

Innovative Production's patent pending **Full Metal Rupture Disc (FMRD)** and **Thru-Tubing Dart (TTD)** offers mechanical protection during Permanent Magnet Motor workover operations. The FMRD and TTD are designed to protect against taking a kick and subsequent rotation of the PMM that can send voltage up the power cable and cause injury to personnel.

The Full Metal Rupture Disc is installed above the Electrical Submersible Pump and provides a barrier to prevent wellbore fluid from spinning the pump during run in hole operations. It is manufactured completely out of steel and is designed to flare open upon rupture thereby preventing debris from entering into the pump which has repeatedly been reported when using ceramic burst discs. Upon rupturing, the ESP can be started like normal and what remains of the FMRD will be washed away causing minimal pressure drop over the life of the submersible pump.



Full Metal Rupture Disc after Rupturing

The Thru-Tubing Dart is utilized during pull out of hole operations. It is dropped thru-tubing to land in a receptacle placed above the FMRD, above the ESP. It can be pumped into place and a pressure test performed to ensure validity of seat. At that point, pumping pressure should increase to pop an Type-S Drain located above the TTD to relieve the fluid column in the tubing string to avoid pulling wet.

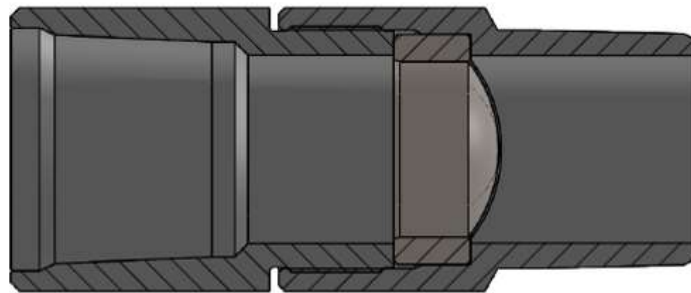


Thru-Tubing Dart

For more information, contact Innovative Production at www.innovp.com.

2-7/8" Full Metal Rupture Disc

- 2-7/8"-8RD EUE Pin x Box Threads
- 3.4" Outside Diameter
- Withstands 4000psi from below
- Bursts at 2500psi from above (+/- 10%)
- 1026 CS Housing (Alternative metallurgies available upon request)
- 304SS Disc



2-7/8" Thru-Tubing Dart

- API 11AX Locking Fingers
- 1026 CS Receptacle (Alternative metallurgies available upon request)
- 1" Sucker Rod Thread on Dart
- 2-7/8"-8RD EUE Pin x Pin Threads on Receptacle
- 11.9 in. Overall Receptacle Length
- 3.10 in. Receptacle Outside Diameter
- 2.29 in. Receptacle Inside Diameter

