



Red Eye® Hot Tap Insertion and Retraction Technology

Red Eye hot tap insertion and retraction technology allows insertion and retraction of a water-cut meter in a flowing pipeline. The meter uses patented optical sensor technology to accurately measure the full range of water cut (0 to 100%) in a commingled oil and water stream. Very high accuracy across all water-cut levels and easy installation and configuration make this unique meter suitable for numerous applications. The meter can be used in stand alone mode to measure and report instantaneous water cut and in conjunction with the net oil computer (NOC) to perform timed production well tests, or as part of the *Red Eye* multiphase metering system (REMMS).

Hot Tap System Components

A complete hot tap system consists of the *Red Eye* hot tap assembly, vertical spool assembly and hot tap insertion and retraction tool.

Hot Tap Assembly

The hot tap assembly includes a *Red Eye* head assembly and shaft extension. The shaft extension has a flange with inner holes that bolt to the vertical spool assembly after it is inserted into a pipeline. The outer holes on the flange attach to the adjustable shelf on the insertion and retraction tool, which is used to insert and retract the hot tap assembly.

Hot Tap Vertical Spool Assembly

The hot tap vertical spool assembly attaches to a 2 in. (5.08 cm) ANSI certified ball valve (not included) that has been installed on a flowing pipeline. The vertical spool assembly consists of a vertical spool with a pressure bleeder valve, an internal wiper and packing material with a packing nut.

Hot Tap Insertion and Retraction Tool

The insertion and retraction tool is used to insert or retract the hot tap assembly into or from the pipeline. It has a bottom shelf that is bolted to the outer holes on the bottom flange of the vertical spool assembly and an adjustable middle shelf that bolts to the outer circle of holes in the flange of the hot tap assembly.



Weatherford's hot tap system allows insertion and retraction of a *Red Eye* 2G water-cut meter in a flowing pipeline.



Red Eye Hot Tap Insertion and Retraction Technology

Specifications

Electrical	
Power	10 to 32 Vdc @ 1 Amp maximum
Analog input	4 to 20 mA (well selection and flow rate)
Analog output	4 to 20 mA (water cut)
High level frequency	0 to 10 kHz @ TTL level or 24 Vdc
Operating temperature (°F/°C)	-40 to 159 (-40 to 65)
Certifications	
	FM 06 ATEX 0021 Ex d IIB T3 IP66 Ta = -20° to 85°C
Hot Tap Assembly	
Operating temperature (°F/°C)	32 to 302 (0 to 150) process fluid (standard) -40 to 149 (-40 to 65) ambient temperature (standard)
Operating pressure (PSI/BAR)	1480 (102.07) @ 302°F (150°C) max CWP
Flange (in./cm)	11.5 (29.2) outer diameter with 2 (5.08) flange (600 ANSI) bolt process connection .75 (1.91) bolt hole diameter for mounting
Wetted parts	316L SS or Hastelloy C 276 with sapphire windows
Accuracy	±2% water cut
Communications	Modbus® RTU (standard) RS-232 or RS-485 ports
Display	Two-line, 16-character vacuum florescent display (LCD available)
Output	4 to 20 mA water cut
Power	10 to 30 VDC
Physical dimensions (in./cm)	11.5 dia. x 38 long (29.2 x 96.5)
Weight (lbs./kg)	40 (18.14)
Vertical Spool Assembly	
Packing material	.25 in. (6.35 mm) compression packing material, four rings, 5.25 in. (13.3 cm.) outside diameter
Pressure (PSI/BAR)	1480 (102.06) max CWP
Process connection	2 in. (5.08 cm.) 600# ANSI RF flange (top and bottom). Bottom flange includes outer bolt pattern for attaching insertion and retraction tool. .75 in. (1.91 cm.) bolt hole diameter for mounting
Physical dimensions (in./cm)	11.5 dia. x 7.5 long (29.2 x 19.1)
Weight (lbs./kg)	43.5 (19.7)
Wetted parts	316L SS
Hot Tap Insertion and Retraction Tool	
Physical dimensions (in./cm)	15 x 18 x 39 (38.1 x 45.7 x 99.1) overall size .75 (1.91) shelf and bottom plate hole diameter
Material composition	Aluminum
Weight (lbs./kg)	104 (47.17)

Product Requirements

The meter is designed for 6 to 12 in. (15.24 to 30.48 cm) piping that has an installed, 2 in. (5.08 cm) ball valve with a 600 lb. (272.15 kg) flange ANSI certified for up to 1480 PSI (102.7 BAR). The distance between the top flange of the ball valve and the top of the piping must be approximately 16.25 in. (41.28 cm).