

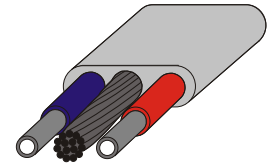
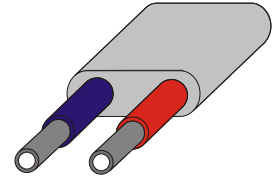


# *Hydraulic Control Lines*

Weatherford's downhole hydraulic lines are used primarily as communication conduits for hydraulically operated downhole devices in oil, gas, and water-injection wells, where durability and resistance to extreme conditions are required. These lines can be custom configured for a variety of applications and downhole components.

All encapsulated materials are hydrolytically stable and are compatible with all typical well completion fluids, including high-pressure gas. The material selection is based on various criteria, including bottomhole temperature, hardness, tensile and tear strength, water absorption and gas permeability, oxidation, and abrasion and chemical resistance.

Control lines have undergone extensive development, including crush testing and high-pressure autoclave well simulation. Laboratory crush tests have demonstrated the increased loading under which encapsulated tubing can maintain functional integrity, particularly where wire-strand "bumper wires" are used.



## *Applications*

- Intelligent wells requiring the functionality and reservoir management benefits of remote flow-control devices because of the costs or risks of interventions or an inability to support the surface infrastructure required in a remote location
- Land, platform, or subsea environments

## *Features, Advantages and Benefits*

- Control lines are delivered in splice-free lengths up to 30,000 ft (9,144 m) to minimize control-line splices and maximize reliability.
- A wide range of single, dual, or triple flat-packs is available. Flat-packs can be combined with downhole electrical cables and/or bumper wires for easier operation and handling during deployment.
- Welded-and-plug-drawn production method ensures a smooth, round tube to allow long-term metal sealing of terminations.
- Encapsulation materials are selected to suit well conditions, ensuring longevity and reliability.



## *Hydraulic Control Lines*

### *Options*

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- Wide range of single, dual, or triple flat-packs
- Encapsulation materials to suit well conditions
- Tubing in various grades of stainless steel tube and in nickel alloy