



ToughMet is used in the winch fairlead mechanism.

**TOUGHMET APPLICATION:**

**MARINE**

**PROFILE: MARKEY MACHINERY COMPANY**

Founded in 1907, Markey Machinery Company is the leader in the design and manufacture of high quality custom deck machinery for workboat, scientific, and dockside applications.

**CHALLENGE:**

Markey Machinery’s winch designs represent a major leap forward in ship-assist and escort tug Technology, dramatically improving the safe handling of ships and lines. One of the most significant advancements in recent years is the shift from hydraulic to development of electric motor driven machinery. In addition, winch power has greatly increased on working tugboats to handle even larger ocean tankers now working in rough, open sea environments.

Markey Machinery was searching for a winch material that was strong, but that also had a low coefficient of friction. On their legacy product, Markey used hardened alloy steel on hardened alloy steel derived from different heat treatments and alloys. However, hardened steel simply was not feasible on the next generation winch that needed to not only bear heavy loads, but also slide fluidly.

**SOLUTION:**

Markey Machinery rolled out its next generation high speed, 750-hp multiple motor and double drum electric Ocean Class Asymmetric Render/Recover® (ARR) hawser winch. This winch employs Materion Performance Alloys’ ToughMet® alloy in the fairlead mechanism, allowing the fairlead to handle side loads up to 180,000 lbs., or 90 tons.

ToughMet® rose to the challenge, allowing Markey to produce a high performance winch suitable for operation in the open sea with curved break walls, ocean swells and heavy loads on hawsers. ToughMet® provided higher hardness, higher strength and solved galling issues.

While ToughMet® is still new to Markey Machinery winches, it appears through Markey’s leading edge design and development and Performance Alloys’ ToughMet®, a high-end, high-performance winch for a new class of tugboats has emerged.



**TECHNICAL INQUIRIES**

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