

Multiactivation drilling valve

Delivers specialized lost circulation materials (LCMs) and preventative borehole stress treatments

Applications

- Alternative circulation path
- Lost circulation
- Cementing
- Borehole stress treatment
- Managed pressure drilling
- Jetting BOP and wellhead
- Hole cleaning

Benefits

- Provides secondary circulation path above lower blockages or when excess rate above lower BHA is limited
- Spots the LCM precisely without damaging or jamming smart tools in the drilling BHA
- Allows cementing without exposing RSS/MWD/LWD tools
- Strengthens formation and prevents collapse or fluid influx
- Ensures a self-closing bypass with pumps off
- Cleans BOP cavities and annular spaces with high-velocity flow
- Minimizes downtime by enabling quick, targeted interventions
- Boosts annular velocity to support cuttings transport
- Reduces NPT

Features

- Compatible with range of drilling environments and BHA configurations



Designed to support a wide range of drilling environments and BHA configurations, the WELL DEFENDER multiactivation drilling valve enhances hole cleaning and enables efficient cuttings-bed movement.

How it improves performance

The WELL DEFENDER™ multiactivation drilling valve is a low-complexity, high-reliability tool designed for demanding drilling environments. Its flexible design supports a wide range of drilling environments and BHA configurations, making it a versatile solution.

How it works

When the activation ball lands on the seat, flow through the lower drilling assembly stops. The positive force of the rig pump pushes the activation sliding sleeve to open the bypass ports, enabling flow through the tool to the annulus. After pumping is complete and the rig pump is stopped, the spring-loaded sleeve deenergizes and closes the bypass ports, restoring flow to the drilling assembly only when desired. To regain flow to the drilling assembly, the deactivation ball is landed and pressure is built up to 1,600 psi [1.10 bar]. Both the activation and deactivation balls are expelled from the WELL DEFENDER valve into the bypass ball catcher. If needed, throughbore access through the WELL DEFENDER valve and the bypass ball catcher is available to recover sources even when the balls are present in the catcher.

WELL DEFENDER Specifications

Specifications	475	675	825
Drilling hole size range, in	5–6¾	8¼–10½	10½–14¾
Model	475	675	825
Size, in	4¾	6¾	8¾
Number of circulation ports	3	3	3
Circulation ports size, in [mm]	1.00 × 1.35 [25.4 × 34.29]	1.25 [31.75]	1.40 [35.56]
Maximum total flow area (TFA), in² [mm²]	3.40 [2,193]	3.681 [2,374]	4.618 [2,979]
Minimum TFA, in² [mm²]	2.16 [1,393]	3.17 [2,045]	4.63 [2,987]
Activation ball OD, in [mm]	1.75 [44.45]	2.115 [53.72]	2.500 [63.50]
Deactivation ball OD, in [mm]	1.698 [43.13]	2.063 [52.40]	2.448 [62.18]
Deactivation ball pressure, psi [bar]	1,500 [103] ±25%	1,500 [103] ±25%	1,600 [110] ±25%
Pressure drop at maximum flow rate, psi [bar]	50 [3.4]	76 [5.2]	80 [5.5]

WELL DEFENDER



WELL DEFENDER Specifications

Specifications	950
Drilling hole size range, in	≥12¼
Model	950
Size, in	9½
Number of circulation ports	3
Circulation ports size, in [mm]	1.40 [35.56]
Maximum total flow area (TFA), in² [mm²]	4.618 [2,979]
Minimum TFA, in² [mm²]	4.63 [2,987]
Activation ball OD, in [mm]	2.500 [63.50]
Deactivation ball OD, in [mm]	2.448 [62.18]
Deactivation ball pressure, psi [bar]	1,600 [110] ±25%
Pressure drop at maximum flow rate, psi [bar]	80 [5.5]

All specifications are subject to change without notice.