Maersk Intrepid

Ultra harsh environment jack-up
Simple to Be Safe

Maersk Drilling truly wants to bring our people Out Of Harm’s Way. We are challenging the way we work with safety, not only as a priority but as a commitment.

This starts with asking our frontline colleagues what they need to stay safe and efficient. We are thinking out of the box for ways to eliminate risk. Nobody should ever be in doubt as to how to perform a task safely. We are removing complexity and reducing administration so we have more time for safety conversations. We are innovating new solutions to digitise and make our work processes more visible.

We want to make it Simple to Be Safe.
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Every hour spent on a well counts. We aim to make drilling smarter.

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Delivering operational excellence with innovation

Maersk Drilling provides offshore drilling services to oil companies in major oil basins around the world.

We are a leader in the harsh environment sector and have a strong track record in deepwater drilling. Our fleet is one of the youngest and most advanced in the industry, comprising advanced drillships, deepwater semi-submersibles and high-end jack-up rigs.

For over 40 years, we’ve been working closely with our customers to deliver safe and efficient drilling campaigns. Our highly skilled and committed workforce of on- and offshore professionals is recognised for their technical skills, operational excellence and for solving complex problems.

Today, we’re increasingly providing third-party services and partnering with our customers on innovative technologies and new commercial models. Together, we’re reducing the complexity, cost, and risk of drilling campaigns to improve the competitiveness of offshore oil and gas for our customers.

Jørn Madsen
CEO, Maersk Drilling
“Our fleet is one of the youngest and most advanced in the industry, comprising advanced drillships, deepwater semi-submersibles and high-end jack-up rigs.”
Smarter Drilling for Better Value
Every hour spent on a well counts – there’s a lot to play for

Smarter Drilling for Better Value is Maersk Drilling’s response to this. It combines innovative technologies with new commercial models to reduce waste and inefficiency across all the activities delivered on a well.

We provide solutions that plan, orchestrate and integrate the services involved in a drilling campaign. By improving coordination and simplifying interfaces across the supply chain, we aim to reduce overall NPT, increase efficiency and improve safety for our customers.

We’re also building new types of alliances with our customers that take a longer-term time horizon, align incentives and create value for the partners. Together, we’re lowering the cost per barrel and improving the competitiveness of offshore oil and gas.

Our joint challenge:

60+ suppliers
It can take over 60 suppliers and 6,000 invoices to drill an offshore well

20–25% NPT
Non-productive time (NPT) is often 20–25% across all suppliers on a well
Rig capabilities

The **Maersk Intrepid** ultra harsh environment jack-up rig is a MSC CJ70-X150-MD, designed for year-round operation in the North Sea, based on the design of the Maersk Innovator and the Maersk Inspirer – the world’s largest and most advanced jack-up drilling rigs.

Maersk Intrepid is designed and built to optimise all aspects of drilling operations. The rig can handle well heads and Xmas trees offline, through the moon pool or down to the Texas deck. Safe working load on the Texas deck is 150MT, moving and static. Automated pipe handling equipment and offline capabilities mean the rig can build stands of casing and drill pipe off the critical path whilst drilling ahead. Large deck space minimises crane lifts, as a forklift can be used to move equipment as well.
### Main features

<table>
<thead>
<tr>
<th><strong>mud pumps</strong></th>
<th><strong>3 x 100MT rated electro hydraulic deck cranes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>7,500 psi Circulating system</td>
<td>678.5ft / 206.8m give a maximum operating water depth capability up to 492ft / 150m</td>
</tr>
<tr>
<td>Variable deck load of up to 12,000MT and static hookload capability up to 950MT (2,100,000lbs)</td>
<td><strong>5,750hp</strong> drawworks grooved for 2” line</td>
</tr>
<tr>
<td><strong>9,850 bbls</strong> liquid mud capacity</td>
<td><strong>7,500 psi Circulating system</strong></td>
</tr>
<tr>
<td><strong>Dual pipe handling system</strong></td>
<td><strong>Maximum drilling depth: 40,000ft</strong></td>
</tr>
<tr>
<td>Semi-automatic tubular handling system</td>
<td><strong>Well production test equipment including burner booms, deluge and fixed lines for oil/gas, seawater and air pre-installed at the dedicated well testing area</strong></td>
</tr>
<tr>
<td><strong>Variable deck load of up to 12,000MT and static hookload capability up to 950MT (2,100,000lbs)</strong></td>
<td><strong>Operational drilling envelope of 108ft / 32.9m outreach with a transverse reach of 41ft / 12.5m starboard and 32.8ft / 10.0m port</strong></td>
</tr>
<tr>
<td><strong>Fixed mud cooler</strong></td>
<td><strong>15,000 psi</strong></td>
</tr>
<tr>
<td>Single-berth accommodation for 150 personnel</td>
<td><strong>18¾” BOP system</strong></td>
</tr>
<tr>
<td>45MT crane lifting capacity to the Texas deck, optimising handling of heavy subsea trees and well heads</td>
<td></td>
</tr>
</tbody>
</table>
Maximising performance in Norway

In June 2018, operator AkerBP was in a need of a rig to perform an appraisal of the Hanz field. At that time, Maersk Intrepid was assigned to Equinor at the Martin Linge field. Within only three weeks, a sublet between the parties was agreed – the rig was moved from Martin Linge to Hanz, and spud was done.

Intrepid’s time at Hanz included a record of 414 “dry hole days”. Such a performance was made possible by the rig’s ability to drill 1,500m in 12¼" section and 1,300m in 8½" section within 24 hours. Intrepid’s offline capacity maximised the performance, resulting in casing and trip speed exceeding all expectations.

Hi-tech rig on Martin Linge field

Operating offshore of Norway at the Martin Linge field under HPHT and MPD conditions, Maersk Intrepid delivered four oil wells, six gas wells and one injector, while using with the wired drill pipe technology. This technology delivered live data to the driller, which meant that it was possible to extend the total depth of the reservoir section of the fourth well to the next target – thereby saving the client, Total, from having to drill a fifth oil well.
<table>
<thead>
<tr>
<th>Built in:</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Countries operated in:</td>
<td>Norway</td>
</tr>
<tr>
<td>Customers worked with:</td>
<td>Total, Equinor</td>
</tr>
</tbody>
</table>
Main dimensions

<table>
<thead>
<tr>
<th>Main dimensions</th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hull length overall</td>
<td>291ft</td>
<td>88.7m</td>
</tr>
<tr>
<td>Hull width overall</td>
<td>346ft</td>
<td>105.5m</td>
</tr>
<tr>
<td>Hull depth</td>
<td>39.4ft</td>
<td>12m</td>
</tr>
<tr>
<td>Length of legs</td>
<td>678.5ft</td>
<td>206.8m</td>
</tr>
<tr>
<td>Cantilever – max reach aft of stem</td>
<td>110ft</td>
<td>33.5m</td>
</tr>
<tr>
<td>Transverse (STB/PS)</td>
<td>42/35.6ft</td>
<td>12.85m stb / 10.85m port</td>
</tr>
<tr>
<td>Equivalent spudcan diameter</td>
<td>72ft</td>
<td>22m</td>
</tr>
</tbody>
</table>
# Maximum design limits

<table>
<thead>
<tr>
<th>Operational capabilities</th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max water depth</td>
<td>492ft</td>
<td>150m</td>
</tr>
<tr>
<td>Wind speed</td>
<td>49m/sec</td>
<td></td>
</tr>
<tr>
<td>Drilling depth</td>
<td>40,000ft</td>
<td>12,200m</td>
</tr>
<tr>
<td>Max wave height</td>
<td>82.0ft</td>
<td>25.0m</td>
</tr>
</tbody>
</table>

**Variable load capacity (incl. drilling loads)**

<table>
<thead>
<tr>
<th>Variable load (jacking condition)</th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable load (pending site assessment)</td>
<td></td>
<td>12,000MT</td>
</tr>
</tbody>
</table>
Environmental design limits

<table>
<thead>
<tr>
<th>Environment limits</th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>(jacking and preload conditions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max wave height</td>
<td>9.8ft</td>
<td>3m</td>
</tr>
<tr>
<td>Max current</td>
<td></td>
<td>0.6m/s</td>
</tr>
<tr>
<td>Max air gap to bottom of hull</td>
<td>170ft</td>
<td>52m</td>
</tr>
<tr>
<td>Max air gap to bottom of cantilever</td>
<td>213ft</td>
<td>65m</td>
</tr>
</tbody>
</table>

Storage capabilities

<table>
<thead>
<tr>
<th>Storage capabilities</th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid mud (active)</td>
<td>7,724bbls</td>
<td>1,228m³</td>
</tr>
<tr>
<td>Mud storage (tanks)</td>
<td>2,126bbls</td>
<td>338m³</td>
</tr>
<tr>
<td>Base oil storage</td>
<td>3,459</td>
<td>550</td>
</tr>
</tbody>
</table>
### Storage capabilities

<table>
<thead>
<tr>
<th></th>
<th>Imperial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brine storage (heavy brine accepted e.g. bromide)</td>
<td>4,982bbls</td>
<td>792m³</td>
</tr>
<tr>
<td>Drill water</td>
<td>21,448bbls</td>
<td>3,410m³</td>
</tr>
<tr>
<td>Potable water</td>
<td>2,893bbls</td>
<td>460m³</td>
</tr>
<tr>
<td>Fuel oil</td>
<td>10,718bbls</td>
<td>1,704m³</td>
</tr>
<tr>
<td>Bulk cement</td>
<td>6,675cu/ft</td>
<td>189m³</td>
</tr>
<tr>
<td>Bulk barite/bentonite</td>
<td>8,900cu/ft</td>
<td>252m³</td>
</tr>
<tr>
<td>Maximum operational variable load (depending on location approval)</td>
<td>12,000MT</td>
<td>12,000MT</td>
</tr>
<tr>
<td>Cantilever pipe rack</td>
<td>5,382ft²</td>
<td>500m²</td>
</tr>
<tr>
<td>Max cantilever load (combined)</td>
<td>3,859klbs</td>
<td>1,750MT</td>
</tr>
<tr>
<td>Max hook load</td>
<td>2,000klbs</td>
<td>910MT</td>
</tr>
<tr>
<td>Max setback load</td>
<td>2,282klbs</td>
<td>1,035MT</td>
</tr>
<tr>
<td>Sack storage</td>
<td>5,000 sacks</td>
<td>5,000 sacks</td>
</tr>
</tbody>
</table>
Equipment

Well control equipment

HPHT-ready, with a 15k BOP and setup.

Moon pool and BOP carrier ensures efficient hook-up of the BOP and reducing operational uptime.

BOP can be offline pressure-tested to full working pressure.

- 49” RT KFDJ 500psi, standard bore diverter
- Schaffer NXT 15,000psi 18¾” BOP consisting of:
  - 10,000psi annular with internal H2S trim and BX 164 top and bottom flanges
  - 2 x double rams with three 15,000psi ram preventers and a blind-shear ram to shear 6¾” S-135 drillpipe
  - Vetco H4 ExF connection to HP Riser
- Various ram sizes ranging from 3” to 9¾”
- 15,000psi choke manifold with 1 x manual and 2 x remote adjustable 3¾” chokes
- Glycol injection
- NOV 15,000psi hydraulic BOP test stump
- 1 x 150MT SWL BOP transporter system and 2 x 40MT NOV hoist systems to handle BOP
- BOP work platforms
- Conductor Pipe Tensioning System consisting of:
  - Horizontal: 4 x 25MT cylinders, 4,500mm stroke
  - Vertical: 4 x 100MT cylinders, 1,200mm stroke
Drill floor

Equipped with a 907MT hoisting system and automated pipe handling, Maersk Intrepid can drill deep wells, including running heavy casing strings, safely and efficiently.

Its 49.5” rotary table ensures flexible solutions for running large OD tools.

- Drilling control cabin with 3 operator chairs and cyberbase control system for automated pipe handling, instrumentation and monitoring
- The drill floor features Multi Machine Control – a fully remote-operated pipe handling system allowing all standard operations such as stand building and tripping to be conducted without personnel on the drill floor, thus ensuring a high level of consistency across crews and an improved efficiency
- All operational control and monitoring data are collected into control rooms (the central control room located in hull, the cantilever control room and the driller’s cabin)

- Main and auxiliary NOV ARN-200 Iron Roughneck with tubular size range: 3½”–9¾”. Both can handle drill pipe, HWDP, drill collars, BHA components. Both can be adapted to handle up to 25” casing if tongs are provided
- Remote-controlled hydraulic mud bucket installed on main iron roughneck
**Fluids system**

All systems are operated from the control rooms and deliver full overview of the system, including the dual-liquid conveying system for handling LCM material.

Large storage volume enables the rig to work with two mud systems. With four 14-P-2,200HP mud pumps, the rig can deliver high volume, with high circulating pressure. The rig is equipped with a slurry reinjection unit, and has two skip stations, which can be operated by rig crews.

- The large capacity of the liquid mud system allows for storage and handling of different mud systems simultaneously
- Automated and dust-free mud mixing system ensures a safe work area
- The system is located in the cantilever to minimise the flow distance from the well centre
- System capacity of up to 1,800gpm

### Mud tanks:
- 8 x 680bbls, 1 x 547bbls, 1 x 465bbls active mud pits
- All pits have agitators
- 4 x 118bbls (19m³) slug pits
- 2 x 1,063bbls (169m³) mud storage pits
- 4 x mud processing tanks with total capacity 323.2bbls (51m³)
- 3 x 34bbls and 1 x 9.4bbls (3 x 5.4m³ and 1 x 1.5m³) trip/stripping tanks

### Mud treatment system:
- 5 x VSM multi sizer triple deck shale shakers (1 dedicated for offline use)
- 2 x MI SWACO / CD-1400 vacuum degasser 31bbls/min
- 1 x NOV mud-gas separator (poor boy) with 12" discharge vent line and can handle 15 MMscf throughput

### Mud mixing system:
- Automatic/remote-operated Mud Control System controls
the bulk transfer, mud additive, liquid mud, solids control and cuttings handling systems and is integrated with the Drilling Control Network

- 3 x mixing/transfer pumps with 1,000gpm capacity
- 4 x 63m³ capacity bulk mud silos and 2 surge tanks
- Dust collector/recirculation system for bulk system
- 2 x surge tanks including cell feeders with a capacity of 3.5m³/hr
- Sack handling/cutting machine with dust extraction, sack compactor and a capacity of up to 360 sacks per hour
- 2 x mixing hopper with automatic dosing
- 1 x big bag mixing hopper with automatic dosing
- 2 x high-rate mixers each with liquid capacity of 220m³/hr and powder capacity of 120MT/hr
- Automatic dual-liquid additive system with remote control with a capacity of 3m³/hr
Material handling

Automated pipe handling system, with the ability to build and rack to 13½” casing, while keeping personnel out of harm’s way. Also drill pipe R2 and R3 will be handled offline, to optimise operations. Top drive with maximum continuous torque 92,120ft/lbs (intermittent tq. 133,607ft/lbs).

Texas deck with 150MT SWL vertical load, and 150MT moving load enables the rig to handle heavy subsea trees and well heads. Three 100MT rated electro-hydraulic deck cranes. Operational drilling envelope of 110ft / 33.5m outreach with a transverse reach of 42ft / 12.85m starboard and 35.6ft/10.85m port.

- SSBN bolted derrick rated for 2,140klbs /1,070MT
  Dimensions: 210ft x 46ft x 52ft (64m x 14m x 16m)
- 6.7m x 11m hinged hydraulically powered drive pipe support deck supporting loads up to 150MT
- NOV SSGD-1070 model 5,750hp draw-works with 42” diameter drum grooved for 2” drill-line and driven by five 1,150hp GEB 22A closed loop water/air cooled AC motors
- Pipe-handling gantry crane (PGC) which can handle tubulars of 3.15MT and up to 20” diameter
- NOV pipe handling Catwalk Shuttle (CWM-P20-45HS) with a max transportation capacity of 20MT/50ft length, and handles up to 36” CSG joints
- Main and auxiliary NOV Hydra-racker IV extended reach (4.8m), three-armed pipe racking machine with 14MT lifting capacity and pipe doping system designed for parallel racking 135ft stands. Tubular racking capacity: 3½”–14”
- Main and auxiliary NOV ARN-200 Iron Roughneck with tubular size range: 3½”–9¾”. Both handle drill pipe, HWDP, drill collars, BHA components. Both can handle up to 25” casing if tongs are provided
- Remote-controlled hydraulic mud bucket installed on main iron roughneck
■ NOV fingerboards to rack 72 stands of 3½”–5” DP, 128 stands of 5¾” DP, 60 stands of 6¾” DP, 10 stands of 6¾”–9½” DC, 80 stands of 7”–10” liner/casing and 54 stands of 7”–14” liner/casing. The casing section has adjustable latch finger configuration which will allow a variable amount of casing joints depending on size.

■ Length of DP stands for racking in derrick: triples of range 3 or quadruples of range 2.

■ Powered mousehole cluster with three tubes each 48ft length and for max 16” diameter tubulars. One of the tubes has a powered rabbit with max lifting capacity of 15MT. The other tubes function as storage.

■ 3 x NOV OC3500LCE lattice boom electro-hydraulic cranes each with a 52.2m max hoisting radius, 20MT capacity whip hoist and a 100MT capacity main hoist (max 60MT capacity to boat).

■ 2 x Toyota battery-driven forklifts rated for 5MT load and 8.5MT load.

■ 2 x 15MT cargo lifts from main deck to lower deck and tween deck.

■ The deck loading rating is rated for 2MT/m² and can handle a 10MT forklift.

■ The drive pipe support deck enables deployment of subsea equipment.

■ The cranes have a high safe working load (SWL) with long reach.

■ The powered three-tube mousehole makes picking up pipe more efficient.

■ 8.5MT forklift on the main deck as well as the cargo lifts minimise crane lifts.
Accommodation

- Accommodation is located in two blocks shaped as a “V”, wrapped around the forward leg. Port block is a quiet area with cabins – starboard block holds all offices, recreation rooms and service facilities.
- 150 POB:
  - 140 x single-berth cabins with shared toilet and bathroom
  - 10 x single-berth cabins with private toilet and bathroom
- 10 x offices
- 3 x recreation rooms
- 1 x workout room/gym
- 1 x video room

Power supply

- 4 x Wärtsilä 9L26
  - 3,922HP/2,846kW at 900rpm
  - air-start low-emission diesel engines each driving a Wärtsilä/Cummins DIG 150 o/8W
  - 10,000kW 3-phase AC generator capable of 6.6kV output
- 15 x transformers ranging in power from 75kVA to 4,725kVA 60Hz
- Power management system
Third-party service stations

- Cementing unit and associated system:
  - 15,000psi dual pump cement unit with local and remote operation from mud control room
  - Large access hatch in cantilever deck overhead for easy change out of unit
  - Cement bulk transfer systems
  - Dust collector with cyclone in the cement room
  - Skids for batch mixer and metering system

- Well testing equipment:
  - Utility piping to and from well testing area
  - Foundations and platforms for testing equipment – surface test tree, manifolds, heater, steam boiler, separators, pumps, test tanks, downhole test packages and electrical interfaces
  - 2 x 120ft burner booms
  - 15,000bbls/day capacity with water spray and heat shield (burner heads supplied by customer)

- Mud laboratory
  - Mud lab is complete with HVAC, fume cabinet, steel tables, SS1808 sink and is adjacent to the pit room and pump room

- Dedicated spaces for the following third-party services are provided:
  - Wireline logging unit and tool house
  - Mud logging unit
  - ROV unit and tool house
  - Coiled tubing unit, power unit and tool house
  - MWD unit
  - Well test areas

- Each service station is arranged as follows:
  - 690VAC and 440VAC main and emergency power supply
  - 220/240V, 50Hz power supply
  - F&G connection
  - PA/GA system connection
  - Telephone connection
  - LAN connection

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Rig drawings

Top view
Side view