

TRAILER MOUNTED SURFACE WELL TEST SEPARATOR PACKAGE

(2-PHASE / 3-PHASE / 4-PHASE)



At SPARKLET ENGINEERS MIDDLE EAST FZE, we design and manufacture advanced trailer-mounted surface well testing (SWT) packages engineered to meet the stringent operational and safety requirements of the oil & gas industry. Each package is tailored to the specific needs of the end user, ensuring compliance with ASME, API, ISO, and regional HSE standards, while delivering reliability and efficiency in the field.

Overview

Our SWT packages are capable of separating multiphase well streams into two, three, or four phases (oil, gas, water, and solids) with precise measurement and monitoring systems. Mounted on a heavy-duty trailer, they are fully mobile and field-ready, combining all required utilities and safety systems in a single transportable platform.

1. Test Separator

- Central processing unit for well fluid separation.
- Built to ASME Section VIII Div. 1 with options for sweet or sour service.
- Configurable for 2/ 3/ 4-phase separation.
- Safety devices include relief valves and pilots as per client specs.
- Supports multiple metering technologies: Coriolis, Orifice, Turbine, Analyzer/Transmitter.

Test Separator Technical Specifications

Parameter	Specification
Design Code & Standards	ASME Sec VIII Div.1, API, NACE MR0175
Service	Sweet or Sour Service
Design Pressure	720 - 1440 psig (up to 2160 psig optional)
Design Temperature	-20 °C to +300 °C
Retention Time	3 - 5 minutes (customizable)
Orientation	Horizontal, skid-mounted
Phases (Variants)	2-Phase/ 3-Phase/ 4-Phase
Internals	Inlet device, calming baffle, coalescer, vane pack or mesh mist extractor, adjustable weir/ boot, sand jet.
Materials	Carbon Steel, Stainless Steel, Duplex, CRA (per service requirements).
Instrumentation	Level gauges, level controllers, pressure transmitters, temperature transmitters, HHLS for ESD
Nozzles (Typical)	Inlet 6-8", Oil outlet 6", Water outlet 4", Gas outlet 4", drains, vents and sample points.
Mounting	Trailer or skid-mounted configuration, onshore/ offshore frames.

Test Separator Sizes

While our separators can be engineered to match each client's unique operating parameters; flowrate, pressure, temperature, and medium. The table below presents the standard configurations that have proven most popular in the MENA region.

Sl. #	Design Pressure			Vessel Size (ID x Length)		Liquid Capacity	Skid Dimensions (L x W x H)	
	Psi(g)	Bar(g)	Mpa	In x Ft	Cm x Cm	BOPD	Ft	Mtr
1	800	55	5.5	34" x 8'	86 x 244	3,500	13 x 7 x 8.5	4.0 x 2.1 x 2.6
2	1440	99	9.93	30" x 10'	76 x 305	3,500	15 x 6.5 x 8	4.6 x 2.0 x 2.5
3	1440	99	9.93	42" x 10'	107 x 305	10,000	15 x 7.5 x 9	4.6 x 2.3 x 2.7
4	1440	99	9.93	42" x 15'	107 x 457	12,000	20 x 7.5 x 9	6.1 x 2.3 x 2.7
5	1440	99	9.93	48" x 10'	122 x 305	13,000	15 x 8 x 9.5	4.6 x 2.5 x 2.9
6	1440	99	9.93	48" x 12'	122 x 366	19,000	17 x 8 x 9.5	5.2 x 2.5 x 2.9
7	1440	99	9.93	48" x 15'	122 x 457	28,000	20 x 8 x 9.5	6.1 x 2.5 x 2.9
8	2160	149	14.9	24" x 10'	61 x 305	1,000	15 x 4 x 7.5	4.6 x 1.2 x 2.3
9	2160	149	14.9	42" x 15'	107 x 457	12,000	20 x 7.5 x 9	6.1 x 2.3 x 2.7
10	2160	149	14.9	48" x 15'	122 x 457	15,000	20 x 8 x 9.5	6.1 x 2.5 x 2.9

Key Features & Options

- Multi-phase separation capability (oil, gas, water, solids)
- Designed for both onshore and offshore deployment
- Customizable retention time and flow capacity
- Sour service compliance with NACE standards
- Optional insulation, heating, or exotic metallurgy
- Integration with Data Acquisition Systems (DAQ)
- Available in compact trailer-mounted versions for mobility

2. Emergency Shutdown System (ESD)

- Integrated fail-safe shutdown mechanism.
- Includes control panel, SSVs (5K/ 10K/ 15K), pilots, hydraulic/ pneumatic circuits, and pushbuttons.
- Rated up to 6,500 psi, ensuring robust operational safety.

3. Choke Manifold

- API 6A compliant, available in 4- or 5-valve assemblies.
- Equipped with positive and adjustable chokes.
- Pressure rating: 5,000 to 15,000 psi.
- Designed to protect downstream equipment from pressure surges.

4. Data Header

- Multi-port header with union connections.
- Facilitates pressure/ temperature monitoring and chemical injection.
- Configurable with 3–6 nozzles depending on application.

5. Test Pump

- Provides necessary pressure for SWT equipment prior to operation.
- Pressure rating up to 15,000 psi.
- Multiple brands and configurations available as per client preference.

6. Surge Tank

- Designed to handle sudden flow fluctuations and liquid surges from separators.
- Acts as a buffer to stabilize flow and protect downstream equipment.
- Built as per ASME/API standards, sized to client-specific production profiles.
- Fitted with level indicators, pressure gauges, relief valves, and drain systems.
- Available in single- or dual-compartment designs.

7. Gauge Tank

- Calibrated tank designed for accurate measurement of liquid hydrocarbons.
- Typically used to verify separator liquid metering systems.
- Provided in skid-mounted configuration with level sight glasses, sampling points, and venting.
- Manufactured to meet custody transfer and measurement accuracy requirements.
- Available in sizes from 50–200 bbl based on client needs.

8. Utilities & Cabin

- Diesel generator, air compressor, and optional laboratory/ office cabin.
- Cabins are equipped with office furniture, gas detectors, UPS, AC systems, firefighting equipment, and oil & gas laboratory tools

9. Trailer Frame

- Heavy-duty trailer, 12–19 m in length, payload 20–50 MT, designed as per GCC road safety regulations.
- Custom built to integrate SWT equipment, piping, foldable/ extendable walkway, handrails, ladders and utilities.
- Equipped with pipe racks, ex-proof LED lights, toolboxes, windsocks and safety accessories.

10. Technical Highlights

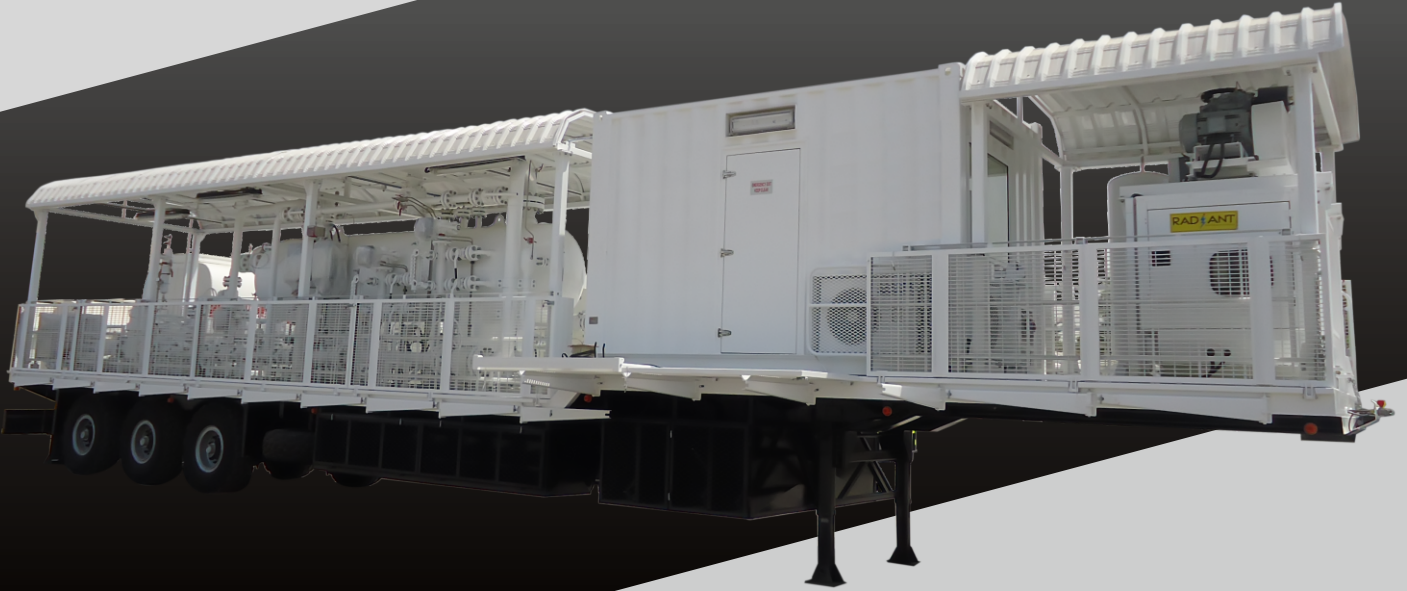
- Trailer Length: 12–19 m (40–64 ft)
- Dry Weight: 25–60 tonnes
- Separator Design Pressure: 1440–2160 psi
- Choke Manifold Rating: 5,000–15,000 psi
- Surge Tank Capacity: Configurable (as per flow rates)
- Gauge Tank Capacity: 50 bbl calibrated
- ESD Panel Rating: up to 6,500 psi
- Optional DAS: Hardware by Sparklet, software customized to client requirements
- Utility cabin sizes: 10 ft, 15 ft, or 20 ft

Why Sparklet?

- Custom-Built Solutions: Every package is engineered to specific client requirements.
- Proven Experience: Supplied equipment to oil majors in MENA region.
- Compliance: ASME, API, ISO, and HSE standards.
- Quality Assurance: Evidence-based IMS procedures ensure long-term reliability.
- End-to-End Support: From design and fabrication to FAT, site assistance, and after-sales service.

Value Proposition

At SPARKLET, we go beyond equipment supply. Our test separators are built on the values of dependability, flexibility, and customer-first ethics. With a friendly, collaborative approach, we ensure that every solution is engineered with people before profits, delivering an exceptional customer experience while meeting the most stringent technical and HSE requirements.



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