Flow**GARD**-DS™ Safety Valve Landing Nipple

Tubing Retrievable Safety Valve Communication/Isolation for Deep Water

Applications:

- Deep and Ultra-Deep completions
- Working Pressure up to 15,000 psi [1,034 bar]
- Temperatures up to 400°F [205°C]
- Surface-controlled Secondary Insert Valve capability in deep-water
- Located just above the Deep-Set Tubing Retrievable Safety Valve
- Sweet to severely corrosive environments

Benefits:

- Added communication functionality for Deep-Set Safety Valves
- Complete lower pressure isolation of the Jumper Hydraulic Control Line once actuated

Features:

- All-Metal Seals
- Testable high-pressure Patented body joint connections
- Metal-to-Metal seal technology throughout
- Integral and testable control line fittings
- Significant OD bypass
- Short secondary insert safety valve capability
- Simple jar 'up and out' actuation with B-style shifting tool

Description

The Tejas Flow**GARD**-DS™ Nipples are designed to be installed above OEM deep-set tubing retrievable safety valves to provide a location to land and lock secondary deep-set wireline retrievable insert safety valves (i.e. Flow**GARD**-DS™ Safety Valves). Typically, deep-set tubing retrievable safety valves are not designed with communication features that allow failure mitigation with wireline insert safety valves. The Flow**GARD**-DS™ Nipples provided a means for hydraulic communication from a surface hydraulic control line to either the tubing retrievable safety valve below, or to the secondary wireline retrievable insert safety valve. Flow**GARD**-DS™ Nipples are rated to 15,000 psi and designed for use with either API standard weight or non-API heavy-weight production tubing and can be installed in sweet or severely corrosive well conditions.

All Flow**GARD**-DS™ Nipples feature proven metal-to-metal, patented 'testable' body joints, and hydraulic communication/isolation sealing technology. They also feature field-proven testable hydraulic control line connections. Flow**GARD**-DS™ Nipples can be supplied with a wide variety of locking profiles and polished bores. They also allow for 'short' secondary wireline insert safety valves and provide significant outside diameter bypass for lower completion control line(s)/flatpack(s) clearance.

Contact Tejas Research & Engineering today for more information about this robust and simple solution to ensure production continues if your deep-set tubing retrievable safety valve fails during operation.

Flow**GARD**-DS™ Deep-Set Hydraulic Communication Nipple			
Tubing Size in [mm]	**Working Pressure Psi [bar]**	**Polished Bore* in [mm]**	**Max OD In [mm]**
4.500 [114.30]	15,000 [1,034]	3.437 [87.30]	7.070 [179.58]
		3.562 [90.47]	
		3.688 [93.68]	
		3.813 [96.85]	
5.500 [139.70]		4.437 [112.70]	8.100 [205.74]
		4.562 [155.87]	

FlowGARD-DS™
Safety Valve Nipple

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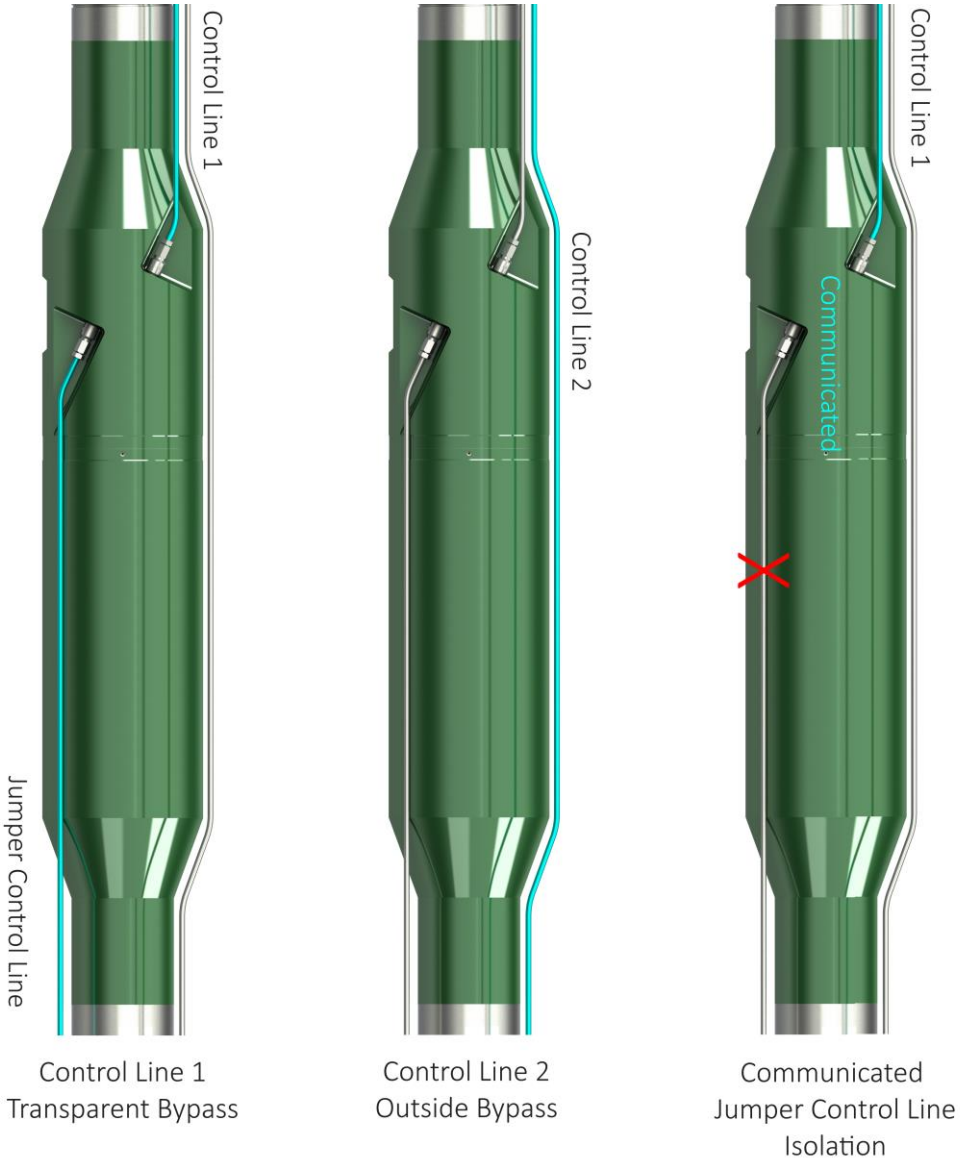
Operation

During normal operation, one of the OEM safety valve surface control lines (i.e. Line 1) is routed through the FlowGARD-DS™ Nipple and down to the safety valve via a short Jumper Control Line (shown above). Until communicated, the hydraulic pathway through the FlowGARD-DS™ Nipple is 'transparent' to normal surface operations. The other safety valve control line (i.e. Line 2) passes over the outside of the FlowGARD-DS™ Nipple down to the safety valve as usual during typical installations. Once the FlowGARD-DS™ Nipple is shifted, all hydraulic communication to the tubing retrievable safety valve through the Jumper Control Line is completely and permanently isolated while the inside of the FlowGARD-DS™ Nipple is hydraulically communicated with the surface control line (i.e. Line 1) for the installation of the Tejas FlowGARD-DS™ secondary wireline retrievable insert safety valve.



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