



BREAKTHRU™ PUMP OPEN BARRIER VALVE

This product may be covered by one or more patents or pending patent applications.

OPTIMIZE YOUR TUBING INSTALLATION, MINIMIZE YOUR COSTS

Nine's BreakThru™ Pump Open Barrier Valve is a bi-directional plug that allows operators to reach TD, set their production packer, and test their tubing in a cost effective way. The BreakThru BPO is approved according to ISO 14310V0 and ISO14998V0. The plug is run in hole as part of the tubing string in a closed position. Once tubing is at TD and the tubing and well operations no longer require a well barrier, the plug can be pumped open remotely from surface by applying pressure to a preset differential pressure. Once the preset differential pressure is reached, the plug will activate and the glass barrier will shatter into fine sand like particles, leaving a full bore ID. The activation differential pressure needs to be preset prior to RIH and can be set in 500 psi increments.

HOW DOES THE PLUG HANDLE HARSH DOWNHOLE ENVIRONMENTS?

The device is manufactured to perform. It is made from high-quality, ultra-durable engineered material, which can withstand extreme downhole temperatures and loads. Once the string is landed, pressure up to the activation pressure and the plug disintegrates, leaving a full bore ID.

Features and Benefits

- V0 gas tight barrier
- Highly engineered barrier
- Efficient and easy removal by surface pressure
- Full tubing ID
- Can be run as tubing test barrier, packer setting device, and well barrier
- Proven track record with over 1,000+ U.S. land installations, 99.97% successful installations
- Low cost solution

99.97% OF BREAKTHRU™
PLUGS LANDED IN
FIRST ATTEMPT

Allowing operators to reach TD and set their production packer and test their tubing in a cost effective way.

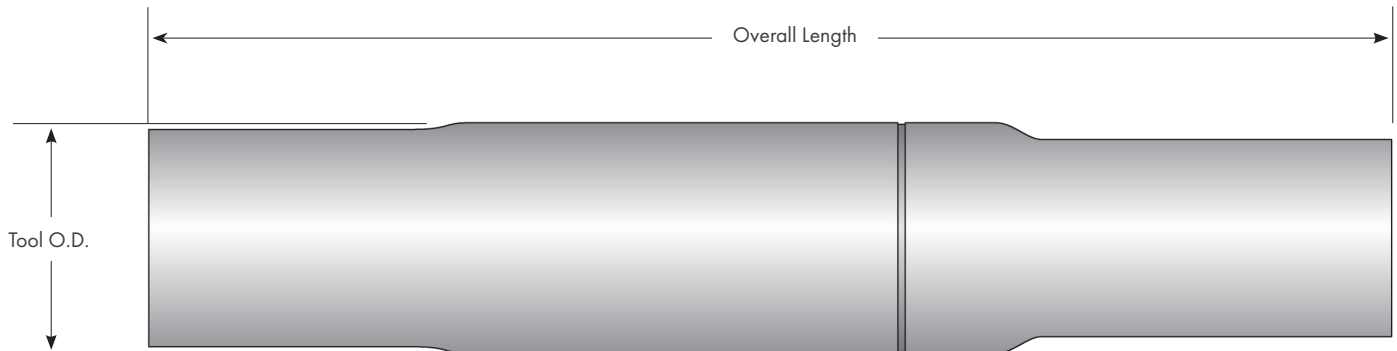
BREAKTHRU™ PUMP OPEN BARRIER VALVE										
Description inch (mm)	Tool O.D. inch (mm)	Machine I.D. inch (mm)	Overall Length inch (mm)	Tool Weight lb (kg)	Shearing Pressure Rating	Maximum Burst Pressure*	Maximum Collapse Pressure*	Maximum Tensile Rating*	Maximum Torque Rating*	Maximum Reliable Temperature
2.875 BT (73.0)	4.80 (121.9)	2.44 (62.0)	26.2 (665.0)	83.8 (38.0)	2,500-10,000 psi (17.2-69.0 Mpa)	10,000 psi (69.0 MPa)	10,000 psi (69.0 MPa)	500,000 lbf (226,800 kgf)	23,000 ft.lbf (3174 kg.m)	302° F** (150°C)
3.5 BT (88.9)	4.80 (121.9)	2.91 (74.0)	26.2 (665.0)	75.0 (34.0)		10,000 psi (69.0 MPa)	10,000 psi (69.0 MPa)	500,000 lbf (226,800 kgf)	23,000 ft.lbf (3174 kg.m)	
4.50 BT (114.3)	5.75 (146.1)	3.92 (99.6)	27.1 (688.0)	92.0 (41.7)		16,072 psi (110.8 MPa)	15,038 psi (103.7 MPa)	710,000 lbf (322,056 kgf)	18,000 ft.lbf (2484 kg.m)	

*Based on 125 ksi yield strength material.

** Higher temperatures available on request

Other sizes and higher pressure/temperature ratings may be available upon request.

Casing Specs are according to API Tubing/Casing Dimension Chart Information.



For more information, and to find a representative near you, visit nineenergyservice.com