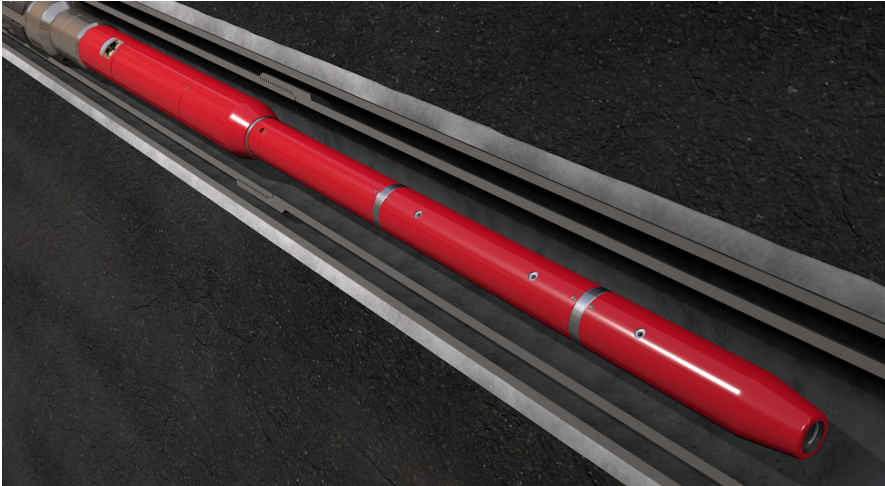


eRED[®] Electronic Remote Equalizing Device

REDUCES TIME, COSTS AND ASSOCIATED RISKS BY REMOVING INTERVENTIONS FROM WELL OPERATIONS



HCT1779-097a

OVERVIEW

The eRED[®] valve is an electronic remote equalizing device that can be remotely opened and closed multiple times. The eRED valve functions remotely without the need of cables or control lines as preprogrammed commands are used to communicate and operate the valve.

It can be deployed below either a lock, bridge plug or on a three-way tubing crossover, and used as a downhole barrier or flow control device. Each time the ball valve is activated, an intervention is eliminated from the operation, saving significant rig time while helping reduce operation and personnel risks.

HOW IT WORKS

The eRED valve has integrated pressure and temperature sensors to monitor the well conditions and is preprogrammed to either open or close when a specified condition (trigger) is detected.

The triggers function using time, and various well parameters such as absolute pressure, surface applied pressure and temperature, or a combination of these. Each time a trigger is detected, the eRED valve reacts by either opening or closing according to trigger instructions. This process can be repeated multiple times without any form of intervention.

FEATURES

- » Remotely operated ball valve
- » Multiple open and close actuations without intervention
- » Deploy opened or closed

BENEFITS

- » Remote activation minimizes the number of interventions saving time, cost, and reducing risk of HSE exposure
- » Flexible deployment options on slickline, E-line, wireline or coiled tubing, or can be preinstalled within tubing
- » Reliable, field proven technology with over 900 installations
- » Reduces personnel on board - minimizing costs and reducing the risk of health, safety and environmental exposure
- » Prepared onshore or offshore
- » Flexible programming, performed at the base or wellsite

By applying a defined pressure for a predetermined time at surface, the operator can activate the pressure window trigger. This allows direct communication with the eRED® valve so it can be remotely operated. For example, applying between 1,000 and 1,500 psi for 10 minutes could instruct the eRED valve to open.

The eRED valve will ignore any pressure applied outside the defined values. Therefore, pressure can be applied to the tubing (for tubing integrity tests, packer setting, etc.) without the risk of inadvertently activating the valve.

Onboard data analysis allows the eRED valve to distinguish its own commands from other external factors, such as naturally fluctuating hydrostatic or reservoir pressure. This enables the eRED valve to behave as planned, even if the downhole conditions change unexpectedly.

Other triggers consisting of absolute well pressure, timers and well temperature provide a pre-programmed logic flow sequence for the eRED valve to follow without input from the surface. All the various trigger types can be used independently or in conjunction with each other to develop more elaborate instructions. For example, the eRED valve can be set to close when it detects bottomhole flowing pressure lower than 1,000 psi, but only after three days downhole or once reaches a depth with 4,000-psi hydrostatic pressure during deployment. After satisfying the hydrostatic parameter, the valve will close immediately after a five-hour timer elapses.

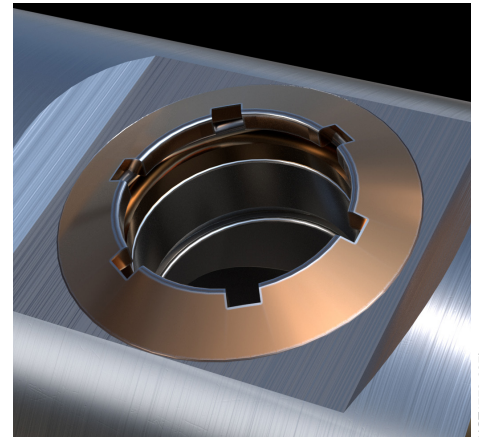
In addition, the pressure window trigger can be used to manually cancel or override any trigger or permanently lock the eRED valve in its current position, disabling the electronics.

eRED® Electronic Remote Equalizing Device Specifications

Available Sizes (OD)	2.25, 3.25., 5.5 in.
Maximum Differential Across Ball	Up to 10,000 psi (689 bar)
Temperature Range	32 to 284°F (0 to 140°C)
Maximum Differential Pressure While Opening	Up to 5,000 psi (345 bar)
Maximum Flow Rate	Up to 10 bbl/min
Battery Life	Up to 41 months
ISO Qualification	ISO 14310 up to V0

Due to the significant number of design variables, the information provided is for guidance only. Always refer to the product data sheet for the latest specifications

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com



Close-up of the eRED® Valve flow port

HCT1779-087b

APPLICATIONS

Any application in which an intervention plug is used can be replaced by an eRED valve to achieve the enhanced results using multiple open/close functions when desired, without repeated interventions, reducing rig- time and associated costs and risks. More than one eRED valve can be deployed in a single operation. For example, when a well requires two barriers, a shallow and deep-set eRED plug can be installed using slickline, or pre-installed onshore.

- » Packer setting device
- » Deep-set barrier
- » Shallow-set barrier for blowout preventer (BOP) / Christmas tree change out
- » Annular barrier in short string during completion deployment
- » Liner deployment and setting device
- » Barrier in temporary abandonments or light well intervention operations
- » Barrier in tubing-conveyed perforating gun firing and stimulation operations
- » Replaces ball drop in highly deviated and horizontal wells
- » Self-actuating flow control device
- » Shut-in tool for pressure build-up tests during well testing, allows data logging through the valve or via anchored gauges

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