



Product BULLETIN

Wire Rope Corporation of America

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XLT⁴ – A Low-Torque Wire Rope

WRCA refers to XLT⁴ rope as a low-torque rope and not as a rotation-resistant rope for a very good reason – XLT⁴ is not a rotation-resistant rope according to the definitions of rotation-resistant rope in ASTM A1023 and ASME B30.5. However, XLT⁴ is designed to be used in applications requiring a Category 1 (ASTM A1023) rotation-resistant rope. The unique design and manufacturing of XLT⁴ creates a rope that can be used in long-fall, multi-part reeving systems or as a single-part hoist, with or without a swivel at the headache ball.

Defining rotation-resistant rope

ASTM A1023, *Standard Specification for Stranded Carbon Steel Wire Ropes for General Purposes*, defines “rotation-resistant rope” in section 3.17.3. It says:

3.17.3 *rotation-resistant rope*, *n*–stranded ropes designed to generate reduced levels of torque and rotation when loaded and **comprising an assembly of two or more layers of strands laid helically around a center, the direction of lay of the outer strands being opposite to that of the underlying layer** [emphasis added].

ASME B30.5, *Mobile and Locomotive Cranes*, defines “rotation resistant rope” in section 5-0.2.2. It says:

rotation resistant rope: a wire rope consisting of **an inner layer of strand laid in one direction covered by a layer of strand laid in the opposite direction** [emphasis added].

Both of these definitions indicate that a rotation-resistant wire rope has two or more layers of strands that are laid in opposite directions. XLT⁴ has a single layer of 4 strands. The low-torque is the result of a designed balance between rope lay and strand lay. There are not layers of strands creating opposing torque. Therefore, it is not a rotation-resistant rope based on the definitions of both ASTM A1023 and ASME B30.5.