



**super
20 slings inc.**
YEARS of
Secure Solutions

RIGGING CATALOG

www.superslings.ca

SECURE SOLUTIONS



North Office

Address

505 - 11 Avenue
Nisku, Alberta
Canada, T9E 7N5

Phone

780-955-7111



Secure Solutions

info@superslings.ca

South Office

Address

7620 Edgar Industrial Drive
Red Deer, Alberta
Canada, T4P 3R2

Phone

403-406-4996



LIFT IT UP TIE IT DOWN PULL IT AROUND

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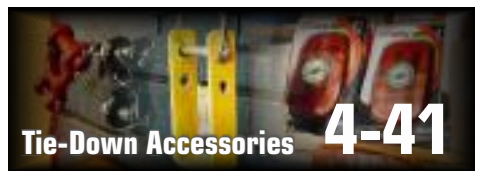
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Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
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OUR COMPANY

Founded in March of 2000 Super Slings has become a leading supplier and manufacturer of rigging & safety products to the oil and gas, energy production, drilling, mining, transportation, manufacturing, entertainment and construction industries. Being 100% locally owned and operated, Super Slings Inc has established itself as a reliable source for quality, safety and exceptional service. We have a fully equipped facility, including a full line of rigging manufacturing equipment as well as a Roberts & Wirop test bed with capacities up to 300 tonne, hoist test stand, magnet break-away test stand, socket pouring stand and rope coilin and counting machine.



Super Slings Inc also provides a unique, fully stocked showroom to help you find exactly what you're looking for. Our highly trained and certified staff is devoted to providing our customers with the best service and the highest quality products. We offer inspection, repair and certification services for all types of rigging, lifting, load securement and pulling applications. At Super Slings we strive to be innovative, which is why we are proud to provide leading edge products such as our High Performance sling tagging, RUD Lifting products, Van Beest Green Pin® products, Tiger Hoisting products and many more.

MISSION STATEMENT

Our goal is to be a leader for all Secure Solutions. Dedication, Research, Knowledge, Integrity and Team Work will provide us with the skills and ability to give our clients the best quality in service and products available. This pursuit will ensure the future safety and success of our company and all in the industry.



ASSOCIATIONS



The **Web Sling & Tie Down Association** is the "largest non-profit, technical organization dedicated to the safe operation of all synthetic web slings and tie downs". Formed in 1973 as the Web Sling Association, WSTDA develops and promotes voluntary standards to the safe construction and usage of webbing, web slings, round slings, tie downs, and chain binders. Super Slings has been a member and active participant in the Web Sling & Tie Down association since 2001.



The **Associated Wire Rope Fabricators** was formed in 1975 and incorporated the following year by a group of concerned businessmen who felt there was a need for sling fabricators and special rigging components manufacturers to join together to form a trade association. Originally created by representatives from nine companies in the United States, in two decades the organization grew to address the needs of over 400 member companies worldwide. AWRF promotes interests common among companies manufacturing, fabricating, or distributing lifting, rigging and load securement devices made of chain, rope, and synthetic products.



QUALITY

OUR QUALITY COMMITMENT

Super Slings Inc. makes quality a top priority by ensuring that the products and services we provide meet and/or exceed customer requirements as well as industry standards. We comply with our policy requirements to continually improve the effectiveness of our Quality Management System. Traceability is carefully maintained for all products manufactured at Super Slings Inc.

Aaron Giesinger
President & CEO



SUPER SLINGS INC., in its goal to strive for excellence, considers the following principles integral in the development and ongoing implementation of its Quality System:

- Being a customer focussed organization.
- Providing leadership in the maintenance of its Quality System.
- Involving people in the development and maintenance of its Quality Management System and business operations.
- Incorporating a process approach to the development and implementation of its Quality Management System.
- Using a systems approach to management allowing for a factual approach to decision making.
- Providing an environment for continual improvement.
- Establishing a mutually beneficial supplier relationship.

This process model is based on ISO 9001:2015 – Quality Management Systems Requirements and is used to illustrate the process linkages.



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- Rope & Carriage



LOCATIONS

NISKU - Head Office

505 - 11 Avenue
Nisku, Alberta
Canada T9E 7N5

Phone: 780-955-7111
Fax: 780-955-7199

RED DEER - South Office

7620 Edgar Industrial Drive
Red Deer, Alberta
Canada T4P 3R2

Phone: 403-406-4996
Fax: 403-496-4997



www.superslings.ca



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[youtube.com/superslings](https://www.youtube.com/superslings)

SHOWROOM

Our fully stocked showrooms in Nisku and Red Deer offer our customers the unique experience to find exactly what they need to get the job done right.



SLING FABRICATION



All Super Slings Fabricators are trained and tested by ITI (Industrial Training International) through the Qualified Sling Fabricator course and have passed both written and practical exams to prove competency. At Super Slings we have the capability to manufacture and distribute a wide variety of rigging options to suit any need!

SLING FABRICATION OPTIONS

- Wire rope slings up to 1-1/2" in-house. Larger sizes available through special order.
- Grade 80 & 100 chain slings and components up to 3/4" in-house. Larger sizes available through special order.
- Wide variety of rope sling options, including 3 strand, single braid, and double braid.
- Tow ropes manufactured in-house up to 2-5/8".
- Web slings up to 12" (material width)
- Polyester round slings up to 90,000 lbs standard and 1,000,000 lbs + through special order

Wire Rope Slings

All of our wire rope slings are made with EIPS IWRC wire rope unless otherwise specified. We have the capability to splice up to 1-1/2" diameter in our shop. Single slings, multi-leg bridles, custom assemblies are all available!



Chain Slings

Our grade 120, grade 100 or grade 80 chain sling components come fully load tested from the manufacturer. Each chain sling ordered will be tagged with all of the essential chain sling information stamped on to the tag, along with the personalized serial number for that sling. Customers will also be provided with a test certificate for each chain sling.



Rope Slings

We can custom build a wide variety of rope slings, including eye & eye slings, adjustable transformer slings, multi-leg bridles, and tool bag lifting slings. Custom sizes, lengths, and designs can be quoted!



Tow Ropes

Our tow ropes are some of the strongest and most versatile on the market. Constructed from a high-strength double braid or 3-Strand cordage, they can take the all of the punishment that you can dish out. All tow-ropes are made-to-order and are available in custom lengths. All tow ropes come with cordura sleeves in the eyes, but multiple options are available for extra protection on the eyes or the body of the tow rope.



Synthetic Slings

Our synthetic slings are typically available in 2ft increments up to 30ft as well as custom lengths. All synthetic slings come with high density plastic, weather resistant tags. Other options such as full body cordura wrap for web slings, and extra cordura sleeves for endless round slings are also available.



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INSPECTIONS & REPAIRS



IN-HOUSE INSPECTIONS

Super Slings is committed to providing thorough and cost-effective rigging inspection services that comply with all procedures recommended by ASME, OH&S, and manufacturers. Staffed by a team of technicians with extensive knowledge and an outstanding industry reputation, our Service Centre works with you during every step of your operation to ensure that your rigging meets the highest standards of integrity and safety. All Super Slings Inspectors are trained and tested by ITI (Industrial Training International) through the Rigging & Inspection Program and have passed both written and practical exams to prove competency.

We Can perform Inspections and Repairs for the following products and more

- | | | | |
|--------------|---------------|---------|---------------|
| Web Slings | Chain Slings | Swivels | Plate Clamps |
| Round Slings | Lifting Hooks | Hoists | Lifting Beams |
| Wire Rope | Shackles | Magnets | Fall Arrest |



ON-SITE INSPECTIONS

One of the best safeguards against sling failures that can cause property damage, injury, or even death, is a proper sling and rigging inspection program. On-Site rigging inspections are also a great way to keep all rigging up to date with inspection requirements without having to send them off site. Our inspectors can come to your facility or job site and provide inspections for a wide variety of rigging and lifting hardware.



Super Slings inspectors are trained and tested by **Industrial Training International** to ensure our customers receive the highest quality and most reliable inspection possible. All slings and rigging are inspected to the most recent Alberta OH&S, ASME and manufacturer standards, codes and requirements.

Our Inspection program utilizes Supertrac FieldID to maintain an online database of all inspections and testing for every serialized sling and hardware product. These records are available 24 hours a day, 365 days a year and can be accessed by anyone with a username and password.

We will work with you to determine the most practical and cost efficient frequency of your sling inspections. We can perform inspections annually, semi-annually, quarterly or even monthly depending on the severity of work in which you use your rigging.

REPAIRS

Super Slings technicians have the knowledge and experience to repair and re-certify all slings back to ASME, local regulations and the highest quality standards in the industry.

All sling repairs are then tested in accordance with industry standards and supplied with inspection and testing certificates.





Your Inspection & Testing Records Online 24 / 7 / 365



When it comes to heavy lifting, don't leave safety hanging.

With Super-trac FieldID, safety inspections on all types and sizes of industrial rigging equipment can be conducted with one click.

- Chain
- Wire rope
- Synthetic slings
- Chain Hoists
- Plate Clamps
- Lifting Magnets
- Shackles
- Eye Bolts
- Hoist rings
- Lifting Beams
- More!



Your Challenge

When you're dealing with multiple worksites and numerous pieces of equipment, it can be a stretch to manage it all - visual inspections, certificates, product identification...the list goes on.

- Excessive paperwork
- Management of proof test certificates
- Guesswork in inspection standards – i.e. ASME standards
- Difficulty in distinguishing between rigging products

The Super-trac FieldID advantage

With Super-trac FieldID's one click identification and data storage system, managing the compliance of your rigging has never been easier.

- No questions - All documentation is digitized and stored securely
- Identify and distinguish products on the job site
- Safety standards are built right into Super-trac FieldID
- 24/7 access online to equipment compliance status.



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TESTING

HORIZONTAL TEST BEDS:

WIROP 300

Capacity: 300 Tonne (660,000 lbs)
 Length: 18m (59.5 feet)
 Accuracy: +/- 1% for the range 10-100 % will calibrate according to ASTM E-4 or ISO 7500. The low range is to cover 1"10 % of load cell capacity.
 Inside Width: 76cm (30in)
 Inside Height: 51cm (20in)



ROBERTS 75

Capacity: 34 Tonne (150,000 lbs)
 Length: 8m (26.5 feet)
 Accuracy: +/- 1% for the range 10-100 % will calibrate according to ASTM E-4 or ISO 7500. The low range is to cover 1"10 % of load cell capacity.
 Inside Width: 86cm (34in)
 Inside Height: 60cm (24in)



HOIST TEST STAND

Capacity: 12 Tonne (26,400 lbs)
 Stroke: 15.5cm (6in)

Inside Width: 51cm (20in)
 Inside Height: 122cm (48in)



MAGNET BREAKAWAY TEST STAND

Capacity: 6.8 tonne (15,000lbs)
 Stroke: 10cm (4in)

Inside Width: 58cm (23in)
 Inside Height: 51cm (20in)



Magnet Breakaway Test Stand

Super Slings Magnet Breakaway Test Stand can test magnets with a breakaway force of up to 15,000 lbs. We also have the ability re-label and repair lifting magnets in accordance with the most recent ASME B30.20 standards.

Why Should I Use A Lift Magnet Certification Service?

Lift Magnets cannot be visually inspected alone. Lift Magnet Failure is often the result of internal damage to the magnetic material and is not evident by simple visual inspections that can be performed on other lifting devices. Our Lift Magnet Testing and Certification Service performs both a thorough visual inspection and functional testing of your magnetic lifting products using testing techniques and equipment that meet or exceed the ASME B30.20 Standards for Below-the-Hook Magnetic Lifting Devices. These performance tests are often referred to as Breakaway tests.



Proper breakaway testing of a lift magnet will determine the maximum lift capacity of that magnet under ideal conditions. The outcome of the test allows the operator/owner of the lift to determine if the magnet meets the rated Working Load Limit (WLL) or lift capacity as designed by the manufacturer. After testing, We provide documentation of the testing and a certificate of conformance if the magnet meets the manufacturer's labelled rating. Damaged label replacement is also included for Industrial Magnetics Inc. labelled Lift Magnets.

Common Factors For Lift Magnet Loss Of Performance Or Failure

- Blunt force impact such as dropping, or banging on, the magnet can cause fractures in the magnet
- High heat: If the magnet is exposed to temperatures above its' capabilities it will lose magnetism
- Exposure to electrical fields, like generators or welding ground circuits, will result in loss of magnetism.
- External factors that influence a lift magnet's performance are; nicks, scratches, gouges, rust, etc. to the contact surface of the lifter.

Breakaway testing will prove the magnet is performing at the intended Working Load Limit (WLL).



Lifting Magnet Repairs. All lifting magnets that require repair, are done so in accordance with ASME B30.20 and manufacturer specifications and requirements. Our unique ability to clean and re-label, significantly reduces costs of repairs or potential replacement requirements. All repaired magnets are tested in accordance with ASME B30.20.

Before



After



ASME B30.20-3.3.8.2 Load Test

(a) Prior to initial use, all new, altered, or repaired lifting magnets shall be tested by, or under the direction of the manufacturer or a qualified person. The rated load of all lifting components associated with the magnet shall exceed the maximum breakaway force of the magnet to avoid overload, or the components shall not be included in the test. The test results shall be recorded confirming the load rating of the lifting magnet.

(1) Breakaway Force Test

(-a) General application lifting magnets shall be required to satisfy the rated breakaway force test.

(-1) The rated load for permanent magnet lifters shall be less than 33% of the breakaway force measured in this test.

(-2) The rated load for electromagnetic lifters shall be less than 50% of the breakaway force measured in this test.

(-b) Specified application lifting magnets shall be required to satisfy the specified application lifting magnet breakaway force test.

(-1) The rated load for permanent magnet lifters shall be less than 33% of the breakaway force measured in this test.

(-2) The rated load for electromagnetic lifters shall be less than 50% of the breakaway force measured in this test.

(2) Design Factor Test. Close proximity operated lifting magnets should have an annual magnetic design factor test to verify the magnet meets para. 20-3.3.8.2.

This test should be performed to the actual breakaway point of the magnet or may be performed at the calculated minimum breakaway force. The rated load of all components associated with the (magnetic) design factor

test shall exceed the maximum breakaway load of the magnet to avoid overload or the lifting hardware shall be removed. Caution should be exercised during the test. The test shall be performed under the direction of a qualified person.

(b) The general application lifting magnet breakaway force test shall establish the force required to vertically remove the lifting magnet from a low carbon, rolled steel plate of the minimum thickness stated by the lifting magnet manufacturer. The portion of this plate that is in contact with the lifting magnet shall not exceed 125 μ m. (3.2 \times 10-3 mm) or better and be flat within 0.002 in./ft (0.05 mm/m), without exceeding 0.005 in. (0.127 mm) total. The full operating face of the lifting magnet shall be in contact with the steel plate, which shall be between 60°F (15°C) and 120°F (50°C). The steel plate, load cell, or other testing device shall be mounted to allow self-alignment so the load is applied to the magnet through the magnet's center of force.

(c) The specified application lifting magnet breakaway force test shall establish the breakaway forces of the lifting magnet under the variety of loading conditions for which the lifting magnet is specified. The details of this test should be supplied by the manufacturer of the lifting magnet.

(d) Battery operated electromagnets and externally powered electromagnets shall be operated at the manufacturer's recommended voltage and current levels.

(e) The test for altered or repaired lifting magnets may be limited to the components affected by the alteration or repair, as determined by a qualified person with guidance from the manufacturer.

BRANDS

At Super Slings, we are proud to partner with some of the most trusted brands in the rigging industry to bring our customers the best products in the world. Our network of vendors and suppliers ensures on-time delivery with what you need when you need it.



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- Rope & Cordage

RESOURCES

RIGGING TRAINING

Rigging training is one of the most important, and most overlooked, aspect to any lifting or load handling scenario. Super Slings works with several rigging training companies throughout Alberta and North America that provide a wide range courses. Contact your Super Slings representative for more information on available training courses.



Rigging Handbook:
The Complete Illustrated
Field Reference



Rigging Pocket Guide:
A Reference for the
Rigging Professional:



INDUSTRY CONTACTS



**Alberta Occupational Health
and Safety (OH&S)**

www.alberta.ca/occupational-health-safety.aspx

Toll-free in Alberta:
1-866-415-8690



**American Society of Mechanical
Engineers (ASME)**

www.asme.org

1-800-843-2763
(U.S/Canada)



Rigging Resource Centre

<https://riggingresource.com>

Alberta:
(780) 417 5057



**Web Sling & Tie Down
Association**

www.wstda.com

443.640.1070



**American Society of Mechanical
Engineers (ASME)**

www.awrf.org

1-800-843-2763
(U.S/Canada)



**Association of Crane &
Rigging Professionals**

www.acrp.net

Toll Free:
800.690.3921

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METRIC / IMPERIAL UNIT CONVERSION TABLE

IMPERIAL

METRIC

LINEAR MEASURE (LENGTH/DISTANCE)

IMPERIAL	METRIC
1 inch	25.4 millimetres
1 foot (=12 inches)	0.3048 metre
1 yard (=3 feet)	0.9144 metre
1 (statute) mile (=1760 yards)	1.6093 kilometres
1 (nautical) mile (=1.150779 miles)	1.852 kilometres

SQUARE MEASURE (AREA)

IMPERIAL	METRIC
1 square inch	6.4516 sq. centimeters
1 square foot (=144 square inches)	9.29 square decimeters
1 square yard (=9 square feet)	0.8361 square metres
1 acre (=4840 square yards)	0.40469 hectare
1 square mile (=640 acres)	259 hectares

CUBIC MEASURE (VOLUME)

IMPERIAL	METRIC
1 cubic inch	16.4 cubic centimeters
1 cubic foot (=1728 cubic inches)	0.0283 cubic metres
1 cubic yard (=27 cubic feet)	0.765 cubic metres

CAPACITY MEASURE (VOLUME)

IMPERIAL	METRIC
1 (imperial) fl. oz. (=1/20 imperial pint)	28.41 ml
1 (US liquid) fl. oz. (=1/16 US pint)	29.57 ml
1 (imperial) gill (=1/4 imperial pint)	142.07 ml
1 (US liquid) gill (=1/4 US pint)	118.29 ml
1 (imperial) pint (=20 fl. imperial oz.)	568.26 ml
1 (US liquid) pint (=16 fl. US oz.)	473.18 ml
1 (US dry) pint (=1/2 quart)	550.61 ml
1 (imperial) gallon (=4 quarts)	4.546 litres
1 (US liquid) gallon (=4 quarts)	3.785 litres
1 (imperial) peck (=2 gallons)	9.092 litres
1 (US dry) peck (=8 quarts)	8.810 litres
1 (imperial) bushel (=4 pecks)	36.369 litres
1 (US dry) bushel (=4 pecks)	35.239 litres

MASS (WEIGHT)

IMPERIAL	METRIC
1 grain	0.065 gram
1 dram	1.772 grams
1 ounce (=16 drams)	28.35 grams
1 pound (=16 ounces =7000 grains)	0.45359237 kilogram
1 stone (=14 pounds)	6.35 kilograms
1 quarter (=2 stones)	12.70 kilograms
1 hundredweight (=4 quarters =112 lb.)	50.80 kilograms
1 (long) ton (=2240 lbs)	1.016 tonnes
1 (short) ton (=2,000 lbs)	0.907 tonne

METRIC

IMPERIAL

LINEAR MEASURE (LENGTH/DISTANCE)

METRIC	IMPERIAL
1 millimetre	0.0394 inch
1 centimetre (=10 mm)	0.3937 inch
1 decimetre (=10 cm)	3.937 inches
1 metre (=100 cm)	1.0936 yards
1 decametre (=10 m)	10.936 yards
1 hectometre (=100 m)	109.36 yards
1 kilometre (=1000 m)	0.6214 miles

SQUARE MEASURE (AREA)

METRIC	IMPERIAL
1 square centimetre	0.1550 sq. inch
1 square metre (=10 000 sq. cm)	1.1960 sq. yards
1 are (=100 sq. metres)	119.60 sq. yards
1 hectare (=100 ares)	2.4711 acres
1 square kilometer (=100 hectares)	0.3861 sq. mile

CUBIC MEASURE (VOLUME)

METRIC	IMPERIAL
1 cubic centimeter	0.0610 cubic inch
1 cubic metre (one million cu. cm)	1.308 cubic yards

CAPACITY MEASURE (VOLUME)

METRIC	IMPERIAL
1 millilitre	0.002 (imperial) pint
1 centilitre (=10 ml)	0.018 pint
1 decilitre (=100 ml)	0.176 pint
1 litre (=1000 ml)	1.76 pints
1 decalitre (=10 l)	2.20 (imperial) gallons
1 hectolitre (=100 l)	2.75 (imperial) bushels

MASS (WEIGHT)

METRIC	IMPERIAL
1 milligram	0.015 grain
1 centigram (=10 mg)	0.154 grain
1 decigram (=100 mg)	1.543 grain
1 gram (=1000 mg)	15.43 grain
1 decagram (=10 g)	5.64 drams
1 hectogram (=100 g)	3.527 ounces
1 kilogram (=1000 g)	2.205 pounds
1 tonne (=1000 kg)	0.984 (long) ton

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IN NO EVENT SHALL SUPER SLINGS INC. BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR INCIDENTAL DAMAGE RESULTING FROM, ARISING OUT OF OR IN CONNECTION WITH THE USE OF THE INFORMATION PROVIDED IN THIS CATALOG

WARNINGS & CAUTIONS

All products are sold subject to the following warnings and cautions and with the express understanding that the purchaser and/or user are thoroughly familiar with their proper use. Super Slings Inc. assumes no responsibility for the use, misuse or misapplication of its products.

Working Load Limit:

The working load limit (WLL) is the maximum load a component or assembly should be subjected to during routine use. The working load limit is based on a load being uniformly applied in a straight line pull.

Breaking Strength:

This is the minimum load a component or assembly will withstand before failure. Do NOT use breaking strength for design or rating purposes. Use working load limit instead.

Shock Loads:

Shock loads are loads which exceed the static load caused by rapid change of movement, such as jerking, impacting or swinging of loads. Working load limits will not apply.

Matching components:

All attachments used with chain and wire rope must be of suitable material, type and strength to provide adequate safety protection. Attachments should have working load limits at least equal to the other components with which they are used.

Inspection:

No product can operate indefinitely at its rated capacity. Wire rope, chain and any other rigging hardware must all be inspected regularly for visible damage, or distortion, elongation, corrosion, cracks, nicks or abrasions which may cause failure or reduce the strength or ability of the products to perform.

RETURN POLICY

At Super Slings Inc. , we believe in offering the very best in value, quality, service and selection! If an item you purchase from us does not meet your expectations, you may return most items for a refund or exchange within 30 days from date of purchase.

All returns require prior authorization and must be returned in the original packaging, including inner plastic liners, with all accessories and documentation, including manuals, warranties and a copy of the original purchase invoice. Only new merchandise in its original packaging, with no markings on the packaging may be returned. The only exception to this restriction is if you are returning items that are damaged, in order to have them replaced with an identical item. In this case, original tags and packaging is not required.

To request a Return Merchandise Authorization (RMA) number, please call our office and ask for the RMA number, which you must clearly write on the invoice copy which you will return with the merchandise. Keep the RMA number, and reference it when calling to check the status of your return. Incomplete or unauthorized

returns may be refused and returned to you. We cannot accept returns of any items that we consider to be a special product or any item which has been modified in any way from our standard design.

We recommend using a traceable method of shipping if you must ship us your return and should be insured against loss and damage. Super Slings Inc. will not be responsible for returns lost during delivery. Credits for merchandise WILL NOT include the original or return freight charges. Items shipped freight free or freight included will be credited minus an allowance to cover all packing and freight. Any shipping and / or handling charges on the original order WILL NOT be refunded. Super Slings Inc. will refund shipping costs or freight costs only if the return is a result of our error or the item is defective. We will also pay the return shipping cost of the return is a result of our error.

At our discretion, we may levee a restocking fee of up to 25% of the cost of items returned. Merchandise being returned due to our error will not be subject to this restocking fee.

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YEARS of
Secure Solutions

SECTION 1 LIFTING SLINGS

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SECTION 1 - LIFTING SLINGS



Sling Protection

1-1



Web Slings

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Round Slings

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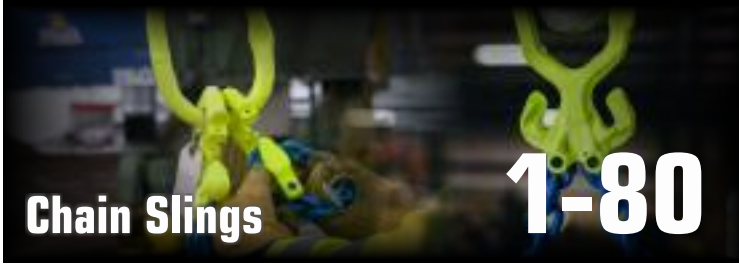
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Chain Slings

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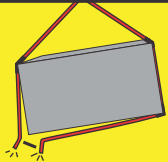
**super
20 YEARS of
slings inc.**
Secure Solutions

SLING PROTECTION



Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage

WARNING! Damaged or misused sling protection can result in damage or sling failure. Inspect before each use. Inspect for cuts, tears or damage that may prevent protection of the sling. Ensure protection is the correct size and type to protect the sling. Protect sleeve and sling from slipping or sliding across load edge. **Death or Injury can occur from improper use, maintenance and/or inspection. Wear pads may not prevent cutting or other sling damage. To avoid severe personal injury or death, keep all personnel clear of loads about to be lifted and suspended loads.**



The Importance of Sling Protection

Sling protection products are designed to aid in the protection of lifting slings during a lifting application. One of the most common cause of failure of slings, both during use and during inspection is cutting and damage from abrasive or jagged surfaces. Sling protection can help reduce this problem by acting as a buffer between the sling and the load. When used with steel slings, they can help protect both the sling and the load from damage. There are two main applications with regards to sling protection, abrasion protection and cut protection. Wear pads such as Cordura or ballistic nylon are often used in the eye of the sling or any part of the sling that may come in contact with the load. Cut protection and corner protection such the as the LiftGuard sling protectors and Spanset Secutex sleeves should be used whenever the sling is going around a narrow radius or "sharp" edges or corners.

Definition: "Sharp" Edge

In addition to external factors, such as temperature or mechanical stress, "sharp edges" still represent one of the main causes of damage to the lifting gear itself and are therefore a frequent cause of accidents. The most damages on sharp or rough edges occur by moving the load transversely to the lifting gear. If the edge is "sharp", it can, in the worst case, cut through the lifting gear. If the load moves to the side, a cutting motion occurs at the edge. Being comparable with the blade of a knife, the edge can cut through unprotected lifting gear.

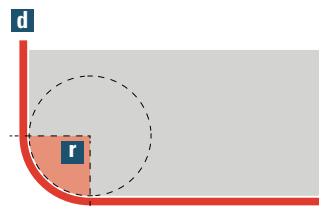


A sharp edge already exists if the edge radius "r" is smaller than the thickness of the material "d" of the lifting gear. If the edge radius is under 2 mm, experts already consider this a "razor-sharp edge". The definition of "sharp edges" was originally devised for wire rope attachments, but was not adapted to the development of round slings. This problem was examined by **SpanSet®** in cooperation with the trade association and DEKRA in an extensive series of tests.

THE DIFFERENT VERSIONS OF A SHARP EDGE:

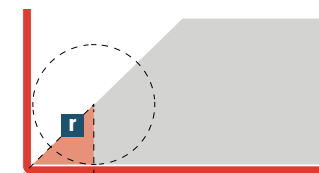
Sharp edge: Edge radius

If the edge radius "r" is smaller than the thickness of the flat sling/round sling "d", the edge is considered "sharp". Lateral movements or surface pressure can already be enough to sever the lifting gear



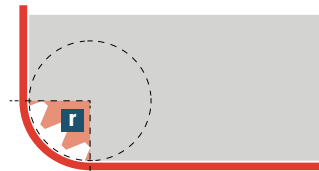
Sharp edge: Edge Angle

In addition to loads with rectangular edges, there are goods with deviating shapes. These include loads with protruding edges and with sharp or jagged outer contours, such as cogwheels, turbine blades etc. These edges cannot be determined by the general rule.



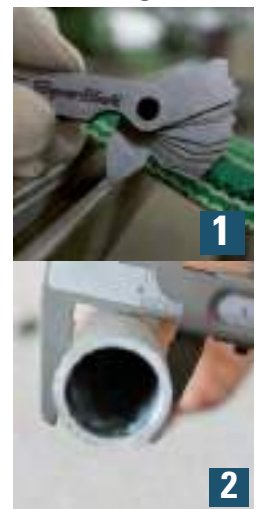
Sharp edge: Edge shape

The shape and surface finish of the edges have a significant impact on the durability of the lifting gear. Very rough surfaces, such as those of a prefabricated concrete component, can very quickly damage textile lifting gear or a wire rope.

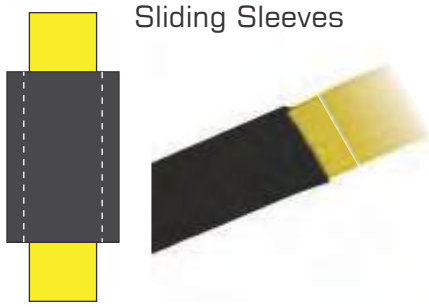


Tools for measuring radii

In order to assess the sharp edge, "tools" are required. The following tools can be used to determine radii: radius gauge **1**, vernier caliper **2**, folding ruler.



Wear Pad Types



Wear Pad Materials

Cordura®



Cordura® is a high strength, cut resistant nylon fabric that is great for adding abrasion resistance to synthetic slings, tie down straps and other types of webbing.

Ballistic Nylon



Ballistic Nylon is a thin, 2-ply wear resistant fabric made of bulked nylon fiber, appropriate for wider sleeves, bundling applications and abrasive surfaces.

Material Type	Web Sling Width	Overall Width approx	Item No.
	inch	inch	
CORDURA WEAR PAD SLEEVE			
CORDURA	1	1.5	03-WPC1/SLV
CORDURA	2	3	03-WPC2/SLV
CORDURA	3	4	03-WPC3/SLV
CORDURA	4	4.5	03-WPC4/SLV
CORDURA	6	7	03-WPC6/SLV
CORDURA	8	9.5	03-WPC8/SLV
CORDURA	10	11.5	03-WPC10/SLV
CORDURA	12	13	03-WPC12/SLV
CORDURA WEAR PAD SLEEVE W/ VELCRO®			
CORDURA	1	2	03-WPC1/SLV-V
CORDURA	2	3	03-WPC2/SLV-V
CORDURA	3	4.25	03-WPC3/SLV-V
CORDURA	4	6	03-WPC4/SLV-V
CORDURA	6	8	03-WPC6/SLV-V
CORDURA	8	10	03-WPC8/SLV-V
CORDURA	10	12	03-WPC10/SLV-V
CORDURA	12	13.5	03-WPC12/SLV-V

Material Type	Web Sling Width	Overall Width approx	Item No.
	inch	inch	
BALLISTIC NYLON WEAR PAD SLEEVE			
BALLISTIC NYLON	1	1.5	03-WPBN1/SLV
BALLISTIC NYLON	2	3	03-WPBN2/SLV
BALLISTIC NYLON	3	4	03-WPBN3/SLV
BALLISTIC NYLON	4	4.5	03-WPBN4/SLV
BALLISTIC NYLON	6	7	03-WPBN6/SLV
BALLISTIC NYLON	8	9.5	03-WPBN8/SLV
BALLISTIC NYLON	10	11.5	03-WPBN10/SLV
BALLISTIC NYLON	12	13	03-WPBN12/SLV
BALLISTIC NYLON WEAR PAD SLEEVE W/ VELCRO®			
BALLISTIC NYLON	1	2	03-WPBN1/SLV-V
BALLISTIC NYLON	2	3	03-WPBN2/SLV-V
BALLISTIC NYLON	3	4.25	03-WPBN3/SLV-V
BALLISTIC NYLON	4	6	03-WPBN4/SLV-V
BALLISTIC NYLON	6	8	03-WPBN6/SLV-V
BALLISTIC NYLON	8	10	03-WPBN8/SLV-V
BALLISTIC NYLON	10	12	03-WPBN10/SLV-V
BALLISTIC NYLON	12	13.5	03-WPBN12/SLV-V

*Wear Pad sleeves are sold by the foot. Please specify length required at the time of order.

- Sliding Sleeves
- Sliding Sleeves with Velcro®
- Eye Wear Pad (Cordura only)
- NO
- Shackles & Turnbuckles
- Chain Slings
- Wire Rope Slings
- Synthetic Chain Slings
- Round Slings
- Web Slings
- Sling Protection

Secutex Protective Sleeves for Lifting

Flexible protection sleeve, protective sleeves. The protective sleeve catches the edge of the load while the lifting strap moves freely through the protective sleeve. The load and lifting strap are protected.

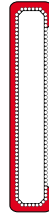
Benefits

- Extremely cut-resistant
secutex protective sleeves adapt flexibly to loads “sharp edges”. The extreme structural resistance of the secutex material safely prevents any cutting of the load lifting accessory.
- Extremely wear- and abrasion-resistant
secutex coatings reliably protect the load lifting accessories in contact with rough surfaces against early wear. secutex protective sleeves and fixed coatings are therefore the more economical solution.
- Careful handling of the load
The secutex protective coating adheres to the load softly and flexibly, increasing the radius of critical edges. The lifting forces are distributed across a larger area and the load remains undamaged.
- Exceptional handling through low dead weight
secutex-coated lifting straps and protective sleeves offer optional handling. Due to the low deadweight and flexibility, the load lifting accessory can be attached easily and quickly to the load.
- Meets the highest standards of work safety
Thanks to the optimal handling, it achieves exceptionally high levels of safety. Even difficult lifting situations can be solved. There's a reason why lifting using textile load lifting accessories is called “soft lifting”.



Type	Inside Width	Overall Width	Overall height	Weight appr. per mt	Item No.
	mm	mm	mm	kg	
SF-1 SINGLE SIDED COATING					
Single	30	55	30	0.6	SF1-30
Single	60	85	23	1	SF1-60
Single	90	115	25	1.5	SF1-90
Single	120	145	25	2	SF1-120
Single	150	175	25	2.3	SF1-150
Single	180	210	30	2.9	SF1-180
Single	240	270	35	3.7	SF1-240
Single	300	340	35	4.6	SF1-300
SC CLIP SINGLE SIDED COATING					
Clip	30	47	22	0.9	SC-30
Clip	60	85	23	1.4	SC-60
Clip	90	115	25	2.2	SC-90
Clip	120	145	25	2.9	SC-120
Clip	150	175	25	3.4	SC-150
Clip	180	210	30	4.2	SC-180
Clip	240	270	35	5.5	SC-240
Clip	300	340	35	6.8	SC-300

SF-1



SC



SpanSet secutex®

Turning loads using the protective sleeve

Turning loads using the protective sleeve

Turning the coil by 90°

Step 1:
Determine minimum length of protective sleeve

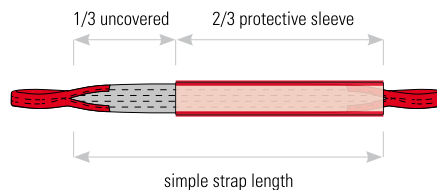
$$\begin{aligned}
 & 2 \times H \text{ [wrapping height]} \\
 & + 2 \times B \text{ [coil width]} \\
 & + 2 \times \text{projection 25 cm}
 \end{aligned}$$

Length of protective sleeve

secutex protective sleeves are vital when turning over coils. The lifting strap is attached to a crane hook and attached to the load with the secutex protective sleeve. During lifting, the strap moves freely through the protective sleeve while the latter remains motionless against the load. This means that turning the load 90° is possible without any problem whatsoever. If the load is paced to the other side according to the same principle, it can be also be turned by 180°. The lifting strap can slide through the protective sleeve during the turning process. The protective sleeve and load, however, remain in constant contact.

Step 2:
Determine minimum length of lifting strap.

The simple strap length between the slings is based on the „length of the protective sleeve“:



Turning the coil by 180°

Step 2:
Determine minimum length of lifting strap.

$$\begin{aligned}
 & 3 \times H \text{ [wrapping height]} \\
 & + 2 \times B \text{ [coil width]} \\
 & + 2 \times \text{projection 25 cm}
 \end{aligned}$$

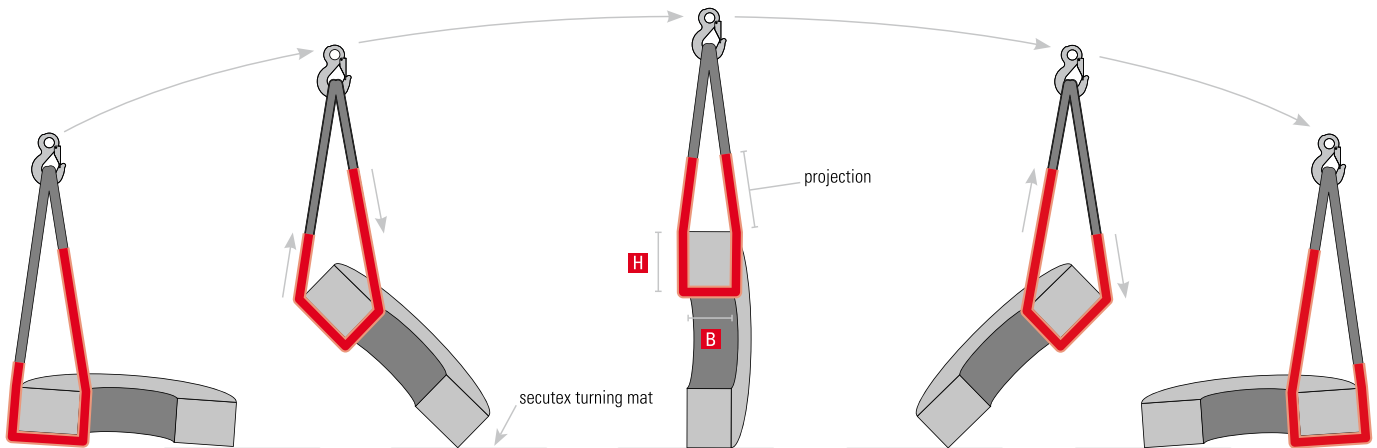
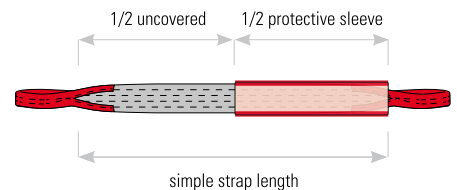
Length of protective sleeve

Our tips for safe turning:

- The lifting strap is exactly at „12 o'clock“ over the centre of the coil.
- Only individual, unpackaged and cleanly-wrapped coils may be turned.
- A non-slip surface, such as the secutex turning mat (cf.p. 102) must be used.
- The coil must be prevented from rolling in or sliding perpendicularly to the lifting strap.
- A coil may not be permitted to „pull out“ at an angle.

Step 2:
Determine minimum length of lifting strap.

The simple strap length between the slings is based on the „length of the protective sleeve“:

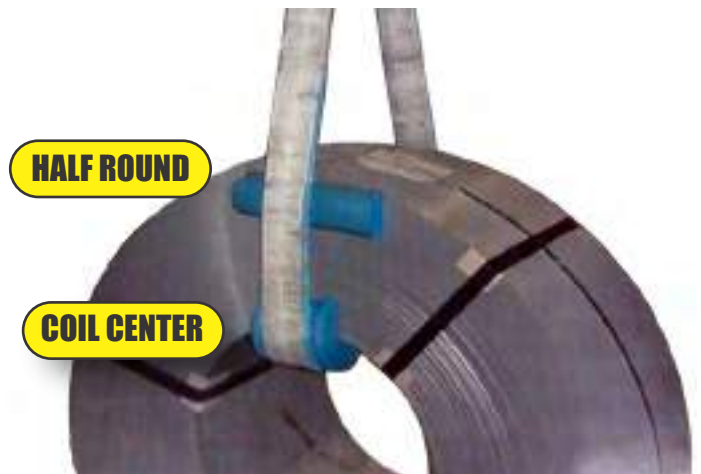
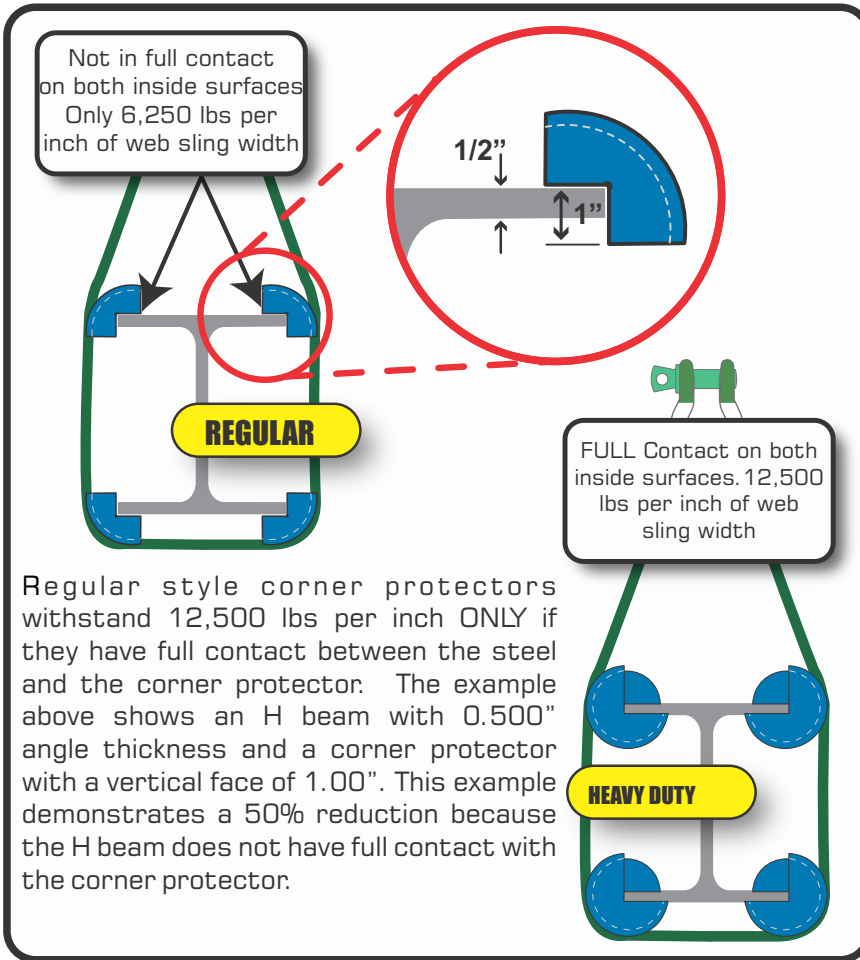


Liftguard Magnetic Sling Protectors

All slings, especially synthetic slings, can be damaged when lifting a load if they are not properly protected. Edge protection with sling use is critical in preventing a sling failure, and is a requirement in current sling safety standards. Cut and damaged slings are the leading cause of most rigging related accidents.

"Slings in contact with edges, corners, or protrusions should be protected with a material of sufficient strength, thickness, and construction to prevent damage to the sling" (ANSI/ASME B30.9-1.10.4)

Liftguard Sling protectors attach with strong magnets to the steel corner and keep the sling from contacting the load. Made of solid nylon, these Magnetic Sling Protectors are only 1/7th the weight of steel, no tools are needed since magnets allow for quick and easy attachment and removal.



12,500 lbs per inch of web sling width only with FULL contact on inside surfaces

Lift it up, Tie it down, Pull it around

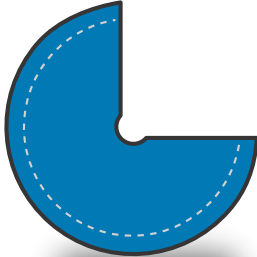
LiftGuard™

MAGNETIC SLING PROTECTORS



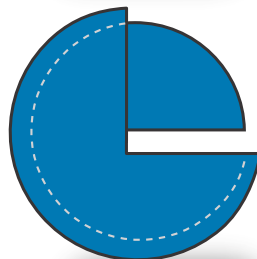
REGULAR

REGULAR	
LENGTH	ITEM CODE
6"	6-3-90
9"	9-3-90
12"	12-3-90
18"	18-3-90



HEAVY DUTY

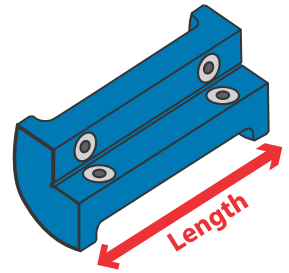
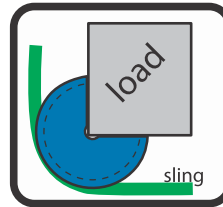
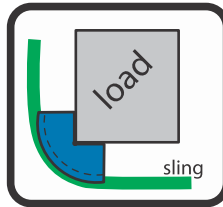
HEAVY DUTY	
LENGTH	ITEM CODE
6"	6-3-270
9"	9-3-270
12"	12-3-270
18"	18-3-270



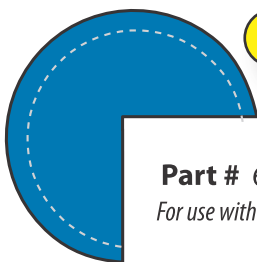
GROOVED

GROOVED	
LENGTH	ITEM CODE
9"	9-3-360G
12"	12-3-360G
18"	18-3-360G

Other sizes can be manufactured on request

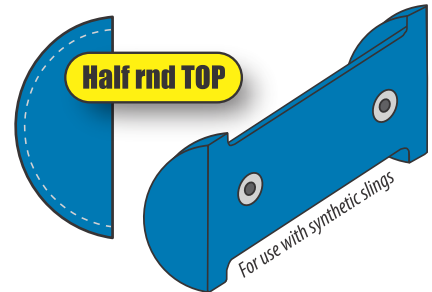
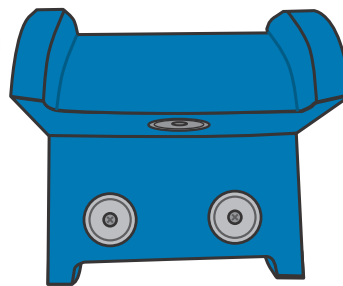


Custom Designs



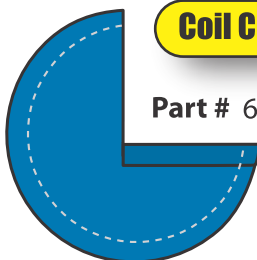
Coil Top

Part # 6-3-270 C Top
For use with wire rope and chain slings



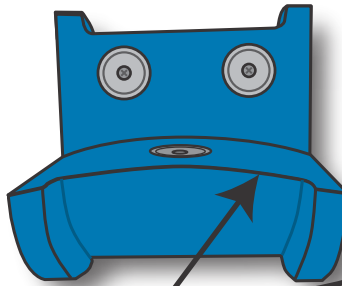
Half rnd TOP

For use with synthetic slings



Coil Center

Part # 6-3-270 C Ctr



Designed for spools with a 20" inside diameter
other sizes made on request

- Sling Protection
- Web Slings
- Round Slings
- Synthetic Chain Slings
- Wire Rope Slings
- Chain Slings
- Shackles & Turnbuckles
- Hooks & Links
- Lifting Points
- Hoists & Blocks
- Lifting Devices
- Pipe & Hose Restraints
- Tie Down Assemblies
- Tie Down Accessories
- Towing & Recovery
- Rope & Carriage

LIFTING SLINGS

Industrial lifting slings are used every day for various lifting and load handling applications and come in several different types, sizes and configurations. Generally, all of the slings manufactured and provided by Super Slings Inc. meet or exceed the requirements, standards and regulations of Alberta OH&S and ASME B30.9. We follow the recommendations and best practices set out by the WSTDA, AWRP, WRTB, NACM and other industry organizations. We are committed to providing our valued customers with the highest quality and most reliable products on the market today.

SLING SELECTION

To make the correct sling selection for a particular application, the user should be properly trained and have sufficient experience in proper rigging applications and techniques. A trained, qualified and knowledgeable user must be aware of several factors during the rigging and lifting process. The following items are some (but not all) of the factors that should be considered during this process;

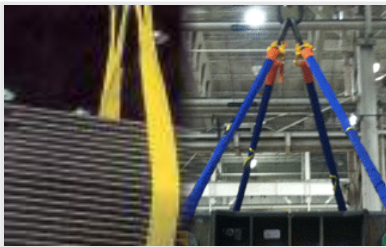
- ENVIRONMENTAL FACTORS
- LOAD FACTORS
- EQUIPMENT AND LIFT TYPES
- RIGGING
- PERSONNEL
- SLING PROTECTION

Prior to selection, ensure all purchasers, supervisors and users read and understand the information contained in this catalog and all responsibilities as detailed in all corresponding regulations and standards. Select the sling with the best attributes for the lifting application.

LIFTING SLING TYPES

Web & Round Slings

Web & Round slings are the most flexible, versatile and economical slings commonly used today. Super Slings Manufactures standard web slings up to 12" wide as well custom web slings and assemblies including multi-leg bridles, wide lift slings and several others. Our standard round slings have capacities up to 90,000 lbs vertical lift as well as special order Super Slings with vertical capacities up to 1,000,000 lbs



Wire Rope Slings

Wire rope slings are the most frequently used type of sling today. Used in the construction, energy, manufacturing, crane and several other industries where heavy loads and rugged conditions exist, they offer a strong, dependable and economical option for most lifting applications. Their popularity is enhanced by the numerous sling configurations available to support a broad range of applications.



Synthetic Chain Slings

Green Pin Tycan®, made from Dyneema® fibre, is up to eight times lighter than steel – yet just as strong. Join leading heavy-lifting companies in experiencing the superiority of our award-winning Green Pin Tycan® Chain. A choice of four sizes of lifting chain with matching fittings allows you to manufacture a complete chain assembly with a Working Load Limit of up to 14.2 ton. The chain fittings, specially developed for use with Green Pin Tycan®, include a connecting link, a shortening hook and a sling hook.



Alloy Chain Slings

Alloy steel chains are often used because of their strength, durability, abrasion resistance and ability to conform to the shape of the loads on which they are used. In addition, these alloy chain slings are able to lift hot materials.

Alloy steel chain slings are made from various grades of alloy, but the most common grades in use are grades 80 and 100. Grade 120 alloy steel chain slings and Grade 50/63 stainless steel chain slings are also available upon request.



SLING SELECTION FACTORS

From the information in this section users can see the wide variety of possibilities available for sling applications. The following factors should be considered in making a selection.

1. **Load - Mass.**
2. **Headroom.**
3. **Frequency of use - life of sling.**
4. **Type of load - steel, machinery, lumber, shipping containers, crates, steel fabricated sections, fragile or items subjected to marring.**
5. **Cost versus efficiency.**
6. **Length of sling.**
7. **Method of slinging.**
8. **Environment - corrosion, heat etc.**
9. **Available storage for slings.**

SOME GENERAL OBSERVATIONS ON THE ABOVE INCLUDE:

1. Load - Mass

This is the most obvious consideration when choosing a sling to lift a given load. The user must ensure a sling is chosen that has the appropriate WLL (Working Load Limit) in the intended configuration to lift the load. Refer to the appropriate sling WLL charts in this brochure or in the relevant local standards and regulations.

2. Headroom

Where minimum headroom is available, a user should consider:

- Using shorter slings.
- If wire rope slings are used, there is a minimum length allowance in AS 1666 for slings using mechanically swaged eyes.
- Double part grommets may be used.
- Chain slings can be kept to very short lengths.
- Using a lifting beam.
- Increasing the included angle of multiple slings.

3. Frequency of Use - Life of Sling

- This will depend on the number of times a sling is used and the manner in which the sling is used.
- Chain slings provide longer life, length adjustability and a wide range of available components
- Wire Rope slings provide the highest capacity to cost ration, however; they are typically not repairable.
- Synthetic slings have special value in some chemically hazardous applications and for protection of the load to be lifted.

4. Type of Load

- Chain and conventional wire rope slings are the most appropriate for abrasive surfaces.
- Where a positive choking grip is required Round slings or Webbing slings are the best choice.
- Where marring of items is a problem, Webbing slings, Round slings are most satisfactory.

5. Cost Versus Efficiency

- A wire rope sling is an economical sling per tonne of WLL but after several uses in a choking application wire rope slings develop kinks, which make them more difficult to handle.
- For quick, easy and safe handling, GrabIQ Chain Slings, Round slings and Webbing slings can save money in time and reduce injury.

6. Length of Sling

- Cost per foot is very relevant in long slings and wire rope is generally the most economical option in these circumstances.

7. Method of Slinging

- Where slings are shackled to lifting points in a multi leg application, wire rope and chain slings are the most suitable. Where choking of the load is required wire rope slings or synthetic Round and Webbing slings are generally the most efficient, though in special applications where abrasive surfaces are prevalent or in hauling logs chain slings are much more suitable.
- If shortening of sling legs is required in multi leg applications, alloy chain slings or synthetic chain slings with grab or shortening hooks are the best option.

8. Environment

- In a corrosive situation ferrule secured Flemish eyes should be considered for wire rope slings.
- Aluminum ferrules are not appropriate in some mining areas or alumina refineries.
- Where acids and alkalis are prevalent webbing slings are beneficial. Alloy chain slings will be affected by temperatures above 200° C. Wire rope slings used near heat should have a steel core in the wire rope.

9. Available Storage for Slings

- All slings are best stored vertically so their length and condition can be readily inspected. There is also less chance of water or corrosion damage and mechanical damage. The WLL of each sling can also be readily ascertained.



Slings should always be used in line with good rigging practices as per the manufacturers recommendations. Incorrect slings use could result in a dangerous situation that could cause property damage, serious injury or death. Increasing the load angle of multiple leg sling assemblies derates the sling, therefore higher capacity slings will be required. Never use a slings with an angle less than 30° from horizontal.

DISPOSAL OF DAMAGED SLINGS & RIGGING

When it comes to the disposal of rigging hardware, wire rope, or slings, the best practice is to render the items in question as unsalvageable, or in such a condition as to make further use impossible. Because there are no standards or clear instructions developed by industry authorities like OH&S WSTDA, or AWRP for the disposal of damaged or failed lifting materials, we have outlined what we suggest to be best practices. Keep the following aspects in mind, when disposing of lifting and rigging gear:

- Only scrap slings if you have been trained, and are authorized to do so, by your employer
- Use caution when operating saws or torches and use proper PPE when handling cut pieces of wire rope, chain, or hardware
- Wire rope, chains, and synthetic slings need to be cut into 3' to 4' lengths before being disposed of, so that they cannot be salvaged or re-purposed. Also, cut or destroy any eyes on the ends of slings.
- It is recommended that all tags and labels be removed from any sling or hardware before being scrapped
- When possible, remove and separate pins and/or latches on any lifting hardware
- Synthetic slings can typically be disposed of as general waste or trash and can, in most areas, be introduced into the waste stream

At Super Slings we offer a sling inspection and repair program. If you're unsure whether the gear you're using is still in proper working condition, or whether it needs to be removed from service, we have highly trained and qualified personnel that can come on-site and perform a field inspection that complies with OSHA and ASME standards.

Super Slings also offers pick-up and delivery services where we can come to your facility, take your lifting gear, and bring it back to our facility. They are then inspected, repaired (if required/possible) and tested.

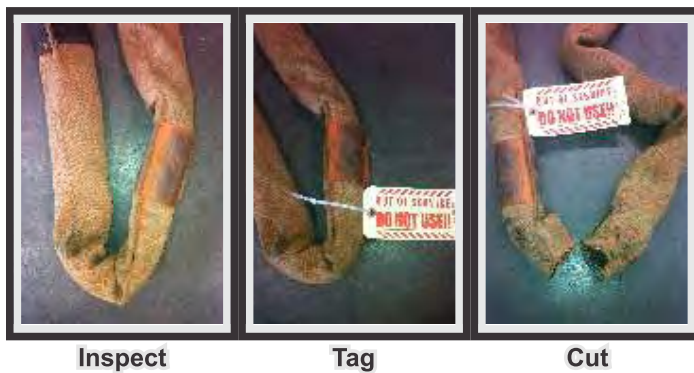
CHAIN SLINGS



WIRE ROPE SLINGS



ROUND SLINGS



WEB SLINGS



WARNING! RIGGING THAT HAS FAILED INSPECTION SHALL NOT BE USED FOR ANY COMMERCIAL OR PERSONAL MEANS. USE OF DAMAGED RIGGING MAY CAUSE PROPERTY DAMAGE, INJURY TO PERSONNEL OR DEATH

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20 YEARS of slings inc.
Secure Solutions

WEB SLINGS



Web Slings	Round Slings	Synthetic Chain Slings	Wire Rope Slings	Chain Slings	Shackles & Turnbuckles	Hooks & Links	Lifting Points	Hoists & Blocks	Lifting Devices	Pipe & Hose Restraints	Tie Down Assemblies	Tie Down Accessories	Towing & Recovery	Rope & Cordage	Sling Protection
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This bulletin contains important safety information about the use of synthetic web slings, however; it **DOES NOT** contain all the information you need to know about handling, lifting and manipulating materials and loads safely. Sling use is one part of the lifting system and it is your responsibility to consider all risk factors prior to using and rigging device or product. Failure to do this may result in severe **INJURY** or **DEATH** due to sling failure and/or loss of load

The following six points briefly summarize some important safety issues:

- 1 All Users must be trained** in sling selection, use and inspection, cautions to personnel, environmental effects and rigging practices.
- 2 Inspect sling for damage** regularly, if the sling is damaged, remove it from service.
- 3 Protect sling from damage.** ALWAYS protect slings in contact with edges, corners, protrusions, or abrasive surfaces with materials of sufficient strength, thickness and construction to prevent damage.
- 4 Do not exceed a sling's rated capacity.** ALWAYS consider the effect of sling angle and tension on the slings rated capacity.
- 5 Do not stand on, under or near a load** with the sling under tension. All personnel should be alert to dangers of falling and/or uncontrolled loads, sling tension and the potential for snagging.
- 6 Maintain and store slings properly.** Slings should be protected from mechanical, chemical and environmental damage.

1. All Sling Users Must be Trained and Knowledgeable

All web sling users must be trained on the proper use of web slings.

The American Society of Mechanical Engineers, Safety Standard for Slings (ASME B30.9) states:

"Synthetic webbing sling users shall be trained in the selection, inspection, cautions to personnel, effects of the environment and rigging practices as covered" by Chapter 9-5.

Albert Occupational Health & Safety Code States; "competent" in relation to a person, means adequately qualified, suitably trained and with sufficient experience to safely perform work without supervision or with only a minimal degree of supervision;

It is important that all sling users be knowledgeable about the safe and proper use and application of slings and be thoroughly familiar with the manufacturer's recommendations and safety materials provided with each product. In addition, all sling users need to be aware of their responsibilities as outlined in all applicable standards and regulations. If you are unsure whether you are properly trained and knowledgeable, or if you are unsure of what the standards and regulations require of you, ask your employer for information and/or training—**DO NOT** use web slings until you are absolutely sure of what you are doing. Remember, when it comes to using web slings, lack of skill, knowledge and care can result in severe **INJURY** or **DEATH** to you and others.

2. Slings Must Be Regularly and Properly Inspected

Even seemingly "minor" damage to a web sling can significantly reduce its capacity to hold or lift objects and increases the chance that the sling will fail during use. For example, one sling manufacturer has shown that a 3/8" (9.5mm) cut (much smaller than the cut shown in Table 2) caused a sling to break under load at almost half its non-damaged capacity. Therefore, it is very important that web slings are regularly and properly inspected. If you are not sure whether a sling is damaged, **DO NOT USE IT.**

2a. How to inspect slings

To detect possible damage, you should perform a visual inspection of the entire sling and also feel along its entire length, as some damage may be felt more than seen. You should look and feel for any of the types of conditions listed in Table 1. Table 2 shows examples of some of these types of damage, but note that they are relatively extreme examples provided for illustration purposes only.

2b. What to do if you identify damage in a sling

If you identify ANY of these types of damage in a sling, **remove it from service immediately**, even if the damage you feel or see is not as extensive as shown in the pictures in Table 2. Slings that are removed from service must be destroyed and rendered completely unusable unless they can be repaired and proof tested by the sling's manufacturer or other qualified person. You should never ignore sling damage or attempt to perform temporary field repairs of damaged slings (e.g., tie knots in the webbing, etc.).

Table 1. Web Sling Removal from service Criteria

The entire web sling must be **inspected regularly** and it shall be **removed from service** if ANY of the following are detected:

- If sling identification tag is missing or not readable.
- Holes, tears, cuts, snags or embedded materials.
- Broken or worn stitches in the load bearing splices.
- Knots in any part of the sling webbing.
- Acid or alkali burns.
- Melting, charring or weld spatter on any part of the web sling.
- Excessive abrasive wear or crushed webbing.
- Signs of Ultraviolet (UV) light degradation.
- Distortion, excessive pitting, corrosion or other damage to fittings(s).
- If provided, exposed red core yarn. However if damage is present and red yarns are not exposed **DO NOT USE** the sling.
- Any conditions which cause doubt as to the strength of the web sling.

2c. How often to inspect slings

A three-stage procedure is recommended to help ensure that web slings are inspected with appropriate frequency:

Initial Inspection: Whenever a sling is initially received, it must be inspected by a designated person to help ensure that the correct web sling has been received and is undamaged and that the web sling meets applicable requirements for its intended use.

Frequent Inspection: The entire sling must be inspected before each shift or day in Normal service and before each use in Severe service applications.

Periodic Inspection: Every sling must be inspected "periodically" by a qualified and designated person. In order to validate the frequent level of inspection, the periodic inspection should be performed by someone other than the individual(s) who most commonly performs the frequent inspection. The frequency of periodic inspections is based on the sling's actual or expected frequency of use, severity of service conditions, the nature of the work performed with the sling and experience gained during the inspection of other slings used in similar circumstances. General guidelines for the frequency of periodic inspections are:

- Normal service—yearly
 - Severe service—monthly to quarterly
 - Special service—as recommended by a qualified person
- Periodic inspections intervals must not exceed one year. Written records are not required for frequent inspections, but WSTDA WS-1 or ASME B30.9 require that a written record of the most recent periodic inspection be maintained. See WSTDA WS-1 or ASME B30.9 for more information about definitions of Normal, Severe and Special service conditions.

3. Slings Must be Adequately Protected from Damage

3a. Avoid environmental degradation

Environmental factors such as an exposure to sunlight, dirt or gritty-type matter and cyclical changes in temperature and humidity, can result in an accelerated deterioration of web slings. The rate of this deterioration will vary with the level of exposure to these conditions and with the thickness of the sling material. For example, single ply slings will generally degrade more rapidly with this exposure than multiple ply slings. Web slings that are used outdoors regularly should generally be permanently removed from service within a period of 2 to 4 years. All web slings that are exposed to these conditions should be highly scrutinized during their inspections.

Visible indications of such deterioration can include the following:

- Fading of webbing color.

- Uneven or disoriented surface yarn of the webbing.
- Shortening of the sling length.
- Reduction in elasticity and strength of the sling material due to an exposure to sunlight, often evident by an accelerated abrasive damage to the surface yarn of the sling.
- Breakage or damage to yarn fibers, often evident by a fuzzy appearance of the web.
- Stiffening of the web, which can become particularly evident when web slings are exposed to outdoor conditions without being used or cyclically tensioned.

3b. Avoid actions that cause damage to slings

You should always avoid any action that causes the types of damage identified in the previous section of this Safety Bulletin, including (but not limited to):

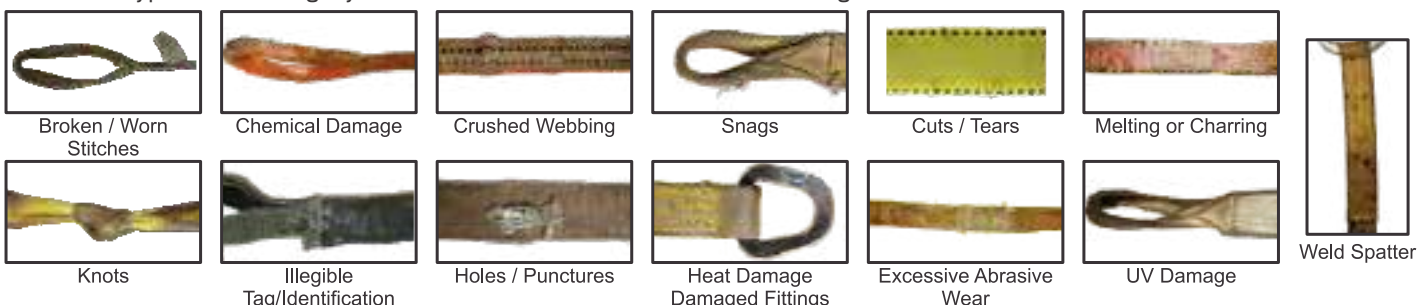
- Dropping or dragging slings on the ground, floor or over abrasive surfaces.
- Pulling slings from under loads when the load is resting on the sling—place blocks under load if feasible.
- Shortening or adjusting sling using methods not approved by the sling manufacturer or qualified person.
- Twisting, kinking or knotting the sling.
- Exposing slings to damaging acids or alkalis.
- Exposing slings to sources of heat damage or weld spatter.
- Using slings or allowing exposure to temperatures above 194°F (90°C) or below -40°F (-40°C).
- "Tip loading" a sling on a hook instead of centering it in the base or "bowl" of the hook.
- Using hooks, shackles or other hardware that have edges or surfaces that could damage sling.
- Running/driving over slings with a vehicle or other equipment.

Synthetic slings are affected by some chemicals ranging from little to total degradation. Time, temperature and concentration factors affect the degradation. For specific applications, consult the manufacturer. In addition, water absorption can decrease the strength of nylon web slings by as much as 10–15% (its strength returns when the sling dries completely). For specific applications, consult the manufacturer.

3c. Safeguard slings with sufficient protection

Synthetic web slings can be damaged, abraded or cut as tension and compression between the sling, the connection points and the load develops. Surfaces in contact with the sling do not have to be very abrasive or have "razor" sharp edges in order to create the conditions for sling failure. Therefore, web slings must **ALWAYS be protected from being cut or damaged by corners, edges, protrusions or abrasive surfaces with protection sufficient for the intended purpose.**

Table 2. Types of damage you should look and feel for in web slings



3c. Safeguard slings with sufficient protection (cont'd)

There are a variety of types of ways to protect slings from such damage. A qualified person might select and use appropriate engineered protectors / softeners — commercially available products (e.g., sleeves, wear pads, edge wraps, body wraps, corner protectors, etc.) specifically designed to protect slings from damage. A qualified person might also design and construct their own methods of protection so long as the sling is adequately protected from and/or kept off of the damaging edge surface.

Regardless of the particular method chosen, the goal is to ensure that the sling, under tension, maintains its ability to securely lift the load while avoiding contact with damaging or abrasive surfaces under tension. A qualified person must carefully consider the most appropriate means to accomplish this goal. The protection used should not be makeshift (i.e., selecting and using cardboard, work gloves or other such items based solely on convenience or availability).

Regardless of the approach taken, a qualified person must ensure that the protection method chosen is appropriate for the types of damage to which the slings will be exposed. For instance, some protection provides abrasion resistance, but offers virtually no protection against cuts. Several "test" lifts, done in a non consequence setting, may be necessary to determine the suitability of the protection device(s). After each "test" lift, the protection device(s) and sling(s) need to be inspected for damage and suitability. You should keep in mind that no protection is "cut proof" and you should always operate within the specified limits of the sling and its accessories (e.g., fixtures, hardware, protection, etc.).

4. Always Use Slings Properly

When lifting loads, a trained, qualified and knowledgeable user must take into account the factors and issues addressed in this bulletin, as well as considering any other relevant factors not addressed herein (see Table 4). Among the factors related specifically to web slings, users must perform several activities, including (but not limited to) those discussed in the following subsections.

4a. Assess the load

Determine the weight of the load and make sure it does not exceed the sling's rated capacity or the capacity of any of the components of the rigging system. Users must also determine the load's center of gravity (CG) to make sure the rigging system used will be able to retain and control the load once lifted.

4b. Select an appropriate sling/configuration

Select a sling having suitable characteristics for the type, size and weight of the load, the type of hitch (see Table 3) and the environment. The sling must be securely

attached to the load and rigged in a manner to provide for load control to prevent slipping, sliding and/or loss of the load. A trained, qualified and knowledgeable user must determine the most appropriate method of rigging to help ensure a safe lift and control of the load.

Another important consideration is the sling-to-load angle—the angle formed 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. When the sling-to-load angle decreases, the load on each leg increases. This principle applies in a number of conditions, including when one sling is used to lift at an angle and when a basket hitch or multi-legged bridle sling is used. Table 5 provides information about increased tension as a function of sling-to-load angle (assuming equally-loaded sling legs). Sling angles of less than 30 degrees are not recommended. Similarly, when the angle of choke is less than 120 degrees, the sling choker hitch capacity decreases. To determine the actual sling capacity at a given angle of choke, multiply the sling capacity rating (for a choker hitch) by the appropriate reduction factor determined from Table 6.

4c. Do not misuse the sling

Avoid accelerating or decelerating the load too quickly (i.e., "shock loading"). Do not use slings to pull on stuck or snagged objects and do not use slings for towing purposes.

A web sling should only be used for lifting loads,

5. Make Sure All Personnel are Clear of Loads and Alert to Risks

Even if you account for all of the factors/issues discussed in this Safety Bulletin, things can still go wrong. Therefore, all personnel must stand clear of lifted loads and never be under, on or near suspended loads. When using slings, no part of the body should be placed between the sling and load or between the sling and lifting hook. In addition, personnel must be alert to the potential for the sling to become snagged during a lift. Never use a web sling to pull on objects in a snagged or constrained condition.

6. Properly Store and Maintain Slings

In order to prevent damage to slings when not in use, you should store slings in a cool, dry and dark location. Slings should be stored in an area free from environmental or mechanical sources of damage, such as: weld spatter, splinters from grinding or machining, heat sources, chemical exposure, etc. Also, keep slings clean and free of dirt, grime and foreign materials.

If slings are cleaned, use only mild soap and water. Rinse sling thoroughly and let it dry completely before placing the sling back into storage or use. Do not machine wash slings. Machine washing results in significant loss of sling strength.

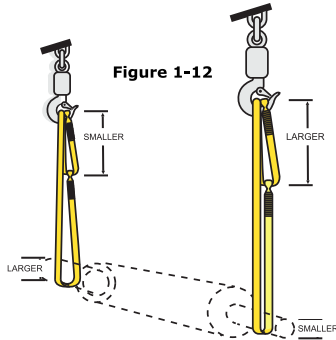
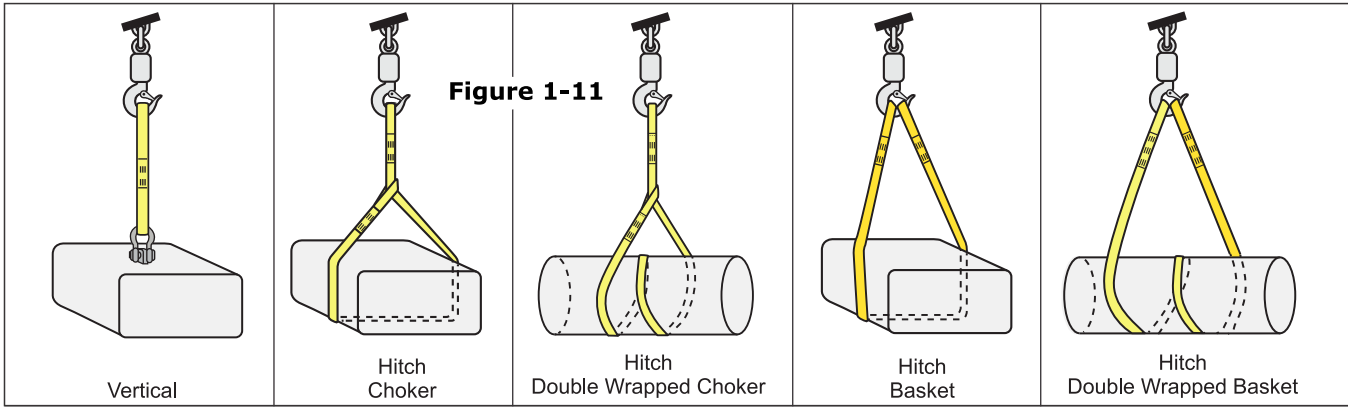
ADDITIONAL RESOURCES

This Catalog does not provide you with all the information you need to know in order to be considered trained and knowledgeable about rigging and lifting loads, but it does provide important information about the use of web slings within a rigging system. If you need more information about web slings and rigging practices or your responsibilities according to regulations and standards, talk to your employer. You and your employer can consult a number of sources of information to help ensure that you are properly trained and knowledgeable when using web slings, including (but not limited to):

- WSTDA-WS-1 Recommended Standard Specification for Synthetic Web Slings
- ASME B30.9 Synthetic Webbing Slings: Selection, Use and Maintenance

Lift it up, Tie it down, Pull it around

Table 3. Common types of sling hitches



The **Web Sling Adjusting Hitch** is a method of rigging that is similar to a choker hitch, but where the choked section of the sling is also passed around the handling or lifting device. The bottom portion of the sling is either attached to the load or is passed around the load. The adjusting hitch can be used to effectively adjust the length of the web sling, which is accomplished by repositioning the choke point. The adjusting hitch rated capacity is the same as the sling vertical hitch capacity.

The Adjusting Hitch is recommended for one ply and two ply slings not exceeding 2" in width. (See Figure 1-12).

Table 4. Issues and factors to consider when handling, lifting and manipulating materials and loads

Categories			
Environment	Wind Weather Visibility	Environmental Temperature Object temperature Chemical Conditions & Exposure	Ground Stability Underground installations
Load	Weight Dimensions Center of Gravity (CG)	Attachment point integrity Susceptibility to crushing/compression Loose parts that could fall from load	Combination loads Damaging surfaces/edges Structural stability (bend/flex)
Equipment/Lift	Single/multiple cranes/hoists Maximum/planned operating radius	Ratio of lift to allowable load Clearance to surrounding facilities Power lines and other hazards Clearance between boom & lift	Emergency/contingency set down area Equipment inspection Ensure a clear path
Rigging	Sling selection Load control Lift point (over CG) Suitable Wear protection	Positive sling-to-load engagement Coefficient of friction: sling to load Appropriate hitch (for CG & load control) Coordination of multiple slings	Load is free to move and is not snagged Sling capacity is adequate for angle and tension
Personnel	Area Clear of unnecessary personnel Pre-Lift plan & meeting	Personnel are trained and qualified Signals: Visual, Audio, electronic, etc. Tag lines/Spotter requirements	Personnel away from load and other dangers

WSTDA WS-1, 2.11.1 - Connection Point Diameter: The ratio of the length of a loop eye to the diameter of the object over which the loop eye is to be placed, should be a minimum of 3-to-1 relationship. Figure 2-1 illustrates a six inch eye length over a two in diameter hook or shackle. When using a ratio of 3-to-1, the angle of the two legs of the eye at its throat should not be so severe as to cause a part or tearing action at this point. (See Figure 2-1).

The minimum eye length, when measured flat, for a sling for use with a fitting, should not be less than 3.5 times the maximum thickness or diameter of the fitting. The angle formed in the eye of the sling should not exceed 20 degrees.

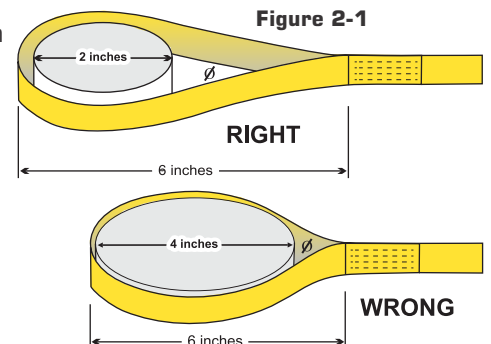
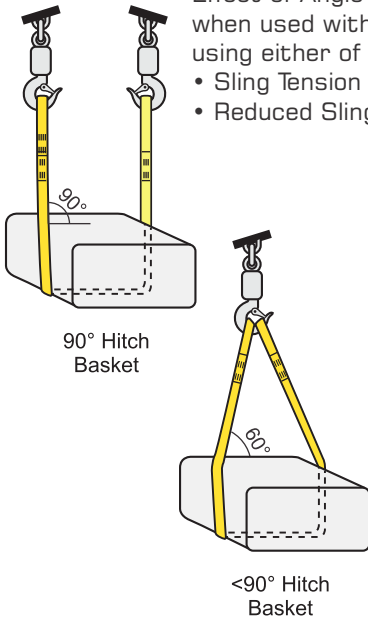


Table 5. Increased tension as a function of sling-to-load angle

Effect of Angle - Sling tensions are affected by angle of lift (sling angle), measured from the horizontal, when used with multi-legged web slings or basket hitches. The effect of this angle may be determined by using either of these two methods:

- Sling Tension Method (Recommended Method)
- Reduced Sling Capacity Method (Alternative Method)

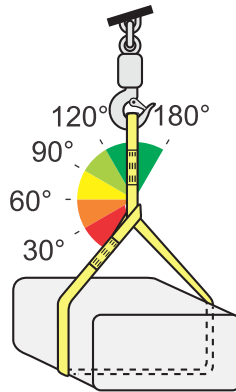


Capacity Reduction	
Angle/Deg Horizontal	Loss Factor
90	1.000
80	0.985
70	0.940
60	0.866
50	0.766
45	0.707
35	0.574
30	0.500

Sling Tension	
Angle/Deg Horizontal	Loss Factor
90	1.000
80	1.015
70	1.064
60	1.155
50	1.305
45	1.414
35	1.742
30	2.000

Table 6. Reduction in capacity as a function of angle of choke

Choker Hitches: For web slings used in a choker hitch, rated capacities are based on a choke angle of 120° or greater. For angles less than 120°, reduce capacity according to table 4-4



Angle of Choke (degrees)	Sling rated capacity factor as percentage of single leg choker hitch capacity
120-180	100%
105-120	82%
90-105	71%
60-90	58%
0-60	50%

Environmental Considerations



Nylon and polyester are seriously degraded at temperature above 180° F.

Prolonged exposure to ultraviolet light adversely affects nylon and polyester. Slings become bleached and stiff when exposed to sunlight or arc welding.

Many chemicals have an adverse effect on nylon and polyester. See chemical chart this page.

Chemical Environment Data

General guide only. For specific temperature, concentration and time factors, please consult Super Slings prior to purchasing or use.

Chemical	OK NO	
	Nylon	Polyester
Acids		*
Alcohols		
Aldehydes		
Strong Alkalis		**
Bleaching Agents		
Dry Cleaning Solvents		
Ethers		
Halogenated Hydro-Carbons		
Hydro-Carbons		
Ketones		
Oils Crude		
Oils Lubricating		
Soap & Detergents		
Water & Sea Water		
Weak Alkalis		

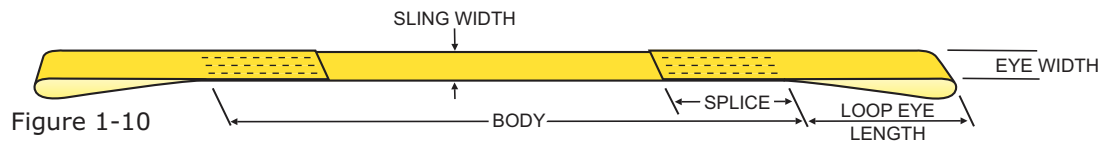
* Disintegrated by concentrated sulfuric acid.

** Degraded by strong alkalis at elevated temperatures.

Lift it up, Tie it down, Pull it around

Synthetic Web Slings are made using polyester or nylon, class 7, flat webbing and are the preferred sling when lifting highly-polished, fragile or delicate loads that have to be protected from damage. The soft texture of the webbing will not mar, deface or scratch the loads while the wide surface area ensures a firm secure grip around the load. It's recommended to use sling protection between the sling and load edges when using web slings. Polyester is the standard material used in fabrication at Super Slings, Nylon webbing is available upon request.

Web Sling Anatomy:



Basic Sling Types:

TYPE 1 - Triangle - Triangle Choker

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

(See Figure 1-1).



Figure 1-1

TYPE 2 - Triangle - Triangle

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

(See Figure 1-2).



Figure 1-2

TYPE 3 - Flat Eye

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

(See Figure 1-3).



Figure 1-3

TYPE 4 - Twisted Eye (Standard Stock Sling)

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

(See Figure 1-4).



Figure 1-4

TYPE 5 - Endless

TYPE V - Endless web sling, sometimes referred to as a grommet. It is a continuous loop formed by joining the ends of the webbing together with a load bearing splice.

(See Figure 1-5).

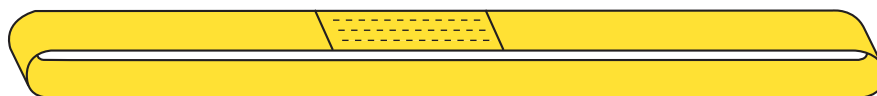


Figure 1-5

Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage

Specialty Sling Types:

TYPE 6 - Return Eye (Reverse Eye)

Return eye (Reversed eye) web slings are formed by using multiple widths of webbing held edge to edge by abrasion resistant webbing attached on one or both sides of the web sling body and on one or both sides of the loop eyes to form a loop eye at each end, which are at a right angle to the plane of the web sling body. (See Figure 1-6).

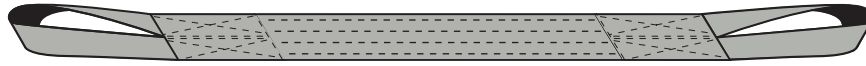


Figure 1-6

TYPE 8 - Wide Body Cargo

Wide Body Cargo slings basket the load. Loads are distributed over a wide surface area, protecting load surfaces from damage. For use in basket hitch only. (See Figure 1-7).

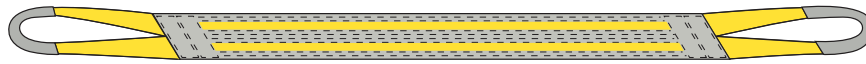


Figure 1-7

TYPE 9 - Attached Eye Cargo

A lighter duty, cargo sling, which is more economical than Wide Body Cargo slings. Attached Eye Cargo slings feature narrower eye widths to fit smaller hooks. For use in basket hitch only. (See Figure 1-8).



Figure 1-8

TYPE 10 - Bridle Assembly

A sling assembly featuring a single top connection point with web sling leg(s) and may feature connection hardware at the bottom of the leg(s). (See Figure 1-9).

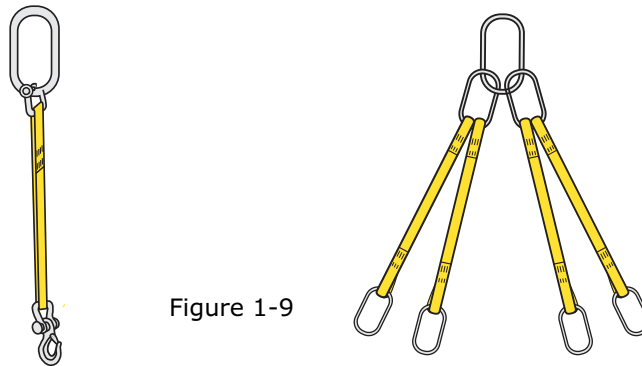


Figure 1-9

TYPE "U" - UNI-LINK®

UNI-LINK® Web Fitting functions both as a triangle and choker. No more need to position the sling before choking the load. Fits larger crane hooks than TC and TT sling fittings. (See Figure 1-10).



Figure 1-10

Web Sling Plies: The number of thicknesses of load bearing webbing used in the web sling assembly. (See Figure 1-15).

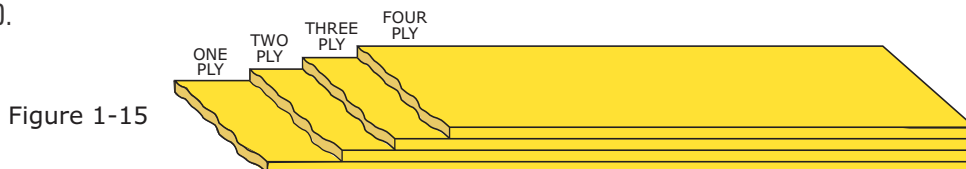


Figure 1-15

OTHER WEB SLING & TIE DOWN ASSOCIATION PUBLICATIONS

Recommended Standard Specifications for:

- Synthetic Web Slings (WSTDA-WS-1)
- Synthetic Polyester Roundslings (WSTDA-RS-1)
- High Performance Yarn (HPY) Roundslings (RS-1HP)
- Synthetic Webbing for Slings (WSTDA-WB-1)
- Sewing Threads for Slings & Tie Downs (WSTDA-TH-1)
- Synthetic Web Tie Downs (WSTDA-T-1)
- Winches Used With Web Tie Downs (WSTDA-T-3)
- Synthetic Webbing Used for Tie Downs (WSTDA-T-4)
- Load Binders Used with Chain Tie Downs (WSTDA-T-6)

Operating, Care & Inspection Manuals for:

- Synthetic Polyester Roundslings (WSTDA-RS-2)
- Synthetic Web Tie Downs (WSTDA-T-2)

Download free, sing-use copies of the above Standards & Manuals at www.wstda.com

NYLON & POLYESTER SYNTHETIC WEB SLINGS

WSTDA-WS-2

Available for Purchase from Web Sling & Tie Down Association:

Warning Products: Available in English, Spanish and French

- Fabric Warning Labels for Web Slings, Roundslings and Tie Downs
- Paper Safety Bulletins for Web Slings, Roundslings and Tie Downs

Illustrated Wall Chart

- Inspection of Web Slings & Roundslings (WSTDA-WSWC-1)

UV Degradation Reports

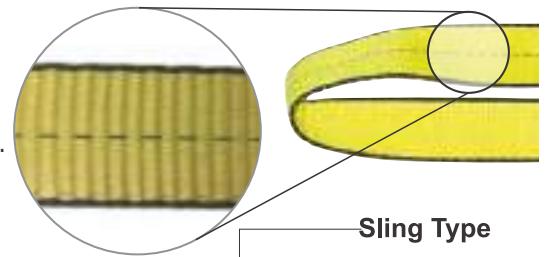
- UV Degradation Testing Program for Web Slings: Summary Report (2003) (WSTDA-UV-Sling-2003)
- UV Degradation Testing Program for Web Slings: Graphs (Mini Manual) (WSTDA-UV-MM-2005)
- UV Degradation Testing Program for Web Slings: Report (1981, revised 2005) (WSTDA-UVDR-1981)

For ordering information and prices, contact the association office or visit our website:

Web Sling & Tie Down Association, Inc.
 9 Newport Drive, Suite 200, Forest Hill, Maryland 21050
 Phone (443) 640-1070 Fax (443) 640-1031
 Email: wstda@stringfellowgroup.net
 Web Site: www.wstda.com

Synthetic Lifting Webbing Material

Our specialized "**BLACK GUARD EDGE**" significantly increases the life of sling webbing. This technology provides a solution to premature edge failure and better resistance to edge abrasion.



HOW TO ORDER

Definition of Web Sling Order Code

Sling Type (Two Letters)

- UU - Type U - Unilink on each end
- TC - Type 1 - Triangle & Choker
- TT - Type 2 - Triangle on each end
- EE - Type 3 - Flat Eye & Flat Eye
- EE - Type 4 - Twisted Eye & Twisted Eye
- EN - Type 5 - Endless
- RE - Type 6 - Reversed Eye

Number of Plies (One Digit)

1, 2, or 4

Web Class

All Super Slings web slings are rated Class 7, which is designated by "9"

Length Tolerance for Web Sling

Sling Type	+ Tolerance *
1 Ply	+ 1.5" + 1.5% of sling length
2Ply	+ 2.0" + 2% of sling length
4 Ply	+ 3.0" + 3% of sling length

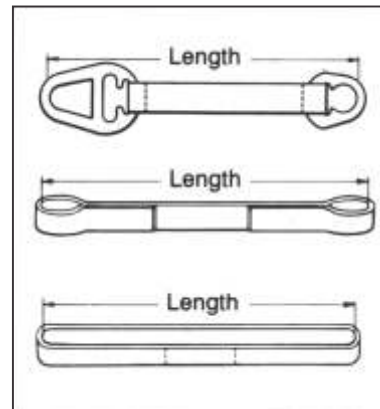
* For web sling widths wider than 6", add 1/2" to these values. For tighter tolerance or matched set length requirements please consult with your Super Slings representative.

EE 1 9 01 x 12 T4 TR

Sling Length
Use actual pull to pull length (Reach) in feet

Sling Width in inches (Two Digits)

Treated (TR)
Natural (NAT)



Always measure sling pull to pull when flat

Elasticity - The stretch characteristics of web slings depends on the type of yarn and the web finish. Approximate stretch at RATED CAPACITY is:

Nylon
Treated - 10%
Untreated - 6%

Polyester
Treated - 5%
Untreated - 3%



Web-Trap® Steel Triangle-Triangle Slings

Basket Hardware Web Slings

Type 1

Single Ply Web-Trap® Triangle – Triangle Slings

Material Width	Stock Code	Working Load Limit [lbs]					Min Length	Weight	
		Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		[ft]	10ft Sling
[in]									
2"	TT1 902	3,100	-	6,200	5,350	4,350	3	3.84	0.11
3"	TT1 903	4,700	-	9,400	8,100	6,600	3	6.21	0.18
4"	TT1 904	6,200	-	12,400	10,700	8,750	3	8.54	0.22
6"	TT1 906	9,300	-	18,600	16,100	13,150	5	13.39	0.32
8"	TT1 908	11,800	-	23,600	20,400	16,650	6	32.01	0.45
10"	TT1 910	14,700	-	29,400	25,450	20,750	8	40.89	0.60
12"	TT1 912	17,600	-	35,200	30,450	24,850	8	47.08	0.73

Double Ply Web-Trap® Triangle – Triangle Slings

Material Width	Stock Code	Working Load Limit [lbs]					Min Length	Weight	
		Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		[ft]	10ft Sling
[in]									
2"	TT2 902	6,200	-	12,400	10,700	8,750	3	4.9	0.22
3"	TT2 903	8,600	-	17,600	15,200	12,400	3	7.84	0.35
4"	TT2 904	11,000	-	22,000	19,050	15,550	3	10.52	0.44
6"	TT2 906	16,500	-	33,000	28,550	23,300	5	15.7	0.66
8"	TT2 908	22,400	-	45,400	39,300	32,100	6	35.31	0.91
10"	TT2 910	28,000	-	56,800	49,150	40,150	6	44.4	1.18
12"	TT2 912	33,600	-	68,200	59,050	48,200	6	51.52	1.45

Web-Trap® Steel Triangles & Choker Triangles

Steel Triangles for Web Slings

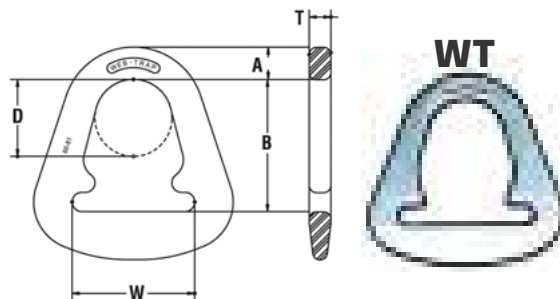
Product details

Application

- Web-Trap® design keeps sling material in place, reducing wear and increasing sling life.
- Forged steel (unless noted).
- For use with one or two-ply web slings.
- Plated for corrosion resistance.
- Complies with ASME B30.9 sling capacities.

Features and benefits

- Forged steel (unless noted).
- For use with one or two-ply



Model Number	Rated Capacity [lbs]	Dimensions [in]						Weight [lbs]
		A	B	C	D	T	W	
Web-Trap® Triangles (WT)								
WT2	6,200	11/16	2-3/8	-	1-3/4	9/16	2	1
WT3	8,600	13/16	3-7/16	-	2	9/16	3	2
WT4	11,500	15/16	4	-	2-3/8	9/16	4	2.6
WT6*	16,800	1-1/16	5-9/16	-	3-1/8	3/4	6	6.3
WT8*	22,400	1-7/16	6-1/2	-	4	3/4	8	10.2
WT10*	28,000	1-1/2	8-1/4	-	5	1	10	17
WT12*	33,600	1-3/4	8-3/4	-	5-1/2	1	12	24



NEVER EXCEED THE WORKING LOAD LIMIT.
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Sling Protection
 Web Slings
 Round Slings
 Synthetic Chain Slings
 Wire Rope Slings
 Chain Slings
 Shackles & Turnbuckles
 Hooks & Links
 Lifting Points
 Hoists & Blocks
 Lifting Devices
 Pipe & Hose Restraints
 Tie Down Assemblies
 Tie Down Accessories
 Towing & Recovery
 Rope & Cordage

Web-Trap® Steel Triangle-Choker Slings



Basket/Choker Hardware Web Slings

Type 2

Single Ply Web-Trap® Triangle – Choker Slings

Material Width [in]	Stock Code	Working Load Limit [lbs]					Min Length [ft]	Weight	
		Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		10ft Sling	per ft
2"	TC1 902	3,100	2,450	6,200	5,350	4,350	3	4.46	0.11
3"	TC1 903	4,700	3,750	9,400	8,100	6,600	3	7.21	0.18
4"	TC1 904	6,200	4,950	12,400	10,700	8,750	4	10.19	0.22
6"	TC1 906	9,300	7,400	18,600	16,100	13,150	6	16.30	0.32
8"	TC1 908	11,800	9,400	23,600	20,400	16,650	6	47.28	0.45
10"	TC1 910	14,700	11,750	29,400	25,450	20,750	8	54.09	0.60
12"	TC1 912	17,600	14,050	35,200	30,450	24,850	8	67.04	0.73



Double Ply Web-Trap® Triangle – Choker Slings

Material Width [in]	Stock Code	Working Load Limit [lbs]					Min Length [ft]	Weight	
		Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		10ft Sling	per ft
2"	TC2 902	6,200	4,950	12,400	10,700	8,750	3	5.31	0.22
3"	TC2 903	8,600	7,000	17,600	15,200	12,400	3	8.52	0.35
4"	TC2 904	11,000	8,800	22,000	19,050	15,550	3	11.74	0.44
6"	TC2 906	16,500	13,200	33,000	28,550	23,300	6	17.96	0.66
8"	TC2 908	22,700	18,150	45,400	39,300	32,100	6	49.70	0.91
10"	TC2 910	28,000	22,700	56,800	49,150	40,150	6	56.46	1.18
12"	TC2 912	33,600	27,250	68,200	59,050	48,200	6	70.06	1.45

Web-Trap® Steel Triangles & Choker Triangles

Steel Triangles for Web Slings

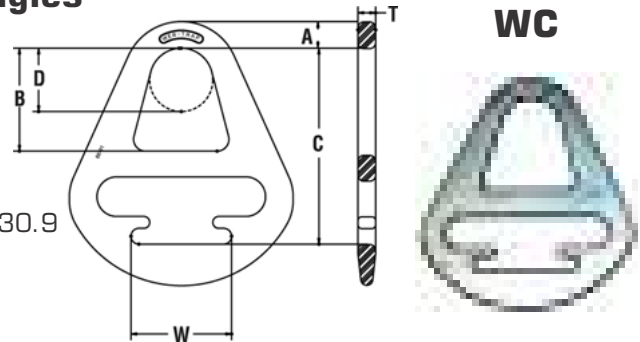
Product details

Application

- Web-Trap® design keeps sling material in place, reducing wear and increasing sling life.
- Forged steel (unless noted).
- For use with one or two-ply web slings.
- Plated for corrosion resistance.
- Complies with ASME B30.9 sling capacities.

Features and benefits

- Forged steel (unless noted).
- For use with one or two-ply



Model Number	Rated Capacity [lbs]	Dimensions [in]						Weight [lbs]
		A	B	C	D	T	W	
Web-Trap® Choker Triangles (WC)								
WC2	8,000	11/16	2-7/16	5-1/8	1-3/4	9/16	2	1.9
WC3	8,600	13/16	3-1/4	6-3/16	2	9/16	3	3.6
WC4	11,500	15/16	3-3/4	6-15/16	2-3/8	9/16	4	5.1
WC6*	16,800	1-1/16	4-3/4	8-7/8	3-1/8	3/4	6	12
WC8*	22,400	1-7/16	5-5/8	10	4	3/4	8	25
WC10*	28,000	1-1/2	7	11-13/16	5	1	10	38
WC12*	33,600	1-3/4	7-3/4	12-13/16	5-1/2	1	12	54



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Sling Protection
 Web Slings
 Round Slings
 Synthetic Chain Slings
 Wire Rope Slings
 Chain Slings
 Shackles & Turnbuckles
 Hooks & Links
 Lifting Points
 Hoists & Blocks
 Lifting Devices
 Pipe & Hose Restraints
 Tie Down Assemblies
 Tie Down Accessories
 Towing & Recovery
 Rope & Cordage



Unilink® Steel Triangle-Choker Slings

Basket/Choker Hardware Web Slings

Type UU

Single Ply Unilink® Slings

Material Width	Stock Code	Working Load Limit [lbs]					Min Length	Weight	
		Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		[ft]	10ft Sling
[in]									
2"	UU1 902	3,100	2,450	6,200	5,350	4,350	3	4.54	0.11
3"	UU1 903	4,700	3,750	9,400	8,100	6,600	3	8.49	0.18
4"	UU1 904	6,200	4,950	12,400	10,700	8,750	4	12.62	0.22



Double Ply Unilink® Slings

Material Width	Stock Code	Working Load Limit [lbs]					Min Length	Weight	
		Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		[ft]	10ft Sling
[in]									
2"	UU2 902	6,200	4,950	12,400	10,700	8,750	3	7.00	0.22
3"	UU2 903	8,600	7,000	17,600	15,200	12,400	3	12.36	0.35
4"	UU2 904	11,000	8,800	22,000	19,050	15,550	3	17.46	0.44

Unilink® Combination Triangle/Choker

Steel Triangles for Web Slings

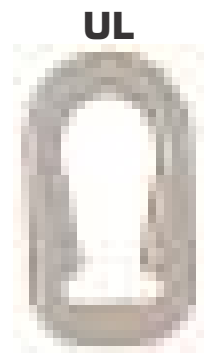
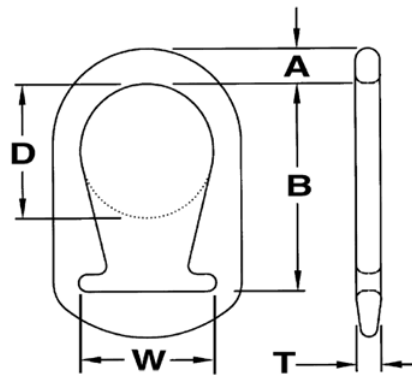
Product details

Application

- Unilink® design keeps sling material in place, reducing wear and increasing sling life.

Features and benefits

- Forged steel, Web-Trap® design.
- Large crane hook opening for easier rigging.
- Functions as both triangle and choker.
- Plated for corrosion resistance.
- Use with one or two ply web slings.
- Complies with ASME B30.9 sling capacities.



Model Number	Rated Capacity	Dimensions [in]						Weight
		[lbs]	A	B	C	D	T	
Unilink® Combination Choker Triangles (UL)								
UL2	8,000	11/16	3-11/16	-	2	9/16	2	1.1
UL3	8,600	7/8	5-1/16	-	3	5/8	3	2.4
UL4	11,500	3/4	6-3/16	-	4	5/8	4	4



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Sling Protection
 Web Slings
 Round Slings
 Synthetic Chain Slings
 Wire Rope Slings
 Chain Slings
 Shackles & Turnbuckles
 Hooks & Links
 Lifting Points
 Hoists & Blocks
 Lifting Devices
 Pipe & Hose Restraints
 Tie Down Assemblies
 Tie Down Accessories
 Towing & Recovery
 Rope & Cordage

Eye & Eye Web Sling Ratings (T3 & T4)

Eye & Eye web slings can be used in vertical, choker or basket hitches and have a fixed eye on each end. All sizes come standard with wear-pad in the eyes, 2" and wider come standard with tapered eyes.



Single Ply Type 3 & 4 Slings

Material Width [in]	Stock Code	Eye Dimensions		Working Load Limit [lbs]					Min Length [ft]	Weight	
		Width	Length	Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		10ft Sling	per ft
1"	EE1 901	1"	9"	1,600	1,250	3,200	2,750	2,250	4	0.77	0.05
2"	EE1 902	2"	12"	3,100	2,450	6,200	5,350	4,350	4	1.56	0.11
3"	EE1 903	1-1/2"	12"	4,700	3,750	9,400	8,100	6,600	4	2.65	0.18
4"	EE1 904	1-1/2"	14"	6,200	4,950	12,400	10,700	8,750	5	3.30	0.22
6"	EE1 906	2"	24"	9,300	7,400	18,600	16,100	13,150	8	4.85	0.32
8"	EE1 908	3"	24"	11,800	9,400	23,600	20,400	16,650	8	7.17	0.45
10"	EE1 910	3-1/2"	24"	14,700	11,750	29,400	25,450	20,750	8	9.38	0.60
12"	EE1 912	4"	30"	17,600	14,050	35,200	30,450	24,850	10	11.52	0.73



Double Ply Type 3 & 4 Slings

Material Width [in]	Stock Code	Eye Dimensions		Working Load Limit [lbs]					Min Length [ft]	Weight	
		Width	Length	Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		10ft Sling	per ft
1"	EE2 901	1"	9"	3,100	2,450	6,200	5,350	4,350	3	1.22	0.11
2"	EE2 902	2"	12"	6,200	4,950	12,400	10,700	8,750	4	2.46	0.22
3"	EE2 903	1-1/2"	12"	8,800	7,000	17,600	15,200	12,400	4	3.94	0.35
4"	EE2 904	1-1/2"	14"	11,000	8,800	22,000	19,050	15,550	5	4.84	0.44
6"	EE2 906	2"	24"	16,500	13,200	33,000	28,550	23,300	8	7.13	0.66
8"	EE2 908	3"	24"	22,700	18,150	45,400	39,300	32,100	8	10.31	0.91
10"	EE2 910	3-1/2"	24"	28,400	22,700	56,800	49,150	40,150	8	13.47	1.18
12"	EE2 912	4"	30"	34,100	27,250	68,200	59,050	48,200	10	16.56	1.45



Four-Ply Type 3 & 4 Slings

Material Width [in]	Stock Code	Eye Dimensions		Working Load Limit [lbs]					Min Length [ft]	Weight	
		Width	Length	Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		10ft Sling	per ft
1"	EE4 901	1"	12"	5,500	4,400	11,000	9,500	7,750	4	2.51	0.22
2"	EE4 902	2"	12"	11,000	8,800	22,000	19,050	15,550	4	4.94	0.40
3"	EE4 903	1-1/2"	18"	16,400	13,100	32,800	28,400	23,150	5	8.00	0.71
4"	EE4 904	2"	18"	20,400	16,300	40,800	35,300	28,850	6	10.12	0.89
6"	EE4 906	3"	24"	30,600	24,450	61,200	53,000	43,250	8	14.91	1.31
8"	EE4 908	4"	24"	CONTACT SUPER SLINGS					8	21.05	1.81
10"	EE4 910	5"	30"						10	27.53	2.36
12"	EE4 912	6"	36"						12	34.56	2.91



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Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage

Endless Web Sling Ratings

Endless web slings can be used in vertical, choker or basket hitches. The wear point on an endless sling can be rotated for longer lifespan.



Single-Ply Type 5 Slings

Material Width [in]	Stock Code	Working Load Limit [lbs]					Min Length [ft]	Weight	
		Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		10ft Sling	per ft
1"	EN1 901	3,200	2,550	6,400	5,500	4,500	2	1.17	0.11
2"	EN1 902	6,200	4,950	12,400	10,700	8,750	2	2.34	0.22
3"	EN1 903	9,400	7,500	18,800	16,250	13,250	2	3.69	0.35
4"	EN1 904	12,400	9,900	24,800	21,450	17,500	3	4.62	0.44
6"	EN1 906	18,600	14,850	37,200	32,200	26,300	3	6.79	0.65
8"	EN1 908	21,200	16,950	42,400	36,700	29,950	3	9.42	0.91
10"	EN1 910	26,500	21,200	53,000	45,850	37,450	3	12.3	1.18
12"	EN1 912	31,800	25,400	63,600	55,050	44,950	3	15.12	1.45



Double-Ply Type 5 Slings

Material Width [in]	Stock Code	Working Load Limit [lbs]					Min Length [ft]	Weight	
		Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		10ft Sling	per ft
1"	EN2 901	6,200	4,950	12,400	10,700	8,750	2	2.4	0.22
2"	EN2 902	12,400	9,900	24,800	21,450	17,500	2	4.8	0.44
3"	EN2 903	17,600	14,050	35,200	30,450	24,850	2	7.56	0.71
4"	EN2 904	22,000	17,600	44,000	38,100	31,100	3	9.46	0.89
6"	EN2 906	33,000	26,400	66,000	57,150	46,650	3	13.92	1.30
8"	EN2 908	42,300	33,800	84,600	73,250	59,800	4	19.26	1.81
10"	EN2 910	52,900	42,300	105,800	91,600	74,800	4	25.19	2.36
12"	EN2 912	63,500	50,800	127,000	109,950	89,800	5	30.96	2.91



Four-Ply Type 5 Slings

Material Width [in]	Stock Code	Working Load Limit [lbs]					Min Length [ft]	Weight	
		Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		10ft Sling	per ft
1"	EN4 901	11,000	8,800	22,000	19,050	15,550	3	4.72	0.40
2"	EN4 902	22,000	17,600	44,000	38,100	31,100	4	9.73	0.90
3"	EN4 903	32,900	26,300	65,800	56,950	46,500	4	15.3	1.41
4"	EN4 904	40,800	32,600	81,600	70,650	57,700	4	19.14	1.78
6"	EN4 906	61,200	48,950	122,400	106,000	86,550	5	28.18	2.61
8"	EN4 908	CONTACT SUPER SLINGS					8	21.05	1.81
10"	EN4 910						10	27.53	2.36
12"	EN4 912						12	34.56	2.91



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Lift it up, Tie it down, Pull it around

Reverse(Return) Eye Web Sling Ratings

Reverse Eye Slings are extremely durable slings that feature full body and eye wear pads. Eyes are twisted 90° to the sling body for tighter choker hitches and easy vertical and basket hitch rigging.



Single Ply Type 6 & 7 Slings

Material Width	Stock Code	Eye Dimensions		Working Load Limit [lbs]					Min Length	Weight	
		Width	Length	Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		[ft]	10ft Sling
[in]											
2"	RE1 901	1"	9"	2,500	3,200	6,400	5,540	4,520	3	2.21	0.21
4"	RE1 902	1"	12"	5,000	6,400	12,800	11,080	9,050	4	4.02	0.40
6"	RE1 903	1-1/2"	12"	7,600	9,600	19,200	16,630	13,570	5	6.41	0.64



Double-Ply Type 6 & 7 Slings

Material Width	Stock Code	Eye Dimensions		Working Load Limit [lbs]					Min Length	Weight	
		Width	Length	Vertical 90°	120° Choke	90° Basket	60° Basket	45° Basket		[ft]	10ft Sling
[in]											
2"	RE2 901	1"	12"	5,000	6,400	12,800	11,080	9,050	4	3.44	0.32
4"	RE2 902	2"	18"	9,000	11,400	22,800	19,740	16,120	6	6.84	0.63
6"	RE2 903	1-1/2"	18"	13,000	17,000	34,000	29,440	24,040	6	10.28	0.99

Wide Body Web Sling Ratings

Wide Body Web Slings are specifically designed for use in basket hitches where a larger surface area is required for load stability or for proper handling of fragile or highly finished surfaces. Eyes of slings are tapered to better fit in hoist or crane hooks.



Double Ply Wide Body Cargo Slings Type 8

Material Width	Stock Code	Eye Dimensions		Working Load Limit [lbs]			Min Length	Weight	
		Width	Length	90° Basket	60° Basket	45° Basket		[ft]	10ft Sling
[in]									
6"	WB2 903	1-1/2"	12"	18,800	16,200	13,200	4	5	0.44
8"	WB2 904	1-1/2"	12"	24,800	21,400	17,500	4	6.08	0.53
12"	WB2 906	2"	16"	37,200	32,200	26,300	6	9.06	0.81
16"	WB2 908	3"	20"	47,200	40,800	33,300	7	12.87	1.07
20"	WB2 910	3-1/2"	24"	58,800	50,900	41,500	8	17.58	1.35
24"	WB2 912	4"	30"	70,400	60,900	49,700	10	20.96	1.62

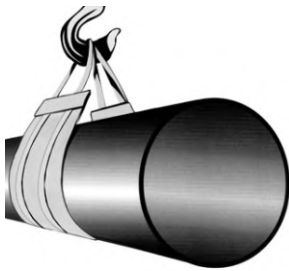


NEVER EXCEED THE WORKING LOAD LIMIT.
 ALWAYS CHECK THE IDENTIFICATION TAG TO DETERMINE THE SLINGS RATED CAPACITY IS APPROPRIATE FOR THE APPLICATION. RATINGS LISTED ARE VALID FOR NEW SLINGS ONLY. ALWAYS INSPECT BEFORE USE

Sling Protection
 Web Slings
 Round Slings
 Synthetic Chain Slings
 Wire Rope Slings
 Chain Slings
 Shackles & Turnbuckles
 Hooks & Links
 Lifting Points
 Hoists & Blocks
 Lifting Devices
 Pipe & Hose Restraints
 Tie Down Assemblies
 Tie Down Accessories
 Towing & Recovery
 Rope & Cordage

Attached Eye Web Sling Ratings

Attached Eye Web Slings are specifically designed for use in basket hitches where a larger surface area is required for load stability or for proper handling of fragile or highly finished surfaces. Eyes of slings are tapered to better fit in hoist or crane hooks.



Single Ply Attached-Eye Wide Body Slings Type 9

Material Width [in]	Stock Code	Eye Dimensions		Working Load Limit (lbs)			Min Length [ft]	Weight	
		Width	Length	90° Basket	60° Basket	45° Basket		10ft Sling	per ft
6"	WB2 903	1-1/2"	12"	18,800	16,200	13,200	4	5	0.44
8"	WB2 904	1-1/2"	12"	24,800	21,400	17,500	4	6.08	0.53
12"	WB2 906	2"	16"	37,200	32,200	26,300	6	9.06	0.81
16"	WB2 908	3"	20"	47,200	40,800	33,300	7	12.87	1.07
20"	WB2 910	3-1/2"	24"	58,800	50,900	41,500	8	17.58	1.35
24"	WB2 912	4"	30"	70,400	60,900	49,700	10	20.96	1.62

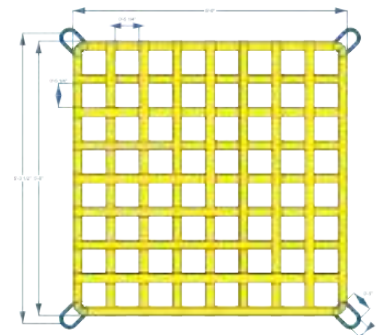


Single Ply Attached-Eye Wide Body Slings Type 9

Material Width [in]	Stock Code	Eye Dimensions		Working Load Limit (lbs)			Min Length [ft]	Weight	
		Width	Length	90° Basket	60° Basket	45° Basket		10ft Sling	per ft
6"	WB2 903	1-1/2"	12"	18,800	16,200	13,200	4	5	0.44
8"	WB2 904	1-1/2"	12"	24,800	21,400	17,500	4	6.08	0.53
12"	WB2 906	2"	16"	37,200	32,200	26,300	6	9.06	0.81
16"	WB2 908	3"	20"	47,200	40,800	33,300	7	12.87	1.07
20"	WB2 910	3-1/2"	24"	58,800	50,900	41,500	8	17.58	1.35
24"	WB2 912	4"	30"	70,400	60,900	49,700	10	20.96	1.62

Custom Web Sling Assemblies

Custom is our specialty. Over the years we have manufactured all types of custom web slings assemblies, including, pail lifters, drum lifters, tool bag slings, transformer slings, cylinder lifters and many more. Contact your Super Slings representative with your custom requirements.



WARNING!

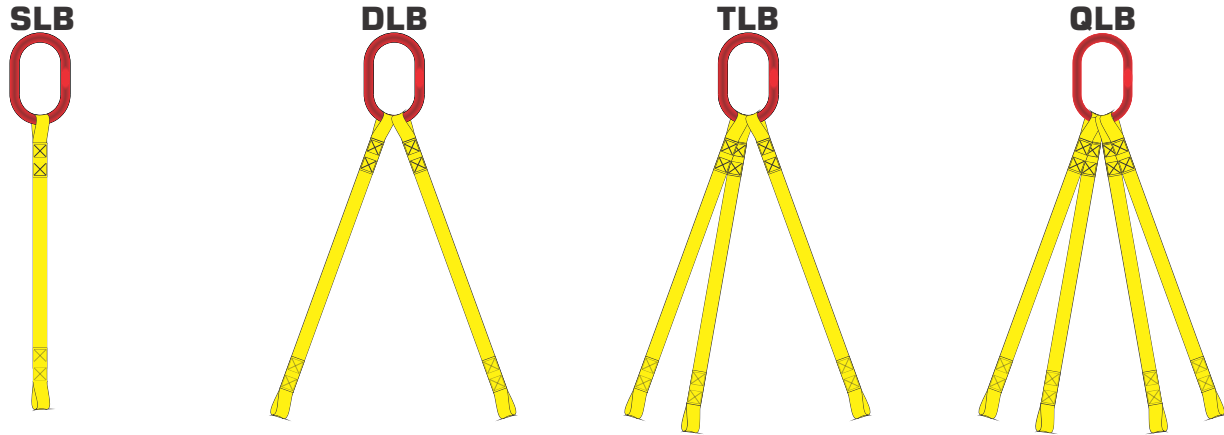
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Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage

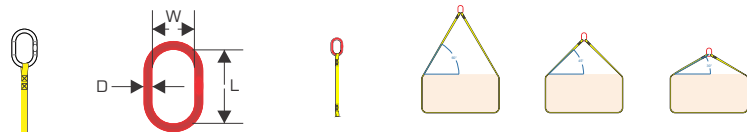
Lift it up, Tie it down, Pull it around

Bridle Web Sling Ratings

Multi-leg bridle assemblies are ideal for loads equipped with multiple lifting points. They're lightweight, easy to use and economical. Available in Single, Double, Triple or Quadruple leg configurations. A large variety of hooks and other bottom attachments are available at the time of order.



Single-Leg Bridles



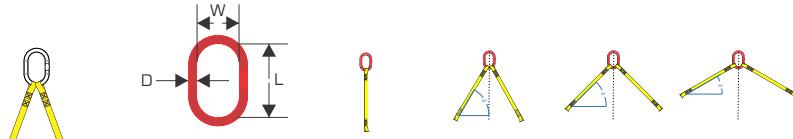
Material Width [in]	Stock Code	Masterlink Dimensions [in]			Working Load Limits [lbs]				Min Sling Length [ft]	Weight	
		Width	Length	Dia,	Vertical 90°	90° Basket	60° Basket	45° Basket		10ft Sling	per ft
SINGLE-PLY											
1"	SLB1 901	2.75	4.72	1/2	1,600	2,750	2,250	1,600	2	1.60	0.05
2"	SLB1 902	2.75	4.72	1/2	3,100	5,350	4,350	3,100	2	2.39	0.11
3"	SLB1 903	3.15	5.50	5/8	4,700	8,100	6,600	4,700	2	4.15	0.18
4"	SLB1 904	3.15	5.50	5/8	6,200	10,700	8,750	6,200	2	4.80	0.22
6"	SLB1 906	3.75	6.30	3/4	9,300	16,100	13,150	9,300	3	7.45	0.32
8"	SLB1 908	4.33	7.50	1	11,800	20,400	16,650	11,800	4	12.57	0.45
10"	SLB1 910	4.33	7.50	1	14,700	25,450	20,750	14,700	6	14.78	0.60
12"	SLB1 912	5.10	9.00	1-1/4	17,600	30,450	24,850	17,600	6	21.82	0.73
DOUBLE-PLY											
1"	SLB2 901	2.75	4.72	1/2	3,100	5,350	4,350	3,100	2	2.05	0.11
2"	SLB2 902	3.15	5.50	5/8	6,200	10,700	8,750	6,200	2	3.96	0.22
3"	SLB2 903	3.75	6.30	3/4	8,800	15,200	12,400	8,800	2	6.54	0.35
4"	SLB2 904	3.75	6.30	3/4	11,000	19,050	15,550	11,000	2	7.44	0.44
6"	SLB2 906	4.33	7.50	1	16,500	28,550	23,300	16,500	3	12.53	0.66
8"	SLB2 908	5.10	9.00	1-1/4	22,700	39,300	32,100	22,700	4	20.61	0.91
10"	SLB2 910	5.10	9.00	1-1/4	28,400	49,150	40,150	28,400	6	23.77	1.18
12"	SLB2 912	5.90	10.80	1-1/2	34,100	59,050	48,200	34,100	8	33.06	1.45



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Bridle Web Sling Ratings continued

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Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage



Double-Leg Bridle

Material Width [in]	Stock Code	Masterlink Dimensions [in]			Working Load Limits [lbs]				Min Length [ft]	Weight	
		Width	Length	Dia,	90°	60°	45°	30°		10ft Sling	per ft
SINGLE-PLY											
1"	DLB1 901	2.75	4.72	1/2	-	2,750	2,250	1,600	2	2.37	0.10
2"	DLB1 902	3.15	5.50	5/8	-	5,350	4,350	3,100	2	4.62	0.22
3"	DLB1 903	3.75	6.30	3/4	-	8,100	6,600	4,700	2	7.90	0.36
4"	DLB1 904	4.33	7.50	1	-	10,700	8,750	6,200	2	12.00	0.44
DOUBLE-PLY											
1"	DLB2 901	3.15	5.50	5/8	-	5,350	4,350	3,100	2	3.94	0.22
2"	DLB2 902	4.33	7.50	1	-	10,700	8,750	6,200	2	10.32	0.44
3"	DLB2 903	4.33	7.50	1	-	15,200	12,400	8,800	2	13.28	0.71
4"	DLB2 904	5.10	9.00	1-1/4	-	19,050	15,550	11,000	2	19.98	0.89



Triple-Leg Bridle

Material Width [in]	Stock Code	Masterlink Dimensions [in]			Working Load Limits [lbs]				Min Length [ft]	Weight	
		Width	Length	Dia,	90°	60°	45°	30°		10ft Sling	per ft
SINGLE-PLY											
1"	TLB1 901	3.15	5.50	5/8	-	4,160	3,390	2,400	2	3.04	0.15
2"	TLB1 902	3.75	6.30	3/4	-	8,050	6,580	4,650	2	5.72	0.33
3"	TLB1 903	4.33	7.50	1	-	12,210	9,970	7,050	2	10.7	0.54
4"	TLB1 904	5.10	9.00	1-1/4	-	16,110	13,150	9,300	2	16.9	0.67
DOUBLE-PLY											
1"	TLB2 901	3.75	6.30	3/4	-	8,050	6,580	4,650	2	5.04	0.33
2"	TLB2 902	4.33	7.50	1	-	16,110	13,150	9,300	2	10.32	0.67
3"	TLB2 903	5.10	9.00	1-1/4	-	22,860	18,660	13,200	2	18.18	1.06
4"	TLB2 904	5.90	10.80	1-1/2	-	28,580	23,330	16,500	2	26.18	1.33



Quadruple-Leg Bridle

Material Width [in]	Stock Code	Masterlink Dimensions [in]			Working Load Limits [lbs]				Min Length [ft]	Weight	
		Width	Length	Dia,	90°	60°	45°	30°		10ft Sling	per ft
SINGLE-PLY											
1"	QLB1 901	3.75	6.30	3/4	-	5,540	4,520	3,200	2	4.14	0.20
2"	QLB1 902	4.33	7.50	1	-	10,740	8,770	6,200	2	8.52	0.44
3"	QLB1 903	5.10	9.00	1-1/4	-	16,280	13,290	9,400	2	15.6	0.73
4"	QLB1 904	5.10	9.00	1-1/4	-	21,480	17,530	12,400	2	16.9	0.89
DOUBLE-PLY											
1"	QLB2 901	4.33	7.50	1	-	10,740	8,770	6,200	2	7.84	0.44
2"	QLB2 902	5.10	9.00	1-1/4	-	21,480	17,530	12,400	2	15.22	0.89
3"	QLB2 903	5.90	10.80	1-1/2	-	30,480	24,890	17,600	2	24.38	1.41
4"	QLB2 904	5.90	10.80	1-1/2	-	38,100	31,110	22,000	2	26.18	1.78

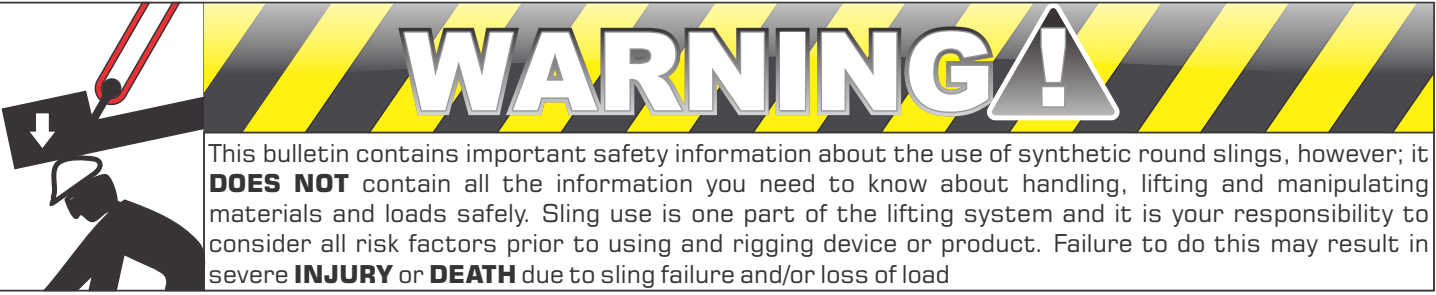
20 YEARS of super slings inc.

Secure Solutions

ROUND SLINGS



Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage



This bulletin contains important safety information about the use of synthetic round slings, however; it **DOES NOT** contain all the information you need to know about handling, lifting and manipulating materials and loads safely. Sling use is one part of the lifting system and it is your responsibility to consider all risk factors prior to using and rigging device or product. Failure to do this may result in severe **INJURY** or **DEATH** due to sling failure and/or loss of load

The following six points briefly summarize some important safety issues:

- 1 All Users must be trained** in sling selection, use and inspection, cautions to personnel, environmental effects and rigging practices.
- 2 Inspect sling for damage** regularly, if the sling is damaged, remove it from service.
- 3 Protect sling from damage.** ALWAYS protect slings in contact with edges, corners, protrusions, or abrasive surfaces with materials of sufficient strength, thickness and construction to prevent damage.
- 4 Do not exceed a sling's rated capacity.** ALWAYS consider the effect of sling angle and tension on the slings rated capacity.
- 5 Do not stand on, under or near a load** with the sling under tension. All personnel should be alert to dangers of falling and/or uncontrolled loads, sling tension and the potential for snagging.
- 6 Maintain and store slings properly.** Slings should be protected from mechanical, chemical and environmental damage.

1. All Sling Users Must be Trained and Knowledgeable

All round sling users must be trained on the proper use of round slings.

The American Society of Mechanical Engineers, Safety Standard for Slings (ASME B30.9) states:

"Synthetic round sling users shall be trained in the selection, inspection, cautions to personnel, effects of the environment and rigging practices as covered" by Chapter 9-6.

Albert Occupational Health & Safety Code States; "competent" in relation to a person, means adequately qualified, suitably trained and with sufficient experience to safely perform work without supervision or with only a minimal degree of supervision;

It is important that all sling users be knowledgeable about the safe and proper use and application of slings and be thoroughly familiar with the manufacturer's recommendations and safety materials provided with each product. In addition, all sling users need to be aware of their responsibilities as outlined in all applicable standards and regulations. If you are unsure whether you are properly trained and knowledgeable, or if you are unsure of what the standards and regulations require of you, ask your employer for information and/or training—**DO NOT** use roundslings until you are absolutely sure of what you are doing. Remember, when it comes to using roundslings, lack of skill, knowledge and care can result in severe **INJURY** or **DEATH** to you and others.

2. Slings Must Be Regularly and Properly Inspected

Even seemingly "minor" damage to a roundsling can significantly reduce its capacity to hold or lift objects and increases the chance that the sling will fail during use. Therefore, it is very important that roundslings are regularly and properly inspected. In reality, there simply is no such thing as "minor" damage. If you are not sure whether a sling is damaged, **DO NOT USE IT.**

2a. How to inspect slings

Generally, damage to roundslings can be detected visually. In some instances, internal load yarn damage can occur and not be visible. To detect possible damage, you should perform a visual inspection of the entire sling and also feel along its entire length, as some damage may be felt more than seen. You should look and feel for any of the types of conditions listed in Table 1. Table 2 shows examples of some of these types of damage, but note that they are relatively extreme examples provided for illustration purposes only.

2b. What to do if you identify damage in a sling

If you identify ANY of these types of damage in a sling, **remove it from service immediately**, even if the damage you feel or see is not as extensive as shown in the pictures in Table 2. Slings that are removed from service must be destroyed and rendered completely unusable unless they can be repaired and proof-tested by the sling's manufacturer or other qualified person. You should never ignore sling damage or attempt to perform temporary field repairs of damaged slings (e.g., tie knots in the sling, etc.).

Table 1. Round Sling Removal from service Criteria

The entire web sling must be **inspected regularly** and it shall be **removed from service** if ANY of the following are detected:

- If roundsling identification tag is missing or not readable.
- Holes, tears, cuts, embedded materials, excessive abrasive wear, or snags that expose the core yarn of the roundsling
- Broken or damaged core yarn.
- If roundsling has been tied in to one or more knots.
- Acid or caustic burns of the roundsling.
- Melting, charring or weld spatter of any part of the roundsling.
- Distortion, excessive pitting, corrosion or other damage to fitting.
- Broken or worn stitching in the cover which exposes the core yarn.
- Any conditions which cause doubt as to the strength of the roundsling.

2a. How often to inspect slings

A three-stage procedure is recommended to help ensure that Round slings are inspected with appropriate frequency:

Initial Inspection: Whenever a sling is initially received, it must be inspected by a designated person to help ensure that the correct web sling has been received and is undamaged and that the round sling meets applicable requirements for its intended use.

Frequent Inspection: The entire sling must be inspected before each shift or day in Normal service and before each use in Severe service applications.

Periodic Inspection: Every sling must be inspected "periodically" by a qualified and designated person. In order to validate the frequent level of inspection, the periodic inspection should be performed by someone other than the individual(s) who most commonly performs the frequent inspection. The frequency of periodic inspections is based on the sling's actual or expected frequency of use, severity of service conditions, the nature of the work performed with the sling and experience gained during the inspection of other slings used in similar circumstances. General guidelines for the frequency of periodic inspections are:

- Normal service—yearly
- Severe service—monthly to quarterly
- Special service—as recommended by a qualified person

Periodic inspections intervals must not exceed one year. Written records are not required for frequent inspections, but WSTDA RS-1 or ASME B30.9 require that a written record of the most recent periodic inspection be maintained. See WSTDA RS-1 or ASME B30.9 for more information about definitions of Normal, Severe and Special service conditions.

3. Slings Must be Adequately Protected from Damage

3a. Avoid actions that cause damage to slings

You should always avoid any action that causes the types of damage identified in the previous section of the Safety Bulletin, including (but not limited to):

- Dropping or dragging slings on the ground, floor or over abrasive surfaces.
- Pulling slings from under loads when the load is resting on the sling—place blocks under the load if feasible.
- Do not shorten/adjust unless authorized by manufacturer
- Twisting, kinking, or knotting the sling.
- Exposing slings to damaging acids or alkalis.
- Exposing slings to sources of heat damage or weld spatter.
- sing slings or allowing exposure to temperatures above 194°F (90°C) or below -40°F (-40°C).
- "Tip loading" a sling on a hook instead of centering it in the base or "bowl" of the hook.
- Using hooks, shackles or other hardware that have edges or surfaces that could damage sling.
- Running/driving over slings with a vehicle or other

equipment.

Synthetic slings are affected by some chemicals ranging from little to total degradation. Time, temperature and concentration factors affect the degradation. For specific applications, consult the manufacturer.

3b. Safeguard slings with sufficient protection













Synthetic slings can be damaged, abraded or cut as tension and compression between the sling, the connection points and the cargo develops. Surfaces in contact with the sling do not have to be very abrasive or have "razor" sharp edges in order to create the conditions

for sling failure. Therefore, **round slings must ALWAYS be protected from being cut or damaged by corners, protrusions, or from contact with edges that are not smooth or well rounded with materials sufficient for the intended purpose.** Round slings should be protected from abrasive surfaces.

There are a variety of types of ways to protect slings from such damage. A qualified person might select and use appropriately engineered protectors / softeners commercially available products (e.g., sleeves, wear pads, corner protectors, etc.) specifically designed to protect slings from damage. A qualified person might also design and construct their own methods of protection so long as the sling is adequately protected from and/or kept off of the damaging edge surface. Regardless of the particular method chosen, the goal is to ensure that the sling, under tension, maintains its ability to securely lift the load while avoiding contact with damaging or abrasive surfaces under tension. A qualified person must carefully consider the most appropriate means to accomplish this goal. The protection used should not be makeshift (i.e., selecting and using cardboard, work gloves or other such items based solely on convenience or availability). Regardless of the approach taken, a qualified person must ensure that the protection method chosen is appropriate for the types of damage to which the slings will be exposed. For instance, some protection provides abrasion resistance, but offers virtually no protection against cuts. Several "test" lifts, done in a non-consequence setting, may be necessary to determine the suitability of the protection device(s). After each "test" lift, the protection device(s) and sling(s) need to be inspected for damage and suitability. You should keep in mind that no protection is "cut proof" and you should always operate within the specified limits of the sling and its accessories (e.g., fixtures, hardware, protection, etc.). Roundslings must always be protected from coming into direct contact with any edges unless the contacting edges meet both of the following criteria:

- The edges must be smooth and well-rounded. Edges that are chamfered or flattened at an angle do not meet this criteria.
- The size of the edge radii must be adequately large. **Table 3** shows the minimum edge radii suitable for contact with unprotected polyester roundslings.

Table 2. Types Of Damage Your Should Look And Feel For In Round Slings

					
Split Cover, Exposed Yarns	Bunched/Wadded Yarns	Weld Spatter	Melting or Charring	Cuts / Tears	Knots
					
Illegible Tag/Identification	Holes / Punctures	Heat Damage	Damaged Fittings	Acid/Alkali Chemical Damage	Embedded Materials

One way to measure an edge radius is to measure the distance between the leading edge of the radius that is being measured (Point A) and the point where the radius initiates from the bottom edge of the surface (Point B) (see Figure 1).

In order to protect the roundsling, it is also necessary to select and use proper connection hardware. Connection hardware should be selected so that either:

- it conforms to the size requirements listed in Table 4 (choker and vertical hitches) or Table 5 (basket hitch)
- the value at the connection does not exceed 7,000 lbs./in² during sling loading (see WSTDA RS-1, Section 4.7 for the procedure for calculating bearing stress)

4. Always Use Slings Properly

When lifting loads, a trained, qualified and knowledgeable user must take into account the factors and issues addressed in this bulletin, as well as considering any other relevant factors not addressed herein (see Table 6). Among the factors related specifically to roundslings, users must perform several activities, including (but not limited to) those discussed in the following subsections.

4a. Assess the load

Determine the weight of the load and make sure it does not exceed the sling’s rated capacity or the capacity of any of the components of the rigging system. Users must also determine the load’s center of gravity (CG) to make sure the rigging system used will be able to retain and control the load once lifted.

4b. Select an appropriate sling/configuration

Select a sling having suitable characteristics for the type, size and weight of the load, the type of hitch (see Table 7) and the environment. The sling must be securely attached to the load and rigged in a manner to provide for load control to prevent slipping, sliding and/or loss of the load. A trained, qualified and knowledgeable user must determine the most appropriate method of rigging to help ensure a safe lift and control of the load.

Another important consideration is the sling-to-load angle—the angle 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. When the sling to-load angle decreases, the load on each leg increases. This principle applies in a number of conditions, including when one sling is used to lift at an

angle and when a basket hitch or multi-legged bridle sling is used. Table 8 provides information about increased tension as a function of sling-to-load angle (assuming equally loaded sling legs. Sling angles of less than 30 degrees are not recommended.

Similarly, when the angle of choke is less than 120 degrees, the sling choker hitch capacity decreases. To determine the actual sling capacity at a given angle of choke, multiply the sling capacity rating (for a choker hitch) by the appropriate reduction factor determined from Table 9.

4c. Do not misuse the sling

Avoid accelerating or decelerating the load too quickly (i.e. “shock loading”). Do not use slings to pull on stuck or snagged objects and do not use slings for towing purposes. A round sling should only be used for lifting loads.

5. Make Sure All Personnel are Clear of Loads and Alert to Risks

Even if you account for all of the factors/issues discussed in this Safety Bulletin, things can still go wrong. Therefore, all personnel must stand clear of the lifted loads and never be under, on or near suspended loads. When using slings, no part of the body should be placed between the sling and load, or between the sling and lifting hook. In addition, personnel must be alert to the potential for the sling to become snagged during a lift. Never use a roundsling to pull on objects in a snagged or constrained condition.

6. Properly Store and Maintain Slings

In order to prevent damage to slings when not in use, you should store slings in a cool, dry and dark location. Slings should be stored in an area free from environmental or mechanical sources of damage, such as: weld spatter, splinters from grinding or machining, heat sources, chemical exposure, etc. Also, keep slings clean and free of dirt, grime and foreign materials. If roundslings are cleaned, use only mild soap and water. Rinse sling thoroughly and allow to dry completely before placing the sling back into storage or use. Do not machine wash slings. Machine washing results in significant loss of sling strength.

Table 6. Issues and Factors to consider when handling, lifting and manipulating materials and loads

Categories			
Environment	Wind Weather Visibility	Environmental Temperature Object temperature Chemical Conditions & Exposure	Ground Stability Underground installations
Load	Weight Dimensions Center of Gravity (CG)	Attachment point integrity Susceptibility to crushing/compression Loose parts that could fall from load	Combination loads Damaging surfaces/edges Structural stability (bend/flex)
Equipment/Lift	Single/multiple cranes/hoists Maximum/planned operating radius	Ratio of lift to allowable load Clearance to surrounding facilities Power lines and other hazards Clearance between boom & lift	Emergency/contingency set down area Equipment inspection Ensure a clear path
Rigging	Sling selection Load control Lift point (over CG) Suitable Wear protection	Positive sling-to-load engagement Coefficient of friction: sling to load Appropriate hitch (for CG & load control) Coordination of multiple slings	Load is free to move and is not snagged Sling capacity is adequate for angle and tension
Personnel	Area Clear of unnecessary personnel Pre-Lift plan & meeting	Personnel are trained and qualified Signals: Visual, Audio, electronic, etc. Tag lines/Spotter requirements	Personnel away from load and other dangers

Lift it up, Tie it down, Pull it around

Table 7. Common types of sling hitches

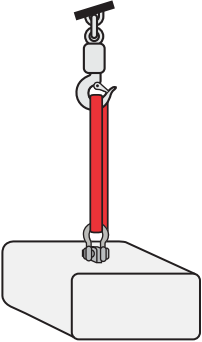
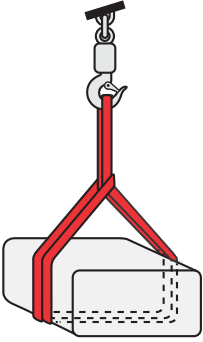
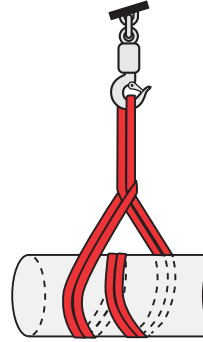
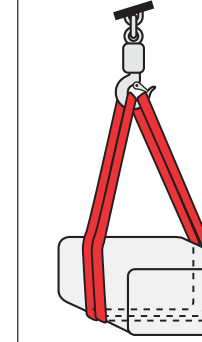
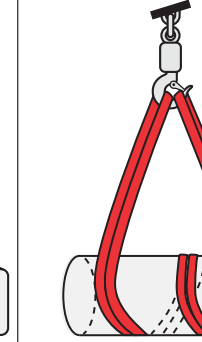
				
Vertical	Hitch Choker	Hitch Double Wrapped Choker	Hitch Basket	Hitch Double Wrapped Basket
A vertical hitch, or straight hitch, is the most basic hitch used to directly connect a load to a lifting device.	Uses two slings in a choker hitch to provide more contact area to secure a load.	Similar to standard choker hitch, except that the sling is wrapped around the load twice. This hitch compresses the load and can help prevent it from slipping out of the sling.	Basket hitches distribute a load equally between the two legs of a sling. When using a basket hitch, the load is cradled by running the sling underneath the load.	Similar to a standard basket hitch, except the sling is wrapped around the load twice. This provides excellent load control for loose materials and good grip on smooth surfaces.

Table 8. Increased tension as a function of sling-to-load angle

Effect of Angle - Sling tensions are affected by angle of lift (sling angle), measured from the horizontal, when used with multi-legged web slings or basket hitches. The effect of this angle may be determined by using either of these two methods:

- Sling Tension Method (Recommended Method) **Table 8a**
- Reduced Sling Capacity Method (Alternative Method) **Table 8b**

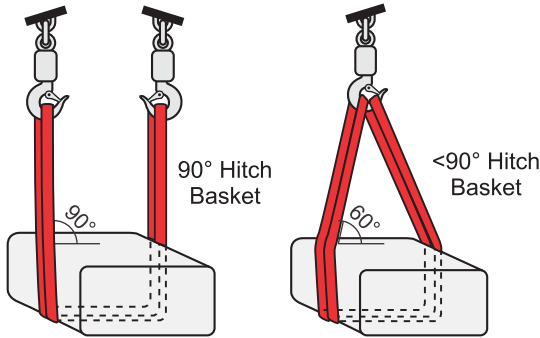


Table 8a. Increased sling tension as a function of sling-to-load angle

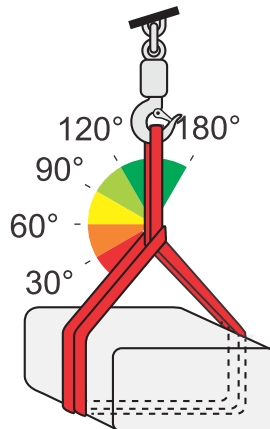
Sling Tension	
Angle/Deg	Loss
Horizontal	Factor
90	1.000
80	1.015
70	1.064
60	1.155
50	1.305
45	1.414
35	1.742
30	2.000

Table 8b. Lower sling rating as a function of sling-to-load angle

Capacity Reduction	
Angle/Deg	Loss
Horizontal	Factor
90	1.000
80	0.985
70	0.940
60	0.866
50	0.766
45	0.707
35	0.574
30	0.500

Table 9. Reduction in capacity as a function of angle of choke

Choker Hitches: For round slings used in a choker hitch, rated capacities are based on a choke angle of 120° or greater. For angles less than 120°, reduce capacity according to table 9



Choker Hitches		Table 9
Angle of Choke (degrees)	Sling rated capacity factor as percentage of single leg choker hitch capacity	
120-180	100%	
105-120	82%	
90-105	71%	
60-90	58%	
0-60	50%	

Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Carriage

PROPER USE OF POLYESTER ROUND SLINGS AROUND EDGES

WARNING: ALWAYS PROTECT ROUNDSLINGS FROM DIRECT CONTACT WITH EDGES, EXCEPT WHERE THE CONTACTING EDGES MEET THE FOLLOWING MINIMUM, EDGE RADIUS CRITERIA

General Statement

The strength of round slings can be significantly affected when they are allowed to come into direct contact with edges of the load, or connection hardware, if the size and shape of these edges are not suitable. Shearing or cutting of the synthetic sling material is the single most common cause of accidents involving sling failure. This can result when round slings are allowed to come into direct contact with edges that are not adequately rounded to a suitable radius. Round slings shall always be protected from being in direct contact with all edges, unless the contacting edges meet the following criteria.

4.6.2 Determining when round slings need to be protected from contact with edges.

Sling protection shall be utilized whenever the edges of the load or connection hardware do not meet the requirements specified in the following:

- **Edge Shape** - Round slings shall be properly protected from edges that are not smoothly rounded. This includes chamfered edges.

Round slings shall only be allowed to come into direct contact with edges if they are smooth and are well rounded to a suitable edge radius. Direct contact of round slings with edges that are machined at an angle, such as a 45° angle, can cut into the sling and significantly reduce sling strength. Round slings shall not be allowed to come into direct contact with edges that are chamfered, or flattened at an angle, unless the edges conform to edge radius requirements. (See Figure 4-4)



Required Radius of Rounded Edges – Polyester round slings shall be properly protected from rounded edges if the size of the edge radius is not adequately large. The required size of the edge radius, depends on the sling capacity, and increases with the size of the sling. Please see table 4-5 for a listing, showing the minimum edge radius appropriate for each sling size. These values hold true regardless of the type of hitch being used.

- Measuring the radius of an edge – One method of measuring an edge radius is noted in the following: Place the leading edge of the ruler or tape measure along the leading edge of the radius that is being measured (Point A). Measure the distance from this leading edge, Point A, to the point where the radius initiates from the bottom edge of the surface, Point B (See Figure 4–5). In this figure, a radius of 1/2" is shown.

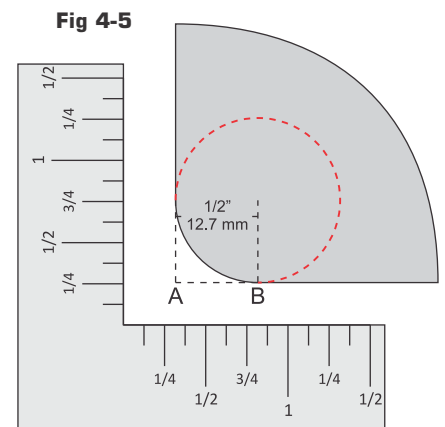
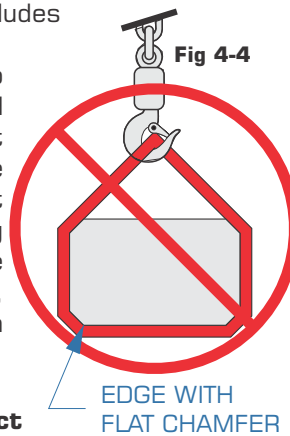
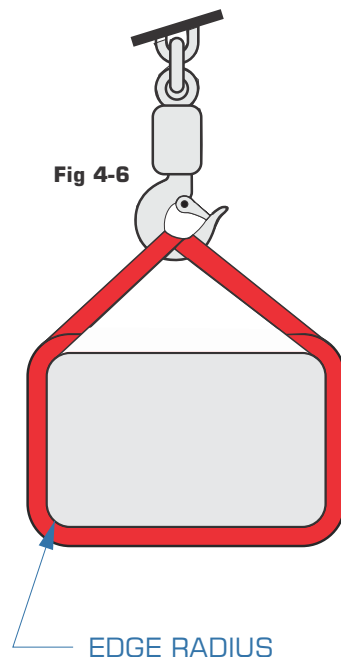


Table 4-5. Minimum Edge Radii suitable for contact with unprotected Polyester Roundslings*

WSTDA Round Sling Size	Rated Capacity Vertical	Min Edge Radii	Minimum Edge Radii**	Sling Width at Load
	lbs	[in]	[in]	[in]
1	2,600	0.14	3/16	.97
2	5,300	0.21	1/4	1.29
3	8,400	0.26	5/16	1.66
4	10,600	0.30	5/16	1.78
5	13,200	0.33	3/8	2.00
6	16,800	0.40	7/16	2.13
7	21,200	0.41	7/16	2.62
8	25,000	0.44	7/16	2.85
9	31,000	0.50	1/2	3.15
10	40,000	0.56	9/16	3.57
11	53,000	0.67	11/16	4.00
12	66,000	0.72	3/4	4.60
13	90,000	0.87	7/8	5.22

*The radii values apply to the round slings that are fully tensioned to their rated capacity. When round slings are tensioned to lower force values, the minimum radius values will reduce accordingly. (See Appendix 1 for further information)

**Fractional equivalent, rounded up to the nearest 1/16".



SELECTION OF PROPER CONNECTION HARDWARE

WARNING: ALWAYS CONNECT ROUND SLINGS TO PROPERLY SIZED AND RATED FITTINGS AND / OR MATERIALS

For polyester round slings, connection hardware should be selected such that it either:

- Conforms to the size requirements listed in Tables 4-6 and 4-7, OR
- Sized such that the bearing stress value at the connection does not exceed 7,000 Lbs./in² during sling loading. (See calculations below).

Table 4-6 Suitable Connection Hardware Sizes for Polyester Round Slings, When Used in a Vertical or Choker Hitch

WSTDA Round Sling Size	Rated Capacity Vertical Hitch (Lbs.)	Minimum Stock Diameter or Thickness (Inches)	Minimum Stock Diameter or Thickness (Inches)*2	Minimum Effective Contact Width*3 (Inches)	Minimum Effective Contact Width*3 (Inches) *2
1	2,600	0.39	7/16	.97	1
2	5,300	0.59	5/8	1.29	1-3/8
3	8,400	0.72	3/4	1.66	1-3/4
4	10,600	0.85	7/8	1.78	1-7/8
5	13,200	0.95	1	2.00	2
6	16,800	1.12	1-1/8	2.13	2-1/8
7	21,200	1.15	1-3/16	2.62	2-5/8
8	25,000	1.25	1-1/4	2.85	2-7/8
9	31,000	1.41	1-1/2	3.15	3-1/4
10	40,000	1.60	1-5/8	3.57	3-5/8
11	53,000	1.90	2	4.00	4
12	66,000	2.05	2-1/8	4.60	4-5/8
13	90,000	2.46	2-1/2	5.22	5-1/4

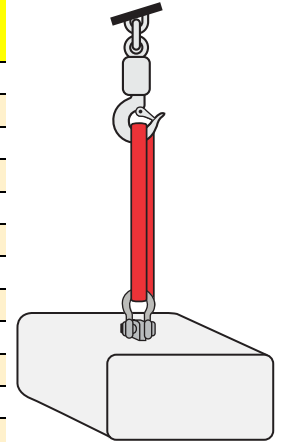
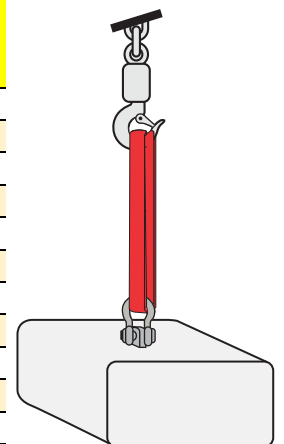


Table 4-7 Suitable Connection Hardware Sizes for Polyester Round Slings, When Used in a Basket Hitch

WSTDA Round Sling Size	Rated Capacity Basket Hitch (Lbs.)	Minimum Stock Diameter or Thickness (Inches)	Minimum Stock Diameter or Thickness (Inches)*2	Minimum Effective Contact Width*3 (Inches)	Minimum Effective Contact Width*3 (Inches) *2
1	1	5,200	0.54	9/16	1.37
2	2	10,600	0.83	7/8	1.82
3	3	16,800	1.02	1-1/16	2.34
4	4	21,200	1.20	1-1/4	2.52
5	5	26,400	1.35	1-3/8	2.80
6	6	33,600	1.59	1-5/8	3.00
7	7	42,400	1.63	1-5/8	3.71
8	8	50,000	1.77	1-7/8	4.00
9	9	62,000	2.00	2	4.45
10	10	80,000	2.26	2-3/8	5.06
11	11	106,000	2.69	2-3/4	5.62
12	12	132,000	2.90	3	6.50
13	13	180,000	3.50	3-1/2	7.38



*The values in Table 4.7 apply to the use of round slings in a basket hitch when the two ends of the sling are attached to a single connection point. Use table 4.6 when round slings are used in a basket hitch when the two ends of the sling are attached to separate connection points.

*2 This is the value when rounded up to the closest fractional equivalent.

3 These values also equal the approximate natural flattening width of the round sling.

Effective Contact Width between the Sling and Connection Hardware

a. Connection to Flat-Bottom Surfaced Hardware – Such hardware connections include pins, bolts and trunnions. The value of the effective contact width is equal to the opening width or spread of the sling at the connection area (See Figure 4-7). Please note, however, that the effective contact width will never exceed the natural flattening width of the sling as listed in Tables 4-6 and 4-7. b. Connection to Round-Bottom (or Curved) Surfaced Hardware – Such hardware connections include links, hooks, or the bow ends of shackles. To determine the value of the effective contact width, multiply the inside opening width of the hardware by a factor of 0.75 (See Figure 4-8). For connections to the base of hooks, multiply the value of the radius at the hook base by a factor of 1.5 to determine the effective contact width. Please note, however, that the effective contact width will never exceed the natural flattening width of the sling as listed in Tables 4-6 and 4-7.

STRAIGHT BEARING SURFACE

EFFECTIVE INSIDE WIDTH
EQUALS 100% OF THE
ACTUAL INSIDE WIDTH

CURVED BEARING SURFACE

EFFECTIVE INSIDE WIDTH
EQUALS 75% OF THE
ACTUAL INSIDE WIDTH

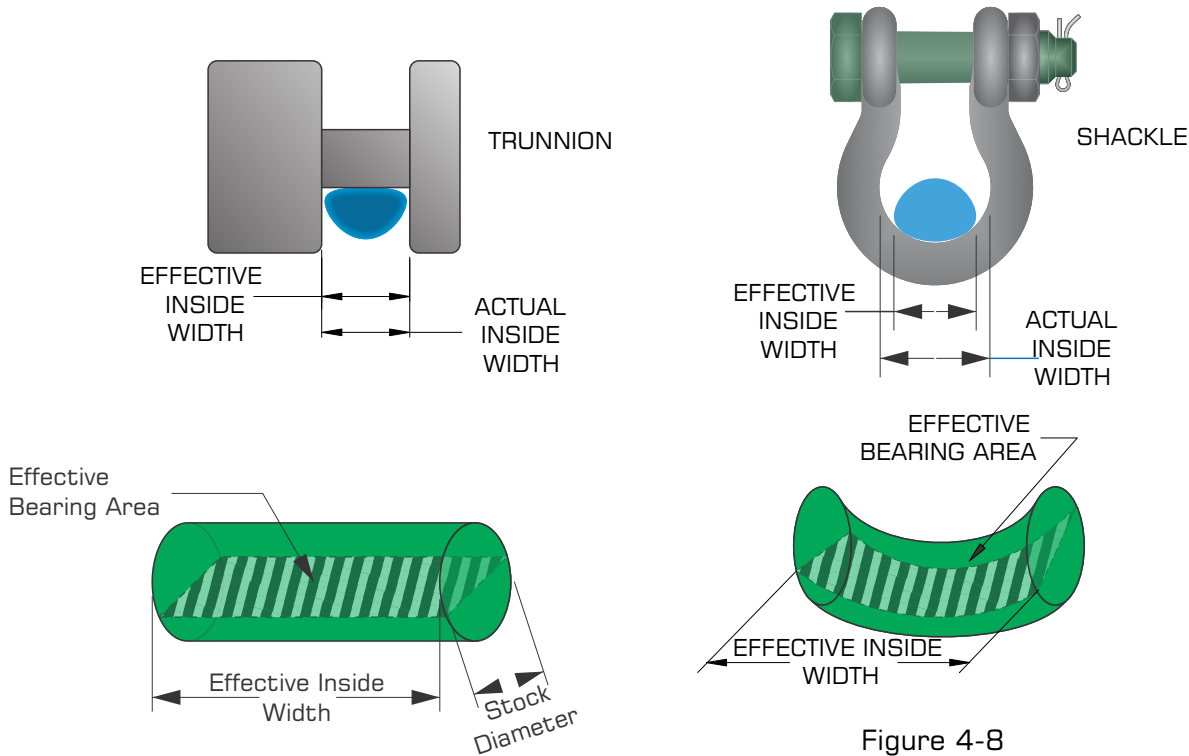


Figure 4-8

Note:

Round sling strength is affected by the size of the connection hardware. For special applications wherein a retained design factor of 5 is required to be maintained, contact the sling manufacturer, as a capacity reduction of 20% may be appropriate in order to satisfy this criteria.

Load Bearing Area at the Hardware Connection – The load bearing area at the hardware connection is determined by multiplying the thickness or stock diameter of the hardware by the effective contact width at the connection.

$$\text{Load Bearing Area} = (\text{Hardware Thickness or Stock Diameter}) \times (\text{Effective Contact Width})$$

Calculating Bearing Stress Values at the Hardware Connection – The bearing stress value is determined by dividing the amount of loading on the sling by the load bearing area at the hardware connection.

$$\text{Bearing Stress} = \frac{\text{Sling Load Value (in Pounds)}}{\text{Load Bearing Area}}$$

Lift it up, Tie it down, Pull it around

Example: A size 3 polyester round sling, rated at 8,400 lbs. in a vertical hitch, is connected in a vertical hitch using the rounded bow end of a shackle that is smaller in size to that listed in Table 4-6. The shackle has a stock diameter of only .62 inch, and an inside opening width of 2 inches. However, a force of only 6,000 lbs. is applied, noticeably less than the rated capacity of the sling (See Figure 4-9). Is this use of the selected shackle acceptable?

6,000 Lbs. of Force <-



Figure 4-9

Answer: Since the shackle size is smaller than recommended for a size 3 round sling per Table 4-6, we need to establish that the bearing stress value does not exceed 7,000 Lbs./in² during use. Since the bearing surface of the shackle is rounded;

$$\begin{aligned} \text{Effective Contact Width} &= (.75) \times (\text{The shackle inside width}) \\ &= (.75) \times (2 \text{ inches}) \\ &= 1.50 \text{ inches} \end{aligned}$$

And;

$$\begin{aligned} \text{Load Bearing Area} &= (\text{The shackle stock diameter}) \times (\text{The Effective Contact Width}) \\ &= (.62 \text{ inches}) \times (1.50 \text{ inches}) = .93 \text{ in}^2 \end{aligned}$$

$$\begin{aligned} \text{Bearing Stress Value} &= (\text{The Applied Force}) / (\text{Load Bearing Area}) \\ &= (6,000 \text{ Lbs.}) / (.93 \text{ in.}^2) \\ &= 6,451 \text{ Lbs./in.}^2 \end{aligned}$$

Therefore, since the bearing stress value is less than 7,000 Lbs./in² during use, **the selected shackle size is suitable for use.**

Therefore, since the bearing stress value is less than 7,000 Lbs./in² during use, the selected shackle size is suitable for use.

OTHER MECHANICAL CONSIDERATIONS

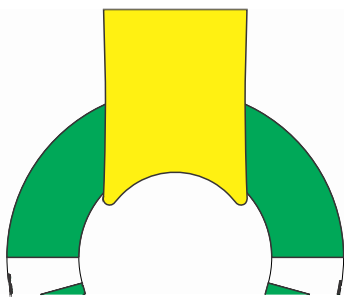
- round slings in contact with edges, corners, or protrusions **MUST ALWAYS** be protected with materials of sufficient strength, thickness, and construction to prevent sling damage.
- round slings should be protected from abrasive surfaces.
- Determine the weight of the load. Round slings shall not be loaded in excess of the rated capacity. Consideration shall be given to the sling angle, which affects rated capacity. (See Effect of Sling Angle, Section 4.5. 1).
- Select round slings having suitable characteristics for the type of load, hitch and environment.
- Round slings with fittings that are used in a choker hitch shall be of sufficient length to ensure that the choking action is on the round sling, and never on the fitting, or sling tag.
- Round slings used in a basket hitch shall have the load balanced to prevent slippage.
- The openings in fittings shall be the proper shape and size to ensure that the fittings will seat properly on the round sling, crane hook, or other attachments.
- Round slings should not be dragged on the floor or over an abrasive surface.
- Round slings shall not be twisted, shortened, lengthened, tied into knots, or joined by knotting.
- Round slings should not be pulled from under loads when the load is resting on the round sling.
- Do not drop round slings equipped with metal fittings.
- Round slings that appear to be damaged shall not be used unless inspected and accepted as usable under Section 4.4.
- Round slings shall be hitched in a manner providing control of the load.
- Personnel shall not stand under, and should stand clear of, the suspended load.
- All portions of the human body shall be kept from being placed between the round slings and the load, and from between the round sling and the hook of the crane or hoist.
- Personnel shall not ride round slings, or loads suspended by the round slings, and round slings shall not be used as bridles on suspended personnel platforms.
- Shock loading shall be avoided.
- Twisting the legs (branches) shall be avoided.
- Load applied to a hook shall be centred in the bowl of the hook to prevent point loading.
- During use, personnel shall be alert for possible snagging of the round sling.
- The round sling legs (branches) shall contain or support the load from the sides above the centre of gravity when using a basket hitch. 4.8.22 Tags and labels should be kept away from the load, hook and point of choke.
- Round slings should not be constricted or bunched between the ears of a clevis or shackle, or in a hook. When a round sling is used with a shackle, it is recommended that it be used (rigged) in the bow of the shackle. When this is not possible, protect the sling from damage.
- Place blocks under load prior to setting down the load, to allow removal of the round sling, if applicable.
- For multiple-leg slings used with non-symmetrical loads, an analysis by a qualified person should be performed to prevent overloading of any leg.

Recommended Shackles Sizes for Vertical, Choker & Basket Hitches

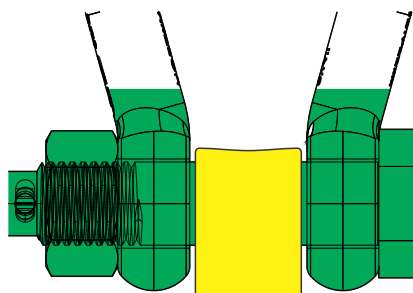


Code	Color	Vertical 90°	Recc Shackle Size Vertical & Choker		Recc Shackle Size Basket	
			Bow Contact	Pin Contact	Bow Contact	Pin Contact
			Item Code	Item Code	Item Code	Item Code
		lbs				
SL-30	PURPLE	3,000	1/2	3/8	3/4	5/8
SL-40	BLACK	4,000	5/8	1/2	7/8	3/4
SL-60	GREEN	6,000	3/4	5/8	1	7/8
SL-90	YELLOW	9,000	7/8	3/4	1 1/4	1
SL-120	TAN	12,000	1	7/8	1 3/8	1 1/4
SL-140	RED	14,000	1	7/8	1 1/2	1 3/8
SL-170	ORANGE	17,000	1 1/8	1	1 3/4	1 1/2
SL-230	BLUE	23,000	1 3/8	1 1/4	2	1 3/4
SL-260	ORANGE	26,000	1 3/8	1 1/4	2	1 3/4
SL-320	GREY	32,000	1 3/4	1 1/2	2 1/4	2
SL-400	ORANGE	40,000	2	1 3/4	2 1/2	2 1/4
SL-540	BROWN	54,000	2	1 3/4	3	2 1/2
SL-680	OLIVE	68,000	2 1/4	2	N/A	3
SL-900	BLACK	90,000	2 1/2	2 1/4	N/A	N/A

BOW CONTACT



PIN CONTACT



OTHER WEB SLING & TIE DOWN ASSOCIATION PUBLICATIONS

Recommended Standard Specifications for:

- Synthetic Web Slings (WSTDA-WS-1)
- Synthetic Polyester Roundslings (WSTDA-RS-1)
- High Performance Yarn (HPY) Roundslings (RS-1HP)
- Synthetic Webbing for Slings (WSTDA-WB-1)
- Sewing Threads for Slings & Tie Downs (WSTDA-TH-1)
- Synthetic Web Tie Downs (WSTDA-T-1)
- Winches Used With Web Tie Downs (WSTDA-T-3)
- Synthetic Webbing Used for Tie Downs (WSTDA-T-4)
- Load Binders Used with Chain Tie Downs (WSTDA-T-6)

Operating, Care & Inspection Manuals for:

- Synthetic Polyester Roundslings (WSTDA-RS-2)
- Synthetic Web Tie Downs (WSTDA-T-2)

Download free, sing-use copies of the above Standards & Manuals at www.wstda.com

Available for Purchase from Web Sling & Tie Down Association:

Warning Products: Available in English, Spanish and French

- Fabric Warning Labels for Web Slings, Roundslings and Tie Downs
- Paper Safety Bulletins for Web Slings, Roundslings and Tie Downs

Illustrated Wall Chart

- Inspection of Web Slings & Roundslings (WSTDA-WSWC-1)

UV Degradation Reports

- UV Degradation Testing Program for Web Slings: Summary Report (2003) (WSTDA-UV-Sling-2003)
- UV Degradation Testing Program for Web Slings: Graphs (Mini Manual) (WSTDA-UV-MM-2005)
- UV Degradation Testing Program for Web Slings: Report (1981, revised 2005) (WSTDA-UVDR-1981)

For ordering information and prices, contact the association office or visit our website:

Web Sling & Tie Down Association, Inc.
 9 Newport Drive, Suite 200, Forest Hill, Maryland 21050
 Phone (443) 640-1070 Fax (443) 640-1031
 Email: wstda@stringfellowgroup.net
 Web Site: www.wstda.com

Sling Protection
 Web Slings
 Round Slings
 Synthetic Chain Slings
 Wire Rope Slings
 Chain Slings
 Shackles & Turnbuckles
 Hooks & Links
 Lifting Points
 Hoists & Blocks
 Lifting Devices
 Pipe & Hose Restraints
 Tie Down Assemblies
 Tie Down Accessories
 Towing & Recovery
 Rope & Cordage

POLYESTER ROUND SLINGS

A Round Sling is an endless loop of yarns, covered by a woven tubular jacket. Super Slings round slings are manufactured by using high tenacity polyester yarn's and extra durable covers. Color coded, conforming to international and WSTDA standard which validate sling capacity. Our specialized **"HEAVY DUTY TWILL JACKET"** performs better than plain double jackets. It provides **30% better abrasion resistance** compared to conventional 2 plied polyester jacket in the field. Heavy Clear Plastic Covered Rating Tag Extends the life of the sling and also includes WSTDA guidelines.

Features

- The most flexible sling available. Round slings conform to the load extremely well and provide a superior choker hold.
- Hook and load contact points can be continually rotated to extend the service life of the sling.
- Longer sling life means overall cost reduction throughout the life of the sling.
- The load bearing fibres never come in to contact with the load, there is no wear to the inner fibres, the protective cover remains intact.
- Protection to the load from sling damage.
- Seamless covers mean no edges to wear out.
- Wide variety of slings lengths and load capacities.
- Adapts to all types, sizes and load configurations.
- Lightweight, easy to rig, store and clean.
- No loss of strength in water.
- Only 3% elongation at working load limit.
- Reduces the need for wear pads.
- No metal parts to rust.
- Good for temperatures up to 90° C) or down to -40° C.



Code	Color	Vertical 90°	Choke 120°	Basket				Appr Dia	Appr Weight	Min Pin Dia	Min Pin Dia	Min Length
				90°	60°	45°	30°					
		lbs	lbs	lbs	lbs	lbs	lbs	(in)	lbs/ft	Vertical	Basket	(in)
SL-30	PURPLE	3,000	2,400	6,000	5,200	4,200	3,000	0.75	0.25	0.50	0.63	18
SL-40	BLACK	4,000	3,200	8,000	6,900	5,700	4,000	0.80	0.35	0.50	0.63	18
SL-60	GREEN	6,000	4,800	12,000	10,400	8,500	6,000	0.90	0.40	0.63	0.88	18
SL-90	YELLOW	9,000	7,200	18,000	15,600	12,700	9,000	1.00	0.50	0.75	1.00	24
SL-120	TAN	12,000	9,600	24,000	20,800	17,000	12,000	1.25	0.75	0.88	1.25	24
SL-140	RED	14,000	11,200	28,000	24,200	19,800	14,000	1.30	0.85	1.00	1.38	30
SL-170	ORANGE	17,000	13,600	34,000	29,400	24,000	17,000	1.60	0.95	1.13	1.63	36
SL-230	BLUE	23,000	18,400	46,000	39,800	32,500	23,000	1.65	1.25	1.25	1.75	48
SL-260	ORANGE	26,000	20,800	52,000	45,000	36,800	26,000	1.75	1.45	1.38	1.88	48
SL-320	GREY	32,000	25,600	64,000	55,400	45,200	32,000	2.15	1.75	1.50	2.00	48
SL-400	ORANGE	40,000	32,000	80,000	69,300	56,600	40,000	2.45	2.25	1.63	2.38	48
SL-540	BROWN	54,000	43,200	108,000	93,500	76,400	54,000	3.00	2.75	1.88	2.75	48
SL-680	OLIVE	68,000	54,400	136,000	117,800	96,200	68,000	3.25	3.60	2.13	3.00	60
SL-900	BLACK	90,000	72,000	180,000	155,900	127,300	90,000	3.75	4.10	2.50	3.50	60



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ARMOUR SUPER SLINGERS High Capacity Round Slings

Rely on full inspection

**Prevent delays!
Save money!**

Pre-failure warnings on slings often present a false alarm, when in fact the sling is ok to use. Prevent delays with your lift, and save money with inspection costs by using Super Slings.

Hey Boss, we just received this sling back from inspection, I put it up on crane, and pre-failure warnings have failed again. What should I do?

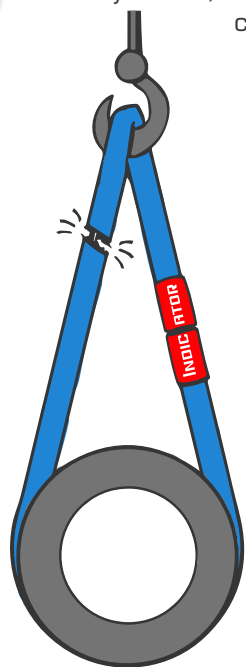
You can't use it, put the sling in the barrel with the others.



Meets ASME B30.9 standard!

NEVER rely only on overload indicators

Even with overload indicators you must inspect the entire length of the sling.



No, the sling is damaged!
The indicator is okay, we can proceed.



ASME B30.9 states inspection MUST be done on the entire length of the sling!

Elongation at WLL	1%
Melting Range	144-152°C
Density	Floats
Moisture Retention	1%
Yarn Abrasion Resistance	Excellent (yarn on yarn)
Cover Abrasion Resistance	Excellent
UV Resistance	Very Good
Loss Strength when wet	0%

Code	Color	Vertical 90° lbs	Choke 120° lbs	Basket				Appr Dia in	Appr Weight Lbs/ft
				90° lbs	60° lbs	45° lbs	30° lbs		
SSA200	Blue	20,000	16,000	40,000	34,600	28,000	20,000	1 1/4	0.55
SSA250	Blue	25,000	20,000	50,000	432,000	35,000	25,000	1 1/4	0.65
SSA300	Blue	30,000	24,000	60,000	51,900	42,000	30,000	1 3/8	0.8
SSA400	Blue	40,000	32,000	80,000	69,200	56,000	40,000	1 3/4	1.1
SSA500	Blue	50,000	40,000	100,000	86,500	70,000	50,000	1 7/8	1.5
SSA600	Blue	60,000	48,000	120,000	103,800	84,000	60,000	2	1.6
SSA700	Blue	70,000	56,000	140,000	121,100	98,000	70,000	2 1/8	1.65
SSA850	Blue	85,000	58,000	170,000	147,000	119,000	85,000	2 1/2	1.85
SSA1000	Blue	100,000	80,000	200,000	173,000	140,000	100,000	2 3/4	2.2
SSA1250	Blue	125,000	100,000	250,000	216,200	175,000	125,000	3	3
SSA1500	Blue	150,000	120,000	300,000	259,500	210,000	150,000	3 1/4	3.35
SSA1750	Blue	175,000	140,000	350,000	302,700	245,000	175,000	3 1/2	4
SSA2000	Blue	200,000	160,000	400,000	346,000	280,000	200,000	3 3/4	4.35
SSA2250	Blue	225,000	180,000	450,000	389,700	318,000	225,000	5	5
SSA2500	Blue	250,000	200,000	500,000	433,000	353,000	250,000	5 1/2	5.85
SSA2750	Blue	275,000	220,000	550,000	476,300	388,000	275,000	6	6.5
SSA3000	Blue	300,000	240,000	600,000	519,600	424,000	300,000	6 1/2	7.15
SSA4000	Blue	400,000	320,000	800,000	692,800	565,600	400,000	7	7
SSA5000	Blue	500,000	400,000	1,000,000	866,000	707,000	500,000	8	8.5
SSA6000	Blue	600,000	480,000	1,200,000	1,039,200	848,400	600,000	9	10

WARNING!

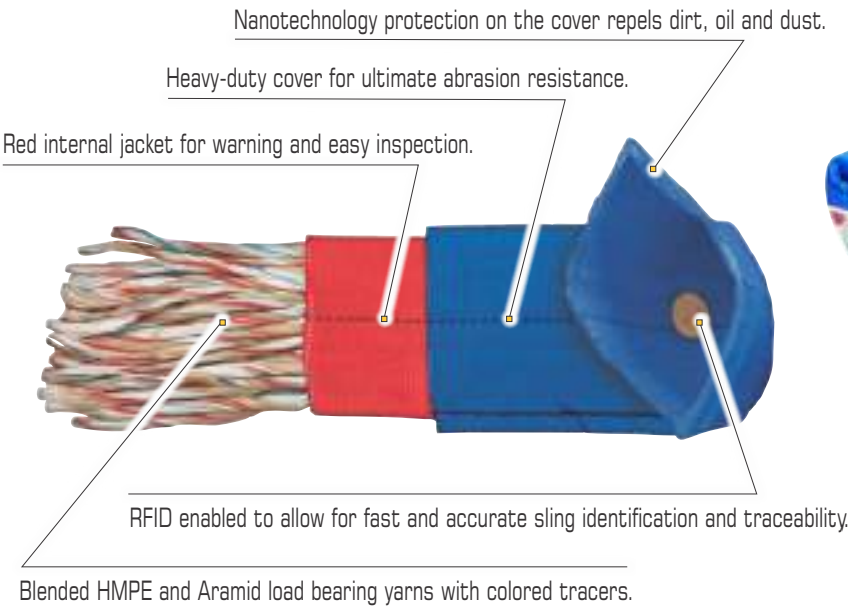
NEVER EXCEED THE WORKING LOAD LIMIT.
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ARMOUR SUPER SLINGERS

ARMOUR Super Slingers are a **HIGH PERFORMANCE** Round Slings and can be up to **15 times lighter** than steel slings of the same capacity.

Armour Super Slingers are made with a heavy duty nylon cordura® cover for maximum protection, and a red internal jacket for easy inspection. Armour Super Slingers are RFID enabled to allow for fast and accurate sling identification.

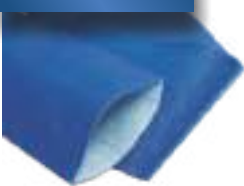
Using Super Slingers can reduce the amount of manpower needed for the job, as well as the hours it takes to do the lift. A SS-3000 sling has a Vertical capacity of 300,000 lbs, and at a 60 foot length the sling would weigh 320 lbs. To reach the same capacity in wire rope the slings would have to be 4-1/8" diameter would weigh 2000 lbs. That means the Super Slingers weigh only 16% of what the wire rope sling would weigh!



HEAVY LIFTING LIGHT SLINGS!

FIRST EVER ROUND SLING WITH NANOTECHNOLOGY APPLIED ON THE COVER

STAYS CLEAN



Durable protective function

Due to the extremely high level of abrasion resistance, the Nano covers protective function is retained even with heavy-duty use, frequent washing or cleaning.

Naturally Self-cleaning

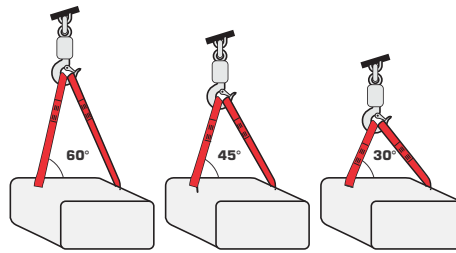
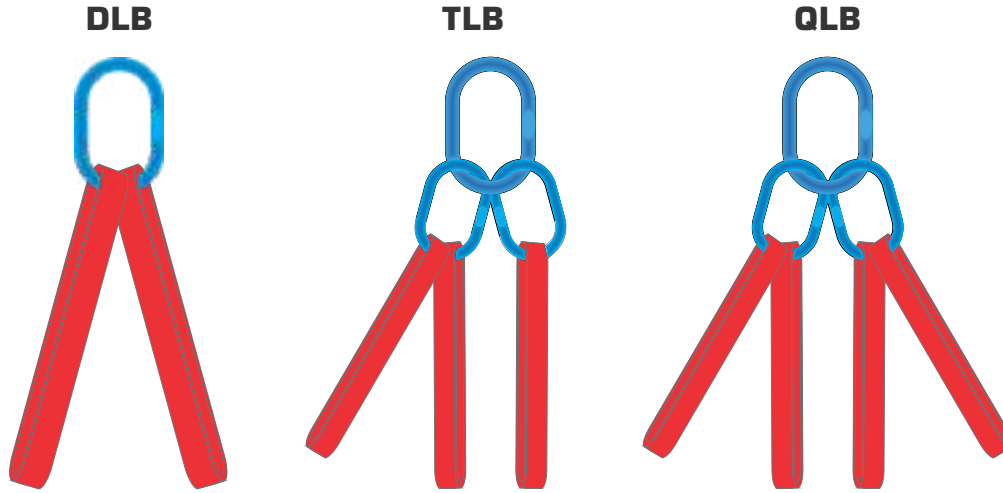
Oil, dirt and dust do not adhere to the Nano surface and can be rinsed off with water.



Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage

Bridle Web Sling Ratings

Multi-leg bridle assemblies are ideal for loads equipped with multiple lifting points. They're lightweight, easy to use and economical. Available in Single, Double, Triple or Quadruple leg configurations. A large variety of hooks and other bottom attachments are available at the time of order.



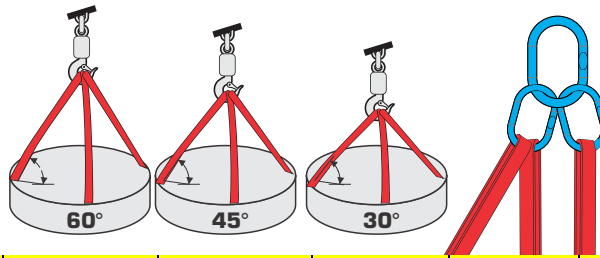
Double-Leg Bridles

Sling Code	Item Code	Width	60°	45°	30°	Min Length	Eye Hook	Masterlink
SL-30	DO-SL-30	PURPLE	5,200	4,200	3,000	18	1-1/2T	5/8
SL-40	DO-SL-40	BLACK	6,900	5,700	4,000	18	2T	3/4
SL-60	DO-SL-60	GREEN	10,400	8,500	6,000	18	3T	3/4
SL-90	DO-SL-90	YELLOW	15,600	12,700	9,000	24	4-1/2T	1
SL-120	DO-SL-120	TAN	20,800	17,000	12,000	24	7T	1-1/4
SL-140	DO-SL-140	RED	24,200	19,800	14,000	30	7T	1-1/4
SL-170	DO-SL-170	ORANGE	29,400	24,000	17,000	36	11T	1-1/2
SL-230	DO-SL-230	BLUE	39,800	32,500	23,000	48	15T	1-1/2
SL-260	DO-SL-260	ORANGE	45,000	36,800	26,000	48	15T	1-3/4
SL-320	DO-SL-320	GREY	55,400	45,200	32,000	48	22T	1-3/4
SL-400	DO-SL-400	ORANGE	69,300	56,600	40,000	48	22T	2
SL-540	DO-SL-540	BROWN	93,500	76,400	54,000	48	30T	2-1/8
SL-680	DO-SL-680	OLIVE	117,800	96,200	68,000	60	-	2-1/8
SL-900	DO-SL-900	BLACK	155,900	127,300	90,000	60	-	2-3/8

WARNING!

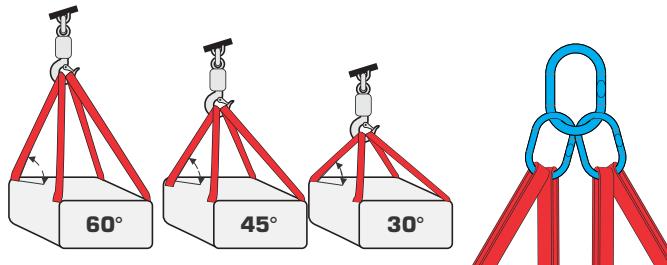
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 Chain Slings
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 Lifting Devices
 Pipe & Hose Restraints
 Tie Down Assemblies
 Tie Down Accessories
 Towing & Recovery
 Rope & Cordage



Triple-Leg Bridles

Sling Code	Item Code	Width	60°	45°	30°	Min Length	Eye Hook	Masterlink
SL-30	TO-SL-30	PURPLE	7,800	6,400	4,500	18	1-1/2T	3/4
SL-40	TO-SL-40	BLACK	10,400	8,500	6,000	18	2T	3/4
SL-60	TO-SL-60	GREEN	15,600	12,700	9,000	18	3T	1
SL-90	TO-SL-90	YELLOW	23,400	19,100	13,500	24	4-1/2T	1-1/4
SL-120	TO-SL-120	TAN	31,200	25,500	18,000	24	7T	1-1/2
SL-140	TO-SL-140	RED	36,400	29,700	21,000	30	7T	1-1/2
SL-170	TO-SL-170	ORANGE	44,200	36,100	25,500	36	11T	1-3/4
SL-230	TO-SL-230	BLUE	59,800	48,800	34,500	48	15T	1-3/4
SL-260	TO-SL-260	ORANGE	67,500	55,100	39,000	48	15T	2
SL-320	TO-SL-320	GREY	83,100	67,900	48,000	48	22T	2-1/8
SL-400	TO-SL-400	ORANGE	103,900	84,800	60,000	48	22T	2-1/8
SL-540	TO-SL-540	BROWN	140,300	114,500	81,000	48	30T	2-3/4
SL-680	TO-SL-680	OLIVE	176,700	144,200	102,000	60	-	2-3/4
SL-900	TO-SL-900	BLACK	233,800	190,900	135,000	60	-	3-1/8



Quadruple-Leg Bridles

Sling Code	Item Code	Width	60°	45°	30°	Min Length	Eye Hook	Masterlink
SL-30	QO-SL-30	PURPLE	10,400	8,500	6,000	18	1-1/2T	3/4
SL-40	QO-SL-40	BLACK	13,900	11,300	8,000	18	2T	1
SL-60	QO-SL-60	GREEN	20,800	17,000	12,000	18	3T	1-1/4
SL-90	QO-SL-90	YELLOW	31,200	25,500	18,000	24	4-1/2T	1-1/2
SL-120	QO-SL-120	TAN	41,600	33,900	24,000	24	7T	1-1/2
SL-140	QO-SL-140	RED	48,500	39,600	28,000	30	7T	1-3/4
SL-170	QO-SL-170	ORANGE	58,900	48,100	34,000	36	11T	1-3/4
SL-230	QO-SL-230	BLUE	79,700	65,000	46,000	48	15T	2-1/8
SL-260	QO-SL-260	ORANGE	90,100	73,500	52,000	48	15T	2-1/8
SL-320	QO-SL-320	GREY	110,800	90,500	64,000	48	22T	2-3/4
SL-400	QO-SL-400	ORANGE	138,600	113,100	80,000	48	22T	2-3/4
SL-540	QO-SL-540	BROWN	187,100	152,700	108,000	48	30T	2-3/4
SL-680	QO-SL-680	OLIVE	235,600	192,300	136,000	60	-	3-1/8
SL-900	QO-SL-900	BLACK	311,800	254,500	180,000	60	-	3-1/8



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Sling Protection

Web Slings

Round Slings

Synthetic Chain Slings

Wire Rope Slings

Chain Slings

Shackles & Turnbuckles

Hooks & Links

Lifting Points

Hoists & Blocks

Lifting Devices

Pipe & Hose Restraints

Tie Down Assemblies

Tie Down Accessories

Towing & Recovery

Rope & Cordage



super

20 YEARS of

slings inc.

 Secure Solutions

SYNTHETIC CHAIN SLINGS

Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
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Lifting Devices
Pipe & Hose Restraints
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- Sling Protection
- Web Slings
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- Synthetic Chain Slings**
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- The Down Assemblies
- The Down Accessories
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CHAIN OF EVOLUTION



As strong as steel, a fraction of the weight

Green Pin Tycon® has been created from the world's strongest man-made fibre, Dyneema®, and is a link chain that has all the performance and flexibility of steel chain but is a fraction of the weight. It is very safe to use,

**NON-CORROSIVE AND WATERPROOF.
IN FACT, IT EVEN FLOATS!**

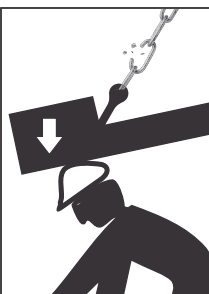
The soft touch and light weight makes Green Pin Tycon® easy to use, allows quicker application and greatly reduces the potential of damage to cargo, a critical factor when handling objects with sensitive surfaces. By using Green Pin Tycon® companies achieve greater efficiency and a safer working environment for their staff. For more information please contact sales@superslings.ca



Improved Efficiency



Green Pin® Reliability



WARNING!

This bulletin contains important safety information about the use of Tycan Chain slings, however; it **DOES NOT** contain all the information you need to know about handling, lifting and manipulating materials and loads safely. Sling use is one part of the lifting system and it is your responsibility to consider all risk factors prior to using and rigging device or product. Failure to do this may result in severe **INJURY** or **DEATH** due to sling failure and/or loss of load



Material: Made with 100% Dyneema®; layers of webbing in a Mobius twist with stitching on each side

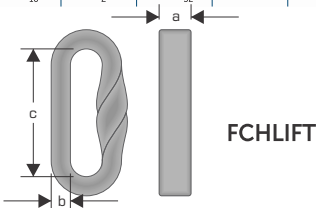
Safety Factor: MBL equals 4 x WLL

Temperature Range: -40°C (-40°F) up to +70°C (158°F)

Certification: 2.1 2.2 MTC[®] DNV GLTQ DNV GLTA CE

link size	working load limit	width link	thickness link	length inside	links per mtr	elongation at MBL	weight per mtr	layers
mm	t	a mm	b mm	c mm		%	kg	
11x15	2.6	15	11	100	10	5	0.32	6
11x20	4	20	11	100	10	5	0.47	6
15x25	5	25	15	100	10	5	0.58	8
13x30	6.8	30	13	125	8	5	0.75	7

link size	working load limit	width link	thickness link	length inside	links per mtr	elongation at MBL	weight per mtr	layers
inch	t	inch	inch	inch		%	lbs	
7/16 x 19/32	2.6	19/32	7/16	4	10	5	0.70	6
7/16 x 25/32	4	25/32	7/16	4	10	5	1.04	6
19/32 x 1	5	1	19/32	4	10	5	1.28	8
1/2 x 1 3/16	6.8	1 3/16	1/2	4 23/32	8	5	1.65	7



Quality assurance

- Every chain length is proof load tested to 2 times Working Load Limit (WLL).
- Visual inspection is carried out on each chain link to detect possible defects.
- A 5-link sample of every 1000 meters (0.62 miles) produced is tested to destruction to confirm MBL.
- Green Pin Tycan® has a DNV GL Type Approval.
- Declaration of conformity to the Machinery Directive 2006/42/EC with relevant CE marking.
- Green Pin Tycan® Lifting Chain must be inspected before each use and if any damage is detected removed from service. See Inspection and Removal from Service Criteria.
- Ensure that Green Pin Tycan® Lifting Chain is rigged according to the load, the planned lift and according to the boundary conditions set forth in the user manual.
- Ensure load reduction factors are calculated and planned for according to charts and tables further in this manual.
- Use Green Pin Tycan® Lifting Chain only with a minimum number of 5 load bearing links per sling leg.

Where and how can Green Pin Tycan® Lifting Chain be used

- Green Pin Tycan® Lifting Chain is a general purpose lifting chain that can be used within the limits as set forth in this user manual.
- Green Pin Tycan® Lifting Chain can be used in min/max environmental temperatures, but should not be exposed to temperatures above +70°C (158°F).
- Green Pin Tycan® Lifting Chain is able to lift loads safely only up to the designated WLL, but never exceeded.
- Green Pin Tycan® Lifting Chain is able to lift loads safely only when the relevant load reduction factor is taken into account. Do not exceed the WLL.
- Green Pin Tycan® Lifting Chain can be used on land, at sea and in a subsea environment.
- Green Pin Tycan® Lifting Chain should be used under static or near-static conditions.

Verification before first use

Before first use of Green Pin Tycan® Lifting Chain it should be ensured 'that':

- Green Pin Tycan® Lifting Chain meets the exact requirements specified in the order.
- The valid manufacturer certificate and CE declaration are available for examination and/or verification.
- Ensure that manufacturer's label(s) are present and legible and that the label(s) contain the same information as the manufacturer's certification.
- The users of the sling have received appropriate instruction and training.

Verification before each use






- Check Green Pin Tycan® Lifting Chain for any damage, defects or missing ID tags prior to each use. Never use damaged Green Pin Tycan® Lifting Chain.
- Connect Green Pin Tycan® Lifting Chain to recommended components as mentioned further in this manual or to certified components with a maximum surface roughness of 5 microns and adhering to below values:

link size	lifting capacity	minimum pin diameter	minimum clevis width	maximum clevis width
mm	t	mm	mm	mm
11x15	2.6	13	15.5	18
11x20	4	16	20.5	24
15x25	5	16	26	31
13x30	6.8	20	31	37

Other remarks

- A limited twist of 0.50 turns per meter (per 3.28 feet) is allowed.
- Keep Green Pin Tycan® Lifting Chain away from any sharp particles, such as metal shavings, and any foreign particle that may disturb the chain's geometry during operation. If such particles are present on the chain, inspect the chain and remove such particles gently before any use of the chain.
- Green Pin Tycan® Lifting Chain is generally resistant to chemicals, except oxidizing chemicals, avoid contact from damaging chemicals and/ or consult with a Qualified Person.
- Green Pin Tycan® Lifting Chain should be kept away from direct heat sources.
- In case a dynamic loading situation is to be expected, the load or WLL should be adjusted accordingly local regulations

Recommended products for use with Green Pin Tycan® Lifting Chain

		2.6t WLL	4t WLL	5t WLL	6.8t WLL
Master links	 UMS UMTS	UMS18 UMTS22	UMS22 UMTS28	UMS22 UMTS28	UMS25 UMTS36
Connecting links	 UMJT UMJ	GPUMJT15	GPUMJT20	UMJ13	GPUMJT30
Shorteners	 UCRCT	GPUCRCT15	GPUCRCT20	GPUCRCT25	GPUCRCT30
Chain	 FCHLIFT	FCHLIFT115	FCHLIFT120	FCHLIFT1525	FCHLIFT1330
Hooks	 UCSCT	GPUCSCT15	GPUCSCT20	GPUCSCT25	GPUCSCT30

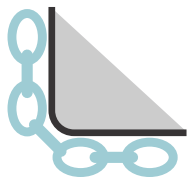
Always take into account; the maximum load of the configuration is limited by the component with the lowest WLL. The recommended components in combination with Green Pin Tycan® Lifting Chain are approved to use up to the chain WLL.



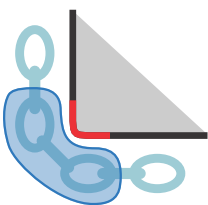
Instructions for use

In case of contact between Green Pin Tycan® Lifting Chain and the load or operating material, protective sleeves must be used when the surface edge is "less" than 6mm radius.

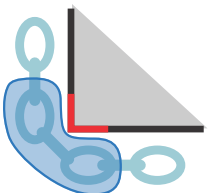
Edges that are in contact with Green Pin Tycan® Lifting Chain must be checked for sufficient radius. A radius gauge is a good way to verify this. If in doubt, a protective sleeve should always be used to protect Green Pin Tycan® Lifting Chain.



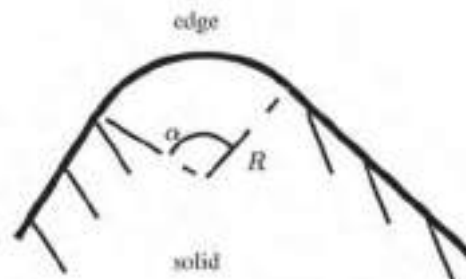
Edge radius more than 6mm: **No** protective sleeve required **but** recommended



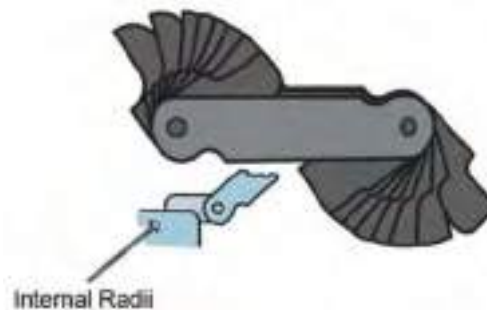
Edge radius less than 6mm: Protective sleeve **required**



No obvious edge radius or in doubt: Protective sleeve **required**

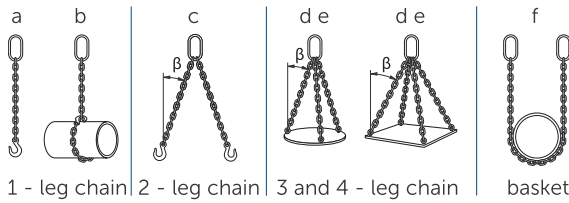


We recommend the use of a radius gauge.



Approved lifting hitches for Green Pin Tycan® Lifting Chain

Green Pin Tycan® can be used in multiple lifting configurations. Safety Factor 4:1



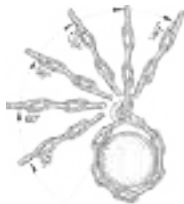
Working Load Limit table for Green Pin Tycan® Chain Slings generally to EN818-4

Type of hitch		a	b	c	c	d e	d e	f
Angle of inclination (β)		-	-*	0°-45°	45°-60°	0°-45°	45°-60°	-**
Load factor		1	0.8	1.4	1	2.1	1.5	1.5
Working load limit (t)	11x15	2.6	2.08	3.6	2.6	5.46	3.9	3.9
	11x20	4.0	3.2	5.6	4.0	8.4	6.0	6.0
	15x25	5.0	4.0	7.0	5.0	10.5	7.5	7.5
	13x30	6.8	5.44	9.52	6.8	14.28	10.2	10.2

Working Load Limit table for Green Pin Tycan® Chain Slings generally to ASME B30.9

Type of hitch		a	b	c	c	c	d e	d e	d e	f
Angle of inclination (β)		-	-*	0°-30°	30°-45°	45°-60°	0°-30°	30°-45°	45°-60°	-**
Load factor		1	0.8	1.73	1.4	1.0	2.6	2.1	1.5	1.5
Working load limit (t)	11x15	2.6	2.08	4.49	3.64	2.6	6.76	5.46	3.9	3.9
	11x20	4.0	3.2	6.92	5.6	4	10.4	8.4	6	6
	15x25	5.0	4.0	8.65	7.0	5.0	13	10.5	7.5	7.5
	13x30	6.8	5.44	11.76	9.52	6.8	17.68	14.28	10.2	10.2

* See below capacity reduction table of angles of choke less than 120°. ** See below capacity reduction table for non-vertical chain sling legs.



Angle of Choke	Rated load % of single leg chain sling	Rated load (t) of single leg chain sling			
		11x15	11x20	15x25	13x30
120°-180°	80%	2.08t	3.20t	4.00t	5.44t
90°-119°	65%	1.69t	2.60t	3.25t	4.42t
60°-89°	55%	1.43t	2.20t	2.75t	3.74t
30°-59°	40%	1.04t	1.60t	2.00t	2.72t

In a choker configuration you can use two different choker connections:



The hook attached to a link, called anchored basket hitch.



The hook around link, called traditional choker hitch.



Angle β	Rated load %	Min Dia.	Rated load (t)			
			11x15	11x20	15x25	13x30
0°-5°	150%	120mm	3.90t	6.00t	7.50t	10.20t
6°-30°	135%	120mm	3.51t	5.40t	6.75t	9.18t
31°-45°	120%	120mm	3.12t	4.80t	6.00t	8.16t
46°-60°	100%	120mm	2.60t	4.00t	5.00t	6.80t

Configuration examples

1 - leg chain



2 - leg chain



3 and 4 - leg chain

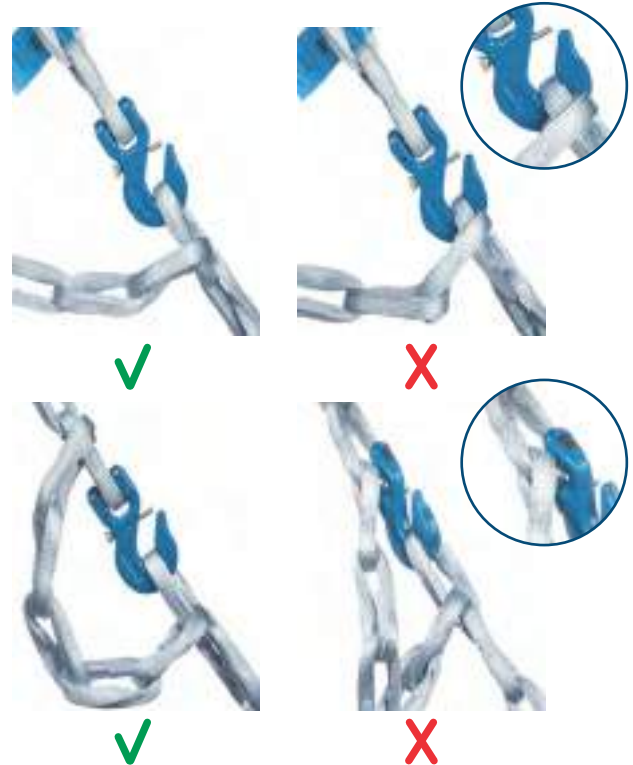


Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage

Connecting Green Pin Tycan® Lifting Chain directly into hooks (components) where the width/clevis is more than required minimum clevis width is not acceptable. Doing so can cause the layers to spread apart, which in the utmost consequence could have a negative effect on the strength of the chain. The only exception is when it is not an open end-link and both load bearing-points of the link is under tension from the adjacent chain links. An example of this is the anchored basket hitch showed in this manual.



The unloaded link must never be placed between the loaded link and the body hook.



Storage

- Storage area should be clean, dry, dark and free of mechanical and environmental damage.
- Storage temperature should be no more than +70 degrees Celsius (158°F) for short term storage (less than one week) and no more than +30 degrees Celsius (86°F) for long term storage.

Shortening Green Pin Tycan® Lifting Chain

Shortening Green Pin Tycan® Lifting Chain can be attained by using:

- Green Pin Tycan® Grab Hook CL GR10 - GPUCRCT15; WLL 2.6t
- Green Pin Tycan® Grab Hook CL GR10 - GPUCRCT20; WLL 4t
- Green Pin Tycan® Grab Hook CL GR10 - GPUCRCT25; WLL 5t
- Green Pin Tycan® Grab Hook CL GR10 - GPUCRCT30; WLL 6.8t



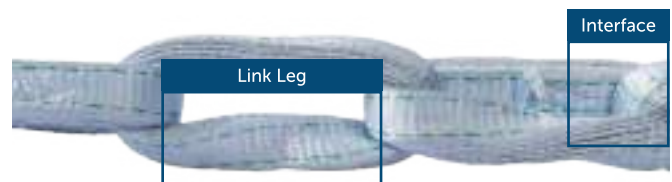
The Green Pin Tycan® Grab Hook CL GR10 must be assembled with (at least 5) links of chain to the master link with a connecting link (UMJ(T)). Do not connect two Green Pin Tycan® Lifting Chain ends into one connecting link (UMJ(T)).

Inspection and Removal from Service Criteria

Inspect individual Chain Links thoroughly before each use for abrasion, tears, cuts or other damage which might affect the performance of Green Pin Tycan® Lifting Chain.

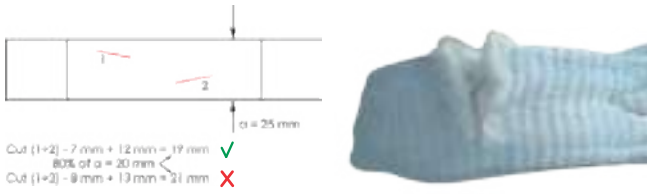
The pictures show defined areas of Green Pin Tycan® Chain Link, such as the Link Leg and Interface. Which allows for different amounts of wear and tear:

- Zero tolerance for damage allowed in Link Bearing Point.
- No folding or spreading out of layers allowed in Link Bearing Point.



Details wear/tear damage

- If at any place on the exterior layer of the link leg has been torn, cut or abraded all the way through (in one or more places), and the length of the cut(s) (individually or accumulated) is longer than 80% of the link-width, Green Pin Tycan® Lifting Chain must be removed from service immediately and shall be destroyed and not used for any application.



- If at any place on the exterior layer of the link are torn, cut or abraded away more than 50% trough, and the area(s) is longer than 160% of the link width, Green Pin Tycan® Lifting Chain must be removed from service immediately and shall be destroyed and not used for any application.
- If there are visible cuts or abrasion of more than 1mm deep, across all numbers of layers on the side of the link leg, Green Pin Tycan® Lifting Chain must be removed from service immediately and shall be destroyed and not used for any application.
- If there are visible cuts or abrasion of more than 2mm deep, across more than 75% of numbers of layers on the side of the link leg, Green Pin Tycan® Lifting Chain must be removed from service immediately and shall be destroyed and not used for any application.
- If there are visible cuts or abrasion of more than 3mm deep, across more than 50% of numbers of layers on the side of the link leg, Green Pin Tycan® Lifting Chain must be removed from service immediately and shall be destroyed and not used for any application.
- If there are visible cuts or abrasion of more than 4mm deep, across two layers or more on the side of the link leg, Green Pin Tycan® Lifting Chain must be removed from service immediately and shall be destroyed and not used for any application.



- If stitching is torn/ abraded to the extent that the layers of webbing can unravel, Green Pin Tycan® Lifting Chain must be removed from service immediately and shall be destroyed and not used for any application.



- If it is known that Green Pin Tycan® Lifting Chain has been exposed to temperatures exceeding 110°C (230°F), Green Pin Tycan® Lifting Chain must be destroyed and not used for any application.

Green Pin Tycan® Lifting Chain



- If it is known that Green Pin Tycan® Lifting Chain has been in contact with damaging chemicals, Green Pin Tycan® Lifting Chain must be destroyed and not used for any application.
- If there is any doubt that Green Pin Tycan® Lifting Chain has met or been exposed to the limits of the mentioned discard criteria's, Green Pin Tycan® Lifting Chain should be discarded.
- If the manufacturer's label(s) has been removed, or is no longer legible, Green Pin Tycan® Lifting Chain shall be removed from service.

In case you do not use the products yourself but are reselling these as part of a manufactured product, please take our general cautions and warnings into account and make these known to your customers as well. In any case, we do not accept any responsibility or liability, nor can we be held responsible for any misuse or damage with, by or at your customers due to negligent use.

Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage

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Tie Down Accessories
Towing & Recovery
Rope & Cordage

tycan



TYCAN® Chain Size [mm]		WORKING LOAD LIMITS (lbs)							
		1-leg	1-Leg Choke	2-Leg			3 & 4-Leg		
thickness	width	90°	120°	60°	45°	30°	60°	45°	30°
11	15	5,730	4,584	9,900	8,000	5,700	14,800	12,000	8,500
11	20	8,800	7,040	15,200	12,300	8,800	22,800	18,400	13,200
15	25	11,000	8,800	19,000	15,400	11,000	28,500	23,100	16,500
13	30	15,000	12,000	25,900	21,000	15,000	38,700	31,500	22,500



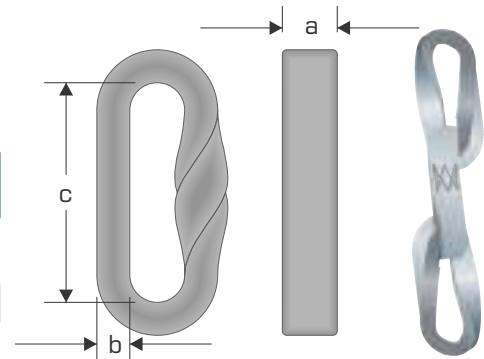
Green Pin Tycan® Lifting Chain

Product code: FCHLIFT
Material: Made from 100% Dyneema®; layers of webbing in a Mobius twist with stitching on each side
Safety Factor: MBL equals 4 x WLL
Temperature Range: -40°C to +70°C (-40°F to +158°F)
Certification: 2.1 2.2 MTC^b DNV-GL TQ CE



Green Pin Tycan® has been created from the world's strongest man-made fibre, Dyneema®, and is a link chain that has all the performance and flexibility of steel chain but is a fraction of the weight. It is very safe to use, non-corrosive and waterproof. In fact, it even floats! The soft touch and light weight makes Green Pin Tycan® easy to use, allows quicker application and greatly reduces the potential of damage to cargo, a critical factor when handling objects with sensitive surfaces. By using Green Pin Tycan® companies achieve greater efficiency and a safer working environment for their staff.

link size	working load limit	width link	thickness link	length inside	links per meter	elongation at MBL	weight per meter	layers
inch	t	a inch	b inch	c inch		%	lbs	
7/16 x 19/32	2.6	19/32	7/16	4	10	5	0.70	6
7/16 x 25/32	4	25/32	7/16	4	10	5	1.04	6
19/32 x 1	5	1	19/32	4	10	5	1.28	8
1/2 x 1 3/16	6.8	1 3/16	1/2	4 59/64	8	5	1.65	7



Green Pin Tycan® Connecting Link GR10

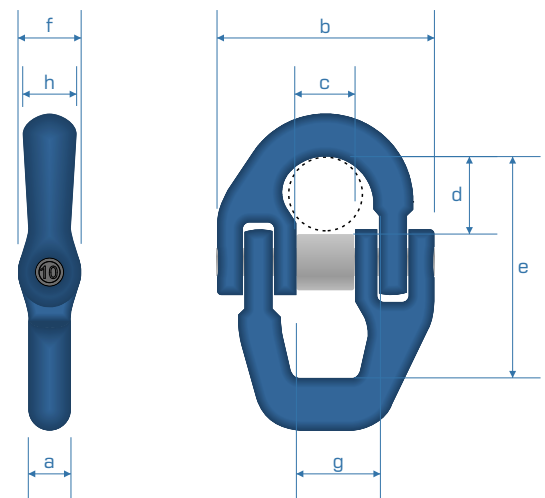
Product code: UMJT
Material: Alloy steel, grade 10, quenched and tempered
Safety Factor: MBL equals 4 x WLL
Finish: Painted blue
Temperature range: -40°C up to +200°C (-40°F up to +392°F)
Certification: 2.1 2.2 3.1 MPI^b



The Green Pin Tycan® Connecting Link GR10 is used for Green Pin Tycan® chain slings.

The Connecting Link is made from grade 10, high tensile steel and is available in a range with a working load limit from 2.6 ton up to 6.8 ton.

for chain size	working load limit	diameter	width outside	width inside	length inside	length inside	diameter eye	width inside	diameter	weight each
inch	t	a inch	b inch	c inch	d inch	e inch	f inch	g inch	h inch	lbs
7/16 x 19/32	2.6	11/32	2 1/4	9/16	25/32	2 5/32	5/8	3/4	1/2	0.46
7/16 x 25/32	4	15/32	2 19/32	23/32	29/32	2 17/32	23/32	29/32	5/8	0.79
1/2 x 1 3/16	6.8	5/8	3 9/32	13/16	1 1/4	3 11/32	15/16	1 1/8	25/32	1.65

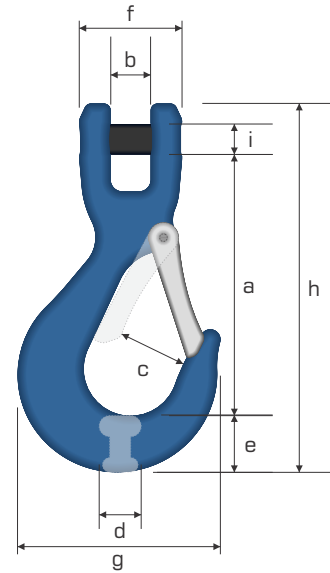


Green Pin Tycan® Sling Hook CL GR10

Product code: UCSCT
Material: Alloy steel, grade 10, quenched and tempered
Safety Factor: MBL equals 4 x WLL
Finish: Painted blue
Temperature range: -40°C up to +200°C (-40°F up to +392°F)

Certification: 2.1 2.2 3.1 MPI^b

The Green Pin Tycan® Sling Hook CL GR10 is a clevis sling hook with a safety latch that prevents the sling from sliding back. These latches are also available separately as spares. The hook is made from grade 10, high tensile steel and is available in a range with a working load limit from 2.6 ton up to 6.8 ton.



for chain size	working load limit	length	width	width opening	thickness	width	width outside	width outside	length outside	diameter pin	weight each
inch	t	a inch	b inch	c inch	d inch	e inch	f inch	g inch	h inch	i inch	lbs
7/16 x 19/32	2.6	4 12/32	21/32	1 3/16	25/32	15/16	1 3/4	3 7/16	6 7/32	1/2	1.61
7/16 x 25/32	4	5 3/32	7/8	1 5/16	15/16	1 5/32	2 1/4	4 3/16	7 5/16	5/8	2.88
1/2 x 1 3/16	6.8	6 1/4	1 1/4	1 15/32	1 1/4	1 17/32	2 29/32	5 1/4	9 1/4	25/32	5.64

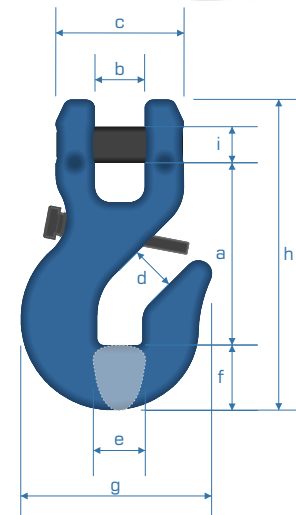
Green Pin Tycan® Grab hook CL GR10

Product code: UCRCT
Material: Alloy steel, grade 10, quenched and tempered
Safety Factor: MBL equals 4 x WLL and MBL equals 2 x Lashing Capacity
Finish: Painted blue
Temperature Range: -40°C to 200°C

Certification: 2.1 2.2 3.1 MPI^b

Compatible with: FCHLIFT1525; 5t (as shortening hook)
 FCHLASH1525; 10t (to connect to the loadbinder)

The Green Pin Tycan® Grab Hook CL GR10 is a grade 10 clevis grab hook with a locking pin for use with Green Pin Tycan® Chain. The hook is made from high tensile steel and is available in a range with a working load limit from 2.6 ton up to 6.8 ton and a lashing capacity of 10 ton.



for chain size	working load limit	lashing capacity	length	width	width outside	opening	thickness	width	width outside	length outside	diameter pin	weight each
inch	t	t	a inch	b inch	c inch	d inch	e inch	f inch	g inch	h inch	i inch	lbs
7/16 x 19/32	2.6		3 7/16	21/32	1 3/4	19/32	1/2	29/32	2 9/16	4 10/32	1/2	1.21
7/16 x 25/32	4		4 11/32	7/8	2 1/4	25/32	5/8	1 5/32	3 1/3	5 7/16	5/8	2.27
19/32 x 1	5	10	4 1/32	15/16	2 11/16	1	5/8	1 8/16	3 29/32	7	25/32	4.4
1/2 x 1 3/16	6.8		5 1/2	1 1/4	2 29/32	1 3/16	25/32	1 8/16	4 1/32	6 31/32	25/32	4.23

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WIRE ROPE SLINGS



Wire Rope Slings	Synthetic Chain Slings	Round Slings	Web Slings	Sling Protection
Chain Slings	Shackles & Turnbuckles	Hooks & Links	Lifting Points	Hoists & Blocks
Lifting Devices	Pipe & Hose Restraints	Tie Down Assemblies	Tie Down Accessories	Towing & Recovery
Rope & Cordage				



WARNING!

This bulletin contains important safety information about the use of wire rope slings, however; it **DOES NOT** contain all the information you need to know about handling, lifting and manipulating materials and loads safely. Sling use is one part of the lifting system and it is your responsibility to consider all risk factors prior to using and rigging device or product. Failure to do this may result in severe **INJURY** or **DEATH** due to sling failure and/or loss of load

- ALWAYS INSPECT wire rope for WEAR, DAMAGE or ABUSE
- NEVER USE wire rope that is WORN-OUT, DAMAGED or ABUSED
- NEVER OVERLOAD a wire rope sling
- INFORM YOURSELF: Read and understand manufacturer's literature or "Wire Rope * Wire Rope Slings Safety Bulletin"
- REFER TO APPLICABLE CODES, STANDARDS and REGULATIONS for INSPECTION REQUIREMENTS and REMOVAL CRITERIA

1. Wire rope will fail if worn out, overloaded, misused, damaged or improperly maintained.
2. In service, wire rope loses strength and work capability. Abuse and misuse increase the rate of loss.
3. The minimum breaking force, the published catalog strength, of a wire rope applies only to a new, unused rope.
4. The minimum breaking force (published catalog strength) of a wire rope should be considered the straight line pull which will actually break a new, unused rope. The published catalog strength of a wire rope should never be used as its working load.
5. To determine the working load of a wire rope, the minimum breaking force must be reduced by a design factor (formerly called a safety factor). The design factor will vary depending upon the type of machine and installation and the work performed. You must determine the applicable design factor for your use.

For example, a design factor of "5" means that the minimum breaking force of the wire rope must be divided by five to determine the maximum load that can be applied to the rope system.

Design factors have been established by Alberta OH&S, ANSI, ASME and similar government and industrial organizations. No wire rope or wire rope sling should ever be installed or used without full knowledge and consideration of the design factor for the application.

6. Wire ropes wear out. The strength of a wire rope begins to decrease when the rope is put in use and continues to decrease with each use.
7. Never overload a wire rope. This means never use a rope when the load applied to it is greater than the working load, determined by dividing the minimum breaking force of the rope by the appropriate design factor.
8. NEVER "shock load" a wire rope. A sudden application of force or load can cause both visible external damage and internal damage. There is no practical way to estimate the force applied by shock loading a rope. The sudden release of a load can also damage a wire rope.
9. Lubricant is applied to the wires and strands of a wire rope when it is manufactured. This lubricant is depleted when the rope is in service and should be replaced periodically.
10. Regular, periodic inspections of the wire rope, and keeping of permanent records signed by a qualified person, are required by Alberta OH&S for almost every wire rope installation. The purpose of inspection is to determine

whether or not a wire rope or wire rope sling may continue to be safely used in that application. Inspection criteria, including number and location of broken wires, wear and elongation, have been established by Alberta OH&S, ANSI, ASME, WRTB and similar organizations.

IF IN DOUBT, REPLACE THE ROPE.

An inspection should include verification that none of the specified removal criteria for this usage are met by checking for such things as:

- surface wear: normal and unusual
- broken wires: number and location
- reduction in diameter
- rope stretch (elongation)
- integrity of end attachments
- evidence of abuse or contact with another object
- heat damage
- corrosion

In addition, an inspection should include the condition of sheaves, drums and other apparatus with which the rope makes contact.

11. When a wire rope has been removed from service because it is no longer suitable for use, it must not be re-used on another application.
12. Every wire rope user should be aware each type of fitting attached to a wire rope has a specific efficiency rating, which can reduce the working load of the rope assembly or rope system. This must be given due consideration in determining the capacity of a wire rope system.
13. Some conditions that can lead to problems in a wire rope system include:

- sheaves that are too small, worn or corrugated cause damage to a wire rope.
- broken wires mean a loss of strength.
- kinks permanently damage a wire rope and must be avoided.
- wire ropes are damaged by knots, and wire ropes with knots must never be used.
- environmental factors, such as corrosive conditions and heat can damage a wire rope.
- lack of lubrication can significantly shorten the useful service life of a wire rope.
- contact with electrical wires and the resulting arcing will damage a wire rope.

Wire Rope Inspection Requirements

There are two industry standards that exist to provide the end-user with guidelines for inspection and criteria that warrants removal from service:

Alberta Occupational Health And Safety Code & ASME B30.9.

Initial Inspection (prior to initial use): Best practice is to inspect the wire rope sling upon receiving it from the manufacturer. Double-check the sling tag to make sure it's what you ordered and that the rated capacity meets all of your project specifications and lifting requirements.

Frequent (daily or prior to use): Designate a Competent Person to perform a daily visual inspection of slings and all fastenings and attachments for damage, defects, or deformities. The inspector should also make sure that the wire rope sling that was selected meets the specific job requirements it's being used for.

Users can't rely on a once-a-day inspection if the wire rope sling is used multiple times throughout the day. Damage to wire rope can occur on one lift and best practice is to perform a visual inspection before any shift change or changes in lifting application. Because shock loads, severe angles, sharp edges, and excessive heat can quickly cause damage to a lifting sling, the user should inspect the sling prior to each lift.

Wire Rope Removal From Service Criteria

As per ASME B30.9-2018, 9-2.9.5 Removal Criteria

A wire rope sling shall be removed from service if any of the following conditions are present:

- (a) missing or illegible sling identification
- (b) broken wires, **(1)** for strand-laid and single-part slings, 10 randomly distributed broken wires in one rope lay, or 5 broken wires in one strand in one rope lay. **(2)** for cable-laid slings, 20 broken wires per lay. **(3)** for less than eight-part braided slings, 20 broken wires per braid length. **(4)** for eight-part or more than eight-part braided slings, 40 broken wires per braid length.
- (c) severe localized abrasion or scraping resulting in a

Periodic Inspection: A periodic inspection is performed by either a professional service provider, or by a Qualified Person, every 12 months (at a minimum) and monthly to quarterly in more severe service conditions. The following are all determining factors in scheduling the frequency of a periodic inspection:

- Frequency of use, Severity of service conditions, Nature of the lifts being performed, Experience gained on the service life of wire rope slings used in similar applications

ASME provides these additional periodic inspection guidelines based on the service of the wire rope sling:

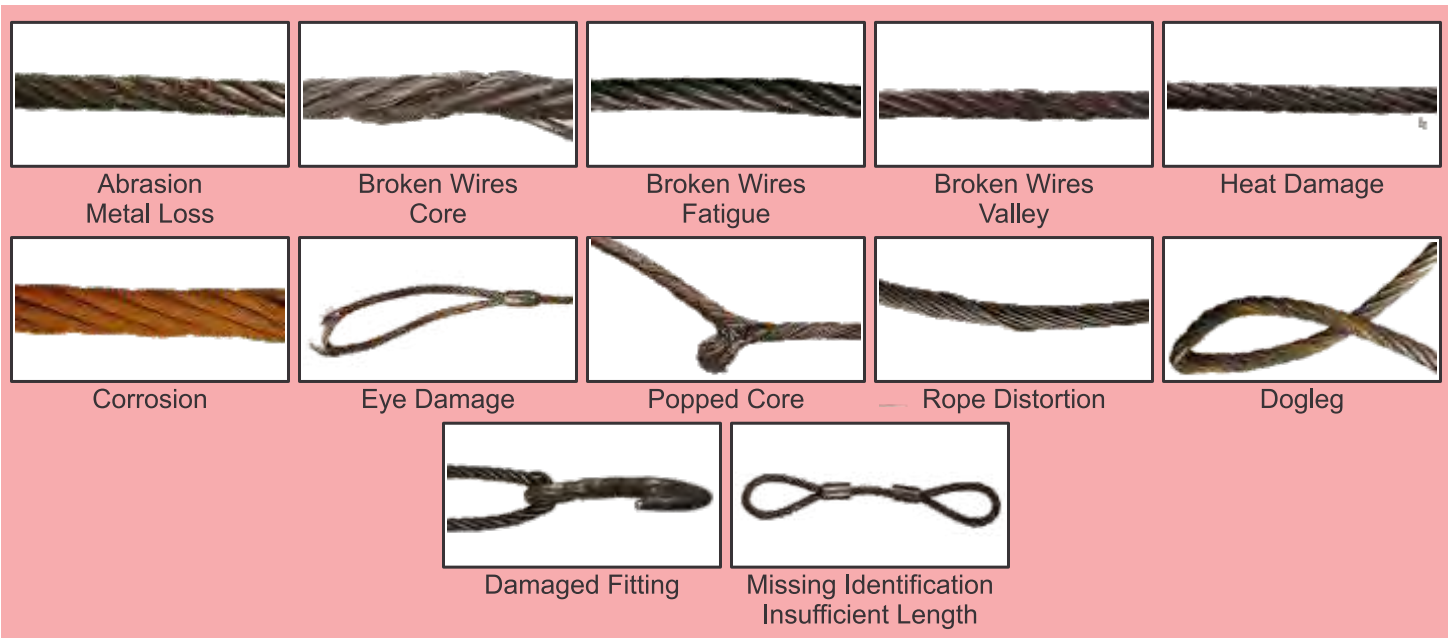
- Normal Service – Yearly
- Severe Service – Monthly to Quarterly
- Special Service – As recommended by a Qualified Person

Depending on the severity of the operating environment and frequency of use, your business may decide that a more thorough sling inspection should occur more often than the minimum yearly requirement.

Periodic inspections are required to be documented per Alberta Occupational Health & Safety Part 21 and ASME B30.9 and records retained. The employer is required to maintain a record of the most recent thorough inspection—however, individual records for each sling that was inspected are not required. Failure to maintain and retain inspection records is one of the most common issues that prevent a company from reaching full OH&S compliance.

- reduction from nominal diameter of more than 5%
- (d) kinking, crushing, birdcaging, or any other damage resulting in damage to the rope structure
- (e) evidence of heat damage
- (f) fittings that are cracked, deformed, or worn to the extent that the strength of the sling is substantially affected
- (g) severe corrosion of the rope or fittings
- (h) for hooks, removal criteria as stated in ASME B30.10
- (i) for rigging hardware, removal criteria as stated in ASME B30.26
- (j) other conditions, including visible damage, that cause doubt as to the continued use of the sling

TYPICAL WIRE ROPE DAMAGE



- Sling Protection
- Web Slings
- Round Slings
- Synthetic Chain Slings
- Wire Rope Slings**
- Chain Slings
- Shackles & Turnbuckles
- Hooks & Links
- Lifting Points
- Hoists & Blocks
- Lifting Devices
- Pipe & Hose Restraints
- Tie Down Assemblies
- Tie Down Accessories
- Towing & Recovery
- Rope & Carriage

Wire Rope Is A Machine

A **wire rope is a machine**, by dictionary definition: "An assemblage of parts...that transmit forces, motion, and energy one to another in some predetermined manner and to some desired end.

A typical wire rope may contain hundreds of individual wires which are formed and fabricated to operate at close bearing tolerances one to another. When a wire rope bends, each of its many wires slides and adjusts in the bend to accommodate the difference in length between the inside and the outside bend. The sharper the bend, the greater movement.

Every wire rope has three basic components:

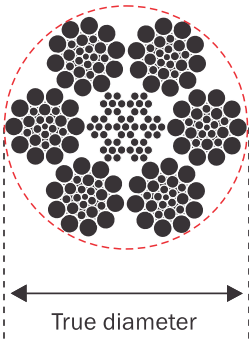
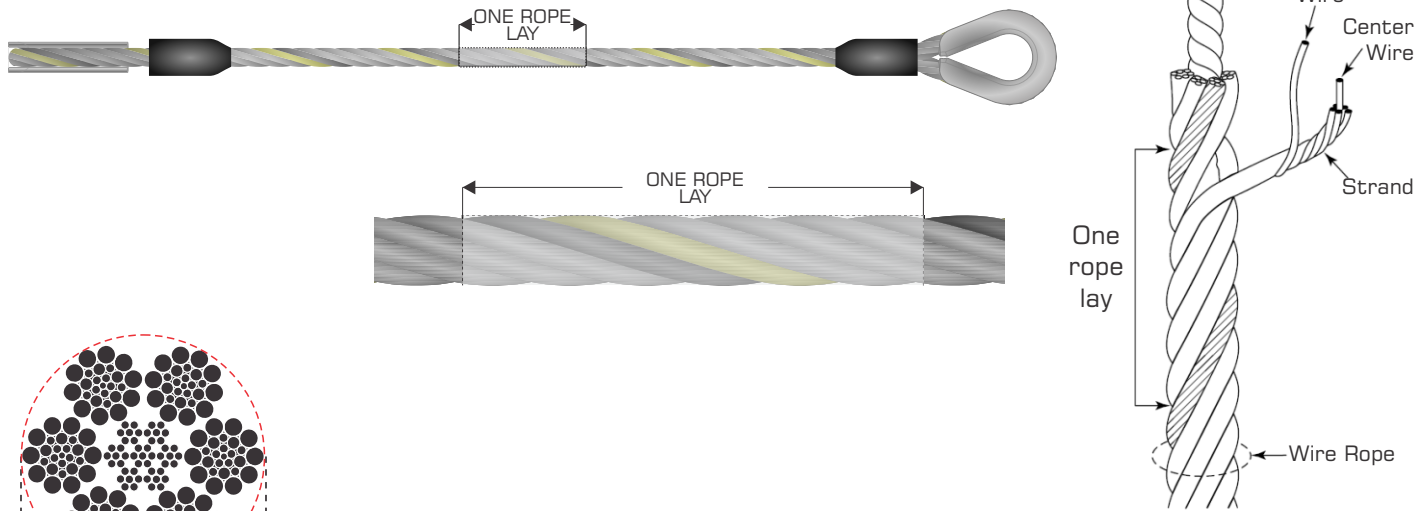
- (1) The wires which form the strands and collectively provide the rope strength;
 - (2) The strands, which are helically around the core; and,
 - (3) The core, which forms a foundation for the strands.
- The core of wire rope may be an Independent Wire Rope Core (IWRC), which in many cases is actually a smaller wire rope in itself. Only an IWRC or strand core

contributes strength to the rope; and an IWRC normally provides only 7.5% of the wire rope's Nominal Strength.

The greatest difference in wire ropes are found in the number of strands, the construction of strands, the size of the core, and the lay direction of the strand versus the core.

The wires of wire rope are made of high-carbon steel. These carbon steel wires come in various grades. The term "Grade" is used to designate the strength of the wire rope.

Wire ropes are usually made of **Extra Improved Plow Steel (EIPS)** or **Extra Extra Improved Plow Steel (EEIPS)** [Approximate equivalents are 1960 N/mm² or 2160 N/mm² steel grades]. **Improved Plow Steel (IPS)** is also used in some instances. One cannot determine the Tensile Grade of a wire rope by its feel or appearance. To properly evaluate a rope's tensile grade you must obtain the Grade from your employer or wire rope supplier.



How To Measure Wire Rope Diameter

The correct diameter of a wire rope is the diameter of a circumscribed circle that will enclose all the strands. It's the largest cross-sectional measurement as shown below. Make the measurement carefully with calipers. Refer to material handling measuring guide illustrations for both correct and incorrect methods of measuring a wire rope's diameter.



Wire Rope Tolerances

Wire rope is always manufactured larger—never smaller—than the nominal diameter when specified in inches. The allowable tolerances are shown in the table. In standard practice, the nominal diameter is the minimum diameter. All tolerances are taken on the plus side when specified in inches. Wire rope is not termed oversize until its diameter exceeds the allowable maximum. For example, a 1" nominal diameter wire rope may vary between 1" and 1.05" in diameter.

Nominal Rope Diameter	Tolerance	
	Under	Over
0" - 1/8"	-0	+ 8%
Over 1/8 - 3/16"	-0	+ 7%
Over 3/16 - 5/16"	-0	+ 6%
Over 5/16"	-0	+ 5%

Sling Protection
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Towing & Recovery
Rope & Cordage

Wire Rope Physical Properties

Elastic Properties of Wire Rope

The following discussion relates to conventional 6- or 8 strand ropes that have either fiber or steel cores; it is not applicable to rotation-resistant ropes since these constitute a separate case.

Wire rope is an elastic member; it stretches or elongates under load. This stretch derives from two sources:

- 1) constructional
- 2) elastic

In actuality, there may be a third source of stretching—a result of the rope rotating on its own axis. Such elongation, which may occur either as a result of using a swivel, or from the effect of a free-turning load, is brought about by the unlaying of the rope strands. Because the third source is a subject that is beyond the scope of this publication, discussion will be directed to constructional and elastic stretch.

Constructional Stretch - When a load is applied to wire rope, the helically-laid wires and strands act in a constricting manner thereby compressing the core and bringing all the rope elements into closer contact. The result is a slight reduction in diameter and an accompanying lengthening of the rope.

Constructional stretch is influenced by the following factors:

- 1) type of core (fiber or steel),
- 2) rope construction (6x7, 6x25 FW, 6x41 WS, 8x19 S, etc.),
- 3) length of lay,
- 4) material.

Ropes with wire strand core (WSC) or independent wire rope core (IWRC) have less constructional stretch than those with fiber core (FC). The reason for this is the fact that the steel cannot compress as much as the fiber core.

Usually, constructional stretch will cease at an early stage in the rope's life. However, some fiber core ropes, if lightly loaded (as in the case of elevator ropes), may display a degree of constructional stretch over a considerable portion of their life.

Rope Construction	Approx Stretch
6 Strand FC	1/2%-3/4%
6 Strand IWRC	1/4%-1/2%
8 Strand FC	3/4%-1%

A definite value for determining constructional stretch cannot be assigned since it is influenced by several factors.

The following table gives some idea of the approximate stretch as a percentage of rope under load.

Elastic Stretch - Elastic stretch results from recoverable deformation of the metal itself. Here, again, a quantity cannot be precisely calculated. However, the following equation can provide a reasonable approximation for a good many situations.

$$\text{Changes in length (ft)} = \frac{\text{Change in load (lb)} \times \text{Length (ft)}}{\text{Area (inches}^2\text{)} \times \text{Modulus of Elasticity (psi)}}$$

Approximate Modulus of Elasticity (lbs. per square Inch)

Rope Classification	Zero through 20% Loading	21 to 65% Loading*
6 x 7 with fibre core	11,700,000	13,000,000
6 x 19 with fibre core	10,800,000	12,000,000
6 x 37 with fibre core	9,900,000	11,000,000
8 x 19 with fibre core	8,100,000	9,000,000
6 x 19 with IWRC	13,500,000	15,000,000
6 x 37 with IWRC	12,600,000	14,000,000

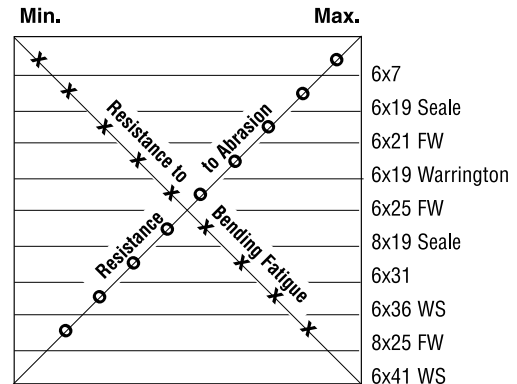
Fatigue Resistance

Smaller wires are the key to bending performance when wire ropes are subjected to repeated bending over sheaves or drums. The more outer wires for a given size wire rope, the better the resistance to bending fatigue. The relative bending life factors of typical wire rope constructions are indicated in the following table. Ropes having a large number of small wires, however, should not be used where over wrapping on a drum takes place because they do not provide sufficient crush resistance.

Relative bending life factors of typical ropes	
Rope Construction	Factor
6x7	.57
19x7	.67
6x19 S	.80
6x21 FW	.92
Dyform-18 and 6 x 25 FW	1.00
6x31 WS	1.09
Dyform-6 and 6 x 36 WS	1.31
8x25 FW	1.39
6x41 WS	1.39
6x49 SWS	1.54

Abrasion Resistance

Lang lay and large outer wires provide resistance to abrasion. The relationship between abrasion resistance and fatigue resistance is illustrated.



Crush Resistance

An IWRC (Independent Wire Rope Core) and large outer wires will provide best crush resistance. SuperFlex rope provides the best crush resistance of any wire rope.

Flexibility

Fiber core, lang lay and smaller wires provide a more flexible wire rope. In general wire ropes with a higher quantity of wires are more flexible and better suited for applications where bending occurs.

Basic Factors Concerning Use of Wire Rope Slings

1. RATED CAPACITY (Rated Load, WLL) of a wire rope sling is based upon the Nominal Breaking Strength of the wire rope used in the sling, AND FACTORS which affect the overall strength of a sling. These factors include ATTACHMENT or SPLICING EFFICIENCY, the number of parts of rope in the sling, type of hitch (see above), **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 CAPACITY of a sling is different for each of the three basic methods of rigging (see above). These rated loads are listed in this catalogue. The RATED CAPACITIES apply to Super Slings Inc slings ONLY and may be indicated on optional tags (if requested).

3. WARNING: A hand tucked (hand spliced) eye sling 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 capacity 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 a 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 the sling is rigged, increases the loading (tension) on the sling.

7. A sling should be given a VISUAL INSPECTION BEFORE EACH LIFT OR USAGE to determine if it is capable of safely making the intended lift.

An inspection should include such things as:

- Broken wires
- Kinks or distortions of the sling body
- Condition of eyes and splices, & any attachment hardware
- Reduction 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 discarded.

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.

10. If any hazardous condition is disclosed during an inspection, the sling shall be removed from service. Repair is not an option.

11. SLING IDENTIFICATION as per ASME B30-9, Section 9-2.7.1.

- 1) Name or trademark of manufacturer
- 2) Rated load for at least one hitch and the angle upon which it is based.
- 3) Diameter or size.
- 4) Number of legs, if more than one.

Sling identification should be maintained during the life of the sling by the sling user.

Environmental Considerations

Effects of Environment

(a) Slings should be stored in an area where they will not be subjected to mechanical damage, corrosive action, moisture, extreme temperatures, or kinking

(b) Fibre core wire rope slings should not be subjected to de-greasing or a solvent because of possible damage to the core.

Chemically Active Environments

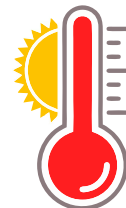
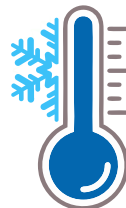
The strength of wire rope slings may be degraded by chemically active environments. This includes exposure to chemicals in the form of solids, liquids, gases, vapours, or fumes. The sling manufacturer or a qualified person should be consulted before slings are used in chemically active environments.

Temperature

(a) Fibre core wire rope slings of all grades shall not be exposed to temperatures in excess of 180°F (82°C).

(b) When fibre core wire rope slings are to be used at temperatures below -40°F (-40°C), the sling manufacturer should be consulted.

(c) When IWRC wire rope slings are to be used at temperatures above 204°C or below -40°C, the sling manufacturer should be consulted.



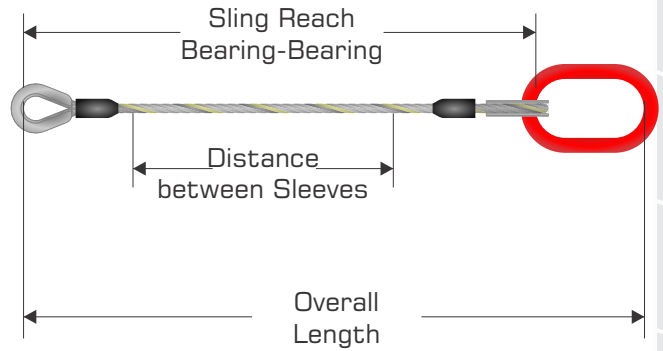
Lift it up, Tie it down, Pull it around

Sling Length

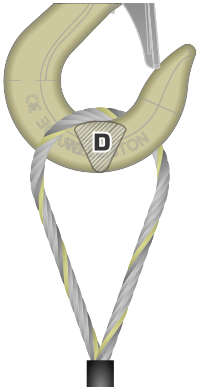
Sling lengths are typically measured from the bearing point to bearing point of the sling. Overall lengths are measured from the bearing point of any attached hardware.

Minimum Sling Length

This is the length of wire rope between splices, sleeves or fittings. Generally, the minimum body length is equal to fifteen (15) times the sling body diameter. This allows approximately one and one half (1-1/2) rope lays between splices. For Multi-part slings, the minimum body length between splices is equal to forty (40) times the component rope diameter.



- Sling Protection
- Web Slings
- Round Slings
- Synthetic Chain Slings
- Wire Rope Slings
- Chain Slings
- Shackles & Turnbuckles
- Hooks & Links
- Lifting Points
- Hoists & Blocks
- Lifting Devices
- Pipe & Hose Restraints
- Tie Down Assemblies
- Tie Down Accessories
- Towing & Recovery
- Rope & Carriage



Sling Eye Design

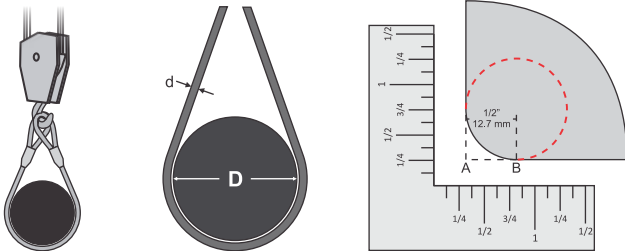
Sling eyes are designed to provide what amount to "small inverted slings" at the ends of the sling body. Therefore, the width of the eye opening will be affected by the same general forces which apply to legs of a sling rigged as a basket.

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 nominal diameter of the rope—since applying the D/d Ratio shows an efficiency loss of approximately 50% when the relationship is less than 1/1.

D/d RATIO:

D/d is the ratio of the diameter around which the sling is bent divided by the body diameter of the sling. This ratio has an effect on the rated capacity of slings. When a wire rope is bent around any sheave or other object there is a loss of strength due to this bending action. As the D/d ratio becomes smaller this loss of strength becomes greater and the rope becomes less efficient. This curve relates the efficiency of a rope diameter to different D/d ratios. This curve is based on static loads and applies to 6-strand class 6×19 and 6×37 wire rope.



D/d Ratio	Strength Efficiency	D/d Ratio	Strength Efficiency
25/1	100%	6/1	80%
20/1	92%	4/1	75%
15/1	88%	2/1	65%
10/1	86%	1/1	50%
8/1	84%		

SLING IDENTIFICATION

as per ASME B30-9, Section 9-2.7.1.

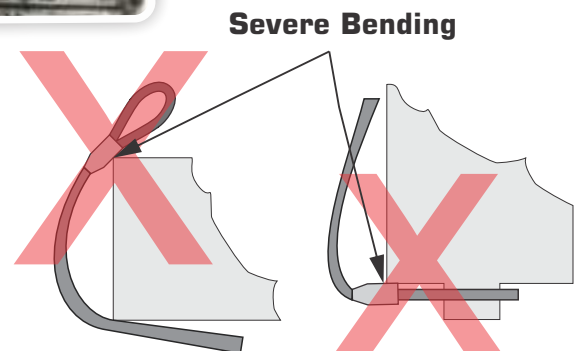
- 1) Name or trademark of manufacturer
- 2) Rated load for at least one hitch and the angle upon which it is based.
- 3) Diameter or size.
- 4) Number of legs, if more than one.

Sling identification should be maintained during the life of the sling by the sling user.

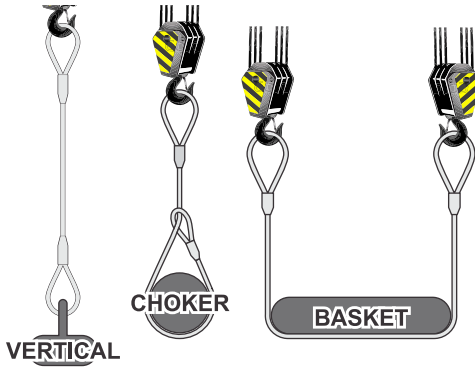


Do Not Permit Bending Near Any Splice or Attached Fitting

- Avoid bending the eye section of wire rope slings around corners. The bend will weaken the splice or swaging. There must be no bending near any attached fitting.



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The Down Assemblies
The Down Accessories
Towing & Recovery
Rope & Cordage



Every Lift Uses 1 of 3 Basic Hitches

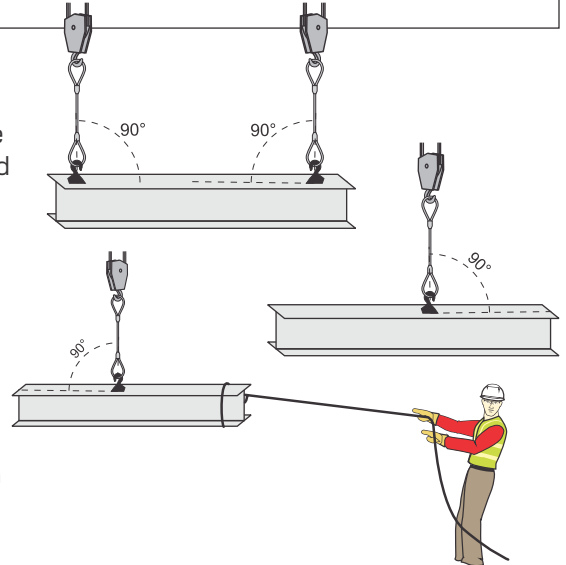
- 1. Vertical**, a simple straight attachment connecting a lifting hook or other device to a load. Full rated load of the sling may be used, but never exceeded. A tagline should be used on such a lift to prevent rotation which can damage the sling. A sling with a hand-tucked splice can unlay and fail if the sling is allowed to rotate.
- 2. Choker hitches** reduce lifting capability of a sling, since this method of rigging affects the ability of the wire rope components to adjust during the lift, places angular loading on the body of the sling, and creates a small diameter bend in the sling body at the choke point.
- 3. 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.

Vertical Hitch

A vertical hitch, or straight hitch, is the most basic hitch used to directly connect a load to a lifting device. On a vertical hitch, the eye of a single chain sling, wire rope sling, or synthetic sling is connected to the crane or hoist hook, while the other eye is connected to an attachment point on the load. The Vertical Hitch will utilize 100% of the lifting capacity of the sling.

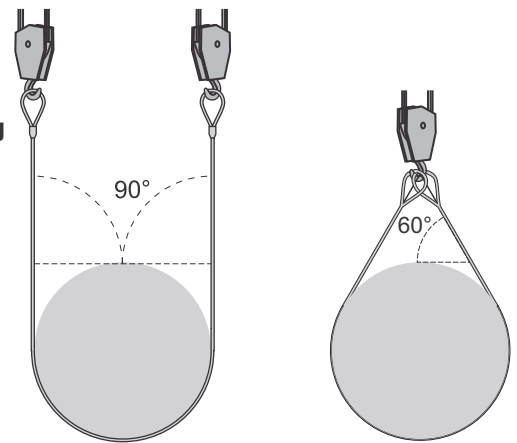
A single vertical hitch should never be used for lifting loose materials, long loads, or unbalanced loads.

WARNING: A sling with a hand-tucked splice may unlay and fail if the sling is allowed to rotate during use. Use of a tagline is recommended to prevent the load from spinning. Always use caution when controlling a load, ensure no persons are in an area where they can be struck by the load or attached rigging.



Basket Hitch

A basket hitch is formed when both eyes of the sling are placed on the lifting hook, thereby forming a circular basket of the sling. This type of hitch distributes the load equally between the two legs of the sling, within limitations. A basket hitch has twice the capacity of a single leg only if D/d ratio is 25/1 and the sling to load angle is 90°. When the **sling to load angle** are less than 90°, increased tension is applied and must be accounted for.



Lifting Bridles

When you attach two or more slings to the same lifting hook, or are connected to a link rigged onto the hook, the total hitch becomes a lifting bridle, distributing the load among the individual slings. When using two or more slings as a lift-ing bridle, remember that the sling angle affects the slings' rated capacities. Also, the location of the lift's centre of gravity will affect the load on each sling leg.

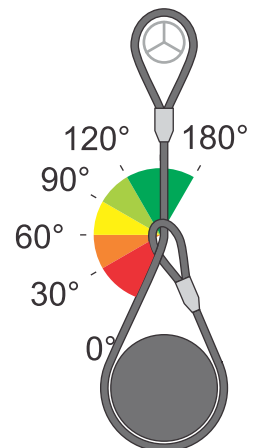
Choker Hitches:

Whenever a sling is used in a choker hitch and results in a Choker Hitch Angle less than 120 degrees, Choker Working Load Limits must be adjusted. Determine the Choker Hitch Angle and multiply the Choker Hitch Work Load Limit by the appropriate Reduction Factor. The result is the actual, reduced Choker Work Load Limit.

Example:

A wire rope sling with a capacity of 4,000 lbs total at 90°, when used at a choke angle of 120° has a reduction factor of 0.87. The resultant choker capacity is 3,480 lbs total at 120°

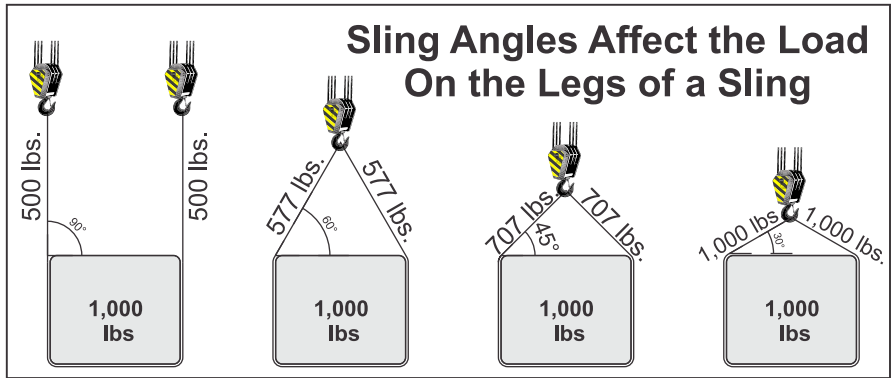
Choker Hitches	
Angle of Choke (degrees)	Sling rated capacity factor as percentage of single leg choker hitch capacity
120-180	100%
105-120	82%
90-105	71%
60-90	58%
0-60	50%



SLING TO LOAD ANGLE

Sling Angles Affect The Load On The Legs Of a 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 a 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 multi-leg bridles slings. Angles less than 30 degrees should not be used.



Sling Tension	
Angle/Deg Horizontal	Tension Factor
90	1.000
80	1.015
70	1.064
60	1.155
50	1.305
45	1.414
35	1.742
30	2.000

Effect of Angle - Sling tensions are affected by angle of lift (sling angle), measured from the horizontal, when used with multi-legged web slings or basket hitches. The effect of this angle may be determined by using either of these two methods:

• **Sling Tension Method** (Recommended Method)

Example:

A two-leg sling lifting a 2,000 lbs object at 30° has a tension factor of 2.0. The resultant tension per leg is 2,000 lbs.

• **Reduced Sling Capacity Method** (Alternative Method)

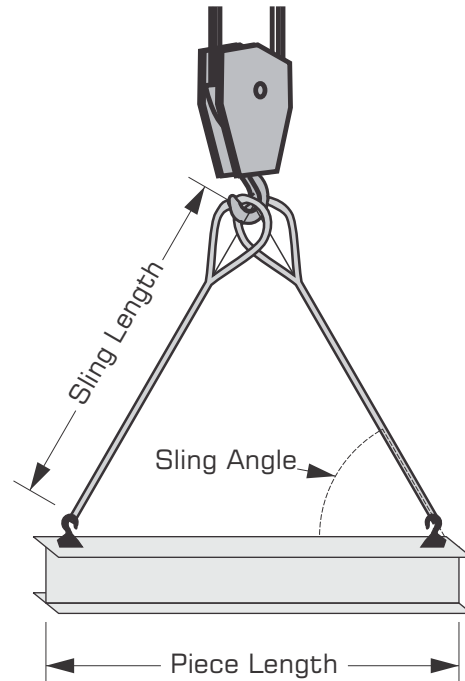
Example:

A two-leg sling with a capacity of 4,000 lbs total at 90° (4,000 lbs per leg) When used at an angle of 30° has a reduction factor of 0.5. The resultant capacity is 2,000 lbs total at 30°

Capacity Reduction	
Angle/Deg Horizontal	Loss Factor
90	1.000
80	0.985
70	0.940
60	0.866
50	0.766
45	0.707
35	0.574
30	0.500

Sling-to-Load Angle Quick Reference

Piece Length	60 Degrees		45 Degrees		30 Degrees	
	Sling Length	Pick Height	Sling Length	Pick Height	Sling Length	Pick Height
1	1	0.9	0.7	0.5	0.6	0.3
2	2	1.7	1.4	1.0	1.2	0.6
3	3	2.6	2.1	1.5	1.7	0.9
4	4	3.5	2.8	2.0	2.3	1.2
5	5	4.3	3.5	2.5	2.9	1.4
6	6	5.2	4.2	3.0	3.5	1.7
7	7	6.1	4.9	3.5	4.0	2.0
8	8	6.9	5.7	4.0	4.6	2.3
9	9	7.8	6.4	4.5	5.2	2.6
10	10	8.7	7.1	5.0	5.8	2.9
11	11	9.5	7.8	5.5	6.3	3.2
12	12	10.4	8.5	6.0	6.9	3.5
13	13	11.3	9.2	6.5	7.5	3.8
14	14	12.1	9.9	7.0	8.1	4.0
15	15	13.0	10.6	7.5	8.7	4.3
16	16	13.9	11.3	8.0	9.2	4.6
17	17	14.7	12.0	8.5	9.8	4.9
18	18	15.6	12.7	9.0	10.4	5.2
19	19	16.5	13.4	9.5	11.0	5.5
20	20	17.3	14.1	10.0	11.5	5.8
21	21	18.2	14.8	10.5	12.1	6.1
22	22	19.1	15.6	11.0	12.7	6.4
23	23	19.9	16.3	11.5	13.3	6.6
24	24	20.8	17.0	12.0	13.8	6.9
25	25	21.7	17.7	12.5	14.4	7.2
26	26	22.5	18.4	13.0	15.0	7.5
27	27	23.4	19.1	13.5	15.6	7.8
28	28	24.2	19.8	14.0	16.2	8.1
29	29	25.1	20.5	14.5	16.7	8.4
30	30	26.0	21.2	15.0	17.3	8.7
31	31	26.8	21.9	15.5	17.9	9.0
32	32	27.7	22.6	16.0	18.5	9.2
33	33	28.6	23.3	16.5	19.0	9.5
34	34	29.4	24.0	17.0	19.6	9.8
35	35	30.3	24.7	17.5	20.2	10.1
36	36	31.2	25.5	18.0	20.8	10.4
37	37	32.0	26.2	18.5	21.3	10.7
38	38	32.9	26.9	19.0	21.9	11.0
39	39	33.8	27.6	19.5	22.5	11.3
40	40	34.6	28.3	20.0	23.1	11.6
41	41	35.5	29.0	20.5	23.7	11.8
42	42	36.4	29.7	21.0	24.2	12.1
43	43	37.2	30.4	21.5	24.8	12.4
44	44	38.1	31.1	22.0	25.4	12.7
45	45	39.0	31.8	22.5	26.0	13.0
46	46	39.8	32.5	23.0	26.5	13.3
47	47	40.7	33.2	23.5	27.1	13.6
48	48	41.6	33.9	24.0	27.7	13.9
49	49	42.4	34.6	24.5	28.3	14.2
50	50	43.3	35.4	25.0	28.9	14.5



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Wire Rope Assembly Terminations & Efficiencies

Wire Rope ends must be fastened to the mechanism so that force and motion are transferred efficiently. End terminations thus become items of great importance for transferring these forces. Each basic type of termination has its own individual characteristic. Hence, one type will usually fit the needs of a given installation better than the others.

It should be noted that not all end terminations will develop the full strength of the wire rope used. To lessen the possibility of error, the wire rope industry has determined terminal efficiencies for various types of end terminations. Holding power calculations can be made for the more popular end terminations based on efficiency factors in Table 5.

Wire Rope Sockets - Poured Resin & Swage

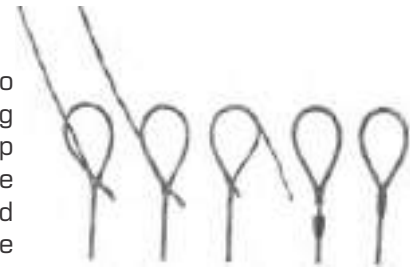
Poured Resin Sockets are assembled using a specific resin designed for use with steel wire rope. The individual wires are “fanned” and a resin is poured into the cone of the socket. This creates an assembly that retains 100% of the catalogue breaking strength of the wire rope.

Swaged Sockets are mechanically pressed using precision dies. With the correct socket and fabrication, swaged sockets retain 100% of the catalogue breaking strength of the wire rope.



Flemish Eye Splice

The Flemish Eye Splice is formed by opening or unlaying the rope body into two parts. One part having three of the strands and the other having the remaining strands along with the core. The rope is unlayed far enough back to allow the loop or eye to be formed by looping one part in one direction, and the other part in the other direction, then laying the rope back together. The strands are then rolled back around the rope body, a metal sleeve is then slipped over the ends of the splice and pressed (swaged) to secure the ends to the body of the sling.



Hand Spliced Wire Rope Slings (Loading Sling)

Hand spliced wire rope slings, commonly known as “Loading Slings” are generally used in winching and trucking applications. Because there are no steel fittings, loading slings are more flexible better suited to be used over rollers.



Carbon Steel Duplex Sleeve - Fold-Back Eye

The fabrication of this splice involves forming a loop eye and pressing a steel sleeve over both rope parts. With this method, the rope loops back into a swaged sleeve, forming a permanent load-bearing bond between the two parts of the rope.



Aluminum Sleeve Fold-Back Splice

The fabrication of this splice involves forming a loop eye and pressing an aluminum sleeve over both rope parts. As for strength, this is dependent on the pressed sleeve’s integrity.



Steel Ferrules (Buttons)

Steel Ferrules, Also known as Swage Buttons are designed to be pressed on to the end of a wire rope and are often used in conjunction with other connecting hardware such as Dee Sockets and tail chains.

Wedge Ferrules

Wedge 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.

Aluminum Sleeves

Aluminum sleeves come in a variety of configurations, including figure 8, oval and button styles. These fittings (up to 3/8") can be pressed by hand using a hand swaging tool, or for larger sizes and a more uniform press, they can be pressed using a swaging machine and proper dies.

Wire Rope Clips / Fist Grips

A wire rope clip, also called a clamp, cable clamp, wire rope clamp, U-Clip, U-Bolt Clip, is used to fix the loose end of the loop back to the wire rope. It usually consists of a U-shaped bolt, a forged or cast saddle and two nuts. The two layers of wire rope are placed in the U-bolt.

Fist Grips are another form of "clip" that utilize a saddle on either side.

Wedge Sockets

The wedge and body act as a vice which grips the wire rope and locks it in place. Wedge sockets are made in a few different configurations.



Wire Rope End-Termination Efficiencies - Table 5

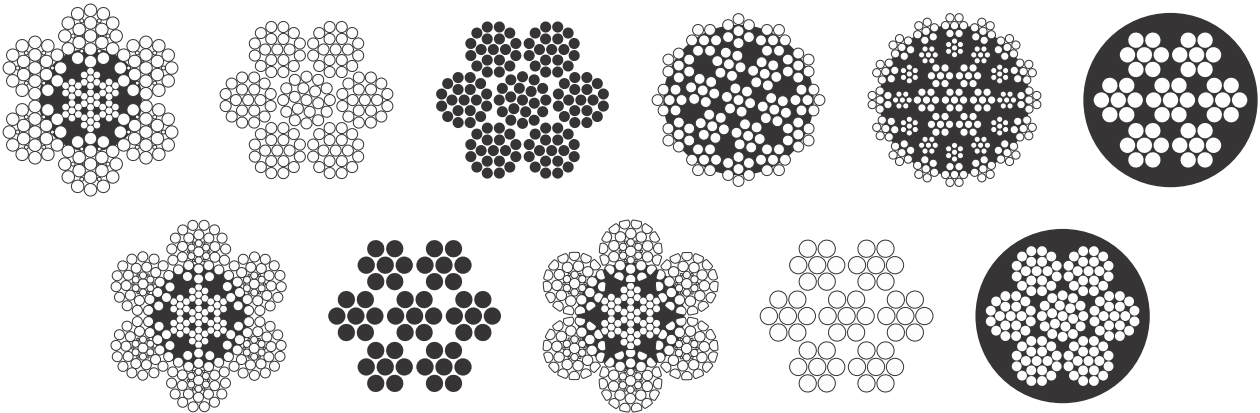
Termination	Efficiency	
	EIPS IWRC	EIPS Fibre Core
Wire Rope Socket: Spelter or Resin Swage	100% 100%	100% Not Recommended
Mechanical Splice w/ Sleeve (Flemish Eye): 1/4" – 1" Diameter 1-1/8" – 2" Diameter	95% 92%	92% 90%
Hand Tucked (Loading Sling) Splice: 1/4" – 2"	80%	80%
Carbon Steel Duplex – Fold Back Eye 3/8" – 1-1/8"	94%	Not Recommended
Carbon Steel Ferrules (Buttons) Mechanical Swage	98%	Not Recommended
Wedge Ferrules (Buttons) Mechanical Swage	98%	Not Recommended
Aluminum Sleeve – Fold Back (Oval, Figure 8, Button): Hand Swage Press 3/64" – 3/8" Mechanical Swage Press 1/4" – 1" 1-1/8" – 2"	80% 90% 80%	Not Recommended Not Recommended Not Recommended
Wire Rope Clips / Fist Grips: Number Of Clips Varies With Size Of Rope	80%	80%
Wedge Sockets Depending on Design	80%	75%

Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
The Down Assemblies
The Down Accessories
Towing & Recovery
Rope & Corage



Wire Rope Types

Wire Ropes come in a variety of configurations, constructions, grades and sizes. The classifications of wire rope provide the total number of strands, as well as a nominal or exact number of wires in each strand. These are general classifications and may or may not reflect the actual construction of the strands. However, all wire ropes of the same size and wire grade in each classification will have the SAME strength and weight ratings. Following is a list of the most common wire rope types sold at Super Slings.



General Purpose Wire Rope

ropes are applied for general purpose such as crane, shipping, mining, fishing, logging, slings etc. And this rope is widely used for optimizing customer's



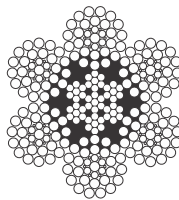
6 x 26 & 6 x 36 Wire Rope

Diameter	Minimum Breaking Strength Tons (2,000 lbs)				Weight lbs / ft.	
	IPS IWRC	IPS FC	EIPS IWRC	EIPS FC	IWRC	Fibre Core
(in)						
1/4	2.94	2.74	3.4	3.02	0.12	0.11
5/16	4.58	4.26	5.27	4.69	0.18	0.16
3/8	6.56	6.1	7.55	6.71	0.26	0.24
7/16	8.89	8.27	10.2	9.09	0.35	0.32
1/2	11.5	10.7	13.3	11.8	0.46	0.42
9/16	14.5	8.5	16.8	14.9	0.59	0.53
5/8	17.9	16.7	20.3	18.3	0.72	0.66
3/4	26.2	23.8	29.4	26.2	1.04	0.95
7/8	34.6	32.2	39.8	35.4	1.42	1.29
1	44.9	41.8	51.7	46	1.85	1.68
1 1/8	-----	-----	58.415	-----	2.34	2.13
1 1/4	56.5	52.6	65	57.9	2.89	2.63
1 3/8	69.4	64.6	79.9	85.4	3.50	3.18
1 1/2	83.5	77.7	96.8	85.4	4.16	3.78
1 5/8	98.9	92	140	101	4.88	4.44
1 3/4	115	107	132	118	5.67	5.15
1 7/8	133	124	153	136	6.50	5.91
2	152	141	174	155	7.39	6.72
2-1/4	-----	-----	247.0	-----	9.36	-----
2-1/2	-----	-----	302.0	-----	11.16	-----

6 X 36 EIPS IWRC (6X37 Classification)

6X36(WS)+IWRC

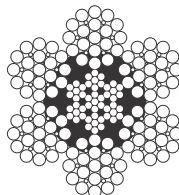
Generally Available in 5/8" - 1 1/2", offers excellent fatigue resistance ~galvanized available upon request



6 X 26 EIPS IWRC (6X19 Classification)

6X26(WS)+IWRC

Generally Available in 1/4" - 7/8", offers excellent abrasion resistance ~galvanized available upon request



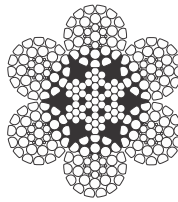
Compact Wire Rope

As wire rope flattening the surface of outer wires of each strand, it has higher breaking load than round rope having same diameter. With the surface of strand and rope being flattened to have wider contact area between sheave and rope, it results in an intense resistance against abrasion and an extension of rope life. It is widely used in diversified applications such as crane, mining, fishing.



Compak® 6 X 36 EIPS IWRC (6X37 Classification)

- 6X36(W5)+IWRC
- Generally Available in 7/8" - 1 1/4",
- Superior bending fatigue life when compared with conventional six strand ropes
- Reduced elongation results from increased steel content and the compact process



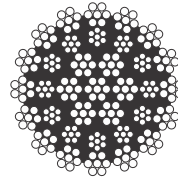
Spin Resistance Rope

The characteristic of round wires of multi-spin resistance rope is that the outer layer is twisted in the opposite direction of their inner layers. These ropes have many more outer strands which can distribute the radial pressures onto the reverse lay inner strands. It is mainly selected for larger mobile and all tower cranes.



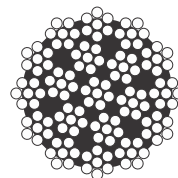
35 X 7 EIPS IWSC

- 35X7+IWSC
- High structural stability
- Excellent resistance to deformation
- High breaking strength
- Excellent life time
- Applicable rope to lifting crane



19 X 7 EIPS IWSC

- 19X7+IWSC
- High quality Rotation Resistant hoist rope
- Consistent performance
- Recommended for single-part hoisting applications



Compak® 6x36 EIPS IWRC

Wire Rope Dia	Weight	Type
inch	lb/ft	EIPS(Tons)
3/8	0.28	8.3
7/16	0.38	11.2
1/2	0.50	14.6
9/16	0.63	18.5
5/8	0.78	22.7
3/4	1.13	32.4
7/8	1.53	43.8
1	2.00	56.9
1 1/8	2.54	71.5
1 1/4	3.13	87.9
1 3/8	3.79	106
1 1/2	4.51	125
1 5/8	5.29	146
1 3/4	6.13	169
1 7/8	7.01	192
2	8.01	217
2 1/8	9.05	243
2 1/4	10.14	272

To convert to pound (Lbs), multiply tons by 2000.

35x7 EIPS IWSC Non-Rotating

Wire Rope Dia	Weight	Type
inch	lb/ft	EIPS(Tons)
7/16	0.43	11.8
1/2	0.56	15.5
9/16	0.71	19.6
5/8	0.89	24.5
3/4	1.25	34.6
7/8	1.69	47.2
1	2.22	61.8
1 1/8	2.79	78.4
1 1/4	3.49	96.9
1 3/8	4.24	117

To convert to pound (Lbs), multiply tons by 2000.

19x7 EIPS IWSC Non-Rotating

Wire Rope Dia	Weight	Type
inch	lb/ft	EIPS(Tons)
1/4"	0.11	2.8
5/16"	0.18	4.3
3/8"	0.25	6.2
7/16"	0.35	8.3
1/2"	0.45	10.8
9/16"	0.58	13.6
5/8"	0.71	16.8
3/4"	1.02	24.0
7/8"	1.39	32.5
1"	1.82	42.2

To convert to pound (Lbs), multiply tons by 2000.

Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
The Down Assemblies
The Down Accessories
Towing & Recovery
Rope & Cordage

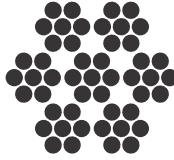
Galvanized Aircraft Cable

GAC is applied for excellent general purpose steel cable, flexible and wear resistant. And it meets applicable Federal Specification RR-W-410



7X7 GAC

- 7X7 Construction
- Utility Winch lines, Garage door cable, Railing and Agriculture industry



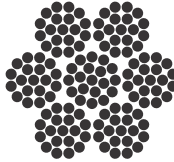
7x7 GAC

Wire Rope Dia	Weight	Type
inch	lb/ft	GAC(Tons)
1/16	0.8	0.24
3/32	1.6	0.46

To convert to pound (Lbs), multiply tons by 2000.

7X19 GAC

- 7X19 Construction
- Utility Winch lines, Garage door cable, Railing and Agriculture industry



7x19 GAC

Wire Rope Dia	Weight	Type
Inch	lb/ft	GAC(Tons)
1/8"	2.9	1.00
5/32"	4.5	1.40
3/16"	6.5	2.10
1/4"	11.0	3.50
5/16"	17.3	4.90
3/8"	24.3	7.20

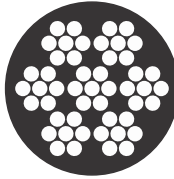
To convert to pound (Lbs), multiply tons by 2000.

PVC Coated Galvanized Aircraft Cable



7X7 GAC

- 7X7 Construction
- Utility Winch lines, Garage door cable, Railing and Agriculture industry



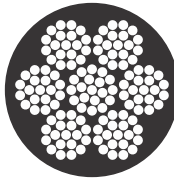
7x7 GAC PVC Coated

Wire Rope Dia	Weight	Type
inch	lb/ft	GAC(Tons)
3/32" - 1/8"	2.00	0.46
1/8" - 3/16"	3.90	0.85

To convert to pound (Lbs), multiply tons by 2000.

7X19 GAC

- 7X19 Construction
- Utility Winch lines, Garage door cable, Railing and Agriculture industry



7x19 GAC PVC Coated

Wire Rope Dia	Weight	Type
inch	lb/ft	GAC(Tons)
1/8" - 3/16"	3.9	1.00
3/16" - 1/4"	7.8	2.10
1/4" - 5/16"	12.5	3.50
5/16" - 3/8"	19.6	4.90

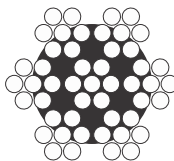
To convert to pound (Lbs), multiply tons by 2000.

Stainless Steel Aircraft Cable



7X7 SS AC

- 7X7 Construction
- Utility Winch lines, Garage door cable, Railing and Agriculture industry



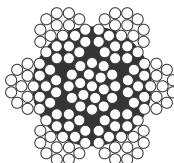
7x7 Stainless Steel

Wire Rope Dia	Weight	Type
inch	lb/ft	SS(Tons)
3/32" - 1/8"	2.00	0.46
1/8" - 3/16"	3.90	0.85

To convert to pound (Lbs), multiply tons by 2000.

7X19 SS AC

- 7X19 Construction
- Utility Winch lines, Garage door cable, Railing and Agriculture industry



7x19 Stainless Steel

Wire Rope Dia	Weight	Type
inch	lb/ft	SS(Tons)
1/8" - 3/16"	3.9	1.00
3/16" - 1/4"	7.8	2.10
1/4" - 5/16"	12.5	3.50
5/16" - 3/8"	19.6	4.90

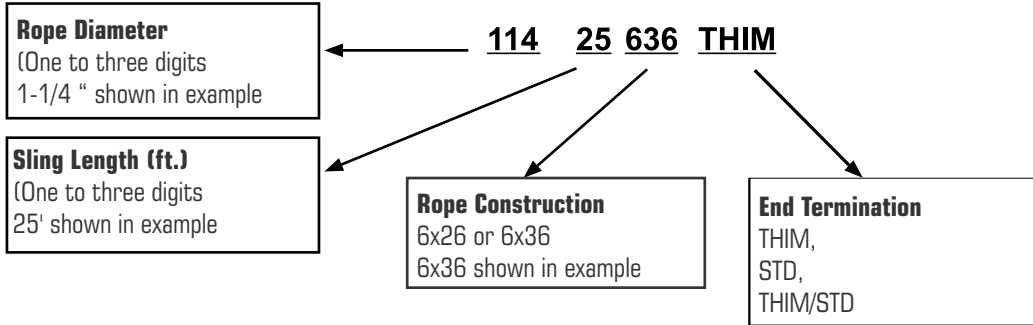
To convert to pound (Lbs), multiply tons by 2000.

Eye - Eye Wire Rope Slings

A mechanical-spliced wire rope sling is constructed when eyes are formed using the Flemish eye splice. Ends are then secured by pressing a metal sleeve over the ends of the strands of the splice. Pull is directly along the centerline of rope and eye. This splicing method gives the most efficient use of rope capacity and proves to be economical.



HOW TO ORDER EYE & EYE WIRE ROPE SLINGS



Note:

- Compliance Certificates can be provided upon request
- Proof Testing with certification is available for all slings at an additional charge
- Length tolerance for wire rope slings is +/- two rope diameters or +/- 0.5% of the sling length, whichever is greater. Bridle or matched slings are +/- one rope diameter



Rope Dia. (in)	Working Load Limit 5:1						Std Eye Dimension		Thim Eye Dimension		Eye Hook Dimension		
	Vertical 90°	Choker 120°	Basket				W	L	W	L	WLL	E	R
EIPS 6x26													
1/4	1,300	960	2,600	2,200	1,820	1,300	2	4	0.88	1.63	3/4	0.89	3.34
5/16	2,000	1,480	4,000	3,400	2,800	2,000	2.5	5	1.06	1.88	1	0.91	3.81
3/8	2,800	2,200	5,600	5,000	4,000	2,800	3	6	1.13	2.13	1 1/2	1.00	4.14
7/16	3,800	2,800	7,600	6,800	5,400	3,800	3.5	7	1.25	2.38	2	1.09	4.69
1/2	5,000	3,800	10,000	8,800	7,200	5,000	4	8	1.5	2.75	3	1.36	5.77
9/16	6,400	4,800	12,800	11,000	9,000	6,400	4.5	9	1.5	2.75	5	1.61	7.37
5/8	7,800	5,800	15,600	13,600	11,000	7,800	5	10	1.75	3.25	5	1.61	7.37
3/4	11,200	8,200	22,400	19,400	15,800	11,200	6	12	2	3.75	7 1/2	2.08	9.07
7/8	15,200	11,200	30,400	26,000	22,000	15,200	7	14	2.25	4.25	10	2.27	10.08
EIPS 6x36													
1	19,600	14,400	39,200	34,000	28,000	19,600	8	16	2.5	4.5	10	2.27	10.08
1-1/8	24,000	18,200	48,000	42,000	34,000	24,000	9	18	2.88	5.13	15	3.02	12.53
1-1/4	30,000	22,000	60,000	52,000	42,000	30,000	10	20	2.88	5.13	15	3.02	12.53
1-3/8	36,000	26,000	72,000	62,000	50,000	36,000	11	22	3.5	6.25	22	3.02	12.53
1-1/2	42,000	32,000	84,000	74,000	60,000	42,000	12	24	3.5	6.25	22	3.02	12.53
1-3/4	56,000	42,000	112,000	98,000	80,000	56,000	13	26	4	8	30	3.25	14.06
2	74,000	56,000	148,000	126,000	104,000	74,000	14	28	4.5	9	37	3	18.19
2-1/4	88,000	70,000	176,000	154,000	126,000	88,000	16	32	-	-	-	-	-
2-1/2	108,000	84,000	216,000	188,000	154,000	108,000	18	36	-	-	-	-	-
3	154,000	138,000	308,000	266,000	216,000	154,000	20	40	-	-	-	-	-



NEVER EXCEED THE WORKING LOAD LIMIT.
ALWAYS CHECK THE IDENTIFICATION TAG TO DETERMINE THE SLINGS RATED CAPACITY IS APPROPRIATE FOR THE APPLICATION. RATINGS LISTED ARE VALID FOR NEW SLINGS ONLY. ALWAYS INSPECT BEFORE USE

Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Carriage

Multi-Leg Wire Rope Slings

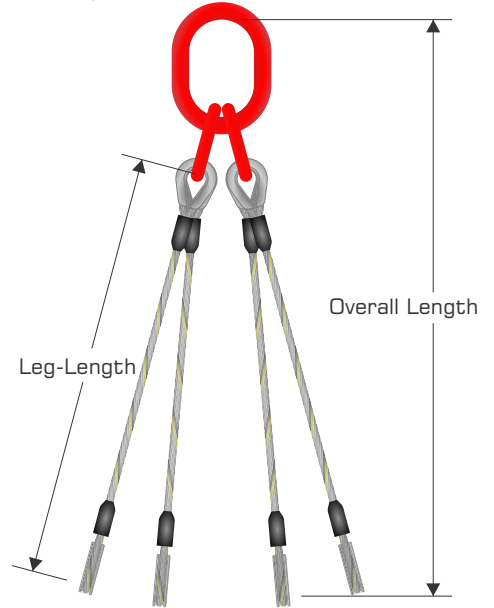
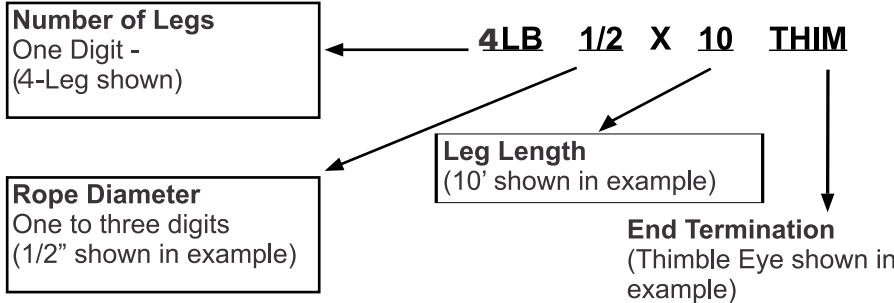
Multi-Leg Bridle Slings are constructed of two, three or four wire rope assemblies that are attached to an Oblong Ring. The lifting ends of the wire rope legs can be fitted with a variety of hooks, eyes, or rings to allow attachment to nearly any object. These are designed for general lifting when the attachment can be made directly to the load. Wire Rope Slings are constructed of strong, high quality steel that is resistant to corrosion, heat, sunlight and most chemicals. Multi-Leg Wire Rope slings are custom built to meet your specific needs for any application.

IWRC (Independent Wire Rope Core)

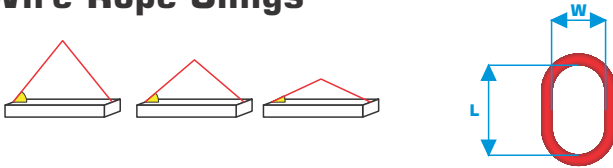
Note:

- Compliance Certificates can be provided upon request
- Proof Testing with certification is available for all slings at an additional charge
- Length tolerance for wire rope slings is +/- two rope diameters or +/- 0.5% of the sling length, whichever is greater. Bridle or matched slings are +/- one rope diameter

HOW TO ORDER WIRE ROPE BRIDLE SLINGS



2-Leg Wire Rope Slings



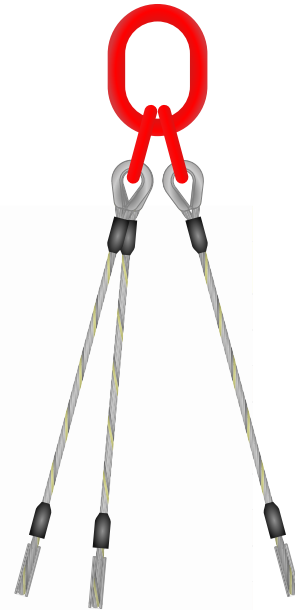
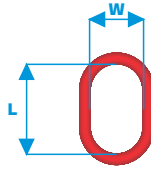
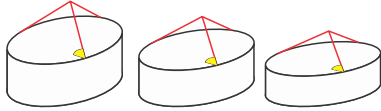
Rope Dia [in]	Working Load Limit (lbs)			Oblong Masterlink		
	60°	45°	30°	D	L	W
EIPS 6x26						
1/4	2,200	1,820	1,300	1/2	2.75	4.72
5/16	3,400	2,800	2,000	1/2	2.75	4.72
3/8	5,000	4,000	2,800	5/8	3.15	5.50
7/16	6,800	5,400	3,800	3/4	3.75	6.30
1/2	8,800	7,200	5,000	3/4	3.75	6.30
9/16	11,000	9,000	6,400	1	4.33	7.50
5/8	13,600	11,000	7,800	1	4.33	7.50
3/4	19,400	15,800	11,200	1	4.33	7.50
7/8	26,000	22,000	15,200	1-1/4	5.10	9.00
EIPS 6x36						
1	34,000	28,000	19,600	1-1/2	5.90	10.80
1 1/8	42,000	34,000	24,000	1-1/2	5.90	10.80
1 1/4	52,000	42,000	30,000	1-3/4	7.10	13.40
1 3/8	62,000	50,000	36,000	1-3/4	7.10	13.40
1 1/2	74,000	60,000	42,000	2	7.50	13.75
1 3/4	98,000	80,000	56,000	2-1/8	7.87	13.78
2	126,000	104,000	74,000	2-3/8	8.27	14.76



WARNING!

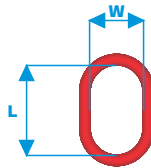
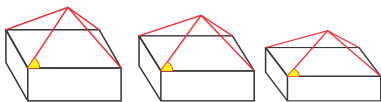
NEVER EXCEED THE WORKING LOAD LIMIT.
ALWAYS CHECK THE IDENTIFICATION TAG TO DETERMINE THE SLINGS RATED CAPACITY IS APPROPRIATE FOR THE APPLICATION. RATINGS LISTED ARE VALID FOR NEW SLINGS ONLY. ALWAYS INSPECT BEFORE USE

3-Leg Wire Rope Slings



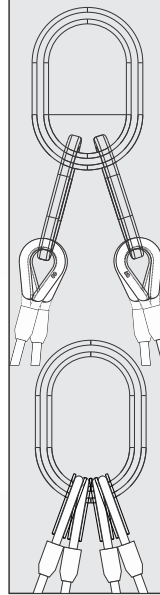
Rope Dia [in]	Working Load Limit (lbs)			Oblong Masterlink		
	60°	45°	30°	D	L	W
EIPS 6x26						
1/4	3,400	2,800	1,940	1/2	2.75	4.72
5/16	5,200	4,200	3,000	5/8	3.15	5.50
3/8	7,400	6,000	4,400	3/4	3.75	6.30
7/16	10,000	8,200	5,800	3/4	3.75	6.30
1/2	13,200	10,800	7,600	1	4.33	7.50
9/16	16,600	13,600	9,600	1	4.33	7.50
5/8	20,000	16,600	11,800	1-1/4	5.10	9.00
3/4	30,000	24,000	16,800	1-1/2	5.90	10.80
7/8	40,000	32,000	22,000	1-1/2	5.90	10.80
EIPS 6x36						
1	52,000	42,000	30,000	1-3/4	7.10	13.40
1 1/8	62,000	52,000	36,000	1-3/4	7.10	13.40
1 1/4	76,000	62,000	44,000	2-1/8	7.87	13.78
1 3/8	92,000	76,000	54,000	2-1/8	7.87	13.78
1 1/2	110,000	90,000	64,000	2-1/8	7.87	13.78
1 3/4	148,000	120,000	84,000	2-3/4	9.84	17.72
2	190,000	156,000	110,000	3-1/8	10.24	17.72

4-Leg Wire Rope Slings



Rope Dia [in]	Working Load Limit (lbs)			Oblong Masterlink		
	60°	45°	30°	D	L	W
EIPS 6x26						
1/4	4,400	3,600	2,600	5/8	3.15	5.50
5/16	7,000	5,600	4,000	3/4	3.75	6.30
3/8	10,000	8,200	5,800	1	4.33	7.50
7/16	13,400	11,000	7,800	1	4.33	7.50
1/2	17,600	14,200	10,200	1-1/4	5.10	9.00
9/16	22,000	18,000	12,800	1-1/4	5.10	9.00
5/8	28,000	22,000	15,600	1-1/2	5.90	10.80
3/4	38,000	32,000	22,000	1-1/2	5.90	10.80
7/8	52,000	42,000	30,000	1-3/4	7.10	13.40
EIPS 6x36						
1	68,000	56,000	40,000	2	7.50	13.75
1 1/8	84,000	68,000	48,000	2-1/8	7.87	13.78
1 1/4	102,000	84,000	60,000	2-1/8	7.87	13.78
1 3/8	124,000	100,000	72,000	2-3/8	8.27	14.76
1 1/2	146,000	120,000	84,000	2-3/4	9.84	17.72
1 3/4	196,000	160,000	114,000	3-1/8	10.24	17.72

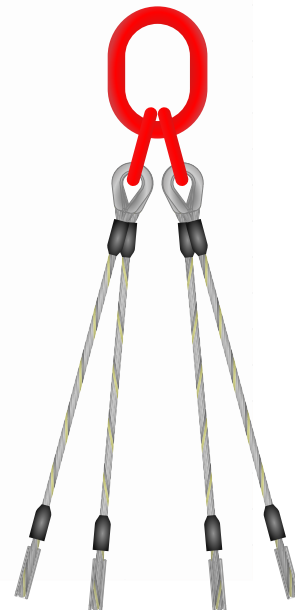
Sub-Assemblies vs. Masterlinks



Super Slings recommends the use of a masterlink sub-assembly for 3 & 4-leg wire rope assemblies.

The use of sub-assemblies can aid in the avoidance of "bunching" of hardware in the masterlink which may cause premature wear or failure.

The use of sub-assemblies also increases the ability to maintain equilibrium of load and avoid unbalanced loading which may cause an unanticipated increase in tensions, resulting in premature damage or failure.



NEVER EXCEED THE WORKING LOAD LIMIT.
 ALWAYS CHECK THE IDENTIFICATION TAG TO DETERMINE THE SLINGS RATED CAPACITY IS APPROPRIATE FOR THE APPLICATION. RATINGS LISTED ARE VALID FOR NEW SLINGS ONLY. ALWAYS INSPECT BEFORE USE

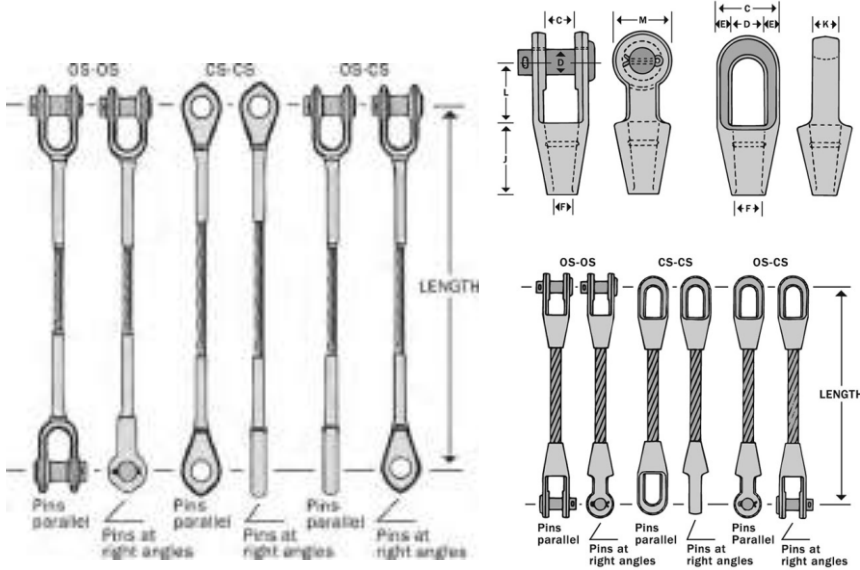
- Sling Protection
- Web Slings
- Round Slings
- Synthetic Chain Slings
- Wire Rope Slings
- Chain Slings
- Shackles & Turnbuckles
- Hooks & Links
- Lifting Points
- Hoists & Blocks
- Lifting Devices
- Pipe & Hose Restraints
- Tie Down Assemblies
- Tie Down Accessories
- Towing & Recovery
- Rope & Carriage

Socket Assemblies

Swaged Sockets are mechanically pressed onto the rope using special dies. With the correct fitting design and fabrication, swaged sockets develop 100% of the rope's strength. Normally, only regular lay rope is used. Swaged assemblies are interchangeable with spelter sockets up through 2" rope diameter. Assembly length is measured from center line of pins for both open and closed sockets.

Poured Resin Sockets are typically used for boom pendants, guylines, raising lines, backstays, lifting bridles and more. Those are the uses of our wire rope assemblies, offered in both poured (spelter) sockets and mechanically swaged sockets. A design factor of five has been used to establish the rated capacities seen in the charts.

Steel forgings are used on rope sizes 1/2" through 1-1/2" and cast steel fittings are used for larger sizes. The assembly lengths are measured from the centerline point of the pin for open sockets and the bearing point for closed sockets.



Size	Working Load Limit	C	D	E	AS Max After Swage Dia	LS Max After Swage Dia
1/4	1,360	1.38	0.75	0.5	0.46	3.75
5/16	2,200	1.62	0.88	0.67	0.71	4.75
3/8	3,000	1.62	0.88	0.67	0.71	4.75
7/16	4,000	2	1.06	0.86	0.91	6
1/2	5,400	2	1.06	0.86	0.91	6
9/16	6,800	2.38	1.25	1.13	1.16	7.75
5/8	8,200	2.38	1.25	1.13	1.16	7.75
3/4	11,800	2.88	1.44	1.31	1.42	9.25
7/8	16,000	3.12	1.69	1.5	1.55	10.75
1	20,000	3.63	2.06	1.75	1.8	12.25
1 1/8	26,000	4	2.31	2	2.05	13.5
1 1/4	32,000	4.5	2.56	2.25	2.3	15.25
1 3/8	38,000	5	2.56	2.25	2.56	16.75
1 1/2	46,000	5.5	2.81	2.5	2.81	18
1 3/4	62,000	6.25	3.56	3	3.06	21.25
2	80,000	7.25	3.81	3.25	3.56	24.25
2 1/4	98,000	-	-	-	-	-
2 1/2	120,000	-	-	-	-	-

WARNING!

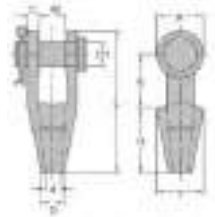
NEVER EXCEED THE WORKING LOAD LIMIT.
ALWAYS CHECK THE IDENTIFICATION TAG TO DETERMINE THE SLINGS RATED CAPACITY IS APPROPRIATE FOR THE APPLICATION. RATINGS LISTED ARE VALID FOR NEW SLINGS ONLY. ALWAYS INSPECT BEFORE USE

Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage

8-734 / Forged Open Spelter Wire Rope Socket

Application

- YOKE Spelter Sockets are forged from special bar quality carbon steel with very finest hardness controlled.
- YOKE Spelter Sockets properly applied have an efficiency rating of 100% based on the catalog strength of wire rope.
- Socket size 1/4" thru 3/4" use one groove, 7/8" thru 1-1/2" use 2 grooves.
- Open Spelter Sockets meet the performance requirements of Federal Specification RR-S-550E, Type A. ★ S.C. = Self Colored.
- In accordance with ASME B30.9 all assembly slings with poured Spelter Sockets, shall be proof loaded.

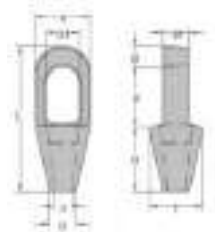


Item Code	Wire Rope Size	Dimensions (in)										Weight Ea. [lbs]
		[in]	A	C	D	D1	D	H	K	L	T	
8-733-06	1/4	4.53	0.91	0.67	0.31	0.71	1.54	2.24	1.57	1.30	0.35	1.54
8-733-10	5/16-3/8	4.84	0.83	0.79	0.51	0.83	1.73	2.24	1.77	1.50	0.43	1.98
8-733-13	7/16-1/2	5.59	0.98	0.98	0.59	0.98	1.97	2.48	2.13	1.89	0.51	3.53
8-733-16	9/16-5/8	6.77	1.26	1.18	0.71	1.14	2.24	2.99	2.52	2.28	0.55	4.85
8-733-19	3/4	7.95	1.50	1.38	0.87	1.26	2.64	3.62	2.99	2.64	0.63	7.50
8-733-22	7/8	9.25	1.77	1.61	0.94	1.50	3.35	4.02	3.50	3.15	0.79	11.90
8-733-26	1	10.55	2.05	2.01	1.14	1.73	3.74	4.49	4.02	3.78	0.91	18.74
8-733-28	1-1/8	11.81	2.24	2.20	1.26	2.01	4.13	5.00	4.61	4.13	0.98	25.57
8-733-36	1-1/4-1-3/8	13.19	2.52	2.44	1.50	2.24	4.72	5.51	5.00	4.76	1.14	35.27
8-733-38	1-1/2	15.12	2.99	2.76	1.61	2.76	5.24	5.98	5.98	5.39	1.18	52.91

8-735 / Forged Closed Spelter Wire Rope Socket

Application

- YOKE Spelter Sockets are forged from special bar quality carbon steel with very finest hardness controlled.
- YOKE Spelter Sockets properly applied have an efficiency rating of 100% based on the catalog strength of wire rope.
- Socket size 1/4" thru 3/4" use one groove, 7/8" thru 1-1/2" use 2 grooves.
- Open Spelter Sockets meet the performance requirements of Federal Specification RR-S-550E, Type A. ★ S.C. = Self Colored.
- In accordance with ASME B30.9 all assembly slings with poured Spelter Sockets, shall be proof loaded.



Item Code	Wire Rope Size	Dimensions (in)										Weight Ea. [lbs]
		[in]	L	B	A	D1	d	D	T	H	W	
8-735-06	1/4	4.49	0.51	1.50	0.87	0.39	0.71	1.50	2.24	0.51	1.73	0.66
8-735-10	5/16-3/8	4.88	0.63	1.69	0.98	0.51	0.83	1.69	2.24	0.71	2.01	0.88
8-735-13	7/16-1/2	5.43	0.71	2.01	1.18	0.55	0.98	1.97	2.52	0.87	2.24	1.54
8-735-16	9/16-5/8	6.30	0.83	2.64	1.42	0.71	1.10	2.48	2.99	0.98	2.52	2.65
8-735-19	3/4	7.56	1.06	2.99	1.61	0.83	1.26	2.76	3.50	1.26	2.99	4.41
8-735-22	7/8	8.74	1.26	3.62	1.89	0.94	1.50	3.46	3.98	1.50	3.50	7.94
8-735-26	1	9.88	1.38	4.09	2.28	1.14	1.77	3.78	4.49	1.77	4.02	10.58
8-735-28	1-1/8	10.98	1.50	4.49	2.56	1.26	2.01	4.13	5.00	1.97	4.49	15.21
8-735-36	1-1/4-1-3/8	12.13	1.61	5.31	2.80	1.50	2.24	4.76	5.51	2.24	5.00	22.71
8-735-38	1-1/2	13.94	1.93	5.31	3.19	1.61	2.76	5.24	5.98	2.52	5.98	30.86

- Sling Protection
- Web Slings
- Round Slings
- Synthetic Chain Slings
- Wire Rope Slings
- Chain Slings
- Shackles & Turnbuckles
- Hooks & Links
- Lifting Points
- Hoists & Blocks
- Lifting Devices
- Pipe & Hose Restraints
- Tie Down Assemblies
- Tie Down Accessories
- Towing & Recovery
- Rope & Cordage

Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
The Down Assemblies
The Down Accessories
Towing & Recovery
Rope & Cordage

8-731 / Forged Open Swage Socket(with Round Pin)

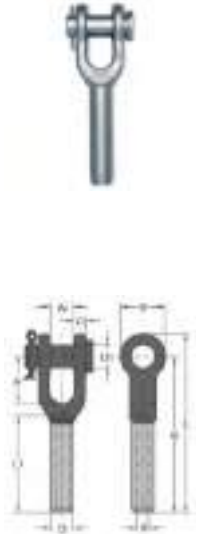
Application

- YOKE 8-731 Opened Swage Sockets are forged from special bar quality carbon steel with very finest hardness controlled by spheroidize annealing.
- YOKE Swage Sockets properly applied have an efficiency rating of 100% based on the catalog strength of wire rope. YOKE Swage Sockets are recommended for use

with 6x19, 6x37, and IWRC wire rope. They are approved for use with galvanized bridge rope. YOKE Swage Sockets are not recommended for use on fiber core or lang lay rope.

All slings swaged with Sockets shall be proof loaded in accordance with ANSI B30.9

Item Code	Wire Rope Size	Dimensions [in]										Min After Swage Dim [in]	Weight Ea. [lbs]
		A	B	C	D	D1	d	K	L	L1	W		
8-731-06	1/4	1.50	1.38	0.35	0.50	0.69	0.27	4.02	4.80	2.17	0.67	0.46	0.7
8-731-08	5/16	1.77	1.65	0.47	0.77	0.81	0.34	5.31	6.26	3.15	0.79	0.71	1.5
8-731-10	3/8	1.77	1.65	0.47	0.77	0.81	0.41	5.31	6.26	3.15	0.79	0.71	1.3
8-731-11	7/16	1.96	2.00	0.55	0.98	1.00	0.48	6.85	7.83	4.33	1.00	0.91	2.6
8-731-13	1/2	1.96	2.00	0.55	0.98	1.00	0.55	6.85	7.83	4.33	1.00	0.91	2.4
8-731-14	9/16	2.25	2.36	0.68	1.25	1.19	0.62	8.27	9.45	5.31	1.22	1.16	4.6
8-731-16	5/8	2.25	2.36	0.68	1.25	1.19	0.67	8.27	9.45	5.31	1.22	1.16	4.6
8-731-19	3/4	2.75	2.75	0.79	1.55	1.38	0.82	10.07	11.61	6.34	1.50	1.42	8.4
8-731-22	7/8	3.23	3.15	0.94	1.70	1.63	0.94	11.81	13.39	7.44	1.77	1.55	11.9
8-731-26	1	3.86	3.94	1.02	1.98	2.00	1.06	13.58	15.55	8.50	2.00	1.80	17.8
8-731-28	1 1/8	4.26	4.06	1.19	2.25	2.20	1.19	15.08	17.40	9.37	2.25	2.05	27.5
8-731-32	1 1/4	4.72	4.45	1.34	2.53	2.25	1.33	16.50	19.06	10.59	2.48	2.30	38.5
8-731-36	1 3/8	5.20	5.00	1.38	2.80	2.50	1.45	18.23	21.02	11.69	2.52	2.56	46.0
8-731-38	1 1/2	5.75	5.51	1.69	3.08	2.52	1.61	19.75	22.88	12.40	3.00	2.81	66.0



8-732 / Forged Closed Swage Wire Rope Socket

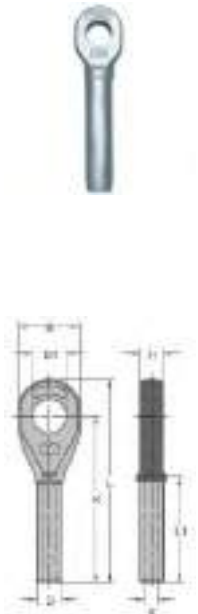
Application

- YOKE 8-732 Closed Swage Sockets are forged from special bar quality carbon steel with very finest hardness controlled by spheroidize annealing.
- YOKE Swage Sockets properly applied have an efficiency rating of 100% based on the catalog strength of wire rope. YOKE Swage Sockets are

recommended for use with 6x19, 6x37, and IWRC wire rope. They are approved for use with galvanized bridge rope. YOKE Swage Sockets are not recommended for use on fiber core or lang lay rope. S.C. = Self Colored.

All slings swaged with Sockets shall be proof loaded in accordance with ANSI B30.9

Item Code	Wire Rope Size	Dimensions [in]									Min After Swage Dim [in]	Weight Ea. [lbs]
		B	D	D1	d	H	K	L	L1			
8-732-06	1/4	1.38	0.50	0.75	0.27	0.50	3.50	4.33	2.13	0.46	0.4	
8-732-08	5/16	1.63	0.77	0.89	0.34	0.67	4.50	5.50	3.15	0.71	0.7	
8-732-10	3/8	1.63	0.77	0.89	0.41	0.67	4.50	5.50	3.15	0.71	0.7	
8-732-11	7/16	2.00	0.98	1.06	0.48	0.89	5.75	6.93	4.25	0.91	1.5	
8-732-13	1/2	2.00	0.98	1.06	0.55	0.89	5.75	6.93	4.25	0.91	1.3	
8-732-14	9/16	2.40	1.25	1.26	0.62	1.14	7.28	8.70	5.31	1.16	3.1	
8-732-16	5/8	2.40	1.25	1.26	0.67	1.14	7.28	8.70	5.31	1.16	2.9	
8-732-19	3/4	2.87	1.55	1.44	0.82	1.31	8.54	10.20	6.38	1.42	5.1	
8-732-22	7/8	3.11	1.70	1.70	0.94	1.50	10.16	11.97	7.44	1.55	6.8	
8-732-26	1	3.62	1.98	2.05	1.06	1.77	11.54	13.46	8.50	1.80	10.6	
8-732-28	1 1/8	4.02	2.25	2.32	1.19	2.00	12.72	15.04	9.57	2.05	14.7	
8-732-32	1 1/4	4.50	2.53	2.56	1.33	2.25	14.33	16.97	10.63	2.30	21.6	
8-732-36	1 3/8	5.00	2.80	2.56	1.45	2.25	15.83	18.70	11.69	2.56	28.6	
8-732-38	1 1/2	5.50	3.08	2.81	1.61	2.52	17.01	20.12	12.75	2.81	28.1	

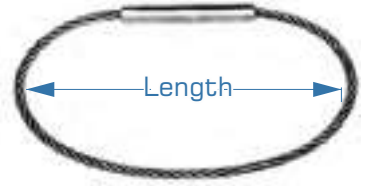


Mechanical Splice Grommet Slings

Mechanical Splice Grommets are constructed with a single piece of 6x36 wire rope connected with a steel sleeve. Highly flexible, they resist kinks and are easy to handle.

Minimum circumference of the sling is 96 times the grommet body diameter. Rated capacities based on pin diameter no smaller than 5 times the body diameter.

Horizontal sling angles less than 30 degrees shall not be used



Wire Rope Dia	Vertical	Choker	Basket Hitch			
	90°	120°	90°	60°	45°	30°
1/4	1,880	1,320	3,800	3,200	2,600	1,880
5/16	3,000	2,000	5,800	5,000	4,200	3,000
3/8	4,200	3,000	8,400	7,200	6,000	4,200
7/16	5,600	4,000	11,400	9,800	8,000	5,600
1/2	7,400	5,200	14,600	12,800	10,400	7,400
9/16	9,200	6,400	18,600	16,000	13,200	9,200
5/8	11,400	8,000	22,000	19,800	16,200	11,400
3/4	16,400	11,400	32,000	28,000	24,000	16,400
7/8	22,000	15,400	44,000	38,000	32,000	22,000
1	28,000	20,000	58,000	50,000	40,000	28,000
1 1/8	36,000	24,000	70,000	62,000	50,000	36,000
1 1/4	42,000	30,000	86,000	74,000	60,000	42,000
1 3/8	50,000	36,000	102,000	88,000	72,000	50,000
1 1/2	60,000	42,000	120,000	104,000	84,000	60,000
1 5/8	68,000	48,000	138,000	120,000	98,000	68,000
1 3/4	80,000	56,000	158,000	138,000	112,000	80,000
1 7/8	90,000	62,000	178,000	154,000	126,000	90,000
2	100,000	70,000	202,000	174,000	142,000	100,000

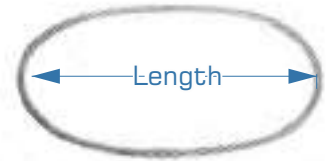
Spliced Grommet Slings

Cable Laid Grommets have six ropes laid helically around a wire rope core with ends joined by a hand tuck to form an endless body. Highly flexible, they resist kinks and are easy to handle.

Minimum circumference of the sling is 96 times the grommet body diameter.

Rated capacities based on pin diameter no smaller than 5 times the body diameter.

Horizontal sling angles less than 30 degrees shall not be used.



Wire Rope Dia	Vertical	Choker	Basket Hitch			
	90°	120°	90°	60°	45°	30°
1/4	2,200	1,480	4,200	3,600	3,000	2,200
5/16	3,200	2,400	6,600	5,600	4,600	3,200
3/8	4,800	3,200	9,400	8,200	6,600	4,800
7/16	6,400	4,400	12,800	11,000	9,000	6,400
1/2	8,200	5,800	16,600	14,400	11,800	8,200
9/16	10,400	7,400	20,000	18,200	14,800	10,400
5/8	12,800	9,000	26,000	22,000	18,200	12,800
3/4	18,400	12,800	36,000	32,000	26,000	18,400
7/8	24,000	17,400	50,000	44,000	36,000	24,000
1	32,000	22,000	64,000	56,000	46,000	32,000
1 1/8	40,000	28,000	82,000	70,000	58,000	40,000
1 1/4	50,000	34,000	100,000	86,000	70,000	50,000
1 3/8	60,000	42,000	120,000	104,000	84,000	60,000
1 1/2	72,000	50,000	142,000	124,000	100,000	72,000
1 5/8	82,000	58,000	164,000	142,000	116,000	82,000
1 3/4	96,000	66,000	190,000	166,000	136,000	96,000
1 7/8	108,000	76,000	218,000	188,000	154,000	108,000
2	124,000	86,000	248,000	214,000	174,000	124,000



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Sling Protection
 Web Slings
 Round Slings
 Synthetic Chain Slings
Wire Rope Slings
 Chain Slings
 Shackles & Turnbuckles
 Hooks & Links
 Lifting Points
 Hoists & Blocks
 Lifting Devices
 Pipe & Hose Restraints
 Tie Down Assemblies
 Tie Down Accessories
 Towing & Recovery
 Rope & Cordage

Hand Spliced Wire Rope Slings (Loading Slings)

Hand spliced wire rope slings (commonly known as "Loading Slings") are typically used in heavy haul winching applications. These slings are spliced without a steel sleeve, making them ideal for use with the roller on a large winch truck. Loading slings come with 36" eyes in order to fit a large selection of equipment and are made with 6x36 EIPS wire rope for the best combination of flexibility and strength. Standard lengths for loading slings are 24', 26' and 28', customer lengths are available upon request. Eye Size for Loading Slings is typically 36" x 10"

Warning: Hand-spliced slings should not be used in lifts where the sling may rotate and cause the wire rope to unlay.



Wire Rope Dia	Vertical	Basket Hitch			
	90°	90°	60°	45°	30°
EIPS IWRC Wire Rope					
1/2	7,100	14,200	10,500	8,600	6,100
9/16	8,900	17,800	13,300	10,800	7,700
5/8	10,900	21,800	16,400	13,400	9,500
3/4	15,700	31,400	23,500	19,200	13,600
7/8	21,200	42,400	31,800	26,000	18,400
1	27,500	55,000	41,300	33,700	23,900
1 1/8	34,700	69,400	52,100	42,500	30,100
1 1/4	42,600	85,200	64,000	52,300	37,000
1 3/8	51,200	102,400	77,000	62,900	44,500
1 1/2	60,800	121,600	91,200	74,500	52,700

IPS IWRC (Special Order)					
1/2	6,100	12,200	10,500	8,600	6,100
9/16	7,700	15,400	13,300	10,800	7,700
5/8	9,500	19,000	16,400	13,400	9,500
3/4	13,600	27,200	23,500	19,200	13,600
7/8	18,400	36,800	31,800	26,000	18,400
1	23,900	47,800	41,300	33,700	23,900
1 1/8	30,100	60,200	52,100	42,500	30,100
1 1/4	37,000	74,000	64,000	52,300	37,000
1 3/8	44,500	89,000	77,000	62,900	44,500
1 1/2	52,700	105,400	91,200	74,500	52,700



**Design Factor 3:1
NOT FOR OVERHEAD LIFTING**



WARNING!

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Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cords

Swivel Dee Rope Sockets

The No. 154 Swivel Dee is made from cast alloy steel. Ideal for general logging and winching purposes, the dees have proven their value many times over. They may be used in any situation where an "in-line" pull or swivel action is required



Item No.	Item Description	Type
12-600-154-A	3/4"-7/8" SWIVEL DEE ROPE SOCKET L360	6 lb Light
12-600-154-B	1" - 1 1/8" SWIVEL DEE ROPE SOCKET L361	12 lb Junior
12-600-154-C	1-1/4" - 1-3/8" SWIVEL DEE ROPE SOCKET L362	17 lb Standard

Wedge Type Ferrules

Wedge Type 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 may be applied with Socket resin.



Item No.	Description
12-L-790	3/8" SILVER QUICK WAY FERRULE
12-L-791	1/2" BROWN QUICK WAY FERRULE
12-L-794	9/16"-5/8" PINK QUICK WAY FERRULE
12-L-798	1/2" CREAM QUICK WAY FERRULE - H.D.
12-L-801	5/8" MAROON QUICK WAY FERRULE - H.D.
12-L-802	3/4" GREY QUICKWAY FERRULE
12-L-804	7/8" BLACK QUICK WAY FERRULE
12-L-805	1" GREEN QUICK WAY FERRULE
12-L-806	7/8" RED QUICK WAY FERRULE - H.D.
12-L-807	1" BLUE QUICK WAY FERRULE - H.D.
12-L-808	1 1/8" YELLOW QUICK WAY FERRULE
12-L-809	1 1/4" ORANGE QUICK WAY FERRULE
12-L-810	1 1/4" PURPLE QUICK WAY FERRULE HD
12-L-811	1 3/8" GOLD QUICK WAY FERRULE

1. Insert Cable through the ferrule and spread the strands to insert wedge halves over the core of the wire rope.



2. Position individual strands into the proper grooves around the wedge halves and tap wedges until they are flush with strand ends.



3. Slide the ferrule back over the wedge into the ferrule with a hammer and a short pipe which fits inside the strands and over the core.



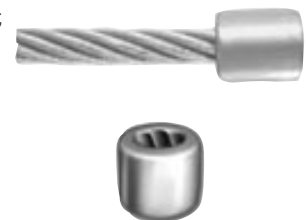
4. The first load will seat the cable and wedge securely in the ferrule and the strands project about 1/4" above the wedge. Strands must not finish below the wedge



Wedge-type ferrules are intended only for use with new 6 x 19 class or 6 x 37 class, right regular lay, EIP, IWRC rope made to North American specifications.

Screwy® Drumline Ferrules

CAST SCREWY DRUMLINE FERRULES Screwy drumline ferrules incorporate the cast Screwy design in a shorter ferrule, designed specifically for attaching winch lines to winch drum pockets. Note: Drumline ferrules develop less holding power than choker ferrules and should only be used to attach wire rope to winch drums. Never load drumline ferrules directly. Always leave at least three wraps on the drum when it's under a load.



Item No.	Description
47-L6DL34	3/4" SCREWY DRUMLINE FERRULE
47-L7DL78	7/8" SCREWY DRUMLINE FERRULE
47-J8DL1	1" SCREWY DRUMLINE FERRULE
47-J9DL118	1 1/8" SCREWY DRUMLINE FERRULE
47-J10DL	1 1/4" SCREWY DRUMLINE FERRULE



Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage

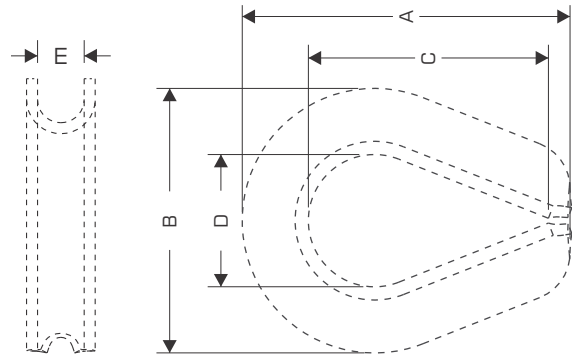
Wire Rope Thimbles

Thimbles are used to protect steel wire rope, fibre rope or synthetic rope. They are available in various models and sizes. All indicated types of thimbles in this catalogue can be used in combination with the above mentioned types of ropes.

Thimbles must be regularly inspected in accordance with the standards given in the country of use. This is required because the products in use may be affected by wear, misuse, overloading which may lead to deformation and/or alteration of the steel structure.

Make sure that the (wire) rope fits properly into the groove of the thimble you use. The nominal size of the thimble represents the diameter of the (wire) rope for which it is intended to be used. If there is no thimble available with a nominal size that meets the size of your (wire) rope, the next larger size of thimble must be used.

Before use, check if the thimble is free from impurities, sharp edges, cracks or other irregularities which may damage the wire rope and therefore affect the performance of the wire rope.



Heavy Duty Wire Rope Thimbles

Wire Rope Size	Weight / 100 pcs	Dimensions (in)						Qty / Box	Item Code
		A	B	C	D	E	Thickness		
[in]	lbs								
1/4	6.50	2.19	1.50	1.63	0.88	0.28	0.41	1000	47-1037639
5/16	11.80	2.50	1.81	1.88	1.06	0.34	0.50	500	47-1037657
3/8	21.60	2.88	2.13	2.13	1.13	0.41	0.63	250	47-1037675
7/16	34.70	3.25	2.38	2.38	1.25	0.47	0.72	150	47-1037693
1/2	51.00	3.63	2.75	2.75	1.50	0.53	0.81	100	47-1037719
5/8	75.70	4.25	3.13	3.25	1.75	0.66	0.97	80	47-1037755
3/4	158.1	5.00	3.81	3.75	2.00	0.78	1.22	50	47-1037773
7/8	177.8	5.50	4.25	4.25	2.25	0.94	1.38	30	47-1037791
1	313.9	6.13	4.94	4.50	2.50	1.06	1.56	20	47-1037817
1 1/8 - 1 1/4	400.0	7.00	5.88	5.13	2.88	1.31	1.81	15	47-1037835
1 1/4 - 1 3/8	811.0	9.00	6.81	6.25	3.50	1.44	2.19	6	47-1037853
1 3/8 - 1 1/2	1,295	9.06	7.13	6.50	3.50	1.56	2.56	5	47-1037871
1 3/4	1,775	12.19	8.50	9.00	4.50	1.84	2.84	4	47-1037915
2	2,775	15.13	10.38	12.00	6.00	2.09	3.09	2	47-1037933



Light Duty Wire Rope Thimbles

Wire Rope Size	Weight / 100 pcs	Dimensions (in)					Item Code
[in]	lbs	A	B	C	D	E	
1/8	3.50	1.94	1.06	1.31	0.69	0.16	47-1037256
3/16	3.50	1.94	1.06	1.31	0.69	0.22	47-1037274
1/4	3.50	1.94	1.06	1.31	0.69	0.28	47-1037292
5/16	4.00	2.13	1.25	1.50	0.81	0.34	47-1037318
3/8	6.70	2.38	1.47	1.63	0.94	0.41	47-1037336
1/2	12.50	2.75	1.75	1.88	1.13	0.53	47-1037354
5/8	34.50	3.50	2.38	2.25	1.38	0.66	47-1037372
3/4	47.10	3.75	2.69	2.50	1.63	0.78	47-1037390
7/8	84.60	5.00	3.19	3.50	1.88	0.94	47-1037416



Aluminum Oval Sleeves "Figure 8"

Wire Rope Size	Weight / 100 pcs	Dimensions [in]			O.D After Swage	Item Code
		Length	Depth	Width		
[in]	lbs				[in]	
1/16	0.10	3/8	11/64	1/4	0.187	47-116AS
3/32	0.30	1/2	9/32	13/32	0.281	47-332AS
1/8	0.66	5/8	11/32	1/2	0.312	47-18AS
5/32	0.88	11/16	3/8	9/16	0.375	47-532AS
3/16	1.6	1	7/16	21/32	0.437	47-316AS
1/4	2.8	1-1/8	17/32	13/16	0.563	47-14AS
5/16	4.6	1-1/4	11/16	1-1/32	0.687	47-516AS
3/8	5.9	1-7/16	3/4	1-5/32	0.812	47-38AS
7/16	12	1-11/16	15/16	1-7/16	1.000	47-716AS
1/2	17	2	1-1/16	1-5/8	1.120	47-12AS



Aluminum Button Stops

Wire Rope Size	Weight / 100 pcs	Dimensions [in]		O.D After Swage	Item Code
		Outside Dia	Inside Dia		
[in]	lbs			[in]	
1/16	0.06	1/4	3/32	0.187	47-116AB
3/32	0.25	11/32	1/8	0.245	47-332AB
1/8	0.24	11/32	5/32	0.245	47-18AB
5/32	0.38	7/16	3/16	0.325	47-532AB
3/16	0.35	7/16	7/32	0.325	47-316AB
1/4	2.06	11/16	9/32	0.508	47-14AB
5/16	1.74	11/16	3/8	0.508	47-516AB



Copper Oval Sleeves "Figure 8"

Wire Rope Size	Weight / 100 pcs	Dimensions [in]			O.D After Swage	Item Code
		Length	Depth	Width		
[in]	lbs				[in]	
1/16	0.3	25/64	11/64	1/4	0.190	47-116CS
3/32	0.65	29/64	15/64	3/8	0.265	47-332CS
1/8	1.6	9/16	21/64	1/2	0.353	47-18CS
5/32	2.3	5/8	3/8	19/32	0.390	47-532CS
3/16	5.1	7/8	7/16	43/64	0.475	47-316CS
1/4	7.5	1-1/8	13/16	1/2	0.585	47-14CS
5/16	11.8	1-1/8	21/32	1-1/64	0.730	47-516CS
3/8	17	1-1/2	23/32	1-1/8	0.795	47-38CS



Green Pin Wire Rope Clips

Product details

Productcode: G-6240
Material: Bridge: drop forged high tensile steel SAE 1045U-bolt: SAE 1015
Finish: Hot dipped galvanized U-bolt and/or nuts for diameter bow 5, 6, 8 and 10 mm are electro-galvanized
Certification: 2.1
Standard: Generally to EN 13411-5 Type B Formerly US Federal Specification FF-C-450D

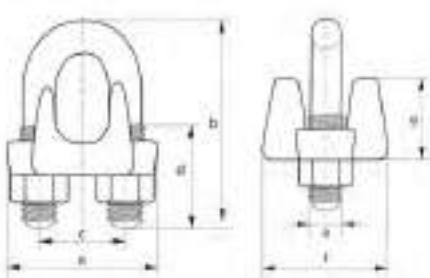


Description

The Green Pin® Wire Rope Clip is a wire rope clip, generally to EN 13411-5 Type B. This wire rope clip is safer to work with as the ribs on the bearing surface of the clip prevent sliding of the wire rope. Furthermore, the wire rope clip is made from high tensile steel, while galvanization ensures its long-term durability. The Green Pin® Wire Rope Clip is available in a range for wire rope diameters of 4 up to 78 mm.

Highlights

- High tensile steel
- Ribs prevent sliding of wire rope
- Galvanization assures long-term durability
- Generally to EN 13411-5 Type B
- Superior stock availability of 99%



Item Code	Diameter Wire Rope	Diameter	Length Bow	Width Inside	Length Thread	Length Base	Height Base	Net Weight
	[in]	A	B	C	D	E	G	LBS
88-CLGRP03	1/8	0.20	0.94	0.47	0.43	0.94	0.39	0.07
88-CLGRP05	3/16	0.24	1.22	0.59	0.51	1.14	0.51	0.15
88-CLGRP06	1/4	0.31	1.34	0.75	0.51	1.46	0.71	0.18
88-CLGRP08	5/16	0.39	1.77	0.87	0.75	1.69	0.75	0.26
88-CLGRP10	3/8	0.43	1.93	1.02	0.75	1.93	0.98	0.46
88-CLGRP11	7/16	0.47	2.36	1.18	0.98	2.28	1.02	0.73
88-CLGRP12	1/2	0.51	2.40	1.18	0.98	2.28	1.22	0.73
88-CLGRP14	9/16	0.55	2.83	1.30	1.26	2.48	1.22	1.01
88-CLGRP16	5/8	0.55	2.91	1.30	1.26	2.52	1.42	1.01
88-CLGRP19	3/4	0.63	3.39	1.50	1.46	2.83	1.50	1.41
88-CLGRP22	7/8	0.75	3.86	1.77	1.61	3.15	1.57	2.12
88-CLGRP25	1	0.75	4.25	1.89	1.81	3.46	1.85	2.54
88-CLGRP28	1 1/8	0.75	4.61	2.01	2.01	3.58	1.89	2.80
88-CLGRP32	1 1/4	0.87	5.12	2.32	2.13	4.13	2.20	4.34
88-CLGRP35	1 3/8	0.87	5.51	2.36	2.32	4.25	2.28	4.56
88-CLGRP38	1 1/2	0.87	5.79	2.60	2.36	4.41	2.52	5.60
88-CLGRP42	1 5/8	0.98	6.34	2.76	2.64	4.76	2.64	7.10
88-CLGRP45	1 3/4	1.14	6.85	3.07	2.76	5.28	2.99	9.22
88-CLGRP50	2	1.26	7.68	3.39	3.07	5.91	3.35	13.27
88-CLGRP56	2 1/4	1.26	8.39	3.86	3.19	6.38	3.94	17.11
88-CLGRP64	2 1/2	1.26	8.94	4.13	3.43	6.61	4.45	19.00
88-CLGRP69	2 3/4	1.26	9.57	4.41	3.58	6.85	4.88	22.49
88-CLGRP75	3	1.50	10.67	4.76	3.86	7.64	5.35	28.00

Sling Protection
 Web Slings
 Round Slings
 Synthetic Chain Slings
Wire Rope Slings
 Chain Slings
 Shackles & Turnbuckles
 Hooks & Links
 Lifting Points
 Hoists & Blocks
 Lifting Devices
 Pipe & Hose Restraints
 Tie Down Assemblies
 Tie Down Accessories
 Towing & Recovery
 Rope & Cordage

Lift it up, Tie it down, Pull it around

Green Pin Wire Rope Clips



Applications

Wire rope clips are used on wire rope eye-loop connections or complete loops, end-to-end connections where socketing or splicing is not feasible or when a temporary joint is required.

Range

Green Pin® offers a wide range of wire rope clips in specifically standardized models such as EN 13411-5 and DIN wire rope clips. Van Beest also offers a wide range of other wire rope clips to complement the Green Pin® assortment.

Design

Green Pin® wire rope clips are drop forged and have a bridge with grooves to tighten the wire rope properly in the clip; the DIN wire rope clips have a malleable base, without grooves.

Wire rope clips are generally marked with:

- manufacturer's symbol - e.g. GP
- wire rope diameter in mm or inches - e.g. 13mm or 1/2"
- traceability code - e.g. A1

Finish

The finish can be electro-galvanized or hot dipped galvanized.

Certification

Specific details of certificate availability can be found on each product page. Please verify your certification requirements with Green Pin® at the time of order.

Instructions for use

Wire rope clips should be inspected before use to ensure that:

- all markings are legible;
- a wire rope clip with the correct dimensions has been selected;
- the nuts or any other locking system cannot vibrate out of position;
- the wire rope clip is free from nicks, gouges and cracks;
- never modify, repair or reshape a wire rope clip by machining, welding, heating or bending as this may affect their performance.

The wire rope clip should be fitted to the wire rope as shown in below figures. The bridge of the wire rope clip should always be placed on the load bearing part of the rope. The U bolt of the clip should be placed on the rope tail, also known as the dead end of the rope. Turn back enough wire rope length so that the required minimum number of clips can be installed according to the instructions below.

The first clip must be placed one bridge width from the turned-back rope tail or dead end of the rope, according to figure 1. Tighten the nuts to the specified torque.

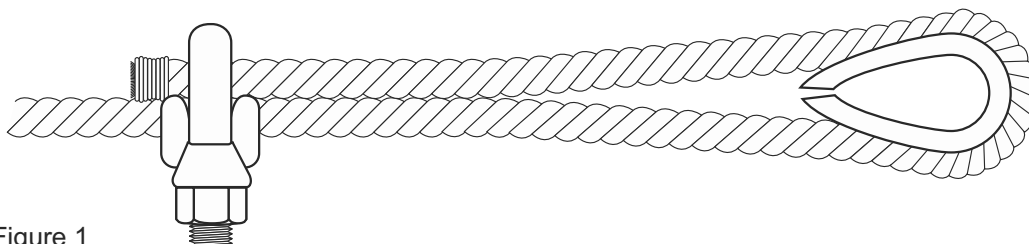
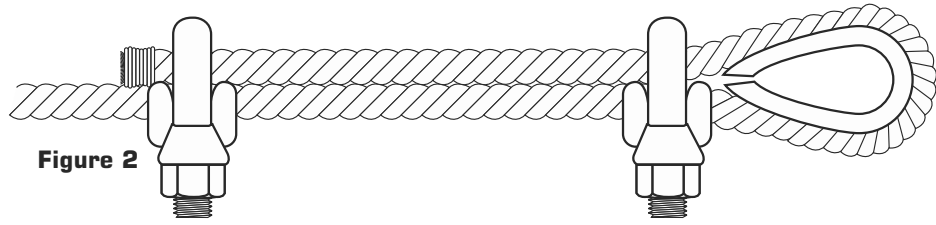


Figure 1

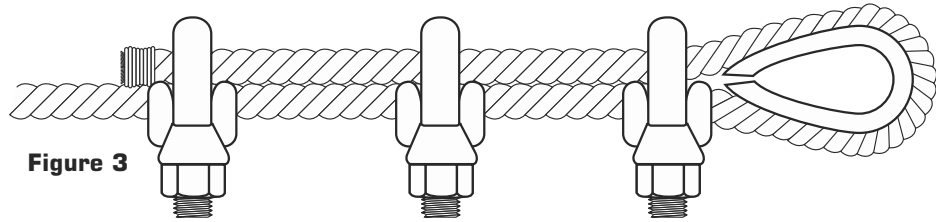


Green Pin Wire Rope Clips

The second clip must be placed immediately against the thimble. Take care that the correct tightening of the clip does not damage the outer wires of the wire rope (figure 2). Tighten the nuts firmly but not yet to the specified torque.



The following clips should be placed on the wire rope between the first and second clip in such a way that they are separated by at least 1½ times the clip-width with a maximum of 3 times the clip-width, according to figure 3.



Apply light tension on the rope and tighten all nuts evenly, alternating until reaching the specified torque. After assembly and before the rope is taken into service, the nuts must be tightened further to the prescribed torque. After the load has been applied to the assembly for the first time, the torque value must be checked and corrected if necessary. Re-tightening of the nuts must be done at 10.000 cycles (heavy usage), 20.000 cycles (moderate usage) or 50.000 cycles (light usage). If cycles are unknown, a competent person could fix a time period, e.g. every 3 months, 6 months, annually. The torque values and the minimum number of clips to be applied for a particular rope size are given in the following tables.

The efficiency of a wire rope termination made with wire rope clips depends on the correct placement of the clips on the rope and on correct fitting and tightening of the clips. With inadequately tightened nuts or with an insufficient number of wire rope clips the rope end may slide through the clips during use. The fitting of the clips on the ropes may be affected by various circumstances, such as:

- the nut may be tight on the thread, yet not tight against the bridge;
- contamination of the thread by dirt, oil or corrosion products, which may prevent correct tightening of the nut.

Forged wire rope clips provide greater bearing surface and more consistent strength than malleable cast iron clips. Suitable applications of wire rope clips to EN 13411-5 standards include suspending static loads and single use lifting operations which have been assessed by a competent person taking into account appropriate safety factors.

Wire rope clips should not be used in following applications:

- hoist ropes in mines;
- rope drives for cranes in steel works and rolling mills;
- permanent fastening of ropes in other rope drives;
- rope terminations for load suspension devices in the operation of lifting appliances, except in the case of lifting tackles where these are produced for a special application and used only once.

Wire rope clips must be regularly inspected in accordance with the safety standards given in the country of use. This is required because the products in use may be affected by wear, misuse, overloading etc. which may lead to deformation and alteration of the material structure. Inspection should take place at least every six months and more frequently when the products are used in severe operating conditions.

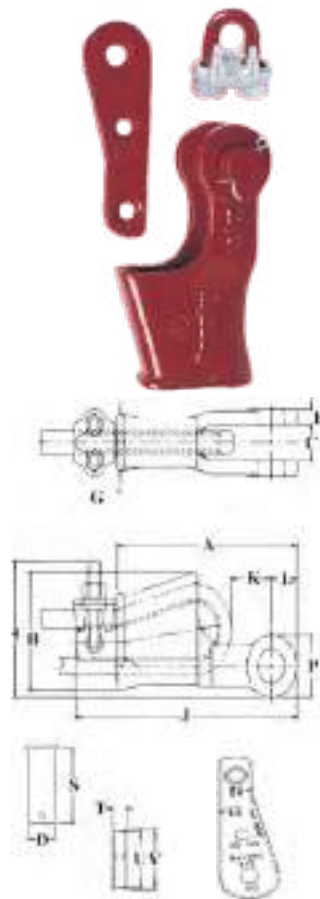
Wire Rope Size		Number of Clips Required	Length of Wire Rope Turnback		Torque Required	
in	mm		mm	in	Nm	ft/lbs
1/8	3-4	2	85	3.35	6.1	4.5
3/16	5	2	95	3.74	10.2	7.5
1/4	6-7	2	120	4.72	20.3	15
5/16	8	3	133	5.24	40.7	30
3/8	9-10	3	165	6.50	61	45
7/16	11	3	178	7.01	88	65
1/2	12-13	3	292	11.50	88	65
9/16	14-15	3	305	12.01	129	95
5/8	16	3	305	12.01	129	95
3/4	18-20	4	460	18.11	176	130
7/8	22	4	480	18.90	305	225
1	24-26	5	660	25.98	305	225
1-1/8	28-30	6	860	33.86	305	225
1-1/4	32-34	7	1120	44.09	488	360
1-3/8	36	7	1120	44.09	488	360
1-1/2	38-40	8	1370	53.94	488	360
1-5/8	41-42	8	1470	57.87	583	430
1-3/4	44-46	8	1550	61.02	800	590
2	48-52	8	1800	70.87	1017	750
2-1/4	56-58	8	1850	72.83	1017	750
2-1/2	62-65	9	2130	83.86	1017	750
2-3/4	68-72	10	2540	100.00	1017	750
3	75-78	10	2690	105.91	1627	1200

Table 1, Green Pin® wire rope clips generally to EN 13411-5 Type B, required number and torque value

S-421T Wedge Sockets

Product details

- Wedge socket terminations have an efficiency rating of 80% based on the catalog strength of XXIP wire rope
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these sockets meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.
- Type Approval and certification in accordance with ABS 2007 Steel Vessel Rules 1-1-177, and ABS Guide for Certification of Cranes
- Basket is cast steel and individually magnetic particle inspected
- Pin diameter and jaw opening allows wedge and socket to be used in conjunction with closed 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 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 unreformed and available for reuse
- Incorporates Crosby's patented QUIC-CHECK® "Go" and "No-Go" feature cast into the wedge. The proper size rope is determined when the following criteria are met: 1) The wire rope should pass thru the "Go" hole in the wedge 2) The wire rope should NOT pass
- The 3/8" thru 1-1/8" standard S-421 wedge socket can be retrofitted with the new style TERMINATOR™ wedge
- Available with Bolt, Nut, and Cotter Pin
- US patent 5,553,360, Canada patent 2,217,004 and foreign equivalents
- Meets the performance requirements of EN 13411-6: 2003
- Wedge sockets meet the performance requirements of Federal Specification RR-S-550E, Type C, except those provisions required of the contractor



Wire Rope Dia.		S-421T Stock No.	API 2C S-421T Stock No.	Weight Each	S-421TW Stock No. Wedge Only	Wedge Only Weight Each	API 2C S-421TW Stock No. Wedge Only	Optional G-4082 API 2C Bolt, Nut & Cotter		API 2C S-421TW Stock No. Wedge Only	Optional G-4082 Bolt, Nut & Cotter	
								G-4082 Stock No.	Weight Each		G-4082 Stock No.	Weight Each
in	mm			lbs		lbs			lbs			lbs
3/8	9-10	1035000	1035005	3.18	1035555	.50	1092230	1092227	.38	1092230	1092227	.38
1/2	11-13	1035009	1035014	6.15	1035564	1.05	1092248	1092236	.69	1092248	1092236	.69
5/8	14-16	1035018	1035023	9.70	1035573	1.79	1092257	1092254	1.15	1092257	1092254	1.15
3/4	18-19	1035027	1035032	14.50	1035582	2.60	1092293	1092281	1.91	1092293	1092281	1.91
7/8	20-22	1035036	1035041	21.50	1035591	4.00	1092319	1092307	3.23	1092319	1092307	3.23
1	24-26	1035045	1035050	30.75	1035600	5.37	1092337	1092325	5.40	1092337	1092325	5.40
1-1/8	28	1035054	1035059	45.30	1035609	7.30	1092364	1092343	7.50	1092364	1092343	7.50
1-1/4	30-32	1035063	1035068	64.90	1035618	10.60	1092375	1092372	10.34	1092375	1092372	10.34

Wire Rope Dia.		S-421T Stock No.	API 2C S-421T Stock No.	Dimensions (in.)														
				A	B	C	D	G	H	J*	K*	L	P	R	S	T	U	V
in	mm																	
3/8	9-10	1035000	1035005	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	11-13	1035009	1035014	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	14-16	1035018	1035023	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	18-19	1035027	1035032	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	20-22	1035036	1035041	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	24-26	1035045	1035050	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	28	1035054	1035059	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	30-32	1035063	1035068	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

Nominal NOTE: For intermediate wire rope sizes, use next larger size socket. The S-423T Super TERMINATOR wedge is designed to be assembled only into the Crosby S-421T TERMINATOR socket body. IMPORTANT: The S-423TW for sizes 5/8" through 1-1/8" (14mm through 28mm) will fit respective size standard Crosby S-421T basket. The 1-1/4" (30-32mm) S-423TW will only fit the Crosby S-421T 1-1/4" basket marked with TERMINATOR.

Green Pin® Open Wedge Socket BN

Product details

Product Code: G-6423
Material: High Tensile Steel
Finish: Hot dipped galvanized
Temp. range: -20°C up to +200°C
Certification Standard: 2.1, 2.2, 3.1, CE
 Generally to EN 13411-6

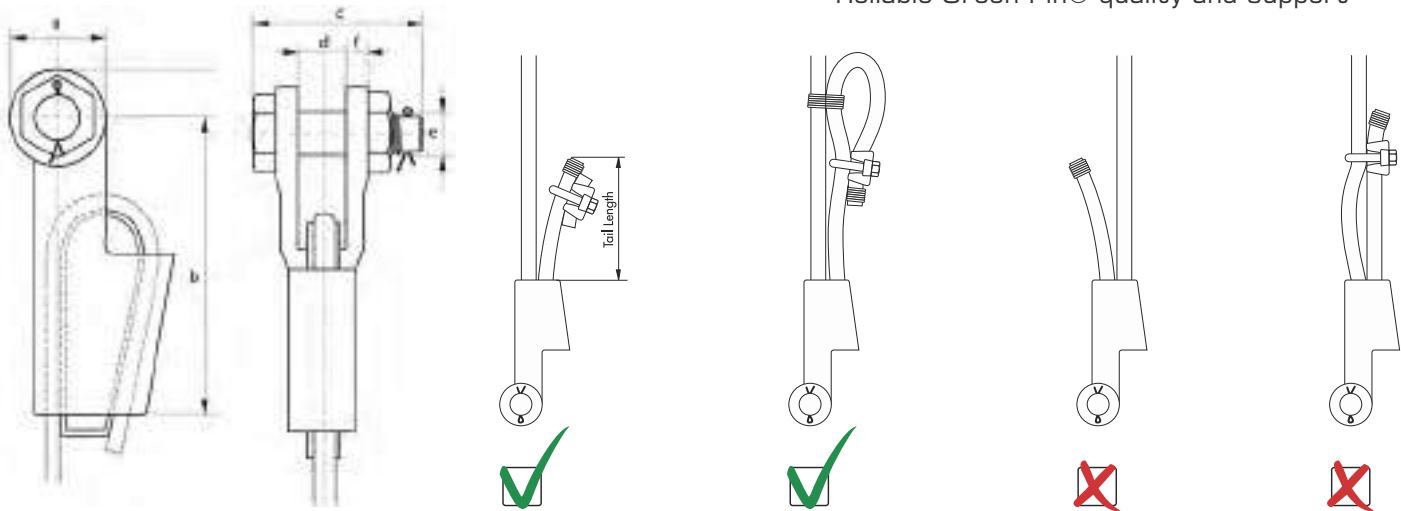


Description

The Green Pin® Open Wedge Socket BN is an open wedge socket with a safety bolt. The socket offers a double safety (split pin and safety bolt) which prevents accidental unscrewing of the pin. The socket is made from high tensile steel, while galvanization ensures its long-term durability. The Green Pin® Open Wedge Socket BN is available for wire rope with a diameter from 7-8 up to 40-42 mm.

Highlights

- Double safety (cotter pin & safety bolt)
- High tensile steel
- Galvanization assures long-term durability
- Superior stock availability of 99%
- Reliable Green Pin® quality and support



Item Code	NO. (I)	Minimum Breaking Load	Diameter Wire Rope		Dimension (IN)							Net Weight
			in	mm	A	B	C	D	E	F	G	
SKGOW008SB	0.25	8	5/16	7 - 8	5.04	4.33	2.01	0.71	0.63	0.35	1.42	1.92
SKGOW010SB	0.5	12	3/8	9 - 10	6.50	5.59	2.44	0.81	0.83	0.43	1.81	3.97
SKGOW013SB	1	20	1/2	11 - 13	6.89	5.75	2.60	0.98	0.98	0.47	2.24	5.91
SKGOW016SB	2	25	5/8	14 - 16	8.31	6.93	3.23	1.22	1.18	0.59	2.76	10.36
SKGOW019SB	3	40	3/4	18 - 19	9.92	8.35	3.74	1.50	1.38	0.63	3.15	17.86
SKGOW022SB	4	55	7/8	20 - 22	11.34	9.45	4.33	1.73	1.61	0.75	3.74	26.46
SKGOW025SB	5	75	1	24 - 26	12.95	10.79	5.12	2.01	2.01	0.87	4.33	39.46
SKGOW028SB	6	90	1 1/8	27 - 29	14.76	12.20	5.67	2.24	2.24	0.98	5.12	52.25
SKGOW032SB	7	110	1 1/4	30 - 32	16.65	13.78	6.10	2.48	2.52	1.10	5.75	72.75
SKGOW035SB	8	125	1 3/8	34 - 36	18.66	15.75	6.42	2.72	2.52	1.10	5.83	92.59
SKGOW038SB	9	150	1 1/2	37 - 39	20.75	17.72	7.01	2.99	2.76	1.18	6.02	114.64
SKGOW040SB	10	170	1 5/8	40 - 42	22.83	19.69	7.36	2.99	2.99	1.30	6.30	160.94

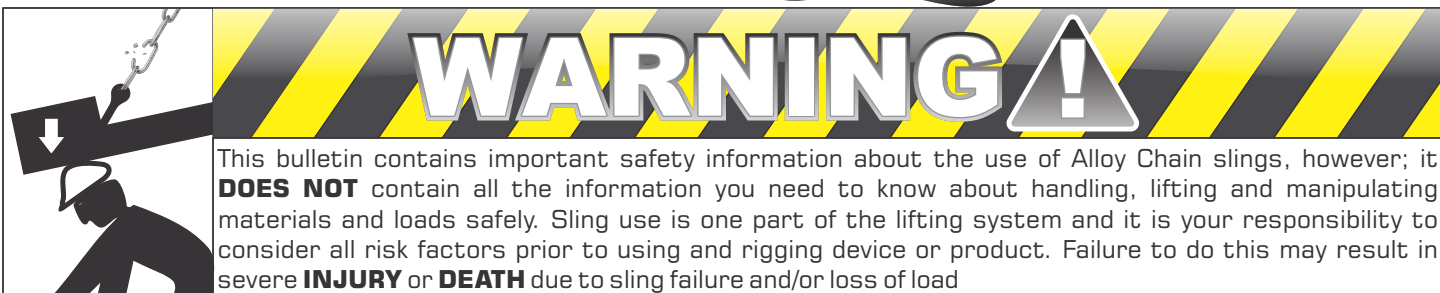
Sling Protection
 Web Slings
 Round Slings
 Synthetic Chain Slings
 Wire Rope Slings
 Chain Slings
 Shackles & Turnbuckles
 Hooks & Links
 Lifting Points
 Hoists & Blocks
 Lifting Devices
 Pipe & Hose Restraints
 Tie Down Assemblies
 Tie Down Accessories
 Towing & Recovery
 Rope & Cordage

super
20 YEARS of slings inc.
Secure Solutions

CHAIN SLINGS



Chain Slings	Wire Rope Slings	Synthetic Chain Slings	Round Slings	Web Slings	Sling Protection
Shackles & Turnbuckles	Hooks & Links	Lifting Points	Hoists & Blocks	Lifting Devices	Pipe & Hose Restraints
Tie Down Assemblies	Tie Down Accessories	Towing & Recovery	Rope & Cordage		



This bulletin contains important safety information about the use of Alloy Chain slings, however; it **DOES NOT** contain all the information you need to know about handling, lifting and manipulating materials and loads safely. Sling use is one part of the lifting system and it is your responsibility to consider all risk factors prior to using and rigging device or product. Failure to do this may result in severe **INJURY** or **DEATH** due to sling failure and/or loss of load

Instructions Regarding Components & Fittings

Components, such as master links and hooks, should have at least the same working load limit (rated capacity) as the chain with which they are used. If not, the sling shall be rated to the capacity of the weakest component. Super Slings offers a full line of Grade 80 and Grade 100 sling components engineered specifically to be compatible with our alloy chain products.

WARNINGS AND CAUTIONS

- The use of chain, slings, and components are subject to certain hazards that cannot be met by mechanical or manufacturing means, but only by the exercise of intelligence, care, and common sense
- Sling use is subject to the Alberta Occupational Health & Safety Part 21 and American Society for Mechanical Engineers (ASME B30.9) safety standards, requiring the sling user to conduct safe working practices and perform inspections
- Do not exceed the working load limit of the sling or any component
- Chemically active environments may adversely affect chain slings. Do not use in highly acidic or caustic environments. Super Slings should be contacted if the sling will be exposed to chemically active environments during use
- High and low temperatures will affect chain slings. Super Slings should be contacted if temperatures below -40°F (-29°C) will be experienced. The Effect of Elevated Temperature on the Working Load Limit of Alloy Chain chart shows the reduction in strength that occurs when chain slings are used at or have been exposed to temperatures above 400°F (204°C)
- Never field weld or repair a chain sling. Chain slings should only be repaired by a qualified repair facility
- See information under the Care, Inspection, and Proper Use sections

CARE

- Chain slings should be stored in a clean and dry area, preferably on a rack, in order to extend their life
- Chain slings should not be stored in areas where they would be subject to damage, corrosion, chemical attack, or extreme temperatures
- Clean slings periodically, as dust and grit can accelerate wear
- During use, chain slings should not be dragged over abrasive surfaces. Loads should not be rested on the chain sling to avoid damage

PROPER USE

To protect the operators, the load, and the sling, the following safe practices should be followed. Super Slings also recommends compliance with the OH&S and ASME safety standard practices.

- Select a sling suitable for the load, type of hitch, angle of

loading, and environment. The hooks and master links should be of a size to fit the intended connections

- Avoid shock loading
- Pad all sharp edges or corners in contact with the sling to prevent damage to either the sling or the load
- Balance the load to prevent shifting, to maintain control of the load, and to prevent overloading of any leg in a multiple leg sling
- Rig so that the load is properly seated in the hooks and master link. Avoid tip loading of hooks and side loading of master links
- Avoid twisting or kinking of sling legs
- Never knot chain legs
- Horizontal angles less than 30° should not be used
- For choker hitches, angles of choke greater than 120° should not be used without consulting Super Slings or a qualified person. Choker hitches reduce the working load limit by 20%
- For basket hitches, the minimum recommended diameter of the load is 6 times the nominal chain diameter. The attached D/d chart shows the reduction in the WLL for D/d ratios less than 6.

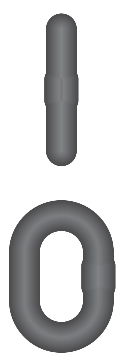
INSPECTION

ASME safety standards require the user to conduct:

- Frequent Inspections: A visual inspection for damage, which should be performed each day the sling is used.
- Periodic Inspections: A complete link by link and component inspection. Periodic inspection intervals vary depending on sling usage and conditions, but must occur at least annually. Written records of periodic inspections are required. The slings should be inspected for the presence damage. The sling should immediately be removed from service if any of the following conditions are present:

- Missing or unreadable identification tag
- Cracks in the chain or any component
- Excessive nicks, gouges or wear. Chain should be removed from service if the thickness at any point on the link is below the value shown in the **Alloy Chain Minimum Allowable Thickness** chart. All other components should be removed from service if any dimension is worn more than 10% from the original.

Alloy Chain - Minimum Allowable Thickness



Chain Stock Size	Actual Stock Dia.	Min Allowable Thickness
[in] [mm]	[in] [mm]	[in] [mm]
9/32 7	.282 7	.239 6.07
3/8 10	.402 10	.342 8.69
1/2 13	.522 13	.443 11.26
5/8 16	.643 16	.546 13.87
3/4 20	.802 20	.687 17.45
7/8 22	.881 22	.750 19.05
1 26	1.000 25	.887 22.53
1 1/4 32	1.250 32	1.091 27.71

Chain Sling Inspection

The inspection should follow a formal written inspection procedure to ensure complete examination:

1. Clean each chain sling prior to inspection. Chain that is coated with paint, dirt or oil may hide nicks, gouges or other damage.
2. Check the identification tag legibility. Ensure that its serial number, name of manufacturer, size, grade, working load limit and reach correspond to the original Chain Sling Certification when the sling was manufactured.
3. Measure the reach of sling legs to make sure they correspond to the values stamped on the chain sling identification tag. If one or more legs are longer, there is a possibility that the sling has been subjected to overloading or excessive wear.
4. Any chain sling removed from service should be tagged and returned to the central issuing department with data covering the detected during the inspection. The sling can then be returned to a Super Slings Service Centre for the appropriate repairs and proof testing.

5. If hooks have been opened more than 5% of the normal throat openings (measured at the narrowest point) or twisted more than 0 degrees from the plane of unbent hook, the sling shall be removed from service.

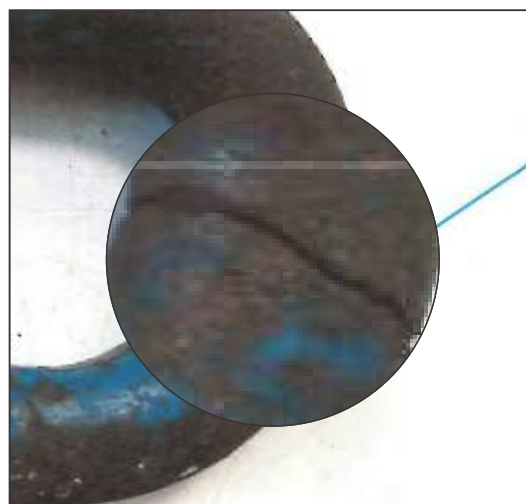
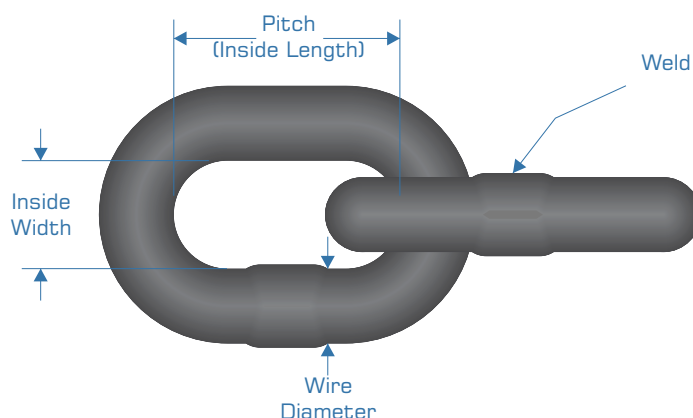
6. Attach **“Danger – Do Not Use”** warning tag to each sling removed from service. Record the removal of the sling on sling inspection report form.

7. Inspect the master and coupling links for wear or damage.

8. Make a link-by-link inspection of the chain slings for:

- Excessive wear: If the wear on any portion of any link exceeds the allowable wear shown on this table remove from service.
- Twisted, bent or cut links.
- Cracks in the weld area or any portion of the link.
- Nicks or gouges.
- Stretched links.
- Severe corrosion.
- Any deformation or degradation of components.

How to Measure Chain



Effect of Elevated Temperature on the Working Load Limit of Alloy Chain

WARNING: ALLOY STEEL CHAINS SLINGS MAY BE AFFECTED BY TEMPERATURES ABOVE 400°F (204°C)

Alloy steel chain sling WLL shall be reduced in accordance with the adjacent tables when heated between 400°F (204°C) and 1000°F (537°C).

Permanent WLL reduction shall be made in accordance with the adjacent tables for chain slings heated over temperatures indicated. Identification tag shall be replaced and the new tag shall have the reduced WLL.

For temperatures below -40°C(-40°F) please contact your Super Slings representative.

Temperature		Grade of Chain			
		GRADE 80		GRADE 100	
(F°)	(C°)	Reduction of Working Load Limit WHILE AT Temperature	Reduction of Working Load Limit AFTER EXPOSURE to Temperature	Reduction of Working Load Limit WHILE AT Temperature	Reduction of Working Load Limit AFTER EXPOSURE to Temperature
<400°	<204°	None	None	None	None
400°	204°	10%	None	15%	None
500°	260°	15%	None	25%	5%
600°	316°	20%	5%	30%	15%
700°	371°	30%	10%	40%	20%
800°	427°	40%	15%	50%	25%
900°	482°	50%	20%	60%	30%
1000°	538°	60%	25%	70%	35%
>1000°	>538°	Any chain sling which has experienced temperatures in excess of 1000° F (538°C) must be removed from service.			

Alloy Chain Specifications

Alloy steel chain is electrically welded alloy steel embodying the latest manufacturing technology. Alloy provides a superior chain sling with high tensile strength and excellent wear resistance. The following chains meet or exceed all existing OH&S, ANSI, ASME, NACM and ASTM specification requirements. The Alloy chain and attachments used in fabricating Super Slings chain slings offer a design factor of 4 to 1.

Trade Size		Grade	Nominal Dimensions (in & mm)						Working Load Limit		Feet/ Drum	Lbs. /foot	Links /ft.
			Material Diameter		Inside Dimensions								
					Length		Width						
[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	Lbs	kgs				
9/32	7	100	.29	7	.86	22	.41	10	4,300	1,950	500	74	13.8
5/16	8	80	.32	8	.94	24	.46	12	4,500	2,000	500	92	12.8
5/16	8	100	.33	8	1.01	26	.50	13	5,700	2,600	500	104	12
3/8	10	100	.40	10	1.22	31	.57	14	8,800	3,990	500	148	10.0
1/2	13	100	.52	13	1.57	40	.75	19	15,000	6800	300	250	7.8
5/8	16	100	.64	16	1.93	49	.87	22	22,600	10,250	200	379	6.5
3/4	20	100	.80	20	2.42	61	1.09	28	35,300	16,000	100	610	4.9
7/8	22	100	.88	22	2.70	69	1.28	31	42,700	19,400	100	775	4.4
1	26	80	1.00	25	2.80	71	1.40	36	47,700	21,600	100	965	4.3
1 1/4	32	80	1.25	32	3.50	89	1.75	44	72,300	32,800	60	1525	3.5

NOTICE: The product specifications and dimensions are as accurate as possible at the time of printing. However, because we are constantly improving the quality and design of our product, they can change without notice.

WARNING: PURCHASERS please note that all "Warnings and Cautions" apply to chain, components and fittings, as well as chain slings. Purchasers are responsible for conveying the "Warnings and Cautions" including the "Inspection, Care and Proper Use" section information to the end user. Super Slings denies any liability for damage that results from use in excess of the working load limit or any abuse or misuse of the product. Any questions concerning the use of Super Slings products may be directed to your Super Slings Sales Representative or Customer Service.



Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage

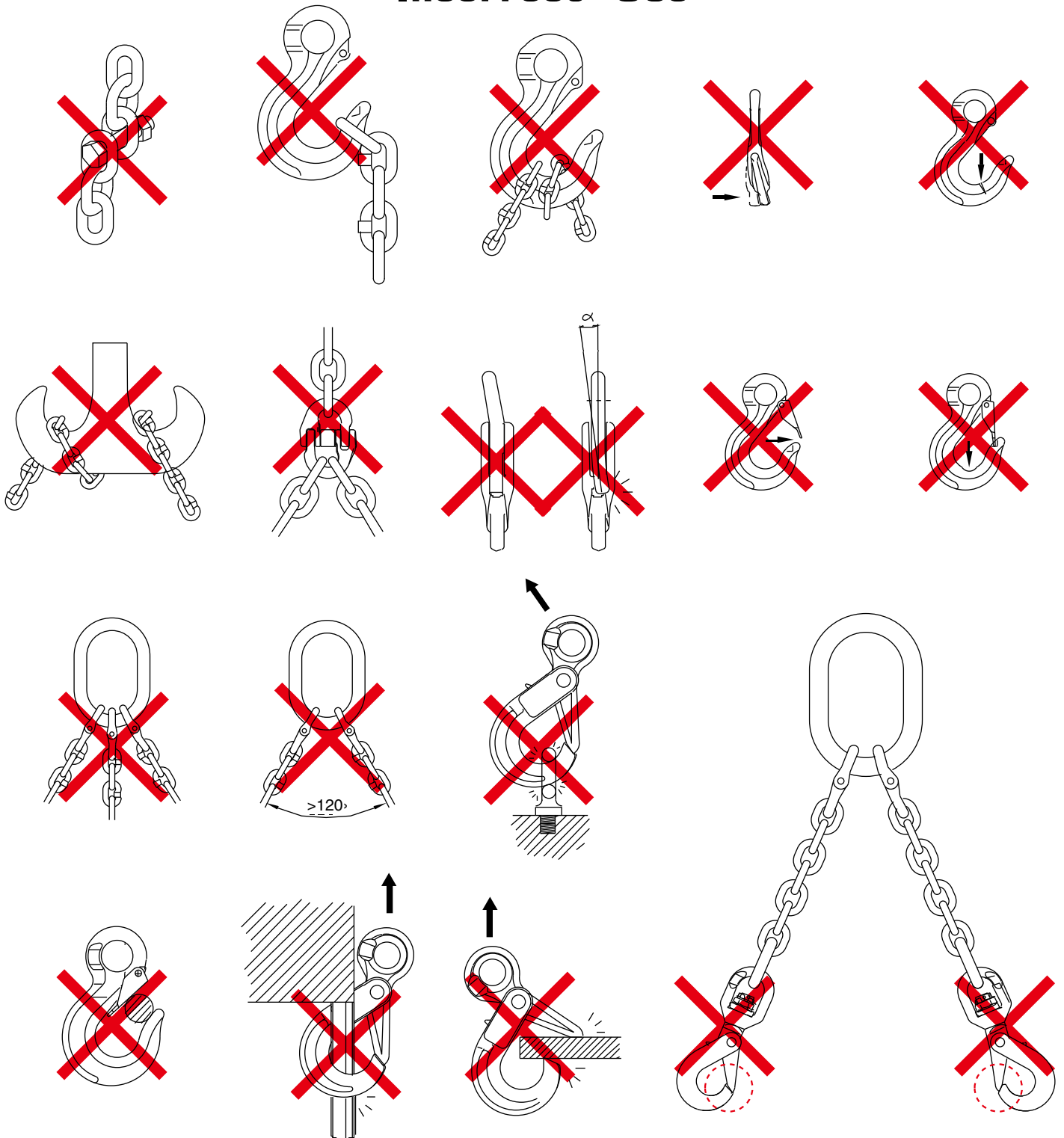
Lift it up, Tie it down, Pull it around



Safety is our first priority™



Chain Sling Use Limitations Incorrect Use



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Every Lift Uses 1 of 3 Basic Hitches



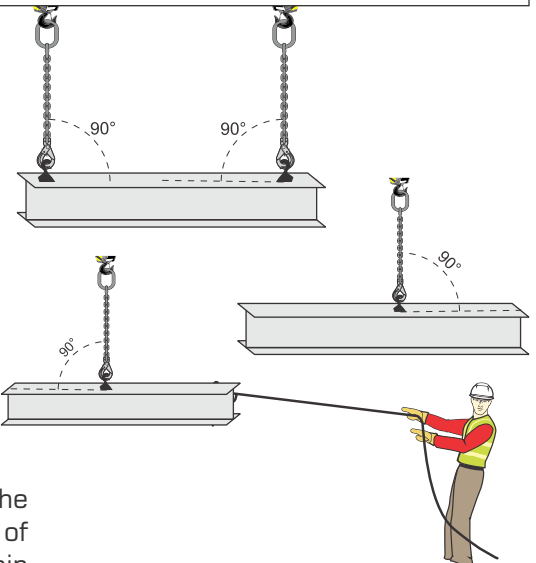
- 1. Vertical**, a simple straight attachment connecting a lifting hook or other device to a load. Full rated load of the sling may be used, but never exceeded. A tagline should be used on such a lift to prevent rotation which can damage the sling. A sling with a hand-tucked splice can unlay and fail if the sling is allowed to rotate.
- 2. Choker** hitches reduce lifting capability of a sling, since this method of rigging affects the ability of the wire rope components to adjust during the lift, places angular loading on the body of the sling, and creates a small diameter bend in the sling body at the choke point.
- 3. 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.

Vertical Hitch

A vertical hitch, or straight hitch, is the most basic hitch used to directly connect a load to a lifting device. On a vertical hitch, the eye of a single chain sling, wire rope sling, or synthetic sling is connected to the crane or hoist hook, while the other eye is connected to an attachment point on the load. The Vertical Hitch will utilize 100% of the lifting capacity of the sling.

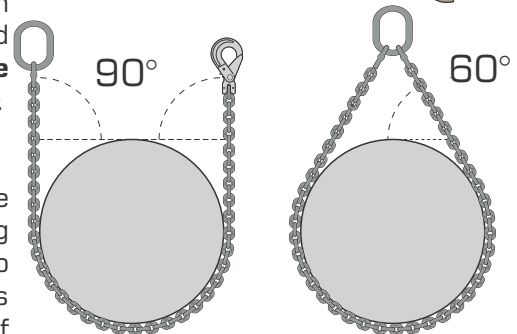
A single vertical hitch should never be used for lifting loose materials, long loads, or unbalanced loads.

WARNING: A twisted chain sling can cause uneven loading of individual links, potentially resulting in premature wear or failure. Use of a tagline is recommended to prevent the load from spinning. Always use caution when controlling a load, ensure no persons are in an area where they can be struck by the load or attached rigging.



Basket Hitch

A basket hitch is formed when both eyes of the sling are placed on the lifting hook, thereby forming a circular basket of the sling. This type of hitch distributes the load equally between the two legs of the sling, within limitations. A basket hitch has twice the capacity of a single leg only if D/d ratio is 6/1 and the sling to load angle is 90°. When the **sling to load angle** are less than 90°, increased tension is applied and must be accounted for.



Lifting Bridles

When you attach two or more slings to the same lifting hook, or are connected to a link rigged onto the hook, the total hitch becomes a lifting bridle, distributing the load among the individual slings. When using two or more slings as a lift-ing bridle, remember that the sling angle affects the slings' rated capacities. Also, the location of the lift's centre of gravity will affect the load on each sling leg.

Alloy Chain D/d Capacity Reduction

D/d is the ratio between the curvature taken by the sling (**D**), and the diameter of the component chain (**d**).

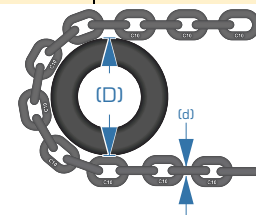
National Association of Chain Manufacturers (NACM) has conducted D/d testing on alloy chain and concluded the following

- 1) Effect of D/d is the same for all sizes and grades of alloy steel chain.
- 2) Strength loss is highly consistent with D/d ratio.
- 3) No damage to chain at WLL (working load limit) with a D/d as low as 2.
- 4) Minimum D/d pin diameter of 5 recommended for proof testing basket slings.
- 5) Strength loss is 10% or less once D/d is 5 or greater.

The adjacent chart shows reductions in working load limit of an endless alloy sling based on D/d ratio. Consult the manufacturer for any D/d below 2.

NACM Recommendation for rated load reductions for basket slings to account for D/d ratio

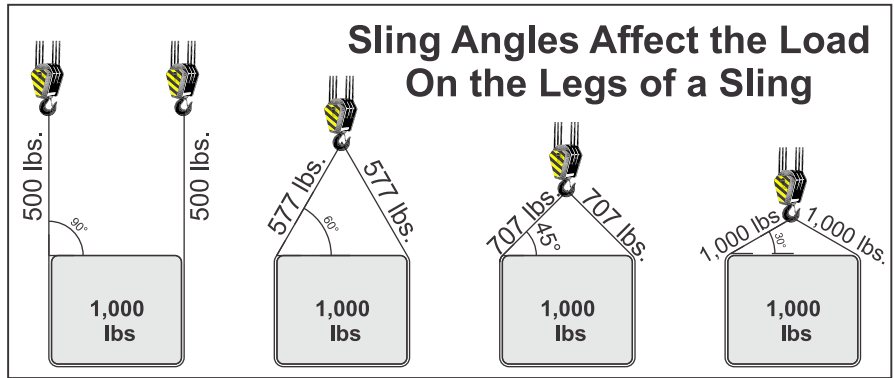
D/d	% of Rated Load
Less than 2	Not Recommended
2	60
3	70
4	80
5	90
6 & Above	100



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The Down Accessories
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Rope & Cords

SLING TO LOAD ANGLE

Sling Angles affect the Load on the Legs of a 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 a 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 multi-leg bridle slings. Angles less than 30 degrees should not be used.



Sling Tension	
Angle/Deg Horizontal	Tension Factor
90	1.000
80	1.015
70	1.064
60	1.155
50	1.305
45	1.414
35	1.742
30	2.000

Effect of Angle - Sling tensions are affected by angle of lift (sling angle), measured from the horizontal, when used with multi-legged chain slings or basket hitches. The effect of this angle may be determined by using either of these two methods:

• **Sling Tension Method** (Recommended Method)

Example:

A two-leg sling lifting a 2,000 lbs object at 30° has a tension factor of 2.0. The resultant tension per leg is 2,000 lbs.

• **Reduced Sling Capacity Method** (Alternative Method)

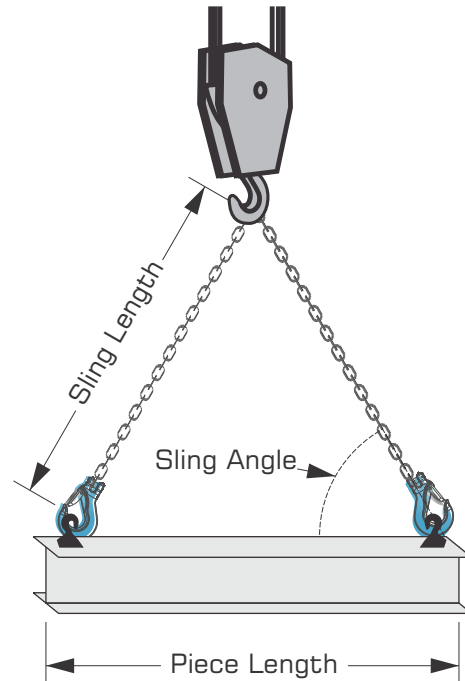
Example:

A two-leg sling with a capacity of 4,000 lbs total at 90° (4,000 lbs per leg) When used at an angle of 30° has a reduction factor of 0.5. The resultant capacity is 2,000 lbs total at 30°

Capacity Reduction	
Angle/Deg Horizontal	Loss Factor
90	1.000
80	0.985
70	0.940
60	0.866
50	0.766
45	0.707
35	0.574
30	0.500

Sling-to-Load Angle Quick Reference

Piece Length	60 Degrees		45 Degrees		30 Degrees	
	Sling Length	Pick Height	Sling Length	Pick Height	Sling Length	Pick Height
1	1	0.9	0.7	0.5	0.6	0.3
2	2	1.7	1.4	1.0	1.2	0.6
3	3	2.6	2.1	1.5	1.7	0.9
4	4	3.5	2.8	2.0	2.3	1.2
5	5	4.3	3.5	2.5	2.9	1.4
6	6	5.2	4.2	3.0	3.5	1.7
7	7	6.1	4.9	3.5	4.0	2.0
8	8	6.9	5.7	4.0	4.6	2.3
9	9	7.8	6.4	4.5	5.2	2.6
10	10	8.7	7.1	5.0	5.8	2.9
11	11	9.5	7.8	5.5	6.3	3.2
12	12	10.4	8.5	6.0	6.9	3.5
13	13	11.3	9.2	6.5	7.5	3.8
14	14	12.1	9.9	7.0	8.1	4.0
15	15	13.0	10.6	7.5	8.7	4.3
16	16	13.9	11.3	8.0	9.2	4.6
17	17	14.7	12.0	8.5	9.8	4.9
18	18	15.6	12.7	9.0	10.4	5.2
19	19	16.5	13.4	9.5	11.0	5.5
20	20	17.3	14.1	10.0	11.5	5.8
21	21	18.2	14.8	10.5	12.1	6.1
22	22	19.1	15.6	11.0	12.7	6.4
23	23	19.9	16.3	11.5	13.3	6.6
24	24	20.8	17.0	12.0	13.8	6.9
25	25	21.7	17.7	12.5	14.4	7.2
26	26	22.5	18.4	13.0	15.0	7.5
27	27	23.4	19.1	13.5	15.6	7.8
28	28	24.2	19.8	14.0	16.2	8.1
29	29	25.1	20.5	14.5	16.7	8.4
30	30	26.0	21.2	15.0	17.3	8.7
31	31	26.8	21.9	15.5	17.9	9.0
32	32	27.7	22.6	16.0	18.5	9.2
33	33	28.6	23.3	16.5	19.0	9.5
34	34	29.4	24.0	17.0	19.6	9.8
35	35	30.3	24.7	17.5	20.2	10.1
36	36	31.2	25.5	18.0	20.8	10.4
37	37	32.0	26.2	18.5	21.3	10.7
38	38	32.9	26.9	19.0	21.9	11.0
39	39	33.8	27.6	19.5	22.5	11.3
40	40	34.6	28.3	20.0	23.1	11.6
41	41	35.5	29.0	20.5	23.7	11.8
42	42	36.4	29.7	21.0	24.2	12.1
43	43	37.2	30.4	21.5	24.8	12.4
44	44	38.1	31.1	22.0	25.4	12.7
45	45	39.0	31.8	22.5	26.0	13.0
46	46	39.8	32.5	23.0	26.5	13.3
47	47	40.7	33.2	23.5	27.1	13.6
48	48	41.6	33.9	24.0	27.7	13.9
49	49	42.4	34.6	24.5	28.3	14.2
50	50	43.3	35.4	25.0	28.9	14.5



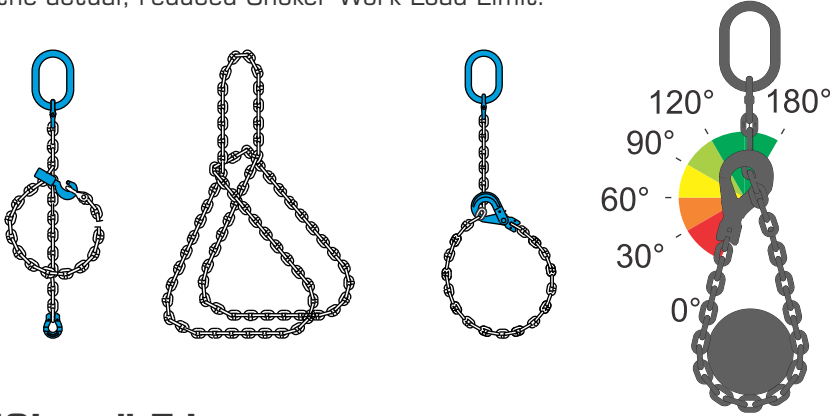
Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
The Down Assemblies
The Down Accessories
Towing & Recovery
Rope & Cordage

Choker Hitches:

In shortening applications, a 20% reduction of the Working Load Limit is required except when using Cradle Grab Hooks, Cradle Chain Shortener Link, or a Chain Choker Hook in-conjunction Chain Coupler Link. They can be used without any reduction to the Working Load Limit as long as the choke angle is not below 120°.

Whenever a sling is used in a choker hitch and results in a Choker Hitch Angle less than 120 degrees, Choker Working Load Limits must be adjusted. Determine the Choker Hitch Angle and multiply the Choker Hitch Work Load Limit by the appropriate Reduction Factor. The result is the actual, reduced Choker Work Load Limit.

Choker Hitches	
Angle of Choke (degrees)	Sling rated capacity factor as percentage of single leg choker hitch capacity
120-180	100%
105-120	82%
90-105	71%
60-90	58%
0-60	50%



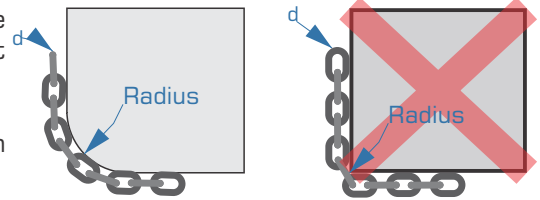
Cradle Grab Hook



“Sharp” Edges

Always use edge protectors to prevent sharp edges from damaging the chain. If lifting over sharp edges reduce the working load with the adjacent reduction table.

- The angle of the edge must not be below 90°
- Chain links shall be protected from being bent or deformed and from receiving cuts or gouges.
- Chain sling WLL is to be reduced when chain is rigged over an edge radius R less than two (2) x chain diameter (d).
- Reduced WLL equals chain sling WLL from identification tag x reduction factor.
- Slings shall be padded or protected from the edges of their loads when the edge radius is less than 0.5 of the chain diameter(d). Slings shall be rigged to prevent chain from sliding over a load edge radius while lifting.
- Slings used in basket hitch shall have the loads balanced to prevent slipping.

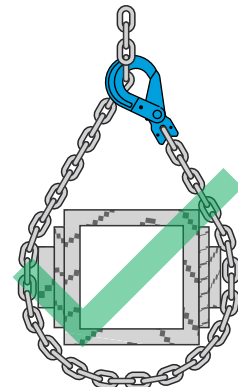
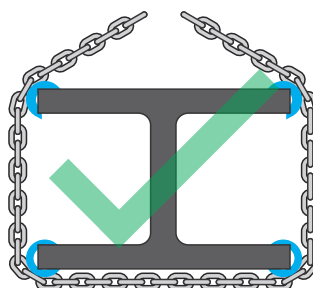
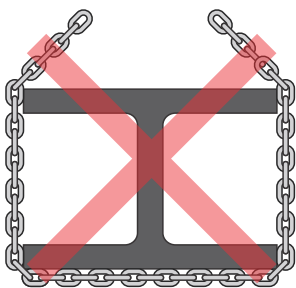
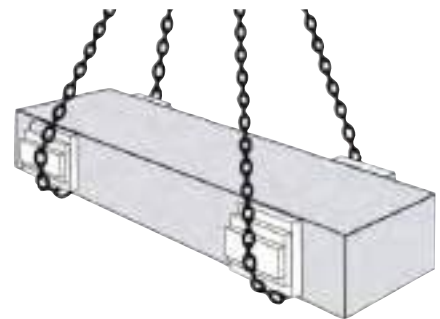


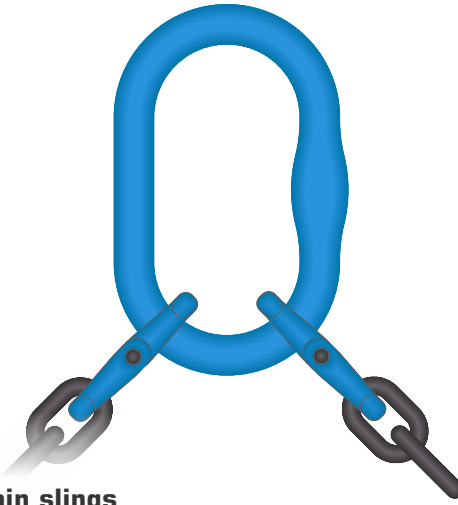
Radius	Reduction Factor	If WLL = 1,000
$R > 2 \times d$	1	1,000
$R > 1 \times d$	0.7	700
$R < 1 \times d$	0.5	500

When lifting with chain directly on lugs the lug diameter > 3x the pitch of the chain, otherwise the WLL must be reduced by 50%.

Edge Loading and Packing

Chain is designed to support a load in a straight line. Never tie knots in the chain and always make sure chain is free from twists before putting it under tension. Where chain has to pass round a sharp corner use suitable packaging to give the chain protection.





Grade 100

Working Load Limits in pounds for chain slings
Grade 100 according to NACM Based on A 906/A 906M-2

Grade 100 Chain Size		WORKING LOAD LIMITS [lbs]						
		1-leg	2-Leg			3 & 4-Leg		
[mm]	[in]	90°	60°	45°	30°	60°	45°	30°
6	7/32"	3,300	5,500	4,625	3,300	8,400	6,800	4,850
7	9/32"	4,300	7,400	6,100	4,300	11,200	9,100	6,400
8	5/16"	5,700	9,900	8,100	5,700	14,800	12,100	8,500
10	3/8"	8,800	15,200	12,400	8,800	22,900	18,700	13,200
13	1/2"	15,000	26,000	21,200	15,000	39,000	31,800	22,500
16	5/8"	22,600	39,100	32,000	22,600	58,700	47,900	33,900
20	3/4"	35,300	61,100	49,900	35,300	91,700	74,900	52,950
22	7/8"	42,700	74,000	60,400	42,700	110,900	90,600	64,000
26	1"	59,700	103,100	84,100	59,500	155,600	126,600	89,250
32	1-1/4"	88,160	152,700	124,600	88,160	229,000	186,950	132,200

Grade 80

Working Load Limits in pounds for chain slings
Grade 80, according to NACM Based on A 906/A 906M-2



Grade 80 Chain Size		WORKING LOAD LIMITS [lbs]						
		1-leg	2-Leg			3 & 4-Leg		
[mm]	[in]	90°	60°	45°	30°	60°	45°	30°
6	7/32"	2,450	4,200	3,300	2,425	6,400	5,050	3,525
7	9/32"	3,500	6,100	4,900	3,500	9,100	7,400	5,200
8	5/16"	4,500	7,800	6,400	4,500	11,700	9,500	6,800
10	3/8"	7,100	12,300	10,000	7,100	18,400	15,100	10,600
13	1/2"	12,000	20,800	17,000	12,000	31,200	25,500	18,000
16	5/8"	18,100	31,300	25,600	18,100	47,000	38,400	27,100
20	3/4"	28,300	49,000	40,000	28,300	73,500	60,000	42,400
22	7/8"	34,200	59,200	48,400	34,200	88,900	72,500	51,300
26	1"	47,700	82,600	67,400	47,700	123,900	101,200	71,500
32	1-1/4"	72,300	125,200	102,200	72,300	187,800	153,400	108,400

See Hardware Section for Available attachments and specifications.

How to Order Chain Slings

Masterlink Code

Adjustable Chain Slings add **TAI** to the beginning

Hook Codes

Code **[SO]**
Single

Code **[DO]**
Double

Code **[TO]**
Triple

Code **[QO]**
Quadruple

Code **[S]**
Sling Hook

Code **[G]**
Grab Hook

Code **[H]**
Hammerlock

Code **[SC]**
Self-Locking
Clevis Hook



Code **[F]**
Foundry Hook

Code **[SE]**
Self-Locking
Eye Hook

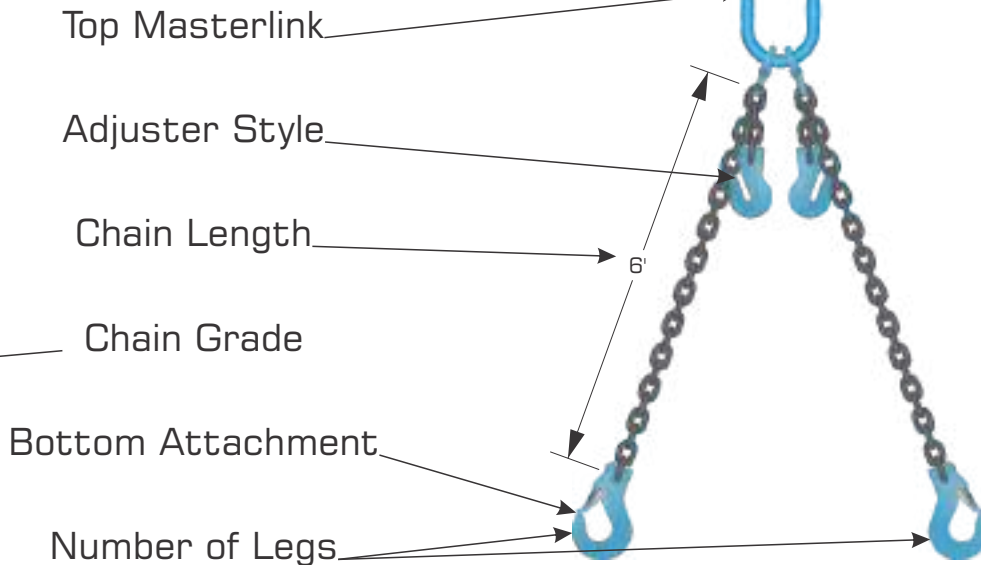
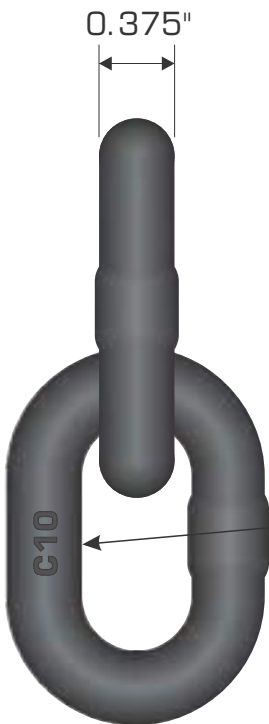
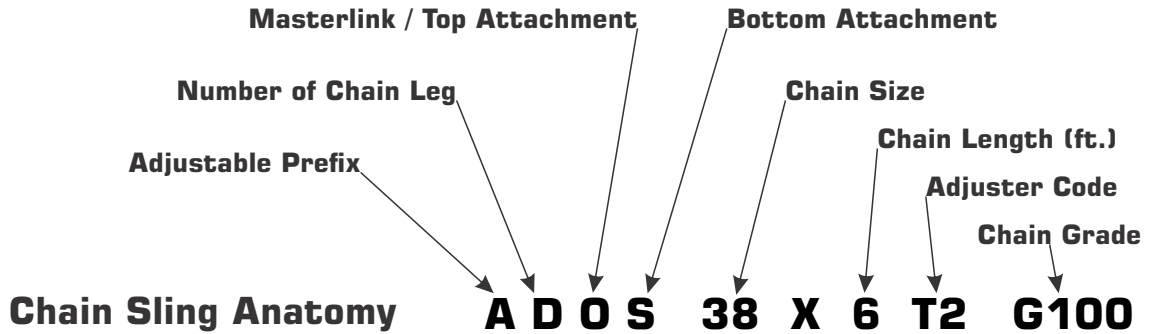
Code **[SS]**
Self-Locking
Swivel Hook



Adjuster Code

Code **[T2]**
Grab Hook
Adjuster

Code **[SC]**
Shortening
Clutch



Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Cordage

Lift it up, Tie it down, Pull it around



GUNNEBO
Industries

GrabIQ Grade 100 Chain Sling Components



Master Link (MF) (MFX)



Master Link (MTX)



MasterGrab (MG)



MasterGrab Dual (MGD)



C-Grab (CG)



C-Grab Dual (CGD)



C-Lok (CL)



C-Lok Dual (CLD)



Alloy Coupling Link (G)



Sling Hook (EGKN)



Chain (KL)



Clevis Grab (GG)



Self Locking (GBK)



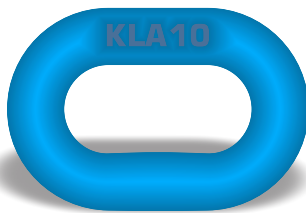
Foundry Hk (OKE)



Self Locking (LBK)

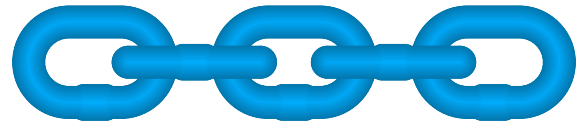


Self Locking (LKBK)



GrabIQ Grade 100

Working Load Limits in pounds for chain slings
Grade 100 according to NACM Based on A 906/A 906M-2



Grade 100 Chain Size		WORKING LOAD LIMITS [lbs]						
		1-leg	2-Leg			3 & 4-Leg		
[mm]	[in]	90°	60°	45°	30°	60°	45°	30°
6	7/32"	3,300	5,500	4,625	3,300	8,400	6,800	4,850
7	9/32"	4,300	7,400	6,100	4,300	11,200	9,100	6,400
8	5/16"	5,700	9,900	8,100	5,700	14,800	12,100	8,500
10	3/8"	8,800	15,200	12,400	8,800	22,900	18,700	13,200
13	1/2"	15,000	26,000	21,200	15,000	39,000	31,800	22,500
16	5/8"	22,600	39,100	32,000	22,600	58,700	47,900	33,900
20	3/4"	35,300	61,100	49,900	35,300	91,700	74,900	52,950
22	7/8"	42,700	74,000	60,400	42,700	110,900	90,600	64,000
26	1"	59,700	103,100	84,100	59,500	155,600	126,600	89,250
32	1-1/4"	88,160	152,700	124,600	88,160	229,000	186,950	132,200

Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Carriage

X-003 G-100 Masterlink

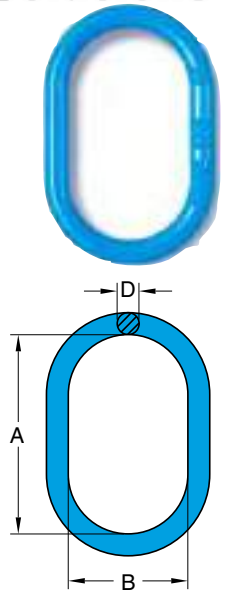


Masterlink

Product details

Application

- Quenched and Tempered Alloy Steel.
- At least 25% greater WLL than traditional G80 products.
- Manufactured in accordance with ASTM A906/A906M, ASTM A952/A952M, ASME B30.9, ASME B30.10, ASME B30.26 and OSHA 1910.184, EN-1677-4
- Proof Load tested at 2.5 times the WLL with certification for each batch manufactured.
- Design Factor 4:1.
- Fatigue rated to 20,000 cycles at 1.5 times the WLL.
- Tempering temperature at a minimum of 400°C.
- Designed for Wire Rope and Chain.
- Each link is marked with batch number that links to the test certificate with traceability to raw materials.



Item No.	WLL 0-45°		Chain Size Grade 100 (in)		Trade Size (in)	Dimensions (in)			Net Weight lbs
	4:1 lbs	5:1 lbs	1 Leg	2 Leg		D	IL	IW	
X-003-06	3,100	2,500	7/32		3/8	0.43	3.94	2.36	0.44
X-003-0806	6,400	5,100	9/32-5/16	7/32	1/2	0.55	4.72	2.76	1.10
X-003-1008	12,000	9,000	3/8	9/32-5/16	5/8	0.67	5.51	3.15	1.54
X-003-13	15,000	12,300	1/2		3/4	0.75	5.91	3.54	2.43
X-003-1310	19,000	15,000	1/2	3/8	7/8	0.87	6.30	3.74	3.31
X-003-16	22,000	17,600	5/8		1	0.98	7.48	4.33	5.07
X-003-1613	31,100	24,900	5/8	1/2	1 1/8	1.10	7.09	4.13	5.95
X-003-19	35,300	28,200	3/4		1 1/4	1.18	7.87	4.72	7.72
X-003-2216	46,300	37,000	7/8	5/8	1 3/8	1.34	9.45	5.51	11.68
X-003-26	58,400	46,700	1		1 1/2	1.50	9.84	5.91	16.31

DNV 2.7-1 Master Link Assembly

Clevis Shackle

Product details

Application

- Material: Alloy Steel
- Standard: EN 1677-4, ASME B30.26, DNV 2.7-1
- Finish: Painted Orange
- Design Factor: 5:1 (Wire Sling)
- Identification: Trademark, Size/WLL, Batch Code
- Rated in Metric Ton(s)



Item Code	WLL		Dimensions (in)						Weight lbs
	lbs (4:1)	lbs (5:1)	D	IL	IW	d	il	lw	
2-MA16QA	11,200	9,000	0.63	5.91	2.95	0.51	4.92	2.36	2.90
2-MA23QA	15,900	12,800	0.87	10.63	5.51	0.63	5.91	2.95	8.40
2-MA22QAS	24,200	19,500	0.87	6.38	3.54	0.79	5.51	2.76	7.90
2-MA25QA	24,200	19,500	0.98	10.63	5.51	0.79	5.51	2.76	11.70
2-MA26QA	32,400	26,000	1.10	10.63	5.51	0.79	5.51	2.76	13.00
2-MA28QAS	39,900	32,000	1.10	7.87	4.33	0.87	5.51	2.76	12.10
2-MA32QA	46,900	37,700	1.26	10.63	5.51	1.02	7.48	4.02	21.40
2-MA36QA	63,300	50,700	1.42	10.63	5.51	1.10	7.48	3.94	26.20
2-MA40QA	77,400	61,900	1.57	11.02	6.10	1.26	7.87	4.33	36.10
2-MA45QA	105,400	84,400	1.77	12.60	6.89	1.42	8.86	4.92	51.80
2-MA50QA	123,900	99,200	1.97	13.78	7.68	1.57	10.24	5.12	71.20

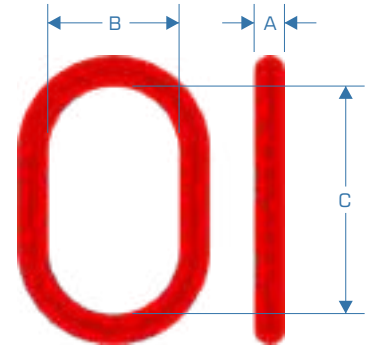
V-line Grade 80 Alloy Master Links

Masterlink

Product details

Application

- Alloy Steel – Quenched and Tempered
- Individually proof tested per ASTM 906/952 prescribed loads
- Meet EN1677 standard (20,000 cycle fatigue test)
- Permanently embossed with VGD, size, model number and trace code
- Approved for overhead lifting when all components are grade 80
- Proof tested to 2 times the Working Load Limit (WLL)
- Design factor 4:1



Item Code	Dimensions			WLL (lbs)		Weight (lbs)	Chain Size Gr. 80	
	A	B	C	(4:1)	(5:1)		Single	Double
5983-00046	(1/2") 0.50	2.75	4.72	6,100	4,900	0.83	9/32-5/16	9/32
5983-10001	(5/8") 0.63	3.15	5.50	7,750	6,200	1.50	3/8	5/16
5983-10002	(3/4") 0.75	3.75	6.30	12,300	9,800	2.60	1/2	3/8
5983-10003	(1") 1.00	4.33	7.50	20,800	16,600	5.40	5/8	1/2
5983-10004	(1-1/4") 1.25	5.10	9.00	31,300	25,000	10.30	3/4	5/8
5983-10005	(1-1/2") 1.50	5.90	10.80	49,000	39,200	16.50	7/8	3/4
5983-10006	(1-3/4") 1.75	7.10	13.40	73,500	58,800	28.20	1	7/8

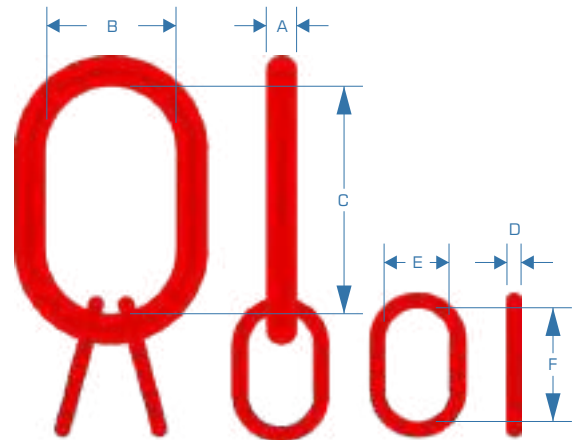
V-line Grade 80 Alloy Sub-assembly

Masterlink Assembly

Product details

Application

- Alloy Steel – Quenched and Tempered
- Individually proof tested per ASTM 906/952 prescribed loads
- Meet EN1677 standard (20,000 cycle fatigue test)
- Permanently embossed with VGD, size, model number and trace code
- Approved for overhead lifting when all components are grade 80
- Proof tested to 2 times the Working Load Limit (WLL)
- Design factor 4:1



Item Code	Chain Size	Dimensions (in)						WLL @ 60° (lbs)	Weight (lbs)
		A	B	C	D	E	F		
5994-00401	9/32	(3/4") 0.75	3.75	6.30	0.50	2.36	4.33	12,300	4.20
5994-00601	3/8	(1") 1.00	4.33	7.50	0.75	3.75	6.30	20,800	10.70
5994-00801	1/2	(1-1/4") 1.25	5.10	9.00	1.00	4.33	7.50	31,300	22.30
5994-01001	5/8	(1-1/2") 1.50	5.90	10.80	1.13	5.10	9.05	49,000	32.40
5994-01201	3/4	(1-3/4") 1.75	7.10	13.40	1.25	5.10	9.05	73,500	58.60

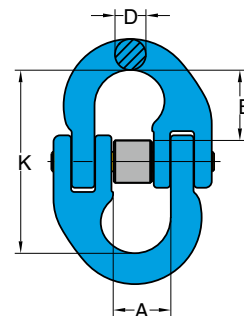
X-015 G-100 Connecting Link.



Connecting Link

Product details

Item Code	WLL	Chain Size	Dimensions [in]				Net Weight
	4:1 lbs	[in]	A	B	D	K	lbs
X-015-06	3,200	7/32	0.59	0.71	0.28	1.77	0.18
X-015-07	5,700	9/32-5/16	0.71	0.98	0.35	2.32	0.44
X-015-10	8,800	3/8	0.98	1.10	0.43	2.72	0.66
X-015-13	15,000	1/2	1.18	1.50	0.63	3.62	1.54
X-015-16	22,600	5/8	1.42	1.61	0.75	3.98	2.65
X-015-20	35,300	3/4	1.65	1.97	0.91	4.80	4.63
X-015-22	42,700	7/8	1.93	2.48	0.94	5.98	7.72
X-015-26	59,700	1	2.17	2.60	1.18	6.38	10.58



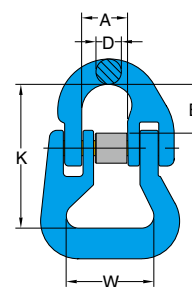
X-016 G-100 Web Sling Connector



Connecting Link

Product details

Item Code	WLL	Chain Size	Dimensions [in]					Net Weight
	4:1 lbs	[in]	A	B	D	K	W	lbs
X-016-06	3,200	7/32	0.59	0.67	0.28	2.17	1.50	0.44
X-016-07	5,700	9/32-5/16	0.71	0.87	0.35	2.44	1.57	0.66
X-016-10	8,800	3/8	0.98	1.02	0.43	3.07	1.85	1.32
X-016-13	15,000	1/2	1.18	1.38	0.63	3.74	2.09	2.43
X-016-16	22,600	5/8	1.42	1.50	0.75	4.53	2.64	4.41
X-016-20	35,300	3/4	1.65	1.81	0.87	5.20	3.15	7.05
X-016-22	42,700	7/8	1.93	2.32	0.94	7.36	4.92	16.98



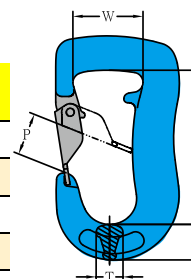
X-032 G-100 100 Web Sling Hook



Coupling Self-Locking Hook

Product details

Item No.	Working Load Limit (lbs)		Dimensions (mm)					Net Weight
	4:1	5:1	H	K	P	T	W	lbs
74-X-032-01	2,200	1,700	0.79	3.50	0.98	0.59	1.69	1.54
74-X-032-02	4,400	3,500	1.06	4.57	1.18	0.79	2.09	3.31
74-X-032-03	6,600	5,200	1.26	4.69	1.26	1.02	2.52	5.29
74-X-032-05	11,000	8,800	1.73	5.71	1.77	1.50	2.40	7.72



8-066 G-80 "YR" Clevis Shackle

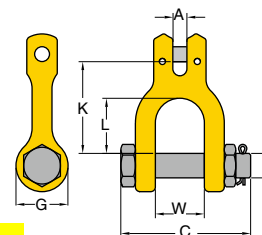


Connecting Link

Product details

Special Order

Item Code	WLL (lbs)	Chain Size	Dimensions [in]							Net Weight
	4:1	[in]	A	C	G	K	L	M	W	lbs
8-066-07	4,500	9/32-5/16	0.35	3.11	1.34	2.32	1.38	0.63	1.30	0.88
8-066-10	7,100	3/8	0.43	3.66	1.57	3.07	1.89	0.79	1.34	1.76
8-066-13	12,000	1/2	0.55	4.65	1.73	3.86	2.52	0.87	1.93	3.09
8-066-16	18,100	5/8	0.71	5.55	2.13	4.41	2.72	1.10	2.36	5.29



X-043 G-100 Clevis Sling Hooks

Clevis Sling Hook

Product details

Application

- Quenched and Tempered Alloy Steel.
- At least 25% greater WLL than traditional G80 products.
- Manufactured in accordance with EN 1677- 2 and ASME B30.26, ASME B30.10, PAS1061.
- Certified by DGUV GS-OA-15-05 & DGUV GS-MO-15-05
- Proof Load tested at 2.5 times the WLL with certification for each batch manufactured.
- Design Factor 4:1.
- Fatigue rated to 20,000 cycles at 1.5 times the WLL.
- Tempering temperature minimum 400°C
- Magnaflux crack detection is performed 100% on each batch.



Safety is our first priority™



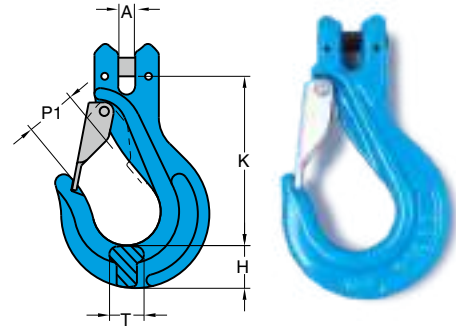
X-P026

For load pin replacement



8-P044

For latch replacement



Item Code	WLL	Chain Size	Dimensions [in]					Net Weight
			A	H	K	P1	T	
	4:1 lbs	[in]	A	H	K	P1	T	lbs
X-043/S-06	3,200	7/32	0.24	0.91	3.82	0.91	0.59	0.66
X-043/S-07	5,700	9/32-5/16	0.35	0.87	3.86	1.06	0.71	1.32
X-043/S-10	8,800	3/8	0.43	1.18	4.80	1.34	0.94	2.43
X-043/S-13	15,000	1/2	0.55	1.46	5.79	1.73	1.18	5.07
X-043/S-16	22,600	5/8	0.67	1.65	6.54	1.89	1.54	8.38
X-043/S-20	35,300	3/4	0.94	2.52	8.15	2.24	1.89	19.18
X-043/S-22	42,700	7/8	0.98	2.40	8.54	2.87	2.05	20.94

X-026 G-100 Self-Locking Clevis Hook

Clevis Self-Locking Hook

Product details

Application

- Quenched and Tempered Alloy Steel.
- At least 25% greater WLL than traditional G80 products.
- Manufactured in accordance with EN 1677- 3 and ASME B30.26, ASME B30.10, PAS1061.
- Certified by DGUV GS-MO-15-05
- Proof Load tested at 2.5 times the WLL with certification for each batch manufactured.
- Design Factor 4:1.
- Fatigue rated to 20,000 cycles at 1.5 times the WLL.
- Tempering temperature min 400°C
- Magnaflux crack detection is performed 100% on each batch.



Safety is our first priority™



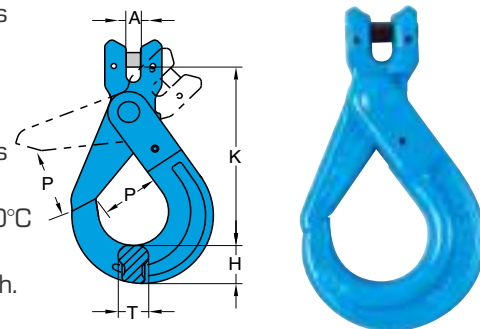
X-P026

For load pin replacement



8-P025T

For trigger replacement



Item Code	WLL	Chain Size	Dimensions [in]					Net Weight
			A	H	K	P	T	
	4:1 lbs	[in]	A	H	K	P	T	lbs
X-026-06	3,200	7/32	0.24	0.75	3.66	1.10	0.59	0.88
X-026-07	5,700	9/32-5/16	0.35	0.94	4.69	1.34	0.79	1.98
X-026-10	8,800	3/8	0.43	1.18	5.59	1.73	1.02	3.09
X-026-13	15,000	1/2	0.55	1.54	7.01	2.01	1.18	6.61
X-026-16	22,600	5/8	0.71	1.93	8.39	2.36	1.42	11.02
X-026-20	35,300	3/4	0.83	2.56	9.61	2.76	2.09	24.25
X-026-22	42,700	7/8	0.94	2.48	10.75	3.15	1.93	29.76

X-042N G-100 Clevis Grab Hook

Clevis Sling Hook

Product details

Application

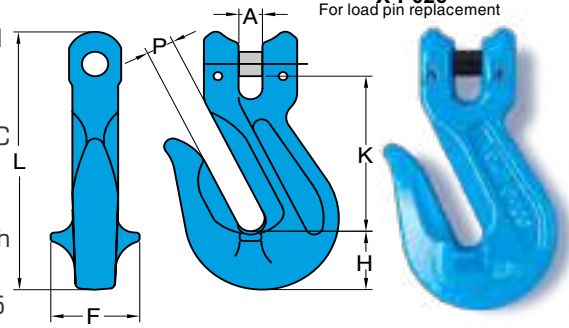
- Quenched and Tempered Alloy Steel.
- At least 25% greater WLL than traditional G80 products.
- Manufactured in accordance with DIN PAS 1061, EN 1677-1 and ASTM A952/A 952M.
- Proof Load tested at 2.5 times the WLL with certification for each batch manufactured.
- Design Factor 4:1, Fatigue rated to 20,000 cycles at 1.5 times the WLL.
- Tempering temperature min 400°C
- Not for use with Omega Link
- Enables full WLL while in use, thanks to supporting wings which prevent chain link deformation.
- Certified by DGUV GS-MO-15-05



Safety is our first priority™



X-P026
For load pin replacement



Item Code	WLL	Chain Size	Dimensions (in)						Net Weight
			A	F	H	K	L	P	
	4:1 lbs	[in]							lbs
X-042-06	3,200	7/32	0.28	0.98	0.71	1.85	3.11	0.31	0.44
X-042-07	5,700	9/32-5/16	0.39	1.18	0.87	2.13	3.66	0.39	0.88
X-042-10	8,800	3/8	0.43	1.61	1.14	3.03	5.04	0.51	1.76
X-042-13	15,000	1/2	0.59	2.05	1.50	3.90	6.50	0.67	3.53
X-042-16	22,600	5/8	0.71	2.24	1.77	4.49	7.68	0.83	5.95
X-042-20	35,300	3/4	0.87	2.87	2.05	5.12	8.74	0.91	10.58
X-042-22	42,700	7/8	0.94	2.76	2.20	5.47	9.72	1.02	14.11

X-046 G-100 Clevis Foundry Hook

Clevis Foundry Hook

Product details

Application

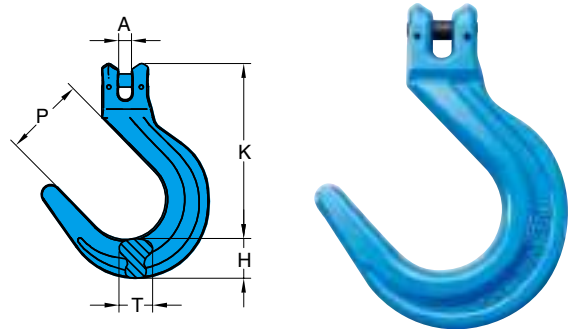
- Quenched and Tempered Alloy Steel.
- At least 25% greater WLL than traditional G80 products.
- Manufactured in accordance with DIN PAS 1061 and ASTM A952/A 952M, EN 1677-1,
- Proof Load tested at 2.5 times the WLL with certification for each batch manufactured.
- Design Factor 4:1.
- Fatigue rated to 20,000 cycles at 1.5 times the WLL.
- Tempering temperature minimum 400°C
- Not used for general chain sling applications, rather for use where a large throat opening is necessary.
- Before using the hook, check whether hooks without safety latches are allowed to be used for the particular application.



Safety is our first priority™



X-P026
For load pin replacement



Item Code	WLL	Chain Size	Dimensions (in)					Net Weight
			A	H	K	P	T	
	4:1 lbs	[in]						lbs
X-046-07	5,700	9/32-5/16	0.35	1.06	5.24	2.44	0.75	2.09
X-046-10	8,800	3/8	0.43	1.26	6.42	2.91	0.91	3.97
X-046-13	15,000	1/2	0.55	1.54	7.87	3.46	1.26	7.94
X-046-16	22,600	5/8	0.71	1.85	9.41	3.86	1.61	14.11
X-046-20	35,300	3/4	0.83	2.44	12.01	4.45	1.81	24.69

X-027 G-100 Self-Locking Swivel Hook

G-100 Eye Self Locking Hook

Product details



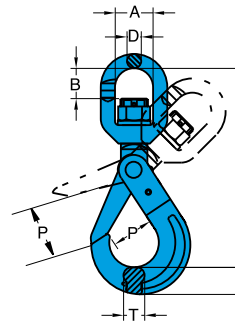
Safety is our first priority™



8-P025
For most sizes



8-P025T
For 26mm



Application

- Quenched and Tempered Alloy Steel.
- At least 25% greater WLL than traditional G80 products.
- Manufactured in accordance with EN 1677- 3 and ASME B30.26, ASME B30.10.
- Certified by DGUV GS-OA-15-05 & DGUV GS-MO-15-05
- Proof Load tested at 2.5 times the WLL with certification for each batch manufactured.
- Design Factor 4:1, Fatigue rated to 20,000 cycles at 1.5 times the WLL.
- Tempering temperature minimum 400°C
- Magnaflux crack detection is performed 100% on each batch.

Item Code	WLL (lbs)		Chain Size	Dimensions (in)							Net Weight
	4:1	5:1		[in]	A	B	D	H	K	P	
X-027-06	3,200	2,600	7/32	1.26	0.87	0.47	0.75	5.87	1.10	0.59	1.54
X-027-07	5,700	4,600	9/32-5/16	1.42	1.14	0.51	0.94	7.32	1.34	0.79	2.65
X-027-10	8,800	7,000	3/8	1.61	1.34	0.63	1.18	8.58	1.73	1.02	4.41
X-027-13	15,000	12,000	1/2	1.81	1.69	0.83	1.54	10.87	2.01	1.18	9.04
X-027-16	22,600	18,100	5/8	2.40	1.97	0.91	1.93	12.95	2.36	1.42	15.87
X-027-20	35,300	28,200	3/4	2.91	3.23	0.98	2.56	15.24	2.76	2.09	28.66
X-027-22	42,700	34,200	7/8	3.82	3.74	1.30	2.48	17.99	3.15	1.93	44.09
X-027-26	59,700	47,800	1	4.84	4.53	2.05	2.72	21.06	3.90	2.20	72.75

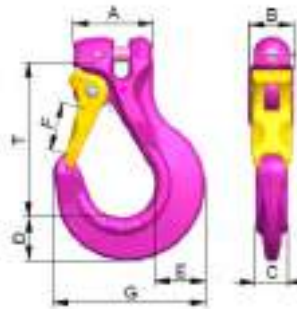
VCGH Cobra - Clevis Hoist Hooks

Clevis Type Hoist Hook

Product details

Application

- A robust improved version without a protruding hook tip.
- The forged safety latch engages in the tip of the hook and is thus protected against lateral bending.
- With a triple coiled corrosion protected double leg spring.
- Thickened tip of the hook to prevent misuse.
- Wear marks on both sides.
- Gauge marks for measuring the width of the hook opening
- Connecting bolt and tensioning sleeve are pre-assembled.



Item Code	WLL (lbs)	Chain Size	Dimensions (in)								Net Weight
			T	A	B	C	D	E	F	G	
7984439	1,390	5/32	2.20	0.79	0.55	0.49	0.51	0.55	0.71	2.05	0.26
7100498	3,300	7/32	2.99	1.50	0.87	0.63	0.79	0.94	0.98	2.83	0.86
7100499	5,500	5/16	3.82	1.97	1.10	0.79	1.10	1.26	1.18	3.74	1.72
7100500	8,800	3/8	4.25	2.36	1.42	1.02	1.42	1.54	1.38	4.65	3.31
7100501	15,000	1/2	4.96	2.99	1.81	1.18	1.46	1.89	1.57	5.31	6.26
7100502	22,000	5/8	5.98	3.27	2.20	1.42	1.93	2.28	1.89	6.34	10.34

WARNING: NEVER EXCEED WORKING LOAD LIMIT!

Failure to follow instructions can result in serious property damage, injury or death!

For full user manual please visit www.superslings.ca

Sling Protection
Web Slings
Round Slings
Synthetic Chain Slings
Wire Rope Slings
Chain Slings
Shackles & Turnbuckles
Hooks & Links
Lifting Points
Hoists & Blocks
Lifting Devices
Pipe & Hose Restraints
Tie Down Assemblies
Tie Down Accessories
Towing & Recovery
Rope & Carriage

8-063 Twist Eye Choke Hook Code "KE"

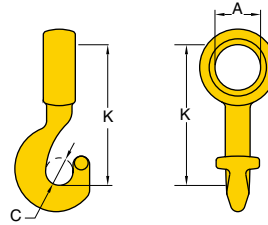
Sliding Choker Hook

Product details



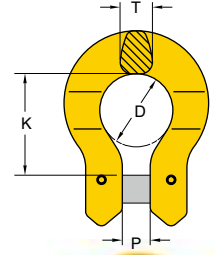
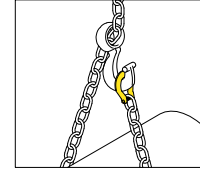
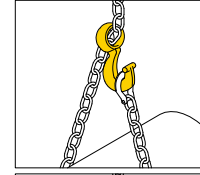
Application

- Material: Steel
- Finish: Powder Coated
- Design Factor: 4:1
- Identification: Trademark, Size/WLL, Batch Code
- Rated in Metric Ton(s)



Special Order

Item Code	WLL (lbs)	Dimensions (in)				Net Weight
	4:1	mm	A	C	K	Lbs
8-063-07	4,400	9/32-5/16	1.26	0.75	3.74	0.88
8-063-10	6,900	3/8	1.61	0.83	4.57	1.76
8-063-13	11,700	1/2	1.97	1.06	5.91	4.41
8-063-16	17,600	5/8	2.64	1.26	7.28	6.83



8-018 Omega Link Code "YO"

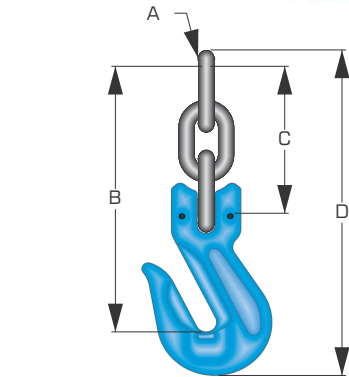
Connecting Link

Product details



Special Order

Item Code	WLL (lbs)	Chain Size	Dimensions (in)				Net Weight
	4:1	[in]	D	K	P	T	Lbs
8-018-06	2,100	7/32	0.83	1.18	0.31	0.35	0.22
8-018-07	4,500	9/32-5/16	1.06	1.42	0.35	0.43	0.44
8-018-10	7,100	3/8	1.26	1.73	0.47	0.59	0.88
8-018-13	12,000	1/2	1.65	2.17	0.63	0.67	1.76
8-018-16	18,100	5/8	1.97	2.72	0.71	0.87	3.53



Grade 100 Grab Hook Shortening Leg

Chain Shortener

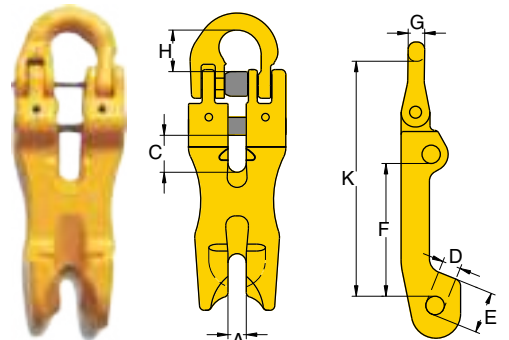
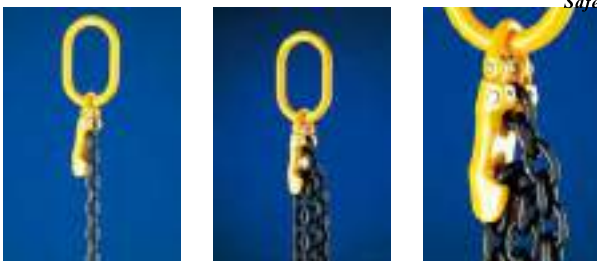
Product details

Item Code	WLL (lbs)	Chain Size	Dimensions (in)				Net Weight
	4:1	[in]	A	B	C	D	lbs
53-ADJ932	5,700	9/32-5/16	0.29	4.91	2.55	6.05	1.76
53-ADJ38	8,800	3/8	0.40	5.49	3.59	7.95	3.53
53-ADJ12	15,000	1/2	0.52	8.82	4.71	10.88	7.06
53-ADJ58	22,600	5/8	0.64	10.95	5.79	13.55	11.9

8-078 Grade 80 Shortening Clutch w/ Half-Link

Chain Shortener

Product details



Item Code	WLL (lbs)	Chain Size	Dimensions (in)								Net Weight
	4:1	[in]	A	C	D	E	F	H	G	K	lbs
8-078-07	4,500	9/32-5/16	0.47	0.79	0.39	0.91	2.76	0.87	0.35	5.04	1.54
8-078-10	7,100	3/8	0.51	1.02	0.47	1.14	3.43	1.02	0.43	6.06	2.87
8-078-13	12,000	1/2	0.59	1.30	0.63	1.46	4.53	1.42	0.59	7.99	6.17
8-078-16	18,100	5/8	0.83	1.54	0.75	1.81	5.63	1.54	0.75	9.76	11.68

Midgrab Chain Shortener

Chain Shortener

Product details

Application

- Instant mounting and positioning on any part of the chain.
- Designed to prevent inadvertent chain disengagement.
- Can be set idle on the chain leg when shortening is not required
- For high visibility in the field.
- Fatigue tested
- Forged alloy steel
- Quenched and tempered
- 100% proof load of each MIG
- Secure mounting with locking set on any desired part of the chain with one chain direction open for shortening
- Close-open function in both chain directions for safe retention of the chain
- Spring and trigger in stainless steel
- Easy-to-use shortening in either chain direction up-down
- The design makes it easy to place the MIG on the chain correctly.

Locking options



f-locking devices for MIG

Note! The MIG should be used with at least one locking devices.

L - fixed locking set
for fixed mounting



Code:
L-8: B14905
L-10: B14915
L-13: B14917

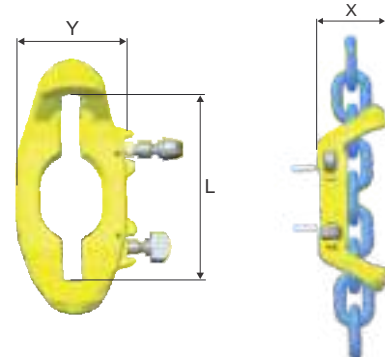
C - close/open locking set

Spring operated locking device. Can be placed either in open or closed position.



Code:
C-8: B14904
C-10: B14914
C-13: B14916

Item Code	WLL (lbs) 4:1	Dimensions (in)			Net Weight lbs
		L	X	Y	
	EN 1677-4				
MIG- 8-10	5,700.00	3.74	1.97	2.36	1.38
MIG-10-10	8,800.00	4.92	2.76	3.03	2.34
MIG-13-10	15,000.00	5.91	3.54	3.15	5.38
MIG CC-8-10	5,700.00	3.74	1.97	2.36	2.18
MIG CC-10-10	8,800.00	4.92	2.76	3.03	2.18
MIG CC-13-10	15,000.00	5.91	3.54	3.15	5.73





MG - Master Grab

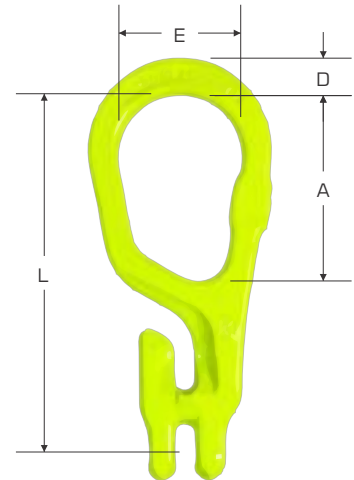
Masterlink

Product details



All-in-one compact top link.
Safety factor 4:1

Item Code	WLL [lbs]	Chain Size	Dimensions [in]				Net Weight
			L	A	E	D	
	4:1	[in]					lbs
MG-6-10	3,300	7/32	5.71	3.46	2.36	0.59	1.11
MG-8-10	5,700	9/32-5/16	6.73	3.62	2.36	0.71	2.12
MG-10-10	8,800	3/8	8.31	4.45	2.95	0.87	4.09
MG-13-10	15,000	1/2	10.28	5.43	3.54	1.02	7.88
MG-16-10	22,600	5/8	12.24	6.18	4.13	1.22	13.30



CG - C-Grab

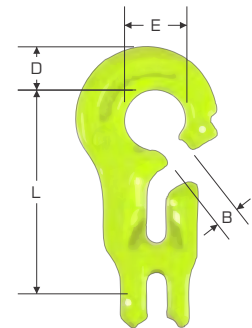
Masterlink

Product details



For use with master link, eye hooks and choke. All GrabiQ C-connectors can be equipped with Quick Pin.

Item Code	WLL [lbs]	Chain Size	Dimensions [in]				Net Weight
			L	B	E	D	
	4:1	[in]	L	B	E	D	lbs
CG-6-10	3,300	7/32	3.15	0.43	0.94	0.75	0.79
CG-8-10	5,700	9/32-5/16	4.21	0.47	1.26	0.94	1.74
CG-10-10	8,800	3/8	5.28	0.59	1.57	1.14	3.48
CG-13-10	15,000	1/2	6.77	0.71	2.05	1.50	7.28
CG-16-10	22,600	5/8	8.46	0.87	2.52	1.85	13.40



CL - C-Lok

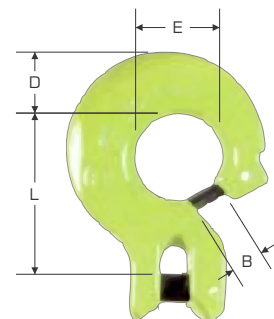
Masterlink

Product details



For use with master links, eye hooks and choke. All GrabiQ C-connectors can be equipped with Quick Pin.

Item Code	WLL [lbs]	Chain Size	Dimensions [in]				Net Weight
			L	B	E	D	
	4:1	[in]	L	B	E	D	lbs
CL-6-10	3,300	7/32	1.69	0.43	0.94	0.71	0.49
CL-8-10	5,700	9/32-5/16	2.28	0.47	1.26	0.94	1.12
CL-10-10	8,800	3/8	2.91	0.59	1.57	1.14	2.10
CL-13-10	15,000	1/2	3.70	0.71	2.05	1.50	4.69
CL-16-10	22,700	5/8	4.69	0.87	2.52	1.89	8.20





MGD - Master Grab Duo

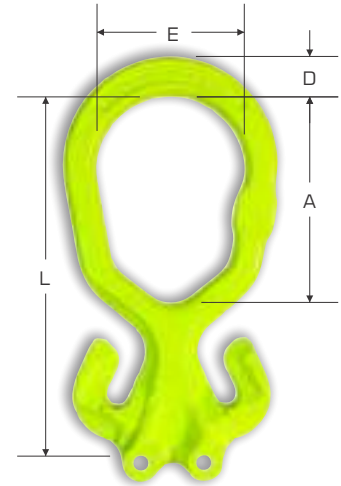
Masterlink

Product details



All-in-one compact top link for 2-leg slings.
Safety factor 4:1

Item Code	WLL (lbs)	Chain Size	Dimensions (in)				Net Weight
			L	A	E	D	
	4:1	[in]					lbs
MGD-6-10	4,600	7/32	5.67	3.54	2.36	0.67	1.46
MGD-8-10	7,700	9/32-5/16	6.73	3.94	2.95	0.83	2.97
MGD-10-10	12,300	3/8	8.31	4.88	3.54	0.94	5.32
MGD-13-10	20,900	1/2	10.31	5.87	4.13	1.22	10.46
MGD-16-10	30,900	5/8	12.20	6.89	4.72	1.38	17.98



CGD - C-Grab Duo

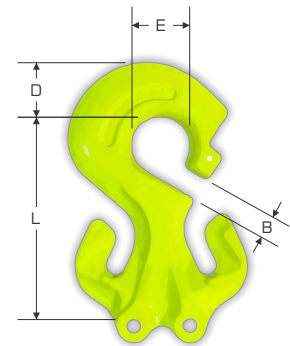
Masterlink

Product details



For use with master links. All GrabiQ C-connectors can be equipped with Quick Pin.

Item Code	WLL (lbs)	Chain Size	Dimensions (in)				Net Weight
			L	B	E	D	
	4:1	[in]					lbs
CGD-6-10	4,600	7/32	3.11	0.43	0.94	0.87	1.12
CGD-8-10	7,700	9/32-5/16	4.21	0.47	1.26	1.14	2.61
CGD-10-10	12,300	3/8	5.28	0.59	1.57	1.46	5.20
CGD-13-10	20,900	1/2	6.81	0.75	1.89	1.89	12.06
CGD-16-10	30,900	5/8	8.46	0.87	2.52	2.24	20.70



CLD - C-Lok Duo

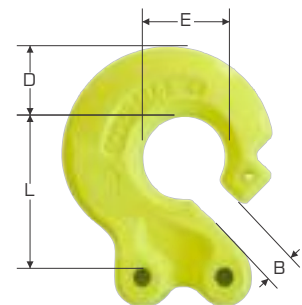
Masterlink

Product details



For use with master links. All GrabiQ C-connectors can be equipped with Quick Pin.

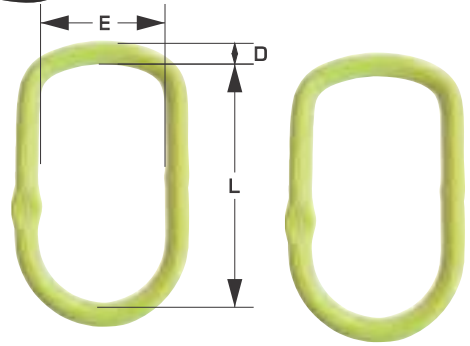
Item Code	WLL (lbs)	Chain Size	Dimensions (in)				Net Weight
			L	B	E	D	
	4:1	[in]					lbs
CLD-6-10	4,600	7/32	1.69	0.43	0.94	0.87	0.70
CLD-8-10	7,700	9/32-5/16	2.28	0.47	1.26	1.14	1.55
CLD-10-10	12,300	3/8	2.91	0.59	1.57	1.46	3.00
CLD-13-10	20,900	1/2	3.70	0.71	2.05	1.81	5.85
CLD-16-10	30,900	5/8	4.69	0.98	2.52	2.24	11.91



MFH - Masterlink Hybrid

Masterlink

Product details



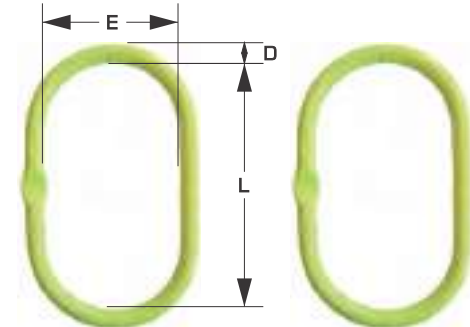
Designed for crane hooks DIN 15401 and 15402. Designed for use with CL, CLD, CG and CGD. 3- and 4-leg chain slings require CLD / CGD.

Item Code	WLL (lbs)		Chain Size (in)			Dimensions (in)			Net Weight (lbs)
	(SF 5:1) EN 1677-4	(SF 5:1) ASTM A-952	1-leg	2-leg	3-4-leg	L	E	D	
MFH-1310-10	16,500	17,600	1/2	3/8	9/32-5/16	9.06	4.92	0.87	4.63
MFH-1613-10	22,000	30,000	5/8	1/2	3/8	9.84	5.31	1.10	8.09
MFH-2016-10	37,500	45,400	3/4	5/8	1/2	11.02	5.31	1.26	11.62
MFH-2220-10	61,700	68,100	1	3/4	5/8	12.60	6.89	1.57	21.50
MFHW-2220-10	58,600	61,700	1	3/4	5/8	13.98	8.86	1.57	24.43

MFX - Oversized Masterlink

Masterlink

Product details



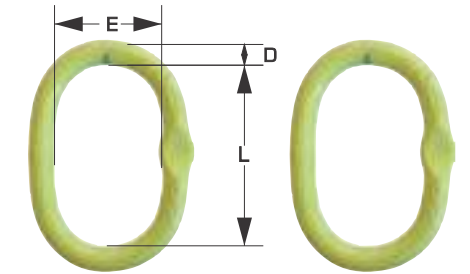
Oversized, for 1- and 2-leg sling. Designed for use with CL, CLD, CG and CGD.

Item Code	WLL (lbs)		Chain Size (in)		Dimensions (in)			Net Weight (lbs)
	(SF 5:1) EN1677-4	(SF 5:1) ASTM A-952	1-Leg	2-Leg	L	E	D	
MFX-108-10	9,400	11,500	-	9/32-5/16	13.39	7.09	0.98	8.06
MFX-1310-10	16,500	17,600	1/2	3/8	13.39	7.09	1.10	10.18
MFX-1613-10	24,700	30,000	5/8	1/2	13.39	7.09	1.34	15.43
MFX-2016-10	35,300	45,400	3/4	5/8	13.39	7.09	1.57	21.29

MF - Masterlink w/ Engineered Flat

Masterlink

Product details



For 1-, 2-, 3- and 4-leg slings. Designed for use with CL, CLD, CG and CGD. 3- and 4-leg chain slings require CLD / CGD.

Item Code	WLL (lbs)		Chain Size (in)			Dimensions (in)			Net Weight (lbs)
	(SF 5:1) EN 1677-4	(SF 5:1) ASTM A-952	1-leg	2-leg	3-4-leg	L	E	D	
MF-6-10	3,300	3,300	7/32	-	-	3.94	2.36	0.43	0.51
MF-86-10	5,500	7,100	7/32, 5/16	7/32	-	4.92	2.76	0.55	0.97
MF-108-10	8,800	11,500	3/8	9/32-5/16	7/32	5.51	3.15	0.67	1.70
MF-1310-10	16,500	17,600	1/2	3/8	9/32-5/16	6.30	3.74	0.87	3.26
MF-1613-10	22,000	30,000	5/8	1/2	3/8	7.48	4.33	1.10	6.17
MF-2016-10	37,500	45,400	3/4	5/8	1/2	9.45	5.51	1.34	11.64
MF-2220-10	55,100	68,100	7/8	3/4	5/8	9.84	5.91	1.57	17.13

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Tie Down Accessories
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Secure Solutions

Secure Solutions

North Office

Address

505 - 11 Avenue
Nisku, Alberta
Canada, T9E 7N5

Phone

780-955-7111

Fax

780-955-7199



Secure Solutions
info@superslings.ca

South Office

Address

7620 Edgar Industrial Drive
Red Deer, Alberta
Canada, T4P 3R2

Phone

403-406-4996

Fax

403-406-4997

www.superslings.ca