



# Hydraulic Decoking System

Scorpion FLS 600 Drill Stem Tensioner

*Under its Worthington<sup>®</sup>, Pacific<sup>®</sup> and IDP<sup>®</sup> heritage names, Flowserve hydraulic decoking systems are installed in more than 150 refineries worldwide.*



## Decoking Drill Stem Tensioner

*The Flowserve Scorpion FLS 600 hydraulic decoking drill stem tensioner improves safety and reduces disassembly and reassembly time compared to labor-intensive traditional methods.*

Proper tensioning of the decoking drill stem is critical for safe, long-term operations of the hydraulic decoking system. Traditionally, chain tongs are used to assemble and disassemble the drill stems, requiring lengthy set-up and service times and multiple people to operate. These factors increase downtime and add risk to personnel safety.

The Flowserve Scorpion FLS 600 Drill Stem Tensioner represents a significant improvement in decoking drill stem tension adjustment operations:

**Improved safety** over manual chain tongs

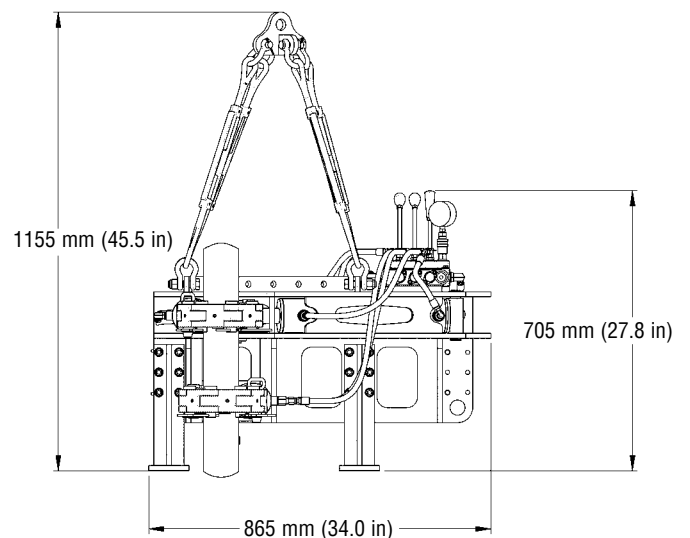
**Easy to operate** drill stem tensioner provides powerful, versatile method for making up and breaking out drill stem sections; instantly changes from break-out to make-up mode; portable and compact design.

**Built-in backup** does not require permanent anchor for operations.

**Adjustable spacing** between arms increases flexibility.

**Multiple power pack options** are available, including: electric, pneumatic and hydraulic.

**Chain design** enables adjustments compatible with all Flowserve drill stems.



**Experience In Motion**

### Increased Efficiency of Make-up and Break-out

The Scorpion FLS 600 is a valuable asset to any decoking operation that utilizes threaded drill stems. Replacing the process of manual drill stem assembly using multiple chain tongs, the FLS 600 provides a single operator with a powerful and versatile method of making up and breaking out drill stem sections. Its adjustable chain design allows the FLS 600 to work on all Flowserve drill stems, greatly simplifying disassembly and reassembly of the stem sections and assuring the proper torque levels. The adjustable arm spacing provides additional flexibility in drill stem assembly.

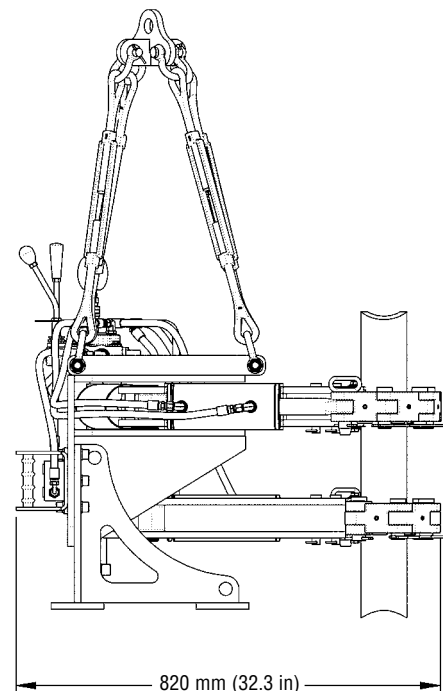
### Improved Safety

Compared to conventional methods using chain tongs, the Scorpion FLS 600 significantly reduces the risk to personnel safety. Conventional methods require a team using two wrenches for each pipe section: one to hold the bottom stem section stationary and one to rotate the top section. The stationary wrench is anchored by a chain that connects to the structure, and the moving wrench is pulled by another chain connected to a winch system. The potential malfunction of the chain systems represents a serious threat to team safety.

The Scorpion FLS 600 replaces this equipment-intensive process with a single unit that is both safer and easier to operate. Its compact, single-unit design increases portability and alleviates the process of getting equipment and crews in place. The FLS 600's built-in backup removes the need for a permanent anchor and enables operation by a single individual without risk to personnel safety.

### Specifications

<b>O.D. Range</b>	Fits all Flowserve drill stems
<b>Arm Spacing Adjustment</b>	40–205 mm (1.5–8.0 in)
<b>Torque Range</b>	Make-up — 27 100 Nm (20 000 ft-lbs) Break-out — 40 700 Nm (30 000 ft-lbs)
<b>Dimensions</b>	865 mm W x 710 mm H x 840 mm D (34 in W x 28 in H x 33 in D)
<b>Weight</b>	225 kg (500 lb)



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