



## CAST NYLON SHEAVES FOR WIRE ROPE

Cast nylon sheaves are superior to aluminum or steel sheaves for many wire rope load applications. For more than 50 years, they have replaced steel and aluminum sheaves in cranes, hoists and other load bearing wire rope applications. Today cast nylon sheaves are used by most of the world's leading crane and hoist manufacturers.

### Advantage 1 – Improved Service Life

Cast nylon sheaves not only provide exceptional durability and performance in demanding applications, their unique combination of physical properties significantly improves wire rope life in operation. In addition to high tensile and compressive strength, cast nylon sheaves possess excellent toughness and high elongation properties normally associated with less-rigid elastomeric materials.

Cast nylon sheaves provide a cushioning effect in the groove areas which contact the rope strands that translates into improved field performance, increased safety in operation, and reduced expenses associated with wire rope replacement. This has proven to significantly extend wire rope life by a factor of at least 2 to 3 times. Due to the ability of cast nylon to undergo a reversible non-permanent deformation around the individual rope strands making contact with the groove surface, contact pressures at the rope-groove interface are one-twelfth that of a steel sheave of the same configuration. Wear on the outer layer of strands is almost eliminated.

### Advantage 2 – Corrosion Protection

Cast nylons are impervious to rust and salt water corrosion. The corrosion resistance is a property of the material itself and does not rely on the integrity of paint or similar thin coating to protect the sheave.

### Advantage 3 – Reduced Weight

Cast nylon sheaves are approximately one-seventh the weight of steel sheaves of the same dimensions and approximately one-half the weight of aluminum sheaves. The use of cast nylon sheaves results in reduced dead weight, increased working capacity, and lower inertial loads in operation. Furthermore, reduced weight cast nylon sheaves are easier to handle during installation and replacement than their metallic counterparts.

### Advantage 4 – Custom Engineered

The cast nylon blanks are produced in molds custom engineered to the application. Custom designed molds reduce material waste in production. The cast sheaves require minimal machining after casting to arrive at the finished part. Proper mold design also assures that material properties are optimized and casting stresses are eliminated, resulting in a superior component. Our suppliers have hundreds of molds to fit almost every rope sheave requirement.

### Application Notes

For best results, a new wire rope should be installed when the cast nylon sheaves are first installed.

Because of the longer life of the outer wire strands, rope failure begins with breaking of the internal strands. These breaks cause the rope diameter to shrink. Therefore, periodic rope inspection requires a careful measurement of the rope diameter to determine remaining service life instead of counting visible breaks in the outer strands.