



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

The High Temperature High Pressure (HTHP) Filter Press is designed to evaluate the filtration characteristics of drilling fluids, cement slurries, fracturing fluids, and completion fluids under elevated temperatures and pressures.



Features

- Field portable
- A controlled pressure source (CO₂)
- Primary pressure CO₂ manifold
- A high-pressure test cell
- A temperature controlled heating jacket for heating the test cell
- Back pressure receiver CO₂ assembly
- Safety retainer pins
- Safety valves protect against over pressurization
- Improved CO₂ puncturing mechanism
- Easily configured for other filter devices and pressurization



Technical Specifications and Requirements

- #170-00 115 Volt
- #170-01 230 Volt

Specifications

- Maximum Temperature: 400°F (204°C)
- Maximum Pressure (Cell): 1,500 PSI (10,343 kPa)
- Maximum Pressure (Receiver): 750 psi (5.1 MPa)
- Pressure Source: CO₂ Bulbs
- Test Cell Capacity: 175 mL
- Receiver Volume: 15 mL
- Heater: 400 Watt
- Size: 7.5" × 11" × 23.5" (19.1 × 27.9 × 59.7 cm)
- Weight: 27 lb (12.3 kg)
- Shipping Size: 20" × 13" × 13" (51 × 33 × 33 cm)
- Shipping Weight: 33 lb (15 kg)
- Power Requirement: 115 / 230 VAC, 50/60 Hz

Optional

- #170-91 HTHP Pressure Relief Tool
- #170-92 Safety Clamp for HTHP Fluid Loss Cells
- #170-03 Carrying Case, Stainless Steel
- #170-33 HTHP Cell Cap Puller
- #170-40 Test Cell Carrying Tool

Intro

The OFI Testing Equipment (OFITE) High Temperature High Pressure (HTHP) Filter Press is designed to evaluate the filtration characteristics of drilling fluids, cement slurries, fracturing fluids, 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 standard API filter paper, cement screens, and ceramic filters. The ceramic filters may be obtained to match the pore throat or permeability of the formation. Natural formation filters or cores may also be used of differing pore throat / permeability sizes. Slotted disks of varying sizes are frequently used for lost circulation materials studies.

Both the 175 mL and the 500 mL heating jackets are capable of reaching 400°F (204°C), but lower fluid volumes due to fluid expansion at higher temperatures, limit the 175 mL units to a useful working temperature of 300°F (149°C). Anyone running tests above 350°F (177°C) must substitute a complete set of o-rings after each and every test.

Specification

Size:	7.5" × 11" × 23.5" (19.1 × 27.9 × 59.7 cm)
Weight:	27 lb. (12.3 kg)
Shipping Size:	20" × 13" × 13" (51 × 33 × 33 cm)
Shipping Weight:	33 lb. (15 kg)
Maximum Temperature:	400°F (204°C)
Maximum Pressure (Cell):	1,500 PSI (10,343 kPa)
Maximum Pressure (Receiver):	750 PSI (5.1 MPa)
Pressure Source:	CO ₂ Bulbs
Test Cell Capacity:	175 mL
Receiver Volume:	15 mL
Heater:	400 Watt
Power Requirement:	115 VAC, 5 Amps, 50/60 Hz 230 VAC, 3 Amps, 50/60 Hz

Components

Supplies:

- #153-14 Graduated Cylinder, 50 mL × 1 mL
- #154-10 Dual-Scale Thermometer with Dial, 5" Stem, 50° - 500°F (0° - 250°C)
- #170-19 Filter Paper, 2½" (6.35 cm), Specially Hardened for Filter Presses, 100/Box
- #170-35 Adjustable Wrench, 6"

Assemblies:

#170-04 CO₂ Pressurize Unit:

- #143-02-10 CO₂ Puncture Head Assembly
 - #143-02-12 Puncture Pin
 - #143-02-13 O-ring
 - #143-02-14 O-ring
- #143-03 Barrel for CO₂ Cartridge
- #170-08 Regulator
- #170-20 Manifold Block
- #170-32 Needle Valve, Male, ⅛" × ⅛"
- #171-23-1 Safety Pin with Lanyard
- #171-34 Gauge, 1,500 PSI, 2" Face, ¼" NPT Bottom

#170-06 Back Pressure Receiver, 15-mL Stainless Steel Tube for CO₂

- #143-00 Regulator
- #143-01 Gauge, 200 PSI, ⅛" Bottom Connection
- #143-02-10 CO₂ Puncture Head Assembly
 - #143-02-12 Puncture Pin
 - #143-02-13 O-ring
 - #143-02-14 O-ring
- #143-03 Barrel for CO₂ Cartridge
- #143-06 Safety Bleeder Valve
- #143-11 Elbow
- #170-07 O-ring
- #170-28 Receiver Body
- #170-32 Needle Valve, Male, ⅛" × ⅛"
- #171-23-1 Safety Pin with Lanyard

#170-12-1 Cell Assembly, 175 mL, Single Cap, 1,500 PSI

- #170-12 Cell Body, 1,500 PSI, 316 Stainless Steel
- #170-13-3 O-ring for Test Cell, Viton®/Fluorocarbon (FKM)
- #170-14 Cell Cap, 1,500 PSI
- #170-16 Valve Stem
- #170-17 O-ring for Valve Stem, Viton®/Fluorocarbon (FKM)
- #170-26-1 Locking Screw, Hardened Alloy Steel
- #170-27 Allen Wrench, ⅝"

#170-00-1 Heating Jacket, 115 Volt:

#170-01-1 Heating Jacket, 230 Volt:

- #164-32 Male Connector for Power Cable (230 Volt)
- #170-05 Thermostat for HTHP Filter Press 50-500
- #170-10 Thermostat Pilot Light
- #170-11 Heating Element, 200W, Qty: 2
- #170-15 Base

- #170-21 Stand
- #170-30 Stainless Steel Thermostat Cover
- #170-44 Rubber Foot ½", Qty: 4
- #171-32 Midget Knob
- #171-82 Power Cord with Male Plug, 8' (115 Volt)

Optional:

- #143-05 CO₂ Bulbs, 8-Gram, Package of 10, UN 1013
- #152-00 Hamilton Beach Mixer, With Container
- #152-01 Armature For Model 936 H.B. Mixer, 115 Volt
- #155-20 Timer; 60 Min. Interval
- #170-03 Carrying Case, Stainless Steel
- #170-13 O-ring for Test Cell, NBR/Nitrile (Buna N), For temperatures up to 250°F (121°C)
- #170-13-4 O-ring for Test Cell, Perfluorocarbon (FFKM), For temperatures up to 500°F (260°C)
- #170-13-5 O-ring for Test Cell, Ethylene propylene (EPM/EPDM), For temperatures up to 400°F (204.4°C), Water-based fluids only
- #170-33 HTHP Cell Cap Puller
- #170-40 Test Cell Removal and Carrying Tool
- #170-91 HTHP Pressure Relief Tool
- #170-92 Safety Clamp for HTHP Fluid Loss Cells

#170-00-SP Spare Parts for 170-00 Series Filter Press:

Part Number	Description	Qty.
#140-60-01	O-ring for Bleeder Valve	2
#143-00-1	Diaphragm for Airco Regulator	1
#143-01	Gauge, 200 PSI, ⅛" Bottom Connection	1
#143-02-13	O-ring for Puncture Pin Holder	2
#143-02-14	O-ring for Puncture Pin Holder, Rear	2
#143-05	CO ₂ Bulbs, 8 Gram, Package of 10, UN 1013	60
#143-07	Repair Kit for Regulator (#143-00)	1
#153-14	Graduated Cylinder, 50 mL × 1 mL	2
#154-10	Dial Thermometer, 5" Stem, 50° - 500°F and 0 - 250°C	1
#170-13-3	O-ring for Test Cell, Viton®/Fluorocarbon (FKM)	50
#170-16	Valve Stem	4
#170-17	Valve Stem O-ring	48
#170-19	Filter Paper, 2½" (6.35 cm), Hardened for Filter Press	5
#170-26-1	Locking Screw, Hardened Alloy Steel	12
#170-27	Allen Wrench, ⅜"	1
#171-23-1	Safety Pin with Lanyard	1



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.

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. Some of the items will be used only on cell assemblies using set screws as fasteners, while others should be implemented when operating all filtration equipment.



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)