Deepwater Solutions

Tesco offers casing and tubular running services for both land and offshore applications
From North America to Indonesia, from Mexico to the North Sea, Tesco delivers superior tubular services in the Deepwater Offshore market.

Whether it is conventional or unconventional running services or custom designing solutions for wells with challenging environments and trouble zones, Tesco supports your drilling program with excellence in people, technology, and processes.

- TESCO Offshore Services, Inc. has completed over 160+ jobs without ever crimping or crushing control lines with slips
- TESCO Offshore Services, Inc. completed the first Multi Stack Frac Pack (five zones in open hole and four zones in cased hole) job in the Gulf of Mexico. A new record was set in the Gulf of Mexico for this completion
- TESCO successfully developed a new Control Line Manipulating System and incorporated TESCO’s External CRT System with hydraulic compensation from the rig’s top drive. TESCO’s External CRT System with Hydraulic Compensator has been utilized to run 7 5/8" Landing String during this process.

Deepwater Locations: Gulf of Mexico, Latin America, Asia Pacific–Jakarta, Aberdeen–North Sea, Saudi Arabia, West Africa
Tesco offers conventional and proprietary Tubular Running Services for running production tubulars with control lines.

**CONVENTIONAL TUBULAR RUNNING SERVICES**
- Available on Tension Leg Platforms, Inland Barges, Jack Up Rigs, and Floaters
- Components of a package include the following services to be performed:
  - Hydraulic Pusher Arm System
  - Non-Marking CRA (Corrosion Resistant Alloys)
  - Weight Compensator
  - Torque Turn Monitoring

**PROPRIETARY TUBULAR RUNNING SERVICES**
- Available on Tension Leg Platforms, Jack Up Rigs, Floaters, and Drill Ships
- Components of the package include the following services to be performed:
  - MCLRS 6’ Scoping Unit, or;
  - A-Frame System (Automated) with conventional elevators hydraulic compensator & ECDS System
  - Weight Compensator
  - Automated Cart Systems
  - Torque Turn Monitoring

Offshore Completion Packages
A-Frame System

**DESIGN AND FEATURES**

- Provides our customers with a single system for automatically manipulating the Tong while having the ability to assist with placing the control line against the pipe
- TESCO is the only provider of this type of system
- The A-Frame is a one lift system, with a simple and efficient rig up/down can be done in less than one hour
- The A-Frame can accept control lines from vertical or horizontal entry points
- Eliminates working from heights
- Can be used with a back-saver slip assembly or Flush Mount System with minimal modifications
- Ability for use with landing string and umbilicals
- Designed for completion operations form single zone to multi-zones

<table>
<thead>
<tr>
<th>Specifications</th>
<th>“A-Frame System”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Rating:</td>
<td>Limitations are dependent of Rotary Slip used in rotary</td>
</tr>
<tr>
<td>Number of Lifts:</td>
<td>1</td>
</tr>
<tr>
<td>Lift #1 (Weight):</td>
<td>8500 lbs.</td>
</tr>
<tr>
<td>OAL:</td>
<td>146” +/- 6”</td>
</tr>
<tr>
<td>Width:</td>
<td>65” +/- 6”</td>
</tr>
<tr>
<td>Height:</td>
<td>120” +/- 6”</td>
</tr>
<tr>
<td>Control Line Insertion:</td>
<td>Vertical/ Horizontal</td>
</tr>
<tr>
<td>Number of Lines:</td>
<td>Limit dictated by clamp design</td>
</tr>
<tr>
<td>Whickerbill Function:</td>
<td>X Axis, but could be modified for Y Axis</td>
</tr>
<tr>
<td>Clamping Area Height:</td>
<td>72” +</td>
</tr>
</tbody>
</table>

Control Line Pusher Arm

**DESIGN AND FEATURES**

- The Control Line Pusher Arm is a compact version of the A-Frame System, consisting of the cart, slips and pusher arm
- Pushes the control lines to the pipe to secure control lines to pipe with clamps
- Available for use at a 45º or 90º angle from well center
- Eliminates working from heights

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Automated Pusher Arm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Rating:</td>
<td>None</td>
</tr>
<tr>
<td>Number of Lifts:</td>
<td>1</td>
</tr>
<tr>
<td>Lift #1 (Weight):</td>
<td>2000 lbs.</td>
</tr>
<tr>
<td>Control Line Insertion:</td>
<td>Vertical/ Horizontal</td>
</tr>
<tr>
<td>Number of Lines:</td>
<td>Limited dictated by clamp design</td>
</tr>
<tr>
<td>Slips:</td>
<td>Universal can use FMS or Back Saver w/Rotary Slips</td>
</tr>
<tr>
<td>OAL:</td>
<td>6’</td>
</tr>
<tr>
<td>Width:</td>
<td>3’</td>
</tr>
<tr>
<td>Height:</td>
<td>8’</td>
</tr>
</tbody>
</table>
### Scoping MCLRs™

#### DESIGN AND FEATURES

- Eliminates control lines in the tong area from overhead sheaves and running through slips
- Simple and efficient rig-up/rig-down can be done using only three lifts requiring 2 1/2 hours or less
- Standard components make the MCLRS unit portable and versatile to fit most rigs
- Guides can be positioned so control line clamping can be performed from up to four sides 90° apart from each other
- Efficiency is optimized since the tongs are operated remotely on the top platform
- The small footprint of the MCLRS unit maximizes rig floor space to increase efficient tubing running operations

#### Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>6' SCOPING UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Rating:</td>
<td>350 ton</td>
</tr>
<tr>
<td>Number of Lifts:</td>
<td>3</td>
</tr>
<tr>
<td>Lift #1 (Weight):</td>
<td>2800 lbs.</td>
</tr>
<tr>
<td>Lift #2 (Weight):</td>
<td>7200 lbs.</td>
</tr>
<tr>
<td>Lift #3 (Weight):</td>
<td>8000 lbs.</td>
</tr>
<tr>
<td>Control Line Insertion:</td>
<td>4 sides at 90°</td>
</tr>
<tr>
<td>Number of Lines:</td>
<td>Limit dictated by clamp design</td>
</tr>
<tr>
<td>Control Line Level:</td>
<td>Horizontal (w/option to go up to 20 degrees left/right of CL insertion)</td>
</tr>
<tr>
<td>Whickerbill Function:</td>
<td>X and Y Axis</td>
</tr>
<tr>
<td>Clamping Area Height:</td>
<td>72°</td>
</tr>
</tbody>
</table>

### Package Accessories

#### AUTOMATED GRAVEL PACK CART SYSTEM

- Used on both conventional and proprietary packages
- The automated cart system allows personnel to move the tong forward, backward, up, and down without hanging from a rig tugger line
- Hands-free application to remove personnel from well-center
- Eliminates pinch points

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Automated Gravel Pack Cart System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Rating:</td>
<td>Limitation are dependent of Rotary Slip used in rotary</td>
</tr>
<tr>
<td>Number of Lifts:</td>
<td>1</td>
</tr>
<tr>
<td>Lift #1 (Weight):</td>
<td>6500 lbs.</td>
</tr>
<tr>
<td>OAL:</td>
<td>150” +/- 6”</td>
</tr>
<tr>
<td>Width:</td>
<td>60” +/- 6”</td>
</tr>
<tr>
<td>Height:</td>
<td>92.5” +/- 6”</td>
</tr>
</tbody>
</table>

#### GEAR CART (AUTOMATED TONG HANDLER)

- Adaptable to fit any IR Track system or Rig or Tong system
- There is not a rig tugger line required to hoist tong up/ down
- Reduces the operators hands needing to be placed on Tong
- Ability to set up to operate with TESCO Belly Pack
- There is no Telescoping Arm that can break
- Utilizes dual activity rig building stands of tubulars
- Option to be used on Main Rotary
- Available sizes:
  - 22” XHT 100K Tong with BU
  - 14”DP 100K Tong with BU
  - 8 5/8” DP 85K Tong with BU
  - 5 1/2” UHT with Integral backup

#### REMOTE SYSTEM BELLY PACK ELECTRIC/HYDRAULIC

- Reduces personnel around Main Rotary and reduces hand placement and pinch points
- Provides a built in ESD switch
- Adaptable to all TESCO automated systems: A-Frame, Gravel Pack Cart, Sliding Slip, etc.
- Utilizes a key for turn on/off
- Secondary retention before allowing function of rotary slips
- Provides operator with better movability around the rig floor for clear line of site
TESCO offers Conventional Casing Running Services for running Large OD Tubular to Heavy Lift Tubular.

**CONVENTIONAL CASING RUNNING SERVICES**
- Available on Tension Leg Platforms, Jack Up Rigs, and Floaters
- Components of a package include the following services to be performed
  - Large OD Belt Tongs from 36” to 24”
  - Integral Tongs from 22” HT to 14” HT
  - Heavy Lift Equipment 1250 ton and 1000 Ton Capacity
  - Tong Positioner (Automated Cart System)
  - Casing Stabbing Arm
  - Torque Turn Monitoring

**INTEGRAL TONGS**
- 22” XHT Tong w/ 23” Integral Back up
  - Tubular Capacity of 11 3/4” to 22”
  - 60 GPM at 2,700 psi tong produces 150,000 ft./lbs. of torque
  - Width 67 ½”
  - Length 90”
  - Height 88”
  - Weight 12,600 lbs.
- 14” Combo Casing & Drill Pipe Tong with 15” Integral Back up
  - Tubular Capacity of 7” to 14”
  - 35 GPM at 3,000 psi tong produces 100,000 ft./lbs. of torque

**HEAVY LIFT EQUIPMENT**
- 1250 Ton Slip Type Elevator
  - Tubular capacity from 14” to 22”
  - Convenient for running tapered string due to 1” die gripping range
  - Reduced pinch points
  - All parts visible in operation
  - Industry leading 2.25x safety factor
  - Stress cracking of tool eliminated as no welds or casting are used in this equipment
- 1000 Ton FMS
  - Tubular capacity from 5 ½” to 22”
  - Convenient for running tapered string due to 1” die gripping range
  - Reduced pinch points
  - Self-locking design does not require the use of a tether and holds backup torque
  - Industry leading 2.25x safety factor
  - Stress cracking of tool eliminated as no welds or casting are used in this equipment

**CASING STABBING ARM**
- Wireless
- Electric/Hydraulic - if electronics fail have ability to revert back to hydraulic panel at rig floor.
- Two ESD switches
- Range from 2 3/8”- 26” tubular
  (Note: Stabbing Arm can be used on small tubular)
- Weight 2200 lbs.
- Reach ability is 74” to 130”
- Articulates on a left/right axis; along with stroke ability and up/down
- Track system to allow for adjusted height placement in derrick

**TORQUE TURNING MONITORING SYSTEM**
- Monitoring connections to ensure proper makeup of proprietary and or premium connections
- Reduces leak passages

**TESCO TT SYSTEM CT 3000 EXPLORER SERIES**
- Class 1, Division II Approved
- Class1, Zone 2, EExnA IIC T4, Complies ATEX certification
- 65 lbs. 22”H x 17.5”W x 9.5”D
Why choose Nabors’ AccuSteer® M/LWD Measurement Suite over the competition?

- Improve Wellbore Placement
  - Azimuthal Gamma
  - Propagation Resistivity
  - Near Bit Continuous Inclination

- Enhance Drilling Program
  - Annulus and Bore Pressure
  - Stick Slip
  - Shock and Vibration
  - Downhole Dynamics Package

- Better Characterize the Target Zone
  - Identify like lithology
  - Identify faults and fractures
  - Reduce TVD error with Continuous Inclination

Enhance your operations

Nabors offers an integrated suite of performance products and services that work with the AccuSteer™ system, including ROCKit®, PILOT™ and REVit® systems to maximize efficiency.