

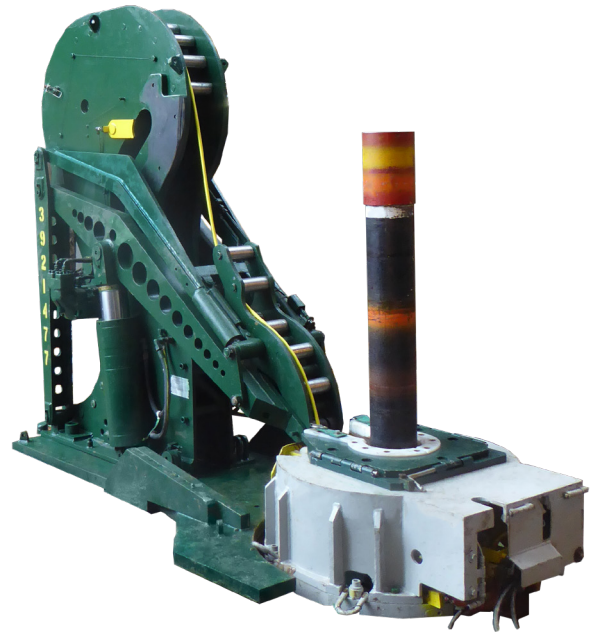
# Well Construction

## Frank's Tubular Running Service (TRS) - Completions Technologies

### Sheaveless COBRA® Control Line Manipulator Arm

#### Features and benefits

- Improves safety and efficiency during control line running operations
- Eliminates sheaves rigged up in derrick
- Eliminates man-riding activities associated with sheave rig-up
- Control lines can be run from below the rig floor through a mouse hole or from behind the tool
- Rated to run control lines with a maximum combined breaking strength of 31 tons
- Quick and easy clamp installation, as Sheaveless COBRA® presents and holds control lines in the ideal position against tubing
- Control line integrity management – Sheaveless COBRA® interlocked with spider
- Enables off-line rig-up of spoolers and control lines
- Enables pre-termination of completion assemblies
- Free-standing set-up; Sheaveless COBRA® mounts onto its own base-plate for stability
- Control line and umbilical tension-monitoring system complete with read-out
- Control line “cut and secure” system allows the driller to cut the control lines safely in the event of dropped string
- The secure feature holds the cut-ends from the spoolers to prevent uncontrolled backlash of control line towards spoolers
- Remote operation allows for single handed control of Sheaveless COBRA®, spider, and elevator
- Electro-hydraulic control system with safety interlocks enhances personnel safety while ensuring control line integrity
- Drive rollers allow control lines to be driven through the Sheaveless COBRA® to provide additional line at the rig floor
- Mechanical safety latches prevent arm from being accidentally lowered during clamp installation



#### Specifications

	Control Line Pusher Arm	COBRA®	Sheaveless COBRA®
Automated manipulation of control line	X	X	X
Interlocks and docks with spider		X	X
Control line tension monitoring and emergency cutting system			X
Eliminates the need to mount sheaves in derrick			X