**APPLICATIONS**
- Designed for all offshore applications

**FEATURES**
- Adaptable for platforms, barges, spars, floaters, and tension-leg platforms
- Operates with fly-by-wire controls from the control cabin to all the major skids
- Provides finite control of injector speed and applied forces
- Uses computer-controlled systems that eliminate overpull and oversnub scenarios
- Incorporates automatic hydraulic power pump management system
- Can be configured to run up to Category III well-control working pressures
- Offers automatic reel-brake fail-safe system
- Reduces the need for personnel to climb on top of the injector through use of semiautomated tubing stabbing process
- Monitors the condition of all the electronic, hydraulic, and pneumatic systems
- Works with CT sizes ranging from 1¼ to 2⅞ in
- Offers fail-safe systems that incorporate complete manual backup
- Enables detailed, accurate entry into the wellbore through real-time geometry inputs
- Provides constant monitoring of BOP system pressures and valve positions
- Reduces the number of hydraulic and mechanical connections required to set up
- Offers zoned, ATMosphere EXPlosibles (ATEX), and CE-marked certified control cabin, hydraulic power pack, reel, and injector

**BENEFITS**
- Incorporates fail-safe systems to improve safety
- Improves efficiency and safety of the wellsite delivery process
- Reduces footprint through modular design concept that allows stacking

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**Flexible, fit-for-purpose design**
The X-11 modular offshore CT unit with active process control and automated safety systems was developed as a flexible, fit-for-purpose system that is easily adaptable for many offshore structures including platforms, barges, spars, floaters, and tension-leg platforms.

The unit works with CT sizes ranging from 1¼ to 2⅞ in, and changing from one CT size to another is safer, easier, and more efficient.

**More automation, less complexity**
The X-11 unit comprises five main skids:
- a hydraulic power pack
- a control cabin
- a drop-in drum reel
- two transport baskets that contain well-control equipment and the injector.

Modular in design, the hydraulic power pack, the control cabin, and the transport baskets are built in standard shipping containers, and the control cabin can stack on top of the hydraulic power pack. This design reduces the total weight and footprint of the entire CT system.

The unit’s automated control system monitors well parameters and the entire electric-hydraulic system. This control system detects and provides timely notification to the supervisor when changes occur. In addition to providing real-time data acquisition and data transfer to offsite locations, the X-11 unit provides one central control point for the entire CT operation.

The modular package combines major CT components are easy to connect, optimize space utilization, and provide maximum versatility.

**Improved safety and efficiency**
The X-11 unit improves the efficiency and safety of the wellsite delivery process, while reducing the cost of the total system. Automating several key processes also reduces the number of operating personnel that is normally required. Improved crew ergonomics, a smaller footprint, and the automated monitoring and control systems allow the CT supervisor to focus on downhole job requirements rather than equipment coordination.
### General Specifications

**Operating temperatures**

–4 degF (–20 degC) to 118 degF (48 degC)

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### Hydraulic Power Pack

<table>
<thead>
<tr>
<th>Component</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engine</strong></td>
<td>340-hp Caterpillar® C9 Tier III engine</td>
</tr>
<tr>
<td><strong>Engine emergency shutdown system</strong></td>
<td>Emergency air intake shutdown, automatic engine overspeed shutdown, gas detector sensors</td>
</tr>
<tr>
<td><strong>Hydraulic pump</strong></td>
<td>250-hp triple-stack gear pump</td>
</tr>
<tr>
<td><strong>Hydraulic circuits</strong></td>
<td>Semiclosed loop, with 3,000-psi [20.68-MPa] and 5,000-psi [34.48-MPa] circuits</td>
</tr>
<tr>
<td><strong>Accumulators</strong></td>
<td>Three 15 galUS [0.057 m³]</td>
</tr>
<tr>
<td><strong>Diesel tank</strong></td>
<td>150 galUS [0.57 m³]</td>
</tr>
<tr>
<td><strong>Hydraulic tank</strong></td>
<td>150 galUS [0.57 m³]</td>
</tr>
<tr>
<td><strong>Length × width × height</strong></td>
<td>10 ft × 8 ft × 8.5 ft [3.05 m × 2.44 m × 2.59 m]</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>25,000 lbm [11,339.8 kg]</td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td>DNV 2.7.1</td>
</tr>
<tr>
<td><strong>Control Cabin</strong></td>
<td></td>
</tr>
</tbody>
</table>

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### Control Cabin

<table>
<thead>
<tr>
<th>Component</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cabin</strong></td>
<td>Pressure purged</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td>Process-controlled system</td>
</tr>
<tr>
<td><strong>Data acquisition</strong></td>
<td>CoilCAT® coiled tubing computer-aided treatment</td>
</tr>
<tr>
<td><strong>External monitoring</strong></td>
<td>Remote spooling, stripper, two others as required</td>
</tr>
<tr>
<td><strong>Climate control</strong></td>
<td>30,000-Btu cooling system</td>
</tr>
<tr>
<td><strong>External view</strong></td>
<td>270° view</td>
</tr>
<tr>
<td><strong>Length × width × height</strong></td>
<td>10 ft × 8 ft × 8.5 ft [3.05 m × 2.44 m × 2.59 m]</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>15,000 lbm [6,803.9 kg]</td>
</tr>
<tr>
<td><strong>Lifting certification</strong></td>
<td>DNV 2.7.1</td>
</tr>
</tbody>
</table>

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1. Det Norske Veritas
2. ATMosphere EXplosibles

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*X-11 in offshore Malaysia.*
Drop-In Drum Reel System

Loading
From top and front of power stand

Levelwind
Floating arm type suitable for all tubing sizes, automated electronic overhydraulic spooling control

Drive system
Chain drive

Reel swivel
15,000-psi [103.42-MPa] rated

Circulating pressure transducer
Integral type with double isolation valve manifold

Pig launcher
Yes

Ball-dropping ability
Yes

Tubing monitoring
CT inspection device for wall thickness and ovality

Tubing lubrication (external)
Automatic lubrication with applicator on levelwind, 5-gal US tank capacity

Tubing lubrication (internal for corrosion mitigation)
Self-contained system

Safety equipment
Fall arrester, work platforms as required for levelwind access

Tubing Spool Specifications

<table>
<thead>
<tr>
<th>Flange outside diameter</th>
<th>Core diameter</th>
<th>Width</th>
<th>Tubing capacity</th>
<th>With 95% spooling efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>142 in [3.61 m]</td>
<td>80 in [2.03 m]</td>
<td>68.5 in [1.74 m]</td>
<td>1¼ in</td>
<td>37,800 ft [11,521.4 m]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1½ in</td>
<td>26,700 ft [8,138.2 m]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1¾ in</td>
<td>19,800 ft [6,035.1 m]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 in</td>
<td>14,600 ft [4,450.1 m]</td>
</tr>
</tbody>
</table>

Flange outside diameter
Core diameter
Width
Tubing capacity
With 95% spooling efficiency

<table>
<thead>
<tr>
<th>Flange outside diameter</th>
<th>Core diameter</th>
<th>Width</th>
<th>Tubing capacity</th>
<th>With 95% spooling efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>142 in [3.61 m]</td>
<td>70 in [1.78 m]</td>
<td>68.5 in [1.74 m]</td>
<td>1¼ in</td>
<td>41,300 ft [12,588.2 m]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1½ in</td>
<td>28,500 ft [8,686.8 m]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1¾ in</td>
<td>21,800 ft [6,644.6 m]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 in</td>
<td>na†</td>
</tr>
</tbody>
</table>

Length × width × height
13.83 ft × 8.5 ft × 12.25 ft [4.22 m × 2.59 m × 3.73 m]

Weight with empty spool
19,500 lbm [8,845.1 kg]

Weight of empty spool
5,700 lbm [2,585.5 kg]

Skid, max. gross weight with tubing full of fluid
100,000 lbm [45,359.3 kg]

Lifting certification
DNV 2.7.1

Certification
ATEX, CE marked, Zone II compliant

Injector Specifications

HR 560 configuration
60,000 lbf pull, 26,000 lbf snub [266,893 N pull, 115,654 N snub]

HR 580 configuration
80,000 lbf pull, 40,000 lbf snub [355,858 N pull, 177,929 N snub]

HR 5100 configuration
100,000 lbf pull, 50,000 lbf snub [444,822 N pull, 222,411 N snub]

Hydraulics
5,000-psi [34.48-MPa] circuit with condition monitoring systems

Depth system
Universal tubing length monitor mounted below the injector chains

Gooseneck
72-in [1.83-m] gooseneck with overload protection system, set up for 1¼-in [3.175-cm] to 2½-in [7.303-cm] CT

100-in [2.54-m] gooseneck with overload protection system, set up for 1¼-in [3.175-cm] to 2½-in [7.303-cm] CT

Condition monitoring
Metallic chip detection and temperature sensors

Safety system
Fall arrester system

Lifting certification
DNV 2.7.1

Certification
ATEX, CE marked, Zone I compliant
## BOP Control Station

**Operation**
Can operate two strippers, two dual combi or one quad BOP system, and kill and flow valves.

**Mode of operation**
From control cabin or from control station, with automatic ram position detection and feedback to the control system.

**Certification**
ATEX, CE marked, Zone II compliant

## Well Control Equipment

**BOP**
10,000-psi [68.95-MPa] dual combi 4.06-in [10.31-cm] bore slide lock BOP

**Stripper**
4.06 in [10.31 cm], 10,000 psi [68.95 MPa]

**2-ft riser**
4.06 in [10.31 cm], 10,000 psi [68.95 MPa]

**4-ft riser**
4.06 in [10.31 cm], 10,000 psi [68.95 MPa]

**8-ft riser**
4.06 in [10.31 cm], 10,000 psi [68.95 MPa]

## Injector Transport Basket

**Injector Transport Basket**
Injector, stripper, injector legs

**Length × width × height**
10 ft × 8 ft × 9.5 ft [3.05 m × 2.44 m × 2.89 m]

**Weight**
6,000 lbm [2,721.6 kg]

**Gross weight, fully loaded**
28,000 lbm [12,700.6 kg]

**Lifting certification**
DNV 2.7.1

**Certification**
CE marked

## Well Control Transport Basket

**Well Control Transport Basket**
BOP, gooseneck, BOP control cart, risers, stairs

**Length × width × height**
10 ft × 8 ft × 9.5 ft [3.05 m × 2.44 m × 2.89 m]

**Weight**
6,000 lbm [2,721.6 kg]

**Gross weight, fully loaded**
28,000 lbm [12,700.6 kg]

**Lifting certification**
DNV 2.7.1

**Certification**
CE marked

## Options

**Soundproofed power pack**
Max. average sound pressure level
80 dB

**Operating temperatures**
−4 degF [−20 degC] to 108 degF [42 degC]

**Certification**
ATEX, CE marked, Zone II compliant

**Reel conversion skid**
Adapts to conventional CT reels and provides all the reel control features

**Certification**
ATEX, CE marked, Zone II compliant

† Not available