

Differential Pressure Sub (Ported / Non-ported)

Running Procedure:

The LRI Differential sub is used to maintain a pressure differential between two sections of tubing. The pressure differential across the ceramic dome can be a maximum of 10,000 psi. However, only the convex side of the dome can support this differential. The concave side will only support between 900 psi and 3000 psi differential. The tool is most often run with the concave side down. This configuration allows the well fluid to surge up into the tubing when the dome is broken and the guns are fired.

The ported Differential sub has ports in the sub body below the ceramic dome. This allows the tubing below the tool to fill up as it is tripped into the well. The ports also allow well fluid to enter the tubing from the annulus when the tubing is used for production.

The Differential sub must be made up independently from the string and tightened only with the pipe wrenches insuring the wrenches are placed on the knurl on the bottom of the tool and the tubing upset. (Power tongs must not be used)

Note: 1. Do not drift/rabbit the Differential sub.

2. Do not apply torque through the Differential sub when making up tubing onto the tool.

Make up the next pup joint in the assembly. Placing the back up wrench on the knurl on the top of the Differential sub, tighten the pup joint in with pipe wrenches only. (Again Power tongs must not be used)

Remove slips and continue running assembly in the hole.

Precautions:

When tripping the tubing string into the well, take care not to allow anything to drop into the tubing bore. When operations are delayed, cover the tubing bore with a cap. Falling debris may break the ceramic dome prematurely.

Breaking the Ceramic Dome:

When the guns are in position, the appropriate drop bar can be dropped through the tubing. The ceramic dome debris is very brittle. If the ceramic dome is broken prematurely, the ceramic debris will not interfere with the operation of the LRI firing head.

