

TruShear – Protection for ESP-Deployed Capillary Systems

Capillary tubing is frequently deployed in wellsbores equipped with Electrical Submersible Pumps (ESPs) to enable chemical injection below the pump. During workover operations, a known and recurring failure scenario can occur whereas when the tubing, cable and capillary are being pulled to surface, the ESP unexpectedly parts or drops into the wellbore. The falling ESP applies a sudden tensile load to the capillary, rapidly pulling it downward and backdriving the surface spool. This can cause the wooden capillary spool to overspeed and catastrophically fail, creating a serious safety hazard and damaging surface equipment.

The TruShear is a purpose-built mechanical shear device designed to safely separate capillary tubing in the event of an ESP parting or dropping. The tool is installed above the ESP discharge, dividing the capillary system into two distinct sections:

- Above the TruShear – capillary tubing routed to surface and controlled by the capillary spool.
- Below the TruShear – capillary tubing routed alongside the ESP to the injection point.

Under normal operating conditions, the TruShear functions as a full-strength capillary connection, transmitting tensile loads encountered during deployment, retrieval, and operation.

If the ESP parts or falls into the wellbore:

- Tensile load rapidly increase in the capillary tubing
- At 800 lbs, the TruShear cleanly separates
- The ESP and lower capillary section fall into the wellbore as a controlled assembly
- The upper capillary remains intact and stationary
- Reverse runaway of the surface spool is prevented

Key Benefits:

- Personnel Safety: Prevents catastrophic surface spool failures.
- Controlled Failure Mode: Predictable separation at a defined load
- Simple Integration: Installed inline with standard capillary strings.
- No active controls: Fully mechanical, passive safety device



Technical Features:

- 0.975" Outside Diameter
- 6.85" Length
- ¼" Female NPT top & bottom
- 2205 Duplex
- 800 lbs tensile rating
- Clamp secured to any size tubular

The TruShear demonstrates Republic Oil Tools commitment to engineering practical solutions for artificial lift operations. By providing a controlled shear point during ESP drop events, TruShear enhances safety, reduces equipment damage, and mitigates a critical workover risk. For more information, visit www.republicoiltools.com.

