Applications
- Large-volume, high-pressure stimulation operations
- Acid fracturing treatments
- Complex matrix stimulation treatments
- Conformance control treatments
- Miscellaneous pumping operations

Benefits
- Increases operational flexibility and job frequency with storage and blending capacities accommodating large acid operations or small stimulation treatments
- Minimizes NPT by delivering high-pressure stimulation operations even in challenging weather conditions
- Maximizes operational efficiency and accuracy with experienced vessel and stimulation crews, state-of-the-art data acquisition and automation systems, and fit-for-purpose pumping and blending equipment
- Delivers efficient and cost-effective stimulation

Features
- Installed horsepower: 14,000 hhp [10,297 kW]
- Maximum pumping rate: 100 bbl/min [15.9 m³/min]
- Noncorrosive fluid storage capacity: 528,345 galUS [2,000 m³]
- Corrosive fluid storage capacity: 160,000 galUS [605.6 m³]
- Liquid additive storage capacity: 18,000 galUS [68 m³]
- Corrosive fluid blending capacity: 14,700 galUS [55.5 m³]

A successful history of worldwide stimulation projects
The Halul-48 is a supply vessel fitted with storage, mixing, and pumping equipment based on Schlumberger’s FlexSTIM® modular offshore stimulation system. The establishment of the Halul-48 offshore stimulation vessel leveraged the respective expertise of both Milaha, the leading maritime and logistics service provider in Qatar, and Schlumberger, the leading provider of digital solutions and innovative technologies for the global energy industry. In recent years, FlexSTIM system vessels have become more prevalent in bringing cost-effective solutions to most areas of the world using readily available skid-pumping equipment. Schlumberger has a long history of delivering successful FlexSTIM system projects in challenging global environments, including those found in the North Sea, the Americas, Africa, Asia, and the Middle East.

Halul-48 Well Stimulation Vessel
Providing Qatari-owned high-capacity services for the FlexSTIM system in the Middle East

The Halul-48 well stimulation vessel equipped with second-generation FlexSTIM system.

Designed and built locally to optimize in-country value generation
At Schlumberger, we continue to look for ways to improve our contribution to the local oil and gas industries in every country where we operate. The Halul-48 was designed and converted in the State of Qatar in record time with Milaha and other local partners under the highest service and environmental standards.

All phases of the stimulation treatment are handled remotely from a central control room. Continuous monitoring and control of critical parameters ensure the highest degree of quality control and assurance. Using these advanced new-technology fluid systems with on-the-fly mixing capabilities optimizes production returns.

The Halul-48 was surveyed by the American Bureau of Shipping (ABS) to meet Well Stimulation (WS) classification, recognizing it as capable of delivering stimulation services worldwide.
### Marine Data

**Classification**
- ABS A1, OSV, AMS, FFi-1
- DPS-2, WS, AMS, ACCU, SPS, RW

**Flag**
- Qatar

**Call sign**
- A7JO

**IMO number**
- 9692595

#### Dimensions

- **Overall length (LOA)**: 285.8 ft [87 m]
- **Breadth**: 18.8 ft [5.7 m]
- **Depth**: 20.0 ft [6.1 m]
- **Deadweight**: 5,681 US tons [5,154 metric tons]
- **Deck area**: 9,980 ft² [927 m²]

#### Main engines
- Four 1,825-kW Cummins QSK60-D9M

#### Generators
- Four 480-V, three-phase, 60 Hz
- One 350-kW emergency or harbor generator

#### Thrusters
- **Bow**
  - One 910-kW bow tunnel controllable pitch propeller (CPP)
  - One 800-kW retractable thruster CPP
- **Stern**
  - Two azimuth propulsion thrusters
  - Two 2,000-kW, fixed-pitch propeller

#### Speed
- **Max.**
  - 14.3 knots [26.5 km/h]
- **Economical**
  - 8 knots [14.8 km/h]

#### Fuel consumption (approx.)
- **12 knots**: 3,963 galUS/d [15.0 m³/d]
- **10 knots**: 3,170 galUS/d [12.0 m³/d]
- **Standby**: 581 galUS/d [2.2 m³/d]

#### Accommodation
- **Crew cabins**
  - 15 one-person, 10 two-person, 3 four-person cabins (47 beds total)
- **Schlumberger and guest cabins**
  - 6 one-person, 4 two-person, 2 four-person cabins (22 beds total)

#### Specialized equipment
- Kongsberg K-Pos DP21 dynamic positioning system
- Two dynamic positioning reference systems: one CyScan®, one RadaScan®

#### Marine tankage
- **Mud or brine**: 636,724 galUS [2,410 m³]
- **Diesel fuel**: 237,780 galUS [900 m³]
- **Potable water**: 528,401 galUS [2,000 m³]

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### Stimulation Data

#### Treatment pumps
- **Horsepower**: 14,000 hhp [10,297 kW]
- **Max. treatment rate**: 100 bbl/min [15.9 m³/min]
  - Up to 4,500 psi [31,026 kPa]; rate and pressures can be increased on request

#### Blending systems
- **Blending tanks**
  - Two 100-bbl [15.9-m³] tanks at max.
  - 80-bbl/min [12.7-m³/min]
  - Two 75-bbl [11.9-m³] tanks at max.
  - 20-bbl/min [3.17-m³/min]
- **Viscoelastic-based system**: Available
- **Emulsified acid-based system**: Available
- **OpenPath Reach* extended-contact stimulation service**: Available
- **MaxCO₂ Acid* degradable diversion acid system**: Available

#### Storage capabilities
- **32% hydrochloric acid (HCl)**
  - 160,000 galUS [600 m³]
- **Liquid chemical storage**: 18,000 galUS [68.1 m³]

#### Laboratory
- **Mobile lab available for carbonate stimulation**

#### Treating iron
- **2-in x 4-in Coflexip® hoses rated to 15,000 psi [103,421 kPa]**
- **2-in x 4-in 1502 treating iron**
- **Emergency quick disconnect available**

#### Monitoring
- **FracCAT* 6.4 fracturing computer-aided treatment system**
- Color monitors and visual display unit of all treatment parameters
- **InterACT* global connectivity, collaboration, and information service**

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