

Control Line Wet Mate (CLWM) Connector

For fiber-optic WellWatcher systems



Rated to 6,000 psi
[41.37 MPa]



Rated to 150 degC
[300 degF]

APPLICATIONS

- Sandface fiber-optic measurements of dual-stage completions
- Retrieval of the upper completion without retrieving the lower completion

BENEFITS

- Enables 24/7 real-time logging of the well
- Eliminates workovers to replace fiber
- Increases reliability through removal of downhole optic splices

FEATURES

- Simple operation
- Increased reliability through removal of downhole optic splices
- Flexible completion design: fiber-optic sandface monitoring possible, even with dual-stage completions
- No requirement for orientation
- Protective sleeve isolates fluid in control lines during well completion and allows pressure and circulation out of the control lines afterward
- Capability of operating with or without contraction joints
- Dual stage control-line design
- Optical fiber replacement capability

As part of the WellWatcher* permanent downhole monitoring systems, the control line wet mate (CLWM) connector is a self-orienting device that connects the control lines of upper and lower dual-stage completions. After linking the control lines, one continuous optical fiber is pumped into position to analyze reservoir performance using DTS measurements—all while eliminating downhole splices.

Simplified, consistent completions designs

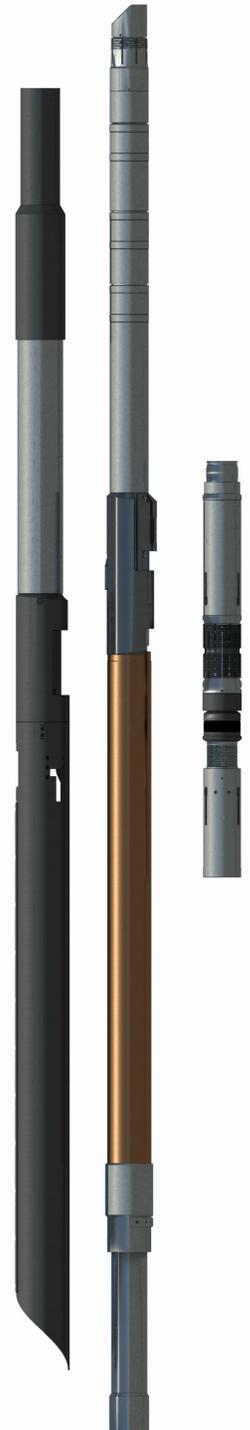
The CLWM connector mitigates the need for a more complicated downhole optical connector. Operators can maintain consistency in their multistage completions designs that require fiber-optic DTS measurements along the sandface.

Fast initial installation

This fiber-pumping method, developed and patented by Schlumberger, is the premium fiber-optic deployment option with fast initial installation, saving operators rig time and eliminating costly workovers to replace fiber. During rig time, simple hydraulic connections are made quickly. The fiber can then be deployed as one continuous length instead of using more complicated and time-consuming optical splices (as required in a cabled solution) that reduce DTS performance and consume more of the system's available optical budget.

The CLWM connector can be installed to replace degraded or damaged fiber or to accommodate newer optical interrogation technology—without costly, time-consuming workovers—while minimizing production loss and the resources required to replace the fiber.

The CLWM connector's design incorporates a protective sleeve in the stinger that helps ensure successful installation by providing a barrier against wellbore debris and allowing a consistently reliable flow passage for fiber-optic deployment. Where wellbore expansion could be a concern, contraction joints are still possible—without limitation—if the connection is anchored in place.



The CLWM connector simplifies the mechanical linkage between upper and lower completions.

Control Line Wet Mate (CLWM) Connector

Control Line Wet Mate Specifications

Swivel alignment capability, °	180 each direction
Min. fiber connector mounts	2
Max. well deviation, °	90
Min. yield flow-wetted material	13Cr, 85,000 psi [586 MPa]
Nonflow-wetted material	4140/413
NACE compliance	Yes
Eccentricity, in [mm]	0.4 [10]
Casing size, in [mm]	9.625 [244.5]
Casing weight, lbf/ft [kg/m]	53.5 [79.6]
Collapse pressure, psi [MPa]	6,000 [41.37]
Burst pressure, psi [MPa]	6,000 [41.37]
Max. working temperature, degC [degF]	150 [300]
Max. setdown weight, lbf [N]	200,000 [889,644]

Upper receptacle—stinger

OD, in [mm]	7.97 [202]
ID, in [mm]	4.50 [114]
Overall length, ft [m]	18.25 [5.56]
Connecting upper thread size, in [mm]	5.5 [139.7]
Tensile strength, lbf [N]	495,000 [2,201,870]
Max. setdown weight, lbf [N]	297,000 [1,321,122]

Lower receptacle

OD, in [mm]	8.37 [213]
ID, in [mm]	4.75 [121]
Overall length, ft [m]	16.5 [5.03]
Connecting lower thread, in [mm]	5.5 [139.7]
Tensile strength, lbf [N]	300,000 [1,334,466]
Connecting lower thread compressive strength, lbf [N]	217,500 [967,488] at ambient temperature 192,500 [856,283] at 150 degC [300 degF]
Body compressive strength, lbf [N]	300,000 [1,334,466]
Max. torque-through, ft.lbf [N.m]	7,500 [10,170]

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