

ORIO™ 3D Toe Sleeve

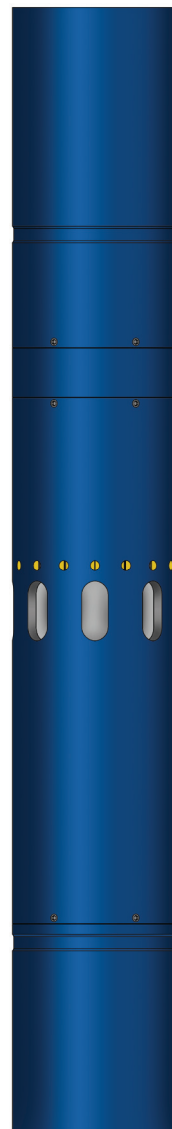
The ORIO™ 3D Toe Sleeve is a metering sliding sleeve which is run near the toe of a horizontal well. The toe sleeve allows the casing to be tested to surface pressures up to 15,000 psi. Once a successful test is achieved, the toe sleeve opens at a predetermined time at or below the casing test pressure. Once opened, high injection rate can be established to facilitate subsequent plug and perf operations.

The unique and patented three-layer design keeps all the moving parts encapsulated and protected from the well-bore environment. This ensures that the sleeve, once activated, is always fully open.

The ORIO™ Toe Sleeve utilizes a rupture disk and an atmospheric chamber to precisely control the initiation pressure. Proprietary debris management system and metering device precisely control the opening time and pressure. Temperature, annular pressure and cement do not affect the opening pressure of the tool.

FEATURES AND BENEFITS

- Allows casing tests in excess of 15,000 psi
- Hydraulically opens at or below the casing test at a predetermined time and or pressure
- The unique and patented three-layer design keeps all the moving parts encapsulated and protected from the well-bore environment
- Proprietary debris management system and metering device precisely control the opening time and pressure
- Shouldered connections allow for rotation while running in the hole or during cementing operations
- Compatible with heavy-duty cement wiper plugs



ORIO™ 3D TOE SLEEVE

SIZE Inches	MAX O.D. Inches	MIN I.D. Inches	LENGTH Inches	TEMPERATURE RATING (F)	FLOW PORT AREA (SQ-IN)
5.500 Big Bore	7.380	4.605	48.00	350	16.085
5.500 Big Bore	6.755	4.245	49.00	350	15.988
4.500 Standard	5.630	3.495	48.00	350	9.734

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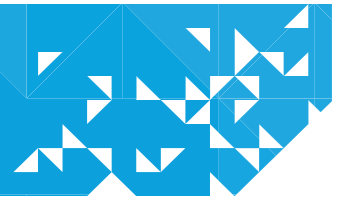


Illustration of Casing Test, then opening tool at later time

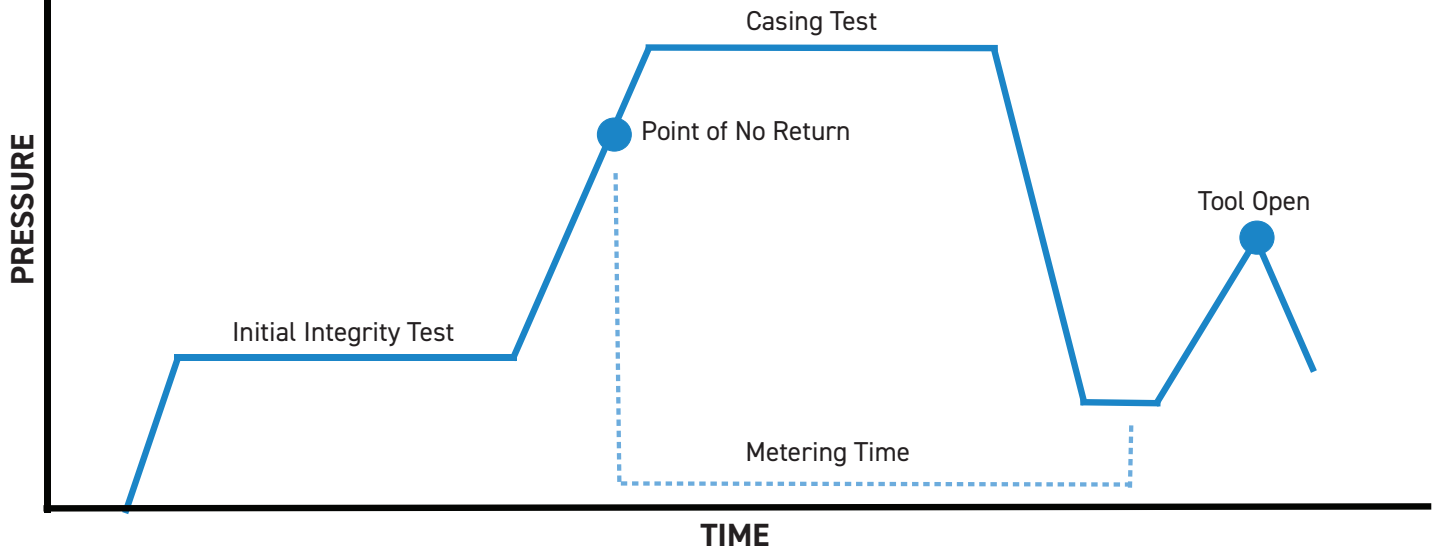


Illustration of Holding Casing Test Until Tool Opens

