

Boedeker Plastics, Inc. Case History

Boedeker Plastics, Inc. helps the Maserati Offshore Race Team with an Emergency Torlon® Roller Bearing Order prior to their World Record First Place Finish in the Hong Kong to London Race

Intro

In 2018 the Maserati Multi 70 team set an offshore race new world record of 36 days, 2 hours, 37 minutes and 2 seconds to cover the 13,000 nautical miles of the theoretical route between the Chinese port and the capital of the United Kingdom. They improved the previous record by 5 days and 19 hours which previously belonged to Gitana 13, the 100-foot maxi catamaran that completed the route in 41 days in 2008. Over the water, the Italian trimaran travelled 15,083 nautical miles at an average speed of 17.4 knots. Prior to this race the team had experienced issues with unreliable performance from their main sail train cars which had high performance Torlon® 4203 roller bearings that were starting to fail. This created an emergency replacement situation due to the critical function the main sail train cars play in the performance of the boat.



Challenge: Emergency Requirement for Machined Replacement Torlon® Roller Bearings prior to Upcoming Race

The Maserati team contacted Boedeker Plastics, Inc. to see if we had a solution to replace the failing OEM roller bearings with a material that would extend the wear life of the OEM bearings. The racing trimaran sailboat was equipped with Torlon® 4203 OEM rollers, which is well known as a high-performance advanced polymer material for extreme applications with high strength and high temperature requirements. The bearings are part of a main sail train system that consists of 10 cars with 72 rollers per car as shown below. This application had a maximum load of 11 tons across the roller system, extreme speed, aggressive sailing conditions and a corrosive salt air and sea environment. The high performance vessel had an upcoming stop in Hawaii and was coming to port and with a tight window of 2 weeks to receive and install replacement rollers prior to the next Hong Kong to London race, without replacement roller bearings they would be in jeopardy of not being able to participate in the race. The main sail train, car and Torlon® roller bearings are shown below.

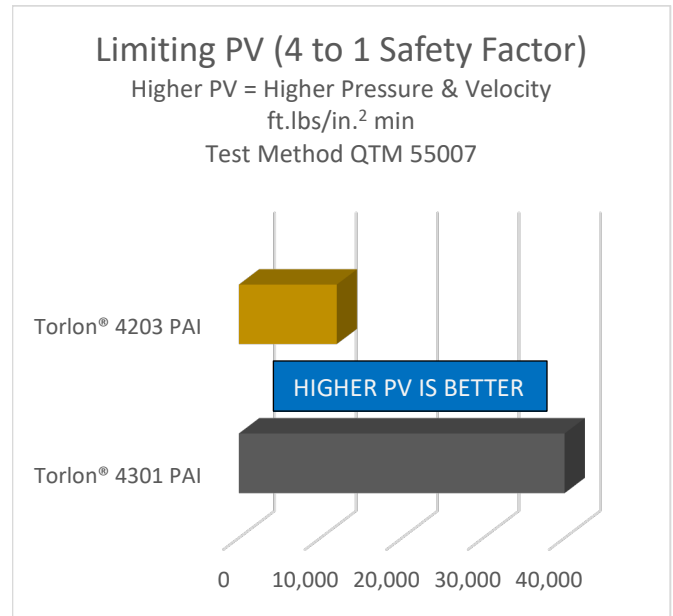
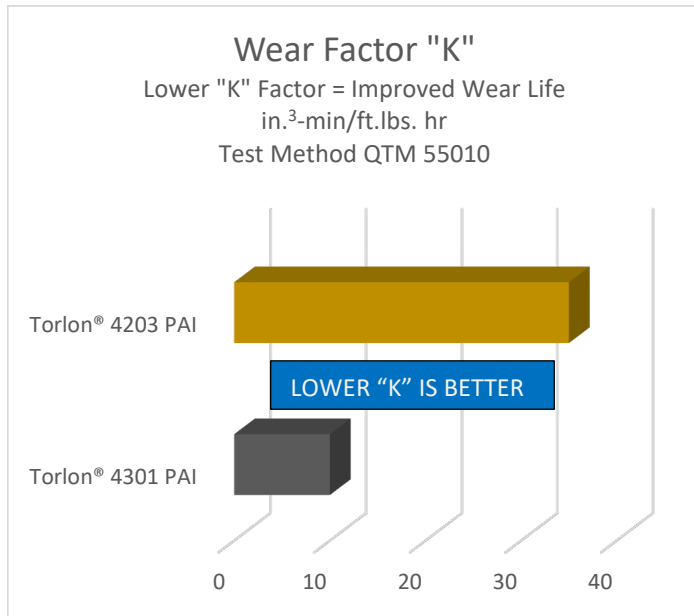


Sail Train Car With OEM
TORLON® 4203 Roller Bearings

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Solution: A Higher Performance Torlon® Roller Bearing

Inside Sales Representative, Russell Boedeker and Business Development Staff Manager, Andrew Houbre worked with the Maserati team to better understand all of the application conditions and suggested using a self-lubricating bearing grade Torlon® 4301 for this application as it is engineered to provide improved bearing performance over the non-lubricated Torlon® 4203. Torlon® 4301 offers a higher limiting PV and a lower K factor, making it an ideal candidate to improve wear life in this extreme bearing application. Below are some key property comparisons for these two Torlon® grades.



In addition to specifying Torlon® 4301 as a replacement material for the OEM rollers, the Boedeker Team also recommended changing the tolerances on the roller bearings to help eliminate potential seizing issues. This application also had another challenge related to lead-times for the replacement roller bearings. The Maserati Team required the replacement bearings within a two-week window while the vessel was in dry dock between races at a port in Hawaii.

Boedeker Plastics, Inc. delivered the new Torlon® 4301 rollers within the two-week window and the Maserati Team went on to win the Hong Kong to London race and set a new world record. The new Torlon® 4301 roller bearing outperformed the Torlon® 4203 with longer wear life. The Torlon® 4301 roller bearings & winning Maserati M 70 are pictured below.

