

Bolt Tensioner Case Study

Oil & Gas Refining

Location: US Top 10 Refinery, Midwest

The Challenge

The requirements demanded that 70% of bolt yield load (static) be achieved on a 28 bolt cracker vessel with 4" B16 studs. The load cells must deliver **94% of bolt yield** on the first "A" pass, due to a 25% coverage approach.

The tensioner bridges must fit a tight bolt pattern with only 1-7/8" horizontal clearance around each nut face. Special scalloped bridges were made of **high-tensile EN26W to withstand elevated pressure**. Footprint dimensions: of 7-1/2" in the back, 8-3/4" in the front, and 9" depth.

Custom load cells were designed to deliver up to 500kN (551,000 psi/in²). All components actuated on a standard 1700 bar pump system.

Future applications may involve tensioning during a "slow down" on cat-crackers, involving temperatures of 400°F. High-temp, high-pressure seals were included for extreme apps.

The outage window and delivery was squeezed to 3 weeks. Engineering and fabrication delivered the custom tensioner within the tight schedule. Custom consult, engineering, and drawings were provided at no additional charge.

Utility demands also called for a load cell that is compatible with other size inserts including 3" and 3-1/4". This was achieved by building a custom load cell based on a standard #6 platform.

"We watched a crew perform this operation last year with standard tensioners, and they splattered their guts everywhere, and never got 70%. We hit this cracker with the Titan Customs and got 70% without a hitch. These tensioners are AWESOME!" ~ Jeremy, T Mechanical ~

Specs & Stats

Load Cell Diameter:	11-1/2"
Force:	500+kN
Footprint:	7-1/2" x 8-3/4" x 9"
Total Height:	11-3/4"
Op Temps:	0-400°F
Universal Puller Sizes:	3" through 4"
Total Unit Weight:	206.6 lbs
Material:	EN26W (826M40W)