

WIRE ROPES & CABLES



VANGUARD STEEL LTD.



This is

VANGUARD STEEL LTD.

at your service



Since 1960, Vanguard Steel Ltd., a sister Company of Ringball Corporation, has been supplying specialty steels and steel products to North American Industries.

By representing some of the most reputable manufacturers around the Globe, Vanguard's various Product Divisions offer a wide range of North American, European and Asian products, many of which are being manufactured to Vanguard's own specifications and often exceed Industry Standards.

Besides office and warehousing facilities throughout Canada, Vanguard Steel relies on a vast network of Canadian and U.S. Distributors to assure local product availability and best possible service.

VANGUARD'S PRODUCT DIVISIONS:

- **SPECIALTY STEELS**
 - **WIRE ROPES, CABLES AND RELATED HARDWARE**
 - **CHAINS AND ACCESSORIES**
 - **BUILDER'S HARDWARE**
 - **INDUSTRIAL KNIVES**
 - **ABRASIVES**
 - **WELDING CONSUMABLES**
- 

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WIRE ROPES & CABLES

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CONVERSION CHART



WARNING

General Warnings

All Vanguard rigging products are sold with the express understanding that both the purchaser and the end user are thoroughly familiar with the safe, proper and acceptable applications of the products.

It is the responsibility of the end user to establish proper safety programs and to provide thorough training for all personnel prior to use. The training programs must meet any federal/provincial/state/local code requirements, existing plant/site safety rules and regulations, and all instructions provided in the applicable section of this catalogue.

Product failure can occur due to abuse, misapplication, lack of maintenance, use by unqualified personnel and improper inspection prior to use. **Any failure of rigging products may result in property damage, personal injury and even death!!!!**

Standards

There are numerous government and industrial standards that cover rigging products. This catalogue makes no attempt to reference all of them; it references to the standards that are most frequently asked about.

Working Load Limit (WLL) – Safe Working Load (SWL)

The Working Load Limits shown in this catalogue are applicable to products that are new or “in as new” condition. The Working Load Limits ratings refer to the maximum amount of force or load that the rigging product can carry under normal working/environmental conditions.

The Working Load Limits and Design Factor can be affected by wear, misuse, overloading, shock loading, side loading, corrosion, deformation, product alteration and other use conditions. Inspection of rigging products prior to use is required to determine whether the product continues to meet the assigned WLL provided in this catalogue, should be used at a reduced rating or removed from service.

The WLL rating must never be exceeded!!!!

GENERAL INFORMATION

Vanguard Steel's Wire Rope and Hardware Division acts as a Wholesale Distributor of Wire Ropes and Rigging Hardware, catering predominantly to Industrial Distributors and Rigging Shops.

By offering North American designed products which are manufactured to Vanguard's specifications by the most economical and reputable global manufacturing base, Vanguard offers great value to its customers. Rather than seeking to position Vanguard as an importer of cheap products for which price considerations override any quality concerns, Vanguard will continue to compete directly against other 'top-of-the-line' brand names in the wire rope fabricating and rigging field.

WIRE ROPE CORES

The core forms the heart of the rope and is the component around which the main strands are laid. The core supports the strands and is intended to keep them from jamming against or contacting each other under normal loads and flex. The most popular core constructions are the following:

Fiber Core (FC):

These cores can be made from natural or synthetic fibers. The majority of Vanguard's Fiber Core ropes feature a Polypropylene Core (PPC), as they are less susceptible to compacting (especially under moist conditions) and are impervious to many acids.

Independent Wire Rope Core (IWRC):

IWRC ropes are used in applications requiring maximum strength, resistance to crushing and all applications for which fiber core ropes are not suitable (i.e. excessive heat of 250° F or greater).

Strand Core (SC):

This type of core would only be chosen for applications where 'stiffness' of the rope is not a drawback but is, in fact, desirable.



FINISHES

To protect against friction and corrosion, proper lubrication of individual wires and strands plays an important role in the production of wire rope. Additional field lubrication may be required if the ropes are subjected to heavy usage or lengthy storage. The type of lubrication depends on the intended usage of the rope:

- Type A-1 & A-2:** Vaseline based lubricant, for light and medium duty applications
- Type B:** Petroleum based lubricant, for more severe applications (i.e. construction)
- Type C:** Asphalt based lubricant, often specified for non-rotating ropes

For additional protection against premature corrosion, the individual wires of an uncoated rope (generally referred to as 'bright' or 'black') are hot dip galvanized at finished size. This will, however, reduce the breaking strength of the rope by approximately 10% from a comparable bright rope.

Where wire ropes are subject to severe corrosive elements such as salt water, various acids, etc., stainless steel ropes may have to be considered.

WIRE ROPE LAY

The term 'rope lay' signifies the direction of rotation of the wires and the strands in the rope.

Rotation is either:

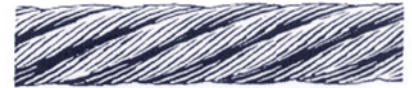
Right Lay - Clockwise, or

Left Lay - Counter-clockwise

Regular Lay:



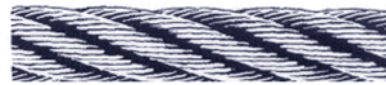
Right Lang Lay (RLL)



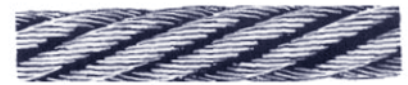
Left Lang Lay (LLL)

Wires in strands are laid in one direction, while the strands in the rope are laid in the opposite direction. This results in wire crown running approximately parallel to the longitudinal axis of the rope. These ropes are stable, have good resistance to kinking and twisting, and are easy to handle. They are also able to withstand a considerable amount of 'crushing' and 'distortion' due to the short length of exposed wires.

Lang Lay:



Right Lay Regular Lay (RRL)



Left Lay Regular Lay (LRL)

Wires are laid in the same direction as the strands of the rope, and in an angle to the rope axis. With the outer wires presenting greater wearing surfaces, these ropes have greater resistance to abrasion than regular lay ropes. They are also more flexible and possess greater fatigue resistance. Lang Lay ropes should have both ends permanently fixed to prevent untwisting. They are not recommended for use on single part hoist-lines, nor should they be used with swivel end terminals.

OTHER CONSIDERATIONS:

Stretch:

There are two types of stretch that occur in wire ropes:

Constructional Stretch:

This is a permanent elongation that takes place due to a slight lengthening of the rope lay, compression of the core and adjustment of the wires and strands to the load. Constructional stretch varies with the severity of the operation and generally occurs during the first weeks of operation. It increases the length of the rope by approximately 1/2 % for fiber core ropes and 1/4 % for steel core ropes.

Elastic Stretch:

This is a recoverable elongation similar to the stretch in a rubber cord. If the load is kept within the elastic limit of the rope, the theory of elastic materials will apply.

Shifting Points of Wear:

Wear and fatigue usually take place at certain definite points along a rope. Removing short lengths from the drum end of the rope shifts these wear points and exposes relatively unworn sections of the rope to the harder working areas. To take advantage of this method of increasing service life, it is obviously necessary to initially order a slightly longer rope length than required.

Turning Rope End for End:

On many installations, destructive forces are more severe along one half of the rope than the other. By turning the rope end for end, it is possible to increase its service life.

Measuring Wire Rope:

The diameter of a wire rope is the diameter of the circle which encloses all the wires. When measuring wire rope, it is important to take the greatest distance of the outer limits of the 'crowns' of two opposite strands. A measurement across the valleys will result in incorrect (lower) readings.



ROPE CONSTRUCTIONS:

Small Diameter Cables:

Ranging in diameters up to 3/8", the construction, material and finish of these cables depends on their ultimate use:

1. Commercial quality cables (often referred to as aircraft cables but not for use in aircraft!)
2. Control cables (used in the automotive industry)
3. Conveyor belt cables

Engineering & General Purpose Wire Ropes:

The construction of wire ropes and strands covered under this heading varies within specific Classifications and will depend on the desired performance features, such as flexibility, resistance to abrasion, resistance to rotation, etc.:

1 x 7 Classification (Guy Strand)

6 x 7 Classification

Used where ropes are dragged over the ground or over rollers and where resistance to abrasion is an important factor. The large outer wires will withstand a great deal of wear at the expense of flexibility.

6 x 19 Classification

Constructions falling under this classification are the most widely used throughout all industries, as they feature a good balance between abrasion resistance and flexibility.

6 x 37 Classification

Increasing the number of wires while reducing the wire diameter results in greater flexibility but diminishes abrasion resistance.

19 x 7 Classification

Due to their rotation resistance characteristics, ropes falling under this classification are being used for many hoisting applications, but failure to easily detect damage to the inner core is among the reasons that usage has declined in favour of Specialty Ropes.

8 x 19 Classification

Reverse bends and small sheaves may render 8 strand ropes a better choice than 19 x 7 or other rope constructions.

Specialty Ropes

For applications where performance, down-time and/or safety considerations outweigh a rope's cost of acquisition, a wide range of specialty ropes has been developed. Proper selection, handling and installation of such ropes is essential in maximizing results.

SMALL DIAMETER CABLES

- Manufactured to the latest US Military Specifications
- Designed for industrial and marine applications



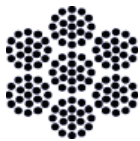
1 x 19 Construction

Designed primarily for standing rigging on boats, bracing and other applications where the stiffness of a strand is preferable to the flexibility of the cable



7 x 7 Construction

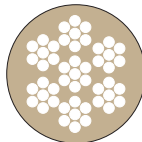
Generally used for small diameters. Less flexible than 7 x 19 construction, but it offers better abrasion resistance.



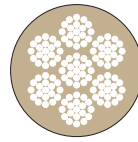
7 x 19 Construction

Most flexible and widely used constructions well suited for a multitude of applications.

PVC and Nylon Coated Cables



7 x 7 Construction



7 x 19 Construction

- Supplied with UV inhibitors
- When using wire rope clips or compression sleeves with plastic coated cables, match fitting size to uncoated cable diameter
- Strip coating off cable where fittings will be positioned for full holding power



Warning:

Working Load Limits will depend on the actual usage (NBS/Safety Margin)



SMALL DIAMETER CABLES

Manufactured in accordance to U.S. Mil. Spec. DTL-8342M, endurance test omitted

Galvanized

Preformed Galvanized Cables are recommended whenever flexibility, high strength and fatigue resistance are required.

Diameter (inches)	Weight (lbs/1000')	Nominal B/S (lbs)	Vanguard Code
7 x 7 Construction			
1/16	7.5	480	2701 0004
3/32	16.0	920	2701 0006
1/8	28.5	1,700	2701 0008
3/16	62.0	3,700	2701 0012
7 x 19 Construction			
3/32	16.0	1,000	2703 0006
1/8	29.0	2,000	2703 0008
5/32	45.0	2,800	2703 0010
3/16	65.0	4,200	2703 0012
1/4	110.0	7,000	2703 0016
5/16	173.0	9,800	2703 0020
3/8	243.0	14,400	2703 0024

Plastic Vinyl Coated (PVC)

Galvanized Steel Cable

Diameter (inches)	Colour	Weight (lbs/1000')	Nominal B/S (lbs)	Vanguard Code
7 x 7 Construction				
1/16 - 3/32	Clear	9.5	480	2710 0006
3/32 - 1/8	Clear	27.0	920	2710 0008
3/32 - 3/16	Clear	27.0	920	2710 0012
	Yellow			2715 0012
	Orange			2717 0012
1/8 - 3/16	Clear	37.0	1,700	2710 1012
7 x 19 Construction				
1/8 - 3/16	Clear	39.0	2,000	2730 0012
	Black			2725 0012
1/8 - 1/4	Clear	51.0	2,000	2711 0016
	Black			2725 0016
3/16 - 1/4	Clear	78.0	4,200	2730 0016
	Black Nylon			2730 1016
1/4 - 5/16	Orange	125.0	7,000	2725 2020
	Red			2735 0020

* All colors, coatings and sizes of coated cables may not be a standard stock item at all distribution centres.
 * Additional colors, coatings and sizes are available as a special order minimum quantity may apply.

Stainless Steel

Stainless Steel Cables offer an excellent combination of corrosion and fatigue resistance and high strength.

Type 302/304 - Standard Grade

Type 316 - Superior corrosion resistance

Diameter (inches)	Weight (lbs/1000')	Nominal B/S (lbs)	Vanguard Code
1 x 19 Construction			
1/16	8.5	500	2802 0004
3/32	20.0	1,200	2802 0006
1/8	35.0	2,100	2802 0008
5/32	55.0	3,300	2802 0010
3/16	77.0	4,700	2802 0012
7/32	102.0	6,300	2802 0014
1/4	135.0	8,200	2802 0016
9/32	170.0	10,300	2802 0018
5/16	210.0	12,500	2802 0020
3/8	317.0	17,100	2802 0024
7 x 7 Construction			
3/64	4.2	240	2801 0003
1/16	7.5	480	2801 0004
3/32	16.0	920	2801 0006
1/8	28.5	1,700	2801 0008
7 x 19 Construction			
3/32	16.0	1,050	2803 0006
1/8	29.0	1,760	2803 0008
5/32	45.0	2,400	2803 0010
3/16	65.0	3,700	2803 0012
1/4	110.0	6,400	2803 0016
5/16	173.0	9,000	2803 0020
3/8	243.0	12,000	2803 0024

Plastic Vinyl Coated (PVC)

Stainless Steel Cable (Type 304)

Diameter (inches)	Colour	Weight (lbs/1000')	Nominal B/S (lbs)	Vanguard Code
7 x 7 Construction				
1/16 - 3/32	White	13.0	480	2811 0006
3/32 - 1/8	White	25.0	920	2811 0008
1/8 - 1/4	White	50.0	1,760	2811 0016
3/16 - 5/16	White	91.0	3,700	2811 0020

Warning:

Working Load Limits will depend on the actual usage (NBS/Safety Margin)

WIRE ROPES & CABLES

7 x 7 x 7 CABLE LAID IWRC GALVANIZED

Cable-laid rope consists of several constituent wire ropes that are helically laid or wound over a core into a single cable.

For example if you used 7 cables of 1/16" 7 x 7 and closed them into a wire rope you would have a 3/16" diameter 7 x 7 x 7 containing 343 individual wires. The end product is a highly flexible, strong wire rope that can be spliced easily into slings or other assemblies.



When used for sling production, cable laid wire rope offers greater flexibility than slings made with 6 x 19 Class wire rope, however cable laid slings have a lower nominal breaking strength.

- An extremely flexible wire rope
- Corrosion resistant

Diameter (inches)	Approx. Weight (lbs/ft)	Nominal B/S (lbs)	Vanguard Code
5/16	0.14	10,700	3601 0020
3/8	0.21	11,400	3601 0024
7/16	0.30	18,000	3601 0028

* May not be a standard stock item at all distribution centres.

** Additional sized and configurations available upon request, minimum order quantity may apply

HOSE RESTRAINTS



Hose restraints are simple and economical means of implementing work place safety measures. They are highly resistant to rust and corrosion and do not require any tools to install.

Hose restraints are used to restrain the movement of the pressurized hose should it become uncoupled, thereby allowing operators to get away and perform a safe, orderly system shut-down.

- Corrosion resistant
- No tools are required for installation

Hose Diameter (inches)	Overall Assembly Length (inches)	Diameter of Cable Used (inches)	Weight (lbs)	Vanguard Code
1/2 - 1-1/4	15	1/8	0.15	3317 0815
1/2 - 1-1/4	22	1/8	0.23	3317 0822
1-1/2 - 3	24	1/4	0.90	3317 1624
1-1/2 - 3	36	1/4	1.22	3317 1636
3-1/2 - 6	48	3/8	3.00	3317 2448

* May not be a standard stock item at all distribution centres.

** Additional sized and configurations available upon request, minimum order quantity may apply

Warning:

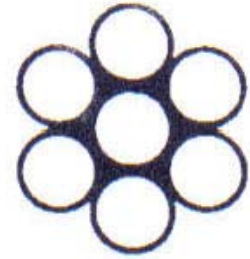
**NEVER EXCEED WORKING LOAD LIMIT OR 20% OF THE PRODUCTS BREAKING STRENGTH!
Failure to follow instructions can result in serious property damage, injury or death!**

- Acceptable strength is not less than 2.5% below the nominal breaking strength lists above

1 x 7 GALVANIZED GUY STRAND/MESSENGER CABLE

Commonly used for guying purposes where flexibility is not important. Widely used in the power and telecommunication industry.

- Very stiff and cannot be spliced
- Corrosion resistant
- Manufactured in accordance with ASTM A475, Class A and/or CAN/CSA-G12-92



Applications:

- underground cable
- long distance overhead cable
- tower erecting and support

Diameter (inches)	Approx. Weight (lbs/ft)	Min. Breaking Strength (lbs)	Vanguard Code	Min. Breaking Strength (lbs)	Vanguard Code	Min. Breaking Strength (lbs)	Vanguard Code
ASTM A475 Class A							
Grade		Siemens - Martin		High Strength		Extra-High Strength	
3/16	0.08	1,900		2,850		3,990	3501 5012
1/4	0.13	3,150		4,750		6,650	3501 5016
5/16	0.22	5,350		8,000		11,200	3501 5020
3/8	0.27	6,950		10,800		15,400	3501 5024
7/16	0.39	9,350		14,500		20,800	3501 5028
1/2	0.52	12,100		18,800		26,900	3501 5032
9/16	0.67	15,700		24,500		35,000	3501 5036
5/8	0.81	19,100		29,600		42,400	3501 5040
CAN/CSA-G12/92							
Grade		Grade 110		Grade 160		Grade 180	
3/16	0.08	2,400	3501 1012	3,500	3501 3012	4,000	3501 2012
1/4	0.13	3,900	3501 1016	5,700	3501 3016	6,400	3501 2016
5/16	0.22	6,800	3501 1020	9,900	3501 3020	11,100	3501 2020
3/8	0.27	8,200	3501 1024	12,000	3501 3024	13,500	3501 2024
7/16	0.39	11,900	3501 1028	17,300	3501 3028	19,500	3501 2028
1/2	0.51	15,600	3501 1032	22,700	3501 3032	25,500	3501 2032
5/8	0.81	24,600	3501 1040	35,800	3501 3040	40,200	3501 2040

* May not be a standard stock item at all distribution centres.

** Additional grades, diameters and constructions available upon request, minimum order quantity may apply



90/10 Zinc-Aluminum Coated Wire Strand

Having recognized the advantages of 95% Zinc + 5% Aluminum coatings applied to carbon steel wires and taking it one step further, increasing the Aluminum content has proven to further enhance the corrosion resistance and ductility of Vanguard Guys and Messenger Strand over conventional galvanizing.

This makes the use of V-Alloy strand the ideal choice for use in corrosive environments.

Warning:

**NEVER EXCEED WORKING LOAD LIMIT OR 20% OF THE PRODUCTS BREAKING STRENGTH!
Failure to follow instructions can result in serious property damage, injury or death!**

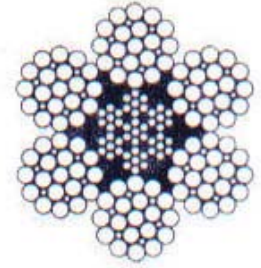
- Acceptable strength is not less than 2.5% below the nominal breaking strength lists above

WIRE ROPES & CABLES

6 x 19 CLASSIFICATION

This classification covers ropes with 6 strands having 8 to 26 wires per strand, no more than 12 of which are outer wires

- Provide excellent service with sheaves and drums of moderate size
- Flexible wire with good balance of abrasion, wear, crush and fatigue resistance
- Very versatile general purpose wire rope



Standards:

RR-W-410G

Applications:

Winch lines, railings, suspension cables, boom pendants, boom hoists anchor lines, logging lines, tube lines and widely used in the fabrication of wire rope slings. Also used as a hoisting rope on many older design overhead cranes.

Diameter (inches)	Steel Core (IWRC)			Fibre Core (FC)			Vanguard Code
	Weight (lbs/ft)	EIPS Nominal B/S (tons)		Weight (lbs/ft)	IPS Nominal B/S (tons)		
		Bare	Galvanized		Bare	Galvanized	Prefix +
1/4	0.12	3.40	3.06	0.11	2.74	2.47	.... 0016
5/16	0.18	5.27	4.74	0.16	4.26	3.83	.... 0020
3/8	0.26	7.55	6.80	0.24	6.10	5.49	.... 0024
7/16	0.35	10.20	9.18	0.32	8.27	7.44	.... 0028
1/2	0.46	13.30	12.00	0.42	10.70	9.63	.... 0032
9/16	0.59	16.80	15.10	0.53	13.50	12.15	.... 0036
5/8	0.72	20.60	18.50	0.66	16.70	15.00	.... 0040
3/4	1.04	29.40	26.50	0.95	23.80	21.40	.... 0048
7/8	1.42	39.80	35.80	1.29	32.20	29.00	.... 0056
1	1.85	51.70	46.50	1.68	41.80	37.60	.... 0100
1-1/8	2.34	65.00	58.50	2.13	52.60	47.30	.... 0108
1-1/4	2.89	79.90	71.90	2.63	64.60	58.10	.... 0116
1-1/2	4.16	114.00	103.00	3.78	92.00	82.80	.... 0132

* Additional diameters and constructions available upon request, minimum order quantity may apply

Vanguard Prefix:	
2563	6 x 19 IWRC
2662	6 x 19 IWRC Galvanized
2566	6 x 19 IWRC Seale
2576	6 x 25 IWRC
2676	6 x 25 IWRC Galvanized
2512	6 x 19 Fiber Core
2612	6 x 19 Fiber Core Galvanized
2621	6 x 24 Fiber Core Galvanized
2526	6 x 25 Fiber Core
2626	6 x 25 Fiber Core Galvanized

* Not all constructions or diameters are a standard stock item at all distribution centres.

Warning:

**NEVER EXCEED WORKING LOAD LIMIT OR 20% OF THE PRODUCTS BREAKING STRENGTH!
Failure to follow instructions can result in serious property damage, injury or death!**

- Acceptable strength is not less than 2.5% below the nominal breaking strength lists above
- 6 x 19 wire rope are NOT rotation/spin resistant

6 x 36 CLASSIFICATION

This classification of wire rope has a third layer of wires which make them more flexible although less abrasion-resistant than ropes of the 6 x 19 class. Comparatively small diameter wires which offer superior bending ability. As the number of wires in each strand increases, flexibility increases.



- This classification covers ropes with 6 strands having 27 to 49 wires per strand.
- Excellent flexibility wire rope with good fatigue resistance
- Reasonable resistance to crushing, but not as crush resistant as 6 x 19 class
- Well adapted to high speed multiple reeving applications
- Very versatile general purpose wire rope

Fiber core (FC) construction is much more elastic under load (stretch), which offers greater energy absorption capability, however it is much less crush resistant than steel core (IWRC).

Standards:

RR-W-410G

Applications:

Overhead crane and mobile crane hoist ropes; winch lines; large diameter towing lines, main and auxiliary hoist lines on steel mill cranes and also well suited for larger diameter wire rope sling fabrication.

Diameter (inches)	Steel Core (IWRC)			Fibre Core (FC)			Vanguard Code
	Weight (lbs/ft)	EIPS Nominal B/S (tons)		Weight (lbs/ft)	IPS Nominal B/S (tons)		
		Bare	Galvanized		Bare	Galvanized	Prefix +
1/4	0.12	3.40	3.06	0.11	2.74	2.47	.... 0016
5/16	0.18	5.27	4.74	0.16	4.26	3.83	.... 0020
3/8	0.26	7.55	6.80	0.24	6.10	5.49	.... 0024
7/16	0.35	10.20	9.18	0.32	8.27	7.44	.... 0028
1/2	0.46	13.30	12.00	0.42	10.70	9.63	.... 0032
9/16	0.59	16.80	15.10	0.53	13.50	12.15	.... 0036
5/8	0.72	20.60	18.50	0.66	16.70	15.00	.... 0040
3/4	1.04	29.40	26.50	0.95	23.80	21.40	.... 0048
7/8	1.42	39.80	35.80	1.29	32.20	29.00	.... 0056
1	1.85	51.70	46.50	1.68	41.80	37.60	.... 0100
1-1/8	2.34	65.00	58.50	2.13	52.60	47.30	.... 0108
1-1/4	2.89	79.90	71.90	2.63	64.60	58.10	.... 0116

* Additional diameters and constructions available upon request, minimum order quantity may apply

Vanguard Prefix:	
2591	6 x 36 IWRC Warrington Seale
2690	6 x 36 IWRC Warrington Seale Galvanized
2540	6 x 36 Fiber Core Warrington Seale

* Not all constructions or diameters are a standard stock item at all distribution centres.

Warning:

**NEVER EXCEED WORKING LOAD LIMIT OR 20% OF THE PRODUCTS BREAKING STRENGTH!
Failure to follow instructions can result in serious property damage, injury or death!**

- Acceptable strength is not less than 2.5% below the nominal breaking strength lists above
- 6 x 36 wire rope are NOT rotation/spin resistant

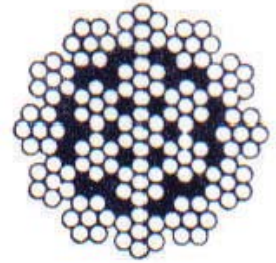


WIRE ROPES & CABLES

19 x 7 CLASSIFICATION IWRC

The non-rotating characterizing is achieved by two layers of strand, one having right lay, the other left lay.

- Rotation resistant but NOT non-rotating
- Requires frequent inspection as damage to inner strands and wires cannot be easily detected
- Not recommended for multiple part lifting



Standards:

RR-W-410G

Applications:

Hoisting ropes on derricks, boom cranes, shaft sinking hoists and freely suspended mine hoists, deck cranes, piling rigs main and auxiliary hoist lines on mobile and truck cranes.

Diameter (inches)	Weight (lbs/ft)	Nominal B/S (tons)		Vanguard Code (Prefix +)
		EIPS	IPS	
1/4	0.11	2.70	2.51	.... 0016
5/16	0.18	4.30	3.90	.... 0020
3/8	0.25	6.10	5.59	.... 0024
7/16	0.35	8.33	7.58	.... 0028
1/2	0.45	10.80	9.84	.... 0032
9/16	0.58	13.60	12.40	.... 0036
5/8	0.71	16.80	15.30	.... 0040
3/4	1.02	24.00	21.80	.... 0048
7/8	1.39	32.50	29.50	.... 0056
1	1.82	42.20	38.30	.... 0100
1-1/8	2.30	53.10	48.20	.... 0108

* Additional diameters and constructions available upon request, minimum order quantity may apply

Vanguard Prefix:	
2596	19 x 7 IWRC IPS
2597	19 x 7 IWRC EIPS

* Not all constructions or diameters are a standard stock item at all distribution centres.

Warning:

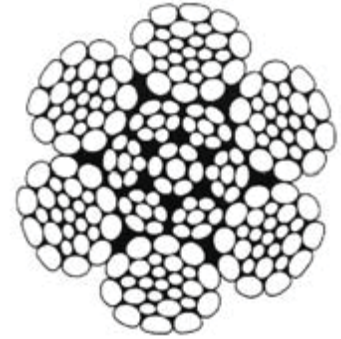
**NEVER EXCEED WORKING LOAD LIMIT OR 20% OF THE PRODUCTS BREAKING STRENGTH!
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- Acceptable strength is not less than 2.5% below the nominal breaking strength lists above

6 x 26 SWAGED AND SUPER SWAGED IWRC

Swaged ropes are produced by reducing the diameter of a regular round rope by compacting it. Swaging provides additional stability to rope shape and creates surface-to-surface contact between element wires. By packing more steel into a smaller diameter.

The swaging process produces a superior strength to diameter ratio and breaking that is higher than traditional rope while also offering greater resistance to drum crushing, scrubbing and similar wear.



Standards:
RR-W-410G

Applications:
Boom hoists, logging operations but can be adapted for other uses; IWRC shown, fiber core available.

Diameter (inches)	Swaged Construction			Super Swaged Construction		
	Approx. Weight (lbs/ft)	Nominal B/S (tons)	Vanguard Code	Approx. Weight (lbs/ft)	Nominal B/S (tons)	Vanguard Code
3/8	0.34	8.90	2599 0024			
1/2	0.55	15.90	2599 0032	0.61	17.40	2599 0033
9/16	0.71	19.30	2599 0036	0.78	21.90	2599 0041
5/8	0.87	24.20	2599 0040	0.97	27.00	2599 0045
3/4	1.25	34.90	2599 0048	1.38	38.50	2599 0049
7/8	1.70	34.40	2599 0056	1.87	52.00	2599 0058
1	2.22	62.00	2599 0100	2.44	66.50	2599 01002
1-1/8	2.81	73.50	2599 0108	3.09		
1-1/4	3.47	90.00	2599 0116	3.82		

* May not be a standard stock item at all distribution centres.

** Additional grades, diameters and constructions available upon request, minimum order quantity may apply

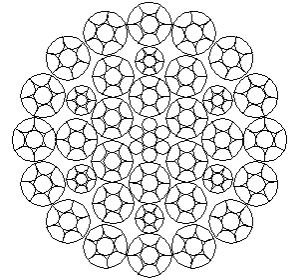
Warning:

**NEVER EXCEED WORKING LOAD LIMIT OR 20% OF THE PRODUCTS BREAKING STRENGTH!
Failure to follow instructions can result in serious property damage, injury or death!**

- Acceptable strength is not less than 2.5% below the nominal breaking strength lists above
- 6 x 26 swaged wire ropes are NOT rotation/spin resistant

TOWER KING 12 1960 RLL

Nominal Diameters: 12.0 to 36.0mm
 Filling Factor: 0.721
 Total Number of wires: 245



- 34 Strand compacted rope
- High breaking Strength
- Rotation Resistant
- More efficient due to high flexibility
- Super bend fatigue extending service life
- Langs Lay offers a larger wire surface rendering a higher resistance to abrasion
- Optimal winding performance in multi-layer use

Applications:

Engineered to meet the demanding requirements of tower cranes, mobile cranes, deck cranes and dockside cranes.

Diameter (mm)	Approx. Weight (lbs/ft)	Minimum Breaking Load				Vanguard Code
		1960 N/mm ²	Metric Tons (2,240lbs)	2160 N/mm ²	Metric Tons (2,240lbs)	
14	0.65	178	18.2	191	19.4	2585 3014
15	0.74	205	20.9	219	22.3	2585 3015
16	0.85	233	23.7	249	25.4	2585 3016
18	1.07	295	30.1	315	32.1	2585 3018
19	1.13	328	33.5	351	35.8	2585 3019
24	1.80	524	53.4	560	57.1	2585 3024

* May not be a standard stock item at all distribution centres.

** Additional grades, diameters and constructions available upon request, minimum order quantity may apply

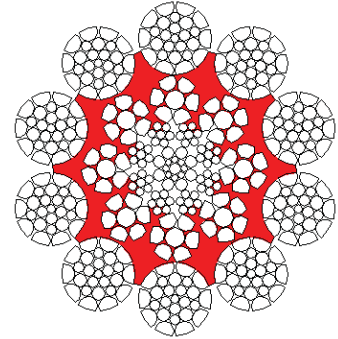
Warning:

**NEVER EXCEED WORKING LOAD LIMIT OR 20% OF THE PRODUCTS BREAKING STRENGTH!
 Failure to follow instructions can result in serious property damage, injury or death!**

- Acceptable strength is not less than 2.5% below the nominal breaking strength lists above

VPC 10P 1960 RLL

Nominal Diameters: 12.0 to 40.0mm
 Filling Factor: 0.704
 Total Number of wires: 389



- 10 Strand compacted rope
- Regular or Langs Lay
- High breaking Strength
- Increased service life
- Plastic filler between outer strands and inner core

Applications:

Engineered to meet the demanding requirements of tower cranes, mobile cranes, deck cranes and dockside cranes.

Diameter (mm)	Approx. Weight (lbs/ft)	Minimum Breaking Load				Vanguard Code
		1770 N/mm ²	Metric Tons (2,240lbs)	1960 N/mm ²	Metric Tons (2,240lbs)	
14	0.62	177	18.0	191	19.4	2586 0014
25	1.97	564	57.5	608	62.0	2586 0025
28	2.46	708	72.2	762	77.7	2586 0028

* May not be a standard stock item at all distribution centres.

** Additional grades, diameters and constructions available upon request, minimum order quantity may apply

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 Failure to follow instructions can result in serious property damage, injury or death!**

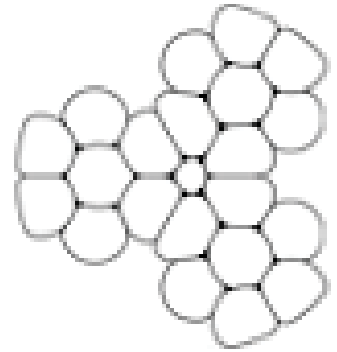
- Acceptable strength is not less than 2.5% below the nominal breaking strength lists above

SPECIALTY WIRE LINE CABLES

The term wire line usually refers to a cabling technology used by operators of oil and gas wells to lower equipment or measurement devices into the well for the purposes of well intervention and reservoir evaluation.

3 x 7 SWAGED WIRE ROPE IWRC

- A wire rope 3/16" or 1/4" (4.8 mm or 6.4 mm) in diameter; used to handle the inner tube of a wire-line core barrel.
- The 3-strand compacted design provides resistance to rotation while also providing a high strength/weight ratio.
- Compacting the rope also results in an exceptionally dense cross-section. The increased surface area, improves rope contact with the sheaves and drums. Providing greater resistance to surface wear and abrasion, reducing wear on the sheaves.
- These 3-strand ropes are ideal for diamond drilling operations.



Diameter (inches)	Wire Rope Lay	Weight (lbs/ft)	Nominal B/S (lbs)	Vanguard Code
Steel Core				
3/16	LHRL	0.08	4,650	2599 0012
3/16	RHRL	0.08	4,650	2599 00121
1/4	LHRL	0.16	8,600	2599 0016
Super Swaged				
3/16	LHRL	0.08	4,950	2599 1012

* May not be a standard stock item at all distribution centres.

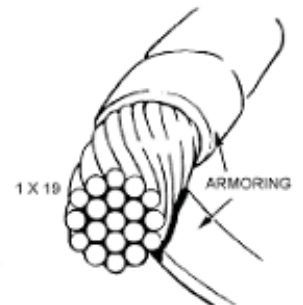
1 x 19 ARMORED CABLE

- Used for retrieving core samples
- Galvanized cable with armouring
- Armouring prevents fraying of cable in rough terrain



Diameter (inches)		Weight (lbs/ft)	Nominal B/S (lbs)	Vanguard Code
Outer	Inner			
11/16	1/8	0.08	4,000	2599 1111

* May not be a standard stock item at all distribution centres.



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CONVERSIONS

To Convert	Multiply By	To Obtain	To Convert	Multiply By	To Obtain
Miles (statute)	1.609	Kilometers	0.621		Miles (statute)
Yards	0.914	Meters	1.094		Yards
Feet	0.305	Meters	3.281		Feet
Inches	25.400	Millimeters	0.039		Inches
Short Tons	0.907	Metric Tons	1.102		Short Tons
Long Tons	1.016	Metric Tons	0.984		Long Tons
Pounds	0.454	Kilograms	2.205		Pounds
Pounds	0.00444	Kilo newtons	224.8		Pounds
Pounds per Foot	1.488	Kilos per Meter	0.672		Pounds per Foot
Pounds per sq. ft.	4.882	Kilos per sq. m	0.205		Pounds per sq. ft.
Pounds per sq. in.	0.070	Kilos per sq. cm	14.223		Pounds per sq. in.
Square Inches	645.200	Sq. Millimeters	0.002		Square Inches
Cubic Inches	16.387	Cubic Centimeters	0.061		Cubic Inches
Cubic Feet	0.028	Cubic Meters	35.310		Cubic Feet
Cubic Yards	0.765	Cubic Meters	1.308		Cubic Yards
U.S. Gallons	3.785	Liters	0.264		U.S. Gallons
Imperial Gallons	4.546	Liters	0.220		Imperial Gallons
Cubic Feet	28.320	Liters	0.035		Cubic Feet
Diameter	3.142	Circumference	0.318		Diameter
Deg. Fahrenheit	.5556 x (F° - 32)	Degrees Celsius	(1.8 x C°) + 32		Deg. Fahrenheit
1 Statute Mile -	1760 Yards -	5280 Feet -	1.60934 Km		
1 Nautical Mile -	6080 Feet -	1.85318 Km			
1 Fathom -	6 Feet -	1.82880 Meters			
1 Rod -	5.5 Yards -	16.5 Feet -	5.02919 Meters		