

Permanent Monitoring—Fortress PCP-4000

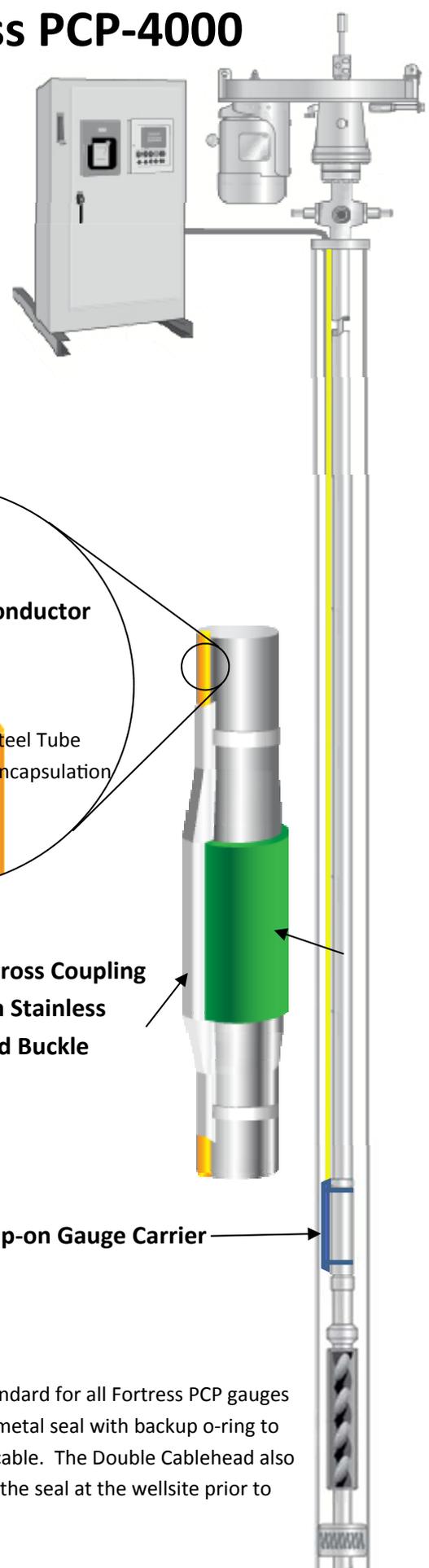
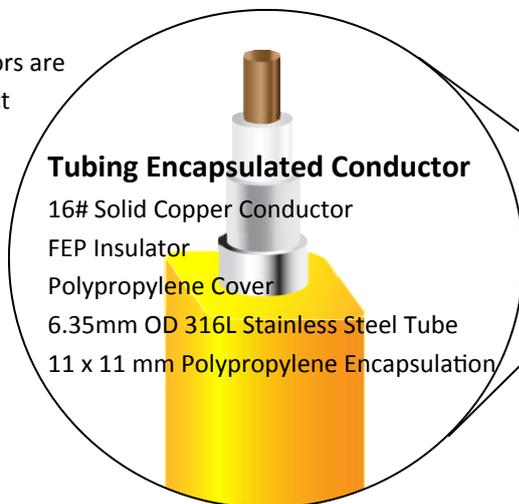
The **FORTRESS PCP-4000** monitors intake pressure and temperature and delivers this data to the surface in real-time via a digital (FSK) signal.

The data can be coupled to a Variable Speed Drive to reduce the speed of or stop the PCP when parameters pass a set threshold. This protects your valuable stator and reduce the necessity for an expensive work-over.

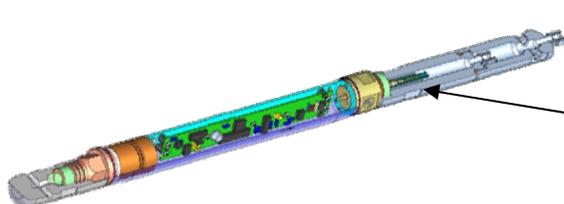
The Fortress PCP4000 sensor secured with a clamp-on gauge carrier, coupled with Polypropylene Encapsulated TEC cable with “wiper blade” cross coupling protector is the most economical solution for vertical PCP well monitoring.

Sercel’s proprietary gap capacitance transducers offers rugged, accurate pressure, designed specifically for oilfield applications and standard across the Fortress PCP range.

Heavy duty clamp-on cross coupling protectors are recommended above 30° deviation to protect the TEC cable from tubing load crush. Mid joint protection can also be offered when high deviation requires additional support.



Transducer Type	Capacitance
Pressure Range	15—5,000 psia
Pressure Accuracy	±0.5% Full Scale (±15 psi)
Pressure Resolution	±0.1 psi
Temperature Range	25—150°C
Temperature Accuracy	1°C
Temperature Resolution	±0.1°C



A Double Cablehead is standard for all Fortress PCP gauges with a patented metal to metal seal with backup o-ring to protect circuitry and TEC cable. The Double Cablehead also allows pressure testing of the seal at the wellsite prior to deployment.

Permanent Monitoring—Fortress PCP-4500

The **FORTRESS PCP-4500** monitors intake pressure, temperature, as well as X-Y Vibration and delivers this data to the surface in real-time via a digital (FSK) signal.

The addition of the X-Y vibration sensor coupled to a VSD allows additional protection against rod harmonic vibration as well as pressure and temperature parameters.

Fortress PCP4500 secured with a clamp-on gauge carrier, coupled with Polypropylene Encapsulated TEC cable and “wiper blade” cross coupling protectors gives you the added security of monitoring down hole vibration.

Sercel’s proprietary gap capacitance transducers offers rugged, accurate pressure, designed specifically for oilfield applications and standard across the Fortress PCP range.

Heavy duty clamp-on cross coupling protectors are recommended above 30° deviation to protect the TEC cable from tubing load crush. Mid joint protection can also be offered when high deviation requires additional support.

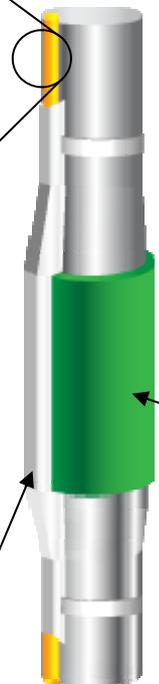
Transducer Type	Capacitance
Pressure Range	15—5,000 psia
Pressure Accuracy	±0.5% Full Scale (±15 psi)
Pressure Resolution	±0.1 psi
Temperature Range	25—150°C
Temperature Accuracy	1°C
Temperature Resolution	±0.1°C
Vibration Range	0-18g (X&Y axis)
Vibration Accuracy	1%
Vibration Resolution	0.01g

Tubing Encapsulated Conductor

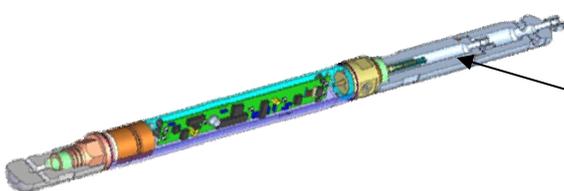
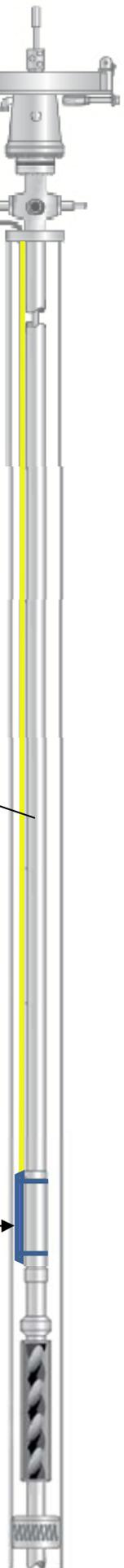
- 16# Solid Copper Conductor
- FEP Insulator
- Polypropylene Cover
- 6.35mm OD 316L Stainless Steel Tube
- 11 x 11 mm Polypropylene Encapsulation



Wiper Blade Cross Coupling Protector with Stainless Steel Strap and Buckle



Clamp-on Gauge Carrier



A Double Cablehead is standard for all Fortress PCP gauges with a patented metal to metal seal with backup o-ring protect gauge circuitry and the TEC cable. The Double Cablehead also allows pressure testing of the seal at the wellsite prior to deployment.

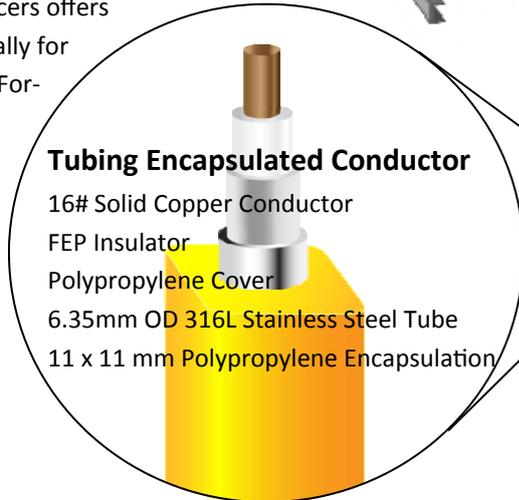
Permanent Monitoring—Fortress PCP-5000

The **FORTRESS PCP-5000** monitors intake **AND** discharge pressure and temperature, and delivers this data to the surface in real-time via a digital (FSK) signal.

Fortress PCP5000 requires a welded pup joint carrier ported for the addition of the discharge pressure. TEC cable is encapsulated with Polypropylene and protected with “wiper blade” cross coupling protectors.

Sercel’s proprietary gap capacitance transducers offers rugged, accurate pressure, designed specifically for oilfield applications and standard across the Fortress PCP range.

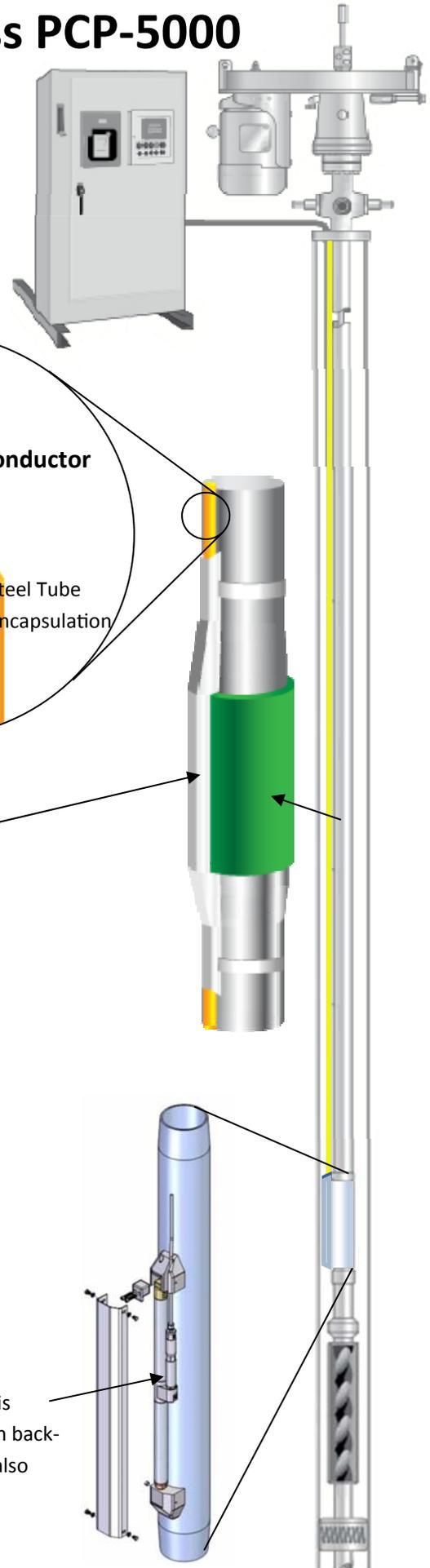
Heavy duty clamp-on cross coupling protectors are recommended above 30° deviation to protect the TEC cable from tubing load crush. Mid joint protection can also be offered when high deviation requires additional support.



Wiper Blade Cross Coupling Protector with Stainless Steel Strap and Buckle

Transducer Type	Capacitance
Intake / Discharge Pressure Range	15—5,000 psia
Intake / Discharge Pressure Accuracy	±0.5% Full Scale (±15 psi)
Intake / Discharge Pressure Resolution	±0.1 psi
Intake / Discharge Temperature Range	25—150°C
Intake / Discharge Temperature Accuracy	1°C
Intake / Discharge Temperature Resolution	±0.1°C

Intake and Discharge Welded Pup Joint Gauge Carrier. A Double Cablehead is standard for all Fortress PCP gauges with a patented metal to metal seal with backup o-ring protect gauge circuitry and the TEC cable. The Double Cablehead also allows pressure testing of the seal at the wellsite prior to deployment.



Permanent Monitoring—Fortress PCP-5500

The **FORTRESS PCP-5500** monitors intake **AND** discharge pressure and temperature, as well as X-Y Vibration and delivers this data to the surface in real-time via a digital (FSK) signal.

The addition of the X-Y vibration sensor coupled to a VSD allows protection against excessive rod harmonic vibration as well as pressure and temperature parameters.

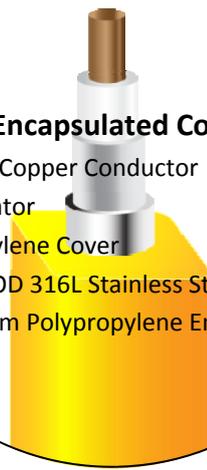
Fortress PCP5500 requires a welded pup joint carrier ported for the addition of the discharge pressure. TEC cable is encapsulated with Polypropylene and protected with “wiper blade” cross coupling protectors.

Sercel’s proprietary gap capacitance transducers offers rugged, accurate pressure, designed specifically for oilfield applications and standard across the Fortress PCP range.

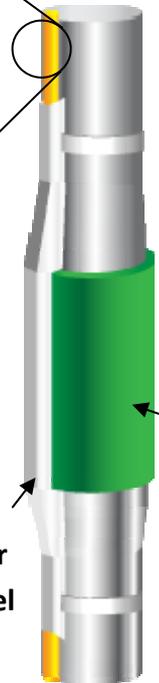
Heavy duty clamp-on cross coupling protectors are recommended above 30° deviation to protect the TEC cable from tubing load crush. Mid joint protection can also be offered when high deviation requires additional support.

Tubing Encapsulated Conductor

- 16# Solid Copper Conductor
- FEP Insulator
- Polypropylene Cover
- 6.35mm OD 316L Stainless Steel Tube
- 11 x 11 mm Polypropylene Encapsulation



Wiper Blade Cross Coupling Protector with Stainless Steel Strap and Buckle



Transducer Type	Capacitance
Intake / Discharge Pressure Range	15—5,000 psia
Intake / Discharge Pressure Accuracy	±0.5% Full Scale (±15 psi)
Intake / Discharge Pressure Resolution	±0.1 psi
Intake / Discharge Temperature Range	25—150°C
Intake / Discharge Temperature Accuracy	1°C
Intake / Discharge Temperature Resolution	±0.1°C
Vibration Range	0-18g (X&Y axis)
Vibration Accuracy	1%
Vibration Resolution	0.01g

Intake and Discharge Welded Pup Joint Gauge Carrier. A Double Cablehead is standard for all gauges with a patented metal to metal seal with backup o-ring to protect circuitry and TEC cable. The double Cablehead also allows pressure testing of the seal at the wellsite prior to deployment.

