Wire Rope Specifications

TYPES OF CORES

An important point to consider is the selection of the proper type of core needed in the rope. Wire Ropes are made with either fiber core or steel wire core.

1) Fiber Core (FC)
This center is made of either natural fibers or polypropylene and offers greater elasticity than the independent Wire Rope Core.

2) Independent Wire Rope Core (IWRC)
This center is usually composed of a separate 7x7 wire rope designated as IWRC. The steel core increases the strength by 7% and the weight by 10%. These steel cores provide more substantial support than fiber cores to the outer strands during the rope's operating life. Steel centers resist crushing, are more resistant to heat and increase the strength of the rope.

DESIGN FACTOR

The Design Factor being both the ratio between the minimum Breaking load of the rope and the rated capacity (RC) tells at what percentage of its ultimate strength a wire rope is operating. The Design Factor takes into consideration both normal rope wear and potential stresses in various applications. The best practice in determining an adequate design factor is to analyze the specific conditions involved inn each individual installation. The following example shows how to determine the Design Factor: If a rope is working under a max. operating load of 10,000 lbs. and is having an ultimate strength of 50,000 lbs., the factor is 5 which means it is operating at 20% of its ultimate strength.

FLEET ANGLE

The fleet angle is the angle formed between the rope running to or from the extreme left or right of the drum and a line drawn from the center of the sheave normal to the axis of the drum. For optimum efficiency, the angle here should not exceed 1 1/2 degrees for a smooth drum, or 2 degrees for a grooved drum. If the fleet angle is larger than the recommended limits, it can cause bad winding on smooth drums and rubbing against the flanges of the grooves. Too small a fleet angle should also be avoided since it will cause the rope to pile up against the flange head.

Before installing any wire rope that winds onto a drum, the fleet angle should be checked and if found improper, conditions should be corrected.

SHEAVE ALIGNMENT

Proper alignment of sheaves is essential. The main sheave should line up with the center of the hoisting drum, otherwise both the rope and sheave flanges will be subjected to severe and rapid deterioration will occur. If

rope speeds are high, sheaves should also be balanced.

NOTE:

Wire rope products will break if abused, misused or overused. Regular inspection and maintenance are necessary. Consult industry recommendation and OSHA standards before using.