OFITE®

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, 175 mL, Threaded Cell, Mud

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 above 3,000 PSI

Technical Specifications and Requirements

- #170-181 115 Volt
- #171-181-1 230 Volt

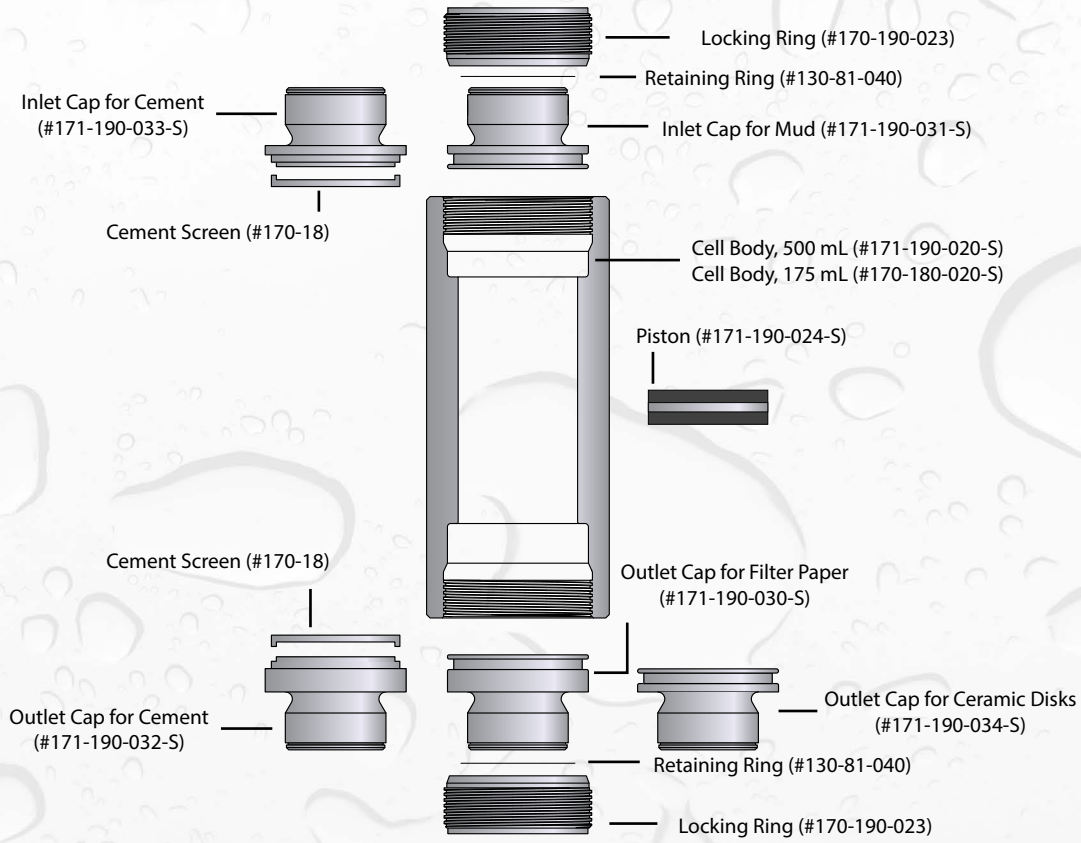
Specifications

- Maximum Temperature: 400°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



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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.

Specifications

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 (Heating Jacket):	400°F (204°C)
Maximum Temperature (Cell):	500°F (260°C)
Maximum Pressure (Cell):	5,000 PSI
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)
#165-44-2	Anti Seize Compound, Silver, 7g Pouch
#170-19	Filter Paper, 2½" (6.35 cm), Specially Hardened for Filter Presses, 100/Box
#170-35	Adjustable Wrench, 6"

Assemblies:

#170-04 CO_2 Pressurize Unit:

- #143-02-10 CO_2 Puncture Head Assembly
  - #143-02-12 Puncture Pin
  - #143-02-13 O-ring
  - #143-02-14 O-ring
- #143-03 Barrel for CO_2 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 CO_2

- #143-00 Regulator
- #143-01 Gauge, 200 PSI, ⅛" Bottom Connection
- #143-02-10 CO_2 Puncture Head Assembly
  - #143-02-12 Puncture Pin
  - #143-02-13 O-ring
  - #143-02-14 O-ring
- #143-03 Barrel for CO_2 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

#170-181-S Test Cell, Stainless Steel (For Mud Testing)

#120-910-028	O-ring for Rupture Disk, Viton 75D, Qty: 1
#130-81-040	Retaining Ring, Qty: 2
#170-13-3	O-ring for Cell, Viton 75D, Qty: 4
#170-16	Valve Stem, Qty: 2
#170-17	O-ring for Valve Stem, Viton 75D, Qty: 4
#170-18	Cement Screen, Qty: 2
#170-180-020-S	Cell Body, 175 mL, Qty: 1
#171-190-023	Locking Ring, Qty: 2
#171-190-027	Rupture Disk, Qty: 1
#171-190-029	Cap Wrench, Qty: 1
#171-190-032-S	Cell Cap, Outlet, Cement, Qty: 1
#171-190-033-S	Cell Cap, Inlet, Cement, Qty: 1
#171-190-057	O-ring for Valve Stem, Viton 90D, Qty: 4
#171-190-058	O-ring for Rupture Disk, Viton 90D, Qty: 1
#171-190-060	O-ring for Cell, Viton 90D, Qty: 4

#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	CO_2 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

#170-181-SP Spare Parts Kit:

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.

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 Cell, Viton 75D	50
#170-16	Valve Stem	4
#170-17	Valve Stem O-ring	100
#170-19	Filter Paper, 2½" (6.35 cm), Hardened for Filter Press	5
#171-190-057	O-ring for Valve Stem, Viton 90D	100
#171-190-060	O-ring for Test Cell, Viton®	50
#171-23-1	Safety Pin with Lanyard	1

Note

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.

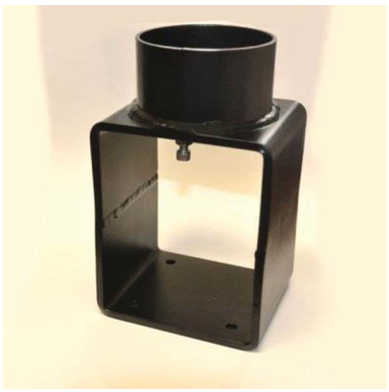
Interval Timer, 60 minute
(#155-20)

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 Shield (#171-06)



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

Thermocouple Assembly
(#171-45-1)
(Direct temperature measurement
Of the fluid Inside the Cell)