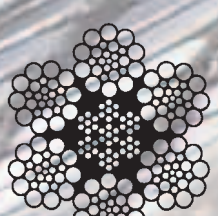
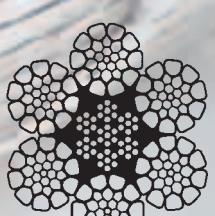
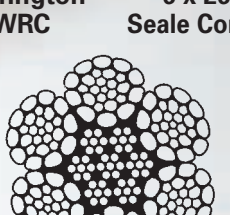
ultra-Pac™



6 x 26 Warrington Seale IWRC



6 x 26 Warrington Seale Compacted IWRC



6 x 26 Warrington Ultra-Pac™ IWRC

SWAGE & COMPACTED STRAND

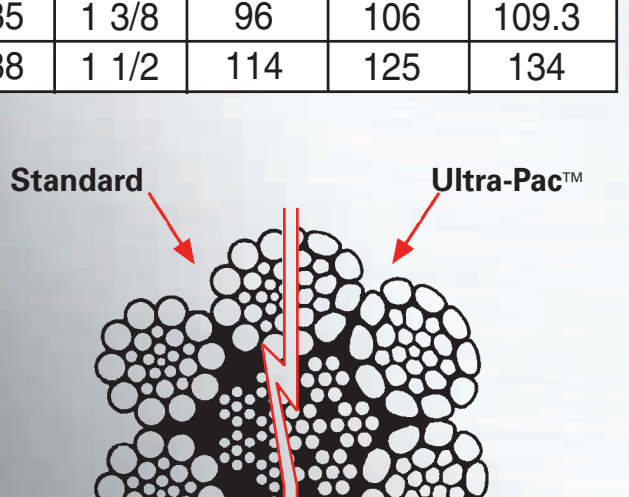
Although compacted strength wire rope is superior to standard wire ropes in many ways, Ultra-Pac™ wire ropes take it to the next level. The process consists of taking a larger diameter compacted strand wire rope and running it through a rotary swager to reduce the diameter.

Ex: Taking a 1" 3/32" and reducing it to 1". The advantage of this is that the wire rope retains the breaking strength of the larger diameter while becoming more crush resistant and abrasion resistant, still maintaining excellent fatigue resistance.

SIZE		Min. Breaking Strength TONS		
mm	IN	Standard	Compact	Ultra-Pac™
12.7	1/2	13.3	14.6	16
14.3	9/16	16.8	18.5	20.2
16	5/8	20.6	22.7	24.9
19	3/4	29.4	32.4	36
22	7/8	39.8	43.8	48.9
25.4	1	51.9	56.9	63.9
28.6	1 1/8	65	71.5	75.8
32	1 1/4	79.9	87.9	92.8
35	1 3/8	96	106	109.3
38	1 1/2	114	125	134

SUPERIOR BREAKING STRENGTH

Ultra-Pac™ is engineered for overall performance, its wire tensile strength being the key to its superior fatigue resistant properties. In addition to contributing to Ultra-Pac's™ breaking strength, the wire used in the manufacture of Ultra-Pac™ remains supple, minimizing the occurances of external and internal wire breaks caused by operating stresses. Ultra-Pac™ clearly out performs other ropes in service life.



SUPERIOR FATIGUE RESISTANCE

Steel wire, by its nature, has limits. When pushed to its extreme in terms of tensile strength, wire becomes brittle and loses its flexibility. Ultra-Pac's™ improved fatigue properties are derived from the combination of Ultra-pac's™ flexible construction and the compacted strands.

The compacted strand has very favorable internal contact conditions when compared with the point contact of round wires within a normal strand. These reduce internal friction and nicking for a longer fatigue life.

EXCELLENT CONTACT CONDITION

Exterior contact conditions are equally favorable. The smooth surface of the compacted rope offers a larger bearing surface to the sheave or drum groove.

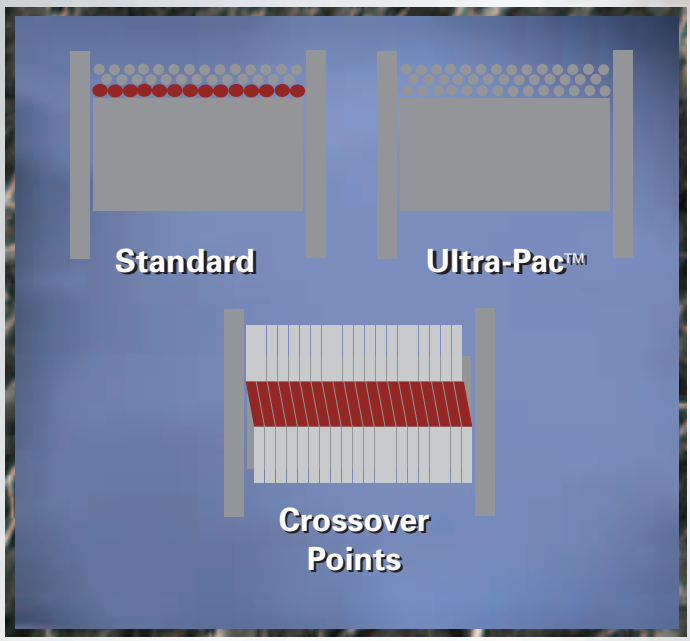
Contact conditions between adjacent laps of rope on the winch drum are also improved.

GREATER CRUSH RESISTANCE

Greater resistance to crushing in multi-layer spooling situations is achieved.

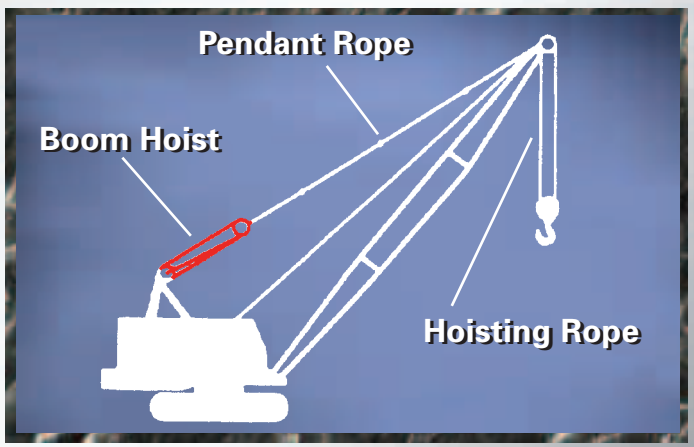
Ultra-Pac™ ropes are recommended for all multi-layer spooling situations where crushing on lower layers is inevitable. The more solid cross section of the Ultra-Pac™ rope offers much greater resistance to this type of damage.

Because of the higher steel fill factor Ultra-Pac™ ropes offer much better resistance to abrasive wear at crossover points on the winch drum.



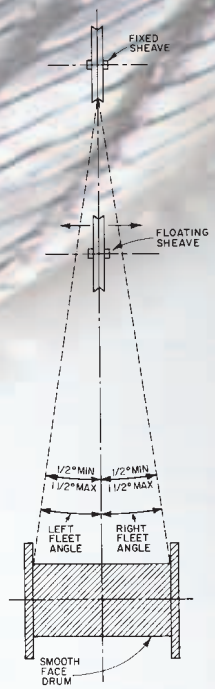
SUPERIOR BOOM HOIST LINE

Ultra-Pac™ is designed to provide a nominal strength of approximately 20% more than standard rope. It achieves this strength through selected grades of steel and Ultra-Pac's™ unique design and manufacturing processes. Ultra-Pac™ provides superior resistance to crushing through its design. Its double compaction provides a denser cross section, enabling the rope to withstand the rigors of multilayer spooling. Damage at the cross over points is also significantly reduced. In addition, Ultra-Pac's™ design increases the amount of wire contact with sheaves and drums, reducing wire rope, drum and sheave wear. all the factors make a superior boom hoist line.



TORQUE RESISTANCE

Ultra-Pac's™ compact lay construction offers more torque resistance than standard 6-strands when swivels are used.



FLEET ANGLE

The achievement of even winding on a smooth faced drum is closely related to the magnitude of the D/d ratio, the speed of rotation, load on the rope, and the fleet angle. Of all these factors, the one that exerts perhaps the greatest influence on winding characteristics is the fleet angle.

The schematic drawing shows an installation where the wire rope runs from a fixed sheave, over a floating sheave, and then on to the surface of a smooth drum. The fleet angle may be defined as the included angle between two lines; one line drawn through the middle of the fixed sheave and the drum — and perpendicular to the axis of the drum and a second line drawn from the flange of the drum to the base of the groove in the sheave. (The drum flange represents the farthest position to which the rope can travel across the drum.) There are left and right fleet angles, measured to the left or right of the center line of the sheave, respectively.

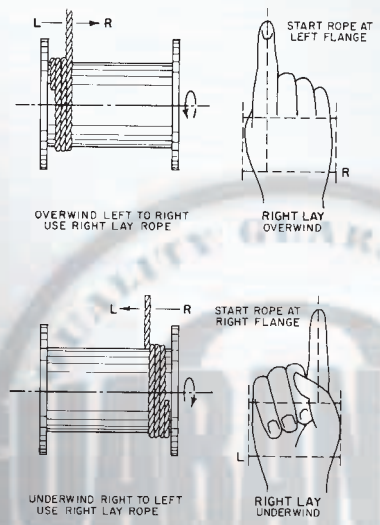
It is necessary to restrict the fleet angle on installations where wire rope passes over the lead or fixed sheave and onto a drum. For optimum efficiency and service characteristics, the angle here should not exceed 1 1/2º for a smooth drum, or 2º for a grooved drum. Fleet angles larger than these suggested limits can cause such problems as bad winding on smooth drums, and the rope rubbing against the flanges of the sheave grooves. Larger angles also create situations where there is excessive crushing and abrasion of the rope on the drum. Conversely, small fleet angles – less than 1/2º – should also be avoided since too small an angle will cause the rope to pile up.

DRUMS – PLAIN (SMOOTH)

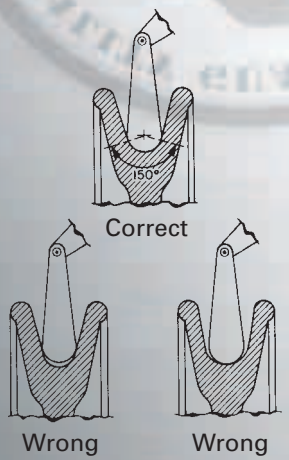
Installation of a wire rope on a plain (smooth) face drum requires a great deal of care. The starting position should be at the correct drum flange so that each wrap of the rope will wind tightly against the preceding wrap. Here too, close supervision should be maintained during installation. This will help make certain that:

1) the rope is properly attached to the drum,
2) appropriate tension on the rope is maintained as it is wound on the drum,
3) each wrap is guided as close to the preceding wrap as possible, so that there are no gaps between turns,
4) and that there are at least two dead wraps on the drum when the rope is fully unwound during normal operating cycles.

Loose and uneven winding on a plain (smooth) faced drum can, and usually does, create excessive wear, crushing and distortion of the rope. The results of such abuse are lower operating performance and a reduction in the rope's effective strength. Also, for an operation that is sensitive in terms of moving and spotting a load, the operator will encounter control difficulties as the rope will pile up, pull into the pile and fall from the pile to the drum surface. The ensuing shock can break or otherwise damage the rope.



ULTRA-PAC™ ONLY AVAILABLE IN RIGHT HAND LAY



BREAKING IN A NEW WIRE ROPE

A new wire rope requires careful installation and close adherence to following all the appropriate procedures previously noted. After the rope has been installed and the ends secured in the correct manner, the mechanisms should be started carefully and then permitted to run through a cycle of operation at very slow speed. During this trial operation, a very close watch should be kept of all working parts — sheaves, drums, rollers — to make certain that the rope runs freely, and without any possible obstructions as it makes its way thought the system. If no problems appear in running the rope, the next step should include several run-throughs of the normal operational cycle under light load and at reduced speed. This procedure allows the component parts of the new rope to make a gradual adjustment to the actual operating conditions.

Tech-35™ and Ultra-Pac™ wish to thank the Wire rope Institute for the technical information.