2022/23 CATALOG

NORTHERN STRANDS

Canadian owned and operated since 1970

PRODUCTS AND SERVICES CATALOGUE

- INDUSTRIAL RIGGING EQUIPMENT AND SUPPLIES
- SUSPENDED ACCESS
- ENGINEERED FALL PROTECTION
- SAFETY TRAINING
- EQUIPMENT TESTING AND RECERTIFICATION

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WELCOME TO NORTHERN STRANDS

With health and safety in mind, Northern Strands has been supplying industry since 1970, evolving into six major divisions that offer needed tools and technical knowledge in mine hoisting and attachments, general rigging, engineered fall protection, suspended access, training and agriculture terminal maintenance.

Northern Strands Mining, Wire Rope, Attachments & Equipment Division exceed our customer's expectations every day by providing a wide range of equipment and services. We are the best full-service provider of wire ropes, attachments, equipment, and services. Truly Mine Hoisting Solutions®.

Our Rigging Division is a full-service facility operating out of Saskatoon and Regina with the ability to fabricate custom chain and wire rope slings. We have a vast inventory of synthetic lifting slings, chain hoists, lever hoists, shackles, trolleys, winches (tuggers), and other general rigging hardware. Our network of suppliers and in-house expertise is leveraged for the benefit of our customers. We have Vertical and horizontal test bed services which we can use to certify that equipment complies with applicable standards.

The Engineered Fall Protection Division offers a variety of fall protection systems, solutions, and services. Custom-engineered solutions designed to suit specific requirements. Services and equipment include: inspection and replacement services for overhead and vertical lifelines, consulting, supply and installation services for single point anchors, guardrail systems, walkways, platforms, and structural assessments.

Northern Strands has a large and diverse Suspended Access Division. Our suspended access solutions have been used on sloped roof buildings, glazing applications, sheeting, insulation and concrete restoration, surface and underground in the mining sector along with many other uses throughout Saskatchewan and Western Canada. All of our equipment goes through a rigorous inspection and recertification process each time before it leaves our shop to ensure that our equipment will provide the most dependable solution for your needs. We provide onsite technical assistance with all suspended access rigging and setup ranging from simple to highly engineered set-ups.

Northern Strands offers a multitude of safety training courses for construction, mining and agriculture industries. We have the ability to provide flexible on-site training. Please call us to discuss booking training for dates that are not listed in our online calendar. Our seminars are taught by knowledgeable and experienced instructors who hold several accreditations from industry leaders such as Crosby, Capital Safety, Honeywell, International Critical Incident Stress Foundation and Occupational Health and Safety. The Courses offered are: Fall arrest, Overhead Crane, Crosby® Rigging, Tugger Safety, Wirelock® Socketing, Suspended Access Equipment and General Mine Safety Awareness training. Northern Strands Training Seminars offer the most up-to-date information on the topics they discuss, and can be delivered on a tight schedule with courses like Tugger Safety and Fall Arrest averaging four hours in duration to more extensive programs such as the 40 hour Overhead Crane course which can be completed in four 10 hour days or five 8 hour days. Northern Strands is able to accommodate this training seminar on-site, provided a suitable work area is available, or at one of Northern Strands' facilities.

The Agriculture Terminal Maintenance Division is able to provide products and services for fabrication & assembly, general repair, car progressioner, and agriculture terminal maintenance. We stock Nordstrong parts for all sizes of car progessioner, provide cables, accessories, connection kits, gearboxes, motors, brakes, specialty bearings and housings. The Northern Strands Group of Companies has also recently outfitted a Mobile Railcar Progressioner Servicing Unit custom suited to service a multitude of railcar loadout facility maintenance requirements. This all-terrain unit is built off of a Yanmar C25R Track Machine and carries a service deck outfitted with a rope greasing system, socketing vice, heavy duty winch, hoisting davit, service greasing system, and welder/generator/air compressor combination unit to accommodate a variety of loadout servicing needs including rope greasing, component replacements, general system inspections/servicing, rope tensioning, welding repairs, and more. The Mobile Railcar Progressioner Servicing Unit comes fully site compliant with positive air shutoff, fire extinguisher, beacon, lighting, and ROPS.

Northern Strands Certifications and Associations: COR Safety certified, ISNET, Mission Zero Charter Member, Canadian Dam Association Sustaining Member, AWARF, SAIA, CASA.

Call or visit us *today...*

TOLL FREE: 1-800-242-7073

EMAIL: info@northernstrands.com

WEBSITE: www.northernstrands.com

INDUSTRIAL EQUIPMENT & SUPPLIES

The Northern Strands Rigging Division is a full-service facility operating out of Saskatoon and Regina with the ability to fabricate custom chain and wire rope slings. We have a large inventory of synthetic slings, chain hoists, lever hoists, shackles, trolleys, winches (tuggers), and other general rigging hardware. Our network of suppliers and in-house experts allow us to provide the best products and service to our customers. We have vertical and horizontal test bed services which we use to certify that equipment is in compliance with applicable standards.

SERVICES & CAPABILITIES

- Large selection of rigging products.
- Distributor for some of the largest world class manufacturers in our industry including The Crosby Group, Thern, Peerless, Brunton-Shaw, Celik Halat, Yoke, Oceanside, Vitali-intl® and more.
- Crane rope inspections.
- Assistance in the development of rigging and lifting plans for your job.
- Technically trained sales staff.
- Compliance Certified equipment with documentation.
- Custom built products including material baskets, wire rope slings, and much more.
- We work in the industry and can help with your equipment needs from start to finish.

EQUIPMENT TESTING

Northern Strands provides an extensive rigging recertification program which includes tracking and identifying rigging equipment that needs to be inspected and recertified. Rigging equipment that needs to be recertified and inspected are visually and dimensionally checked as well as proof loaded in our test bed which provides a certificate of testing for the rigging item. We have a horizontal test bed capable of pulling up to 400,000 lbs and our vertical test bed capable of 50,000 lbs. Our Mobile Test Bed has the largest working load limit of any Mobile Test Bed in Canada, at 200,000 lbs. We can provide personnel to help identify rigging items that need to be inspected and recertified on site.

ON SITE SERVICE

We can repair, pull test, and recertify a variety of equipment including:

- Material Baskets
- Lifting Beams
- Man Baskets
- Wire Rope Slings
- Web Slings
- Round Slings
- Wire Rope Sockets
- Chase Blocks
- Hydraulic Linkage
- Attachment Pins
- Thimble Cappels
- D-Plates
- Spreader Beams

Our Testing, Certification, and Recertification Capabilities Include:

- Pull Testing
- Pull Testing to Destruction
- Rigging Inspections and Testing
- Research & Development

WIRE ROPE SLINGS

(STANDARD FLEMISH EYE EACH END)

Wire Rope Sling Features:

- Lowest cost per ton of lift on all slings
- Ideal for heavy loads and rugged conditions
- Flexible and abrasion resistant
- Wide range of possible end terminations

CABLE SIZE	CABLE CONSTRUCTION	W.L.L. (VERTICAL)	LENGTH
1/4"	6X26	1,300 LBS	2 TO 20 FT.
5/16"	6X26	2,000 LBS	2 TO 20 FT.
3/8"	6X26	2,800 LBS	2 TO 20 FT.
7/16"	6X26	3,800 LBS	4 TO 20 FT.
1/2"	6X26	5,000 LBS	4 TO 20 FT.
9/16"	6X26	6,400 LBS	4 TO 20 FT.
5/8"	6X26	7,800 LBS	6 TO 20 FT.
3/4"	6X26	11,200 LBS	6 TO 20 FT.
7/8"	6X26	15,200 LBS	6 TO 20 FT.
1"	6X36	19,600 LBS	6 TO 20 FT.
1-1/8"	6X36	24,000 LBS	8 TO 20 FT.
1-1/4"	6X36	30,000 LBS	8 TO 20 FT.
1-3/8"	6X36	36,000 LBS	8 TO 20 FT.
1-1/2"	6X36	42,000 LBS	8 TO 20 FT.

Larger Sizes & Lengths Available Upon Request. Other Configurations Available.
W.L.L. based on EIPS wire rope.

RATED CAPACITY IN POUNDS

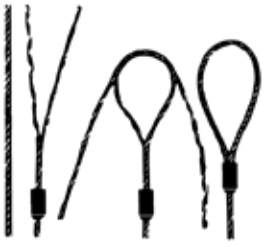
				BASKET AND 2 LEG BRIDLES			3 LEG BRIDLES				EYE DIMENSIONS (APPROXIMATE)	
											WIDTH INCHES	LENGTH INCHES
DIA.	VERTICAL	CHOKER HITCH	VERTICAL BASKET	30º	45º	60º	VERTICAL	30º	45º	60º	A	B
¼"	1300	960	2600	1300	1820	2200	3800	1940	2800	3400	2	4
5⁄16"	2000	1480	4000	2000	2800	3400	6000	3000	4200	5200	2 ½	5
⅜"	2800	2200	5800	2800	4000	5000	8600	4400	6000	7400	3	6
7⁄16"	3800	2800	7800	3800	5400	6800	11600	5800	8200	10000	3 ½	7
½"	5000	3800	10200	5000	7200	8800	15200	7600	10800	13200	4	8
9⁄16"	6400	4800	12800	6400	9000	11000	19200	9600	13600	16600	4 ½	9
⅝"	7800	5800	15600	7800	11000	13600	24000	11800	16600	20000	5	10
¾"	11200	8200	22000	11200	15800	19400	34000	16800	24000	30000	6	12
⅞"	15200	11200	30000	15200	22000	26000	46000	22000	32000	40000	7	14
1"	19600	14400	40000	19600	28000	34000	58000	30000	42000	52000	8	16
1 ⅛"	24000	18200	48000	24000	34000	42000	72000	36000	52000	62000	9	18
1 ¼"	30000	22000	60000	30000	42000	52000	88000	44000	62000	76000	10	20
1 ⅜"	36000	26000	72000	36000	50000	62000	106000	54000	76000	92000	11	22
1 ½"	42000	32000	84000	42000	60000	74000	126000	64000	90000	110000	12	24
1 ⅝"	48000	36000	98000	48000	70000	84000	146000	74000	104000	126000	13	26
1 ¾"	56000	42000	114000	56000	80000	98000	170000	84000	120000	148000	14	28
2"	74000	56000	146000	74000	104000	126000	220000	110000	156000	190000	16	32
2 ¼"	88000	70000	178000	88000	126000	154000	266000	134000	188000	232000	18	36
2 ½"	108000	84000	218000	108000	154000	188000	326000	164000	230000	282000	20	40
2 ¾"	130000	102000	260000	130000	184000	226000	390000	194000	276000	338000	22	44
3"	154000	120000	306000	154000	216000	266000	460000	230000	324000	398000	24	48

NOTE: DESIGN FACTOR = 5:1 WARNING: DO NOT EXCEED RATED CAPACITIES

RATED CAPACITIES BASKET HITCH BASED ON D/D RATIO OF 25/1.
RATED CAPACITIES BASED ON PIN DIAMETER NO LARGER THAN 1/2 NATURAL EYE WIDTH OR LESS THAN THE NOMINAL SLING DIAMETER.
HORIZONTAL SLING ANGLES LESS THAN 30 DEGREES SHALL NOT BE USED.
RATED CAPACITIES SHOWN APPLY ONLY TO 6 X 19 AND 6 X 37 EXTRA IMPROVED PLOW STEEL (EIPS) IWRC CLASSIFICATION WIRE ROPE.
ALWAYS REFER TO ASME B30.9 IN REGARDS TO PROPER INSPECTION AND REJECTION CRITERA FOR SLINGS.

WARNING!
WIRE ROPE WILL FAIL IF WORN-OUT, OVERLOADED, MISUSED, DAMAGED, IMPROPERLY MAINTAINED OR ABUSED. WIRE ROPE FAILURE MAY CAUSE SERIOUS INJURY OR DEATH! PROTECT YOURSELF AND OTHERS. ALWAYS INSPECT WIRE ROPE FOR WEAR, DAMAGE OR ABUSE BEFORE USE. NEVER USE WIRE ROPE THAT IS WORN-OUT, DAMAGED OR ABUSED, NEVER OVERLOAD A WIRE ROPE.

INFORM YOURSELF:
READ AND UNDERSTAND MANUFACTURER'S LITERATURE OR "WIRE ROPE AND WIRE ROPE SLING SAFETY BULLETIN". REFER TO APPLICABLE CODES, STANDARDS AND REGULATIONS FOR INSPECTION REQUIREMENTS AND REMOVAL CRITERIA.
* FOR ADDITIONAL INFORMATION OR THE BULLETIN, ASK YOUR EMPLOYER OR WIRE ROPE SUPPLIER.



FLEMISH EYE SPLICE

WEB & ROUND SLINGS

PRODUCT LISTING

POLYESTER WEB SLINGS

1" 2 ply from 2' up to 20' WLL 3,100 lbs Vertical

2" 2 ply from 2' up to 20' WLL 6,200 lbs Vertical

3" 2 ply from 4' up to 20' WLL 8,800 lbs Vertical

4" 2 ply from 4' up to 20' WLL 11,000 lbs Vertical

All other sizes and configurations available upon request.
All eyes have a protective covering. All eyes are tapered.

POLYESTER ROUND SLINGS (DOUBLE SLEEVED)

3,000 lbs Vertical WLL, Purple sleeve, up to 20'

6,000 lbs Vertical WLL, Green sleeve, up to 20'

9,000 lbs Vertical WLL, Yellow sleeve, up to 20'

12,000 lbs Vertical WLL, Tan sleeve, up to 20'

14,000 lbs Vertical WLL, Red sleeve, up to 20'

23,000 lbs Vertical WLL, Blue, up to 20'

26,000 lbs Vertical WLL, Orange, up to 20'

32,000 lbs Vertical WLL, Grey, up to 20'

40,000 lbs Vertical WLL, Orange, up to 20'

54,000 lbs Vertical WLL, Brown, up to 20'

68,000 lbs Vertical WLL, Olive, up to 20'

90,000 lbs Vertical WLL, Black, up to 20'

Other sizes and lengths available upon request.

SHACKLES

SCREW PIN ANCHOR BOW SHACKLE

Federal Specification RR-C-271D, Type IVA, Grade A, Class 2

- (6:1 WLL) Hot dip galvanized
- Forged – Quenched and Tempered
- Shackles are embossed for traceability
- Meets or exceeds all requirements of ASME B30.26

NOMINAL SIZE (IN.)	WORKING LOAD LIMIT (TON)
3/16	1/3
1/4	1/2
5/16	3/4
3/8	1
7/16	1-1/2
1/2	2
5/8	3-1/4
3/4	4-3/4
7/8	6-1/2
1	8-1/2
1-1/8	9-1/2
1-1/4	12
1-3/8	13-1/2
1-1/2	17
1-3/4	25
2	35

SAFETY ANCHOR BOW SHACKLE

Federal Specification RR-C-271D, Type IVA, Grade A, Class 3

- (6:1 WLL) Hot dip galvanized
- Forged – Quenched and Tempered
- Shackles are embossed for traceability
- Meets or exceeds all requirements of ASME B30.26

NOMINAL SIZE (IN.)	WORKING LOAD LIMIT (TON)
1/4	1/2
5/16	3/4
3/8	1
7/16	1-1/2
1/2	2
5/8	3-1/4
3/4	4-3/4
7/8	6-1/2
1	8-1/2
1-1/8	9-1/2
1-1/4	12
1-3/8	13-1/2
1-1/2	17
1-3/4	25
2	35

LONG REACH SCREW PIN & BOLT TYPE SHACKLES

- Design factor of 5:1
- Meets the requirements of ASME B30.26
- Forged – Quenched and Tempered
- WLL forged on body
- Shackles are embossed for traceability
- Durable orange powder coated finish

NOMINAL SIZE (IN.)	WORKING LOAD LIMIT (LBS.)
5/8	7,000
3/4	10,000
1	19,000
1-1/4	28,000
1-1/2	34,000
1-3/4	50,000

SNATCH BLOCKS

RIGGING BLOCKS

- Quality tensile steel treated hooks
- Forged swivel tees, yokes and end fittings
- All Blocks open for easy wire installation
- Design factor of 4:1

SNATCH BLOCK (SINGLE SHEAVE C/W HOOK)

WIRE SIZE	SHEAVE	WLL
5/16"-3/8"	3"	2 TON
3/8"-1/2"	4 1/2"	4 TON
5/8"-3/4"	6"	8 TON
5/8"-3/4"	8"	8 TON

SNATCH BLOCK (SINGLE SHEAVE C/W SHACKLE)

WIRE SIZE	SHEAVE	WLL
5/16"-3/8"	3"	2 TON
3/8"-1/2"	4 1/2"	4 TON
5/8"-3/4"	6"	8 TON
5/8"-3/4"	8"	8 TON

SNATCH BLOCK (DOUBLE SHEAVE C/W HOOK)

WIRE SIZE	SHEAVE	WLL
3/8"-1/2"	4 1/2"	4 TON
5/8"-3/4"	6"	12 TON
5/8"-3/4"	8"	12 TON

SNATCH BLOCK (DOUBLE SHEAVE C/W SHACKLE)

WIRE SIZE	SHEAVE	WLL
3/8"-1/2"	4 1/2"	4 TONNE
5/8"-3/4"	6"	12 TONNE
5/8"-3/4"	8"	12 TONNE

DEUER BLOCKS

DEUER FIXED FLANGE BLOCKS

Deuer Fixed Flange Blocks are rigging blocks perfect for any use. All blocks have a removable sheave for fast rigging, are zinc plated for corrosion resistance, are made with heavy duty steel construction, have a universal block center locking nut for maximum safety, includes a hairpin type removable cotter pin, has bronze bushings for longer life, and includes the stamped working load limit on each block.

SHEAVE DIA. (IN.)	MAX CABLE SIZE (IN.)	CAPACITY (LBS.)
1-1/2"	1/4"	420
2"	1/4"	480
2-1/2"	1/4"	550
3"	5/16"	650
3-1/2"	5/16"	1250

DEUER SWIVEL BLOCKS

Deuer Swivel Blocks are rigging blocks perfect for any use. All blocks have a removable sheave for fast rigging, are zinc plated for corrosion resistance, are made with heavy duty steel construction, have a universal block center locking nut for maximum safety, includes a hairpin type removable cotter pin, has bronze bushings for longer life, and includes the stamped working load limit on each block.

SHEAVE DIA. (IN.)	MAX CABLE SIZE (IN.)	CAPACITY (LBS.)
1-1/2"	1/4"	420
2"	1/4"	480
2-1/2"	1/4"	550
3"	5/16"	650
3-1/2"	5/16"	1250

OFF ROAD RECOVERY BLOCKS

Off Road Recovery blocks are generally used to assist in vehicle recovery. It's a basic pully used to redirect the line. They are great to have on hand for your off-road adventures where getting stuck is a likely occurrence.
Available in 4, 8 and 10 tonne sizes.

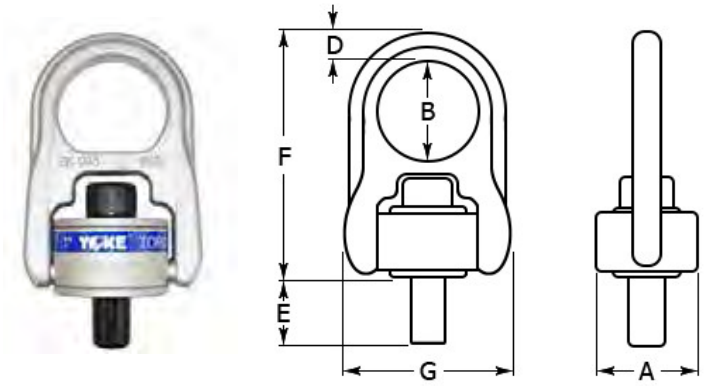
WIRE SIZE	SHEAVE	WLL
5/16" to 3/8"	2.5"	4 TONNE
5/8"	4"	8 TONNE
5/8"	4.5"	10 TONNE

SWIVEL - HOIST RING, UNC THREAD, GRADE 80

Material: Alloy Steel, Grade 80
Standard: ASME B30.26, Bolt: ASTM A574
Finish: Powder Coated, Yellow & Galvanized
Design Factor: 5:1
Identification: Trademark, SIZE/WLL, Batch Code, Grade

- Minimum Ultimate Load is 5 times the Working Load Limit
- Proof Load is 2.5 times the Working Load Limit
- Additional styles available for soft metal products
- The depth of thread needs to be a minimum of 1 times the thread diameter for steel, 1.25 times for cast iron, 2 times for aluminum

W.L.L (LBS)	THREAD SIZE	TORQUE FT. (LBS)	DIMENSIONS (IN)						WT./EA (LBS)
			A	B	D	E	F	G	
800	5/16" - 18X2.0	7	1.57	1.61	0.35	0.71	4.02	2.56	0.9
1000	3/8" - 16X2.0	12	1.57	1.61	0.35	0.71	4.02	2.56	0.9
2500	1/2" - 13X2.5	28	2.56	2.32	0.59	0.75	6.26	4.13	3.7
2500	1/2" - 13X3.0	28	2.56	2.32	0.59	1.26	6.26	4.13	3.7
4000	5/8" - 11X2.5	60	2.56	2.32	0.59	0.74	6.26	4.13	4
4000	5/8" - 11X3.25	60	2.56	2.32	0.59	1.69	6.26	4.13	4
5000	3/4" - 10X2.75	100	2.56	2.32	0.59	1.18	6.26	4.13	4
5000	3/4" - 10X3.25	100	2.56	2.32	0.59	1.65	6.26	4.13	4.2
7000	3/4" - 10X3.00	100	3.35	2.87	0.87	0.79	8.03	5.28	9
7000	3/4" - 10X3.75	100	3.35	2.87	0.87	1.58	8.03	5.28	9.5
8000	7/8" - 9X3.50	160	3.35	2.87	0.87	1.43	8.03	5.28	9.3
8000	7/8" - 9X4.25	160	3.35	2.87	0.87	2.37	8.03	5.28	9.7
10 000	1" - 8X3.50	230	3.35	2.87	0.87	1.36	8.03	5.28	9.5
10 000	1" - 8X4.50	230	3.35	2.87	0.87	2.36	8.03	5.28	9.7
15 000	1-1/4" - 7X4.5	470	3.95	3.15	1.00	2.25	8.58	6.3	14.8
24 000	1-1/2" - 6X6.5	800	4.72	4.29	1.38	2.17	12.09	8.66	36.4
30 000	2" - 4.5X6.50	1100	4.72	4.29	1.38	3.01	12.09	8.66	38.6

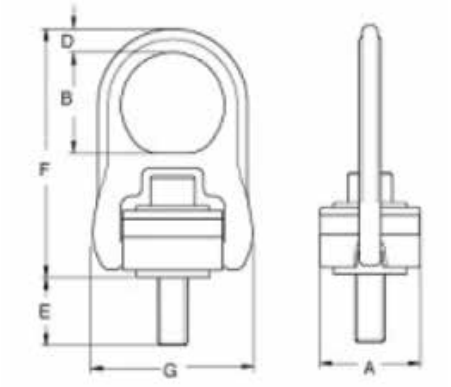


SWIVEL - HOIST RING, METRIC THREAD, GRADE 80

Material: Alloy Steel, Grade 80
Standard: ASME B30.26, Bolt: ASTM A574
Finish: Powder Coated, Yellow
Design Factor: 5:1
Identification: Trademark, Size/WLL, Batch Code, Grade

- Minimum Ultimate Load is 5 times the Working Load Limit
- Proof Load is 2.5 times the Working Load Limit
- Additional styles available for soft metal products
- The depth of thread needs to be a minimum of 1 times the thread diameter for steel, 1.25 times for cast iron, 2 times for aluminum

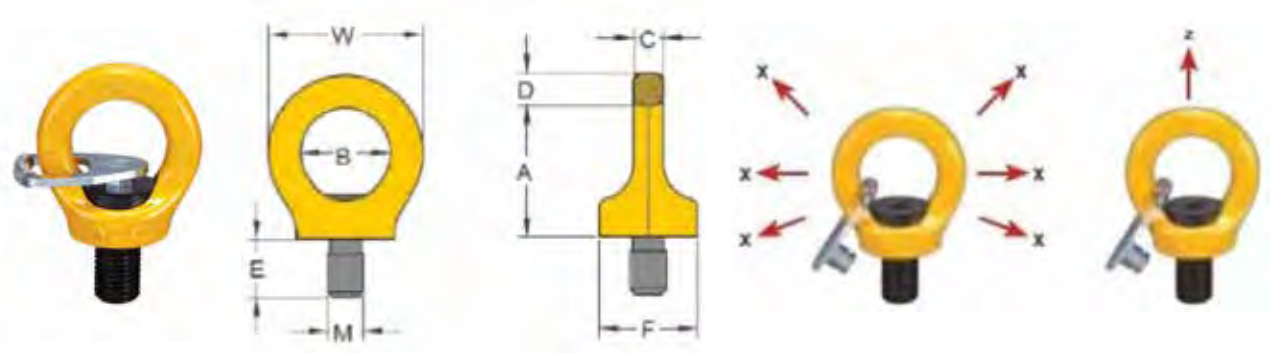
W.L.L (t)	THREAD SIZE	TORQUE (NM)	DIMENSIONS (MM)						WT./EA (KG)
			A	B	D	E	F	G	
0.40	M8 - 1.25X50	10	40	41	9	17	102	65	0.4
0.45	M10 - 1.50X45	16	40	41	9	11	102	65	0.5
0.45	M10 - 1.50X60	16	40	41	9	26	102	65	0.5
1.05	M12 - 1.75X60	38	65	64	15	15	158	105	1.7
1.05	M12 - 1.75X75	38	65	64	15	30	158	105	1.7
1.90	M16 - 2.00X65	81	65	64	15	20	158	105	1.8
1.90	M16 - 2.00X80	81	65	64	15	35	158	105	1.8
2.15	M20 - 2.50X70	136	65	64	15	25	158	105	1.9
2.15	M20 - 2.50X90	136	65	64	15	45	158	105	2.1
3.00	M20 - 2.50X80	136	85	79	19	25	204	134	4.2
3.00	M20 - 2.50X100	136	85	79	19	45	204	134	4.2
4.20	M24 - 3.00X80	312	85	79	19	26	204	134	4.2
4.20	M24 - 3.00X105	312	85	79	19	56	204	134	4.3
7.00	M30 - 3.50X135	637	100	100	25	81	241	160	6.7
11.00	M36 - 4.00X160	1005	120	111	30	76	286	194	15.5
12.50	M42 - 4.50X175	1005	120	111	30	65	286	194	16.5
13.50	M48 - 5.00X190	1350	120	111	30	70	286	194	16.8



SWIVEL - LIFTING KEY EYE POINTS, METRIC THREAD, GRADE 80

Material: Alloy Steel, Grade 80
Standard: EN 1677-1, Bolt: ANSI B18.3. 1M, ISO 4762
Finish: Powder Coated, Yellow
Design Factor: 4:1
Rated in Metric Ton(s)

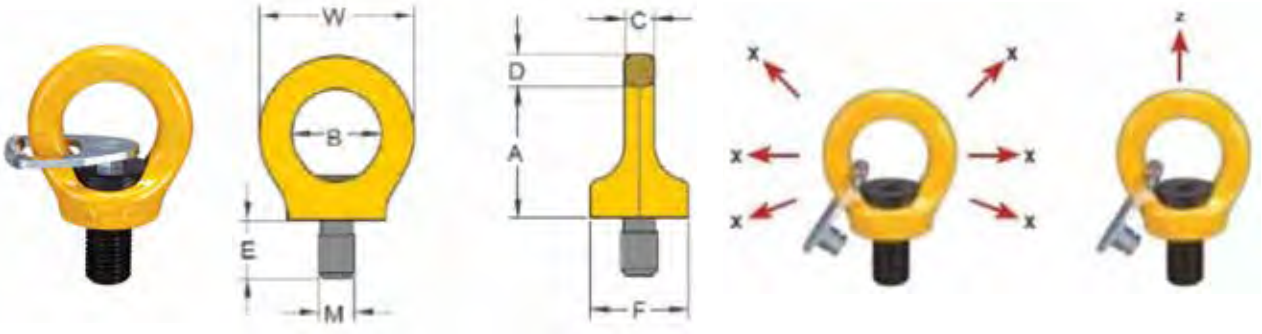
W.L.L (t)		THREAD SIZE			DIMENSIONS (MM)							TORQUE (NM)	WT. (KG)
X	Z	M (mm)	E (mm)	Pitch DIN13	A	B	C	D	F	S	W		
0.30	1	M8	12	1.25	36	25	8	9	25	6	44	10	0.10
0.40	1	M10	15	1.5	36	25	8	9	25	6	44	10	0.10
0.75	2	M12	18	1.75	45	30	10	11	33	8	52	10	0.20
1.50	4	M16	24	2	52	35	14	13	35	10	61	30	0.30
2.30	6	M20	30	2.5	60	40	16	15	44	12	70	70	0.60
3.20	8	M24	36	3	72	48	19	18	52	14	84	150	1.00
4.50	12	M30	45	3.5	90	60	24	22	60	17	105	350	1.80
7.00	16	M36	54	4	109	72	29	27	76	22	126	410	3.20
9.00	24	M42	63	4.5	123	82	34	32	88	24	147	550	5.00
12.00	32	M48	72	5	144	94	38	37	104	27	168	550	7.60
12.00	32	M56	84	5.5	147	102	40	43	124	27	178	800	9.20
12.00	32	M64	95	6	147	102	40	43	124	27	178	800	10.00



SWIVEL - LIFTING KEY EYE POINTS, UNC THREAD, GRADE 80

Material: Alloy Steel, Grade 80
Standard: EN 1677-1, Bolt: ANSI B18.3. 1M, ISO 4762
Finish: Powder Coated, Yellow
Design Factor: 4:1
Identification: Trademark, Size/WLL, Batch Code, Grade
Rated in Metric Ton(s)

W.L.L (t)		THREAD SIZE			DIMENSIONS (MM)							TORQUE (NM)	WT. (KG)
X	Z	M (in)	E (in)	TPI	A	B	C	D	F	S	W		
0.30	1	5/16	0.47	18UNC	1.42	0.98	0.31	0.35	0.98	0.25	1.73	10	0.02
0.40	1	3/8	0.57	16UNC	1.42	0.98	0.31	0.35	0.98	0.25	1.73	10	0.02
0.75	2	1/2	0.75	13UNC	1.77	1.18	0.39	0.43	1.30	0.31	2.05	10	0.04
1.50	4	5/8	0.94	11UNC	2.05	1.38	0.55	0.51	1.38	0.37	2.4	30	0.07
2.30	6	3/4	1.13	10UNC	2.36	1.57	0.63	0.59	1.73	0.50	2.76	70	1.3
2.30	6	7/8	1.31	9UNC	2.36	1.57	0.63	0.59	1.73	0.50	2.76	150	1.3
3.20	8	1	1.50	8UNC	2.83	1.89	0.75	0.71	2.05	0.56	3.31	150	2.2
4.50	12	1-1/4	1.88	7UNC	3.54	2.36	0.94	0.87	2.36	0.63	4.13	350	4
7.00	16	1-1/2	2.25	6UNC	4.29	2.83	1.14	1.06	2.99	0.87	4.96	410	7
9.00	24	1-3/4	2.63	5UNC	4.84	3.23	1.34	1.26	3.46	1.00	5.79	550	11
12.00	32	2	3.00	4.5UNC	5.67	3.70	1.50	1.46	4.09	1.00	6.61	550	16.7



SWIVELS

We carry various types and brands of swivels.

ANGULAR CONTACT BEARING SWIVELS

- AS -7 Bullet Style Jaw & Jaw
- AS -11 Thimble & Jaw
- AS -14 Thimble & Bullet
- AS -17 Bullet Style Jaw & Jaw Slurry Swivel
- AS -5 Eye & Eye
- AS - 6 Eye & Hook
- AS - 3 Jaw & Eye
- AS - 4 Eye & Jaw
- AS - 20 Thimble Insert
- AS - 1 Jaw & Hook
- AS - 2 Jaw & Jaw

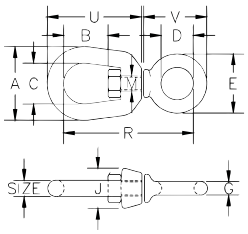
SWIVELS EQUIPPED WITH TAPERED ROLLER THRUST BEARING

- S - 4 Eye & Jaw
- S - 5 Eye & Eye
- S - 6 Eye & Hook
- S - 1 Jaw & Hook
- S - 2 Jaw & Jaw
- S - 3 Jaw & Eye

CROSBY® FORGED SWIVELS

- Hot Dip galvanized.
- Quenched & Tempered

- Crosby products meet or exceed all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importanty, Crosby products meet other critical performance requirements, including fatique life, impact properties and material traceability, not addressed by ASME B30.26.

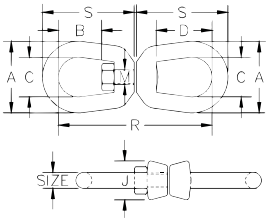


G-401 CHAIN SWIVELS

- Meets the performance requirements of Federal Speciication RR-C-271F, Type VII, Class 1, except for those provisions required of the contractor.

Size (in)	Working Load Limit (lbs.)*	Weight Each (lbs.)	Dimensions (in)										
			A	B	C	D	E	G	J	M	R	U	V
1/4	850	.13	1.25	.69	.75	.62	1.12	.25	.69	.31	2.25	1.69	1.25
5/16	1250	.25	1.63	.81	1.00	.75	1.38	.31	.81	.38	2.72	2.06	1.47
3/8	2250	.54	2.00	.94	1.25	1.00	1.75	.38	1.00	.50	3.44	2.50	1.88
1/2	3600	1.12	2.50	1.31	1.50	1.25	2.25	.50	1.31	.63	4.25	3.19	2.44
5/8	5200	2.09	3.00	1.56	1.75	1.50	2.75	.62	1.50	.75	5.13	3.88	2.94
3/4	7200	3.09	3.50	1.75	2.00	1.75	3.25	.75	1.88	.88	5.78	4.94	3.46

*Ultimate Load is 5 times the Working Load Limit.

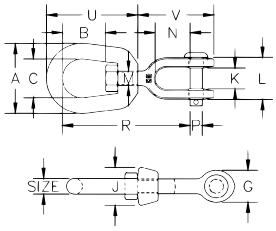


G-402 REGULAR SWIVELS

- Meets the performance requirements of Federal Speciication RR-C-271F, Type VII, Class 2, except for those provisions required of the contractor.

Size (in.)	Working Load Limit (lbs.)*	Weight Each (lbs.)	Dimensions (in.)							
			A	B	C	D	J	M	R	S
1/4	850	.21	1.25	.69	.75	1.06	.69	.31	2.94	1.69
5/16	1250	.39	1.63	.81	1.00	1.25	.81	.38	3.56	2.06
3/8	2250	.71	2.00	.94	1.25	1.50	1.00	.50	4.31	2.50
1/2	3600	1.32	2.50	1.31	1.50	2.00	1.31	.63	5.44	3.19
5/8	5200	2.49	3.00	1.56	1.75	2.38	1.50	.75	6.56	3.88
3/4	7200	4.02	3.50	1.75	2.00	2.63	1.88	.88	7.19	4.31
7/8	10000	6.25	4.00	2.06	2.25	3.06	2.13	1.00	8.38	5.00
1	12500	8.95	4.50	2.31	2.50	3.50	2.38	1.13	9.63	5.75
1-1/4	18000	16.37	5.63	2.69	3.13	3.69	3.00	1.50	11.44	6.75
1-1/2+	45200	45.79	7.09	3.88	4.09	3.88	3.75	2.25	16.69	9.91

*Ultimate Load is 5 times the Working Load Limit. + Manufactured with two 1 1/2" bails connected by a stud with a nut on each side.



G-403 JAW END SWIVELS

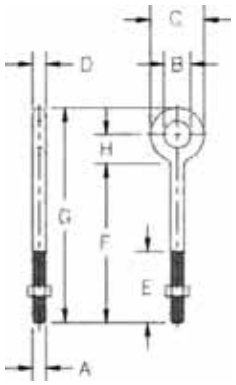
- Meets the performance requirements of Federal Speciication RR-C-271F, Type VII, Class 3, except for those provisions required of the contractor.

Size (in.)	Working Load Limit (lbs.)*	Weight Each (lbs.)	Dimensions (in.)												
			A	B	C	G	J	K	L	M	N	P	R	U	V
1/4	850	.21	1.25	.69	.75	.69	.69	.47	1.03	.31	.88	.25	2.63	1.69	1.69
5/16	1250	.34	1.63	.81	1.00	.81	.81	.50	1.13	.38	.88	.31	2.94	2.06	1.81
3/8	2250	.66	2.00	.94	1.25	1.00	1.00	.63	1.41	.50	1.06	.38	3.63	2.50	2.25
1/2	3600	1.34	2.50	1.31	1.50	1.31	1.31	.75	1.75	.63	1.31	.50	4.50	3.19	2.88
5/8	5200	2.48	3.00	1.56	1.75	1.63	1.50	.94	2.06	.75	1.50	.63	5.31	3.88	3.44
3/4	7200	3.88	3.50	1.75	2.00	1.88	1.88	1.13	2.53	.88	1.75	.75	6.06	4.31	4.00
7/8	10000	5.87	4.00	2.06	2.25	2.13	2.13	1.34	2.79	1.00	2.06	.88	7.00	5.00	4.53
1	12500	9.84	4.50	2.31	2.50	2.63	2.38	1.75	3.72	1.13	2.81	1.13	8.56	5.75	5.94
1-1/4	18000	15.75	5.69	2.69	3.13	3.13	3.00	2.06	4.31	1.63	2.81	1.38	9.75	7.06	6.38
1-1/2	45200	54.75	7.00	3.88	4.00	5.63	4.00	2.88	6.00	2.25	4.44	2.25	14.25	10.00	10.84

*Ultimate Load is 5 times the Working Load Limit.

FORGED EYE BOLTS

- Forged Steel - Quenched and Tempered.
- Fatigue rated at 1-1/2 times the Working Load Limit at 20,000 cycles.
- All Bolts Hot Dip galvanized after threading (UNC).
- Furnished with standard Hot Dip galvanized hex nuts.
- Recommended for in-line pull.
- Meet or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these bolts meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.



G-291
Regular Nut Eye Bolt

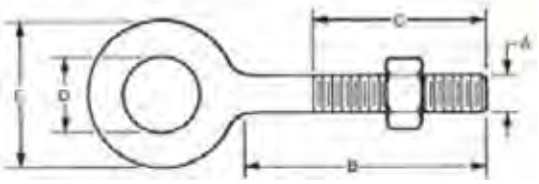
G-291 Regular Nut Eye Bolts

Shank Dia. & Length (in.)	Working Load Limit (lbs.)*	Weight Per 100 (lbs.)	Dimensions (in.)							
			A	B	C	D	E	F	G	H
1/4 x 2	650	8.20	.25	.50	1.00	.25	1.50	2.00	3.06	.56
1/4 x 4	650	11.70	.25	.50	1.00	.25	2.50	4.00	5.06	.56
5/16 x 2-1/4	1200	13.30	.31	.62	1.25	.31	1.50	2.25	3.56	.69
5/16 x 4-1/4	1200	25.00	.31	.62	1.25	.31	2.50	4.25	5.56	.69
3/8 x 2-1/2	1550	23.30	.38	.75	1.50	.38	1.50	2.50	4.12	.88
3/8 x 4-1/2	1550	29.50	.38	.75	1.50	.38	2.50	4.50	6.12	.88
3/8 x 6	1550	35.20	.38	.75	1.50	.38	2.50	6.00	7.62	.88
1/2 x 3-1/4	2600	50.30	.50	1.00	2.00	.50	1.50	3.25	5.38	1.12
1/2 x 6	2600	66.10	.50	1.00	2.00	.50	3.00	6.00	8.12	1.12
1/2 x 8	2600	82.00	.50	1.00	2.00	.50	3.00	8.00	10.12	1.12
1/2 x 10	2600	88.00	.50	1.00	2.00	.50	3.00	10.00	12.12	1.12
1/2 x 12	2600	114.20	.50	1.00	2.00	.50	3.00	12.00	14.12	1.12
5/8 x 4	5200	103.10	.62	1.25	2.50	.62	2.00	4.00	6.69	1.44
5/8 x 6	5200	118.20	.62	1.25	2.50	.62	3.00	6.00	8.69	1.44
5/8 x 8	5200	135.10	.62	1.25	2.50	.62	3.00	8.00	10.69	1.44
5/8 x 10	5200	153.60	.62	1.25	2.50	.62	3.00	10.00	12.69	1.44
5/8 x 12	5200	167.10	.62	1.25	2.50	.62	4.00	12.00	14.69	1.44
3/4 x 4-1/2	7200	168.60	.75	1.50	3.00	.75	2.00	4.50	7.69	1.69
3/4 x 6	7200	184.50	.75	1.50	3.00	.75	3.00	6.00	9.19	1.69
3/4 x 8	7200	207.90	.75	1.50	3.00	.75	3.00	8.00	11.19	1.69
3/4 x 10	7200	235.00	.75	1.50	3.00	.75	3.00	10.00	13.19	1.69
3/4 x 12	7200	257.50	.75	1.50	3.00	.75	4.00	12.00	15.19	1.69
3/4 x 15	7200	298.00	.75	1.50	3.00	.75	5.00	15.00	18.19	1.69
7/8 x 5	10600	270.00	.88	1.75	3.50	.88	2.50	5.00	8.75	2.00
7/8 x 8	10600	308.00	.88	1.75	3.50	.88	4.00	8.00	11.75	2.00
7/8 x 12	10600	400.00	.88	1.75	3.50	.88	4.00	12.00	15.75	2.00
1 x 6	13300	421.00	1.00	2.00	4.00	1.00	3.00	6.00	10.31	2.31
1 x 9	13300	468.50	1.00	2.00	4.00	1.00	4.00	9.00	13.31	2.31
1 x 12	13300	540.00	1.00	2.00	4.00	1.00	4.00	12.00	16.31	2.31
1 x 18	13300	650.00	1.00	2.00	4.00	1.00	7.00	18.00	22.31	2.31
1-1/4 x 8	21000	750.00	1.25	2.50	5.00	1.25	4.00	8.00	13.38	2.88
1-1/4 x 12	21000	900.00	1.25	2.50	5.00	1.25	4.00	12.00	17.38	2.88
1-1/4 x 20	21000	1210.00	1.25	2.50	5.00	1.25	6.00	20.00	25.38	2.88

*Ultimate Load is 5 times the Working Load Limit. Working Load Limit shown is for in-line pull. Maximum Proof Load is 2 times the Working Load Limit.

EYE BOLT - REGULAR

- Forged carbon steel quenched & tempered
- Hot dip galvanized
- With heavy hex nuts
- Embossed with 'OCEAN', and size to meet ASME B30.26



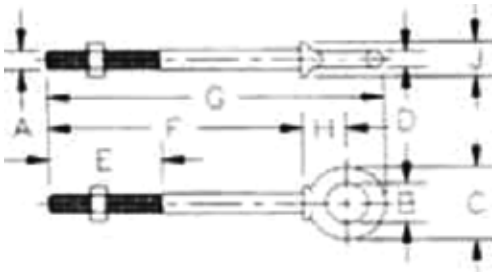
DIAMETER & LENGTH	W.L.L (LBS.)	WT./100	DIMENSIONS (IN.)				
			A	C	B	D	E
3/8 x 6	1,550	35.20	0.38	2.50	6.00	0.75	1.50
1/2 x 8	2,600	82.00	0.50	3.00	8.00	1.00	2.00
1/2 x 10	2,600	88.00	0.50	3.00	10.00	1.00	2.00
5/8 x 8	5,200	135.10	0.62	3.00	8.00	1.25	2.50
5/8 x 10	5,200	153.60	0.62	3.00	10.00	1.25	2.50
3/4 x 4 1/2	7,200	168.60	0.75	2.00	4.25	1.50	3.00
3/4 x 6	7,200	184.50	0.75	3.00	6.00	1.50	3.00
3/4 x 8	7,200	207.90	0.75	3.00	8.00	1.50	3.00
3/4 x 10	7,200	235.00	0.75	3.00	10.00	1.50	3.00
3/4 x 12	7,200	257.50	0.75	4.00	12.00	1.50	3.00
1 x 12	13,300	540.00	1.00	4.00	12.00	2.00	4.00

EYE BOLT - SHOULDER MACHINE

W.L.L (LBS.)	SHANK (IN)		EYE (IN.)		WT./100
	DIA.	LENGTH	I.D.	O.D.	
650	1/4	1	0.75	1.13	4.9
1,200	5/16	1-1/8	0.88	1.38	8.5
1,550	3/8	1-1/4	1.00	1.62	14.0
2,600	1/2	1-1/2	1.19	1.95	29.5
5,200	5/8	1-3/4	1.38	2.38	58.0
7,200	3/4	2	1.50	2.76	88.50
10,600	7/8	2-1/4	1.75	3.25	129.0
13,300	1	2-1/2	2.00	3.76	198.5
21,000	1-1/4	3	2.50	4.50	396.0
24,000	1-1/2	3-1/2	3.00	5.50	654.0

EYE BOLT - SHOULDER

- Forged carbon steel quenched & tempered
- Hot dip galvanized
- With heavy hex nuts
- Embossed with 'OCEAN', and size to meet ASME B30.26

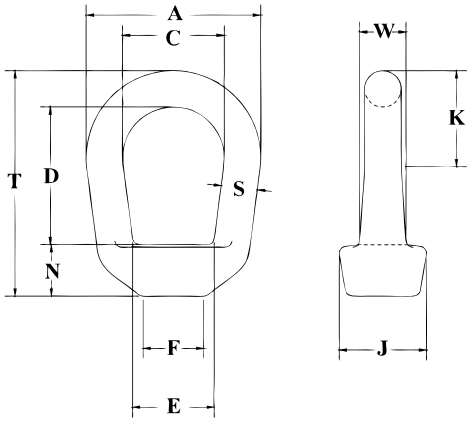


Size (in)	WLL lbs	Wt. 100	Dimensions (in)								
			A	B	C	D	E	F	G	H	J
1/4 x 2	650	6.6	0.25	0.50	0.88	0.19	1.50	2.00	2.94	0.50	0.47
1/4 x 4	650	9.1	0.25	0.50	0.88	0.19	2.50	4.00	4.94	0.50	0.47
5/16 x 2 1/4	1200	12.5	0.31	0.62	1.12	0.25	1.50	2.25	3.50	0.69	0.56
5/16 x 4 1/4	1200	18.8	0.31	0.62	1.12	0.25	2.50	4.25	5.50	0.69	0.56
3/8 x 2 1/2	1550	21.4	0.38	0.75	1.38	0.31	1.50	2.50	3.97	0.78	0.66
3/8 x 4 1/2	1550	25.3	0.38	0.75	1.38	0.31	2.50	4.50	5.97	0.78	0.66
1/2 x 3 1/4	2600	42.6	0.50	1.00	1.75	0.38	1.50	3.25	5.12	1.00	0.91
1/2 x 6	2600	56.8	0.50	1.00	1.75	0.38	3.00	6.00	7.88	1.00	0.91
5/8 x 4	5200	68.6	0.62	1.25	2.25	0.50	2.00	4.00	6.44	1.31	1.12
5/8 x 6	5200	102.4	0.62	1.25	2.25	0.50	3.00	6.00	8.44	1.31	1.12
3/4 x 4 1/2	7200	144.5	0.75	1.50	2.75	0.62	2.00	4.50	7.44	1.56	1.38
3/4 x 6	7200	167.5	0.75	1.50	2.75	0.62	3.00	6.00	8.94	1.56	1.38
7/8 x 5	10600	225.0	0.88	1.75	3.25	0.75	2.50	5.00	8.46	1.84	1.56
1 x 6	13300	366.3	1.00	2.00	3.75	0.88	3.00	6.00	9.97	2.09	1.81
1 x 9	13300	422.5	1.00	2.00	3.75	0.88	4.00	9.00	12.97	2.09	1.81
1 1/4 x 8	21000	650	1.25	2.50	4.50	1.00	4.00	8.00	12.72	2.47	2.28
1 1/4 x 12	21000	795	1.25	2.50	4.50	1.00	4.00	12.00	16.72	2.47	2.28
1 1/2 x 15	24000	1425	1.50	3.00	5.50	1.25	6.00	15.00	20.75	3.00	2.75

FORGED EYE NUT

- Forged Steel - Quenched and Tempered.
- Hot Dip galvanized.
- Tapped with standard UNC class 2 threads after galvanizing.
- Also available in blank (as forged) item (S-4028) or on request with metric threading (M-400).
- Recommended for In-Line pull.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these products meet other critical performance requirements including fatigue life, impact properties and material traceability, not addresses by ASME B30.26.

G-400
Eye Nut



G-400 Eye Nuts

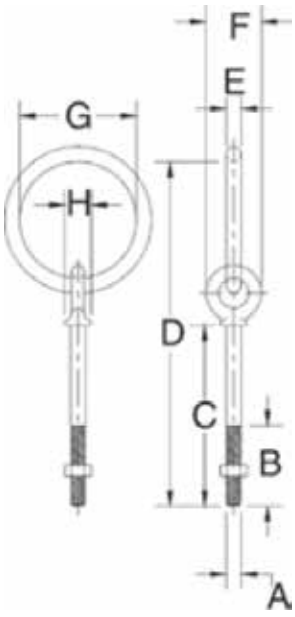
Size No.	Stock Size (in.)	Std. Tap Size (in.)	Working Load Limit (lbs.)*	Weight Per 100 (lbs.)	Dimensions (in.)									
					A	C	D	E	F	J	K	N	T	W
1	.25		520	.09	1.25	.75	1.00	.75	.50	.69	.63	.38	1.72	.31
2	.31	3/8	1250	.17	1.62	1.00	1.20	.83	.56	.81	.89	.50	2.09	.41
3A	.38	1/2	2250	.28	2.00	1.25	1.44	1.08	.81	1.00	1.09	.62	2.55	.50
4	.50	5/8	3600	.60	2.50	1.50	1.92	1.35	1.00	1.31	1.31	.69	3.25	.69
5	.63	3/4	5200	1.00	3.00	1.75	2.38	1.59	1.12	1.50	1.57	.88	3.89	.84
6	.75	7/8	7200	1.65	3.50	2.00	2.63	1.96	1.38	1.88	1.77	.94	4.32	1.00
7	.88	1	10000	2.69	4.00	2.25	3.06	2.21	1.56	2.13	2.02	1.07	5.01	1.19
8	1.00	1-1/4	15500	4.38	4.50	2.50	3.50	2.46	1.88	2.38	2.27	1.25	5.78	1.38
9	1.13	1-3/8	18500	5.00	5.00	2.75	4.00	2.69	2.00	2.56	2.53	1.38	6.51	1.50
10	1.25	1-1/2	22500	6.78	5.62	3.12	4.31	3.09	2.25	3.00	2.82	1.50	7.06	1.66
11	1.50	2	40000	14.60	7.12	4.10	6.20	4.09	3.13	3.75	3.68	2.06	9.91	1.94

*Working Load Limit shown is for In-Line pull. Ultimate Load is 5 times the Working Load Limit. Rating based on standard tap size.

SHOULDER NUT RING BOLT

- Forged Steel - Quenched and Tempered.
- Hot Dip galvanized.
- All Bolts Hot Dip galvanized after threading.
- Diameter of ring stock is same as shank diameter.

G-257
Shoulder Nut Ring Bolts



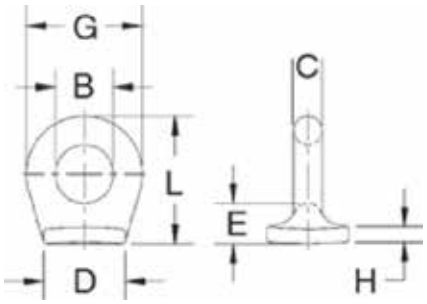
G-257 Shoulder Nut Ring Bolts

Ring Bolt Size (in.)	Working Load Limit (lbs.)*	Weight Per 100 (lbs.)	Dimensions (in.)							
			A	B	C	D	E	F	G	H
3/8 x 4-1/2	1200	56.60	.38	2.50	4.50	7.66	.38	1.38	2.00	.66
1/2 X 6	2200	100.00	.50	3.00	6.00	10.00	.50	1.75	2.50	.91

*Ultimate Load is 5 times the Working Load Limit.

PAD EYES

- Forged Steel - Quenched and Tempered.
- Forged from 1035 Carbon Steel.
- Excellent welding qualities.
- Widely used on farm machinery, trucks, steel hulled marine vessels and material handling equipment.
- Reference American Welding Society specifications for proper welding procedures.



S-264
Pad Eye

S-264 Pad Eyes

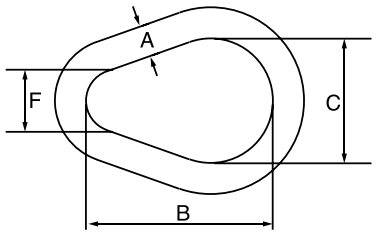
Size No.*	Weight Per 100 (lbs.)	Dimensions (in.)						
		B	C	D	E	G	H	L
* 0	2.80	.25	.19	.63	.31	.63	.09	.75
* 1	6.50	.38	.25	.88	.41	.88	.13	1.03
* 1-1/2	10.40	.63	.25	1.00	.44	1.13	.16	1.31
2	21.10	.75	.38	1.06	.50	1.50	.19	1.63
4	52.20	1.00	.56	1.44	.78	2.13	.22	2.34
5	82.50	1.25	.69	1.75	.81	2.63	.25	2.75

*Meets the requirements of Military Specification MS-51930A.

PEAR SHAPED LINKS

- Alloy Steel - Quenched and Tempered
- Individually Proof - Tested at 2 times Working Load Limit with certifications.
- Proof Test certification shipped with each link.
- Sizes 1/2", 5/8", 3/4", 7/8", 1", 1-1/2", and 1-3/8" are forged.

A-314
Alloy Pear Shaped Links



A-341 Alloy Pear Shaped Links

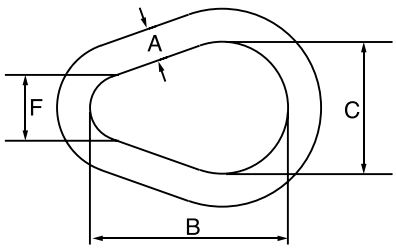
Size (A) (in.)	Working Load Limit		Weight Each (lbs.)	Dimensions (in.)		
	(lbs.)*	(t)		B	C	F
1/2	7000	3.15	.55	3.00	2.00	1.00
5/8	9000	4.09	1.10	3.75	2.50	1.25
3/4	12300	5.59	1.76	4.50	3.00	1.50
7/8	15000	6.81	2.82	5.25	3.50	1.75
1	24360	11.0	4.22	6.00	4.00	2.00
†† 1 1/8	30600	13.9	6.25	6.50	4.50	2.25
1 1/4	36000	16.4	8.25	7.75	5.00	2.50
1 3/8	43000	19.5	11.25	8.25	5.50	2.75
†† 1 1/2	54300	24.7	14.25	9.00	6.00	3.00
†† 1 5/8	62600	28.4	18.50	9.75	6.50	3.25
†† 1 3/4	84900	38.6	22.50	10.50	7.00	3.50
†† 1 7/8	95800	43.5	29.00	11.25	7.50	3.75
†† 2	102600	46.6	34.00	12.00	8.00	4.00
†† 2 1/4	143100	65.0	48.00	13.50	9.00	4.50
†† 2 1/2	147300	66.9	66.00	15.00	10.00	5.00
†† 2 3/4	216900	98.6	88.00	16.50	11.00	5.50
†† 3	228000	103	114.00	18.00	12.00	6.00
†† 3 1/4	262200	119	146.00	19.50	13.00	6.50
†† 3 1/2	279000	126	181.00	21.00	14.00	7.00
†† 4	373000	169	271.00	24.00	16.00	8.00

*Based on single leg sling (in-line load), or resultant load on multiple legs with an included angle less than or equal to 120°. Minimum Ultimate load is 5 times the Working Load Limit. †† Welded Link.

WELDLESS SLING LINK

- Forged carbon steel - Quenched and Tempered
- Self coloured or Hot Dip galvanized.

G-341 / S-341
Weldless Sling Link



G-341 / S-341 Weldless Sling Links

Size (A) (in.)	Working Load Limit Single Pull (lbs.)*	Weight Each (lbs.)	Dimensions (in.)		
			B	C	F
3/8	1800	.23	2.25	1.50	.75
1/2	2900	.55	3.00	2.00	1.00
5/8	4200	1.06	3.75	2.50	1.25
3/4	6000	1.88	4.50	3.00	1.50
7/8	8300	2.75	5.25	3.50	1.75
1	10800	4.35	6.00	4.00	2.00
1 1/4	16750	7.60	7.75	5.00	2.50
1 3/8	20500	11.30	8.25	5.50	2.75

* Ultimate Load is 6 times the Working Load Limit. Based on single leg sling (in-line load), or resultant load on multiple legs with an included angle less than or equal to 120°.

TURNBUCKLES

Forged "Yellow End ™" Turnbuckles

- **End fittings are quenched and tempered, bodies heat treated by normalizing.**
- **Hot dip Galvanized Steel**
- **Embossed with "OCEAN", size and product identification for traceability to meet ASME B30.26**
- **Ends painted Yellow for quick recognition**
- **Sizes 1/4" through 1/2" c/w nut & bolt, sizes 5/8" through 2-3/4" c/w pin & cotter**
- **All sizes provided with Lock Nuts**

TURNBUCKLE JAW & JAW

- Galvanized. Conforms to Federal Specification FF-T-791B and ASTM F1145,Type 1, Form 1

SIZE	WLL (LBS.)	OPEN LENGTH	CLOSED LENGTH
1/4" X 4"	500	11.9"	7.9"
5/16" X 4 1/2"	800	13.9"	9.4"
3/8" X 6"	1,200	17.4"	11.4"
1/2" X 6"	2,200	19.0"	13.0"
1/2" X 9"	2,200	25.0"	16.0"
1/2" X 12"	2,200	31.0"	19.0"
5/8" X 6"	3,500	20.9"	14.9"
5/8" X 9"	3,500	26.9"	17.9"
5/8" X 12"	3,500	32.9"	20.9"
3/4" X 6"	5,200	22.6"	16.6"
3/4" X 9"	5,200	28.6"	19.6"
3/4" X 12"	5,200	34.6"	22.6"
3/4" X 18"	5,200	46.6"	28.6"
1" X 6"	10,000	26.1"	20.1"
1" X 12"	10,000	38.1"	26.1"
1"X 18"	10,000	50.1"	32.1"
1" X 24"	10,000	62.1"	38.1"
1-1/4" X 12"	15,200	42.54"	29.54"
1-1/4" X 18"	15,200	53.54"	35.54"
1-1/4" X 24"	15,200	68.04"	41.54"
1-1/2" X 12"	21,400	45.68"	33.68"
1-1/2" X 18"	21,400	58.50"	37.50"
1-1/2" X 24"	21,400	70.50"	43.50"
1-3/4" X 18"	28,000	59.16"	41.16"
1-3/4" X 24"	28,000	71.18"	47.18"
2" X 24"	37,000	76.72"	52.72"
2-1/2" X 24"	60,000	82.18"	58.18"
2-3/4" X 24"	75,000	82.50"	61.50"

TURNBUCKLE EYE & EYE

- Galvanized. Conforms to Federal Specification FF-T-791B, Type 1, Form 1 – Class 4

SIZE	WLL (LBS.)	OPEN LENGTH	CLOSED LENGTH
5/16" X 4-1/2"	800	14.12"	9.62"
3/8" X 6"	1,200	18.16"	12.16"
1/2" X 6"	2,200	19.96"	13.96"
1/2" X 9"	2,200	25.96"	16.96"
1/2" X 12"	2,200	32.08"	19.08"
5/8" X 6"	3,500	21.68"	15.68"
5/8" X 9"	3,500	27.68"	18.68"
5/8" X 12"	3,500	34.93"	21.68"
3/4" X 9"	5,200	29.62"	20.62"
3/4" X 12"	5,200	35.62"	23.62"
7/8" X 12"	7,200	36.82"	24.82"
1" X 12"	10,000	39.97"	27.72"

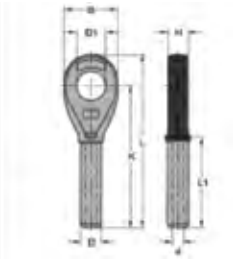
TURNBUCKLE STUB END

- Self Colored, Conforms to Federal Specification FFT-T-791B, Type 1, Form 1 – Class 3

SIZE	WLL (LBS.)	OVERALL LENGTH
1/2" X 6"	2,200	16"
5/8" X 6"	3,500	16"
3/4" X 6"	5,200	17"
7/8" X 6	7,200	18"
1" X 6"	10,000	19"
1-1/4" X 6"	15,200	20"

SOCKET - SWAGE, CLOSED, FORGED, YOKE®

- Yoke swage sockets properly applied have an efficiency rating of 100% based on catalog strength of wire rope.
- Yoke swage sockets are recommended for use with 6x19, 6x37, IWRC wire rope, and galvanized bridge rope.
- Yoke swage sockets are not recommended for use on fiber core or lang lay wire rope. Rope (in) Before Swage Dimensions

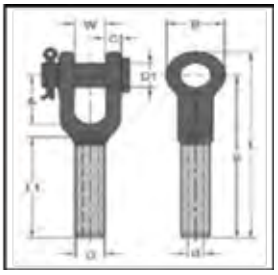


Rope (in)	Before Swage Dimensions (in)								Max. after Swage (in)	Wt./ea. (LBS)
	B	D	D1	d	H	K	L	L1		
1/4	1.38	0.50	0.75	0.27	0.50	3.50	4.33	2.13	0.46	0.3
5/16	1.63	0.77	0.89	0.34	0.67	4.50	5.50	3.15	0.71	0.8
3/8	1.63	0.77	0.89	0.41	0.67	4.50	5.50	3.15	0.71	0.7
1/2	2.00	0.98	1.06	0.55	0.89	5.75	6.93	4.25	0.91	1.4
5/8	2.40	1.25	1.26	0.67	1.14	7.28	8.70	5.31	1.16	2.9
3/4	2.87	1.55	1.44	0.80	1.31	8.54	10.20	6.38	1.42	5.0
7/8	3.11	1.70	1.70	0.94	1.50	10.16	11.97	7.44	1.55	6.8
1	3.62	1.98	2.05	1.06	1.77	11.54	13.46	8.50	1.80	10.4
1-1/8	4.02	2.25	2.32	1.19	2.00	12.72	15.04	9.57	2.05	14.8
1-1/4	4.50	2.53	2.56	1.33	2.25	14.33	16.97	10.63	2.30	21.6

All slings swaged with sockets shall be proof loaded in accordance with ASME B30.9

SOCKET - SWAGE, OPEN, FORGED, YOKE®

- Yoke swage sockets properly applied have an efficiency rating of 100% based on catalog strength of wire rope.
- Yoke swage sockets are recommended for use with 6x19, 6x37, IWRC wire rope, and galvanized bridge rope.
- Yoke swage sockets are not recommended for use on fiber core or lang lay wire rope. Rope (in) Before Swage Dimensions

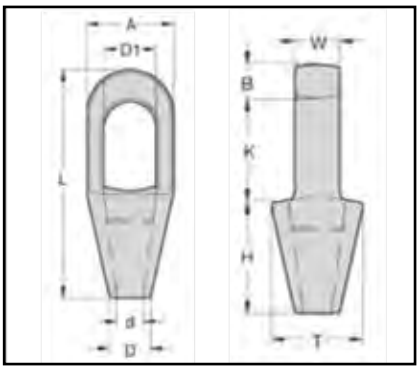


Rope (in)	Before Swage Dimensions (in)										Max. after Swage (in)	Wt./ea. (LBS)
	A	B	C	D	D1	d	K	L	L1	W		
1/4	1.50	1.38	0.35	0.50	0.69	0.27	4.02	4.80	2.17	0.67	0.46	0.5
5/16	1.77	1.65	0.47	0.77	0.81	0.34	5.31	6.26	3.15	0.79	0.71	1.1
3/8	1.77	1.65	0.47	0.77	0.81	0.41	5.31	6.26	3.15	0.79	0.71	1.3
1/2	1.96	2.00	0.55	0.98	1.00	0.55	6.85	7.83	4.33	1.00	0.91	2.1
9/16	2.25	2.36	0.68	1.25	1.19	0.61	8.27	9.45	5.31	1.22	1.16	4.7
5/8	2.25	2.36	0.68	1.25	1.19	0.67	8.27	9.45	5.31	1.22	1.16	4.5
3/4	2.75	2.75	0.79	1.55	1.38	0.80	10.07	11.61	6.34	1.50	1.42	8.0
7/8	3.23	3.15	0.94	1.70	1.63	0.94	11.81	13.39	7.44	1.77	1.55	11.5
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
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	25.3
1-1/4	4.72	4.45	1.34	2.53	2.48	1.33	16.50	19.06	10.59	2.48	2.30	35.6

All slings swaged with sockets shall be proof loaded in accordance with ASME B30.9

SOCKET - SPELTER, CLOSED, FORGED, YOKE®

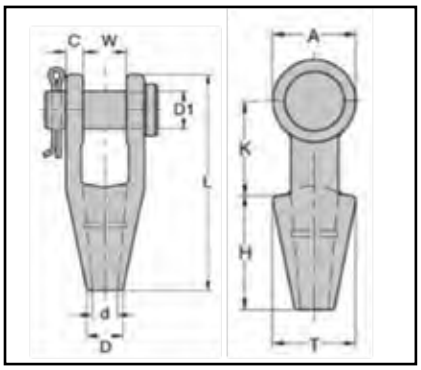
- Spelter sockets are forged from special bar quality carbon steel with the very finest in hardness controls.
- Spelter sockets properly applied have an efficiency rating of 100% based on catalog strength of wire rope.
- Socket size range 1/4" through 3/4" using one groove, 7/8" through 1-1/2" uses 2 grooves.
- Yoke Closed Spelter Sockets meet the performance requirements on Federal Specification RR-S-550E, Type A.



Wire Size (in)	Structural Strand Dia. (in)	Dimensions (mm)										
		L	B	A	D1	d	D	T	H	W	K	Wt./ea. (LBS)
5/16 - 3/8	--	4.88	0.62	1.69	0.98	0.50	0.83	1.70	2.25	0.71	2.00	0.8
7/16 - 1/2	--	5.43	0.71	2.00	1.19	0.55	0.98	1.96	2.52	0.87	2.25	1.5
9/16 - 5/8	1/2	6.31	0.83	2.63	1.41	0.71	1.12	2.50	3.00	0.98	2.52	2.6
3/4	9/16 - 5/8	7.58	1.06	3.00	1.61	0.81	1.26	2.75	3.50	1.26	3.00	4.3
7/8	11/16 - 3/4	8.75	1.26	3.63	1.89	0.94	1.50	3.46	3.98	1.50	3.50	7.9
1	13/16 - 7/8	9.88	1.38	4.13	2.28	1.14	1.77	3.78	4.50	1.77	4.02	10.5
1 1/8	15/16 - 1	10.98	1.50	4.50	2.56	1.26	2.00	4.12	5.00	2.00	4.50	15.2
1 1/4 - 1 3/8	1 1/16 - 1 1/8	12.31	1.63	5.31	2.80	1.50	2.25	4.75	5.50	2.25	5.00	22.7
1 1/2	1 3/16 - 1 1/4	13.94	1.93	5.31	3.19	1.63	2.75	5.25	6.00	2.52	6.00	30.9

SOCKET - SPELTER, OPEN, FORGED, YOKE®

- Spelter sockets are forged from special bar quality carbon steel with the very finest in hardness controls.
- Spelter sockets properly applied have an efficiency rating of 100% based on catalog strength of wire rope.
- Socket size range 1/4" through 3/4" using one groove, 7/8" trough 1-1/2" uses 2 grooves. Yoke Open Spelter Sockets meet the performance requirements on Federal Specification RR-S-550E, Type A.



Wire Size (in)	Structural Strand Dia. (in)	Dimensions (in)										
		L	W	D1	d	D	T	H	K	A	C	Wt./ea. (LBS)
5/16 - 3/8	--	4.84	0.83	0.79	0.51	0.83	1.73	2.25	1.77	1.50	0.44	1.3
7/16 - 1/2	--	5.62	1.00	0.98	0.56	0.98	1.96	2.48	2.13	1.91	0.50	2.3
9/16 - 5/8	1/2	6.77	1.26	1.19	0.70	1.14	2.25	3.00	2.52	2.28	0.55	3.7
3/4	9/16 - 5/8	7.96	1.50	1.38	0.81	1.26	2.64	3.62	3.00	2.64	0.62	5.8
7/8	11/16 - 3/4	9.25	1.77	1.63	0.94	1.50	3.35	4.02	3.50	3.17	0.80	10.4
1	13/16 - 7/8	10.55	2.05	2.00	1.14	1.75	3.75	4.48	4.02	3.78	0.91	16.3
1-1/8	15/16 - 1	11.81	2.25	2.25	1.26	2.00	4.12	5.00	4.62	4.12	1.00	22.0
1 1/4 - 1 3/8	1 1/16 - 1 1/8	13.20	2.52	2.50	1.50	2.25	4.72	5.51	5.00	4.75	1.14	32.8
1-1/2	1 3/16 - 1 1/4	15.12	3.00	2.75	1.63	2.75	5.25	6.00	6.00	5.38	1.19	45.9

WIRE ROPE END FITTINGS - SB-427 BUTTON SPELTER SOCKET

- Available in six sizes from 1/2" to 1-1/2", (13mm - 38mm).
- Button Spelter terminations have a 100% efficiency rating, based on the catalog strength of the wire rope.
- Designed for use with mobile cranes. Can be used ot terminate high performance, rotation resistant ropes, and standard 6 strand ropes.
- Easy to install assembly utilizes Crosby WIRELOCK® socketing compound.
- Sockets and buttons are re-usable.
- Replacement buttons and sockets are available.
- Locking feature available to prevent rotation of rope.
- Button contains cap with eye that can be attached to, and used to pull, rope during reeving process.
- Manufactured to the requirements of API-2C.

SB-427
Button Spelter Socket

SB-427 Button Spelter Sockets

Wire Rope Size		SB-427 Stock No.	Ultimate Load (t)	Weight Each (lbs.)	Socket Only Stock No.	Button Only Stock No.	Dimensions (in.)										Toler-ance +/-
(in.)	(mm)						A	B	C	D	E	F	J	K	L	M	C
1/2 - 5/8	13-16	1052005	27	6.1	1052107	1052309	7.94	3.23	1.28	1.19	1.22	.57	1.50	3.50	.25	2.93	.06
5/8 - 3/4	16-19	1052014	45	10.3	1052116	1052318	9.44	3.88	1.53	1.38	1.44	.66	1.75	4.28	.38	3.43	.06
3/4 - 7/8	19-22	1052023	57	17.1	1052125	1052327	10.81	4.41	1.78	1.62	1.69	.75	2.06	4.78	.38	3.96	.06
7/8 - 1	22-26	1052032	82	29.2	1052134	1052336	12.88	5.48	2.03	2.00	2.00	.89	2.44	5.62	.62	4.52	.09
1-1/8 - 1-1/4	28-32	1052041	136	46.0	1052143	1052345	14.90	5.68	2.53	2.25	2.50	1.11	2.94	7.08	.75	5.72	.09
1-3/8 - 1-1/2	35-38	1052050	161	78.0	1052152	1052354	18.06	7.17	3.03	2.75	2.75	1.24	3.62	8.08	.75	6.76	.09

SB-427TB (Bolt, Nut and Cotter Pin)

Wire Rope Size		SB-427TB Stock No.	Ultimate Load (t)	Weight Each (lbs.)	Socket Only Stock No.	Button Only Stock No.	Dimensions (in.)										Tolerance +/-
(in.)	(mm)						A	B	C	D	E	F	J	K	L	M	C
1/2 - 5/8	13-16	1052406	27	6.1	1052107	1052309	7.94	3.23	1.28	1.19	1.22	.57	1.50	3.50	.25	2.93	.06
5/8 - 3/4	16-19	1052415	45	10.3	1052116	1052318	9.44	3.88	1.53	1.38	1.44	.66	1.75	4.28	.38	3.43	.06
3/4 - 7/8	19-22	1052424	57	17.1	1052125	1052327	10.81	4.41	1.78	1.62	1.69	.75	2.06	4.78	.38	3.96	.06
7/8 - 1	22-26	1052433	82	29.2	1052134	1052336	12.88	5.48	2.03	2.00	2.00	.89	2.44	5.62	.62	4.52	.09
1-1/8 - 1-1/4	28-32	1052442	136	46.0	1052143	1052345	14.90	5.68	2.53	2.25	2.50	1.11	2.94	7.08	.75	5.72	.09
1-3/8 - 1-1/2	35-38	1052451	161	78.0	1052152	1052354	18.06	7.17	3.03	2.75	2.75	1.24	3.62	8.08	.75	6.76	.09

Wirelock® Requirements

Wire Rope Size		WIRELOCK Required (cc)	WIRELOCK Stock No.	WIRELOCK Kit Size (cc)
(in.)	(mm)			
1/2 - 5/8	13-16	35	1039602	100
5/8 - 3/4	16-19	60	1039602	100
3/4 - 7/8	19-22	100	1039602	100
7/8 - 1	22-26	140	1039602*	100
1-1/8 - 1-1/4	28-32	250	1039604	250
1-3/8 - 1-1/2	35-38	420	1039606	500

* 2 kits required.

WIRE ROPE END FITTINGS - US-423T SUPER TERMINATOR

- The 423T wedge socket terminations have a minimum efficiency rating on most high performance, high strength, compacted strand, rotation resistant wire ropes of 80% based on the catalog breaking strength of the various ropes.**
- Design eliminates the difficulty of properly seating the wedge with high performance wire rope into a wedge socket termination.
- Proper application of the Super TERMINATOR eliminates the "first load" requirement of conventional wedge socket terminations.
- Wedge and accessories provided with a zinc finish.
- Meets the performance requirements of EN13411-6:2003.
- 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.
- US Patent 8,375,527 B1.
- 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 an dis 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 tensions device, is left underformed and available for reuse.
- Available with Bolt, Nut, and Cotter Pin.

S-423T
Super Terminator

S-423T WEDGE SOCKETS Assembly includes Socket, Wedge, Pin, Wire Rope Clip, Tensioner, Bolts and Secondary Retention Wire.

Wire Rope Dia.		S-423T Assembly with Round Pin and Cotter Pin				S-423TB Assembly with Bolt, Nut and Cotter Pin				S-423TW** Wedge Kit		
			API 2C	S-423T Weight Each			API 2C	S-423TB Weight Each			S423TW Weight Each	
(in.)	(mm)	S-423T Stock No.	S-423T Stock No.	(lbs.)	(kg)	S-423TB Stock No.	S-423TB Stock No.	(lbs.)	(kg)	S-423TW Stock No.	(lbs.)	(kg)
5/8	14- 16	1035123	1035128	12.7	5.8	1035218	1035223	13.1	5.9	1034018	5.2	2.4
3/4	18-19	1035132	1035137	19.4	8.8	1035227	1035232	19.1	8.7	1034027	7.2	3.3
7/8	20-22	1035141	1035146	28.8	13.1	1035236	1035241	27.8	12.6	1034036	10.3	4.7
1	24-26	1035150	1035155	39.2	17.8	1035245	1035250	37.3	16.9	1034045	11.9	5.4
1-1/8	28	1035169	1035174	57.1	25.9	1035254	1035259	57.9	25.9	1034054	19.9	9.0
1-1/4	30-32	1035178	1035183	88.6	40.2	1035272	1035277	88.1	39.9	1034063	33.8	15.3

**Kit contains Wedge, Wire Rope Clip and Bolts, Tensioner Bolt and Secondary Retention Wire.

Wire Rope Dia.		S-423T Stock No.	Dimensions (in.)															
(in.)	(mm)		A	B	C	D	E	F	G	H	J*	L	P	R	S	T	U	V
5/8	14-16	1035123	8.25	4.50	1.25	1.19	3.00	4.06	2.13	4.61	12.31	1.22	2.25	.56	3.25	.75	6.88	2.60
3/4	18-19	1035132	9.88	5.20	1.50	1.38	3.25	4.81	2.44	5.37	14.69	1.40	2.62	.66	3.63	.88	7.65	3.02
7/8	20-22	1035141	11.25	5.88	1.75	1.63	3.81	5.73	2.69	6.16	16.98	1.67	3.13	.75	4.31	1.00	9.47	3.47
1	24-26	1035150	12.81	6.56	2.00	2.00	3.81	5.73	2.94	7.05	18.54	2.01	3.75	.88	4.70	1.13	10.41	3.82
1-1/8	28	1035169	14.38	6.94	2.25	2.25	4.00	6.85	3.38	7.81	21.23	2.26	4.25	1.00	5.44	1.25	11.83	4.22
1-1/4	30-32	1035178	16.34	8.63	2.62	2.50	4.50	7.76	3.57	9.38	24.10	2.34	4.50	1.06	6.62	1.38	13.87	5.82

* 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" will fit respective size standard Crosby S-421T basket. The 1-1/4" S-423TW will only fit the Crosby S-421T 1-1/4" basket marked with TERMINATOR.

WIRE ROPE END FITTINGS - S-423T SUPER TERMINATOR

THE CROSBY SUPER TERMINATOR OFFERS SEVERAL ADVANTAGES OVER TRADITIONAL METHODS OF WEDGE SOCKET TERMINATIONS:

The Crosby S-423T Super TERMINATOR is the first wedge socket designed to take advantage of the performance properties associated with high performance, high strength, compacted strand, rotation resistant wire rope.

The innovative design will significantly increase the termination efficiency over existing wedge sockets available today.

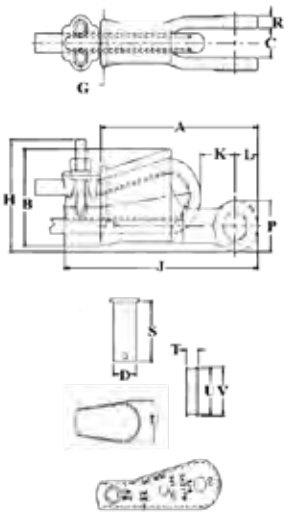
- Terminations on most ropes have a minimum efficiency rating of 80% of the rope's catalog breaking strength.
- Design eliminates the difficulty of properly seating the wedge with high performance, high strength, compacted strand, rotation resistant wire rope into a wedge socket termination.
- Proper application of the Super TERMINATOR eliminates the "first load" requirement of conventional wedge socket terminations.
- US Patent 8,375,527 B1.

Additional Features:

- Wire rope sizes available: 5/8" -1 1/4", 14 mm- 32 mm
- Available as a complete assembly, or as a wedge kit that can be retrofitted onto existing Crosby S-421T TERMINATOR wedge sockets.
- Wedge accessories provided with a zinc finish.
- Meets or exceeds all ASME B30.26 requirements including: identification, ductility, design factor, proof load, and temperature requirements. Importantly, they meet other critical performance criteria not addressed by ASME B30.26 including: fatigue life, impact properties and material traceability.
- Available with bolt, nut and cotter (S-423TB)

WIRE ROPE END FITTINGS - S-421T WEDGE SOCKETS

- 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 materials traceability, not addressed by ASME B30.26.
- Type Approval and certification in accordance with ABS 2007 Steel Vessel Rules. 1-1-17.7, 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 undeformed 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) Utilizes standard Crosby Red-U-Bolt wire rope clip.
  2) The wire rope should NOT pass thru the "No-Go" hole in the wedge.
- Utilizes standard Crosby Red-U-Bolt® wire rope clip.
- The 3/8 through 1-1/8 standard S-421 wedge socket can be retrofitted with the new style TERMINATOR wedge.
- Available with Bolt, Nut, and Cotter Pin.
- U.S. patent 5,553,360 Canada patent 2,217,004 and foreign equivalents.
- Meets the performance requirements of EN 13411-6: 2003.



S-421T

Wedge sockets meet the performance requirements of federal specification RR -S-550E, Type C, except those provisions required of the contractor.

S-421T WEDGE SOCKETS (Assembly includes Socket, Wedge, Pin and Wire Rope Clip)

Wire Rope Dia.		S-421T Stock No.	API 2C S-421T Stock No.	Weight Each (lbs.)	S-421TW Stock No. Wedge Only	Wedge Only Weight Each (lbs.)	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	
(in.)	(mm)							G-4082 Stock No.	Weight Each (lbs.)		G-4082 Stock No.	Weight Each (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.)														
(in.)	(mm)			A	B	C +/- .09	D	G	H	J*	K*	L	P	R	S	T	U	V
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-241T 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.

HOOK – EYE WITH LATCH

A general use Eye Hook with latch that connects to rigging hardware.

SPECIFICATIONS:

- Material: Forged Alloy & Carbon Steel, Quenched & Tempered
- Standard: EN 1677-5,-2
- Finish: Powder Coated (Yellow)
- Design Factor: 5:1
- Identification: Trademark, Size/Load, BatchCode, (Alloy)
- Rated in Metric Ton(s)

WLL (t)		ID Ball Width (in)	Throat Opening no Latch (in)	Throat Opening with Latch (in)	Weight / ea. (LBS)
Carbon	Alloy				
3/4	1	1 1/4	15/16	7/8	0.78
1	1 1/2	1 1/2	1 1/32	31/32	1.32
1 1/2	2	1 3/4	1 1/16	1	2.02
2	3	1 3/4	1 7/32	1 1/8	2.57
3	4 1/2	2	1 1/2	1 11/32	4.89
5	7	2 1/2	1 7/8	1 11/16	10.29
	11	2 3/4	2 1/4	2 1/16	18.62
	15	3 1/8	2 1/2	2 1/4	25.43
	22	4 1/16	3 3/8	3 1/8	47.25
	30	4 1/16	4	3 1/4	70.50

HOOK -SWIVEL EYE WITH LATCH

A general use Swivel Hook with Latch that connects to rigging hardware.

SPECIFICATIONS:

- Material: Forged Alloy & Carbon Steel, Quenched & Tempered
- Standard: EN 1677-5,-2
- Finish: Powder Coated (Yellow)
- Design Factor: 5:1
- Identification: Trademark, Size/Load, BatchCode, (Alloy)
- Rated in Metric Ton(s)

WLL (t)		ID Ball Width (in)	Throat Opening no Latch (in)	Throat Opening with Latch (in)	Weight / ea. (LBS)
Carbon	Alloy				
3/4	1	1 1/4	15/16	7/8	0.78
1	1 1/2	1 1/2	1 1/32	31/32	1.32
1 1/2	2	1 3/4	1 1/16	1	2.02
2	3	1 3/4	1 7/32	1 1/8	2.57
3	4 1/2	2	1 1/2	1 11/32	4.89
5	7	2 1/2	1 7/8	1 11/16	10.29
	11	2 3/4	2 1/4	2 1/16	18.62
	15	3 1/8	2 1/2	2 1/4	25.43
	22	4 1/16	3 3/8	3 1/8	47.25
	30	4 1/16	4	3 1/4	70.50

BRIGHT STEEL WIRE ROPE

BRIGHT STEEL WIRE ROPE

Bright steel wire rope is fabricated from wires that are not coated.

SPECIFICATIONS:

Type: 6x26 and 6x36

Material: Extra Improved Plow Steel (EIPS)

Lay: Right hand regular lay

Finish: A-Lube

Construction: IWRC

6x26

ROPE SIZE	CONST.	M.B.S. (LBS.)
3/8"	6X26	15,100
7/16"	6X26	20,400
1/2"	6X26	26,600
9/16"	6X26	33,600
5/8"	6X26	41,200
3/4"	6X26	58,800
7/8"	6X26	79,600
1"	6X26	103,400

Custom lengths available from 1ft to 5000 ft continuous.

6x36

ROPE SIZE	CONST.	M.B.S. (LBS.)
3/8"	6X36	15,100
7/16"	6X36	20,400
1/2"	6X36	26,600
9/16"	6X36	33,600
5/8"	6X36	41,200
3/4"	6X36	58,800
7/8"	6X36	79,600
1"	6X36	103,400
1-1/8"	6X36	130,000
1-1/4"	6X36	159,800

Custom lengths available from 1ft to 5000 ft continuous.

HOT DIPPED GALVANIZED AIRCRAFT CABLE

GALVANIZED AIRCRAFT CABLE

Galvanized aircraft cable is made up of strands of galvanized wire.

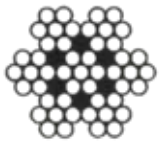
SPECIFICATIONS:

Type: 7x7 and 7x19

Material: Improved Plow Steel (IPS)

Lay: Right hand regular lay

Finish: Hot dipped galvanized



7x7

ROPE SIZE	BREAK STRENGTH (LBS.)	CONST.	LENGTH PER REEL
1/16"	480 LBS	7X7	500′
1/16"	480 LBS	7X7	1000′
1/16"	480 LBS	7X7	5000′
3/32"	920 LBS	7X7	500′
3/32"	920 LBS	7X7	1000′
3/32"	920 LBS	7X7	5000′

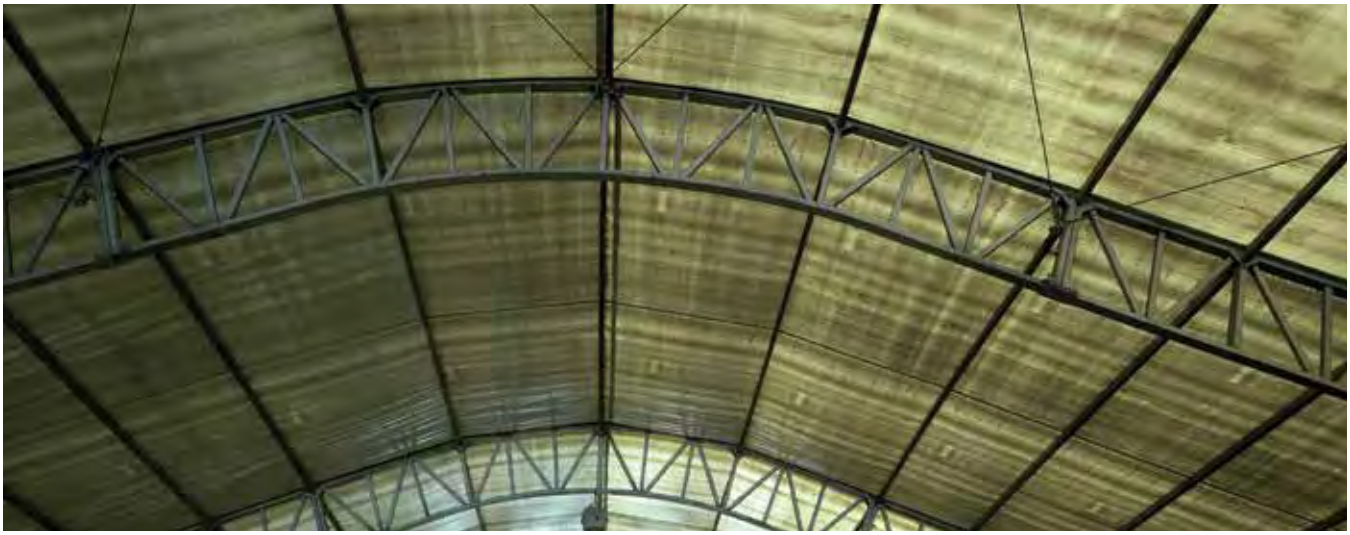
Custom lengths available from 1ft to 5000 ft continuous.

7x19

ROPE SIZE	BREAK STRENGTH	CONST.	LENGTH PER REEL
1/8"	2,000 LBS	7X19	1000'
1/8"	2,000 LBS	7X19	2500'
1/8"	2,000 LBS	7X19	5000'
5/32"	2,800 LBS	7X19	1000'
5/32"	2,800 LBS	7X19	2500'
5/32"	2,800 LBS	7X19	5000'
3/16"	4,200 LBS	7X19	1000'
3/16"	4,200 LBS	7X19	2500'
3/16"	4,200 LBS	7X19	5000'
1/4"	7,000 LBS	7X19	1000'
1/4"	7,000 LBS	7X19	2500'
1/4"	7,000 LBS	7X19	5000'
5/16"	9,800 LBS	7X19	500'
5/16"	9,800 LBS	7X19	1000'
5/16"	9,800 LBS	7X19	5000'
3/8"	14,400 LBS	7X19	500'
3/8"	14,400 LBS	7X19	5000'

Custom lengths available from 1ft to 5000 ft continuous.

STAINLESS STEEL AIRCRAFT CABLE

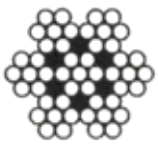


STAINLESS STEEL AIRCRAFT CABLE

Stainless steel wire rope is is made up of corrosion resistant steel wires.

SPECIFICATIONS:

Type: 7x7 and 7x19
Material: Improved Plow Steel (IPS)
Lay: Right hand regular lay
Finish: Stainless Steel
Construction: Type 304



7x7

7x19

ROPE SIZE	BREAK STRENGTH (LBS.)	CONST.
1/16"	480	7X7
3/32"	920	7X7
1/8"	1,760	7X19
5/32"	2,400	7X19
3/16"	3,700	7X19
1/4"	6,400	7X19
5/16"	9,000	7X19
3/8"	12,000	7X19

Custom lengths available from 1ft to 5000ft continuous.

PROGRESSIONER CABLE

NORTHERN STRANDS IS A PREMIUM SUPPLIER OF PROGRESSIONER CABLES

COMPACTED DRAWN - 6 STRAND

Applications: Surface Mining, Construction, Logging, Oil Fields, Winch Lines, Car Pullers/Progressioner.

CABLE COMPOSITION AND BENEFITS

Northern Strands uses 6 x 31 Warrington Seale Compacted Strand IWRC. This cable has a smoother bearing surface at the strand crowns and an increase in minimum breaking force over round strand rope of the same diameter and classification.

GENERAL CHARACTERISTICS

Compacted cables have more load bearing capacities than the standard cables with same diameters. Abrasion is less and usage lives are longer as they contact the reel surfaces in a larger area.

- High Strength to Diameter Ratio
- High Resistance to Abrasion
- High Resistance to Crushing
- Better Fatigue Resistance
- Equals Better Service Life

WEIGHTS AND BREAKING LOADS TABLE			
DIA. INCHES	WEIGHT LBS/FT	BREAKING STRENGTH LBS	CONSTRUCTION
3/4″	1.09	64,800	6 X 31
7/8″	1.49	87,600	6 X 31
1″	1.94	113,800	6 X 31
1 1/8″	2.46	143,000	6 X 31
1 1/4″	3.03	175,800	6 X 31

HIGH PERFORMANCE CRANE ROPES

6-STRAND HOIST ROPE TO SUIT EUROPEAN OVERHEAD CRANES

6x36

Not Dyformed
Not Galvanized

ROPE DIAMETER MM	MINIMUM BREAKING STRENGTH kN	WEIGHT KG PER METER
8	37.3	0.27
9	53.8	0.34
11	80.7	0.52
12	110.0	0.60
14	144.0	0.84
15	169.0	0.99

8-STRAND EUROPEAN STYLE HOISTING ROPE TO SUIT DEMAG OVREHEAD CRANES

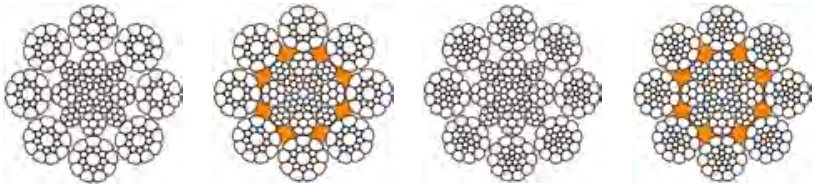
8x19

Not Dyformed
Not Galvanized

ROPE DIAMETER MM	MINIMUM BREAKING STRENGTH kN	WEIGHT KG PER METER
6.5	27.9	0.10
7.5	37.3	0.16
8	42.3	0.27
9	53.4	0.34
10	66.3	0.43
11	80.1	0.52

CRANEMAX L8PK

SPECIAL HOIST



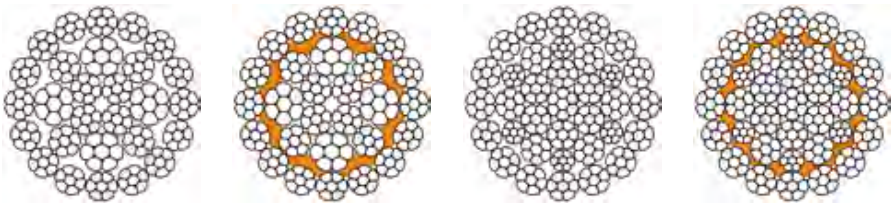
- Smoother contact surface in respect to conventional hoist ropes
- High resistance to side pressure and crushing
- Enhanced resistance to fleet angle if plastic impregnated

Diameter		Metallic area		Mass		MBF		
mm	in	mm^2	in^2	kg/m	lb/ft	kN	Tonnes	kips
13		92.1	0.143	0.761	0.511	162	16.5	36.5
14		107	0.166	0.882	0.593	188	19.2	42.3
15		123	0.190	1.01	0.680	216	22.0	48.6
	5/8	137	0.213	1.13	0.762	242	24.7	54.4
16		140	0.216	1.15	0.774	246	25.1	55.3
17		158	0.244	1.30	0.874	277	28.3	62.4
18		177	0.274	1.46	0.980	311	31.7	70.0
19	3/4	197	0.305	1.62	1.09	347	35.3	78.0
20		218	0.338	1.80	1.21	384	39.1	86.4
22		264	0.409	2.18	1.46	465	47.4	105
	7/8	269	0.417	2.22	1.49	474	48.3	107
24		314	0.487	2.59	1.74	553	56.4	124
25		335	0.520	2.81	1.89	594	60.5	134
	1	346	0.537	2.90	1.95	613	62.5	138
26		363	0.562	3.04	2.04	642	65.5	145
28		421	0.652	3.53	2.37	745	75.9	168
	1⅛	438	0.679	3.67	2.47	776	79.1	175
30		483	0.749	4.05	2.72	855	87.2	192
	1¼	541	0.839	4.54	3.05	958	97.6	215

These figures are for guidance only. Other features, such as MBF, dimensions, lay type and plastic fill can be designed on request.
MBF values are referred to 2160 grade, custom values are available on demand.

CRANEMAX XL35K

ROTATION RESISTANT



- Excellent rotational properties
- Extremely high MBF
- Enhanced resistance to fleet angle if plastic impregnated

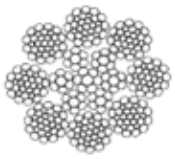
Diameter		Metallic area		Mass		MBF		
mm	in	mm^2	in^2	kg/m	lb/ft	kN	Tonnes	kips
10		56.0	0.087	0.490	0.329	100	10.2	22.5
11		67.8	0.105	0.593	0.398	121	12.3	27.2
12		80.6	0.125	0.706	0.474	144	14.7	32.4
	1/2	90.3	0.140	0.790	0.531	161	16.4	36.3
13		94.6	0.147	0.828	0.556	169	17.2	38.0
14		110	0.170	0.960	0.645	196	20.0	44.1
15		126	0.195	1.10	0.741	225	22.9	50.6
	5/8	141	0.219	1.23	0.830	252	25.7	56.7
16		143	0.222	1.25	0.843	256	26.1	57.6
17		162	0.251	1.42	0.952	289	29.5	65.0
18		181	0.281	1.59	1.07	324	33.0	72.9
19	3/4	210	0.326	1.81	1.21	361	36.8	81.2
20		233	0.361	2.00	1.34	400	40.8	90.0
22		282	0.437	2.42	1.63	484	49.3	109
	7/8	288	0.446	2.47	1.66	494	50.4	111
24		336	0.520	2.88	1.94	576	58.7	130
25		364	0.564	3.13	2.10	625	63.7	141
	1	376	0.582	3.23	2.17	645	65.8	145
26		394	0.610	3.38	2.27	676	68.9	152
28		457	0.708	3.92	2.63	784	79.9	176
	1⅛	476	0.737	4.08	2.74	817	83.2	184
30		524	0.813	4.50	3.02	900	91.7	203
	1¼	587	0.910	5.04	3.39	1010	103	227
32		596	0.925	5.12	3.44	1020	104	230
34		673	1.04	5.78	3.88	1160	118	260
35	1⅜	710	1.10	6.10	4.10	1220	124	274
36		755	1.17	6.48	4.36	1300	132	292
38	1½	841	1.30	7.22	4.85	1440	147	325
40		932	1.44	8.00	5.38	1600	163	360

These figures are for guidance only. Other features, such as MBF, dimensions, lay type and plastic fill can be designed on request.
MBF values are referred to 2160 grade, custom values are available on demand.

HIGH PERFORMANCE CRANE ROPES

8 X 36 IWRC

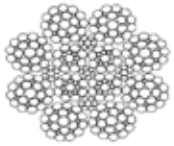
ROPE DIAMETER MM	MINIMUM BREAKING STRENGTH kN	WEIGHT KG PER METER
13	112.1	0.49
14	129.9	0.57
15	149.1	0.66
16	169.5	0.73
18	214.9	0.94
19	238.9	1.05
20	264.7	1.16



8x36
Not Dyformed
Not Galvanized

8 X 25 IWRC

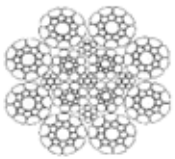
ROPE DIAMETER MM	MINIMUM BREAKING STRENGTH kN	WEIGHT KG PER METER
13	165.5	0.77
14	194.8	0.90
15	221.6	1.03
16	253.9	1.17
18	320.9	1.48
19	347.7	1.62
20	396.3	1.82
22	484.0	2.22
24	568.0	2.64



8-FIG
Not Dyformed
Galvanized

ULTRA STRENGTH 8-STRAND ORDINARY LAY - GALVANIZED (ISO CLASS B) ULTRA STRENGTH STEEL 2160 MPA

ROPE DIAMETER MM	MINIMUM BREAKING STRENGTH kN	WEIGHT KG PER METER
6.4/6.5	41.8	0.20
7.2	51.6	0.25
8	63.0	0.30
9	76.8	0.37
10	98.5	0.47
11	122.0	0.58
12	145.0	0.70



8x19
SIG
Dyformed
Galvanized

STAINLESS STEEL, MALLEABLE AND HEAVY DUTY DROP FORGED CLIPS

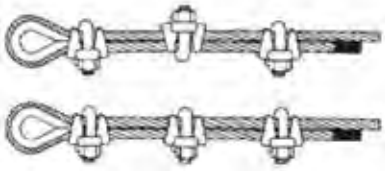
STAINLESS STEEL CLIPS (LIGHT DUTY)
ROPE SIZE
1/8"
3/16"
1/4"
5/16"
3/8"
1/2"
5/8"

MALLEABLE CLIPS (LIGHT DUTY)
ROPE SIZE
1/8"
3/16"
1/4"
5/16"
3/8"
1/2"
5/8"
3/4"
7/8"
1"

DROP FORGED CLIPS (HEAVY DUTY)
ROPE SIZE
1/8"
3/16"
1/4"
5/16"
3/8"
1/2"
9/16"
5/8"
3/4"
7/8"
1"
1-1/8"
1-1/4"
1-1/2"
1-3/4"
2"
2-1/4"
2-1/2"
2-3/4"

The Right Way

The Wrong Way



SWAGER CUTTER

SWAGER CUTTER - 24”

Blades drop forged with high quality alloy steel body with heat treatment, cutting edges induction quenched, good cutting by 2 grade lever principal. Used to cut up to 6mm wire rope and press 1/16” to 3/16” aluminum oval sleeves.

FELCO C7 ONE-HAND CABLE CUTTER | CABLE CUTTER

Gives a clean cut without squashing thanks to the triangular cutting system / blades and centre bolt in high-quality hardened steel for exceptional performance / thumb catch designed for one-handed operation / pressed steel handles with non-slip grips.

FELCO C9 TWO-HAND WIRE AND CABLE CUTTER | STEEL CABLE CUTTER

Reliable: unbreakable hardened handles made of forged aluminium with a lifetime guarantee / blades and fastenings in high-quality hardened steel / parts subject to wear and tear can be replaced.

Efficient: clean, precise cut without crushing the cable thanks to the triangular cutting system / easy and durable cutting adjustment.

Ergonomic: lightweight handles / helpful lever effect / comfortable plastic coating.

FELCO C12 TWO-HAND WIRE AND CABLE CUTTER | STEEL CABLE CUTTER

Reliable: unbreakable hardened handles made of forged aluminium with a lifetime guarantee / blades and fastenings in high-quality hardened steel / parts subject to wear and tear can be replaced.

Efficient: clean, precise cut without crushing the cable thanks to the triangular cutting system / easy and durable cutting adjustment.

Ergonomic: lightweight handles / helpful lever effect / comfortable plastic coating.

FELCO C16 TWO-HAND WIRE AND CABLE CUTTER | STEEL CABLE CUTTER

Reliable: unbreakable hardened handles made of forged aluminium with a lifetime guarantee / blades and fastenings in high-quality hardened steel / parts subject to wear and tear can be replaced.

Efficient: clean, precise cut without crushing the cable thanks to the triangular cutting system / easy and durable cutting adjustment.

Ergonomic: lightweight handles / helpful lever effect / comfortable plastic coating.

SLEEVES

ALUMINUM DUPLEX SLEEVES - GENERALLY USED WITH GALVANIZED WIRE

CABLE SIZE	WT./100 LBS	LENGTH	DEPTH	WIDTH	O.D AFTER SWAGE
1/16″	0.10	3/8	11/64	1/4	0.187″
3/32″	0.30	1/2	9/32	13/32	0.281″
1/8″	0.66	5/8	11/32	1/2	0.312″
5/32″	0.88	11/16	3/8	9/16	0.375″
3/16″	1.61	7/16	2	1/32	0.437″
1/4″	2.8	1-1/8	17/32	13/16	0.563″
5/16″	4.6	1-1/4	11/16	1-1/32	0.687″
3/8″	5.9	1-7/16	3/4	1-5/32	0.812″
7/16″	12	1-11/16	15/16	1-7/16	1.000″
1/2″	17	2	1-1/16	1-5/8	1.120″

ALUMINUM WIRE ROPE STOPS- GENERALLY USED WITH GALVANIZED WIRE

CABLE SIZE	WT./100 LBS	LENGTH	DEPTH	WIDTH	O.D AFTER SWAGE
1/16″	0.06	1/4	3/32	0.187″	0.187″
3/32″	0.25	11/32	1/8	0.245″	0.281″
1/8″	0.24	11/32	5/32	0.245″	0.312″
5/32″	0.38	7/16	3/16	0.325″	0.375″
3/16″	0.35	7/16	7/32	0.325″	0.437″
1/4″	2.06	11/16	9/32	0.508″	0.563″
5/16″	1.74	11/16	3/8	0.508″	0.687″

COPPER OVAL SLEEVES - GENERALLY USED WITH STAINLESS STEEL WIRE

CABLE SIZE	WT./100 LBS	LENGTH	DEPTH	WIDTH	O.D AFTER SWAGE
1/16″	0.3	25/64	11/64	1/4	0.190″
3/32″	0.65	29/64	15/64	3/8	0.265″
1/8″	1.6	9/16	21/64	1/2	0.353″
5/32″	2.3	5/8	3/8	19/32	0.390″
3/16″	5.1	7/8	7/16	43/64	0.475″
1/4″	7.5	1-1/8	13/16	1/2	0.585″
5/16″	11.8	1-1/8	2 1/32	1-1/64	0.730″
3/8″	17	1-1/2	23/32	1-1/8	0.795″

SLEEVES

COPPER WIRE ROPE STOPS - GENERALLY USED WITH STAINLESS STEEL WIRE

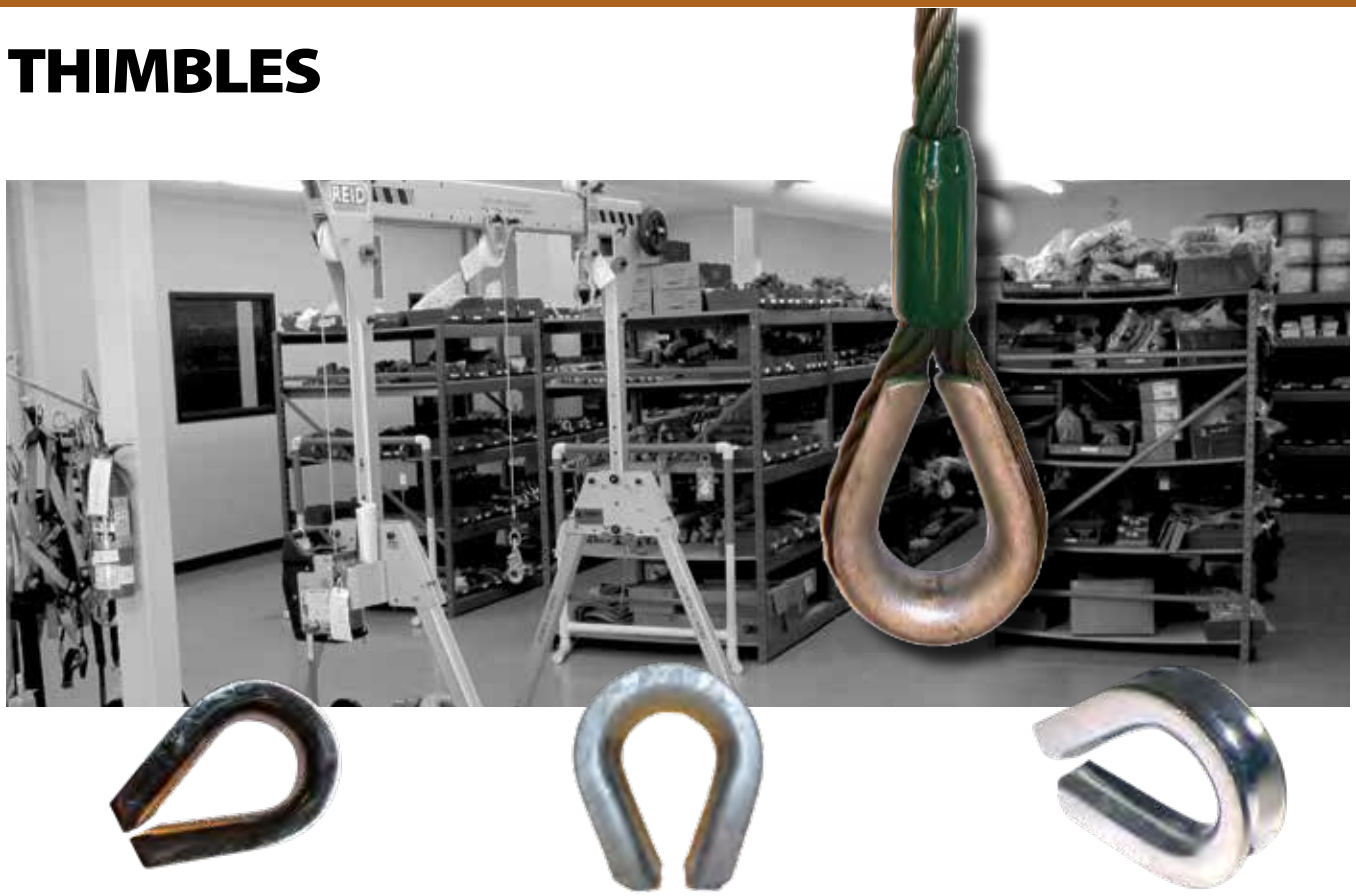
CABLE SIZE	WT./100 LBS	LENGTH	DEPTH	WIDTH	O.D AFTER SWAGE
1/16″	0.20	13/64	5/64	0.182″	0.187″
3/32″	0.80	21/64	7/64	0.261″	0.281″
1/8″	0.80	21/64	5/32	0.261″	0.312″
5/32″	1.3	27/64	3/16	0.350″	0.375″
3/16″	1.2	27/64	7/32	0.350″	0.437″
1/4″	6	21/32	9/32	0.600″	0.563″
5/16″	9	21/32	5/16	0.600″	0.687″

SPIRAL FERRULES

Spiral Ferrules are comprised of two rifles wedges that grip the surface of the wire rope when pulled through. Designed to quickly repair chokers and winchlines where no swaging or socketing is required. For use with 6x19 or 6x37 wire rope.

Stock	Colour	Wedge and Rope Size	Weight Each LBS.
L-797	SILVER	M4 - 7/16″ - 1/2″ - 9/16″	0.30
L-798	CREAM	(D) LB4 - 7/16″ - 1/2″ - 9/16″	0.60
L-799	PINK	(D) LB5 - 9/16″ - 5/8″	0.50
L-800	BROWN	B4 - 1/2″	1.00
L-801	MAROON	B5 - 5/8″	0.90
L-802	GRAY	B6 - 3/4″	0.80
L-803	WHITE	L6 - 3/4″	1.80
L-804	BLACK	L7 - 7/8″	1.90
L-805	GREEN	L8 - 1″	1.60
L-806	RED	(LJ) J7 - 7/8″	2.40
L-807	BLUE	(LJ) J8 - 1″	2.20
L-808	YELLOW	(LJ) J9 - 1 1/8″	2.10
L-809	ORANGE	(LJ) J10 - 1 1/4″	2.00
L-810	PURPLE	S10 - 1 1/4″	3.20
L-811	GOLD	S11 - 1 3/8″	3.50

THIMBLES



LIGHT DUTY THIMBLES

ROPE SIZE	WEIGHT (100 PCS.)
1/8"	3.5 LBS
3/16"	3.5 LBS
1/4"	3.5 LBS
5/16"	4.0 LBS
3/8"	6.7 LBS
1/2"	12.5 LBS
5/8"	34.5 LBS
3/4"	47.1 LBS
7/8"	84.6 LBS
1"	97.5 LBS

HEAVY DUTY THIMBLES

ROPE SIZE	WEIGHT (100 PCS.)
1/4"	6.5 LBS
5/16"	11.8 LBS
3/8"	21.6 LBS
7/16"	34.7 LBS
1/2"	51 LBS
9/16"	51 LBS
5/8"	75.7 LBS
3/4"	158 LBS
7/8"	177 LBS
1"	313.9 LBS
1-1/8"	400 LBS
1 1/4"-1-3/8"	811 LBS
1-1/2"	1,295 LBS
1-3/4"	1,775 LBS
2"	2,775 LBS

STAINLESS STEEL THIMBLES

LIGHT DUTY	
ROPE SIZE	**WEIGHT (100 PCS.)**
1/16"	0.5 LBS
1/8"	0.75 LBS
3/16"	1.0 LBS

HEAVY DUTY	
ROPE SIZE	**WEIGHT (100 PCS.)**
1/4"	6.5 LBS
5/16"	11.8 LBS
3/8"	21.6 LBS
1/2"	51 LBS
5/8"	75.7 LBS
3/4"	158.10 LBS

WIRE ROPE & CABLE LUBRICATION

At Northern Strands we know first-hand the importance of wire rope lubrication. It is required during manufacturing, installation, and ongoing maintenance. Different hoists and applications require different types of lubrication. We carry everything from basic asphalt lube to soap grease and non petroleum based lubes. With Northern Strands' knowledge of wire rope, we can recommend and supply appropriate lubrication products and suggest the best lubrication methods.

TYPES OF PRODUCT AND EQUIPMENT WE SUPPLY LUBE AND LUBE SYSTEMS FOR:

- Tower cranes
- Overhead traveling cranes
- Construction and industrial wire rope
- Mining surface ropes
- Drum and slope hoist ropes
- Progressioner rope
- Plus many more types of products and equipment. Contact us to inquire about the correct lubrication for your product or equipment.

ELASKON AND UNOLIT

ELASKON 30

Elaskon 30 is a maintenance lubricant for wire ropes.

Properties: Elaskon 30 is liquid and contains an aromatic free solvent. After evaporation of the solvent a touch prove film is formed on the surfaces. It is water absorbing and has good adhesive power as well as excellent corrosion protection abilities.

Processing: Elaskon 30 can be applied as delivered. Stirr before usage, spray cans shake well.

UNOLIT SPRAY OIL

Unolit Spray Oil is a maintenance lubricant for wire ropes.

Properties: Unolit Spray Oil is used for the maintenance of miscellanous wire ropes. The product contains graphite as solid lubricant and offers therefore excellent lubricating characteristics especially in moving ropes. As recommended by leading rope manufacturers splice knots may be protected with this product. It has very good creep characteristic and penetrates the rope completely.

Processing: Unolit Spray Oil can be applied as delivered. Stirr before usage, spray cans shake well.

GIBBS BRAND LUBRICANT

GIBBS™ REPLACES ALL OTHER PRODUCTS

- Silicones
- Penetrants
- Degreasers
- Belt Dressings
- Contact Cleaners
- Spray-on Lubricants
- White Lithium Grease
- Carburetor Cleaners
- Ignition Wire Driers

GIBBS Brand Lubricant
ONE PRODUCT DOES IT ALL

GIBBS™ DOES IT ALL

- Deep Cleaner
- Mega Penetrant
- Ultra Lubricant
- Corrosion Inhibitor
- Water Repellent
- Surface Preservative

CLEANS the build-up and adhesion of all types of soils and contaminants, including varnish, carbon deposits, chemical residues, sludge and rust; or material that is generated externally, such as scale, welding slag, rust, and machining and metal debris.

PENETRATES to free rusted, corroded frozen parts and fastners like nuts, bolts, fittings, valves, locks and other rotating parts. Restores metal to its original shine.

OUTLASTS AND OUTPERFORMS ALL OTHER BRANDS

GIBBS™ increases the life and operating efficiency of parts, equipment, and tools.

GRADE 80 & 100 ALLOY CHAIN

General Information

WORKING LOAD LIMIT

The "Working Load Limit" is the maximum load in pounds which should ever be applied to chain, when the chain is new or in as-new condition, and when the load is uniformly applied in direct tension to a straight length of chain.

PROOF TEST

The "Proof Test" is a term designating the tensile test applied to new chain for the sole purpose of detecting injurious defects in the material or manufacture. It is the load that the chain has withstood under a test in which the load has been applied in direct tension to a straight length of chain.

MINIMUM ULTIMATE LOAD

The "Minimum U ltimate Load" is the minimum load at which new chain will break when tested by applying direct tension to a straight length of chain at a uniform rate of speed in a testing machine.

ATTACHMENTS

Any attachments, such as hooks or links, should have a rated "Working Load Limit" at least equal to the chain with which it is used.

SYMMETRICAL LOADING

Rated Working Load Limit assumes symmetrical loading of all sling legs.

SPECIFICATIONS: ASME B30.9 2006

Paragraph 9-1.6 .1 "Prior to initial use, all new and repaired chain and components of an alloy steel chain sling, either individually or as an assembly, shall be proof tested by the sling manufacturer or qualified person."

GRADE 80/100 CHAIN SLING CHARTS

GRADE 80 CHAIN SLINGS

WORKING LOAD LIMITS IN POUNDS*								
SIZE OF CHAIN		TYPES OR C	DOUBLE BRANCH TYPE D					
INCHES	MM.	SINGLE	60° ANGLE	45° ANGLE	30° ANGLE	TRIPLE/QUAD 60° ANGLE	TRIPLE/QUAD 45° ANGLE	TRIPLE/QUAD 30° ANGLE
7/32"	5.5	2100	3600	3000	2100	5450	4450	3150
9/32"	7.0	3500	6100	4900	3500	9100	7400	5200
3/8"	10.0	7100	12300	10000	7100	18400	15100	10600
1/2"	13.0	12000	20800	17000	12000	31200	25500	18000
5/8"	16.0	18100	31300	25600	18100	47000	38400	27100
3/4"	20.0	28300	49000	40000	28300	73500	60000	42400
7/8"	22.0	34200	59200	48400	34200	88900	72500	51300
1"	26.0	47700	82600	67400	47700	123900	101200	71500
1 1/4"	32.0	72300	125200	102200	72300	187800	153400	108400
NOTE: DESIGN FACTOR = 4:1 WARNING: DO NOT EXCEED RATED CAPACITIES								

GRADE 100 CHAIN SLINGS

WORKING LOAD LIMITS IN POUNDS*								
SIZE OF CHAIN		TYPES OR C	DOUBLE BRANCH TYPE D					
INCHES	MM.	SINGLE	60° ANGLE	45° ANGLE	30° ANGLE	TRIPLE/QUAD 60° ANGLE	TRIPLE/QUAD 45° ANGLE	TRIPLE/QUAD 30° ANGLE
7/32"	5.5	2700	4700	3800	2700	7000	5700	4000
9/32"	7.0	4300	7400	6100	4300	11200	9100	6400
3/8"	10.0	8800	15200	12400	8800	22900	18700	13200
1/2"	13.0	15000	26000	21200	15000	39000	31800	22500
5/8"	16.0	22600	39100	32000	22600	58700	47900	33900
3/4"	20.0	35300	61100	49900	35300	91700	74900	53000
7/8"	22.0	42700	74000	60400	42700	110900	90600	64000
1"	26.0	59700	103400	84400	59700	155100	126000	89550
1 1/4"	32.0	90400	156600	127800	90400	234900	191700	135600
NOTE: DESIGN FACTOR = 4:1 WARNING: DO NOT EXCEED RATED CAPACITIES								

USE, CARE & INSPECTION OF GRADE 80 AND GRADE 100 CHAIN SLINGS

THE LIFE AND STRENGTH OF GRADE 80 AND GRADE 100 SLINGS DEPEND ON PROPER USE, MAINTENANCE AND INSPECTION. REFER TO ASME B30.9 AND OSHA REGULATIONS FOR ADDITONAL INFORMATION. ALWAYS REFER TO ASME B30.9 IN REGARDS TO PROPER INSPECTION AND REJECTION CRITERA FOR SLINGS.

Use

Observing the following precautions when using chain slings will help protect both operators and materials.

1. Inspect chain slings before use as indicated in inspection section.

2. Do not exceed working load limit as indicated on sling identification tag.† Any of the following factors can lower the load the chain will hold:

- Rapid load application can produce dangerous overloading.
- Variation in the angle of the load to the sling. As the angle decreases, the working load of the sling will decrease. Refer to Working Load Limit Chart.
- Twisting, knotting and kinking subjects links to undesirable loading which decreases the working load limit of the sling.
- Conditions other than that for which slings are intended can reduce the working load limit of the sling. For example, use at elevated temperatures will result in a reduction in working limit.

3. Free all twists, knots and kinks.

4. Center load in hook(s). Hook latches must not support load.

5. Avoid sudden jerks when lifting and lowering.

6. Balance all loads, avoid tipping of loads.

7. Use pads around sharp corners.

8. Don't drop load on chairs.

9. Select attachments such as hooks or rings for use with chain to match the size and working load limit of the chain.

10. Use only GR. 80 and 100 Alloy Chain.

† The identification tag is found on the master coupling link of each chain sling and contains the following information:
• Grade • Size • Reach • Type • Working Load Limit (at a specific angle of lift) • Serial Number

Care

Chain slings require proper care as follows:

1. Store slings on an 'A' Frame in a clean, dry place.

2. Avoid corrosion. Oil chains before prolonged storage.

3. Never alter the thermal treatment of GR. 80 and 100 chain by heating.

4. Do not plate or change surface finish of sling. Contact Northern Strands for special requirements.

Inspection

It is important to inspect chain slings regularly and to keep a record of each chain inspection. The following is a guide for such an inspection procedure. Northern Strands will supply sling record cards or sheets as requested.

Before inspecting, clean the chain sling so that marks, nicks, wear and other defects can be seen. Use a non-acid/non-caustic solvent. Each chain link and sling component should be individually inspected for the following conditions:

1. Twists or bends.

2. Nicks or gouge.

3. Excessive wear at bearing points. Refer to Wear Allowance Chart.

4. Stretch.

5. Distorted, worn or damaged master links, coupling links, or attachments, especially spread in throat opening of hooks.

Each link or component having any condition listed above is to be marked with paint to plainly indicate rejection and eliminated from service until properly repaired.

NOTE:

Northern Strands and Manufacturer assume no responsibility for the misuse or misapplication of any of its products. Products are provided with the express understanding that the purchaser and/or user are thoroughly familiar with the correct application and proper use. Warnings and definitions are provided as an aid to the user in understanding correct application and proper use.

Working Load Limit – Refers to the maximum load (rated capacity) in pounds that shall be applied to the chain sling. Refer to Working Load Limit Chart. The manufacturer does not accept any liability for damages which result from the sling being used in excess of the working load limit or from abuse.

GRADE 100 CHAIN SLING CONFIGURATIONS


TYPE DOS


TYPE DOG


TYPE DOF


TYPE ADOS


TYPE ADOG


TYPE DOCH

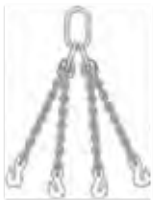

TYPE TOS


TYPE TOG


TYPE TOF


TYPE TOCH


TYPE QOS


TYPE QOG


TYPE QOF

TYPE	DESCRIPTION
DOS	Double Chain Sling with Master Link and Sling Hook
DOG	Double Chain Sling with Master Link and Grab Hook
DOF	Double Chain Sling with Master Link and Foundry Hook
ADOS	Adjustable Double Chain Sling with Master Link and Sling Hook
ADOG	Adjustable Double Chain Sling with Master Link and Grab Hook
DOCH	Double with 1355 Choker

TYPE	DESCRIPTION
TOS	Triple Chain Sling with Master Link and Sling Hook
TOG	Triple Chain Sling with Master Link and Grab Hook
TOF	Triple Chain Sling with Master Link and Foundry Hook
TOCH	Triple with 1355 Choker
QOS	Quadruple Chain Sling with Master Link and Sling Hook
QOG	Quadruple Chain Sling with Master Link and Grab Hook
QOF	Quadruple Chain Sling with Master Link and Foundry Hook

GRADE 100 CHAIN SLING CONFIGURATIONS

To Make Your Grade 100 Alloy Chain Sling:

Follow these simple steps in making a sling assembly:

1. Determine the maximum load to be lifted by the sling assembly.
2. Choose the type of sling assembly suited for the shape of the load and the size of the sling assembly for the load to be lifted. The decision must take into account the angle of the sling legs in multileg slings.
3. Determine the overall reach from bearing point of master link to bearing point on hook (see Fig. 1).
4. Select components, assemble chain and components.
5. Affix sling identification tag to sling.

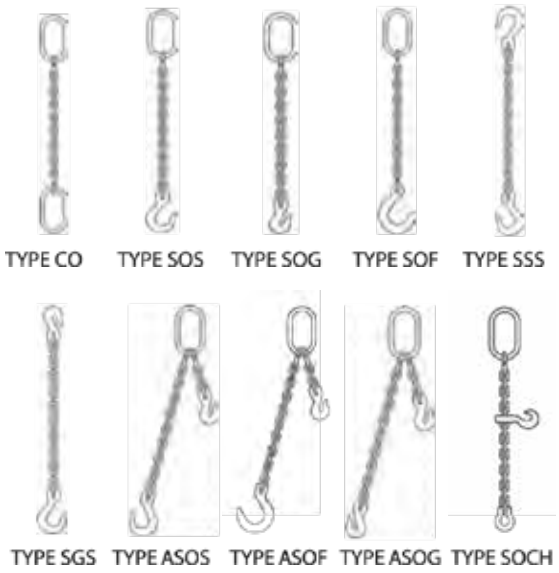
Fig. 1

Each sling shall be marked to show: name or trademark of manufacturer, grade, nominal chain size, number of legs, rated load for the type(s) of hitch(es) used and angle upon which it is based (reach).

If measurement comes in the link, cut the following link. For two leg type slings, count the links and use an even number for clevis hooks and an odd number for eye hooks. This will position hooks in the same plane. In multileg slings always use the same number of links in each leg.

When using chain slings in choker applications, the Working Load Limit must be reduced by 20%. Recommended minimum angle of choke of 120 degrees. Consult Northern Strands when planning to use an angle of choke of less than 120 degrees. If A-1338 cradle grab hooks are used at a minimum angle of choke of 120 degrees, the full sling rated WLL can be utilized.

In shortening applications, a 20% reduction of the Working Load Limit is required except when using the A-1338 Cradle Grab Hooks, S-1311 Chain Shortener Link, the A-1355 Chain Choker Hook in conjunction with the S-1325 Chain Coupler Link, or the shortener link. They can be used without any reduction to the Working Load Limit.



TYPE	DESCRIPTION
CO	Single Chain Sling with Master Link each end
SOS	Single Chain Sling with Master Link and Sling Hook
SOG	Single Chain Sling with Master Link and Grab Hook
SOF	Single Chain Sling with Master Link and Foundry Hook
SSS	Single Chain Sling with Sling Hook each end
SGS	Single Chain Sling with Grab Hook and Sling Hook
ASOS	Adjustable Single Chain with Master Link and Sling Hook
ASOF	Adjustable Single Chain Sling with Master Link and Foundry Hook
ASOG	Adjustable Single Chain Sling with Master Link and Grab Hook
SOCH	Single with 1355 Choker

GRADE 80 & 100 ALLOY CHAIN

Caution

Only Grade 80 and Grade 100 chain, should be used for overhead lifting applications.

General Usage – It must be recognized that certain factors in the usage of chain and attachments can be abusive and lessen the load that the chain or attachments can withstand. Some examples are twisting of the chain; disfigurement; deterioration by straining; usage; weathering and corrosion; rapid application of load or jerking; applying excessive loads; sharp corner cutting action and non-symmetrical loading effects.

When using chain slings in choker applications, the Working Load Limit must be reduced by 20%. Northern Strands recommends a minimum angle of choke of 120 degrees. Consult Northern Strands when planning to use an angle of choke of less than 120 degrees. If Northern Strands cradle grab hooks are used at a minimum angle of choke of 120 degrees, the full sling rated WLL can be utilized.

In shortening applications, a 20% reduction of the Working Load Limit is required except when using the Northern Strands Cradle Grab Hooks, Chain Shortener Link, the Chain Choker Hook in conjunction with a Chain Coupler Link, or the Crosby ELIMINATOR ® shortener link. They can be used without any reduction to the Working Load Limit.

Care should be taken to observe these derated applications or chain may fracture or permanently stretch at loads less than the advertised chain ultimate strength and proof load respectively.

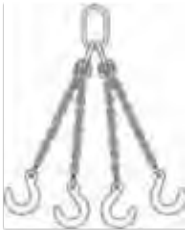
Environmental Effects – Excessive high or low temperatures, or exposure to chemically active environments such as acids or corrosive liquids or fumes, can reduce the performance of the chain.

Temperature

- Extreme temperatures will reduce the performance of alloy steel chain slings.
- Normal operating temperature is -40°F to 400°F (-40°C to 204°C).
- See the temperature exposure chart (Table 1) to determine reduction of WLL due to operation at, and exposure to, elevated temperatures.

Chemically Active Environments can have detrimental effects on the performance of chain. The effects can be both visible loss of material and undetectable material degradation causing significant loss of strength.

- Usage Exposure – Exposure to chemically active environments such as acids or corrosive liquids or fumes can reduce the performance of the chain.
- Special Surface Coating/Plating/ Galvanizing – Chain should not be subjected to galvanizing, or any plating process.
- If it is suspected that the chain has been exposed to chemically active environment, remove from service.



TYPE QOF

TABLE 1

Use of Crosby Alloy Chain at Elevated Temperatures

Temperature of Chain		Grade 8 (80) Chain		Grade 10 (100) Chain	
(F∞)	(C∞)	Temporary Reduction of Rated Load at Elevated Temperature*	Permanent Reduction of Rated Load After Exposure to Temperature**	Temporary Reduction of Rated Load at Elevated Temperature*	Permanent Reduction of Rated Load After Exposure to Temperature**
Below 400	Below 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%
Over 1000	Over 538	OSHA 1910.184 and ASME B30.9 requires all slings exposed to temperatures over 1000∞ F to be removed from service.			

* The use of Alloy Chain at temperatures above 800 degrees F is not recommended.

** When chain is used at room temperature after being heated to temperatures shown in the the first column.

LIFTING CHAIN

GRADE 100 LIFTING CHAIN (ALLOY)

SIZE	W.L.L.
9/32"	4,300 LBS
5/16"	5,700 LBS
3/8"	8,800 LBS
1/2"	15,000 LBS
5/8"	22,600 LBS
3/4"	35,300 LBS
7/8"	42,700 LBS
1"	59,700 LBS

Grade 100 chain, similar to the Grade 80 chain, is commonly used for overhead lifting applications because of its excellent energy absorption properties; however Grade 100 chain has the greatest strength to weight ratio of the alloy chains. Grade 100 chain has a 4:1 factor of safety.

GRADE 100 LINKS AND HOOKS

G-100 CLEVIS SELF-LOCKING HOOK

GRADE 100 CHAIN	WLL (lbs)	DIMENSIONS (in.)				WT. lbs
		H	K	P	T	
1/4-5/16	5,700	1.02	4.69	1.34	0.79	1.8
3/8	8,800	1.34	5.59	1.73	1.02	3.1
1/2	15,000	1.65	7.01	2.01	1.18	6.2
5/8	22,600	2.00	8.39	2.36	1.42	12.3
3/4	35,300	2.56	9.61	2.76	2.09	19.8
7/8	42,700	2.80	10.75	3.15	1.93	24.0

G-100 SWIVEL SELF-LOCKING HOOK

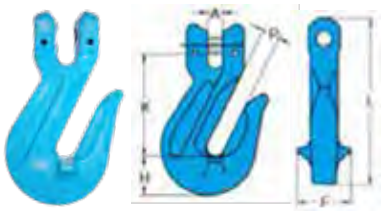
(WITH BRASS BUSHING)

GRADE 100 CHAIN	WLL (lbs)	DIMENSIONS (in.)							WT. lbs
		A	B	D	H	K	P	T	
1/4-5/16	5,700	1.42	1.14	0.51	1.02	7.32	1.34	0.79	2.4
3/8	8,800	1.61	1.34	0.63	1.34	8.58	1.73	1.02	4.4
1/2	15,000	1.81	1.69	0.83	1.50	10.87	2.01	1.18	8.8
5/8	22,600	2.40	2.19	0.91	1.97	13.15	2.36	1.42	15.0
3/4	35,300	3.40	3.50	0.98	2.56	15.85	2.76	1.93	27.8
7/8	42,700	3.82	3.74	1.30	2.50	17.99	3.15	2.09	39.6
1	59,700	4.84	4.53	2.01	3.11	21.06	3.90	2.20	69.3

(WITH BALL BEARING)

GRADE 100 CHAIN	WLL (lbs)	DIMENSIONS (in.)							WT. lbs
		A	B	D	H	K	P	T	
5/8	22,600	2.40	2.19	0.91	2.00	12.95	2.36	1.42	15.0
3/4	35,300	2.91	3.23	0.98	2.56	15.24	2.76	1.93	27.8
7/8	42,700	3.82	3.74	1.30	2.80	17.99	3.15	2.09	39.6

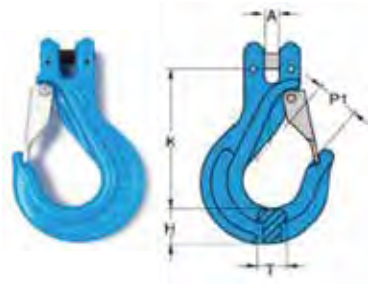
G-100 CLEVIS GRAB HOOK



GRADE 100 CHAIN	WLL (lbs)	DIMENSIONS (in.)						WT. lbs
		A	D	H	K	P	T	
1/4-5/16	5,700	0.39	1.18	0.87	2.09	3.66	0.39	0.7
3/8	8,800	0.43	1.61	1.14	3.03	5.04	0.51	1.8
1/2	15,000	0.59	2.05	1.50	3.90	6.50	0.67	3.5
5/8	22,600	0.71	2.24	1.77	4.49	7.68	0.83	5.9
3/4	35,300	0.87	2.87	2.05	5.12	8.74	0.91	10.1

GRADE 100 LINKS AND HOOKS

HOOK - CLEVIS, SLING, GRADE 100

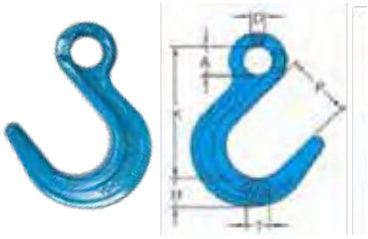


GRADE 100 CHAIN (in)	WLL (LBS)	DIMENSIONS (in.)					WT./EA. (LBS)
		A	H	K	P1	T	
9/32	5700	0.39	0.87	3.86	1.21	0.71	1.3
3/8	8800	0.43	1.18	4.80	1.50	0.94	2.4
1/2	15 000	0.59	1.46	5.79	1.73	1.18	5.1
5/8	22 600	0.71	1.65	6.54	1.89	1.54	8.6
3/4	35 300	0.87	2.52	8.15	2.24	1.89	18.9

HOOK - EYE, SLING, GRADE 100

GRADE 100 CHAIN (in)	WLL (LBS)	DIMENSIONS (in.)						WT./EA. (LBS)
		K	P1	A	D	T	H	
9/32	5700	3.86	1.10	0.98	0.47	0.79	0.91	1.1
3/8	8800	4.76	1.42	1.26	0.59	0.91	1.22	2.0
1/2	15 000	5.98	1.88	1.57	0.71	1.06	1.50	3.5
5/8	22 600	7.28	1.73	1.97	0.87	1.26	1.77	6.8
7/8	42 700	9.65	2.99	2.01	1.22	2.05	2.48	20.5

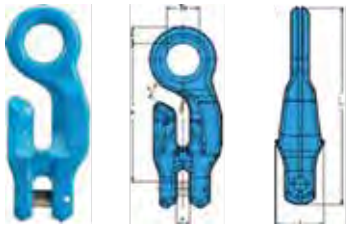
G-100 EYE FOUNDRY HOOK



GRADE 100 CHAIN	WLL (LBS)	DIMENSIONS (in.)						WT. (LBS)
		K	P	A	D	T	H	
3/8	8,800	5.87	2.91	1.26	0.59	0.91	1.26	3.5
1/2	15,000	7.09	3.46	1.57	0.75	1.26	1.54	5.5
5/8	22,600	8.39	3.86	1.97	0.98	1.61	1.85	9.7
3/4	35,300	9.76	4.45	2.36	1.02	1.81	2.24	20.5

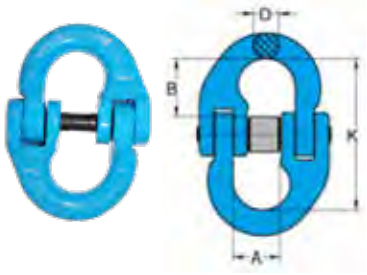
GRADE 100 LINKS AND HOOKS

HOOK - CLEVIS, EYE, GRABEX, GRADE 100



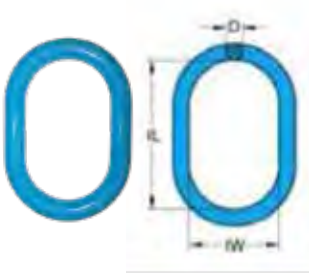
WLL (LBS) 5:1 @ 45°	WLL (LBS) 4:1 @ 45°	Chain Size (in)	DIMENSIONS (in.)							WT./EA. (LBS)
			A	B	D	F	K	L	P	
4 600	5 700	9/32 - 5/16	0.39	0.94	0.51	1.26	4.02	5.28	0.47	1.2
7 000	8 800	3/8	0.47	1.22	0.55	1.57	4.92	6.42	0.58	2.3
12 000	15 000	1/2	0.63	1.46	0.71	2.01	6.22	8.19	0.79	4.8
18 100	22 600	5/8	0.75	1.89	0.94	2.52	7.95	10.39	0.83	9.7

G-100 CONNECTING LINK



GRADE 100 CHAIN	WLL (LBS)	DIMENSIONS (in.)				WT. (LBS)
		A	B	D	K	
9/32	5,700	0.71	0.81	0.42	2.32	0.4
3/8	8,800	0.98	1.10	0.53	2.72	0.7
1/2	15,000	1.18	1.50	0.63	3.62	1.5
5/8	22,600	1.42	1.61	0.75	3.98	2.6
3/4	35,300	1.65	1.97	0.91	4.80	4.2
7/8	42,700	1.93	2.48	0.95	5.98	7.7
1	59,700	2.17	2.60	1.18	6.38	11.7
1-1/4	90,400	2.72	3.35	1.42	7.99	20.5

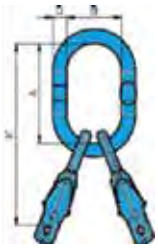
G - 100 FORGED OBLONG MASTER LINK



SIZE	WLL 5:1 (LBS)	INSIDE LENGTH (in)	CHAIN SIZE (in)		INSIDE WIDTH (in)	DIA. (in)	WT. (LBS)
			1-LEG	2-LEG			
1/2"	7,400	4.72	*1/4 - 5/16	*7/32	2.76	0.55	1.1
5/8"	9,000	5.51	*3/8	*1/4 - *5/16	3.15	0.67	1.6
3/4"	12,300	5.91	*1/2	-	3.54	0.75	2.4
7/8"	15,200	6.30	*1/2	*3/8	3.74	0.87	3.5
1"	26,000	7.48	*5/8	-	4.33	0.98	5.1
1-1/8"	30,000	7.09	*5/8	*1/2	4.13	1.10	5.9
1-1/4"	39,100	7.87	*3/4	-	4.72	1.18	7.6
1-3/8"	42,000	9.45	*7/8	*5/8	5.51	1.34	11.7
1-1/2"	61,100	9.84	*1	-	5.91	1.50	15.8

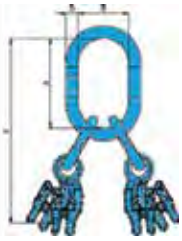
GRADE 100 LINKS AND HOOKS

LINK - MASTER LINK ASSEMBLY, WITH 2X GRABEX HOOKS, GRADE 100



WLL (LBS) 5:1 @ 45°	WLL (LBS) 4:1 @ 45°	Chain Size (in)	DIMENSIONS (in.)				WT./EA. (LBS)
			D	A	B	K	
6,500	8 100	5/16	0.75	6.30	3.74	10.31	4.8
9 900	12 400	3/8	0.87	6.69	4.13	11.61	8.3
17 000	21 200	1/2	1.10	7.48	4.33	13.70	15.4
25 600	32 000	5/8	1.26	9.06	5.12	16.99	29.8

LINK - MASTER LINK ASSEMBLY, WITH 4X GRABEX HOOKS, GRADE 100



WLL (LBS) 5:1 @ 45°	WLL (LBS) 4:1 @ 45°	Chain Size (in)	DIMENSIONS (in.)				WT./EA. (LBS)
			D	A	B	K	
9 700	12 100	5/16	0.87	6.69	4.13	12.05	10.1
15 000	18 700	3/8	1.10	7.48	4.33	13.98	17.8
25 400	31 800	1/2	1.26	9.06	5.12	17.24	34.8
38 300	47 900	5/8	1.50	10.83	5.91	21.34	63.6

TRANSPORT CHAIN

- Material: Grade 70, Carbon Steel
- Standard: NACM, ASTM A413
- Finish: Yellow Chromate
- Design Factor: 4:1
- Identification: Traceable

SIZE (in)	WLL (LBS)	WT./ 100 FT (LBS)	QTY. / DRUM (FT)
1/4	3150	62	400
5/16	4700	101	550
3/8	6600	138	400
1/2	11,300	235	100

Compliant with National Safety Code Standard (NSC) 10 Part 1. Division 3, Section 11 (4)

"On and after January 1, 2011 a person shall not use a tie down or a component of a tie down to secure cargo to a vehicle unless it is marked by the manufacturer with respect to its working load limit."

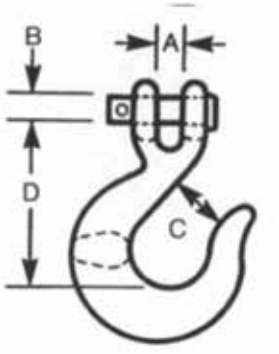
The Tag is for 3/8" grade 70 chain which is now required for all tie down chains to meet the national safety standard. These chains are made in our shop to your requirements.

CLEVIS HOOK

CLEVIS SLIP HOOK

Grade 70 Clevis Slip Hooks have a wider throat than a grab hook.

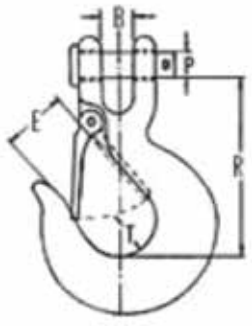
- For use with Grade 70 or lower chains
- Not for use with grade 80 chain and chain slings used in overhead lifting
- Material: Forged Alloy Steel, Quenched & Tempered
- Standard: EN 12195-3
- Finish: Gold Chromated
- Design Factor: 4:1
- Identification: Trademark, Size/WLL, Batch Code, G70



CHAIN SIZE (in)	WLL (LBS)	DIMENSIONS (in.)				WT./EA. (LBS)
		A	B	C	D	
1/4	2750	0.44	0.37	0.91	2.60	0.50
5/16	4300	0.50	0.43	1.10	2.85	0.75
3/8	5250	0.59	0.47	1.30	3.25	1.20
1/2	9000	0.70	0.63	1.47	3.90	2.80
5/8	13 500	0.91	0.75	2.00	4.90	4.75

CLEVIS SLIP HOOK WITH LATCH

- For use with Grade 70 or lower chains
- Not for use with grade 80 chain and chain slings used in overhead lifting
- Material: Forged Alloy Steel, Quenched & Tempered
- Standard: EN 12195-3
- Finish: Gold Chromated
- Design Factor: 4:1
- Identification: Trademark, Size/WLL, Batch Code, G70



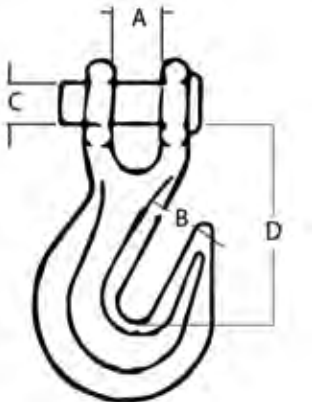
CHAIN SIZE (in)	WLL (LBS)	DIMENSIONS (in.)				WT./EA. (LBS)
		A	B	C	D	
1/4	2750	0.44	0.37	0.91	2.60	0.50
5/16	4300	0.50	0.43	1.10	2.85	0.75
3/8	5250	0.59	0.47	1.30	3.25	1.20
1/2	9000	0.70	0.63	1.47	3.90	2.80
5/8	13 500	0.91	0.75	2.00	4.90	4.75

CLEVIS HOOK

CLEVIS GRAB HOOK

Grade 70 Clevis Grab Hooks are used to connect separate pieces of chain by hooking into a chain link or to shorten the chain length.

- For use with Grade 70 or lower chains
- Not for use with grade 80 chain and chain slings used in overhead lifting
- Material: Forged Alloy Steel, Quenched & Tempered
- Finish: Gold Chromated
- Design Factor: 4:1
- Identification: Trademark, Size/WLL, Batch Code, G70

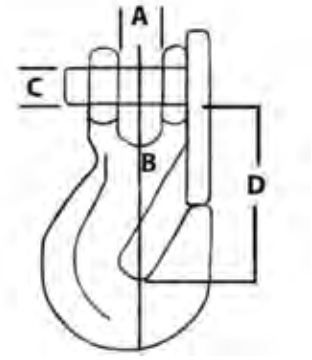


CHAIN SIZE (in)	WLL (lb)	DIMENSIONS (in.)				WT./EA. (LB)
		A	B	C	D	
1/4	3150	0.36	0.40	0.38	1.97	0.40
5/16	4700	0.40	0.44	0.44	2.26	0.79
3/8	6600	0.48	0.50	0.47	2.63	1.00
7/16	8750	0.66	0.56	0.56	2.75	1.31
1/2	11 300	0.75	0.66	0.63	3.19	2.10

CLEVIS GRAB HOOKS WITH LATCH

Grade 70 Clevis Grab Hooks with Latch are used to connect separate pieces of chain by hooking into a chain link or to shorten the chain length.

- For use with Grade 70 or lower chains
- Not for use with grade 80 chain and chain slings used in overhead lifting
- Material: Forged Alloy Steel, Quenched & Tempered
- Finish: Gold Chromated
- Design Factor: 4:1
- Identification: Trademark, Size/WLL, Batch Code, G70



CHAIN SIZE (in)	WLL (lb)	DIMENSIONS (in.)				WT./EA. (LB)
		A	B	C	D	
1/4	3150	0.36	0.40	0.38	1.97	0.40
5/16	4700	0.40	0.44	0.44	2.26	0.79
3/8	6600	0.48	0.50	0.47	2.63	1.00
1/2	11 300	0.75	0.66	0.63	3.19	2.10

TIE DOWN STRAPS

LOGGING TIE DOWNS

CODE	SIZE	LENGTH	W.L.L.
6969-0516X35	5/16"	35 FEET	3,600 LBS
6969-0038X35	3/8"	35 FEET	3,600 LBS
Other sizes available on request.			

TRUCK TIE DOWN STRAPS C/W "J" HKS (3:1)

CODE	SIZE	LENGTH	W.L.L.
6610-2X15	2"	15 FEET	3,300 LBS
6610-2X20	2"	20 FEET	3,300 LBS
6610-2X27	2"	27 FEET	3,300 LBS
Other sizes available on request.			

WINCH LINE TAIL CHAIN

Winch Line Tail Chains are a flexible attachment used at the end of a wire rope. Tail chains are used to reduce wear on wire rope. They are primarily used on truck and tractor winch lines.

- Hooks are Forged – Quenched and Tempered.
- Individually Proof Tested.
- Spectrum 8® Alloy Steel from 3/4" through 1-1/4" (20 - 32mm).
- Meets or exceeds requirements of US DOT FMCSA Part 393 Subpart I.

L-180 WINCHLINE TAIL CHAIN

WIRE ROPE DIAMETER (IN)	L-180 STOCK NO.	WORKNG LOAD LIMIT (LBS)	LENGTH (IN)	NO. OF LINKS	WEIGHT EACH (LBS)
5/16 - 3/8	1091473	5400	18	11	3.0
1/2 - 5/8	1091482	13000	18	7	6.2
3/4 - 7/8	1091511	34200	24	8	18.2
1 - 1 1/8	1091516	47700	18	5	21.2
1 - 1 1/8	1091525	47700	24	7	23.3
1 - 1 1/4	1091532	72300	24	5	40.0
Other sizes available on request.					

TORQUE DRIVE LOAD BINDERS

DESCRIPTION

Torque Drive binders are designed and meant to be operated differently than any other binder. It is best if your drivers can set aside any preconceived notions and past experience with operating binders. These require a new understanding of how they lock the chain tight. Done properly, drivers will experience less shoulder strain, easier operation, safer load securement, and faster tie down/release times.

Let's start with the handle. Traditional binders use a "paw" that is built into the handle to engage the gear around the barrel that, when rotated, pulls the threaded posts either in or out. This is not the case with our binder. The handle is not to be used in the traditional/rotational sense. The handle on the Torque Drive is actually a reaction bar first and handle for carrying second. Our binder was designed to be operated by a cordless drill. In a pinch, someone can simply use a 14 mm wrench or socket if a drill breaks or batteries go dead.

The locking mechanism for Torque Drive is having the handle against the floor of the trailer or against a part of the equipment you are tying down. With the handle against (reacting) a stationary object we develop superior chain tightness. Because we attain such high chain tightness, we virtually eliminate chains loosening with tire mash (bridge abutments, bumps, railroad tracks, etc.). Done correctly, it should take about five to seven pounds of force to pull the handle off the floor of the trailer.

Place the binder as close to the rub rail as possible so that the handle will be able to hit the floor of the trailer or position so the handle is against a part of the unit being tied down.

Key applications and most important advantages

Industry/application	Most commonly used size	# of binders used per truck	Most important bnefits for user
Equipment Rental	TD92RL, 3/8"-1/2" - 9,200 lb WLL	4 - 10	• Safer • Ergonomic advantage • Ability to tighten in difficult to access places (in coils, over equipment, flat against deck)
Equipment Manufacturers	TD92RL, 3/8"-1/2" - 9,200 lb WLL	4 - 10	• Safer • Ergonomic advantage • Ability to tighten in difficult to access places (in coils, over equipment, flat against deck)
Steel Coil Transportation	TD92RL, 3/8"-1/2" - 9,200 lb WLL	8 - 12	• Safer • Ergonomic advantage • Ability to tighten in difficult to access places (in coils, over equipment, flat against deck)
Heavy Hauling	TD13GL, 1/2"-5/8" - 13,000 lb WLL	6 - 8	• Safer • Ergonomic advantage • Reduces risk of binder loosening during transport
Heavy Towing / Recovery	TD92RL, 3/8"-1/2" - 9,200 lb WLL	1	• Safer • Quicker • Ergonomic advantage
Logging	TD66RL, 5/16"-3/8" - 6,600 lb WLL	6 - 8	• Safer • Ergonomic advantage • Reduces risk of binder loosening during transport

"Finally pulled the plug and got my Speedbinders! The very next day, I received a load that required eight chains (before this I used to purposely pass up on loads that needed chaining because I didn't want to deal with the chains). I started on the first chain and before I even got it tight I was kicking myself for not getting these a year earlier. The trucker next to me waiting to get loaded came around his truck when he heard my drill and was very impressed with the ease of use and how tight the chains were. I have since driven that load more than 700 miles, and I have not had to tighten a single binder down — NOT A SINGLE BINDER WAS LOOSE THE ENTIRE TRIP.

I am completely sold on these binders and will be getting four more to make sure I have enough for all the future loads I will be pulling using my chains and Speedbinders!

Thank you for making a great product!"

– Brian@2btrucking.us

LOAD BINDER - TORQUE DRIVE SPEEDBINDER, 5/16" TO 3/8"

Specifications:

Style - Torque drive

Size - 5/16" to 3/8"

W.L.L. - 6,600lbs

Grade - 70

Gear ratio - 24:1

LOAD BINDER - TORQUE DRIVE SPEEDBINDER, 3/8" TO 1/2"

Specifications:

Style - Torque drive

Size - 3/8" to 1/2" (can also be used with 5/16" chain)

W.L.L. - 9,200lbs

Grade - 70

Gear ratio - 24:1

FOLDING HANDLE LOAD BINDERS

DESCRIPTION

Load Binders are part of Transport Accessories used for load securement purposes. Ratchet Load Binders are designed to tighten chain for securing a load. Ratchet Load Binders have a gear, pawl, handle, and end fittings that screw in or out. Therefore, the Ratchet Load Binder does not store as much energy in the handle when compared to Lever Load Binders. The Folding Handle Ratchet Load Binder has a locking handle that folds in so that nothing is protruding from the load.

Specifications:

- Style: Folding Handle Ratchet
- Sizes: 1/2" - 5/8" and 5/16" – 3/8"

FOLDING HANDLE LOAD BINDER - QUICK BINDER, 1/2" - 5/8"

FOLDING HANDLE LOAD BINDER - QUICK BINDER, 5/16" - 3/8"

FOLDING HANDLE LOAD BINDER - RATCHET, 3/8" - 1/2"

FOLDING HANDLE LOAD BINDER - RATCHET, 5/16" - 3/8"

LEVER STYLE LOAD BINDER

DESCRIPTION

Load Binders are part of Transport Accessories used for load securement purposes. Lever Style Load Binders are designed using a lever device to tighten chain for securing a load. Lever Style Load Binders store kinetic energy in the handle.

Specifications:

- Style: Folding Handle Ratchet
- Sizes: 5/16" - 3/8", 1/2" – 5/8", ¼" – 5/16", 3/8"-12", 5/16" – 3/8"

LOAD BINDER - LEVER, 1/4" - 5/16"

LOAD BINDER - LEVER, 5/16" - 3/8"

LOAD BINDER - LEVER, 3/8" - 1/2"

RATCHET STYLE LOAD BINDER

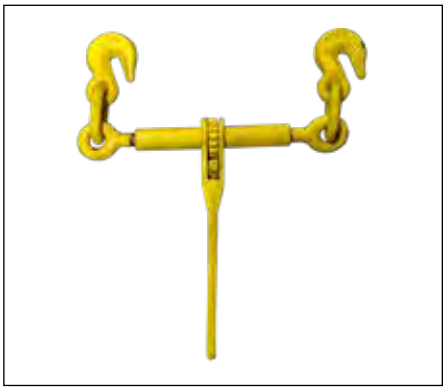
DESCRIPTION

Load Binders are part of Transport Accessories used for load securement purposes. Ratchet Load Binders are designed to tighten chain for securing a load. Ratchet Binders have a gear, pawl, handle, and end fittings that screw in or out. Therefore, the Ratchet Load Binder does not store as much energy in the handle when compared to Lever Load Binders.

Specifications:

- Style: Ratchet Load Binder
- Sizes: 5/16" - 3/8", 1/2" – 5/8", 5/16" – 3/8"

LOAD BINDER - RATCHET, 5/16" - 3/8"



LOAD BINDER - RATCHET, 1/2" - 5/8"

DYNEEMA WINCH LINES

12-STRAND DYNEEMA ROPE USES:

Winch Line, Anchor Line, Dock/Mooring Line, Tow Rope, Lanyards, Hand Lines, Hoisting Ropes, Slings, Climbing Rope, Utility Rope.

THE BENEFITS OF DYNEEMA ROPE:

- **Upgrade your Winch with stronger Synthetic Winch Rope than Traditional Steel Cables.**
- **The Synthetic Dyneema Rope won't Kink, Curl or Splinter.**
- **Extremely Light, Floats in Water.**
- **Minimal Stretch and Non Rotation.**
- **Easy to Handle Splice, No Sharp Frays.**
- **Good Resistance to UV and Chemicals.**
- **Workable below -20 degree celsius.**

DYNEEMA WINCH LINES		
SIZE	**AVERAGE TENSILE STRENGTH**	**LENGTH**
3/16"	5,400 LBS	50 FEET
1/4"	8,600 LBS	50 FEET
5/16"	12,700 LBS	50 FEET

BULK DYNEEMA		
BULK SIZE	**AVERAGE TENSILE STRENGTH**	**LENGTH**
3/16"	5,500 LBS.	BULK
1/4"	9,030 LBS.	BULK
5/16"	13,436 LBS.	BULK
3/8"	20,700 LBS.	BULK
1/2"	34,360 LBS.	BULK
5/8"	50,220 LBS.	BULK
3/4"	70,925 LBS.	BULK

DOUBLE BRAIDED POLYESTER ROPE

(WITH OR WITHOUT PADDED EYES)

Our premium double braided polyester rope designed for general marine, industrial, and commercial use where low elongation, high strength, and abrasion resistance are required. Constructed from the highest quality UV stabilized yarns.

FEATURES:

- Specific Gravity of 1.38
- Low Elongation
- High Strength
- Excellent Dielectrics
- Abrasion Resistance
- UV Stabilized Cover

AVAILABLE SUGGESTED USES:

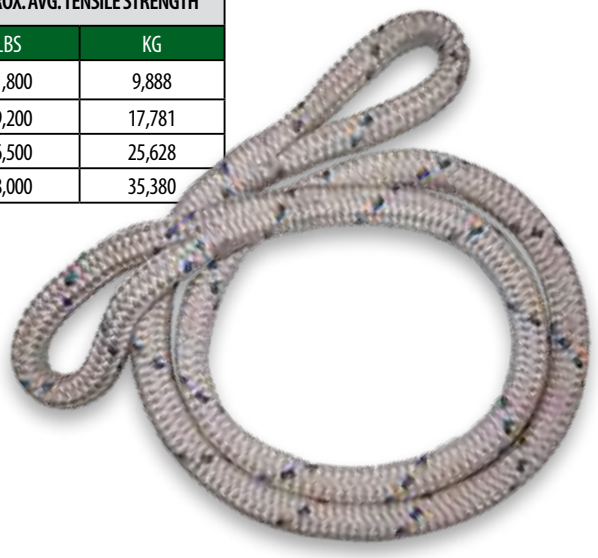
- Vehicle Recovery
- Winch Lines
- Pulling Lines
- Retrieval Lines
- Towing

EYE SPLICE METHOD:

- Double Braid Class 1

SIZE		CIRC. INCH	APPROX. WEIGHT		APPROX. AVG. TENSILE STRENGTH	
DIA. IN	DIA. MM		LBS/100FT	KG/100M	LBS	KG
3/4"	19	2-1/4"	18.2	27.1	21,800	9,888
1"	25	3"	33.3	49.6	39,200	17,781
1-1/4"	32	3-3/4"	52.5	78.1	56,500	25,628
1-1/2"	38	4-1/2"	71.5	106.4	78,000	35,380

Larger sizes available. Custom lengths available upon request.



8 STRAND TOW ROPE

(WITH OR WITHOUT PADDED EYES)

Our premium 8 Strand Tow rope is manufactured from high tenacity polypropylene yarns, Superdan offers easy handling, high strength and excellent abrasion resistance.

APPLICATIONS:

- Mooring lines
- General and commercial fishing rope
- Anchor lines
- Equipment towing
- Tractor towing

TECHNICAL SPECS:

- Class II Rope
- Specific Gravity: 0.91
- Elastic Elongation Percentage: At % of breaking strength – 20-22%
- Splicing Procedures Required
- Eye splice – 8-strand/Class II Rope
- End for End splice – 8-strand/Class II Rope

FEATURES:

- Excellent anti-abraision properties contribute to longer working life
- High UV light resistance
- Highly flexible, easy to handle
- 50% better breaking strength compared to BS and ISO standards

Dia.	Circ.	Dia. mm	Weight per 100 ft.	Min. Break Strength/LBS
1-5/8″	5	40	53.1	62,500
2″	6	48	80.2	91,400
2-1/4″	7	56	108.5	120,600
2-5/8″	8	64	141.1	155,000
3″	9	72	178.1	197,100

3 STRAND

GENERAL PURPOSE POLY ROPE

FEATURES:

- Color yellow
- 100% high tenacity monofilament fiber
- Holds knots well
- Floats

APPLICATIONS:

- Recreation
- Hunting
- General construction
- Tarping
- Camping
- Boating

TECHNICAL SPECIFICATIONS:

- General purpose poly
- Specific gravity: 98 (floats)
- Easy to splice
- Eye splice
- End for end splice

SIZE	LENGTH
3/16″	2125 FT.
1/4″	1300 FT.
5/16″	975 FT.
3/8″	630 FT.
1/2″	335 FT.
5/8″	200 FT.
3/4″	125 FT.

TOW STRAPS

Benefits of Northern Strands Tow Straps:

- Do not absorb water
- Polyester slings that reduce stretching
- Padded eye to reduce wear
- Tagged and certified for breaking strength

GREEN

- 2 Ply, 32,000lbs Green 2" x 20'
- 2 Ply, 32,000lbs Green 2" x 30'

GREY

- 2 Ply, 64,000lbs Grey 4" x 30'
- 2 Ply, 64,000lbs Grey 4" x 50'

* Available with D-Rings or without

BLUE

- 2 Ply, 128,000lbs Blue 8" x 30'
- 2 Ply, 128,000lbs Blue 8" x 50'

* Available with D-Rings or without

YELLOW

- 2 Ply, 48,000lbs Yellow 3" x 20'
- 2 Ply, 48,000lbs Yellow 3" x 30'

BROWN

- 2 Ply, 96,000lbs Brown 6" x 20'
- 2 Ply, 96,000lbs Brown 6" x 30'
- 2 Ply, 96,000lbs Brown 6" x 50'

* Available with D-Rings or without

ORANGE

- 2 Ply, 160,000lbs Orange 10" x 30'
- 2 Ply, 160,000lbs Orange 10" x 50'
- 2 Ply, 192,000lbs Orange 12" x 30'
- 2 Ply, 192,000lbs Orange 12" x 50'

* Available with D-Rings or without

Common Tow Straps in stock. Other sizes available upon request.

Available with D-Rings or without

SYNTHETIC SOFT SHACKLES

Soft Shackles are an excellent lightweight replacement for steel shackles. This type of shackle can also be easily wrapped around difficult pulling points and not scratch vehicle paint. The Soft Shackle is complete with a locking system for ease of use and a slip ring for extra security. Made with high-strength durable Dyneema Synthetic Rope, the Soft Shackle is constructed with one piece of material. This means that there are no pins that need to be fastened.*

Size	COLOUR	BREAKING STRENGTH
5/16″	ORANGE SOFT SHACKLE	8,850 KG
3/8″	GREEN SOFT SHACKLE	13,650 KG
1/2″	PURPLE SOFT SHACKLE	20,280 KG
9/16″	RED SOFT SHACKLE	24,765 KG
5/8″	BLACK SOFT SHACKLE	28,900 KG

* Rated for Towing Purposes Only

LIFTING LUGS AND D-PLATES

LIFTING LUGS

Lifting lugs are an essential component for rigging and are a popular product in Northern Strands Industrial Supplies Warehouse. Lifting lugs are designed to be welded to compatible steel materials in order to lift them into place safely and securely.

- Fabricated from A36 Steel.
- Available in 1/2, 2, 5, 10, and 15 ton maximum rated capacities.
- Color coded and stamped with rated capacity to provide quick identification.
- Meets OSHA requirements (minimum five to one safety factor).

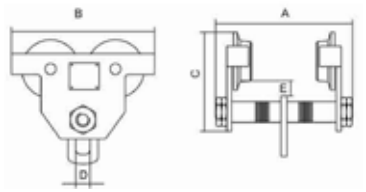
D-PLATES

D-Plates are offered in various sizes including 2, 4, 5,12, 20, and 35 Tons. Northern Strands' D-Plates are engineered stamped and can be re-certified.

- 5 to 1 safety factor
- Large bolt holes optional for mining industry applications
- All D-plates are proof loaded to 150%
- Wet mag and pull tested
- All D-Plates come with shackle

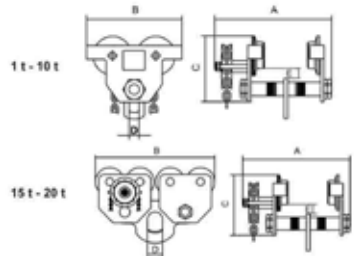
PLAIN TROLLEY KW-II
GEARED TROLLEY KW-III

Vitali-INTL® PLAIN TROLLEY KW-II



MODEL NO.		KW010A	KW020A	KW030A	KW050A	KW100A
Capacity	(t)	1	2	3	5	10
Proof Load	(t)	1.5	3	4.5	7.5	15
I-Beam Width	(mm)	64-203	88-203	100-203	114-203	125-210
Dimensions (mm)	A	296	313	334	363	410
	B	257	300	340	380	389
	C	181	214.5	252	290	364.5
	D	30	36	45	60	80
	E	23.5	23.5	32.5	28	48
Min. Radius Curve	(m)	1	1.1	1.3	14	1.7
Net Weight	(kg)	12.8	18.8	33.7	50.7	88

Vitali-INTL® GEARED TROLLEY KW-III

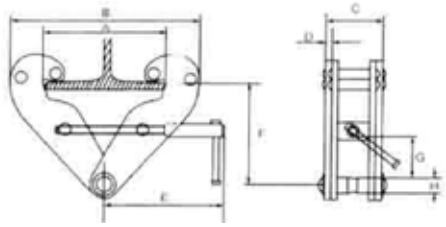


MODEL NO.		KW010B	KW020B	KW030B	KW050B	KW100B	KW150B	KW200B
Capacity	(t)	1	2	3	5	10	15	20
Proof Load	(t)	1.5	3	4.5	7.5	15	22.5	30
I-Beam Width	(mm)	64-203	88-203	100-203	144-203	125-210	125-210	125-210
Dimensions (mm)	A	344	362	383	416	461	480	480
	B	257	300	340	380	389	789	789
	C	181	214.5	252	290	364.5	364.5	364.5
	D	30	36	45	60	80	100	100
	E	23.5	23.5	32.5	28	48	48	48
Min. Radius Curve	(m)	1	1.1	1.3	1.4	1.7	1.7	1.7
Net Weight	(kg)	17	23.5	38.7	55.7	93	176	191

Standard 3 meter length hand chain. Custom lengths available.

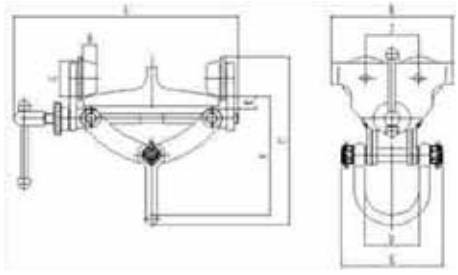
BEAM CLAMP TBC
QUICK INSTALL TROLLEY QIT

Vitali-INTL® BEAM CLAMP TBC



MODEL NO.		TBC-1	TBC-2	TBC-3	TBC-5	TBC-10
Capacity	(tonnes)	1	2	3	5	10
Proof Load	(tonnes)	1.5	3	4.5	7.5	15
I-Beam Width	(mm)	75-220	75-220	80-320	80-320	80-350
Dimensions (mm)	A (max.)	260	260	354	354	400
	B (min.)	180	180	235	235	250
	B (max.)	360	360	490	490	520
	C	64	74	103	110	120
	D	5	6	8	10	12
	E	215	215	260	260	280
	F (max.)	155	155	225	225	230
	F (min.)	102	102	140	140	160
	G	25	25	45	45	70
	H	22	22	24	28	44
Net Weight	(kg)	4.0	4.6	9.1	11.0	14.6
Net Weight	(kg)	4.5	5.1	9.6	12.0	15.6

Vitali-INTL® QUICK INSTALL TROLLEY QIT



MODEL NO.		QIT10	QIT30	QIT50
Capacity	(tonnes)	1	3	5
Proof Load	(tonnes)	1.5	4.5	7.5
I-Beam Width	(mm)	75-130	75-200	100-300
Dimensions (mm)	A	240	355	455
	B	174	280	346
	C	258-278	317-361	440-519
	D	80	90	110
	E	22	22	75
	F	178-198	199-243	300-379
	G	57	80	100
	H	20	24.5	27.5
	J	78	130	150
	K	150	210	210
Min. Radius Curve	(m)	1	1.3	1.7
Net Weight	(kg)	6.2	18.2	31.8

CLAMPS

IP10 - VERTICAL CLAMPS -
FOR VERTICAL LIFTING, TURNING AND TRANSFER

IPBC, IPHGUZ, IPHGZ - HORIZONTAL CLAMPS -
FOR HORIZONTAL TRANSFER - WITH PRETENSION SYSTEM

IPH10E, IPH0Z, HORIZONTAL CLAMPS -
FOR HORIZONTAL LIFTING AND TRANSFER

IPNM10N, IPNM10P - VERTICAL CLAMPS -
FOR USE IN ALMOST ALL SECTORS OF INDUSTRY WHERE DURING THE LIFT OR TRANSFER, NO DAMAGE TO THE MATERIAL IS PERMITTED.

IPPE - HORIZONTAL CLAMPS -
FOR THE LIFTING AND TRANSFER OF BUNDLES OF PLATES

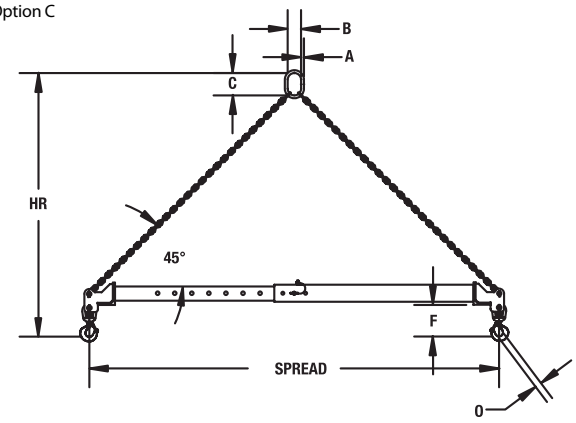
IPU10, IPU10S - VERTICAL CLAMPS -
UNIVERSAL - FOR LIFTING IN ANY DIRECTION

SPREADER BEAMS

ADJUSTABLE SPREADER BEAMS

- Ideal where headroom is not limited.
- Adds stability to lift.
- Telescopic spread standard.
- Spread adjusts in 1" increments.
- Available with standard chain or wire rope rigging.
- Wide range of additional sizes and capacities available.
- Custom spreader beam quotes available upon request. Custom spreader beam form found at http://www.northernstrands.com/spreader-beam-quote.aspx
- Complies with ASME standards.

Adjustable Spreader Beam
Shown with Option C



SPECIFICATIONS

CAPACITY (TONS)	SPREAD (FT.) MIN./MAX.	HR HEADROOM MIN./MAX. W/CHAIN (IN.)	WEIGHT BEAM & HOOKS (LBS.)	A OBLONG DIA. (IN.)	B OBLONG WIDTH (IN.)	C OBLONG HEIGHT (IN.)	F - HOOK TO BEAM BOTTOM (IN.)	O - HOOK OPENING W/LATCH (IN.)	CHAIN RIGGING WEIGHT (LBS.)
2	4 / 6 6 /10 8 / 14 12 / 20	48/57 72/88 96/113 132/166	70 85 175 245	1/2	2.36	3.94	5.5	0.97	9 13 17 23
5	4 / 6 6 /10 8 / 14 12 / 20	55/64 79/95 102/126 138/172	105 160 205 670	1	5.38	7.09	8.4	1.41	34 47 61 82
10	4 / 6 6 /10 8 / 14 12 / 20	60/69 74/111 108/132 144/163	130 175 460 680	1-1/4	5.71	10.83	10.6	1.78	49 69 88 118
15	4 / 6 6 /10 8 / 14 12 / 20	64/72 87/104 111/135 147/180	165 365 478 700	1-1/2	5.90	10.5	13.6	2.22	78 111 145 194

TOP RIGGING OPTIONS

OPTION C

Chain top rigging from beam to crane hook with coupler attachment.

OPTION W

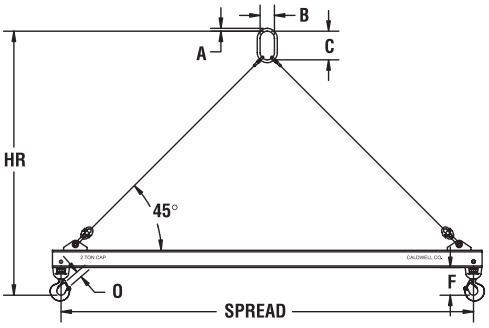
Wire rope top rigging from beam to crane hook. WR Lug required for 25-40 TON capacity beams.

SPREADER BEAMS

FIXED SPREADER BEAMS

- Ideal where headroom is not limited.
- Adds stability to lift.
- Available with standard chain or wire rope rigging.
- Wide range of additional sizes and capacities available.
- Custom spreader beam quotes available upon request. Custom spreader beam form found at http://www.northernstrands.com/spreader-beam-quote.aspx
- Complies with ASME standards.

Fixed Spreader Beam
Shown with Option C



SPECIFICATIONS

CAPACITY (TONS)	HR HEADROOM (IN.) WEIGHT (LBS.0	SPREAD (FEET)								OTHER DIMENSIONS (IN.)	
		4	6	8	10	12	16	20	24		
2	HR Headroom Weight	34 45	46 60	58 82	70 95	82 115	106 225	132 408	156 445	A = 1/2 B = 1-1/2 C = 5	F = 4-1/4 O = 31/32
5	HR Headroom Weight	37 62	49 78	61 100	73 117	82 168	110 305	134 435	158 661	A = 1 B = 3-1/2 C = 7	F = 6 O = 1-1/16
10	HR Headroom Weight	41 100	53 122	64 156	77 180	86 240	113 380	138 532	163 915	A = 1-1/4 B = 4-3/8 C = 7	F = 6 O = 1-1/2
15	HR Headroom Weight	43 126	55 155	65 185	80 242	92 270	116 420	140 665	167 953	A = 1-1/2 B = 5-1/4 C = 10-1/2	F = 9-1/4 O = 1-3/4
20	HR Headroom Weight	46 170	58 200	69 233	82 315	94 350	118 540	140 775	170 1341	A = 1-3/4 B = 6 C = 12	F = 9-3/4 O = 2
30	HR Headroom Weight		60 285	70 402	83 440	95 530	120 888	145 1390		A = 1-3/4 B = 6 C = 12	F = 9-3/4 O = 2
40	HR Headroom Weight		65 563	77 695	89 781	102 1058	127 1364			A = 2 B = 7 C = 14	F = 13 O = 2-3/4

NOTE: Weight = Beam and hooks only - (no top rigging).

TOP RIGGING OPTIONS

OPTION C

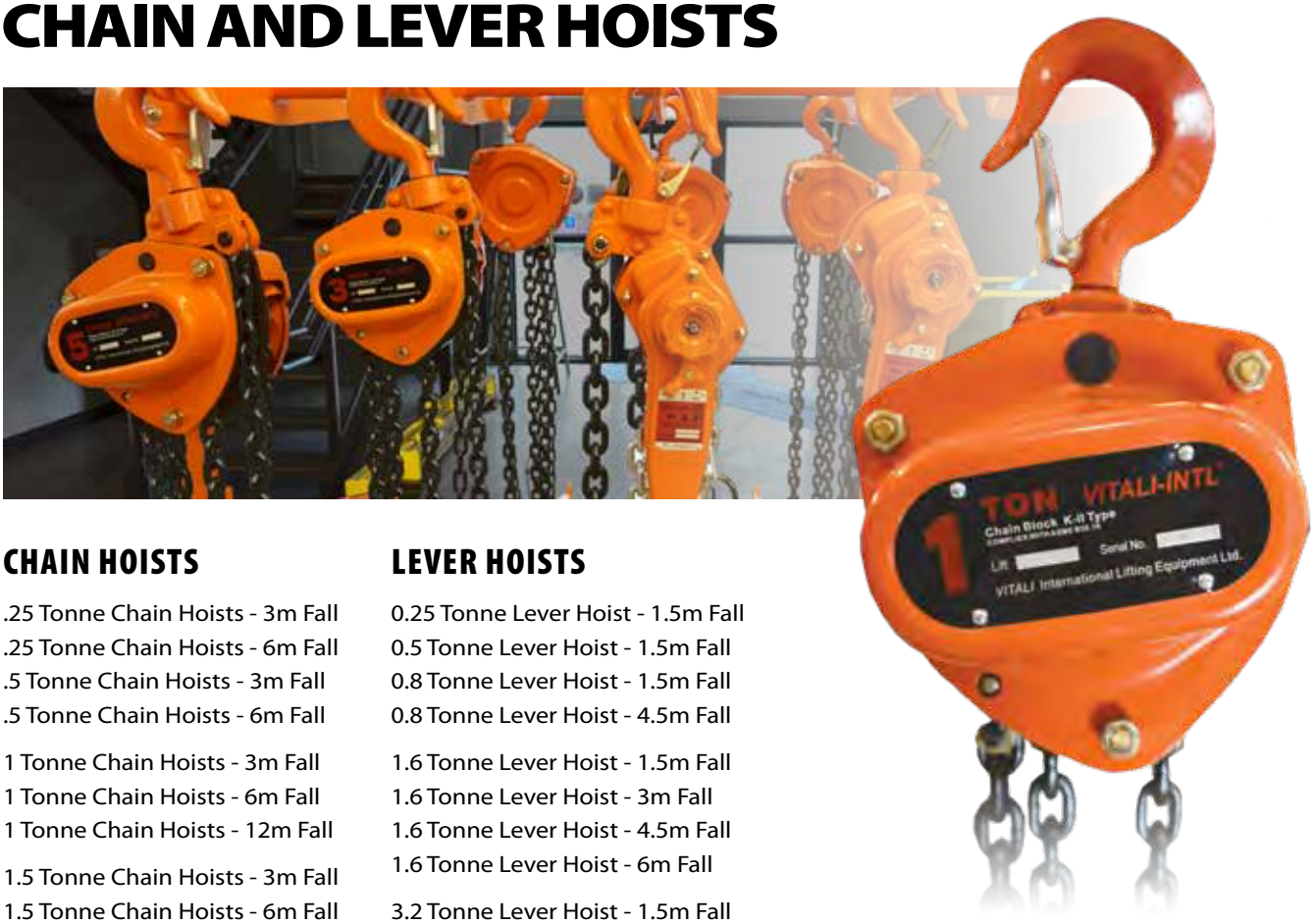
Chain top rigging from beam to crane hook.

OPTION W

Wire rope top rigging from beam to crane hook.

VITALI-INTL®

CHAIN AND LEVER HOISTS



CHAIN HOISTS

.25 Tonne Chain Hoists - 3m Fall
.25 Tonne Chain Hoists - 6m Fall
.5 Tonne Chain Hoists - 3m Fall
.5 Tonne Chain Hoists - 6m Fall

1 Tonne Chain Hoists - 3m Fall
1 Tonne Chain Hoists - 6m Fall
1 Tonne Chain Hoists - 12m Fall

1.5 Tonne Chain Hoists - 3m Fall
1.5 Tonne Chain Hoists - 6m Fall
1.5 Tonne Chain Hoists - 12m Fall

2 Tonne Chain Hoists - 3m Fall
2 Tonne Chain Hoists - 6m Fall
2 Tonne Chain Hoists - 12m Fall

3 Tonne Chain Hoists - 3m fall
3 Tonne Chain Hoists - 6m fall
3 Tonne Chain Hoists - 12m fall

5 Tonne Chain Hoists - 3m Fall
5 Tonne Chain Hoists - 6m Fall
5 Tonne Chain Hoists - 12m Fall

10 Tonne Chain Hoists - 3m Fall
10 Tonne Chain Hoists - 6m Fall
10 Tonne Chain Hoists - 12m Fall

15 Tonne Chain Hoists - 3m Fall
15 Tonne Chain Hoists - 6m Fall
15 Tonne Chain Hoists - 12m Fall

20 Tonne Chain Hoists - 3m fall
20 Tonne Chain Hoists - 6m fall
20 Tonne Chain Hoists - 12m fall

LEVER HOISTS

0.25 Tonne Lever Hoist - 1.5m Fall
0.5 Tonne Lever Hoist - 1.5m Fall
0.8 Tonne Lever Hoist - 1.5m Fall
0.8 Tonne Lever Hoist - 4.5m Fall

1.6 Tonne Lever Hoist - 1.5m Fall
1.6 Tonne Lever Hoist - 3m Fall
1.6 Tonne Lever Hoist - 4.5m Fall
1.6 Tonne Lever Hoist - 6m Fall

3.2 Tonne Lever Hoist - 1.5m Fall
3.2 Tonne Lever Hoist - 3m Fall
3.2 Tonne Lever Hoist - 4.5m Fall
3.2 Tonne Lever Hoist - 6m Fall

6.3 Tonne Lever Hoist - 1.5m Fall
6.3 Tonne Lever Hoist - 3m Fall
6.3 Tonne Lever Hoist - 4.5m Fall
6.3 Tonne Lever Hoist - 6m Fall

9 Tonne Lever Hoist - 1.5m Fall
9 Tonne Lever Hoist - 4.5m Fall

***Custom lifts available. 30 and 50 tonne available upon request.**

Did you know?

Chain and Lever hoists are used regularly by agriculture, automotive, construction, manufacturing and mining industries. Hoists have thousands of uses, from lifting vehicle engines to steel erection.

Vitali International offers easy to use lever and chain hoists of the highest quality at affordable prices. These benefits combined with fast local service make Vitali-Intl hoists the perfect choice for all your material handling needs.

VITALI-INTL®

CHAIN HOISTS

We have the right Hoist for your job.

STANDARD FEATURES


#21


#21A

- Seal type caged ball bearings #21 & #21A on load sprocket
- Seal type caged ball bearings #21B & caged roller bearings #31B on the pinion shaft (minimize manual effort thanks to efficient drive train)


#31B

- Superior design of top hook holders for double / several columns of load chains
- Experience exceptional durability thanks to all-steel construction featuring rugged gear case enclosure and handwheel cover
- Enjoy increased lifting height thanks to low headroom
- Grade 100 heat-treated black finish load chain
- Reinforced double pawl brake system and larger dia. pawl springs ensure reliable brake

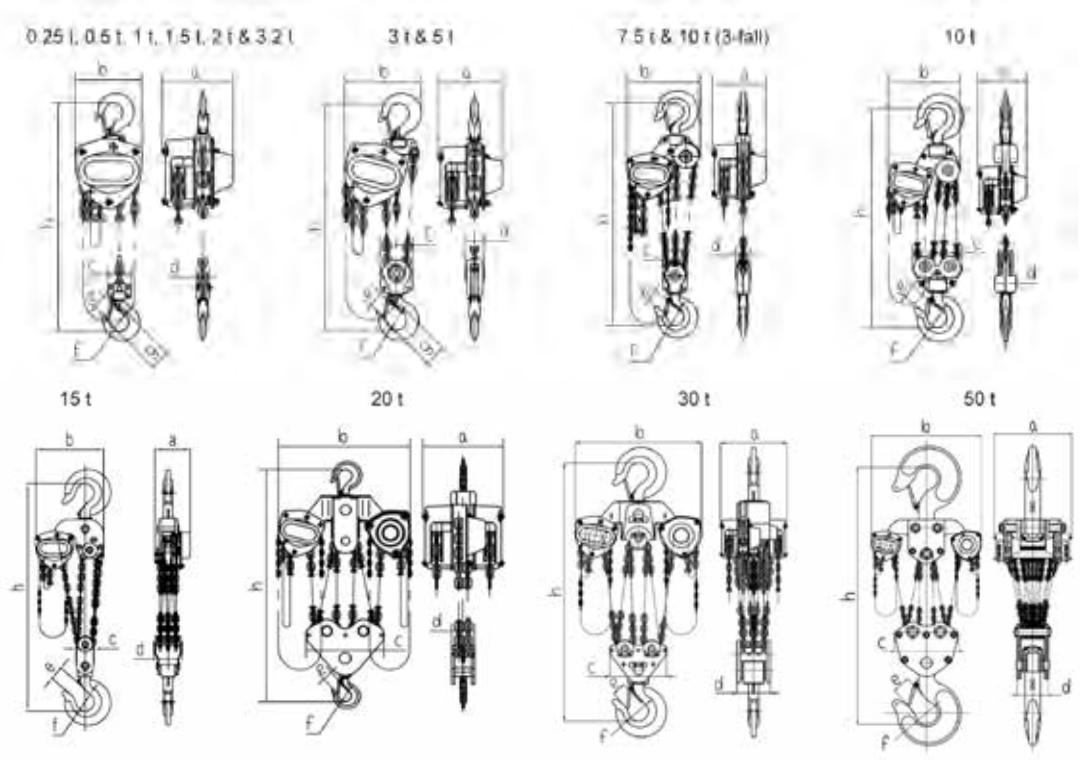
OPTIONAL FEATURES


#18

- Overload protection system
- Patent fused brake disc
- Thrust bearings in bottom hook assembly
- Easy removable top hook

VITALI-INTL®

CHAIN HOISTS



Capacity		(tonnes)	1	1.5	2	3	5	10	15	20	30	50
Model No.			K100	K150	K200	K300	K500	K1000	K1500	K2000	K3000	K5000
No. of Falls			1	1	1	2	2	4	6	8	12	20
Load Chain		(mm)	6.3 x 19	7.1 x 21	8 x 24	7.1 x 21	9 x 27	9 x 27	9 x 27	9 x 27	10 x 28	10 x 28
Load Chain Grade			100	100	100	100	100	100	100	100	100	100
Pull to Rated Load		(N)	284	343	353	353	333	353	363	353 x 2	345 x 2	345x 2
Proof Load		(tonnes)	1.5	2.25	3.0	4.5	7.5	15.0	22.5	25.0	37.5	62.5
Hand Chain		(mm)										
Standard Lift		(m)	3	3	3	3	3	5	5	5	5	8
Net Weight		(kg)	12.4	15.6	20	24	41	94.9	153	205	284	-
Gross Weight		(kg)	12.9	16.4	21	24.8	42.5	105	166	219	301	-
Extra Wt. per m		(kg)	1.8	2.1	2.3	3.2	4.4	7.9	11.4	15.8	29.3	46
Dimensions	a	(mm)	161.5	170	183.5	170	192	192	220	230	360	585
	b	(mm)	161	182	202.5	235	282	360.5	492	655	680	832
	c	(mm)	51	64	64	106	133	263	110	286	306	482
	d	(mm)	30	34	34	53	64	95	170	123	180	235
	e	(mm)	33	33.5	37	43.5	51	64	80	82	82	133
	f	(mm)	40	42	46	52	60	85	100	110	110	170
	g	(mm)	45	47	52	62.5	79	-	-	-	-	-
	h	(mm)	295	350	375	510	600	760	1,000	1,150	1,250	1,700

Custom chain lengths available. 30t to 50t available upon request.

VITALI-INTL®

LEVER HOISTS

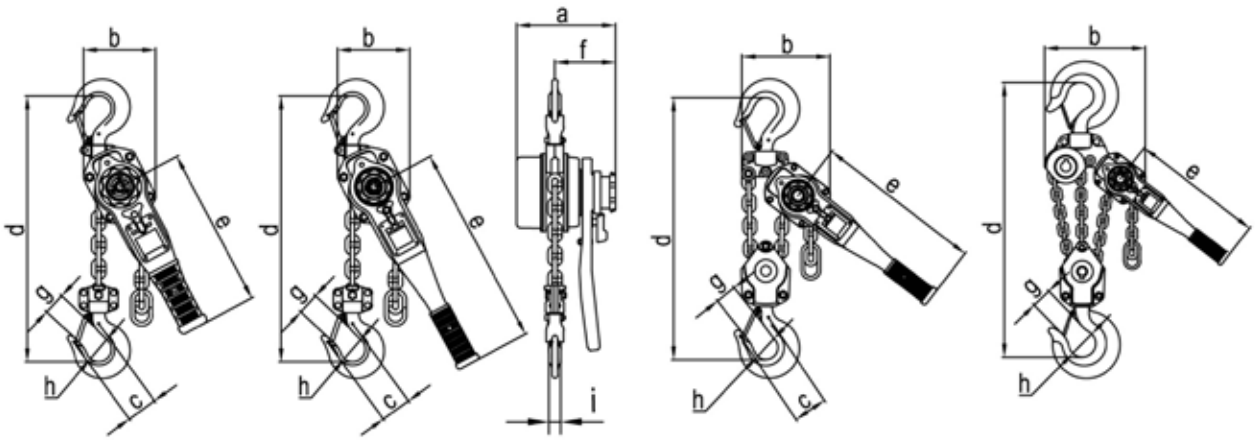
We have the right Hoist for your job.

MAIN FEATURES

- More compact, very robust but light weight, short lever handle and low headroom.
- Grade 100 heat-treated black finish load chain.
- Interchangeable parts for standard and overload protected hoist.
- Reasonable pulling force to rated capacity.
- Unique hand wheel & knob design.
- No preload required.
- Innovative & patent fused brake disc.
- Heavy duty cast latches.
- Improved hook tip design.
- Caged roller bearings on load sprocket.
- Phosphoric surface treatment for the #3 driving shaft.
- Sizes range from .25, .5, .8, 1.6, 3.2 6.3, and 9 tonnes.

VITALI-INTL®

LEVER HOISTS



Capacity		(tonnes)	0.25	0.5	0.8	1.6	3.2	6.3	9
Model No.			KX025	KX050	KV008	KV016	KV032	KV063	KV090
No. of Falls			1	1	1	1	1	2	3
Load Chain		(mm)	3.2 x 9	4.3 x 12	5.6 x 15.7	7.1 x 19.9	10 x 28	10 x 28	10 x 28
Pull to Rated Load		(N)	223	324	215	304	372	382	392
Proof Load		(tonnes)	.375	.75	1.2	2.4	4.8	9.5	13.5
Standard Lift		(m)	1	1.5	1.5	1.5	1.5	1.5	1.5
Net Weight		(kg)	1.45	2.5	5.7	8.0	13.6	26.0	40.0
Gross Weight		(kg)	1.65	2.7	6.1	8.5	14.2	26.6	46.5
Extra Wt. per m		(kg)	0.22	0.37	0.7	1.1	2.3	4.7	7
Dimensions	a	(mm)	87	100.5	146	164	196	196	196
	b	(mm)	68	81	119	126	159	218	298
	c	(mm)	200	250	41.5	52	61.9	84.3	-
	d	(mm)	145	160	280	335	395	540	680
	e	(mm)	55.5	62.5	245	265	415	415	415
	f	(mm)	35.5	42	96	100	114	114	114
	g	(mm)	21	24.5	26.5	35.5	43	53	64
	h	(mm)	32	34.5	35.5	42.5	50	60	85
	i	(mm)	11	12	14	19	24.5	34	40

VITALI-INTL®
HAND WINCH

Backward & Forward lever – placed in tandem providing a slim design and assuring power transfer along the center.

Built-in shearing pin – prevent overload. It functions at approx. 25% overload. The pins can be replaced without removing the load.

Safety pin – fastens the anchor bolt.

Anchor bolt – offers numerous and versatile connection possibilities with load hooks, sling ropes and sling chains.

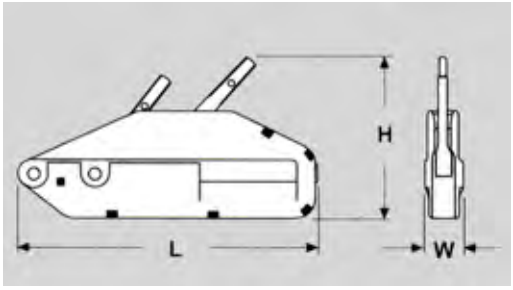
Spare shear pins – Two pieces of spare shear pins located in the carrying handle.

Rope clamp system – easily disengaged with a lever allowing smooth installation of the wire rope.

High strength cast aluminum alloy body – Light weight, simple to operate. Smooth contour design with large, flat bottom surface for increased stability in horizontal as well as vertical working position.

Stamped serial number– for easy identification

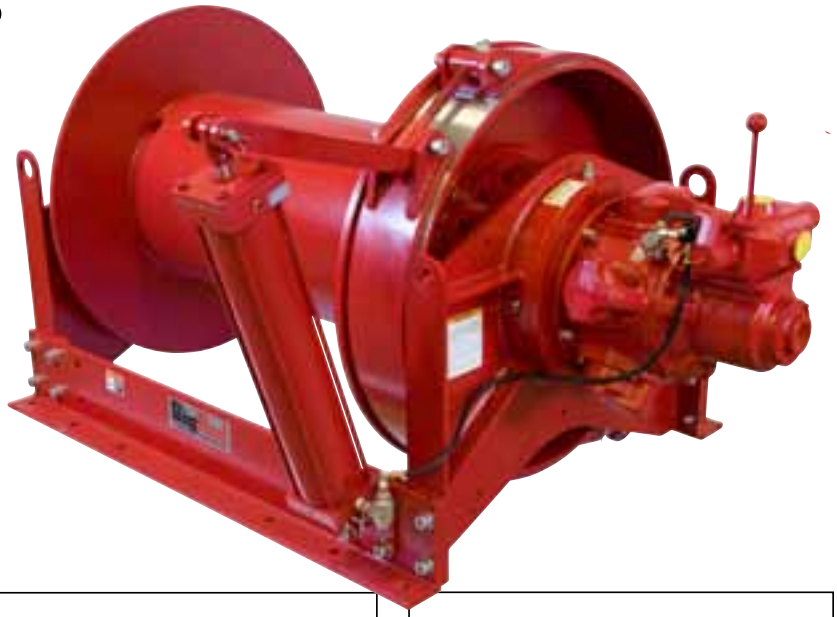
Galvanized steel wire rope mounted on a reel – Every rope is operationally tested to 150% of the rated capacity and is issued with an individual test certificate.



MODEL NO.		YAL008	YAL016	YAL032
Lifting Capacity (Rated Load)	(tonnes)	0.8	1.6	3.2
*Pulling Capacity	(tonnes)	1.2	2.4	4
Lever Pull at Rated Load	(N)	284	412	441
Forward Travel	(mm)	52	55	28
Wire Rope Diameter	(mm)	8.3	11	16
Net Weight (Body)	(kg)	6.4	12.4	23.3
Net Weight (20 metres Wire Rope)	(kg)	7	11.5	23.5
Net Weight (Lever Handle)	(kg)	1.15	2.5	2.5
Dimensions (Body) L x W x H	(mm)	440 x 70 x 255	560 x 100 x 295	675 x 120 x 350

***Observe local regulations**

THERN WINCHES



Northern Strands carries all types of Thern winches

POWER WINCH

AIR WINCH

WORM GEAR

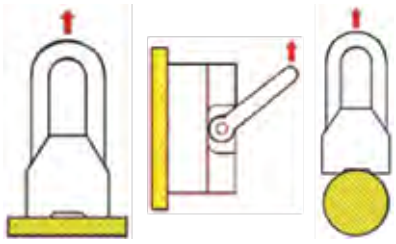
SPUR GEAR

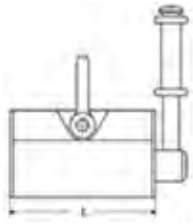
RAIL CAR PULLING

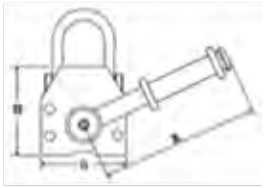
These products are not for lifting people or things over people.

FLCL-0916

PERMANENT MAGNET LIFTER







- Standard: EN 13155
- Finish: Painted Yellow, Zinc
- Identification: Trademark, WLL, Serial No.
- Cerification: Load Test

HORIZONTAL LOAD CAPACITY (KG)	HORIZONTAL [MAX.] BREAKAWAY FORCE (KG)	ROUND BAR OR VERTICAL CAPACITY (KG)	Dimensions (mm)				WT. (KG)
			L	B	H	R	
4 600	5 700	9/32 - 5/16	0.39	0.94	0.51	1.26	1.2
7 000	8 800	3/8	0.47	1.22	0.55	1.57	2.3
12 000	15 000	1/2	0.63	1.46	0.71	2.01	4.8
18 100	22 600	5/8	0.75	1.89	0.94	2.52	9.7

- Do not use this lifting device above the working load limit for the application, this information is attached to each magnet.
- Operating temperature maximum 80°C.
- Other sizes available on request.

PERMANENT MAGNET LIFTER

WARNINGS AND APPLICATION INSTRUCTIONS

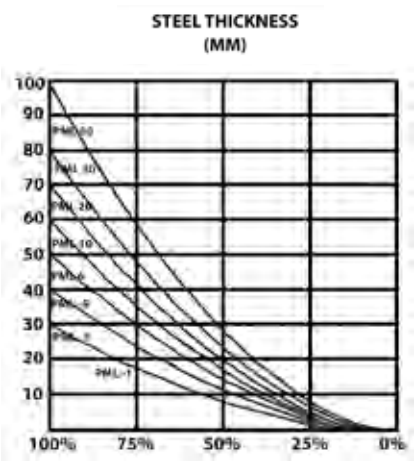
Prior to operation, clear away rust and any debris from the components surface. The centerline of lifter must overlap with centerline of component then place the magnetic lifting hoist on the face of component, turn the handle from "OFF" to "ON" and confirm unit is holding. Make sure the security key on the handle is automatically locked, and then start to hoist for trial lift.

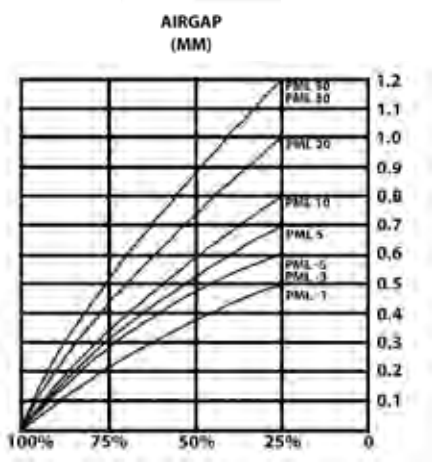
Air Gap – These lifting magnets create high magnetic forces which permit the magnet to clamp materials through the air gap but these air gaps do however decrease the magnetic performance due to the fact that they provide a barrier between the contact surfaces. Air gaps can happen in a variety of ways, such as dust, paint, and mill scale. Inadequately machined surfaces will also make up an air gap. The lifting magnet will need to be down rated in capacity according to the adhesive force / air gap as shown in the diagram below.

Material Thickness – When lifting magnets are used to lift materials which are thinner than the recommended minimum thickness, the clamping force of the magnet will be considerably lower. See below diagram for detailed information.

Full lifting capacity is only achieved when the lifting magnet has complete contact with the item being lifted. Performance will be affected if the surface of the materials to be lifted contains holes or is uneven. A trial lift must be carried out in these situations to establish correct lifting prior to transporting the load. Some materials will have differing abilities to carry magnetism. Apart from mild steel, a reduction factor needs to be applied so that the clamping force can be effectively calculated.

MODEL	FLAT MATERIAL			ROUND MATERIAL			TEAR OFF FORCE
	MAXIMUM CAPACITY SWL	MIN. THICKNESS	MAX. LENGTH OF MATERIAL	MAXIMUM CAPACITY SWL	DIAMETER	MAX. LENGTH OF MATERIAL	
	(KG)	(MM)	(MM)	(KG)	(MM)	(MM)	(KG)
PML-100	100	30	2000	30	200-300	2000	350
PML-300	300	40	2500	100	200-300	2500	1050
PML-600	600	50	3000	200	200-400	3000	2100
PML-1000	1000	60	3500	300	200-400	3500	3 500
PML-2000	2000	70	3500	600	200-400	3500	7000





REDUCTION OF CAPACITY FOR MATERIAL TYPE	% OF CAPACITY
Temperature < 80°C 100%	(tonnes)
Humidity < 80% 100%	(tonnes)
Low Carbon Steel 100%	(N)
St 52 95%	(mm)
Alloy Steel 80%	(mm)
High Carbon Steel 70%	(kg)
Cast Iron 45%	(kg)
Nickel 45%	(kg)
Austenitic Stainless Steel 0%	(mm)
Brass 0%	(mm)
Aluminium 0%	(mm)

*** Read and understand Operating Instructions
(supplied with every unit) before using this product***

FALL PROTECTION EQUIPMENT

Fall Protection

At Northern Strands we carry all types of fall protection equipment and accessories for retail sale:

- **Harnesses**
- **Lanyards**
- **Self-retracting lifelines**
- **Anchorage Connectors**
- **Fall protection/roofer kits**
- **Rooftop anchors**
- **Miners belts**
- **Tool fall protection**
- **Lifelines**
- **Cushion Slings**
- **Suspension and Tie Back Cables**

Northern Strands is a retailer of the most trusted fall protection equipment brands in the industry. Our suppliers include:

- **Miller Fall Protection**
- **Capital Safety**
- **DBI Sala**

FALL PROTECTION PRODUCTS

Fall Protection Kit
Roofer Fall Praotection Kit with 50' Lifeline

O' Ring
- Fall Protection O' Ring 2-5/16" x 3/8"
- Fall Arrest O' Ring 3-1/8"

Anchorage Connector
- 3/4"

Roof Anchor Single D-Ring Permanent c/w nails

Miners Belt
- XL, Large, Medium, Small

D-Ring Extension Protecta 18" comes with D-Ring OE Snap Hook OE

Kwiklock Carabiner

Automatic Dorsal Panic Rope Grab for 5/8" Poly Steel Lifeline

3M™ PROTECTA® - PRO™ Pack Shock Absorbing with Rebar Hook E6 Lanyard, 6ft

FALL PROTECTION PRODUCTS

3M™ PROTECTA® - PRO-Stop™ Shock Absorbing Lanyard with Rebar Hook, 6ft

Pro-Pack Shock Absorbing with Rebar Hooks E6 Lanyard, 4ft

3M™ Protecta® - PRO™ Pack 100% Tie-Off Shock Absorbing Double Leg with Rebar Hooks Lanyard, 6ft

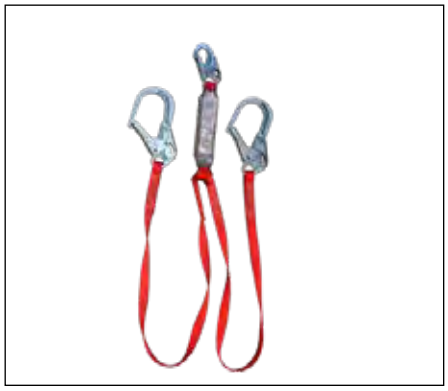
3M™ Protecta® - PRO Pack 100% Tie-Off Shock Absorbing Double Leg with Snap Hooks Lanyard, 4ft

3M™ PROTECTA® - PRO™ Pack Shock Absorbing with Rebar Hook Lanyard, 4ft

Pro-Pack Shock Absorbing Snap Hook E4 Lanyard, 4ft

3M™ PROTECTA® - PRO-Stop™ Shock Absorbing with Rebar Hook Lanyard, 4ft

3M™ PROTECTA® - PRO-Stop™ Shock Absorbing Snap Hook Lanyard, 6ft



3M™ Protecta® - PRO™ Pack 100% Tie-Off Shock Absorbing Double Leg Rebar Lanyard, 6ft

FALL PROTECTION PRODUCTS

Tool Lanyard - Spring Carabiner & Adjustable Loop

3M™ PROTECTA® Rebel™ - Self Retracting Lifeline

• 50 ft., 33 ft. Cable lengths.

3M™ PROTECTA® Rebel™ - Self Retracting Lifeline

• 20 ft., 10 ft. Cable lengths.

3M™ Protecta® - Vest-Style Harness with Back D-Ring, XL, Large and Medium

3M™ Protecta® - Vest-Style Harness with Back D-Ring, Small

Grain Bin Fall Protection System - Bin Safe User Kit (available in XL)

Grain Bin Fall Protection System

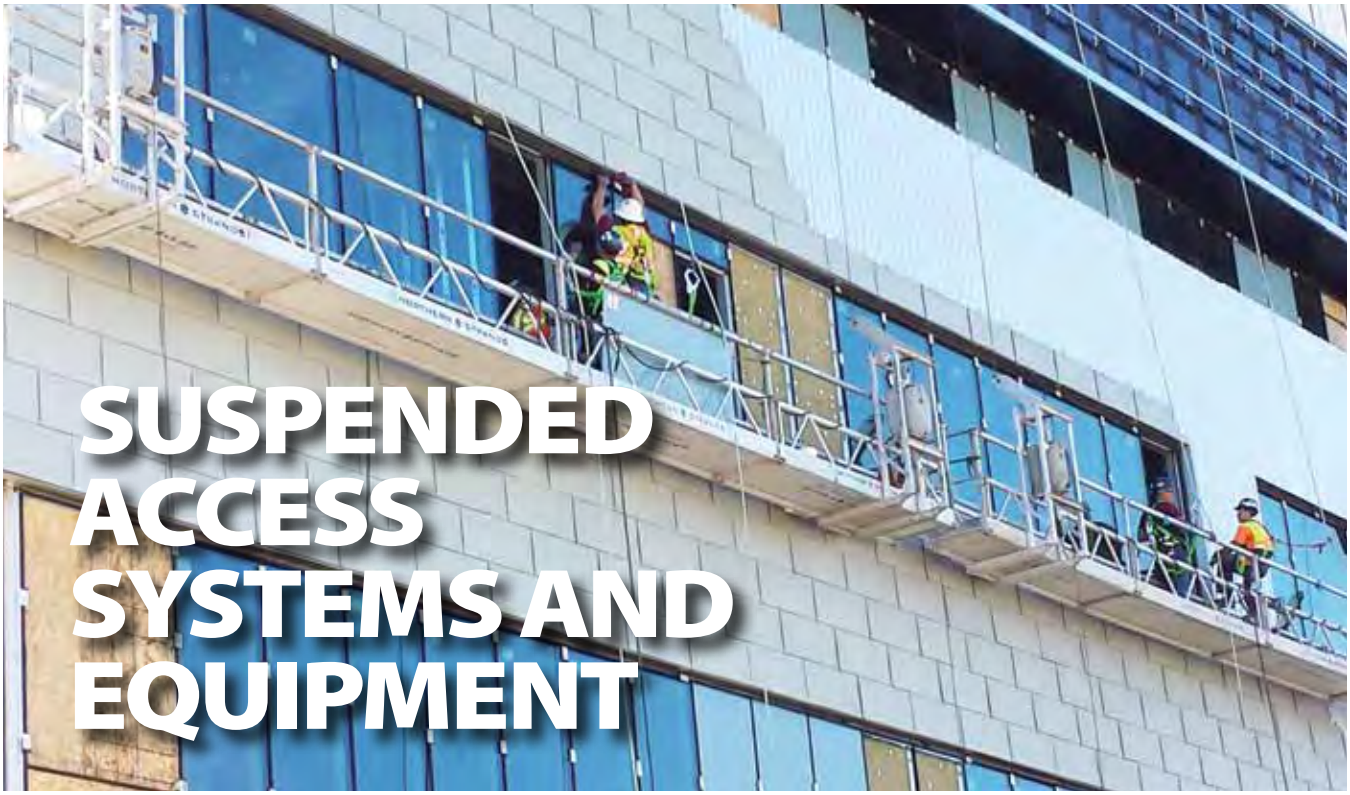
- Bin Safe, Smooth Wall Bin Kit, 40', 60' and 80' length Wire Rope

Grain Bin Fall Protection System

- Bin Safe, Corrugated Wall Bin, 40', 60' and 80' length Wire Rope

Grain Bin Fall Protection System

- Bin Safe, Blind Bolt Corrugated Bin Kit, 40', 60' and 80' length Wire Rope



SUSPENDED ACCESS SYSTEMS AND EQUIPMENT

Northern Strands offers the largest rental fleet of suspended access equipment in Saskatchewan and Manitoba. Northern Strands' Suspended Access Division rents and sells swing stages, specialized work platforms, lifting systems, and material handling solutions. We offer standard swing stage configurations along with specialized platforms and lifting systems such as wind turbine maintenance solutions.

SERVICES & EQUIPMENT

- Suspended access training.
- On-site technical assistance with all rigging and setup ranging from basic to highly engineered setups.
- Material hoisting solutions.
- All equipment goes through a rigorous inspection and recertification process before it leaves our shop to ensure that our equipment will provide the most dependable solution.
- Our solutions have been used on sloped roof buildings, glazing applications, sheeting, insulation and concrete restoration, in the surface and underground mining sector along with many other uses throughout Western Canada and Ontario.
- Northern Strands highly trained technicians are periodically trained to keep up to date with the equipment manufacturers' changes and upgrades to enable us to be leaders in the industry.
- We are fully commited to provide the best on-site services and support to all of our customers.
- All Lifelines and Suspension cables are fabricated and tested in house.

SUSPENDED ACCESS PLATFORMS

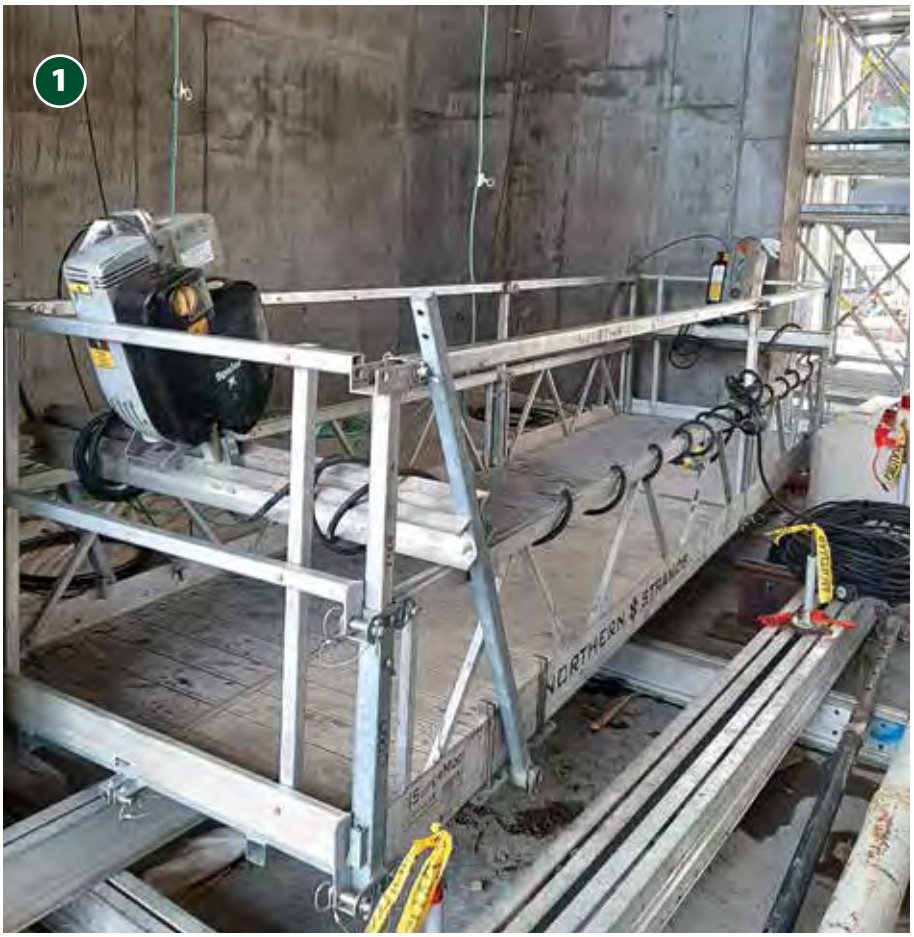
Using modular components, Northern Strands can assemble any length you need, from 1M to 19M.

1. *MANUAL 2 METER MODULAR SUSPENDED ACCESS PLATFORMS*
2. *2 METER MODULAR SUSPENDED ACCESS PLATFORMS*
3. *1M RETURN SUSPENDED ACCESS PLATFORM*
4. *INCLINE SUSPENDED ACCESS PLATFORM ON SLOPED ROOF*

NARROW AND EXTRA-WIDE SUSPENDED ACCESS PLATFORMS

Call us for a consultation if you have special size requirements.

1. *DOUBLE-WIDE SUSPENDED ACCESS PLATFORMS*



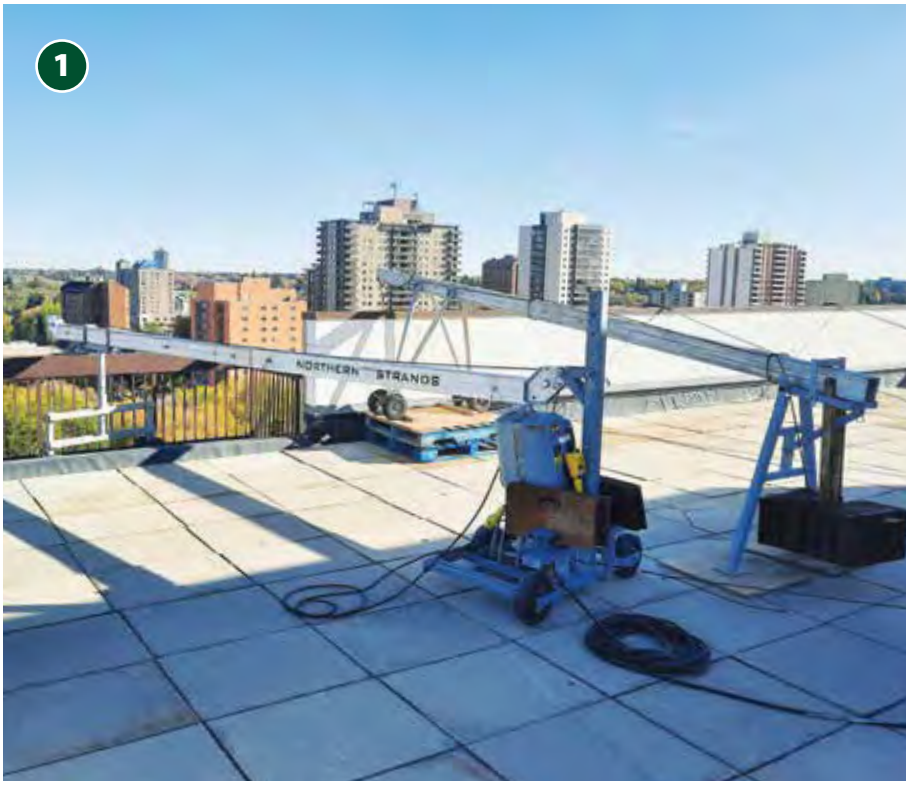
CONFINED SPACE PERSONNEL BASKETS

We have folding work baskets that can fit into as little as a 21" opening, and can still accommodate 2 workers.

1. *1 METER WORK BASKETS*
2. *BOSUNS CHAIR*
3. *FOLDING ALUMINUM 2 PERSON WORK CAGE*

ROOFTOP HOISTING SOLUTION

1. *HOISTING BEAM ASSEMBLY*



SUSPENDED ACCESS RESCUE PLAN & EQUIPMENT

Rollgliss 550 Rescue and Descent Device

Northern Strands can work with clients to develop rescue plans. In addition, we can rent customers the needed rescue equipment.

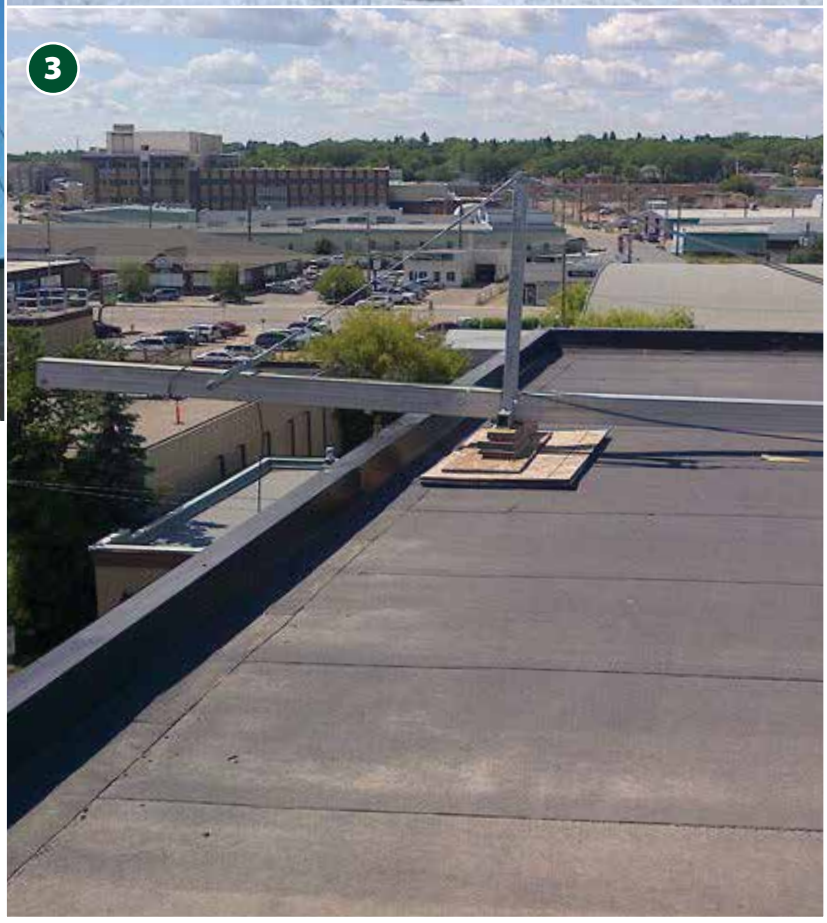
SUSPENDED ACCESS RIGGING

1. *LIFELINES*
2. *CUSHION SLINGS*
3. *SUSPENSION AND TIE BACK CABLES MADE IN HOUSE WITH CERTIFICATION DOCUMENTS SUPPLIED*

SUSPENSION SYSTEMS

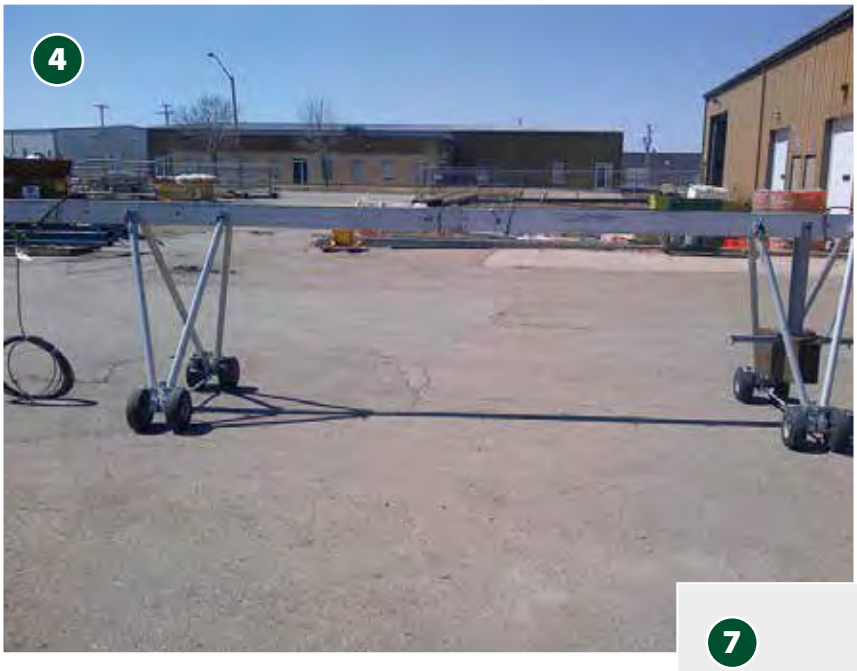
We have an array of custom davits, extended reach and rolling outrigger beams, and portable rigging solutions to assist you with any non-standard rigging requirements.

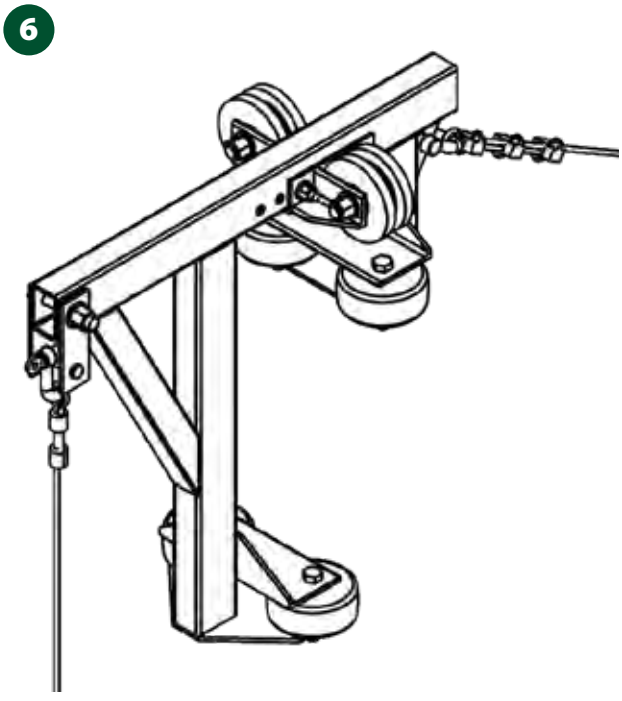
1. *PARAPET CLAMP*
2. *ROLLING DAVIT OUTRIGGER*
3. *CABLE TRUSS*

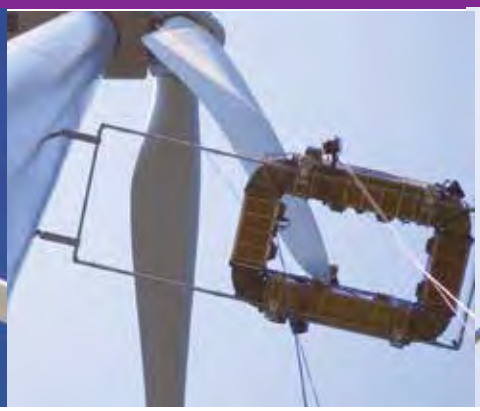


SUSPENSION SYSTEMS (CONT.)

4. *ROLLING OUTRIGGER*
5. *THROUGH HOLE SUPPORT*
6. *TANK HOOK*
7. *ANGEL WING BASKET*






BLADE ACCESS PLATFORM (BAP)

NORTHERN STRANDS SPIDER MODULAR PLATFORMS HELP YOUR INVESTMENT GO FARTHER

For blade inspection and repair operations, suspended platforms offer a safe, productive, and cost-effective alternative to cranes and ground-based lifts.

- Easy to transport
- Universal solution
- Reconfigure for blade inspection or tower access
- Minimal crew required to operate
- US-made and sourced, easy spares and aftermarket support
- Simple operation and safety features, to improve productivity and reduce downtime

BAP 360° TRAILER

Upgraded Lonestar Trailer

- 2 x 7500 lb. axles
- Deck 20′ x 7′
- Plank 2″ x 8″
- Nylon slides where steel + aluminum meet
- Generator – MG Power GAC 9.7 hp
- 3 tool boxes – spill kits, power cords, transformer boxes, haul lines, tag lines
- Battery for generator
- Hoist cables and power cords
- Miscellaneous rigging
- Lockable storage
- Fire extinguishers

TRAINING

Why Train with Northern Strands?

Northern Strands offers a multitude of safety training courses for construction, mining and agricultural industries. We have the ability to provide flexible on-site training. Please call us to discuss booking training for dates that are not listed in our online calendar. Our seminars are taught by knowledgeable and experienced instructors who hold several accreditations from industry leaders such as Crosby, Capital Safety, Honeywell, and Occupational Health and Safety.

Northern Strands Training Seminars offer the most up-to-date information on the topics they discuss, and can be delivered on a tight schedule with courses like the 40 hour Overhead Crane course which can be completed in four 10 hour days or five 8 hour days. Northern Strands is able to accommodate these training seminars on-site, provided a suitable work area is available, or at one of Northern Strands' facilities.

The Courses offered are:

- **Fall Arrest**
- **Overhead Crane**
- **Crosby® Rigging**
- **Below the Hook Rigging Training**
- **Winch Safety**
- **Wirelock® Socketing**
- **Suspended Access Equipment**

FALL ARREST TRAINING

"Competent" means possessing the knowledge, experience and training to perform a specific duty, and Northern Strands can provide the training you need in order for you to be deemed a competent fall arrest user in Saskatchewan!

Northern Strands Fall Arrest Training:

- **Trains you on Saskatchewan's fall arrest legislation.**
- **Informs you of new products and CSA standards.**
- **Properly addresses suspension trauma, which can save your life.**
- **Gives hands-on training on harness donning and inspection techniques.**

Northern Strands training offers an industry-approved fall arrest course that can be completed in less than 8 hours with experienced users.

Students will have an opportunity to experience hanging in a harness and will be issued suspension trauma relief straps as part of the course.

After completing the course you will be issued a Fall Arrest training certificate, valid for three (3) years.

OVERHEAD TRAVELING CRANE

Northern Strands Overhead Traveling Crane Operator Course (40 hrs)

If you are about to or currently are operating an Overhead Traveling Crane less than 50 tonnes (110,000 lbs.) in capacity, you are required to be a competent crane operator by the Occupational Health and Safety Regulations, 1996. In order to be officially 'competent', an overhead crane operator must either have completed or be in the process of completing a training program that follows the guidelines of Table 13 in the Appendix of the OH&S Regulations.

As such Northern Strands is now offering a training program that meets and exceeds the training criteria of Table 16. Northern Strands Overhead Crane course covers:

- **The regulations pertaining to cranes.**
- **Different types of cranes and their applications.**
- **Performing site evaluations.**
- **The Pros and Cons of both VFD crane controls and direct drive controls.**
- **Maintenance procedures and log book requirements.**
- **40 hours of combined classroom and practical training.**

The overhead traveling crane course also includes a rigging course that emphasizes hands-on learning and includes:

- **Rigging inspection.**
- **Load estimation.**
- **Signaling procedures.**

As with all of our other course offerings, Northern Strands 40 hour Overhead Traveling crane course can be taught on-site or at one of our facilities upon request. If you or your employees are operating an overhead traveling crane less than 50 tonnes in capacity, Northern Strands Training can provide you with competent operator training!

CROSBY RIGGING SEMINARS

Recognized as an industry leader when it comes to high performance rigging hardware, the Crosby® Group also offers training on how to effectively use their products. Northern Strands is an authorized provider of Crosby® Rigging Training.

Crosby® Rigging Training:

- **Details proper inspection of slings and rigging hardware.**
- **Instructs you on Industry best practices for safe rigging.**
- **Includes lessons on load estimation/calculation.**
- **Teaches you about hidden load forces that must be accounted for in every lift.**

Northern Strands' knowledgeable instructor is also able to consult with you on some of the more general or site-specific rigging questions you may have at your workplace.

After completing the course you will be issued a Crosby Rigging training certificate, valid for four (4) years.

BELOW THE HOOK RIGGINIG

A combination introductory/intermediate level training program, below the Hook Rigging details and expands on the concepts from the ASME B30.9, B30.10, and B30.26 volumes as well as Part XIV of The Occupational Health and Safety Regulations, 1996. This program is geared toward workers in Saskatchewan, offers a diverse set of hands on exercises and also serves as 8 of the required 40 hours as per the Table 13 Minimum Training Requirements for Competent Operator of a Crane.

Overview of course topics:

- **Rigging Safety –** recommended delineation, PPE use, inspection intervals, hand signals, tagline requirements, critical lifts.
- **Working Load Limit –** definition, commonly used safety factors in rigging, ultimate loads, wire rope termination efficiencies.
- **Rigging Forces –** determine load weight using volume, calculate location of Centre of Gravity and effect of angular rigging tension.
- **Slings –** sling configurations (hitches) and their effect on working load limits, application, limitations of use, and inspection guidelines for all common sling types.
- **Hardware –** application, limitations of use, and inspection guidelines for shackles, hooks, links/rings, turnbuckles, eye bolts, swivel hoist rings, fist grip/u-bolt clips and wedge sockets.
- **Load Handling –** application, limitations of use and inspection guidelines for snatch blocks, multi-part line blocks, lever hoists, chain falls and plate clamps.

The course duration is typically a very full 8 hour day; certificates issued are valid for 3 years.

AIR WINCH SAFETY TRAINING

Northern Strands Air Winch Safety Training offers you a one-of-a-kind course. Unbeknownst to most, Saskatchewan OH&S regulations require that anyone operating a hoist, crane or other lifting device must be trained in the use of that device. [section 204(6)]

Air Winch Safety Training:

- **Teaches you how to properly and safely anchor a air winch in a variety of foundations.**
- **Instructs you on the methodology and importance of pre-use inspections.**
- **Provides you with effective communication tools.**
- **Contains a review of important rigging concepts.**

The Air Winch Safety Training course also contains a practical hands-on demonstration where you will receive training on rigging up and using a pneumatic tugger.

The Air Winch is then used to demonstrate the dynamics of anchor point and sling loading.

After completing the course you will be issued an Air Winch Safety training certificate, valid for three (3) years.

WIRELOCK® SOCKETING SEMINARS

Wirelock® socketing compound has been the best solution for the safe, dependable and high performance termination of wire ropes for over 60 years.

Northern Strands' Wirelock® Socketing Seminar is designed for anyone who is or will be required to terminate wire rope using Wirelock® resin and socket style terminations.

Northern Strands Wirelock® Socketing Seminar:

- **Provides you a Wirelock® manual that is integral to pouring a socket.**
- **Gives a brief theory session - a majority of the course is hands-on.**
- **Instructs on the proper application of Wirelock® Socketing compound.**
- **Proves the efficiency of your sample sling via destructive pull testing in our state of the art test bed.**

Northern Strands is able to accommodate this training seminar on-site, provided a suitable work area is available, or at one of Northern Strands' facilities.

SUSPENDED ACCESS EQUIPMENT TRAINING

Suspended Access work can be extremely hazardous without proper training and knowledge. Luckily, Northern Strands' Suspended Access training will make sure you are prepared to work safely with this equipment.

Suspended Access Equipment Training:

- **Instructs on anchor strength requirements.**
- **How to pre-plan any of your suspended access jobs.**
- **Includes inspection techniques for your equipment.**
- **Reviews your basic fall arrest requirements.**
- **Informs you of the rights you have when working with suspended access equipment.**
- **Teaches the correct method of installing outrigger beams.**

The course also gives hands-on guidance of the assembly and use of a suspended platform.

Upon successful completion of the course, you will be issued a certificate from Northern Strands that is valid for three (3) years.

TRAINING FAQs

I notice you are Saskatchewan based. Do you offer out of province training?

- Yes, we offer out of province training. In fact, we have run training courses internationally. i.e. Wirelock Socketing in Peru and Mongolia. Please contact us to discuss potential training in your region.

I'm not sure what courses my employees need. How do I find out what courses are required?

- Contact us and one of our Trainers can help you pick the right courses for your employees. Our Trainers are well versed in Saskatchewan health and safety laws and requirements. We are more than happy to meet at your place of business and do a training assessment if need be.

I can't send my employees away from work for training. Will you train on site?

- Yes, training at a third party location is always an option.

How much does each course cost?

- The cost of each course can vary depending on a number of factors. The number of people and location can affect the cost. A discount is possible for a large group. Please contact us to discuss individual course costs.

Where can I buy my rigging or fall arrest equipment after completing the courses?

- Northern Strands has multiple divisions that can supply our trainees with all the equipment they need. Our Rigging division sells a wide variety rigging and fall arrest equipment, including; wire rope, shackles, hoists, harnesses and lanyards. Plus we have a Fall Protection division that installs commercial Fall Protection Systems. We use, sell and install the equipment we train people on how to use!

Did You Know?

You can be fined as much as $250 dollars for failing to use provided personal protective equipment?

AND

Employers can be fined as much as $1000 dollars for not ensuring that workers are using a fall protection system where they may fall three metres or more?

These are examples of fines that can be issued under Saskatchewan's Summary Offence Ticketing program, which was created to help lower workplace incidents.

The leading causes of workplace incidents are:
- **Complacency**
- **Lack of maintenance or inspection, or**
- **Lack of training.**

If workers or employers are not aware of the correct safety procedures, how can they be expected to follow them? This is why effective training is the cornerstone of workplace safety.

Accidents causing serious harm or death are devastating; adding to that devastation is the fact that every person who is guilty of an offence that causes the death of or serious injury to a worker is liable for a fine up to $500,000 under section 3-79 of the Saskatchewan Employment Act.

Don't be caught unaware, call us to book a consultation or training today!

ENGINEEERED FALL PROTECTION SYSTEMS

INSTALLATIONS & INSPECTIONS

Installations

We install the products that we sell. Northern Strands' installers are trained and certified by the manufacturer.

Recertifications

We can look at your existing system – even if we did not install it – and can inspect and recertify it or recommend a solution that better meets your evolving needs.

Orientation

Your end-users will be oriented on using the system so they use it the way it was intended. Safety is the first priority.

Fall Protection Systems and Soft good inspections

We perform fall protection soft good inspections as well as full system inspections. Northern Strands sends reminders to customers when annual inspections are due. Inspections are conducted by competent personnel under the direction of our engineering department. All inspections are done in compliance with OH&S regulations and CSA standards.

Lifting Device Certification

- Lifting device inspection, testing and certification on gin poles, chicago booms, monorails, bridge cranes, and other hoisting devices
- Validate working load limits on existing equipment
- Recertification of equipment

CONSULTING

Site Assessments

Northern Strands will conduct an assessment of your site.

We will identify fall hazards and recommend suitable, cost effective solutions.

Custom-Designed Solutions

We can provide you with a custom-designed solution that meets your unique safety needs. It is more than just getting a system installed that complies with the regulations – it is about providing solutions for each customer.

Fall Protection Design Lunch & Learns or Webinar

Learn the ins and outs of the fundamental principles of Fall Protection Design. In person or via webinar. Our team can teach the key points in Fall Protection Design. Some of the topics covered in the Lunch & Learn will include: CSA Z259, Lifeline Design, Fall Protection Design, Anchor Loading, Fall Protection Layout, ANSI Fall Protection, Suspended Access, and more.

ENGINEERING CAPABILITIES

Northern Strands is a leader in the design of engineered fall protection systems. Our team works closely with our clients to design, build and certify fall protection systems that comply with regulations and standards.

Design of Custom Solutions

Northern Strands will design what is required to build a fall protection system that meets safety regulations and that works in your unique environment. All situations and locations that present a fall hazard must be addressed. Northern Strands has had the privilege of addressing a wide variety of customer fall protection needs throughout North America.

Dual-Stamped Drawings

With a greater understanding and importance being placed on safety in the workplace, the standards and guidelines are ever-changing and are becoming more stringent every year. Northern Strands recognizes that these more stringent criteria drastically increase the liability of owners and decision-makers. Therefore, Northern Strands is committed to limiting that liability by providing drawings that have stamps in every province in Canada certifying BOTH the fall protection system AND the structure that the system is attached to. This process sets Northern Strands apart from its competitors and provides peace-of-mind and protection in the unfortunate event of a workplace incident.

Analyze Potential Falls

Part of the certification process includes analyzing the force of falls and ensuring that the solution provided will keep your employees safe.

WHAT TO EXPECT FROM NORTHERN STRANDS ENGINEERED FALL PROTECTION

Fall Protection is a serious business. Designing Engineered Fall Protection systems is a responsibility and privilege that we do not take lightly.

Northern Strands is clearly a market leader in this highly specialized field.

Design experience is paramount. Backed by an experienced team with a thorough understanding of the applicable engineering principles, Northern Strands applies these principles to both flexible and rigid systems. Being an integral part of a global network and pooling resources ensures our success in providing you with a system that your workers will accept and use.

Structural engineering is integral to each project. A system is not complete and cannot be considered certified for use until the receiving structure has been inspected, analyzed and designated as able to withstand the potential fall arrest loads. These critical steps cannot be bypassed. Northern Strands offers the assurance that these steps will be taken.

Utilizing state of the art software, derived from live tests, the system design will include every detail for each component of the assembly as well as any equipment used in conjunction with the system.

The pre-design incorporates the analysis of the worker's tasks and how the systems will allow the worker to continue to perform the tasks safely and efficiently. The system will not dictate to the worker. It is the worker and their tasks that drive the system selection and design.

What you should expect from your Engineered Fall Protection System Provider:

- **Design personnel and installation crews fully trained and recognized by the manufacturer.**
- **The professional technical skills to analyze the requirements and design a solution that meets all OH&S regulations and CSA standards.**
- **The right tools and skills to complete the installations and commissioning of the fall protection system.**

Did you know?
In 2019 there was 3,834 lost time injuries in Saskatchewan from workplace falls.
- WCB Saskatchewan

LIFELINES

Horizontal Lifeline Systems

Rooftop or overhead horizontal lifeline systems that allow easy movement and protection in fall hazard areas. Stainless steel components are the foundation for horizontal lifelines. Each component is CSA compliant.

1. ***OVERHEAD WIRE ROPE LIFELINE EXAMPLE***

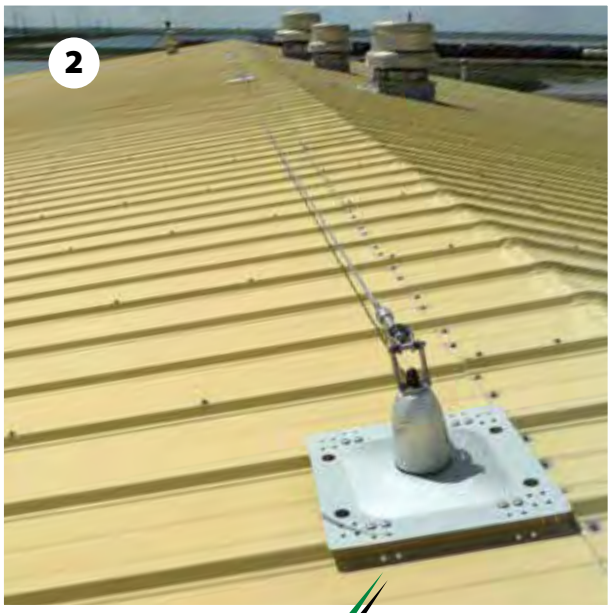
Commonly used at railcar loadouts in grain terminals, mines and in truck bays.

2. ***ROOFTOP WIRE ROPE LIFELINE EXAMPLE***

Used on rooftops with varying degrees of slope and for fall arrest or travel restraint.

Vertical Lifeline Systems

A fixed ladder system. Typically found on commercial buildings, wind turbines, grain bins and more.



Did you know?

An employer or contractor shall ensure that workers use a fall protection system at a temporary or permanent work area where: (a) a worker may fall three metres or more; or (b) there is a possibility of injury if a worker falls less than three metres."

- OH&S Saskatchewan

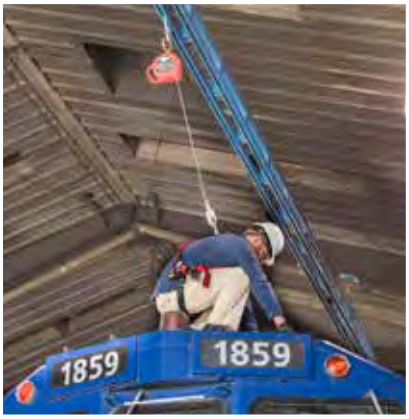
RIGID RAIL FALL PROTECTION SYSTEMS

Free Standing Rigid Rail

Free Standing Fall Protection Systems are designed to protect workers maintaining, inspecting, or loading & unloading rail cars and tankers. Single and dual track styles are available. The Dual bypass track allows workers to pass each other without having to disconnect from the system. Outdoor coatings are offered to maximize protection and the Free Standing Rigid Rail is designed for wind, snow, and ice.

Ceiling Mounted Rigid Rail

Ceiling Mounted Rigid Rail is ideal for situations where floor space is very limited. This system can provide fall protection by using existing support steel and is ideal for production and warehouse facilities. Workers have increased mobility using the curved track and numerous hanger options for all types of building structures.



ANCHORS

Rooftop Anchors

Anchors are secured to the structure and can be used for tie-off of suspended access, bosun chairs, and vertical and horizontal lifeline systems.

3. ***WALL ANCHORS***

Tie-back or lifeline wall anchors are often attached to a penthouse. Can be bolt-through or adhesive and are safety-rated to 5000lbs.

4. ***SINGLE POINT FORCE MANAGEMENT ANCHORS***

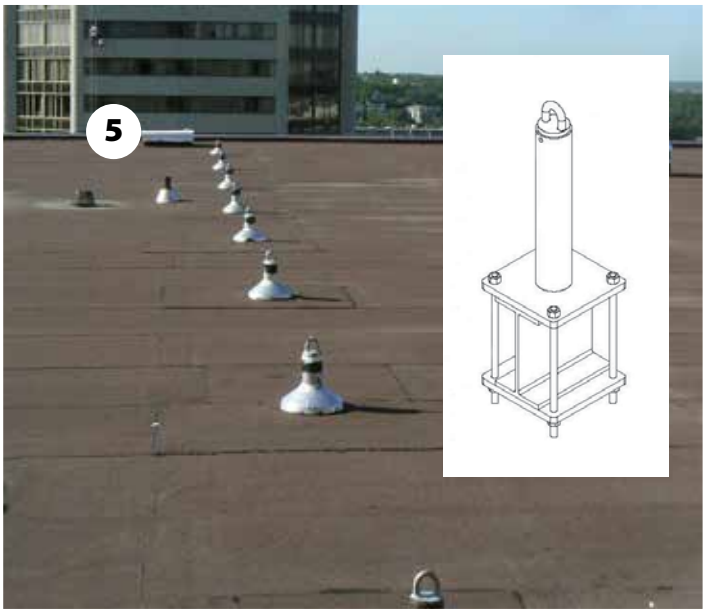
These anchors exert less force on rooftops. They are cost effective and require minimal structural upgrades. Can be incorporated into a horizontal lifeline system.

5. ***RIGID POST ROOFTOP ANCHOR***

Can be intergrated into a rooftop lifeline system.
Window washing is a typical usage for this type of anchor.

6. ***DUAL POST ANCHOR***

These anchors consist of two posts attached to the same plate. This anchor allows "protected" travel along the lifeline attached to the tall anchor while simultaneously allowing rappelling from the short anchor, via swing stage or individual. (Typical application is arch-rib/glulam buildings).



RAILINGS, WALKWAYS, LADDERS & STAIRS

7. *GUARDRAIL*

Non-penetrating guardrail that sits on rooftops or clamps to standing seam roof structures provides a barrier to the leading edge. A variety of railing types and custom configurations are available. Guardrails prevent falls before they even happen; they are one of the most pro-active forms of fall protection.

8. *FIXED LADDERS*

Fixed ladders provide safe access to work areas and ensure workers comply with OH&S regulations. Ladders can be custom-built and field-fitted for your unique location requirements. A vertical lifeline system installed on a fixed ladder is more efficient than using a double-leg lanyard for fall protection while climbing a ladder. Rather than using the time consuming method of attaching and detaching your lanyard hooks, you can simply attach to the vertical life line and climb the ladder at a normal pace.

RAILINGS, WALKWAYS, LADDERS & STAIRS

9. *WALKWAYS & STAIRS*

Walkways provide safe access to and from work areas located at heights. This lightweight bolt together component system is a very flexible solution for your stairway needs. The components can be configured to adapt to the contour of your roof top to provide safe and compliant access to varying rooftop locations. Comprised of rugged aluminum and powder coated pipe, this product is very versatile.

FALL PROTECTION PRODUCTS

10. ***CONTROL ZONE MARKERS***

Keep employees and workers aware of the leading edge with clearly visible control zone markers. Our control zone markers are locally made.

11. ***FALL PROTECTION DAVIT SYSTEMS***

Every organization must have a fall protection rescue plan and fall protection davit systems can be an integral part of the rescue operation. Davit systems allow a person to mount a fall protection device without being exposed to a fall hazard. When used properly, a fall protection davit can reduce a falling person's chance of swinging into the nearest wall or structure.

12. ***PORTABLE TRAVEL RESTRAINTS***

When flexibility in use and movement are required, the portable systems can be installed and moved where needed.

Did you know?

Every 3 days a worker dies as a result of a fall from height. Survivors of these accidents often sustain the most serious injuries resulting in significant claims, personal suffering and business losses.

- Alberta Government

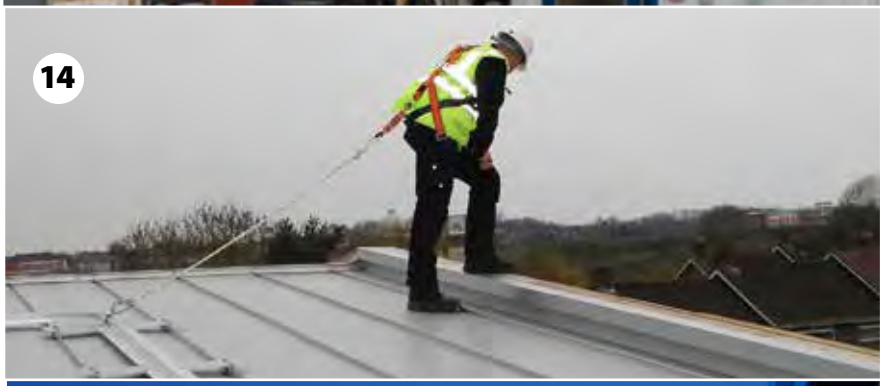
FALL PROTECTION PRODUCTS (CONT.)

13. ***OVERHEAD RAIL/ I-BEAM TROLLEY***

The overhead rail system and the I-Beam Trolley system often provide solutions where existing structure is already in place. This option is the answer when ground clearance is a concern, as there is less deflection to account for.

14. ***ROOFTOP RAIL SYSTEM***

A direct-to-roof attached system that can change direction and roof slopes up to 15 degrees. This lightweight and versatile product sits low to the roof so as not to obstruct foot traffic.



15. ***FALL PROTECTION SUB-SYSTEMS***

- Harnesses
- Self-retracting lanyards
- Rescue self-retracting lanyards
- Rescue poles
- Lanyards

Did you know?

The employer or contractor shall ensure that a worker is trained in the fall protection plan and the safe use of the fall protection system before allowing the worker to work in an area where a fall protection system must be used.

- OH&S Saskatchewan

BIN SAFE SYSTEM

PROTECT YOUR FAMILY AND EMPLOYEES FROM ONE OF THE MOST COMMON ACCIDENT LOCATIONS ON A FARM

Our patent pending fall protection system is a cutting edge product designed to protect farm workers from a fall while climbing or accessing a bin for repairs or inspections.

Top 5 reasons to put a Northern Strands Bin Safe system on your grain bin

5. Allows for safe bin climbing.
4. OH&S, CSA , OSHA & ANSI compliant.
3. As of November 2018, cages do not count as fall protection in the USA.
2. An injury or death due to lack of required fall protection can bring financial ruin to a farm.

1. The NUMBER ONE reason... to protect your family, and employees. ***Be safe, not sorry.***

COR

MISSION: ZERO

FARM SAFETY FEATURE FIRST PLACE

1ST PLACE WINNER

Ag in Motion Innovations Program TD WINNER Agricultural Equipment

WHICH WOULD YOU RATHER BE?

WITH BIN SAFE

WITHOUT BIN SAFE

"When I did fall (off a grain bin), I broke my pelvis in 4 places and I laid in the hospital for 6 weeks before I could even put pressure on my legs. The Bin Safe System allows us to go all the way to the top of the bin and all the way back down safely. That is what every farmer requires or should have to be as safe as possible when climbing bins."

– Greg Setter

Smooth & Galvanized Wall Bin Kits

Includes all Grain Bin Fall Protection System hardware for a single bin.

With 40' Wire Rope

With 60' Wire Rope

With 80' Wire Rope

User Kit

Compatible with both smooth wall and galvanized bin kits. Includes 3' lanyard, fall protection harness and rope grab. One User Kit will service all bins.

Frequently Asked Questions

Do I need fall protection on my bin by law?

Yes, in most Canadian provinces and all of the U.S. it's the law! As of November 2018, grain bin cages will no longer count as fall protection in the United States with the rest of the world to soon follow suit. Bin Safe is a fraction of the cost of ladder cages, staircases and all other grain bin fall protection. Rather than a cage on your next bin, request Bin Safe be installed. Save yourself money and have proper fall protection!

Did you know?
In 2015 there were 1,633 lost time injuries in Saskatchewan alone from workplace falls.
- WCB Saskatchewan

Does the system work for any grain bin?

Our system is compatible with most grain bins! Please contact us to discuss which systems you need for your particular grain bins.

What if I don't want to install the system myself?

Please contact Northern Strands and we will be happy to assist you with finding a suitable contractor to install the system.

Contact our Bin Safe System Representative or one of our dealers to order or request additional information:

Martin Toews

CELL: 306.441.6845 PH: 306.242.7073
Toll free 1-800-242-7073

farmsafety@northernstrands.com

AG TERMINAL MAINTENANCE, PRODUCTS AND SERVICES

AG TERMINAL MAINTENANCE, PRODUCT & SERVICE SOLUTIONS

Northern Strands offers complete AG terminal equipment, repair and service. We are an authorized agent for replacement parts for Railcar Progressioners manufactured by Nordstrong. Northern Strands is centrally located and will provide parts and service on a 24/7/365 basis.

In addition to progressioner service, we offer complete AG Terminal maintenance, service, repair and training. Services include Engineered Fall Protection, Wire Rope & Rigging, Custom Machining/Fabrication, Specialty Equipment, Safety Training, Lifting Device Certification, Trackmobile rental and more. Northern Strands has recently outfitted a Mobile Railcar Progressioner Servicing Unit custom suited to service a multitude of railcar loadout facility maintenance requirements. Northern Strands has the technical knowledge and experience to trouble shoot any field issues. We stock car progressioner parts and accessories at our warehouse in Saskatoon, Saskatchewan. We are centrally located and will provide parts and service on a 24/7/365 basis for Nordstrong Progressioner systems.

We offer turn key service. Including design, engineer, supply and install complete railcar packages. This includes expansions or new projects from start to finish.

MOBILE RAILCAR PROGRESSIONER SERVICING UNIT

MOBILE RAILCAR PROGRESSIONER SERVICING UNIT

The Northern Strands Group of Companies has recently outfitted a Mobile Railcar Progressioner Servicing Unit custom suited to service a multitude of railcar loadout facility maintenance requirements. This all-terrain unit is built off of a Yanmar C25R Track Machine and carries a service deck outfitted with a rope greasing system, socketing vice, heavy duty winch, hoisting davit, service greasing system, and welder/generator/ air compressor combination unit to accommodate a variety of loadout servicing needs including rope greasing, component replacements, general system inspections/servicing, rope tensioning, welding repairs, and more. The Mobile Railcar Progressioner Servicing Unit comes fully site compliant with positive air shutoff, fire extinguisher, beacon, lighting, and ROPS.

LIFTING DEVICE CERTIFICATION

- Lifting device inspection, testing and certification on gin poles, chicago booms, monorails, bridge cranes, and other hoisting devices
- Validate working load limits on existing equipment
- Recertification of equipment

TRACKMOBILE RENTAL

- Rent a Trackmobile to keep you on schedule in event of major breakdown
- Fast transport on short notice

SOCKETING

- Supply of sockets, resin and putty
- Socketing services
- Socketing training

ENGINEERED FALL PROTECTION

Design, supply, and installation of custom engineered fall protection systems. Including:

- High tension lines
- Portable travel restraints
- Rigid rail systems
- Fixed ladders
- Bin Safe System - Grain bin Fall protection
- Guardrail

RAILCAR PROGRESSIONERS

Rugged, Adaptable, Easy to Use

Designed to make the movement of railcars easier and more efficient, the NORDSTRONG Railcar Progressioner is a double drum traction type unit that allows a single operator to handle the loading, unloading and movement of cars.

The unit features a continuous run of cable which moves railcars in both directions. Once railcars are hooked to the cable, the unit can be operated from a remote location.

Main Frame

All railcar progressioner components mount on a single rigid steel frame, which bolts directly to the site's foundation.

Counterweight Assembly

The counterweight assembly automatically compensates for cable stretch by keeping tension on the main cable. Tension sheaves are mounted on anti-friction bearings and housed in heavy duty frames. The assembly includes a solid steel counterweight and a self-contained mast. The complete system mounts directly on top of the railcar progressioner frame.

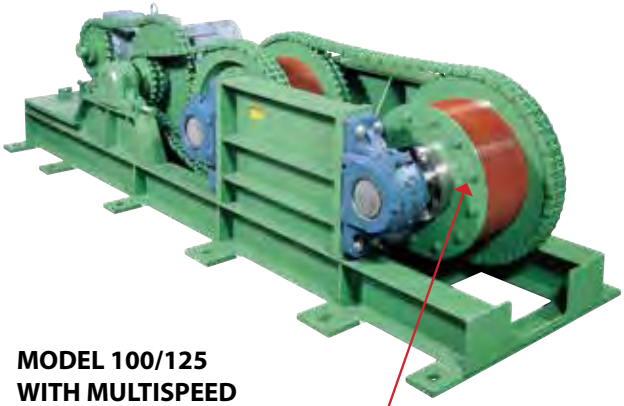
Safety Guards

The railcar progressioner is completely enclosed by a protective cage. Expanded metal panels and lockable doors provide complete visual access to all components for inspection and maintenance.

Drive

The Railcar Progressioner's main drive is a rugged parallel-helical gear brake motor. A hydraulically driven gear reducer is available as an option. Both come factory-filled with lubrication suitable for year-round use in all climates. Final reduction of the main drive train is through a high strength roller chain and sprocket combination. Drive sprockets have hardened teeth, are piloted and bolt directly to the drums.

MODEL 100/125 WITH OTC DRIVE, 45,000 LBS. LINE PULL



MODEL 100/125 WITH MULTISPEED ELECTRIC DRIVE

(Counterweight assembly and guards not shown)

DRUM ASSEMBLY

DRIVE

DRUM ASSEMBLY

The grooved drums are machined from solid steel blanks, which are shrink-fitted on high strength alloy steel shafts. The shafts are mounted in oversized spherical roller bearing pillow blocks.

Travel Limit Switch

This switch prevents over-travel of cable connections.

Controls

Three basic control systems are available for our Railcar Progressioners. All three include a MCP main breaker, a reversing starter assembly and a remote push button pendant. A warning horn to signal the railcar progressioner is in use, and a limit switch to prevent over-travel of the cable connections is included. All main components have been factory assembled and placed within a dust-tight enclosure. Remote radio control is available as an option on all units. In addition, controls can be modified to suit specific needs (such as additional push button stations, interlocks with other equipment, etc.) All controls are available in common North American and International voltages.

Single Speed Electric Control

The components listed above come with a control transformer, relays, and required terminals to complete field connections.

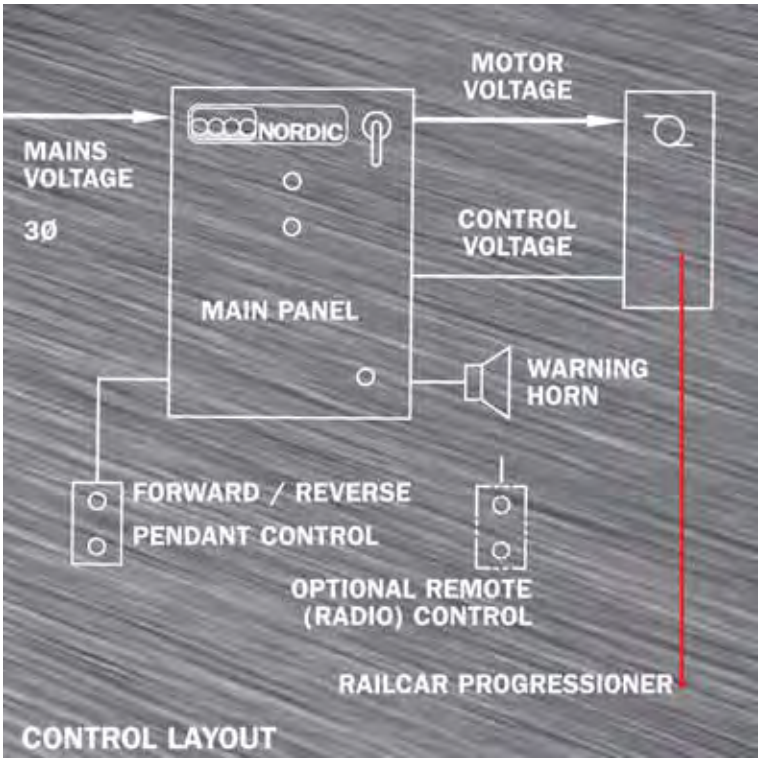
Electric with Direct Torque Control (OTC*)

A OTC unit is provided, which limits the output torque of the drive to the maximum design line pull of the railcar progressioner. The unit also allows for smoother stopping and starting, and multiple-speed operations.

Hyrdraulic/Electric

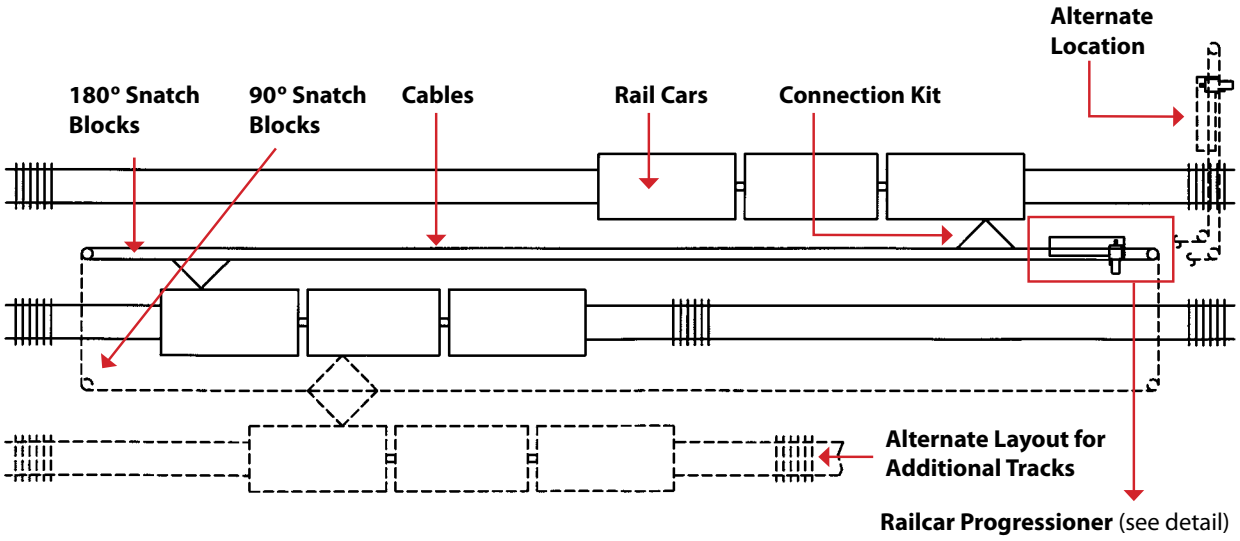
Includes a hydraulic power unit (the reservoir comes complete with electric motor, pump, valving, and accessories), and a hydraulic motor which attaches to the railcar progressioner's gear reducer. Its operating features are similar to the OTC unit.

DRUM ASSEMBLY



CONTROLS

PROGRESSIONER LAYOUT



Our Railcar Progressioner Systems can be adapted to a variety of track arrangements. Up to four tracks can be handled by one progressioner. Contact NORDSTRONG to discuss your requirements. A typical layout for one or two tracks is shown here, with an alternate layout for additional tracks.

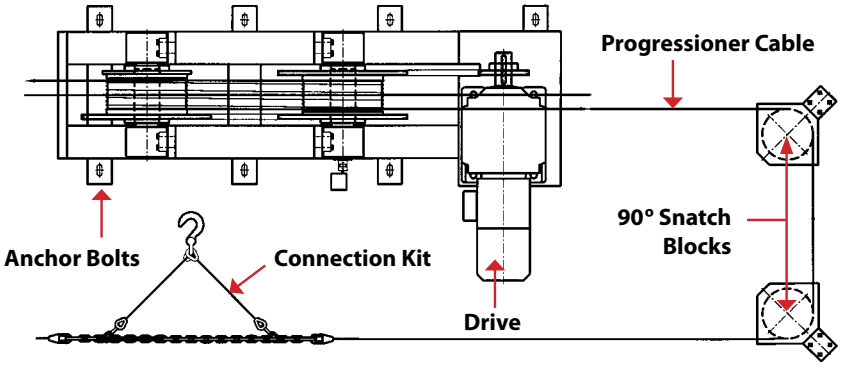
Cable and Connections

Nordstrong supplies die-drawn, compacted strand cables, which offer higher strength and improved flexibility. Complete cable connection kits, featuring a variety of different sling arrangements, are available for joining the cable ends and hooking to the railcars. Each type of sling is supplied with a break-away link to protect the main cable and railcar progressioner from accidental overloads.

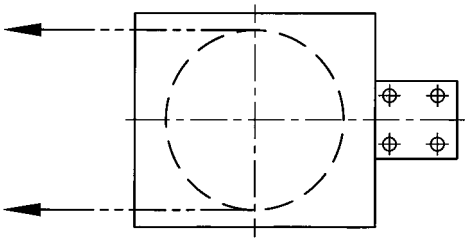
Snatch Blocks

To make possible a wide range of railcar progressioner and track configurations, both 90" and 180" models are available. Both feature steel sheaves and anti-friction bearings housed in substantial frames.

Railcar Progressioner Detail



90° SNATCH BLOCK



180° SNATCH BLOCK

SNATCH BLOCK (SINGLE)

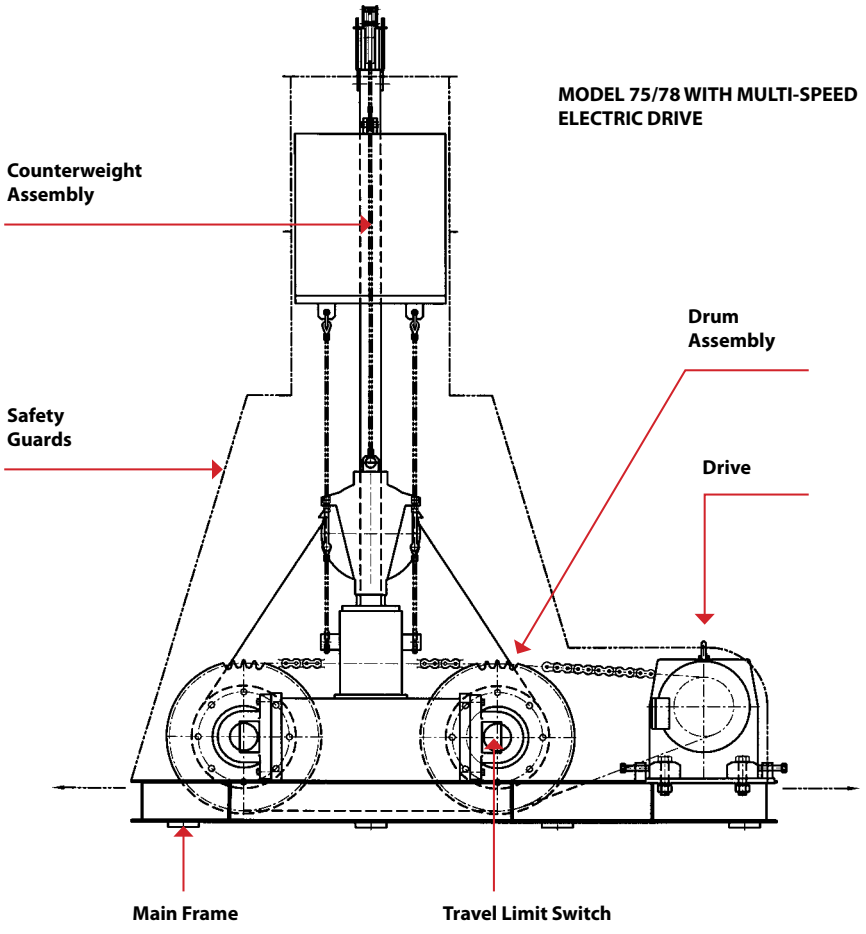
Model	Drive	Cable Dia.	Line Pull**	Line Speed***	Weight
75/78 Single Speed Electric	10 HP (7 .5 kw}	7/8" (22 mm)	20,000 lbs starting (90 kN) 10,000 lbs running (45 kN)	33 fpm (.18 m/s)	10,000 lbs (4500 kg)
75/78 Multi-Speed Electric	25 HP-DT* (17 kw)	7/8" (22 mm)	23.000 lbs (100 kN)	Multiple	10,000 lbs (4500 kg)
75/78 Multi-Speed Hydraulic	30 HP-HYD (22 kw)	7/8" (22 mm)	23,000 lbs (100 kN)	Multiple	12,000 lbs (5400 kg)
78/112 Multi-Speed Electric	40 HP-OTC* (30 kw)	11/8" (29 mm)	37,000 lbs (160 kN)	Multiple	13,000 lbs (5900 kg)
78/112 Multi-Speed Hydraulic	50 HP-HYD (37 kw)	11/8" (29 mm)	37 .000 lbs (160 kN)	Multiple	15,000 lbs (6800 kg)
100/125 Multi-Speed Electric	50 HP-OTC* (37 kw)	11/4" (32 mm)	45,000 lbs (200 kN)	Multiple	19,000 lbs (8600 kg)
100/125 Multi-Speed Hydraulic	60 HP-HYD (45 kw)	11/4" (32 mm)	45,000 lbs (200 kN)	Multiple	21,000 lbs (9500 kg)

Other models available - contact Nordstrong for Information.

* Direct Torque Control (DTC) technology is patented by ABB.

** Line Pulls represent a minimum factor of safety of 4 on the main cable. based on use of die-drawn, compacted strand wire rope.

*** Multiple speed units are set at 25 fpm and 35 tpm (.13 m/s and .18 m/s) at maximum line pull. A high speed of 70 fpm (.36 m/s) is for moving the cable when not hooked to railcars.



PROGRESSIONER PARTS

- Pull cables
- Anticrash cables
- Counterweight cables
- Connection kit chain and accessories.
- SEW Eurodrive gearboxes,motors, brake assemblies and components
- Rotary limit switches
- Jack shaft assemblies
- Drums
- Refurbished parts and reconditioned machines
- 160, 160-2, and 200 riv roller chain for progressioner drive

CABLE

- Progressioner and winch compact cable
- Common AG terminal cable constructions – Compacted drawn 6 Strand
- Sizes - 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-1/2"
- Assemblies - Custom built to customers needs
- Installation

SPECIALTY ITEMS

- Harnesses and lanyards
- Socketing stands (rental or sale)
- Thern winches
- Material handling and fall arrest davits

CHAIN

- Type (Grade) - 80 and 100
- Size 1/2", 5/8", 3/4", 7/8"
- Other grades and sizes available
- Rings
- Swivels

SYNTHETICS

- 3 Strand (general purpose) 3/16" to 1"
- Double Braid 3/16" to 2"
- Nylon 3 strand
- Natural fiber 3 strand
- High strength 12 strand Dyneema 1/8" to 1-1/4"

LUBE:

- Lube Products (Grease, Oil)
- On site lubing service
- Lubing systems

RIGGING

- Clamps
- Hooks
- Connecting links
- Snatch blocks

MATERIAL HANDLING

- Chain hoists and lever tools
- Winches
- Monorails

BUCKETS, BUCKET ELEVATOR BELTS & ACCESSORIES

All bucket styles available. Popular types include: Tiger Tuff, HD Max and CC Max. We have superior buckets that can replace competitor products. Our CC Max style cup is a direct replacement for competitor CC-HD product lines.

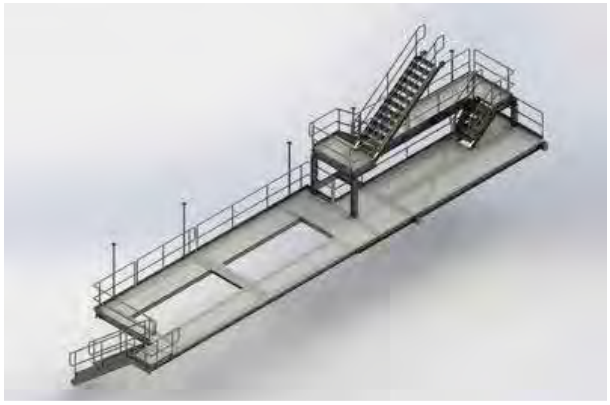
- Longest lasting buckets in industry
- Complete packages. Buckets, belting splices & bolts all in one order
- Direct shipments to your facility
- Sold in US or CND dollars

REPAIR, FABRICATION & ENGINEERING

We are a CWB certified weld shop. We have achieved and maintained ISO 9001 Quality Management, 14001 Environmental Management & 45001 Health & Safety Management Certifications. ISO benefits our customers by ensuring our products and services are safe, reliable and meet standards.

We offer the following shop and field fabrication capabilities:

- Machining
- Welding
- Inspection
- Custom Manufacturing
- Engineering



TRAINING

- Rigging
- Fall Arrest
- Socketing
- Overhead Crane

THE 6 DIVISIONS OF NORTHERN STRANDS

ENGINEERED FALL PROTECTION SYSTEMS

- RECERTIFICATION
- INSPECTIONS
- RENTALS
- CONSULTATIONS
- TRAINING
- GRAIN BIN FALL PROTECTION

MINING WIRE ROPE, ATTACHMENTS & EQUIPMENT

- MINING WIRE ROPE
- ATTACHMENTS
- MINING SERVICES
- SPECIALTY EQUIPMENT & TOOLS

TRAINING

- TUGGER SAFETY
- BELOW THE HOOK RIGGING
- CROSBY® RIGGING
- WIRELOCK® SOCKETING
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- SUSPENDED ACCESS EQUIPMENT
- OVERHEAD TRAVELING CRANE OPERATOR

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- FITTINGS
- CHAIN
- SOCKETING
- WIRE ROPE CABLE
- SAFETY TRAINING
- SYNTHETICS
- SPECIALTY EQUIPMENT
- LUBE & LUBE SYSTEMS

SUSPENDED ACCESS SYSTEMS

- SUSPENDED ACCESS EQUIPMENT
- BLADE ACCESS PLATFORMS
- PORTABLE ELECTRIC WINCHES
- RENTALS

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- RIGGING ACCESSORIES
- WIRE ROPE
- CHAIN & ACCESSORIES
- FALL PROTECTION
- SYNTHETIC ROPES
- MATERIAL HANDLING

NORTHERN STRANDS

SASKATOON
3235 Millar Avenue,
Saskatoon SK S7K 5Y3
Ph: (306) 242-7073

REGINA
125 Henderson Drive,
Regina SK S4N 5W4
Ph: (306) 352-7073

ESTERHAZY
816 Park Ave,
Regina SK S0A 0X0
Ph: (306) 621-6920

WINNIPEG
122 Paquin Road,
Winnipeg, MB R2J 3V4
Ph: (431)-338-7657

Toll Free: 1-800-242-7073 | **email:** sales@northernstrands.com

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