



**Modular Compact
Well Test System**

Modular Compact Well Test System

Applications

- Offshore and deepwater testing
- Surface well testing, including cleanup operations
- Operations requiring quick positioning and sea fastening
- Heavy oil operations
- Permanent rig placement requiring condensed footprint

Benefits

- 50% less rig-up time required
- 40% less deck space required
- Fewer personnel required for rig-up
- Minimal flowlines, connections, and handling for safer operations



The dimensions of many offshore rigs demand well test equipment to be compact, modular, and streamlined as much as possible without jeopardizing test results.

Features

- State-of-the-art, DNV[†] 2.71-approved interlocking clamp system for equipment stacking
- Premade, easy-to-install walkways
- Self-contained deluge system
- Fully adaptable to different rig shapes
- CleanSep* adjustable well test separator with SmartWeir* phase separation technology for improved separation and automated separation
- Multistage separation options
- 320-bbl surge tanks for greater produced-liquid storage
- Multiple tanks to separately store different fluids
- Heat tracer fitted on surge tanks provides heat capacity up to 176 degF [80 degC] for heavy oil operations
- Compatibility with ClearPhase* mobile testing discharge treatment
- 4,000-bbl/d pump capacity with backup pump included
- 8,000-bbl/d burning capacity without rig-down, when pump and backup pump are used in parallel

A compact solution for limited-space surface well testing operations.



This early version of the modular compact surface well test system was first used in the Norwegian sector of the North Sea.

The size and complexity of conventional surface well test equipment has proved challenging, particularly in deepwater and ultradeepwater operations. The dimensions of offshore rigs demand well test equipment to be compact, modular, and streamlined as much as possible without jeopardizing test results.

To help address these challenges and many more, Schlumberger designed modular compact surface well test equipment with optimized packaging that significantly reduces footprint, minimizes flowlines and connections, and maximizes efficiency—while ensuring accurate, repeatable test results.

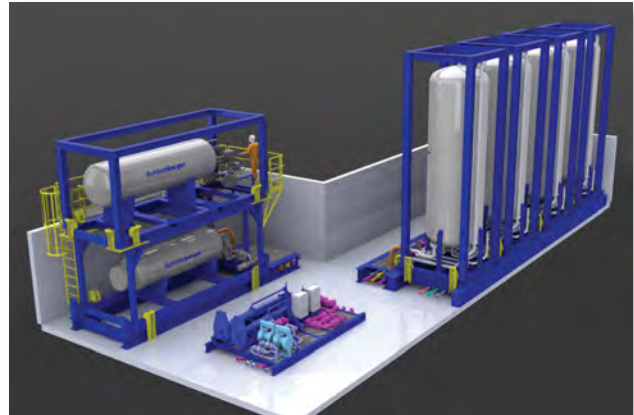
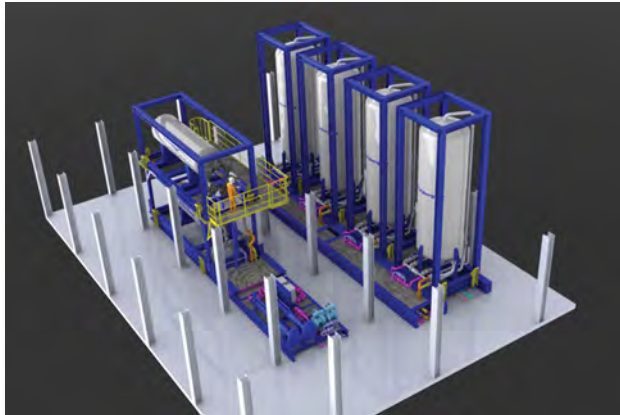


A compact surface well test setup used offshore Brazil.

Faster rig-up with minimal handling

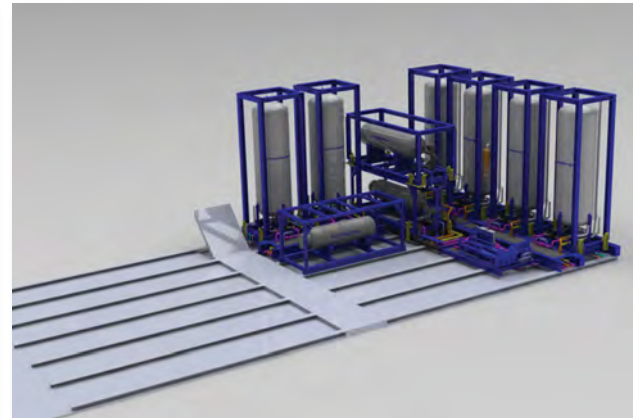
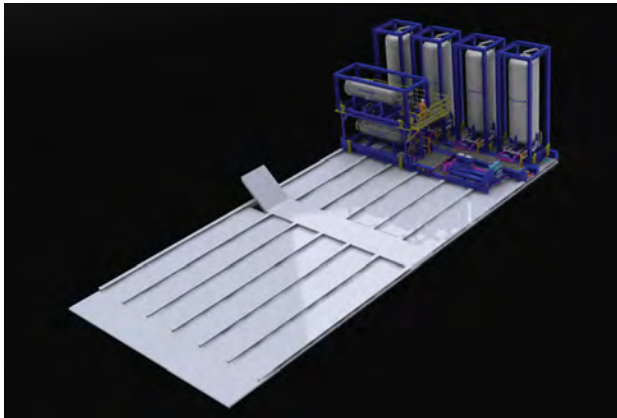
The modular compact well test system installs 50% faster than conventional surface well test equipment. The system includes premade, easy-to-install walkways, further expediting rig-up. Connections are located under the system's walkway, mitigating

risk of HSE incidents. Deck loading is reduced due to structural screws between frames. Transfer pumps and valves are combined in one unique unit that reduces necessary piping and connections.



The modular system can be used in a wide variety of configurations to meet rig requirements and test objectives. Two different compact surface well test system configurations used offshore Brazil are shown above.

All spools are included as part of the equipment, minimizing rig-up time. Intermediate spools are used for flexibility and to help avoid mismatch during rig-up. For equipment stacking, the system has state-of-the-art, DNV 2.71-certified interlocking clamps that reduce welding operations.



Compact surface well test system used offshore Brazil (left) and the same configuration with ClearPhase discharge treatment equipment added (right), allowing compliant water disposal into the sea.

Large storage and pump capacity
to handle extensive testing operations



This configuration offshore Brazil uses four surge tanks for greater storage capacity to meet test requirements.

This compact system can be configured with large storage and heating capacity. The robust design and large capacity can handle extended- and long-duration well tests, even on complex deepwater jobs. Its surge tanks can hold 320 bbl and are fitted with a heat tracer that provides up to 176 degF [80 degC] heating capacity for heavy oil operations. Pump capacity is 4,000 bbl/d with a backup included. The pump and backup can operate in parallel for a burning capacity up to 8,000 bbl/d without having to rig-down. Produced liquids can be stored separately and transferred between tanks without operational interruption.

Safer testing operations with fewer personnel onboard



The modular design of the system includes custom flowlines, reducing the number of connections and temporary lines and minimizing the number of leak paths for safer operations. Due to its modular design, fewer personnel are required for rig-up and rig-down, greatly saving on logistics costs and transportation risks. A self-contained deluge system further increases safety.



Advanced equipment for improved separation included

Separator options include CleanSep separator with SmartWeir technology. Combining an advanced flow metering system and optimized separation, the CleanSep separator provides true three-phase separation and measurements in a wide range of operating conditions, including those with high pressures and high flow rates. The CleanSep separator goes online when a well is first opened and processes effluents while the well is cleaned up on large chokes for faster operations. SmartWeir technology uses radar to unobtrusively monitor liquid levels and adjust the height of the weir to optimize the retention times of the three phases, improving separation and reducing the risk of unseparated fluid disposal.



Efficient water treatment option for on site discharge

The system is also readily compatible with ClearPhase discharge treatment, streamlining the testing process. ClearPhase mobile testing discharge treatment helps meet strict environmental discharge requirements to allow compliant water disposal into the sea. The ClearPhase water de-oiling unit, designed for exploration and development well testing and cleanup, provides an efficient and cost-effective alternative to water storage, transport, and onshore disposal. The system combines TORR de-oiling technology licensed from ProSep, Inc. and field-proven surface testing technologies for an innovative solution designed to exceed the strictest discharge requirements. With an oil-in-water concentration of 20,000 ppm in the feed reduced to less than 20 ppm at the outlet, the ClearPhase unit is ideal for testing operations in environmentally sensitive areas.

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Modular compact well testing equipment helps you test your wells with accuracy and efficiency while reducing footprint and minimizing risks. When rig space is critical, modular compact well test equipment can help you reach a better basis for your decisions and **be certain.**



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