

Well Test Emergency Shutdown System

Control flowline valve on flowhead and surface safety valve remotely and simultaneously

APPLICATIONS

- All well test operations
- H₂S environments and wells in which wellhead pressures are greater than 5,000 psi [34 MPa]

BENEFITS

- Improved safety for personnel and equipment, with established fail-safe well test conditions

FEATURES

- Skid-mounted control console
- Air-driven hydraulic pump with four air outlets
- Preset pressure values for well closure
- Storage space for remote emergency shutdown (ESD) stations and three hose reels
- Ports for additional or optional pilots
- Hydraulic tank
- High-pressure hose for use with a shutdown-valve actuator
- Low-pressure hoses for connection to the ESD stations or the high- and low-pressure pilots

The ESD system and a minimum of two remote control stations are recommended for all well test operations. The remote stations are to be located at the separator and in an area removed from all pressurized equipment on an escape route.

During testing operations, the shutdown system controls the hydraulically operated flowline valve on the flowhead and permits manual or remote closure in response to a pipe leak or break, equipment malfunction, fire, or similar emergency. The ESD system is also used to reopen the valve and, if needed, can control an additional surface safety valve upstream of the choke.

Pressure from the system's air-driven hydraulic pump is applied to open the valves and released to close them.

Backing up the remote stations are high- and low-pressure pilots that are installed on the flowline to automatically close the flowline valve in case of an emergency. The high-pressure pilots initiate well closure when the pressure in the flowline rises above a high-level threshold, as would occur if the line were plugged. The low-pressure pilots initiate well closure when pressure falls below a low-level threshold, as it would in the event of a flowline rupture or leak.

In an H₂S environment or for high-pressure tests of 5,000 psi [34 MPa] or greater, one of the remote control stations must be at the separator. Other stations can be set up at the customer's discretion. One station must be on an escape route and in an area away from all pressurized equipment.



Well test ESD system.

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Specifications

Model	ESD-C	ESD-CB
Height, ft [m]	3.94 [1.2]	3.94 [1.2]
Footprint, ft [m]	3.02 × 3.02 [0.92 × 0.92]	3.02 × 3.02 [0.92 × 0.92]
Weight, lbm [kg]	795 [340]	882 [400]
Hydraulic actuator hose, 3/8-in NPT [†] male; 3/8-in BSP [‡] female		
Pressure, psi [MPa]	6,000 [41]	6,000 [41]
Length, ft [m]	25 [7.6]	25 [7.6]
Pneumatic hoses, 3/8-in NPT male		
Pressure, psi [MPa]	200 [1.4]	200 [1.4]
Length, ft [m]	25 [7.6] and 50 [15.2]	25 [7.6] and 50 [15.2]
Hydraulic quick coupling	3/8-in NPT female	3/8-in NPT female
Pneumatic quick coupling	3/8-in NPT female	3/8-in NPT female
Manufacturing	Certificate of conformity	Certificate of conformity
Documentation	Quality file and load test [§]	Quality file and load test

[†] National Pipe Thread

[‡] British Standard Pipe

[§] Schlumberger recommends the use of an ESD system with at least two pilots during each test.

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