

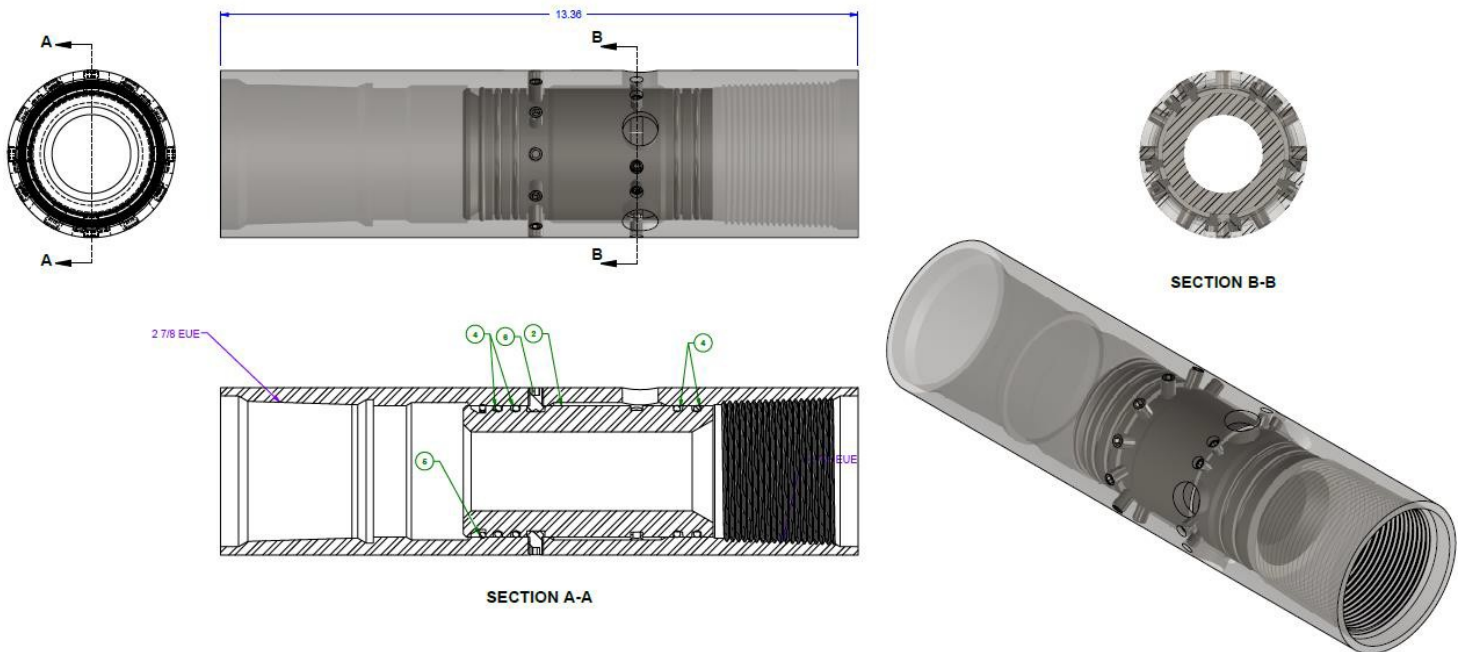
## Internal Sleeve Drain

Republic Oil Tools Tubing Internal Sleeve Drain (ISD) is a pressure actuated sleeve drain that allows fluid to be drained from the tubing to avoid pulling wet.

Typical applications include Permanent Magnet Motor ESPs.

In the PMM-ESP configuration, the ISD is used as a fluid path of least resistance to prevent the permanent magnet motor from spinning. This provides a reliable alternative to perforating the tubing string which can damage the motor lead extension or power cable.

The Internal Sleeve Drain differentiates from the External Sleeve Drain in that it is pressure balanced. This eliminates premature shearing of the pins. This enables the operator to have peace of mind that there will not be a premature workover. Only once the PMM Dart is dropped and lands inside the drain is there a positive barrier in either direction that prevents fluid from progressing up or down the tubing string. At this point, positive pressure above the dart will shear the pins opening the drain. If a dart is undesirable, the ISD can be actuated with a 1.75" or 2" ball. Furthermore, if the tubing is to be pressure tested, a dissolvable ball can be landed on the drain to conduct a pressure test as long as the pressure test is below the shear pin value.



- 2.875"-8RD EUE box x box
- 4140 18-22RC metallurgy
- 10 ea 1/4"-20 set screws - 300psi/per, 3000psi total, or
- 12 ea 3/8"-16 set screws – 750psi/per, 9000psi total
- Inside diameter = 1.65"

- Shear Rating = 50k lbs
- Length = 13.36"
- Pressure Balanced (will only shear once ball/dart installed)
- Accepts 1.75" or 2" balls

For more information on the Internal Sleeve Drain or alternative drain options, please contact your Republic Oil Tools representative or visit [www.republicoiltools.com](http://www.republicoiltools.com)

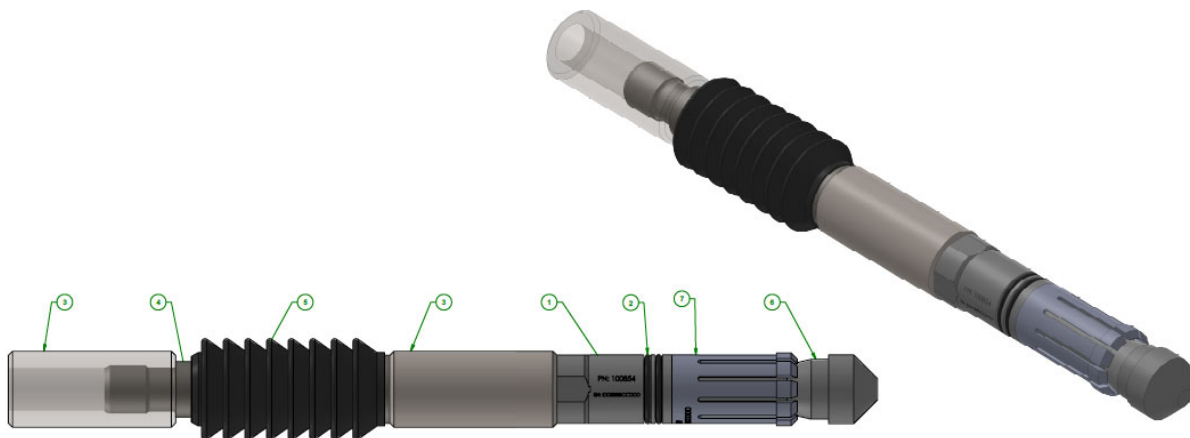
## Internal Sleeve Drain – Dart Assembly

Republic Oil Tools Tubing Internal Sleeve Drain (ISD) – Dart Assembly is dropped through the tubing to land inside the Internal Sleeve Drain.

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- For use with 2.875" ISD
- Length = 20.8"
- Fits inside 1.65" bore
- .875" Sucker Rod Connection On Top

For more information on the Internal Sleeve Drain – Dart Assembly or alternative drain options, please contact your Republic Oil Tools representative or visit [www.republicoiltools.com](http://www.republicoiltools.com)