As a part of Halliburton’s Veto™ premiere 3-Inch 15K Subsea Safety System, the Electro-Hydraulic Emergency Shut Down System (E-ESD) provides an inline, single-selection shut-in, or shut-in and unlatch. The Veto system can be functioned from any of three remote control stations, providing a quick first response to a well control issue, without operation of the blow out preventer (BOP) system.

The E-ESD provides two modes of pull to function operation:

- **ESD mode** closes the lower and upper SSST ball valves.
- **EQD mode** closes the lower and upper SSST ball valves, closes the retainer valve (RV), functions the RV vent sleeve to balance bore to annular pressure, and releases the latch mechanism.

The EQD is capable of full shut-in and disconnect with a single operation by rig personnel.

**Dash™ Integration**

When combined with Halliburton’s game-changing Dash™ emergency response module (ERM), the E-ESD provides seamless integration between the Dash ERM and Veto system. Selecting the EQD mode will activate the Dash ERM, triggering an accelerated full shut-in and disconnect by the ERM, with a single operation by rig personnel. Selecting the ESD mode will initiate closure of the lower and upper SSST ball valves, but without utilizing the Dash ERM.

**Features**

- Provides one-touch functionality of either shut-in, or shut-in and unlatch of the subsea safety system.
- Pull-type switches provide simple operation while minimizing the opportunity for accidental function.
- Three independent remote stations enable control from strategic rig locations.
- The Coiled Tubing mode automatically configures system for intervention string cutting operations, including wireline and coiled tubing.

- To maintain back pressure on umbilical lines, preventing collapse, the E-ESD includes a 1/4-in. hydraulic regulator valve with a range of 300 to 5,000 psi for hydraulic return top-up, a 1/4-in. flow-restrictor valve, and a medium-flow backpressure regulator.

### Electro-Hydraulic Emergency Shut Down System (E-ESD) Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Remote Stations</td>
<td>3</td>
</tr>
<tr>
<td>Modes</td>
<td>2</td>
</tr>
<tr>
<td>Maximum Operating Pressure</td>
<td>10,000 psi (690 bar) Output</td>
</tr>
<tr>
<td>Pressure Supply</td>
<td>Parallel, Twin Air Operated Double Head Hydraulic Pumps</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>110 to 240 VAC</td>
</tr>
<tr>
<td>Consumed Power</td>
<td>&lt;0.25 kW</td>
</tr>
</tbody>
</table>
| Accumulators                    | 4 × Five Gallon, 3-Coat Marine Epoxy Coated Accumulator, 10,000 psi (690 bar)  
                                    1 × Five Gallon, 3-Coat Marine Epoxy Coated Accumulator, 6,000 psi (414 bar) |
| Footprint                       | 91 in. × 67 in. × 61 in.                                               |

### Benefits

- A “Normally Open” system isolates the standard control system during operation to help provide safe ESD/EQD independent of system position.
- Passive inline design provides straightforward rig up.
- The system provides a faster, more consistent response in an emergency situation.
- In the event that the rig air fails, the E-ESD pneumatic control circuits automatically switch to a backup nitrogen cylinder for a minimum 30-min reserve air supply.

For more information, contact your local Halliburton representative or email welltesting@halliburton.com.