



## DRILLING FLUIDS EQUIPMENT

For over 30 years OFI Testing Equipment (OFITE) has provided instruments and reagents for testing drilling fluids, well cements, completion fluids, and wastewater. In addition to these product lines we also offer a range of instruments for core analysis. From our manufacturing facility in Houston, TX we provide customers all over the world with quality products and exceptional service.

Our drilling fluids product line includes innovative designs such as the Model 900 Viscometer, which showcases our ability to develop new technology to meet customer and industry demands. We also offer Retorts, Aging Cells, Roller Ovens, Mud Balances, Filter Presses, and all other instruments required to evaluate drilling fluid properties according to API Recommended Practice 13B-1 and 13B-2.

As an independent manufacturer and supplier, OFITE has one priority, our customers.



## Permeability Plugging Tester, 5000 PSI

The Permeability Plugging Tester (PPT) is designed to run filtration tests on plugging materials without the interference of particles settling on the filter medium. The PPT uses the same test cell as the standard HTHP Filter Press. However, in the PPT, the cell is inverted with the filter and receiver on top. Several filter media are available, such as ceramic disks, conventional filter paper, and slotted stainless steel disks. The cell is pressurized with hydraulic oil. A floating piston separates the oil from the test fluid to prevent contamination.

OFITE has designed a new cell with safety in mind. This modular design is much safer and more convenient. The two-piece cap is threaded, and cannot be opened while the cell is pressurized. And interchangeable caps make it easy to reconfigure the cell for testing with different filter media (filter paper, ceramic disks, or cement screens) with a single cell body. All cells are provided with pressure certification, unique serialization, and material certification which provides true traceability.



## Features

- **Safety:** Cell cap cannot be removed if pressure is trapped inside the cell
- **Versatility:** Interchangeable cell caps enable testing with filter paper, ceramic disks, and cement screens with the same cell body. Fits all standard heating jackets.
- **Pressure:** Ability to add a piston allows for testing up to 5,000 PSI

## Technical Specifications and Requirements

- #171-193 115 Volt
- #171-193-1 230 Volt

### Specifications

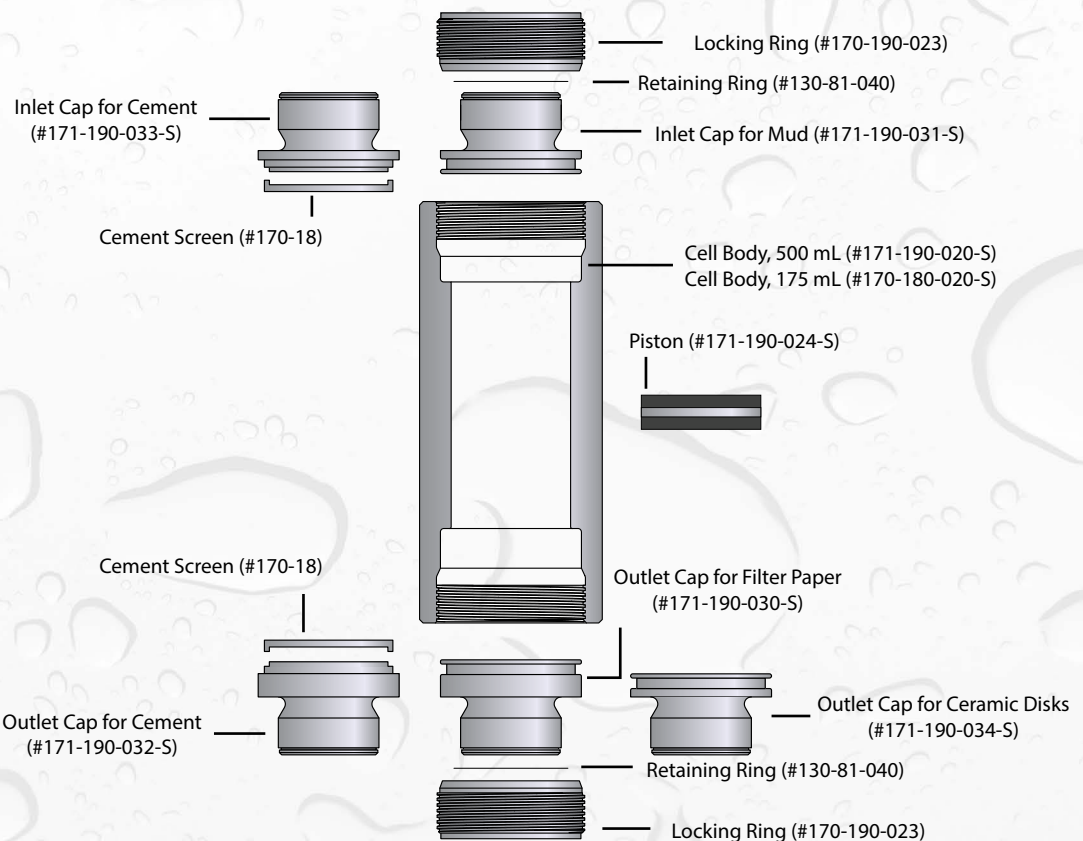
- Maximum Temperature: 500°F (260°C)
- Maximum Pressure (Cell): 5,000 PSI (34.5 MPa)
- Cell Caps:
  - Inlet: 60 Mesh Screen
  - Outlet: 60 Mesh Screen (for filter paper)
  - Outlet: Scribed (for ceramic disks)



	171-191-S HTHP Filter Press Cell with Threaded Cap, 500 mL, Mud	171-192-S HTHP Filter Press Cell with Threaded Cap, 500 mL, Cement	171-193-S HTHP Filter Press Cell with Threaded Cap and Piston, PPT	170-181-S HTHP Filter Press Cell with Threaded Cap, 175 mL, Mud	170-182-S HTHP Filter Press Cell with Threaded Cap, 175 mL, Cement
171-190-020-S Cell Body, 500 mL	✓	✓	✓		
170-180-020-S Cell Body, 175 mL				✓	✓
171-190-031-S Inlet Cap for Mud	✓		✓	✓	
171-190-030-S Outlet Cap for Filter Paper	✓		✓	✓	
171-190-024-S Piston			✓		
171-190-034-S Outlet Cap for Ceramic Disks	✓		✓	✓	
171-190-033-S Inlet Cap for Cement		✓			✓
171-190-032-S Outlet Cap of Cement		✓			✓
170-18 (2) Cement Screen		✓			✓
171-190-023 Locking Ring	✓	✓	✓	✓	✓
130-81-040 Retaining Ring	✓	✓	✓	✓	✓
171-190-027 Rupture Disks	✓	✓	✓	✓	✓

- All cells come with two complete sets of o-rings:
  - Viton 75D (Black) - For tests up to 400°F (204°C)
  - Viton 90D (Green) - For tests up to 500°F (260°C)

### HTHP Filter Press Cell with Threaded Caps



## ***Intro***

The Permeability Plugging Tester (PPT) is a modification of the standard 500 mL HTHP Filter press. It may be used in the field or in a laboratory environment. The instrument is useful for performing filtration tests on plugging materials without the interference of particles settling on the filter medium during the heat up process. The PPT is very useful in predicting how a drilling fluid can form a low permeability filter cake to seal off depleted, under pressured intervals and help prevent differential sticking. Typical differential pressures are much higher than those seen in standard HTHP testing.

The pressure cell is similar to those seen in standard HTHP filtration testing, but it is inverted with the filter medium and the back pressure receiver on top of the assembly. It is pressurized with hydraulic oil and a hand pump. A floating piston separates the oil from the test fluid in the cell. The cell has a maximum pressure rating of 5,000 PSI.

## ***Description***

All of the end caps are designed to accept the standard valve stem. The inlet, or bottom, valve stem is fitted with a quick-connect for the connection to the hydraulic pressure manifold. The standard hydraulic pressure manifolds are equipped with a 5,500 PSI (38 MPa) relief valve. The outlet, or upper, valve stem assembly consists of a dual valve stem with a ball valve in the middle, which facilitates the opening and closing of the outlet flow.

The 100 mL back pressure receiver is mounted on top of the heating jacket and upside down, when compared to the normal HTHP filter press configuration. It attaches to the cell outlet valve stem and is secured with the safety pin (#171-23-1). The fittings on the receiver are reversed with the pressure inlet on the small end (the upper end).

## ***Specifications***

- Weight: 61 lbs. (27.7 kg)
- Dimensions: 15" × 25" × 42" (38.1 × 63.5 × 106.7 cm)
- Shipping Weight: 90 lbs. (40.8 kg)
- Shipping Dimensions: 30" × 18" × 17" (76.2 × 45.7 × 43.2 cm)
- 800W Heater
- Maximum Temperature: 500°F (260°C)
- Maximum Pressure: 5,000 PSI (34.5 MPa)

# Components

#153-14	Graduated Cylinder, 50 mL × 1 mL, Glass
#154-20	Thermometer with Metal Dial, 8" Stem, Dual Scale: 50°–500°F / 0°–250°C
#165-44-2	Anti Seize Compound, Silver, 7g Pouch
#170-04	CO <sub>2</sub> Pressure Unit
#170-17	O-ring for Valve Stem, Viton, Qty: 6
#170-19	Filter Paper, 2½" (6.35 cm), Specially Hardened for Filter Presses
#170-53	Ceramic Filter Disk, 15 D, 50 µm, Qty: 10
#171-00	Heating Jacket (115 Volt)
#171-01	Heating Jacket (230 Volt)
#171-10	Back Pressure Receiver, 100 mL (Modified)
#171-23-1	Safety Pin with Lanyard

## **#171-193-S Test Cell, Stainless Steel**

#120-910-028	O-ring for Rupture Disk, Viton, Qty: 2
#130-81-040	Retaining Ring, Qty: 2
#170-13-3	O-ring for Cell, Viton, Qty: 4
#170-17	O-ring for Valve Stem, Viton, Qty: 4
#171-95	T-handle for Piston
#171-190-020-S	Cell Body
#171-190-023	Locking Ring, Qty: 2
#171-190-024-S	Piston
#171-190-027	Rupture Disk, 7500 PSI, Qty: 2
#171-190-029	Cell Cap Wrench
#171-190-030-S	Cell Cap for Filter Paper, Outlet
#171-190-031-S	Cell Cap for Mud Testing, Inlet
#171-190-034-S	Cell Cap for Ceramic Disks, Outlet
#171-190-039	Set Screw for Piston
#171-190-055	Hex Key T-Handle 9"
#171-190-056	O-ring, -006, VW155, 90D, Green
#171-190-057	O-ring for Valve Stem, Viton 90D, Qty: 4
#171-190-058	O-ring for Rupture Disk, Viton 90D, Qty: 2
#171-190-060	O-ring for Cell, Viton 90D, Qty: 4
#171-190-061	O-Ring, -327, VW155, 90D, Green, Qty: 2
#171-83	Valve Stem Assembly, Hydraulic Entry
#171-83-1	Valve Stem Assembly For PPT, Outlet
#171-900-025	O-ring for Piston, Qty: 2
#171-95	T-handle For Piston
#171-99	O-ring, -327, Viton 70D, For Piston, Qty: 2
#700-100-096	O-ring for Piston Bleed Port

**Inlet Pressuring:**

#171-25-3	Relief Valve, 5,500 PSI
#171-27	Hose, #5,000, 6 Feet
#171-84-02	Reducing Bushing, 1/8" MNPT × 1/8" FNPT
#171-90-02	Quick Coupler, Female
#171-90-04	Cross, 1/4" NPT
#171-90-07	Hex Nipple
#171-90-10	Valve Stem For PPT #171-90; Receiver Entry
#171-90-11	Elbow, Female, 1/8" NPT
#171-90-12	Elbow, Male, 1/4" NPT
#171-90-13	Adapter, 1/4" Flare × 1/4" Male NPT
#171-90-14	Adapter, 1/8" NPT × 1/4" Hose Barb
#171-90-15	6" Crescent Adjustable Wrench
#171-96	Hand Pump
#171-96-1	Hydraulic Oil, 1 Quart
#171-98	Ball Valve for Inlet Pressure Line, 1/4"
#171-190-062	Gauge, 2.5", 0–6000 PSI, 1/4"

**Optional:**

#170-33	Cell Cap Removal Tool
#170-40	Carrying Tool for HTHP Cell
#170-91	HTHP Pressure Relief Tool
#171-06	Safety Shield

<b>#171-193-SP Spare Parts Kit:</b>		
Part Number	Description	Qty.
#130-81-040	Retaining Ring	2
#143-00-1	Diaphragm For Airco Regulator	1
#143-02-13	O-Ring, -201, Nitrile 70D, F/ Puncture Pin Holder	2
#143-02-14	O-Ring For Puncture Pin Holder Assembly	2
#143-05	CO <sub>2</sub> Bulbs, EZ Puncture; Pkg/10	30
#143-07	Repair Kit for Regulator (#143-00)	1
#153-12	Graduated Cylinder, 100 mL × 1 mL	2
#153-14	Graduated Cylinder; 50 mL	1
#154-20	Dial Thermometer, 8" Stem, 50° – 500°F and 0 – 250°C	1
#165-44-1	High Temp Thread Lubricant 4 Oz.	2
#170-05	Thermostat For HTHFPF 50 – 500	1
#170-10	Thermostat Pilot Light	1
#170-11	Heating Element 115V – 200W	2
#170-13-3	O-ring for Test Cell, Viton®/Fluorocarbon (FKM)	50
#170-17	Valve Stem O-ring	100
#170-19	Filter Paper, Diameter 2 ½", BX/100	10
#170-53	Ceramic Disk	10
#171-11	O-ring, -028, Nitrile 70D	6
#171-23-1	Safety Pin with Lanyard	2
#171-190-057	O-ring for Valve Stem, Viton 90D	100
#171-190-060	O-ring for Cell, Viton 90D	50
#171-190-061	O-Ring, -327, VW155, 90D, Green	24
#171-83	Valve Stem Assembly, Hydraulic Entry	1
#171-83-1	Valve Stem Assembly For PPT, Outlet	1
#171-96-1	Hydraulic Oil; 32 Oz.	2
#171-99	O-Ring, -327, Viton 70D, F/ Piston For No. 171-90	24



**Note**

Spare parts listings are intended to be used as a reference for future purchases. Everyone's consumable requirements will be different, and replacement quantities needed will depend upon the number of test performed on a daily and/or weekly basis.