

Trelleborg's tensioner cylinder seals exceed 20-year lifecycle rating

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Seals used in offshore rig tensioner cylinders must meet the same rigorous lifecycles as the cylinders themselves. Because offshore environments are harsh and installation and maintenance can be difficult, tensioner cylinders must have a 20-year life. That was why, more than 20 years ago, Trelleborg Sealing Solutions conducted research, determining that its seals could last this necessary lifecycle.

Trelleborg recently had an opportunity to see how its seals stood up in a tensioner cylinder application, when one of its customers pulled the cylinders down after 20 years of service, said Eric Bucci, Oil & Gas Segment Manager, Trelleborg Sealing Solutions, at this year's OTC in Houston.



"They operated 20 years leak-free. So we were able to witness some of the cylinder teardowns and look at the seals, made some measurements on them, and we could see the wear from manufacture dimensions to the worn dimensions and extrapolate life. We learned that not only did they last for 20 years, they could go even longer, perhaps as long as 30 years. So we feel very good about the decisions we made 20 years ago, and that speaks volumes with our experience and knowledge in hydraulic cylinders we've learned over the decades."

Trelleborg conducts accelerated tests in its own lab on a scaled-down cylinder similar to what they are using on these off-shore tensioner projects. "This validates our internal testing program," Bucci said. "For us, it was a huge benefit to know that what we do in the lab does translate to real life. That just once again bolsters our confidence, builds our database, and we can now go to any tensioner cylinder manufacturer and state that we emphatically can reach 20 year or longer life on these type cylinders off-shore."

And although these products clearly stood the test of time, Trelleborg is always conducting research and making advances in the materials it uses in its seals, so it's possible these tensioner cylinder seals could eventually have a longer life rating.

"We have made advances in seal materials and even seal designs by implementing venting features in our seals that stop pressure traps which in turn reduces the loading on some of the seals. So we know with these updated seal designs and seal materials we can achieve even longer life," Bucci said.

The new materials have been tested internally and they do exhibit lower wear rates, which typically translates into longer life. These results on these new materials will be very indicative of what will be seen in the real world.

"We feel very confident if we do propose these new materials for future applications, we will see better performance for the customer. Of course, giving that customer the confidence that they will have leak-free service for decades allows them to optimize their designs, perhaps use equipment that can last as long around the cylinders, such as pumps and valves and fittings, that they don't have to change out as often either," Bucci said. "This will allow them to save money down the road as well. They can do less preventative maintenance on the other pieces of equipment around these cylinders and reduce their costs."