

## Rotation Resistance

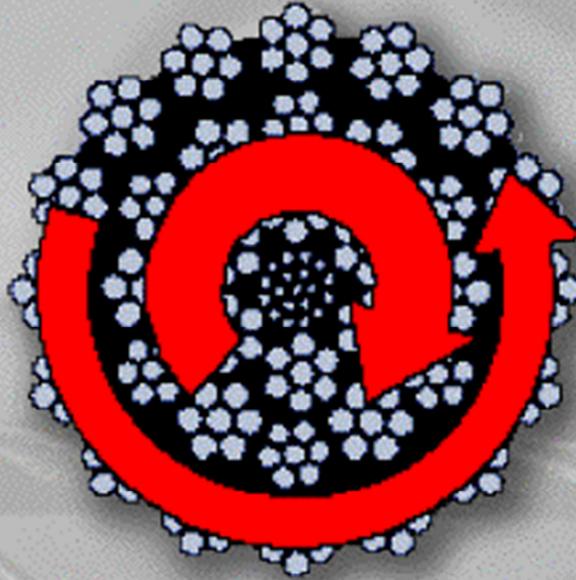
In a conventional rope, an external load creates a moment which tries to untwist the rope and to rotate the load.

A rotation-resistant CASAR Special Wire Rope has a steel core which is an independent rope, closed in the opposite direction to the outer strands. Under load, the core tries to twist the rope in the one direction, the outer strands try to twist it in the opposite direction.

The geometrical design of a rotation-resistant CASAR Special Wire Rope

is such that the moments in the core and the outer strands compensate each other over a wide load-

spectrum, so that even with great lifting heights no rope twist occurs.



The decision for a rotation-resistant rope depends on the application of the rope.

Single fall operation:

The use of non-rotating ropes is mandatory for the lifting of unguided

loads with a single fall of rope.

Multiple fall operation:

Non rotation-resistant ropes achieve a higher service life than rotation-resistant ropes when operating under identical

conditions in multiple falls. Because of their larger strand diameter, non rotation-resistant ropes are more robust and have a lower tendency to birdcage under the twisting forces caused by large fleet angles.



Providing there are no other special conditions that require the use of rotation-resistant ropes, non rotation-resistant ropes should be used in multiple fall conditions.

Under certain geometric conditions there is a danger that the falls could cable whilst under load. This is most likely with great lifting heights, narrow hook blocks, or under

the influence of additional moments created by wind or the slewing of the crane. In such a situation, rotation-resistant ropes or pairs of left and right hand lay non rotation-resistant ropes should be used.

If a crane has been supplied with a rotation-resistant rope by its manufacturer, then subsequent replacements should always be of

rotation-resistant construction. Rotation-resistant ropes should be used with a swivel, if possible. Non rotation-resistant ropes may not be used with a swivel.

For further information on this topic please refer to the CASAR handbook "The rotation characteristics of steel wire ropes", available free of charge.