Schlumberger

Horizontal Surge Tank

Reduces H₂S prior to transfer



HST-FA model overview.

Applications

Degassing operations

How it improves well testing operations

- Offers second-stage separation
- Enables the storage of large volumes of oil
- Increases retention time to handle foaming and high expected levels of gas that remain in a given volume of oil
- Reduces foam, emulsion, and Reid vapor pressure (RVP)
- Heats for better separation using a steamheated coil that includes a temperature controller, control valve, and steam trap
- Measures level in real time using a system with radar level transmitter
- Provides three sight glasses to view oil level, water-oil interface, and sampling

Options

- High- and low-level alarms
- Level automation kit that includes an automatic level controller for water and oil outlets
- Low-pressure separator for additional optional automatic level control circuits
- Metering devices with minor modification on outlet spool
- Recirculation line to aid degassing and chemical (emulsion breaker, H₂S scavenger) circulation

Breaks down foam and emulsion and aids in degassing

The horizontal surge tank (HST) is an H_2S service vessel with a 220-bbl nominal capacity for crude oil or produced water storage after separation or further degassing and treatment to reduce H_2S prior to transfer. The HST is used as a second-stage separator fitted with a steam-heated coil to help with foam breakdown and emulsion. The HST also aids in degassing to reduce RVP to meet specifications prior to export and storage.

To prevent overpressure and overfilling, the HST is fitted with a pressure relief valve and a high- and low-level alarm system. The HST is designed with an inlet diverter manifold, a wave (foam) breaker plate, solids weir, oil-water weir plate, a mist extractor, vortex breakers on liquid outlets, a defoamer. and stiffening rings capable of withstanding a vacuum in the vessel. The standard low weir plate can be used as a degasser. The weir plate extension enables the vessel to run in three phases or as a water tank. The water tank has the capability to skim oil over the weir as required. The tank is also fitted with sampling, pressure, and temperature ports. Level monitoring is possible by utilizing three external sight glasses to view oil level, oil-water interface, and sampling.

Additionally, a wireless, guided-wave radar level transmitter enables real-time level measuring and recording and alarms in the data acquisition system.

Vessel pressure is regulated by a pressure control valve on the gas outlet. Conversion of the HST to a low-pressure three-phase separator with automatic level control is possible with the addition of an optional level automation upgrade kit. The kit includes external displacer cages, level controllers, and level control valves for oil and water.

The steam-heated coils require an external steam supply for operation. The steam system includes a temperature controller, control valve, and steam trap. Steam enters the coil through an automatic control valve and comes out through a steam trap containing a steam condensate outlet.

The HST incorporates an additional outlet and inlet connection, enabling the addition of an optional recirculating pump and line for continuous fluid recirculation. Recirculation aids with emulsion breaking, degassing, H_2S scavenging, and fluid movement across the steamed coils for even temperature distribution to the fluid in the tank.