

NORTHERN STRANDS

MINING WIRE ROPE ATTACHMENTS & EQUIPMENT CATALOGUE



NORTHERN STRANDS

ABOUT US

Northern Strands supplies various industries and has evolved into six major divisions. Northern Strands offers the essential tools and technical expertise necessary for mine hoisting and attachments, general rigging, engineered fall protection, suspended access, agriculture terminal maintenance, and training services.



NORTHERN
STRANDS

PROUDLY PART OF THE
NORTHERN STRANDS
GROUP OF COMPANIES





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MINING WIRE ROPE CATALOGUE

COMPACTED 35X7

COMPACTED 27X7

24X7

COMPACTED 24X7

24x16

24x17

FULL LOCKED COIL

FLATTENED STRAND

8KMC

COMPACTED 6 STRAND

COMPACTED 8 STRAND

34 STRAND

FLAT BALANCE

HALF LOCKED COIL

WHY NORTHERN STRANDS ATTACHMENTS?

Northern Strands offers a wide range of attachments for all mining ropes, along with an extensive inventory of installation equipment available for purchase or rental. Northern Strands also offers installation crews and consulting services to assist throughout the entire project. All attachments are designed and engineered to meet national coal board standards and local government regulations governed by ISO 9001.

Northern Strands attachments are manufactured to a high-quality standard with product serialization used for tracking and quality control through an advanced quality management system. These attachments are designed with a minimum 10:1 factor of safety, proof load tested to 2.5 times the safe working load, and undergo ultrasonic and wet magnetic particle inspections. They also come complete with test certificates and relevant QA/QC documents. Additionally, all attachments are available with or without wear bushings made in metallic or synthetic material.

Northern Strands Provides:

- Customizable Dimensions
- Complete Certification
- Quick Delivery
- Design
- New Installation
- Replacement
- Upgrades
- Recertification and Testing
- Modification

MINING SERVICES

CAPABILITIES

- Project assessment
- Rope up & rope change specialists
- Accident remediation
- Consulting & procedure development
- Custom fabrication & machining
- Mining rope supply
- Conveyance installation & removal
- Wire rope spooling services

SEMINARS

- Mine Hoisting
- Socketing
- Safety Rigging
- Equipment Operators
- Spare Reels

RENTALS

- Specialty Shaft Rigging
- Reel Stand
- Winders & Unwinders
- Tensioner
- Tuggers & Load Winches



OPEN SPELTER SOCKETS

Sockets are used on a variety of mining rope applications, including hoist, balance, guide and sinking ropes. The socket attachment offers a safe, economical connection and can be installed on site with wirelock resin.

Northern Strands designs and manufactures two main types of sockets, threaded and open spelter. The threaded style consists of a male and female end, in which the cap can be designed to suit specific client needs.

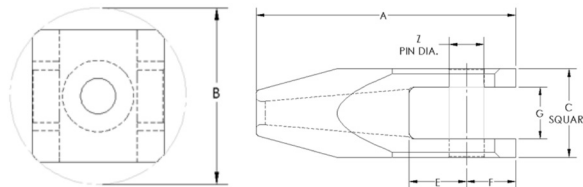
The Open Spelter type is the most common style of socket. Northern Strands has standard catalogue sizes for open spelter sockets, as well as the capabilities to custom design for specific requirements.



Available Pins:

- Threaded Pin (Radius or Flat Head)
- Quick Release Pin

Both style of pins can be supplied with grease grooves upon request



**Socket Identification Number also represents rope size. (Pin weight not included)*

Socket ID	WLL	A	B	C	E	F	G	Z	Approx. wt. (lbs)
SJ 0.625	10,000	9.875	5.000	3.750	2.250	1.875	2.250	1.500	20
SJ 0.750	10,000	9.875	5.000	3.750	2.250	1.875	2.250	1.500	20
SJ 0.875	15,000	11.625	5.000	3.750	2.625	2.250	2.250	1.500	22
SJ 1.000	20,000	13.375	6.375	4.750	3.063	2.563	2.844	1.875	40
SJ 1.125	25,000	15.000	6.375	4.750	3.375	2.875	2.844	1.875	45
SJ 1.250	30,000	16.500	7.750	5.750	3.688	3.188	3.469	2.313	75
SJ 1.375	35,000	18.250	7.750	5.750	4.125	3.500	3.469	2.313	80
SJ 1.500	40,000	19.750	9.000	6.875	4.375	3.750	4.063	2.750	125
SJ 1.625	50,000	21.500	9.000	6.875	4.750	4.125	4.063	2.750	135
SJ 1.750	60,000	23.125	10.500	7.875	5.125	4.375	4.625	3.125	190
SJ 1.875	70,000	24.750	10.500	7.875	5.438	4.688	4.625	3.125	205
SJ 2.200	80,000	26.250	11.500	8.875	5.750	5.000	5.219	3.563	275
SJ 2.125	85,000	28.000	11.500	8.875	6.188	5.313	5.219	3.563	295
SJ 2.250	95,000	29.875	12.750	9.875	6.50	5.625	5.781	4.000	390

Standard dimensions shown. Custom sizing available upon request. Contact: attachments@northernstrands.com

THREADED SOCKETS

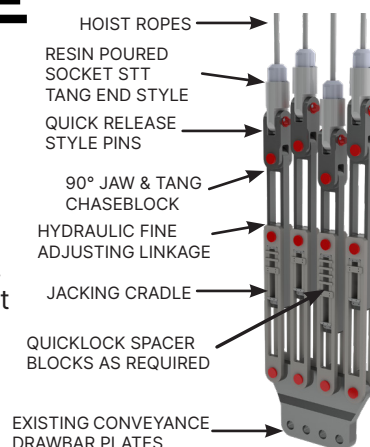
The threaded style of sockets consist of a male and female end, in which the cap can be designed to suit the clients specific need. All threaded sockets are designed with a minimum 10:1 factor of safety, and 15:1 on the threads.



HOIST ROPE STT

FINE ADJUSTMENT LINKAGE

Fine Adjustment Linkages are primarily used in friction hoisting setups. The linkage allows fine adjustment so all ropes in a multi-rope arrangement are equally tensioned and, therefore, working together, greatly extending rope life. Adjustment is done at the lower station without the need for chairing conveyances. The linkage is adjusted by placing a hydraulic jack in each linkage string, making length adjustments, and then setting spacer bars. The adjustment with the linkage is in balance when the hydraulic jack puts the last one in motion. At that point, all ropes are in equal tension. The jacks are powered by a pump unit mounted on a cart containing the spacer bars, jack extension caps, hoses, and control pendants. Coarse adjustment is made using chaseblocks mounted either above the linkage, on the opposite side, or a combination of the two.



COARSE ADJUSTING LINKAGE

Coarse Adjusting Linkages are primarily used in friction hoisting Adjustment is done at the bottom station once the conveyances are chaired. Pin type coarse adjusting linkage and compensating chaseblocks are the most common types of coarse adjustment. Northern Strands can engineer and fabricate custom linkage as required.



WEDGE TYPE CAPPELS & ROUND EYE CAPPELS

Wedge Type Cappelles are used in various applications including Multi-Rope Hoist, Balance and Guide Ropes. This attachment offers simplicity, reliability and safety. The Cappelles are installed with either the use of hammers or a Hydraulic Cappel press. Standard Cappel sizes range from 1" to 2.5" rope diameters. All Cappelles are manufactured from high quality steel, Proof Load Tested to 2.5 times Safe Working

Load and Wet Magnetic Particle Inspected. Round Eye Cappelles suit both Round Strand and Locked Coil type Hoist Ropes.

These Cappelles utilize a Safety Cone installed with Wirelock Resin.



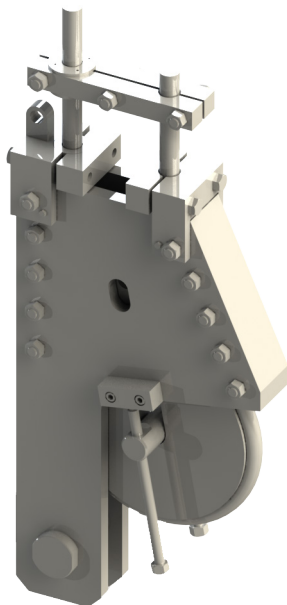
ROUND EYE CAPPEL

CHASEBLOCKS & LINK PLATES

Chaseblocks & Link Plates are used to connect rope end attachments to other components in the system. These are custom designed to suit each client's specific need and application. The chaseblocks can be supplied as inline, 45 degrees, or 90 degrees depending on client requirements.



CHASEBLOCK



THIMBLE CAPPELS

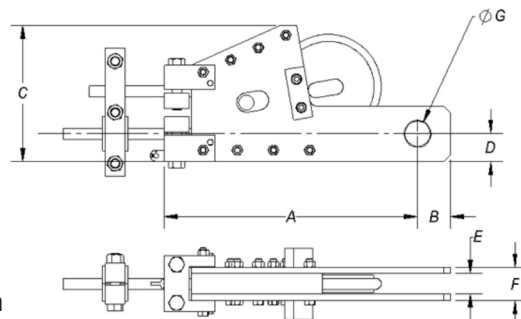
Thimble cappelles are used in both drum and friction hoist applications. The rope is passed around the thimble located between the two opposite jaws, which fit into the side plates. Once a load is applied, the thimble is drawn into the body of the cappel, where the thimble and jaws grip the rope. Standard dimensions are shown below. Custom sizing available upon request.

Available Pins:

- Threaded (Radius or Flat Head)
- Quick Release

Both style of pins can be supplied with grease grooves upon request

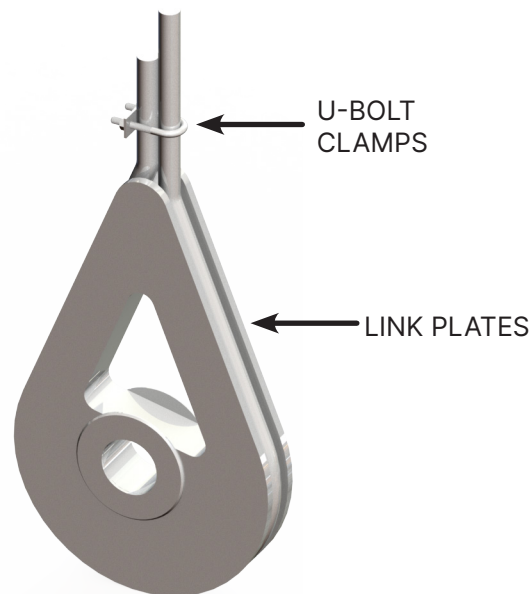
Contact: attachments@northernstrands.com

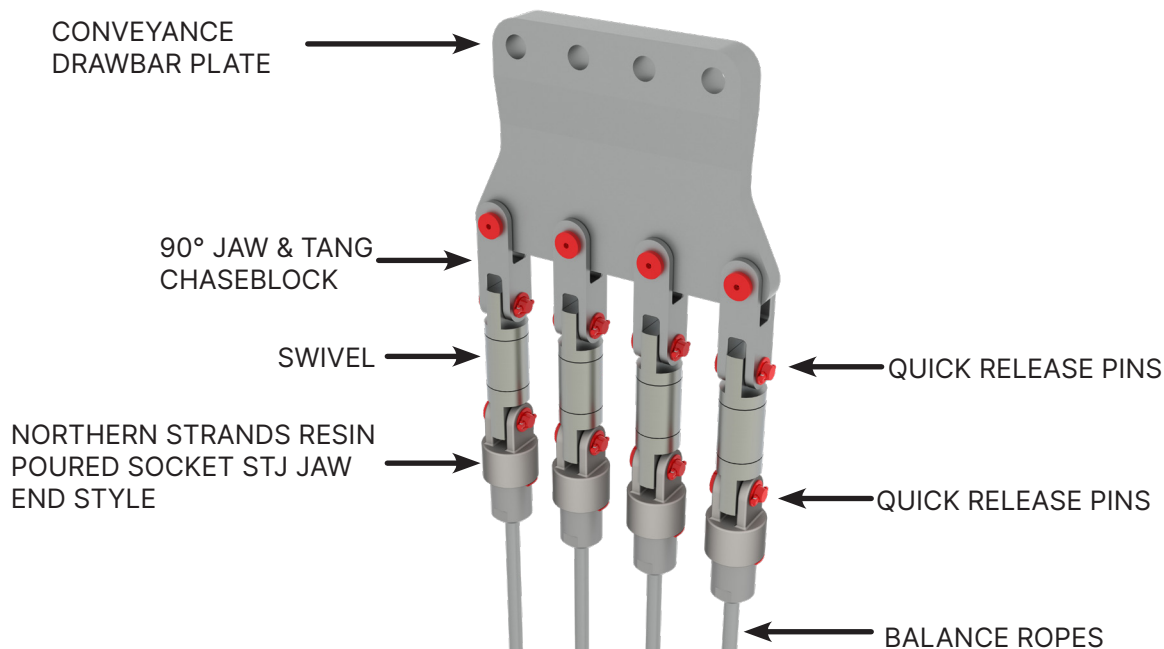


THIMBLE CAPPEL ID #	Rope Size	WLL	A	B	C	D	E	F	G	Approx. Weight
10095-A	0.750	12,000	20.375	2.750	11.620	2.375	1.580	2.580	1.970	135
10109-A	0.875									
10118-A	1.000									
10130-A	1.125	30,000	31.000	3.750	18.560	3.250	2.000	4.000	2.500	440
10145-A	1.250									
10154-A	1.375									
10163-A	1.500	40,000	35.000	4.625	21.510	3.750	2.360	4.360	3.500	610
10176-A	1.625									
10185-A	1.750									
10256-A	1.875	55,000	46.000	4.750	24.920	4.000	2.950	5.450	4.000	975
10265-A	2.000									
10278-A	2.125									
10287-A	2.250	85,000	59.125	4.500	29.570	5.000	5.250	8.750	4.000	2,550
10300-A	2.375									

SOLID THIMBLES

Solid Thimbles can be used for hoist or balance rope connections. The rope is looped around the thimble, where the live and dead ends are secured by rope clamps.





SOCKETS

Sockets are used on a variety of mining rope applications, including hoist, balance, guide and sinking ropes. The socket attachment offers a safe, economical connection and can be installed with a quick and efficient wirelock resin. This socket may be more desirable than the OS design where headroom is an issue, as it may eliminate one rope fitting.

Northern Strands designs and manufactures two main types of sockets, threaded and open spelter. The threaded style consists of a male and female end, in which the cap can be designed to suit specific client needs.

OPEN SPELTER SOCKET (SJ STYLE)

The open spelter type is the common style of socket. Northern Strands has standard catalogue sizes for open spelter sockets, as well as the capabilities to custom design for specific requirements.

Available Pins:

- Threaded Pin (Radius or Flat Head)
- Quick Release Pin

Both style of pins can be supplied with grease grooves upon request

Custom sizing available upon request.
Contact: attachments@northernstrands.com



STJ THREADED
JAW END STYLE



STT THREADED
TANG END STYLE



SJ STYLE

SWIVELS

Swivels are used to provide rotation, primarily in Balance or Sinking Stage Ropes, to alleviate torque buildup, which is damaging to ropes.

A variety of styles are available ranging in capacities from 1 ½ to 100 tons.

Angular Contact Bearings are primarily used offering the necessary starting torque efficiency with maximum reliability.

Northern Strands carries the Miller line of swivels and has the ability to custom design to suit specific client needs.



TANG/TANG

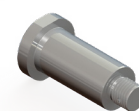
CHASEBLOCKS & PINS

Chaseblocks and Link Plates are used to connect rope end attachments to other components in the system. These are custom designed to suit each client's specific need and application. The chaseblocks can be supplied as inline, 45 degrees, or 90 degrees depending on client requirements.

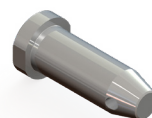
Northern Strands offers two main types of pins. The quick release pin consists of a pin body with a tapered end that allows for easy installation and removal. The pin is locked in place with a stainless steel locking pin and a cotter pin. The threaded pin is supplied with a nut and match drilled hole in the thread to lock in place. Rounded heads and nuts can be supplied. Both styles of pins are available with a grease groove option.



TANG/JAW



THREADED



QUICK RELEASE

BALANCE ROPE (SHORT LOOP) CAPPELS

Short Loop Cappels are used for the attachment of Balance (Tail) Ropes.

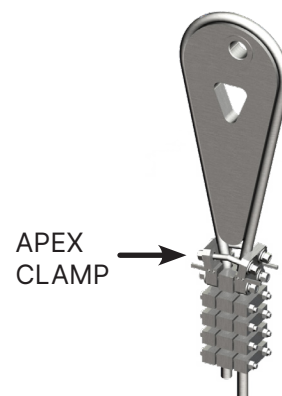
These Cappels normally connect into a 90° Chaseblock and Swivel.

Short Loop Cappels utilize a 4-Bolt Safety Clock rather than a Safety Cone as with the Hoist Rope Cappels.



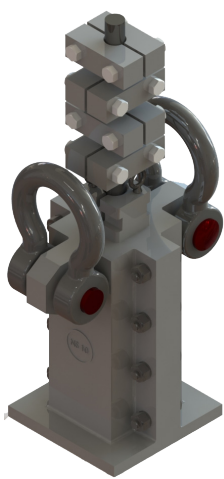
SOLID THIMBLE & CLAMPS

Solid Thimbles can be used for hoist or balance rope connections. The rope is looped around the thimble, where the live and dead ends are secured by rope clamps.



APEX CLAMP

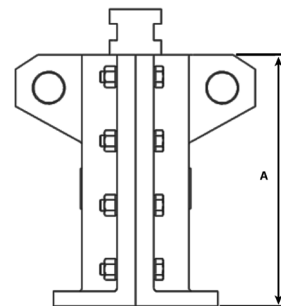
SUSPENSION AND MANEUVERING GLANDS



MANEUVERING

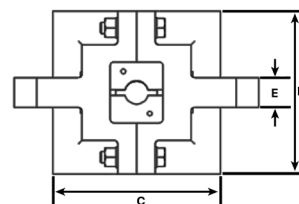
Maneuvering Glands are used for lifting, maneuvering, and banking wire rope for removal, installation or maintenance purposes. One advantage the maneuvering gland has is that the opposing ears allow for the body to be unbolted and removed, all the while remaining suspended by the shackles.

All glands are designed with a minimum of 5:1 factor of safety, proof load tested to 2x safe working Load, ultrasonically and wet magnetic particle inspected. All meet or exceed national coal board standards.



Gland ID #	WLL	A	B	C	E	Weight (lbs)
10050-A	20,000	15.000	9.625	9.125	1.875	200
10047-A	40,000	17.125	10.875	11.125	2.000	310
10048-A	60,000	18.000	12.000	11.125	2.750	400

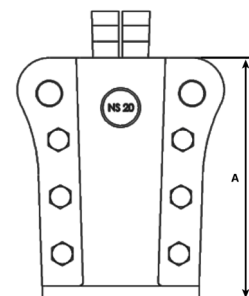
Standard dimensions. Rope sizes for wedges available upon request



SUSPENSION

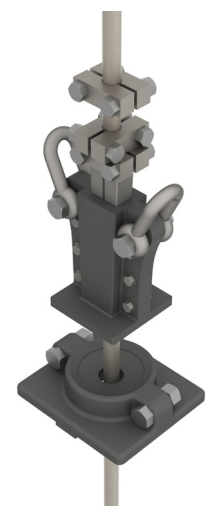
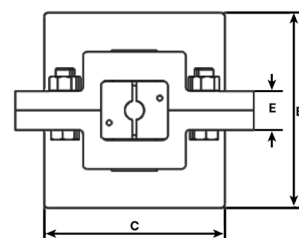
Suspension Glands are used for a lifting, maneuvering, and banking wire ropes for removal, installation or maintenance purposes. Northern Strands glands are supplied complete with gland body, interlocking wedges, four-two bolt blocks and lifting shackles.

All glands are designed with a minimum of 5:1 factor of safety, proof load tested to 2x safe working Load, ultrasonically and wet magnetic particle inspected. All meet or exceed national coal board standards.



Gland ID #	WLL	A	B	C	E	Weight (lbs)
10051-A	20,000	14.125	9.000	9.125	1.875	135
10019-A	40,000	17.000	11.875	11.000	2.375	285
10049-A	60,000	18.000	11.500	11.000	2.875	390

Standard dimensions. Rope sizes for wedges available upon request



SPHERICALLY SEATED

Spherically Seated Glands are used for the suspension of guide or rub ropes. The spherical base allows for the rotation of the guide or rub ropes to change the wear pattern on the rope.

All glands are designed with a minimum of 5:1 factor of safety, proof load tested to 2x safe working Load, ultrasonically and wet magnetic particle inspected. All meet or exceed national coal board standards

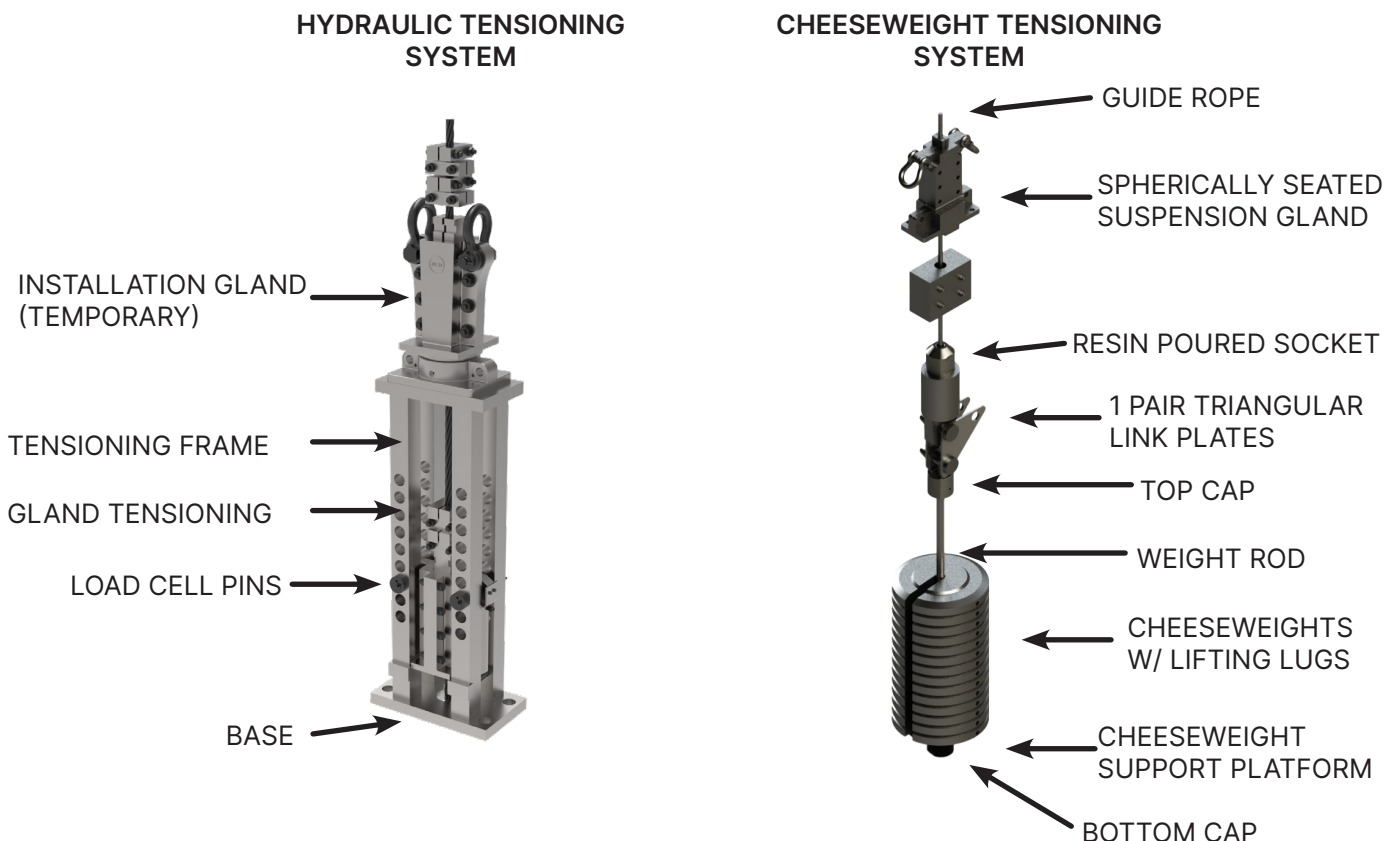
Contact: attachments@northernstrands.com

GUIDE ROPE TENSIONING

Where shaft Guide Rope systems are used in lieu of rigid type guides, several attachment assemblies are available. Arrangements are offered with bottom weight tensioning (most common), bottom spring tensioning or top spring tensioning, or hydraulic tensioning in the headframe.

The upper attachment includes a Spherically Seated Gland, while the bottom end can be fitted with a Socket or Long Loop Cappel. The Socket or Cappel is then connected to a Triangular Link Plate which facilitates load transfer for rope changes.

With bottom weight tensioning, Cheeseweights are mounted on a rod and platform thereby keeping Guide Ropes tensioned. As mentioned, rather than Cheeseweights, hydraulic systems or spring tensioning can be employed at either top or bottom.



GUIDE ROPE (LONG LOOP) CAPPELS

Long Loop Cappelles are designed to be used with Half and Full Locked Coil Guide Ropes.

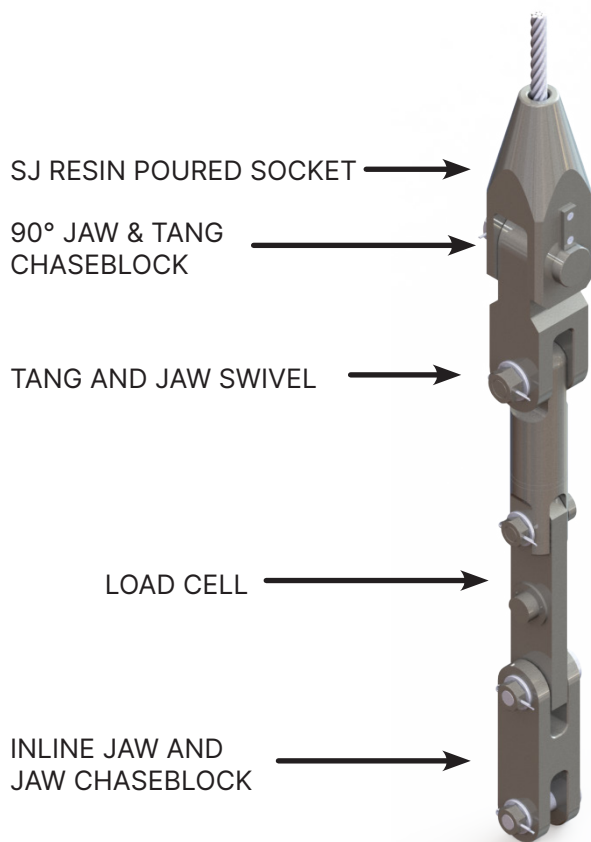
The longer loop is designed to allow the extra length of Guide Rope to hang out past the attachment rather than be cut off to an exact length.

These Cappelles utilize a 4-Bolt Safety Block like the Short Loop Balance Rope Cappel.

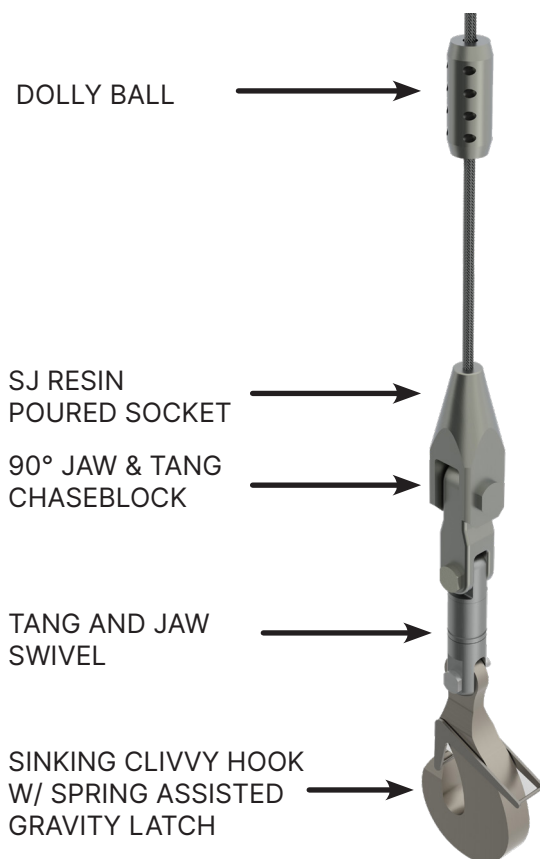


SINKING STAGE ROPE

With Load Cell



SINKING ATTACHMENTS



SHAFT SINKING HOOKS

Northern Strands offers two styles of sinking hook. The Clivvy hook is a solid plate sinking hook, which is supplied with a spring assisted locking latch. The sinking swivel hook consists of a hook integrated directly into the swivel. This offers a more economical solution, as well as a lower profile if space is an issue. This style can also be supplied with a gravity latch or spring assisted locking latch.

All Shaft Sinking Hooks are designed with a minimum of 10:1 factor of safety, proof load tested to 2.5 times safe working Load, ultrasonically and wet magnetic particle inspected. All meet or exceed national coal board standards.



BECORIT DRUM & SHEAVE LINERS

Northern Strands is an international supplier of Becorit liners. The Becorit hoist drum liners guarantee a very high friction coefficient, excellent abrasion resistance and a high permissible surface pressure. The Becorit liners can be made to suit any drum or sheave, and recommendations will be made for the right material for your specific job.



BECORIT: INNOVATION WITH A HISTORY

Becorit's success story began in 1926 with the production of frictional materials for conveying and lifting systems deployed in mining. Only 20 years later, Becorit GmbH develops brake pads for rail vehicles and becomes one of the most renowned producers of frictional materials worldwide. With the aid of technological innovation Becorit develops products of excellent quality you can depend on.

DIVERSITY AND FLEXIBILITY WITH SAFETY

All over the world, Becorit's materials guarantee an optimal coefficient of friction between the wire rope and the sheave. Alongside the classical areas of application such as mining and funicular railways, you will find Becorit products in cable winches, fairground rides, steel rolling mills, crash test facilities and many other applications where traction and safety matter.

OUR LININGS KEEP WHAT WE PROMISE

With strict adherence to the ISO 9001, ISO 14001 and ISO 50001 standards, Becorit products are manufactured at our site in Recklinghausen, Germany. To guarantee the quality, all steps of the process, from raw materials to the finished part, are monitored and documented.

TRACTION SAFETY YOU CAN RELY ON

The efficiency and safety of the wire rope and the traction sheave is defined by the coefficient of friction between the wire rope and the lining. By taking this into consideration, Becorit selects the optimum lining material for the area of deployment. The following factors play a significant role as they have a direct influence on the coefficient of friction:

- Load condition
- Wire construction
- Acceleration
- Temperature
- Moisture
- Wire lubrication
- Contamination

SHEAVES

Northern Strands offers many different sizes of Sheaves to suit various applications. This includes Head Sheaves, Deflection Sheaves, Double Down Sheaves, And Custom Sheaves for Rope Installation and Removal. In House Engineering allows us to provide customers with the proper sheaves to suit their applications in regards to safe working load and factor of safety. Sheaves can be supplied with synthetic liners, or hardened grooves.



LOAD CELLS

HIGH QUALITY

All tension links and load pins are tested prior to sales to ensure High quality performance. Our supplier's testing facility has a capacity to 150,000 lb, traceable to the National Institute of Standards and Technology (NIST) USA.

Product serialization is also used for product tracking and quality control through an advanced quality management system.

SUPERIOR SERVICE

Our supplier's design team along with our design team will work together to provide the very best custom product solutions to ensure you are completely satisfied. After your purchase, should you experience any problems with your. Northern Strands product or have any questions, the technical specialists are available to help. As your local supplier we are easy to contact, and can resolve any issues quickly and efficiently.

SUPERIOR WARRANTY

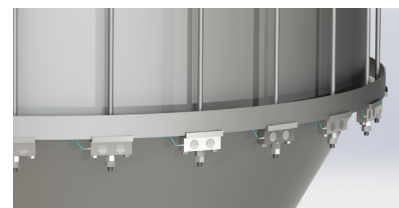
All custom designed load pins and load cells are backed by our 2 year warranty.

PILLOW BLOCK

Pillow Block type custom designed load cells for various mining applications. Can be used for mining and oil and gas applications.

LOAD PINS

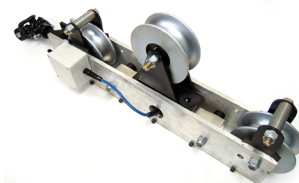
Load pins, large and small are common for the Crane Service providers, mining and engineering companies.



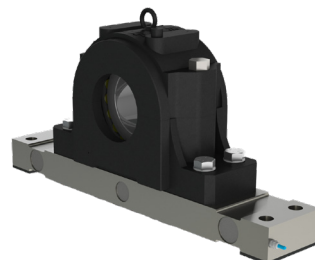
LOAD CELL CONCEPT
UNDERGROUND TANK



LINK PLATE



TENSION METER



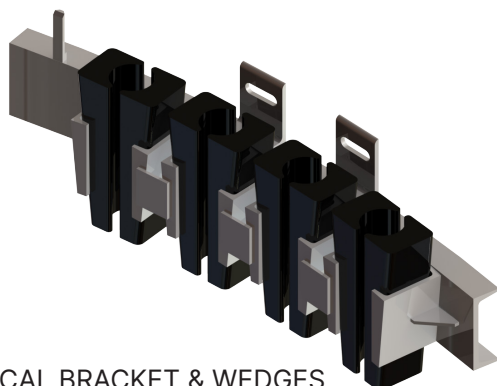
PILLOW BLOCKS



LOAD PIN

ELECTRICAL CABLE BRACKETS AND INSTALLATION

Northern Strands specializes in the design, fabrication and installation of electrical cable brackets and wedges.



ELECTRICAL BRACKET & WEDGES



SHEAVE STAND ASSEMBLY

LUBRICANTS, SYSTEMS & CLEANERS



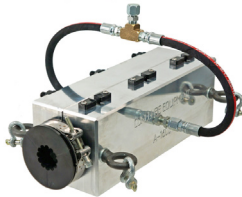
Lubrication of wire rope is important. It is required during manufacturing, installation, and ongoing maintenance. Different hoists and applications require different types of lubrication. With Northern Strands' knowledge of wire rope, we can recommend and supply appropriate lubrication products and suggest the best lubrication methods.

WIRE ROPE LUBRICATION SYSTEMS

Northern Strands is the North American Distributor for CoreLube wire rope lubrication equipment and cleaners.

3100-BOS-R1 SYSTEM

The 3100-BOS-R1 System is designed to apply thick oils / semi fluids & soft greases that are self penetrating. Cable Size Range: 0.5" (12.7mm) to 3." (77mm).



ADVANTAGES

- Lubricates wire ropes at speeds of 250 Ft./ Min.
- One brush size fits a range of rope sizes.
- Wire rope deformities can be run through the unit.
- Wire ropes can run through the unit at any angle.
- The same pump fits all sizes of containers from a drum to a pail.

A-1600-LB6 GREASE SYSTEM

The CoreLube A-1600 System is a high pressure wire rope grease injection unit for NLGI #00, #0, #1, #2 grease. Accommodates Wire Rope Sizes From: 7/32" (5.5mm) to 2 9/16" (65.0mm).

ADVANTAGES

- The Seals and Bushings snap into the housing without tools.
- Solid machined housing with dual O-ring seals.
- Removes old lubricant, dirt and grime.
- High Pressure 50:1 Pump.
- High Output Volume Pump 4.25" 108.0mm Air Motor

HELIX GROOVE CLEANERS

CoreLube Equipment's Helix Groove Cleaners are designed to remove contaminants from the valleys between the strands of wire rope. The cleaner works by rotating with the helical lay of the wire rope. The Helix Groove Cleaners are designed to work with CoreLube's applicator collars or thrust block.

HELIX GROOVE CLEANER TYPES AVAILABLE:

- Diameter Ranges: 13.0 mm -- 127.0 mm
- Number of Outer Strands: 3--18
- Left & Right Lay
- Round Stranded Wire Ropes
- Triangular/Swaged Stranded Wire Ropes

SPECIALTY EQUIPMENT

INSTALLATION & REEVING EQUIPMENT

- Socketing stands
- Deflection sheave assemblies with pedestals
- Double down sheaves
- Rope tensioner
- Reeving sockets
- Sheaves and pedestals
- D plates
- Maneuvering glands
- Suspension glands
- Safety blocks
- Safety clamps
- Gooseneck deflection sheaves
- Reel winder
- Wire rope shears (Hydraulic)
- Cappel banding press
- Snatch blocks

MAINTENANCE EQUIPMENT

- Rope Lubrication Systems
- Rope Cleaners (Single & Multi Rope)
- Kellem Grips / Rope Grips
- Post-former
- Drum Liner Grooving Machines and Grooving Bits.

SUPPLIES

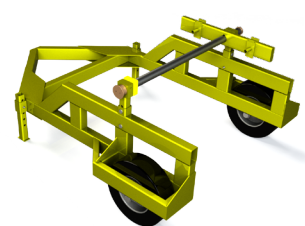
- Socketing resin
- Seizing wire
- Cleaners / degreasers
- Wire rope lubricants



REEVING SOCKET



DEFLECTION SHEAVE ASSEMBLY W/ PEDESTAL



REEL TRANSPORTER/UNWINDER

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1-800-242-7073
802 60th Street East
Saskatoon, SK, S7K 8G8

sales@northernstrands.com
northernstrands.com