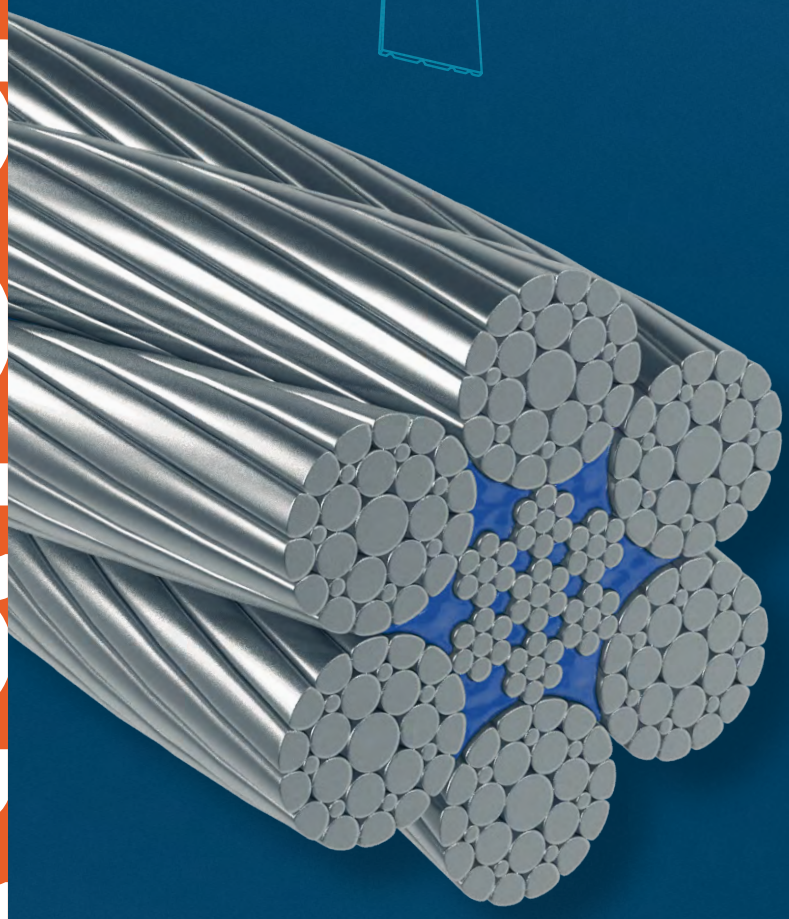
alps
wire rope corporation®

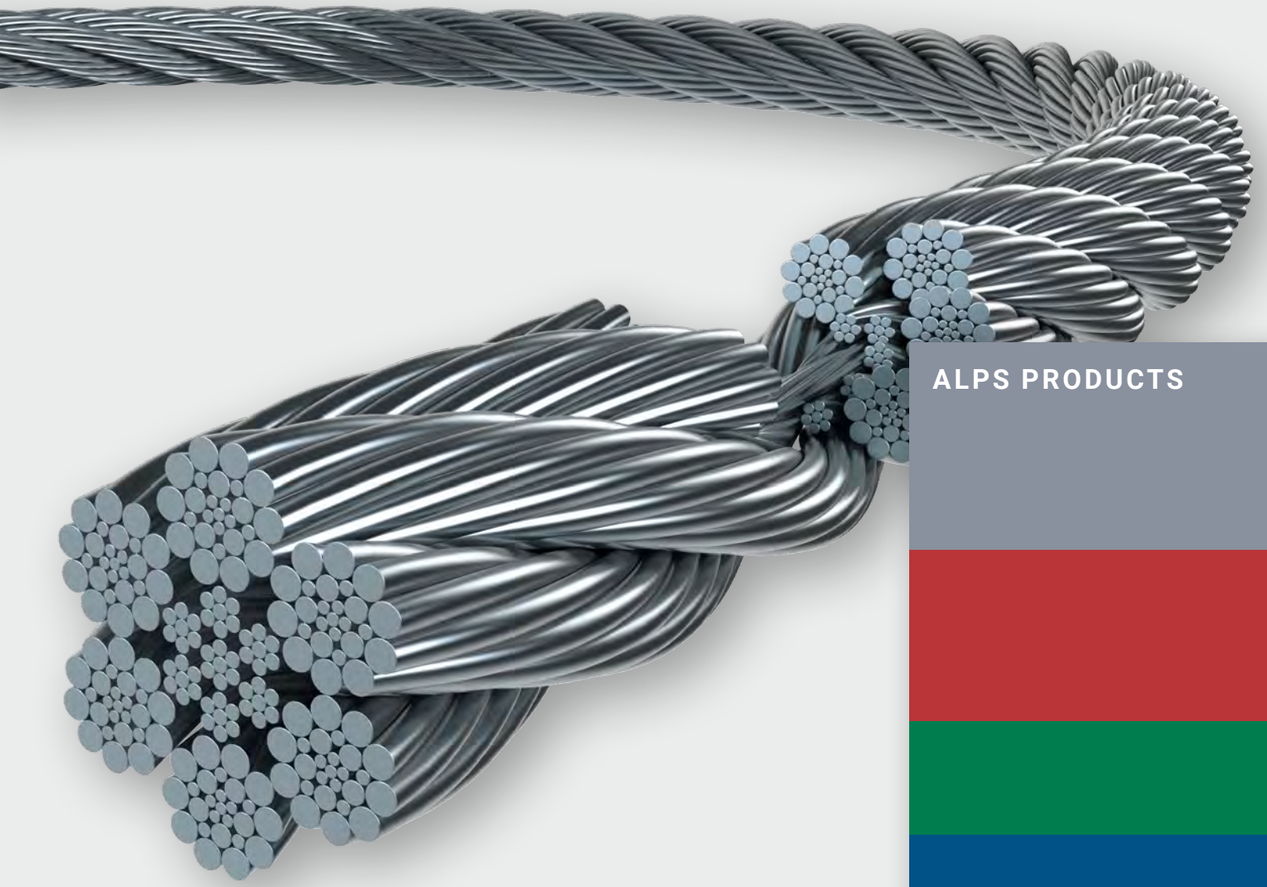
General Catalog



HIGH QUALITY
WIRE ROPE

GENERAL PURPOSE WIRE ROPE

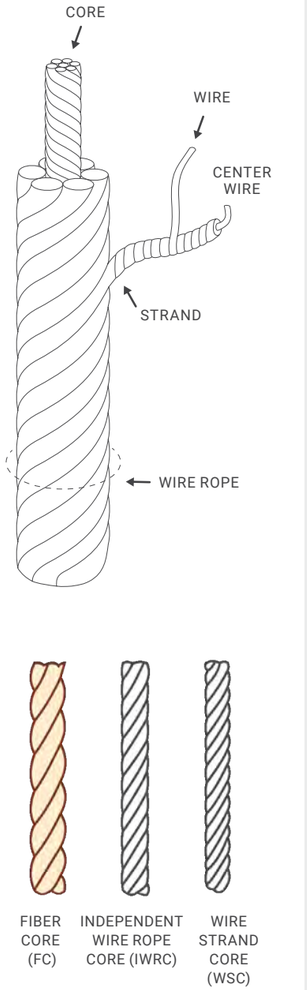
6x26 WARRINGTON SEALE



Alps® Wire Rope Corporation has provided the most innovative products in North America since its founding 1968.

alpswirerope.com

Wire Rope is a very complex piece of machinery, in many cases containing hundreds of moving parts. Proper application, maintenance, storage and handling must be adhered to at all times so that it may be used to its maximum potential, both in safety and performance.



WIRE ROPE COMPONENTS

Wire rope consists of three basic components:
1) Individual wires
2) Multi-wire strands
3) Core

WIRES

The individual wires that form strands are most commonly available in high-carbon steel, generally supplied in an uncoated or "bright" finish.

Zinc coated, or "Galvanized" rope is available in most sizes.

STRANDS

Wires are laid geometrically to form strands, each composed of two or more wires. Breaking these strand configurations into several classifications (page 4) is the basis for identifying wire ropes. These classifications may or may not be an actual construction. For example, a request for a "6x19" rope, without further mention to a specific strand construction would be considered a request for a "6x26" Filler Wire, the most popular construction in the "6x19" classification as a bright rope.

CORES

The core is the supporting member of the rope, made of either synthetic or sisal fibers – or steel. A fiber core rope offers flexibility; a steel center rope yields a higher strength along with the ability to resist crushing. Steel cores are required when the environment exceeds 180º F.

NOTE: When fiber core is specified, the core material (synthetic or sisal) could vary.

TYPICAL WIRE ROPE LAYS

REGULAR LAY ROPE

Regular lay rope is the most standard, and accepted for a wide range of applications. The direction of the individual wires is opposite to the direction of the strands. Because of this, the rope is less likely to untwist, and therefore is easier to handle than lang lay rope. This rope is also less subject to crushing.

LANG LAY ROPE

Lang lay wire ropes have the individual wires matching the same lay direction as the strands. Considered a special construction for specific applications. It provides improved bending fatigue and greater wear-resistance. Its uses uses are limited to applications (such as drag lines) where both ends are permanently fixed. Lang lay ropes will untwist if one end is free to rotate.

RIGHT LAY ROPE

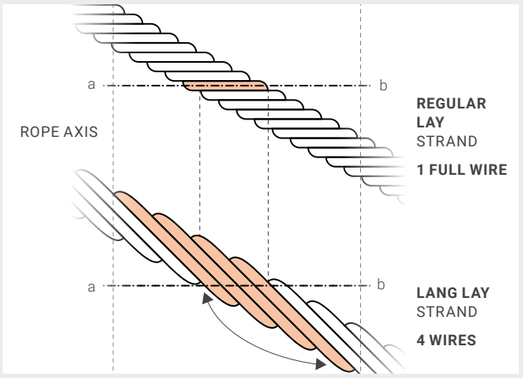
A right lay rope is one in which the path of the strands in the rope is from left to right in a direction away from the observer. A right lay rope may either be regular lay or lang lay.

LEFT LAY ROPE

A left lay rope is one in which the path of the strands in the rope is from right to left in a direction away from the observer. A left lay rope may be either regular lay or lang lay.

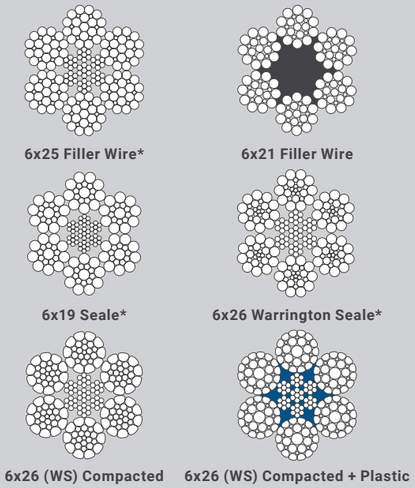
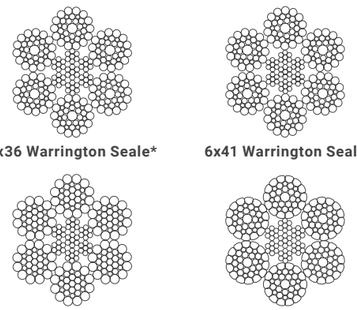
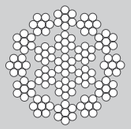
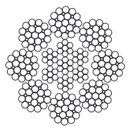
ALTERNATE LAY ROPE

An alternate lay rope is one in which the path of the strands in the rope alternate between right and left lay.

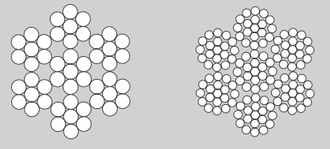
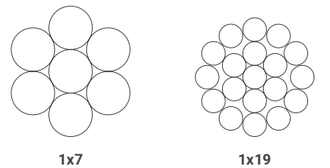
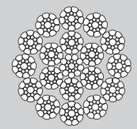
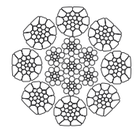


The above is a comparison of wear characteristics between regular lay and lang lay ropes. The greater metal area along the rope's axis (a-b) promotes more wear-resistance than a regular lay rope. The longer exposed length of outer wires in a lang lay rope offers an easier bend, resulting in greater fatigue resistance (page 11).

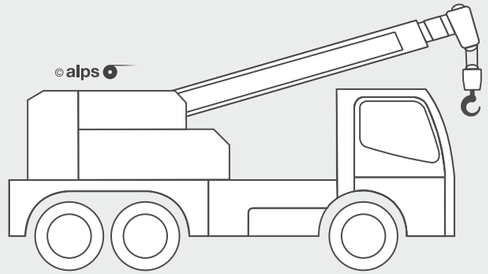
CONSTRUCTIONS

CLASSIFICATION	CROSS-SECTION	CONSTRUCTIONS
6x19		6 strands containing 15 through 26 wires, with a maximum of 12 outside wires. **Construction Count (Inside to Outside)** 6x25 (FW): 1 - 6 - (6) - 12 6x21 (FW): 1 - 5 - (5) - 10 6x19 (S): 1 - 9 - 9 6x26 (WS): 1 - 5 - (5 + 5) - 10 *Also available in Fiber Core
6x37		6 strands containing 27 through 49 wires, with a maximum of 18 outside wires. **Construction Count (Inside to Outside)** 6x36 (WS): 1 - 7 - (7 + 7) - 14 6x41 (WS): 1 - 8 - (8 + 8) - 16 6x31 (WS): 1 - 6 - (6 + 6) - 12 *Also available in Fiber Core
19x7 (Rotation-Resistant Category 2)		19 strands containing 7 wires each. The 7x7 core is left lang lay, the 12 outer strands are right regular lay. These directional changes result in a rotation-resistant characteristic.
8x19 (Rotation-Resistant Category 3)		8 strands containing 15 through 26 wires each. Using a 7x7 wire core in left lang lay, coupled with 8 outer strands of right regular lay again promote rotation- resistant properties.

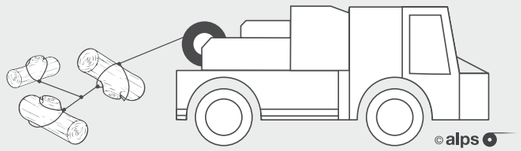
CONSTRUCTIONS

CLASSIFICATION	CROSS-SECTION	CONSTRUCTIONS
7x7 & 7x19		7 strands containing 7 or 19 wires, with a maximum of 6 or 12 outside wires. **Construction Count (Inside to Outside)** 7x7: 1 - 6 7x19: 1 - 6/12
1x7 & 1x19		1 strand containing 7 or 19 wires, with a maximum wof 6 or 12 outside wires. **Construction Count (Inside to Outside)** 1x7: 1 - 6 1x19: 1 - 6 - 12
Compact 19 (Rotation-Resistant Category 2)		19 strands containing 19 wires each and compacted. Stranded rope constructed in such a manner that it has significant resistance to rotation. It has at least 10 outer strands, and comprises an assembly of two or more layers of strands laid helically over a center in two or three operations. The direction of lay of the outer strands being opposite to that of the underlaying layer. **Construction Count (Inside to Outside)** 19x19 (S): 1 - 9 - 9
Compact T8 (Non-Rotation-Resistant)		8 strands containing 15 through 26 wires each. All outer strands are compacted and rotary swaged. **Construction Count (Inside to Outside)** 8x26 (WS): 1 - 5 - (5 + 5) - 10

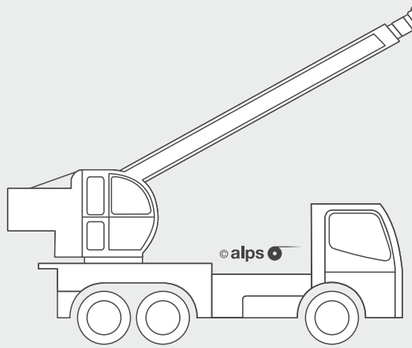
GENERAL APPLICATIONS I



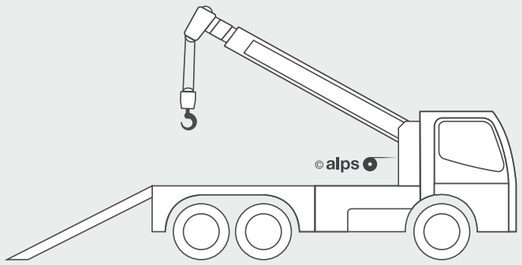
MOBILE CRANES



LOGGING CHOKERS



TRUCK CRANES



WRECKERS

This page depicts some of the most common uses for wire rope. In most applications with lower lifting heights, standard **6x19 or 6x37** classes are used, either in Fiber Core or IWRC. For higher heights a rotation resistant rope is recommended. Consulting the Original Equipment Manufacturer and OSHA Standards is recommended to ensure proper selection.

SELECTION FACTORS

- **STRENGTH**
- **ABRASION**
- **CRUSHING**
- **FATIGUE**

Choosing the rope best suited for a specific application requires attention to all four factors shown above. While it is impossible to possess the ultimate physical properties for every factor, establishing an order of priorities is essential in choosing the wire rope best suited to an application.

1a. SUFFICIENT STRENGTH

First and foremost, wire rope must have sufficient strength to handle the ultimate applied load. The following factors must be considered when calculating applied load potential:

- Dead Weight • abrupt starts • sudden stops
- Shock Loads • high speeds • friction
- Loss of Efficiency when rope is bent over sheaves
- Location of sheaves and drums
- Environmental Conditions: Heat, Humidity, etc.
- Special Considerations such as: Danger to Human Life, Value of the Load, etc.

The true total load includes all of the above. The sum of these factors is then multiplied by a “Design Factor”, defined as the ratio of the nominal strength of a wire rope to the total load it is expected to carry. For an average application, a common design factor is 5:1, or if there is danger to life, this factor could be as high as 10:1. For proper design selection, consulting industry standards and OSHA requirements is recommended.

1b. RESERVE STRENGTH

The reserve strength of a wire rope is the strength exclusive of the outside wires, which are the first to wear out under abrasion. As the number of layers of wires per strand increases, the reserve strength increases. Well lubricated ropes in service have the following reserve strengths (approximately) in terms of strengths of new ropes:

Wire Rope Construction	Reserve Strength
6x7	18 %
6x19 (S)	32 %
6x21 (FW)	36 %
6x25 (FW)	43 %
6x31 (WS)	43 %
6x36 (WS)	49 %
6x41 (WS)	54 %

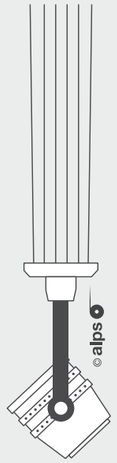
2. ABRASION RESISTANCE

Whether a rope is dragged against gravel or dirt, or passed over sheaves, it is subject to abrasive wear. Internal wear can also occur, depending upon application and construction. When choosing a rope to resist abrasion, a good rule-of-thumb is to keep in mind that larger outside wires and **lang lay ropes** are generally more abrasion-resistant than regular lay ropes.

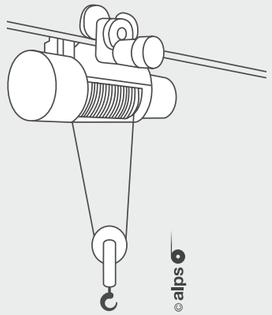
3. RESISTANCE TO CRUSHING

Or in simpler terms, abuse. Wire rope crushing can occur from a number of abuses: Undersized grooves on drums and sheaves; excessive pressure over drums and sheaves; and overwinding on drums, or irregular winding. Steel center ropes have a better tendency to resist crushing than fiber core ropes as does regular lay versus lang lay.

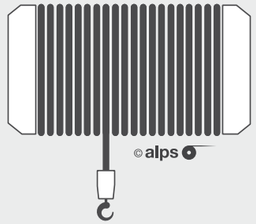
GENERAL APPLICATIONS II



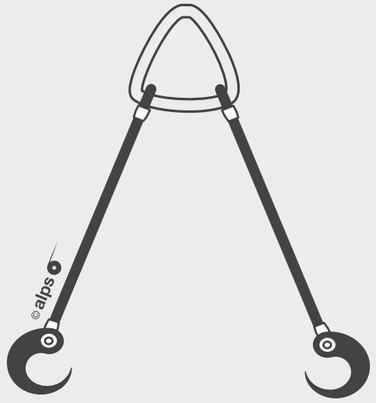
OVERHEAD CRANE WITH LADLE



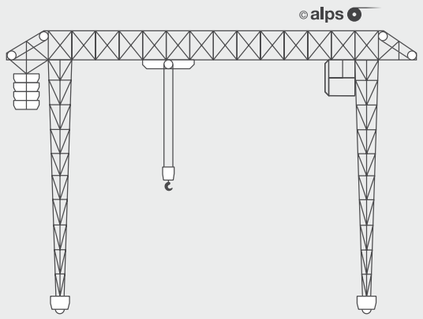
OVERHEAD HOISTS



POWER WINCHES



WIRE ROPE SLINGS



OVERHEAD TRAVELING CRANES

This page depicts some of the most common uses for wire rope. In most applications with lower lifting heights standard standard **6x19 or 6x37** class ropes are used, either in Fiber Core or IWRC. For higher heights a rotation resistant rope is recommended. Consulting the Original Equipment Manufacturer and OSHA Standards is recommended to ensure proper selection.

4. RESISTANCE TO FATIGUE

Operating ropes experiencing shortened rope service life is frequently due to a condition known as early fatigue. To picture this action, a clothes hanger, when bent repeatedly back and forth at the same point, will eventually break. All wire ropes running over sheaves and drums are subjected to bending stresses, and the rope wires will eventually fatigue.

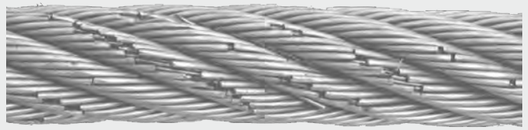
The tighter (and faster) the bend, the quicker the eventual fatigue. As the number of wires per strand in a rope increases, the ability to resist fatigue increases as well. The diameter of the sheave or drum in relationship to the diameter of rope is a critical factor in establishing the ropes' ability to resist fatigue.

Following the ratios shown below is important, particularly in applications where bending fatigue is the major consideration.

SUGGESTED SHEAVE & DRUM RATIOS

Wire Rope Construction	Minimum D/d Ratio
6x7	42 : 1
6x19 (S)	34 : 1
6x21 (FW)	30 : 1
6x25 (FW)	26 : 1
6x26 (WS)	30 : 1
6x31 (WS)	26 : 1
6x36 (WS)	23 : 1
6x41 (WS)	21 : 1
6x30 (G) FSR	30 : 1
19x7	34 : 1
8x25 (FW)	21 : 1

D = Diameter of Drum d = Diameter of Rope



An example of wire fatigue: This rope was subjected to tight bending over small sheaves resulting in early fatigue.

To determine the recommended diameter of sheaves or drums, the diameter of the rope should be multiplied by the D/d ratio as listed above.

For example; a 1/2" 19x7 (0.5x34) should have a minimum 17 inch diameter drum or sheave. If a change in construction is being considered as a means for delaying wire fatigue influenced by bending stresses, the table below may me useful.

For example; a change from a 6x25 (FW) with a factor of 1.00 to a 6x36 (WS) with a factor of 1.16 would mean the service life could be expected to increase by 16%.

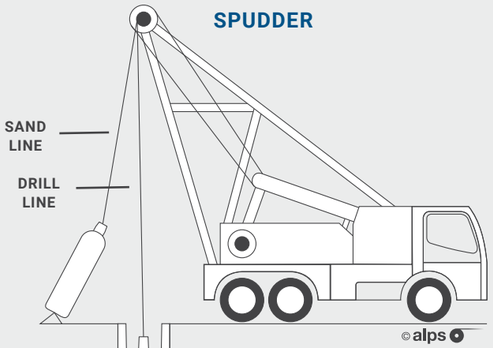
Wire Rope Construction	Factor
6x7	0.61
19x7	0.67
6x19 (S)	0.81
6x21 (FW)	0.89
6x26 (WS)	0.89
6x30 (G) FSR	0.90
6x25 (FW)	1.00
6x31 (WS)	1.00
6x36 (WS)	1.16

Caution: These Figures apply only to bending stresses. Other factors which may contribute to rope deterioration have not been considered, such as abrasive wear.

In summary, fatigue resistance is dependent upon:
- The size of the individual wire
- The size of the sheave or drum
- The construction of the rope
- The speed of operation

OILFIELD APPLICATIONS

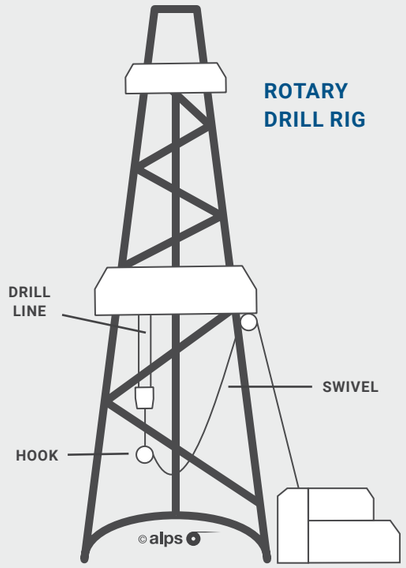
SPUDDER



Sand Line
6x7 FC, RRL

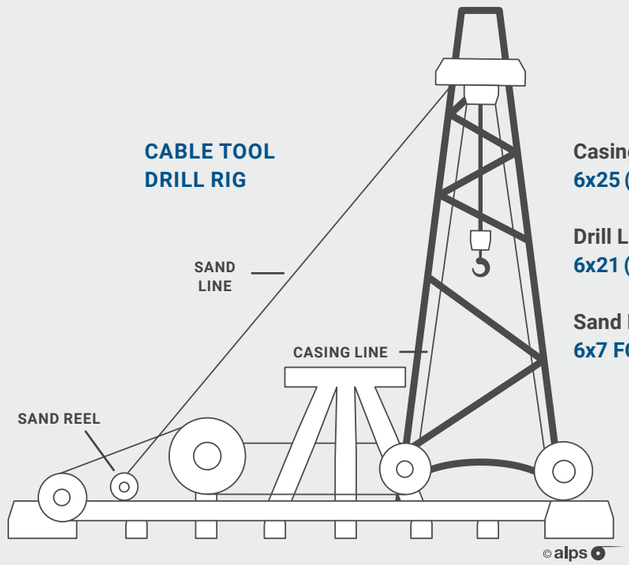
Drill Line
6x21 (FW) FC,
LRL or RRL

ROTARY DRILL RIG



Drill Line
6x19 (S) IWRC, RRL or
6x26 (WS), IWRC, RRL, EIPS

CABLE TOOL DRILL RIG



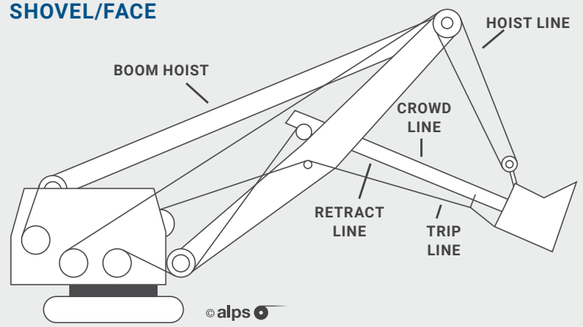
Casing Line
6x25 (FW) FC, RRL

Drill Line
6x21 (FW) FC, LRL, or RRL

Sand Line
6x7 FC, RRL

CONSTRUCTION & MINING APPLICATIONS

SHOVEL/FACE

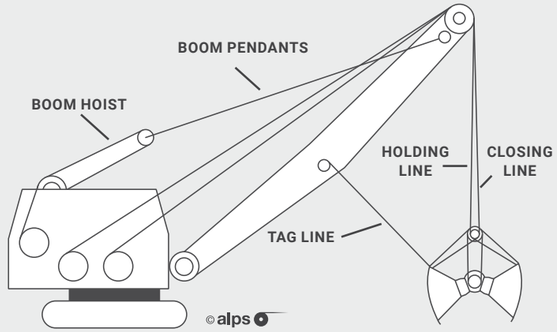


Shovel Hoist, Crowd & Retract
7/8” & smaller: 6x25 (FW) or
6x36 (WS), RLL; IWRC
1” & larger: 6x41 (FW), RLL; IWRC

Trip Line
6x25 (FW) or 6x36 (WS), RRL; IWRC

Boom Hoist
6x25 (FW), RRL, or
6x30 (G) FSR, RLL; IWRC

CRANE/CLAMSHELL

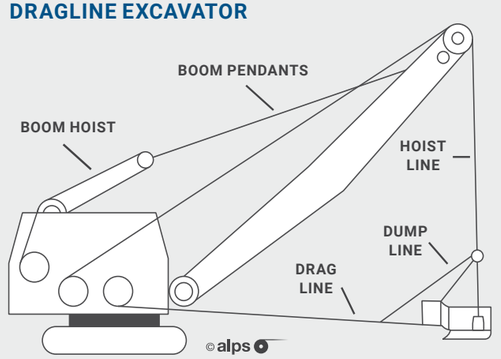


Closing & Holding
6x25 (FW) or 6x36 (WS),
RRL or RLL, IWRC or FC, or
6x30 (G) FSR, RLL; IWRC

Boom Hoist
6x25 (FW), RRL, or
6x30 (G) FSR, RLL; IWRC

Tag Line
6x25 (FW) or
6x36 (WS), RRL; IWRC

DRAGLINE EXCAVATOR



Drag Line
1/2” – 1-3/8”: 6x21 (FW) or
6x30 (G) FSR, RLL; IWRC
1-1/2” – 2-1/2”: 6x21 (FW), or
6x26 (WS) or 6x30 (G) FSR, RLL; IWRC

Hoist Line
7/8” & smaller: 6x25 (FW) or
6x36 (WS), RRL or RLL; IWRC
1” & larger: 6x41 (WS), RLL; IWRC

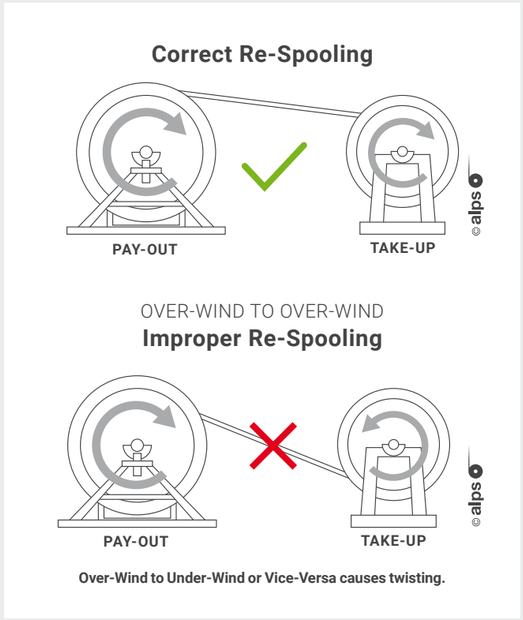
Boom Hoist
6x25 (FW), RRL, or 6x30 (G) FSR; IWRC
DUMP LINE
6x25 (FW), RRL or RLL; IWRC

NOTE: Actual constructions may vary depending on equipment and application.

RE-SPOOLING

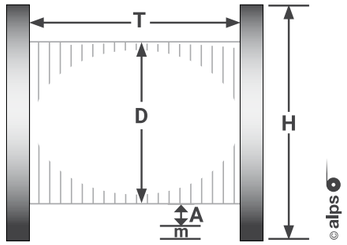
UNREELING AND UNCOILING

Unwinding wire rope from its original reel to another reel, coil, or drum requires careful attention. As shown in the illustration below, it is advised that the rope travel from the top of the pay-out to the top of the take-up. Doing the opposite will cause reverse bending, as evidence by the fact that the spools are traveling in opposite directions. In most cases, this reverse bending will cause the rope to become livelier and harder to handle, inevitably resulting in twists and kinks. When unwinding a coiled rope, simply free the outside end and roll the coil along the ground.



When re-spooling rope to other reels or drums, it is common practice to wind in uniform layers, with each layer set into the grooves formed between 2 wraps of the previous layer. Bearing this uniformity in mind, the formula below is a reliable method for figuring spool capacity for a given rope diameter. It takes into consideration a normal oversize in diameter, but can vary depending upon construction and actual dimensions of the reel or drum. A clearance ("m") is important in avoiding damage to the wire rope.

FORMULA FOR SPOOLING CAPACITY



Maximum capacity = F x A x T x (D + A) (Feet)

F = Factor for wire rope size (shown below)
H = Diameter of flange in inches
D = Diameter of drum in inches
A = Depth of space on flange
T = Width (or "traverse") between flanges in inches
m = Margin for Rope Clearance

TABLE OF SIZE FACTORS

Rope Diameter in	Factor
1/4	4.190
5/16	2.680
3/8	1.860
7/16	1.370
1/2	1.050
9/16	0.827
5/8	0.670
3/4	0.465
7/8	0.342
1	0.262
1-1/8	0.207
1-1/4	0.268
1-1/2	0.116

Size Factors (0.2618 ÷ rope diameter^2)

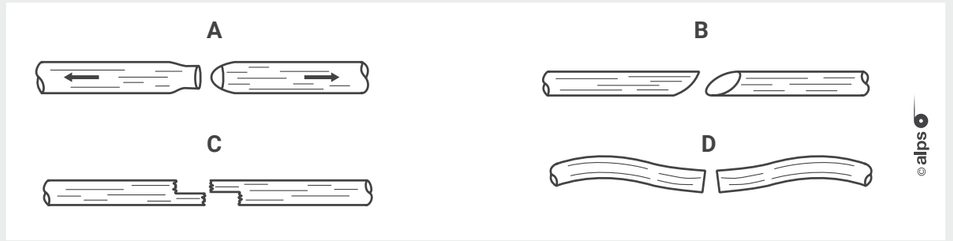
WIRE ROPE INSPECTION

So that optimum safety and performance is achieved, it is important to:
• Consult industry standards and OSHA requirements
• Inspect rope and equipment for any flaws prior to installation
• Periodically inspect rope and equipment during use.

Wire rope may fail if it is damaged, abused, overused, or improperly maintained. Any rope with changes from its original appearance must be considered for replacement. Finding any of the following conditions is most likely a cause for replacement:

A) Reduction in rope diameter
B) Distortion of rope lay
C) Excessive external wear
D) Internal nicking
E) Peening
F) Scrubbing
G) Corrosion
H) Broken Wires

COMMON WIRE BREAKS



A) A wire broken under a tensile load that exceeds its strength is recognized by the "cup and cone" configuration at the fracture point. The necking down of the wire at this point shows that failure occurred while the wire retained its ductility.
B) Shear-tensile fracture occurs in wire subjected to a combination of tratnsverse and axial loads.
C) D) Fatigue breaks are usually characterized by squared-off ends perpendicular to the wire either straight across or Z-shaped.

SHEAVE GROOVES & ALIGNMENT

Matching groove diameter with rope diameter is critical to optimum service life. An old, worn rope that has been pulled down in diameter will cause the sheave or roller to wear down as well. When a new rope is installed, it is being forced to operate in this undersize groove. This will pinch the rope and inevitably result in:

- **Decrease of strand & wire clearance**
- **Increased abrasion**
- **Increased bending stress**
- **Internal nicking**

Sheaves that are running out of alignment with the axis of the rope, along with sheaves running on worn bushings, will cause the rope to chafe against the flange. This will create premature failure of both the rope and the sheave.

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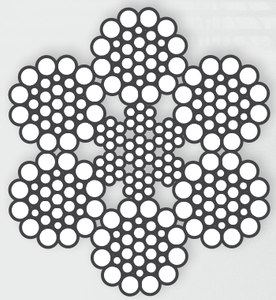
GENERAL PURPOSE ROPES

6x36 WARRINGTON SEALE IWRC

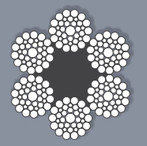


GENERAL PURPOSE & SEMI-ROTATION-RESISTANT ROPES

GENERAL PURPOSE WIRE ROPE

Diam. in	6x19 • 6x37 CLASS Fibre Core - IPS		6x19 • 6x37 CLASS IWRC - EIPS		
	Weight lb/ft	Nominal Strength S Ton-BRT	Weight lb/ft	Nominal Strength S Ton BRT	Nominal Strength S Ton GALV
3/16	.059	1.55	–	–	–
1/4	0.105	2.74	0.116	3.40	3.06
5/16	0.164	4.26	0.18	5.27	4.74
3/8	0.236	6.10	0.26	7.55	6.80
7/16	0.32	8.27	0.35	10.2	9.18
1/2	0.42	10.7	0.46	13.3	12.00
9/16	0.53	13.5	0.59	16.8	–
5/8	0.66	16.7	0.72	20.6	18.50
3/4	0.95	23.8	1.04	29.4	26.50
7/8	1.29	32.2	1.42	39.8	35.80
1	1.68	41.8	1.85	51.7	46.50
1-1/8	2.13	52.6	2.34	65.0	–
1-1/4	2.63	64.6	2.89	79.9	–
1-3/8	–	–	3.50	96.0	–
1-1/2	3.78	92.0	4.16	114.0	–

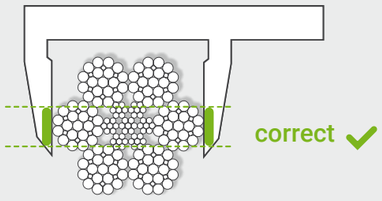

6x19 FC

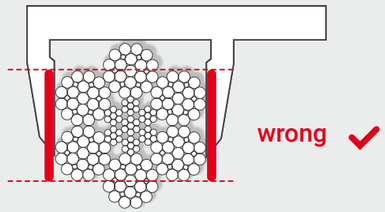

6x36 FC


6x19 IWRC


6x36 IWRC

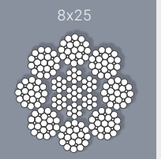
HOW TO MEASURE WIRE ROPE





The true diameter of wire rope is measured at its largest point!


19x7


8x25

SEMI-ROTATION RESISTANT WIRE ROPE

Diam. in	19x7 EIPS		8x25 IWRC - EIPS	
	Weight lb/ft	Nominal Strength S Ton	Weight lb/ft	Nominal Strength S Ton
3/16	0.064	1.57	–	–
1/4	0.113	2.77	–	–
5/16	0.177	4.30	–	–
3/8	0.252	6.15	–	–
7/16	0.346	8.33	–	–
1/2	0.431	10.8	0.47	11.6
9/16	0.577	13.6	0.60	14.7
5/8	0.714	16.8	0.73	18.1
3/4	1.020	24.0	1.06	25.9
7/8	1.390	32.5	1.44	35.0
1	1.820	42.2	1.88	45.5
1-1/8	2.300	53.1	–	–

DIAMETER TOLERANCE

Nominal Diam. in	Tolerance in (-0)	Max. Diam. in
3/64	+0.008	0.055
1/16	+0.010	0.073
3/32	+0.012	0.106
1/8	+0.014	0.139
5/32	+0.016	0.172
3/16	+0.018	0.206
7/32	+0.018	0.237
1/4	+0.015	0.265
5/16	+0.015	0.328
3/8	+0.019	0.394
7/16	+0.021	0.459
1/2	+0.025	0.525
9/16	+0.028	0.591
5/8	+0.031	0.656
3/4	+0.038	0.788
7/8	+0.044	0.919
1	+0.050	1.050
1-1/8	+0.056	1.181
1-1/4	+0.063	1.313
1-3/8	+0.069	1.444
1	+0.075	1.575

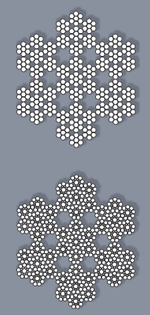
Above tolerances refer to: Aircraft Cable, 3/64" thru 7/32" Wire Rope, 1/4" thru 1 1-/2"

WARNING: The nominal strengths listed throughout this publication are the results of testing under ideal conditions: straight pull, no bending, ambient temperatures, with loading applied at a gradual speed. In most applications, the applied load should not exceed 20% of the nominal strengths.

MISCELLANEOUS WIRE ROPE

GALVANIZED CABLE-LAID SLING ROPES

Diam. in	Construction	Weight lb/ft	Nominal Strength S Ton
1/4	7x7x7	0.094	2.380
3/8	7x7x7	0.210	5.700
1/2	7x7x7	0.370	9.750
5/8	7x7x7	0.580	14.60
3/4	7x7x19	0.880	21.40
7/8	7x7x19	1.190	28.40
1	7x7x19	1.560	36.20
1-1/8	7x7x19	1.720	47.40
1-1/4	7x7x19	2.180	65.05
1	7x7x19	2.960	88.75

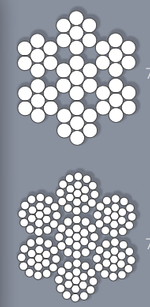


alps

AIRCRAFT CABLE AND STRANDS

GALVANIZED AIRCRAFT CABLE (GAC)
STAINLESS STEEL T304 AIRCRAFT CABLE (SSAC)

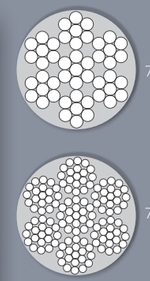
Diam. in	7x7			7x19		
	Weight lb/1000ft	Nominal Strength lb		Weight lb/1000ft	Nominal Strength lb	
		GAC	SSAC		GAC	SSAC
1/16	7.5	480	480	–	–	–
3/32	16	920	920	17	1,000	920
1/8	28	1,700	1,700	29	2,000	1,760
5/32	43	2,600	2,400	45	2,800	2,400
3/16	62	3,700	3,700	65	4,200	3,700
7/32	–	–	–	86	5,600	–
1/4	–	–	–	110	7,000	6,400
5/16	–	–	–	173	9,800	9,000
3/8	–	–	–	243	14,400	12,000



Some items also available in T316 Stainless Steel

PVC-COATED GAC

Cable Diam. - Outside Diam.	Construction	Weight lb/1000ft	Nominal Strength lb
1/16 – 1/8	7x7	11.8	480
3/32 – 3/16	7x7	25.8	920
1/8 – 3/16	7x7	35.2	1,700
1/8 – 3/16	7x19	36.2	2,000
3/16 – 1/4	7x19	77.5	4,200
7/32 – 9/32	7x19	103	5,600
1/4 – 5/16	7x19	123	7,000

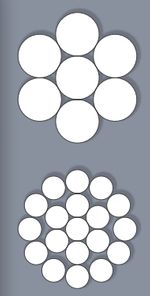


Standard coating is clear PVC. Also available upon request: Colored PVC and coated Stainless Steel, other sizes and constructions.

NOTE: If the full strength of the bare cable is required, plastic must be stripped from cable, with the fittings attached in direct contact with the cable.

EHS GALVANIZED STRAND
STAINLESS STEEL T304 STRAND

Diam. in	Construction	Weight lb/1000ft	Nominal Strength lb	
			EHS GALV	SS T304
1/16	1x19	8.5	500	500
3/32	1x19	20	1,200	1,200
1/8	1x19	35	2,100	2,100
5/32	1x19	55	–	3,300
3/16	1x19	77	–	4,700
3/16	1x7	73	3,990	–
1/4	1x7	117	6,650	–
5/16	1x7	205	11,200	–
3/8	1x7	273	15,400	18,000
1/2	1x7	517	26,900	–

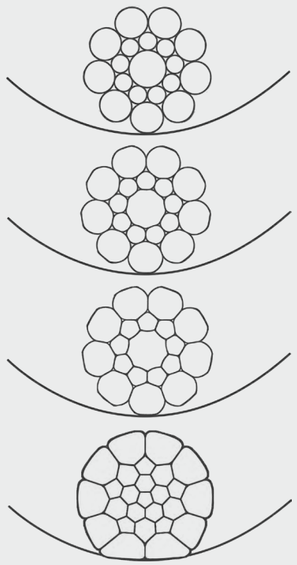


GENERAL PURPOSE

COMPACTED WIRE ROPE

Compacted wire ropes provide:

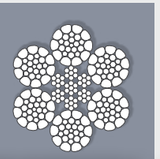
- Higher breaking strengths for given diameters
- Better drum winding characteristics
- Increased flexibility under load
- Improved resistance to crushing
- Minimum drum and sheave wear



Contact area of strands

COMPACT 626

6x26 (WS) Compacted



Nominal Diam.		Weight		Nominal Strength	
				1960 N/mm²	2160 N/mm²
in	mm	kg/m	lb/ft	S Ton	S Ton
–	10	0.461	0.31	9.40	10.00
7/16	11.1	0.568	0.382	11.25	13.05
–	12	0.664	0.446	13.10	14.00
1/2	12.7	0.72	0.484	14.75	15.65
–	13	0.769	0.517	15.45	16.40
9/16	14.3	0.93	0.625	18.75	20.05
5/8	16	1.15	0.773	23.35	24.90
–	18	1.45	0.974	29.65	31.65
3/4	19.1	1.63	1.10	33.40	35.60
–	20	1.79	1.20	36.60	39.00
–	22	2.17	1.46	44.30	47.30
7/8	22.2	2.21	1.49	45.95	49.05
–	24	2.58	1.73	52.80	56.35
–	25	2.8	1.88	57.30	61.05
1	25.4	2.89	1.94	59.20	66.15
–	26	3.03	2.04	61.95	–
–	28	3.51	2.36	71.85	–
1-1/8	28.6	3.66	2.46	74.95	–
–	30	4.03	2.71	82.45	–
1-1/4	31.8	4.53	3.04	92.70	–
–	32	4.59	3.08	93.90	–
–	34	5.18	3.48	05.95	–
1-3/8	35	5.46	3.67	12.45	–
–	36	5.81	3.90	11.05	–
1-1/2	38	6.51	4.37	32.30	–
–	40	7.16	4.81	46.60	–

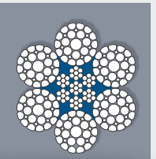
COMPACT 636

6x36 (WS) Compacted

Nominal Diam.		Weight		Nominal Strength	
				1960 N/mm²	2160 N/mm²
in	mm	kg/m	lb/ft	S Ton	S Ton
1/4	6.35	0.191	0.128	3.80	4.05
5/16	8	0.303	0.204	6.05	6.45
–	9	0.384	0.258	7.65	8.15
3/8	9.5	0.427	0.287	8.55	9.10
–	10	0.474	0.318	9.45	10.05
7/16	11.1	0.57	0.383	11.35	12.00
–	12	0.682	0.458	13.25	14.10
1/2	12.7	0.749	0.503	14.90	15.75
–	13	0.785	0.527	15.55	16.55
9/16	14.3	0.95	0.638	18.95	20.15
5/8	16	1.18	0.793	23.60	25.15
–	18	1.49	1.00	29.85	31.85
3/4	19.1	1.68	1.13	33.60	35.80
–	20	1.84	1.24	36.80	39.25
–	22	2.23	1.50	44.65	47.60
7/8	22.2	2.27	1.53	46.30	49.05
–	24	2.65	1.78	53.15	56.65
–	25	2.89	1.94	57.65	61.50
1	25.4	2.98	2.00	59.50	63.50
–	26	3.12	2.10	62.40	66.60
–	28	3.61	2.43	72.30	77.15
1-1/8	28.6	3.77	2.53	75.50	80.60
–	30	4.15	2.79	83.10	88.60
1-1/4	31.8	4.66	3.13	93.35	99.65
–	32	4.72	3.17	94.45	00.85
–	34	5.33	3.58	06.70	–
1-3/8	35	5.61	3.77	13.55	–
–	36	5.97	4.01	20.15	–
1-1/2	38	6.69	4.50	33.40	–
–	40	7.38	4.89	47.70	–

COMPACT 6P

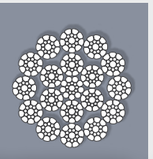
6x26 (WS)
Compacted with Plastic



Nominal Diam.		Weight		Nominal Strength	
				1960 N/mm²	2160 N/mm²
in	mm	kg/m	lb/ft	S Ton	S Ton
3/8	10	0.472	0.317	9.40	9.95
–	11	0.571	0.384	11.35	12.05
–	12	0.680	0.457	13.55	14.35
1/2	12.7	0.762	0.512	15.15	16.10
–	13	0.789	0.536	15.90	16.85
9/16	14	0.926	0.622	18.45	19.55
–	15	1.06	0.714	21.15	22.45
5/8	16	1.21	0.812	24.10	25.55
–	17	1.37	0.917	27.20	28.85
–	18	1.53	1.03	30.50	32.35
3/4	19	1.71	1.15	34.00	36.05
–	20	1.89	1.27	37.65	39.95
–	21	2.08	1.40	41.50	44.00
–	22	2.29	1.54	45.55	48.35
7/8	22.2	2.37	1.59	47.25	50.10
–	23	2.50	1.68	49.80	52.80
–	24	2.72	1.83	54.20	57.50
-	25	2.95	1.98	58.85	62.40
1	25.4	3.05	2.05	60.75	64.45
–	26	3.19	2.14	63.65	67.50
–	27	3.44	2.31	68.65	72.80
–	28	3.70	2.49	73.80	78.30
1-1/8	28.6	3.86	2.59	76.90	81.55
–	29	3.97	2.67	79.20	84.00
–	30	4.25	2.86	84.75	89.90
–	31	4.54	3.05	90.50	96.00
1-1/4	32	4.84	3.25	96.40	10.25
–	33	5.14	3.46	10.55	08.75
–	34	5.46	3.67	08.85	15.45
1-3/8	35	5.79	3.89	15.30	22.40
–	36	6.12	4.11	22.05	29.45
1-1/2	38	6.82	4.58	36.00	44.20
–	40	7.56	5.08	50.70	59.80
1-5/8	41.3	8.05	5.41	60.35	70.15
–	42	8.33	5.60	66.10	76.20
–	44	9.15	6.15	82.30	93.40
1-3/4	45	9.57	6.43	90.70	02.30

COMPACT 19

19x19 Compacted

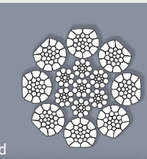


Nominal Diam.		Weight		Nominal Strength S Ton	
				1960 Grade	2160 Grade
in	mm	kg/m	lb	S Ton	S Ton
5/16	8	0.31	0.21	6.15	6.80
–	9	0.40	0.27	7.80	8.60
3/8	9.5	0.44	0.30	8.70	–
–	10	0.49	0.33	9.65	–
7/16	11.1	0.60	0.40	11.90	–
–	12	0.70	0.47	13.90	–
1/2	12.7	0.79	0.53	15.55	–
–	13	0.82	0.55	16.30	–
9/16	14.3	1.00	0.67	19.75	–
5/8	16	1.25	0.84	24.70	–
–	18	1.58	1.06	31.30	–
3/4	19.1	1.76	1.18	35.25	–
–	20	1.95	1.31	38.60	–
–	22	2.36	1.59	46.85	–
7/8	22.2	2.40	1.61	47.60	–
–	24	2.81	1.89	55.65	–
–	25	3.05	2.05	60.40	66.35
1	25.4	3.15	2.12	62.40	68.45
–	26	3.30	2.22	65.35	71.75
–	28	3.82	2.57	75.75	83.20
1-1/8	28.6	3.99	2.68	79.05	86.85
–	30	4.39	2.95	86.95	95.55
1-1/4	31.8	4.93	3.31	97.75	07.35
–	32	4.99	3.35	99.00	08.70
–	34	5.64	3.79	11.35	–
1-3/8	35	5.98	4.02	17.95	–
–	36	6.32	4.25	24.55	–

Compact 19 strands have a flattened strand surface giving to a wider contact area between sheave and rope which increases the resistance to abrasion.

COMPACT T8

8x26 (WS)
Compacted and Swaged



Nominal Diam.		Approximate Weight		Nominal Strength S Ton
				2160 Grade
in	mm	kg/m	lb/ft	S Ton
–	8	0.296	0.20	7.2
–	9	0.375	0.25	9.2
–	10	0.463	0.31	11.3
–	11	0.560	0.38	13.7
–	12	0.666	0.45	16.3
1/2	12.7	0.746	0.5	18.2
–	13	0.782	0.53	19.1
–	14	0.907	0.61	22.1
–	15	1.041	0.70	25.4
5/8	16	1.184	0.80	28.9
–	18	1.499	1.01	36.6
3/4	19	1.67	1.12	40.8
–	20	1.851	1.24	45.2
–	21	2.04	1.37	49.8
–	22	2.239	1.5	54.7
–	23	2.448	1.64	59.8
–	24	2.665	1.79	65.1
–	25	2.892	1.94	70.6
1	25.4	2.985	2.01	72.9
–	26	3.128	2.1	76.4
–	27	3.373	2.27	82.4
–	28	3.627	2.44	88.6
1-1/8	28.6	3.785	2.54	92.4

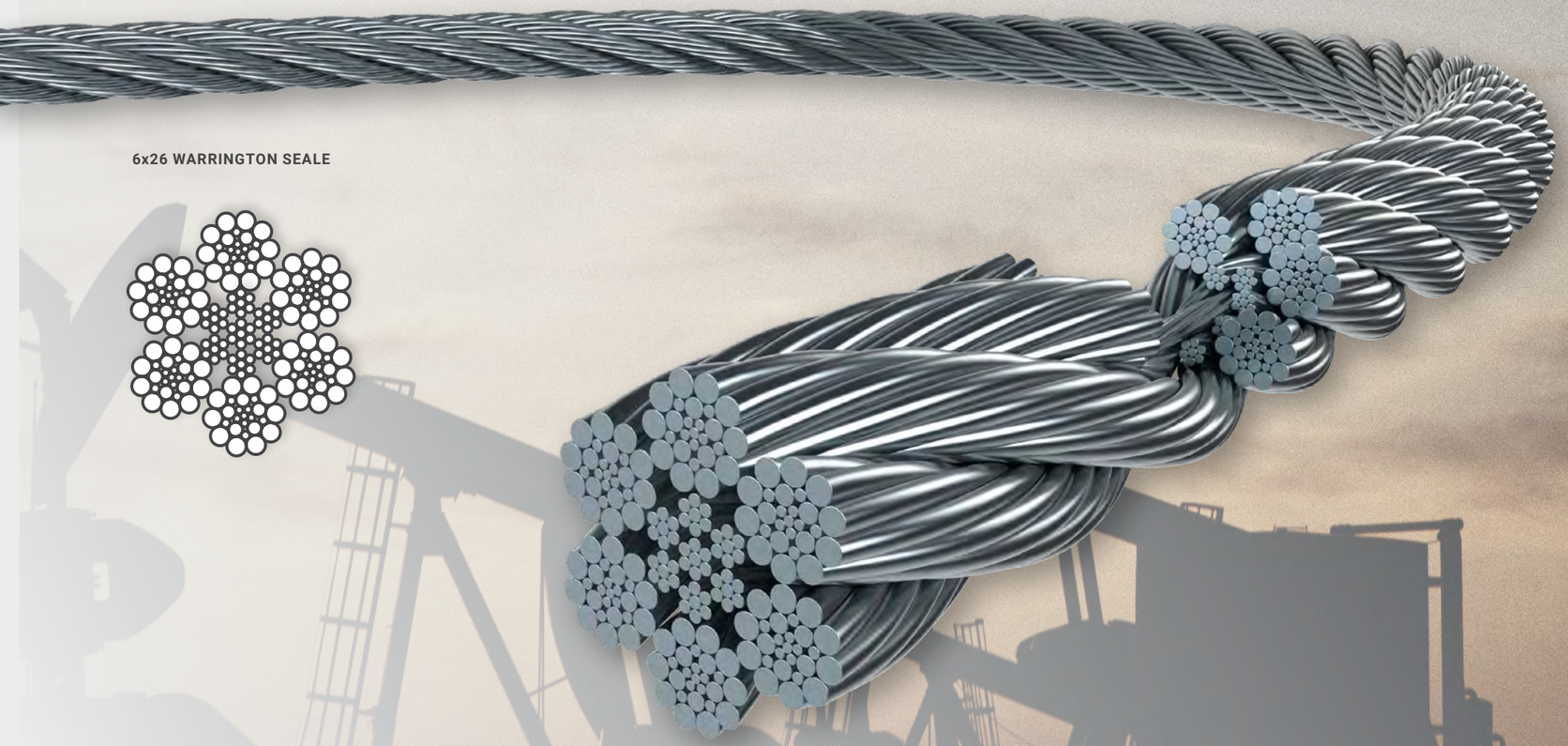
Compact T8 is a flexible rope.
All strands are compacted and rotary swaged. The rope has an extremely high breaking strength and is very resistant against abrasion. It is furthermore most suitable for multi-layer spooling systems with guided loads, fully lubricated and made out of galvanized or ungalvanized wires.

NOTE: Compact T8 must not be used on a swivel!

GENERAL PURPOSE

alps wire rope corporation®

OIL & GAS PRODUCTS



6x26 WARRINGTON SEALE

ROTARY DRILL LINES & WELL SERVICING

6x19 (S) & 6x26 (WS)

Nominal Diam.		Approximate Weight		Minimum Breaking Strength			
				EIPS		EEIPS	
in	mm	kg/m	lb/ft	lb	S Ton	lb	S Ton
5/8	15.9	1.07	0.72	41,138	20.6	45,409	22.7
3/4	19.1	1.67	1.04	58,898	29.4	64,742	32.4
7/8	22.2	2.09	1.41	79,579	39.8	87,672	43.8
1	25.4	2.75	1.85	103,408	51.7	113,749	56.9
1-1/8	28.6	3.48	2.34	129,934	65.0	142,972	71.5
1-1/4	31.8	4.30	2.89	159,833	79.9	175,793	87.9
1-3/8	34.9	5.19	3.49	191,979	96.0	211,986	106.0
1-1/2	38.1	6.19	4.16	227,048	114.0	249,528	125.0
1-5/8	41.3	7.26	4.88	263,016	132.0	292,240	146.0
1-3/4	44.5	8.42	5.66	305,728	153.0	337,200	169.0
1-7/8	47.6	9.65	6.49	348,440	174.0	384,408	192.0
2	50.8	10.99	7.39	395,648	198.0	433,864	217.0
2-1/8	54.0	12.41	8.34	442,856	221.0	485,568	243.0
2-1/4	57.2	13-91	9-35	494,560	247.0	544,016	272.0

Right or Left Lay, IWRC Bright or Galvanized

Reference: API Specification 9A

COMPACT 6 & COMPACT 6P

Nominal Diam.		Approximate Weight		Minimum Breaking Strength			
				EIPS (1960)		EEIPS (2160)	
in	mm	kg/m	lb/ft	lb	S Ton	lb	S Ton
5/8	16	1.21	0.812	48,200	24.10	51,100	25.55
3/4	19	1.71	1.15	68,000	34.00	72,100	36.05
7/8	22.2	2.37	1.59	94,500	47.25	100,200	50.10
1	25.4	3.05	2.05	121,500	60.75	128,900	64.45
1-1/8	28.6	3.86	2.59	153,800	76.90	163,100	81.55
1-1/4	32	4.84	3.25	192,800	96.40	204,500	102.25
1-3/8	35	5.79	3.89	230,600	115.30	244,800	122.40
1-1/2	38	6.82	4.58	272,000	136.00	288,400	144.20
1-5/8	41.3	8.05	5.41	320,700	160.35	340,300	170.15
1-3/4	45	9.57	6.43	381,400	190.70	404,600	202.30

Right or Left Lay, IWRC Bright or Galvanized

Compact 6P characteristics:
- Plastic layer
- Plastic impregnated
- Fully lubricated
- Improved fatigue

CABLE TOOL DRILL LINES

6x21 FILLER WIRE

Nominal Diam.		Approximate Weight		Minimum Breaking Strength			
in	mm	kg/m	lb/ft	M Ton	kN	lb	S Ton
5/8	15.9	0.98	0.66	15.19	149	33,495	16.7
3/4	19.1	1.41	0.95	21.61	212	47,657	23.8
7/8	22.2	1.91	1.29	29.16	286	64,292	32.2
1	25.4	2.50	1.68	37.93	372	83,625	41.8
1-1/8	28.6	3.16	2.13	47.72	468	105,206	52.6

Right or Left Lay, Poly Core, IPS Bright, Galvanized

Reference: API Specification 9A

Oil & Gas Products

WELL SERVICING – SAND LINE/ROD & TUBING

SAND LINE 6x7

Nominal Diam.		Approximate Weight		Minimum Breaking Strength			
in	mm	kg/m	lb/ft	M Ton	kN	lb	S Ton
3/8	9.5	0.31	0.21	5.31	52.1	11,712	5.86
7/16	11.1	0.43	0.29	7.18	70.5	15,848	7.93
1/2	12.7	0.55	0.37	9.34	91.6	20,591	10.3
9/16	14.3	0.69	0.47	11.82	116.0	26,076	13.0
5/8	15.9	0.86	0.58	14.37	141.0	31,696	15.9
3/4	19.1	1.25	0.84	20.59	202.0	45,409	22.7

Right or Left Lay, Poly Core, IPS Bright, Galvanized

Reference: API Specification 9A

TUBING LINES 6x31 (WS) SWAGED

Nominal Diam.		Approximate Weight		Minimum Breaking Strength			
in	mm	kg/m	lb/ft	M Ton	kN	lb	S Ton
5/8	15.9	1.290	0.867	22.22	218	49.000	24.50
3/4	19.1	1.858	1.250	31.66	31o	69,800	34.90
7/8	22.2	2.529	1.693	43.30	425	95,500	47.75
1	25.4	3.303	2.217	54.42	534	120,000	60.00
1-1/8	28.6	4.181	2.809	64.85	636	143,000	71.50
1-1/4	31.8	5.161	3.474	79.82	783	176,000	88.00
1-3/8	34.9	6.232	4.188	102.96	1,009	227,000	113.50
1-1/2	38.1	7.428	4.992	122.01	1,196	269,000	134.50

Right or Left Lay, IWRC, EIPS Bright, Swaged

WELL MEASURING LINES

BRIGHT IPS

Nominal Diam.		Approximate Weight		Minimum Breaking Strength			
in	mm	kg/m	lb/ft	M Ton	kN	lb	S Ton
0.066	1.68	0.018	0.012	0.002	3.61	811	0.4055
0.072	1.83	0.021	0.014	0.002	4.27	961	0.4805
0.082	2.08	0.027	0.018	0.002	5.51	1,239	0.6195
0.092	2.34	0.034	0.023	0.003	6.88	1,547	0.7735
0.105	2.67	0.045	0.030	0.004	8.74	1,966	0.983
0.108	2.74	0.048	0.032	0.004	9.38	2,109	1.0545
0.125	3.18	0.062	0.042	0.006	12.43	2,794	1.397

BRIGHT EIPS

Nominal Diam.		Approximate Weight		Minimum Breaking Strength			
in	mm	kg/m	lb/ft	M Ton	kN	lb	S Ton
0.066	1.68	0.018	0.012	0.002	4.27	960	0.48
0.072	1.83	0.021	0.014	0.002	5.12	1,150	0.575
0.082	2.08	0.027	0.018	0.003	6.49	1,460	0.73
0.092	2.34	0.034	0.023	0.004	8.14	1,830	0.915
0.105	2.67	0.045	0.03	0.005	10.5	2,360	1.18
0.108	2.74	0.048	0.032	0.005	11.08	2,490	1.245
0.125	3.18	0.062	0.042	0.007	14.68	3,300	1.65

Well Measuring Lines also available in SS T316

OIL & GAS

alps wire rope corporation®

STAINLESS STEEL PRODUCTS

7x19 STAINLESS STEEL

CABLE

7x7 STAINLESS STEEL T304 CABLE

Diam. in	Minimum Breaking Strength lb	Weight lb/1000ft
1/32	150	2.21
3/64	270	4.5
1/16	480	7.5
3/32	920	16
1/8	1,760	28
5/32	2,400	42
3/16	3,700	62

7x7 STAINLESS STEEL T316 CABLE

Diam. in	Minimum Breaking Strength lb	Weight lb/1000ft
3/64	188	4
1/16	335	7.3
5/64	500	11.4
3/32	806	16
1/8	1,434	29
5/32	2,211	43
3/16	3,218	61
7/32	4,410	83
1/4	5,728	113
9/32	7,255	134
5/16	8,090	171
3/8	11,494	243
7/16	15,299	342
1/2	18,232	432

Material manufactured to fed spec RR-W-410 Type VI class 2

7x19 STAINLESS STEEL T304 CABLE

Diam. in	Minimum Breaking Strength lb	Mass lb/1,000ft
3/32	920	17
1/8	1,760	29
5/32	2,400	45
3/16	3,700	65
7/32	5,000	86
1/4	6,400	110
9/32	7,800	139
5/16	9,000	173
3/8	12,000	243

7x19 STAINLESS STEEL T316 CABLE

Diam. in	Minimum Breaking Strength lb	Mass lb/1,000ft
3/32	700	17
1/8	1,328	29
5/32	2,074	45
3/16	2,963	65
7/32	4,056	86
1/4	5,308	110
9/32	6,727	150
5/16	8,290	173
3/8	11,951	243

Material manufactured to fed spec RR-W-410 Type VI class 3.

CHEMICAL COMPOSITION

AISI GRADE	C	SI	MN	P	S	NI	CR	MO
304	≤ 0.08	≤ 1.00	≤ 02.00	≤ 0.045	≤ 0.030	8.00 - 10.50	18.00 - 20.00	–
316	≤ 0.08	≤ 1.00	≤ 2.00	≤ 0.045	≤ 0.030	10.00 - 14.00	16.00 - 18.00	2.00 - 3.00

CORROSION LOSS IN SEA WATER

Materials	Dip Time days	Corrosion Loss oz/day	Maximum Depth of Etching Pit in
AISI 304	685	0.0000013	0.06902
AISI 316	1923	0.0000009	0.007008

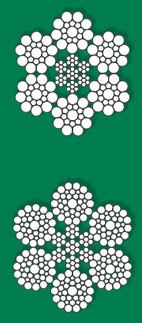
1x19 STAINLESS STEEL

Diam.		Weight lb/1000ft	AISI T304		AISI T316	
			Minimum Breaking Strength			
in	mm		lb	kg	lb	kg
3/64	1.20	4.8	299.8	136.0	266.8	121.0
1/16	1.60	8.5	533.5	242.0	474.0	215.0
3/32	2.40	19	1,201.5	545.0	1,067.0	484.0
1/8	3.20	25	2,134.1	968.0	1,898.2	861.0
9/64	3.56	43	2,641.1	1,198.0	2,347.9	1,065.0
5/32	4.00	55	3,335.6	1,513.0	2,965.2	1,345.0
3/16	4.80	77	4,801.6	2,178.0	4,268.1	1,936.0
0.1969	5.00	90	5,211.7	2,364.0	4,631.9	2,101.0
7/32	5.60	102	6,536.6	2,965.0	5,811.3	2,636.0
0.2362	6.00	125	7,504.5	3,404.0	6,671.1	3,026.0
1/4	6.40	135	8,538.4	3,873.0	7,588.2	3,442.0
0.2756	7.00	166	10,213.9	4,633.0	9,078.5	4,118.0
9/32	7.20	170	10,804.7	4,901.0	9,605.4	4,357.0
5/16	8.00	214	13,340.0	6,051.0	11,858.5	5,379.0
0.3543	9.00	273	16,885.0	7,659.0	15,008.9	6,808.0
3/8	9.60	314	19,210,9	8,714.0	17,076.8	7,746.0
0.3937	10.00	350	20,844.5	9,455.0	18,527.5	8,404.0
0.4331	77.00	406	25,222.8	11,441.0	22,418.6	10,169.0
7/16	11.20	410	26,146.6	11,860.0	23,240.9	10,542.0
0.4724	12.00	511	30,015.6	13,615.0	26,680.1	12,102.0
1/2	12.70	544	33,620.2	15,250.0	29,883.4	13,555.0
0.5118	13.00	562	35,227.3	15,979.0	31,311.9	14,203.0
0.5512	14.00	649	40,855.6	18,532.0	36,316.4	16,473.0
9/16	14.30	671	42,623.7	19,334.0	37,888.3	17,186.0
5/8	16.00	889	53,362.3	24,205.0	45,194.3	20,500.0

6x19 STAINLESS STEEL T304 CABLE
6x36 STAINLESS STEEL T304 CABLE

RIGHT, LEFT, REGULAR, LANG LAY, IWRC

Nominal Diam.		Approximate Weight		Minimum Breaking Strength Type 304			
in	mm	kg/m	lb/ft	M Ton	kN	lb	S Ton
1/4	6.3	0.17	0.11	2.41	23.68	5,325	2.66
5/16	8	0.26	0.18	3.77	37.05	8,330	4.16
3/8	9.5	0.38	0.26	5.44	53.38	12,000	6.00
7/16	11.1	0.52	0.35	7.39	72.51	16,300	8.15
1/2	12.7	0.68	0.46	10.34	101.42	22,800	11.40
9/16	14.3	0.87	0.59	12.92	126.78	28,500	14.25
5/8	16	1.07	0.72	15.87	155.69	35,000	17.50
3/4	19.1	1.54	1.04	22.49	220.64	49,600	24.80
7/8	22.2	2.11	1.42	30.16	295.82	66,500	33.25
1	25.4	2.75	1.85	38.73	379.89	85,400	42.70
1-1/8	28.6	3.48	2.34	48.26	473.31	106,400	53.20
1-1/4	31.8	4.30	2.89	58.69	575.62	129,400	64.70
1-3/8	35	5.20	3.50	69.67	683.27	153,600	53.20
1-1/2	38	6.19	4.16	81.87	802.94	180,500	90.25

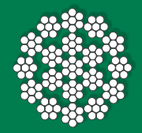


Other sizes and constructions available upon request. Some items available in T316 Stainless Steel.

19x7 STAINLESS STEEL T304/T316 CABLE
SEMI-ROTATION RESISTANT

RIGHT, LEFT, REGULAR, LANG LAY, IWRC

Nominal Diam.		Approximate Weight		Minimum Breaking Strength Type 304				Type 316			
in	mm	kg/m	lb/ft	M Ton	kN	lb	S Ton	M Ton	kN	lb	S Ton
1/8	3.2	0.04	0.03	0.58	5.70	1.282	0.64	0.52	5.08	1,141	0.57
5/32	4	0.07	0.05	0.98	9.60	2,160	1.08	0.87	8.55	1,922	0.96
3/16	4.8	0.10	0.07	1.51	14.81	3,330	1.66	1.34	13.19	2,946	1.48
7/32	5.6	0.13	0.09	2.04	20.01	4,500	2.25	1.82	17.82	4,005	2
1/4	6.4	0.16	0.11	2.61	25.62	5,760	2.88	2.33	22.80	5,126	2.56
5/16	8	0.26	0.17	3.67	36.03	8,100	4.05	3.27	32.07	7,209	3.60
3/8	9.5	0.36	0.24	4.89	48.04	10,800	5.40	4.36	42.76	9,612	4.81
7/16	11.2	0.53	0.36	7.13	69.88	15,710	7.86	6.34	62.20	13,982	6.99
1/2	12.7	0.68	0.46	9.30	91.28	20,520	10.26	8.28	81.24	18,263	9.13
9/16	14.3	0.88	0.59	11.57	113.50	25,515	12.76	10.30	101.01	22,708	11.35
5/8	16	1.06	0.72	14.28	140.12	31,500	15.75	12.71	124,71	18,035	14.02
3/4	19	1.53	1.03	21.77	213.52	48,000	24.40	–	–	–	–



alps

COMPACTED STRAND

Compacted Strand has the following characteristics which distinguishes itself from conventional strands:

- Significantly lower stretch
- Excellent crush resistance and wear performance
- A breaking load approximately 30% higher than a conventional strand.

Compacted Strand provides the marine and architectural industries with a top quality product, which has outstanding smooth clean finish and superior luster thanks to proprietary cleaning process.

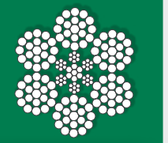
1x7 T316

Diam. mm	Minimum Breaking Strength Fdf	Minimum Breaking Strength Lbf	Approx. Weight Kgs/100m	Approx. Weight lb/100ft
1.50	248	548	1.4	0.9
2.00	442	974	2.4	1.6
3.00	1,000	2,205	5.5	3.7
4.00	1,780	3,924	9.8	6.5

1x19 (S) T316

Diam. mm	Minimum Breaking Strength Fdf	Minimum Breaking Strength Lbf	Approx. Weight Kgs/100m	Approx. Weight lb/100ft
5.00	2,440	5,379	15.0	10.1
6.00	3,550	7,826	21.8	14.7
7.00	4,910	10,825	29.1	19.5
8.00	6,150	13,558	38.1	25.6
9.00	8,942	19,715	48.4	32.5
10.00	9,770	21,539	59.9	40.2
11.00	13,358	29,450	71.9	48.3
12.00	14,400	31,747	81.1	54.4

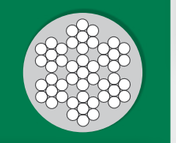
6x19 STAINLESS STEEL T304 CABLE



Diam. in	Minimum Breaking Strength lb	Weight lb/1000ft
7/16	15,000	356
1/2	19,300	458
9/16	24,300	590
5/8	29,800	715
3/4	50,000	922
7/8	58,000	1,430
1	80,000	1,870

7x7

LIFE LINES WHITE PVC COATED



Diam. in	Finished Outside Diameter in	Minimum Break Strength-Cable T304	Minimum Break Strength-Cable T316	Weight lb/1000ft
1/16	1/8	480	335	13.5
3/32	1/8	920	806	20
1/8	7/32	1,700	1,434	41
1/8	1/4	1,700	1,434	45
5/32	7/32	2,400	2,211	59
3/16	5/16	3,700	3,218	92
1/4	3/8	6,100	5,728	145

Other sizes available upon request

STAINLESS STEEL

alps wire rope corporation®

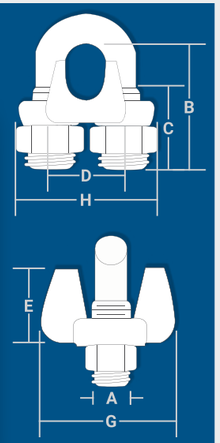
HARDWARE

WIRE ROPE CLIPS

DROP-FORGED WIRE ROPE CLIPS

HOT DIPPED GALVANIZED
FED. SPECIFICATION FF-C-450D TYPE I, CLASS 1

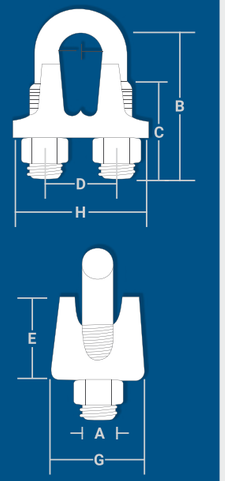
Clip & Rope Size	Dimension in inches							Weight per 100 pcs lb	No. of Clips	Amt. of Rope to Turn Back in	Torque lb/ft
	A	B	C	D	E	G	H				
1/4	5/16	1 1/32	1/2	3/4	21/32	1-3/16	1-7/16	18	2	4-3/4	15
5/16	3/8	1-3/8	3/4	7/8	23/32	1-5/16	1-11/16	30	2	5-1/4	30
3/8	7/16	1-1/2	3/4	1	29/32	1-5/8	1-15/16	42	2	6-1/2	45
1/2	1/2	1-7/8	1	1-3/16	1-1/8	1-29/32	2-9/32	75	3	11-1/2	65
5/8	9/16	2-3/8	1-1/4	1-5/16	1-11/32	2-1/18	2-1/2	100	3	12	95
3/4	5/8	2-3/4	1-7/16	1-1/2	1-13/32	2-1/4	2-27/32	150	4	18	130
7/8	3/4	3-1/8	1-5/8	1-3/4	1-19/32	2-7/16	3-5/32	240	4	19	225
1	3/4	3-1/2	1-23/16	1-7/8	1-25/32	2-5/8	3-15/32	250	5	26	225
1-1/8	3/4	3-7/8	2	2	1-29/32	2-13/16	3-19/32	310	6	34	225



MALLEABLE WIRE ROPE CLIPS

ELECTRO GALVANIZED
FED. SPECIFICATION FF-C-450D TYPE I, CLASS 2

Clip & Rope Size	Dimension in inches							Weight per 100 pcs lb	No. of Clips	Amt. of Rope to Turn Back in	Torque lb/ft
	A	B	C	D	E	G	H				
1/16	3/16	13/16	1/2	15/32	15/32	1/2	15/16	3	3	3-1/4	4.5
1/8	3/16	13/16	1/2	15/32	15/32	19/32	15/16	4	3	3-1/4	4.5
3/16	1/4	31/32	5/8	19/32	19/32	5/8	1-3/32	6 1/2	3	3-3/4	7.5
1/4	5/16	1-3/16	3/4	3/4	5/8	23/32	1-1/4	13	3	4-3/4	15
5/16	5/16	1-5/16	27/32	13/16	23/32	3/4	1-7/16	15	3	5-1/4	30
3/8	3/8	1-5/8	1	15/16	27/32	7/8	1-19/32	21	3	6-1/2	45
1/2	7/16	2	1-3/16	1-1/16	1	1-1/8	1-27/32	37	4	11-1/2	65
5/8	1/2	2 1/4	1-3/8	1-1/4	1-3/16	1-11/32	2-1/8	59	4	12	95
3/4	9/16	2-9/16	1-9/16	1-3/8	1-7/16	1-5/8	2-13/32	84	5	18	130
7/8	5/8	3-1/16	1-13/16	1-5/8	1-3/4	1-7/8	2-7/8	125	5	19	225
1	5/8	3-7/16	2	1-7/8	2-1/16	2	3	166	6	26	225
1-1/8	3/4	4-1/8	2-3/4	2-1/16	2-3/16	2-1/8	3-7/16	243	7	34	225



T316 STAINLESS STEEL CLIPS

WIRE ROPE CLIPS DROP-FORGED

Metric Size mm	Fits Cable Size in	No. of Clips Required	Weight per Piece lb
2	1/16	2	0.024
2	3/32	2	0.024
3	1/8	2	0.035
5	3/1	2	0.060
6	1/4	2	0.180
8	5/16	2	0.310
10	3/8	2	0.310
12	1/2	3	0.630
16	5/8	3	1.000
19	3/4	4	1.500
26	1	5	2.700

OVAL & STOP SLEEVES

ALUMINUM AND ZINC-PLATED COPPER

Cable Dia	Weight per hundred pieces (Approximate)			
	Aluminum Ovals	Copper Ovals	Aluminum Stops	Copper Stops
1/16	0.10	.275	0.06	0.19
3/32	0.32	.664	0.23	0.78
1/8	0.80	1.72	0.21	0.70
5/32	0.80	2.79	0.37	1.18
3/16	1.52	5.45	0.35	1.06
1/4	2.52	7.54	2.10	6.20
5/16	4.35	11.86	–	5.20
3/8	5.82	17.60	–	4.40
1/2	19.0	39.6	–	–

OVALS

For Slopping Slicing

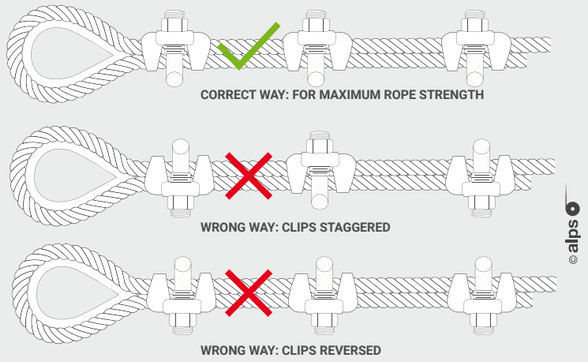
STOPS

For End Termination

Refer to Galvanized Charts for
Turn-Back & Torque Requirements.

Some items also available in Stainless Steel.

APPLYING U-BOLT CLIPS



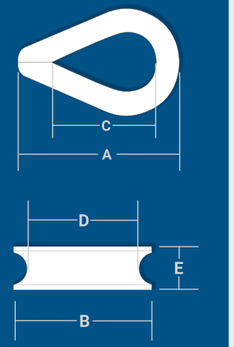
1) Turn back the specified amount of rope from the thimble. Apply the first clip one base width from the dead end of the rope. Tighten to specified torque.
2) Apply the next clip as near the loop as possible. Turn on nuts firm but do not tighten.
3) Space additional clips (if required) evenly between the first two. Turn on nuts firm but do not tighten.
4) Take up rope slack and tighten all nuts to specified torque.
5) Apply initial load and re-tighten to specified torque.

HARDWARE

THIMBLES & SCREW-PIN SHACKLES

GALVANIZED HEAVY-DUTY THIMBLES

FED. SPEC. FF-T-276B, TYPE III

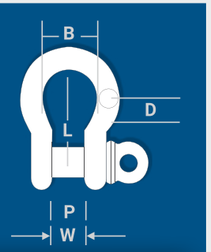


For Rope Dia. in	Weight per piece lb	Max Pin Diam. in	Dimensions in				
			Overall Length A	Overall Width B	Inside Length C	Inside Width D	Thickness E
1/4	0.075	13/16	2-3/16	1-1/2	1-5/8	7/8	13/32
5/16	0.14	15/16	2-1/2	1-13/16	1-7/8	1-1/16	1/2
3/8	0.25	1-1/16	2-7/8	2-1/8	2-1/8	1-1/8	21/32
1/2 - 9/16	0.51	1-7/16	3-5/8	2-9/16	2-3/4	1-1/2	27/32
5/8	0.75	1-5/8	4-1/4	3	3-1/4	1-3/4	1
3/4	1.47	1-7/8	5	3-1/2	3-3/4	2	1-1/4
7/8	1.85	2-1/8	5-1/2	4	4-1/4	2-1/4	1-3/8
1	3	2-3/8	6-1/8	4-3/8	4-1/2	2-1/2	1- 9/16
1-1/8 – 1-1/4	3.80	2-3/4	7	5-5/8	5-1/8	2-7/8	1-7/8
1-3/8 – 1-1/2	11	3-1/4	9-1/16	7-1/8	6-1/2	3-1/2	2-5/8

Some items also available in Light-Duty.

GALVANIZED SCREW-PIN ANCHOR SHACKLES FORGED CARBON STEEL ALLOY PINS

FED. SPEC. RR-C-271B, TYPE IV – CLASS 1



Nominal Shackle Size D	Working Load limit S Ton	Weight/ piece lb	Dimensions in			
			Inside Length L	Inside Width W	Inside Bow B	Pin Dia. P
1/4	1/2	0.13	1 1/8	1/2	25/32	5/16
5/16	3/4	0.21	1-7/32	17/32	27/32	3/8
3/8	1	0.33	1-7/16	21/32	1-1/32	7/16
1/2	2	0.76	1-7/8	13/16	1-5/16	5/8
5/8	3-1/4	1.44	2-3/8	1-1/16	1-11/16	2/4
3/4	4-3/4	2.32	2-13/16	1-1/4	2	7/8
7/8	6-1/2	3.50	3-7/16	1-7/16	2 1/4	1
1	8-1/2	5.19	3-3/4	1-11/16	2-11/16	1-1/8
1-1/8	9-1/2	6.97	4-1/4	1- 13/16	2-29/32	1-1/4
1-1/4	12	9.50	4-11/16	2-1/32	3-1/8	1-3/8
1-1/2	17	16.5	5-3/4	2-3/8	3-7/8	1-5/8

Above working load limit is based on a design factor of 6:1. Shackles stamped with nominal stock size and working load limit. Some items also available in Stainless Steel.

STAINLESS STEEL T304 THIMBLES

STANDARD-DUTY

For Rope Diam. in	Maximum Pin Diam. in	Weight/100 pieces lb
1/8	5/8	3.3
3/16	5/8	3.3
1/4	5/8	3.3
5/16	3/4	4.0
3/8	7/8	7.5
1/2	1-1/16	13.8
5/8	1-1/4	36
3/4	1-1/2	120
1	2-3/8	220

Some items also available in SS T316.

FAB PRODUCTS & SERVICES

FABRICATION

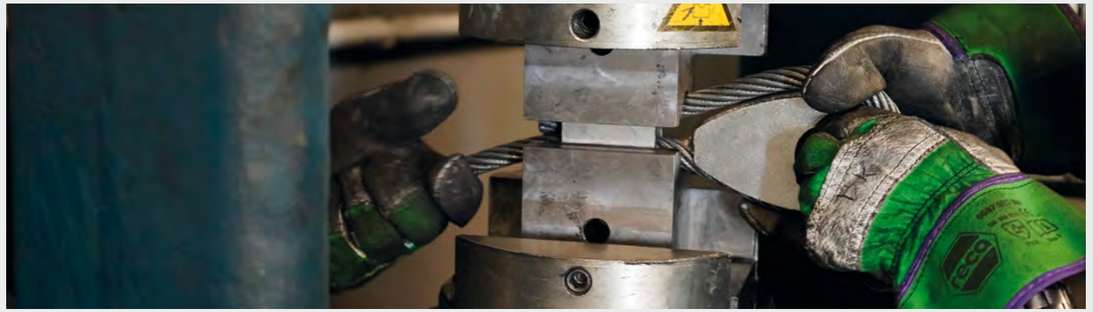
- **Custom Wire Rope Fabrication & Fittings**
- **Standard dustry Assemblies**
  - Buttons
  - Sockets (Swaged & Spelter)
  - Eyes (Flemish & Turnback)
  - Studs
  - Logging Chokers
  - Bridle Assemblies

OTHER SERVICES

- Taper & Welding (1/4” to 2-3/8”)
- Flash Cutting (1/32” to 3/8”)
- Cut to Length/Floor Measuring
- Pressure Lubrication (1/4” to 1”)
- Proof Loading/Break Testing (500 to 99,000 lb)

TOOLS

- Handheld Wire Rope Cutters
- Handheld Wire Rope Swagers
- Sheave Gauges
- Measuring Lines



COMMON WIRE ROPE ABBREVIATIONS & SYMBOLS FOR CHEMICAL ELEMENTS

BRT	Bright	**Mall**	Malleable
C	Carbon	**mm**	Millimeter
Cr	Chromium	**Mn**	Manganese
DF	Drop-Forged	**Mo**	Molybdenum
EHS	Extra-High Strength	**Ni**	Nickel
EIPS	Extra Improved Plow Steel Fiber	**P**	Phosphorus
FC	Core	**PC**	Poly Core
Fe	Iron	**PREF**	Preformed
(FW)	Filler-Wire	**PVC**	Poly-Vinyl Chloride
FSR	Flattened Strand Rope	**RLL**	Right Lang Lay
GAC	Galvanized Aircraft Cable	**RRL**	Right Regular Lay
GALV	Galvanized	**S**	Sulfur
HD	Heavy-Duty	**(S)**	Seale
IPS	Improved Plow Steel	**SD**	Standard Duty
IWRC	Independent Wire Rope Core	**SSAC**	Stainless Steel Aircraft Cable
LD	Light Duty	**WR**	Wire Rope
LLL	Left Lang Lay	**(WS)**	Warrington-Seale
LRL	Left Regular Lay	**WSC**	Wire Strand Core

USEFUL CONVERSIONS

LINEAR MEASURE

1 millimeter = .03937 inches
1 centimeter = 10 millimeters
1 decimeter = 100 millimeters
1 meter = 3.28083 feet
1 inch = 25.4 millimeters
1 kilometer = 3280.83 feet
1 mile = 1.609 kilometers

WEIGHT

1 metric ton = 2,204.6 lb
1 kilogram = 2.2046 b
1 pound = 453.6 grams
1 kilonewton = 224.8 lb

CAPACITY

1 liter = .03531 cubic feet
1 cubic foot = 28.317 liters
1 gallon = 3.785 liters

DECIMAL & METRIC EQUIVALENTS

Fraction in	Decimal in	Metric mm	Fraction in	Decimal in	Metric mm
1/64	0.016	0.397	1/4	0.250	6.35
1/32	0.031	0.794	9/32	0.281	7.144
3/64	0.047	1.191	5/16	0.313	7.938
1/16	0.063	1.588	3/8	0.375	9.525
5/64	0.078	1.985	7/16	0.438	11.113
3/32	0.094	2.381	1/2	0.500	12.700
7/64	0.109	2.778	9/16	0.563	14.288
1/8	0.125	3.175	5/8	0.625	15.875
8/64	0.141	3.572	11/16	0.688	17.463
5/32	0.156	3.969	3/4	0.750	19.050
3/16	0.188	4. 763	7/8	0.875	22.225
7/32	0.219	5.556	1	1.000	25.4

HOW TO ORDER

WIRE ROPE

A	B	C	D	E	F	G	H	I
2 x	500 ft.	1/2"	6x25	RRL	EIPS	BRT.	IWRC	A-1

A Number of pieces
B Length
C Diameter
D Construction
E Lay
F Grade
G Finish
H Core
I Lubrication

AIRCRAFT CABLE

A	B	C	D	E
2 x	500 ft.	3/8"	7x19	GAC

A Number of pieces
B Length
C Diameter
D Construction
E Finish or grade

FITTINGS

A	B	C
500 pcs.	1/2"	Galv. Drop-Forged Wire Rope Clips

A Number of pieces
B Size
C Product Description

Shown above are examples of properly written orders for wire rope, aircraft cable, and hardware. Following this method in the order given will ensure the order to be correctly and promptly filled.

alpswirerope.com

MIDWEST - Chicago
2530 Production Drive
Saint Charles, IL 60174
Phone: (630) 893-3888

SOUTH - Houston
5714 Delany Road, Suite B
Hitchcock, TX 77563
Phone: (713) 941-2068

EAST - Harrisburg
1549 Bobali Drive, Suite C
Harrisburg, PA 17104
Phone: (717) 943-1935

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The Committee of Wire Rope Producers American Iron & Steel Institute
1000 16th St., N.W.
Washington, DC 20036

Further information is available through:

American National Standards Institute (ANSI)
New York, NY (212) 642-4900

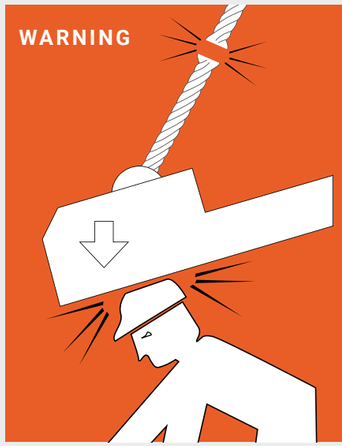
American Petroleum Institute (API)
Washington, DC (202) 682-8000

American Society for Testing Materials (ASTM) West Conshohocken, PA (610) 832-9500

Occupational Safety & Health Administration (OSHA)
Washington, DC (800) 321-6742

Wire Rope Technical Board
Alexandria, VA (703) 299-8550

SAFETY & WARRANTY



WARNING

WIRE ROPE WILL FAIL IF WORN OUT, SHOCK LOADED, OVERLOADED, MISUSED, DAMAGED, IMPROPERLY MAINTAINED, OR ABUSED.

Failure of wire rope 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 or shock load a wire rope
- Inform yourself: Read and understand the guidance on product safety given in this catalog or "Alps Handling Brochure."
- Refer to applicable regulations, standards, and codes concerning inspection, examination, and rope removal criteria

WARRANTY

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