



## 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.

## HTHP Filter Press for Drilling Fluids, 500 mL

The HTHP (High Temperature, High Pressure) Filter Press is designed for testing drilling fluids and cement under elevated temperatures and pressures. This simulates various down-hole conditions and provides a reliable method for determining the effectiveness of the material being tested.



## Features

- A controlled Nitrogen pressure source (sold separately)
- A pressure manifold with two regulators (primary and back pressure)
- A high-pressure test cell
- Components are fully interchangeable with those marketed by other manufacturers
- Ideal for laboratory use
- Safety valves protect against over pressurization
- High performance hoses, connections, and valves
- A temperature controlled heating jacket for heating the test cell
- Gauges monitor nitrogen tank, primary, and back pressures





## Technical Specifications and Requirements

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- #171-00-C 115 Volt
- #171-01-C 230 Volt

### Specifications

- Maximum Temperature: 400°F (260°C)
- Maximum Pressure: 2,000 PSI (13,880 kPa)
- Pressure Source: Nitrogen (at least 1500 PSI / 10,343 kPa) - Sold Separately
- Test Cell Capacity: 500 mL
- Heater: 800 Watt
- Size: 10" × 18" × 42" (25.4 × 45.7 × 106.7 cm)
- Weight: 53 lb (24.1 kg)
- Shipping Size: 29" × 12" × 16" (74 × 30.5 × 41 cm)
- Shipping Weight: 65 lb (29.5 kg)
- Power Requirement: 115 Volt/230 Volt

### Optional

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- #170-37 Nitrogen Cylinder, 21" × 7", Right-hand Thread (shipped empty)
- #171-06 Safety Shield
- #171-29 HTHP Cell Assembly, Double -capped, 500 mL, for Ceramic Disks, 2000 PSI



#170-33 Cell Cap Puller



#170-40 Cell Removal and Carrying Tool



#170-91 HTHP Pressure Relief Tool



#170-92 Safety Clamp

## Intro

The OFITE Testing Equipment (OFITE) High Temperature High Pressure (HTHP) Filter Press is designed to evaluate drilling fluids, cement slurries, fracturing and completion fluids under elevated temperatures and pressures. Evaluating fluids under HTHP conditions similar to the downhole environment is of paramount importance. Fluid properties must be monitored while under high temperatures and pressures as filtration behavior and wall cake building characteristics of permeable formations change with changing environments. These characteristics are affected by the shape, type and quantities of solids present in the fluid and their physical and electro-chemical interactions, all of which are affected by changing temperatures and pressures.

OFITE manufactures and provides HTHP filtration units in two basic sizes, 175 mL and 500 mL capacities. Both are used extensively throughout the world and in all environments, but in general the 175 mL units are designed for field portability, while the larger 500 mL units are designed for laboratory usage at higher temperatures and pressures. All OFITE filtration devices fully conform to American Petroleum Institute (API) specifications.

A complete HTHP Filter Press consists of a controlled pressure source, usually Nitrogen pressurization or Carbon Dioxide bulbs for the 175 mL units. Top and bottom pressure manifolds are provided to simulate the differential pressures found in a down-hole environment, and to prevent evaporation of the base fluid if exceeding the boiling point of that fluid. The test cells are provided in a variety of assemblies, depending upon the type of fluid tested, the filter media, and the temperatures and pressures desired. The test cells are encased inside a heating jacket which is adjustable.

A variety of filter media are available, the most common being the standard API filter paper, cement screens and ceramic filters, which may be obtained to match the pore throat or permeability of the formation. Natural formation cores may also be used of differing sizes. Different screens may be used, or slotted disks of varying sizes are frequently used for lost circulation materials studies.

The 500 mL heating jackets easily operate up to 400°F (204°C) with standard fittings and o-ring seals, but are capable of reaching 500°F (260°C) with optional o-ring seals for the cell assembly. Sufficient void space must be left inside the cell for the fluid to expand due to elevated temperatures. The higher the temperature the more space must be left, so the larger volume cells are typically used for higher temperatures above 350°F (176°C). Anyone running tests above 350°F (177°C) must substitute a complete set of o-rings after each and every test.

- A controlled pressure source (Not included)
- Two Nitrogen pressure regulators (primary and back pressure)
- A high-pressure test cell
- A heating jacket for heating the test cell
- A suitable stand
- A Back Pressure Assembly

# Specifications

Size:	10" × 18" × 42" (25.4 × 45.7 × 106.7 cm)
Weight:	53 lb. (24.13 kg)
Shipping Size:	29" × 12" × 16" (74 × 30.5 × 41 cm)
Shipping Weight:	65 lb. (29.5 kg)
Maximum Temperature:	400°F (204°C)
Maximum Pressure (Cell):	2,000 PSI
Maximum Pressure (Receiver):	750 PSI (5.1 MPa) (13,880 kPa) - Set screw caps, 2 cm thick
Pressure Source:	Nitrogen (at least 1,500 PSI / 10,343 kPa) - Not Included
Test Cell Capacity:	500 mL
Heater:	800 Watt
Power Requirement:	#171-00-C - 115 VAC, 5 Amps, 50/60 Hz #171-01-C - 230 VAC, 3 Amps, 50/60 Hz

# Components

**#171-00-C HTHP Filter Press; Single-End, 500 mL Cell; 2,000 PSI; Complete with Nitrogen Manifold; 115V:**

**#171-01-C HTHP Filter Press; Single-End, 500 mL Cell; 2,000 PSI; Complete with Nitrogen Manifold; 230V:**

- #153-12 Graduated Cylinder; 100 mL × 1 mL; Glass
- #154-20 Dual-Scale Thermometer with Metal Dial; 8" Stem; 50°–500°F (0°–250°C)
- #170-13-3 Cell O-ring; Viton; Qty: 6
- #170-17 Valve Stem O-ring; Qty: 6
- #170-19 Filter Paper; 2½" (6.35 cm); Specially Hardened for Filter Presses
- #170-26-1 Hardened Locking Screw; Qty: 6
- #170-35 6" Adjustable Wrench

**#171-10 Back Pressure Receiver; 100 mL:**

- #170-32 NPT Male Needle Valve, ⅛" × ⅛"
- #171-11 O-ring for 100 mL Back Pressure Receiver
- #171-12 Receiver Body
- #171-22 Retainer Pin

**#171-20 Test Cell; 10"; 500 mL**

- #170-13-3 Cell O-ring; Viton; Qty: 2
- #170-16 Valve Stem; Qty: 2
- #170-17 Valve Stem O-ring; Qty: 4
- #170-26-1 Hardened Locking Screw; Qty: 6
- #170-27 Allen Wrench; ⅝"
- #171-17 316 Stainless Steel Test Cell Body; 10"; 500 mL
- #171-21 Cell Cap

**#171-24 1,350 & 750 PSI Nitrogen Manifold**

- #170-08 Regulator; Qty: 2
- #170-20 Manifold Block
- #170-32 NPT Male Needle Valve, ⅛" × ⅛"
- #171-22 Retainer Pin
- #171-25-1 Relief Valve; Set at 750 PSI
- #171-25-2 Relief Valve; Set at 1,350 PSI
- #171-26 Hose, 5,000 PSI
- #171-28 Dual Manifold Body
- #171-38 Gauge, 2.5 in., 0–1,000 PSI, ¼" NPT
- #171-40 Gauge, 2.5 in., 0–1,500 PSI, ¼" NPT
- #171-42 Gauge, 2.5 in., 0–3,000 PSI, ¼" NPT

**#171-00 Heating Jacket; 800 Watt; 115 Volt**

- #170-10 Pilot Light for Thermostat
- #170-11 Heating Element, 115V, 200W; Qty: 4
- #171-32 Knob
- #171-44 Rubber Foot, ¾"
- #171-71 Thermostat, for HTHP Filter Press
- #171-82 Power Cord with Male Plug Only, 8'; 16/3 SJ; Round

**#171-01 Heating Jacket; 800 Watt; 230 Volt**

- #170-10 Pilot Light for Thermostat
- #170-11 Heating Element, 115V, 200W; Qty: 4
- #171-32 Knob
- #171-44 Rubber Foot, 3/4"
- #171-71 Thermostat, for HTHP Filter Press
- #165-40-4 Power Cord 230 Volts, Type C

**Optional:**

- #170-33 Cell Cap Removal Tool
- #170-37 Nitrogen Cylinder; 21" x 7"; Right-hand Thread
- #170-40 Carrying Tool for HTHP Cell Assembly
- #171-06 Safety Shield

**#171-00-C-SP Spare Parts for One Year for 171-00-C:**

- #143-07 Repair Kit for Regulator (#143-00)
- #153-12 Graduated Cylinder; 100 mL x 1 mL; Glass, Qty. 2
- #154-20 Dual-Scale Thermometer with Metal Dial; 8" Stem; 50° – 500°F (0° – 250°C)
- #170-13-3 Cell O-ring; Viton; Qty: 50
- #170-16 Valve Stem; Qty: 4
- #170-17 Valve Stem O-ring; Qty: 48
- #170-19 Filter Paper; 2½" (6.35 cm); Specially Hardened for Filter Presses; Qty: 5
- #170-26-1 Hardened Locking Screw; Qty: 12
- #170-27 Allen Wrench; 5/32"
- #171-11 O-ring for Back Pressure Receiver; Qty: 4
- #171-23-1 Safety Pin with 3" Lanyard; Qty: 2

**Optional Items for HTHP Filtration Testing:**

The items listed below are not included in the HTHP Filter Press, but they are items that will enable the technician to perform a more uniform and reproducible test while maintaining a high degree of safety. As optional items, the usage is not compulsory, but consideration should be given to these items when running tests at elevated temperatures and pressures.



Interval Timer, 60 minute  
(#155-20)



Cell Cap Removal Tool (#170-33)  
(Set Screw Cell Assemblies Only)



Cell Carrying Tool (#170-40)



HTHP Pressure Relief Tool  
(#170-91)  
(To release trapped pressure)



Safety Clamp (#170-92)  
(Set Screw Cell Assemblies Only)



Safety Shield (#171-06)



High Pressure Nitrogen Assy.  
(#171-31)



Thermocouple  
Assembly (#171-45-1)  
(Direct temperature measurement  
of the fluid inside the cell)



Stand for HTHP Cell Assembly  
(#171-190-028)