).

Rigging Hardware

ALUMINUM BUTTON STOPS







DIMENSIONS AND DATA

CABLE SIZE	A	B	C	AFTER SWAGE O.D.	WT. PER 100
1/16	1/4	7/32	3/32	.187	.06
3/32	11/32	11/32	1/8	.245	.25
1/8	11/32	11/32	5/32	.245	.24
5/32	7/16	11/32	3/16	.325	.38
3/16	7/16	11/32	7/32	.325	.35
7/32	7/16	5/8	1/4	.325	.63
1/4	11/16	11/16	9/32	.580	2.06
5/16	43/64	11/16	5/16	.590	1.92

*Also available in copper (ideal for non-rusting permenant splices).

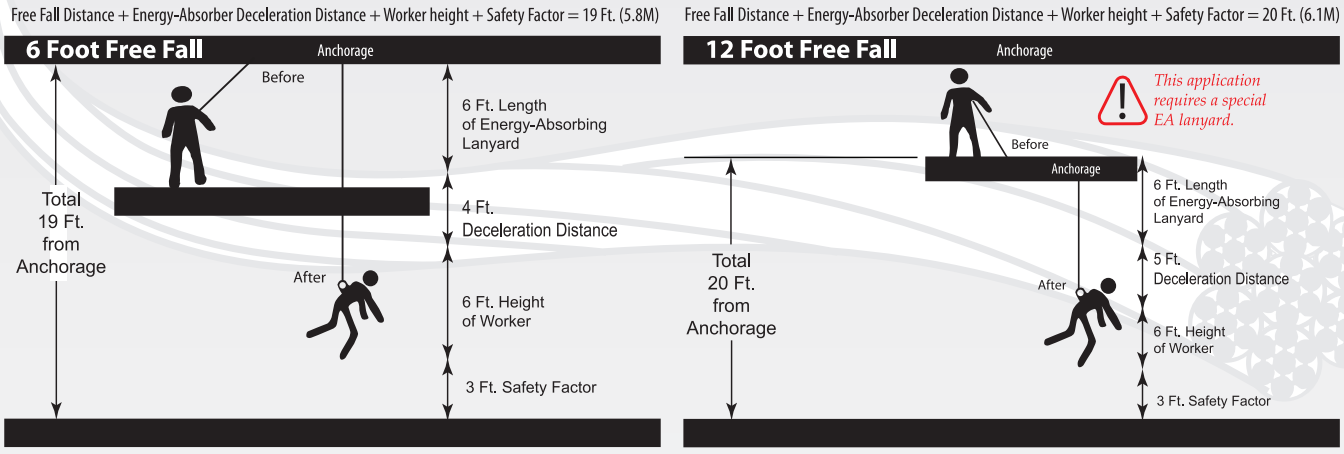
9/32" AND 5/16" AVAILABLE UPON REQUEST

Fall Protection

Fall Protection

HARNESSES

Fall Calculation



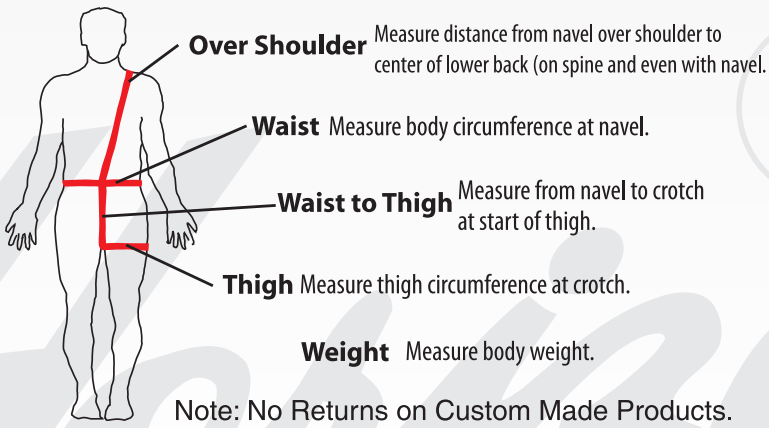
Sizing Charts

How to Measure for a Full Body Harnesses (Measurements are over clothing)

Sizing Charts for Full Body Harnesses with Integral Waistbelt

Proper fit is critical for personal safety & working comfort. The charts below specify how to measure your body for the correct fit of Fall Protection equipment.

Size	Waist Measurement Inches	Waist Measurement Centimeters
3XS	20-28	50-70
2XS	24-32	60-80
XS	28-36	70-90
S	32-40	80-100
M	36-44	90-110
L	40-48'	100-120
XL	44-52	110-130
2XL	48-56	120-140
3XL	52-60	130-150



Note: No Returns on Custom Made Products.

Fall Protection

HARNESSES

Introducing the Peregrine Harnesses:

Industry insiders, in concrete construction, have noted the Peregrine's seat strap allows workers to sit back on the seat strap and install rebar in comfort.

Peregrine Platinum Series Harness

- Six D-rings: Aluminum 70° D-ring at back, and on hips, Two aluminum D-rings on seat strap, One steel D-ring on chest strap
- Quick-connect buckles on chest and legs
- Breathable padding on back/shoulder, waist, bar seat, and leg straps
- Pull down adjusters on shoulder straps
- Lanyard parks
- Fall indicators
- Five inch padded backpad with accessory rings
- Removable tool belt
- Four-inch padded seat strap with removable aluminum bar in seat
- Carry-all bag
- Made of polyester and nylon

Available Sizes:

Part Number:		
	(S)	67601
	(M)	67602
	(L)	67603
	(XL)	67604
	(2XL)	67605

Removable aluminum bar in seat

Rear View

Class A, Class P, Class D, Class L — 6D

Raven Platinum Series Harness

- Three D-rings: Aluminum 70° D-ring at back and on hips
- Quick-connect buckles on chest and legs
- Breathable padding on back/shoulder, waist, and leg straps
- Pull down adjusters on shoulder straps
- Lanyard parks
- Fall indicators
- Five-inch padded backpad
- Removable tool belt
- Carry-all bag
- Made of polyester and nylon

Available Sizes:

Part Number:		
	(S)	67301
	(M)	67302
	(L)	67303
	(XL)	67304
	(2XL)	67305

Rear View

Class A, Class P — 3D

See Harness Sizing Chart on page 145

Fall Protection

HARNESSES

Onyx Platinum Series Harness

- Three Steel D-rings: at back and hips
- Quick-connect buckles on chest and legs
- Tongue buckle shoulder adjusters
- Lanyard parks
- Fall indicators
- Padded shoulders
- Five-inch padded backpad
- Removable tool belt
- Made of polyester and nylon

Available Sizes:

Part Number:		
	(S)	97101
	(M)	97102
	(L)	97103
	(XL)	97104
	(2XL)	97105
	(3XL)	97106

Rear View

FireFly Platinum Series Harness

- Three Steel D-rings: at back and hips
- Quick-connect buckles on chest and legs
- Reflective trim
- Tongue buckle shoulder adjusters
- Lanyard parks
- Fall indicators
- Padded shoulders
- Five-inch padded backpad
- Removable tool belt
- Made of polyester and nylon

Available Sizes:

Part Number:		
	(S)	97111
	(M)	97112
	(L)	97113
	(XL)	97114
	(2XL)	97115
	(3XL)	97116

Rear View

See Harness Sizing Chart on page 145

Fall Protection

HARNESSES

So comfortable you'll forget you have it on:

Designed for nonstop comfort, the Eagle™ Series will have your workers motivated to use fall protection equipment. The secret's in the way it's made. Craftsmanship, care and pride, with a critical eye to worker safety go into every Eagle™ Series Harness. The world-class design and construction creates "top-of-the-line" comfort for all day wear.

Eagle™ Lite Harness

- Three steel D-rings: at back and hips
- Parachute mating buckles on chest strap
- Tongue buckles on leg straps
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- Six-inch padded backpad
- Removable tool belt
- Carry-all bag
- Made of polyester and nylon

Available Sizes: **Part Number:**

(S)	62311
(M)	62312
(L)	62313
(XL)	62314
(2XL)	62315
(3XL)	62316

Class A, Class P — 3D

Eagle™ Harness

- Three steel D-rings: at back and hips
- Parachute mating buckle on chest strap
- Tongue buckles on leg straps
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- Five-inch padded backpad
- Removable tool belt
- Carry-all bag
- Made of polyester and nylon

Available Sizes: **Part Number:**

(XS)	65300
(S)	65301
(M)	65302
(L)	65303
(XL)	65304
(2XL)	65335
(3XL)	65336

Class A, Class P — 3D

WindEagle™ Harness

- Four steel D-rings: at back, hips, and chest
- Quick connect buckles on chest and legs
- **Large comfort D-ring slider at back**
- Lanyard parks
- Leg pads
- Made of polyester and nylon

Available Sizes: **Part Number:**

(S-L)	62432
(L-XL)	62434

Class A, Class P, Class L — 4D

Iron Eagle™ Harness

- Three steel D-rings: at back and hips
- Parachute mating buckle on chest strap
- Tongue buckle adjuster on shoulder and leg straps
- Padded shoulders
- Lanyard parks
- Five-inch padded backpad
- Removable tool belt
- Carry-all bag
- Made of polyester and nylon

Available Sizes: **Part Number:**

(XS)	65320
(S)	65321
(M)	65322
(L)	65323
(XL)	65324
(2XL)	65325
(3XL)	65326

Class A, Class P — 3D

WindEagle™ LE Harness

- Four Steel D-rings: at back, hips, and chest
- Quick connect buckles on chest and leg straps
- **Large comfort D-ring slider at back**
- Padded shoulders and legs
- Lanyard parks
- Six-inch padded backpad
- Removable tool belt
- Designed for positioning work and rescue
- Hip D-rings support sub-pelvic region
- Made of polyester and nylon

Available Sizes: **Part Number:**

(S)	62451
(M)	62452
(L)	62453
(XL)	62454
(2XL)	62455
(3XL)	62456

Class A, Class P, Class L — 4D

See Harness Sizing Chart on page 145

Fall Protection

HARNESSES

Eagle Tower™ Harness

- Six steel D-rings: at back, hips, chest and seat strap
- Quick connect buckles on chest strap
- Tongue buckles on leg straps
- **Longer 45 inch seat pad**
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- Five-inch padded backpad with accessory rings
- Removable tool belt
- Five-inch padded seat strap
- Carry-all bag
- Made of polyester and nylon

Available Sizes: **Part Number:**

(XS)	66610
(S)	66611
(M)	66612
(L)	66613
(XL)	66614
(2XL)	66615
(3XL)	66616

Eagle Tower™ LT Harness

- Six steel D-rings: at back, hips, chest, and seat strap
- Quick connect buckle on chest strap
- Tongue buckles on leg straps
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- Five-inch padded backpad with accessory rings
- Removable tool belt
- Five-inch padded seat strap
- Carry-all bag
- Made of polyester and nylon

Available Sizes: **Part Number:**

(XS)	66630
(S)	66631
(M)	66632
(L)	66633
(XL)	66634
(2XL)	66635
(3XL)	66636

Eagle Tower™ LX Harness

- Six steel D-rings: at back, hips, chest, and seat strap
- Quick connect buckle on chest strap
- Tongue buckles on leg straps
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- Five-inch padded backpad with accessory rings
- Removable tool belt
- Five-inch padded seat strap with aluminum bar in seat
- Carry-all bag
- Made of polyester and nylon

Available Sizes: **Part Number:**

(XS)	66620
(S)	66621
(M)	66622
(L)	66623
(XL)	66624
(2XL)	66625
(3XL)	66626

Eagle Tower™ QC-XT Harness

- Six Steel D-rings: at back, chest, seat strap, 70° angled D-rings on hips
- Quick connect buckles on chest and leg straps
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- Five-inch padded backpad with accessory rings
- Removable tool belt
- Four-inch padded seat strap with removable aluminum bar insert
- Carry-all bag
- Made of polyester and nylon

Available Sizes: **Part Number:**

(XS)	66640
(S)	66641
(M)	66642
(L)	66643
(XL)	66644
(2XL)	66645
(3XL)	66646

Pinnacle® Tower Harness

- Six Steel D-rings: at back, hips, chest, and seat strap
- Quick-connect buckle on chest and leg straps
- Fully integrated in-line Energy-absorber
- **Padded back/shoulder pad**
- Pull up shoulder adjusters
- Lanyard parks
- Five-inch padded backpad with accessory rings and loops
- Removable tool belt
- Four-inch adjustable padded seat strap with removable aluminum bar in seat
- Made of polyester and nylon

Available Sizes: **Part Number:**

(S)	68601
(M)	68602
(L)	68603
(XL)	68604

Rear View

See Harness Sizing Chart on page 145

Fall Protection

HARNESSES

WearMaster® Harness

- Three steel D-rings: at back and hips
- Parachute mating buckle on chest and leg straps
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- Four-inch backpad
- Removable tool belt
- Made of polyester and nylon

Available Sizes: **Part Number:**

(XS)	74300
(S)	74301
(M)	74302
(L)	74303
(XL)	74304

Class A Class P 3D

WorkMaster® Harness

- One steel D-ring: at back
- Parachute mating buckle on chest strap
- Tongue buckles on leg straps
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- Four-inch backpad
- Removable tool belt
- Made of polyester and nylon

Available Sizes: **Part Number:**

(XS)	75100
(S)	75101
(M)	75102
(L)	75103
(XL)	75104

Class A 1D

WorkMaster® 3 D-ring Harness

- Three steel D-rings: at back and hips
- Parachute mating buckle on chest strap
- Tongue buckles on leg straps
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- Four-inch backpad
- Removable tool belt
- Made of polyester and nylon

Available Sizes: **Part Number:**

(XS)	75300
(S)	75301
(M)	75302
(L)	75303
(XL)	75304
(2XL)	75335
(3XL)	75336

Class A Class P 3D

What makes this harness system like no other:

The concept of a total work system, the Master® Series combines a full-feature harness with a removable belt, supported by a four-inch anti-fatigue backpad. The Master® Series provides the worker with a multifunctioned work system in a single unit.

TowerMaster™ LE 4 D-ring Harness

- Four steel D-rings: at back, hips and chest
- Parachute mating buckle on chest strap
- Tongue buckles on leg straps
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- Four-inch backpad
- Removable tool belt
- Made of polyester and nylon

Available Sizes: **Part Number:**

(XS)	75420
(S)	75421
(M)	75422
(L)	75423
(XL)	75424
(2XL)	75425
(3XL)	75426

Class A Class P Class L 4D

TowerMaster™ LE 6 D-ring Harness

- Six steel D-rings: at back, hips, chest and seat straps
- Quick-connect buckle on chest strap
- Tongue buckles on leg straps
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- Four-inch backpad
- Removable tool belt
- Four-inch seat strap
- Made of polyester and nylon

Available Sizes: **Part Number:**

(XS)	76620
(S)	76621
(M)	76622
(L)	76623
(XL)	76624

Class A Class P Class D Class L 6D

See Harness Sizing Chart on page 145

Fall Protection

HARNESSES

Kestrel Harness

- Four D-rings: One Aluminum 70° D-ring at back, Two aluminum D-rings on hips, One steel D-ring on chest strap
- Quick connect buckles on chest and leg straps
- Breathable padding on back/shoulder and leg straps
- Pull down adjusters on shoulder straps
- Lanyard parks
- Fall indicators
- Carry-all bag
- Made of polyester and nylon

Available Sizes:

Part Number:	
(S)	67498
(M)	67498
(L)	67498
(XL)	67499

Rear View

See Harness Sizing Chart on page 145

Fall Protection

HARNESSES

MADE IN AMERICA

FreedomFlex® QC Harness

- One steel D-ring: at back
- Quick-connect buckles on chest and leg straps
- Pull up shoulder strap adjusters
- Flexible shoulder straps
- Lanyard parks
- Sub-pelvic strap
- Made of polyester and nylon

Available Sizes: **Part Number:**
(M-2XL) 47169
Three D-ring version
(M-2XL) 47369

Class A 1D

Freedom® Harness

- One Steel D-ring: at back
- Parachute mating buckle on chest and leg straps
- Lanyard parks
- Sub-pelvic strap
- Made of polyester

Available Sizes: **Part Number:**
(S-L) 55102
(L-XL) 55104

Class A 1D

FreedomFlex® Harness

- Three Steel D-rings: at back & hips
- Parachute mating buckle at chest strap
- Tongue buckle on leg straps
- Flexible shoulder straps
- Pull up shoulder strap adjustors
- Lanyard parks
- Sub-pelvic strap
- Made of polyester and nylon

Available Sizes: **Part Number:**
(M-2XL) 47349
One D-ring version
(M-2XL) 47149

Class A Class P 3D

Freedom® Harness

- Three Steel D-rings: at back and hips
- Parachute mating buckle on chest and leg straps
- Lanyard parks
- Sub-pelvic strap
- Made of polyester

Available Sizes: **Part Number:**
(S-L) 55302
(L-XL) 55304

Class A Class P 3D

Black StageHand Harness

- One Steel D-ring: at back
- Parachute mating buckles on chest and leg straps
- Reduced visibility
- Lanyard parks
- Sub-pelvic strap
- Made of polyester

Available Sizes: **Part Number:**
(S-L) 57102
(L-XL) 57104
Three D-ring versions:
(S-L) 57302
(L-XL) 57304

Class A 1D

Freedom® Vest Harness

- Three Steel D-rings: at back and hips
- Parachute mating buckle on chest and leg straps
- High-visibility Orange or Safety Green vest
- Sub-pelvic strap
- One size fits most
- ANSI Class 2 Vest
- Made of polyester

Available Sizes:
Part Number:
(M-XL) 55393 Orange
(M-XL) 55394 Safety Green

Class A Class P 3D

See Harness Sizing Chart on page 145

Fall Protection

HARNESSES

ConstructionPlus® Harness

- Soft attachment at D-slider
- Parachute mating buckles on chest and leg straps
- **Fully-integrated in-line 6' NoPac® Energy-absorbing lanyard attached to center of back, Zsnaphook other end, 3.6M Gate**
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): (S-XL)
Part Number: 48013

Rear View

Class A 0D

ConstructionPlus® Harness

- One Steel D-ring: at back
- Parachute mating buckles on chest and leg straps
- **Fully-integrated in-line 6' NoPac® Energy-absorbing lanyard attached to D-ring at center of back, Zsnaphook other end, 3.6M Gate**
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): (S-XL)
Part Number: 48113

Rear View

Class A 1D

ConstructionPlus® Harness

- One Steel D-ring: at back
- Parachute mating buckles on chest and leg straps
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): (S-XL)
Part Number: 48103

Class A 1D

ConstructionPlus® Harness

- One Steel D-ring: at back
- Parachute mating buckle on chest strap
- Tongue buckles on leg straps
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): (S-XL)
Part Number: 48153

Class A 1D

ConstructionPlus® Harness

- One Steel D-ring: at back
- Parachute mating buckles on chest and leg straps
- **Fully-integrated in-line 4' NoPac® Energy-Absorbing lanyard attached to D-ring center of back, Zsnaphook other end, 3.6M Gate**
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): (S-XL) Part Number: 48112

Class A 1D

Rear View

ConstructionPlus® Harness

- One steel D-ring: at back
- Parachute mating buckle on chest
- Tongue buckles on leg straps
- **Fully-integrated in-line 6' NoPac® Energy-Absorbing lanyard attached to D-ring center of back, Zsnaphook other end, 3.6M Gate**
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): (S-XL)
Part Number: 48163

Rear View

Class A 1D

See Harness Sizing Chart on page 145

Fall Protection

HARNESSES

MADE IN AMERICA

ConstructionPlus® Harness

- Three Steel D-rings: at back and hips
- Parachute mating buckles on chest and leg straps
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): Part Number:
(S-XL) 48303

Class A, Class P — 3D

TowerMate™ Harness

- Two Steel D-rings: at back and chest
- Quick-connect buckle on chest strap
- Parachute mating buckles on leg straps
- Pull up shoulder adjusters
- Lanyard parks
- Made of polyester

Available Sizes: Part Number:
(S-L) 56222
(L-XL) 56224

Class A, Class L — 2D

ConstructionPlus® Harness

- Three Steel D-rings: at back and hips
- Parachute mating buckle on chest strap
- Tongue buckles on leg straps
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): Part Number:
(S-XL) 48353

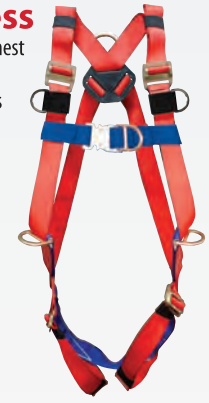
Class A, Class P — 3D

TowerMate™ Harness

- Four Steel D-rings: at back, hips and chest
- Quick-connect buckle on chest strap
- Parachute mating buckles on leg straps
- Pull up shoulder adjusters
- Lanyard parks
- Made of polyester

Available Sizes: Part Number:
(S-L) 56422
(L-XL) 56424

Class A, Class P, Class L — 4D



HARNESS ACCESSORIES

D-ring Extensions

- D-ring, Zsnaphook **3.6M Gate**
- Made of Nylon Web

(1-3/4" x 12") Part Number: 14702
(1-3/4" x 18") Part Number: 14703

Harness Shoulder Pads

- Cushioned Shoulder Pads
- One Pair
- Made of Nylon

Part Number: 60100

Lanyard Parks

- Velcro Attachment
- Can be added to existing harness
- Aids in complying to ANSI Z359.13

- One Pair

Part Number: 85005

- 24 Pairs

Part Number: 85006

See Harness Sizing Chart on page 145

Fall Protection

HARNESSES

Universal Harness

- One Steel D-ring: at back
- Parachute mating buckles on chest and leg straps
- Shoulder strap adjusters
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): (M-2XL)
Part Number: 42109

Class A 1D

Universal Harness

- Three Steel D-rings: at back and hips
- Parachute mating buckle on chest strap
- Tongue buckles on leg straps
- Shoulder strap adjusters
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): (M-2XL)
Part Number: 42359

Class A Class P 3D

Universal Harness

- One Steel D-ring: at back
- Parachute mating buckle on chest strap
- Tongue buckles on leg straps
- Shoulder strap adjusters
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): (M-2XL)
Part Number: 42159

Class A 1D

Universal Harness

- Five Steel D-rings: at back, hips, and shoulder
- Parachute mating buckle on chest strap
- Tongue buckles on leg straps
- Shoulder strap adjusters
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): (M-2XL)
Part Number: 42559

Class A Class P Class E 5D

Universal Harness

- Three Steel D-rings: at back and hips
- Parachute mating buckles on chest and leg straps
- Shoulder strap adjusters
- Lanyard parks
- Made of polyester and nylon

(One Size Fits Most): (M-2XL)
Part Number: 42309

Class A Class P 3D

See Harness Sizing Chart on page 145

Fall Protection

HARNESSES

FireMaster™ Kevlar® Harness

- One steel D-ring: at back
- Parachute mating buckles on chest and leg straps
- Lanyard Parks
- Made of Kevlar®

Available Sizes:	Part Number:
(S-L)	95102
(L-XL)	95104

Class A 1

FireMaster™ Kevlar® Harness

- Three steel D-rings: at back and shoulders
- Parachute mating buckles on chest and leg straps
- Lanyard Parks
- Made of Kevlar®

Available Sizes:	Part Number:
(S-L)	95312
(L-XL)	95314

Class A Class E 3

FireMaster™ Kevlar® Harness

- Three steel D-rings: at back and hips
- Parachute mating buckles on chest and leg straps
- Lanyard Parks
- Made of Kevlar®

Available Sizes:	Part Number:
(S-L)	95302
(L-XL)	95304

Class A Class P 3

FireMaster™ QC Kevlar® Harness

- Three steel D-rings: at back and hips
- Quick connect buckles on chest , waist, and leg straps
- Parachute mating buckles on shoulder straps
- Padded shoulders
- Pull up shoulder adjusters
- 4-inch backpad
- Removable tool belt
- Made of Kevlar®

Available Sizes:	Part Number:
(XS)	95320
(S)	95321
(M)	95322
(L)	95323
(XL)	95324
(2XL)	95325
(3XL)	95326

Class A Class P 3

USA INDUSTRY SYMBOLS

SYMBOLS BELOW INDICATE SUGGESTED USE OF A PARTICULAR PRODUCT:

Fall Arrest — Class A

Positioning — Class P

Suspension — Class D

Fall Prevention — FP

Retrieval — Class E

Ladder Climbing — Class L

CSA CLASSIFICATIONS

FULL BODY HARNESSES ARE CLASSIFIED AS FOLLOWS:

CLASS A — Fall Arresting

CLASS D — Controlled Descent

CLASS E — Confined Entry & Exit

CLASS L — Ladder Climbing

CLASS P — Worker Positioning

See Harness Sizing Chart on page 145

Kevlar® is a registered trademark of Du Pont.

Fall Protection

HARNESSES

FireMaster™ DL Kevlar® Harness

- Three Steel D-rings: at back and hips
- Parachute mating buckles on chest, waist, and legs
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- 4-inch backpad
- Removable tool belt
- Made of Kevlar®

Available Sizes:	Part Number:
(S)	95331
(M)	95332
(L)	95333
(XL)	95334
(2XL)	95335
(3XL)	95336

Class A, Class P, 3D

FireMaster™ Tower DL Harness

- Six Steel D-rings: at back, hips, chest, and shoulders
- Quick connect buckles on chest
- Parachute mating buckles on waist, legs, and shoulders
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- 4-inch backpad
- Removable tool belt
- Made of Kevlar®

Available Sizes:	Part Number:
(XS)	95630
(S)	95631
(M)	95632
(L)	95633
(XL)	95634
(2XL)	95635
(3XL)	95636

Class A, Class P, Class E, Class L, 6D

FireMaster™ Kevlar® Harness

- Four Steel D-rings: at back, chest, and hips
- Quick connect buckle on chest
- Parachute mating buckles on leg straps
- Made of Kevlar®

Available Sizes:	Part Number:
(S-L)	95402
(L-XL)	95404

Class A, Class P, Class L, 4D

FireMaster™ Tower QC Kevlar® Harness

- Six Steel D-rings: at back, hips, chest, and seat strap
- Quick connect buckles on chest, waist, and legs
- Padded shoulders
- Pull up shoulder adjusters
- Lanyard parks
- 4-inch padded backpad
- Removable tool belt
- 4-inch padded seat strap with removable aluminum bar in seat
- Made of Kevlar®

Available Sizes:	Part Number:
(XS)	95690
(S)	95691
(M)	95692
(L)	95693
(XL)	95694
(2XL)	95695
(3XL)	95696

Class A, Class P, Class D, Class L, 6D

See Harness Sizing Chart on page 145

Fall Protection

LANYARDS

MADE IN AMERICA

95004

95006

FireMaster Kevlar® Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
95004	1-3/4" x 4'	Kevlar® Web	One	Zsnaphooks each end 3.6M Gate	Positioning
95006	1-3/4" x 6'	Kevlar® Web	One	Zsnaphooks each end 3.6M Gate	Positioning

95016

95026

95047

95076

FireMaster Kevlar® Energy-Absorbing Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
95016	1-3/4" x 6'	Kevlar® Web	One	Zsnaphooks each end 3.6M Gate	Energy-Absorbing
95026	1-3/4" x 6'	Kevlar® Web	Two	Zsnaphook and on each leg 3.6M Gate	Energy-Absorbing
95047	1-3/4" x 6'	Kevlar® Web	Two	Zsnaphook and Zrebars on each leg 3.6M Gate	Energy-Absorbing
95076	1-3/4" x 4'	Kevlar® Web	Two	Zsnaphook and on each leg 3.6M Gate	ZX-12 ,Energy-Absorbing

Kevlar® is a registered trademark of Du Pont.

Fall Protection

LANYARDS

95740 95741 95742 95743

FireMaster Kevlar® Rebar Web Assemblies

Part Number	Description	Material	Connectors	Features
95740	1-3/4" x 14"	Kevlar®	Zsnaphooks and Zrebar 3.6M Gate	Positioning, Heat Resistant
95741	1-3/4" x 18"	Kevlar®	Zsnaphooks and Zrebar 3.6M Gate	Positioning, Heat Resistant
95742	1-3/4" x 22"	Kevlar®	Zsnaphooks and Zrebar 3.6M Gate	Positioning, Heat Resistant
95743	1-3/4" x 24"	Kevlar®	Zsnaphooks and Zrebar 3.6M Gate	Positioning, Heat Resistant

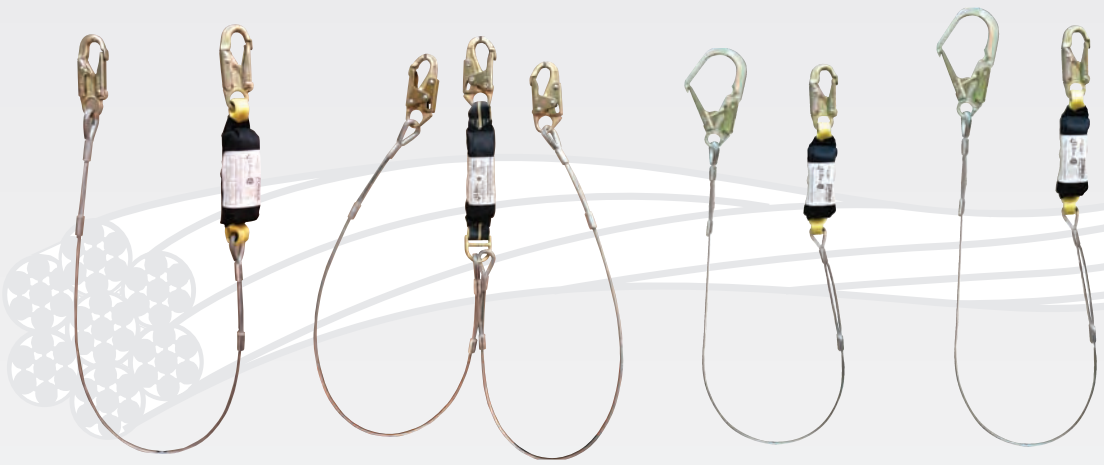
95903 95904 95906 95908 95910

FireMaster Kevlar® Slings

Part Number	Description	Material	Connectors	Features
95903	1-3/4" x 3'	Kevlar®	2 D-rings	Anchorage, Heat Resistant
95904	1-3/4" x 4'	Kevlar®	2 D-rings	Anchorage, Heat Resistant
95906	1-3/4" x 6'	Kevlar®	2 D-rings	Anchorage, Heat Resistant
95908	1-3/4" x 8'	Kevlar®	2 D-rings	Anchorage, Heat Resistant
95910	1-3/4" x 10'	Kevlar®	2 D-rings	Anchorage, Heat Resistant

Fall Protection

LANYARDS



11306 11326 11504 11506

GAC ZORBER® Energy-Absorbing Lanyards

Part Number	Description	Material	Legs	Connectors	Features
11306	1/4" x 6'	Galvanized Aircraft Cable	One	Zsnaphook each end 3.6M Gate	ZORBER®
11326	1/4" x 6'	Galvanized Aircraft Cable	Two	Zsnaphook on each leg 3.6M Gate	ZORBER®
11504	1/4" x 4'	Galvanized Aircraft Cable	One	Zsnaphook and Zrebar Hook 3.6M Gate	ZORBER®
11506	1/4" x 6'	Galvanized Aircraft Cable	One	Zsnaphook and Zrebar Hook 3.6M Gate	ZORBER®

35214 35216 35246 35377 35378 35379

NoPac® Energy-Absorbing Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
35214	1-1/4" x 4'	Polyester Web	One	Zsnaphook each end 3.6M Gate	NoPac®
35216	1-1/4" x 6'	Polyester Web	One	Zsnaphook each end 3.6M Gate	NoPac®
35246	1-1/4" x 6'	Polyester Web	Two	Zsnaphook and on each end 3.6M Gate	NoPac®
35377	1-1/4" x 4'	Polyester Web	One	Zsnaphook, Zrebar hook 3.6M Gate	NoPac®
35378	1-1/4" x 6'	Polyester Web	One	Zsnaphook, Zrebar hook 3.6M Gate	NoPac®
35379	1-1/4" x 6'	Polyester Web	Two	Snaphook, Zrebar hook	NoPac®

Fall Protection

LANYARDS

35406

35416

35427

35428

Flex-NoPac® Energy-Absorbing Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
35406	1-1/2″ x 6′	Polyester Web	Two	Zsnaphook,17426 Carabiner each leg, 3.6M Gate	Stretches 4.5′ - 6′
35416	1-1/2″ x 6′	Polyester Web	Two	Zsnaphook, 17237 Aluminum Carabiner each leg, 3.6M Gate	Stretches 4.5′ - 6′
35427	1-1/2″ x 6′	Polyester Web	One	Zsnaphook each end, 3.6M Gate	Stretches 4.5′ - 6′
35428	1-1/2″ x 6′	Polyester Web	Two	Zsnaphook and on each leg, 3.6M Gate	Stretches 4.5′ - 6′

35477

35478

35716

Flex-NoPac® Energy-Absorbing Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
35477	1-1/2″ x 6′	Polyester Web	One	Zsnaphook, Zrebar Hook 3.6M Gate	Stretches 4.5′ - 6′
35478	1-1/2″ x 6′	Polyester Web	Two	Zsnaphook, Zrebar Hook each 3.6M Gate	Stretches 4.5′ - 6′
35716	1-1/2″ x 6′	Polyester Web	Two	Aluminum Captive Eye Carabiner Large Aluminum Carabiner each leg 3.6M Gate	Stretches 4.5′ - 6′

Fall Protection

LANYARDS

36166

36180

ZORBER®
Energy-Absorber

27000

CenturionZ™ ZORBER® Energy-Absorbing Rope Lanyards

Part Number	Description	Material	Legs	Connectors	Features
36166	1/2" x 6'	Nylon Rope	One	Zsnaphook on each end 3.6M Gate	ZORBER®
36180	1/2" x 6'	Nylon Rope	One	Zsnaphook, Zrebar Hook 3.6M Gate	ZORBER®
27000	1-3/4" x 12"	Nylon & Polyester Web	-	ZORBER® with eye each end	ZORBER®

36266

36267

36356

36357

36528

CenturionZ™ ZORBER® Energy-Absorbing Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
36266	1" x 6'	Nylon Web	One	Zsnaphook on each end 3.6M Gate	ZORBER®
36267	1" x 6'	Nylon Web	Two	Zsnaphook and on each leg 3.6M Gate	ZORBER®
36356	1" x 6'	Nylon Web	One	Zsnaphook, Zrebar Hook 3.6M Gate	ZORBER®
36357	1" x 6'	Nylon Web	Two	Zsnaphook, Zrebar Hook on each leg 3.6M Gate	ZORBER®
36528	1" x 6'	Nylon Web	Two	Zsnaphook and on each leg 3.6M Gate	ZORBER®, Adjustable

LANYARDS

36806

36827

36828

36887

Flex-ZORBER® Energy-Absorbing Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
36806	1-1/2" x 6'	Nylon & Polyester Web	Two	Zsnaphook, Aluminum Carabiner on each leg 3.6M Gate	Stretches 4.5' - 6'
36827	1-1/2" x 6'	Nylon & Polyester Web	One	Zsnaphook on each end 3.6M Gate	Stretches 4.5' - 6'
36828	1-1/2" x 6'	Nylon & Polyester Web	Two	Zsnaphook and on each leg 3.6M Gate	Stretches 4.5' - 6'
36887	1-1/2" x 6'	Nylon & Polyester Web	One	Zsnaphook, Zrebar Hook 3.6M Gate	Stretches 4.5' - 6'

36897

36966

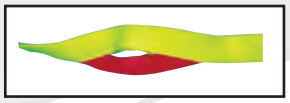
36967

Flex-ZORBER® Energy-Absorbing Web Lanyards *(continued)*

Part Number	Description	Material	Legs	Connectors	Features
36897	1-1/2" x 6'	Nylon & Polyester Web	Two	Zsnaphook, Zrebar Hook on each leg 3.6M Gate	ZORBER®, Stretches 4.5' - 6'
36966	1-1/2" x 6'	Nylon & Polyester Web	Two	Zsnaphook, Zrebar Hook on each leg 3.6M Gate	Split Leg 3', ZORBER®, Stretches 4.5' - 6'
36967	1-1/2" x 6'	Nylon & Polyester Web	Two	Zsnaphook, Zrebar Hook on each leg 3.6M Gate	Split Leg 2', ZORBER®, Stretches 4.5' - 6'

Fall Protection

LANYARDS



This detail shows the red nylon strength member is enclosed by a durable wear cover of polyester

36926 36936 36940 36941

Choker Tie-Back ZORBER® Energy-Absorbing Web Lanyards and Tie-Back ZORBER® Energy-Absorbing Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
36926	1" x 6'	Nylon & Polyester Web	One	Zsnaphook, ZORBER® Tie-back Captive-eye Carabiner 3.6M Gate	Strength Member
36936	1" x 6'	Nylon & Polyester Web	Two	Zsnaphook, ZORBER® Tie-back Captive-eye Carabiner on each leg 3.6M Gate	Strength Member
36940	1" x 6'	Nylon & Polyester Web	One	Zsnaphook on each end 3.6M Gate	Sliding D-ring
36941	1" x 6'	Nylon & Polyester Webb	Two	Zsnaphook and on each leg 3.6M Gate	Sliding D-rings

38327 38328 38379

NoPac® Energy-Absorbing Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
38327	1-1/4" x 4'	Nylon & Polyester Web	One	Zsnaphook on each end 3.6M Gate	NoPac®
38328	1-1/4" x 6'	Nylon & Polyester Web	One	Zsnaphook on each end 3.6M Gate	NoPac®
38379	1-1/4" x 6'	Nylon & Polyester Web	Two	Zsnaphook, Zrebar Hook on each leg 3.6M Gate	NoPac®

LANYARDS

MADE IN AMERICA

25003 - 25006

28012 - 28016

Rope Positioning Lanyards

Part Number	Description	Material	Legs	Connectors	Features
25003	1/2″ x 3′	Nylon Rope	One	Snaphook on each end	Positioning
25004	1/2″ x 4′	Nylon Rope	One	Snaphook on each end	Positioning
25005	1/2″ x 5′	Nylon Rope	One	Snaphook on each end	Positioning
25006	1/2″ x 6′	Nylon Rope	One	Snaphook on each end	Positioning
28012	1/2″ x 2′	Nylon Rope	One	CenturionZ , Zsnaphook on each end 3.6M Gate	Positioning
28013	1/2″ x 3′	Nylon Rope	One	CenturionZ , Zsnaphook on each end 3.6M Gate	Positioning
28014	1/2″ x 4′	Nylon Rope	One	CenturionZ , Zsnaphook on each end 3.6M Gate	Positioning
28015	1/2″ x 5′	Nylon Rope	One	CenturionZ , Zsnaphook on each end 3.6M Gate	Positioning
28016	1/2″ x 6′	Nylon Rope	One	CenturionZ, Zsnaphook on each end 3.6M Gate	Positioning

26003 - 26006

29026

29506

29510

Web Positioning Lanyards

Part Number	Description	Material	Legs	Connectors	Features
26003	1/2″ x 3′	Nylon Web	One	Snaphook on each end	Positioning
26004	1/2″ x 4′	Nylon Web	One	Snaphook on each end	Positioning
26005	1/2″ x 5′	Nylon Web	One	Snaphook on each end	Positioning
26006	1/2″ x 6′	Nylon Web	One	Snaphook on each end	Positioning
29026	1″ x 6′	Nylon Web	One	CenturionZ, Zsnaphook on each end 3.6M Gate	Positioning
29506	1″ x 6′	Nylon Web	One	CenturionZ, Zsnaphook on each end 3.6M Gate	Positioning, Adjustable
29510	1″ x 10′	Nylon Web	One	CenturionZ, Zsnaphook on each end 3.6M Gate	Positioning, Adjustable

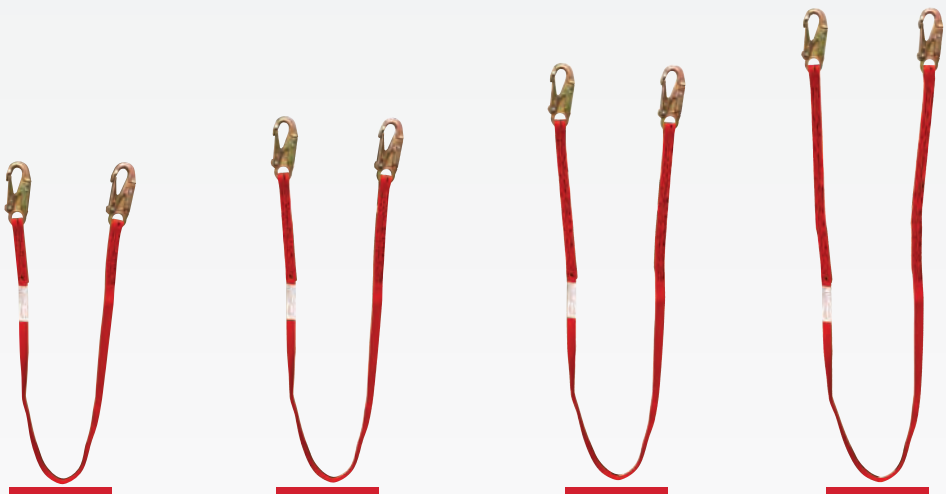
Fall Protection

LANYARDS

34406 34416 34496

Quick-Adjustable Rope Positioning Lanyards

Part Number	Description	Material	Legs	Connectors	Features
34406	5/8" x 6'	Nylon Rope	One	Adjustable Rope Grab, Carabiner included, Zsnaphook 3.6M Gate	Adjustable
34416	5/8" x 6'	Polyester Rope	One	Zsnaphook, Carabiner included, 3.6M Gate	Adjustable
34496	1/2" x 6'	Polyester Rope	One	Adjustable ErgoGrip, Zsnaphook, Carabiner included, 3.6M Gate	Adjustable



63013 63014 63015 63016

Eagle® Series Positioning Web Lanyards

Part Number	Description	Material	Legs	Connectors
63013	1" x 3'	Nylon Web	One	CenturionZ Zsnaphook on each end 3.6M Gate
63014	1" x 4'	Nylon Web	One	CenturionZ Zsnaphook on each end 3.6M Gate
63015	1" x 5'	Nylon Web	One	CenturionZ Zsnaphook on each end 3.6M Gate
63016	1" x 6'	Nylon Web	One	CenturionZ Zsnaphook on each end 3.6M Gate

Fall Protection

LANYARDS

27126 27226 27236 27526

ZORBER® Energy-Absorbing Rope and Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
27123	1/2″ x 3′	Nylon Rope	One	Snaphook on each end	ZORBER®
27124	1/2″ x 4′	Nylon Rope	One	Snaphook on each end	ZORBER®
27125	1/2″ x 5′	Nylon Rope	One	Snaphook on each end	ZORBER®
27126	1/2″ x 6′	Nylon Rope	One	Snaphook on each end	ZORBER®
27223	1″ x 3′	Nylon Web	One	Snaphook on each end	ZORBER®
27224	1″ x 4′	Nylon Web	One	Snaphook on each end	ZORBER®
27225	1″ x 5′	Nylon Web	One	Snaphook on each end	ZORBER®
27226	1″ x 6′	Nylon Web	One	Snaphook on each end	ZORBER®
27236	1″ x 6′	Nylon Web	Two	Snaphook and on each leg	ZORBER®
27526	1″ x 6′	Nylon Web	One	Snaphook on each end	Adjustable, ZORBER®

35324 35326 35346 35386

NoPac® Energy-Absorbing Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
35324	1-1/4″ x 4′	Polyester Web	One	Snaphook on each end	NoPac®
35326	1-1/4″ x 6′	Polyester Web	One	Snaphook on each end	NoPac®
35346	1-1/4″ x 6′	Polyester Web	Two	Snaphook and on each leg	NoPac®
35386	1-1/4″ x 6′	Polyester Web	Two	Snaphook, rebar hook	NoPac®

Fall Protection

LANYARDS

35426 35446 36826 36836 36886

Flex-NoPac® and Flex-ZORBER® Energy-Absorbing Web Lanyards

Part Number	Description	Material	Legs	Connectors	Features
35426	1-1/2″ x 6′	Polyester Web	One	Snaphook on each end	Flex-NoPac®
35446	1-1/2″ x 6′	Polyester Web	Two	Snaphook and on each leg	Flex-NoPac®
36826	1-1/2″ x 6′	Nylon & Polyester Web	One	Snaphook on each end	Flex-ZORBER®
36836	1-1/2″ x 6′	Nylon & Polyester Web	Two	Snaphook and on each leg	Flex-ZORBER®
36886	1-1/2″ x 6′	Nylon & Polyester Web	Two	Snaphook, Zrebar Hook on each leg	Flex-ZORBER®

05706

Self Rescue with the resQue™ Cord System:

After a fall, with the resQue™ Cord System, a worker can rescue himself by simply tugging on the Q-Cord and climbing to safety.

35826

Auto Descent Self Rescue Kit:

Typical Kits Includes:

- Escape / Rescue Only Harness
- Auto-descent Self Rescue Device, 100′ rope **3.6M Gate**
- EZE-Man™ Sling, 1-3/4″ x 6′ with Two D-rings
- EZE-Man™ Rope Bag, 12″ x 20″

97800

Elk River Rescue Equipment

Part Number	Description	M aterial	Connectors	Features
05706	100′ Kernmantle Rope	Nylon Rope, Polyester Web	Rescue sling, carabiner	Two man rescue, Manual rescue with "panic" and "deadman" lock
35826	1-1/4″ x 6′	Polyester Web	Zsnaphook on each end 3.6M Gate	Self contained rescue ladder, Energy-Absorbing,
97800	100′	Nylon Rope, Polyester Web D-rings 3.6M Gate	Captive Eye Snaphook,	**Available in Nylon** self contained /escape kit

Fall Protection

REBAR ASSEMBLIES

Rebar Assemblies are positioning and restraint systems used in situations to limit free fall distances.
Choose between chain or web; swivel or non-swivel snaphooks.


13420


13425


29741


29761

Rebar Chain and Web Assemblies

Part Number	Description	Material	Legs	Connectors	Features
13420	25-1/2"	Chain	Two	Zrebar Hook, Zsnaphooks on each leg 3.6M Gate	Adjustor
13425	25-1/2"	Chain	Two	Swivel Zrebar Hook, Zsnaphooks on each leg 3.6M Gate	Swivel, Adjustor
29741	1" x 18"	Nylon Web	Two	Zrebar Hook, Zsnaphook on each leg 3.6M Gate	
29761	1" x 18"	Nylon Web	Two	Swivel Zrebar Hook, Zsnaphook on each leg 3.6M Gate	Swivel


19250


19260


19273

Rope Grabs

Part Number	Description	Connectors	Features
19250	5/8" or 3/4" Trailing Rope Grab	2" ring w/ Anti-inversion feature	Dual Size
19260	5/8" Trailing Rope Grab	1-1/4" ring w/ Anti-inversion anti-panic feature	
19273	5/8" Rope Grab with 1" x 3' ZORBER® Web Lanyard attached	CenturionZ Zsnaphook	Attached Lanyard


19401

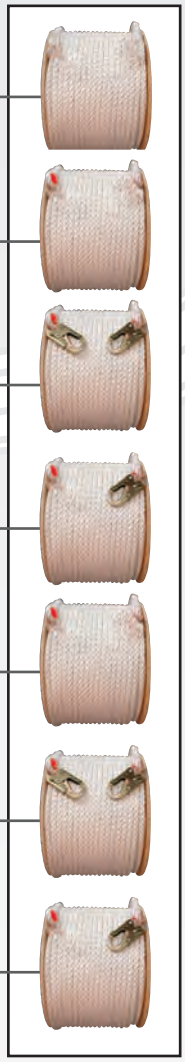

19402

Wire Grabs

Part Number	Description	Connectors	Features
19401	3/8" Wire Grab	**Requires 17450 Auto-Twist lock Carabiner**	Anti-inversion Attachments
19402	5/16" Wire Grab	**Requires 17450 Auto-Twist lock Carabiner**	Anti-inversion Attachments

Fall Protection

REELS OF ROPE-5/8”



Nylon Rope Reels: No connectors on the ends

Part Number - Length
20016 - 600′

Nylon Rope Reels: Thimbles on each end

Part Number - Length

20200 - 75′	20201 - 100′	20203 - 200′	20205 - 300′	20207 - 400′	20209 - 500′	20211 - 600′

Nylon Rope Reels: 3.6M Zsnaphooks on each end

Part Number - Length

20212 - 75′	20213 - 100′	20215 - 200′	20217 - 300′	20219 - 400′	20221 - 500′	20223 - 600′

Nylon Rope Reels: Thimble and 3.6M Zsnaphook

Part Number - Length

20224 - 75′	20225 - 100′	20227 - 200′	20229 - 300′	20231 - 400′	20233 - 500′	20235 - 600′

Polypropylene Rope Reels: Thimbles on each end

Part Number - Length

20236 - 75′	20237 - 100′	20239 - 200′	20241 - 300′	20243 - 400′	20245 - 500′	20247 - 600′

Polypropylene Rope Reels: 3.6M Zsnaphook on each end

Part Number - Length

20248 - 75′	20249 - 100′	20251 - 200′	20253 - 300′	20255 - 400′	20257 - 500′	20259 - 600′

Polypropylene Rope Reels: Thimble and 3.6M Zsnaphook

Part Number - Length

20260 - 75′	20261 - 100′	20263 - 200′	20265 - 300′	20267 - 400′	20269 - 500′	20271 - 600′

85809

85820

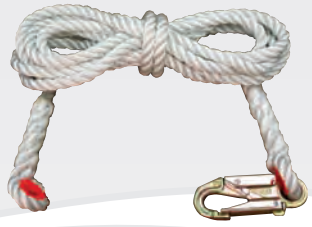
Bosun’s Seats

	Part Number	Size
Universal Bosun’s Seat:		
12” x 24” Platform of 1” Laminated plywood, 4 point nylon suspension system, 13003 D-ring attachment point, Waistbelt, two bucket snaps each end for attaching equipment	85809	Universal Sizing S-XL
Deluxe Bosun’s Seat:		
12” x 24” Platform of 1” Laminated plywood, 4 point nylon suspension system, 13003 D-ring attachment point, Waistbelt, two bucket snaps each end for attaching equipment	85820	XS
	85821	S
	85822	M
	85823	L
	85824	XL

Fall Protection

LIFELINES

34125 - 34200



34911 - 34914

Nylon Rope Lifelines

Custom lengths available.

Part Number	Description	Material	Connectors
34125	5/8" x 25'	Nylon Rope	Zsnaphook on each end 3.6M Gate
34150	5/8" x 50'	Nylon Rope	Zsnaphook on each end 3.6M Gate
34175	5/8" x 75'	Nylon Rope	Zsnaphook on each end 3.6M Gate
34200	5/8" x 100'	Nylon Rope	Zsnaphook on each end 3.6M Gate
34911	5/8" x 25'	Nylon Rope	Zsnaphook, thimble eye 3.6M Gate
34912	5/8" x 50'	Nylon Rope	Zsnaphook, thimble eye 3.6M Gate
34913	5/8" x 75'	Nylon Rope	Zsnaphook, thimble eye 3.6M Gate
34914	5/8" x 100'	Nylon Rope	Zsnaphook, thimble eye 3.6M Gate

49811 - 49814

49821 - 49824

49901 - 49902

60901 - 60904

ConstrutionPlus® Polyester / Polypropylene Rope Lifelines

Part Number	Description	Material	Connectors
49811	5/8" x 25' CP+™ Rope	Polyester / Polypropylene Rope	Snaphook on each end
49812	5/8" x 50' CP+™ Rope	Polyester / Polypropylene Rope	Snaphook on each end
49813	5/8" x 75' CP+™ Rope	Polyester / Polypropylene Rope	Snaphook on each end
49814	5/8" x 100' CP+™ Rope	Polyester / Polypropylene Rope	Snaphook on each end
49821	5/8" x 25' CP+™ Rope	Polyester / Polypropylene Rope	Snaphook, Thimble Eye
49822	5/8" x 50' CP+™ Rope	Polyester / Polypropylene Rope	Snaphook, Thimble Eye
49823	5/8" x 75' CP+™ Rope	Polyester / Polypropylene Rope	Snaphook, Thimble Eye
49824	5/8" x 100' CP+™ Rope	Polyester / Polypropylene Rope	Snaphook, Thimble Eye
49901	5/8" x 30' CP+™ Rope, attached rope grab	Polyester / Polypropylene Rope	Zsnaphooks 3.6M Gate
49902	5/8" x 50' CP+™ Rope, attached rope grab	Polyester / Polypropylene Rope	Zsnaphooks 3.6M Gate
60901	4" x 1' Ropeguard	Nylon Web	
60902	4" x 2' Ropeguard	Nylon Web	
60903	4" x 3' Ropeguard	Nylon Web	
60904	4" x 4' Ropeguard	Nylon Web	

Different Lengths available. See Rope reels on Page 170.

Fall Protection

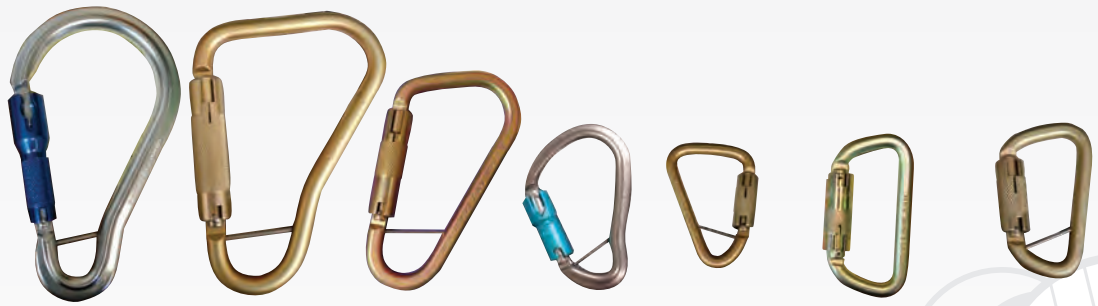
FALL-RATED HARDWARE

Fall-Rated Snaphooks

Part Number	Description	Gate Opening	Features
13101	Zsnaphook, 5″ x 2-1/2″	3/4″	3.6M Gate
13180	Captive Eye Zsnaphook, Triple-Lock, 5-1/8″ x 2-7/8″	3/4″	3.6M Gate
13190	Captive Eye Zsnaphook, Auto-Twist Lock, 5-1/8″ x 2-7/8″	3/4″	3.6M Gate
13195	Aluminum Captive Eye Carabiner Auto-Twist Lock, 5-1/8″ x 2-7/8″	3/4″	3.6M Gate
13450	Separator Zsnaphook, 9-3/4″ x 2-1/4″	3/4″	3.6M Gate

Fall-Rated Snaphooks

Part Number	Description	Gate Opening	Features
13218	CenturionZ Zrebar Snaphook Auto-Lock, 9-1/2″ x 5″	2-1/2″	3.6M Gate
13314	CenturionZ Swivel Snaphook, Auto-Lock, 7-1/4″ x 3″	3/4″	3.6M Gate
13321	CenturionZ Swivel Snaphook, Auto-Lock, 5-1/8″ x 2-7/8″	3/4″	Fall Indicator, 3.6M Gate
13329	CenturionZ Swivel Rebar Form Snaphook, Auto-Lock, 11-1/2″ x 5″	2-1/2″	Fall Indicator, 3.6M Gate



Fall-Rated Carabiners

Part Number	Description	Gate Opening	Features
17237	Aluminum Carabiner, Auto Twist-lock, pin 5/8″ x 8-21/32″ x 5-1/8″	2″	3.6M Gate
17426	Carabiner, Auto Twist-lock, pin, 1/2″ x 7-1/2″ x 4-1/2″	2-1/4″	3.6M Gate
17435	Carabiner, Auto Twist-lock, pin, 1/2″ x 6-5/8″ x 3-7/8″	2″	3.6M Gate
17442	Aluminum Carabiner, Auto Twist-lock, 1/2″ x 4″ x 2″	3/4″	3.6M Gate
17443		1-1/16″	3.6M Gate
17450		1/2″	3.6M Gate
17451	Carabiner, Auto Twist-lock, pin, 1/2″ x 3-1/2″ x 1-1/2″	3/4″	3.6M Gate

Fall Protection

SELF RETRACTING LIFELINES

Vectran Web SRL's

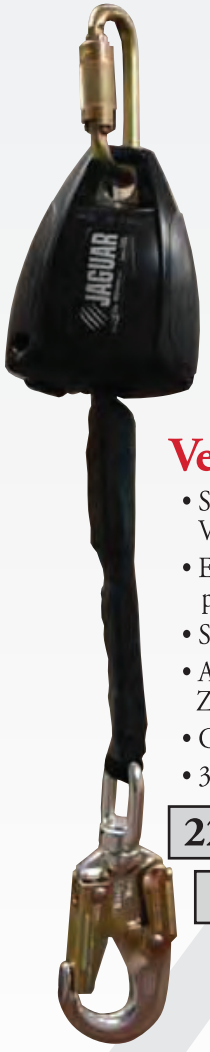
- Ultra lightweight with exceptional strength Vectran Web
- Energy-absorber reduces peak energy loads
- Smooth Vectran web action
- Aluminum/Steel swivel Zsnaphook with Fall Indicator
- Carabiner and tagline included
- Carry handle/shoulder strap attachments available
- 3600 lb. (3.6M) Gate

22426 - 26' x 3/4" / 9.05 lbs

Vectran Web SRL's - DUAL

- SUPERlight and Strong Vectran Web
- Energy-absorber reduces peak energy loads
- Smooth Vectran web action
- Aluminum/Steel swivel Zsnaphook with Fall Indicator
- 3600 lb. (3.6M) Gate

22411 - 10' x 7/8" / 6.50 lbs



Vectran Web SRL's

- SUPERlight and Strong Vectran Web
- Energy-absorber reduces peak energy loads
- Smooth Vectran web action
- Aluminum/Steel swivel Zsnaphook with Fall Indicator
- Carabiner included
- 3600 lb. (3.6M) Gate

22410 - 10' x 7/8" / 3.25 lbs

22406 - 6' x 7/8" / 2.35 lbs

JAGUAR
Series SRL

Fall Protection

SELF RETRACTING LIFELINES

JAGUAR Self-Retracting Lifeline (SRL)

Inroducing the NEW JAGUAR Series SRL's from Elk River. The JAGUAR Series ranges from 10' up to 50' and are available with 3 Lifeline Options:

- **Cable**
- **Dyneema Fiber Rope**
- **Vectran Webbing**

Carry Handle

Shoulder Strap

Cable SRL's

- Ultra lightweight with exceptional strength
- Smooth cable action
- Aluminum/Steel swivel Zsnaphook with Fall Indicator
- Carabiner and tagline included
- Carry handle/shoulder strap attachments available
- 3600 lb. (3.6M) Gate

22315	- 15' x 3/16" / 7.6 lbs
22320	- 20' x 3/16" / 8.5 lbs
22330	- 30' x 3/16" / 9.2 lbs
22350	- 50' x 3/16" / 14.3 lbs

Dyneema Rope SRL's

- Ultra lightweight with exceptional strength
- Smooth Dyneema Rope action
- Aluminum/Steel swivel Zsnaphook with Fall Indicator
- Carabiner and tagline included
- Carry handle/shoulder strap attachments available
- 3600 lb. (3.6M) Gate

22530	- 30' x 3/16" / 7.6 lbs

Fall Protection

SELF RETRACTING LIFELINES

21210

21211

21911

21970

Self Retracting and Recovery Lanyards

Part Number	Description	Material	Connectors	Features
21210	1-7/8" x 8' **RETRACTAMAN®** Self Retracting Lanyard	Nylon Web	17450 Carabiner, Zsnaphook 3.6M Gate	
21211	1-7/8" x 8' **RETRACTAMAN®** Self Retracting Lanyard	Nylon Web	Carabiner, Swivel Zsnaphook 3.6M Gate	Fall Indicator
21911	1" x 11' **The Fox** Self Retracting Lanyard	Nylon Web	Carabiner, Swivel Zsnaphook 3.6M Gate	Fall Indicator
21970	3/16" x 50' Recovery Lanyard	GAC	Carabiner 3.6M Gate	Fall Indicator

Constructed of high-quality, lightweight machined aluminum, it won't weigh you down. With its automatic controlled descent, you'll get to where you're going safely. And with self-rescue and two person rescue options, it is there to get you out when you need it. Rescue efficiently and effectively.

EZE-Man® Auto Descent
19805 - 19835

Self Rescue Devices
19905 - 19935

Part Number	Description	Material	Connectors	Features
19805	50'	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag
19810	100'	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag
19815	150'	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag
19820	200'	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag
19825	250'	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag
19830	300'	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag
19835	350'	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag
19905	50' with Hub	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag *
19910	100' with Hub	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag *
19915	150' with Hub	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag *
19920	200' with Hub	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag *
19925	250' with Hub	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag *
19930	300' with Hub	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag *
19935	350' with Hub	Polyester Rope	Captive Eye Snaphook 3.6M Gate	Rope Bag *

Custom lengths available. * Training Required

Fall Protection

ANCHORAGES

Anchorage connectors must be capable of supporting 5000 pounds (22kN) of force per worker. The anchorage must be high enough for a worker to avoid contact, during a fall, with the lower level. The anchorage connector should be located directly above a worker to avoid a swing fall situation if the worker should fall. All anchor points should be inspected and approved by trained and qualified personnel.

13020 13025 13026 13027 13070

Portable Anchor Connectors

Part Number	Description	Features
13020	D-ring Anchorage Connector, 1/2" x 13 NC	
13025	I-Beam Slider with easy Adjustor Button one end, fixed on the other, Fits 4" to 12" I-Beams	Adjustable
13026	I-Beam Slider with Easy Adjuster Button on each end, Fits 3-1/2" to 14" I-Beams	Adjustable
13027	Stationery Beam Clamp, One Side Manual Adjustment, Fits 3-1/2" up to 13-5/8"	Adjustable
13070	Swivel Anchor with Concrete Bolt	Swivel D-ring
13071	Swivel Anchor Concrete Bolt Measures 5" (Bolt Only)	
13072	Swivel Anchor with Steel Bolt	Swivel D-ring
13073	Swivel Anchor Steel Bolt Measures 4" (Bolt Only)	

13050 13051 13057 13080 13083 13091

Single Use,Reusable Roof Anchors, and Concrete Anchors

Part Number	Description	Features
13050	Reusable Roof Anchor with Nails	Includes Fasteners
13051	Reusable Roof Anchor with Screws	Includes Fasteners
13057	Single-use Roof Anchor	Includes Fasteners
13058	**(12 Multi-Pack)** Single-use Roof Anchors 13057	Includes Fasteners
13080	3/4" Injectable Concrete Anchor	Reusable
13083	3/4" Precast Concrete and Steel Toggle Anchor	Reusable
13091	1" Rigging Anchor (**NOT FALL-RATED**	Drop Forged Alloy Steel

Fall Protection

ANCHORAGES


13604


13606


13614


13616

Cable Sling Anchorages

Part Number	Description	Features
13604	1/4" x 4' Vinyl Coated GAC Anchorage Connector with 2" and 3" rings	310 lbs. Man-rated
13606	1/4" x 6' Vinyl Coated GAC Anchorage Connector with 2" and 3" rings	310 lbs. Man-rated
13614	1/4" x 4' Vinyl Coated GAC Anchorage Connector with 2" and Zsnaphook 3.6M Gate	310 lbs. Man-rated
13616	1/4" x 6' Vinyl Coated GAC Anchorage Connector with 2" and Zsnaphook 3.6M Gate	310 lbs. Man-rated


26764


26774


26796


63673

Web Slings, Concrete Anchor Straps and EZE-Man™ Slings

Part Number	Description	Material
26764	2" x 4' Web Strap, Wearpad, Loop and D-ring,	Nylon and Polyester Web
26770	1-3/4" x 12" with two D-rings	Nylon and Polyester Web
26771	1-3/4" x 18" with two D-rings	Nylon and Polyester Web
26772	1-3/4" x 2' with two D-rings	Nylon and Polyester Web
26773	1-3/4" x 3' with two D-rings	Nylon and Polyester Web
26774	1-3/4" x 4' with two D-rings	Nylon and Polyester Web
26775	1-3/4" x 5' with two D-rings	Nylon and Polyester Web
26776	1-3/4" x 6' with two D-rings	Nylon and Polyester Web
26778	1-3/4" x 8' with two D-rings	Nylon and Polyester Web
26793	1-3/4" x 3' with web eye and D-ring	Nylon and Polyester Web
26794	1-3/4" x 4' with web eye and D-ring	Nylon and Polyester Web
26795	1-3/4" x 5' with web eye and D-ring	Nylon and Polyester Web
26796	1-3/4" x 6' with web eye and D-ring	Nylon and Polyester Web
63673	Eagle Tie-off Sling 1" x 3' with 4" half loop web eye on each end	Nylon and Polyester Web
63676	Eagle Tie-off Sling 1" x 6' with 4" half loop web eye on each end	Nylon and Polyester Web

Fall Protection

FALL PROTECTION KITS

Fall Protection Kits

- 48103 CP+™ Harness with one D-ring
- 6' CP+™ NoPac® Energy-Absorbing Web Lanyard with Snaphooks each end
- Bag

One Size Fits Most: (S - XL)	Part Number: 05501

1D

CP+™ Fall Protection Kits

- 48013 CP+™ Harness with mating buckles
- Attached 1-1/4" x 6' NoPac® Energy-Absorbing Web Lanyard with Snaphook
- Soft Loop to D-slider
- Bag

One Size Fits Most: (S - XL)	Part Number: 05513

Fall Protection Kits

- 48303 CP+™ Harness with three D-rings
- 6' CP™+ NoPac® Energy-Absorbing Web Lanyard with Snaphooks each end
- Bag

One Size Fits Most: (S - XL)	Part Number: 05503

3D

Aerial Lift Kits

- 55102 / 55104 Freedom® Harness
- Attached 1" x 6' ZORBER® Energy-Absorbing Web Lanyard with Snaphook
- Bag

Available Sizes:	Part Number:
(S - L)	05512
(L - XL)	05514

MADE IN AMERICA

Fall Protection

ANCHORAGES

Oil Rigger's Kits

- SaddleMaster Harness with four D-rings
- 12" Extended D-ring at center of back for easy attach / detach at shoulder
- D-ring at lower back waist
- D-rings on saddle with snaps
- Mating buckles at chest strap
- Tongue Buckles on leg straps
- 4" backpad at waist and saddle
- Carry-all bag

Class A Class D 4D

Available Sizes:	Part Number:
(XS)	76470
(S)	76471
(M)	76472
(L)	76473
(XL)	76474
(2XL)	76475
(3XL)	76476

Roofer's Kits

- CP+™ 48103 one D-ring Harness
- 5/8" x 50' CP+ Lifeline with attached rope grab and attached 2' ZORBER® web lanyard with Zsnaphook 3.6M Gate
- Single-use Roof Anchor with fasteners
- Bucket
- Certified ANSI / CSA

One Size Fits Most: (S - XL)	Part Number: 05000

1D

Roofer's Kits

- CP+™ 48103 one D-ring Harness
- 5/8" x 50' CP+™ Lifeline with attached rope grab and attached 2' ZORBER® web lanyard with 13102 Zsnaphook 3.6M Gate
- Reusable Roof Anchor with fasteners
- Bucket
- Certified ANSI / CSA

One Size Fits Most: (S - XL)	Part Number: 05100

1D

Roofer's Kits

- CP+™ 48103 one D-ring Harness
- 5/8"x 50' CP+™ Lifeline with Zsnaphook 3.6M Gate / thimble
- 5/8" x 3' trailing rope grab with attached nylon web lanyard and Zsnaphook 3.6M Gate
- Reusable Roof Anchor with fasteners
- Bucket
- Certified ANSI

One Size Fits Most: (S - XL)	Part Number: 05003

1D

Fall Protection

WORK BELTS

WORK BELTS ARE FOR POSITIONING ONLY:
They must be used in combination with a full body harness for fall arrest applications.

01310 - 01314

Eagle® Waist Belts

Nylon Web

Available Sizes:	Part Number:
(XS)	01310
(S)	01311
(M)	01312
(L)	01313
(XL)	01314

02000 - 02006

WorkMaster® Replacement Belts

Nylon Web

Available Sizes:	Part Number:
(XS)	02000
(S)	02001
(M)	02002
(L)	02003
(XL)	02004
(2XL)	02005
(3XL)	02006

03190 - 03194

Miner's Body Belts

Reinforced, 3" Backpad,
Nylon & Polyester Web

Available Sizes:	Part Number:
(XS)	03190
(S)	03191
(M)	03192
(L)	03193
(XL)	03194

03200 - 03204

Double D Body Belts

3" pad and 2 D-rings,
Nylon Web

Available Sizes:	Part Number:
(XS)	03200
(S)	03201
(M)	03202
(L)	03203
(XL)	03204

03280 - 03286

Eagle® DL Body Belts

5" Backpad, 2 D-rings -Hips Positioning,
Removable Belt

Available Sizes:	Part Number:
(XS)	03280
(S)	03281
(M)	03282
(L)	03283
(XL)	03284
(2XL)	03285
(3XL)	03286

85002, 85004

Work Belts Accessories

Part Number	Description
85002	Tool Belt Loop:1" steel O-ring
85004	Tool Belt Loop: snap clip

Fall Protection

BAGS

84403

84302 - 84304

84221

84231

Bags

Part Number	Description	Features
84403	White Cotton Duck Bucket, 12″ x 15″ with plastic bottom	6″ x 6″ inside pocket, brass snaphook on rope handle
EZE-Man® Rope Bags: Heavy-duty nylon rope bag features carry handles, 2 ring attachments at top, loop in base for attachments, drawstring closure top:		
84302	EZE-Man® Rope Bag, 12″ x 12″ deep	Holds up to 350′ (106M) of 1/2″ (12mm) Kernmantle Rope
84303	EZE-Man® Rope Bag, 12″ x 16″ deep	Holds up to 450′ (137M) of 1/2″ (12mm) Kernmantle Rope
84304	EZE-Man® Rope Bag, 12″ x 20″ deep	Holds up to 550′ (167M) of 1/2″ (12mm) Kernmantle Rope
Utility Bags: Heavy-duty zipper, rigid bottom, footed cleats:		
84221	Sturdy Red Bag, 11″ x 24″ x 14″ deep	Weather Resistant, Carry all your fall protection equipment
84231	Sturdy Camo Bag, 11″ x 24″ x 14″ deep	Weather Resistant, Carry all your fall protection equipment

84520

84521

84522

88010

88199

Bolt and Duffle Bags

Part Number	Description	Features
84520	Red Canvas Bolt Bag, 2.5″x 10″ x 9″ deep	Belt Tunnel
84521	Red Canvas Bolt Bag, 2.5″x 10″ x 9″ deep	Belt Tunnel, Draw String
84522	Canvas Deep Bolt Bag, 2.5″x 10″ x 14″ deep	Deep Drawstrings, Belt Tunnel, Inside Pocket
88010	Heavy-duty Nylon Bag, 22.5″x 11″ x 11″ deep	Carry handles, Shoulder Strap
88199	White Duck Bolt Bag, 8″x 4″ x 10″ deep	Inside Pocket, Belt Snap Straps

Fall Protection

CONFINED SPACE

Economy EZE-Man™ Confined Space Systems - 7′

Field-proven leaders in tripod entry and rescue systems:

Confined Space Entry and Rescue Systems are designed for lowering and lifting personnel into and out of confined spaces where a tripod system is required. Man-rated to 310 lbs.

- Deluxe EZE-Man™ Winch 3:1 Ratio
- Tripod Pulley
- Tripod Head Assembly
- Tripod Leg Assembly
- One Auto-lock Carabiner*
- Yoke
- Tote Bag
- Tripod Bag
- Winch Bag
- Harness Bag
- Five D-ring Universal® Harness
- Rope Grab with Lanyard
- Nylon Rope Lifeline

42559

(Available in the following lengths):	
Length	Part Number:
(50′)	05612
(100′)	05614

EZE-Man™ Confined Space Systems

Field-tested and Rugged – Two proven winners, One First-rate System.

Combining a self-retracting lifeline with an Elk River Tripod our system offers a superior solution in a challenging work environment.

- Deluxe EZE-Man™ Winch 3:1 Ratio
- Tripod Pulley
- Tripod Head Assembly
- Tripod Leg Assembly
- Two Auto-lock Carabiners*
- Yoke
- Tote Bag
- Tripod Bag
- Winch Bag
- Harness Bag
- Five D-ring Universal® Harness
- Self-Retracting Lifeline

42559

(Available with the following lengths):	
Length	Part Number:
(50′)	05632
(65′)	05635

EZE-Man® Replacement Parts

EZE-Man™ Head Assembly	15300
EZE-Man™ Leg Assembly, telescopic legs 4.5′ - 7′	15301
Leg Mount	13075
Replacement Chains	04730
3″ Head Pins	04124
2″ Leg Pins	04125

Deluxe EZE-Man™ Winch

3:1 ratio with Quick-connect leg attachment, various GAC lengths available:

(Available in the following lengths):	
Length	Part Number:
(25′)	21125
(50′)	21150
(65′)	21165

Fall Protection

BACK SUPPORT

Extra Effective, Extra Protective, Extra Comfortable:

The Back-EZE™ offers comfortable support which promotes proper lifting techniques under a variety of conditions.

30000 - 30006

40000 - 40006

Back-EZE™ Black Polyester Safety Belts

Part Number	Size	Feature	Part Number	Size	Feature
30000	XS	without suspenders	40000	XS	with suspenders
30001	S	without suspenders	40001	S	with suspenders
30002	M	without suspenders	40002	M	with suspenders
30003	L	without suspenders	40003	L	with suspenders
30004	XL	without suspenders	40004	XL	with suspenders
30005	2XL	without suspenders	40005	2XL	with suspenders
30006	3XL	without suspenders	40006	3XL	with suspenders

40020 - 40026

40040 - 40046

Back-EZE™ Black Polyester Safety Belts

Part Number	Size	Color	Part Number	Size	Color
40020	XS	Safety Green	40040	XS	Safety Orange
40021	S	Safety Green	40041	S	Safety Orange
40022	M	Safety Green	40042	M	Safety Orange
40023	L	Safety Green	40043	L	Safety Orange
40024	XL	Safety Green	40044	XL	Safety Orange
40025	2XL	Safety Green	40045	2XL	Safety Orange
40026	3XL	Safety Green	40046	3XL	Safety Orange

Cargo Control

Cargo Control

⚠ WARNING ⚠

Death / injury can occur from improper use or maintenance of cargo control equipment.

To avoid injury:

- Do not use for overhead lifting.
- Work only with secure footing.
- Inspect equipment before use and periodically during use. Remove from service if cracked, worn, or deformed.
- Do not exceed working load limits. Do not overload - binders develop approximate working load with hand effort.
- Use only alloy (Grade 80 or above) chain for overhead lifting.

RECOMMENDED OPERATING PRACTICES FOR CARGO CONTROL EQUIPMENT

TIE DOWN INSTRUCTIONS: Observe the following instructions and precautions when tying down and binding loads:1.Maintain secure footing at all times.2.Inspect equipment before use. Do not use hooks, shackles, links, clips, chain, and other equipment components that are bent, elongated, gouged, nicked, excessively worn, or damaged. Make certain that nuts, bolts, pins, and other fasteners are tightened and secured.3.Follow DOT FMCS Regulations S392.9, S393.100, and S393.102, and Commercial Vehicle Safety Alliance Cargo Sacraments Tie-Down Guidelines.4.Do not exceed the working load limit of equipment. Refer to literature by grade for specific working load limits. 5.Center load in hooks, shackles, rings, and other such equipment components. Use spacers on bolts and pins as necessary to maintain center loading. 6. Do not apply load to hook latches; latches are to retain slack slings and chains only.7.Avoid sudden jerks when applying the load. Rapid load application can produce overloading.8.Free all twists, knots, and kinks. Apply load in a straight line fashion.9.Refer to specific instructions when applying load binders. Observe warnings and stand clear of binder handles at all times.10.Use only alloy chain and attachments (Grade 80 or above) for overhead lifting.11.Inspect load periodically for securement.

Load Binders & Binder Chains

Lever Type

Size in Inches	Working Load Limit in Pounds	Proof Load in Pounds	Approx. Wt. Each in Pounds
1/4	2,600	5,200	3.66
5/16 - 3/8	5,400	10,800	8.18
3/8 - 1/2	9,200	18,400	15.20

- Forged, Heat Treated Steel

Ratchet Type

Size in Inches	Working Load Limit in Pounds	Proof Load in Pounds	Approx. Wt. Each in Pounds
1/4	2,600	5,200	3.64
5/16 - 3/8	8,800	17,600	10.48
3/8 - 1/2	15,000	30,000	11.62
1/2 - 5/8	15,000	26,000	4.55

- Forged Steel on load bearing or holding parts

- Lubricate and inspect regularly
- Do not operate load binders while standing on load.
- Keep out of path of moving handle
- Release load carefully
- Do not handle extensions (Cheater Bars)
- Be familiar with state and local regulations regarding size and number of chains required for proper load securement

Binder Chains

Size x Length	Grade	Working Load Limit in Pounds	Approx. Wt. Each in Pounds
5/16‴ x 20′	70	4,700	20.16
3/8″ x 20′	70	6,600	29.65
1/2″ x 20′	70	11,300	48.00
5 /16″ x 20′	80	4,500	24.56
3/8″ x 20′	80	7,100	32.90
1/2″ x 20′	80	12,000	57.16

*Additional sizes & grades available upon request

NOT FOR OVERHEAD LIFTING!

QUICKBINDER - Folding Handle Ratchet Binder

TAMPER RESISTANT

3-POSITION PAWL

QuickBinder PLUS has higher strength ratings for use with either Grade 70 Transport or Grade 80 Alloy tie-down chains. Features yellow zinc plated hooks.

For Chain Size (in.)	Take-Up (in.)	Handle Length Folded (in.)	Handle Length Straight (in.)	Working Load Limit LBS	Working Load Limit KGS	Factory Package	Weight (lbs.) / ea.
5/16 or 3/8	6.0	9.50	13.9	7,100	3,220	1	11.40
3/8 or 1/2	6.0	9.50	13.9	12,000	5,443	1	13.90
1/2 or 5/8	6.0	9.50	13.9	18,100	8,210	1	18.20

NOT APPROVED FOR OVERHEAD LIFTING

Cargo Control

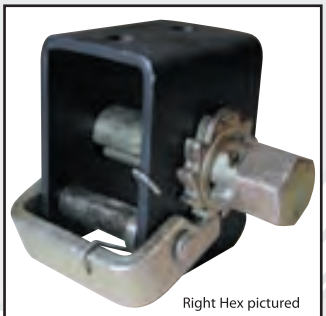
WINCHES

All 4" winches working load limit is 5,550 lbs.
2" winches working load limit is 3,333 lbs.

TW4PS
4" Portable Winch
Standard Profile
with 2 Set Screws

TW4SS
4" Combination Winch
Weld-on or Sliding,
Standard Profile

TW4WS
4" Weld-on Winch
Standard Profile



Right Hex pictured

2" Lashing Winches

TW2LLH
-Left Hand Hex Drive

TW2LRH
-Right Hand Hex Drive

TW2LRB
-Right Hand Bar Drive

Cargo Control Warnings

Never use "Cheater Bars" with chain binders.

Never use cargo control hardware that is bent, cracked, broken or defective in any way.

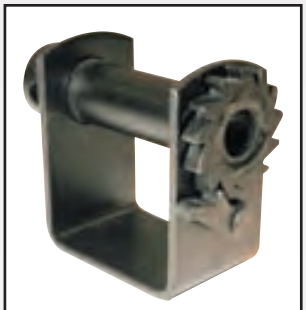
Never exceed the Working Load Limit (WLL) of any product or assembly.

Never over load or create a top heavy load which creates an unstable trailer.

Inspect products before each use.

Never repair or splice synthetic webbing.

Never use synthetic webbing if it is melted, charred, punctured, snagged, broken, worn, cut or has any other visual defect.



TW4WH
4" Weld-on Winch
High Profile

TW4SH
4" Combination Winch
Weld-on or Sliding
High Profile

Winch Bars

WBSP Standard Painted Winch Bar	**WBSC** Standard Chrome Winch Bar	**WBCC** Combination Winch Bar Chrome

Always use a slip resistant winch bar handle specifically designed to tighten or loosen winches.

4" Winch Strap
with Flat Hook

Working load limit is based on new product in a straight line pull. Age, wear, damage, etc. can dramatically reduce this rating.

Winch Straps

Strap Size	Wt. Each in Lbs.	WLL in Lbs.
4"x30'	4.33	5,000
4"x40'	5.76	5,000
4"x50'	7.20	5,000

* Additional sizes available upon request.

Fits all "TW4" series winches.
Assemblies are constructed with premium, heavy duty polyester webbing

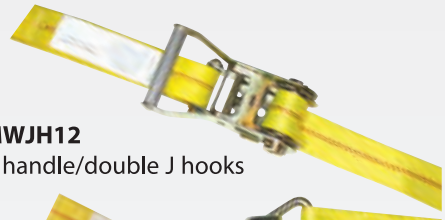
RATCHET STRAPS

1" Rachet Straps

ITEM#	Strap Size	Wt. Each in Lbs.	WWL in Lbs.
TD112SH3	1"x12'	1.95	1,000
TD115SH3	1"x15'	2.02	1,000
TD63	1"x63"	1.30	440
TD80	1"x80"	1.33	440

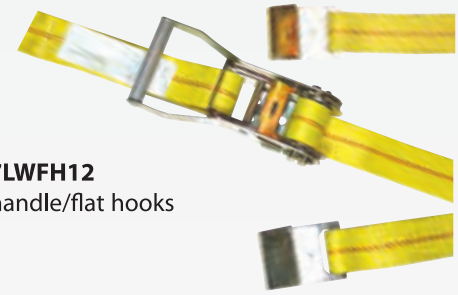
TD63
1" Light duty ratchet with standard "S" hooks

TD112SH3
1" Heavy duty ratchet with mar resistant "S" hooks



TD227MWJH12
Medium handle/double J hooks

TD227MWFH12
Medium handle/flat hooks



TD227LWFH12
Long handle/flat hooks

2" Ratchet Straps

ITEM#	Strap Size	Wt. Each in Lbs.	WWL in Lbs.
TD227MWJH12	2"x27'	6.01	3,333
TD227MWFH12	2"x27'	6.01	3,333
TD227LWFH12	2"x27'	6.04	3,333

All Cargo Products are individually tagged with working load limits and product warnings to meet or exceed applicable standards.
All 2" Assemblies are constructed with extra strength polyester webbing.
Do not use for towing or lifting.

Rachet Strap Warnings

- Remove tie down from service if any condition or damage causes doubt as to its strength.
- Protect strap from rough or sharp edges.
- Never use a tie down for lifting or towing.
- A qualified person handling the tie down must inspect it every time it is used.
- Never repair a tie down - it must be removed from service.
- Never pull a tie down if a load is resting on it.

Cargo Control

RATCHET BUCKLES


RB1N1760


R B1W3300B


*RB1W3300SS


R B2W4400


*R B2MW6600DSS


R B2SN10000D


RB2MW10000D


R B2LW10000D


RB2MW10000DWSH


RB322000


RB3SH

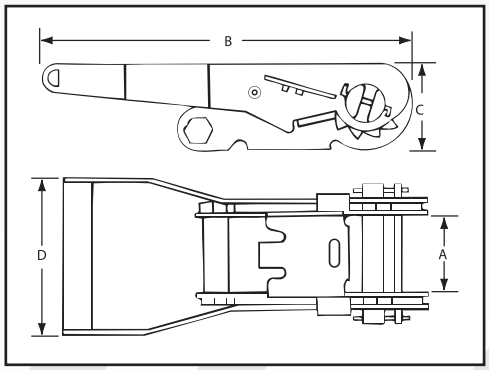

RB424000

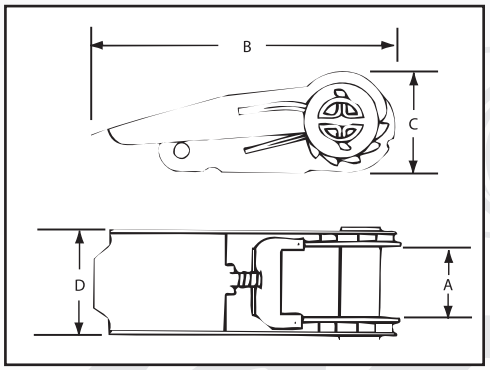
Ratchet Buckles

ITEM#	Description	A: Web Size Inches	B: Overall Length Inches	C: Height Inches	D: Width Inches	Approx. Weight Each in Pounds	Working Load Limit	Breaking Strength in Lbs.**
RB1N1760	1" Ratchet	1.06	4.57	1.57	1.46	.47	585	1,760
RB1W3300B	1" Ratchet	1.06	5.12	1.57	2.36	.78	1,100	3,300
RB1W3300SS*	1" Ratchet Stainless Steel	1.10	5.04	1.57	2.40	.78	1,100	3,300
RB2W440	2" Ratchet Light Duty	2.05	5.12	16.5	3.27	1.04	1,333	4,000
RB2MW6600DSS*	2" Ratchet Stainless Steel	2.13	7.56	2.36	3.9	2.3	2,200	6,600
RB2SN10000D	2 Ratchet Narrow Handle	2.13	6.46	2.36	3.03	2.08	3,333	10,000
RB2MW10000D	2" Ratchet Medium Handle	2.13	7.64	2.36	4.02	2.32	3,333	10,000
RB2MW10000DWSH	2" Ratchet Med. Handle w/hook	2.13	7.64	2.36	4.02	2.32	2,200	6,600
RB2LW10000D	2" Ratchet Long Handle	2.13	9.17	2.36	4.09	2.45	3,333	10,000
RB322000	3" Ratchet Standard Handle	3	13.07	3.62	4.33	6.42	7,333	22,000
RB3SH	3" Ratchet Short Handle	3	8.90	3.31	3.98	6.04	7,333	22,000
RB424000	4" Ratchet	4.09	12.68	3.35	5.31	7.94	8,000	24,000

*Stainless Steel

**Breaking Strength listed for comparison purposes only.





Do not reuse hardware without inspecting and proof testing. Remove hardware from service if it shows any sign of wear, corrosion, pitting, or cracks. Do not repair.

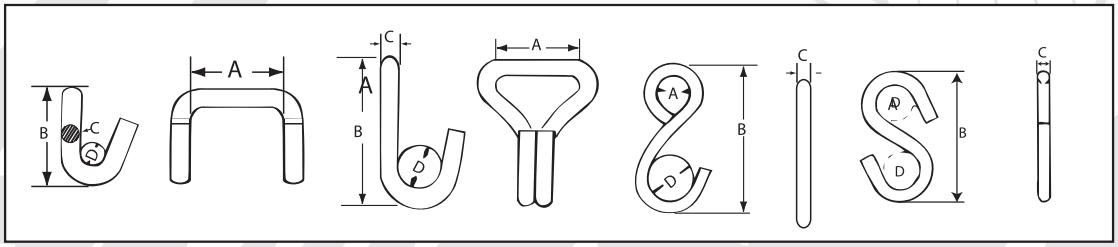
DOUBLE J,S & CLAW HOOKS

Always use hooks in straight line pull. Ultimate responsibility for correct usage lies with end user.

Double "J","S"& Claw Hooks

ITEM#	Products	A: Web Size Inches	B: Overall Length (in)	C: Wire Diam. (in)	D: Object Diam. (in)	Approx. Weight Each in Pounds	Working Load Limit	Breaking Strength in Lbs.**
*SHSS880	S Hook	0.98	3.86	.39	1.18	.16	293	880
SHZ1200	S Hook	0.98	4.06	0.27	0.98	.14	400	1200
SHV1200	S Hook (Vinyl Coated)	0.98	4.06	0.27	0.98	.15	400	1200
SHYZ1500	S Hook	0.91	3.27	0.31	0.98	.15	500	1,500
SHV1500	S Hook (Vinyl Coated)	0.91	3.27	0.31	0.98	.17	500	1,500
SHV1760	S Hook (Vinyl Coated)	1.0	4.65	0.31	1.12	.16	586	1,760
SHV3300	S Hook (Vinyl Coated)	1.0	4.57	0.37	1.12	.32	1,100	3,300
SHY1500T	S Hook		3.15	0.31	0.98	.16	500	1,500
WH1DJ1500	1" Double "J" Hook	1.1	1.85	0.24	0.43	.10	500	1,500
WH1DJ3000	1" Double "J" Hook	1.06	2.36	0.28	0.79	.14	1,000	3,000
WH1DJ3300	1" Double "S" Hook	1.10	3.15	0.31	0.79	.32	1,100	3,300
*WH1DJ3300SS	1" Double "J" Hook	0.98	3.22	.39	0.79	.32	1,100	3,300
*WH2DJ4400SS	2" Double "J" Hook	1.97	3.35	0.47	0.98	.61	1,466	4,400
WH2DJ5000	2" Double "J" Hook	1.97	3.35	0.37	1.0	.40	1,666	5,000
WH2DJ11000	2" Double "J" Hook	1.97	3.35	0.47	1.0	.66	3,666	11,000
WH3DJ22000	3" Double "J" Hook	3.03	5.63	0.63	0.79	1.65	7,333	22,000
WH2C11000	2" Claw Hook	2.05	2.28	0.47	0.55	.38	3,666	11,000

*Stainless Steel

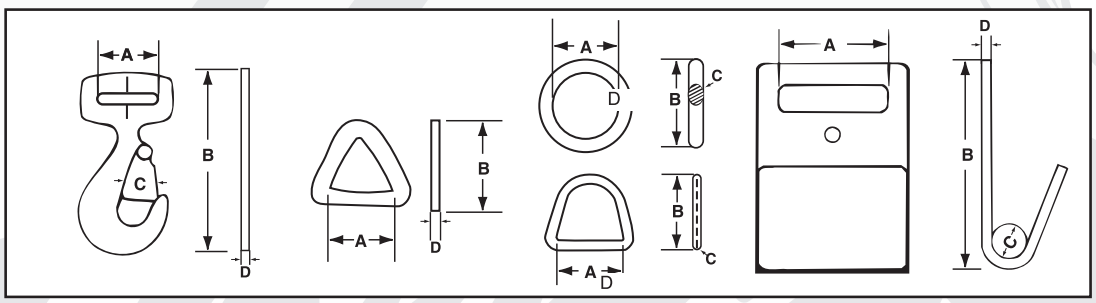


FLAT HOOKS, SNAP HOOKS, DELTA & ROUND RINGS

Always use hooks in straight line pull. Ultimate responsibility for correct usage lies with end user.

Flat Hooks, Snap Hooks, Delta & Round Rings

ITEM#	Products	A: Web Size Inches	B: Overall Length (in)	C: Object Diam. (in)	D: Metal Thickness	Approx. Weight Each in Pounds	Working Load Limit	Breaking Strength in Lbs.**
RR382YZ	3/8" x 2" Round Ring	2.00	2.76		0.37	.28	1667	5,000
DR2YZ5000	2" D Ring	2.00	1.81		0.27	.10	1,666	5,000
DR1YZ6500	1" D Ring with Crossbar	1.25	2.86			.20	2,166	6,500
DR2YZ11000	2" Forged Delta Ring	2.00	3.07		0.18	.32	3,666	11,000
DR3YZ18000	3" D Ring (Avail. in Galvanized)	2.91	3.90		0.55	.84	6,000	18,000
DR4G20000	4" D Ring (Avail. in Yellow Zinc)	4.00	4.33		0.6	1.42	6,666	20,000
FS1T3300	1" Twisted Snap Hook	1.00	4.4	0.435	0.15	.21	1,100	3,300
FS26000	2" Flat Snap Hook	2.00	4.29	0.98	0.18	.34	2,000	6,000
FS211000	2" Snap Hook	2.00	6.2	0.83	0.24	.72	3,666	11,000
FS2T11000	2" Twisted Snap Hook	2.00	6.02	0.83	0.24	.72	3,666	11,000
FS6600WS	Snap Hook with 2 Sleeves		5.08		0.16	.40	2,200	6,600
FH1W0C750	1" Flat Hook	1.26	1.06	0.28	0.09	.04	250	750
FH2WOC5000	2" Flat Hook	1.9	2.95	0.65	0.18	.38	1,666	5,000
FH2W0C10000	2" Flat Hook (Avail. with wear clips)	1.9	3.82	0.65	0.18	.72	3,333	10,000
FH2F11000	2" Forged Flat Hook	1.97	4.21	1.26	0.39	1.08	3,666	11,000
FH4W0C15000	4" Flat Hook (Avail. with wear clips)	2.7	3.82	0.65	0.2	1.14	5,000	15,000

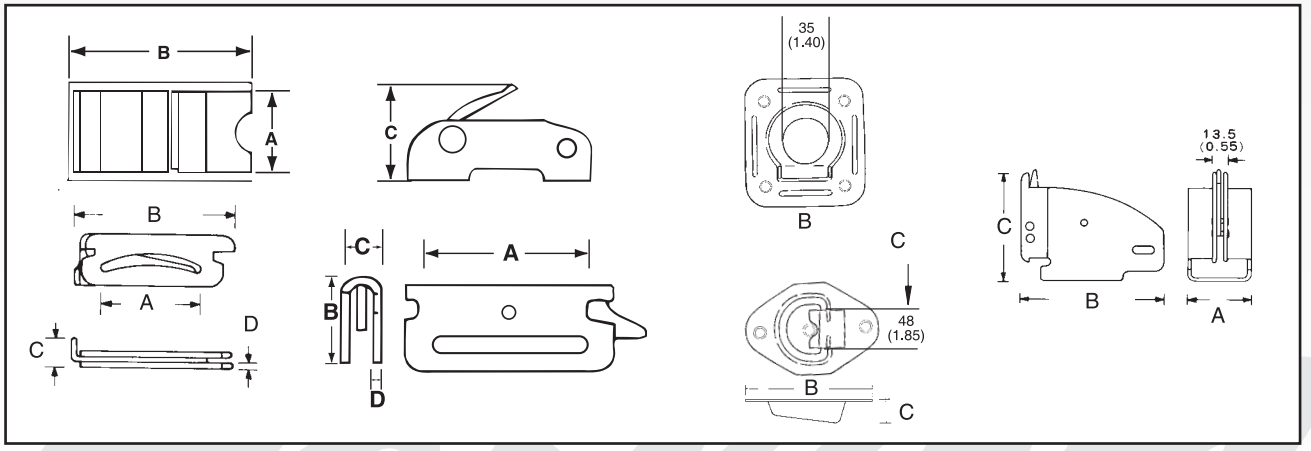


Cargo Control

BUCKLES, SOCKETS, FITTINGS & RINGS

Cam Buckles, Wood Beam Sockets, 'E' Track Fittings & Rings

ITEM#	Products	A: Web Size Inches	B: Overall Length (in)	C: Height Inches	D: Metal Thickness	Approx. Weight Each in Pounds	Working Load Limit	Breaking Strength in Lbs.**
CB1550	1" Cam buckle	1.0	1.77	0.67		.08	184	550
CB11500	1" Cam buckle	1.1	2.52	1.14	0.12	.26	500	1,500
CB22500	2" Cam buckle	2.13	2.99	1.18	0.12	.55	834	2,500
CB23000	2" Cam buckle	2.17	2.91	1.38	0.12	.88	1,000	3,000
SE25000	2" 'E' Track Fitting	2.0	2.95	0.55	0.12	.20	1,667	5,000
SE3P3000	2" 3-Piece 'E' Track Fitting	1.93		0.47	0.10	.16	1,000	3,000
WBS3000	Wood Beam Socket	1.93	4.33	3.39	0.12	.94	1,000	3,000
FR1200	Recessed Wall Ring		5.0	0.40		.40	400	1,200
FR5000	Recessed Floor Ring		4.85	0.95		1.10	1,667	5,000



Cordage

RECOMMENDED OPERATING PRACTICES

Diameter & Size Number Values

Size is determined by linear density; diameter is given as a minimal value, that is, it may vary slightly. If a specific diameter value is specified, linear density and minimum breaking strength values may be different from those given in tables. Size number is given as a reference.

Working Loads

Minimum breaking strength is based on data from a number of manufacturers and represents a value of 2 standard deviations below the mean, as established by regression analysis. The working load of a rope shall be determined by dividing the minimum breaking strength by the design factor. Design factors range from 5 to 12 for non-critical applications.

Because of the wide range of rope use, rope conditions, exposure to the several factors affecting rope behavior, and the degree of risk to life and property involved, it is not realistic to make standard recommendations as to design factors or working loads. However, to provide guidelines, a range of design factors and working loads are provided for rope in good condition with appropriate splices, in non-critical applications and under normal service conditions. Normal service is generally considered to be used under static or very modest dynamic load conditions.

Design factors at the low end of the suggested range should only be selected with expert knowledge of conditions and professional estimate of risk, based on the critical conditions of use below.

Critical Conditions of Use

Design factors at the high end of the range or larger shall be used when:

1) Small ropes are used because they can be more severely damaged by cutting, abrasion & sunlight.
2) Loads are not accurately known.
3) Operators are poorly trained.
4) Operation/use procedures are not well defined and/or controlled.
5) Inspection is infrequent.
6) Abrasion, cutting, dirt are present.
7) Shock loads or extreme dynamic loadings are likely.
8) High temperatures are present.
9) Chemicals are present.
10) Ropes are kept in service indefinitely.
11) Tensions on the rope are maintained continuously for long periods.
12) Rope can be subject to sharp bends if used over pulleys or surfaces with too small a radius.
13) If knots are used, strength is reduced by up to 50%
14) Death, injury or loss of valuable property may result from failure.

Dynamic Loading

Whenever a load is picked up, stopped, moved or swung, there is an increased force due to dynamic loading. The more rapidly or suddenly such actions occur, the greater this increase will be. In extreme cases, the force put on the rope may be two, three, or even more times the normal load involved; for instance, when picking up a tow on a slack line or using a rope to stop a falling object. Therefore, in all such applications as towing lines, life lines, safety lines, climbing ropes, etc., design factors must reflect the added risks involved.

Users should be aware that dynamic effects are greater on a low-elongation rope such as manila than on a high-elongation rope such as nylon and greater on a shorter rope than a longer one. The range of design factors given contains provision for very modest dynamic loads. This means that the load must be handled slowly and smoothly to minimize dynamic effects.

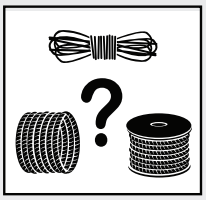
Special Safety Note

A dangerous situation occurs if personnel are in line with a rope under excessive tension. Should the rope fail, it may recoil; with considerable force - especially if the rope is nylon. Death may result. Persons must be warned against standing in line with the rope.

Special Applications

The design factor ranges are not necessarily intended to apply in those applications where a thorough engineering analysis of all conditions of use has been made by qualified professionals. In such cases, breaking strength, elongation, energy absorption, behavior under long-term or cyclic loading, and other pertinent properties and operating procedures may be evaluated to allow the selection of a design factor best suited to the requirements.

Cordage



NOTE: Because of the wide range of rope use, rope condition, exposure to the several factors affecting rope behavior, and the degree of risk to life and property involved, it is impossible to cover all rope applications in this section. In all cases where risk is involved, or there is a question about the condition of use, consult the manufacturer. This is not intended to apply to rescue rope. Consult the manufacturer for specific applications.

CHOOSING A ROPE

Always consult the manufacturer before using rope when personal safety or possible damage to property is involved.

Make sure the rope is adequate for the job. Do not use too small a rope or the wrong type. Specifications are available from your dealer, distributor, or the manufacturer, which gives the strength and recommended working loads for various sizes and constructions of hard fiber and synthetic rope.

REMOVING ROPE FROM COILS & REELS

Remove rope properly from coils or reels to prevent kinking.

If the rope is in a coil, it should always be uncoiled from the inside as directed by the manufacturer. If on a reel, the rope should be removed by pulling it off the top while the reel is free to rotate. This can be accomplished by passing a pipe through the center of the reel and jacking both ends up in a horizontal position until the reel is free from the surface. To proceed in any other manner may cause kinks or hockles (strand distortion).

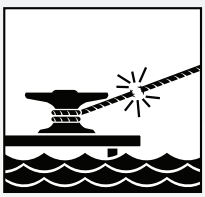
HANDLING ROPE

Never stand in line with rope under tension. If a rope or attachment fails, it can recoil with sufficient force causing physical injury. Synthetic rope has higher recoil/snapback tendencies than natural fiber rope.

Reverse rope ends regularly, particularly when used in tackle. This permits even wearing and assures longer, useful life. When using tackle or slings, apply a steady, even pull to get full strength from rope. For maximum safety and economy, always use slings employing an angle of about 45˚.

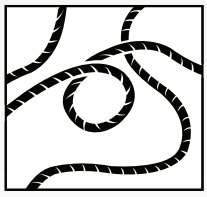
OVERLOADING

Do not overload rope. Sudden strains of shock loading can cause failure.



Avoid sudden strains - shock loads can exceed breaking strength. Shock loading can cause failure of a rope normally strong enough to handle the load. Working loads are not applicable when the rope is subject to significant dynamic loading. Whenever a load is picked up, stopped, moved, or swung, there is an increased force due to dynamic loading. The more rapidly or suddenly such actions occur, the greater this increase will be. In extreme cases, the force put on the rope may be two, three, or even more times the normal load involved. Examples could be picking up a tow on a slack line or using a rope to stop a falling object. However, working loads as given do not apply in all such applications as towing lines, life lines, safety lines, climbing ropes, or the like.

Users should be aware that dynamic effects are greater on a low elongation rope such as manila than on a high elongation rope such as nylon, and greater on a shorter rope than on a longer one. Excessive dynamic loading of a high elongation rope is equally dangerous, because of stored energy which will cause the rope to recoil dangerously if it breaks. When a working load has been used to select a rope, the load must be handled slowly and smoothly to minimize dynamic effect and avoid exceeding the provision for them.



WINCHING LINES

Proper procedures will prevent kinks and hockles in three-strand twisted rope.

Repeated hauling of a line over a winch in a counterclockwise direction will extend the lay of twisted rope and simultaneously change the twist of each strand. As this action continues, strand hockles or back turning may develop. Once these hockles appear they cannot be removed, and the rope is permanently damaged at the point of hockling. If the line is continuously hauled over a winch in a clockwise direction, the rope lay is shortened, and the rope becomes stiff and will kink readily.

CHECKING ROPE FOR WEAR

Avoid using rope that shows signs of aging and wear. If in doubt, destroy the used rope.

No type of visual inspection can be guaranteed to accurately and precisely determine actual residual strength. When the fibers show wear in any given area, the rope should be re-spliced, downgraded, or replaced. Check the line regularly for frayed strands and broken yarns. Pulled strands should be rethreaded into the rope if possible. A pulled strand can snag on a foreign object during a rope operation.

Both outer and inner rope fibers contribute to the strength of the rope. When either is worn, the rope is naturally weakened. Open the strands of rope (either three-strands or braided) slightly and look for powdered fiber, which is one sign of internal wear. A heavily used rope will often become compacted or hard which indicates reduced strength. The rope should be discarded if this condition exists.

Rope Selection Guide

There are two types of fibers used in construction of ropes and twines, natural and synthetic. The most common natural fibers used are Manila, Sisal, Jute, and Cotton, while synthetic fibers such as Polypropylene. polypropelyne, Nylon, and Polyester have become the most popuar in today's market.

MANILA rope was once the preferred choice in ropes before the synthetic fibers were developed. Manila ropes still maintain some advantages to synthetic fibers. It is not affected by heat, and has an excellent resistance to the suns UV (Ultraviolet) rays.

SISAL fibers come from the Agave and Sisalana plants grown in some tropical countries. Sisal has many of the characteristics of manila, but offers only 80% of its strength. It is more economical than manila, and makes a good choice as a general purpose rope. It is commonly used as a tying twine.

POLYPROPYLENE & POLYETHYLENE make a flexible and lightweight rope. They are rot proof, resist oil, water, gasoline, and most chemicals. They are the only rope fibers that float. Available twisted or braided, they are a perfect economical choice as a general purpose rope.

NYLON is known for its elasticity and tremendous shock absorbing qualities. It has good abrasion resistance, is rot proof, resists oil, gasoline, and most chemicals. It has good resistance to UV rays. Nylon will last 4-5 times longer than natural fibers.

Rope Selection Guide

FIBER TYPE	NYLON	POLYPROPYLENE	POLYETHYLENE	MANILA
STRENGTH	1	3	4	5
WET STRENGTH VS. DRY STRENGTH	85%	100%	100%	115%
SHOCK LOAD ABILITY	1	2	4	5
FLOATS OR SINKS IN WATER	SINKS	FLOATS	FLOATS	SINKS
ELONGATION AT BREAK	20-34%	15%-20%	10%-15%	10%-15%
WATER ABSORPTION	6%	ZERO	ZERO	100%
MELTING POINT	480° F	330° F	275° F	DOES NOT MELT CHARS AT 350° F
ABRASION RESISTANCE	2	4	5	3
DEGRADATION: RESISTANCE TO SUNLIGHT	GOOD	POOR	FAIR	GOOD
DEGRADATION: RESISTANCE TO ROT	EXCELLENT	EXCELLENT	EXCELLENT	POOR
DEGRADATION: RESISTANCE TO ACIDS	POOR	GOOD	GOOD	POOR
DEGRADATION: RESISTANCE TO ALKALIS	GOOD	GOOD	GOOD	POOR
DEGRADATION: RESISTANCE TO OIL AND GAS	GOOD	GOOD	GOOD	POOR
ELECTRICAL CONDUCTIVITY RESISTANCE	POOR	GOOD	GOOD	POOR
FLEXING ENDURANCE	1	3	6	4
SPECIFIC GRAVITY	1.14	.90	.95	1.38
STORAGE REQUIREMENTS	WET OR DRY	WET OR DRY	WET OR DRY	DRY ONLY

Cordage

Polypropylene Rope - Monofilament

This rope will float, has excellent resistance to most common chemicals. It is also resistant to rot, mildew and deterioration. It has good abrasion and UV resistance, good strength, and moderate stretch. Additional colors and combinations available.

Yellow Item No	Black Item No	2 Yellow/1 Blk Item No	Diameter	Length	Approx Wt
300010	301050		3/16"	600'	4 lbs
300015	301055	301006	3/16"	1,200'	8 lbs
300035	301060	301010	1/4"	600'	7 lbs
300040	301065	301015	1/4"	1,200'	14 lbs
	301067		1/4"	2,400'	28 lbs
300055	301075	301020	5/16"	600'	11 lbs
300060	301077	301021	5/16"	1,200'	22 lbs
300075	301085	301023	3/8"	600'	16 lbs
300080			3/8"	1,200'	32 lbs
300110	301089		7/16"	600'	21 lbs
300115			7/16"	1,200'	42 lbs
300120	301090		1/2"	600'	28 lbs
300125	301092		1/2"	1,200'	56 lbs
300130			9/16"	600'	35 lbs
300140	301095		5/8"	600'	43 lbs
300145			5/8"	1,200'	86 lbs
300150	301100		3/4"	600'	62 lbs
300155	301715		3/4"	1,200'	124 lbs
300160	301103		7/8"	600'	85 lbs
300200	301105	301038	1"	600'	108 lbs
300205			1"	1,200'	216 lbs
300210		301039	1-1/8"	600'	136 lbs
300220	301118	301040	1-1/4"	600'	165 lbs
300236		301043	1-1/2"	600'	236 lbs
300242			1-5/8"	600'	276 lbs
300247		301044	1-3/4"	600'	318 lbs
300251		301046	2"	600'	414 lbs
		301047	2"	600'	414 lbs
300253			2-1/4"	600'	528 lbs
300261		301045	2-1/2"	600'	642 lbs
300271		301048	3"	600'	918 lbs

Polypropylene Truck Rope - Black/Orange

Truck rope conforms to California State Highway Patrol requirements. Orange surface marker in each strand.

Item No	Diameter	Length	Minimum Tensile	Approx Wt
305005	3/8"	600'	2,190 lbs	16 lbs
305010	3/8"	1,200'	2,190 lbs	32 lbs
305015	7/16"	600'	2,840 lbs	21 lbs
305020	7/16"	1,200'	2,840 lbs	42 lbs
305025	1/2"	600'	3,400 lbs	28 lbs
305030	1/2"	1,200'	3,400 lbs	56 lbs
305035	5/8"	600'	5,020 lbs	43 lbs
305040	3/4"	600'	6,860 lbs	62 lbs
305045	1"	600'	11,540 lbs	108 lbs

Cordage

Nylon Rope - 3 Strand

High elongation and strength, good energy absorption, good abrasion resistant, excellent resistance to UV, rot, mildew, oil, grease, gasoline and many chemicals. White is the standard color however other sizes and colors are available.

Standard Item No	Gulf Spec* Item No	Black Nylon Item No	Diameter	Length	Approx Wt
315005	409005		3/16"	600'	7 lbs
315010	409010		3/16"	1,200'	14 lbs
315015	409015	316203	1/4"	600'	10 lbs
315020	409020	316430	1/4"	1,200'	20 lbs
315025	409025	316204	5/16"	600'	16 lbs
315030	409030		5/16"	1,200'	32 lbs
315035	409035	316205	3/8"	600'	22 lbs
315040	409040		3/8"	1,200'	44 lbs
315045	409045		7/16"	600'	31 lbs
315055	409050	316215	1/2"	600'	40 lbs
315060	409055		1/2"	1,200'	80 lbs
315100		316300	9/16"	600'	50 lbs
315110	409060	316230	5/8"	600'	62 lbs
315115	409065		5/8"	1,200'	124 lbs
315120	409070	316235	3/4"	600'	90 lbs
315125	409071		3/4"	1,200'	180 lbs
315130	409080		7/8"	600'	122 lbs
315140	409085	316250	1"	600'	160 lbs
315145	409090		1"	1,200'	320 lbs
315150	409095		1-1/8"	600'	202 lbs
315160	409100		1-1/4"	600'	249 lbs
315200	409105		1-1/2"	600'	358 lbs
315217			1-3/4"	600'	486 lbs
315220	409110		2"	600'	636 lbs
315230	409109		2-1/4"	600'	804 lbs
315235	409113		2-1/2"	600'	990 lbs

*Gulf spec products may have different weights.

4 Strand PACIFIC™ Manila Safety Line

Manila safety line is a natural fiber made from abaca, low stretch, excellent abrasion resistant. Poor chemical resistance, subject to rot and it has a 3/16" diameter wire center.

Item No	Diameter	Length	Approx Wt
203525	7/8"	600'	160 lbs

Cordage

Manila on Wooden Reels			
Item No	Diameter	Length	Approx Wt
201003	1/4"	600'	11 lbs
201005	1/4"	1,200'	22 lbs
201007	5/16"	600'	16 lbs
201010	5/16"	850'	22 lbs
201015	3/8"	600'	25 lbs
201020	7/16"	600'	29 lbs
201025	1/2"	600'	42 lbs
201030	5/8"	600'	76 lbs
201035	3/4"	600'	95 lbs

PACIFIC ™ Manila Rope Coils

Manila rope is a natural fiber made from abaca, low stretch and good abrasion resistant. Poor chemical resistance, subject to rot. Available with blue tracer or with no tracer. Meets Federal Specifications number TR605, Type M.

Standard Item No	Gulf Spec Item No	Diameter	Length	Approx Wt
200005	200495	3/16"	3,300'	45 lbs
200007	200500	1/4"	600'	10 lbs
200010	200506	1/4"	1,250'	25 lbs
	200505	1/4"	1,200'	22 lbs
200015	200510	1/4"	2,500'	50 lbs
200016		5/16"	600'	16 lbs
200021	200515	5/16"	830'	22 lbs
200020		5/16"	1,725'	44 lbs
200025	200525	3/8"	600'	25 lbs
200030	200530	3/8"	1,200'	50 lbs
200035	200535	7/16"	600'	29 lbs
200045	200545	1/2"	600'	42 lbs
200050	200550	1/2"	1,200'	84 lbs
200055	200555	5/8"	600'	76 lbs
200060	200560	5/8"	1,200'	142 lbs
200065	200565	3/4"	600'	95 lbs
200070	200570	3/4"	1,200'	190 lbs
200100	200575	7/8"	600'	128 lbs
200110	200585	1"	600'	154 lbs
200115	200590	1"	1,200'	308 lbs
200120	200595	1-1/8"	600'	206 lbs
200130	200605	1-1/4"	600'	238 lbs
200138	200610	1-1/2"	600'	342 lbs
200151	200635	2"	600'	612 lbs

Cordage

Sisal Rope Coils

Sisal rope is a natural fiber made from the Agave plant, no oil treatment.
Moderate stretch, poor chemical resistance, subject to rot, knots well.

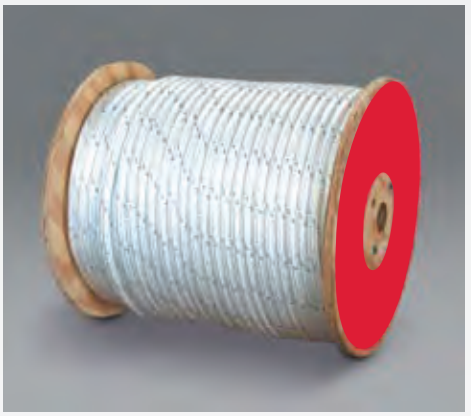
Item No	Diameter	Length	Approx Wt
208001	3/16"	3,300'	43 lbs
208005	1/4"	1,500'	26 lbs
208010	1/4"	2,500'	43 lbs
208015	5/16"	1,725'	43 lbs
208025	3/8"	600'	22 lbs
208030	3/8"	1,200'	43 lbs
208040	1/2"	600'	37 lbs
208050	5/8"	600'	64 lbs
208065	3/4"	600'	80 lbs
208066	7/8"	450'	80 lbs
208069	1"	370'	80 lbs

Nylon Double Braid Rope

High strength, high stretch, torque free, excellent shock absorption, good resistance to abrasion, ultraviolet rays and common chemicals. Due to its high elongations, nylon is almost always used in applications involving shock loading such as anchor lines and mooring lines.

Item No	Diameter	Length	Color	Minimum Tensile	Approx Wt Per 600'
345015	1/4"	600'	White	1,900 lbs	11 lbs
345014	1/4"	600'	Gold/White	1,900 lbs	11 lbs
345099	1/4"	600'	Black	1,900 lbs	11 lbs
345025	5/16"	600'	White	2,900 lbs	16 lbs
345035	3/8"	600'	White	4,200 lbs	22 lbs
345012	3/8"	600'	Gold/White	4,200 lbs	22 lbs
345110	3/8"	600'	Black	4,200 lbs	22 lbs
345045	7/16"	600'	White	5,700 lbs	31 lbs
345050	1/2"	600'	White	7,400 lbs	40 lbs
345013	1/2"	600'	Gold/White	7,400 lbs	40 lbs
345120	1/2"	600'	Black	7,400 lbs	40 lbs
345060	5/8"	600'	White	14,800 lbs	70 lbs
345011	5/8"	600'	Gold/White	14,800 lbs	70 lbs
345115	5/8"	600'	Black	14,800 lbs	70 lbs
346070	3/4"	600'	White	19,000 lbs	88 lbs
346107	7/8"	600'	White	28,300 lbs	131 lbs
346110	1"	600'	White	33,500 lbs	156 lbs
346125	1-1/8"	600'	White	44,900 lbs	213 lbs
346127	1-1/4"	600'	White	52,300 lbs	244 lbs
346130	1-1/2"	600'	White	74,000 lbs	350 lbs
346135	1-5/8"	600'	White	92,400 lbs	434 lbs
346137	1-3/4"	600'	White	110,900 lbs	526 lbs
346140	2"	600'	White	131,500 lbs	623 lbs

Larger sizes and colors are available upon request.



Cordage

Premium Sash Cord - Hanks

This cord has an interlocking solid braid construction, a durable composite cotton cover, and is polished with a weather resistant coating. It also has a synthetic reinforcing core. Hanks are 100' connected and shrink wrapped.

Item No	Size	Diameter	Length	Qty/Ctn	Average Tensile	Approx Wt/Ctn
120005	#6	3/16"	100'	12	260 lbs	12 lbs
120010	#7	7/32"	100'	12	330 lbs	17 lbs
120015	#8	1/4"	100'	12	600 lbs	22 lbs
120020	#10	5/16"	100'	12	1,000 lbs	34 lbs
120025	#12	3/8"	100'	12	1,200 lbs	41 lbs
120030	#16	1/2"	100'	12	1,400 lbs	60 lbs

Premium Sash Cord - Spools

Item No	Size	Diameter	Length	Qty/Ctn	Average Tensile	Approx Wt/Spool
120031	#6	3/16"	1,200'	1	260 lbs	12 lbs
120041	#8	1/4"	1,200'	1	600 lbs	22 lbs
120046	#10	5/16"	1,200'	1	1,000 lbs	34 lbs
120051	#12	3/8"	1,200'	1	1,200 lbs	41 lbs
120052	#16	1/2"	1,000'	1	1,400 lbs	46 lbs

Custom Lifting

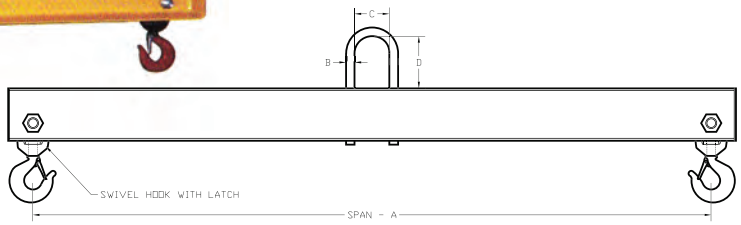
Approved for Overhead Lifting

Economy Tong

Stock #	Grip Range (Inches)	Ring ID (Inches)	Lbs. Per Each	WLL (Lbs.)
ET1004	0 - 4	2.5	6.0	1,000
ET1548	4 - 8	3.0	12.0	1,500
ET20812	8 - 12	4.0	28.0	2,000

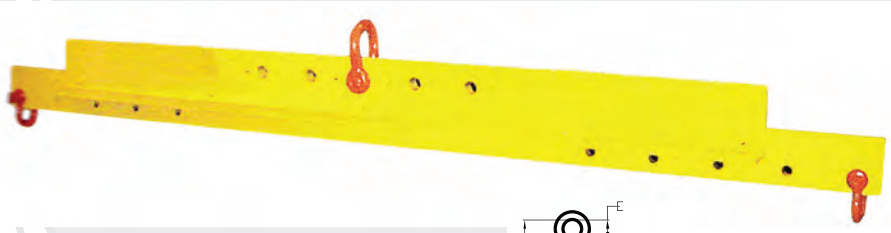
Safe-Grip Bar Tong

Stock #	Grip Range (Inches)	Working Height (Inches)	Lbs. Per Each	WLL (Lbs.)
BT1004	0 - 4	13.8	11.0	1,000
BT4007	4 - 7	21.5	28.0	4,000



Standard Lifting Beam

Span "A"												Upper Bail Dimensions (Inches)				
4 Ft.		8 Ft.		10 Ft.		12 Ft.		15 Ft.		20 Ft.						
Stock #	Lbs. Per Each	Stock #	Lbs. Per Each	Stock #	Lbs. Per Each	Stock #	Lbs. Per Each	Stock #	Lbs. Per Each	Stock #	Lbs. Per Each		C		Swivel Hook (Trn/ Material)	WLL Lbs.)
ES15	60	ES18	88	ES110	114	ES112	165	ES115	211	ES120	332	0.63	2	4	1 / Carbon	1,000
ES25	65	ES28	119	ES210	175	ES212	205	ES215	318	ES220	429	0.75	2.5	5	1 / Carbon	2,000
ES45	102	ES48	200	ES410	232	ES412	320	ES415	463	ES420	681	1	3	6	1.5 / Carbon	4,000
ES65	120	ES68	212	ES610	292	ES612	374	ES615	517	ES620	785	1.13	4	8	1.5 / Carbon	6,000
ES85	142	ES88	250	ES810	333	ES812	435	ES815	639	ES820	1,051	1.13	4	8	2 / Carbon	8,000
ES105	189	ES108	290	ES1010	390	ES1012	512	ES1015	848	ES1020	1,117	1.38	4	8	3 / Alloy	10,000
ES155	224	ES158	392	ES1510	594	ES1512	686	ES1515	1,216	ES1520	1,751	1.5	5	10	4.5 / Alloy	15,000
ES205	293	ES208	535	ES2010	628	ES2012	1,008	ES2015	1,411	ES2020	1,788	1.75	5	10	5 / Carbon	20,000
ES305	446	ES308	787	ES3010	1,056	ES3012	1,207	ES3015	1,580	ES3020	2,474	2	6	12	7.5 / Carbon	30,000
ES405	316	ES408	736	ES4010	909	ES4012	1,155	ES4015	1,877	ES4020	3,169	2.5	6	14	11 / Alloy	40,000
ES505	439	ES508	742	ES5010	973	ES5012	1,463	ES5015	2,436	ES5020	3,422	2.75	7	16	15 / Alloy	50,000



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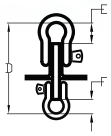
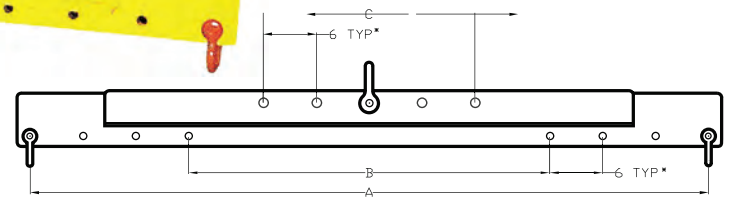




Universal Spreader System

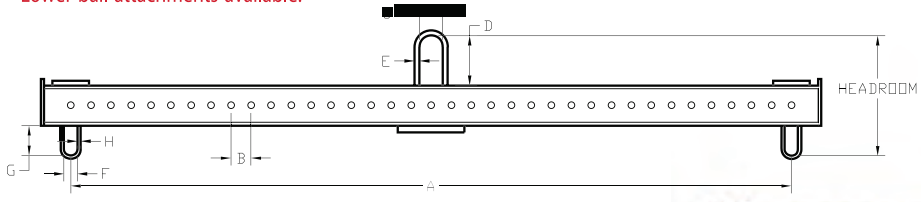
Stock #	Dimensions (Inches) Max. Spread A	Min. Spread B	Bail Adj. Range C	Headroom D	Upper Shackle Clearance E	Lower Shackle Clearance F	Upper Shackle Trade Size	Lower Shackle Trade Size	Lbs. Per Each	WLL (Lbs.)
UNV023	36	18	12	5.10	1.25	0.85	7/16	1/4	20.0	250
UNV054	46	22	16	5.70	1.35	1.34	1/2	7/16	25.0	500
UNV160	72	36	24	6.88	1.35	1.34	1/2	7/16	65.0	1,000
UNV260	72	36	24	7.34	2.02	1.35	3/4	1/2	115.0	2,000
UNV460	77	41	24	10.50	2.43	1.63	7/8	5/8	195.0	4,000
UNV880	96	48	24	12.25	2.94	1.78	1-1/8	3/4	300.0	8,000
UNV1010	116	56	24	14.65	3.50	1.65	1-3/8	3/4	600.0	10,000
UNV1312	140	68	36	17.13	4.00	2.02	1-1/2	7/8	880.0	13,500

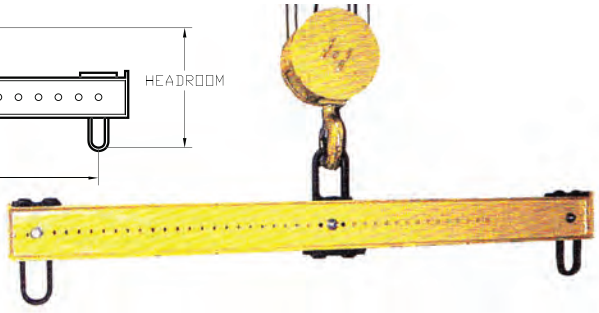
*Supplied with (1) upper and (2) lower Screw Pin Anchor Shackles.

Universal Spreader System*

Stock #	Dimensions (Inches) Reach A	Bail Adj. Range B	Head room Required	Upper Bails C	Upper Bails D	Upper Bails E	Lower Bails F	Lower Bails G	Lower Bails H	Lbs. Per Each	WLL (Lbs.)
AB250	72	2	12	2.50	5.00	0.75	1.50	3.00	0.50	90	2,500
AB400	72	2	15	3.00	6.00	1.00	2.00	4.00	0.75	177	4,000
AB800	96	2	22	4.00	8.00	1.25	3.00	6.00	1.00	289	8,000
AB1000	120	2	26	5.00	10.00	1.50	3.00	6.00	1.00	523	10,000

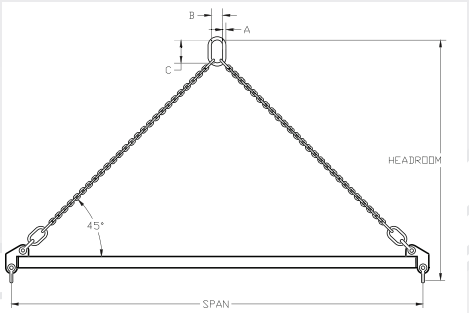
*Lower bail attachments available.





Custom Lifting

Approved for Overhead Lifting



Sling Style Spreader Beam

5 FOOT, 8 FOOT, 10 FOOT LENGTHS *

Dimensions (Inches)									Trade Size (Inches)		Upper Bail Dimensions (Inches)			Swivel Hook (Ton/ Material)	WLL (Lbs.)
5 Ft.			8 Ft.			10 Ft.									
Stock #	Head-room (Inches)	Lbs. Per Ea.	Stock #	Head-room (Inches)	Lbs. Per Ea.	Stock #	Head-room (Inches)	Lbs. Per Ea.	Upper Shackle	Lower Shackle	A	B	C		
USB0405	38	35	USB0408	56	66	USB0410	68	80	1/2	3/8	0.63	3.00	6.00	1.0 / Alloy	4,000
USB0605	38	47	USB0608	56	83	USB0610	68	101	5/8	1/2	0.75	2.75	5.50	1.5 / Alloy	6,000
USB0405	38	50	USB0408	56	88	USB0410	69	141	5/8	1/2	0.75	2.75	5.50	2.0 / Alloy	8,000
USB1205	40	66	USB1208	58	124	USB1210	70	148	3/4	5/8	1.00	3.50	7.00	3.0 / Alloy	12,000
USB2005	43	134	USB2008	61	185	USB2010	73	210	1	7/8	1.25	4.38	8.75	5.0 / Alloy	20,000
USB2805	45	173	USB2808	63	276	USB2810	75	320	1-1/4	1	1.50	5.25	10.50	7.0 / Alloy	28,000
USB3805	46	226	USB3808	64	347	USB3810	76	402	1-3/8	1-1/8	1.50	5.25	10.50	11.0 / Alloy	38,000
USB4805	47	266	USB4808	66	389	USB4810	78	511	1-1/2	1-1/4	1.75	6.00	12.00	15.0 / Alloy	48,000
USB6805	52	378	USB6808	71	596	USB6810	83	769	1-3/4	1-1/2	2.25	8.00	16.00	22.0 / Alloy	68,000

*Lbs Per Each = Beam only (no rigging)

Standard Lifting Beam

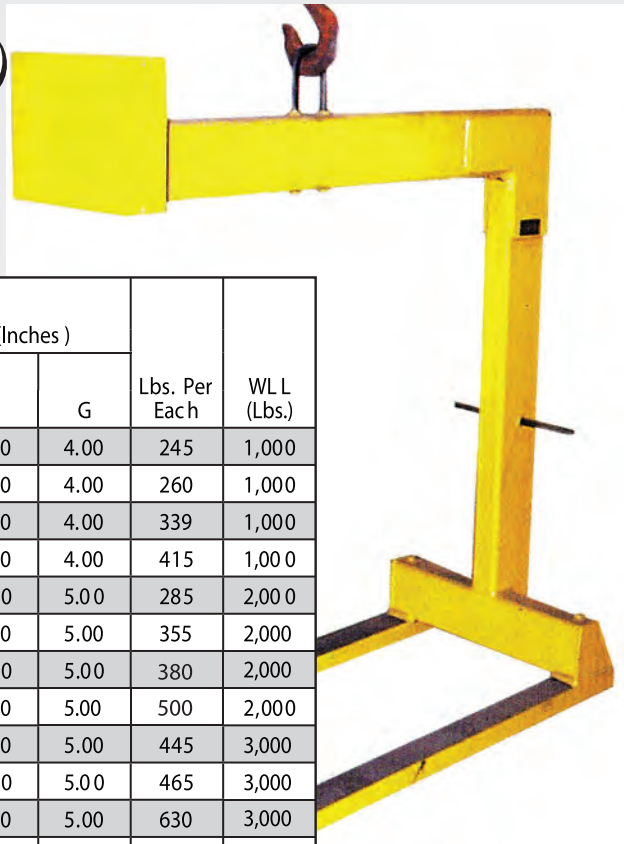
12 FOOT, 15 FOOT, 20 FOOT LENGTHS*

Dimensions (Inches)									Trade Size (Inches)		Upper Bail Dimensions (Inches)			Swivel Hook (Ton/ Material)	WLL (Lbs.)
12 Ft.			15 Ft.			20 Ft.									
Stock #	Head-room (Inches)	Lbs. Per Ea.	Stock #	Head-room (Inches)	Lbs. Per Ea.	Stock #	Head-room (Inches)	Lbs. Per Ea.	Upper Shackle	Lower Shackle	A	B	C		
USB0412	80	116	USB0415	98	143	USB0420	129	258	1/2	3/8	0.63	3.00	6.00	1.0 / Alloy	4,000
USB0612	80	162	USB0615	98	199	USB0620	129	260	5/8	1/2	0.75	2.75	5.50	1.5 / Alloy	6,000
USB0412	81	166	USB0415	99	202	USB0420	129	260	5/8	1/2	0.75	2.75	5.50	2.0 / Alloy	8,000
USB1212	82	173	USB1215	100	286	USB1220	131	344	3/4	5/8	1.00	3.50	7.00	3.0 / Alloy	12,000
USB2012	85	242	USB2015	103	390	USB2020	134	611	1	7/8	1.25	4.38	8.75	5.0 / Alloy	20,000
USB2812	88	335	USB2815	106	520	USB2820	136	772	1-1/4	1	1.50	5.25	10.50	7.0 / Alloy	28,000
USB3812	88	457	USB3815	107	629	USB3820	137	908	1-3/8	1-1/8	1.50	5.25	10.50	11.0 / Alloy	38,000
USB4812	90	576	USB4815	109	768	USB4820	139	1,179	1-1/2	1-1/4	1.75	6.00	12.00	15.0 / Alloy	48,000
USB6812	95	867	USB6815	113	1014	USB6820	144	1,286	1-3/4	1-1/2	2.25	8.00	16.00	22.0 / Alloy	68,000

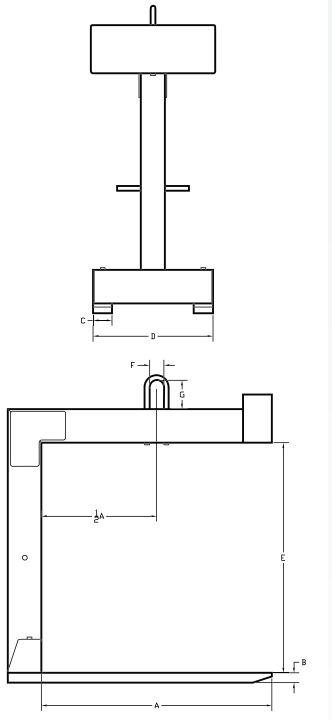
*Lbs Per Each = Beam only (no rigging)

Fixed Fork Pallet Lifter

Approved for Overhead Lifting



Dimensions (Inches)					Lift Bail (Inches)				
Fork Length	Fork Height	Fork Width	Overall Width	Inside Height				Lbs. Per Each	WLL (Lbs.)
A	B	C	D	E	Dia.	F	G		
30	1.00	2.00	20	48	0.63	2.00	4.00	245	1,000
36	2.00	2.00	25	48	0.63	2.00	4.00	260	1,000
42	2.00	2.00	25	48	0.63	2.00	4.00	339	1,000
48	2.00	2.00	25	48	0.63	2.00	4.00	415	1,000
30	2.00	3.00	25	48	0.75	2.50	5.00	285	2,000
36	2.00	3.00	25	48	0.75	2.50	5.00	355	2,000
42	2.00	3.00	25	48	0.75	2.50	5.00	380	2,000
48	2.00	3.00	25	48	0.75	2.50	5.00	500	2,000
36	2.00	3.00	25	48	0.75	2.50	5.00	445	3,000
42	2.00	3.00	25	48	0.75	2.50	5.00	465	3,000
48	2.00	3.00	25	48	0.75	2.50	5.00	630	3,000
36	2.00	3.00	25	48	1.00	3.00	6.00	565	4,000
42	2.00	4.00	25	48	1.00	3.00	6.00	700	4,000
48	2.00	4.00	25	48	1.00	3.00	6.00	720	4,000
36	2.00	4.00	25	48	1.00	3.00	6.00	745	6,000
42	2.00	5.00	27	48	1.00	3.00	6.00	945	6,000
48	2.00	5.00	27	48	1.00	3.00	6.00	1,115	6,000
54	2.00	5.00	30	54	1.00	3.00	6.00	1,215	6,000
36	2.00	5.00	27	48	1.12	4.00	8.00	990	8,000
48	3.00	5.00	27	48	1.12	4.00	8.00	1,200	8,000
60	3.00	5.00	30	60	1.12	4.00	8.00	1,490	8,000
42	3.00	5.00	27	48	1.38	5.00	10.00	1,400	10,000
48	3.00	5.00	30	48	1.38	5.00	10.00	1,540	10,000
54	3.00	5.00	32	54	1.38	5.00	10.00	1,770	10,000
60	3.00	5.00	38	60	1.38	5.00	10.00	2,150	10,000
48	3.00	7.00	30	48	1.50	5.00	10.00	2,350	15,000
60	3.00	7.00	38	60	1.50	5.00	10.00	3,235	15,000
48	3.00	7.00	30	48	1.75	5.00	10.00	2,960	20,000
60	3.00	7.00	38	60	1.75	5.00	10.00	4,320	20,000
72	3.00	8.00	44	60	1.75	5.00	10.00	5,720	20,000
48	3.00	8.00	38	60	2.00	6.00	12.00	5,900	30,000
60	3.00	9.00	38	60	2.00	6.00	12.00	6,385	30,000
72	3.50	9.00	44	60	2.00	6.00	12.00	7,885	30,000
60	3.50	10.00	38	60	2.50	6.00	14.00	7,600	40,000
72	3.50	12.00	44	60	2.50	6.00	14.00	9,530	40,000

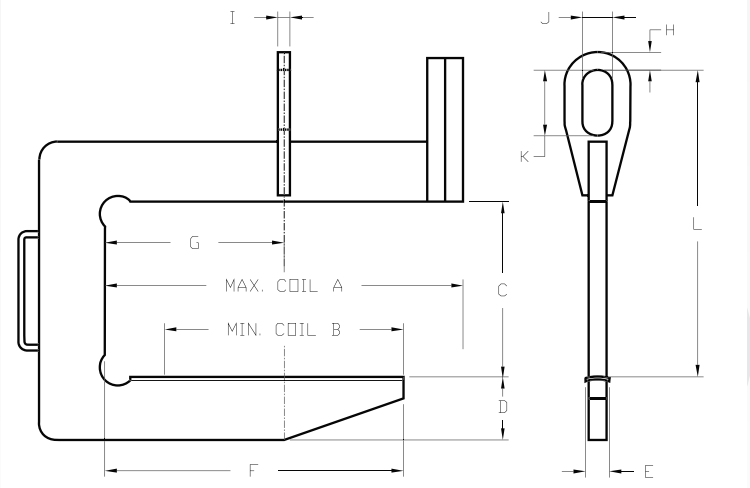


Custom Lifting

C-Shape Coil Lifter

Approved for Overhead Lifting

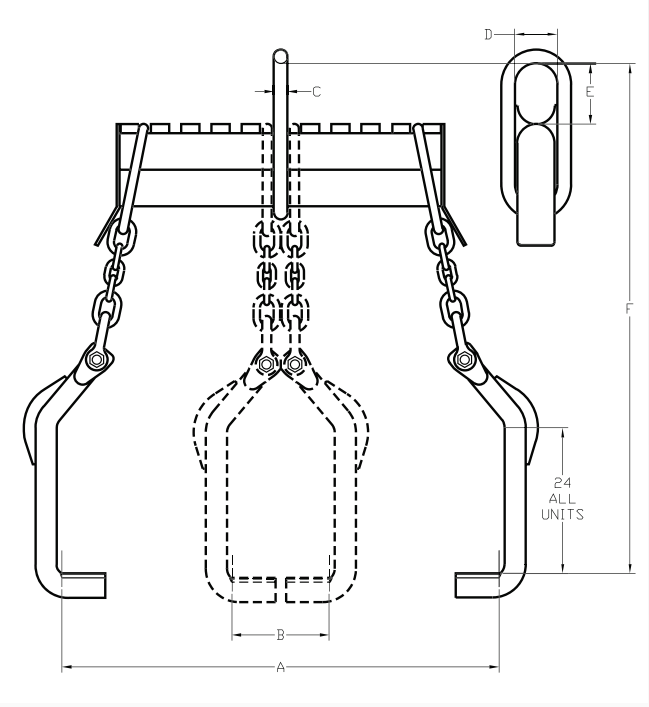
Dimensions (Inches)												Lbs. Per Each	WLL (Lbs.)
Max. Coil	Min. Coil	Inside Height	Ram Height	Ram Width	Ram Length	C/G Length	Bail Height	Bail Width	Bail Opening Width	Bail Opening Height	Head - Room		
A	B	C	D	E	F	G	H	I	J	K	L		
36	24	24	6.13	4	30	18.50	1.25	1.25	4	10	40.75	440	10,000
48	30	24	6.88	4	39	24.50	1.25	1.25	4	10	41.50	550	10,000
60	36	24	4.63	4	48	30.50	1.25	1.25	4	10	42.50	790	10,000
36	24	24	6.88	4	30	48.50	1.50	1.50	4	10	41.75	580	15,000
48	30	24	4.63	4	39	24.50	1.50	1.50	4	10	42.50	730	15,000
60	36	24	8.38	4	48	30.50	1.50	1.50	4	10	43.25	1,010	15,000
36	24	24	7.88	4	30	48.50	1.75	1.75	5	10	43.00	710	20,000
48	30	24	8.38	4	39	24.50	1.75	1.75	5	10	43.50	940	20,000
60	36	24	9.13	4	48	30.50	1.75	1.75	5	10	44.25	1,140	20,000
72	42	24	9.88	4	57	36.50	1.75	1.75	5	10	45.00	1,520	20,000
48	30	30	9.38	4	39	24.50	2.00	2.00	5	10	50.75	1,300	30,000
60	36	30	10.13	4	48	30.50	2.00	2.00	5	10	51.50	1,710	30,000
72	42	34	10.88	4	57	36.50	2.00	2.00	5	10	52.25	2,010	30,000
48	30	34	10.38	4	39	24.50	2.25	2.25	6	14	60.00	1,760	40,000
60	36	34	11.38	4	48	30.50	2.25	2.25	6	14	61.00	2,100	40,000
72	42	34	11.88	4	57	36.50	2.25	2.25	6	14	61.50	2,590	40,000
60	36	34	12.63	4	48	30.50	2.50	2.50	6	18	66.50	2,910	60,000
72	42	34	12.88	4	5	36.50	2.50	2.50	6	18	66.75	3,690	60,000
84	48	34	13.88	4	66	42.50	2.50	2.50	6	18	67.75	4,290	60,000
72	42	36	15.38	5	57	36.50	3.00	3.00	7	20	73.75	5,480	100,000
84	48	36	16.38	5	66	42.50	3.00	3.00	7	20	74.75	6,250	100,000

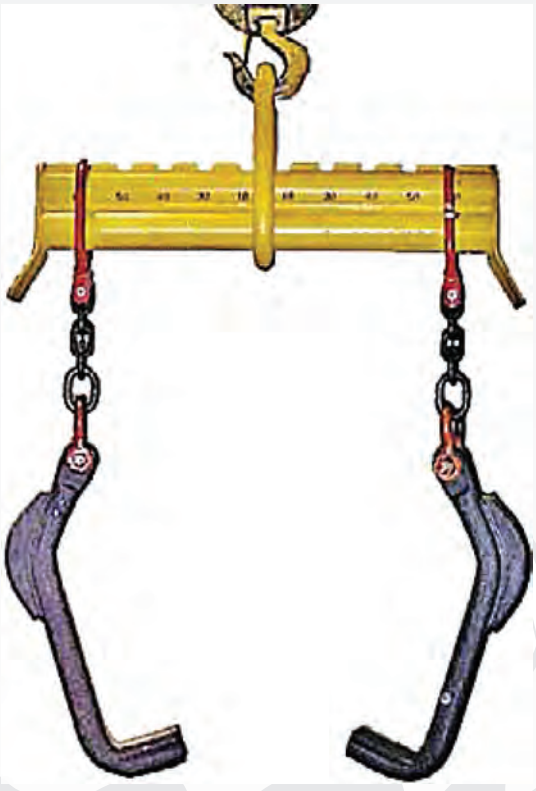


Dual Arm Coil Lifter

Approved for Overhead Lifting

Dimensions (Inches)			Liftin g Bail Dimensions (Inches)				
Max. Coil A	Min. Coil B	Overall Heigh t F	C	D	E	Lbs. Per Each	WLL (Lbs.)
60	14	64	1.50	4.00	8.00	500	10,000
48	14	66	2.00	4.00	10.00	530	20,000
60	14	66	2.00	4.00	10.00	580	20,000
48	18	72	2.00	4.00	10.00	540	30,000
60	18	72	2.00	4.00	10.00	590	30,000
72	18	72	2.00	4.00	10.00	625	30,000
60	18	78	2.50	6.00	10.00	925	40,000
72	18	78	2.50	6.00	10.00	1,000	40,000
60	18	78	2.50	6.00	10.00	955	50,000
72	18	78	2.50	6.00	10.00	1,030	50,000
60	18	78	2.50	6.00	10.00	985	60,000
72	18	78	2.50	6.00	10.00	1,065	60,000





Custom Lifting

MODEL PC - "TEA CUP" PIPE CARRIER

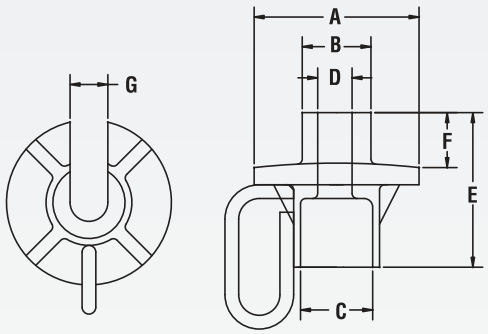
PRODUCT FEATURES:

- An efficient way to handle concrete water and sewer pipes.
- The "Tea Cup" Pipe Carrier will save you time and money.
- Three sizes available, to handle from 3/4" to 1-1/2" cable, and lift up to 18 tons.
- Optional "Spoon Handle" allows the PC-3/4 "Tea Cup" to be guided into small diameter pipes.
- Complies with ASME standards.

SPECIFICATIONS

Model Number	Rated Capacity (tons)	Dimensions (inches)							Weight (lbs)
		A	B	C	D	E	F	G	
PC-3/4*	6.6	5.56	2	2.13	1.13	4.75	1.75	1.13	9
PC-1	13	6	2.50	2.63	1.38	5.75	1.75	1.38	12
PC-1 1/2	18	8	3	3.25	1.63	7.63	2.75	1.63	22

* Can use "Spoon Handle" with this model.



MODEL PC - LOW PROFILE "TEA CUP" PIPE CARRIER

Same quality engineering as the standard model plus:

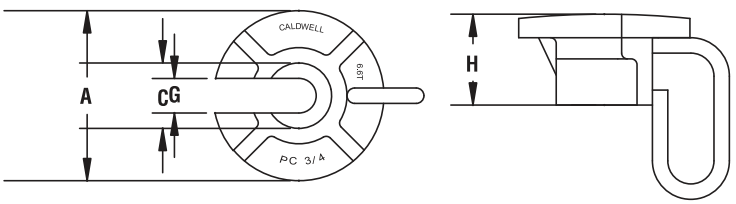
PRODUCT FEATURES:

- Only wire rope needs to be inserted through pipe.

SPECIFICATIONS

Model Number	Rated Capacity (tons)	Dimensions (inches)				Weight (lbs.)
		A	C	H	G	
PC-3/4-F*	6.6	5.56	2.13	3.44	1.13	9
PC-1-F	13	6	2.63	4.38	1.38	12
PC-1 1/2-F	18	8	3.25	5.13	1.63	22

* Can use "Spoon Handle" with this model.



Custom Lifting

"TEA CUP" PIPE CARRIER OPTIONS

OPTION SH - "Spoon Handle"
Length 61.1" with slight bend for ease of use.

"Spoon Handle" for PC-3/4 only
please order SH-3/4.
(Includes bolt on lip)

OPTION LS - "Tea Cup" Lifting Sling

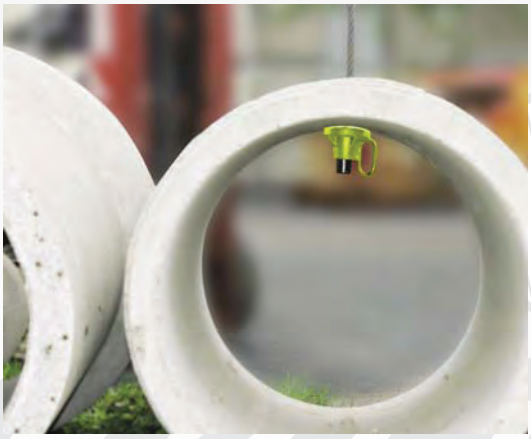
SPECIFICATIONS

Use With	Model Number	Rated Capacity (tons)	Sling Dia. (in.)	Standard Length (ft.)	After Swage (in.)		Wt. (lbs.)
					A	B	
PC-3/4	LS-3/4	4.9	3/4	5	3.25	1.55	9
	LS-7/8	6.6	7/8	5	3.86	1.80	14
PC-1	LS-1	8.5	1	5	4.36	2.05	19
	LS-1 1/8	10	1 1/8	5	4.81	2.30	26
	LS-1 1/4	13	1 1/4	5	5.42	2.56	33
PC-1 1/2	LS-1 1/2	18	1 1/2	5	6.52	3.00	52

NOTE: INSTOCK on standard 5' length only.

OPERATION

Drop pipe carrier lifting sling through hole in pipe. Align and insert "Tea Cup" pipe carrier into lifting sling.



Once set, you are ready to lift the pipe.

DRUM HANDLING SLINGS

Versatile Drum Handling Sling

This sling allows for easy handling of various sizes of steel drums and barrels, and has a 1,000 lb. capacity. It is light in weight, high in strength, and is resistant to oil.

PRODUCT FEATURES:

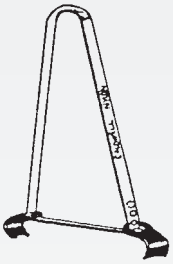
- Lightweight - weighs only 4 lbs.
- Versatile - lifts drums either vertically or horizontally.
- Self-tightening grip - sliding drum hooks tighten grip on load as drum is lifted.
- Tough - resistant to alkalis, ultra violet rays, rot and mildew.

SPECIFICATIONS

Model Number	Rated Capacity (lbs.)	Drum Hook Width (in.)
1HB2-N x 3' or 5'	1000	2-7/8

NOTE: Use on metal drums only.

Type HB



Ratchet Type Drum Handling Sling

- Easily lift standing drums for transport.
- Tilt suspended drums to pour from open top or spigot.
- For use with ribbed steel drums, the ratcheting belly band tightens securely below the first rib.
- Standard wear pad for added protection.
- Ratchet tightens securely.
- Free end of ratchet strap sewn to stay properly threaded.
- Vertical legs sewn to belly band to maintain proper position.

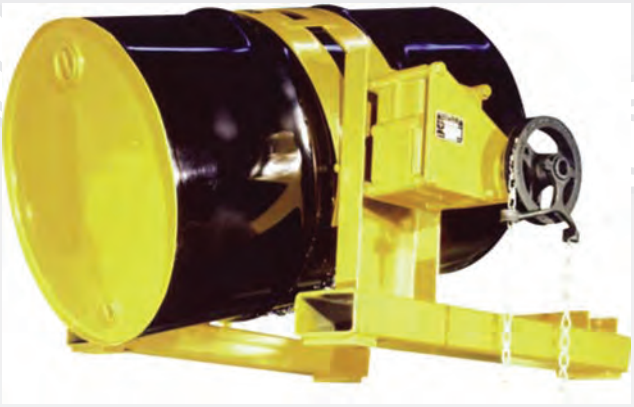
SPECIFICATIONS

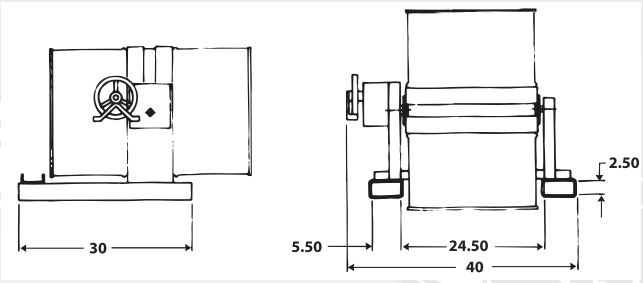
Model Number (specify diameter)	Rated Capacit (lbs.)	Drum Hook Width (in.)
DSV601	300	1
DSV602	850	2

Type DSV

MODEL FDL - FORK LIFT DRUM LIFTER/ROTATOR

The Lifter/Rotator unit is designed for use with a lift truck in areas where an overhead hoist is not available. The drum is secured to the carrier above the level of the forks thus it may be used at the full height of the truck. With the chain wheel, the lift truck driver may rotate the drum from the cab of the truck (10' long drop chain). This unit will handle all standard 55 gallon metal drums.





NOTE: Dimensions shown in inches.

SPECIFICATIONS

Model Number	Rated Capacity (lbs.)		Weight (lbs.)
	Full Drum	Half Drum	
FDL-20-55	2000	1000	310

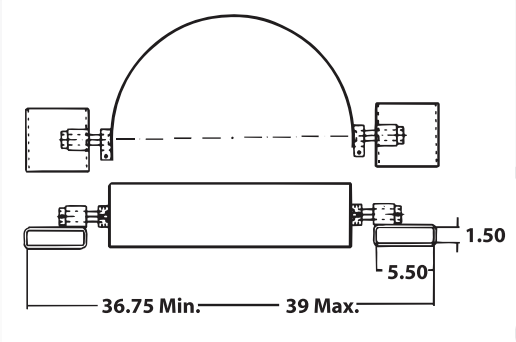
NOTE: The standard model FDL is for lifting drums containing free flowing liquids. Contact factory for drums containing other contents.

MODEL FDD - FORK LIFT DRUM LIFTER/DUMPER

Designed to easily and economically lift, travel with, and dump drums into acceptable type containers. Pressure applied to the drum base against rim of container will tilt drum to preferred angle of emptying. Drum is secured to the lifter by a load binder. This unit will handle all standard 55 gallon metal drums.

⚠ WARNING

Capacity of lift truck and attachment combination may be less than capacity shown on attachment. Consult lift truck manufacturer.



NOTE: Dimensions shown in inches.

SPECIFICATIONS

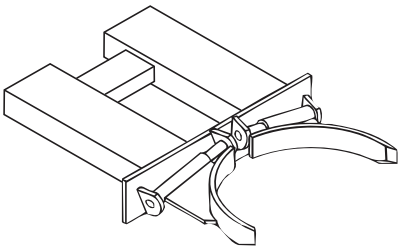
Model Number	Rated Capacity (lbs.)		Weight (lbs.)
	Full Drum	Half Drum	
FDD-10-55	1000	500	38

MODEL FG - STEEL DRUM GRIPPERS

Single Drum Gripper

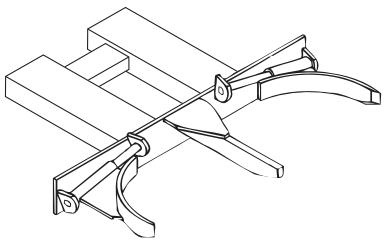
PRODUCT FEATURES:

- High quality heavy duty construction.
- Restraining chain with grab hooks.
- Handles drums of 55 or 30 gallon capacities.
- Lift and release drums without leaving seat.
- Attaches to lift truck quickly and easily.
- Minimum maintenance required.
- Drums will not slip once clamped.
- Quick and easy drum release.

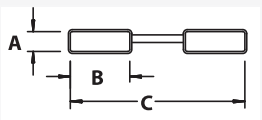


Single Drum Gripper

Double Drum Gripper



Double Drum Gripper



SPECIFICATIONS

Model Number	Drums	Drum Capacity Each (lbs.)	Steel Drum Diameter (in.)		Fork Pockets (in.)			Weight (lbs.)
			55 Gal.	30 Gal.	A	B	C	
FG-1	1	1500	22-3/4	18	2-1/2	7-1/2	23-1/2	230
FG-2	2	1500	22-3/4	18	2-1/2	7-1/2	23-1/2	320

⚠ WARNING

Capacity of lift truck and attachment combination may be less than capacity shown on attachment. Consult lift truck manufacturer.

MODELS 5, 10 & 15 -FORK LIFT BEAMS

Fork Lift Beams are specifically designed to make fork lifts more versatile by providing positive handling of loads otherwise impractical for fork lifts.

PRODUCT FEATURES:

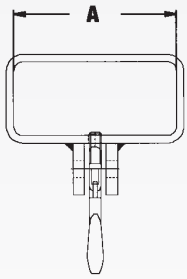
- Easy attachment, no special wrenches or tools needed.
- Strong, sturdy, all welded construction.
- Easy to see, highly visible yellow paint.
- Custom designs available.

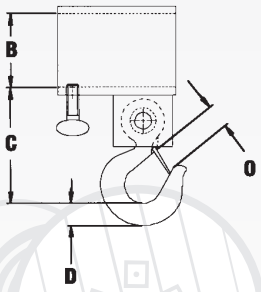
⚠ WARNING

Capacity of lift truck and attachment combination may be less than capacity shown on attachment. Consult lift truck manufacturer.

Model 5 - Single Fork Hook - Fixed or Swivel

(Swivel hook shown)





SPECIFICATIONS

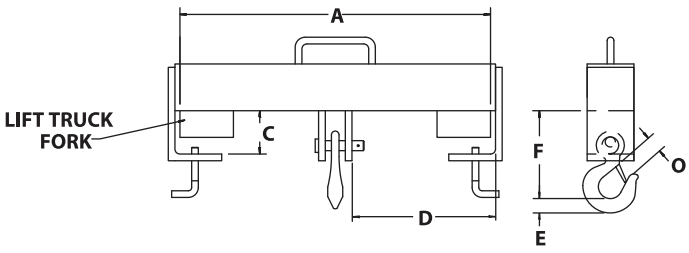
Model Number Fixed	Model Number Swivel	Rated Capacity (lbs.)	Dimensions (in.)						Weight lbs.)
			A	B	C Fixed	C Swivel	D	O	
5-1 1/2-4	5S-1 1/2-4	3000	4-1/2	2-1/2	4-11/16	6-9/16	1	1	7
5-1 1/2-5	5S-1 1/2-5	3000	5-1/2	2-1/2	4-11/16	6-9/16	1	1	8
5-1 1/2-6	5S-1 1/2-6	3000	6-1/2	2-1/2	4-11/16	6-9/16	1	1	9

Custom Lifting

MODEL 10 - SINGLE HOOK BEAM - FIXED OR SWIVEL

Model 10S-2-20

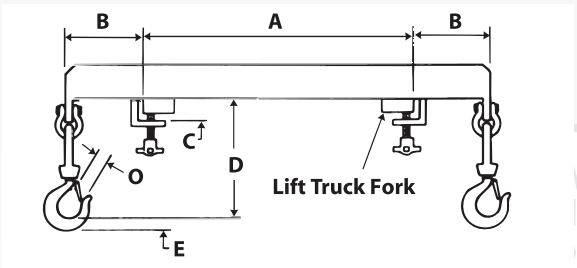
Model 10S-7.5-36



SPECIFICATIONS

Model Number Fixed	Model Number Swivel	Rated Capacity (lbs.)	Dimensions (in.)							Weight (lbs.)
			A	C	D	Fixed F	Swivel F	E	O	
10-2-20	**10S-2-20**	4000	20	3-1/4	9-1/8	7-1/4	8-7/8	1-1/8	1-5/32	21
10-5-24	**10S-5-24**	10000	24	3-1/4	10-3/4	9-1/4	11-7/16	1-13/16	1-11/16	42
10-5-36	**10S-5-36**	10000	36	3-1/4	16-3/4	9-1/4	11-7/16	1-13/16	1-11/16	80
10-7.5-36	**10S-7.5-36**	15000	36	4-1/4	16-1/4	13-3/4	15-3/4	2-1/4	2-7/32	166
10-10-36	**10S-10-36**	20000	36	4-1/4	16	14-5/8	16-7/16	2-19/32	2-13/32	180
10-15-36	**10S-15-36**	30000	36	4-1/4	15-7/8	14-1/2	16-5/16	2-19/32	2-13/32	210

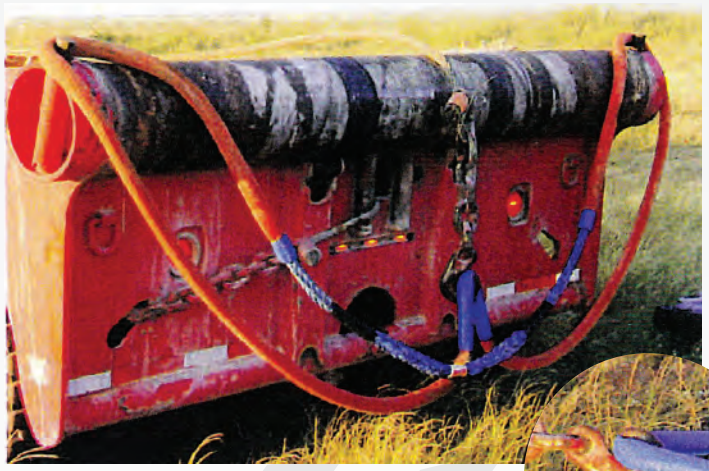
MIXED 15 - DOUBLE HOOK BEAM - SWIVEL



SPECIFICATIONS

Model Number	Rated Capacity (lbs.)	Dimensions (in.)						Weight (lbs.)
		A	B	C	D	E	O	
15-2-20	4000	20	6-5/8	2-1/2	10-3/8	1-7/16	1-11/32	60
15-5-24	10000	24	9-3/8	2-1/2	11-21/32	1-7/16	1-11/32	68

HIGH-PERFORMANCE SYNTHETIC ROPE TRUCK BRIDLES



The 17 lb. bridle has the equivalent strength of the traditional 120 lb. wire rope bridle with no fish hooks, no kins, no corrosion, and reduced snapback.

- **Lightweight - only 17 lb. comparable wire bridles weigh 120 lbs.**
- **Durable - lasts up to 6 times longer than wire rope truck bridles**
- **Same strength or stronger than the same size wire**
- **Easy to use, no kinks, no fish hook hazards and significantly reduced snapback**

These HMPE fiber-based slings are a direct replacement for the wire rope slings historically used in rig moves by the transportation industry. Used for moving drill rigs, compressors, pumps, and rigging for the onshore oil and gas drilling companies, these lightweight, durable slings with custom-designed chafing gear have proven to outlast wire rope slings by 6:1!

MANUAL CHAIN HOISTS

AVAILABLE WITH OVERLOAD PROTECTION!

GR. 80 LOAD CHAIN - AUTO BRAKE - BOLT ON LATCHES - HEAT TREATED HOOKS

HOIST #	TONNAGE RATING	LIFT	CAPACITY LBS.	LOAD CHAIN	HAND CHAIN GALV.	WEIGHT LBS/EA.
VCH12X	1/2	-	1,000	6X18	5X25	13
VCH12X10	1/2	10	1,000	6X18	5X25	24
VCH12X15	1/2	15	1,000	6X18	5X25	29
VCH12X20	1/2	20	1,000	6X18	5X25	35
VCH1X	1	-	2,000	6X18	5X25	17
VCH1X10	1	10	2,000	6X18	5X25	28
VCH1X15	1	15	2,000	6X18	5X25	34
VCH1X20	1	20	2,000	6X18	5X25	42
VCH1X30	1	30	2,000	6X18	5X25	50
VCH112X	1-1/2	-	3,000	8X24	5X25	22
VCH112X10	1-1/2	10	3,000	8X24	5X25	40
VCH112X15	1-1/2	15	3,000	8X24	5X25	46
VCH112X20	1-1/2	20	3,000	8X24	5X25	56
VCH112X30	1-1/2	30	3,000	8X24	5X25	65
VCH2X	2	1	4,000	8X24	5X25	28
VCH2X10	2	10	4,000	8X24	5X25	44
VCH2X15	2	15	4,000	8X24	5X25	51
VCH2X20	2	20	4,000	8X24	5X25	59
VCH2X30	2	30	4,000	8X24	5X25	74
VCH3X	3	-	6,000	8X24	5X25	35
VCH3X10	3	10	6,000	8X24	5X25	59
VCH3X15	3	15	6,000	8X24	5X25	71
VCH3X20	3	20	6,000	8X24	5X25	83
VCH3X30	3	30	6,000	8X24	5X25	98
VCH5X	5	-	10,000	10X30	5X25	62
VCH5X10	5	10	10,000	10X30	5X25	100
VCH5X15	5	15	10,000	10X30	5X25	117
VCH5X20	5	20	10,000	10X30	5X25	135
VCH5X30	5	30	10,000	10X30	5X25	166
VCH10X10	10	10	20,000	10X30	5X25	183
VCH10X15	10	15	20,000	10X30	5X25	214
VCH10X20	10	20	20,000	10X30	5X25	246
VCH20X15	20	15	40,000	10X30	5X25	489
VCH20X20	20	20	40,000	10X30	5X25	509

WARNINGS:
- NEVER EXCEED WORKING LOAD LIMITS
- INSPECT ALL COMPONENTS FREGUENTLY FOR SIGNS OF WEAR OR DAMAGE!
- KEEP LOAD CHAINS LUBRICATED!

REPLACEMENT PARTS AVAILABLE
CHAIN AVAILABLE BY THE FOOT

LEVER HOISTS

GR. 80 LOAD CHAIN - AUTO BRAKE - BOLT ON LATCHES - HEAT TREATED HOOKS

HOIST #	TONNAGE RATING	LIFT	CAPACITY LBS.	LOAD CHAIN	WEIGHT LBS/EA.
VLH14X5	1/4	5	500	4X12	5.5
VLH14X10	1/4	10	500	4X12	6.5
VLH12X5	1/2	5	1,000	5X15	10
VLH12X10	1/2	10	1,000	5X15	12
VLH34X	3/4	w/o	1,500	6X18	13
VLH34X5	3/4	5	1,500	6X18	16
VLH34X10	3/4	10	1,500	6X18	19
VLH34X15	3/4	15	1,500	6X18	22
VLH34X20	3/4	20	1,500	6X18	24
VLH112X	1-1/2	w/o	3,000	8X24	20
VLH112X5	1-1/2	5	3,000	8X24	28
VLH112X10	1-1/2	10	3,000	8X24	32
VLH112X15	1-1/2	15	3,000	8X24	37
VLH112X20	1-1/2	20	3,000	8X24	42
VLH3X	3	w/o	6,000	10X30	38
VLH3X5	3	5	6,000	10X30	46
VLH3X10	3	10	6,000	10X30	54
VLH3X15	3	15	6,000	10X30	61
VLH3X20	3	20	6,000	10X30	69
VLH6X	6	w/o	12,000	10X30	51
VLH6X5	6	5	12,000	10X30	73
VLH6X10	6	10	12,000	10X30	86
VLH6X15	6	15	12,000	10X30	99
VLH6X20	6	20	12,000	10X30	114

1/2 - 3 TON

1/4TON

6 TON

WARNINGS:

- NEVER EXCEED WORKING LOAD LIMITS
- INSPECT ALL COMPONENTS FREGUENTLY FOR SIGNS OF WEAR OR DAMAGE!
- KEEP LOAD CHAINS LUBRICATED!

AVAILABLE WITH OVERLOAD PROTECTION!

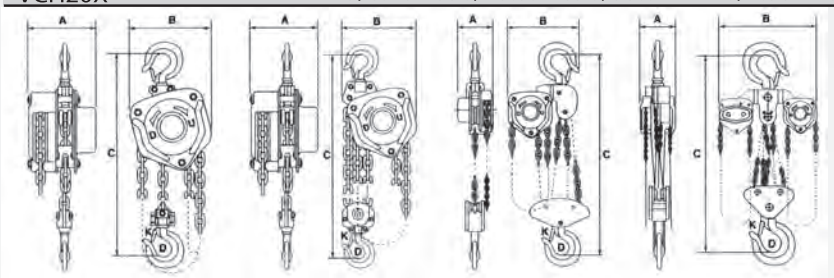
REPLACEMENT PARTS AVAILABLE
CHAIN AVAILABLE BY THE FOOT

Custom Lifting

VCH CHAIN HOIST

HOIST #	CAPACITY METRIC	IN TONS US	PROOF LOAD POUNDS	EFFORT POUNDS	# OF FALLS, LOAD CHAIN	LOAD CHAIN mm
VCH12X	.5	.55	1,650	51.93	1	6X18
VCH1X	1	1.10	3,300	69.46	1	6X18
VCH112X	1.5	1.65	4,950	71.94	1	8X24
VCH2X	2	2.20	6,600	80.93	1	8X24
VCH3X	3	3.31	9,930	76.43	2	8X24
VCH5X	5	5.51	16,530	93.07	2	10X30
VCH10X	10	11.02	33,060	93.07	4	10X30
VCH20X	20	22.05	66,150	93.07X2	8	10X30

HOIST #	DIMENSIONS mm/in	A	B	C	D	K
VCH12X		131/5.16	127/5.00	270/10.63	35/1.38	30/1.18
VCH1X		140/5.51	158/6.22	317/12.48	35.5/1.40	30/1.18
VCH112X		161/6.34	174/6.85	399/15.71	45/1.77	36/1.42
VCH2X		161/6.34	187/7.36	414/16.30	47/1.85	36/1.42
VCH3X		161/6.34	199/7.83	465/18.31	50/1.97	40/1.57
VCH5X		186/7.32	253/9.96	636/25.06	64/2.52	50/1.97
VCH10X		207/8.15	398/15.67	798/31.42	85/3.35	64/2.52
VCH20X		215/8.46	650/25.59	890/35.04	110/4.33	85/3.35



0.5T,1T,2T | 3T,5T | 10T | 20T

AVAILABLE WITH OVERLOAD PROTECTION (OPTIONAL)

SPECIAL FEATURES

- **LIGHT WEIGHT ROBUST CONSTRUCTION**
  AUTOMATIC DOUBLE POWL BREAKING SYSTEM-HEAVY DUTY FRICTION DISCS
- **FORGED HOOKS W/ LATCHES**
  ALLOY LOAD CHAIN-
  ZINC PLATED HAND CHAIN
- **LOW MANUAL EFFORT REQUIRED TO LIFT MAXIMUM LOAD**
- **EACH HOIST PROOF TESTED AT 1.5 TIMES W.L.L. (WORKING LOAD LIMIT)**

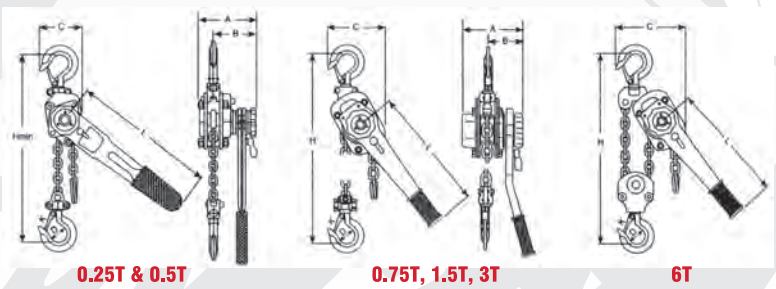
VLH LEVER HOIST

HOIST #	CAPACITY METRIC	IN TONS US	PROOF LOAD POUNDS	EFFORT POUNDS	# OF FALLS, LOAD CHAIN	LOAD CHAIN mm
VLH14X	.25	.28	840	56.20	1	4X12
VLH12X	.5	.55	1,650	76.43	1	5X15
VLH34X	.75	.83	2,490	31.47	1	6X18
VLH112X	1.5	1.65	4,950	49.46	1	8X24
VLH3X	3	3.31	9,930	71.94	1	10X30
VLH6X	6	6.61	16,830	76.43	2	10X30

HOIST #	DIMENSIONS mm/in	A	B	C	D	H	L	K
VLH14X		92/3.62	72/2.83	85/3.35	30/1.16	230/9.06	160/6.30	25/.98
VLH12X		105/4.13	78/3.07	80/3.15	35/1.36	260/10.24	300/11.81	30/1.8
VLH34X		148/5.83	90/3.54	136/5.35	37/1.46	325/12.80	280/11.02	30/1.18
VLH112X		172/6.77	98/3.86	160/6.30	45/1.77	380/14.96	410/16.14	36/1.42
VLH3X		2007.87	115/4.53	180/7.09	50/1.97	480/18.90	410/16014	40/1.57
VLH6X		200/7.87	115/4.53	235/9.25	64/2.52	620/24.41	410/160.14	50/1.97

SPECIAL FEATURES

- **COMPACT DESIGN**
  AUTOMATIC BRAKE ENGAGEMENT HOLDING LOAD AT ANY DESIRED HEIGHT
- **OPTIMAL GEAR RATIO**
  LOAD CHAIN CAN BE PULLED THROUGH THE HOIST WHEN IN NEUTRAL POSITION FOR QUICK TAKE UP.
- **DROP FORGED STEEL CONSTRUCTION**
  FORGED ALLOY HOOKS W/ LATCHES-ALLOY STEEL LOAD CHAIN



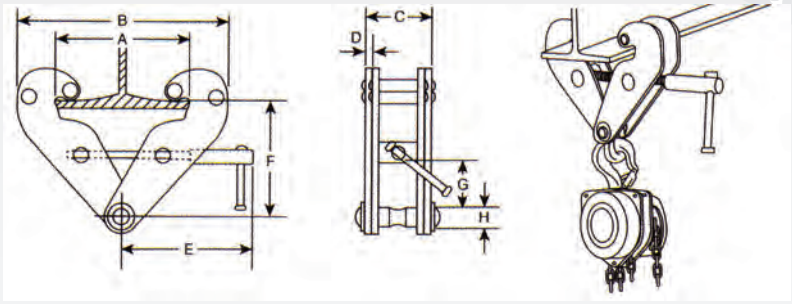
0.25T & 0.5T | 0.75T, 1.5T, 3T | 6T

BEAM CLAMPS

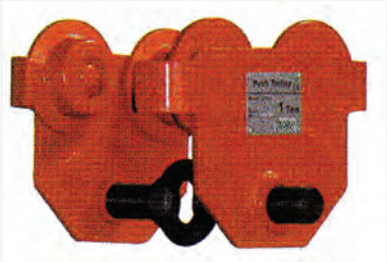
CLAMP #	CAPACITY METRIC	IN TONS US	PROOF LOAD LBS.	APPROX. WEIGHT LBS.
VBC1	1	1.1	3,300	10
VBC2	2	2.2	6,600	11
VBC3	3	3.31	9,930	23
VBC5	5	5.51	16,530	24
VBC10	10	11.02	33,060	35

CLAMP #	FLANGE WIDTH	DIMENSIONS-INCHES A	B	C	D	E	F	G	
VBC1	2.95-8.66	10.24	7.09-14.17	2.52	.20	8.46	4.02-6.10	.98	.87
VBC2	2.95-8.66	10.24	7.09-14.17	2.91	.24	8.46	4.02-6.10	.98	.87
VBC3	3.15-12.6	13.94	9.25-19.29	4.06	.315	10.24	5.51-8.86	1.77	.94
VBC5	3.15-12.6	13.94	9.25-19.29	4.33	.39	10.24	5.51-8.86	1.77	1.10
VBC10	3.15-13.78	15.75	9.84-20.47	4.72	.472	10.24	5.51-9.06	2.76	1.73

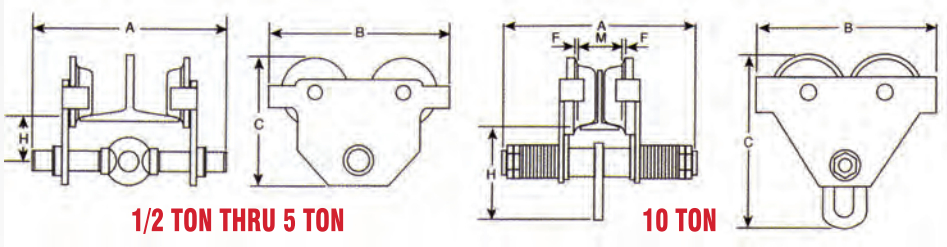
ADJUSTABLE BEAM CLAMPS ARE DESIGNED TO ATTACH TO OVERHEAD I-BEAMS. EASY ANCHOR POINTS FOR CHAIN AND LEVER HOISTS ONLY. DO NOT USE FOR LIFTING OR PULLING.



PUSH TROLLEY



TROLLEY #	CAPACITY METRIC	IN TONS US	APPROX. WEIGHT LBS.	AWIDTH INCHES	DIMENSIONS-INCHES A	B	C	H
VPT12	1/2	.55	11	1.96-8.66	11.22	7.80	6.22	2.54
VPT1	1	1.1	19	1.96-8.66	11.22	9.37	7.20	2.60
VPT2	2	2.2	31	2.60-8.66	11.81	10.90	8.19	2.95
VPT3	3	3.31	52	2.91-8.66	12.64	12.75	9.80	3.35
VPT5	5	5.51	88	3.54-8.66	13.94	14.69	11.67	3.94
VPT10	10	11.02	195	4.92-7.99	15.87	17.91	19.29	10.85



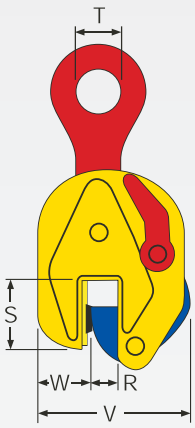
WARNINGS: IMPROPER USE ON OVERLOADING MAY RESULT IN SERIOUS INJURY AND/OR DEATH
THE INSTALLATION OF BEAM CLAMPS MUST ALWAYS BE PERFORMED BY QUALIFIED RIGGERS ONLY WHO ARE FULLY FAMILIAR WITH ALL APPLICABLE STANDARDS (OSHA, ASME 830.16-2007)

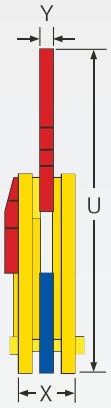
Lifting Clamps

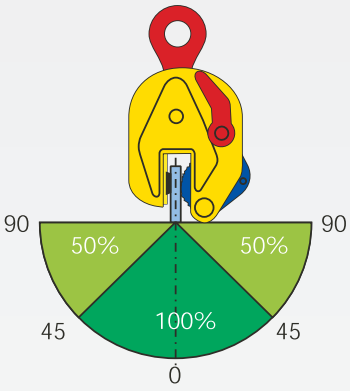
Vertical Clamps

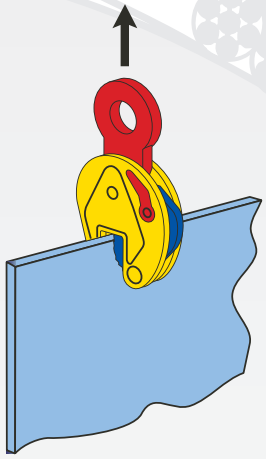
TS/STS

- For vertical lifting and transporting of steel plates and structures.
- TerrierTS/STS lifting clamps are equipped with a pre-tension mechanisms ensuring the clamp does not slip when lifting force is applied and when load is being lowered.
- The clamp is locked in closed as well as in open position.
- Lifting W.L.L. and jaw openings are clearly engraved in the body.
- Terrier STS type clamps are supplied with a larger jaw opening.
- Minimum W.L.L. is 10 % of the maximum W.L.L.







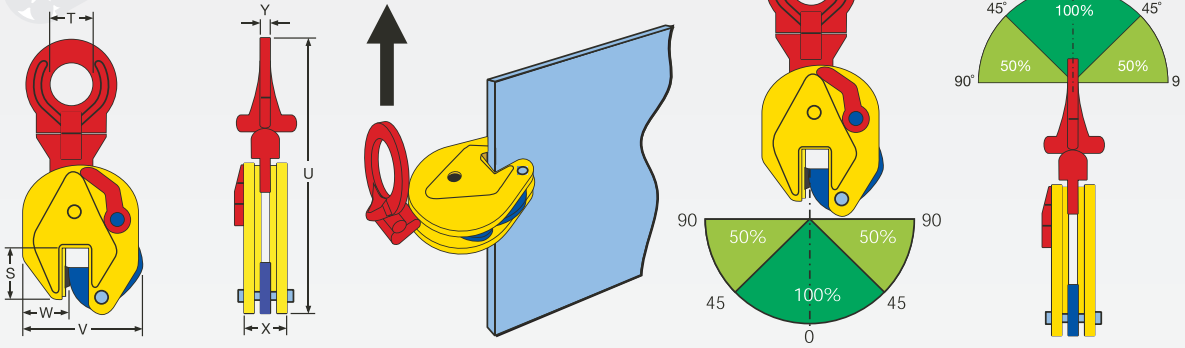


Type/Model	Capacity/W.L.L. (lbs)	Jaw-opening (R) (inches	Dimensions in inches S	T	U	V	W	X	Y	Weight (lbs) each
0.75 TS	1650	0 - .51	1.85	1.18	1.18	3.94	1.38	1.46	.39	3.5
1 TS	2200	0 - .71	2.17	1.77	1.77	4.92	1.50	1.85	.59	7.
1 TSE	2200	0 - .98	2.17	1.77	1.77	5.59	1.50	1.85	.59	8
1.5 TS	3300	0 - .79	3.15	2.56	2.56	6.50	2.17	2.20	.67	14
2 TSE	4400	0 - 1.38	3.15	2.56	2.56	7.28	2.17	2.20	.67	1.5
3 TSE	6600	0 - 1.38	3.15	2.56	2.56	7.87	2.17	2.20	.67	15
4.5 TS	9900	0 - .98	3.35	2.76	2.76	7.87	2.36	3.03	.79	32.5
4.5 TSE	9900	0 - 1.77	3.35	2.76	2.76	9.06	2.36	3.03	.79	35
6 TS	13200	0 - 1.26	4.49	2.95	2.95	8.86	3.07	3.07	.79	41
7.5 TS	16500	0 - 1.57	4.41	2.95	2.95	9.64	2.99	3.39	.79	53
7.5 TSE	16500	0 - 2.17	4.41	2.95	2.95	10.51	2.76	3.39	.79	55
9 TS	19800	0 - 2.17	4.41	2.95	2.95	10.51	2.76	3.39	.79	57.5
12 TS	26400	0 - 2.05	5.83	3.35	3.35	11.61	3.94	3.70	1.73	92.5
15 TS	33000	0 - 2.99	8.23	3.39	3.39	14.76	5.31	4.13	1.96	156.5
17 TS	37400	0 - 2.99	8.23	3.39	3.39	14.76	5.31	4.13	1.96	156.5
20 TS	44000	0 - 3.15	9.64	3.94	3.94	18.31	5.90	5.51	2.60	309
25 TS	55000	.20 - 3.35	9.64	3.94	3.94	18.31	5.90	5.51	2.60	309
30 TS	66000	.39 - 3.54	9.64	3.94	3.94	18.31	5.51	5.51	2.60	320
6 STS	13200	1.57 - 3.54	4.53	2.95	2.95	10.82	2.75	3.07	.79	44
7.5 STS	16500	1.97 - 3.94	4.33	2.95	2.95	12.40	2.75	3.22	.79	3
9 STS	19800	1.97 - 3.94	4.33	2.95	2.95	12.40	2.75	3.22	.79	55
12 STS	26400	1.97 - 3.94	6.02	3.39	3.39	13.58	3.94	3.70	1.73	92.5
15 STS	33000	3.15 - 5.91	8.66	3.39	3.39	17.71	5.04	4.17	1.97	170
20 STS	44000	3.15 - 5.91	9.80	3.94	3.94	25.20	5.82	5.51	2.60	320
25 STS	55000	3.15 - 5.91	9.80	3.94	3.94	25.20	5.82	5.51	2.60	320
30 STS	66000	3.15 - 5.91	9.80	3.94	3.94	25.20	5.82	6.10	2.60	326.5

Vertical Clamps

TSU/STSU

- For lifting and transporting steel plates and structures from all positions (horizontal, vertical and sidelong).
- Articulated lifting shackle.
- TerrierTSU /STSU lifting clamps are equipped with a pre-tension mechanism ensuring the clamp does not slip when lifting force is applied and when load is being lowered.
- The clamp is locked in closed as well as in open position.
- Lifting W.L.L. and jaw openings are clearly engraved in the body.
- Terrier STSU type clamps are supplied with a larger jaw opening.
- Minimum W.L.L. is 10 % of the maximum W.L.L.



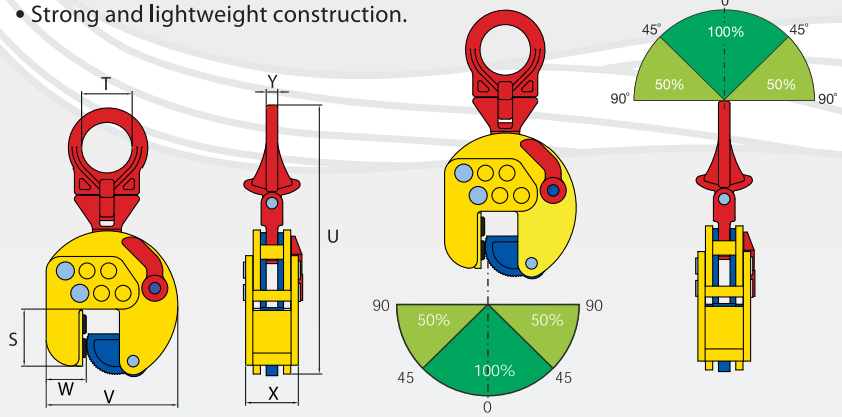
Type/Model	Capacity/W.L.L. (lbs)	Jaw-opening (R) (inches	Dimensions in inches							Weight (lbs) each
			S	T	U	V	W	X	Y	
0.75 TSU	1650	0 - .51	1.85	1.18	7.99	3.94	1.38	1.46	.39	4
1 TSU	2200	0 - .71	2.17	1.97	11.61	4.92	1.50	1.85	.55	8
1 TSEU	2200	0 - .98	2.17	1.97	11.61	5.59	1.50	1.85	.55	8.5
1.5 TSU	3300	0 - .79	3.15	2.76	14.57	6.50	2.17	2.20	.63	16
2 TSEU	4400	0 - 1.38	3.15	2.76	14.57	7.28	2.17	2.20	.63	16.5
3 TSEU	6600	0 - 1.38	3.15	2.76	14.57	7.87	2.17	2.20	.63	18
4.5 TSU	9900	0 - .98	3.35	2.76	16.93	7.87	2.36	3.03	.79	34.5
4.5 TSEU	9900	0 - 1.77	3.35	2.76	16.93	9.06	2.36	3.03	.79	37
6 TSU	13200	0 - 1.26	4.49	3.07	20.75	8.86	3.07	3.07	.79	46.5
7.5 TSU	16500	0 - 1.57	4.41	3.07	22.24	9.65	2.99	3.39	1.26	57.5
7.5 TSEU	16500	0 - 2.17	4.41	3.07	22.24	10.51	2.76	3.39	1.26	66.5
9 TSU	19800	0 - 2.17	4.41	3.07	22.24	10.51	2.76	3.39	1.26	66.5
12 TSU	26400	0 - 2.05	5.83	3.34	25.59	11.61	3.94	3.70	1.89	92.5
15 TSU	33000	0 - 2.99	8.23	3.39	29.92	14.69	5.31	4.13	1.97	163.5
17 TSU	37400	0 - 2.99	8.23	3.39	29.92	1469	5.31	4.13	1.97	163.5
20 TSU	44000	0 - 3.15	9.65	3.94	35.43	18.31	5.91	5.51	2.80	333
25 TSU	55000	.20 - 3.35	9.65	3.94	35.43	18.31	5.71	5.51	2.80	333
30 TSU	66000	.39 - 3.54	9.65	3.94	35.43	18.31	5.51	5.51	2.80	344
6 STSU	13200	1.57 - 3.54	4.53	2.95	20.75	10.83	2.76	3.07	1.26	70.5
7.5 STSU	16500	1.97 - 3.94	4.33	2.95	22.24	12.40	2.76	3.22	1.26	62
9 STSU	19800	1.97 - 3.94	4.33	2.95	22.24	12.40	2.76	3.22	1.77	62
12 STSU	26400	1.97 - 3.94	6.02	3.39	25.59	13.58	3.94	3.70	1.89	99.5
15 STSU	33000	3.15 - 5.91	8.66	3.39	30.12	17.72	5.04	4.17	1.97	183
20 STSU	44000	3.15 - 5.91	9.80	3.94	35.43	25.20	5.83	5.51	2.80	344
25 STSU	55000	3.15 - 5.91	9.80	3.94	35.43	25.20	5.83	5.51	2.80	344
30 STSU	66000	3.15 - 5.91	9.80	3.94	35.43	25.20	5.83	6.10	2.80	355

Specifications are subject to change.

Vertical Clamps

TSEU-A

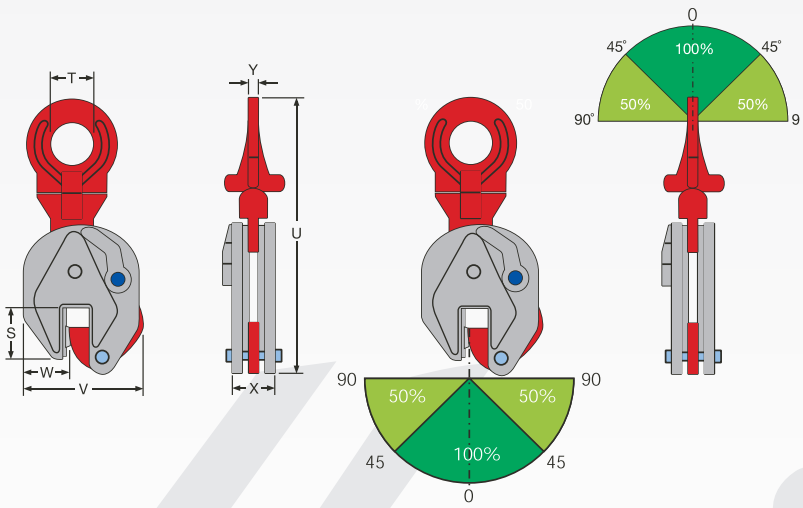
- Terrier TSEU-A is used in different types of applications that require a larger jaw opening.
- For lifting and transporting steel plates and structures from all positions.
- Jaw opening from 0 – 3.74 in. Adjustable by steps of 1.18 in.
- Capacity 6,600 lbs
- Strong and lightweight construction.



Type	W.L.L. (lbs)	Jaw-opening (inches)	Dimensions in inches							Weight (lbs)
			S	T	U	V	W	X	Y	
3 TSEU-A	6600	0 - 3.74	3.15	2.76	14.57	7.28-9.65	2.17	2.87	.63	24.5

TSU-R

- For lifting and transporting stainless steel plates and structures.
- Pivot and cam are made of stainless steel.
- Body and lock lever are nickel plated to prevent corrosion due to carbon contamination.
  Minimum W.L.L. is 10% of the maximum W.L.L.

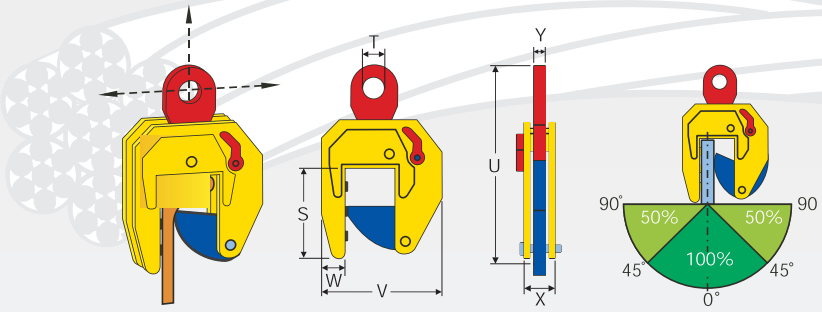


Type	W.L.L. (lbs)	Jaw-opening (inches)	Dimensions in inches							Weight (lbs)
			S	T	U	V	W	X	Y	
2 TSU-R	4400	0 - .79	3.15	2.76	14.57	6.5	2.17	2.2	.63	16

Vertical Clamps

TSHP

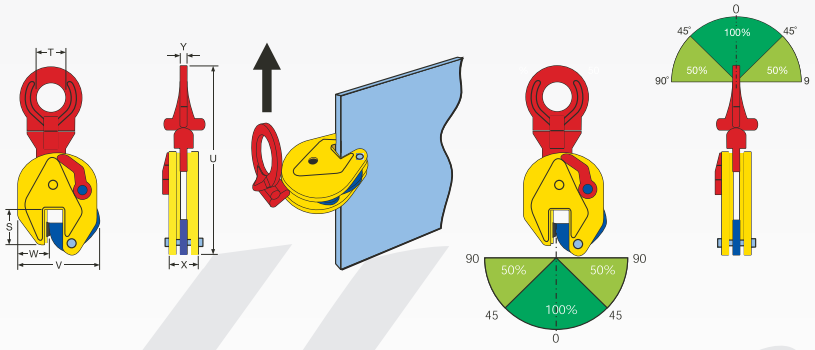
- For lifting and transporting of Holland-Profile (HP) and structures with HP-profile.
- Also useful as a "big-jaw" opening clamp.
- Standard with 3 pivots for extra powerful clamping force.
- Terrier TSHP lifting clamps are equipped with a pre-tension mechanism ensuring the clamp does not slip when lifting force is applied and when load is being lowered.
- The clamp is locked in closed as well as in open position.
- Minimum W.L.L. is 10% of the maximum W.L..L.



Ref. nr.	Type	W.L.L. (lbs)	Jaw-opening (inches)	Dimensions in inches							Weight (lbs)
				S	T	U	V	W	X	Y	
860110	1 TSHP	2200	0 - 3.15	8.07	2.76	20.47	11.02	2.60	2.52	.63	39.5
860111	1.5 TSHP	3300	0 - 3.15	8.07	2.76	20.47	11.02	2.60	2.52	.63	39.5
860155	1.5 TSHP-A	3300	0 - 6.10	6.30	2.76	20.47	13.39	2.60	2.76	.63	50

TSHPU

- TSHPU is a follow-up of the TSHP-1 and TSHP-1.5. It is designed for lifting, handling and transporting of HP-profile and construction with HP-profile.
- Minimum W.L.L. is 10% of the maximum W.L..L.



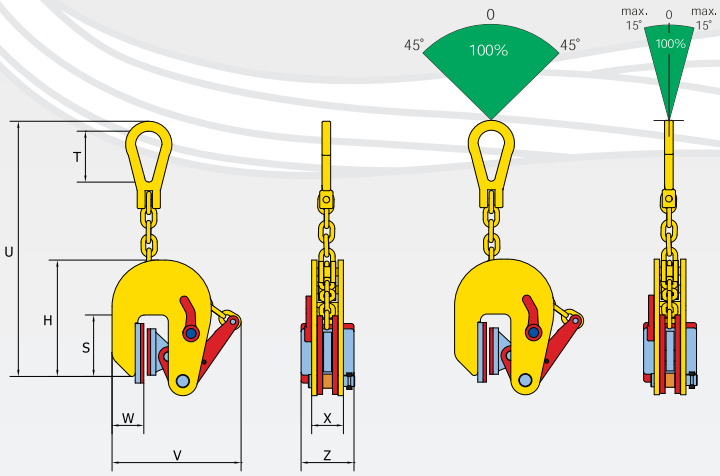
Ref. nr.	Type	W.L.L. (lbs)	Jaw-opening (inches)	Dimensions in mm							Weight (lbs)
				S	T	U	V	W	X	Y	
860300	3 TSHPU	6600	0 - 1.38	3.54	2.76	14.57	7.28	2.17	2.13	.63	31
860500	5 TSHPU	11000	0 - 1.77	4.33	2.76	17.13	8.86	2.36	3.39	.79	39.5

Specifications are subject to change.

Vertical Clamps

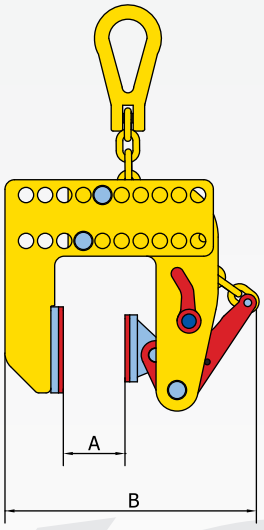
TNMK/TNMKA

- Terrier TNMK is a NON-MARKING clamp with 2 special synthetic pads. The clamp can be used for lifting, handling and transporting (stainless) steel, aluminium, wood and marble plates and will not leave any marks.
- The clamp is locked in closed as well as in open position. Minimum W.L.L. is 5% of maximum W.L.L.



TNMKA

A min. .04 in / max. 7.09 in
B min. 8.66 in /max. 15.75 in
Adjustable in steps of 0.79 in

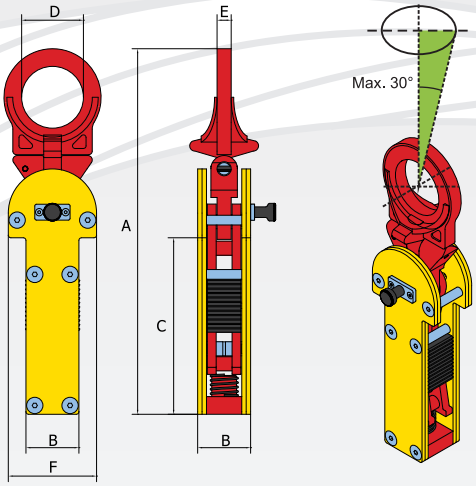


Type	W.L.L. (lbs)	Jaw-opening (A) (inches)	Dimensions in inches								Weight (lbs)
			H	S	T	U	V	W	X	Z	
0.5 TNMK	1100	.04 - .79	7.87	3.66	2.56	17.72	8.66	1.89	1.89	3.15	12.5
0.5 STNMK	1100	.67 - 1.46	7.87	3.66	2.56	17.72	9.45	1.89	1.89	3.15	13.5
0.5 TNMKA	1100	.04 - 7.08	8.78	5.63	2.56	18.11	8.66-13.39	2.40	1.97	2.76	22
1 TNMK	2200	.04 - 1.18	9.25	3.74	3.15	15.75	10.83	1.81	2.13	3.15	14.5
1.5 TNMK	3300	.04 - 1.57	9.25	3.74	3.15	15.75	10.83	1.81	2.13	3.15	16
2 TNMK	4400	.04 - 1.97	14.17	4.72	3.94	27.95	15.98	2.48	2.56	3.15	31
3 TNMK	6600	.04 - 2.36	14.17	4.72	3.94	27.95	15.98	2.48	2.56	3.15	33

Vertical Clamps

TCK

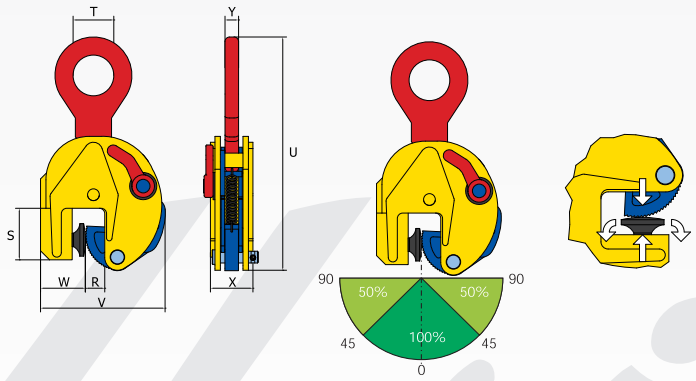
- For vertical lifting and transporting of structures where a square tube is used as a frame. For example mobile units etc.
- If the clamp is being loaded , the cams will pull out sideways and will grip into the sides of the square tube.
- Compact design of the clamp; the clamp will not use more space than the dimensions of the square tube.
- The clamp is equipped with an universal lifting eye.
- Lifting W.L.L. and jaw opening are clearly engraved in the body.



Type	W.L.L. (lbs)	Jaw-opening (R) (inches)	Dimensions in inches						Weight
			A	B	C	D	E	F	(lbs)
3 TCK	6600	2.44 - 2.76	16.3	2.36	7.87	2.76	0.63	3.94	16

TJP

- For vertical lifting and transporting of (thin) sheet metal.
- Terrier TJP clamp is equipped with a special pivot, the special pivot will adapt itself to the deflection of the load. This will generate more friction which eliminates the chance of slipping loads.
- Terrier TJP lifting clamp is equipped with a pre-tension mechanism ensuring the clamp does not slip when lifting force is applied and when load is being lowered.
- The clamp is locked in closed as well as in open position.
- Lifting W.L.L. and jaw opening are clearly engraved in the body.



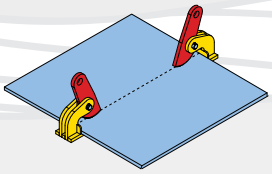
Type	W.L.L. (lbs)	Jaw-opening (R) (inches)	Dimensions in inches							Weight
			S	T	U	V	W	X	Y	(lbs)
1 TJP	2200	0 - .79	2.24	1.77	10.16	5.43	1.97	1.85	.59	9

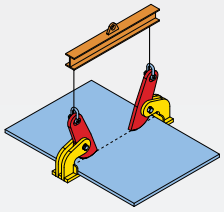
Specifications are subject to change.

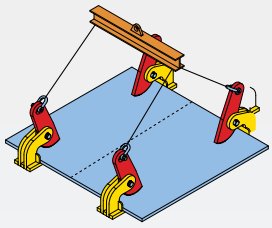
Horizontal Clamps

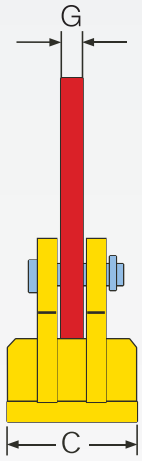
FHX/FHSX

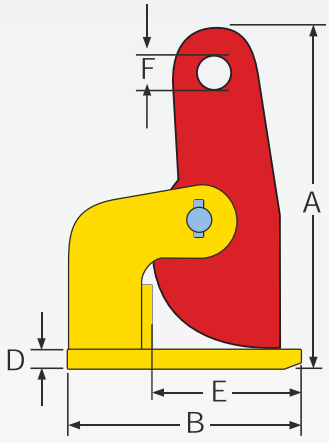
- For horizontal lifting and transporting of steel plates.
- Has a compact shape and relative light unit weight with a high lifting W.L.L.
- Terrier FHX/FHSX lifting clamps must always be used in pairs (or multiples thereof).
- Lifting W.L.L. and jaw opening are clearly engraved in the body.
- The FHSX has a larger jaw opening.

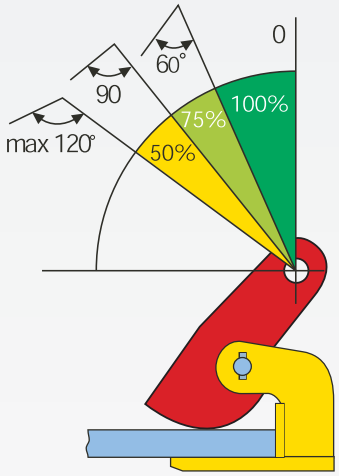


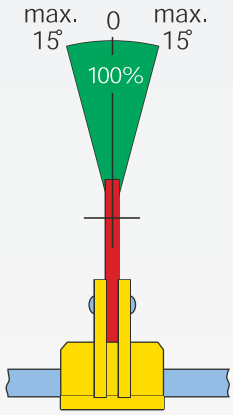










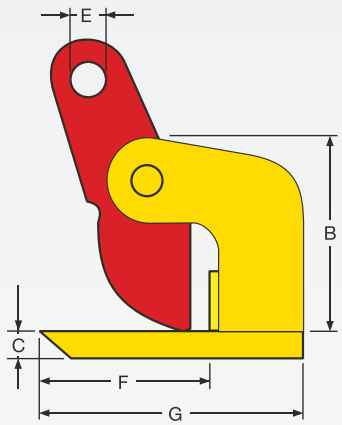


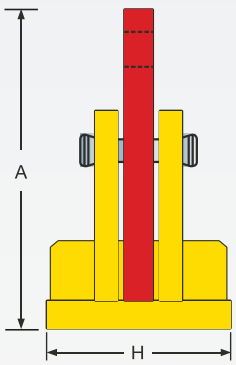
Tye	W.L.L. per piece (lbs)	Jaw-opening (inches)	Dimensions in inches								Weight each(lbs)
			A	B	C	D	E	F	G	H	
1 FHX	1100	0 -1.38	7.40	5.51	2.56	.39	3.94	.98	.59	.45	6
2 FHX	2200	0 - 2.36	11.42	7.09	3.54	.59	4.53	1.20	.63	.75	16.5
3 FHX	3300	0 - 2.36	11.54	7.09	3.54	.79	4.65	1.20	.63	.75	18
4 FHX	4400	0 - 2.36	12.05	8.66	4.13	.98	5.71	1.20	.79	.75	29
6 FHX	6600	0 - 2.36	12.05	8.66	4.33	.98	5.1	1.20	.79	.75	29
8 FHX	8800	0 - 2.36	13.19	8.86	4.72	1.38	5.31	1.20	1.18	.75	40
10 FHX	11000	0 - 2.36	13.19	8.86	4.72	1.38	5.31	1.20	1.18	.75	44
12 FHX	13200	0 - 2.36	13.19	8.86	4.72	1.38	5.31	1.20	1.18	.75	46.5
2 FHSX	2200	0 - 3.94	14.96	7.09	3.54	.59	4.72	1.20	.59	.75	20
3 FHSX	3300	0 - 3.94	15.35	7.09	3.54	.79	4.72	1.20	.59	.75	31
4 FHSX	4400	0 - 3.94	16.34	866	4.13	.98	5.71	1.20	.79	.75	33
6 FHSX	660	0 - 3.94	16.34	866	4.72	.98	5.71	1.20	.79	.75	35.5
8 FHSX	8800	0 - 3.94	16.34	886	4.72	1.38	5.31	1.20	1.18	.75	48.5
10 FHSX	11000	0 - 3.94	16.34	886	4.72	1.38	5.31	1.20	1.18	.75	51
12 FHSX	13200	0 - 3.94	16.34	886	4.72	1.38	5.31	1.20	1.18	.75	51
15 FHSX	16500	0 - 5.90	26.18	13.78	5.51	1.38	9.45	1.77	1.38	1.10	110.5

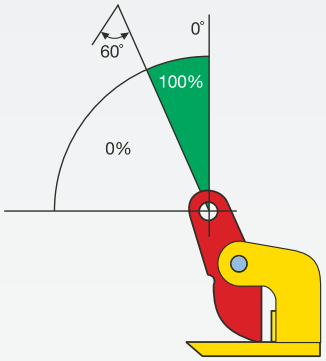
Horizontal Clamps

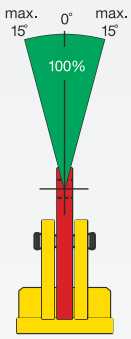
TDH

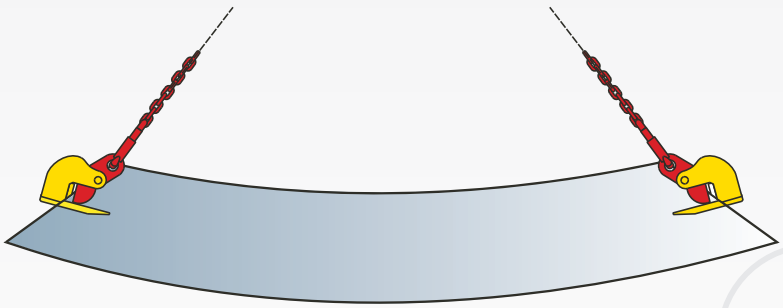
- For lifting and transporting of thin sheets that deflect when being lifted.
- Compact shape and relatively low unit weights, with a high lifting W.L.L.
- Terrier TDH horizontal lifting clamps must always be used in pairs (or multiples thereof).











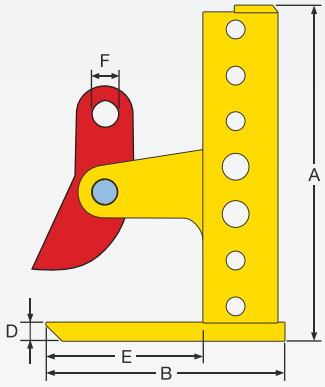
Ref. nr.	Type	W.L.L. per piece (lbs)	Jaw-opening (inches)	Dimensions in inches								Weight
				A	B	C	D	E	F	G	H	each(lbs)
970100	1 TDH	1100	0 - .59	6.57	5.51	2.56	.39	3.94	.89	.59	.51	7
970200	2 TDH	2200	0 - 1.38	9.25	7.09	3.15	.79	4.53	1.02	.59	.51	18
970400	4 TDH	4400	0 - 1.97	12.20	9.25	5.12	1.38	5.12	1.57	.79	.98	44
970600	6 TDH	6600	0 - 1.97	12.20	9.25	5.12	1.38	5.12	1.57	.79	.98	46.5

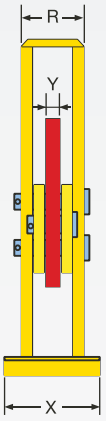
Horizontal Clamps

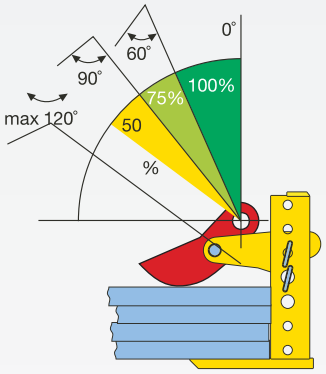
THSK

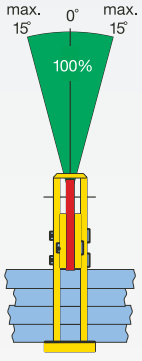
- For lifting, handling and transporting of **banded/secured** stacks and single steel plates
- Terrier THSK horizontal lifting clamps must always be used in pairs (or multiples thereof).
- Capacity 1650 lbs per piece up to 9900 lbs per piece.

- Opening 0.12 in – 7.09 in
  0.12 in – 11.81 in
  0.12 in - 16.54 in







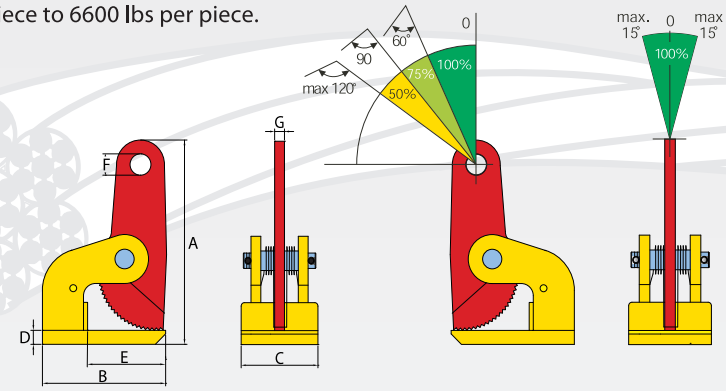


Type/Model	Capacity/W.L.L. (lbs)		Jaw-opening	Dimensions in inches									Weight
	per piece	per pair	(inches)	A	B	D	E	F	H	R	X	Y	each(lbs)
1.5 THSK/180	1650	3300	.12 - 7.09	11.42	11.42	.59	5.31	1.18	.71	2.36	3.54	.79	20
1.5 THSK/300	1650	3300	.12 - 11.81	16.14	16.14	.59	5.31	1.18	.71	2.36	3.54	.79	25.5
3 THSK/180	3300	6600	.12 - 7.09	11.81	11.81	.79	6.50	1.18	.71	2.76	4.13	.79	32
3 THSK/300	3300	6600	.12 - 11.81	16.14	16.14	.79	6.50	1.18	.71	2.76	4.13	.79	29
4.5 THSK/180	4950	9900	.12 - 7.09	11.81	11.81	.79	6.50	1.18	.71	2.76	4.13	.79	29
4.5 THSK/420	4950	9900	.12 - 16.54	21.06	21.06	.79	6.69	1.18	.71	2.76	4.13	.79	33
6 THSK/180	6600	13200	.12 - 7.09	12.01	12.01	.98	6.30	1.18	.71	3.54	4.72	.79	44
6 THSK/420	6600	13200	.12 - 16.54	21.26	21.26	.98	6.50	1.18	.71	3.54	4.72	.79	51
9 THSK/180	9900	19800	.12 - 7.09	12.01	12.01	.98	6.30	1.18	.71	3.54	4.72	.79	56.5
9 THSK/420	9900	19800	.12 - 16.54	21.26	21.26	.98	6.30	1.18	.71	3.54	4.72	.79	65

Horizontal Clamps

FHX-V

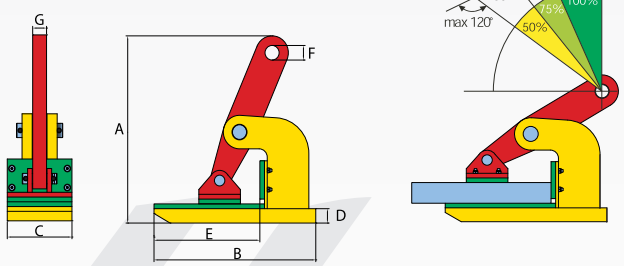
- Terrier FHX-V Lifting clamp has a spring attached to the cam assembly allowing the clamp to close on any desired spot.
- The spring allows one operator to place the clamp and guide the hoist.
- Terrier FHX-V horizontal lifting clamps must always be used in pairs (or multiples thereof).
- Terrier FHX-V clamps are available with a W.L.L. from 1100 lbs per piece to 6600 lbs per piece.



Type/Model	W.L.L. (lbs)		Jaw-opening	Dimensions in inches								Weight
	per piece	per pair	(inches)	A	B	C	D	E	F	G	H	each(lbs)
1 FHX-V	1100	2200	0 -1.38	7.60	5.51	3.35	.39	3.93	.98	.59	.45	7
2 FHX-V	2200	4400	0 - 2.36	11.42	7.09	4.92	59	453	1.20	.63	.75	20
3 FHX-V	3300	6600	0 - 2.36	11.54	7.09	4.92	.79	4.53	1.20	.63	.75	22
4 FHX-V	4400	8800	0 - 2.36	12.20	8.66	6.50	1.18	5.51	1.20	.79	.75	33
6 FHX-V	6600	13200	0 - 2.36	12.20	8.66	6.50	1.18	5.51	1.20	.79	.75	33

TNMH

- Terrier TNMH lifting clamp is suited for transporting and lifting objects with a fragile surface. EX: stainless steel, wood panels, aluminium etc.
- The jaw and cam are covered with a high quality pressure resistant plastic.
- Terrier TNMH horizontal lifting clamps must always be used in pairs (or multiples thereof).
- Terrier TNMH clamps are available with a W.L.L. from 1100 lbs per piece to 6600 lbs per piece.



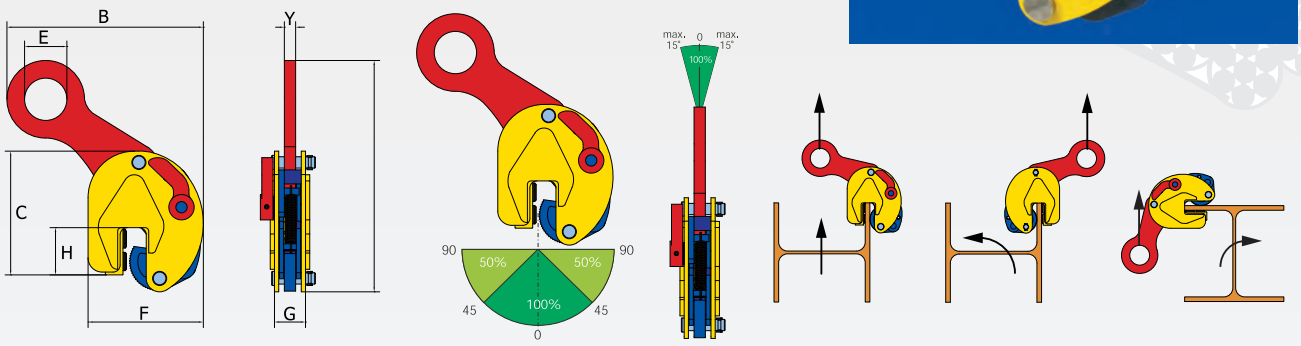
Type/Model	W.L.L. (lbs)		Jaw-opening	Dimensions in inches								Weight
	per piece	per pair	(inches)	A	B	C	D	E	F	G	H	each(lbs)
1 FHX-V	1100	2200	0 -.98	6.06	5.51	2.56	.59	95	.79	.59	.39	5.5
2 FHX-V	2200	4400	0 - 1.77	10.63	8.86	3.54	.91	5.91	1.20	.59	.39	20
3 FHX-V	3300	6600	0 - 1.77	10.83	8.86	3.54	1.10	5.91	1.20	.59	.39	29
4 FHX-V	4400	8800	0 - 1.97	12.00	9.84	4.13	1.10	6.30	1.20	.79	.59	35.5
6 FHX-V	6600	13200	0 - 1.97	12.20	9.84	4.72	1.30	6.30	1.20	.79	.59	37.5

Specifications are subject to change.

Vertical Beam Clamps

FBK

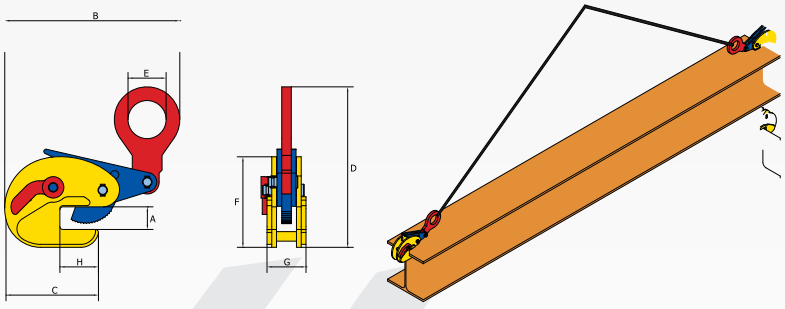
- For lifting and transporting steel beams, profiles and structures where the load must stay in position.
- The special shape of the lifting shackle places the center of the gravity of the beam beneath the lifting shackle. This maintains the equilibrium of the beam once it has been lifted and keeps the flanges vertical so that the beam can easily be stacked or positioned.
- Recommend for transporting and stacking of steelbeams (e.g. sawing of steelbeams, stacking of steelbeams and building of steel construction).
- Lifting W.L.L. and jaw-opening are clearly engraved in the body.
- Minimum W.L.L. is 10% of maximum W.L.L.



- Minimum W.L.L. is 10% of maximum W.L.L.

TOBK

- For lifting and transporting steel beams, profiles and structures.
- Because of the pre-tension mechanism the clamp is locked in closed as well as in open position.
- The clamp is suitable to lift steel beams on the flange as well as on the upper ends of the beam.
- Minimum W.L.L. is 10% of maximum W.L.L.



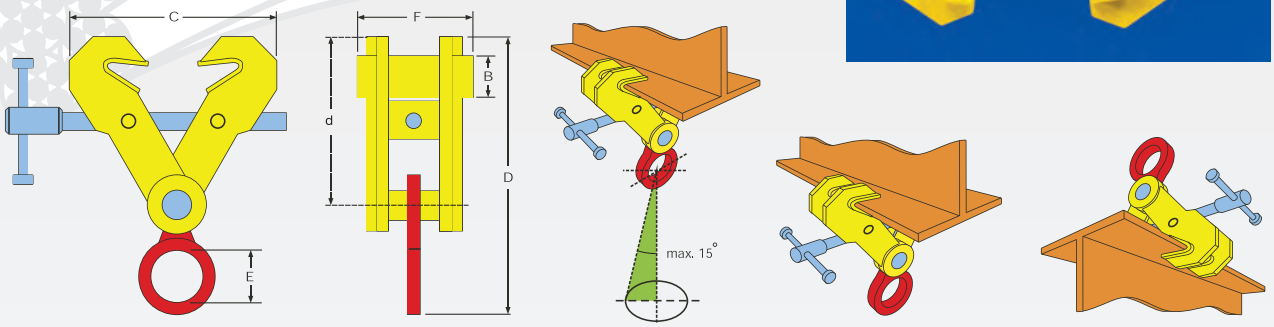
Type/Model	W.L.L. (lbs)	Jaw-opening (R) (inches)	Dimensions in inches								Weight (lbs)
			B	C	D	E	F	G	H	Y	
1 FBK	2200	0 - .59	6.89	5.83	8.90	1.38	5.12	1.38	1.85	.59	7
1.5 FBK	3300	0 - .79	10.43	7.87	13.58	2.36	6.50	2.20	2.64	.63	18
3 FBK	6600	0 - .98	12.80	9.25	16.14	2.83	7.56	3.03	2.56	.79	35.5
2 TOBK	4400	.12 - .79	11.22	6.18	11.61	2.52	6.10	2.64	2.56	.67	21

Specifications are subject to change.

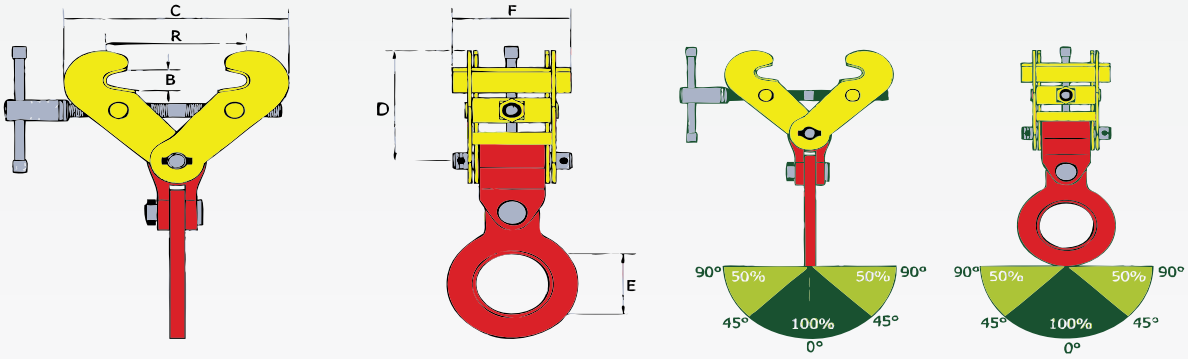
Screw Clamps

FSV/FSVS/FSVSU

- For the lifting, pulling, or as an anchor point in the transporting of steel beams and structures.
- Can also be attached upside down and used as a (temporary) lifting point.
- Has equal opening and closing of both jaws for simple and wuick assembly.
- Lifting capacity and jaw opening are clearly engraved on the body.
- Approved for tie-off use.



FSVSU



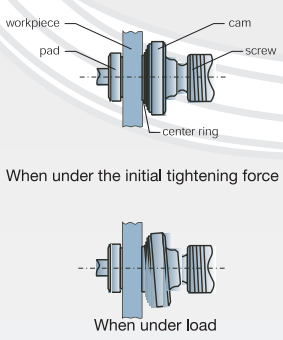
Type/Model	W.L.L. (lbs)	Jaw-opening (R) (inches)	Dimensions in inches					Weight (lbs)
			B	C-max	D	E	F	
1 FSV	2200	2.95 - 7.48	1.18	11.22	12.20	2.87	4.72	9
2 FSV	4400	2.95 - 7.48	1.18	11.22	12.20	2.87	4.72	11
3 FSV	6600	2.95 - 7.48	1.18	11.22	12.20	2.87	4.72	11
4 FSV	8800	5.90 - 11.81	1.57	18.11	16.93	3.11	7.09	29
5 FSV	11,000	5.90 - 11.81	1.57	18.11	1.93	3.11	7.09	31
10 FSV	22,000	13.78 - 17.71	3.74	26.38	26.38	3.35	7.87	110.5
2 FSVS	4400	2.95 - 16.54	1.18	14.84	14.84	2.87	4.72	12.5
3 FSVS	6600	2.95 - 16.54	1.18	14.84	14.84	2.87	4.72	14.5
4 FSVS	8800	5.90 - 22.04	1.57	21.54	21.54	3.11	7.09	30
5 FSVS	11,000	5.90 - 22.04	1.57	21.54	21.54	3.11	7.09	32
3 FSVSU	6600	2.95 - 16.54	1.18	16.54	16.54	2.87	4.72	7
4 FSVSU	8800	5.90 - 22.04	1.57	25.55	25.55	3.11	7.09	14
5 FSVSU	11,000	5.90 - 22.04	1.57	25.55	25.55	3.11	7.09	15

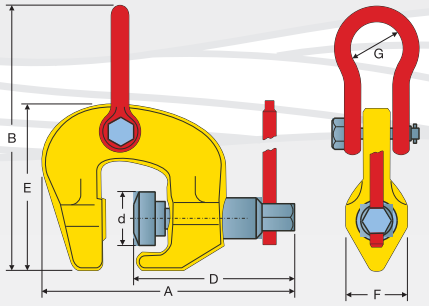
Specifications are subject to change.

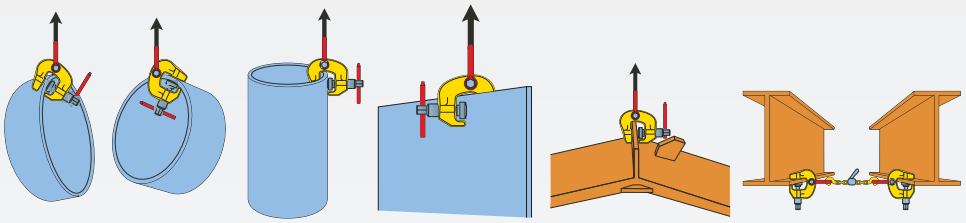
Screw Clamps

TSCC

- Universal screw clamp for vertical and horizontal lifting and transporting of a large variety of steel structures.
- The TSCC screw clamp is fitted with a moveable cam on the thread spindle which provides a powerful clamping force on the work piece.
- The articulated lifting eye ensures an effective clamping force in every position.





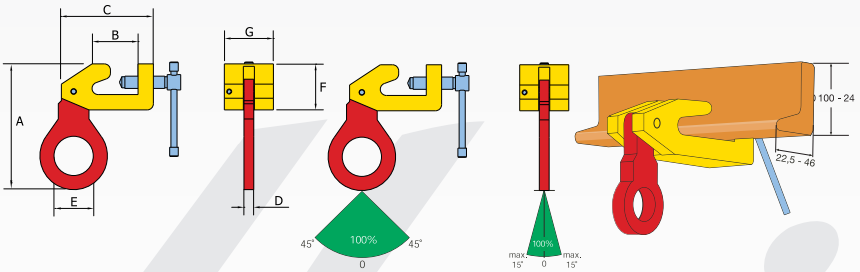


Type/Model	W.L.L. (lbs)	Jaw-opening (inches)	Dimensions in inches								Weight (lbs)
			A	B	C	D	E	F	G	H	
0.5 TSCC	1100	0 - 1.10	6.14	4.45	1.02	3.50	2.99	1.18	.67	1.06	2
1 TSCC	2200	0 - 1.18	6.89	8.03	1.65	4.96	5.04	1.81	1.50	1.73	7
1.5 TSCC	3300	0 - 1.57	7.76	9.13	1.65	5.59	5.51	1.81	1.81	1.18	9
3 TSCC	6600	0 - 1.97	8.82	10.43	1.93	6.50	6.50	2.13	1.97	2.36	16
6 TSCC	13200	0 - 2.95	11.46	14.37	2.48	8.43	8.43	2.72	3.15	2.99	40
1 TSCC-W	2200	1.97 - 3.94	10.16	10.75	1.65	6.10	7.48	1.81	1.77	3.46	7
3 TSCC-W	6600	.98 - 2.95	9.84	11.46	1.93	6.50	7.52	2.13	1.97	2.99	18

SCREW CLAMPS SHIPBUILDING

TBS

- For use as a temporary lifting point in any room where HP-profile is being used, such as sectional ship parts and ship engine rooms.
- The clamp is used for HP-100 to HP-240.

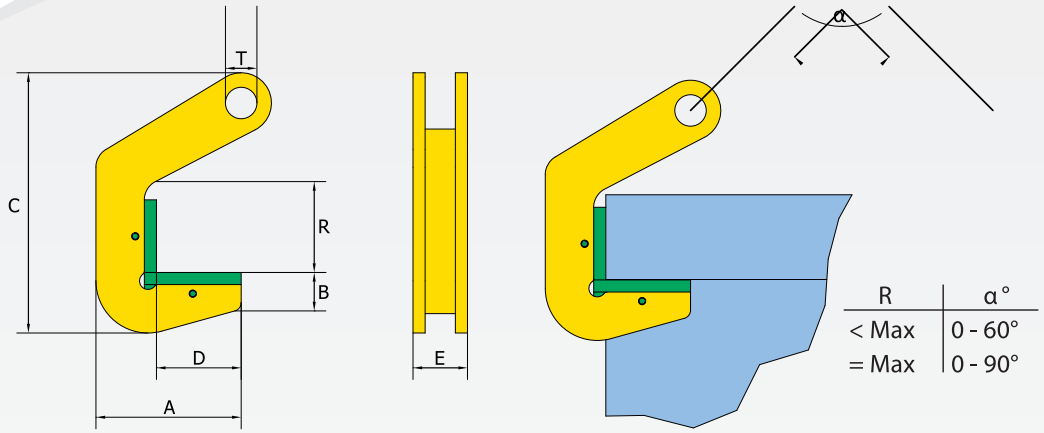


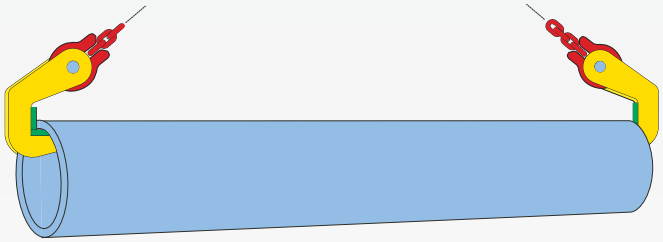
Type/Model	W.L.L. (lbs)	Jaw-opening	Dimensions in inches							Weight (lbs)
			A	B	C	D	E	F	G	
1.5 TBS	3300	HP100 - 240	7.09	2.95	5.91	.63	1.77	2.95	1.57	7
3 TBS	6600	HP100 - 240	8.07	2.95	5.91	.63	1.77	2.95	3.15	15

Horizontal Clamps

TPH

- For horizontal lifting and transporting of steel and concrete pipes.
- Compact shape and relatively low unit weight with a high lifting W.L.L.
- The surface is equipped with “special” plastic.
- Plastic cover replacement parts are available and easy to change.





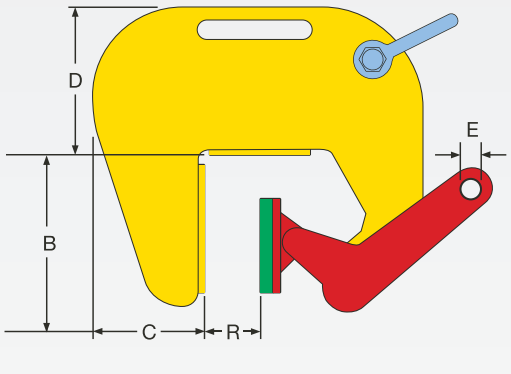
Type/Model	W.L.L. per piece (lbs)	Jaw-opening (R) (inches)	Dimensions in inches						Weight each(lbs)
			A	B	C	D	E	T	
1.5 TPH	3300	1.57	4.72	1.26	7.28	2.76	1.61	.63	4
3 TPH	6600	1.57	4.72	1.26	7.28	2.76	1.61	.63	4
4 TPH	8800	1.97	5.51	2.28	7.09	2.76	1.61	1.02	7
6 TPH	13200	1.97	5.51	2.28	7.09	2.76	1.61	1.02	7
8 TPH	17600	2.76	5.51	2.28	7.87	2.76	1.77	1.02	8
10 TPH	22000	2.76	5.51	2.28	787	2.76	3.35	1.02	11
12 TPH	26400	2.76	5.51	2.28	7.87	2.76	3.35	1.02	14
15 TPH	33000	2.76	6.10	2.95	9.84	2.76	3.94	1.02	22
20 TPH	44000	2.76	61.0	2.95	9.84	2.76	3.94	1.02	36
5 TPH-HD	11000	2.36	10.67	3.35	9.06	3.94	.79	1.02	16
10 TPH-HD	22000	2.36	10.67	3.35	9.06	3.94	1.18	1.02	22
20 TPH-HD	44000	2.36	11.42	4.13	10.63	3.94	1.38	1.42	31
30 TPH-HD	66000	2.36	12.20	5.53	11.54	3.94	1.57	1.69	42
60TPH-HD	132200	2.36	12.20	4.72	11.54	3.94	2.36	2.64	78

Specifications are subject to change.

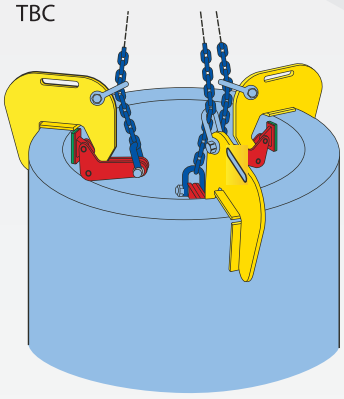
Pipe Lifting Clamps

TBC CONCRETE USE ONLY

- For vertical lifting and transporting of concrete pipe and wells.
- Terrier TBC clamps must always be used in pairs or per three clamps.
- Higher W.L.L. or other jaw opening available upon request.
- The moveable side is fitted with a “special” high pressure plastic surface.
- Minimum W.L.L. is 10% of maximum W.L.L.

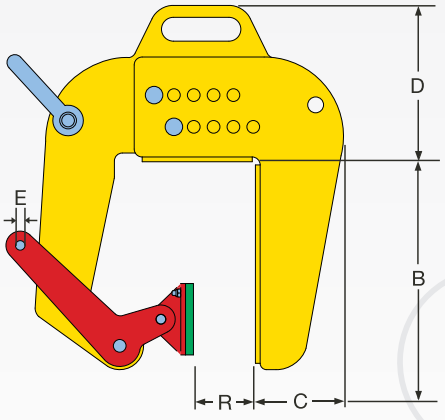


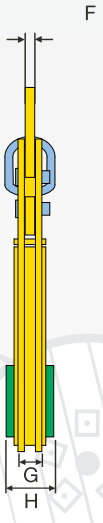
TBC



TBCA CONCRETE USE ONLY

A min. 1.97 in / max. 8.66 in.
Adjustable in steps of .98 in.



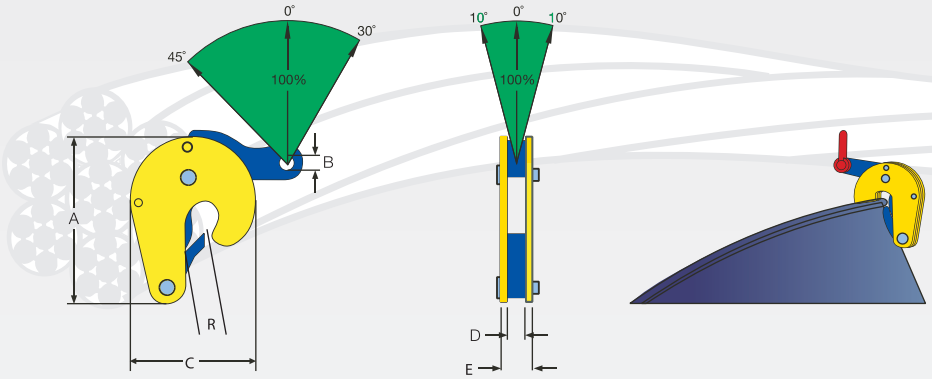


Type/Model	W.L.L. (lbs)	Jaw-opening (R) (inches)	Dimensions in inches							Weight (lbs)each
			B	C	D	E	F	G	H	
1 TBC	2200	2.36 - 4.72	6.69	4.33	6.30	.47	.47	1.57	2.36	10
1 TBC-A	2200	1.97 - 8.66	10.32	4.33	7.76	.47	.47	1.57	2.36	11

Drum Clamps

TVK/TVKH

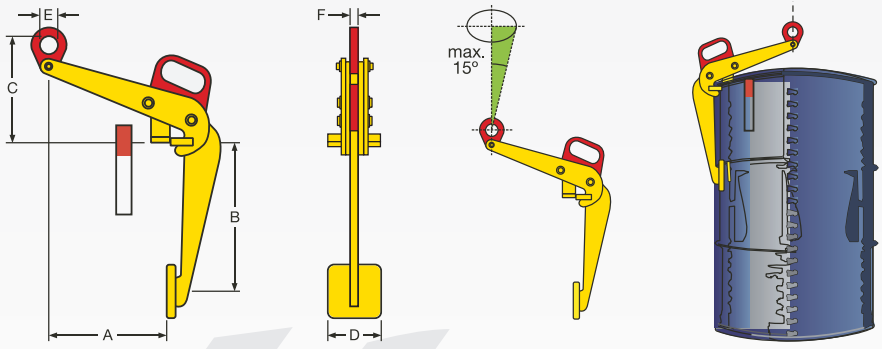
- For safe lifting and transporting of steel (oil) drums.
- With automatic locking mechanism.
- Terrier TVK steel drum clamps can be used in pairs or singles.



Type/Model	W.L.L. (lbs)	Jaw-opening (inches)	Dimensions in inches					Weight (lbs) each
			A	B	C	D	E	
TVK	1100	0 - .67	4.76	.47	3.78	.59	1.10	4

TVKH

- For lifting, handling and transporting of (oil) drums, where the drums have to stay in a horizontal position.
- Capacity 0.6 tons.



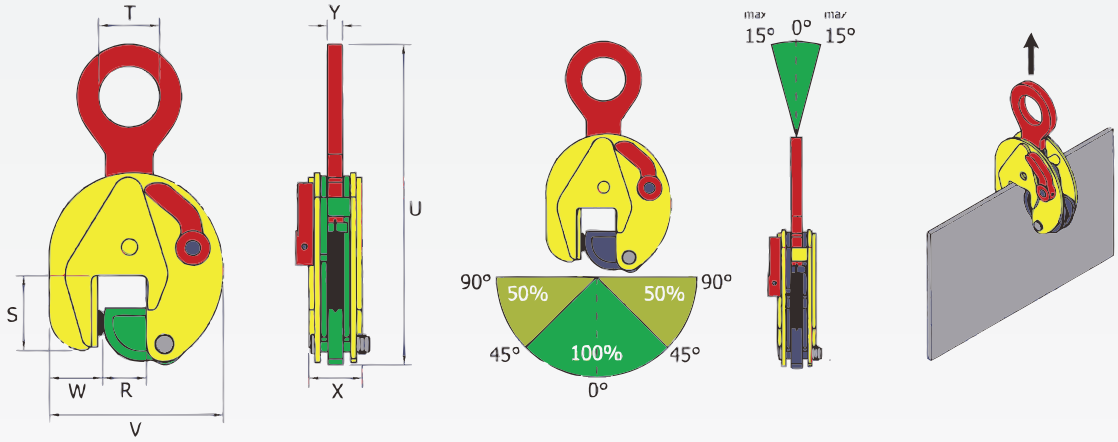
Type	W.L.L. (lbs)	Dimensions in inches						Weight (lbs) each
		A	B	C	D	E	F	
TVKH	1320	11.81	14.76	11.42	3.15	1.97	.39	16

Specifications are subject to change.

Vertical Clamps

WITH AN EXTRA HARDENED PIVOT AND CAM

- Equipped with an extra hardened pivot and cam for lifting and transporting steel plates with a hardness of max. 50 HRC. (for Hardox 400 and 500)
- Please ask for special specifications.
- Other capacity and jaw-opening available upon request.
- Minimum W.L.L. is 10% of maximum W.L.L.

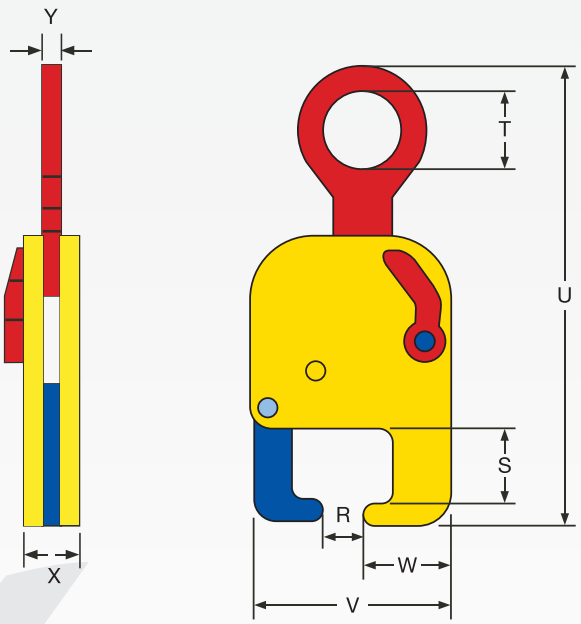


Type/Model	W.L.L. (lbs)	Jaw-opening (R) (inches)	Dimensions in inches						Weight (lbs) each
			S	T	U	V	X	Y	
0.75 TS-H	1650	0 - .51	1.85	1.18	8.07	3.94	1.46	.39	4
1 TSE-H	2200	0 - .98	2.17	1.77	10.43	5.59	1.85	.59	8
2 TSE-H	4400	0 - 1.38	3.15	2.56	13.19	7.28	2.20	.67	15
3 TSE-H	6600	0 - 1.38	3.15	2.56	13.19	7.28	2.20	.67	15
4.5 TSE-H	9900	0 - 1.77	3.35	2.75	16.93	9.06	3.03	.79	35
6 TS-H	13200	0 - 1.26	4.49	2.95	16.93	8.86	3.07	.79	41
7.5TSE-H	16500	0 - 2.17	4.41	2.95	20.87	10.51	3.39	.79	56
0.75 TSU-H	750	0 - .51	1.85	1.18	7.99	3.94	1.46	.39	4
1 TSEU-H	1000	0 - .98	2.17	1.97	11.61	5.59	1.85	.55	9
2 TSEU-H	2000	0 - 1.38	3.15	2.76	14.57	7.28	2.20	.63	16
3 TSEU-H	3000	0 - 1.38	3.15	2.76	14.57	7.28	2.20	.63	17
4.5 TSEU-H	4500	0 - 1.77	3.35	2.76	16.93	9.06	3.03	.79	37
6 TSU-H	6000	0 - 1.57	4.49	3.07	20.75	8.86	3.07	1.26	47
7.5 TSEU-H	7500	0 - 2.17	4.41	3.07	22.24	10.51	3.39	1.26	58

Specialty Clamps

TRC

- For horizontal transport of rail profiles.
- Terrier TRC is equipped with a pre-tension mechanism, ensuring the clamp does not slip when lifting force is applied and when load is being lowered.
- The clamp is locked in closed as well in open position.
- Other W.L.L. or other profile dimensions are available upon request.

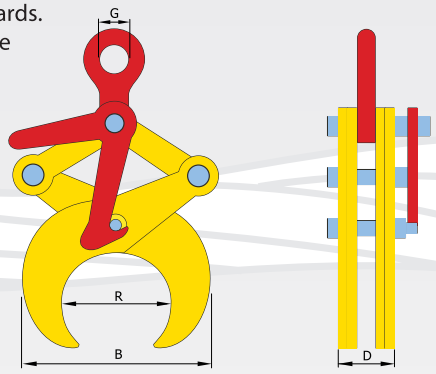


Type/Model	W.L.L. (lbs)	Jaw-opening (R) (inches)	Dimensions in inches							Weight (lbs)each
			S	T	U	V	W	X	Y	
TRC	3300	1.57 - 2.95	2.52	2.56	15.35	6.68	2.76	1.89	.63	18

Specials

TTL

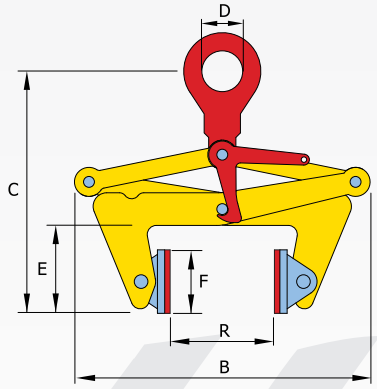
- For vertical lifting of tubes, bundles of tubes and solid round material.
- The clamp is locked in the open position. To perform lifting, the operator must activate the handle and hold it up while the force on the lifting eye is going upwards. When laying down the load, the clamo automatically unlocks itself to open.



Type	W.L.L. (lbs)	Jaw-opening (R) (inch)	Dimensions in inches			Weight (lbs) each
			B-max	D	G	
0.5 TTL	1100	1.90 - 4.50	8.46	1.85	1.77	9
1 TTL	2200	4.50 - 8.63	13.58	2.01	1.7	20
2 TTL	4400	8.63 - 14.49	24.02	2.36	2.56	69
3 TTL	6600	14.49 - 20.00	30.31	2.36	2.56	88

TBLC

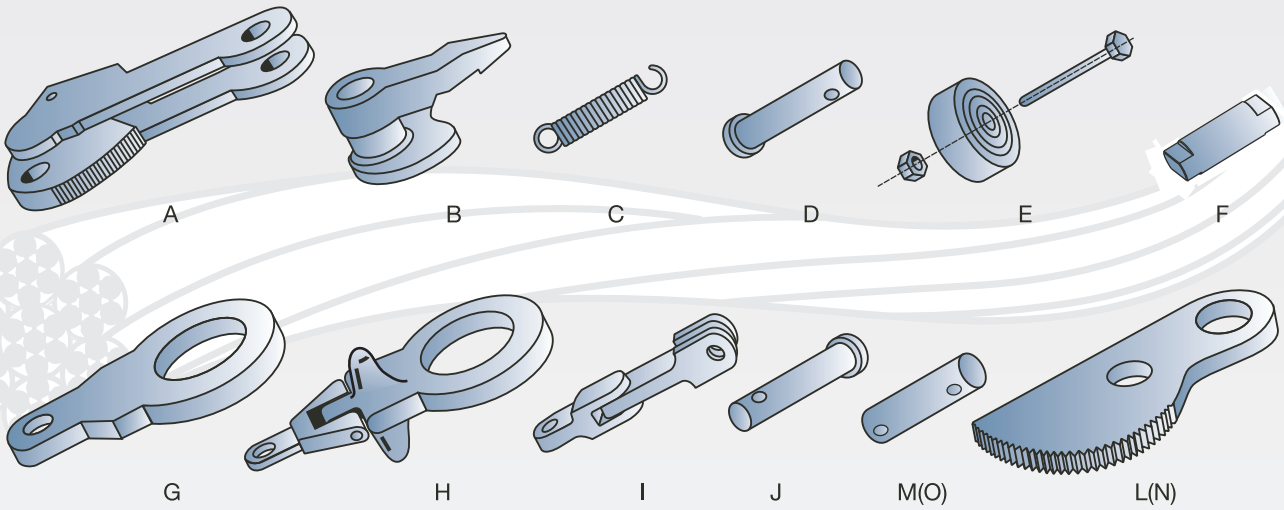
- For vertical lifting and transporting various materials as steel, wood, plastic, concrete, marble etc. which have parallel sides
- The clamp is locked in the open position. To perform lifting, the operator must activate the handle and hold it up while the force on the lifting eye is going upwards. When laying down the load, the clamp automatically unlocks itself to open.
- The pads are covered with special plastic to avoid damaging the material.



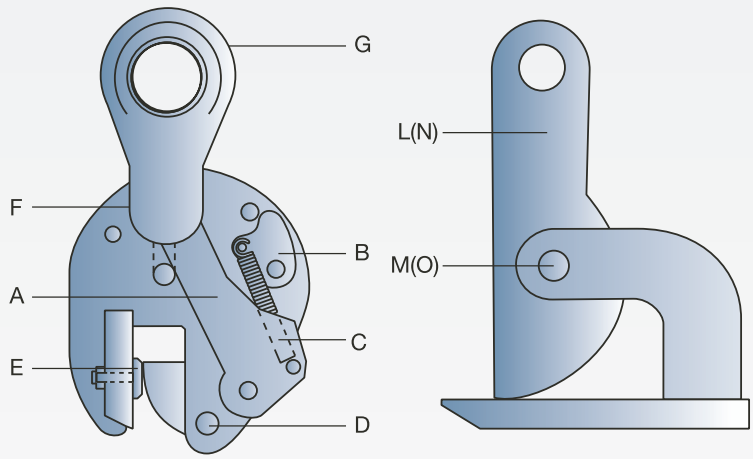
Type/Model	W.L.L. (lbs)	Jaw-opening (R) (inches)	Dimensions in inches					Weight (lbs) each
			B min-max	C min-max	G	E	F	
0.5 TBLC	1100	1.18 - 4.33	10.83 - 12.80	10.83 - 16.54	1.77	3.94	2.76 x 3.15	16
1 TBLC	2200	3.94 - 9.06	17.32 - 20.87	14.17 - 24.02	1.77	5.51	3.94 x 4.72	27
2 TBLC	4400	8.66 - 14.17	23.62 - 26.57	15.75 - 26.77	1.77	6.69	3.94 x 4.72	40
3 TBLC	6600	13.78 - 19.69	29.13 - 33.07	19.29 - 33.07	2.56	7.87	3.94 x 4.72	71

Spare Parts

All spare parts are available either separately or as repair sets. It is recommended when any parts are damaged to replace them right away. When ordering spare parts provide the following: model, lifting capacity, jaw opening and serial number as well as the needed spare parts.



A Cam assembly
B Lock lever assembly
C Lock spring
D Cam pin
E Pivot complete
F Shackle pin
G Lifting eye for TS, STS, MP model
H Lifting eye for TSU, STEU model
I Linkage arr. STMP, STSMP model
J Link pin for MP model
L Cam for FHX model
M Cam pin for FHX model
N Cam for FHSX model
O Cam pin for FHSX model



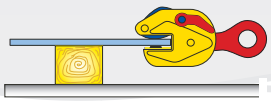
For every vertical clamps are revision- sets and repair sets available.

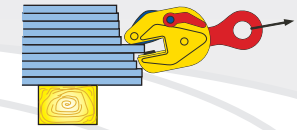
The repair sets contain:
A Cam assembly
C Lock spring
D Cam pin
E Pivot set

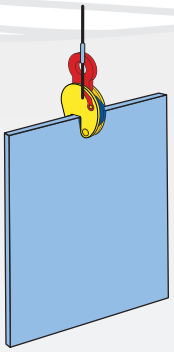
The revision sets contain :
A Cam assembly
B Lock lever assembly
C Lock spring
D Cam pin
E Pivot complete

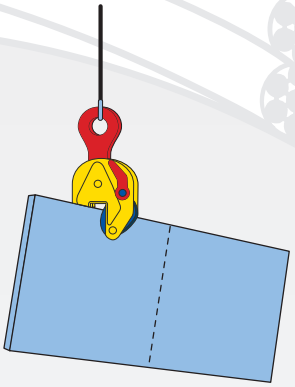
Revisionset

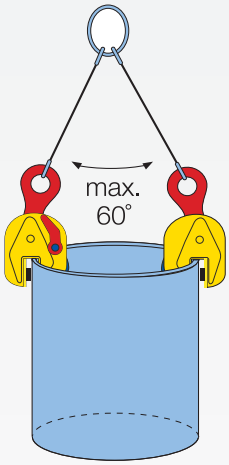
Safe Vertical Lifting

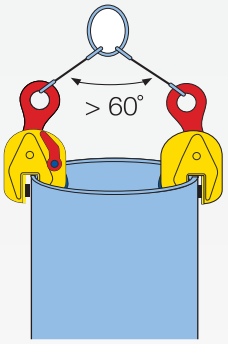


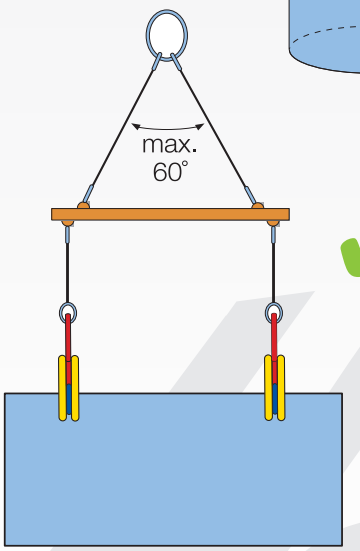


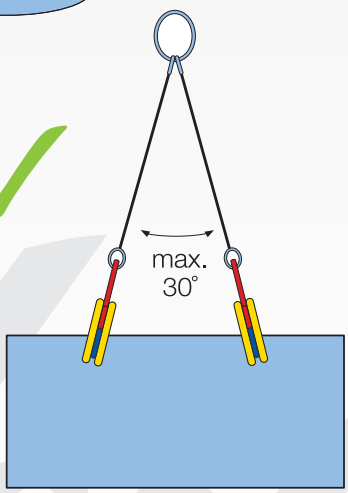


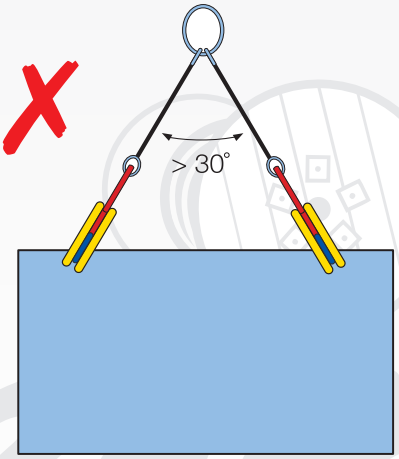




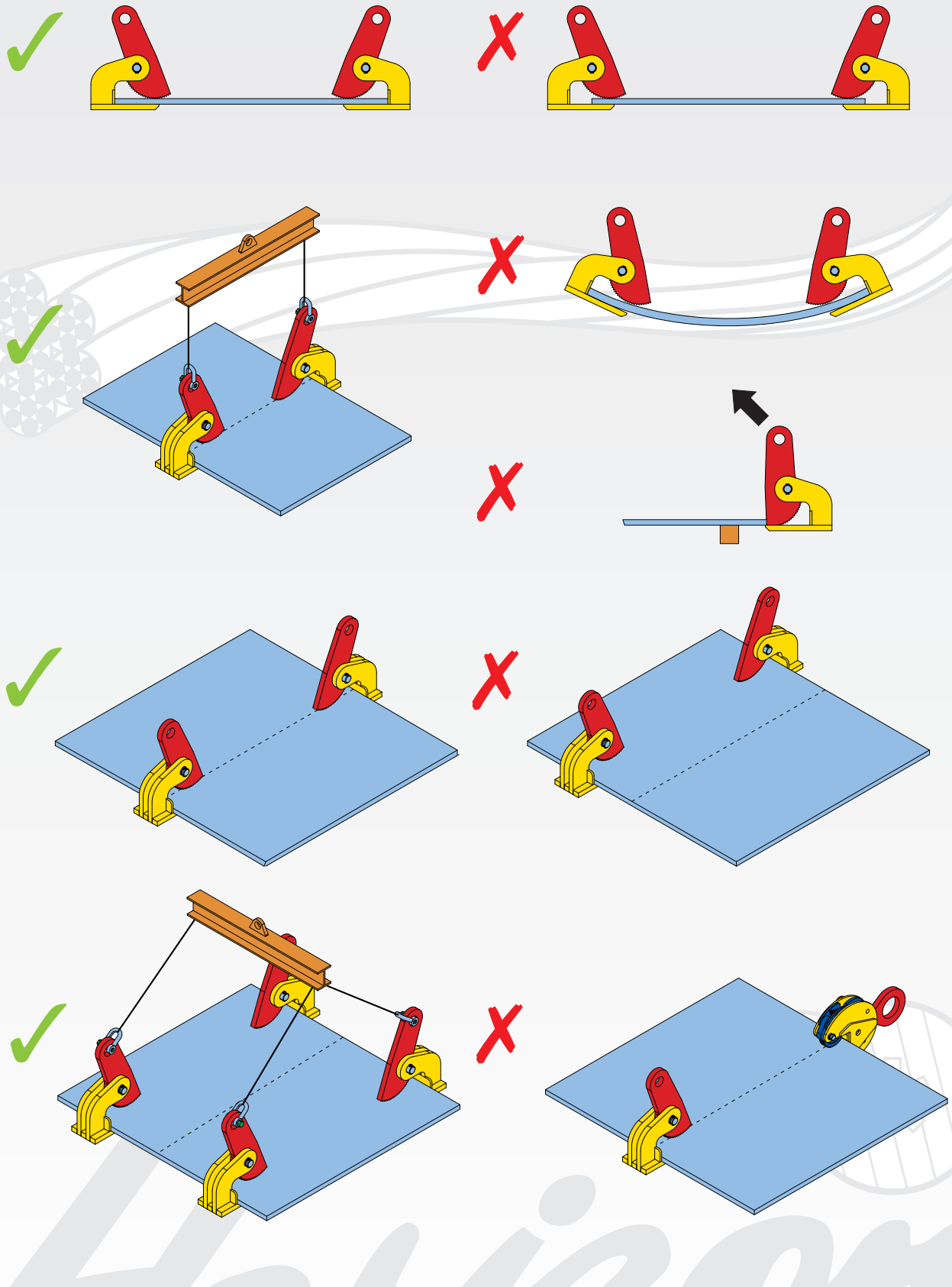








Safe Horizontal Lifting



Services

In addition to our full line of rigging products and hardware we are proud to offer various services to be your total service rigging shop. Our qualified and experienced technicians follow strict guidelines that adhere to current industry standards and manufacturer recommendations.

- 24/7 emergency services available at each of our locations.
- Inspection and certification of wire rope, chain & synthetic web slings for OSHA & ASME compliance
- Mobile spooling and splicing services
- Pull Testing with certified test beds coupled with electronic certifications
- On site inspection with pick up and delivery
- Training seminars
- Proof Loading of wire rope, chain slings and others
- Installation and servicing for ALL wire ropes
- Certification and repairs for ALL rigging gear and equipment
- Destructive Testing (Break Tests)
- Fall Protection Inspections

Oklahoma City, OK
45 N. Cooley
Oklahoma City, OK 73127
Phone - 405-789-7125

Odessa, TX
12215 WCR 129
Odessa, TX 79765
Phone - 432-563-3331

Casper, WY
3070 N6 Mile Rd.
Casper, WY 82609
Phone - 307-472-9100

Liberal, KS
11640 E. Hwy 54
Liberal, KS 67901
Phone - 620-624-5303

Longview, TX
715 S. Eastman
Longview, TX 75602
Phone - 903-234-1558

Williston, ND
3204 2nd Ave West
Williston, ND 58801
Phone - 701-774-1091

Hobbs, NM
2120 W. Marland
Hobbs, NM 88240
Phone - 575-391-8257

Outrigger Pads

Outrigger Pads

These pads come in thickness ranging between 1 inch thick to 4 inches thick. These Pads carry a Lifetime Guarantee!

Outrigger Pad Features & Options:

- Rope Handles
- SAFETY TEXTURING available for additional cost.
- CUSTOM Manufacture any size pad up to 80"x80" in size
- UHMW Plastic
- Solid 1 Piece Construction
- Machined surface and edges

Thickness	Size	Sq. In.	Weight	Load Capacity* Vertical	Load Capacity* 45 degree
1 inch	12x12	144	5 lbs.	45000	18000
	15x15	225	7 lbs.	48000	19000
	12x24	228	10 lbs.	48000	19000
	18x18	324	11 lbs.	55000	30000
	14x28	392	12 lbs.	59000	33000
	18x24	432	13 lbs.	60000	35000
	22x24	528	19 lbs.	60000	35000
	24x24	576	20 lbs.	60000	35000
	24x48	1152	40 lbs.	68000	
	30x30	900	31 lbs.	81000	41000
	36x36	1296	45 lbs.	93000	43000
	48x48	2304	80 lbs.	130000	50000

Thickness	Size	Sq. In.	Weight	Load Capacity* Vertical	Load Capacity* 45 degree
Round	30	693	24 lbs.	62000	26000
	36	997	35 lbs.	71000	33000
	48	1774	62 lbs.	100000	39000

Thickness	Size	Sq. In.	Weight	Load Capacity* Vertical	Load Capacity* 45 degree
1 1/2 inch	12x12	144	7.5 lbs.	47000	19000
	15x15	225	9 lbs.	49000	20000
	18x18	324	17 lbs.	56000	31000
	24x24	528	30 lbs.	61000	36000
	30x30	576	49 lbs.	82000	42000
	36x36	1296	63 lbs.	94000	44000
	48x48	2304	120 lbs.	131000	51000

Outrigger Pads

Thickness	Size	Sq. In.	Weight	Load Capacity* Vertical	Load Capacity* 45 degree
Round	30	693	38 lbs.	63000	32000
	36	997	49 lbs.	72000	34000
	48	1774	93 lbs.	101000	40000

Thickness	Size	Sq. In.	Weight	Load Capacity* Vertical	Load Capacity* 45 degree
2 inch	14x14	196	13 lbs.	43000	20000
	15x15	225	14 lbs.	46000	21000
	18x18	324	23 lbs.	58000	31000
	22x24	528	38 lbs.	61000	39000
	24x24	576	40 lbs.	62000	40000
	30x30	900	62 lbs.	85000	43000
	36x36	1296	90 lbs.	98000	45000
	12x48	576	40 lbs.	65000	
	18x48	864	60 lbs.	75000	
	48x48	2304	160 lbs.	140000	55000
	60x60	3600	250 lbs.	165000	75000

Thickness	Size	Sq. In.	Weight	Load Capacity* Vertical	Load Capacity* 45 degree
Round	30	693	48 lbs.	65000	33000
	36	997	70 lbs.	88000	43000
	48	1774	123 lbs.	120000	50000
	60	2826	190 lbs.	155000	70000

Thickness	Size	Sq. In.	Weight	Load Capacity* Vertical	Load Capacity* 45 degree
2 1/2inch	24x24	576	50 lbs.	62000	39000
	30x30	900	79 lbs.	86000	43000
	36x36	1296	112 lbs.	99000	45000
	48x48	2304	200 lbs.	133000	53000

Outrigger Pads

Thickness	Size	Sq. In.	Weight	Load Capacity* Vertical	45 degree
Round	30	693	61 lbs.	64000	33000
	36	997	87 lbs.	73000	34000
	48	1774	155 lbs.	10300	42000

Thickness	Size	Sq. In.	Weight	Load Capacity* Vertical	45 degree
3 inch	24x24	576	60 lbs.	65000	40000
	30x30	900	93 lbs.	88000	44000
	36x36	1296	135 lbs.	105000	49000
	48x48	2304	240 lbs.	148000	58000

Thickness	Size	Sq. In.	Weight	Load Capacity* Vertical	45 degree
Round	30	693	73 lbs.	67000	34000
	36	997	104 lbs	80000	37000

CUSTOM PADS

Custom outrigger pads to your specific requirements available upon request.

Conversion Tables

Most Frequently Used Conversions

1 Kilogram = 2.2046 pounds • Gram x .022 = pounds
Millimeter x 25.4 = inches • Meters x 3.281 = feet • Metric ton x 2204 = ton

Conversion Factors

Cubic feet X 1728	= cubic inches.
Cubic yards X 27	= cubic feet.
1 U.S. Gallon	= 231 cubic inches = 8.336 pounds water.
1 cubic foot	= 7.4805 U.S. gallons = 62.355 pounds at 62° F.
1 cubic foot per second	= 448.83 U.S. gallons per minute.
1 cubic foot per second	= 646.317 U.S. gallons per 24 hours.
Pressure of 1 pound per square inch	= 2.042 inches of mercury at 62° F
Pressure of 1 pound per square inch	= 2.309 feet of water at 62° F
Standard atmospheric pressure	14.7 pounds per square inch = 29.92 inches mercury = 33.9 feet water.
Head of water of 1 foot	= 0.433 pounds per square inch.
1 horsepower	= 33,000 foot pounds per minute.
1 meter	= 3.281 feet = 39.37 inches
1 pound	= .45359 kilograms
1 liter	= 1,000 grams of water = 1.0567 quarts 0.2642 gallons
1 Kilonewton	= 224.82 pounds

Linear Measure

12 Inches	= 1 Foot
3 Feet	= 1 Yard
5 1/2 Yards	= 1 Rod
40 Rods	= 1 Furlong
320 Rods	= 1 Mile
5,280 Feet	= 1 Mile
8 Furlongs	= 1 Mile

Cubic Measure

1728 Cubic Inches	= 1 Cubic Foot
27 Cubic Feet	= 1 Cubic Yard
128 Cubic Feet	= 1 Cord
24 3/4 X Cubic Feet	= 1 Perch

Square Measure

144 Square Inches	= 1 Square Foot
9 Square Feet	= 1 Square Yard
30.25 Square Yards	= 1 Square Rod
160 Square Rods	= 1 Square Acre
640 Acres	= 1 Square Mile
640 Acres	= 1 Section
36 Sections	= 1 Township

Measures Of Length

10 Millimeters (mm)	= 1 centimeter (cm.).
10 Centimeters	= 1 decimeter (dm.).
10 Decimeters	= 1 Meter (m.).
1000 Meters	= 1 Kilometer (Km.).

Cubic Measure

1000 Cubic Millimeters (mm^3)	= 1 Cubic centimeter (cm^3).
1000 Cubic Centimeters	= 1 Cubic decimeter (dm^3).
1000 Cubic Decimeters	= 1 Cubic Meter (m^3).

Square Measure

100 Square Millimeters ($mm.^2$)	= 1 Square centimeter ($cm.^2$).
100 Square Centimeters	= 1 Square decimeter (dm^2).
100 Square Decimeters	= 1 Square Meter (m^2).

Area And Volumes

Circumference of Circle	= 3.1416 X Diameter
Diameter of Circle	= 0.3183 X Circumference
Side of a Square of Equal Area	= 0.8862 X Diameter
Diameter of a circle of Equal Area	= 1.1284 X Side of Square
Area of Circle	= .07854 X Square Root of the Area
Diameter of a Circle	= 1.1284 X Square Root of the Area
Surface Area of a Sphere	= 3.1416 X Square of the Diameter
Volume of a Sphere	= 0.5236 X Cube of Diameter
Volume of Cylinder or Prism	= Area of Base X Height
Volume of Cone or Pyramid	= 1/3 X Area of Base X Height
Volume of Frustum of a Cone or Pyramid	= 1/3 X Height X (Area of Upper Base+Area of Lower Base+√ Area of Upper Base X Area of Lower Base)
Doubling the diameter of a pipe increases volume four times: generalizing, increasing the diameter "n" times increases the volume "n^3" or "n X n" times.	

Measures Of Length

Millimeter x .03937 = inches	Liter x .2642 = gallons (231 cubic inches)
Centimeter x .3937 = inches	Liter ÷ 3.785 = gallons (31 cubic inches)
Centimeter ÷ 2.54 = inches	Liter ÷ 28.317 = cubic feet
Meters x 39.37 = inches (Act of Congress)	Joule x .7373 = foot pounds
Meters x 1.094 = Yards	Kilograms x 2.2046 = pounds
Kilometer x .6214 = Miles	Kilograms x 35.27 = ounces avoirdupois
Kilometer ÷ 1.6093 = Miles	Kilograms ÷ 907.2 = tons (2,000 pounds)
Kilometer x 3280.8 = Miles	Kilograms per square cent. x 14.223 = pounds per square inch
Square Millimeter x .00155 = square inches	Kilogrammeters x 7.223 = foot pounds
Square Millimeter ÷ 645.2 = square inches	Kilo per meter x .672 = lbs. per foot
Square Centimeter x .155 = square inches	Kilo per cubic meter x .0624 = lbs. per cubic foot
Square Centimeter ÷ 6.452 = 6.452 square inches	Kilo watts x 1.34 = horsepower
Square Meters x 10.764 = square feet	Watts ÷ 746 = horsepower
Square Kilometer x 247.1 = acres	Watts x .7373 = ft. pounds per second
Hectare x 2.471 = acres	Caloric x 3.968 = B.T.U.
Cubic Centimeter ÷ 16.387 = cubic inches	Centigrade x 1.8 + 32 = degree Fahrenheit
Cubic Centimeter ÷ 3.697 = fluid drachmas	Diametral Pitch = 25.400 ÷ Module
Cubic Centimeter ÷ 29.57 = fluid ounces	Module = 25.400 ÷ Diametral Pitch
Cubic Meters x 35.314 = cubic feet	Addendum (MM.) = .03937 x Module
Cubic Meters x 1.308 = cubic yards	Pitch Diameter (MM.) = Module x number of teeth in gear
Cubic Meters x 264.2 = gallons (231 cubic inches)	
Liter x 61.023 = cubic inches (Act of Congress)	
Liter x 33.84 = fluid ounces	

Conversion Tables

Inch Fractions and Decimals to Metric Equivalents

Inches			Inches			Inches		
Fractions	Decimals	mm	Fractions	Decimals	mm	Fractions	Decimals	mm
	-.0004	.01	-	.4724	12	1 3/32	1.094	27.781
-	.004	.10	31/64	.48437	12.303	-	1.1024	28
-	.01	.25	-	.492	12.5	1 1/8	1.125	28.575
1/64	.0156	.397	1/2	.500	12.7	-	1.1417	29
-	.0197	.50	-	.5118	13	1 5/32	1.156	29.369
-	.0295	.75	33/64	.5156	13.097	-	1.1811	30
1/32	.03125	.794	17/32	.53125	13.494	1 3/16	1.1875	30.163
-	.0394	1	35/64	.54687	13.891	1 7/32	1.219	30.956
3/64	.0469	1.191	-	.5512	14	-	1.2205	31
-	.059	1.5	9/16	.5625	14.288	1 1/4	1.250	31.750
1/16	.0625	1.588	-	.571	14.5	-	1.2598	32
5/64	.0781	1.984	37/64	.57812	14.684	1 9/32	1.281	32.544
-	.0787	2	-	.5906	15	-	1.2992	33
3/32	.094	2.381	19/32	.59375	15.081	1 5/16	1.312	33.338
-	.0984	2.5	39/64	.60937	15.478	-	1.3386	34
7/64	.1093	2.776	5/8	.6250	15.875	1 11/32	1.344	34.131
-	.1181	3	-	.6299	16	1 3/8	1.375	34.925
1/8	.1250	3.175	41/64	.6406	16.272	-	1.3779	35
-	.1378	3.5	-	.6496	16.5	1 13/32	1.406	35.719
9/64	.1406	3.572	21/32	.65625	16.669	-	1.4173	36
5/32	.15625	3.969	-	.6693	17	1 7/16	1.438	36.513
-	.1575	4	43/64	.67187	17.066	-	1.4567	37
11/64	.17187	4.366	11/16	.6875	17.463	1 15/32	1.469	37.306
-	.177	4.5	45/64	.7031	17.859	-	1.4961	38
3/16	.1875	4.763	-	.7087	18	1 1/2	1.500	38.100
-	.1969	5	23/32	.71875	18.256	1 17/32	1.531	38.894
13/64	.2031	5.159	-	.7283	18.5	-	1.5354	39
-	.2165	5.5	47/64	.73437	18.653	1 9/16	1.562	39.688
7/32	.21875	5.556	-	.7480	19	-	1.5748	40
15/64	.23437	5.953	3/4	.7500	19.050	1 19/32	1.594	40.481
-	.2362	6	49/64	.7656	19.447	-	1.6142	41
1/4	.2500	6.350	25/32	.78125	19.844	1 5/8	1.625	41.275
-	.2559	6.5	-	.7874	20	-	1.6535	42
17/64	.2656	6.747	51/64	.79687	20.241	1 21/32	1.6562	42.069
-	.2756	7	13/16	.8125	20.638	1 11/16	1.6875	42.863
9/32	.28125	7.144	-	.8268	21	-	1.6929	43
-	.2953	7.5	53/64	.8281	21.034	1 23/32	1.719	43.656
19/64	.29687	7.541	27/32	.84375	21.431	-	1.7323	44
5/16	.3125	7.938	55/64	.85937	21.828	1 3/4	1.750	44.450
-	.3150	8	-	.8662	22	-	1.7717	45
21/64	.3281	8.334	7/8	.8750	22.225	1 25/32	1.781	45.244
-	.335	8.5	57/64	.8906	22.622	-	1.8110	46
11/32	.34375	8.731	-	.9055	23	1 13/16	1.8125	46.038
-	.3543	9	29/32	.90625	23.019	1 27/32	1.844	46.831
23/64	.35937	9.128	59/64	.92187	23.416	-	1.8504	47
-	.374	9.5	15/16	.9375	23.813	1 7/8	1.875	47.625
3/8	.3750	9.525	-	.9449	24	1 29/32	1.9063	48.419
25/64	.3906	9.922	61/64	.9531	24.209	-	1.9291	49
-	.3937	10	31/32	.96875	24.606	1 15/16	1.9375	49.213
13/32	.4062	10.319	-	.9843	25	-	1.9685	50
-	.413	10.5	1	1.00	25.4	1 31/32	1.9688	50.006
27/64	.42187	10.716	-	1.0236	26	2	2.000	50.8
-	.4331	11	1 1/32	1.0312	26.194	2 1/4	2.250	57.15
7/16	.4375	11.113	1 1/16	1.062	26.988	2 1/2	2.500	63.5
29/64	.4531	11.509	-	1.063	27	2 3/4	2.750	69.85
15/32	.46875	11.906				3	3.000	76.2

Technical Sources

Consult the following sources for important technical literature and/or safety manuals

American National Standards Institute (ANSI)
25 West 43rd St.
New York, NY 10036
Telephone (212) 642-4000
www.ansi.org

American Petroleum Institute (API)
1220 L St. N.W.
Washington D.C. 20005-4070
Telephone (202) 682-8000
www.api.org

The American Safety of Mechanical Engineers (ASME)
PO Box 2900
Farifield, NJ 07007-2900
Telephone (973) 882-1170
www.asme.org

Associated Wire Rope Fabricators (AWRF)
PO Box 748
Walled Lake, MI 48390
Telephone (248) 994-7753
800-444-AWRF
www.awrf.org

The Cordage Institute
994 Old Eagle School Rd. Suite 1019
Wayne, PA 19087
Telephone (610) 971-4854

National Safety Council
1121 Spring Lake Dr.
Itasca, IL 60143-3201
Telephone (630) 285-1121
www.nsc.org

Occupational Safety & Health Admin. Department of Labor (OSHA)
200 Constitution Ave
Washington D.C. 20210
Telephone (800) 321-6742
www.osha.org

Web Sling & Tiedown Association
Telephone (443) 640-1070 ext. 110
www.wstda.com

Wire Rope Technical Board
801 North Fairfax St. Suite 211
Alexandria, VA 22314-1757
Telephone (703) 299-8550
www.wireropetechnicalboard.org

Notes: