

Service Tools

Model A Storm Valve

The Storm valve is a combination Back Pressure valve and Safety Joint that is run above a Storm Packer, in order to provide well control protection during a temporary abandonment of the well, without having to pull the drill pipe or tubing. The Storm Valve allows the packers to be set and then permits disconnection and retrieval of the drill pipe or tubing and the upper sub of the valve, while at the same time automatically closing the Storm Valve, isolating the drill pipe below the Storm Packer.

Note: This Storm Valve is designed to be used with right hand set compression type packers only.

Running

The Storm Valve is made up directly onto the top sub of the Storm Packer. The 4-1/2" I.F. connections are to be tightened with 22,800 ft-lbs. torque, (3-1/2" I.F. — 10,500 to 11,500 ft-lbs. torque)

Warning: Tongs and back-ups must be on the immediate Box and Pin Subs being tightened. Do not torque through any of the valve or packer internal connections.

The two-start right acme connection (marker hand tight) between the Top Sub and the Housing is to be tightened at this time to about 500 ft-lbs. of torque (equivalent to 200 lb. man on 36" wrench). This is the connection that will be broken and backed off downhole, so do not overtighten. Care should be taken while running not to apply left hand torque to the drill pipe string before setting the Storm Packer. Once in position, the packer is ready to be set. Pick up the drill string approximately 1 foot.

Apply and hold right hand torque while moving back down with the drill string until the packer starts taking weight (usually 1 to 2 feet depending on the packer model). Slack off the string weight onto the packer. To disconnect the Top Sub from the valve, pick up 1,000 to 3,000 lbs. over the string weight of the drill pipe above the valve. Apply left hand torque to break the two-start right hand acme thread and continue rotating to back out the Top Sub and close the valve.

The drill pipe and Top Sub are retrieved and the B.O.P.'s closed. If time and conditions permit, the assembly may be pressure tested at this time to a maximum of 1,000 psi differential pressure from the top. Too high a differential from above will cause the Plug to shear out.

Retrieving

Run the drill pipe back in with the Storm Valve Top Sub on the bottom (use the proper size Gauge Ring for casing size). Tag the valve and set approximately 1,000 lbs. onto it and slowly rotate the pipe to the right while maintaining the weight on the valve. This will make up the acme thread and begin to open the valve.

Warning: A valve should be installed on the string at surface before reconnection in case pressure has built up in the pipe below the valve.

The valve will open before the Top Sub shoulders, but continue rotating until the pipe torques up. Do not attempt to unset the packer until any pressure in the drill string is under control.

To unset the Storm Packer, the drill pipe is picked up, opening the bypass in the packer. Before doing this, insure the annulus is closed off at surface in case pressure has built up below the packer. After any pressure has been equalized, continue to pick up and pull out of the hole.

The Storm Valve incorporates an emergency pump-out plug which can be sheared out of the valve with differential pressure from above (it is not necessary for the Top Sub to be attached). The plug will shear out and move down the drill string.

Note: Once the plug is out, the valve cannot be closed.

Strength Specifications

- Body Tensile Load Rating Lbs.
Yield - 500,000 lbs.
Working - 250,000 lbs.
- Plug Shear out Differential Pressure with 8 Brass Screws: 2,200-2,700 psi total (approx. 300 psi/screw)
- Pressure Rating psi (not considering Shear Out Plug)
Yield - 16,000 psi
Working - 10,000 psi
- Plug Shear out Differential Pressure with 8 Mild Steel Screws: 3,000-3,400 psi total (approx. 400 psi/screw)

