

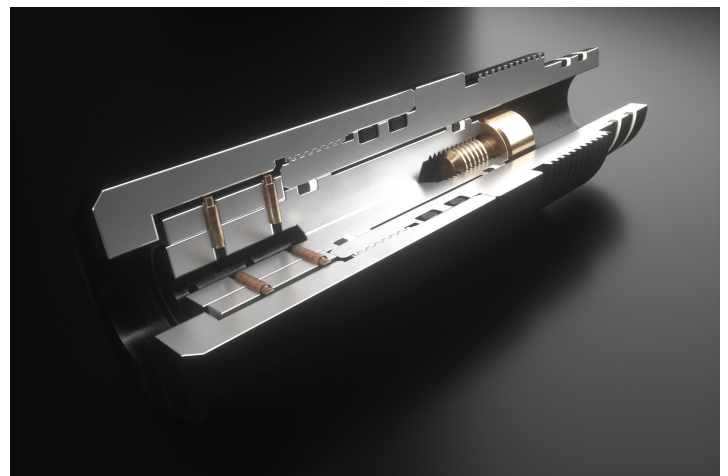
## 1.69" Pressure-Actuated Firing Heads

GEODynamics' 1-11/16" Pressure-Actuated Firing Head uses precision shear pins to provide a desired actuating pressure ( $\pm 5\%$ ) for a perforating assembly. An appropriate actuating pressure will be a function of hydrostatic pressure, auxiliary pressure-actuated tools, casing pressure limits, and a safety factor. All pressure constraints and variables must be considered when determining an appropriate actuating pressure.

The 1-11/16" FHPA assemblies are designed for use with 1-11/16" through 7" perforating gun systems when no pyrotechnic delay is required. The FHPA is available with a 1.315 NU 10 RD PIN up for use on coiled tubing or snubbing operations, and it can be obtained with or without an automatic venting system. For use with guns larger than 2" OD, the FHPA is housed within a standard API tubing sub for tensile integrity.

### FEATURES/BENEFITS

- Minimum pinning recommendation of 1,500 psi\*
- Cannot be detonated at surface without applying pressure
- Must apply the required pressure at the tool to actuate firing heads
- Ideal for highly deviated and horizontal wells
- Can be run on top or bottom of GEODynamics TCP guns
- Can be used to detonate multiple gun systems
- Can be used to actuate perforating assemblies, setting tools, and cutters
- Not affected by electrical sources or radio frequencies; radio silence not required



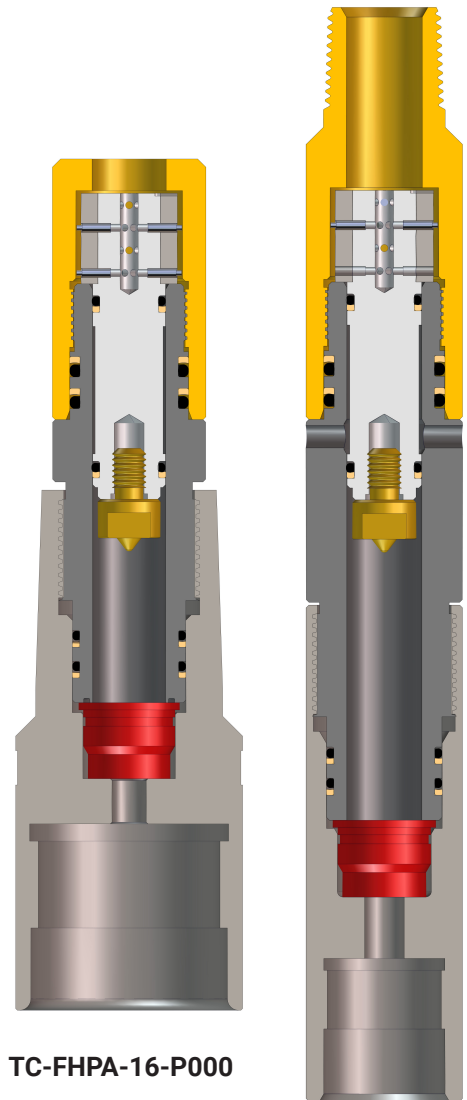
\*Minimum of five (5) pins required to survive a drop test.

# 1.69" Pressure-Actuated Firing Heads

## SPECIFICATIONS

Assembly P/N	TC-FHPA-16-P000	TC-FHPA-16-T000
Firing Head Type	Pressure-Actuated	
Diameter	1.69 in / 43.0 mm	
Temperature Rating	Determined by explosive package used	
Collapse Pressure	20,000 psi / 137.90 MPa	
Min. Operating Pressure	*1,500 psi / 10.34 MPa	
Max. Operating Pressure	20,000 psi / 137.90 MPa	
Seal Ratings	10,000 psi @ 290°F without back-up rings 20,000 psi @ 375°F with PEEK back-up rings	
Calculated Tensile	30,000 lbs. minimum or API Handling Sub	
Shear Pin Value	0.100 X 0.310, 975 psi/pin @ 70°F	
Thread Connections	2-3/8" EU, 2-7/8" EU, or 3-1/2" EU 8 RD Pin Up 1.315 NU 10 RD Pin Up	

\*Minimum of five (5) pins required to survive a drop test.



TC-FHPA-16-P000

TC-FHPA-16-T000