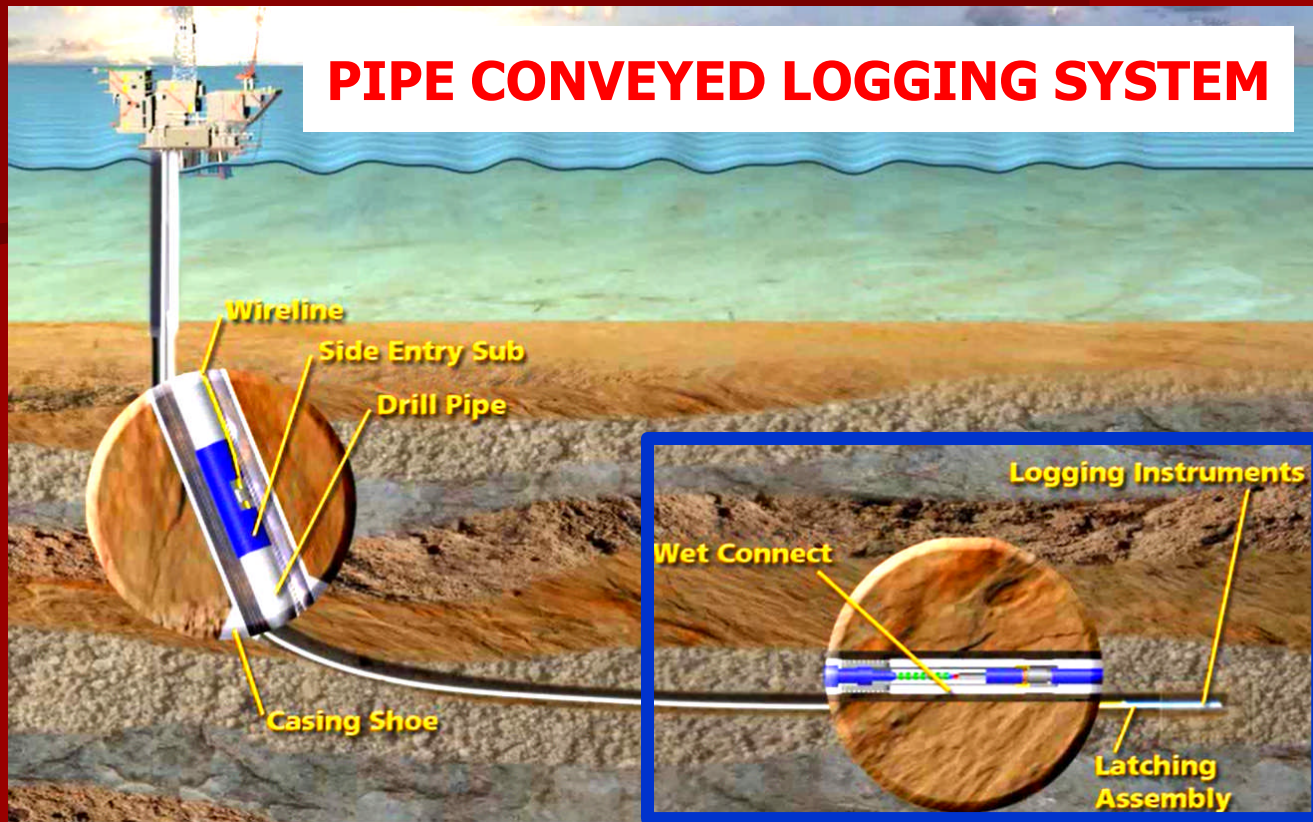




# Pipe Conveyed Logging FlowLess Downhole System



## Benefits and Advantages Over Current Systems

- Unlike the traditional designs, the FlowLess Latching Assembly (FLLA) includes a check-valve that prevents the well fluids from entering the DP, effectively performing as a well control barrier - we also offer a version with two check valves in a tandem configuration.
- The FLLA piston-based check-valve has been designed to stand differential pressures in excess of those known to be present in Pipe Conveyed Logging operations
- The Vinci Technologies Linear Connectors are suitable for HPHT wells and support a total of 8 conductors, 7 for the wireline conductors and 1 for the cable armor that avoids random power and telemetry shortcomings

## GENERAL

Today the oil or gas wells are drilled deeper, which results in higher downhole pressures and temperatures, a condition that exceeds the operational ratings of the existing wet connector systems.

When using traditional Pipe Conveyed Logging systems the cutout windows of the downhole latching assembly offer an always-open direct fluid path between the outside and the inside of the DP – an unwanted condition when the risk of having well control incidents is possible.

To improve the quality and reliability of the logging services and to add an effective well control barrier in Pipe Conveyed Logging operations Vinci Technologies has introduced the FlowLess Downhole System that includes the following components:

- The FlowLess Latching Assembly where a piston-based check valve has been inserted right above the cutout windows.
- The VTLC-8 Wet Connectors designed to operate in HPHT wells that include an additional conductor connection to ensure good armor-ground continuity.

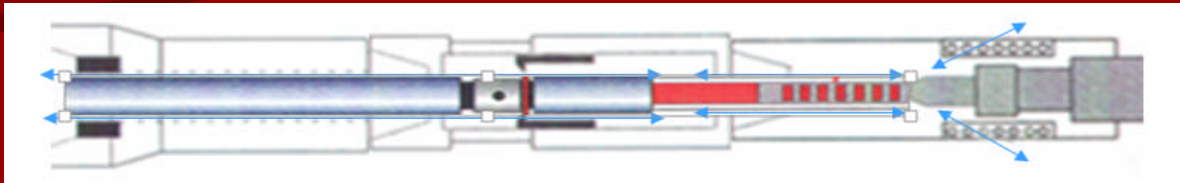
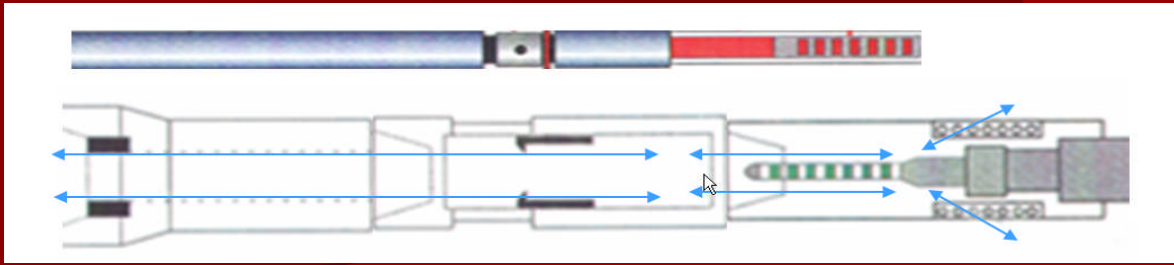
The FLLA can be used with traditional 7-conductor non HPHT wet connectors, however to benefit from the reliability and enhanced HPHT ratings listed the use of the VTLC-8 wet connectors is required.

## Supported Configurations

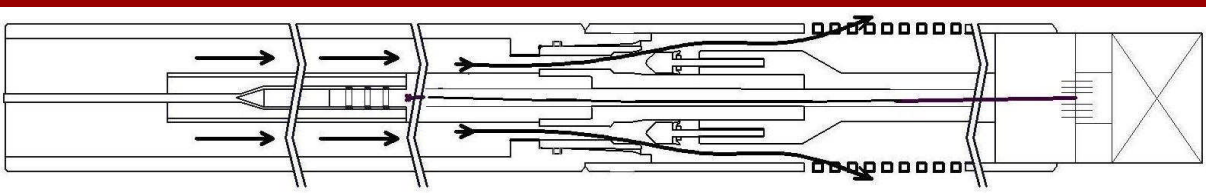
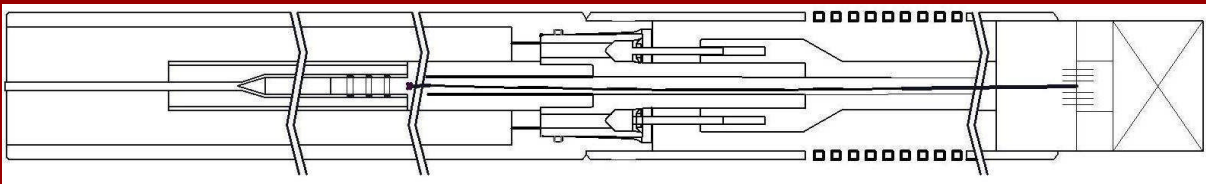
Downhole Latching Assembly Type	Wet Connector Model	Sinker Bar OD	Flow Limitation	Connexion
Modular 5" – 3-3/8"	VTLC-8 DLS 400	42 mm	Yes with the 5" body No with the 3-3/8" body	5" or 3-1/2" DP if using the 5" body 3-1/2" DP or 2-7/8" tubing if using the 3-3/8" body
Modular 4-1/2" - 2-3/4"	VTLC-8 DLS 400	42 mm	Yes with the 4-1/2" body No with the 2-3/4" body	5" or 3-1/2" or 2-3/8" DP if using the 4-1/2" body 3-1/2" DP or 2-3/8" tubing if using the 2-3/4" body

## FlowLess Latching Assembly Operations Overview

The following figures show the always-open flow path (blue arrows) of traditional latching subs, before and after the wet connectors have been latched:



The following figures show the closed position of the FLLA check-valve piston, held in place by the downhole pressure and back-springs force, and its open position when the pressure inside the DP overcomes the spring resistance and the pressure outside the DP to establish mud circulation (black arrows):



The graphic representations below show on the left the (purple) well fluids and solids blocked from entering the DP by the closed piston and on the right the (brown) drilling mud entering the well after pushing the piston to its open position:



# FLLA and VTLC-8 SPECIFICATIONS

## Operational

- Maximum Operating temperature ... from 60°F to 500°F
- Maximum Operating pressure ..... 30,000 PSI
- Type of fluids ..... All types, including salt-saturated up to 300 g/l
- Sour atmosphere ..... Yes up to 10 % H<sub>2</sub>S
- Maximum Differential pressure rating 500 bar (7,250 PSI)
- Maximum connecting speed of connector 3 m/s

## Electrical

- Number of electrical contacts ....8
- Withstanding voltage .....Test : 1000 VDC  
.....Operating : 840 VDC,
- Current .....5 Amps at room temp  
.....1.7 Amps at 500°F
- Electrical Insulation .....10 MOhms at 500°F contact to contact  
.....20 MOhms at 500°F contact to earth  
.....500 GOhms at room temperature
- Compatible with most multi-conductor cable heads, custom versions are also supported.

## Unique Features and Benefits

- Small diameter latching sinker bar: 1-11/16" (42 mm)
- Standard High-Pressure High-Temperature wet connectors (30,000 psi, 500 °F)
- The wet connectors operate under a balanced-pressure condition
- Floating Piston Check Valve Design
- Large flow-thru paths to support high mud circulation rates
- Eliminates the risk of solids accumulating around the wet connect latching area
- Allows the use of large screen to filter solids from the mud outside the DP
- Easy access to install, check or remove the screens or the check valve
- It does not require frequent maintenance since the check valve does not include dynamic seals
- Allows fast DP tripping out operations since the weight of the drilling mud is sufficient to open the FLLA piston and drain the excess drilling mud. - this prevents pulling a wet string even at normal trip out speeds.
- The logging head is attached to the FLLA strong external housing support instead of the weaker male wet connector support.