Flowserve Double Shoulder Drill Stem

Experience In Motion

Drill stems transmit water and rotation from the rotary joint to the cutting tool, delivering the necessary length required to enter the coke drum and enable effective coke-removal operations.

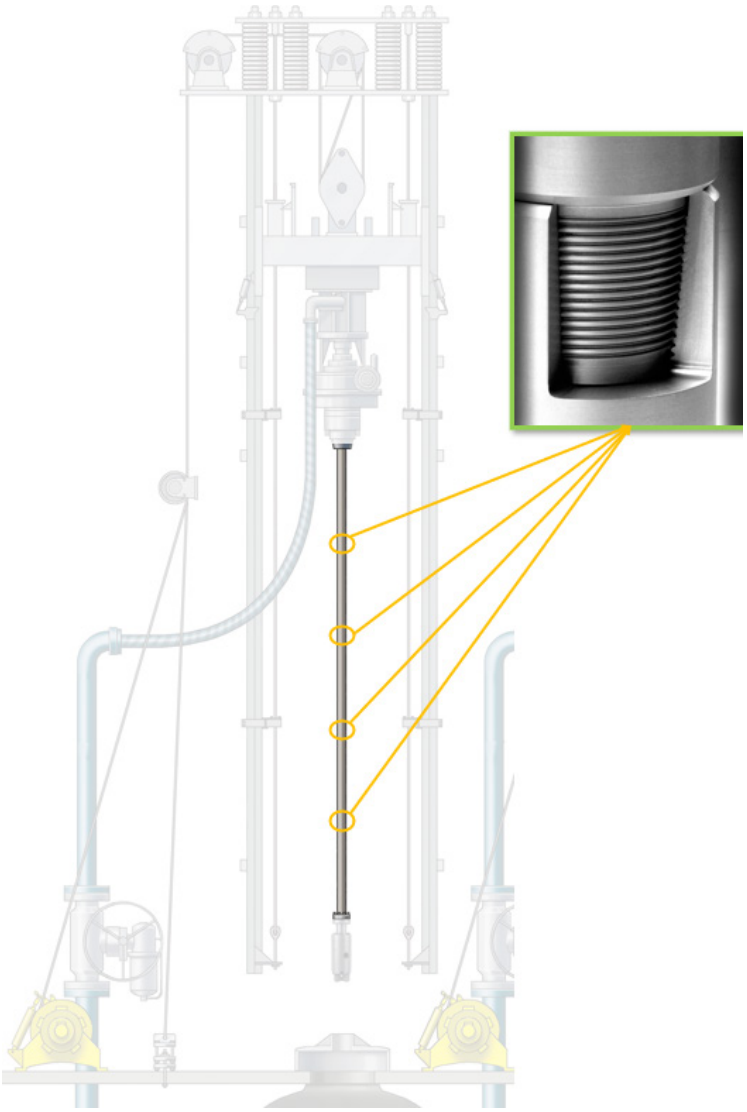
The Challenge

Threaded connections remain the most common failure point in drill stems. High cyclic loads, bending, torque, and corrosion all concentrate at the threads, leading to premature wear, breakout damage, and unexpected downtime. Traditional stems are also vulnerable to over-torque during assembly, which can deform shoulders, damage threads, and cause female connections to split under load. As Delayed Coker Units requires higher pump pressures due to larger diameters and flange to flange longer drums, these weaknesses become a concern for the modern Decoking industry.

The Flowserve Solution: Double Shoulder Drill Stems design

Flowserve has recently partnered with the global drilling pipe industry manufacturer leader, a pioneer developing innovative tubular products for some of the most aggressive applications in the upstream O&G market and now supporting refining industry by delivering a unique solution to the Hydraulic Decoking Systems: The Double Shoulder Drill Stem.

The Double Shoulder Drill Stem is a next-generation connection engineered to eliminate the vulnerabilities of conventional threaded stems. The Double-Shoulder geometry provides a positive torque stop, delivering consistent, repeatable make-up and dramatically reducing the risk of over-torque in the field.



Key Engineering Advantages

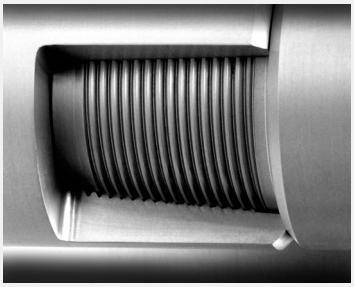
- Double-Shoulder Connection for controlled torque and superior load distribution
- 10% Stiffer Pipe for improved rigidity, directional control, and fatigue resistance
- 4X Make-Up Torque Capacity with maintained tension across the entire threaded section
- 2X Wall Thickness at threaded section for increased strength and durability
- 3X Thread Engagement for enhanced connection integrity.
- Better resistance to regular pressure cycles.
- Improved Sealing & Corrosion Resistance for longer service life in harsh environments.
- Increased the length of stem segments to 25ft, to reduce the number of joints, which improves structural integrity while minimizing failure points.

Flowserve Unique offering

Thanks to a proprietary thread geometry, this design delivers significantly higher fatigue performance while maintaining make-up torque in the same operational range as competitor premium connections. Where other manufacturers rely on heavier torque values or bulkier shoulders to achieve similar strength, the double-shoulder connection achieves superior results through smarter engineering. By reshaping the profile, increasing radius, and improving the way loads transfer across, we can offer now a connection that minimizes crack initiation and delays fatigue propagation far beyond what other comparable double-shoulder designs can offer.

Why Double Shoulder Drill Stem?

With the new Flowserve Double Shoulder Drill Stem, refineries gain a stronger, more reliable, and more predictable connection, engineered to meet the demands of today's most challenging processes. It's not just a stronger stem; it's a smarter investment in uptime, safety, and operational performance.



Operational Benefits

- Reduces connection failures and unplanned downtime
- Extends stem life in high-pressure, large drums applications
- Enhance consistent sealing in upset conditions with high load caused from bending
- Minimizes damage risk during assembly and disassembly
- Provides consistent performance across the full-service cycle

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