



THROUGH TUBING CEMENT EVALUATION TOOL (TTCE)

The Through Tubing Cement Evaluation Tool (TTCE) is a 3-1/8-inch O.D. advanced well integrity monitoring instrument that utilizes innovative cement evaluation technology to evaluate cement behind a second pipe string (annulus B) while logging inside a production tubing pipe.

This novel technology uses “Forced Acoustic Mie Resonance” principle where the measurements are made by inducing resonance in the surrounding elastic structure comprising all the tubulars and annuli materials.

Unlike a conventional wave propagation method, TTCE design does not use TX/RX transducers but instead relies on the low-frequency, narrow-band energy that forces structural resonance. Through careful frequency selection, the Mie resonance peak(s) with the most sensitivity to the second barrier cement interface are detected and measured.

FEATURES & APPLICATIONS

148.6 in
(3776 mm)

- Warrior™ acquisition system compatible
- 3-1/8-inch OD – deployed and centralized
- Real-time bond index estimation and cement map with tubing eccentricity correction
- Clear real-time visualization for QC and onsite evaluation
- Pre-job planner software that combines a powerful forward modeling module and simulation tool
- Combinable with all Pegasus Series Tools
- Well integrity surveillance and diagnostics
- Plug and abandonment applications
- Zonal isolation
- Hydraulic fracturing support
- Remedial cementing planning



THROUGH TUBING CEMENT EVALUATION TOOL (TTCE)

TTCE is fully combinable with GOWELL's Pegasus instruments, including Deformation and Eccentricity Tool (DEC), Multi-Pipe Azimuthal Corrosion Tool (MPAC) and Multi-Finger Imaging Calipers (MFC). The combination yields a comprehensive evaluation of well integrity, providing accurate cement bond quality information, quantitative thickness information for up to two pipe strings as well as eccentricity and deformation data.

SPECIFICATIONS

TTCE	
P/N 100520560	
GENERAL SPECS	
Maximum Diameter	79.37 mm (3-1/8 in)
Maximum Operating Temperature	177 °C (350 °F)
Maximum Hydrostatic Pressure	138 MPa (20 kpsi)
Overall Length	3776 mm (148.6 in)
Makeup Length	3743 mm (147.3 in)
Weight	30 kG (66 lb)
Working Voltage	140 V – 400 V
Working Current	40 mA – 150 mA
Recommended Logging Speed	3 - 6 m/min (10 -20 ft/min)
Measurement Information	
Min Tubing OD Size	114.3 mm (4.5 in)
Max Casing OD Size	340 mm (13-3/8")
Sensor Azimuthal Resolution	60° (6 segment)
Sensor Frequency Range	14K – 25K Hz

