

When competitive cylinder rod coatings failed, **customer turned to Danfoss for help**

Hydroclad™ anti-corrosion laser cladding



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— Alpesh Shah, XL cylinder product manager,
Danfoss Power Solutions

Background

Danfoss exercised its strength in cylinder repair by retrofitting 13 hydraulic cylinders for the world’s largest offshore drilling contractor. Danfoss applied Hydroclad™ anti-corrosion laser cladding to Vickers by Danfoss XL Series cylinders that were original equipment on the customer’s exploratory oil rig in the Gulf of Mexico.

Challenge

Managing movement of the rig’s hydraulic riser tensioner systems, the Danfoss cylinders were originally coated with a competitive rod coating specified by the system developer. When the cylinder coating cracked and flaked in its corrosive work environment, the customer turned to Danfoss for help.

“Leading up to this incident, we worked aggressively to acquaint the customer with Hydroclad™ anti-corrosion laser cladding that offers superior corrosion, wear, and impact resistance, and how it increases cylinder life expectancy and reduces operational cost,” said Danfoss’ Alpesh Shah, Danfoss cylinder product manager.

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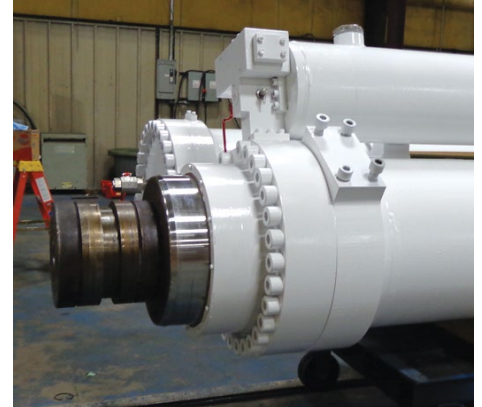
Solution

The project involved removing the original coating, performing prep work for the coating, applying the Hydroclad™ laser cladding, and shipping the 11700 Kg (25,800 Lb), 5.5 m (18 Ft) long cylinders back to the Gulf for installation on the rig.

“Considering the amount of work that went into the initial cylinder order, it was an extraordinary achievement that will enable Danfoss to strengthen its position in the oil and gas market not only for large cylinder production, but also for repairs.”

Results

In order to keep the rig operational, the customer shipped two to three cylinders at a time to Danfoss for refurbishment, while it relied on auxiliary cylinders to control riser tensioner systems. All 13 cylinders in the project were scheduled to be upgraded with Hydroclad™ laser cladding by the end of the year.



Hydroclad™ anti-corrosion laser cladding can be applied to new cylinders or refurbished applications and is suitable for offshore deep-water oil and gas exploration and production, marine, civil engineering, wave power, and other heavy duty applications.

Vickers by Danfoss cylinder coatings increase operational reliability

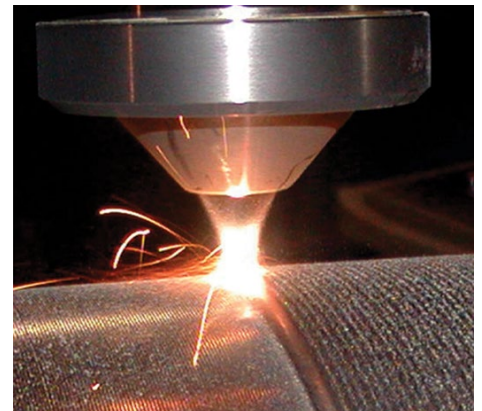
The right rod coating will keep your cylinders operating longer in extreme conditions. Within our comprehensive range, you will find a coating that provides the perfect balance of wear and corrosion resistance for your application. We can help you select the best coating from our portfolio or recommend a custom solution.

Piston rod coating options

- Chrome
- Nickel chrome
- Ceramic
- High velocity oxygen fuel (HVOF)
- Hydroclad laser cladding
- Custom coatings

Hydroclad™

Hydroclad anti-corrosion laser cladding is a field repairable, third-party certified cylinder rod coating for the harshest operating environments. This high-performance coating extends the life of hydraulic cylinders and reduces the costs of unplanned maintenance and equipment downtime. Originally developed for hydraulic riser tensioning systems on offshore platforms, Hydroclad is ideal for any cylinder application in which the piston rods are exposed to severe environmental corrosion.



Hydroclad™ laser cladding was the first anti-corrosion coating technology to earn JIP Certification - DNV's guideline for qualification of wear and corrosion protection of surface materials for piston rods.



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